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UNITED STATES COAST GUARD OCEANOGRAPHIC UNIT

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OCEANOGRAPHY OF THE GRAND BANKS REGION AND THE LABRADOR SEA IN 1966

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WASHINGTON, D.C. 🕉 JUNE 1966



ABSTRACT

Because of the anomalously short 1966 ice season only one cruise was conducted to directly support Commander, International Ice Patrol. After the International Ice Patrol, a second oceanographic cruise was conducted to document the anomalous conditions. This cruise collected data from south of the Gulf Stream at the "Tail-of-the-Banks" to the Labrador Sea.

Three serial occupations of Standard Section 3 were conducted using a moored buoy as a reference position to further delineate the short term volume and salt transport fluctuations originally observed in 1965. Parachute drogue current measurements were also taken to determine if the velocities calculated from concurrent density measurements were a true indication of the velocity field.

Two additional occupations of Standard Section 3 and one occupation of Standard Section 2 conducted prior to the 1966 ice season are also discussed. In addition to the oceanographic work an operational test of a temperature/salinity/depth indicating instrument was conducted.

CONTENTS

Abstract
Oceanography of the Grand Banks Region and the Labrador Sea in 1966
Introduction
Narrative
General
Additional Projects
Instrumentation
Personnel
Discussion of Vertical Property Distribution and Dynamic Heights
Introduction
CGC DUANE 14-15 February occupation of Standard Section 3
CGC HUMBOLDT 9-11 March 1966 occupation of Standard Section 3
CGC EVERGREEN 4-5 April 1966 occupation of Standard Section 3
"Normal" temperature, salinity, and dynamic heights
Three serial CGC EVERGREEN occupations of Standard Section 3,
16–21 April 1966
CGC EVERGREEN 25-26 May 1966 occupation of Standard Sec-
tion 3
Standard Section 2
Standard Section 4
Labrador Sea Section
Sections A, B, and C
Water Mass Analysis
Transport Calculations
Introduction
Standard Section 3
Standard Section 2
Standard Section 4 and remaining sections
Parachute Drogue Current Project
Introduction
Measurements
Results
Discussion
Mean Temperature-Salinity Curves
References
Figures
Table of Oceanographic Data

Illustrations

Figure	
1.	Dynamic topography chart, 2-8 April 1966, Grand Banks of Newfoundland
2 A ,B,C	Dynamic topography charts, 16–21 April 1966, Standard Sec- tion 3
3.	Dynamic topography chart, 22 May-7 June 1966
4.	Parachute drogue
5A.	First flexure point of STD cable
5B	Comparison of near simultaneous STD and Nansen casts
6.	Surface dynamic heights along Standard Section 3, 14–15 Feb- ruary 1966
7.	Vertical temperature distribution along Standard Section 3, 14-15 February 1966
8.	Vertical salinity distribution along Standard Section 3, 14–15 February 1966
9.	Dynamic topography chart, 14–15 February 1966
10.	Vertical temperature structure along Standard Section 3, 9–11 March 1966
11.	Vertical salinity structure along Standard Section 3, 9–11 March 1966
12.	Vertical temperature structure along Standard Section 2, 11-12 March 1966
13.	Vertical salinity structure along Standard Section 2, 11–12 March 1966
14.	Surface dynamic heights along Standard Section 3, 9–11 March 1966
15.	Surface dynamic heights along Standard Section 2, 11–12 March 1966
16.	Dynamic topography chart, 9–12 March 1966
17.	Vertical temperature structure along Standard Section 4, 2–3 April 1966
18.	Vertical salinity structure along Standard Section 4, 2–3 April 1966
19.	Vertical temperature structure along Standard Section 3, 4–5 April 1966
20.	Vertical salinity structure along Standard Section 3, 4–5 April 1966
21.	Vertical temperature structure along Standard Section 2, 7–8 April 1966
22.	Vertical salinity structure along Standard Section 2, 7–8 April 1966
23.	Surface dynamic heights along Standard Section 3, 4–5 April 1966
24.	Normal surface dynamic heights along Standard Section 3
25.	Temperature—salinity relationship for the Grand Banks
26.	Temperature structure along Standard Section 3, 6-8 April 1954.
	competitivities set we that a month set the set of the

 Salinity structure along Standard Section 3, 6–8 April 1954 Temperature structure along Standard Section 3, 5–6 April 1964 Salinity structure along Standard Section 3, 5–6 April 1964 Surface dynamic heights along Standard Section 3, 6–8 April 1964 Surface dynamic heights along Standard Section 3, 16–21 April 1964 Surface dynamic heights along Standard Section 3, 16–21 April 1966 Temperature section along Standard Section 3, 16–17 April 1966 Salinity section along Standard Section 3, 18–19 April 1966 Temperature section along Standard Section 3, 18–19 April 1966 Salinity section along Standard Section 3, 18–19 April 1966 Salinity section along Standard Section 3, 21 April 1966 Surface dynamic heights along Standard Section 3, 21 April 1966 Surface dynamic heights along Standard Section 3, 25–26 May 1966 Surface dynamic heights along Standard Section 2, 7–8 April 1966 Surface dynamic heights along Standard Section 2, 7–8 April 1966 Surface dynamic topography along Standard Section 2 Surface dynamic topography along Standard Section 2 Normal May dynamic topography along Standard Section 2 Temperature section along Standard Section 4, 2–27 May 1966 Surface dynamic heights along Standard Section 4, 2–3 April 1966 Surface dynamic heights along Standard Section 4, 2–3 April 1966 Surface dynamic topography along Standard Section 4 Salinity section along Standard Section 4, 22–24 May 1966 Normal April dynamic topography along Standard Section 4 Salinity section along Standard Section 4, 22–24 May 1966 Normal April dynamic topograph		
 Temperature structure along Standard Section 3, 5–6 April 1964 Sulriace dynamic heights along Standard Section 3, 6–8 April 1954 Surface dynamic heights along Standard Section 3, 6–8 April 1964 Surface dynamic heights along Standard Section 3, 16–21 April 1966 Surface dynamic heights along Standard Section 3, 16–17 April 1966 Temperature section along Standard Section 3, 16–17 April 1966 Salinity section along Standard Section 3, 16–17 April 1966 Salinity section along Standard Section 3, 18–19 April 1966 Temperature section along Standard Section 3, 21 April 1966 Surface dynamic heights along Standard Section 3, 21 April 1966 Surface dynamic heights along Standard Section 3, 22 April 1966 Surface dynamic heights along Standard Section 3, 25–26 May 1966 Surface dynamic heights along Standard Section 2, 25–26 May 1966 Surface dynamic heights along Standard Section 2, 26–27 May 1966 Surface dynamic topography along Standard Section 2 Normal April dynamic topography along Standard Section 2 Normal May dynamic topography along Standard Section 2 Temperature section along Standard Section 4, 2–3 April 1966 Surface dynamic heights along Standard Section 4, 2–3 April 1966 Normal May dynamic topography along Standard Section 4 Surface dynamic heights along Standard Section 4, 2–4 May 1966 Normal May dynamic topography along Standard Section 4 Surface dynamic heights along Standard Section 4, 2–4 May 1966 Normal April dynamic topography along Standard Section 4 Surface dynamic heights along Standard Section 4, 2–3 April 1966 Salinity section along Standard Section 4, 22–24 May 1966 Normal May dynamic topography along Standard Section 4 Surface dynamic heights along Standard Section 4, 24 May 1966 Salinity section along Standard Section 4, 22–24 May 1966 S	27.	Salinity structure along Standard Section 3, 6–8 April 1954
 Salinity structure along Standard Section 3, 5–6 April 1964 Surface dynamic heights along Standard Section 3, 6–8 April 1954 Surface dynamic heights along Standard Section 3, 16–21 April 1966 Surface dynamic heights along Standard Section 3, 16–21 April 1966 Temperature section along Standard Section 3, 16–17 April 1966 Temperature section along Standard Section 3, 18–19 April 1966 Temperature section along Standard Section 3, 18–19 April 1966 Temperature section along Standard Section 3, 18–19 April 1966 Temperature section along Standard Section 3, 21 April 1966 Temperature section along Standard Section 3, 21 April 1966 Surface dynamic heights along Standard Section 3, 25–26 May 1966 Surface dynamic heights along Standard Section 2, 7–8 April 1966 Surface dynamic heights along Standard Section 2, 7–8 April 1966 Surface dynamic heights along Standard Section 2, 26–27 May 1966 Surface dynamic heights along Standard Section 2, 26–27 May 1966 Surface dynamic heights along Standard Section 2, 26–27 May 1966 Surface dynamic heights along Standard Section 2, 26–27 May 1966 Surface dynamic heights along Standard Section 4, 2–3 April 1966 Surface dynamic heights along Standard Section 4, 2–3 April 1966 Normal April dynamic topography along Standard Section 4 Normal May dynamic topography along Standard Section 4 Normal May dynamic topography along Standard Section 4 Surface dynamic heights along Standard Section 4, 2–3 April 1966 Surface dynamic heights along Standard Section 4, 2–4 May 1966 Normal May dynamic topography along Standard Section 4 Temperature section along Standard Section 4, 2–2-24 May 1966 Normal May dynamic topography along Standard Section 4 <li< td=""><td>28.</td><td>Temperature structure along Standard Section 3, 5–6 April 1964</td></li<>	28.	Temperature structure along Standard Section 3, 5–6 April 1964
 Surface dynamic heights along Standard Section 3, 6–8 April 1954 Surface dynamic heights along Standard Section 3, 5–6 April 1964 Surface dynamic heights along Standard Section 3, 16–21 April 1966 Temperature section along Standard Section 3, 16–17 April 1966 Salinity section along Standard Section 3, 16–17 April 1966 Salinity section along Standard Section 3, 18–19 April 1966 Salinity section along Standard Section 3, 18–19 April 1966 Salinity section along Standard Section 3, 21 April 1966 Surface dynamic heights along Standard Section 3, 25–26 May 1966 Surface dynamic heights along Standard Section 3, 25–26 May 1966 Surface dynamic heights along Standard Section 2, 7–8 April 1966 Surface dynamic heights along Standard Section 2, 26–27 May 1966 Surface dynamic heights along Standard Section 2, 26–27 May 1966 Normal April dynamic topography along Standard Section 2 Normal May dynamic topography along Standard Section 2 Temperature section along Standard Section 2, 26–27 May 1966 Surface dynamic heights along Standard Section 4, 2–3 April 1966 Normal May dynamic topography along Standard Section 4 Surface dynamic heights along Standard Section 4, 2–3 April 1966 Normal May dynamic topography along Standard Section 4 Normal May dynamic topography along Standard Section 4 Normal May dynamic topography along Standard Section 4 Temperature section along Standard Section 4, 2–4 May 1966 Normal May dynamic topography along Standard Section 4 Temperature section along Standard Section 4, 2–4 May 1966 Normal May dynamic topography along Standard Section 4 Temperature section along Standard Section 4, 2–24 May 1966 Salinity section along Standard Section 4, 2–24 May 1966 Salinity section along Section A, 28 May 1966 Salinity section along Section C, 31 May	29.	Salinity structure along Standard Section 3, 5–6 April 1964
 Surface dynamic heights along Standard Section 3, 5–6 April 1964 Surface dynamic heights along Standard Section 3, 16–21 April 1966 Temperature section along Standard Section 3, 16–17 April 1966 Salinity section along Standard Section 3, 18–19 April 1966 Salinity section along Standard Section 3, 21 April 1966 Surface dynamic heights along Standard Section 3, 21 April 1966 Surface dynamic heights along Standard Section 3, 22 April 1966 Surface dynamic heights along Standard Section 3, 25–26 May 1966 Surface dynamic heights along Standard Section 2, 26–27 May 1966 Surface dynamic heights along Standard Section 2, 7–8 April 1966 Surface dynamic heights along Standard Section 2, 26–27 May 1966 Surface dynamic heights along Standard Section 2, 26–27 May 1966 Surface dynamic heights along Standard Section 2, 26–27 May 1966 Normal May dynamic topography along Standard Section 2 Normal May dynamic topography along Standard Section 2, 26–27 May 1966 Surface dynamic heights along Standard Section 4, 2–3 April 1966 Surface dynamic heights along Standard Section 4, 2–3 April 1966 Surface dynamic heights along Standard Section 4, 2–3 April 1966 Surface dynamic heights along Standard Section 4, 2–4 May 1966 Normal April dynamic topography along Standard Section 4 Normal May dynamic topography along Standard Section 4 Salinity section along Standard Section 4, 22–24 May 1966 Salinity section along Standard Section 4, 22–24 May 1966 Sali	30.	Surface dynamic heights along Standard Section 3, 6–8 April 1954
 Surface dynamic heights along Standard Section 3, 16–21 April 1966 Temperature section along Standard Section 3, 16–17 April 1966 Salinity section along Standard Section 3, 18–19 April 1966 Salinity section along Standard Section 3, 18–19 April 1966 Salinity section along Standard Section 3, 21 April 1966 Salinity section along Standard Section 3, 21 April 1966 Surface dynamic heights along Standard Section 3, 25–26 May 1966 Surface dynamic heights along Standard Section 3, 25–26 May 1966 Surface dynamic heights along Standard Section 2, 7–8 April 1966 Surface dynamic heights along Standard Section 2, 7–8 April 1966 Surface dynamic heights along Standard Section 2, 26–27 May 1966 Surface dynamic topography along Standard Section 2 Normal May dynamic topography along Standard Section 2 Normal May dynamic topography along Standard Section 2 Normal May dynamic topography along Standard Section 4 Surface dynamic heights along Standard Section 4, 2–6–27 May 1966 Surface dynamic heights along Standard Section 4 Normal May dynamic topography along Standard Section 4 Surface dynamic heights along Standard Section 4, 2–3 April 1966 Surface dynamic heights along Standard Section 4, 2–3 April 1966 Surface dynamic heights along Standard Section 4, 2–24 May 1966 Normal April dynamic topography along Standard Section 4 Normal May dynamic topography along Standard Section 4 Temperature section along Standard Section 4, 22–24 May 1966 Salinity section along Standard Section 4, 22–24 May 1966 Salinity section along Standard Section 4, 22–24 May 19	31.	Surface dynamic heights along Standard Section 3, 5–6 April 1964
 Temperature section along Standard Section 3, 16–17 April 1966 Salinity section along Standard Section 3, 18–19 April 1966 Temperature section along Standard Section 3, 18–19 April 1966 Salinity section along Standard Section 3, 21 April 1966 Salinity section along Standard Section 3, 21 April 1966 Surface dynamic heights along Standard Section 3, 25–26 May 1966 Surface dynamic heights along Standard Section 2, 25–26 May 1966 Surface dynamic heights along Standard Section 2, 26–27 May 1966 Surface dynamic heights along Standard Section 2, 26–27 May 1966 Surface dynamic topography along Standard Section 2 Yormal April dynamic topography along Standard Section 2 Temperature section along Standard Section 2, 26–27 May 1966 Normal May dynamic topography along Standard Section 2 Temperature section along Standard Section 2, 26–27 May 1966 Surface dynamic heights along Standard Section 4, 2–3 April 1966 Surface dynamic heights along Standard Section 4, 2–3 April 1966 Surface dynamic heights along Standard Section 4 Surface dynamic topography along Standard Section 4 Surface dynamic heights along Standard Section 4, 2–4 May 1966 Normal May dynamic topography along Standard Section 4 Temperature section along Standard Section 4, 24 May 1966 Normal May dynamic topography along Standard Section 4 Temperature section along Standard Section 4, 22–24 May 1966 Salinity section along Standard Section 4, 22–24 May 1966 Salinity section along Standard Section 4, 22–24 May 1966 Salinity section along Standard Section 4, 22–24 May 1966 Salinity section along Section 4, 28–30 May 1966 Salinity section along Section A, 28 May 1966 Salinity section along Section A, 28 May 1966 Salinity section along Section A, 28 May 1966 Salinity section along Section C, 31	32.	Surface dynamic heights along Standard Section 3, 16–21 April 1966
 Salinity section along Standard Section 3, 16–17 April 1966 Temperature section along Standard Section 3, 18–19 April 1966 Salinity section along Standard Section 3, 21 April 1966 Temperature section along Standard Section 3, 21 April 1966 Surface dynamic heights along Standard Section 3, 25–26 May 1966 Surface dynamic heights along Standard Section 3, 25–26 May 1966 Surface dynamic heights along Standard Section 2, 26–27 May 1966 Surface dynamic heights along Standard Section 2, 26–27 May 1966 Surface dynamic heights along Standard Section 2, 26–27 May 1966 Surface dynamic topography along Standard Section 2 Normal April dynamic topography along Standard Section 2 Temperature section along Standard Section 2, 26–27 May 1966 Normal May dynamic topography along Standard Section 2 Temperature section along Standard Section 2, 26–27 May 1966 Surface dynamic heights along Standard Section 4, 2–26–27 May 1966 Surface dynamic heights along Standard Section 4, 2–3 April 1966 Surface dynamic heights along Standard Section 4, 2–3 April 1966 Surface dynamic heights along Standard Section 4, 2–3 April 1966 Normal April dynamic topography along Standard Section 4 Surface dynamic heights along Standard Section 4, 2–4 May 1966 Normal April dynamic topography along Standard Section 4 Temperature section along Standard Section 4, 22–24 May 1966 Salinity section along Standard Section 4, 22–24 May 1966 Sunamic topography chart along Labrador Sea, 4–7 June 1966 Salinity section along Section A, 28 May 1966 Selinity section along Section A, 28 May 1966 Selinity section along Section A, 28 May 1966 Selinity section along Section C, 31 May—1 June 1966 Salinity section along Section C, 31 May—1 June 1966 Salinity section along Section C, 31 May—1 June 1966 Sa	33.	Temperature section along Standard Section 3, 16–17 April 1966
 Temperature section along Standard Section 3, 18–19 April 1966 Salinity section along Standard Section 3, 12 April 1966 Temperature section along Standard Section 3, 21 April 1966 Surface dynamic heights along Standard Section 3, 25–26 May 1966 Salinity section along Standard Section 3, 25–26 May 1966 Surface dynamic heights along Standard Section 2, 26–27 May 1966 Surface dynamic heights along Standard Section 2, 7–8 April 1966 Surface dynamic heights along Standard Section 2, 26–27 May 1966 Surface dynamic topography along Standard Section 2 Normal April dynamic topography along Standard Section 2 Temperature section along Standard Section 2, 26–27 May 1966 Surface dynamic heights along Standard Section 2, 26–27 May 1966 Surface dynamic topography along Standard Section 2 Temperature section along Standard Section 4, 2–6–27 May 1966 Surface dynamic heights along Standard Section 4, 2–6–27 May 1966 Surface dynamic heights along Standard Section 4, 2–3 April 1966 Surface dynamic heights along Standard Section 4, 2–3 April 1966 Surface dynamic heights along Standard Section 4, 2–4 May 1966 Normal April dynamic topography along Standard Section 4 Normal April dynamic topography along Standard Section 4 Normal April dynamic topography along Standard Section 4 Normal May dynamic topography along Standard Section 4 Normal May dynamic topography along Standard Section 4 Normal May dynamic topography along Standard Section 4 Surface dynamic heights along Standard Section 4, 22–24 May 1966 Salinity section along Standard Section 4, 22–24 May 1966 Salinity section along Standard Section 4, 22–24 May 1966 Salinity section along Section A, 28 May 1966 Salinity section along Section A, 28 May 1966 Temperature section along Section 5, 29–30 May 1966 	34.	Salinity section along Standard Section 3, 16–17 April 1966
 36. Salinity section along Standard Section 3, 18–19 April 1966 37. Temperature section along Standard Section 3, 21 April 1966 38. Salinity section along Standard Section 3, 21 April 1966 39. Surface dynamic heights along Standard Section 3, 25–26 May 1966 40. Temperature section along Standard Section 3, 25–26 May 1966 41. Salinity section along Standard Section 3, 25–26 May 1966 42. Surface dynamic heights along Standard Section 2, 7–8 April 1966 43. Surface dynamic heights along Standard Section 2, 7–8 April 1966 44. Normal April dynamic topography along Standard Section 2 45. Normal May dynamic topography along Standard Section 2 46. Temperature section along Standard Section 2, 26–27 May 1966 47. Salinity section along Standard Section 2, 26–27 May 1966 48. Surface dynamic heights along Standard Section 4, 2–64 May 1966 49. Surface dynamic heights along Standard Section 4, 2–3 April 1966 49. Surface dynamic heights along Standard Section 4, 2–3 April 1966 40. Normal April dynamic topography along Standard Section 4 41. Normal May dynamic topography along Standard Section 4 42. Surface dynamic heights along Standard Section 4, 2–24 May 1966 50. Normal April dynamic topography along Standard Section 4 51. Normal May dynamic topography along Standard Section 4 52. Temperature section along Standard Section 4, 22–24 May 1966 53. Temperature section along Standard Section 4, 22–24 May 1966 54. Dynamic topography chart along Labrador Sea, 4–7 June 1966 55. Temperature section along Section A, 28 May 1966 56. Salinity section along Section B, 29–30 May 1966 57. Vertical temperature distribution along Section A, 28 May 1966 58. Salinity section along Section C, 31 May—1 June 1966 59. Temperature section along Section C, 31 May—1 June 1966 59. Temperature se	35.	Temperature section along Standard Section 3, 18–19 April 1966
 Temperature section along Standard Section 3, 21 April 1966 Salinity section along Standard Section 3, 21 April 1966 Surface dynamic heights along Standard Section 3, 25–26 May 1966 Surface dynamic heights along Standard Section 3, 25–26 May 1966 Surface dynamic heights along Standard Section 2, 7–8 April 1966 Surface dynamic heights along Standard Section 2, 7–8 April 1966 Surface dynamic heights along Standard Section 2, 26–27 May 1966 Normal April dynamic topography along Standard Section 2 Normal May dynamic topography along Standard Section 2 Normal May dynamic topography along Standard Section 2 Temperature section along Standard Section 2, 26–27 May 1966 Surface dynamic heights along Standard Section 2, 26–27 May 1966 Surface dynamic heights along Standard Section 4, 2–3 April 1966 Surface dynamic heights along Standard Section 4, 2–3 April 1966 Normal May dynamic topography along Standard Section 4 Temperature section along Standard Section 4, 22–24 May 1966 Salinity section along Standard Section 4, 22–24 May 1966 Salinity section along Standard Section 4, 22–24 May 1966 Dynamic topography chart along Labrador Sea, 4–7 June 1966 Vertical temperature distribution along Section A, 28 May 1966 Salinity section along Section A, 28 May 1966 Salinity section along Section B, 29–30 May 1966 Salinity section along Section C, 31 May—1 June 1966 Water type criteria Total salt & heat transports of the Labrador Current Arctic Component" transport values Standard Section 3 volume transport values Standard Section 3 volume transport values 	36.	Salinity section along Standard Section 3, 18–19 April 1966
 Salinity section along Standard Section 3, 21 April 1966 Surface dynamic heights along Standard Section 3, 25–26 May 1966 Temperature section along Standard Section 3, 25–26 May 1966 Surface dynamic heights along Standard Section 2, 7–8 April 1966 Surface dynamic heights along Standard Section 2, 26–27 May 1966 Surface dynamic heights along Standard Section 2, 26–27 May 1966 Normal April dynamic topography along Standard Section 2 Normal May dynamic topography along Standard Section 2 Normal May dynamic topography along Standard Section 2 Temperature section along Standard Section 2, 26–27 May 1966 Surface dynamic heights along Standard Section 2, 26–27 May 1966 Surface dynamic heights along Standard Section 2, 26–27 May 1966 Surface dynamic heights along Standard Section 4, 2–3 April 1966 Surface dynamic heights along Standard Section 4, 2–4 May 1966 Normal April dynamic topography along Standard Section 4 Surface dynamic heights along Standard Section 4, 2–4 May 1966 Normal April dynamic topography along Standard Section 4 Temperature section along Standard Section 4, 22–24 May 1966 Salinity section along Standard Section 4, 22–24 May 1966 Dynamic topography chart along Labrador Sea Section 3–7 June 1966 Salinity section along Section B, 29–30 May 1966 Salinity section along Section B, 29–30 May 1966 Salinity section along Section C, 31 May—1 June 1966 Temperature section along Section C, 31 May—1 June 1966 Water type criteria Total volume transports of the Labrador Current Total salt & heat transports of the Labrador Current Gatanity section 3 volume transport values Kandard Section 3 volume transport values 	37.	Temperature section along Standard Section 3, 21 April 1966
 Surface dynamic heights along Standard Section 3, 25–26 May 1966 Temperature section along Standard Section 3, 25–26 May 1966 Surface dynamic heights along Standard Section 3, 25–26 May 1966 Surface dynamic heights along Standard Section 2, 7–8 April 1966 Surface dynamic heights along Standard Section 2, 26–27 May 1966 Normal April dynamic topography along Standard Section 2 Normal May dynamic topography along Standard Section 2 Normal May dynamic topography along Standard Section 2 Temperature section along Standard Section 2, 26–27 May 1966 Surface dynamic heights along Standard Section 2, 26–27 May 1966 Surface dynamic heights along Standard Section 4, 2–3 April 1966 Surface dynamic heights along Standard Section 4, 2–3 April 1966 Normal April dynamic topography along Standard Section 4 Normal May dynamic topography along Standard Section 4 Normal April dynamic topography along Standard Section 4 Normal May dynamic topography along Standard Section 4 Temperature section along Standard Section 4, 22–24 May 1966 Salinity section along Standard Section 4, 22–24 May 1966 Dynamic topography chart along Labrador Sea, 4–7 June 1966 Vertical temperature distribution along Section A, 28 May 1966 Salinity section along Section B, 29–30 May 1966 Salinity section along Section C, 31 May—1 June 1966 Salinity section along Section C, 31 May—1 June 1966 Water type criteria Total volume transports of the Labrador Current. Total volume transports of the Labrador Current. Standard Section 3 volume transport values Standard Section 3 volume transport values 	38.	Salinity section along Standard Section 3, 21 April 1966
 40. Temperature section along Standard Section 3, 25–26 May 1966 41. Salinity section along Standard Section 3, 25–26 May 1966 42. Surface dynamic heights along Standard Section 2, 7–8 April 1966 43. Surface dynamic heights along Standard Section 2, 26–27 May 1966 44. Normal April dynamic topography along Standard Section 2 45. Normal May dynamic topography along Standard Section 2 46. Temperature section along Standard Section 2, 26–27 May 1966 47. Salinity section along Standard Section 2, 26–27 May 1966 48. Surface dynamic heights along Standard Section 4, 2–3 April 1966 49. Surface dynamic heights along Standard Section 4, 2–3 April 1966 49. Surface dynamic topography along Standard Section 4 50. Normal April dynamic topography along Standard Section 4 51. Normal May dynamic topography along Standard Section 4 52. Temperature section along Standard Section 4, 22–24 May 1966 53. Salinity section along Standard Section 4, 22–24 May 1966 54. Dynamic topography chart along Labrador Sea, 4–7 June 1966 55. Temperature section across the Labrador Sea, 4–7 June 1966 54. Dynamic topography chart along Section A, 28 May 1966 55. Temperature section along Section B, 29–30 May 1966 56. Salinity section along Section B, 29–30 May 1966 57. Temperature section along Section B, 29–30 May 1966 58. Salinity section along Section C, 31 May—1 June 1966 59. Temperature section along Section C, 31 May—1 June 1966 50. Water type criteria 61. Total salt & heat transports of the Labrador Current 62. Standard Section 3 volume transport values 63. Maximum and minimum dynamic height values 	39.	Surface dynamic heights along Standard Section 3, 25–26 May 1966
 Salinity section along Standard Section 3, 25–26 May 1966 Surface dynamic heights along Standard Section 2, 7–8 April 1966 Surface dynamic heights along Standard Section 2, 26–27 May 1966 Normal April dynamic topography along Standard Section 2 Normal May dynamic topography along Standard Section 2 Temperature section along Standard Section 2, 26–27 May 1966 Surface dynamic heights along Standard Section 2, 26–27 May 1966 Surface dynamic heights along Standard Section 4, 2–3 April 1966 Surface dynamic heights along Standard Section 4, 2–3 April 1966 Surface dynamic heights along Standard Section 4, 24 May 1966 Normal April dynamic topography along Standard Section 4 Normal May dynamic topography along Standard Section 4 Normal May dynamic topography along Standard Section 4 Temperature section along Standard Section 4, 22–24 May 1966 Salinity section along Standard Section 4, 22–24 May 1966 Dynamic topography chart along Labrador Sea, 4–7 June 1966 Dynamic topography chart along Labrador Sea, 4–7 June 1966 Vertical temperature distribution along Section A, 28 May 1966 Salinity section along Section R, 29–30 May 1966 Temperature section along Section C, 31 May—1 June 1966 Salinity section along Section C, 31 May—1 June 1966 Salinity section along Section C, 31 May—1 June 1966 Total salt & heat transports of the Labrador Current Total salt & heat transports of the Labrador Current Standard Section 3 volume transport values Standard Section 3 volume transport values 	40.	Temperature section along Standard Section 3, 25–26 May 1966
 42. Surface dynamic heights along Standard Section 2, 7–8 April 1966 43. Surface dynamic heights along Standard Section 2, 26–27 May 1966 44. Normal April dynamic topography along Standard Section 2 45. Normal May dynamic topography along Standard Section 2 46. Temperature section along Standard Section 2, 26–27 May 1966 47. Salinity section along Standard Section 2, 26–27 May 1966 48. Surface dynamic heights along Standard Section 4, 2–3 April 1966 49. Surface dynamic heights along Standard Section 4, 2–4 May 1966 50. Normal April dynamic topography along Standard Section 4 51. Normal May dynamic topography along Standard Section 4 52. Temperature section along Standard Section 4, 22–24 May 1966 53. Salinity section along Standard Section 4, 22–24 May 1966 54. Dynamic topography chart along Labrador Sea, 4–7 June 1966 55. Temperature section across the Labrador Sea, 4–7 June 1966 54. Dynamic topography chart along Section A, 28 May 1966 55. Temperature section along Section B, 29–30 May 1966 56. Salinity section along Section B, 29–30 May 1966 57. Vertical temperature distribution along Section A, 28 May 1966 58. Salinity section along Section C, 31 May—1 June 1966 59. Temperature section along Section C, 31 May—1 June 1966 61. Temperature section along Section C, 31 May—1 June 1966 62. Salinity section along Section C, 31 May—1 June 1966 63. Water type criteria 64. Total volume transports of the Labrador Current 65. Total salt & heat transports of the Labrador Current 66. "Arctic Component" transport values 67. Standard Section 3 volume transport values 68. Maximum and minimum dynamic beickt values 	41.	Salinity section along Standard Section 3, 25-26 May 1966
 43. Surface dynamic heights along Standard Section 2, 26–27 May 1966 44. Normal April dynamic topography along Standard Section 2 45. Normal May dynamic topography along Standard Section 2 46. Temperature section along Standard Section 2, 26–27 May 1966 47. Salinity section along Standard Section 2, 26–27 May 1966 48. Surface dynamic heights along Standard Section 4, 2–3 April 1966 49. Surface dynamic heights along Standard Section 4, 2–3 April 1966 49. Surface dynamic heights along Standard Section 4, 24 May 1966 50. Normal April dynamic topography along Standard Section 4 51. Normal May dynamic topography along Standard Section 4 52. Temperature section along Standard Section 4, 22–24 May 1966 53. Salinity section along Standard Section 4, 22–24 May 1966 54. Dynamic topography chart along Labrador Sea Section 3–7 June 1966 55. Temperature section across the Labrador Sea, 4–7 June 1966 56. Salinity section along Section B, 29–30 May 1966 57. Vertical temperature distribution along Section A, 28 May 1966 58. Salinity section along Section B, 29–30 May 1966 60. Salinity section along Section C, 31 May—1 June 1966 61. Temperature section along Section C, 31 May—1 June 1966 62. Salinity section along Section C, 31 May—1 June 1966 63. Water type criteria 64. Total volume transports of the Labrador Current 65. Total salt & heat transport values 67. Standard Section 3 volume transport values 68. Maximum and minimum dynamic height values 	42.	Surface dynamic heights along Standard Section 2, 7–8 April 1966
 44. Normal April dynamic topography along Standard Section 2 45. Normal May dynamic topography along Standard Section 2 46. Temperature section along Standard Section 2, 26–27 May 1966 47. Salinity section along Standard Section 2, 26–27 May 1966 48. Surface dynamic heights along Standard Section 4, 2–3 April 1966 49. Surface dynamic heights along Standard Section 4, 2–3 April 1966 50. Normal April dynamic topography along Standard Section 4 51. Normal May dynamic topography along Standard Section 4 52. Temperature section along Standard Section 4, 22–24 May 1966 53. Salinity section along Standard Section 4, 22–24 May 1966 54. Dynamic topography chart along Labrador Sea Section 3–7 June 1966 55. Temperature section across the Labrador Sea, 4–7 June 1966 56. Salinity section along Section A, 28 May 1966 57. Vertical temperature distribution along Section A, 28 May 1966 58. Salinity section along Section B, 29–30 May 1966 60. Salinity section along Section C, 31 May—1 June 1966 61. Temperature section along Section C, 31 May—1 June 1966 62. Salinity section along Section C, 31 May—1 June 1966 63. Water type criteria 64. Total volume transports of the Labrador Current. 65. Total salt & heat transport values 67. Standard Section 3 volume transport values 68. Maximum and minimum dynamic heights values 	43.	Surface dynamic heights along Standard Section 2, 26–27 May 1966
 Normal May dynamic topography along Standard Section 2 Temperature section along Standard Section 2, 26–27 May 1966 Salinity section along Standard Section 2, 26–27 May 1966 Surface dynamic heights along Standard Section 4, 2–3 April 1966 Surface dynamic heights along Standard Section 4, 2–3 April 1966 Normal April dynamic topography along Standard Section 4 Normal May dynamic topography along Standard Section 4 Normal May dynamic topography along Standard Section 4 Normal May dynamic topography along Standard Section 4 Temperature section along Standard Section 4, 22–24 May 1966 Salinity section along Standard Section 4, 22–24 May 1966 Bynamic topography chart along Labrador Sea Section 3–7 June 1966 Temperature section across the Labrador Sea, 4–7 June 1966 Vertical temperature distribution along Section A, 28 May 1966 Salinity section along Section B, 29–30 May 1966 Temperature section along Section C, 31 May—1 June 1966 Salinity section along Section C, 31 May—1 June 1966 Water type criteria Total volume transports of the Labrador Current. Total salt & heat transports of the Labrador Current. Arctic Component" transport values Maximum and minimum dynamic bierbt values 	44.	Normal April dynamic topography along Standard Section 2
 46. Temperature section along Standard Section 2, 26–27 May 1966	45.	Normal May dynamic topography along Standard Section 2
 47. Salinity section along Standard Section 2, 26–27 May 1966 48. Surface dynamic heights along Standard Section 4, 2–3 April 1966 49. Surface dynamic heights along Standard Section 4, 24 May 1966 50. Normal April dynamic topography along Standard Section 4 51. Normal May dynamic topography along Standard Section 4 52. Temperature section along Standard Section 4, 22–24 May 1966 53. Salinity section along Standard Section 4, 22–24 May 1966 54. Dynamic topography chart along Labrador Sea Section 3–7 June 1966 55. Temperature section across the Labrador Sea, 4–7 June 1966 56. Salinity section along Section A, 28 May 1966 57. Vertical temperature distribution along Section A, 28 May 1966 58. Salinity section along Section B, 29–30 May 1966 60. Salinity section along Section C, 31 May—1 June 1966 61. Temperature section along Section C, 31 May—1 June 1966 62. Salinity section along Section C, 31 May—1 June 1966 63. Water type criteria 64. Total volume transports of the Labrador Current 65. Total salt & heat transports of the Labrador Current 66. "Arctic Component" transport values 67. Standard Section 3 volume transport values 	46.	Temperature section along Standard Section 2, 26–27 May 1966
 48. Surface dynamic heights along Standard Section 4, 2–3 April 1966 49. Surface dynamic heights along Standard Section 4, 24 May 1966 50. Normal April dynamic topography along Standard Section 4 51. Normal May dynamic topography along Standard Section 4 52. Temperature section along Standard Section 4, 22–24 May 1966 53. Salinity section along Standard Section 4, 22–24 May 1966 54. Dynamic topography chart along Labrador Sea Section 3–7 June 1966 55. Temperature section across the Labrador Sea, 4–7 June 1966 56. Salinity section across the Labrador Sea, 4–7 June 1966 57. Vertical temperature distribution along Section A, 28 May 1966 58. Salinity section along Section B, 29–30 May 1966 60. Salinity section along Section B, 29–30 May 1966 61. Temperature section along Section C, 31 May—1 June 1966 62. Salinity section along Section C, 31 May—1 June 1966 63. Water type criteria 64. Total volume transports of the Labrador Current 65. Total salt & heat transports of the Labrador Current 66. "Arctic Component" transport values 67. Standard Section 3 volume transport values 68. Maximum and minimum dynamic height values 	47.	Salinity section along Standard Section 2, 26–27 May 1966
 49. Surface dynamic heights along Standard Section 4, 24 May 1966 50. Normal April dynamic topography along Standard Section 4 51. Normal May dynamic topography along Standard Section 4 52. Temperature section along Standard Section 4, 22–24 May 1966 53. Salinity section along Standard Section 4, 22–24 May 1966 54. Dynamic topography chart along Labrador Sea Section 3–7 June 1966 55. Temperature section across the Labrador Sea, 4–7 June 1966 56. Salinity section along Section A, 28 May 1966 57. Vertical temperature distribution along Section A, 28 May 1966 58. Salinity section along Section B, 29–30 May 1966 59. Temperature section along Section B, 29–30 May 1966 60. Salinity section along Section C, 31 May—1 June 1966 61. Temperature section along Section C, 31 May—1 June 1966 63. Water type criteria 64. Total volume transports of the Labrador Current. 65. Total salt & heat transports of the Labrador Current. 66. "Arctic Component" transport values 67. Standard Section 3 volume transport values 	48.	Surface dynamic heights along Standard Section 4, 2-3 April 1966
 Normal April dynamic topography along Standard Section 4 Normal May dynamic topography along Standard Section 4 Temperature section along Standard Section 4, 22–24 May 1966 Salinity section along Standard Section 4, 22–24 May 1966 Dynamic topography chart along Labrador Sea Section 3–7 June 1966 Temperature section across the Labrador Sea, 4–7 June 1966 Salinity section along Section A, 28 May 1966 Salinity section along Section A, 28 May 1966 Salinity section along Section B, 29–30 May 1966 Temperature section along Section C, 31 May—1 June 1966 Salinity section along Section C, 31 May—1 June 1966 Water type criteria Total volume transports of the Labrador Current Total salt & heat transports of the Labrador Current Standard Section 3 volume transport values Maximum and minimum dynamic height values 	49.	Surface dynamic heights along Standard Section 4, 24 May 1966
 Normal May dynamic topography along Standard Section 4 Temperature section along Standard Section 4, 22-24 May 1966 Salinity section along Standard Section 4, 22-24 May 1966 Dynamic topography chart along Labrador Sea Section 3-7 June 1966 Temperature section across the Labrador Sea, 4-7 June 1966 Salinity section across the Labrador Sea, 4-7 June 1966 Salinity section along Section A, 28 May 1966 Vertical temperature distribution along Section A, 28 May 1966 Salinity section along Section B, 29-30 May 1966 Temperature section along Section C, 31 May-1 June 1966 Salinity section along Section C, 31 May-1 June 1966 Water type criteria Total salt & heat transports of the Labrador Current Total salt & heat transport values Standard Section 3 volume transport values 	50.	Normal April dynamic topography along Standard Section 4
 52. Temperature section along Standard Section 4, 22–24 May 1966 53. Salinity section along Standard Section 4, 22–24 May 1966 54. Dynamic topography chart along Labrador Sea Section 3–7 June 1966 55. Temperature section across the Labrador Sea, 4–7 June 1966 56. Salinity section across the Labrador Sea, 4–7 June 1966 57. Vertical temperature distribution along Section A, 28 May 1966 58. Salinity section along Section A, 28 May 1966 59. Temperature section along Section B, 29–30 May 1966 60. Salinity section along Section B, 29–30 May 1966 61. Temperature section along Section C, 31 May—1 June 1966 62. Salinity section along Section C, 31 May—1 June 1966 63. Water type criteria 64. Total volume transports of the Labrador Current 65. Total salt & heat transports of the Labrador Current 66. "Arctic Component" transport values 67. Standard Section 3 volume transport values 68. Maximum and minimum dynamic height values 	51.	Normal May dynamic topography along Standard Section 4
 53. Salinity section along Standard Section 4, 22–24 May 1966 54. Dynamic topography chart along Labrador Sea Section 3–7 June 1966 55. Temperature section across the Labrador Sea, 4–7 June 1966 56. Salinity section across the Labrador Sea, 4–7 June 1966 57. Vertical temperature distribution along Section A, 28 May 1966 58. Salinity section along Section A, 28 May 1966 59. Temperature section along Section B, 29–30 May 1966 60. Salinity section along Section B, 29–30 May 1966 61. Temperature section along Section C, 31 May—1 June 1966 62. Salinity section along Section C, 31 May—1 June 1966 63. Water type criteria 64. Total volume transports of the Labrador Current 65. Total salt & heat transports of the Labrador Current 66. "Arctic Component" transport values 67. Standard Section 3 volume transport values 68. Maximum and minimum dynamic height values 	52.	Temperature section along Standard Section 4, 22–24 May 1966
 54. Dynamic topography chart along Labrador Sea Section 3-7 June 1966 55. Temperature section across the Labrador Sea, 4-7 June 1966 56. Salinity section across the Labrador Sea, 4-7 June 1966 57. Vertical temperature distribution along Section A, 28 May 1966 58. Salinity section along Section A, 28 May 1966 59. Temperature section along Section B, 29-30 May 1966 60. Salinity section along Section B, 29-30 May 1966 61. Temperature section along Section C, 31 May-1 June 1966 62. Salinity section along Section C, 31 May-1 June 1966 63. Water type criteria 64. Total volume transports of the Labrador Current 65. Total salt & heat transports of the Labrador Current 66. "Arctic Component" transport values 67. Standard Section 3 volume transport values 68. Maximum and minimum dynamic height values 	53.	Salinity section along Standard Section 4, 22–24 May 1966
 55. Temperature section across the Labrador Sea, 4–7 June 1966 56. Salinity section across the Labrador Sea, 4–7 June 1966 57. Vertical temperature distribution along Section A, 28 May 1966 58. Salinity section along Section A, 28 May 1966 59. Temperature section along Section B, 29–30 May 1966 60. Salinity section along Section B, 29–30 May 1966 61. Temperature section along Section C, 31 May—1 June 1966 62. Salinity section along Section C, 31 May—1 June 1966 63. Water type criteria 64. Total volume transports of the Labrador Current 65. Total salt & heat transports of the Labrador Current 66. "Arctic Component" transport values 67. Standard Section 3 volume transport values 68. Maximum and minimum dynamic height values 	54.	Dynamic topography chart along Labrador Sea Section 3–7 June 1966
 56. Salinity section across the Labrador Sea, 4–7 June 1966 57. Vertical temperature distribution along Section A, 28 May 1966 58. Salinity section along Section A, 28 May 1966 59. Temperature section along Section B, 29–30 May 1966 60. Salinity section along Section B, 29–30 May 1966 61. Temperature section along Section C, 31 May—1 June 1966 62. Salinity section along Section C, 31 May—1 June 1966 63. Water type criteria 64. Total volume transports of the Labrador Current 65. Total salt & heat transports of the Labrador Current 66. "Arctic Component" transport values 67. Standard Section 3 volume transport values 68. Maximum and minimum dynamic height values 	55.	Temperature section across the Labrador Sea, 4–7 June 1966
 57. Vertical temperature distribution along Section A, 28 May 1966 58. Salinity section along Section A, 28 May 1966 59. Temperature section along Section B, 29–30 May 1966 60. Salinity section along Section B, 29–30 May 1966 61. Temperature section along Section C, 31 May—1 June 1966 62. Salinity section along Section C, 31 May—1 June 1966 63. Water type criteria 64. Total volume transports of the Labrador Current 65. Total salt & heat transports of the Labrador Current 66. "Arctic Component" transport values 67. Standard Section 3 volume transport values 68. Maximum and minimum dynamic height values 	56.	Salinity section across the Labrador Sea, 4–7 June 1966
 58. Salinity section along Section A, 28 May 1966 59. Temperature section along Section B, 29–30 May 1966 60. Salinity section along Section B, 29–30 May 1966 61. Temperature section along Section C, 31 May—1 June 1966 62. Salinity section along Section C, 31 May—1 June 1966 63. Water type criteria 64. Total volume transports of the Labrador Current 65. Total salt & heat transports of the Labrador Current 66. "Arctic Component" transport values 67. Standard Section 3 volume transport values 68. Maximum and minimum dynamic height values 	57.	Vertical temperature distribution along Section A, 28 May 1966
 59. Temperature section along Section B, 29–30 May 1966 60. Salinity section along Section B, 29–30 May 1966 61. Temperature section along Section C, 31 May—1 June 1966 62. Salinity section along Section C, 31 May—1 June 1966 63. Water type criteria 64. Total volume transports of the Labrador Current 65. Total salt & heat transports of the Labrador Current 66. "Arctic Component" transport values 67. Standard Section 3 volume transport values 68. Maximum and minimum dynamic height values 	58.	Salinity section along Section A, 28 May 1966
 60. Salinity section along Section B, 29–30 May 1966 61. Temperature section along Section C, 31 May—1 June 1966 62. Salinity section along Section C, 31 May—1 June 1966 63. Water type criteria 64. Total volume transports of the Labrador Current 65. Total salt & heat transports of the Labrador Current 66. "Arctic Component" transport values 67. Standard Section 3 volume transport values 68. Maximum and minimum dynamic height values 	59.	Temperature section along Section B, 29–30 May 1966
 61. Temperature section along Section C, 31 May—1 June 1966 62. Salinity section along Section C, 31 May—1 June 1966 63. Water type criteria	60.	Salinity section along Section B, 29–30 May 1966
 62. Salinity section along Section C, 31 May—1 June 1966 63. Water type criteria 64. Total volume transports of the Labrador Current 65. Total salt & heat transports of the Labrador Current 66. "Arctic Component" transport values 67. Standard Section 3 volume transport values 68. Maximum and minimum dynamic height values 	61.	Temperature section along Section C. 31 Mav-1 June 1966
 63. Water type criteria 64. Total volume transports of the Labrador Current 65. Total salt & heat transports of the Labrador Current 66. "Arctic Component" transport values 67. Standard Section 3 volume transport values 68 Maximum and minimum dynamic height values 	62.	Salinity section along Section C. 31 Mav—1 June 1966
 64. Total volume transports of the Labrador Current	63.	Water type criteria
 65. Total salt & heat transports of the Labrador Current. 66. "Arctic Component" transport values 67. Standard Section 3 volume transport values. 68 Maximum and minimum dynamic height values 	64.	Total volume transports of the Labrador Current
 66. "Arctic Component" transport values 67. Standard Section 3 volume transport values 68 Maximum and minimum dynamic height values 	65.	Total salt & heat transports of the Labrador Current
67. Standard Section 3 volume transport values	66.	"Arctic Component" transports of the Euspaulor Current
68 Maximum and minimum dynamic haight values	67	Standard Section 3 volume transport values
	68.	Maximum and minimum dynamic height values

Page

69.	Volume transports through Standard Sections 2 and 4	68
70.	Progressive wind vector diagram	69
71.	FORTRAN drogue velocity program	70
72.	Flow diagram for FORTRAN Program	71
73.	Drogue trajectories numbers 1 and 2	72
74.	Drogue trajectories numbers 3 and 4	73
75.	Trajectory of drogue number 5	74
76.	Drogue trajectories numbers 6 and 7	75
77.	Average drogue speeds and vertical section of dynamic heights	76
78.	Average drogue speeds and vertical section of dynamic heights	77

Tables

Ι.	Comparison of Dynamic Heights computed using data obtained	
	from duplicate STD and Nansen casts	4
H.	Summary of volume, heat, and salt transports obtained from oc-	
	cupations of Standard Section 3	17
III.	Summary of volume, heat, and salt transports obtained from oc-	
	cupations of Standard Section 2	19
IV.	Summary of volume, heat, and salt transports obtained from oc-	
	cupations of northern end of Standard Section 4	19
V.	Number, date, time, and depth of each drogue set	20
VI.	Drogue speed and true bearing data for drogue #1 (15 meters)	
	and drogue #2 (40 meters)	21
VII.	Drogue speed and true bearing data for drogue #4 (15 meters) and	
	drogue #3 (50 meters)	21
VIII.	Drogue speed and true bearing data for drogue #5 (100 meters)	21
IX.	Drogue speed and true bearing data for drogue #6 (100 meters)	22
Х.	Drogue speed and true bearing data for drogue #7 (15 meters)	22
XI.	Speed differences (cm/sec) of shallow drogue minus deep drogue	22
XH.	Mean velocities (cm/sec) for various depths computed using	
	Helland-Hansen technique	23

Oceanography of the Grand Banks Region and the Labrador Sea in 1966

by

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INTRODUCTION

The 1966 International Ice Patrol oceanographic program differed from those of the preceding seasons in several respects. The number of sections occupied was reduced to three to speed up coverage and to increase the synoptic value of the data. Time series observations were also made along one section to study fluctuations in the Labrador Current. Operational tests were conducted on the Bissett-Berman 9006-N Salinity/Temperature/Depth Measuring System (STD) and on a very low frequency radio navigation system. Processed oceanographic data was transmitted routinely to the National Oceanographic Data Center, Commander International Ice Patrol, Navy Fleet Numerical Weather Facility, and the Naval Oceanographic Office,

The three survey sections, Sections 2, 3, and 4 shown in Figure 1, were chosen to delineate important features of the juncture of the Labrador-North Atlantic Current systems and to permit comparison of the data with historical Ice Patrol data. They were used to provide calibration factors to the mean dynamic topography charts prepared by Soule (1964). They were used to locate the axis of the Labrador Current, the position of the trough between the Labrador and North Atlantic Currents, and to determine the amount, if any, of eastward branching of the Labrador Current north of Flemish Cap.

Hydrographic data obtained during mid-February and during March by Ocean Station Vessels were also processed. This data, the earliest ever collected, indicated the late-winter characteristics of the Labrador Current.

NARRATIVE

General

Two distinct oceanographic cruises were conducted during the spring of 1966. The first cruise provided operational support for Commander, International Ice Patrol and the second cruise collected data to document the anomalous conditions encountered during the first cruise. Both oceanographic cruises were conducted by the CGC EVERGREEN, a 180foot tender class oceanographic vessel.

The first cruise began on 2 April 1966 with the occupation of EVERGREEN station 9509 on the north-south Standard Section 4 at the "Tail-of-the-Banks" and proceeded northward with serial stations terminating at station 9534 on the Grand Banks west of Flemish Cap on 8 April 1966. See Figure 1 for the dynamic topography of the sea surface and the station locations for this survey. The synopticity of this survey was reduced because of the severe weather encountered during the cruise. The vertical temperature distribution and the dynamic height at each station were provided to Commander, International Ice Patrol within twelve hours of observation. The survey was terminated on 11 April 1966 when repeated attempts to accurately determine the ship's position failed prior to a planned reoccupation of Standard Section 3.

During the second part of the first cruise, which lasted from 15 to 25 April 1966, CGC EVERGREEN occupied serial stations 9535 to 9551. See Figures 2A, 2B, and 2C for the dynamic topography of the sea surface and the station locations for these occupations. These stations were part of a time series study to determine the volume transport variations of the Labrador Current along a 25 mile length of the western part of Standard Section 3. This section was occupied three times during a five day period. A moored toroidal buoy was used as a reference to insure that each station of the three successive occupations was at the same location. After the first occupation of the section, parachute drogues were used to verify

the computed currents obtained from the density distribution. Seven drogues were set and tracked during an eighteen hour interval.

The second cruise of the CGC EVERGREEN was designed to more clearly delineate the extent of the atypical oceanographic conditions that were observed on the Grand Banks during the first cruise. It began on 22 May 1966 with the occupation of station 9552 located south of the Gulf Stream directly south of the "Tailof-the-Banks." Again, the cruise proceeded northward and was terminated on 7 June 1966 with the occupation of station 9654 near South Wolf Island, Labrador. In all, seven sections consisting of 103 stations were occupied to delineate oceanographic conditions between the "Tail-of-the-Banks" and Cape Farwell, Greenland. Station and section locations are shown in Figure 3. Several of these sections correspond to all or part of the Standard Sections established by the Coast Guard Oceanographic Unit to monitor time variations in the area. On Standard Section 1, open and scattered winter ice was encountered near South Wolf Island, Labrador. At the other end of the section, near Cape Farwell, storis was encountered in concentration from five-tenths to ten-tenths, which prevented the occupation of the easternmost of the planned stations and the last station occupied was actually taken in the ice.

Additional Projects

A Very Low Frequency navigation system was constructed using three ECCO Model 880-A VLF receivers, a CTC Electronics, Inc. rubidium frequency standard, and a power supply for the frequency standard. During the first cruise it was planned to compare both the VLF navigation system and the Loran-C system using a fixed reference point at sea. Unfortunately neither the Loran-C nor the VLF navigation system functioned properly.

A very short project to determine messenger travel time was conducted. This was done using a Model 250 Pinger manufactured by Ocean Research Equipment, Inc. that was tripped by a messenger dropped by the bottom bottle of the cast. When tripped, the pinger reversed and ceased to operate. Only two tests were conducted because of the heavy weather. These tests showed messenger speeds of 184 and 191 meters/minute for a 1200 meter, 13 bottle cast, with wire angles less than 25° .

The United States Coast Guard cooperated with the National Oceanographic Data Center in Project HOTLINE. The National Oceanographic Data Center was conducting a year's systems evaluation (Project HOTLINE) to determine if real-time data processing is feasible. The International Ice Patrol sent processed data from 103 stations to the National Oceanographic Data Center via the Coast Guard Oceanographic Unit. This data consisted of a corrected temperature, corrected salinity, a sigma-t value for each depth, and a dynamic height value (based on 1000 decibar reference level) for each station. These data were collected using STD or Nansen casts and were processed by computer within 24 hours after they were collected.

The CGC EVERGREEN also provided corrected temperature and depth information to the Fleet Numerical Weather Facility, Monterey, California from each station. This information was transmitted from the ship for relay to the Fleet Numerical Weather Facility. The Fleet Numerical Weather Facility used a special computer program to prepare a sea surface temperature chart for International Ice Patrol. This chart was developed for a 63 x 63 grid with two different scales. The area covered was the Grand Banks and contiguous regions. The Fleet Numerical Weather Facility transmitted this chart to the Fleet Weather Facility in Suitland, Maryland who in turn hand-carried it to the Coast Guard Oceanographic Unit. This project will be continued during the 1967 International Ice Patrol.

Instrumentation

Teflon-lined Nansen bottles, manufactured by the Ballauf Mfg. Co. or the United Machine Co., were used during each cruise. Temperatures were measured with protected deep sea reversing thermometers manufactured by Richter & Wiese, G. M. Mfg. Co., Kahl Scientific Instrument Corp., and Walter H. Kessler Co. Inc. Thermometer performance was continually monitored by pairing and intercomparison.

Depths of observations were based on wire angle geometry and thermometric computations from paired protected and unprotected deep-sea reversing thermometers. The salinity of each seawater sample collected was measured with an RS-7A inductive salinometer manufactured by Industrial Instruments Corp.

All data were processed by a PDP-5 digital computer manufactured by the Digital Equipment Corp. The computer was programmed for the correction of reversing thermometers and the determination of thermometric depth, the computation of sigma-t, specific volume anomaly and dynamic height integration, and the computation of net and solenoidal volume transport.

The PDP-5 computer operated for a total of 167 hours during both cruises with no major troubles. At each station where only a Nansen cast was taken, a Hytech Corp. electronic bathythermograph (ELEBT) Model 480 Mod. 1 was first used to determine the vertical temperature structure to 400 meters. This information was then used to determine the sampling depths.

A Geodyne Corp. toroidal fiberglass buoy, equipped with a tripod mast, a Motorola Co. X-Band radar transponder, Model SST-119X, and an Edgerton, Germeshausen, & Grier, Inc., Model 219-A interrupted quick flashing Xenon light was used as a fixed reference for the time series study of the volume transport of the Labrador Current and the drogue current study. The buoy was moored with a fixed bridle, swivel, ballast ball, 96 fathoms of 1inch braided nylon line, 15 fathoms of ¹/₂-inch anchor chain, and a 75 pound Danforth anchor in 34 fathoms of water at 44°37'N and 49°12.5'W.

The radar transponder operated for 118 hours with no apparent degradation. The buoy was acquired by the ship's AN/SPS-23 X-Band radar at ranges up to 16,150 yards. The transponder was mounted approximately 5 feet above the sea surface. It is of interest to note that the setting and retrieval of the buoy was accomplished without mishap under adverse weather and sea conditions. The buoy operated in 55 to 60 knots wind for at least 24 hours. The Xenon light could be reliably sighted at ranges under two nautical miles.

The type drogue used is illustrated in Figure 4. These drogues were of a relatively unsophis-

ticated but effective design. They were constructed using a bamboo pole for a mast and two truck inner tubes for the flotation unit. A standard surplus 24-foot aviator parachute weighted with several links of anchor chain (approximately 30-50 pounds) was suspended using a ¹/₄-inch black polypropylene line. The inner tubes were lashed in place several feet from the bottom of the pole. Daytime identification was provided by orange fluorescent vinyl-coated nylon flags. These flags were purchased with wood stiffners that aided daytime identification. Nighttime acquisition in the visible spectrum was provided by a 6-volt DCfilament flasher bulb. A standard lifeboat corner radar reflector was used for nighttime acquisition under adverse weather conditions.

Prior to the 1967 Ice Patrol Season a Bissett-Berman Model 9006--N Salinity/Temperature/ Depth Measuring System (STD) provided by the Navy Oceanographic Office was installed aboard the CGC EVERGREEN by the Coast Guard Oceanographic Unit to gain operational experience with the instrument. This instrument was designed for operation to 1500 meters. The STD was inoperative during the entire first cruise. After returning to Boston, the STD was checked and found to have a defective mixer and salinometer. Both were replaced and the STD was given a one-day test at sea to make certain it was operational.

The starboard oceanographic platform was modified by CGC EVERGREEN to increase its height to facilitate handling the STD underwater equipment rack and associated sensors during launching and retreiving. The modified "A" frame was given a 1020 pound static dead weight test. After passing the static test, a test lowering was conducted using a 410 pound ballast ball.

For comparison purposes duplicate Nansen and STD casts were planned for the upper 1500 meters at each station in Standard Section 4. At station 9552 the STD failed to operate when placed in the water. For the remainder of the second cruise the STD operation was intermittent. Operation could generally be restored by reterminating the sea cable and/or regreasing the Marsh-Marine connector that coupled the multi-stranded conductor of the sea cable to the mixer unit on the underwater equipment rack. During the 1966 postseason cruise it was established by a NAVOCEANO engineer that all of the preceding troubles were caused either by the Marsh-Marine connector leaking at the boot end of the female connector or the conductor breaking in the sea cable at the first point above the underwater equipment rack where flexing could occur. This point is illustrated in Figure 5A. The leaking connector was repaired by securely taping the upper part of the connector with a good grade of self-vulcanizing rubber tape and then covering this with black plastic tape.

Both surface and sub-surface salinity samples and temperature measurements were taken to insure that the STD was indicating the correct temperature and salinity. Both Nansen and STD casts were made at stations along

Table I. Comparison of Dynamic Heights computed using data from duplicate STD and Nansen casts

Station number	Type of sampling device	Time of observation (GMT)	Dynamic height anomaly	absolute difference (dynamic meters)
9583	STD	0325z	.489	
	NANSEN CAST	0413z	.498	.009
9584	STD	0610z	.468	
	NANSEN CAST	0628z	.469	.001
9585	STD	0820z	.300	
	NANSEN CAST	0843z	.309	.009
9586	STD	1050z	.174	
	NANSEN CAST	1106z	.176	.002
9587	STD	1310z	.196	
	NANSEN CAST	1341z	.201	.005
9588	STD	1618z	.460	
	NANSEN CAST	1659z	.467	.007
9589	STD	1845z	.482	
	NANSEN CAST	2002z	.473	.009
9592	STD	1615z	.222	
	NANSEN CAST	1705z	.231	.009
9552	STD	0515z	1.492	
	NANSEN CAST	0615z	1.470	.022

Section 2 and dynamic heights were calculated using both sets of data. The duplicate casts along Standard Section 2 plus comparison from two additional stations are presented in Table I.

Figure 5B shows the STD trace obtained for Station 9592 plus the temperature and salinities obtained from a Nansen cast taken 50 minutes later. It shows considerable variation between the two sets of data, but the dynamic heights calculated from each differ by only 0.009 dynamic meters. Such good agreement, even with such large salinity changes, indicates that dynamic heights computed from STD data are compatable with the dynamic heights computed using Nansen cast data, particularly when the rate of change of salinity is small.

Personnel

The oceanographic work of the first cruise was under the direction of LCDR Ronald C. Kollmeyer, USCG who was assisted by LCDR Kennard M. Palfrey, Jr., USCG and LTJG Melvin S. Swanson, USCGR. Mr. Thomas Wolford, Oceanographer, directed the second cruise assisted by LCDR Kennard M. Palfrey, Jr. Because of special instruction and experience with the STD, James D. Brower, Aerographers Mate Second Class assisted during both cruises. Other oceanographic technicians for the first cruise were David D. Lockhart, Aerographers Mate First Class; John T. Nichol, Sonarman Second Class; David J. Wood, Sonarman Second Class; and Edward S. Olszewski, Sonarman First Class. Technical Assistants for the second cruise were Dennis L. Noble, Chief Aerographers Mate; William L. Harrel, Sonarman First Class; and Peter R. San Jule, Aerographers Mate Second Class.

Discussion of Vertical Property Distribution and Dynamic Heights

INTRODUCTION

There has been an increasing awareness of the inadequacy of the assumption of steady state conditions in describing the features of the ocean as the volume of data has increased. The development of valid dynamic models required that the temporal and spatial changes in the feature or area being investigated be taken into account. Once a significant time rate of change of oceanic parameters is determined, the variations must be examined and some account of them taken in the sampling program. To do this, monitoring sections were established to determine the annual variations in the Labrador Current. These sections were also chosen to provide Commander, International Ice Patrol with real-time information about the oceanographic conditions on the Grand Banks.

Data obtained from a complete occupation of the three Standard Sections were used to determine the difference between the observed dynamic topography and the monthly mean dynamic topography. The calibrated monthly mean charts were then used to predict future iceberg positions. Monthly occupation of these sections will permit a complete description of the annual oceanographic conditions of the Grand Banks region. A complete oceanographic description should provide the following information about the pertinent parameters:

- 1. Their arithmetic means
- 2. Their seasonal and annual variations
- 3. Their extremes
- 4. The rate and frequency with which the variations occur.

Smith (1937) was the first to recognize the importance of short term variability in the Labrador Current when he stated, "The Labrador Current is also marked by frequent irregular pulsations occurring within the interval of a few weeks or of a month or two. . . that an iceberg observed drifting southward at a moderate rate may suddenly accelerate to double or sometimes triple its former rate." He further indicated that this acceleration was due to a local contraction in the width of the current and not an acceleration along the entire length of the current. Soule and Graves (1938) indicated that the volume transport of the Labrador Current varied significantly over a three month interval. Montgomery (1938) and Iselin (1940) showed that there were variations in the net volume transport of the Gulf Stream. Fuglister (1951) indicated that the volume transport of the Gulf Stream varied monthly. Sverdrup, Johnson, and Fleming (1942) discussed the simultaneity of oceanographic observations and the steadiness of the flow. They stated that in the interval of time between surveys the details of the relative topography may have changed greatly, but the main features have changed more slowly. Fuglister and Worthington (1951) implied that synopticity was an important enough consideration to require multiple ship surveys. Worthington (1954) showed that a significant change in the direction of the Gulf Stream occurred within four days. Dinsmore, Morse, and Soule (1960) found that the dynamic topography had changed within the approximately three-day interval between the occupation of two sections of an interrupted survey. Bullard et al. (1961) indicated that the volume transport through sections U, W, and T changed significantly with time.

Kollmeyer et al. (1965) revised the tracklines used by the International Ice Patrol in the southern part of the Grand Banks. These changes permitted the surveys to be completed in 7 instead of 14 days, assuming no delay due to the weather. This was a compromise between adequate sampling of the area and keeping the survey as synoptic as possible. He further stated that the temperature and salinity changes did not occur gradually but rather abruptly and that the time rate of change was on the order of one to two weeks and perhaps even less.

Although the Standard Section program was initiated on 14 February 1966 by the CGC DUANE occupation of Standard Section 3 and the CGC HUMBOLDT occupation of both Standard Section 2 and Standard Section 3 from 9 to 12 March 1966, Commander, International Ice Patrol did not start using oceanographic information until the first occupations of Standard Sections 4, 3 and 2 by the CGC EVERGREEN in early April, 1966. Because the CGC DUANE and CGC HUMBOLDT occupations provided the only oceanographic data about the Labrador Current ever collected in February and early March, and since the Labrador Current in 1966 was anomalously warm, these two occupations will be discussed here. Vertical sections of temperature and salinity are presented for all 1966 occupations of the Standard Sections. In addition, vertical sections of temperature and salinity are presented for 1954 and 1964, two years that were selected as being representative of normal years. It is hoped that comparison with these vertical sections from "normal" years will emphasize the unusual character of this year.

Surface dynamic heights along many sections are also presented to underscore the anomalous conditions that were evident this year. This was done to fully utilize the climatological mean dynamic height information available in Soule (1964). The dynamic height is the most suitable parameter available to indicate net result of the complex temperature and salinity variations that have occurred in a water column.

CGC DUANE 14-15 FEBRUARY OCCUPATION OF STANDARD SECTION 3

The discussion of the data collected in 1966 begins with the CGC DUANE 14–15 February occupation of Standard Section 3. The surface dynamic height along the section is presented in Figure 6. The vertical distribution of temperature and salinity is presented in Figures 7 and 8 respectively. A chart of the dynamic topography for this occupation is shown in Figure 9.

Figure 6 indicates that there was a relatively strong southerly flow between stations 27 and 28 with a relatively flat topography in the east. The Labrador Current is quite apparent as the sharp slope with an average southerly surface velocity of 62 cm/sec. The highest surface velocity in the remaining part of the section is approximately 12 cm/sec between stations 34 and 35. This relatively flat topography to the east was surprising because this section was planned to intersect the North Atlantic Current. Therefore, a strong northly flow was expected on the eastern portion. The North Atlantic Current was not observed, but a mixture of Labrador Current and North Atlantic Current water was found at the easternmost stations.

The maximum dynamic height value was observed at station 27 and the minimum value occurred at station 30. These maximum and minimum values are the maximum dynamic height of a station to the left of the Labrador Current when looking upstream and the minimum value is the dynamic height of a station to the right of the Labrador Current looking upstream. This maximum value may not be the largest dynamic height observed on the section because of the high stands of water found in the North Atlantic Current. The minimum value is generally but not always the lowest dynamic height observed on the section. The maximum and minimum values that will be discussed are associated with the southward flowing Labrador Current. Hence, the minimum or trough value may vary in location and magnitude. These values were 971.100 and 970.890 dynamic meters respectively. The trough value was 37 nautical miles to the southeast of the maximum value. These maximum and minimum values tended to delineate the region where there was southward flow with Labrador Current water characteristics: temperature of less than 4.0° C and salinity less than 34.9%.

The vertical temperature and salinity sections show both the 4.0° C isotherm and the 34.0% isohaline intruding well to the west.

The 4.0° C isotherm was relatively complicated and some subjective contouring was required because of the location of station 28 and because temperature was not an anothermic function of depth. The 4.0° C isotherm may have intersected the continental slope as did the 34.0% isohaline. The position of the 4.0° C isotherm and the 34.0% isohaline this far west was not anomalous. Kollmeyer et al. (1965) presented temperature and salinity vertical sections for Standard Section 3 (Section U) for the three surveys conducted during the 1965 Ice Patrol Season. The results of the first survey from 30 March to 7 April 1965 showed a similar distribution of these two isopleths.

The nature of the Labrador Current in the winter is not known because of the paucity of data. Smith (1937) using iceberg drift data questioned whether or not the Labrador Current existed during the winter. Presently there is no winter oceanographic data available, but the lack of southward flowing cold, relatively fresh, water is considered anomalous. The minimum temperature and salinity found along this section were at the surface of station 27. These values are 1.16° C and 34.49‰. A cold core (i.e., temperature less than 0.0° C) was expected, but it was not observed. The southward flowing water between stations 27 and 30 was not excessively warm when compared to 0.0° C.

Between stations 28 and 30, a warm (5.0° C) saline (maximum salinity 34.92‰) core of water was moving slowly southward. A temperaturesalinity diagram (Figure 25) characterizes this as Mixed Water.

At the eastern end of the section there was an indication of a cool, saline North Atlantic Current, but the mean temperature-salinity relationships for the Grand Banks region did not support this. They indicated that the surface 200 meters at station 36 consisted of atypical mixed water. This indicated that the mixing zone extended from station 29 eastward past station 36. Water at intermediate depths at these stations has North Atlantic Current characteristics, but the deepest observed data at station 36 have mixed water characteristics.

In summary, the factors considered anomalous are:

1. The lack of sub-zero water in the core of the Labrador Current. This may be a normal condition; however, USS MUSKEGONON bathythermograph data from 8–9 February 1946 at 46°10'N across the Labrador Current showed a large amount of water with temperatures less than 0.0° C.¹

2. The failure of Standard Section 3 to indicate the North Atlantic Current. All previous data indicated that this section should have completely crossed the Mixed Water and extended into the North Atlantic Current.

CGC HUMBOLDT 9–11 MARCH 1966 OCCUPATION OF STANDARD SECTION 3

The CGC HUMBOLDT occupied Standard Sections 2 and 3 during 9–12 March 1966. These occupations preceded the scheduled occupation by the International Ice Patrol by 3 weeks and was earlier in the year than any previous International Ice Patrol occupation. The vertical distribution of temperature and salinity is presented in Figures 10 through 13. The dynamic height topography along each section is shown in Figures 14 and 15. A chart of the dynamic topography is shown in Figure 16. Standard Section 2 occupations will be considered after the Standard Section 3 discussions are completed.

Several interesting features can be noted in Figure 14. There was a relatively swift (33) cm/sec) current flowing southward between stations 28 and 29. However, the maximum velocity observed was slightly less than half of that observed during the 14-15 February occupation. Both the maximum (970.012 dynamic meters) and the minimum (970.868 dynamic meters) values of dynamic height have decreased from those observed previously. The dynamic height on the shelf became smaller and the trough deepened and moved toward the east. The distance between comparable shelf and trough stations was 44 nautical miles, i.e., the distance between the maximum and minimum dynamic height values was 44 nautical miles.

In addition to the trough deepening, a 34.5 cm/sec northward flowing current was observed between stations 31 and 32. Again the

¹ Unpublished bathythermograph data available at the Coast Guard Oceanographic Unit.

topography to the east was relatively flat and increasing slowly. The rate of increase was large enough however to produce a dynamic height of 971.028 dynamic meters at station 36. This was the largest value observed on the section and was also an increase over that observed during the 14–15 February occupation.

The vertical temperature and salinity sections show the 4.0° C isotherm and the 34.0% isohaline well to the west. Again, the expected cold core was not observed. This occupation occurred close enough to the regular International Ice Patrol occupations to consider the lack of negative temperature as an anomalous situation. Again a great deal of subjective contouring was used to determine the positions of the isotherms and isohalines just to the east of the continental slope. The southward moving water had become slightly colder and more saline. The minimum temperature and salinity occurred at the bottom and the top of station 26, respectively they were 1.00° C and 33.56‰. Station 26 was essentially isohaline and the minimum salinity was no doubt due to some surface effect. Again a small 5.0° C core was observed, but this time it was in the northward flow. The temperature to the east had increased to 9.0° C and salinities to 34.90%, indicating that this was North Atlantic Current water. However, station 36 had Mixed Water characteristics indicating that only a filament of the North Atlantic Current had been crossed.

In summary, items that should be noted about this occupation of Standard Section 3 are:

1. The lack of water with a temperature less than 0.0° C in the core of the Labrador Current. This can be considered to be a definite anomaly because this occupation occurred less than two weeks prior to many occupations of this section in earlier years when temperatures less than -1.0° C were observed. As will be shown later, no 0.0° C water was observed during the occupation of Standard Section 2, implying but not proving that temperatures observed on Standard Section 3 were anomalously warm.

2. The failure of this section to indicate the North Atlantic Current. Apparently this section crossed a small, cool, filament of the North Atlantic Current but did not intersect the main portion of the current on the surface. This was indicated by the temperature-salinity characteristics observed at station 36.

CGC EVERGREEN 4–5 APRIL 1966 OCCUPATION OF STANDARD SECTION 3

The CGC EVERGREEN, as a part of the International Ice Patrol, conducted a calibration survey on the Grand Banks commencing on 2 April 1966. This included the northern part of Standard Section 4, Standard Section 3, and the east-west portion of Section 2.

A chart of the dynamic topography for these three sections is shown in Figure 1. Figures 17 through 22 are the vertical temperature and salinity distributions along these sections.

A comparison of the bottom profiles obtained by the CGC EVERGREEN and CGC HUMBOLDT and the CGC DUANE indicates that both CGC DUANE and CGC EVER-GREEN probably were at the same location when they commenced the occupation of Standard Section 3. Figure 23 shows the surface dynamic heights values obtained along Standard Section 3 by the CGC EVER-GREEN.

Possibly the most dramatic change observed was the diminishing of dynamic height values of the Banks stations and filling of the trough, causing a virtual elimination of any surface manifestation of the Labrador Current. To the east the slope of the dynamic topography increased radically between station 9523 and 9525 indicating an extremely large flow to the north. Compared with the surface dynamic topography obtained from the normal charts for April (Figure 24), the anomalous conditions were very evident.

The maximum dynamic height value of 971.02 dynamic meters occurred at station 9517 and the minimum dynamic height value of 970.948 occurred at station 9523. There was a secondary minimum of 970.971 dynamic meters at station 9518 indicating that the relatively narrow trough separating the Labrador Current and the North Atlantic Current had broadened to become the most dominant feature of the profile.

A comparison of Figures 23 and 24 showed that the dynamic height values on the western

end of the section were lower than normal. It was interesting to try to determine what caused the anomalously low dynamic height values. They could be caused by two factors:

1. The temperature-salinity characteristics of the water located on the Grand Banks.

2. The distribution of temperature-salinity characteristics of the water just to the east of the continental slope.

It was doubtful that the temperature-salinity characteristics of the water overlaying the Grand Banks caused these abnormally low values. This water contributed only to the surface 50 to 100 meters of the dynamic height for each station. This was an extremely small depth to cause such abnormally low values.

Consider the values given below for stations located in approximately the same location:

YEAR	YEAR 1966		1964		1954	
STATION NUMBER	9516	9517	8836	8837	5321	5322
ANOMALY OF	0.061	0.048	0.065	0.066	0.081	0.080
DYNAMIC	HEIGH	Т				
0-50 METEI	RS					

In each instance in a "normal" year, i.e., 1954 and 1964, both on the Banks and coming off the Banks the surface layer had the same density for equal intervals. In the abnormal year, i.e., this year, an increase in density was observed in the surface layer for an eastward displacement. Although this water was denser than normal, it was only 0.02 dynamic meters less than the maximum dynamic height value observed in the normal year of 1954. This analysis showed that even though the surface 50 meters was more dense this year than in a normal year this increase in density was not enough to cause the anomalously low dynamic height values.

The distribution of temperature-salinity characteristics just east of the continental slopes must have caused the low dynamic height values. This temperature-salinity distribution influenced the dynamic height values when integration was done up the Banks. Since low dynamic height values were observed on the continental shelf, the water just east of the continental slope must have been denser than normal. It must be emphasized that this low shelf dynamic height value was associated with one of the highest trough dynamic height values ever observed. Therefore, these low shelf values were a direct result of the temperature-salinity distribution immediately adjacent to the continental shelf and in this case did not indicate what the trough dynamic height value should be.

The vertical temperature and salinity structures observed along Standard Section 3 on 4-5 April 1966 were interesting. The most noticeable change from the earlier occupations was the intrusion of 7.0° C water at the 50-150 meter level at station 9519. Water with this temperature-salinity characteristic has been classified as atypical. "Atypical" in this case meaning it does not fit along one of the predefined curves for Labrador Current, Mixed, or Atlantic Current water shown in Figure 25. This atypical characteristic occurred at stations 9518 to 9522. It was overlaying water with temperature-salinity relationships which were common to the deep water of all three water masses shown in Figure 25.

Looking at Figures 19 and 20, consider a temperature-salinity curve using data obtained by moving along the surface from a point midway between stations 9518 and 9519 to a point midway between 9519 and 9520 and a temperature-salinity curve obtained using data from the surface 200 meters of station 9518. It is obvious that these two temperature-salinity curves will be similar since the same isohalines and isotherms pass through each location. Hence this was probably a region of convergence where sinking had occurred.

"NORMAL" TEMPERATURE, SALINITY, AND DYNAMIC HEIGHT

The extremely anomalous conditions observed along Standard Section 3 were more evident when compared to historical salinity and thermal vertical structures during "normal" years. "Normal" years were selected using:

1. Duration and distribution of sea ice on the Grand Banks

2. The number of icebergs that drift south of 48° North latitude

3. The number of icebergs that drift south of 43° North latitude and become an active threat to transatlantic shipping.

Lenczyk (1965) stated that the average number of icebergs that have drifted south of latitude 48° North latitude each year since 1900 was 377. In 1964, an estimated 369 icebergs drifted south of 48° North latitude, so it was chosen as a normal year using criterion 2. Using criterion 3, 1954 was adjudged to be a "normal" year. Data taken during April of these years at stations corresponding to the present stations of Standard Section 3 were used to construct the vertical temperature and salinity sections shown in Figures 26 through 29. The surface dynamic topography along these sections is shown in Figures 30 and 31. Because of the variation in the bottom topography, it is believed that the 1954 section was occupied slightly to the south of the 1964 section. Considering the vertical sections of surface dynamic topography first, the most apparent feature is the sharp slope indicating the southward flowing Labrador Current. There is also a varying in strength compensatory northward flow on both sections.

In 1954 and 1964, there was a second southwest flow in the eastern portion of the section. This contrasted with the gentle northward flow indicated to the east by the surface dynamic topography of the April normal chart. However, the eastern part of Standard Section 3 extended into a region of high standard deviations of surface dynamic height which might account for the differences.

Figures 26 and 27 show the 1954 vertical temperature and salinity distribution. They show southward flowing cold (-1.0° C) , relatively fresh (33.0%) water. Approximately centered around station 5326 there was a northward flow of this same cold relatively fresh water. This cold water to the west was obviously the Labrador Current. Note particularly from Figure 28 that this cold fresh water was directly under the portion of the surface dynamic heights indicating the swiftest surface current. The cold fresh water sampled at station 5326 indicated either a local eddy or that a portion of Labrador Current water was moving along the eastward side of the trough region and had not mixed sufficiently to lose its identity.

The 1.0° C isotherm indicates that the Labrador Current can be considered as a thin ribbon of rapidly moving water acting as a boundary that prevents the cold, fresh water overlaying the continental shelf from overflowing the warmer, more dense water of the Labrador Sea and trough region.

Figures 28 and 29 show the 1964 vertical temperature and salinity structure. They show a large amount of cold relatively fresh water moving southward. This time there is not the compensatory northward flow of similar cold, fresh water to the east. Figure 31 shows the highest surface velocity between stations 8837 and 8838. Notice that this high velocity flow was located east of the majority of the cold water.

The volume of southerly flowing water of less than 4.0° C had in both cases displaced the 4.0° C isotherm to the east. Several closed cores, as indicated by isotherms and isohalines, were observed to the east. If the copious amount of southerly flowing cold, low saline water shown in these cross sections was indicative of the normal condition of the Labrador Current in early April, then comparison with the property cross sections observed this year illustrate the extremely anomalous conditions. It will be shown in the discussion of volume transports that the anomalous condition was not a small transport value for the Labrador Current but rather a normal volume transport with temperature salinity characteristics differing significantly from the normal. This water was more dense level for level in the top 200 meters and warmer level for level at all depths.

THREE SERIAL CGC EVERGREEN OCCUPATIONS OF STANDARD SECTION 3, 16-21 April 1966

Three partial occupations of Section 3 were conducted in April 1966. A reference buoy like that described in the instrument section was moored at 44°37'N and 49°12.5'W to provide a fixed starting point.

Occupations were conducted from west to east as rapidly as weather conditions permitted. Two occupations consisting of 6 stations were made on 16–17 April and 18–19 April, and one of 5 stations on 21 April 1966. The station spacing was controlled by radar ranges and bearings taken periodically on the reference buoy. Because only one reference buoy was used, the orientation of the sections could not be exactly reproduced, and from the bottom topography it is believed that the first section was to the north of the last two. The vertical temperature and salinity structure for these three partial occupations are shown in Figures 33 through 38. A plot of the surface dynamic heights observed during each occupation is shown in Figure 32. Charts of the dynamic topography observed during these occupations are shown in Figures 2A, 2B, and 2C.

During these three occupations the shelf dynamic height value increased continuously while the trough value decreased. At first it was thought this might have been normal spring infusion of colder, fresher water. Figures 33 through 38 show a freshening occurred, but both the mean temperature and the mean salinity remained higher than normal. During 16–17 April the minimum temperature observed was 1.48° C at the bottom of station 9535 and the minimum salinity was 33.54‰ at the surface of station 9536.

The 18-19 April partial occupation showed a continuing cooling and freshening. The minimum temperature 1.19° C and the minimum salinity 33.50% both occurred at station 9543. They were just east of the continental shelf edge and they were in the southerly current. During the 21 April 1966 partial occupation of Standard Section 3 the water was more saline than during either of the previous occupations. The minimum temperature was 1.37° C and the minimum salinity was 33.56‰. Both of these values were observed at a station on the Grand Banks. All three occupations showed anomalously high values of temperature and salinity when compared with the typical vertical cross sections of 1964 and 1954.

Figure 32 shows that the dynamic topography changes significantly with time. It is realized that these variations are a combination of the local time rate of change plus changes due to slight horizontal displacement of the station positions. Comparison of the surface dynamic heights observed from these three occupations with those of the 4–5 April 1966 occupation showed that the dynamic heights of the stations located on the continental shelf had increased by three dynamic centimeters in 12 days. The trough had deepened from 970.97 to 970.90 dynamic meters, a change of 7 dynamic centimeters. This value was closer to the average trough value of 970.924 dynamic meters calculated by Kollmeyer et al, 1965. This return to a near normal trough value coincided with the disappearance of the intrusion of 7° C water of atypical character observed previously.

These three serial occupations showed that significant property changes can occur over a relatively short time interval. They also showed that a return to a normal dynamic height topography did not require the cold temperature usually found in the core of the Labrador Current.

CGC EVERGREEN 25-26 MAY 1966 OCCUPATION OF STANDARD SECTION 3

The next occupation of Standard Section 3 occurred on 25–26 May 1966. The surface dynamic heights along the section are shown in Figure 39. The vertical temperature and salinity structures are shown in Figures 40 and 41.

A comparison of Figures 32 and 39 shows that the trough values have remained relatively unchanged, but the western station value has decreased from 971.106 to 971.012 dynamic meters, a significant decrease of approximately 9 dynamic centimeters. From the trough the dynamic topography slopes gently upward to the east to a maximum value of 971.131. Again the 7.0° C isotherm intruded westward to station 9572. The warm water mass found in the surface layer at station 9573 had atypical temperature-salinity characteristics. The minimum temperature of 0.92° C and the minimum salinity of 33.10% both occurred at station 9570. Since the mean temperature of the inshore station had increased, the factor that contributed to the lower than normal value for dynamic heights must be the persistently high salinity values on the continental shelf.

As during the previous occupations the temperatures in the core of the Labrador Current were anomalously warm and the southward flow of cold water was smaller than expected. The structure of the isotherms from stations 9568 to 9571 again suggested that the Labrador Current is an edge phenomenon.

Figures 40 and 41 studied together tend to suggest that the North Atlantic Current may be intrusively moving westward. As noted previously atypical water was found at station 9573 and the 7.0° C isotherm was intruding westward of its usual position. The isotherms and isohalines from stations 9576 to 9578 suggested a displacement to the west.

STANDARD SECTION 2

The occupations of Standard Section 2 will now be considered. Standard Section 2 was occupied prior to, during, and after the 1966 International Ice Patrol Season. The first occupation was by the CGC HUMBOLDT on 11-12 March 1966. The next two occupations were made by CGC EVERGREEN on 7-8 April and 26-27 May 1966. The surface dynamic heights along Standard Section 2 are presented in Figure 15 and Figures 42 and 43. Surface dynamic heights along the 47° parallel of north latitude obtained from the April and May normal charts prepared by Soule (1964) are shown in Figures 44 and 45. The latter very clearly delineate the average spring conditions. The average maximum value for April is 971.024 dynamic meters with a corresponding minimum value of 970.869 dynamic meters. In May 1966 the maximum dynamic height value had increased to 971.027 dynamic meters and the minimum value had increased to 970.882 dynamic meters.

Figure 15 shows relatively steep gradients with a net southerly transport and a slight northerly flow between the inshore stations. The 7–8 April 1966 occupation found an increased northerly transport between the four easternmost stations and a reduced southerly flow. The 26–27 May 1966 occupation showed an increase in maximum dynamic height values for the continental shelf stations from 970.99 to 971.05 dynamic meters. The trough values have remained relatively constant during all three surveys. The actual values were 970.85, 970.87, and 970.87 dynamic meters, indicating an increase in velocity of the Labrador Current.

The vertical temperature and salinity structures observed in 1966 along Standard Section 2 are presented in Figures 12, 13, 21, 22, 46 and 47. These figures indicate that the successive occupations were characterized by a decrease in temperature and salinity in the most rapidly flowing portion of the southerly flow. There was a persistent presence of a steep 4.0° C isotherm on each occupation. It was most apparent on the 26–27 May 1966 occupation.

No water with a temperature less than 0.0° C was observed during any 1966 occupation of Standard Section 2, an extremely anomalous condition for a section located so far to the north. These three occupations did not indicate any eastward branching of the Labrador Current, although the northern leg of Standard Section 2 was designed to indicate any such branching.

STANDARD SECTION 4

The northern part of Standard Section 4 corresponds to the historic Ice Patrol Section W. This portion was occupied by the CGC EVERGREEN on 2-3 April 1966 and the entire section was occupied on 22–24 May 1966. The 2–3 April 1966 occupation extended across the Labrador Current. The 22-24 May 1966 occupation extended from 37°21'N to 43°09'N along 50° W and crossed the Labrador Current and extended well into the North Atlantic Current. The surface dynamic heights along the northern end of Standard Section 4 are presented as Figures 48 and 49. The normal monthly mean dynamic heights along the northern end of Standard Section 4 obtained from Soule (1964) are presented in Figures 50 and 51. The April normal dynamic topography showed a strong, well defined Labrador Current with a relatively wide trough between it and the vigorous North Atlantic Current. The observed dynamic topography was extremely flat with the swiftest current occurring between stations 9511 and 9512, approximately 20 miles south of its usual position.

The 22–24 May 1966 occupation showed some filling of the trough and an increase of approximately 9 dynamic centimeters in the dynamic height of the northernmost station. The ribbon of rapid surface current remained displaced to the south.

Standard Section 4 has been occupied 4 times previously by the International Ice

Patrol. Soule and Graves (1938) aboard CGC GENERAL GREENE surveyed this section from 39°04'N to the "Tail-of-the-Banks." Volume transport calculations in their report were based on a 2000 decibar reference level. The subsequent occupations of this section were by CGC EVERGREEN in 1950, 1958, and 1960. The 1950 cruise extended from 38° north latitude to the "Tail-of-the-Banks." This occupation did not extend across the North Atlantic Current (Soule and Barnes, 1950), although it was in conjunction with Operation Cabot, a five ship survey of the Gulf Stream, (Fuglister and Worthington 1951). In 1958, it was occupied as a part of the activity of the International Geophysical Year. Sampling commenced at 38°30' north latitude and extended to the "Tail-of-the-Banks." In this instance one section was at 48°30' west longitude and the other at 50°15' West longitude. These occupations occurred significantly earlier in the spring than the other occupations.

In 1966, a single occupation of Standard Section 4 was conducted from 23 to 25 May 1966. The vertical temperature and salinity structure observed are shown in Figures 52 and 53. A chart of the dynamic topography for this cruise relative to the 1000 decibar reference surface is shown in Figure 3. This reference surface is too shallow to adequately represent the velocity of the Gulf Stream, but it is useful in showing the current pattern with respect to the other sections occupied during the cruise.

Between stations 9562 and 9563 some subjectivity was involved in contouring the isotherms. The decision that had to be made was whether there was an isolated core or whether there was a tongue that connected to water of the same temperature at greater depths.

A strong horizontal temperature gradient occurred between stations 9561 and 9560, but no surface temperatures were available; hence, the surface intersections of these isotherms were then drawn without any near surface temperature information. The cross stream thermocline slope that delineated the North Atlantic Current was also apparent, e.g., the 10° C isotherm sloped downward from the surface to 928 meters at station 9552.

The vertical temperature and salinity structure observed during the 22–24 May 1966 occupation showed more cold water than the 2-3 April 1966 observations. The minimum temperature of 2.00° C observed on the 2-3 April 1966 occupation was at the bottom of station 9515, and the minimum salinity of 33.68% was at the surface. An interesting secondary temperature minimum of 2.89° C occurred at 95 meters on station 9511. The maximum surface velocity observed in April was between stations 9512 and 9511. The 22-24 May occupation showed some character with the 2.0° C isotherm delineating the structure of a cold core. The minimum temperatures observed in the Labrador Current were warmer than normal. This was also observed in the Standard Section 2 occupations.

LABRADOR SEA SECTION

The International Ice Patrol has occupied the Labrador Sea Section 28 times since 1928. In addition, two other occupations were made by the GODHAAB and the METEOR in 1928 and 1935 respectively. Dinsmore, Morse, and Soule (1960) summarized the volume transports of the Labrador Current across Standard Section 1 for this period. Bush, Murray, and Soule (1957) summarized the volume transports of the Labrador Current across Standard Section 1 and the West Greenland Current off Cape Farewell, Greenland, Cheney and Soule (1951) presented the mean values of the Irminger and East Greenland Current components of the West Greenland Current. Bullard, et al. (1963) presented the mean Irminger and East Greenland components of the West Greenland Current.

The dynamic topography of the surface observed along this section in 1966 is shown in Figure 54. As is the case with an isolated section, this indicates the component of the total current normal to the section and provides no information about the true direction of the current. This figure is useful in delineating the location and extent of the steeper gradients.

The vertical distribution of temperature and salinity are shown in Figures 55 and 56. The presence of storis immediately west of Cape Farewell, Greenland prevented the occupation of the planned eastern stations and this occupation of the Labrador Sea Section did not extend across the entire breadth of the West Greenland Current.

The vertical temperature structure over the Labrador continental shelf in 1966 differed significantly from any observed previously. The cold core, normally delineated by the -1.0° C isotherm, had degenerated into 3 cores. The 2.0° C isotherm intruded discontinuously over the continental shelf. This 2.0° C water was also characterized by the 34.0% isohaline. The intrusion of this comparatively warm saline water was very unusual and the high velocity core, just east of the continental slope and delineated by the 4.0° C isotherm, was also anomalous. The salinity structure over the Labrador continental shelf was anomalous, indicated by the relatively fresh water of less than 32.0% being displaced by warmer, more saline water. The temperature and salinity structure observed in the Labrador Sea had also changed. Two 3.5° C cores were observed below 1200 meters and the 34.90% isohaline indicated that the salinity of the deep water of the Labrador Sea was greater than 34.9‰. Instead of the coreless structure normally observed, the warm part of the West Greenland Current was characterized by a small core of water having temperatures greater than 5.0° C and salinities greater than 35‰.

This occupation of Standard Section 1 indicated that the south-flowing water was warmer and saltier than normal and led immediately to the speculation that one reason for the anomalously warm temperatures observed in the Labrador Current was the lack of cold water being transported south. Although this section was occupied in early June and the anomalously warm conditions to the south were observed earlier, one must still wonder if the remnants of earlier conditions were still not manifest along the section.

SECTIONS A, B, and C

Section C, Section B, and Section A were designed to show the parameter distribution in the water east of Newfoundland. Excluding the Labrador Sea Section, these were the only sections where water less than 0.0° C was found. The vertical thermal and salinity structure are shown in Figure 57 through 62. Section C and Section B both showed similar characteristic intrusions of large amounts of comparatively warm water (3.5° C to 4.0° C) well up onto the continental shelf. Again one was forced to speculate if the remnants of what had occurred were still not persisting upstream of the Grand Banks.

WATER MASS ANALYSIS

The water mass analysis, Figure 25, presents temperature-salinity information based on a 19-year running average and data collected by the 1966 International Ice Patrol. Station data from stations 9509 to 9551 were used to carry the averages forward. Because a careful search of previous bulletins failed to reveal the procedure used to determine what constitutes Mixed Water, Atlantic Current Water, and Labrador Current Water, these temperature-salinity curves will be discussed in a separate section at the end of this report. Historical International Ice Patrol usage had named the northeastward extension of the Gulf Stream past the "Tail-of-the-Banks" the Atlantic Current. This usage is maintained in describing the water mass analysis, but the more accepted term, North Atlantic Current, is used in the remainder of this report.

This year there was not a sharp delineation between Labrador Current Water and Mixed Water on Standard Section 3 and 4. There was even a more hazy line between Mixed Water and Atlantic Current Water. This resulted in a considerable number of stations having water characterized as atypical in the upper 300 meters. In the classification scheme used these atypical points were not presented. Figure 25 shows that the water characterized this year as Labrador Current Water was more dense from 50 to 300 meters than the 19-year average Labrador Current Water. It was significantly warmer level for level to 1000 meters and more saline than the 19-year average values in the top 400 meters. The Mixed Water observed this year was more dense and more saline than the 19-year averages in the top 300 meters. It was also warmer in the 50 to 150 meter interval. The Atlantic Current Water observed by the International Ice Patrol was significantly fresher and cooler, level for level, than the North Atlantic Current Water characterized by the 19-year average. Similarly the density of this water was greater level for level than the 19-year average values. No attempt will be made to explain why

such a warm, saline Labrador Current was present. It is believed that the water characterized this year as Atlantic Current Water was Mixed Water whose proportion of Labrador Current Water was small and whose proportion of Atlantic Current Water was higher than normal. This would result in water char-

acterized as atypical, but if the salinity was high enough it would be classified as Atlantic Current Water. The temperature-salinity curves at stations where, for example, the top 300 meters were atypical generally graded into Atlantic Current Water as the depth increased in 1966.

Transport Calculations

INTRODUCTION

Volume transports have been calculated for all Standard Sections occupied during the winter and spring of 1966. They will be discussed in chronological order—section by section.

STANDARD SECTION 3

It was with a great deal of interest that data from Standard Section 3 were analyzed because of the relatively large volume transport changes observed by Kollmeyer, et al. (1965). There were four complete occupations and three partial occupations of this section during 1966. This provided the most extensive observations obtained at this location since the inception of the International Ice Patrol, Volume transport values calculated for this report followed the procedure described by Kollmeyer, et al. (1967). Property transports of heat and salt were also computed as described by Kollmeyer. Notice that the heat transports were the product of the average temperature within a solenoid and the volume transport through the solenoid. This was not a true heat transport calculation, but it was representative of the heat transport for positive temperature values. When negative temperatures were observed, the average temperature within the solenoid was negative. When this value was used to compute a heat transport value for a solenoid, the results were negative quantity. If this was summed with positive heat transport values, the results were straight algebraic addition. This caused some heat transport values to have small negative values.

This year volume transport values were available for Standard Section 3 from 14 February to 25 May 1966. These volume transports were the total volume of southward flowing water with Labrador Current characteristics. These values were obtained by summing all southerly solenoidal transport values with Labrador Current characteristics. These solenoids were generally between the trough station and the station on the banks with the highest dynamic height value. The volume transports for 16–17 April 1966, 18–19 April 1966, and 21 April 1966 did not represent the true values of total volume transports because these three occupations did not extend far enough eastward to delineate northward flowing water. These values then were somewhat less than the actual volume transport values. For statistical purposes, it was assumed that each of these three partial occupations represented the same fraction of total volume transport.

The numerical values for the volume transports are given in Table II. This information is also presented as a function of time in Figure 64. This figure indicates that at least two maximums occurred in the volume transport of the Labrador Current. There was a volume transport of 5.87 imes 10⁶m³/sec on 14–15 February 1966 and a volume transport of $5.25 \times 10^6 \mathrm{m}^3/$ sec on 18–19 April 1966. This latter value did not represent the total southerly volume transport of the Labrador Current, but just the volume transport through that portion of Standard Section 3 that was occupied. Although some subjectivity was used to determine the isopleth distribution of both the CGC DUANE and CGC HUMBOLDT data, these data definitely indicated that the Labrador Current was well defined during the late winter and early spring of 1966. It may be assumed then that the Labrador Current is a current that exists on a year round basis.

Bullard, et al. (1961) derived tentative normal seasonal changes in volume transport values that indicated the volume transport through this section decreased from mid-March through mid-June. The curves were extended using the average mean monthly rates of change. Although the tendencies agreed

Table II. Summary of volume, heat, and salt transports obtained from occupations of Standard Section 3

Date of Occupation	Ship	Total Southward Volume Transport (x10°m³/sec)	Salt Transport (x10 ⁶ kg/sec)	Heat Transport (x10 ⁶⁰ Cm ³ / sec)
14–15 Feb				
1966	CGC DUANE	5.87	204.2	19.0
9-10 Mar	CGC			
1966	HUMBOLDT	4.95	176.4	18.4
4-5 Apr	CGC			
1966	EVERGREEN	N 2.70	96.3	11.8
16-17 Apr				
1966	"	3.97*	141.9	12.8
18-19 Apr				
1966	"	5.25^{*}	188.3	15.0
21 Apr				
1966	**	1.80*	63.6	5.7
25-26 May				
1966	"	2.96	101.2	99.1

* These values do not represent the total volume transport, see text for explanation.

from mid-March to mid April, the pronounced increase in volume flow observed in late April 1965 and 1966 was not indicated. These volume transports were the most complex ever observed by the International Ice Patrol. Another remarkable feature of the volume transports observed by CGC EVERGREEN from 16-21 April was the large time rate of change of volume transport. For these three occupations, station locations were determined by radar ranges and bearings on a moored buoy. The changes observed in the volume transports vary from $+.64 \times 10^{6} \mathrm{m^{3}/sec/day}$ to $-1.38 \times 10^6 \mathrm{m^3/sec/day}$. At this point remember that the 16-17 April, 18-19 April, and 21 April occupations represent values that are less than the actual total volume transport. Figure 64 indicates that the volume transport of the Labrador Current decreased in the late winter and early spring and increased appreciably over a short interval in mid-April.

Figure 65 shows the salt transports and the product of mean solenoidal temperature and solenoidal volume transport, as a function of time. Salt transport, heat transport, and volume transport for salinities and temperatures less than 34.3‰ and 2.0° C are shown in Figure 66. Kollmeyer, et al. (1967) used this criterion to delineate the surface 200 meters of the Labrador Current water. This criterion was particularly useful when considering southward moving water overlying the continental shelf from Cape Chidley, Labrador to the 47° parallel of North Latitude. This water represented the surface 200 meters of the Labrador Current as indicated by the 19-year mean temperature-salinity curve developed by the International Ice Patrol. This figure shows a pronounced increase in the "Arctic" component of the Labrador Current in late April. This component did not show the pronounced decrease in transport values from 14–15 February to 4–5 April. There was, however, a very slight decrease of .06 \times 10⁶m³/sec in the Arctic component during this interval. The product of mean solenoidal temperature and solenoidal volume transport and the salt transport both showed this slight decrease from 14 February to 4 April 1966. This increase and decrease observed with this component of the Labrador Current indicated that the short increase in total volume transport observed over the same interval may be real.

Figure 67 shows the volume transports for each occupation of Standard Section 3 conducted from 1950 to 1966. With one exception, 1966, these occupations occurred between early April and early June. Two things should be noted about this figure. The first is the variability of the volume transports. For example, the 1965 volume transport showed a sharp increase and a slight decrease with increasing time. In 1954 there was a moderate decrease and a slight increase with increasing time. In 1961 the volume transport started with a low initial value that increased to a moderate value. However in 1962, one year later, the volume transport started with a high initial value that decreased as the ice season progressed. The second point is that the 1966 volume transport was the most complex ever observed. The most notable feature of the volume transport this year was the short time intervals between volume transport determinations. In other words, when the International Ice Patrol conducted extensive surveys, six weeks could elapse between occupations of a particular section. This year reoccupations occurred within 36 hours of each other. Consequently, although other investigators have reported volume transport variations, it was assumed that the volume transport variations between occupations were smooth. This year on the other hand, the volume transport variations were shown to be very irregular. The expression from which these volume transports were computed was derived by assuming that the accelerations were small with respect to the magnitude of the forces acting. Hence an expression for volume transport should be developed based upon the initial assumption that the accelerations are not small with respect to the acting forces.

Figure 68 shows the relationship between the dynamic height values of a Bank station (top line) and a trough station (bottom line) along Standard Section 3. It should be noted that the geographical coordinates of both the Bank station and the trough station vary with time. The Bank station selected had the maximum dynamic height observed and the trough station had the minimum value observed. This maximum value was not the maximum value of dynamic height observed along the section, but the maximum value observed in the western portion. These maximum and minimum values alone were not significant. The distance between the stations must also be known to determine the volume transport changes, i.e., the volume transport values are directly proportional to the difference in dynamic heights and inversely proportional to the distance between stations. Recalling the volume transports from Figure 64 or Table II, the largest transport value calculated did coincide with the largest difference in dynamic heights; but the next largest difference coincided with the lowest transport value observed. The maximum distance between trough and Bank station corresponded to a moderate transport value while the minimum distance corresponded to a small transport value. This figure indicates that there is very poor agreement between the difference of maximum and minimum dynamic height values and volume transports. This figure also can be used to determine if the trough gradually filled as summer approached. Assuming that colder, less saline water was transported south by the Labrador Current as spring commenced, this water would transit the trough region and manifest itself in the mixed water of the trough. Assuming further that the system is salinity controlled, the dynamic height of the trough stations should gradually increase as summer approaches. This

is not shown in the figure. The trough dynamic height values gradually decreased, increased, and then gradually decreased with time.

The uncertainty in station location can contribute significant errors to the total volume transport calculations. Bowditch (1962) discussed the factors that contributed to errors in Loran A positions. Stommel (1960) stated that Loran A accuracy under the best circumstances was $\pm 1/4$ nautical miles. Adams (1942) stated that a careful observation on one star under the best conditions can give a line of positions correct within $\pm 1/2$ nautical miles. He further stated that the accuracy of an individual sun sight under a similar condition was better. Each ship that occupied Standard Section 3 operated under identical navigational instructions. A fix was taken upon arrival and departure from station. The official station position was the arithmetic mean of the two positions.

Horizontal position determination for the three serial occupations conducted 16-17 and 21 April were radar ranges and bearings on a moored buoy. These three occupations were conducted in fog and drizzle with winds up to gale force. The last occupation of Standard Section 3 was conducted at night in fog and light winds and sea state 1. Most position determinations during this occupation were by dead reckoning adjusted for drift. The volume transport values presented here are believed accurate to within $\pm 10\%$. It is emphasized that this figure represents the maximum limits within which the volume transport values can vary. These tolerances still indicate that large, short-term volume transport variations occurred during the winter and spring of 1966.

STANDARD SECTION 2

As stated previously, there were three occupations of Standard Section 2. The volume transport information for two of these occupations is presented in Figure 69. This information is also presented in Table III. There was no indication of the dramatic volume transport changes observed in Standard Section 3. An examination of the dynamic topography along Standard Section 2, Figure 15 and Figures 42 and 43, indicated that there were significant changes between the HUM-BOLDT occupation and the last EVER-

Table III. Summary of volume, heat, and salt transports obtained from occupations of Standard Section 2

Date of Occupation	Ship	Total Southward Volume Transport (x10°m ³ /sec)	Salt Transport (x10 ⁶ kg/sec)	Heat Transport (10 ³ m ³⁰ C/ sec)
11 Mar 1966	CGC HUMBOLDT	2.76	98.31	8.17
26–27 Mar 1966	EVERGREE	N 3.30	117.56	11.08

GREEN occupation. There was a gradual increase in the dynamic height of the shelf and a very slight filling of the trough stations.

STANDARD SECTION 4 AND REMAINING SECTIONS

The volume transports for the two occupations of Standard Section 4 are also presented in Figure 69. These values represented the westerly flow with Labrador Current characteristics as defined by the 19-year average temperature-salinity characteristic. This information is also presented in Table IV. The

Table IV. Summary of volume, heat, and salt transports obtained from occupations of northern end of Standard Section 4

Date of Occupation	Ship	Total Southward Volume Transport (x10 ⁴ m ³ /sec)	Salt Transport (x10"kg/sec)	Heat Transport (10°m ³ °C/ sec)
2–3 Apr 1966	CGC EVERGREEI	N 3.75	133.52	14.22
24 May 1966	CGC EVERGREEI	N 6.27	222.10	21.31

volume transport increased from 3.75 to 6.27 imes10⁶m³/sec between occupations. This was a case where the normal topography for both April and May showed a vigorous Labrador Current. The 2-3 April 1966 occupation had a relatively flat topography with lower than normal values of dynamic heights observed at the northernmost stations. The vigorous circulation observed during 26-27 May 1966 coincided with a relatively high stand of water on the Banks. This relatively high stand of water implied the presence of less dense water adjacent to the continental slope. The net volume transport eastward through the entire Standard Section 4 was 59.88 \times 10⁶m³/sec. This net volume was computed using a 2000 decibar reference surface.

The net volume flow through the Labrador Sea Section was .63 imes 10⁶m³/sec to the northwest, and the total heat and salt transports northward were 29.86 \times 10⁶m³ °C sec and 123.30×10^{6} kg/sec respectively. This was calculated using a 1500 decibar reference level. The total northerly transport of that portion of the West Greenland Current occupied was $6.26 \times 10^{6} \text{m}^{3}/\text{sec.}$ The total southerly transport of the Labrador Current near South Wolf Island, Labrador was $6.55 \times 10^6 \text{m}^3/\text{sec.}$ The total heat and salt transport southward for the Labrador Current were $13.76 \times 10^{6} \mathrm{m^{3} \circ C/}$ sec and 299.67 \times 10⁶kg/sec respectively. The total southerly volume transport computed for Section B occupied on 29-30 May 1966 was $2.60 \times 10^6 \mathrm{m}^3/\mathrm{sec.}$ The total heat and salt transports were $4.46 \times 10^{6} \text{m}^{3} \text{°C/sec}$ and 89.97×10^6 kg/sec respectively.

Parachute Drogue Current Project

INTRODUCTION

A project was planned to determine if velocity fluctuations of the Labrador Current associated with the volume transport calculations could be directly observed. In addition to the serial occupations of the western portion of Standard Section 3, parachute drogue measurements were conducted. These drogue measurements were to determine if velocity variations indicated by the geostrophic equation could be verified.

MEASUREMENTS

The drogue studies were made with the time-series study at Standard Section 3. This repeated occupation of the western part of Standard Section 3 was to determine if any short-term variation occurred in the volume transport of the Labrador Current. The weather encountered during this drogue experiment was extremely rough. The average wind force for the cruise was force 6 with the associated high sea states. Figure 70 is a progressive wind vector diagram for the time interval of the drogue study. The visibility was poor in fog and drizzle.

The experiment was conducted in this manner: Seven drogues were set from 1342Z, 17 April 1966 to 1256Z, 18 April 1966. Excepting drogue 5, these drogues were set in pairs with a surface drogue and a deep drogue. The pairing of drogues is shown in Table V. As each

Table V. Number, date, time, and depth of each drogue set

Drogue No.	Date/Time (GMT)	Depth (meters)
1	17/1342 - 17/2208	15
2	17/1357 - 17/2150	40
3	17/1442 - 17/1948	50
4	17/1500 - 17/2118	15
5	18/0010 - 18/0417	100
6	18/1256 - 18/2130	100
7	18/1256 - 18/2153	15

drogue was set, a radar range and bearing was taken as close together as possible on the drogue and on the reference buoy. Using this information it is possible to obtain the components of the position vector extending from the reference buoy to the drogue. Two position vectors may be used to obtain the displacement vector whose magnitude when divided by the time interval produces the magnitude of the velocity vector. The components of the displacement vector may also be used to determine the bearing of the velocity vector from north.

A program was prepared in FORTRAN for the 1BM 1130 computer that would compute the drogue velocity in centimeter/sec and the bearing of the velocity vector from true north. The inputs required for this program were:

1. Radar range to and true bearing of the reference buoy from the ship.

2. Radar range to and true bearing of the drogue from the ship.

3. Time each set of observations was taken. The outputs of this program were:

1. Magnitude of the velocity vector (speed) for the given interval.

2. The true bearing of the velocity vector from north.

The computer program is shown in Figure 71. A flow diagram for this program is presented in Figure 72.

RESULTS

The drogue trajectories are shown in Figures 73 through 76. They have been grouped using the time set, the depth at which set and the location where set. It is apparent from these criteria that drogues 1 and 2, 3 and 4, and 6 and 7 should be grouped together. Drogue 5 should be studied separately. The drogue speed and bearing information is given in Tables VI through X.

The actual depths of the parachutes are unknown, but Gerard (1965) presented measure-

Table VI. Drogue speed and true bearing data for drogue #1 (15 meters) and drogue #2 (40 meters) DROGUE #1 (15 Meters)

DATE/TIME* (GMT)	SPEED (cm/sec)	TRUE BEARING
17/1432		
17/1558	50	171
17/1558		
17/1701	55	179
17/1701		
17/1806	48	193
17/1806		
17/1913	48	205
17/1913		
17/2047	43	225
17/2047		
17/2208	21	- 25
DROG	UE #2 (40 Meters)	
17/1357		
17/1606	52	181
17/1606		
17/1709	38	188
17/1709		
17/1812	41	194
17/2055		
17/2150	14	228

 \ast Time interval used for speed and true bearing calculation.

Table VII. Drogue speed and true bearing data for drogue #4 (15 meters) and drogue #3 (50 meters) DROGUE #4 (15 Meters)

DATE/TIME* (GMT)	SPEED (cm/sec)	TRUE BEARING
17/1500		
17/1625	67	185
17/1625		
17/1726	54	179
17/1726		
17/1831	64	188
17/1831		
17/1940	75	193
17/1940		
17/2017	31	155
17/2017		
17/2118	67	206
DROGU	E #3 (50 Meters)	
17/1442	-	
17/1631	116	170
17/1631		
17/1732	54	179
17/1732		
17/1839	70	185
17/1839		
17/1948	58	188

* Time interval used for speed and true bearing calculation.

Table VIII. Drogue speed and true bearing data for drogue #5 (100 meters)

DATE/TIME* (GMT)	SPEED (cm/sec)	TRUE BEARING
18/0010		
18/0030	73	169
18/0030		
18/0100	82	171
18/0100		
18/0130	77	179
18/0130		
18/0200	87	183
18/0200		
18/0230	76	166
18/0230		
18/0300	120	189
18/0300		
18/0330	65	138
18/0330		
18/0400	113	168
18/0400		
18/0417	35	285

 $\ensuremath{^*}\xspace$ Time interval used for speed and true bearing calculation.

ments which indicated that a parachute runs near the depth at which it is set. Volkmann, Knauss, and Vine (1956) indicated that "A current which flows at 50 cm/sec to a depth of 100 meters will drag a parachute at 200 meters through the water at approximately 4.5 cm/sec, assuming no current exists at 200 meters," The difference between the average speeds of the three pairs of drogues set are given in Table XI. Although the average data show relatively small differences, the "instantaneous" values of velocities may differ by more than 40 cm/sec. Because of the small average differences in velocity, no correction has been made to the deep drogue velocities. Table XII presents the mean velocities computed using the dynamic heights at different depths. These velocities can be compared with the average drogue speeds. The average speed of each pair of drogues has been plotted as an appropriate slope on a vertical section of dynamic height anomaly. This is shown in Figures 77 and 78. The position of the drogue determined the stations between which the velocity should be calculated for comparison purposes.

Drogues 1 and 2 were located between stations 9536 and 9537 or 9542 and 9543. Drogues 3 and 4 were located between stations 9537

Table X.	Drogue sp	peed a	and	true	bearing	data	for	drogue
		#7	(15	mete	ers)			

$\begin{array}{c} 18/1256\\ 18/1300\\ 18/1300\\ 18/1330\\ 18/1330\\ 18/1400\\ 18/1400\\ 18/1430\\ 18/1430\\ 18/1430\\ 18/1532 \end{array}$	82 74 58 53 50 69	215 212 212 192 169 189
$18/1300 \\18/1300 \\18/1330 \\18/1330 \\18/1400 \\18/1400 \\18/1430 \\18/1430 \\18/1430 \\18/1532$	82 74 58 53 50 69	215 212 212 192 169 189
$18/1300 \\18/1330 \\18/1330 \\18/1400 \\18/1400 \\18/1430 \\18/1430 \\18/1532$	74 58 53 50 69	212 212 192 169 189
$18/1330 \\18/1330 \\18/1400 \\18/1400 \\18/1430 \\18/1430 \\18/1430 \\18/1532$	74 58 53 50 69	212 212 192 169 189
$18/1330 \\18/1400 \\18/1400 \\18/1430 \\18/1430 \\18/1532$	58 53 50 69	212 192 169 189
$18/1400 \\18/1400 \\18/1430 \\18/1430 \\18/1532$	58 53 50 69	212 192 169 189
$\begin{array}{c} 18/1400 \\ 18/1430 \\ 18/1430 \\ 18/1532 \end{array}$	53 50 69	192 169 189
18/1430 18/1430 18/1532	53 50 69	192 169 189
$\frac{18/1430}{18/1532}$	50 69	169 189
18/1532	50 69	169 189
	69	189
18/1532	69	189
18/1545		
18/1545		
18/1630	90	253
18/1630		
18/1700	62	200
18/1700		
18/1731	38	191
18/1731		
18/1800	82	197
18/1800		
18/1830	65	188
18/1830		
18/1900	55	195
18/1900		
18/1930	55	215
18/1930		
18/2000	69	201
18/2000		
18/2030	72	195
18/2030		
18/2100	61	198
18/2100		
18/2130	74	204
18/2130		
18/2153	63	212

* Time interval used for speed and true bearing calculation.

 Table XI. Speed differences (cm/sec) of shallow drogue

 minus deep drogue

Drogue Number	Depth (meters)	Average Speed (cm/sec)	Difference (cm/sec) Shallow drogue-Deep Drogue
1	15	44	
			+8
$\overline{2}$	49	36	
3	50	74	
			-14
4	15	60	
5	100	81	
6	100	56	
			+9
7	15	65	

Table	1X.	Drogue	speed	and	true	bearing	data	for
		drog	gue #6	(100	meter	rs)		

DATE/TIME* (GMT)	SPEED (cm/sec)	TRUE BEARING
18/1256		
18/1300	96	165
18/1300		
18/1330	70	194
18/1330		
18/1400	44	193
18/1400		
18/1430	59	186
18/1430		
18/1528	60	189
18/1528		
18/1536	57	190
18/1536		
18/1546	56	204
18/1546		40.7
18/1600	59	197
18/1600		20.4
18/1630	41	204
18/1630	40	105
18/1700	68	195
18/1700	05	109
18/1731	30	195
18/1731	20	919
18/1800	80	210
18/1800	73	176
18/1830	10	170
18/1900	30	294
18/1900	01	
18/1930	49	224
18/1930		
18/2000	50	216
18/2000		
18/2030	49	203
18/2030	-	
18/2100	36	218
18/2100		
18/2130	53	221

* Time interval used for speed and true bearing calculation.

Station Number	Depth (meters)	Mean Velocity (cm/sec)
9536-9537	0	*5
	25	*6
	50	*4
9537-9538	0	86
	25	83
	50	75
	75	66
	100	59
9542 - 9543	0	9
	25	12
	50	12
9544 - 9545	0	56
	25	50
	50	49
	75	48
	100	47

Table XII. Mean velocities (cm/sec) for various depths computed using Helland-Hansen's technique

* These velocities were northward.

and 9538 or 9543 and 9544. Drogue number 6 passed between stations 9537 and 9538 or 9543 and 9544. Drogue 7 was set to the west of drogue number 6 and it drifted between stations 9536 and 9537 or 9542 and 9543. Because the density distribution changed in the time interval between the occupation of stations 9535 and 9540 and stations 9541 and 9546, the average drogue velocities were compared with the dynamic height anomalies and the corresponding velocities from both occupations.

Reid (1963) stated that drogues should be tracked for more than 48 hours before the velocities are compared with the geostrophic flow because of the short period fluctuations in flow and positioning errors. Although the maximum time interval that a drogue was tracked was 9 hours, it is felt that a meaningful comparision can be made since the horizontal position errors were small.

DISCUSSION

As indicated in Figure 32, the dynamic topography changed significantly from 16 to 18 April 1966. This caused the variations observed in the volume transports. The radar ranges and bearings taken on the drogues and the reference buoy insured that the position errors and hence uncertainty in calculating both the drogue and geostrophic velocities were minimized. Because of this, the average drogue speeds and the calculated geostrophic velocities have been directly compared. The average drogue speed was calculated by averaging the drogue speed without considering the direction. It was recognized that velocity is a vector quantity and should be averaged in componnent form and the averaged components then used to form the average velocity vector. It was felt that the added accuracy was not commensurate with the added complexity involved. The speeds have been arthmetically averaged and no weighting has been done to compensate for different observational time intervals.

Drogues 1 and 2 were set approximately 12 hours after stations 9536 and 9537 were occupied and approximately 36 hours before stations 9542 and 9543 were occupied. The trajectories of drogues 1 and 2 and the velocity information in Table 6 indicate a rather strong (40cm/sec) southerly flow. This is not as indicated by the dynamic heights calculated for stations 9536 and 9537. The occupations of this section 36 hours later showed a weak (11 cm/sec)velocity southward. The last drogue velocities measured indicated a velocity of 21cm/sec and 14cm/sec respectively for the 15 meter and 40 meter drogues. Initially the geostrophic velocity did not correspond to the measured velocity in this case, but at the end there was an indication that dynamics were adjusting to indicate a velocity similar to that measured.

Drogue 5 was anomalous because it indicated the highest velocity (120cm/sec) and had the highest average velocity (81cm/sec). The other 100 meter drogue had an average speed of 56cm/sec compared with a calculated geostrophic current of 47cm/sec.

Hence the agreement between drogue 6 and the geostrophic current was considered satisfactory, and the agreement between drogue 5 and the calculated currents was considered to be poor. Drogue 5 was observed for only 4 hours, and it was set approximately 23 hours before the oceanographic observations were taken from which the velocity calculations were done. The agreement between the average velocity of drogue 5 and the 100 meter geostrophic velocity calculated between stations 9537 and 9538 was also poor. Drogue 5 apparently measured some irregular motion. The average speed of drogue 7 agreed satisfactorily with geostrophic velocities computed using data from stations 9537—9538 and stations 9544—9545. The average speeds of drogues 3 and 4 also agreed satisfactorily with the computed geostrophic currents.

Figure 70 is a progressive wind vector diagram based upon observations taken during the drogue study. The wind maintained a relatively steady direction with a varying speed. After 24 hours the net transport caused by the wind stress should have manifested itself through the shallow mixed layer. This transport should have been in the northeast direction or acting in the direction opposite to the velocity indicated by each drogue. No effect such as this was observed in the drogue data. Excepting drogues 3 and 4, each drogue velocity was greater than the corresponding calculated velocity.

Perhaps the most interesting result obtained from the three serial occupations of the Standard Section 3 is an estimate for the accelerations occurring to the water. Using the computed geostrophic velocities from Table 12 and the times of occupation from the station listing at the end of this report, numerical values for the accelerations may be determined. These accelerations in some instances may have a magnitude equal to the Coriolis force. This contradicts one of the basic assumptions in the method used to compute velocities from density information. This indicates, if these values for accelerations were routinely observed, a different numerical procedure must be used to compute velocities. It is easy to use the drogue speed data to compute accelerations. They also show values that are larger than the Coriolis force, leading to the same conclusion reached above.

MEAN TEMPERATURE-SALINITY CURVES

Hawley and Soule (1940) stated that the temperature-salinity curves for the stations occupied in the Grand Banks region fell into three distinct groups. The warm water group had the characteristics of the North Atlantic Current Water and the colder water stations fell into two correlation groups instead of being scattered. They further stated that the width of the area composed of Mixed Water between Labrador Current Water and North Atlantic Current Water was small at the "Tail-of-the-Banks," and east of the Grand Banks it widened to approximately 80 nautical miles.

Hawley, Smith, Barnes, and Soule (1941), using all oceanographic data obtained from 1934 to 1940, computed 7-year average temperature-salinity curves. They also stated that the temperature-salinity curves for all stations fell into one of the three classifications. Occasionally the values for the upper levels would fall into an adjacent group if the station happened to be taken near the boundary of two water types. Soule and Barnes (1950) presented an average temperature-salinity curve based upon data from 1934–1941.

Carter, Challender, Cheney, and Soule (1950) did not present a mean temperaturesalinity curve based on 1948 oceanographic observations. They stated that "the transition from Labrador Current Water to the typical Mixed Water was normally abrupt in 1948 and unusually gradual from the typical Mixed Water to North Atlantic Current Water," This caused many stations to be located in the mixing zone causing station temperature-salinity information to scatter from the Mixed Water temperature-salinity curve to the temperature-salinity of the North Atlantic Current. Cheney and Soule (1951) presented the temperature-salinity relationship using the 1949 data and the average values calculated for 1934-1941. This same procedure was followed until Bush, Murray, and Soule (1957) presented the mean temperature-salinity relationship based upon the oceanographic data collected from 1948 to 1956. They also compared the nine year 1948–1956 mean and the eight year 1934–1941 mean. Since 1956 a new average value has been calculated each year and the yearly observation compared to it. There have been three assumptions:

1. Labrador Current Water and North Atlantic Current Water are distinct water masses.

2. These two water masses mix in sufficiently constant proportions so that the Mixed Water can be regarded as a virtual water mass.

3. The mixing zones are narrow and well delineated.

There has also been an implied assumption that the hydrographic stations whose temperature-salinity relationship is Mixed Water in nature should have their geographical positions located between the Labrador Current and the North Atlantic Current.

The criteria used to determine the water mass observed at each depth equal to or greater than 50 meters are shown in Figure 63. The observed values are then entered, at each depth level, under the correct water mass. All values for the standard depths under each water mass are then averaged and the yearly average values are then plotted on a temperature-salinity diagram with the long term average values. The observed values that are atypical in nature are not entered on this mean temperature-salinity chart. This subjective data processing procedure causes the three water masses to appear to have sharp geographical boundaries when in fact this may not be true. Therefore, the information presented in Figure 25 should be interpreted accordingly.

REFERENCES

- Adams, K. R., 1942. Hydrographic Manual, U.S. Government Printing Office Special Publication No. 143, Revised, 940 p.
- Bowditch, N., 1962, American Navigator, U.S. Navy Hydrographic Office Publication No. 9, 1524 p.
- Bullard, R. P., N. Corwin, V. W. Driggers, A. P. Franceschetti, R. E. Lenczyk, D. A. McGill, R. M. O'Hagan and F. M. Soule, 1963. Report of the International Ice Patrol Service in the North Atlantic Ocean-Season of 1962, U.S. Coast Guard Bulletin No. 48, 153 p.
- Bullard, R. P., R. P. Dinsmore, A. P. Franceschetti, P. A. Morrill, and F. M. Soule, 1961. Report of the International Ice Patrol Service in the North Atlantic Ocean-Season of 1960, U.S. Coast Guard Bulletin No. 46, 114 p.
- Bush, A. J., F. E. Murray and F. M. Soule, 1957. Report of the International Ice Observation and Ice Patrol Service in the North Atlantic Ocean-Season of 1956, U.S. Coast Guard Bulletin No. 42, 153 p.
- Carter, H. H., E. R. Challender, L. A. Cheney, and F. M. Soule, 1950. Report of the International Ice Observation and Ice Patrol Service in the North Atlantic Ocean-Season of 1948, U.S. Coast Guard Bulletin No. 34, 118 p.
- Cheney, L. A. and F. M. Soule, 1951. Report of the International Ice Observation and Ice Patrol Service

in the North Atlantic Ocean-Season of 1949, U.S. Coast Guard Bulletin No. 35, 116 p.

- Dinsmore, R. P., R. M. Morse, and F. M. Soule, 1960. Report of the International Ice Patrol Service in the North Atlantic Ocean-Season of 1958, U.S. Coast Guard Bulletin No. 44, 99 p.
- Fuglister, F. C., 1951. "Annual Variations in Current Speeds in the Gulf Stream," Journal of Marine Research, Vol. 10, No. 1, pp. 119-127.
- Fuglister, F. C., and L. V. Worthington, 1951. "Some Results of a Multiple Ship Survey of the Gulf Stream," Tellus, Vol. 3, No. 1, (Woods Hole Oceanographic Institution Contribution No. 548).
- Gerard, R. D., 1965. "Some New Techniques in Parachute Drogue Technology," Transactions of the Joint Conference of the Marine Technology Society and American Society of Limnology and Oceanography, Washington, 1965 Vol. 2, pp. 1088-1090.
- Hawley, W. P., E. H. Smith, C. A. Barnes, and F. M. Soule, 1941. Report of the International Ice Observation and Ice Patrol Service in the North Atlantic Ocean-Season of 1940, U.S. Coast Guard Bulletin No. 30, 89 p.
- Hawley, W. P. and F. M. Soule, 1940. Report on International Ice Observation and Ice Patrol Service in the North Atlantic Ocean-Season of 1939, U.S. Coast Guard Bulletin No. 29, 133 p.
- Iselin, C. O'D., 1940. "Preliminary Report on Long-Period Variations in the Transport of the Gulf System," Papers in Physical Oceanography and Meteorology, Vol. 5, No. 1, pp. 1-40.
- Iselin, C. O'D. and F. M. Fuglister, 1948. "Some Recent Developments in The Study of the Gulf Stream," Journal of Marine Research, Vol. 7, No. 3, pp. 317– 329.
- Kollmeyer, R. C., D. A. McGill, and N. Corwin, 1967. Oceanography of the Labrador Sea in the Vicinity of Hudson Strait in 1965, U.S. Coast Guard Oceanographic Report No. 12, (CG 373-12), 92 p.
- Kollmeyer, R. C., T. C. Wolford, and R. M. Morse, 1965. Oceanography of the Grand Banks Region of Newfoundland in 1965, U.S. Coast Guard Oceanographic Report No. 11, (CG 373-11), 157 p.
- Lenczyk, R. E., 1965. Report of the International Ice Patrol Service in the North Atlantic Ocean-Season of 1965, U.S. Coast Guard Bulletin No. 51, 43 p.
- Montgomery, R. B., 1938. "Fluctuations in Monthly Sea Level on Eastern U.S. Coast as Related to Dynamics of Western North Atlantic Ocean," Journal of Marine Research, Vol. 1, No. 2, pp. 165-185.
- Reid, J. L., 1963. "Measurement of the California Countercurrent off Baja California," Journal of Geophysical Research, Vol. 68, No. 16, pp. 4819-4822.
- Smith, E. W., 1937. The Marion Expedition to Davis Strait and Baffin Bay, 1928, U.S. Coast Guard Bulletin No. 19, pt. 3, 221 p.

- Soule, F. M., 1964. "The Normal Dynamic Topography of the Labrador Current and its Environs in the Vicinity of the Grand Banks of Newfoundland During the leeberg Season," Woods Hole Oceanographic Institution, Reference No. 64-36, 9 p.
- Soule, F. M. and C. A. Barnes, 1950. Report of the International Ice Observation and Ice Patrol Service in the North Atlantic Ocean-Season of 1941, U.S. Coast Guard Bulletin No. 31, 62 p.
- Soule, F. M. and G. Van A. Graves, 1938. Report of the International Ice Observations and Ice Patrol Service in the North Atlantic Ocean-Season of 1937, U.S. Coast Guard Bulletin No. 27, 126 p.
- , 1940. Report of the International Ice Observation and Ice Patrol Service in the North Atlantic Ocean-Season of 1938, U.S. Coast Guard Bulletin No. 28, 173 p.

- Stommel, H., 1960. The Gulf Stream, A Physical and Dynamical Description, University of California Press, Berkeley and Los Angeles, 202 p.
- Sverdrup, H. U., M. W. Johnson, and R. H. Fleming, 1942. The Oceans: Their Physics, Chemistry and General Biology, Prentice-Hall Inc., Englewood Cliffs, New Jersey, 1087 p.
- Worthington, L. V., 1954. "Three Detailed Cross-Sections of the Gulf Stream." Tellus, Vol. 6, No. 2, (Woods Hole Oceanographic Institution Contribution No. 694).
- Volkmann, G. K., J. Knauss, and A. Vine, 1956. "The Use of Parachute Drogues in the Measurements of Subsurface Ocean Currents," Transactions of the American Geophysical Union, Vol. 37, No. 5, pp. 573-577.


Figure 1. Dynamic topography of sea surface relative to the 1000 decibar surface from data collected by CGC EVERGREEN 2-8 APRIL 1966. Oceanographic station positions are indicated and station numbers are given at turning points.



Figure 2A. Dynamic topography of the sea surface relative to the 1000 decibar surface from data collected 16-17 April 1966. Oceanographic station positions are indicated and station numbers are given.



Figure 2B. Dynamic topography of the sea surface relative to the 1000 decibar surface from data collected 18-19 April 1966. Oceanographic station positions are indicated and station numbers are given.



Figure 2C. Dynamic topography of the sea surface relative to the 1000 decibar surface from data collected 21 April 1966. Oceanographic station positions are indicated and station numbers are given.



Figure 3. Dynamic topography of the sea surface relative to the 1000 decibar surface from data collected during the survey 22 May-7 June 1966. Oceanographic station positions are indicated and the station numbers are given at turning points.







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TEMPERATURE °C

Figure 5B. Comparison of near simultaneous STD cast and Nansen cast. The ordinate is depth and the abscissa is temperature and salinity. The left hand curve is salinity and the right hand curve is temperature. The temperature scale is along the lower abscissa and the salinity scale is along the upper abscissa. The ordinate is depth in meters. The salinity and temperature values obtained from the comparative Nansen cast are plotted at proper depths as circles and squares respectively. The salinity scale was changed at 107 meters.

Figure 6. Surface dynamic heights in dynamic meters along Standard Section 3. CGC DUANE stations (26-36) 14-15 February 1966. This topography is viewed looking north. The small inset with 10 miles beneath it indicates the scale along the abscissa in nautical miles. The two digit figures beneath the abscissa are station numbers.



DYNAMIC HEIGHT (DYNAMIC METERS)



Figure 7. CGC DUANE stations (26-36) 14-15 February 1966. Vertical temperature (°C) structure along Standard Section 3. The depths are in meters and the station numbers are given along the top of the profile. The small inset with 10 miles beneath it indicates the scale along the abscissa in nautical miles. Station 31 has been omitted. The bottom topography is obtained from uncorrected sounding depths based on a speed of sound in sea water of 4800 ft/sec.



Figure 8. CGC DUANE stations (26-36) 14-15 February 1966. Vertical salinity (0/00) structure along Standard Section 3. Comments of Figure 7 are also applicable here.



Figure 9. Dynamic topography of sea surface relative to the 1000 decibar surface from data collected by CGC DUANE 14-15 February 1966. Oceanographic station positions are indicated. Station numbers are given at beginning and end of the section.



Figure 10. CGC HUMBOLDT stations (26-36) 9-11 March 1966. Vertical temperature structure (°C) along Standard Section 3.



Figure 11. CGC HUMBOLDT station (26-36) 9-11 March 1966. Vertical salinity structure (0/00) along Standard Section 3.



Figure 12. CGC HUMBOLDT stations (13-25) 11-12 March 1966. Vertical Temperature structure (°C) along Standard Section 2.



Figure 13. CGC HUMBOLDT stations (13-25) 11-12 March 1966. Vertical salinity structure (0/00) along Standard Section 2.





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Figure 16. Dynamic topography of sea surface relative to the 1000 decibar surface from data collected by CGC HUMBOLDT 9-12 March 1966. Oceanographic stations positions are indicated. Station numbers are given at the beginning and end of each section.



Figure 17. CGC EVERGREEN stations (9509-9515) 2-3 April 1966. Vertical temperature structure along northern part of Standard Section 4. This section is viewed looking East. The small inset with 10 miles beneath it indicates the scale in nautical miles along the abscissa.



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Figure 19. CGC EVERGREEN stations (9516-9524) 4-5 April 1966. Vertical temperature structure along Standard Section 3.



Figure 20. CGC EVERGREEN stations (9516-9524) 4-5 April 1966. Salinity section across the Labrador Currentalong Standard Section 3.



Figure 21. CGC Evergreen Stations (9525-9534). Temperature section across the Labrador Current along standard section 2, 7-8 April 1966.



Figure 22. CGC Evergreen stations (9525-9534). Salinity section across the Labrador Current along standard section 2, 7-8 April 1966.





Figure 25. Average temperature-salinity relationship for Labrador Current Water, Atlantic Current Water, and Mixed Water found in the Grand Banks region. Solid lines show conditions found during 1966 and the broken lines represent the 19 year averages.



Figure 26. CGC EVERGREEN stations (5321-5330) 6-8 April 1954. Historical temperature section across the Labrador Current along Standard Section 3.



Figure 27. CGC EVERGREEN stations (5321-5330) 6-8 April 1954. Historical salinity section across the Labrador Current along Standard Section 3.



Figure 28. CGC EVERGREEN stations (8834-8843) 5-6 April 1964. Historical temperature section across the Labrador Current along Standard Section 3.



Figure 29. CGC EVERGREEN stations (8834-8843) 5-6 April 1964. Historical salinity section across the Labrador Current along Standard Section 3.



Figure 32. Surface dynamic heights along the western end of the Standard Section 3. These values were obtained from the 3 serial occupations conducted from 16-21 April 1966. The small inset with 10 miles beneath it indicates the scale in nautical miles along the abscissa.

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STATION NUMBERS

21 APRIL 1966



Figure 33. CGC EVERGREEN stations (9535-9540) 16-17 April 1966. Temperature section across the Labrador Current along standard section 3.



Figure 34. CGC EVERGREEN stations (9535-9540) 16-17 April 1966. Salinity section across the Labrador Current along standard section 3.



Figure 35. CGC EVERGREEN stations (9541-9546) 18-19 April 1966. Temperature section across the Labrador Current along standard section 3.



Figure 36. CGC EVERGREEN stations (9541-9546) 18-19 April 1966. Salinity section across the Labrador Current along standard section 3.



Figure 37. CGC EVERGREEN stations (9547-9551) 21 April 1966. Temperature section across the Labrador Current along standard section 3.



Figure 38. CGC EVERGREEN stations (9547-9551) 21 April 1966. Salinity section across the Labrador Current along standard section 3.

Figure 39. Surface dynamic heights in dynamic meters along Standard Section 3. These values are for stations (9568-9578) 25-26 May 1966.



50



Figure 40. CGC EVERGREEN stations (9568-9578) 25-26 May 1966. Temperature section across Labrador Current along Standard Section 3.



Figure 41. CGC EVERGREEN stations (9568-9578) 25-26 May 1966. Salinity section across the Labrador Current along Standard Section 3.



Figure 43. Surface dynamic heights in dynamic meters along Standard Section 2. CGC EVERGREEN stations (9579-9586) 26-27 May 1966.



Figure 45. Normal dynamic topography for May along Standard Section 2. Values in dynamic meters, after Soule (1964).

STATION NUMBERS



Figure 46. CGC EVERGREEN stations (9579-9586) 26-27 May 1966. Temperature section across the Labrador Current along Standard Section 2.







Figure 48. Surface dynamic heights in dynamic meters along northern end of Standard Section 4. CGC EVERGREEN stations (9509-9515) 2-3 April 1966.



Figure 49. Surface dynamic heights in dynamic meters along northern end of Standard Section 4. CGC EVERGREEN stations (9561-9567) 24 May 1966.



56

Figure 51. Normal dynamic topography for May along northern end of Standard Section 4. Values in dynamic meters, after Soule (1964).









Figure 54. Dynamic topography of the sea surface relative to the 1500 decibar surface from data collected 3-7 June 1966. Oceanographic station positions are indicated.



Figure 55. CGC EVERGREEN stations (9629-9654) 4-7 June 1966. Temperature section across the Labrador Sea.



Figure 56. CGC EVERGREEN stations (9629-9654) 4-7 June 1966. Salinity section across the Labrador Sea.





Figure 58. CGC EVERGREEN stations (9590-9595) 28 May 1966. Salinity section across the Labrador Current along Section A.




Figure 59. CGC EVERGREEN stations (9601-9613) 29-30 May 1966. Temperature section across the Labrador Current along Section B.



Figure 60. CGC EVERGREEN stations (9601-9613) 29-30 May 1966. Salinity section across the Labrador Current along Section B.



Figure 61. CGC EVERGREEN stations (9614-9628) 31 May-1 June 1966. Temperature section across the Labrador Current along Section C.



Figure 62. CGC EVERGREEN stations (9614-9628) 31 May-1 June 1966. Salinity section across the Labrador Current along Section C.







Figure 64. Total volume transports of the Labrador Current. All volume transports are $\times 10^6 \text{m}^3$ /sec. The three serial occupation values are not total volume transports.

HEAT AND SALT TRANSPORT VALUES



Figure 65. Total salt and heat transport of the Labrador Current at Standard Section 3 for the interval from 14 February to 25 May 1966.

VOLUME TRANSPORT ((10) 6M 3/SEC)



Figure 66. Volume, heat, and salt transport of the "Arctic" component of the Labrador Current at Standard Section 3. The "Arctic" component is defined to be less than 2.0° C and $34.3^{\circ}/\infty$.

VOLUME TRANSPORT VALUES



Figure 67. Volume transport values for each occupation of Standard Section 3 conducted from early April to late May for 1950-1966.



Figure 68. Maximum and minimum dynamic height values for stations located in the trough and on the Banks plus the distance between these maximums and minimums.



Figure 69. Total volume transports of the Labrador Current through Standard Section 2 and Standard Section 4.



Figure 70. Progressive wind vector diagram from 17 April 1966 to 18 April 1966.

```
DIMENSION ITME(25), IBOYR(25), IBOYA(25), IDRGR(25), IDRGA(25)
             DIMENSION XRB(25), YRB(25), XRD(25), YRD(25), BUOYA(25), OROGA(25)
DIMENSION XR(25), YR(25), TIME(3), TXHR(3), TMIN(3)
CUMMERS FOR FRADINGS

READ(2:4)]N:INDAY

i FORMAT(12:42)

C READ INPUT DATA

DO 10 [=1:N

10 READ(2:4)]NED(1):IBOYR(1):IBOYA(1):IDRGR(1):IDRGA(1)

2 FORMAT(14:1X:2(15:13:1X))
C OUTPUT INPUT DATA
INTHR=ITME(1)
             THREINTHR
        IHR *INIHR
WRITE(3:3)
3 FORMAT(48X:4HRUOY:3X:4HBUOY:5X:4HDROG:3X:4HDROG:/.35X:7HTIME(2):5X
1.5HRANGE:ZX:5HANGLE:/)
DO 14 = 1.N
IF(ITME(1)-HR)11:12:12

      11 IHR=ITME(I)
            DTME=ITME(1)+(INDAY+1)+1+E04
       GO TO 13
12 DTME=1TME(1)+INDAY+1,ED4
      13 WRITE(3+41DTME+1BOYR(1)+1BOYA(1)+ IDRGR(1)+1DRGA(1)
4 FOPMAT(35X+F8+0+4X+15+3X+13+5X+15+3X+[3+/)
14 CONTINUE
C CONVERT INPUT ANGLES TO RADIANS
       DEGRD=57.29578
DO 20 I=1+N
BUOYA(I)=IBOYA(I)/DEGRD
20 DROGA(I)=IDRGA(I)/DEGRD
2U DROGA(1)=IDRGA(1)/DEGRD
C CONVERT INPUT VECTORS TO COMPONENT FORM
DO 3D I=1.N
XRB(1)=IBOYR(1)*SIN(BUOYA(1))
YRB(1)=IDRYR(1)*COS(BUOYA(1))
XRD(1)=IDRGR(1)*COS(DROGA(1))
YRD(1)=IDRGR(1)*COS(DROGA(1))
      YRD1(1=10KGR(1)*COS10H0GA(1))
XR(1)=XRD(1)*XRB(1)
30 YR(1)=YRD(1)*YRB(1)
wR(TE (3,7)
7 FORMAT (14x+1HX+6X+1HY+21X+1HX+6X+1HY)
WR(TE (3+8) (ITME(1)*XRB(1)*YRR(1)*XRD(1)*YRD(1)*[=1+N)
8 FORMAT (16+5X+F9+2+2X+F9+2+19X+F9+2+2X+F9+2+/)
##FOF OUTPONT WEATHER.
C WRITE OUTPIT HEADINGS
            WRITE(3+5)
        5 FORMAT(1×,1H1,15×,7HTIME(1),/,15×,7HTIME(2),5×,5HVELOC,5×,5HANGLE,
C COMPUTATION OF VELOCITY
             NN=N-1
             DO 126 K=1+NN
XDELT=XR(K+1)+XR(K)
            YDELT=YR(k+1)-YR(k)
XMAGT=SQRT((XDELT++2)+(YDELT++2))
C COMPUTE ANGLE INFORMATION
```

PAGE 03

```
IF (YDELT)119,115,119
115 IF (XDELT)117,116,118
116 ANGLE = 0.
G0 T0 123
117 ANGLE = 270.
G0 T0 123
118 ANGLE = 0.
G0 T0 123
119 ANGLE = ATAN(YDELT)*DEGRD+.5
IF (YDELT)120,999,121
120 ANGLE = ANGLE + 180.
G0 T0 123
121 IF (XDELT) 122,999,123
122 ANGLE = ANGLE + 360.
123 CONV=91.440183/60.
IXHR12)=ITME(K)/100.
IMIN(1)=ITME(K)+(IXHR(1))=1,F02 )
IMIN(2)=ITME(K)+(IXHR(1))=1,F02 )
IMIN(2)=ITME(K)+(IXHR(1))+(60*(IDEL-1))
G0 T0 203
201 DELT=(IMIN(2)+60)+IMIN(1))+(60*(IDEL-1))
G0 T0 203
202 IXHR(2)=IXHR(2)+24
G0 T0 103
203 VELOC=(XMAGT/DELT)*CONV
C COMPUTE DATE-TIME GROUP
TIME(1) = ITME(K) + INDAY*1.E04
ITME(1) = ITME(K) + INDAY*1.E04
WPITE (3,6) TIME(1),TIME(2)*VELOC.ANGLE
6 FORMAT (15X+F8.0*/*15X+F8.0*5Y*F8.2*5X*F5.0)
126 CONTINUE
999 STDP
END
```

Figure 71. IBM 1130 FORTRAN program used for drogue velocity and true bearing calculation.

70



Figure 72. Flow diagram for IBM 1130 drogue velocity and true bearing program.



Figure 73. Trajectories of drogues 1 and 2.



Figure 74. Trajectories of drogues 3 and 4.



Figure 75. Trejectory of drogue 5



Figure 76. Trajectory of drogue numbers 6 and 7. The displacement of drogue 7 from 1545 GMT to 1630 GMT may have been caused by an error.



Figure 77. Average drogue speeds plotted as slopes on vertical section of dynamic height anomalies. These dynamic height anomalies are with respect to the 1000 decibar surface. These dynamic height anomalies are for stations 9536-9539.





TABLE OF OCEANOGRAPHIC DATA

The following are the observed and interpolated data for the Coast Guard Oceanographic Unit oceanographic stations taken during the 1966 International Ice Patrol near the Grand Banks of Newfoundland. The data were obtained by the CGC EVERGREEN 2 April 1966 to 7 June 1966. Presentation is from National Oceanographic Data Center Cruise Listing No. 31-8001.

The CGC HUMBOLDT and CGC DUANE data are from National Oceanographic Data Center Cruise Listing Numbers 31-702 and 31-792 respectively. These will be published in a future U.S. Coast Guard Oceanographic Report.

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REFER CTRY CODE	ID.	SHIP COOE	LATITU	OE	LONGI	TUOE	M AR SOU	ARE	STAT	ION T GMT)	IME	YEAR	С	ORIGE RUISE	NATO STATI	R'S ON		OEPTH TO	MAX. DEPTH OF	QB	WAVE SERVATION	s	WEA- THER	CLOUD			NOOC	
		-		1/10		1/10 -	10.	1*	MO	DAY	IR,1/10			NU.	NUM	BER	+°		S'MPL'S	DIR.	HGT PER	\$EÅ	0000	TYPE AM	ļ		UMBER	
310	8001	EV	4209	N	0501	16 W	150	20	04	03	041	196	6	9	510		3	3200	12	18	63		X4	X 9			0002	
								WA	TER	<u>`</u>	VIN Q	8A	RO-	AIRT	EMP.	<u>c</u>		NO.	SPEC									
								COLOR	TRANS. Im)	DIP.	OR OR) ME	TER hel	DRY	I W	ET CO	0E	OBS. DEPTHS	OBSERV	A TION S								
										10	¢ 1/	0	71	104	1	0017	+	12										
			<u> </u>						<u> </u>	10	1314		4	100	_	00 7		10										
		MESSENGR TIME HR 1/10	CAST	CAR	20	DEPTH (m)	1	'c	s	•4.	SIG	M A – ĭ	S	PECIFIC VOL ANOMALT-	UME X10 ⁷	₹ ∆ 0 0¥N. 0 x 10 ²	р м.	SOU VELO	CITY	D2 ml/	PO4-P 29 - 01/	יסז פע	TA L—P - o1/I	NO2-N 49 - 01/l	NO3-N 20 - at/l	N8 + 01/	рН	s C C
				S	TO	0000	0	549	34	26	27	05	, I	00101	52	000	0	14	720		,	•						
		041	L	08;	s	0000	0	549	34	262	27	05						14	720									
				5	TO	0010	0	542	34	28	27	08		00099	49	001	0	14	719									
		~ / •		- 5	10	0020	0	535	34	29	27	09	1	00098	07	00 Z	0	14	718									
		041	L	00:	5 • D	0026	0	530	34	296	21	10					_	14	717									
						0050	0	521 611	24	20	27	11		00096	68	003	0	14	717									
		041	i i	08	< <	0052	ň	500	34	306	21	12		00094	60	004	9	14	714									
		•••	•	5	TD	0075	ŏ	497	34	35	27	14		00080		007	2	14	715									
		041	L	08	Ś	0078	õ	489	34	364	27	21	'	00007	40	007	۷	14	710									
				S	τo	0100	ŏ	460	34	47	27	32		00077	20	009	3	14.	703									
		041	L	085	s	0104	Ó	457	34	483	27	34				,	-	14	703									
				S	TD	0125	0	469	34	58	27	40		00070;	20	011	1	14	712									
				51	т٥	0150	0	477	34	57	27	46		00064	62	012	8	14	721									
		041	L	08;	S 1	0155	0	478	34	687	27	47						14	722									
				51	то	0200	0	475	34	79	27	56	(00055	93	015	8	14	730									
		041		085	s	0207	0	474	34	806	27	57						14	731									
				5		0250	0	472	34	86	27	62	-	00050	97	018	5	14	738									
		0.6.1			10	0300	0	470	34	90	27	65		00048	27	021	0	14	746									
		041	•	00:	5	0309	0	409	34	908	21	66						14	747									
		0.63		0.00		0410	~	441	24	72	21	70	(00044	86	025	6	14	151									
		041		003	5 T O	0500	0	430	34	718 778	21	20		000/3	5 3	0.2.0	~	14	751									
				 	10	0600	0	~ <u>~</u> ~	34	72	21	12		00049	ככ דר	050	0	14	160									
		041		084	ς τ	10612	0	407	34	330	27	74		00042.	51	024.	2	14	770									
		• • •	•	51	τD ,	0700	õ	194	34	3 2	27	75	(00042	28	038	6	14	//2 791									
				51	T D	0800	ō	381	34	92	27	76	- i	00041	70	042	8	14	792									
		041	L	OBS	5	0813	Ó	380	34	916	27	76			-		-	14	793									
				51	то	0900	0	374	34	92	27	77	(00041	78	046	9	148	805									
				\$1	τD	1000	0	368	34	92	27	78	(00041	94	051	1	148	320									
		041		085	S 1	1034	0	366	34	922	27	78						148	324									
				\$1	то	1100	0	362	34	92	27	78	(000420	8 C	055	3	148	834									
				51	r0	1200	0	358	34	92	27	79	(000424	42	059	5	148	849									
		041		085	5 1	1216	0	357	34	916	27	78						148	851									

REEF	ENCE	1 1					AAAR	SDEN	STA		TAAF			ORI	SINAT	DR'S		DEPTH	MAX.	1	WA	VF	WEA		LOUD			NODC	
CTRY	ID.	SHIP	LATITU	DE	LONG	ITUDE HES	sou	ARE	114	GMT		YE A	R	CRUISE	<u>STA</u>	TION	_	TO	DEPTH	OB	SER∨	ATIONS	THE	C	ODES		s	TATION	
CODE	NO.	CODE	•	1/10		'1/10 ² Z	10*	1.	MO	DAY	4R.1/10			NO.	NU	MBER		BOTTOM	S'MPL'	S DIP	HG	PER SE	A COD	E 7.99	PE A MIT		P	UMBER	
31	8001	Εv	4227	N	050	26 W	150	20	04	03	070	198	56	4	951	1		2514	11	18	6	2	X 4		X 9			0003	
								WA	TER	L	WIND	8	ARO	A IR	TEMP.	ъ		NO.	C P C	CIAL]								
								COLOR	TRANS	DIR.	SPEEC	M	ETER	DPY		AV ET	CODI	OBS.	OBSERV	ATIONS	1								
								CODE	100.1	+	FORC	E (mbs)	BOU	5 6	ULB	-				-								
										18	515	5 0	037	7 100	וכ	389	4	13											
		MESSENG	CAST	CA	RD	0.00711.1.1.1		**		• /	0.0			SPECIFIC V	OLUME	2	ΔD	sou	UND	01/	. .	PO 4-9	TOTAL-	NC	02=N	NO3-N	51 04-5		S
		HR 1/10	T NO.	ΤY	PE	DELLH (m)	'	C	,		310		1	ANOMALI	-\$107	x	103	. AEPO	OCITY	07 1117	' v	g = a1/i	yg + at∕	۶ų	• a!/I	µg = α1/1	9g + 81/		č
			+				-		-		1					1								1			-		T
			ļ	s	TD	0000	o	377	34	10	2	11		0009	583	0	000	14	647		ł							4	1
		07	0	08	S	0000	Ó	377	34	098	2	711						14	647										
				S	10	0010	0	377	34	10	2	711		0009	610	0	010) 14	649										
				5	TD	0020	0	378	34	10	2	711		0009	629	0	019	14	650										
		07	0	OB	5	0024	0	378	34	094	2	711			_			14	651										
				S	TD	0030	0	365	34	09	2	712		0009	576	0	029	14	646										
		07	0	08	S	0048	0	338	34	064	2	713				~	- · ·	14	638										
		~ 7	~		10	0050	0	338	34	08	2	114		0009	394	Ú,	J 4 8	5 14	638										
		07	0	00	70	0071	0	1329	34	227	2	129		0007	722	0.	0 4 0	14	640										
		07	0	08		0075	0	1289	34	377	2	142		0007	135	0	003	14	629										
		07	0	00 c	70	0100	c	1207	34	39	2	743		0006	499	0	0.87	14	632										
				5	70	0125	č	318	34	45	2	745		0006	480	õ	104	14	647										
		07	0	08	IS IS	10142	Č	337	34	507	2	148				•		14	659										
				s	TD	0150	Ċ	349	34	54	2	749		0006	113	0	119	14	665										
		07	0	08	s	0189	С	397	34	686	2	756						14	694										
				S	TD	0200	C	406	34	71	2	757		0005	452	0	148	3 14	700										
				S	TD	0250	C)437	34	82	2	763		0005	009	0	175	i 14	723										
		07	0	08	15	0284	C	450	34	873	2	765						14	735										
				S	10	0300	C)452	34	89	2	766		0004	704	0	199	14	738										
		07	0	08	S	0378	C	454	34	937	2	770					· · ·	14	753										
				5	10	0400		444	34	93	2	770		0004	423	0	244	+ 14 17	752										
		0.7	~			0500		3007	34	91	2	112		0004	239	0	4 8 6) 14 14	754										
		07	0	00	170	0500	2	1386	34	907	2	775		0004	134	0	330	14	760										
					57D	0700	č	376	34	01	2	776		0004	106	ŏ	371	14	773										
		07	0	0.6	35	0756	č	372	34	910	2	777				Ŭ	- • •	14	780										
			-	5	TD	0800	Ċ	370	34	91	2	777		0004	119	0	412	2 14	787										
				3	TD	0900	Ċ	366	34	91	2	777		0004	159	0	454	14	802										
		07	0	OB	35	0968	0	364	34	910	2	777						14	812										
				S	STD	1000	C	363	34	91	2	777		0004	209	0	495	5 14	817										
				5	570	1100	C	361	34	91	2	778		0004	2 62	0	538	3 14	833										
		07	0	08	35	71141	0	360	34	911	2	778						14	840										

REFERENCE	SHIP			- <u>°</u>	MARS	DEN	STATION	TIME			0	DRIGIN	ATOR'S		08	EPTH	MAX.		WAVE		WEA-	СLОИВ			NODC	
CIRY ID.	CODE	LATITUD	E	LONGITUDE	500	ARE	(G M	T)	YE	AR	CRUISE	s	TATION		801	TO	OF	OBS	ERVA TIO	NS	THER	CODES			STATION	
318001	EV	4228	N 10	05020	10.	20	MO DAY	HR.1/1			NU.	0.5	UMBER				S'MPL*S	DIR,	HGT PEP	SEA		TYPE AM			NUMBER -	
1 210001		4230		05020 W	120	20	04 03	092	19	66		95	12		18	329	11	19	9 3		X4	7 8	ļ		0004	i .
						W A		WIND		BARO	- A	IR TEA	4 P. °C	- vis.	N	NO.	SPEC	IAL								
						COLOR	TRANS, DI	R. 20	DR .	(mbs)	R C	ULB	WET BULB	COD	DEI	PTHS	OBSERV	A TION S								
							ī	8 51		030	1 0	89	083	4	+ ,	15										
		-			l								- U U		1,-											_
	TIME	CAST NO.	CARD	DEPTH (m)	T	*C	5 .4.	. 5	IGMA-	-1	SPECIFIC	VOLU		A D		2001	ND	0 2 ml/l	PO 4-	P I	0141-P	NO2-N	NO3-N	SI 04-5	1	
	HR 1/10										-			x 10 ³		VELO			yg = 01	21	/io - ور	µg ∽ ot/1	yg - at/l	µg - qt∕	1	
	[T
		_	ST	D 0000	0	319	3397	2	2707	, i	001	004	2 0	0000)	146	20					,				
	09.	2	085	0000	0	319	3396	7 2	2707							146	20									
			ST	0010	- 0	347	3401	2	2707		000	997	5 (010)	146	34									
	0.0	2	080	0020	0	314	3406	, 4	2709	1	000	985	7 0	1020)	146	48									
	0.9	۲.	STI	0021	0	010 000	3406	4 4	2709	,	000	072		0.00		146	649									
	09	2	085	0044	0	427	3416	2 2	2711	,	000	913	9 L	1030	,	146	74									
		-	ST	0050	ŏ	430	3417	2 2	712		000	960	7	049		146	78									
	09.	2	OBS	0066	Ō.	445	3420	8 2	713			/00	· ·			146	.88									
			ST	0075	0	472	3425	2	2713		000	947	2 0	073		147	101									
	09	2	OBS	0090	0	488	3430	9 2	716							147	11									
			ST	0100	0	434	3431	2	722		000	866	в с	096	,	146	90									
			ST	0125	0	336	3430	2	732		000	776	7 0	116	,	146	53									
	09	2	085	0135	0	311	3429	82	2734							146	43									
			ST	0150	0:	310	3435	2	738		000	7174	4 C	135		146	46									
	09.	2	085	0181	0	307	3444	8 2	746							146	51									
			514	0200	0.	220	3449	4	148		000	625.	2 0	168	1	146	61									
	09	,	085	0273	0.	360	3463	· 2	1754		000	2010	5 (199		146	183									
	• • •	-	ST	0 0 3 0 0	0.	370	3468	2	758		000	530.	7 0	227		140	192									
	09	2	OBS	0364	0	390	3476	8 2	763		000					147	21									
			ST	0400	0	396	3479	2	765		000	4938	з с	278		147	30									
			ST	0500	04	+07	3484	2	767		000	4780	0 0	327		147	52									
	092	2	085	T0548	0.	410	3486	1 2	769							147	61									
			STO	0600	04	+10	3486	2	769		000	4728	3 0	374		147	70									
			STO	0700	04	409	3487	2	769		000	4782	2 0	422		147	86									
	092	2	OBS	0735	04	409	3487	12	770							147	92									
			STO	00800	04	804	3489	2	771		000	4709	9 0	469		148	03									
	0.0.1		511	0900	04	+07	3491	2	773		0004	4639	9 0	516		148	19									
	094	:	005 c 71	0945	04	+06	3492	2	174		0.00			E		148	26									
			511) 1100	01	180	3493	2	115		000	4492		262		148	33									
	0.92	,	085	T1119	0.	176	3494	¥ د د	770		0004	- 2 ()	0	006		148	44									
	- / -	-			0.		2724.	- 2	117							148	42									

REFERENCE					* MAS	SDEN	STATION	TIME			RIGINA	08'5			MAX.				F		C		т —			
CTRY ID.	CODE	LATITU	DE	LONGITUDE	501	JARE	(G M	T)	YEAR	CRUISE	ST/	TION		10	DEPTH	OBSE	RV	ATIONS		WEA- THER	0	DES			NODC	
CODE NO.			1/10	1/10	≤ 10*	1.	MO DAY	HR,1/10		NO.	NU	MBER		MOTTOR	S'MPL"	DIF	HGI	PERS	EA C	CODE	TYPE	A 44	-		N U M BER	
318001	ΕV	4247	N	050215W	150	20	04 03	112	1966		951	3		0704	07	20	7	2		X4	7	8			0005	Ĺ
						WA	TER	WIND	BAR	A	IR TEMP	°C		NO.				. ,				-			0000	
						COLOR	TRANS DI	SPEED	METE	R D	RY	WET	CODE	OBS.	OBSERV	ATIONS										
						CODE	100.5	FORC	(mbs	7 80	118	BULB														
		T					1 L	8 216	01	1 0	78	078	3	11												
	MESSENGR	CAST	CAR			n in	ج ۲.	510		SPECIFIC	VOLUM	ž	Δo	sou	ND		P	04-P	1014	A 1 - P	NO ₂	- N	NO ₂ =N	SLOURS		1
	HR 1/10	NO.	ΤΥΡ	E				310		ANOM	LLY-X107	1	10 ³	. AELC	CITY	U2 m1/1	P	9 × 07 1	vg -	#t/1	nd - c	921 I	yg - at/	µg = ol∕	рн	0
					-						_			-			+-		-			-			1	+
	i		S	rD 0000		272	3389	27	705	001	0234	0	000	14	599				1	1						I
	112	2	OBS	5 0000	C	272	3388	9 27	705					14	599											
			S	rD 0010	C	273	3390	27	05	001	0162	0	010	14	501											
			S	rD 0020	C	273	3392	2 7	107	001	0022	0	020	14	603											
	112	2	089	5 0028	C	274	3392	4 27	107					14	605											
			SI	rD 0030	C	275	3393	2	707	001	0003	00	030	14	606											
			SI	rD 0050	C	285	3393	27	707	001	0057	0(050	140	513											
	112		085	5 0061	C	290	3393	3 27	07					146	517											
			51	rD 0075	C	302	3396	27	08	000	9994	00	75	140	525											
	112		085	5 0083	C	316	3399	2 27	09					140	633											
			S	rD 0100	C	376	3415	27	116	000	9264	00	99	140	663											
	112		08;	5 TOLLO	C	397	3422	3 27	19					14	675											
			51	rD 0125	C	374	3424	27	23	000	8588	0	122	140	568											
			S1	D 0150	0	342	3428	27	29	000	8000	0	143	140	559											
	112		085	5 0166	C	326	3430	2 27	33					146	555											
			51	1D 0200	C	301	3434	27	38	000	7204	0	181	146	550											
	112		0B3	5 0221	C	295	3437	3 27	42					146	552											
			51	rD 0250	C	321	3447	27	46	0000	5448	0.	215	146	569											
			\$1	D 0300	C	357	3461	27	54	000	5789	02	245	146	595											
	112		085	5 10331	0	374	34674	27	58					141	708											
			51	D 0400	0	393	3476	27	62	0005	5129	03	800	14	728											
	112		OBS	6 0437	C	401	34792	2 27	64					14	738											
			51	D 0500	0	402	3481	27	65	0004	950	03	850	147	149											
			51	D 0600	0	404	3483	27	67	0004	917	04	•00	14	767											
	112		OBS	5 T0654	0	405	3484	7 27	68					14	777											
			ST	D 0700	0	404	3486	27	69	0004	788	04	48	147	84											
	112		085	5 T0704	0	404	34862	2 27	69					147	785											

REFER	ENCE	T					MAR	SDEN	STA	TION 1	IME		1	ORIGIN	ATOR	۰s		DEPTH	MAX		w.	A V E	WEA	- CLO	UD		P	NODE	
CTRY CODE	ID. NO.	CODE	LATITU •	DE 1/10	LONG	1/10	S SQL	I A RE	MO	IGMT	-1 <u>8,1/10</u>	YE A R	CR	UISE NO.	STATIO NUMB	DN IER	Ę	01 MOTTOR	OF S'MPL	1 OE 'S DIR.	HG	T PER SE	A COD	E TYPE	DES A M T		ST N	ATION UMBER	
31	8001	£ν	4259	N	050	22 W	150	20	04	03	128	196	6	95	14		(0099	01	18	8	3	X4	2	8			0006	
								WA	TER	1	WIND	8A	80+	AIR TE	M.P. 1			NO.	SPI	C FA I	1								
								COLDR	TRAN (m)	5. DIR.	SPE E1 OR FORC	P M E :E (m	TER 63)	DRY BULB	₩ 8 8 Ų	T C	DDE	OBS. DEPTHS	OBSER	VATIONS									
									1	18	514	+ 0	03	072	00	51	1	06											
		MESSENG TIME H.R. 1/1	P CAST	C A T Y	R D PE	DEPTH (m)		"C		5 *4.	sic	MA-T	SPI A	ECIFIC VOLL	JME 10 ⁷	₹ ∆ DYN. x 1	D M 0 ³	S CII VELO	UND DCITY	0 2 ml	4	PO4-P 29 - 01/1	101AL- vg · 01/	NO2- 19-0	N 1/1	NO3-N µg = 01/1	51 O.4—51 129 - 01/1	рH	1000
				s	TD	0000		216	33	379	2	701		001058	4	00	00	14	573		i								
		12	8	ов S	S TD	0010	(216	33	3785 379	2	701	C	001058	87	00	11	14	575										
		12	8	06 5	IS TD	0010 0020	()216)215	33	3785 379	2	701 701	C	001056	.3	00	21	14 14	575										
		12	8	0 B S	S STD	0025 0030	(0215	3	3790 379	2	701 702	¢	001053	30	00	32	14 14	577										
		12	8	S OB	STD	0050	(0217	3	381 3805	2	702 702	¢	001045	9	00	53	14 14	582										
		12	R	S	TD	0075	(259	34	402 4022	2	716	¢	00916	52	00	77	14 14	607										
		12	8	08	35	0090	(258	34	4030) 2	717						14	610										

REFERENC	E	SHIP				-	1 1	MARS	DEN	STA	110 N	TIME				ORIGIN	ATOR	"S		DEPTH	MA)	L H	085	WAV	E		WEA-	CLDU	2		N	DDC	
CIRY IC CODE N).),	CODE	, ,	DE 1/10	LON	GITUOE * 1/10	000N:	10*	1.	MO	DAY	HR, 171	มี	t AR	CRUISI ND.	S N	1 A TIO	2 N C 8 8 8	8	OTIOM	OF S"MPL	'S D	IR	HGTP	ER S	EA	CODE	TYPE AP	2 A T		NI	JMBER	
3180	01	٤v	4310	N	050	024 W		150	30	04	03	146	1	966		95	15		C	073	0	1 1	17	6	3		Χ4	28	3		1	0007	
								[WA	TER		WIND	_	8 A RC)-	AIR TEA	лР. °	C VIS		NÓ.	S.P	ECIAL											
									COLOR	TRAN Im)	S. DIR	- O FOI	ED P CE	M ETE (mbs	R }	DRY	W 6 9 U 1	T COD	30	DEPTHS	OBSER	VATIO	NS										
											18	3 51	6	98	6 ()72	06	572		04											1		
		MESSENGR TIME	CAST NO.	C A T Y	RD PE	OEPTH	(m.)	τ	'c	2	•4.	SI	GMA	\-T	SPECIFI	C VOLU	₩ E 0 ⁷	∑ △ C DYN A X 10 ³) м.	SOI VELC	UND DCITY	02	ml/l	PO vg	4~P 01/1	01	13 A L—P ¹ g ≤ q1/1	NO2~N 29 - 01/1	NO3- 49 - 01	N SI	0.4-51 g = 01/1	рH	S C C
		116 1710								1		1	_						_	1				1		1							Π
				S	TD	000	0	0	235	33	68	2	69	1	00	154	5	000	0	14	580												
		146	5	08	S	000	0	0	235	33	367: 168	r 2	69	1	00	151	9	001	2	14	580												
				د د	TD	001	0	0	231	33	368	2	69	î	00	150	ó	002	3	14	581												
		140	5	OB	s	002	5	0	229	33	368	5 2	69	2				_		14	581												
				s	TD	003	0	0	226	33	869	2	69	2	00	142	8	003	5	14	581												
		• • •	,	S	TD	005	0	0	215	33	69	2	69	3	00	135	2	005	7	14	579												
		140	5	08	IS IS	005	5	0	209	33	369	3 2	69	4						14	579												

REFERENCE						MAPS	DEN	ST A	TION	TIME			ORIGI	NATOP	•5	1	DEPTH	MAX		WA	VE	V	EA.	CLOUD		,	IODC	
CTRY ID. CODE NO.	CODE	LATITU	DE 1/10	LONGITUDE	DRIF	5QU.	ARE	MO	IGM'	D HR.1/1	YEAP	CRU	15 E D .	STATION	D N IE R	80	OT MOTIC	OF S'MPL	S DIR	HGT	PER S	EA C	n er o de	TYPE AM	r	ST N	UMBER	
318001	ΕV	4440	N	04919	W	149	49	04	04	009	196	6	95	516		0	064	01	18	5	3		X 1	7 7			0008	
							WA	TER		WIND	BA	RÓ+	AIR TE	MP.	2		NO.	SPI	CIAL									
							COLOR CODE	tran Imi	S DI	1. C	ED MI R RCE (17	ETER 1541	DRY BULB	BU	LB COI		EPTHS	OBSER	ATIONS									
									2	2 52	0 9	29	072	0	72 7		05											
	MESSENGI TIME	CAST	CAR	DEPTH	4 Em 1	т	°C		s •4.	5	IGMA-T	SPEC	IFIC VOL OMALY-1	UME (10 ⁷	₹ △ (DYN. x 10	5	SOL VELC	UND DCITY	Oz ml/		°O4-P g = 01/1	TOTA pg -	L-7 a1/1	NO7-N 20 - 01/1	NO ₃ —N µg = o1/1	\$1.04~\$1 yg = 01/1	pН	500
	00	9	S OB	TD 00 S 00	00	0	156 156	3:	353		685	00	01204	95	000	0	14	543 543	-									
	00	9	S QB S	TD 00 S 00 TD 00	10 10 20	0	154 154 154	3 3 3	353 352 353	7 2	685	00	0120	86 86	001	4	14 14 14	544 544 545										
	00	9	08 S	S 00 TD 00 TD 00	25 30 50	0	154 154 154	3	353 353 354	4 2	685 685 686	00	0120	57 46	003	6 0	14 14 14	546 547 550										
	00	9	08	s 00 s 00	51 64	0 0	154	3	353	6 2 3 2	2686					-	14 14	551 553										

REFERENCE	CHIP					Ĩ	- #	MARS	DEN	STA	TION 1	IME		1	ORIGI	NATO	? *\$		DEPTH	MAX		w	AVE		WEA-	CLOU	D		NOOC	
CODE NO.	CODE	LATITUD	8	LONG	ITUD	E		sou.	ARE		GMT		YEAR	CRU	ISE	STAT	ON		TO	OF		DBSER	VATION	15	THER	coo	ES .		STATION	
210001	E14		1/10	0.4.0	0.0		-	10-	++	MO	DAY	4R,1/10		1 140		NUM	BEK	-		SIMPL	'S DIR	L H	GT PER	\$E.A		TYPE A	M T	_	1 U WIDES	
310001	EV	44375	N	049	03	W		149	49	04	04	027	1966	5	9	517		0	0137	01	1_1	8 5	5 3		X1	7	7		0009	
								ļ	WAI	ER		MIND	BAR	10- L	AIR T	EMP.	c ,	110	NO,	(9)	CIAL									
									COLOR	TRANS (m.)	OIR.	SPEEC OR FORC	0 ME1 E (mb	IER Isl	DRY BULS	9 W	ET C	006	OBS. DEPTHS	OBSER	VATION	s								
			_					Ì			22	518	3 9 9	56	072	0	72	7	06											
	MESSENG TIME HR 1.11	V NO.	C A R T Y PI	Ð	DEPT	н (п	•}	T	°C	s	•/	sig	MA-T	SPEC	IFIC VOL DMALY-1	UME 1107	₹∆ 0¥N. ¥1	о ³ .	SOL VELO	UND OCITY	0 2 m	171	PO4-P 29 - 01/	1	014 L - P 19 - 01/1	NO2+N µg = al/	NO3-1 Vg = 01	4 SLO4-5 1 pg = qt/	p H	s c c
			51	D	00	000	,	0	100	33	28	26	68	00	1368	34	001	0.0	14	514										
	02	5	OBS	5	00	òò)	0	100	33	275	26	68				•••	••	14	514										
			S1	D	00	10)	0	100	33	28	26	68	00	1368	34	00	14	14	516										
			S1	D	00	20)	0	099	33	28	26	68	00	136	78	00	27	14	517										
	02	5	085	5	00	25	i i	0	098	33	275	26	68						14	518										
			S1	D	00	30)	00	097	33	28	26	69	00	1362	28	004	41	14	518										
			\$1	D	00	50)	0(092	33	30	26	71	00	134	56	00	68	14	520										
	02	5	085	5	00)51		- 00	092	33	300	26	71						14	520										
			- 51	D	00)75	i i	0	094	33	63	26	97	00	1099	51	00	99	14	529										
	02	5	OBS	6	00	76		00	095	33	642	26	98						14	530										
			S1	D	01	00)	0	119	33	80	27	09	00	098;	20	01;	25	14	547										
	02	5	085	5	01	02	2	0	121	33	815	27	10						14	548										
	02	5	OBS	5	01	15		0	130	33	880	27	15						14	555										

REFERENCE CTRY ID.	SHIP	LATITU	DE	LONGI	UDE	DCTR	MAR	S D E N A R E	STA	TION T (GMT)	IME	YE A	.8	CRUIS	ORIGIN	A TOR [®] S		DE	PTH TO	MAX DEPTH	085	WAV ERVA	E	WEA	C	LOUD				1
CODE NO.		•	1/10		3,11) [™] [⊻]	10*	1.	MO	DAY	IP.1/10			NO,	1	NU AA B 2 1		BOT	TOM	S'MPL'S	DIP.	HGT	ER SE	A COD	E	PLAM	1		NUMBER	
318001	Εv	4436	N	0485	1 W	1	149	48	04	04	046	19	66		95	18		1.8	29	12	19	5	2							1
								WAT	ER	1	VIN D	T.		_	AIR TE	NP TC	1	10				1	-			0 2		ļ	0010	l.
								COLOR CODE	TRAIN Lm)	CIR.	SPEED OR FDRCE		AETER (mbs)		DRY BULB	W ET BUL8	COD	DEP	BS. PTHS	SPEC OBSERVA	TIONS									
										22	516		976		100	094	7	1	3											
	MESSENGR TIME HR 1/10	CAST NO.	САЯ	E I	DEPTH	lm 1	T	•c	5	•/	SIGA	vi A	т	SPECIFI	C VOLU AALY-#1		E A D IVN. M X 10 ³		SOU VELO	ND CITY	02 ml/1	PO ve	4 - P 01.11	10741- 19.01/	P NC) ₂ =N = at/1	NÖ3=N 99 - 01/1	21 O 4 5 باه - وبر	pH	
ļ			c	TD	000	0	0	1.24		()	1	70						ļ							ĺ					T
	046		08	с Г.С.	000	0	0	126	22	42	20	10		001	12/2	3 (0000		145	28										
	040		с ·	5	000	0	0	120	22	422	26	18							145	28										
			 	10	001	0	0	132	22	44	20	80		001	1259	3 (013		145	532										
	046		OB	Ś	002	7	õ	135	22	40	20	01		001	1243	6 (1025		145	232										
			S	τD	003	0	ő	140	22	50	20	0 Z		001	222	2	0.20		145	531										
			Š	TĎ	005	0	ŏ	195	33	70	26	04		001	100		0 4 1		145	340										
	046		OB	5	005	à	ŏ	207	33	730	20	00		001	1109	0 0	061		140											
			S	TD	007	5	ā	326	34	15	27	21		000	1877	6 C	0.86		140	39										
	046		OBS	5	007	9	Ő	344	34	202	27	23				0 0	000		144											
			51	r D	010	0	Ő.	421	34	34	27	26		000	828	6 (107		144	85										
	046		08	S	010	6	0	442	34	394	27	28					101		146	95										
			5	TD	012	5	0	515	34	59	27	35		000	745	9 0	127		147	31										
	046		085	5	013	1	0	529	34	638	27	38							147	39										
			51	T D	015	0	0	458	34	61	27	44		000	668	8 0	144		147	12										
	_		\$1	r D	020	0	0	334	34	55	27	51		000)597	1 0	176		146	67										
	046		085	5 T	020	8	0	323	34	534	27	51							146	64										
			51	TD .	025	0	0	348	34	63	27	57		000	550	9 0	205		146	83										
	<u> </u>		51	r D	030	0	0	373	34	72	27	61		000	512	8 C	231		147	03										
	046		085	5	030	8	0	376	34	729	27	62							147	06										
	~ / /		51	ru _	040	0	0	402	34	80	27	65		000	492	в о	282		147	33										
	046		088	s T	040	(0.	403	34	804	270	65							147	34										
			51	10	050	0	0.	403	-34	81	270	65		000	495	90	331		147	50										
	0.44		51	D .	060	0	0.	403	34	83	270	67		000	490	5 0	380		147	67										
	046		005		061	0	04	403	34	837	270	68							147	68										
			5	D D	010	0	04	407	34	88	27	71		000	467	3 0	428		147	85										
	046		089	с т	080	6	0.	411	34	913	21	12		000	459	5 0	475		148	04										
	0		51		090	õ	0.	401	34	01	21	13		000	4.57		5 20	:	148	17										
			51	D1	100	õ	0	390	34	91 91	21	75		000	4 5 0		- 2U 541		148	1/										
	046		085	5 T	104	0	0	386	34	913	27	75		000	4 30	5 0	200	1	±40 140	234										
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			ST	D	120	0	0	375	34	91	27	77		000	440	, 0 5 0	011 656	1	- 70 149	56										
	046		OBS	5 Т	122	2	0	374	34	914	27	77			142.		0	1	148	59										
			-		-														0	- 7										

REFER	ENCE	_	_			66.	MAR	OFN	STA.	UON TI	AM F		1	ORIGIN	ATOR*	;	Б	EPTH	MAX,	-	WAVE		WEA-	CLO	up		N	000	
TRY	ID.	SHIP	LATITU	DE	LONG	ITUDE HE	SQU	ARE		(GMT)		YĘ A R	C	RUISE	TA TIO	N		TO	OF	OBS	SERVATIO	NS	THEP	COD	DES		STA	ALCON .	
SODE	NO.	CODE	· _	1/10		'1/10 ² =	10*	1.	MO	DAY H	P,1/10		-	NO.	NUMBI	R	80	HOM	S'MPL'S	DIP	HGT PER	S E A		TYPE	A.M.T			NULL P	
31	001	εv	4432	N	048	40 W	149	48	04	04 0	068	196	6	95	19		21	103	12	20	5 2		X0		0		0	011	
								WAT	ER	V	VIND	- 8A	RÔ+	A IR TE	M.P. °C		1	NO.	SPEC	IAL									
								COLOR	TRANS	DIR.	SPEED	ME	TER	ORY BULB	W E1	cod		D85. EPTHS	OBSERV	A TION S									
								CODE			FORC		0.0	0.20	0.2			1.2											
									Ļ	21	518	5 9	90	039	03	3 1	-l-j	13			1						-		_
		MESSENGR	CAST	CAR	20	DEPTH (m)	T	*c		• /	516	MA-T	5	PECIFIC VOLI	IME	≦ ∆ 0 DYN. /	Q.	sou	ND	0.2 ml 'i	PO 4-	P	1014L→P	≈02-	N	NO3+N	104-51	pН	S
		HR 1, 10	T NO.	ΤΥΡ	E			-						ANOMALI-X	10,	x 10		VELO	CHIA		29 - 01	1	ug = at 1	nð - a		pg = a1/1	hð - ar i		-
									1																				
		1		S	TD	0000	0	196	33	57	26	85		001206	7	000	0	14	561										
		068	Э	0B:	s	0000	0	196	33	570	26	85						14	561										
				S	TD	0010	0	409	34	02	27	102		001048	17	001	1	14	661										
				S	TD	0020	0	574	34	35	27	109		000980	9	002	1	14	735										
		068	3	OB:	s	0025	0	638	34	479	27	711			•			14	763										
				S	10	0030	0	6/6	34	153	2	10		000974	12	003	1	14	180										
		~ ~ ~	•	5	10	0050	0	770	34	405	2	709		000993	0	005	*	14	024 976										
		06	5	00	5 TD	0051	0	787	34	74	2	711		00097.	15	007	6	14	833										
		0.6	0	08	c 10	0076	0	787	34	740	2	711		00071			<u> </u>	14	833										
		00	5	- 00.	TD	0100	0	784	34	79	2.	715		000939	24	009	9	14	837										
		0.6	R	08	Ś	0102	Ő	783	34	792	2	716						14	837										
			0	Š	TD	0125	G	738	34	78	2	721		00088	55	012	2	14	823										
				š	TD	0150	Ő	696	34	77	2	726		00084	7	014	4	14	811										
		06	8	ОB	s	0152	C	693	34	767	2	727						14	810										
			-	S	TD	0200	C	634	34	78	2	735		000760	6	018	4	14	794										
		06	8	QB	S	T0203	ç	630	34	+779	2	736						14	793										
				S	TD	0250	C	503	34	•77	2	751		00061	32	021	8	14	749										
				S	TD	0300	C	427	34	+76	2	759		00054	7 (024	7	14	726										
		06	8	QВ	S	0304	C	423	34	+758	2	759		00049	20	~ ~ ~	0	14	725										
				S	τu	0400	(460		190	2	100		00048	29	029	0	14	750										
		06	8	08	5	10405		401		+908	4	740		00044	2.2	034	4	14	765										
				5		0500	, c	1430	2/	+71 100	2	771		00040	18	039	1	14	773										
		0.	•	00	10	0600		1410	3/	•90 .002	2	772		00040	10	0,,	1	14	774										
		00	8	00 c	тр	0700	0	402	34	89	2	772		00045	13	043	6	14	784										
				5	τD	0800	0	392	34	89	2	772		00045	57	048	2	14	796										
		0.6	8	OB	S	T0818	č	390	3.	4883	2	773						14	798										
			•	Š	TD	0900	Ċ	385	34	488	2	773		00046	03	052	8	14	810										
				ŝ	TD	1000	(378	34	488	2	774		00046	08	057	4	14	823										
		06	8	OB	IS	T1040	(375	34	4878	2	774						14	829										
				s	TD	1100	(370	34	488	2	774		00045	91	062	0	14	837										
				S	TD	1200	(362	34	489	2	776		00045	42	066	5	14	850										
		06	8	08	IS	T1210	(0361	34	4887	2	776						14	851										

REFER	ENCE					_ <u>a</u>	MAR	DEN	57.A.1	ION 1	1 AA E			ORIGIN	ATOR"		Т	DERTH	MAX.		WAVE	1415		CLOUD				
CTRY	ID.	CODE	LATITUD	E	LONGITUDE	NOC	squ	ARE		GMTI		YEAR	ĊRU	15E 5	TATIO	N	٦.	TO	DEPTH OF	085	ERVATION	THE	R	CODES		s	ATION	
	NO.			1/10	-1/	10 -	10*	1.	MO	DAY	HR, 1/10		N	0. 1	NU M 8E	R	- -	MUTTOM	S'MPL'S	DIR.	HGT PER	EA	1	YPE AMT		N	UMBER	
31	8001	EV	44325	N	048185	W	149	48	04	04	096	196	6	95	20		13	3164	12	22	5 2	X	1	2 1			0012	
								WA	ER	-	WIND	- 8A	RO-	AIR TE	M.P. ℃.			NO.	SPEC									
								COLOR	TRANS	DIR.	SPEED	ME	TER	DRY BLU B	WET	co	DE	ÓBS. DEPTHS	OBSERVA	TIONS								
										24	+ORC		20	050	0.2		+	12										
		r							ļ	20	510		20	050	60	9 8		13			-							
		MESSENGR TIME	CAST	CARC	DEPT	H (m)	т (°C	s	• /	SIG	MA-T	S PE C	IFIC VOLU	ME	≨ ∆ I	D.	sou	IND	0.2 ml/l	PO 4-P	TOTAL-	PN	102-N	NO3-N	\$1 O4-SI		S
		HP 1/10	I .	1185									AN	UMALT-I		x 10	3	VELO	CITY	- A	¥g = 01/l	µg • 01/	4 P	g = ot/1	µg = 01/I	µg = o1/l	1	č
																											[T
				ST	00 0	00	0	752	34	55	27	701	0	01055	8	000	0	14	805 '				4	1				
		096	,	OBS	00	00	0	752	34	550	27	01						14	805									
				ST	D 00	10	0	750	34	54	27	01	0(01062	7	001	1	14	806									
		0.07		ST	D 00	20	0	749	34	54	27	101	01	01062	2	00 Z	1	14	807									
		V 70		005	D 00	20	0	748	34	, , , ,	21	100	~				_	14	807									
				51		50	ő	776	24	53	21	101	01	1063	4	003	2	141	806									
		096		085	00	51	ŏ	725	34	527	21	103	0	51043	0	005	و	140	803									
				ST	D 00	75	ā	714	34	56	27	202	0.0	1010	6	007	0	14	803									
		096	1	085	00	76	ō	712	34	559	27	108			0		,	14	802									
				ST	D 01	00	0	644	34	56	27	17	00	0921	2	010	3	14	779									
		0.96		OBS	01	02	0	641	34	566	27	18			-		-	14	778									
				ST	D 01	25	0	659	34	71	27	27	00	00832	8	012	5	14	791									
				ST	D 01	50	0	679	34	81	27	32	0(0788	4	014	5	14	804									
		096		OBS	T01	56	0	684	34	831	27	33						148	808									
				ST	D 02	00	0	617	34	83	27	42	00	0697	1	018	2	14	788									
		096		OBS	02	07	0	608	34	834	27	43						14	786									
				51	0 02	50	0	560	34	86	27	51	00	0613	4	021	5	14	774									
		094		080	το3	10	0	510 612	34	88	21	58	00	00554	1	024	4	14	765									
		0,0		ST	0 04	00	ŏ	487	34	92	27	27	0.0	0499	5	120	7	14	765									
		096		085	04	10	ŏ	484	34	927	27	66	0.	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	, ,	027	1	14	770									
		-		ST	D 05	00	ō	440	34	91	27	69	00	0461	7	034	5	14	767									
				ST	D 06	00	0	406	34	90	27	72	00	0444	8	039	õ	14	769									
		096		OBS	06	13	0	403	34	894	27	72						14	770									
				ST	D 07	00	0	395	34	90	27	73	00	0438	8	043	4	14	781									
				ST	D 08	00	0	386	34	91	27	75	00	0430	2	047	8	147	794									
		096		085	08	15	0	385	34	912	27	75						147	796									
				ST	0 09	00	0	379	34	91	27	76	00	0428	1	252	1	148	807									
		0.0.1		ST	0 10	00	0	372	34	92	27	77	00	0427	1	056	3	148	821									
		0.96		VBS	T10	38	0	370	349	917	27	77						148	827									
				51	U 11	00	0	101	349	71	27	17	00	0431	Z (060	6	148	336									
		0.94		511	U 12 T12	10	0	362 341	349	71 200	27	17	00	00437	2 (165	0	148	350									
		~ * * 0		005	114	10	U.	201	+`	700	< l	11						148	נכב									

REFE	RENCE	CH10				a a	MAR	SDEN	STA	TION T	I M E			(RIGIN	A TOR'S			DEPTH	MAX	085	WAVE	N.S.	- A3 W	CLO	UD		1	ODC	
CIRY	ID.	CODE	LATITU	DE	LON	GITUDE	SQL	AXE		IGM II	(0.1/10	YEA	A.R	CRUISE NO.	5	TATIO!	5	в	OTTOM	AQ JUNE	000	LACT PER	SEA	CODE	TYPS	A 10.7		N	UMBER	
	140.			1/10		1/10	10		mu	OAT	1.2.2	1.0			0.5	21		+	202	1.2	3.6	0 7		1 70		~			0013	
31	8001	EV	4422	N	04	153 W	149	41	04	<u>04</u>	122	19	66		95	21	·	13	2000	12	24	8 1		×0	1 1	0		1	0015	
								WA	1 E K		SPEE	- !	BARO		DOX	NF. C	- vi	s	NO. OBS.	SPEC	AL									
								CODE	(m)	DIR.	FOR		(mbs)	. a	UL8	BULS	0	5	DEPTHS	OB2EKV.	A TION 3									
										24	51	0	04	4 0	49	04	59		13	_										
			T 1		1				-	1	1					-	5 ^	0	T .				.]							5
		MESSENGR	LCAST	C A TY	PD	DEPTH (m)	1	'C	5	*/	510	GMA-	-T	ANOM	ALY-XI	54 E 07	DYN Y 10	M 3	VELC	DCITY	0 2 m1/1	104-	171	101AL-P µg - 01/1	NO2-	n, i	NU3—N yg = a1/l	hð - o _i ri 2101-21	рH	Ċ
		HP 1/10	-				-	_						• • • • • •									-					_		+
		1			:πn	0000		893	34	43	2	699		001	073	5	000	0	14	782						ļ	ļ			
		12	2	08	IS	0000	Č	698	34	429	2	699			0.5	-		•	14	782										
					TD	0010	C	695	34	43	2	700		001	071	2	001	1	14	783										
				5	TD	0020	Ċ	692	34	43	2	700)	001	068	8	002	21	14	783										
				s	TD	0030	C	0689	34	43	2	701		001	066	4	003	32	14	784										
				S	TD	0050	C	682	34	43	2	701		001	061	1	005	53	14	784										
		12	2	0 E	3s	0052	(681	34	428	2	702							14	784										
				S	στD	0075	(0671	34	43	2	703	3	001	052	1	008	30	14	784										
		12	2	OB	s_	0079	(0669	34	426	, 2	703	3				. 1 .		14	784										
				5	5TD	0100	(0651	34	46	2	108	5	001	.004	6	010	15	14	780										
		12	2	06	IS .	0106		1649	34	480	2	710) I	000	884	4	012	,0	14	790										
				2		0129		1017	20	70	2	721	L 1	0000	801	0	016	50	14	801										
		12	2	06		TO160		1677	34	821	2	737	i A	000	,001	0			14	805										
		12	2		570	0200	Ì	1599	34	82	2	743	3	000	0687	7	018	37	14	781										
		12	2	OF	35	0211		0584	34	814	+ 2	745	5						14	777										
			-	Š	STD	0250	(0561	34	86	2	751		000	0614	6	022	20	14	774										
		12	2	OE	3s	0264	(0551	34	869	2	753	3						14	773										
				5	570	0300	(0519	34	+87	2	757	7	000)562	8	024	¥9	14	766										
		12	2	08	35	0315		0508	34	875	5 2	759	9				_		14	764										
				:	STD	0400	(0474	34	+93	2	767	2	000)476	8	030	01	14	764										
		12	2	06	35	0418		0468	34	+936	5 Z	768	3	~~~		e.	<u>.</u>	. 0	14	762										
				5	STD	0500		0441	• و	193	2	111	L	000	440	5	024	+0 51	14	101										
			~		510	0600		0410	بر م	+72 1021	2	774	•	000	1429		0.5	71	14	775										
		12	2	08	35	0700		0411	2	+7). .03	L 2	776	*	0.00	1425	0	043	34	14	785										
					510	0700		0405	3	475	2	776	5	000)424	4	047	77	14	798										
		12	2	0	210	0830		0393	3.	932	, ,	776	5	000					14	802										
		10	2		STD	0900		0392	3.	493	2	776	5	000	0428	36	051	19	14	813										
					STD	1000		0389	3	494	2	77	7	000	0431	9	056	62	14	829										
		12	2	0	BS	T1057		0386	3	4939	9 Z	77	7						14	837										
			-		STD	1100		0384	3	494	2	1778	8	000)433	33	060	05	14	843										
					STD	1200		0377	3.	494	2	278	8	000)434	• 3	064	49	14	857										
		12	2	0	8s	11242		0374	3	493	7 2	2778	8						14	863										

REFERENCE CTRY ID, CODE NO.	SHIP CODE	LATITU	58	LONGITUDE	DRIFT	MARS	DEN ARE	STATION	TIME	YEAR		ORIGIN	ATOR'S	N	DEPT TO	H DE	PTH OF	OBS	WAVE RVATIO	45	WEA-	CLOUD CODES		S	NODC
210.001	5.4		1210	1/	10	10"	1.	MO DAY	HR.1/10			NO.	UMBE	R	bonto		APL'S	DIP,	H GT PER	SEA	CODE	TYPE AM1			UMBER
319001	EV	4409	N	04723	W	149	47	04 04	167	196	6	95	22		401	7	11	24	5 2		ХO	0			0014
							WAI	ER	WIND	. В/	ARO-	A1R TE	ир. °С		NO.	1	SPECI	A							
							COLOR	TRANS DIR	- SPEED OR FORC	≥ M € {r	ETER mbsi	DRY BULB	WET BULB	CODI	DEPTH	IS D85	ERVA	TIONS							
								24	\$12	2 0)51	078	06	1 7	12										
	MESSENGR TIME HR 1/10	CAST NO.	C ARD TYPE	DEPT	H (m)	т	*c	5 •4.	sig	M A - T	5	PECIFIC VOLU ANOMALY-XI	ME 07	₹ Δ D 2 N, M X 10 ³	. <u>s</u>	LOCITI	, c	2 ml/l	PO ₄ =1 µg = o1	1 101 94 19	TA 1 - P	NO2-N µg - ot/1	NQ3-N 29 - at/l	SI O 4 - Se µg = a1/1	рн
			ST	0 00	00	0	777	3443	26	88		001181	1	0000	1	481	3								
	167	7	OBS	00	00	0	777	34428	26	88					1	481	3								
			ST	00 00	10	0	721	3446	26	99		001082	5 (0011	1	479	3								
	167	,	51	0 00	20	0	683	3448	27	05		001019	0 (0022	1	478	0								
	107		005	0 00	30	0	600	34489	21	800					1	477	5								
			51		50	0	676	3447	21	08		000997	0 0	1032	<u> </u>	477	7								
	167	,	085	00	52	0.	570	3449	21	07		001007	8 (1052	1	478	3								
			ST	0 00	75	0	582	3452	27	07		001000	5 /		. 1	478.	•								
	167	,	OBS	00	78	ŏ,	583	34518	27	08		001000	, ,	5011	1	410	9								
			ST	D 01	00	0	529	3452	27	16		000931	9 (101	ī	477	3								
	167	,	0BS	01	05	0	519	34521	27	17					1	476	9								
			ST	D 01	25	0	502	3462	27	27		000827	1 (0123	1	476	7								
			ST	0 01	50	0	584	3472	27	37		000733	8 (0143	1	476	5								
	167		OBS	T01	57	0	579	34744	27	40					1	476	5								
			ST	0 02	00	0	556	3481	27	48		000639	2 (0177	1	476	3								
	167		OBS	102	12	0	550	34826	27	50					1	476	3								
			51	0 02	50	0	527	3486	27	55	(000573	6 (207	1	4760	0								
	147		51	0 03	00	0	506	3489	27	60		000532	4 (235	1	476	1								
	10/		085	03	16	0	501	34904	27	62					1	476	1								
	167		51	0 04	00	04	+95	3496	27	67	(000479	2 (286	1	4773	3								
	10/		065	04	19	04	+92	34971	27	68			-		1	4775	5								
			510	0 06	00	0.	+0U	2492	21	70		000456	1 0	332	1.	4775	2								
	167			00	26	0.	+ <i>2 2</i>	34039	21	12	(000443	2 (13 17	1.	4781	1								
	1.57		ST	0.0	00	0.	27	3496	21	75		000631			1	+783	2								
			ST	0.0	00	0.4	25	3497	27	76		000431		1721	1	+/93 	2								
	167		OBS	08	33	0.4	24	34976	27	76		000451	5 6	704	1	4011									
			ST	0 0 0	00	04	18	3497	27	76		00433		507	1	+816									
			STO	0 10	00	04	04	3496	27	77		000434	7 U 5 C	561	1	025									
	167		OBS	T10	62	03	93	34951	27	78			- (1001	1	+841	ĺ								

REFER	ENCE						44.4.0	COEN	57.4			1			ORIGIN	A TO P'S				MAX.	1			F						
C tax	ID.	SHIP	LATITU	DE	LONI	ចារលា៖ 🗄ភ្ល	sou	ARE	214	IGMT	11001	YE	AR	CRUIK	T a	TATIO	b.1		DEPTH TO	DEPTH	OBS	ERVATIO!	45	THER	COL	DES		5	ATION	
CODE	NO.	CODE	•	1/10		• •1/10 ^C ₹	10*	1-1-	MO	DAY	HR,1/10			NO.	1	IU M BE	P	8	BOTTOM	S'MPL'S	DIR.	H G T FER	SEA	CODE	TYPL	A 141		N	UMBER	
31	8001	EV	4409	N	046	541 W	149	46	04	04	205	19	966		95	23		4	4023	12	22	32		×2	2	8			0015	
						1		WA	TER	T	WIND	1			AIR TE	N.P. C		÷	NO										0015	
								COLOR	TRANS	DIR.	SPE E OR	0	METE	R	DRY	WET	CO	IS DE	OBS. DEPTHS	SPEC Observ	a tion s									
										20	FOR		0.4	<u> </u>				+												
									l,	28	21.	4	06	4	100	06	/ 9		13			,								
		MESSEN GR	CAST	CA	RD	DEPTH (m)	i T	°C	s	•/	SIC	SMA.	- T	SPECIFI	c volu	ME	≦ ∆ DYN	D	sou	ND	0.2 ml/l	PO4-1	1	OTAL-P	NO2+	N	NO3-N	51.04~5		5
		HR 1/10	T NO.	TY	PE								·	ANO	A A L Y - X I	°'	x 10	3	VELO	CITY		vg - ot.	9	µg - ot/1	nð - a	64	vg - al∕l	µg ⊨ al/l	915	Č
										_												1								T
		'		S	TD	0000	C	692	34	31	20	691	L Í	00	1151	4	000	0	14	778 '		4								1
		20	5	08	s	0000	C	692	34	314	20	691	L						14	778										
				S	TD	0010	C	681	34	33	20	694	•	00	1126	8	001	1	14	776										
				S	TD	0020	0	672	34	33	20	695	5	00	1116	7	002	3	14	774										
		20	5	ов	s	0024	C	669	34	337	20	696	5						14	774										
		2.0	-	S	TD	0030	0	666	34	34	20	696	Ż	00	1105	2	003	4	14	773										
		20	5	08	S.	0048	0	658	34	335	20	697	7	0.0			~ ~ <i>r</i>		14	773										
		20	6	00		0030	0	678	34	34	20	691	()	00	1038	T	005	6	14	113										
		20	5		10	0072	0	634	34	242	20	703	7	0.0	041	5	00 0	12	14	769										
		20	5	08	s	0095	ŏ	542	34	434	5	720	- 1	00	1001	2	000		14	735										
			-	s	TD	0100	Ő	542	34	46	2	722	2	000	871	6	010	7	14	737										
				s	TD	0125	č	544	34	58	2	731	ī	000	786	9	012	8	14	743										
		20	5	οв	s	0143	C	545	34	651	2	737	7		-	-		-	14	747										
				s	TD	0150	C	545	34	68	2	739	9	000	0716	7	014	6	14	749										
		20	5	ΟВ	s	T0192	C	545	34	805	2	749	9						14	758										
				S	TD	0200	C	542	34	82	2	750)	000	0615	0	018	0	14	758										
				S	T0	0250	C	526	34	89	2	758	Э	000	0550	0	020	9	14	760										
		20	5	ОB	IS_	0286	C	515	34	924	2	764	2						14	762										
			_	S	TD	0300	C	510	34	93	2	763	3	000	507	4	023	5	14	763										
		20	5	OB	S	T0381	C	485	34	950	2	767	7						14	766										
				S		0400	0	481	34	95	2	762	5	000	0467	9	028	14	14	768										
		20	c	00		0500	ů,	402	34	91	2		L	000	2440	4	033	0	14	776										
		20	2	00	10	0574	0	449	34	911	2	777	•	0.00	0430	0	037		14	796										
				د ح	TD	0700	ő	432	34	98	2	776	•	000	1425	7	041	7	14	797										
		20	5	08	s	0770	ŏ	423	34	975	2	776	Ś		,46,5	-	•••		14	805										
			-	S	TD	0800	Č	418	34	97	2	776	5	000)423	4	045	9	14	808										
				Š	TD	0900	C	404	34	96	2	777	7	000)423	7	050	1	14	819										
		20	5	OB	s	0987	C	394	34	951	2	778	3						14	829										
				s	TD	1000	C	393	34	95	2	778	3	000)427	1	054	4	14	831										
				s	TD	1100	0	384	34	95	2	778	3	000	0428	9	058	17	14	843										
		20	5	OB	IS	T1165	0	379	34	942	2	778	3						14;	852										

REFERENCE CTAY ID. CODE NO. CDE LATIFUDE 1/10 1/10 1/10				ÓRIFT IN OCTR	M A R	DEN ARE	STAT	ION GMT	IME	YEAR	0	ORIGI RUISE	NATOR STATIC	S N	D BO	TO TO	MAX. DEPTH OF	OBS	W A ER V A	VE TIDN	;	WEA- THER	CLC	DES			NODC		
210001			17 10	0.55	+	10.	1.	MO	JAY	HIR, 1/10		-	NO.	NUMB	ск			S'MPL'	OIR.	HGT	PERS	E A		TYPE	A 1/1 T			UMBER	
318001	EV	4359	N	04556 W		149	35	04	05	009	196	6	9	524		4	043	10	27	4	3		X1	0	2		1	0016	
							WA	ER	-	WIND	BA	RO-	AIR TS	MP °C		13	NQ.	SPE											
							COLOR	TRANS, (m)	DIR.	OR	AA E	TER bs)	DRY BULB	BUL	COD	D	EPTHS	OSSERV	A TION S										
									20	517	0	0.6	078	0.6	1 0	+	12												
						r=-			20	517		-0	070	100	1 0	1.	12			-									_
	MESSENGR TIME 0 HR 1/10	CAST NO.	C ARD TYPE	DEPTH	(m.)	т	°C	5	•4.	SIGA	1 – A N	5	PECIFIC VOL ANOMALY-X	UME 10 ⁷	≦ △ D DYN. M x 10 ³	k.	SOU VELQ	ND CITY	Q2 m1/1	P P	04-P	10) TAL-P Q = 01/1	NO2-	- N	NO3-N 49 - 01/1	SI 0 4 = 5 yg = 61/	pН	SCC
								1	_	-+-		+				-				+		+-			-+	-			-+
			ST	റ്ററ	0	1	340	35	67	26	84		00121/		0000	、 I	160						i					l .	I.
	009		085	000	õ	î	340	35	565	26	84		00121-	• •	0000		150	30											
			ST	0 001	0	1	338	35	56	26	85		001214	0	0012	2	150	31											
			ST	D 002	0	1	336	35	56	26	85		001213	32	0024		150	32											
	009		085	002	2	1	335	35	563	26	85						150	32											
			ST	D 003	0	1	336	35	57	26	86		001212	26	0036	5	150)34											
	009		085	004	7	1	343	35	583	26	85						150	39											
			ST	D 005	0	1	348	35	70	26	85		001219	21	0061	L	150) 4 2											
	009		OBS	006	9	1	362	35	740	26	86						150)50											
			ST	D 007	5	1	357	35	73	26	86		001222	21	0091	L	150)49											
	009		085	009	3	1	333	350	573	26	86						150)43											
			ST	0 010	0	1	311	350	53	26	88		001211	9	0122	2	150	37											
			ST	D 012	5	1	242	35	50	26	91		001181	8	0152	2	150)16											
	009		OBS	T013	8	1	212	354	+44	26	93						150	07											
			ST	0 015	0	1	194	354	+0	26	93		001172	2	0181		150	02											
	000		51	020	2	1	120	35	29	26	98		001131	.3	0239	3	149	83											
	009		085	020	2	4		35	286	26	99				_		149	83											
	0.00		511	025	2	1	159	35.	28	27	09		001043	3	0293	3	149	70											
	009		005	027	<i>.</i>	1	120	35.	277	27	15			_			149	159											
	000		080	0 0 3 0	0	0	700	374	1	21	22	1	000922	3	0342		149	37											
	009		005	035	9	0	200	300		27	34						148	92											
			511	0 050	ñ	0	526	341	26	27	4-2 6-2		000/31	4	0425)	148	58											
	009		085	T052	ĩ	0	500	346	361	21	50 50		000602	0	0491		148	101											
	00 /		STI	0.060	n.	0	70	340	1 1 1	27	20		000500	2	0647	,	147	94											
	009		OBS	T067	6	0.	45	340	247	27	72		000009		0,141		147	90											
			ST	070	0	0	35	349	4	27	72		000455	8	0595		147	90											
			ST	080	0	0	05	349	1	27	73		000452	4	0641	,	140	0.2											
	009		OBS	086	3	0	397	349	08	27	74			•			148	09											
			STO	0900	С	0.	+00	349	1	27	74	(000456	2	0686		148	16											
			STO	1000	С	0.	•09	349	6	27	77	(000439	5	0731		148	37											
	009		085	T102	0	0.	+11	349	70	27	77						148	42											

REFERENCE	SHIP				5	≝ MA	RSDEN	STA	TION	TIME			ORIGINA	OR'S		DEPTH	MA	<u>c</u>	w	A V E		WFA-	CLOU	n		NODC	7
CTRY ID. CODE NO.	CODE	LATITUDE	0 LON	GITUD 1.	E 3	2 SC	UARE	M0	(GMT) HR 1710	YEAR	CRUISE NO.	ST	MBER		TO BOTTON			BSERV	ATION	s	THER	COD	S.		STATION NUMBER	
318001	Εv	47125N	048	318	W	14	9 78	04	07	032	1966	,	952	5		0141	0	1 33	3 7	2	SEA	¥ 2	7	8		0017	
							WA	TER	1	WIND			j a.ir. temi	°C	Ľ	NO	1			1 - 1	,				1	0017	1
							COLOR	TRA N Imi	S DIR.	SPEEL OR FORC	0 M ET E (mb	ER \$1 E	DRY IULB	W E T B U L B	VIS. CODI	DEPTHS	Q B S E R	EC:AL VATIONS	;								
									35	522	81	4 0	28	022	6	06			1								
	MESSENG TIME HR 1/10	CAST C	ARD TYPE	OEPT	H (m)		t "c		s •4.	\$IG	M.A 1	SPECIFI	C VOLUM	ž DY	△ D N. M 10 ³	SO VEL	UND DCITY	0 2 ml.	1	PO4=P	ro Pi	TA L—P 2 + of/l	NO2~N µg - al/	ND3=N 20 + at/	s SI Q.4~5 I уд - о1/	рН I	
			STO	0.0	000		0042	1	100	24	67	001	6706			1.4											1
	03	2 0	85	00	000		0042	3	3089	26	57	001	4/80	Ű	000	14	485										
			STD	00	10		0041	3	309	26	57	001	4773	0	015	14	487										
	03	2 0	85	00	15		0041	33	3090	26	57					14	488										
			STD	00	20		0041	33	809	26	57	001	4702	01	030	14	488										
			STD	00	30		0041	33	309	26	57	001	4745	00)44	14	490										
	03	2 0	65	00	41		0041	33	3095	26	57					14	492										
	0.2		510	00	50		0039	33	123	26	68	001	3688	00	73	14	495										
	وں	2 0	65	00	66		0036	33	455	26	86					14	499										
	0.2		510	00	1/5		068	33	58	26	95	001	1178	0	104	14	517										
	05	2 0	DS 6T0	00	91		2112	32	0786	27	80					14	545										
	03	2 0	5 F U 8 c	01	21		J142	32	89	27	15	000	9290	0.	129	14	558										
	03	۷ ۷	05	01	۲ ک		J184	34	114	27	30					14	583										

REFERENCE CTRY ID. CODE NO. 318001							. Z . M 4	SOEN	STA	TION	TIME			ORIGI	U A TO	e*5	T	GEPTH	MAX		W.A	VE		WEA-	CLO	UD	T	1	1000	
		CODE	LATITU	1/10	LONG	GITUDE	SQ SO	UARE 1	MO	IGMTI DAY II	HR,1/10	YEAR	CRUI	S E),	STATI NUM	ON BER		TO BOTTOM	OF S'MPL	S Dir.	N8SERV	t PER	N S SEA	CODE	CO TYPL	230 A M1	_	ST N	ATION UMBER	
316	001	Εv	4713	S N	048	055W	14	9 78	04	07	048	1966		99	526	_		0155	01	3	6 7	2		X 2	7	8			0018	
· · ·								WA	TER	1	WIND	RAR	<u>.</u> [AIR TE	MP.	°C		NO,		CIAL	1									
								COLOR	TRAN (m)	S DIR.	SPEED OR FORC	e Imb	ER 3 }	OPY BULB	90	£1 1.8	CODE	OBS. DEPTHS	OBSER	A TIÓN	S									
										36	522	2 84	1	028	0	22	6	06		-										
MESSEN TIMI HR 1/		MESSENGI TIME	CAST	CA TY	IPE	DEPTH In		7 °C		•4.	sig	MA-T	SPEC	IFIC VOL	UME (10 ⁷	₹ NYO X	△ D 4. M 10 ³	SOI VELI	UND OCITY	0 2 m	1/1	PO4-	Р Т /1	OTAL—F µg + ol/i	NO ₂ -	⊷ N 91/1	NO3~N 49 - 01/1	51 O.4=51 99 + a1/1	pН	
				s	STO	0000		0045	33	806	26	554	00	01503	30	00	00	14	487											
		04	8	OB	BS	0000		0045	33	8059	26	554						14	487											
				S	5TO	0010		0045	33	306	20	554	00)1499	98	00)15	14	488											
		<i>.</i>	•	5	STU	0020		0045	5		20	555	00)149	13	00	130	1 4	490											
		04	в	06	0	0025	2	0045	2.	115	20	555	0.0	143	21	00	145	14	4971											
				3	510	0050	1	0045	31	342	21	583	00	122	41	00	71	14	500											
		04	8	OE	35	0050	j	0045	3	3424	20	583						14	500											
			-	5	STD	0075		0095	3	367	2	700	00	106	46	01	100	14	530											
		04	8	05	35	0075	j -	0095	3	3671	2	700						14	530											
				5	5 T O	C10C)	0140	3	390	2	716	00	092	16	01	125	14	•557											
		04	8	08	3s	0100)	0140	3	3898	3 2	716						14	\$557											
				5	STO	0125	ó	0232	34	24	2	736	00	073	21	01	145	5 14	+607											
		04	8	06	35	0140)	0309	34	+492	2 2	749						14	+646											

REFERENCE CTRY ID. CODE NO.	SHIP CODE	LATITU	DE 1/10	LONGITUDE	DRIFT	MARS SQUA	DEN ARE	sta MOT	TION (GMT	11ME	YEAR	CRUISE NO.	ORIGINATO STA NU/	DR'S TION ABER		DEPTH TO BOTIOM	MAX DEPTH OF S'MPL'	D S DIR	W / BSERV	A VE /A TION:	S SEA	WEA- THER CODE	CLC CO	DUD DES			NODC STATION NUMBER	
31800	1 EV	4713	5N (04752 W	1-1	149	77	04	07	061	1966		952	7		0201	02	3 5	5 7	2		Х2	7	8			0019	4
						ſ	WAT	EP	1	WIND	RAR	0.	AIR TEAAP	°C .		NO.	C D C	C1A1	7									
						[COLOP CODE	TRAN S	S. DIR	SPEE OR FOR	D MET	ER s) E	DRY V SULB 8	VET CO	DDE	OBS. DEPTHS	OBSERV	ATION	s									
						[35	5 52	4 82	21 0	028 0)22 6	5	07												
	MESSENG TIME H.R. 1/10	P CAST	CARD TYPE	DEPTH	(m)	т	°C	5	•4.	SIC	5M A = T	SPECIFI	C VOLUME	Z ∆ OYN_ X 1	0 M 0 ³	SOL VELC	UND DCITY	0 2 <i>m</i> l		PO4-P 29 - 01/1	01 پر	TA L - P 1 - 61/1	NO ₂ -	- N 01/1	NO3=N 29 - 01/1	51 O.4- vg = 0	-Si I/I pH	c C
	06	1	ST OBS	D 000 000	0	0	066	33	310 3098	2 - 3 - 2 -	656 656	00	14842	000	00	14	497 497		1									
	06	1	ST OBS	D 001 D 002 002	07	0	074	33	312 312	2	657 658	00	14716	003	30	14	504 506											
	06	1	ST ST OBS	D 003 D 005 005	0 0 4	0	074 070 069	33	815 829 831	2 2 7 2	660 671 673	00:	13396	002	44 72	14	505 509 510											
	06	1	ST OBS ST	0 007 008 0 010	5 0 0	000	072 076 109	33	348 352: 375	4 2 2 2	686 690 706	001	11961 10135	010	31	14 14 14	517 520 542											
	06	1	OBS ST	010 D 012 D 015	4 5 0	0	116 155 214	33	379 393 414	1 2 2 2	709 717 729	000	09083	019	55 77	14 14 14	546 569 602											
	06	1	085 085	το15 017	9	0 0	239 287	34 34	+22 +39	7 2	734 744	201		0 -		14 14	615 641											

REFERENCE	- SHIP		DE	LONGIUDE	C1R C1R	MAR	DEN ARF	\$TA	TION	TIME	VEAD		ORIGINAT	OR'S		DEPTH	DEPTH		WA	VE	15	WEA-	CL	000	1		NODC
CODE NO.	CODE	•	1/10	* '1/1	0 ⁸⁰ N	10*	1.	MO	DAY	HR.171(CRUISE NO.	STA NU	MBER		80TTOM	OF S'MPL	S DIR.	HGT	PER	SEA	CODE	TYPE	AM	1		NUMBER
31800	1 Ev	4714	N	047395	1	149	77	04	07	077	1966	1	952	8		0221	02	35	5 4	3		x 2	4	8			0020
							WA	TER	1	WIND		2.	AIR TEMP	°C		NO.			٦'					-			
							COLOR	TRANS Im1	i. Di	R. OI FOR	CE (mb	ER B	DRY UL8	W ET BULB	CODE	OBS. DEPTHS	OBSER	VATIONS	s								
									3	5 51	8 82	1 0	28	022	6	07			1								
	MESSENG TIME HR 1.110	CAST NO.	C A TY	PD DEPTH	(m)	т	°C	s	•/	SI	GMA-1	SPECIFIC	C VOLUME	S DYF X	∆ D 10 ³	SOU VELC	UND DCITY	O ₂ ml.	/I P	9 0 4 — P g • ot/		OTAL⇒P µg - a1/i	NO2 29 -	N 01/1	NO3-N V9 - at/l	SI O 4+ PG + 0	-Si рН
	07	7	S DB	TD 000	00	0	027	33	06	 2 8 2	655	001	4948	00	00	14	478										
	0.		S	TO 001	0	0	028	33	06	2	655	001	4972	00	15	14	480										
	07	7	08	s 002	21	0	028	33	05.	2 2	654	001	4990	00	000	14	482 482										
			S	10 003 10 00	30 50	0	028	33	06	2	655 662	001	4933	00) 45) 74	14	484										
	07	7	0B	S 005	54	õ	029	33	17	6 2	664	001	7247	00		14	490										
	07	7	S 0 B	TD 001 S 008	75 30	0	037	33	42	2 2 2	683 688	001	2225	01	.07	14	500										
			S	TD 010	0	0	127	33	73	2	703	001	0403	01	35	14	549										
	07	7	08 S	S 010 TD 012)6 25	0	147 188	33	80. 01	22 2	707 721	000	8717	03	59	14	560 584										
	0.7	-	S	TD 015	0	0	241	34	24	2	735	000	7407	01	80	14	615										
	07	1	UB S	S 101: TD 020	00	0	277 339	34	51. 56	22 2	739	000	5906	04	213	14	625 670										
	07	7	OB	s 021	13	0	363	34	61	2 2	754			-		14	683										

REFERENCE CTRY 10	CE SHIP	LATITU	DE	LON	GITUD	E	NDCTR	M A R	DEN ARE	ST.	IG M	TIME TJ		YEAR	CRU	O PIG	INATO	R*S		DEPTH TO	DEP	TH F	OE	W A BSER V	A TIO	NS	W E THE	A - P	CLOUD CODES			NO STAT	DČ ION
3180	0.1 EV	4714	1. 10	0.6.	''' 7 7 0	-10	-	10.)" 	MO	DAY	HR.L	10	0	NO	D.	NUM	BER	-	00110%	S'MP	1.5	DIP	нG	PEP	S E A	00) E -	TYPE A MAI			NUN	V BEP
, prbo	01 4	4/10		04	120	w		147		04	07	13		1966	1_	9	529	to.		0226	0	3	32	8	13		X	1	7 3			00	021
									0.01.02	EX.		WINI	2 1660	BAR	0	AIX	TEMP.	<u> </u>	VIS	NO,	s	PECI	AL										
									CODE	Imi	S DI	R, .	GR DRCF	(mb)	5)	BULS	80	LE I	CODE	DEPTHS	OBSE	R∨A	tion s										
										-	3	1 S	18	94	9	033	- C	28	7	08				1									
										1		_í	• •					-				+		-		_		T			1		
	TIME	" LCAST	C A TY	P D P F	DEP	ΓΗ lo	t l	T	*C		s =	.	SIGM	4 - T	SPEC	IFIC VO	LUANE .#10 ²	DY	4. M	50	UND	10	2 ml/	a []	PO 4-	8	TOTAL-	P	NO ₂ =N	NO3-N	5104	-51	pН
	HR 1,1	0								-								x	103	V.L	ochi				g = 01	~	VQ - 81	1	μg = 01.1	yg = 01/3	µg -		
				10	0.0	200		0	103									0.0		1												t	
	1 3	•	08	5	00		,	0	102	2	340	1	201	18	UU	121	31	00	000	14	517												
	1.	0	00	70	0		,	0	102	2	340	+	201	18	0.0		1.0	0.0		14	517												
			 	10	0	120	,	0	100	2	340		201	10	00	121	10	00	220	14	510												
	1.2		 	10 c	0	220		0	100	2	241		201	19	UU	126	83	00	25	14	520												
	1.2	0	00	5	00	223	,	0	100		540	8	201	19	•			~ ~		14	520												
			5	10	01) 5 U 2 E C	,	0	106	و	142		268	12	00)123	90	00	38	14	525												
	1 3			10	00	J 5 U	,	0	130	د ا	367		269	98	00	0108	63	00	61	14	542												
	13	8	08	S	00	50	•	0	130	3.	367	Ţ	269	98						14	542												
		-	5	TD	00	175		0	157	3	+01	_	272	23	00	084	86	00	85	14	562												
	13	8	OB	S	0	175	ł	0	157	3	+00	9	272	23						14	562												
			S	TU	0.	100)	0	247	- 34	+32		274	+1	00	068	12	01	05	14	610												
	13	8	¢в	S	0	100)	0	247	3.	432.	2	274	+1						14	610												
			S	τU	0	125	1	0	280	34	+44		274	8	00	062	16	01	21	14	630												
			S	TD	0	150)	0	311	34	+54		275	53	00	057	56	01	36	14	649												
	13	8	OB	S	T 0 :	152		0	313	3	+54	3	275	53						14	650												
	13	8	ОВ	S	10:	199	1	0	361	34	+68	8.	276	0						14	681												
			Ş	ТD	0	200	1	0	362	34	+69		276	0	00	051	55	01	63	14	681												
			S	тD	0.	250		0	395	34	+80		276	5	00	047	11	01	88	14	705												
	13	8	08	S	TO	253		0	396	34	180	5	776	56						14	706												

REFERENCE	SHIP	LATITU	DE	LON	GITUDE	MAP	SDEN ARE	STA	tion (GM1	TIME }	YEAR	C R U	ORIGI	NATO STATI	0 N	-	DEPTH TO BOTTOM	MAX DEPTH OF		W, OBŠEPV	A VE A TIC	DNS	WE TH CO	A - ER DE	CLOU COD	D ES		5	NODC TATION JUM8EP	
31800	1 EV	4716	1/10 N	04	714 W	149	77	04	DAY 07	HR.1/10	1966	5	99	530	OCK.		0512	05	3 3	16	T PEP	SEA	x	1	7 7	7			0022	
	1						WA	TER		WIND			AIR TE	EMP. 1	c	-1			1 -	_' -	(-	1	1	- 1						
							COLOR	TRAN Im1	S DIR	SPEE OR FOR	D MET	:O- ER (s)	DPY BULB	W BU	ET C	VIS. ODE	OBS. DEPTHS	SPE OB\$£R\	CIAL VATION	45										
									3	2 52	0 9	56	028	0	22	7	10													
	MESSENGR TIME HR 1/10	CAST NO.	C A TY	RD PE	DEPTH Imi	1	°c		·4.	Sic	GMA=T	SPEC	IFIC VOL OMALI-)	U M E x10 ⁷	₹ Д DYN ¥ 1	D M, 0 ³	SOI VEL	JND DCITY	0, 1	n1/1	PO4-	- Р 17/1	101AL 10-24	- P /1	NO2- V9 - ot	1	NO3=N µg - at/1	\$1.04=\$1 99 = a1/1	рH	
	Į.		_ د	TD	0000	1	154	3:	364	2	694	0	112	54	00	00	14	544											1	
	15	5	08	s	0000	Ċ	154	33	363	9 Ž	694						14	544												
	••	5	s	TD	0010	C	154	3	365	2	695	0	0111	65	00	11	14	545												
			S	TD	0020	0	154	33	866	2	696	0	0110	76	00	22	14	547												
	15	5	08	S	0022	Ç	154	33	366	52	696						14	548												
			S	TD	0030	C	157	33	377	2	704	0	0102	87	00	33	14	552												
	15	5	08	s	0047	(174	33	395	82	718						14	565												
			5	ΤD	0050	(180	33	398	2	719	0	0088	61	00	52	14	568												
	15	5	OB	S	0072	(223	34	+16	92	731						14	593												
			S	TD.	0075	(230	34	+21	2	734	0	0075	08	00	73	14	597												
	15	5	08	S_	0095	(267	34	+41	32	747				• •		14	620												
			S	TD	0100	(272	34	443	2	748	0	0062	06	00	90	14	623												
			5	TO	0125	(295	34	+49	~ 2	750	0	0059	71	01	05	14	638												
	15	5	Ue	5	0140		1311	•و د د	+ 2 2	y 2 2	755	0	0054	41	01	20	14	452												
			2	10	0150		1211	•د د	+20	~ ~	754	0	0056	01	01	20	14	472												
	15	5	U E	5	10190		340		+0)	2 2	750	0	0.05.2	0.1	01	. 7	14	613												
			2		0200		1224	2	+00	2	720	0	0055	70	01	73	14	207												
	1.6	-		10	10290		2201	2	415	<u>م</u>	761	0	0050	10	· ·	, ,	14	709												
	15	>	06	25 : TD	0300		1207	2	0 יד גדע	v 2 2	763	n	0049	51	01	9 P	14	712												
	16	e	0.5	510	0300		2076	2		2 د ۲	765	0			÷1	,0	14	730												
	15	2	00	25 TD	0.000		1297	2	480	<u>ר</u> ר	766	0	0048	01	02	47	14	731												
	15	5	OE	es es	10473		399	3	483	3 2	768	0	0040		02	- /	14	744												

REFE C1RY CODE	ID. NO.	SHIP	LATITUDE	LONGITUDE	DRIFT DRIFT INDCTR	M A PS SQU	DEN ARE	STA MO	GMT	TIME) HR.1/10	YEAR	CRUISE NO.	ORIGIN	ATOP"S STATION NUMBER		DEPTH TO BOTTOM	MAX. DEPTH OF S'MPL'S	OB DIR.	WAV ISERVAT	IONS R SEA	WEA- THER CODE	CLC CC TYPE	DUD DES	NODC STATION NUMBER
31	8001	Εv	4716 N	04701	w]	149	77	04	07	175 WIND	1966		95	31	_	1088	10	35	6 i	2	X 1	7	3	0023
							COLOR	TRAN Im)	5. D1R	SPEED OR FORC	BARC METE	D- IR I B	DPY DUL8	W ET BULB	COD	OBS. DEPTHS	SPEC Observ/	IAL TIONS						
									31	1 520) 95	3 C	27	022	7	12								

										-		_	-		1	_
MESSENGR CAST TIME OF NO.	CARD TYPE	DEPTH (m)	т "С	s *4.	SIGMA-T	SPECIFIC VOLUME	\$ △ D DYN. M x 10 ³	SOUND VELOCITY	02 m1/8	PO4-P vg - 61'l	TOTAL-P yg = of/1	NO2=N ug = 011	NÖ3-N vg = at/l	SI ©4-Si 29 - 01/1	рН	SOC
	STD	0000	0213	3382	2704	0010334	0000	14572								
175	OBS	0000	0213	33815	2704			14572								
	STD	0010	0213	3382	2704	0010289	0010	14574								
	STD	0020	0212	3383	2705	0010245	0021	14575								
175	QBS	0026	0212	33830	2705			14576								
	STD	0030	0229	3394	2712	0009521	0030	14586								
	STD	0050	0293	3434	2739	0007034	0047	14622								
175	OBS	0052	0298	34365	2740			14625								
	STO	0075	0325	3453	2751	0005904	0063	14643								
175	OBS	0078	0327	34538	2751			14644								
	STD	0100	0327	3456	2753	0005716	0078	14648								
175	OBS	0104	0327	34567	2754			14649								
	STD	0125	0332	3461	2757	0005405	0092	14655								
	STD	0150	0343	3465	2759	0005228	0105	14664								
175	OBS	10155	0346	34662	2759			14667								
	STD	0200	0383	3475	2763	0004915	0130	14691								
175	OBS	0206	0387	34761	2763			14694								
	STD	0250	0390	3477	2764	0004883	0155	14702								
	STD	0300	0394	3478	2764	0004897	0179	14713								
175	OBS	10310	0395	34784	2764			14715								
	STD	0400	0405	3481	2765	0004886	0228	14734								
175	085	0411	0406	34814	2765			14736								
	STD	0500	0406	3483	2767	0004848	0277	14751								
	STD	0600	0407	3485	2768	0004801	0325	14768								
175	085	10615	0407	34854	2768			14771								
	STD	0700	0399	3486	2770	0004701	0373	14782								
	STD	0800	0389	3488	2772	0004589	0419	14795								
175	OBS	0822	0387	34879	2773			14797								
	ST0	0900	0379	3488	2774	0004510	0464	14807								
	STD	1000	0367	3489	2775	0004426	0509	14819								
175	OBS	T1042	0362	34889	2776			14824								

REFERENCE							COEN	CT A 1		144.6		T	ORIGIN	ATOR'S				VAX.		14/ A 1/ E		To	1000	1			
CTRY ID	SHIP	LATITU	DE 30	LONG	SITUDE E	SOL	ARE	31/41	GMT	in t	YEAR	CRIM	1000000000000000000000000000000000000	TATIO	d	TO		EPTH	OBS	ERVATION	S THEF		CODES			STATION	
CODE NO.	CODE	•	1/10		1/10 ⁶ ≅	10*	1.	MO	DAY	IR.1/10		NO), i	NUMBE	R	80110	M 5'	MPL*S	DIR.	HGTPER	SEA COD	E TY	PE AMT			NUMBER	
31800	1 EV	4717	N	046	46 W	149	76	04	27	194	1966	,	95	32		118	9	11	32	8 3	× 1		8 2			0024	
				,	,	·	WA	TER		NIND		0	A IR TE	M.P. *C	1	NÔ.	T			• • • •	1	,			1	0024	
							COLOR	TRANS	DIR.	SPEED	MET	ER	DRY	WET	COD	OBS.	. 08	SPEC SERVA	TIONS								
							CODE	(m)		FORC	E (mb	5)	ROFR	8078													
									31	\$22	97	0	039	03	3 6	13											
	MESSENGE	CAST	CA	RD			10		• /			SPECI	FIC VOLU	ME	ξΔρ	s	OUNE	. [PO4-P	IOTAL-	N	0N	NO ₂ -N	51.04-	s.	5
		Y NO.	TY	PE	DEPTH IMI	1	C	1	· · ·	210	M A - I	ANC	MALY-KI	07	X 10 ³	• VE	LOCI	TY	02 mi/l	µg = 01/1	vg + o1/	уg	- 01/1	µg = ol/l	yg = of	4 PH	c
	ITK DIG			-				1										-			1						
	1	1	ٰ د	10	0000	6	326	34	34	27	135	600	0731	2	2000	- ' i	462	P.R.		1	1	1	1				11
	19	4	08	s	0000	č	326	34	337	27	35					ī	462	28									
	_		S	TO	0010	0	326	34	34	27	36	00	0728	2	0007	· 1	463	30									
			ŝ	TD	0020	0	326	34	35	27	36	00	0725	1	0015	1	463	32									
	19	4	0Б	S	0021	C	326	34	347	27	36					1	463	32									
			S	т0	0030	C	326	34	35	27	36	00	0724	0	0 2 2	1	463	33									
	19	4	ØВ	S	0042	C	325	34	351	27	37					1	463	35									
			S	тD	0050	C	331	34	43	27	42	00	0669	3	0036	1	464	+0									
	19-	4	08	S	0063	C	345	34	542	27	50					1	465	0									
			S	TD	0075	C	366	34	64	27	56	00	0546	1	0051	1	466	2									
	19	4	08	s	0084	C	377	34	692	27	59					1	466	9									
			S	TD	0100	C	382	34	71	27	60	00	0511	4	0064	1	467	4									
	19	4	08	S	10124	Ç	385	34	736	27	61					1	467	19									
			S	TO	0125	C	385	- 34	14	21	62	00	0494	2	2077	1	467	9									
	1.0		5	TO	0150	C	381	34	14	27	62	00	0492	4	0089) I	468	32									
	14	4	UB	5	0100	0	380	34	744	21	62	0.0	0470			. i	468	54									
			2	10	0200	0	201	34	11 90	21	164	00	0478	1	7172		407	2									
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			5	TD	0600	Ċ	399	34	86	27	70	00	0463	5	299	1	476	5									
	19	4	08	S	10602	C	399	34	862	2	70			-		1	476	6									
			5	TD	0700	C	395	34	87	27	71	00	0460	6	0345	1	478	30									
			S	ΤO	0800	C	390	34	88	27	72	00	0457	2	0391	1	479	95									
	19	4	08	s	0803	C	390	34	884	27	73					1	479	6									
			S	TD	0900	C	382	34	89	27	74	00	0449	4	0436	1	480	8(
			S	TD	1000	C	373	34	89	27	75	00	0447	5	0481	1	482	1									
	19	4	08	S	T1030	0	370	34	892	27	75					1	482	5									
	1.0		S	TD	1100	C	363	34	89	27	76	00	0443	3	525	1	483	14									
	19.	4	- 0B	5	1123	C	161	34	891	27	76					1	493	17									

REFERENCE CTRY ID. CODE NO.	SHIP CODE	LATITU	DE 1/10	LON	917UDE 17/1	DRIFT	MAR SOU	SDEN APE		IN TIA MTI	ME 1.1/10	YEAP	CRUISE NO.	DRIGIN A ST NI	TOR'S ATION JMBER		DEPTH TO BOTTOM	MAX DEPTH OF S'MPL	OB!	WAV SERVA	E TIONS	WEA THER COD	- CU CC	DUD	ī		NODC TATION NUMBER	
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								COLOR	TRANS (m)	DIR,	SPEED	METE	R D) R Y	WET	CODE	OBS. DEPTHS	OBSER	ATIONS									
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			S	TO	00	30	0	393	345	4	274	5	000	6466	ŏ	019	14	664										
			S	TD	00	50	0	393	345	4	274	5	000	6462	0	032	14	668										
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			S	5TO	00	75	0	385	345	8	274	9	000	6098	0	048	14	669										
	23	1	08	is .	00	79	0	384	345	81	274	9					14	669										
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	23	1	08	is	010	06	0	374	345	88	275	51					14	670										
			S	5TD	012	25	0	374	346	2	275	53	000	5730	0	078	14	673										
			S	510	015	50	0	373	346	6	275	57	000	5447	0	092	14	677										
	23	1	08	s.	1015	58	0	373	346	69	275	57					14	679										
			S	5TD	020	00	0	390	347	3	276	0	000	5137	0	118	14	694										
	23	1	08	s	02	10	0	393	347	40	276	1					14	697										
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Cent No. Cond Lanton Cond Lanton Cond Cond <thcond< th=""> Cond <thcond< th=""> <t< th=""><th>REFER</th><th>RENCE</th><th>C 1410</th><th></th><th></th><th></th><th>-</th><th>- #</th><th>MAR</th><th>SDEN</th><th>ST A</th><th>TION</th><th>TIME</th><th></th><th></th><th>ORIO</th><th>SINATO</th><th>R'5</th><th>T</th><th>DEPTH</th><th>XAM</th><th>T</th><th>ŴA</th><th>VE</th><th></th><th>WFA.</th><th>Сго</th><th>UD .</th><th></th><th></th><th>NODC</th><th>1</th></t<></thcond<></thcond<>	REFER	RENCE	C 1410				-	- #	MAR	SDEN	ST A	TION	TIME			ORIO	SINATO	R'5	T	DEPTH	XAM	T	ŴA	VE		WFA.	Сго	UD .			NODC	1
Instruct U18 U118	CTRT	ID.	CODE	LATITU	DE	LON	IGHUD	E DON	squ	ARE		IGMT	;	YEAR	CF	RUISE	STAT	10 N	٦,	DT MOTTOR	DEPTH	C	BSERV	ATION	S	THER	CD	DES			STATION	
318001 EV 4119 N 04805 W 149 76 04 08 018 1966 9534 03 32 9 2 X0 6 0026 WALE VILL	2.1	0001	5.4		1/ 10	0.		/10	10*	1.	MO	DAY	HR.1/10		-+-	NU,	NUM	1854	-+		S" M PL"S	DIR	нG	T PER	5 E A		TYPE	AMT			IN O IN BEA	
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31 530 959 044 033 8 09 MISHER CAST NO. TTC 5 */ SIGMA-T STCHC VOLUME ANDMATTALE? SOUND DTL, M. X 10 ³ SOUND VELOCITY O 3 m/rl PO4-P TOTAL-P NO3-N SIO_4-S PH 013 OBS 0000 0412 3453 2742 0006686 0000 14667 5TD 0010 0412 3453 2742 0006707 0007 14667 5TD 0020 0413 3453 2742 0006717 0001 14667 013 OBS 0026 0413 3452 2742 0006721 013 14671 013 OBS 0026 0413 3452 2742 0006797 034 14672 5TD 0030 0413 3453 2742 0006797 034 14676 5TD 0050 0413 3452 2741 0006797 034 14676 013 <td< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><th></th><td></td><td>COLDR</td><td>TRAN (m)</td><th>5 DIR</th><th>- OR FORG</th><td>D ME</td><td>TER bs)</td><th>DRY BULB</th><td>W 81</td><td>JLB C</td><td>0 D E</td><th>DEPTHS</th><td>OBSERV</td><td>ATION</td><td>s</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></td<>										COLDR	TRAN (m)	5 DIR	- OR FORG	D ME	TER bs)	DRY BULB	W 81	JLB C	0 D E	DEPTHS	OBSERV	ATION	s									
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REFER	ENCE						MAR	SDEN	ST A	TIDN	TIME				ORIGINA	OP'S		DEPTH	M	AX.		WA	٧ŧ		WEA-	CL	DUD			NODC	
CTRY	ID.	CODE	LATITU	DE	LONGITU	DE	sou	APE		IG M T	0	Y	'E A R	CRUIS	E ST.	TIDN		TO	1 0	DF	DB5	SERV,	A TIO N	5	THER	C	DDES		S	TATION	
CODE	NO.			1/10		1/10	10*	1*	MO	DAY	HR.1/1	0		NO.	NU	MBER		001107	" 5° M	186.22	DIR.	HGT	PER	SE A	cone	TYPE	E A M	т	14	UMBER	
31	8001	E۷	4436	8N	04921	6W	149	49	04	16	221	1	966		953	5		0060) (01	03	4	3		X4	3	2			0027	
								WA	TER		WIND	, 1	BARC		AIR TEM	°C		NO.	1												
								COLOR	TRA N Jm J	S DIR	L O FOR	ED P ICE	M ET E (mbs	R }	DRY BULR	W ET BULB	CODI	DEPTHS	OBS	ERVA	TIONS										
										34	4 52	5	06	1	039	033	6	05													
		MESSENG TIME	CAST	C A T f	RD DE	PTH lmj	T	*C		s •4.	51	GMA	ь — т	SPECIF	IC VOLUM	N D	∆ D YN. M x 10 ³	SD VEL	UND OCITI	, ,	0.2 ml/l	P	04-P 9 - 01/	۲C بر	DTA L-P g = g1/1	NO 49 -	2—N ot. I	NO3-N 49 - 01/1	SEO y ~ Si µg = a1/l	рН	-00
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		22	1	5 0 B	5 C	000	0	151 151	33	861 860:	2 72	69 69	1	00	11477	0	000	14	+54	2											
				5	TD C	010	0	149	33	860	2	69	1	00	11489	0	011	. 14	-54	3											
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				S	TD C	020	0	149	33	860	2	69	1	00	11495	0	023	14	\$54	4											
		22	1	OВ	S 0	025	0	149	33	360	32	69	1					14	+54	5											
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		22	1	ов	5 0	040	0	148	33	3603	32	69	1					14	+54	7											
				S	TD C	050	0	148	33	361	2	69	2	00	11467	0	057	14	+54	9											
		22	1	08	5 0	055	0	148	- 33	3609	92	69	2					14	+551	0											

REFER	ENCE	SHIP						MARS	DEN	S† A	TION	î î î î î î			OPIG	SINATO	R*5		DEPTH	MA	C.	WA	VE	w	EA -	CLOUD			2006	
CIRY	ID.	CODE	LATITU	DE	LONG	SITUDE	NOC	sou A	RE		IGMT	,	YEAR	c	RUISE	STAT	ION			DEPT	DE	358PV	A TIONS	11	ER	CODES		S1	ATION	
	NU.		_	1/10		1/10	-	10*	1.	MD	DAY	HR,1/10		-	NO.	NUN	BER		001101	'S'MPL	S Dir	HGT	PERS	EA CO		TYPE AMI	4		DIVIDER	
31	8001	Eν	4439	δN	049	145W		149	49	04	17	000	196	6	9	9536			0060	0	1 03	6	2	×	4	3 2	1		0028	
								Ĺ	W A 1	ER		WIND	BA	RO-	AIR	TEMP.	°C	var	NO.		EC LA L	7								
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		MESSENG TIME H.R. 1/10	CAST NO.	C A T Y	₽D PE	DEPTH I	mj	т	°C	s	·	SIG	M A ~ 1	51	PECIFIC VO ANOMALY-	DLUME -xiq*	Б рун х	∆ D 10 ³	SD VEL	UND OCITY	Damb	1 P	O₄~P g + atri	1014 L	= P	NO2-N. 19 - 01 1	NO3-N NG - et/l	S1 D.a−S) µg + o) 1	די פ	500
				s	TD	000	0	01	162	33	54	26	585		00120	82	00	000	14	546										1
		00	0	08	5 TD	000	0	01	162	33	537 54	26	85		00120	57	00	1.2	14	546										
		00	0	08	5	001	5	01	161	33	544	26	86		00120				14	548										
		00	0	0B	5	002	5	01	162	33	55 566	26	87	1	00119	/84	00	24	14	550										
		00	0	5 08	TD S	003	0	01	164 166	33 33	61 677	26	91 96		00115	48	00	36	14 14	553 556										
		00	0	S 0 B	TD 5	005	0 5	01	167 167	33 33	70 709	2 E 2 E	98 99	1	00109	906	00	58	14 14	558 559										

REFERENCE CTRY ID. CODE NO.	SHIP	LATITU	DE 1/10	LON	GITU	DE 1/10	DRIFT IN DC TR	M A R S SQU	DEN ARE	STA MO	TION (GM1 DAY	TIME	10	YEAR	CRUISE NO.	ORIGIN A	TOR ATIC J MB	"S DN BER	DE T 8DT	PTH IO TO <i>M</i>	MAX. DEPTH OF S'MPL*	s DI	W DBSER	A VE VA TIC GT PER	DNS SEA	WEA THER CODE	CLC CO	DES		-	NODC TATION NUMBER
318001	ΕV	4434	N	04	907	W		149	49	04	17	01	2 1	966	1	953	17		04	11	04	0	3 6	5 2	-	X4	3	2			0029
									WA	TER	T	WIND)	1		AIR TEM	P. °C	- 1	I NI	<u> </u>			י'ר			1		-		l	0027
									COLOR	TRAN (m)	S. DIR	ε. <u>SP</u> ε. <u>6</u>	EED DR IAC E	M ETE Imbs	R 1	DRY ULB	W E B U L	T COC	DEP	85. THS	SPE OBSERV	CIAL ATID!	IS								
								Ì			3	2 S	12	07	8 C	139	03	39 6	1	0											
	MESSENGR TIME HR 1/10	CAST	C A TY	RD PÉ	DE	PTH (im)	т	°C		•4.		ig M	A – T	SPECIFIC	VOLUA	ne 2	≦ △ C DYN. A x 10 ³		SOU VELO	ND CITY	02 1	171	PO4- 29 - 0	- P	ΓΟ⊺Αι_−P µg • ol/l	NO2 99 - 1	= N 01/1	NO3-N µg - al/l	51 04 -5 yg - a1/	рН
			S	TD	c	00	0	0	159	3	58		268	9	001	1758	3	0000	,	145	545										
	011	2	ов	S	0	100	0	0	159	3.	357	7	268	9						145	545										
			S	TD	0	01	0	0	158	3.	358		268	9	001	1756	>	001	2	145	546										
	01	2	OB	S	0	01	5	0	158	3.	57	7	268	9						145	547										
	0.1.	~	~ ~ ~	10	0	02	6	0	159	5.	557		268	8	001	1816	>	002	+	145	548										
	014	2	00	5	0	02	0	0	160	2:	167	' :	200	8	0.0.1	10.0		00.21		14:	549										
			د د	TO	0	05	0	0	156	3:	157		260	8	001	182/		005	2	14:	550										
	013	>	08	s	0	05	õ	ő	156	3	156	7	268	I.B.	001	102-	•	005	,	14	552										
	012	-	0B	š	ő	07	4	ō	157	4	164	2	269	4						14	557										
		-	Š	τD	Ő	07	5	Ő	158	3	365	-	269	4	001	1210)	008	2	149	558										
	013	2	08	s	то	09	9	ō	169	3	8820	o .	270	7			·	000	·	14	569										
		-	Š	TO	Ō	10	Ó	ō	170	3	883		270	8	000	9940)	011		14	570										
			Š	TD	Ó	112	5	0	192	34	00		272	0	000	8823	3	013	3	145	586										
	012	2	ОВ	s	0	14	9	0	210	34	112	2	272	8						145	599										
			S	TO	0	15	0	0	210	34	11		272	8	000	8118	3	015	9	146	500										
	01;	2	OB	S	0	119	8	0	2200	34	166	5 2	273	10																	
			S	TD	0	20	0	0	220	34	17		273	1	000	7799	,	019	9	146	513										
			S	τD	0	25	0	0	229	34	21	i	273	3	000	7613	3	023	7	146	526										
	011	2	ØВ	S	10	29	8	0	238	34	24	3	273	6						146	538										
			S	TD	0	30	0	0	239	34	25		273	6	000	739	L	027	5	146	539										
	012	2	08	S	0	139	8	0	334	34	600) i	275	6						147	701										

REFI CTRY CODE	ID, NQ,	SHIP CODE	LATITUDE 1/10	LONGITUDE	SQUA 10*	DEN ARÉ	MO MO	IGMT	TIME 1 HR,1/10	YEAR	CRUISE NO.	STATION NUMBER	DEPTH TO BOTTOM	MAX. DEPTH OF S'MPL'S	OB SE	WAVE RVATIO	NS SEA	WEA- THER CODE	CLOUD CODES	T	NODC STATION NUMBER
31	8001	Eν	44326N	04900 W	149	49	04	17	031	1966		9538	1097	10	03	6 2		X 4	3 2		0030

WAI	ER	V V	/IND	BARO	AIR TE	MP. °C	L .	NO.	Chemina	
COLOR CODE	TRANS. Im1	DIR.	SPEED OR FORCE	METER (mbs1	DR¥ BULB	W E T BULB	CODE	O85. DEPTHS	OBSERVATIONS	
		32	514	085	028	028	5	13		

					52	514	005	020	020 5	12								
MESSENGR TIME o H.R. 1,/10	CAST NO.	C A P D TYPE	DEPTH (m)	7 °C	s */	SIGMA	A-T	SPECIFIC VOLUME	₹ △ D DYN, M. x 10 ³	SOUND	y 0.2 m1/1	PO 4= P µg = of/1	FOTAL=P ug+ ci/l	NO ₂ =N µg = al/1	NO ₃ —N yg + al/l	51 Q4—5) yg + at/1	ρН	s c c
		STD	0000	0178	3368	260	_	0011120	0000	1/155	5							
031		085	0000	0178	33677	269	5	0011129	0000	1455	5							
		STD	0010	0175	3372	269	9	0010784	0011	1455	6							
031		OBS	0015	0174	33756	270	2			1455	7							
		STD	0020	0175	3379	270	4	0010253	0021	1455	8							
031		OBS	0025	0175	33833	270	8			1456	0							
		STD	0030	0186	3389	271	2	0009579	0031	1456	6							
		STD	0050	0236	3409	272	3	0008488	0049	1459	4							
031		08s	0050	0236	34085	272	3			1459	4							
		STD	0075	0309	3427	273	2	0007704	0070	1463	2							
031		OBS	0075	0309	34272	273	2			1463	2							
		STD	0100	0363	3443	273	9	0007033	0088	1466	2							
031		OBS	0101	0365	34434	273	9			1466	3							
		STD	0125	0379	3449	274	2	0006763	0105	1467	4							
		STD	0150	0394	3453	274	4	0006635	0122	1468	5							
031		OBS	T0151	0395	34532	274	4			1468	5							
		ST0	0200	0369	3457	275	0	0006110	0154	1468	3							
031		085	0200	0369	34572	275	0			1468	3							
		STD	0250	0352	3461	275	5	0005698	0183	1468	4							
031		OBS	10298	0348	34646	275	8			1469	1							
		STD	0300	0349	3465	275	8	0005409	0211	1469	2							
		STD	0400	0378	3474	276	2	0005142	0264	1472	2							
031		OBS	0400	0378	34737	276	2			1472	2							
		STD	0500	0389	3479	276	5	0004958	0315	1474	4							
		STD	0600	0401	3482	276	6	0004954	0364	1476	5							
031		OBS	10603	0401	34823	276	7			1476	6							
		STD	0700	0401	3484	276	8	0004902	0413	1478	2							
		STD	0800	0401	3486	277	0	0004848	0462	1479	9							
031		OBS	10805	0401	34863	277	0			1480	0							
		STD	0900	0398	3487	277	1	0004831	0510	1481	5							
		STD	1000	0394	3488	277	2	0004800	0559	1483	0							
031		OBS	1027	0392	34883	277	2			1483	4							

REFEREN	CE	SHIP				MAR	ISDEN JARE	574	TION T	IWE	YE	AR		ÖRIGIN	ATOR"	5		DEPTH TO	DEPTH	OBS	WAN ERVA	/E TIONS	W E A	R - 1	CLOUE	5		NODC	
CODE N	ID. 40.	CODE	• 1	/10	1/10	10*	1 1-	MO	DAY	18.1/10	1		NO		NUMBI	8	BI	OTTOM	S'MPL"	DiR	HGT	FEP SE	A COD	25	TPE AA	A T		NUMBER	:
3180	201	EV	44314	N 04	853 W	149	48	04	17	044	19	966		95	39		2	2012	12	33	4	2	X	4	Xε	,		003	1
1 2 4 14 1							WA	TER		NIND	1-1-	24.90	<u> </u>	A IR TE	м. °С		T	NO.	101	C141									
							COLOP	1RAN	S DIR.	SPES	D	METE	8	DRY	WE	r co	DE	OBS.	OBSERV	A TIQN S									
							CODE	500	-	FOR	CE	(mbs	,	0.0.0	000	3	-	1.6											
									34	52	2	09	8	660	03	3 4		14					e						
		MESSENGR	CAST	CARD	0.50711 (=)		T °C		< •/	5	GMA	_ T	SPECI	FIC VOL	ME	∑ ∆ I	D M	SOL	IND	0.2 ml/t	PO	04-P	TOTAL-	PN	0 2 - N	NO3-	N SIO4-	Si pM	,
		TIME -	NO.	TYPE	Derimani						016.4	-	ANC	AN ALY-X	10/	y 10	3	VELO	DCITY		νg	- ot/i	µg + o1.	4 y	g = a1/1	µg − at	o - وير ۱		
			+						-	-		-									T							,	
		1		STD	0000	' (0324	<u>'</u> 3-	428	2	73	1 '	00	0770	2 '	000	0	14	627		1								
		044	4	OBS	0000	()324	3	+283	2	73	1						14	627										
				STD	0010	(0325	3	429	2	73	1	00	0769	2	000	8	14	629										
		044	4	08s	0014	(0325	3	4287	2	73.	2					_	14	629										
				STD	0020	(327	3	430	2	73	2	00	0761	15	001	.5	14	631										
		044	4	085	0023	(328	3	4305	2	73	3						14	632										
				STD	0030		3328	3	430	4	13.	2	υu	010:	51	002	: >	14	6 24										
		04	4	085	0048		328	د	4295	2	13	4	0.0	0740	<u>م</u>	003		14	437										
		<u>.</u>		STU	0050		0320	د	4 3 U 7 2 0 6	2	72	2	UL	10 100	-	003	0	1.6	641										
		04	4	005	0075		0330	2	4290	2	73	2	0.0	076	78	005	57	14	642										
		0.4		086	0098		0335	3	4314	2	73	3	00	,,,,,	Ť	•••		14	648										
		04	4	STD	0100		0337	3	433	2	73	4	00	075	39	007	77	14	649										
				STD	0125		0353	3	448	2	74	4	00	0651	32	009	74	14	662										
		04	4	085	T0145		0362	3	4573	2	75	1						14	671										
				STD	0150		0363	3	459	2	275	2	00	058	58	011	10	14	672										
		04	4	085	0194		0367	3	4680) 2	275	9						14	682										
				STD	0200		0369	3	469	2	275	9	00	052	24	013	37	14	684										
				STD	0250		0385	3	475	Ž	276	2	00	049	82	016	63	14	700										
		04	4	085	0291		0394	3	4785	5 2	276	4						14	+711										
				STD	0300		0395	3	479	4	276	5	0(0048	33	016	88	14	113										
		04	4	085	0386		0405	3	4826		276	6	~		. 1	023		14	734										
				STD	0400		0405	د	403	-	210	6	00	041	₩1 A 1	025	82	14	752										
				STU	0500		0408	2	400			2	01	040	41	010	υc	14	767										
		04	4	085	10282		0410	2	4070	, c	277	0	0.	1045	79	037	28	14	769										
				510	0700		0395	3	488		77	2	0	045	36	031	74	14	780										
		0.4	<i>i</i> .	085	10785		0386	3	4889	,)	77	3					•	14	791										
			-	STD	0800		0385	3	489		277	3	0	0044	47	041	19	14	793										
				STD	0900		0379	3	489		277	4	0	0044	41	046	63	14	+807										
				STD	1000		0374	3	490	i	277	5	0	0044	38	050	80	14	+822										
		04	4	OBS	1010		0373	3	4896	5 å	277	5						14	+823										
				STD	1100		0319	3	490	i	278	1	0	0038	80	054	49	14	+815										
		04	4	085	1194		0234	3	4896	5 2	278	8						14	+794										

REFERENCE					L H	MAR	DEN	STATIO	N TIM	E		C	RIGINA	TOR'S		DEPT	MA	x	WAVE	WEA-	CLOUD		N	200
CTRY ID.	CODE	LATITU	DE	LONGITUD	NDC 1	SOU	ARE	(G /	N1)	Y	EAR	CRUISE	51	ATION		TO	01	H 08	SERVATIONS	THER	CODES		STA	TION
CODE NO.			1/10	1	/10 =	10*	1.	MO DA	Y HR.	1/10		NO.	N	UMBER	+	0000	5° M P	S DIR	HGT PER S	EA	TYPE A M	1	NU	M BER
318001	Εv	4429	N	04847	W	149	48	04 1	7 05	57 1	966		954	+0		246	8 1	2 34	5 3	X4	X 9		- C	032
							WA	ER	WIN	٩D	BARO	- A	VIR TEA	NP. "C	VIS	NO,	l s	ECIAL						
							COLOR	TRANS. C	DIR,	OR	M ETER	R C 8 81	DRY ULB	W ET BULB	CODE	DEPTH	3280	VATIONS						
								· · ·	21. 0	> 0 KC E	1.00	- 0	20	0.2.9	1	1.4	+							
									24 2	520	10:	0	20	020	2	14		,						
	MESSENGR TIME C	CAST	CAR	D DEP	TH (m)	т	°C	5		SIGMA	х-т	SPECIFIC	VOLUA	AE D	A D	e,	OUND	0 2 m1/1	PO 4 - P	TOTAL-P	NO2-N	NO ₃ -N	S1 Q4-S1	aH C
	HR 1/10	[NO.]	178	t j								ANOM	AUTERIO		K 103	I VE	LOCITY		yg = o1/l	µg = o1/l	µg = atri	µg • ot. I	vg = ot/1	c
		· ·	SI	rD O	000	0	420	3444	÷ '	273	4 '	000	745	1 ́ O	000	1	4669	l.	1					1
	057		OBS	5 01	000	0	420	344	37	273	4					1	4669							
			S1	rd of	010	0	419	3444	4	273	4	000	742	50	007	1	4671							
	057		089	S 01	015	0	418	3444	+5	273	5					1	4671							
			S	TO 0(20	0	419	344	5	273	5	000	738	70	015	1	4672							
	057		089	5 00	025	0	419	3444	+7	273	5					1	4673							
			51		30	0	419	344	2	273	5	000	737	20	022	1	4674							
	0.67		000		350	0	417	3440	5	213	6	000	1260	5 0	031	1	4611							
	057		00:		175	0	411	3440	54 1	213	0	000	4024			1	4611							
	0.57		080		075	0	414	245	+	214	0	000	0 7 30	5 0	0 5 5	1	4680							
	0,0		003		100	0	4.73	345	1	274	0	000	701		~ ~ ~	1	4000							
	0.57		080		100	0	422	345	1 1	214	0	000	101.	5 0	012	1	4000 //200							
	0 2 1		C D 3	rn 0	125	ň	422	3461	4 4 5	275	2	000	576	5 0	000	1	4000 //499							
			 	T D 0	150	ň	396	3479	5	276	ĩ	000	503		102	1	4688							
	0.57		080	ς το	150	0	396	347	45	276	1	000	/0//	0 0	102	1	4000							
	057		084	5 0	198	ő	388	347	43	276	2					1	4600							
			S	TD 0.	200	õ	388	3474	4	276	2	000	501	3 0	127	i	4693							
			S.	TD 0.	250	ō	393	3470	5	276	3	000	497	5 0	152	- ī	4704							
	057		089	5 0.	299	Ó	398	347	79	276	3					1	4714							
			51	D O	300	0	398	3471	6	276	3	000	494(0 0	176	1	4714							
	057		08	5 03	395	0	404	348	33	276	7					1	4733							
			S 1	rD 04	400	0	404	348	3	276	7	000	4691	5 0	225	1	4734							
			\$1	r0 01	500	0	401	3480	5	276	9	000	460	2 0	271	1	4750							
	057		OBS	5 TO	592	0	399	348	74	277	1					1	4764							
			\$1	rd or	500	0	399	3488	3	277	1	000	448	80	317	1	4766							
			S1	r D 0	700	0	400	349()	277	3	000	444(0 0	361	1	4783							
	057		085	5 10	793	0	400	349	13	277	4					1	4798							
			51	10 01	500	0	399	349	1	277	4	000	445	3 0	406	1	4799							
			SI	0	900	0	385	349.	L	277	5	000	438	10	450	1	4810							
	0.5.7		51		000	0	315	349.	1	277	6	000	435.	1 0	493	1	4822							
	05/		089	5 19	010	0	2/4	3490	10	217	6				5 3 7	1	4825							
	0.6.7		00	ιυ 1. - τι	100	0	200 245	3490		217	0	000	4 3 9 1	5 0	231	1	4836							
	00/		083	> 17	120	U	202	3490	1	217	6					1	4851							

REFERENCE	SHIP		DE		612	MARS	DEN	57.A	TION	TIME	T			ORIGI	NATO	R*S		DEPTH	н	MAX DEPTH	-		WAV	E	,	WEA	. CLC	DUD			NODC]	
CODE NO	CODS		1/10	1.1	0 071	10*	1.	MO	DAY	HR,1	/10	IC AN	CRUN	JISE IO.	STAT NUA	IÓN 18ER		BOTTO	M	OF S'MPL		DIR	HGT	HONS 1ER S	SEA	CODE	E TYPE	DES ARE	7		STATION NUMBER		
318001	EV	4436	8N	049211	v	149	49	04	18	23	8	1966		9	541		_	006	0	01		04	2	2		X 6	5	8		-	0033	3	
						[WA	TER		WIN	D	BAR	<u>.</u>	A IR T	E M P.	°C		NO.	T		+												
							COLOP	TRAN (m)	5. DV	P. 5	PEED OR ORCE	M ET (mb	ER s)	DRY BULB	VA 61	ET JLB	CODE	OBS. DEPTH	is C	595 0858.RV	VATI	ON S											
						Ĩ			0.	4 5	24	07	5	044	0	44	6	05	-+														
	MESSENG TIME HR 1 TO	CAST OF NO.	САР Түр	D DEPTH	(m.)	1	°C		s •:.		51G M	1 A 1	SPEC AN	CIFIC VOL IOMALY-	UME 110'	S I DYN X	△ D 4 M 10 ³	SC VE	OUN	AD SITY	07	-ml-1	PO PQ	4-P	10	TAL-P p = of 1	µg • ¢	-N 11. I	NO3-N ug - o1/1	51 O4-5 µg = of	рН	00	
	23	 8	S	TD 000	00	0	166	33	63	2	269	92	0	0113	80	00	000	14	45	49													
	23	8	ST OBS	TD 001 S 001	10	0	165 165	33	63 63	1	269	92 92 92	0	0113	85	00	11	1	45 45	50 51													
	23	8	S OBS	TD 002 S 002	20	0	166 166	33	63 63	С	269	92 92	0	0113	97	00	23	1	45 45	52 53													
	23	8	08:	10 003 S 004 TD 004	10	0	165 164 165	33 33 33	63 63:	3	269	92 93 93	0	0113	96 93	00	134		45 45 45	53 55 57													
	23	8	OBS	5 005	55	ŏ	165	33	63:	3	269	93	0	0113	رې	00		1	45	57													
															_		_																
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REFER	NCE	SHIP			1		<u>۳</u>	MARSO	NISC	\$T A	TION	TIME				ORIGI	NATO	₹*S		DEPTH	DEP	AX.	0.00	WAV	E		WEA-	CLOU	D			DODC	
CTEY	ID.	CODE	LATITU	DE	LONG	TUDE	ŏ,	SQUA	×£		IGMI		'	re a R	CRUI	SE	STATI	ON		TO MOTTO	0	F	08	NOR VA	HO N S		CODE	000			N	UMBER	
000	NO.			1/10		1/10		10"	· · ·	MO	DAY	HR.1/1	0		NC	/. 	NUM	BER	-		2.WI	PC-2	D IS	HGT	PEA	EA		TTPE A	MT				
31	001	ΕV	4435	N	049	145W	1	149	49	04	19	006	1	966		95	542		1	0060	0	1	04	3	3		X 5	5	8		1	0034	
								Ĺ	WAT	ER		WIND		BARC		AIR TE	AA P	C I		NO.													
								0	COLOR CODE	TRA N Im I	5 DIR	. SPE FO	ED R PCE	M ETE (mbs	R	DRY BULB	W BU	ET LB	CODE	OBS. DEPTHS	0856	ERVA	TIONS										
											04	• S 2	22	06	4	044	0	44	5	05													
		MESSENG TIME	CAST	C A TY	R D PE	DEPTH im	1	T	°C		•4.	s	IG M	A — T	SPECI	IFIC VOL	UME 107	₹ 4 DTM X	A D 10 ³	SOI VEL	UND		Dg mi/l	PC PS	• 01/1	10 41	17.4 L−P g + o1/1	NO ₂ =1 µg = 61		NÔŋ=N vg - ai/l	SI D.4—Sr .yg = o1/1	рн	500
				c		0000	1	01	64	1 2 3	865	1	260	14	0.0	112	53	00	000	14	548												
		0.0	6	08	35	0000		01	164	33	3648	3	69	4	00					14	548	ŝ											
		••	Ũ	Š	TD	0010		01	164	33	365		269	4	00	112	70	00	11	14	550	5											
		00	6	08	s	0015		0	163	3:	364	5	269	4						14	550	0											
				s	TD	0020		01	161	3:	366		269	15	00	111	46	00	22	14	550	2											
		00	6	08	s	0025		01	160	3:	3678	в ;	269	7						14	551	1											
				S	TD	0030		0	160	3.	868	ž	269	7	00	0109	90	00	34	14	15 52	2											
		00	6	OB	3s	0040		0	160	3	370	9 2	269	19						14	554	4											
				S	STD	0050		0	165	31	378	1	270)4	00	0102	71	00	55	14	1559	9											
		00	6	08	3s	0055		0	169	3	382	7 2	270	8						14	1564	2											

					-			_			_			-				-		-											
REFER	ENCE	SHIP	LATITU	DE	LON	SITUDE	ALF T DC TR	MARS SQU	ARE	ST A	TIDN T IGMT	TIME	YEAR	CRUI	ORIGIN	STATIC	'S	-	DEPTH TO	DEPTH	08	W A Serv	A TION!	5	WEA- THER	CLO	0 U 23<		ş	NODC TATION	
CODE	NO.	CODE	·	1/10		· 3/10	0 ≃	10"	Tr	MO	DAY	HR.1/10		NO		NUMB	ER	В	MOTION	S'MPL"	5 DIP	HG	PER	έA	CODE	14.65	4 <i>M</i> T			UMBER	
31	8001	Εv	4434	N	049	07 .	1	149	49	04	19	016	1966	>	95	43		C	658	06	05	2	3		X6	5	8			0035	
								1	WAT	I E R		WIND			AIR TE	MP. C	-	- <u>'</u>	NO			1									
									COLOR	TRAN	0.0	SPEED	MET	ER	DRY	WE	t ci	US.	O85.	OBSERV	CIAL ATIONS										
									CODE	(m)	1,07111	FORC	E (mb	s)	BULB	BUL	.B	_	DEPIPIS												
											05	521	0	58	050	05	00	5	10												
		MESSENGR TIME	CAST NO.	C A T Y	P D PE	DEPTH	(m)	τ	•c	į	•/	SIG	M A =1	SPECI	FIC VOLU MALY-X	JME 107	₹ △ DYN. X 1	0 M.	SOL VELC	UND DOITY	0 2 m1/		PO 4 - P g = 61/1	רס ע)TAL→9 g + o1/1	NO2- Ug - 61	N	NO3-N µg - ot/i	51 O4+5 yg + 61/	p∺	5000
			+					1		+		-		1								-					-				T
			1	' s	τρ΄	000	00	0	131	33	50	26	84	00	1219	າຂໍ	000	00	14	531		1									,
		016	5	08	s	000	00	0	131	33	496	26	84						14	531											
				S	TD	001	10	0	126	33	150	26	85	00	1213	32	00	12	14	531											
				S	TD	002	20	0	121	33	51	26	85	00	1206	55	00	24	14	531											
		016	6	08	IS	002	25	0	119	33	507	26	86						14	530											
				S	TD .	003	30	0	125	33	158	26	91	00	1151	9	00	36	14	535											
				S	τD	009	50	0	146	33	80	2	07	00	1002	27	00	58	14	550											
		016	5	08	s	005	50	0	146	33	795	2	107						14	550											
				S	5TD	007	75	0	161	33	88	2	12	00	0951	14	001	82	14	562											
		016	5	0B	s	001	75	0	161	33	877	2	12	-			- •		14	562											
				S	5 T D	010	20	0	172	33	195	2	18	00	0903	31	010	25	14	572											
		016	6	0 E	35	010	20	0	172	33	952	2	18						14	572											
				S	STD	012	25	0	182	34	100	2	21	00	0874	+ /	01.	21	14	581											
					STD	015	50	0	192	- 34	103	2	122	00	0860	2	010	49	14	590											
		01	6	OF	s	101:	51	0	192	يو بر	1035	2	23	0.0			01	~ ~	14	400											
				5	STU	020	00	0	195	، و	104	. 2	123	00	005	10	01	92	14	600											
		01	6	OF	S	020	02	0	195	34	040	2	123	0.0	0.94	2.2	0.2	26	14	412											
				5	510	02:	50	0	202	36	+07	2	125	00	0944	2.3	02	22	14	614											
				5	STD	030	00	0	209	، و	+10	<u> </u>	126	00	0028	50	ŲΖ	10	14	424											
		01	6	OF	S	1030	103	0	209	- 34	+100	2	121	0.7	04.04		0.2	<i>.</i>	14	404											
				5	510	040	00	0	020	،ر بر	+ 2 4 E / 7	, 2	194	υu	0000	22		+0	1.4	4091											
		01	6	OB	5	1040	01	0	321	34	+241	2	152	~ ~			~ (-	~ -	14	770											
		_		5	STD	050	00	0	352	34	+64	2	137	00	0.20	د ر	04	01	14	760											
		01	6	06	3S	1058	85	0	373	34	+726	s 2'	162						14	150											

PEFERENCE CTPY ID. CODE NO.	NCE SHIP LATITUDE LONGITUDE NO. 1/10					DEN ARE	STAT (ON T GMT)	IME IR,1/10	YEAR	C RUIS NO	ORIGIN	NOTAL STATIC	"S DN BER	DEP TC BDTT	тн 0 10 м	MAX. DEPTH OF S'MPL"	DIR	WAVE SERVATIO	DNS SEA	WEA- THER CODE	CLOUD CODES	T	S M	NODC TATION NUMBER
318001	Ev	44328	3N 04	4900 W	149	49	04	9	031	1966	5	95	44		08	78	07	05	3 3		X 5	58			0036
						WA	TER	V	VIND	BAR	o	AIR TE	M.P. "(2	, NC). [505	~ I A I	ľ .						0020
						COLOR	TRANS.	D1R.	SPEEC OR	MET	ER	DRY	WE	t co	CE DEPI	S. THS	OBSERV	ATIONS							
						CODE		04	521	E 0.00	3' 1	050	- 04	44 5	1	1									
		1 1							544							<u> </u>					-				
	TIME	LCAST	CARD	DEPTH (m)	т	°C	s	·	51G	M A - T	SPECIE	C VOLU	1 M E	Z∆ I DYN, I	M	SOU	ND	Q2 m1/	PO4-	- 2	TOTA L-P	NO2-N	NO3+N	5104-51	ьн
	HR 1/10			-	-				-				-	x 10	3 `	1510	CIT		20.04	171	µg • o1/i	vg = at/1	yg - alv l	уд = o1/I	
				0000																					
	0.2-	,	OBC	0000	0	143	330	0	26	92	00	1146	53	000	0	149	538								
	02		STD	0010	õ	147	337	102	26	092	00	1074	7	001	1	14:	538								
			STD	0020	õ	151	337	16	27	104	00	1032	10	001	2	14:	543								
	027		085	0024	ŏ	152	33	185	27	0.6	00	1052		002	2	144	540								
			STD	0030	0	154	33	19	27	06	00	1011	5	003	2	14	551								
	027	,	085	0048	0	159	338	324	27	08			-		-	149	556								
			STD	0050	0	159	338	33	27	09	00	0986	7	005	2	149	557								
	027	, ,	0 B S	0072	0	162	338	869	27	12						149	562								
			STD	0075	0	166	338	8	27	12	00	0952	6	007	6	149	565								
	027	,	085	0096	0	190	339	994	27	20						149	580								
			STD	0100	0	195	34(2	27	21	00	0868	35	009	9	149	583								
		_	STD	0125	0	220	341	5	27	30	00	0790)5	012	0	146	500								
	027		OBS	T0145	0	236	34	229	27	35						146	512								
	0.25		510	0150	0	238	344	4	27	35	00	0738	13	013	9	146	514								
	02		510	0194	0	239	34:	526	27	41	0.0		-			146	531								
			5TD	0250	0	300	34.	1	27	42	00	0601	. /	017	4	148	532								
	0.25	,	OBS	10262	ő	316	349	34	27	52	00	0003	5	020	•	140	004 70								
			STD	0300	õ	324	346	6	27	53	0.0	0583	10	023	6	144	200								
	027		OBS	0351	ŏ	335	349	95	27	55	00	0,00,0	, ,	025	•	144	203								
			STD	0400	ō	353	346	4	27	57	00	0560	7	029	3	147	710								
			STD	0500	0	379	347	1	27	60	00	0544	2	034	8	147	738								
	027	,	OBS	T0536	Ō	386	34	32	27	61			-		-	147	747								
			STD	0600	0	394	347	6	27	62	00	0532	5	040	2	147	762								
			STD	0700	0	396	347	8	27	64	00	0529	0	045	5 3	14	780								
	027		085	T0708	0	396	347	80	27	64						147	7.9.1								

REFERENCE CTRY ID. CODE NO	SHIP	LATITU	DE	LONG	SITUDE	DRIFT NDC7P	M A R S SQU	DEN ARE	STAT	idn t Gmti	ME	YEAR	CRU	DRIGIN	ATOP"	5 N	C	DEPTH TO	MAX DEPTH OF	DBS	WAVE RVATIO	N 5	WEA- THER	CLOUD		S	NODC	
CODI NO.			1/10		1/10	=	10*	1*	MO	AY	R.1210		NO),	I U M BE	9	BC	MOTTO	S'MPL"	DIR	H G E PER	SEA	CODE	TYPE AM	ī	N	UMBER	
318001	Εv	4431	N	048	53 W		149	48	04	19	043	1966	5	95	45		1	847	12	05	4 2		X 5	58			0037	
								WA	ER		VIND	BAR	io-	A IR TE	4.P. °C			NO.	C D E/				,					
								COLOR	TRANS	DIF.	SPEEC	MET	ER	DRY	WET	coc	1	OBS. EPTHS	DBSERV	ATIONS								
								0001	-	0.6	1010	E UND	57	0.5.0	000	°	-											
		····					_			05	520		00	050	05	0 6	1	13										
	MESSENGR TIME	CAST	CAR	D	DEPTH (mi	т	'C	s		sig	M A = T	SPEC	FIC VOLU	ME			sou	ND	0.0 ml/l	PO4-	P T	OTAL-P	NO2=N	NO1-N	SE O A-SI		
	HR 1/10	1 NO.	1415	E							1.0		AN(MALY-XI	0.	x 10 ³	···	VELD	CITY	07 11171	29 · 01	/1	vg = otil	vg = o1/1	µg - at I	µg = 01/	PH	6
										_																		+
			SI	TD (000	0	0	202	33	37	27	09	00	0982	1	0000	οĽ	145	568				1	I				1
	043		085	5	000	0	0	202	33	372	27	09						145	568									
			S1	r D	001	S	0	203	33	73	27	13	00	0939	3	0010	С	149	571									
	043		51	r D	002	2	0	204	33	99	27	18	00	0894	9	0019	9	145	574									
	043		005		002)	0	205	341	04	21	19					_	145	575									
	043		080		00.01	9	0	208	340	14	27	22	00	0860	1	0028	8	145	578									
	0.40		51	rD	0050	5	0	221	34	120	27	20	0.0	0706	. .	<i>.</i> .		145	585									
	043		089	;	007	2	ő	266	34	236	27	27	00	0195	9	0044	•	143	12									
			51	TD D	007	5	õ	264	34	4	27	33	0.0	0755	8	0063	2	140	13									
	043		085	5	009	5	ŏ.	259	34		27	37	00	0,22		.000	,	144	516									
			51	rD .	0100	C	0	262	34	30	27	38	00	0710	2	0082	>	146	517									
			S 1	٢D	0125	5	0	278	344	0	27	45	00	0650	0	0099	- -	146	529									
	043		OBS	5	T014	3	0	288	344	58	27	49			-			146	37									
			ST	r D	0150	C	0	292	344	•7	27	49	00	0611	2	0119	5	146	540									
	043		OBS	5	019	1	0	311	345	44	27	53						146	556									
			S 1	D	0200	C	0	315	34	6	27	54	00	0567	9 (0144	•	146	59									
			ST	D	0250)	0	336	346	3	27	58	00	0539	1 (0172	2	146	578									
	043		OBS		T028	5	0	349	346	666	27	59						146	90									
	043		51	0	0300		0	353	346	8	27	60	00	0522	5 (0198	3	146	94									
	043		005	- -	0.58.	1	0	3740	34	37	27	630																
			51	· ñ	0400	5	0	201	34	2	21	63	00	0501	3 (249	?	147	21									
	043		085	5	057	í	0.	399	348	06	27	65	00	0905	T (1200)	141	44									
			ST	D	0600	5	0.	01	348	n i	27	66	0.0	05.03	1	1360	`	147	60									
			ST	D	0700)	0.	04	348	4	27	68	00	0493	7 (3400	Ś	147	184									
	043		085	,	10763	3	04	05	348	47	27	68		••••			·	147	95									
			ST	0	0800	0	04	05	348	5	27	68	00	0496	э (0450)	148	101									
			SI	D	0900)	04	03	348	6	27	69	00	0496	+ (0499	,	148	117									
	043		085		0979	,	0	399	348	70	27	71						148	128									
			ST	0	1000)	0	398	348	7	27	71	00	0490	8 ()549	2	148	32									
	o		ST	0	1100)	01	388	348	8	27	73	00	0479	5 ()597	·	148	44									
	043		OBS	, ,	T1155	•	0	382	348	89	27	74						148	151									

REFERENCE	REFERENCE SHIP LATITUDE LONGIT					M A RS SQU	DEN	STAT	ION 1 GMTI	TIME	YEAR	CRU	ORIG1N	ATOR'	S N	DEF T BOTI	PTH IO LO M	MAX DEPTH OF	OB	WAV SERVA	e tions	WEA THER CODE	CL CC	OUD DDES		h ST N	NODC INTION UMBER	
CODE NO.	0000	•	1/10		* '3×10 =	10*	1.	MOL	DAY I	HR.1/10		N	0.	NU M B	ER			S'MPL'	OIR	HGT 1	PER SE	A	TYPE	A PAT				
318001	EV	4430	N	048	846 W	149	48	04	19	056	1966		95	46		22	86	12]					1			0038	
							WA	TER		WIND	BAR	2.	AIR TE	MP "C		N	0.	SPF	1AL									
							COLOR	TRANS	DIR	SPEED	MET	P	DRY	WE	T Cor	DEP	BS. THS	OBSEPV	A TION 5									
							CODE	(70)		FORC	(mos	.,	8048	001			2											
										<u> </u>				1		1	2			L.,								_
	MESSENGR TIME HR 1'10	CAST NO.	C A R T Y P	D E	DEPTH Imi	Т	*C	S	•4.,	51G	M A – T	SPEC A N	OMALY-X	I M E 10 7	₹ Δ (DYN,) ¥ 10	у м 1	SOU VELO	ND	02 ml/	PC P0	0.4≈P - 01/1	101AL+P µg - 01 I	NO Py -	2 ← N at/1	NO3-N V9 - 01/l	SI O 4++Si µg = 01	рН	_
								-		1	1.2.4				000	<u> </u>	14.							Ì	1			
			5	τυ	0000	0	312	34	32	21	36	Ų	00728	6	000	0	140	(22										
	056	>	OBS	5	0000	0	312	34	224	21	36	0	0070.	6	000	7	14	627										
			5	10	0010	0	326	24	20	21	200	0	0070		000	2	14/	632										
	0.64		0.00		0020	0	330	34	404	2	740	Ŷ	0007.	. 0	001	-	14	635										
	0.96	>	00.	5 T D	0020	0	335	34	41	2	740	0	0068	5	002	1	14	638										
			ر ب	10	0050	ő	353	34	44	2	741	õ	0068	9	003	5	14	649										
	0.54	<u>_</u>	080	e	0051	ő	354	34	440) 2	741	Ť				-	14	650										
	0.00		 	TD	0075	Ő	354	34	46	2	142	0	0067	16	005	2	14	654										
	05/	4	08	ς	0077	ō	354	34	460	2	743						14	655										
			S	TD	0100	C	341	34	51	2.	748	0	0062	2.3	006	8	14	654										
	050	5	OB	s	0102	С	340	34	517	2	748						14	653										
			5	TD	0125	C	357	34	60	2	753	0	0057	8	008	3	14	666										
			S	TD	0150	C	369	34	66	2	757	0	0054	06	009	7	14	676										
	054	6	OB:	s	0155	C	371	34	672	2 2	758						14	677										
			S	тD	0200	C	1373	34	72	2	761	0	0050	37	012	3	14	686										
	05	6	08	S	0206	C	1373	34	72	7 2	762					~	14	687										
			S	TD	0250	C	382	34	15	2	162	0	0049	58	014	0	14	711										
			S	TD	0300	(1390	34	11	2	163	0	0049	50	011	2	14	713										
	05	6	08	5	10309		1200	24	82	, <u>2</u>	767	0	0047	4.6	027	1	14	732										
	25	,	- 5	10	0400		1222	34	82	2 2	767	U	0047	-0	002	•	14	734										
	0.5	0	08	3 7 D	0.500		1400	34	84	- 2	768	0	0047	22	026	59	14	749										
			2	10	0500		1400	34	86	2	770	ŏ	0046	48	031	5	14	766										
	36	,	08	10	0600	(1400	34	86	5 2	770	Ŷ					14	769										
	0.9	0	00	3 T D	0700	Č	1394	34	87	2	771	0	0045	92	036	51	14	780										
				10	0,000	Č	388	34	88	2	772	ō	0045	63	040	07	14	794										
	0.5	4	08	c	10828	Č	386	34	88	0 2	773						14	798										
	0)	0	55	TD	0900	(382	34	89	2	774	С	0044	94	045	53	14	808										
			5	TD	1000	(378	34	90	2	775	C	0044	61	049	7	14	824										
	0.5	6	08	s	1058	(376	34	90	5 2	776						14	832										
		-	S	TD	1100	(375	34	•91	2	776	C	0044	75	054	+2	14	839										
			s	TD	1200	(0372	34	+90	2	776	C	00045	31	058	37	14	855										
	05	6	08	s	T1247	(0371	34	90	32	776						14	862										

REFER	ENCE							MARS	DEN	5T A	TION	TIME	1		1	ORIGIN	ATO	R*5	T	DEPTH	MA	.¥ ТН		WAV	E		WEA.	CLOUR	2		ODC
CTRY	ID.	SHIP CODE	LATITU	DE	LONGITU	DE	CBIE1	SQU A	ARE	110	IG M	T)	110	YEAR	CRUIS NO.	E	STATI	ON 8EP		OT NOTICE	SIMP	F ILIS I	OBS	ERVA HGT[F	10115	ĒA	CODE	TYPE AA	с. лт	5 N	UNBER
21	NO.	EV	4425	1/10	04914	1,110 W		149	49	04	21	12	2	1966	1	95	547		1	0060	0	1	51	2	3		X 1	7 7			0039
1 21	0001		44),		04714	"	1 1	1.47	WA	TER	-	WIN	D		<u> </u>	AIR TE	NA P.	c	Ċ	NO.	Í,										
									COLOR	TRAN (m)	s. Di	R F	PEED OR ORCE	N/ ET i (mbs	R	DRY BULB	8U	ET C	215 O D E	OBS DEPTHS	OBSE	PVATI	DN S								
								ŀ			0	1 5	28	16	3	044	0	39	8	04								_			
		MESSENGR TINE	CAST	C A TY	PD DE	PTH I	(m.)	т	`с		s •/	.	SIGN	1 A - T	SPECIE	NALY-I	UM { 10 ²	∑ ∆ DYN x 1	D M	SO VEL	UND OCITY	02	mul	PC PQ	4≠P - al I	۲0 و بر	TAL-P	NO2≁N µg • at∕	NO3+N 10-01	\$1.04-5) vg = 01.1	рH
		HR 1/10										-										-		-		-					
		12	2	08	TD C	000	0	0	140 140	3	372 372	4	27 27	02	00	1051	17	00	00	14	539))									
				5	TD C	001	0	0	140	3	373		27	02	00	104	70	00	10	14	1540 573	,									
				9	TD C	02	0	0	139	3.	515	2	27	02	00	104.	10	00	21	14	542	,									
		12	2	06	15 U π.Π. (002	ວ ດ	0	139	יכ. ק	373	2	27	02	00	104	57	00	31	14	543	3									
		12	2	05	in 0 0	004	ĩ	ŏ	140	3	373	3	27	02						14	5 4 5										
			-	5	TD (005	0	0	140	3	374		27	03	00	1040	04	00	52	14	•547	7									
		12	2	08	is (005	4	0	140	3	374	4	27	03						14	1548	3									

REFERENCE	SHIP	1 & TITU	0.6	105	1000	CTR CTR	MAR	DEN	STATIC	DN TI	IME			ORIGIN	ATOR'	i]	DEPTH	MAX		WAVE		WEA-	CLOUD	1		NODC	
CODE NO.	CODE		1/10	2011	1/10	õ 🛛	- 10	1.1.	10	14		TEAK	CRUISI	E S	TATIO	N	BOTTOM	OF	OB	ERVATIO	NS	THER	CODES		S	TATION	
318001	EV	64.34		040	0.0		14.0	110	m0 0.	ATH	R, 17 TQ		1 10.	· · ·	UMB			S'MPL*	S DIR.	HGT PER	SE A		TYPE AM	1		UNIDER	
1 10001		4434	- 14	041	07 W	1	149	49	04 2	1	132	1966	<u> </u>	95	48		0650	06	51	23		X1	7 7	1		0040	
								WAI	ER	V	VIND	BARC		AIR TE/	AP. C	- vis.	NO.	SPE	CIAL								
								CODE	TRANS. (m)	D1R.	08	(mbs	R	DRY BULB	BULE	CODE	DEPTHS	OBSERV	A TION S								
										01	\$35	16	9 ()44	03	9 8	11										
	MESSENGR	CAST	CAL				'				ʻ	-				5 0 0	T									1	Т
	TIME	Y NO.	TYP	E	DEPTH I	(m.)	T	°C	5.	4.	SIGN	1 A - T	ANOA	C VOLU AALY—XI	ME	OYN. M	- SOI		02 m1/1	PO4-	P T	TOTAL-P	NO ₂ -N	NO3-N	5104-51	pH	
	HR 1/10										-				-	x 10 ³				- pg - ur	1	99 · 01/1	Ug = 01/1	µg - at/1	µg + 01/1		1
		1		τn	000	~		1 / 0		2		.								1		- 1					1
	13	2	0.8	c c	000	0	0	148	331	2	270	00	001	1063	0	0000	14	542									
	•	-	5	τD	001	ñ	õ	148	337	20	210	00	0.01		_		14	542									
			ŝ	τD	002	0 0	0	147	337	2	270	20	001	04 2	9	0011	14	543									
	132	2	08:	5	002	3	õ	147	337	16	270	50	001	1062		0021	14	542									
			S	τD	003	0	ō	147	337	2	270	21	0.01	062	2	00.22	14	545									
	132	2	08	5	004	5	ō	147	337	18	270	51	001		~	00 52	14	549									
			S	TD .	005	С	0	146	337	2	270	51	001	059	6	0053	14	549									
	132	2	08	S	006	6	0	145	337	29	270	22			-		14	552									
			S	τD	007	5	0	145	337	3	270	52	001	051	8 (0079	14	553									
	132	2	08:	5	009	1	0	145	337	96	270	7 C					14	557									
			S	TD	0100	2	0	176	339	3	271	16	000	922	6 1	0104	14	574									
	1.2.4		S	10	012	2	0.	246	342	3	273	34	000	751	1 (0125	14	613									
	134	2	08	>	1013	<i>(</i>	0.	271	343	39	274	+1					14	627									
	12	-	~ ~ ~	-	0150	, ,	0	286	344	1	274	+5	000	651	5 (0143	14	637									
	154	2	003		1018	+	0	317	345	43	275	53					14	657									
					0200	5	0.	310	345	2	275	23	000	578.	2 (0173	14	661									
	133	,	080		027	2	0.	170	345	1	2/2	24	000	12121	5 (5202	14	672									
		-	- C D J	, r D	021	3	0	227	345	01	215	22		E / /			14	679									
	137	,	089		037	2	0.	162	346	53	275		000	204		5231	14	685									
	- 22	-	51	íο	0400	5	0.	356	346	7	275	10	000	64.1	, ,	1201	14	105									
			SI	D	0500	5	0	169	347	í	276	1	000	633	5 (1340	14	111									
	132	2	08	5	T0566	5	0	377	347	37	276	2	000	رور		5540	1.4	740									
			si	D	0600	5	0	381	347	5	276	3	000	525	i (1301	14	756									
	132	2	085	5	0633	L	0	84	347	52	276	54	200				14	763									

REFERE	ID SHIP LATITUDE LDI					_	≝ ∧	ARSI	DEN	STAT	DN T	1ME			ORIGIN	ATOR	S	DEPTH	MA	Х, Ы		WAY	/ E	WEA	- 0	CLOUD			NODC	
CTRY	ID.	CODE	LATITU	DE	LDN	GITUDE E	oz	SOUA	RE		5MII		YEAR	CRU	ISE S	TATIC	IN I	TO	OF		0836	KVA	TIONS	- COD	E -	CODES	1		NUMBER	
COUR	NU.			1/10		1,10	- 1	10*	1.	MOC	AY	HR,1/10			0.1 P	UMB	E H		2.W.b		DIR	нот	PER SE.	A	1.	YPE AM				
31B	001	Εv	4432	8N	049	100 W	1	49	49	04	21	144	1966		95	49		0860	0	7	01	9	3	X 1		7 3			0041	
									WAT	ER		NIND	BAR	o-	AIR TEA	м. °С		NO.	51	ECIA	.									
								1	COLOR	TRANS.	DIR	SPEED	MET	ER	DRY	W E BUI	r cobi	DEPTHS	08558	I A V	ION 5									
								-			01	FORC	1 1		044	0.3	0 0	11	· · ·											
			,		,-						01	330		7	044		0 7 0	11		T	_	-							1	
		MESSENGR TIME HR 1/10	CAST NO.	CAI TY	P D P E	DEPTH (m	1	T	°C	s	·	\$!G	M A — T	SPEC	OMALY-XI	ме 07	∑ △ D DYN. M X 10 ³	. SO VEL	UND OCITY	0	2 m1/1	Р(29	D4-P + 01/1	1014L-I µg = c1/l	P N	02 -N 9 - 01/1	NO3~N µg = 01/1	SIO ₄ —S уд - оt/	рН	S C C
				S	TD	0000		0.	212	340) 3	27	21	0	00870	5	0000	14	+575											
		144	4	08	s	0000		0	212	340	29	27	21					14	575											
				S	TD	0010		0.	212	34(3	27	21	0	00870	2	0009	14	576											
				S	TD	0020		0.	212	340	25	27	22	0	00855	5	0017	14	+578											
		144	4	08	S	0025		0.	212	34(165	27	24			-		14	+579											
				S	TU	0030		0,	214	34	10	27	26	0	00819	5	0026	14	1961											
		144	4	08	S	0049		01	236	34.	198	21	32	~		-		14	+596											
				5	TU	0050		0.	239	34.	20	21	32	0	00764	9	0042	. 1.	1591											
		144	4	08	S	0073		0	293	34	297	21	35	•	0.775	,	0040	14	+626											
					10	0075		0.	294	34	30	4	30	0	00135	0	0060	1	+020											
		144	4	0.0	3	0096			277	24	307	2	200	0		,	00.70	1	10 24											
				2	10	0100		0	303	34.	21	2	200	0	00120	4	0073	1 1	1260											
		1.4.4	<i>.</i>	0		70169			346	34	623	2	20	0	00121	Ģ	0091	14	470											
		7.4.	+	 	70	0150		0	363	34	423	2	120	0	00712	0	0115	i i	670											
		144	<i>.</i> .	08		0196		0	338	34	46.2	2	143	Ŷ	00.41	Ŭ.		- 14	667											
		1 -	-	6	τ0	0200		0	338	34	46	2	144	0	0.0665	1	0149	a 14	668											
				Š	τ0	0250		0	343	34	57	2	152	ő	00590	5	0181	14	680											
		144	4	oă	S	T0291		ŏ	346	34	531	2	57			-		- 14	+689											
		•		S	TD	0300		0	349	34	64	2	157	0	00548	4	0209	14	+692											
		144	4	OB	s	T0390		0	374	34	717	2	761	-				14	+718											
				Ś	TD	0400		0	375	34	72	21	161	0	00523	7	0263	3 14	720											
				š	TD	0500		0	386	34	76	2	63	0	00514	5	0315	5 14	742											
		144	4	08	S	0594		0	394	34	784	2	164					14	+761											
				S	TD	0600		0	394	34	79	2	165	0	00510	5	0366	, 14	+762											
				S	TO	0700		0	399	34	81	27	66	0	00510	4	0417	14	+781											
		144	4	08	S	T0738		0	401	34	820	21	66					14	•788											

REFEREN	ICE.	E SHIP LATITUDE LONGITUDE				M A PS	DEN	STA1	ION T	IME	YE.A	A.R	Coursel	RIGINA	ATOR'S		DEPTH TO	MAX DEPTH	нов	W A	A TIONS		W EA • THEP	CLOUI	5	ş	NODE		
CTRY	ID. NO.	CODE . 1/10		· 1/10	10*	11	MOT	DAY	48,1,10			NO.	Ň	U M BE	P	801104	A S'MPL	S DIR.	НG	T PER S	ξA	CODE	TYPE A P	<u> </u>		U MAREN			
218	0.01	EV	4431	N	0.48	153 W	149	48	04	21	159	19	66		95	50		1500	13	01	5	3		×1	7 3			0042	
210	001		44.71	-	040	, , , , , , , , , , , , , , , , , , ,		WAT	EP	<u> </u>	WIND		9480	A	iR TEA	AP C		NO	C PI	EC IAL	1								
								COLOR	TRANS	DIP.	SPEEL	DA	VETE	R C	RY	WET	CODE	OBS DEPTHS	OBSER	VATIONS									
								CODE	tets 1		FORC	: E	(mbs	1 81	518	800		1.2			-								
										01	530	u _	18	6 0	26	05	0 1	13			1								_
		MESSENC TIME	AESSENGE CAST CAPD TIME OF NO. TYPE DEPTH		DEPTH (m)	T	°C	s	•⁄	SIC	5 M A -	- T	SPECIFIC	VOLU ALY-31	NA E 0.7	₹ Δ D DYN. Μ χ 10 ³	S C VEL	DUND LOCITY	0 2 ml	1	PO4=P 29 - a1/1	01 99	1.4 L - P g + al	NO:-N µg - 01,	N Qg — N Vg - of	5) D4-5 29 + 01	рH	i C C	
								1						7.1.7	_														
				STD 00 9 0BS 00 5TD 00		0000	0	416	34	48	2	737		000	112	5	0000	1.4	4668										
		15	9			0000	0	415	34	475	2	131 727		000	714	0	0007	14	4670										
			STD STD OBS		0010	0	417	34	48	2	737		000	714	7	0014	. ī.	4672											
		16			0021	Ő	417	34	476	2	737	,					14	4672											
		• •		5	TD	0030	C	411	34	47	2	738	3	000	712	6	0021	1	4671										
				S	0 T C	0050	C	400	34	46	2	738	3	000	711	0	00 36	. 1	4670										
		1 5	59	ΟE	3S	0053	C	398	34	+460) 2	738	3					1.	4669										
				S	TD	0075	C	386	34	+46	2	739	2	000	0701	0	0053	1	4668										
		1 5	59	OE	35	0079	0	384	34	460	2 2	740) >	0.00	681	0	0071	1	4666										
		1.6		0.5		0100	6	1368	34	4473	, 2	742	-	000	1001	0	0011	1	4665										
		1:	9 9	00	570	0125	0	344	30	48	2	745	5	000	651	1	0087	1	4658										
					STD	0150	Č	327	34	49	2	747	7	000	631	8	0103	3 1	4655										
		15	59	OE	35	T0162	Ū	324	34	4488	3 2	748	3					1	4656										
					STD	0200	C	341	34	+61	2	756	5	000)555	0	0133	3 1	4671										
		1 5	59	08	3S	0213	0	346	34	4648	3 2	758	3	0.00			0140	1	46/6										
				-	STD	0250	(362	ەر بەر	470	2	761	2	000	1012	5	0189	5 1	4706										
					STD	10300		1317	3/	410	1 2	763	3	000	, , , ,		0.0.	ĩ	4711										
		1	59	01	эр стр	0400	, i	396	34	480	2	76	5	000	0486	53	0234	4 1	4730										
		1	59	0	35	0426	(399	3	480	92	766	6					1	4736										
		-			STO	0500	(0401	3	482	2	2766	6	000	0489	59	0283	3 1	4749										
					STD	0600	(0403	3	484	2	2768	8	000	0483	31	033	1 1	4767										
		1	59	9 0BS T		T0643	(0404	3	484	2 Z	2761	8					- 1 - 1	4774										
			59 085 108 57D 070 57D 080 159 085 085		0700		0404	3.	485	2	276	8	000	0480	53	031	9 I 0 1	4/84											
					0800	(0402	3	487	ے م	277	1	000	0471	80	0420	5 I	4808											
		1			0000		0400	ر	488 488	2 2	77	2	000	047	33	047	5 Î	4814											
		STD 090		1000		0389	3	489	2	277	3	00	0470	03	052	3 1	4828												
		1	59	0	BS	11082		0384	3	488	9 2	277	4					1	4840										
		1	- /	5	STD	1100		0383	3	489	Z	277	4	00	0461	82	056	9 1	4842										
					STD	1200		0379	3	489	2	277	4	00	047	21	061	6 1	4857										
		1	59	0	BS	T1275		0377	3	489	0 2	277	4					1	4865	ł									

																								_								
REFERENCE			1			æ	MARS	DEN	ST.4	TION	TIM	E			ORI	GINA	TOP'S		DEPT	н	M A:	X	-	WA	VE		WEA.	CL.	OUD			NODC
CTPY ID.	SHIP	LATITU	DE	LONGITU	DE	4DC	\$QU-	a p E		(G M	Ŧ)		YEAR	CR	UISE	ST	ATION		TC BOTT) D M [OF		08	SERV		14.5	- CODE		JUES	-	1	A LI MABER
CODE NO			1/10		1210	-	10"	1.	MO	DAY	HR.1	10		-	40	NI.	J WAREN		0.04	-	2-W/M		DIR	RG	719	SEA.	~ 1	1192	4.00			0043
31800	1 E V	4436	8N	04921	6W		149	49	04	21	21	6 1	960	5		955	1		006	s u l	0	1]	34	8	2		×1	4	. 1			0043
							[W.A	TER		WIN	D	BAR	0.	A 19	T E AA	P "C	. vis	NO	:	S F	PECIA	ΑL									
								COLO	TRAN (m)	5 01	R	OR OR FORCE	(mb	1 E P 5 5 1	DRI BUL	r B	W E T BULB	COD	DEPT	». Н S	OBSER	P √ A 1	TIONS									
										3	6 5	518	2	47	03	3	033	6	04	•										_		
	MESSENC TIME H.R. 171	CAST	C A1 TYI	PE DE	ртн і	m i	т	*c		s */		SIG M	A — T	S PI	ECIFIC V	0.U.V 1-110	1 51 51	△ D N. N (10 ³		SOU (ELO	ND CITY	c	2 ml/	I .	PO 4-	.р 1-1	POTAL-P	NO 29 -	ol I	NO3-N Ly - of	גיי, ו, י, sorot	pн
	21	6	S OB S	TD (S (TD (TD (000	0 0 0	000000000000000000000000000000000000000	140 140 139 138	3	360 359 358 357	7	269 269 269 269	91 91 90		0011	482 609 674		000 012 023	2	149	537 537 538 539	1										
	216 216		0B S	S (TO (002 003	5 0	0	137 138	3	356 357	5	268 268	39 89	(0011	709	9 0	035	5	14	539 540											
			OB S	S (TD (004 005	0	0	139	3	356 356	8	268	89 89	(0011	764	• 0	05	8	14 14 14	543 544 545											
	2	.6	08	-S (005	5	0	139	3	355	(268	88								542											

CTRY ID. CO	IP LA	TITUDE	LON	GITUDE	MARSDE SOUAR	N	STATION (GMT	τικέ)	YEAR	ORIC CRUISE NO.	STA STA	ION ABER		DEPTH TO BOTTOM	MAX. DEPTH OF	OBS	WAVE ERVATION	S C	W EA - Ther DDE	CLOUD CODES		2	NODC TATION UMBER
318001 E	v 37	20 N	050	015 W	114 7	0 0	05 22	061	1966	c	1552			5303	32	18	1 3		¥ 1	8 6	· · · ·		0064
						WAT	ER	WIND		A IP	TEMP.	c		NO			1 -	1	^ + 1	0.0	1		0044
					ćc	LOP	TRANS DIR	SPEED	METE	R DRY	V	ET C	VIS 2006	085.	SPEC OBSERV	ATION S							
					CO	300	(m)	FORC	E (mbs) BULS	В	UL8		DEPINS									
							19	1 512	2 29	1 183		.33	7	16									
MEST	ME OF N		RD	DEPTH (m)	T °C		s •4.	SIG	MA-T	SPECIFIC VO	LUME	₹ (DYN	2 D.	sou	UND	0 2 m1/1	PO 4-P	101	A L -= P	NO2-N	NO3-N	5104-5	6H
HR	1/10											x	103	VELC	JUIT		µg = ct/1	~g -	. 01 .1	hð - 61,1	yg = 61/1	nd - ar	
					1																		
	0.6.1	5		0000	190)/ \7	3652	26	18	00184	24	00	00	15	214								
	001	00.	5 T D	0000	100		3462	20	20	00193	122	00	10	10	214								
		د د	TD	0010	190	23	3651	20	21	00183	22	00	10	15	212								
	061	0 Å	Ś	0025	189	0	36511	26	22	00102		00	51	15	212								
		Š	TD	0030	186	2	3651	26	20	00175	18	00	55	15	215								
		Š	TD	0050	177	15	3650	26	50	00155	89	00	88	15	184								
	061	08	s	0051	177	12	36499	26	51					15	183								
	-	S	ŤD	0075	176	4	3649	26	52	00154	86	01	26	15	185								
		ŝ	TD	0100	175	5	3649	26	54	00153	73	01	65	15	186								
	061	OB.	s	10101	175	5	36486	26	54			• -	•••	15	186								
		S	TD	0125	174	•6	3648	26	56	00153	14	02	03	15	187								
		S	тD	0150	173	88	3647	26	57	00152	86	02	42	15	189								
	061	OB.	S	T0196	172	8	36464	26	59			• -		15	194								
		S	тD	0200	172	8	3646	26	59	00152	66	03	18	15	194								
		S	TD	0250	172	25	3646	26	59	00153	65	03	95	15	202								
	061	OB.	s	T0291	172	4	36464	26	60		•••	• -		15	208								
		5	TD	0300	172	4	3646	26	60	00155	10	04	72	15	209								
1	061	08:	\$	0385	172	3	36466	26	60					15	223								
		5	ŤD	0400	172	0	3646	26	60	00157	98	06	28	15	225								
		S	тD	0500	169	9	3640	26	61	00160	68	07	88	15	234								
	061	OB:	S	T0577	168	33	36352	26	61					15	241								
		5	тD	0600	164	• •	3627	26	64	00160	37	- 09	48	15	233								
		S	1 D	0700	146	5	3592	26	78	00148	73	11	03	15	187								
	061	08:	s	T0770	133	2	35710	26	90					15	155								
		S	TD	0080	126	1	3562	26	97	00130	69	12	42	15	135								
		S	TD	0900	104	3	3536	27	18	00110	124	13	63	15	D72								
1	101	UB:	5	1000	086	4	35175	27	33					15	019								
		S	10	1100	085	0	3517	27	35	00092	43	14	64	15	015								
	174	5		1100	067	3	3506	27	52	00074	01	15	47	14	952								
	010	000	5 7 D	1200	055	. 2	34996	27	63	00013	0.	1.	۰.	14	930								
				1300	057	0	3600	21	60	00062	00	10	10	14	930								
		ے د		1400	0.07	5	3500	21	08	00057	36	10	15	14	929								
	176	084	10	1400	044	2	3500	21	27	00053	01	11	31	14	932								
		() ()	10	1500	040	4	35002	. 21	13	00061	4.2	17	9.2	14	933								
		د. د	τD	1750	041	4	3500	27	เล่า	00001	41	10	00	14	740 065								
	076	080	5	1911	0.30	5	35004	27	82	00040	4.5	13	00	1.4	700 0 8 6								
			τD	2000	039	4	3500	27	81	00068	07	20	20	16	700 000								
		S	τD	2500	036	9	3497	27	82	00040	70	22	27	15	074								
	076	OB:	s	12540	036	5	34965	27	82				10	15	079								
	87	OB	5	T2782	033	9	34964	27	34					15	110								
		<u>د</u> - د	TD	3000	031	9	3496	27	86	00047	41	25	21	15	130								
(087	OR	5	3246	030	0	34937	27	86	00041	- I	2)	e 1	16	173								
			-			-		- '							112								

REFER	ENCE	SHIP					MAR	SDEN	STAT	ION T	ME			ORIGI	NATO	*5	DEPTH	MAX		Ŵ	AVE	WE	. C	LOUD			NODC	Ĺ
CTRY 1005	10,	CODE	LATITU	DE	LONGITUDE	NO N	500	ARE		GMU		YEAR	CRU	158	STATI	2N	TO TO A	OF	0	BSER	VATIONS	THE	R (ODES			STATION	
	NO,			1/10		10 -	10*	1*	MOIL	DAYH	IR,1/10		- NI	0.	NUM	358		S'MPL	S D.A	++	GT PER SI	A	TY I	PE A M	T			
318	3001	ΕV	3750	N	05020	W	114	70	05	22	136	196	5	95	553		5449	9 10	25	<u>5</u> :	1 2	X	1	3 5			0045	
								WA	ER	v	VIND	- 8A	10- ļ-	AIR TO	EMP *		NO.	SPE	CIAL									
								COLOR	TRANS.	DIR.	SPEED OR	ME	ER	DRY	W	T COD	DEPTHS	OBSER	A TION!	s								
								0000		20	FORC			22.1	1			+		-								
			-,,							20	211		· •	211	11	91 9	10			1					1			
		MESSEN G	CAST	CA	D DEPT	H (m)	1 7	°C	s	•	SIG	M A - T	SPEC	IFIC VOL	UME	₹ <u>∩</u> 0	so so	UND	0 a mi		PO4-P	TOTAL-	P NO	0 ₂ =N	NO3+N	51.04-	-Si	
		HR 1/10	T NO.	1 1	PE								AN	OMALY-I	(10 *)	X 10 ³	VEL	OCITY			µg • 0†	µg = a1,	1 49	+ at/	yg + otyl	¥9 - 0	11	-1
									1																			T
				s	тр' оо	000	1	898	36	54	26	22	00	01801	68	0000	່ 1 5	211							1			
		13	6	08	s 00	000	1	898	36	537	26	22					15	211										
				S	TD 00	10	1	896	36	54	26	23	00	01809	51	0018	8 15	5212										
				S	TD 00	20	1	893	36	54	26	23	00	0180	21	0036	5 15	5213										
		13	6	80	S 00	25	1	892	36	541	26	24					15	214										
				S	TD 00	30	1	861	36	53	26	31	00	01734	48	0054	4 15	206										
		1.2		S	TU 00)50	1	766	36	48	26	50	0(01556	60	00.8	7 15	5181										
		13	6	08	5 00	150	1	766	30	4/5	26	50	~		3.0	01.00	15	181										
				5	10 00 *0 01	00	1	730	30	40	20	100	00	J 1 5 4 a	28	012:	5 15	180										
		12	4	08	ιυ υι ε τοι	00	1	733	30	43	20	55	00	1152	99	016	+ 15	2179										
		10	0	00	10 01 10 01	25	1	730	36	430	20	55	00	162		0.20	2 16	5107										
					τ0 01 τ0 01	50	;	728	36	4 · 4	20	67	00	1162	42	0200	- 1e	5194										
				Š	τ0 02	00	î	722	36	45	26	59	00	1162	36	0314	5 1 F	5192										
		13	6	08	< 02 < 02	203	î	722	36	454	26	50	0.		,,	0.21	1	5103										
		12	0	ŝ	TD 02	50	î	721	36	40	26	60	0.0	01530	6 3	039	3 1 -	5200										
				š	70 03	00	1	720	36	46	26	60	0.0	11544	48	0470	15	520H										
		13	6	08	5 03	03	1	720	36	462	26	60				0.11	19	5209										
			-	s	TD 04	00	1	717	36	43	26	59	00	01590	04	0620	5 15	223										
		13	6	0B	S 04	02	1	716	36	432	26	59					15	5223										
				S	TO 05	00	1	627	36	24	26	66	00	01554	48	0784	4 15	5211										
		13	6	08	S 05	96	1	493	36	206	26	78					15	5182										
				\$	TD 06	00	1	484	35	99	26	79	00	01448	87	0934	4 15	5179										
				S	TO 07	00	1	268	35	62	26	96	00	01295	51	107	1 15	5121										
		13	6	80	S 07	94	1	073	35	356	27	12					15	0 6 5										
				5	TD 08	00	1	061	35	34	27	13	00	0112	76	1193	2 15	062										
				S	TD 09	100	0	863	35	16	27	32	00	0934	47	1299	5 15	003										
				S	TD 10	000	0	675	35	80	27	54	00	0071	35	1378	3 14	+947										
		13	6	08	S 10	11	0	655	35	378	27	56					14	+941										

REFER	ENCE	5110					MAR	SDEN	STA	TION T	ME			OPIGIN	A TO R'S		DEPTH	н 🗛	MAX SPTU	WAVE	WEA-	CLOUD			NODC	
CTRY	ID.	CODE	LATITU	DE	LONGITUD	E DON	500	ARE		(GMT)		YEAR	CRUISI	S	TATION		TO		OF OE	ISERVATIONS	THER CODE	CODES	1	51	LATION	
2.001	NU.	5	2000	1/10		1. 10 -	10*	1,	MO	DAYH	(R,1/10		NU.		UMBE	(5'A	M.PL'S DIP	H GT PER SI		TYPE AM				
314	1001	EV	3820	N	05022	W	114	80	05	22	163	1966		95	54		521	2	12 23	3 2	X1	85			0046	
								,ς A	TER	V	VIND	BAP	o	AIR TEA	AP °C	- vis	NO.		SPECIAL							
								COLOR	TRANS (m)	DIR.	OR	13 M.	ER 1 1	DRY BULB	W ET BUILS	000	DEPTH	15 08	SEP VATIONS							
									-	23	510	26	1	200	16	1 7	11	+		-						
	i								<u>.</u>	1 .								_!								Τ.
		TIME	LCAST	C A TY	PD DEP	TH (m)	T	°C	5	٠.,	SIG	MA-T	SPECIFI ANOA	C VOLU AALY-II	ME 6	ANN. M	51	OUND	0 02 ml	PO4-P	TOTAL-P	NO ₂ =N	NO3-N	SI C: 4 - Si	pН	
		HR 1/10			-				-							X 10-	-						19 - 00 T	P.4		
					• 0		Ι.		1	6.0			-	0.2.0				6.9.2				1				
		1.6.1		 	10 0	000	1	953	30	22	20	800	00.	1938	5 (1000	1	222	21							
		10.	2	00	5 0	010	1	955	36	540 67	20	00	0.01	020	Б /	- - -	1	522	27							
				2	TO 0	020	1	940	36	54	26	1.2	001	1910	1 (10130	1	522	26							
		16	3	08	5 0	026	1	928	36	542	26	14	00.		÷ `	, , , ,	1	522	24							
				s	τρ ο	030	ī	915	36	54	26	18	001	857	7 (0057	- ī	522	21							
				Š	TD 0	050	1	854	36	55	2.6	31	00	738	3 (0093	1	521	0							
		16	3	0B	s 0	052	1	860	36	545	26	32					1	520	9							
				S	TD 0	075	1	858	36	55	26	33	001	1731	8 (0137	1	521	4							
				S	TD O	100	1	856	36	55	26	33	001	1733	9 (0180	1	521	6							
		16	3	08	S 0	104	1	856	36	550	26	34					1	521	.7							
				S	TD 0	125	1	833	36	54	26	39	001	1693	8 (0223	1	521	13							
				S	TD 0	150	1	808	36	53	26	44	000	1650	0 (265	1	521	0							
		1.4		- 5		200	1	161	36	50	26	52	00.	1271	8 (1346	· 1	520	16							
		10.	2	00	5 10	210	1	760	30	491	20	55	0.0	67/			. 1	520	10							
				् द	TO 0	300	1	720	36	40	20	67	001	1572	4 (5 /	1923	1	520	18							
		16	3	0.8	ς το	313	1	715	36	416	26	58	00.		<i>,</i>	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	1	520	18							
			-	ŝ	το ο	400	ĩ	699	36	40	26	61	001	1572	3 (061	ī	521	5							
		16	3	08	S 0	414	1	691	36	381	26	61					1	521	7							
				S	t0 0	500	1	583	36	13	26	67	00	1535	1 (0816	1	519	96							
				S	τ0 Οτ	600	1	425	35	84	26	8 C	001	1430	9 (0965	1	515	59							
		16	3	08	S T0	620	1	389	35	786	26	84					1	515	0							
				S	TD 0	700	1	202	35	51	27	00	00	1245	4	1098	1	509	77							
			_	S	TD O	800	0	989	35	25	27	19	00	1064	3	1214	1	503	35							
		16	5	08	5 10	823	0	943	35	207	27	23					1	502	21							
				S	10 0	900	0	111	35	11	21	41	000	1032	۲ . ۲	13 09	1	497								
		16	2	د ۵۵	ער ער כ דו	000	0	1661 1661	30	007	27	57	000	1003	2	1984	· 1	492	10							
		10	,	00	τ0 1	100	0	F191	36	771 JU	27	68	0.00	554	1	4.4	1	490	37							
				د ح	TD 1	200	0	471	35	00	27	73	- 300	1509	<u>.</u>	492	1	489	27							
		16	3	08	S TI	231	0	470	35	001	27	73	500	,,	÷ .		ī	490	12							
																	-									

REFER	EFERENCE SHIP LATITUDE LONGITUDE					α 	MAR	SDEN	STAT	ION T	AA E			QF	IGINA	TO R'S		DE	PTH	MAX		w.a	VE		WEA-	CLO	UD	-		NODC	٦
CTRV	TRY 1D. CODE LATITUDE LONGITUDE				GITUDE BG	SQU	APE		GMTI		YEAR	Ċ	RUISE	ST	ATION		T	TO	DEPTH OF	OBSE	RV	A TION	S	THER	CO	DES			STATION		
ODE	NO.			1/10		1/10 ≈	10*	1.	MO	AYH	R.1/10		_	NO.	N	J M BER		501	10M	S'MPL'S	DIP	НĠ	PER	SEA	CODE	TYPE	A M 1				_
31	3001	EV	3850	N	05	014 W	114	80	05	22	203	196	6		955	5		54	67	34	21	3	2		×1	8	4			004	7
								WA	TER	V	VIND	BA	RÓ-	AI	P TEM	5° 9	- VIS	N	i0.	SPEC											
								COLOR	TRANS	DIR.	SPEED	ME	TER	DR	i a	WET	CODI	DEP	BS. PTHS	OBSERVA	ATION S										
									-	2.2	PORC		C /	20		1.01	-	1	7												
									I,	22	510	2	24	20		194	1	1	. 1			.		_			,				_
		MESSENGI	CAST	CA	PD	DEPTH (m)	Ι T	°C	5	• • •	1 816	M A - T	51	PECIFIC	VOLUN	(×	A D		SOUM	чD	On mI/I		PO ₄ -P	- n	DTAL-P	NO2-	-N	NO3~N	SI O 4-		1
		HR 1110	T NO.	ŢŸI	PE						1,0		1	ANOMAI	LA - X10	1.	103		VELOC	CITY	01	1	9 × 61.1	-	ng = ist/l	hð - a	61	vg - atzt	µg = 01	I Pri	Ì
																						T								1	-
		1		S	10	0000	1	953	36	+2	25	98		0020)313	0	000	1	152	25					L.						
		20	3	08	S	0000	1	953	36	417	25	98				-			152	25											
				S	TD	0010	1	952	36	42	25	99	1	0020	329	0	020		152	26											
		20	•	- 5	10	0020	1	952	36	+2	25	99		0020	1341	0	041		152	28											
		20	\$	05	5	0020	1	030 751	30	+18	25	099		00.20					152	29											
				5	10	0030	1	939	30	9 L 2 L	20	01		0020	1140		101		162	20											
		20	2	08	< 10 c	0052	1	892	36	361	26	09		0019	50	0	101		152	10											
		20	,	S	то то	0075	1	902	36	36	26	07		0019	731	0	150	1	152	22											
				Š	τO	0100	ī	912	36	37	26	05		0020	000	0	199	,	152	30											
		20	3	OB	s	0104	1	914	36	375	26	05							152	31											
				S	TO	0125	1	858	36	38	26	20		0018	1736	0	248		152	18											
				S	τO	0150	1	801	36	37	26	34	1	0017	464	0	293	5	152	206											
				S	T0	0200	1	718	36	37	26	54	1	0015	694	0	376)	151	90											
		20	3	ОВ	5	T0207	1	710	36	373	26	56							151	89											
				5	тD	0250	1	700	36	38	26	59	1	0015	409	0	454		151	93											
				S	T0	0300	1	688	36	38	26	62	1	0015	262	0	530)	151	98											
		Z 0	3	08	S	T0310	1	686	36	385	26	63							151	.99											
		201	<u>_</u>	5	10	0400	1	526	36	J4 D2-	26	13		0014	43	0	679	1	151	.60											
		20	2	00	5 T D	0412	1	295	25	230	20	02		0013	766	0	are		100												
				د د	10	0600	1	0.61	35	31	20	11		0012	04		010	•	150	175											
		2.0	3	ОB	s	T0615	1	029	35	270	27	13		0011		0	/) 4		150	119											
				S	TO	0700	0	844	35	13	27	33	,	0008	885	1	033		149	63											
				S	τo	0800	0	679	35	12	27	48		0007	332	1	115	,	149	14											
		20	3	08	S	T0816	0	658	35	104	27	50							149	0.8											
				S	TD	0900	0	595	35	00	27	5 R		0006	400	1	183	-	148	97											
			_	S	TO	1000	0	535	35	20	27	66	. (0005	710	1	244		148	90											
		20	3	08	5	T1042	0	514	35	202	27	68							148	88											
				S	10	1100	0	499	35	10	21	70	1	0005	328	1	299		148	192											
		20	2	08	20	1200	0	400	30	11	21	74		0004	955	1	350)	148	94											
		20	2	08	с с	T1240	0	400	35	109	21	15							148	06											
		~ 1	٤	5	TD	1300	0	438	35	0,0	27	70		0004	750	1	100		140	00											
				s	τÕ	1400	õ	421	34	99	27	78		0004	701	1.	446		149	10											
		21	2	OB	s	T1491	ō	408	34	977	27	78				-			149	19											
				S	ТD	1500	0	407	34	98	27	78		0004	709	1	493		149	20											
				S	τo	1750	0	388	34	98	27	80		0004	675	1	611		149	55											
		21	2	08	s	1980	0	371	34	977	27	82							149	86											
			-	S	тD	2000	0	370	34	98	27	82		0004	636	1	727		149	89											
		21	2	OB	S	12476	0	340	34	971	27	85							150	58											
			-	S	10	2500	0	338	34		27	85		0004	612	1	758		150	61											
		21	۷.	UB c	э т 0	3000	0	302	34	45U 36	21	86			6.6.5	~	107		151	31											
		21	2	0 P	ιU c	3364	0	276	34	77 240	21	00		0004	251	2	10 (101	26											
		<u>د ا</u>	<i>L</i>	08	3	2204	U	610	54	74U	21	99							151	84											

																	-		1				T	-			
REFER	ERENCE SHIP LATITUDE LONGITUDE		5 E	MAR	SDEN	STAT	ION TI	M.E		1	ORIC	SIN A.T	0.8°5		DEPTH	DEPTH	0.05	WAVE	WEA-	CLOUD			NODC				
CTRY	ID.	CODE	LATITU	DE	LONGITUDE	180 N	500	ARE		GMI		YEAR	CR	UISE	\$TA	TION		BOTTOM	OF			CODE	10000		1	UNBER	
CODE	NO.			1/10		0 -	10*	11	MO 0	H YAC	R.1/10			NO.	140	1000	-		SANPLS	DIR.	HGT PER SE	· A	FYPL AM	1			
31	8001	Eν	3920	N	05020 1	4	114	90	05	23 0	011	196	6		9551	2		5312	13	20	2 2	X 2	87			0048	
								WA	TER	V	VIND	8 A	RO+	R A	TEMP.	°C	VIS	NO.	SPE	CIAL							
								COLOR	TRANS.	DIR,	SPEED	ME	TER	DRY		AV ET	CODS	DEPTHS	OBSERV	ATIONS							
									-		FORC	E (1)	4.7		-+-	1.6.	-	1.1									
										24	512	2	41	10	1	126	(11	L								
		MESSENGR	CAST	CAP	PD DTOTU			**		•/	0.0		SP	ECIFIC VI	DLUME	Sv	A D	SO	UND		PO4-P	TOTAL-P	NO ₂ =N	NO ₃ -N	SI O a = S	ъH	
		TIME -	Î NO.	ŦŸF	PE	1.051	'	C			1 10	1010-1	^	NOMALY	-#10,	X	103	VELC	OCITY		µg = 01/1	µg • a1/l	µg + α1/1	99 - 01/j	µg - al		9
							1		1				-														
				5	TO 00	00	1	730	36	2.2	26	39	10	00164	429	00	000	15	159			1		1			
		013	I	ОB	5 00	00	1	730	36	217	26	39			-			15	159								
		•••	•	ŝ	TD 00	10	1	722	36	20	26	40	0	016	402	00	016	15	158								
				S	TD 00	20	1	713	36	19	26	41	(016	303	00) 3 3	15	157								
		011	L	0B	s 00.	27	1	706	36	186	26	543						15	156								
				S	TO 00	30	1	704	36	18	26	543	0	0016	174	00)49	15	156								
				S	TD 00	50	1	681	36	17	26	548	(0015	791	00	081	. 15	152								
		01	l	08	s 00	53	1	676	36	172	26	549						15	151								
				S	TD 00	75	1	608	36	10	26	559	¢	0014	780	0	119	9 15	133								
				5	TD 01	00	1	543	36	03	26	69	(2013	952	0.	155	5 15	116								
		01	1	0B	S 01	06	1	529	36	012	26	570					1.0.0	10	113								
				S	10 01	25	4	511	36	01	26	74		3013	491	0.	185	+ 10 16	107								
				S	TO 01	50		488	35	99	20	578 . 07		0013	223	0.	4 Z S 2 a c	10									
		0.1		08	TU U2	17	1	430	35	9 J D	20	586		0012	100	0.	600	15	095								
		01	1	00	10 02	50	1	380	35	83	24	587	(0012	634	0	351	15	089								
					10 03	<u></u>	1	332	35	72	21	590	Č	0012	428	04	414	15	078								
		0.1	1	08	S T03	21	1	304	35	666	21	592		001-		Ŭ	-	15	071								
		01	•	ŝ	TD 04	00	i	178	35	46	2	701	0	0011	616	05	534	. 15	038								
		0.1	1	08	5 04	26	j	135	35	404	2	704			-			15	027								
			•	S	TD 05	00	C	982	35	24	2	719	0	0009	960	00	542	2 14	982								
				s	TD 06	00	C	807	35	09	2	735	(0008	413	0	734	. 14	932								
		01	1	08	S T06	41	C	746	35	045	2	741						14	914								
				S	TD 07	00	0	670	35	03	2	750	(0006	976	0	811	L 14	894								
				s	TD 08	00	C	567	35	01	2	762	(0005	832	0	879	5 14	870								
		01	1	08	S 108	50	0)528	35	005	2	767						14	862								
				S	TD 09	00	C)508	35	01	2	769	(0005	201	0	930) 14	862								
				S	TO 10	00	C	474	35	01	2	773	(0004	858	0	980	14	865								
		01	1	08	S T10	84	C)453	35	009	2	776						14	870								
				S	TO 11	00	9)450	35	01	2	776	1	0004	639	10	028	3 14	+872								
				S	TD 12	00	ç)434	35	02	2	779	(0004	461	1	073	3 14	+882								
		01	1	08	IS T12	78	0)427	35	027	2	780						14	+892								

REFERENC CTRY ID	ID. CODE LATITUDE LONGITUDE					M A R SQU	SDEN ARE	5 T A T (GMTI	WE	YEAR	CRU	DRIGI	ATOP	S IN	D	TO	MAX, DEPTH OF	0856	WAV RVA1	E	WEA- THER	CLDUD			NODC STATION	
CODE N),		1/10		1/10 =	10"	1.	MO	AYH	R,1/10		- N	0.	NUMB	ER	100		S.Wbr.s	DIR	HGTP	ER SEA		TYPE AM	1			
3180	01 EV	3936	N	05020) w c	114	90	05	23 0	255	1968	5	95	57		5	321	12	20	3	3	x 2	3 8			0049	
							WA	TER	W	IND	BAR	10-	A IR TE	MP. C	:		ND.	SPEC	LAI								
							COLOR	TRANS	DIR.	SPEED OR	MET	ER	DRY	WE	r coi		ÓBS. EPTHS	OBSERV	ATIONS								
							CODE	1041	23	FORC		2 7	192	1.6	° 7 7	-	11										
									21	514	2.	21	103	10	11		11									_,	
	MESSENG TIME	CAST	C A Tr	PD DE	EPTH lml	т	•c	s	·	SIG	MA-T	SPE	CIFIC VOU	J M E 10 ⁷	SA C	D M.	SDU VELC	ND CITY	0 2 m1/1	PO PO	4-P	TOTAL-P	NO2+N µg + 01/1	ND 3=N µg = at/	SID4	рн	
	HR 111)						-		-		+			× 10	-				+							+
					2000	1	(6 3	1	1.0	1		1	0166			_	16	126				I					l
	2.6				0000	1	623	30	10	20	49	0	01224	+ 2	000	0	10	1 3 5									
	0.9	2	00	TO (00000	1	653	36	377 17	20	44	0	01583	> >	001	6	15	135									
	0.5	5	08	≤ 0	0010	1	653	36	165	2.6	46	0	0150.		001	0	15	136									
		-	Š	.TO (0020	1	640	36	35	26	48	0	0156	74	003	1	15	133									
			5	TD (0030	ī	626	36	03	2.6	50	ŏ	01554	2	004	7	15	131									
	05	5	08	S (0036	ĩ	618	36	519	26	51	•	• • • •		•••		15	129									
			S	TO (0050	1	601	36	00	26	53	0	0152	73	007	8	15	126									
	05	5	08	is i	0062	1	583	35	981	26	56						15	122									
			S	TD (0075	1	555	35	96	26	61	0	01464	÷3	011	5	15	115									
			S	TD (0100	1	505	35	92	26	69	0	01394	- 3	015	1	15	103									
	05	5	08	S T	0112	1	483	35	897	26	72						15	098									
			5	STD (0125	1	476	35	88	26	72	0	0136	99	018	6	15	098									
			S	TD (0150	1	460	35	85	26	573	0	0136	59	022	0	15	096									
			S	TD (0200	1	417	35	78	26	77	0	0134.	27	028	7	15	090									
			S	TD (0250	1	.360	35	10	26	83	0	0129	95	035	3	15	078									
		-			0300	1	289	35	50	26	90	U	0124	55	041	1	15	062									
	05	5	08	5 1	0922	1	101	25	222	20	193	0	0100		052		15	055									
	0.6	6	00		0400	1	061	25	21/.	21	111	0	0109.	51	000	4	14	010									
				ст. П. (0500	Ó	893	35	16	27	27	0	0090	7 1	063	4	14	949									
			Š	το (0600	Ő	723	35	63	27	43	ő	0075	37	071	7	14	899									
	05	5	08	S T	0631	Ő	681	34	999	27	46	, in the second se			•••		14	887									
		-	S	TD (0700	Ó	615	35	00	27	55	0	00644	+0	078	8	14	872									
			S	TD (0800	¢	540	35	00	27	65	0	0055	58	084	8	14	858									
	05	5	OB	s t	0833	C	520	34	996	27	67						14	856									
			S	TO (0900	C	498	35	00	27	70	0	0051	45	090	1	14	858									
			S	τD	1000	C	469	35	00	27	73	0	0048	89	095	1	14	863									
	05	5	QB	S T	1058	0	455	34	995	27	74						14	867									
			5	TD	1100	C	446	34	99	27	75	0	0047	35	099	9	14	870									
			S	то	1200	C	427	34	97	27	76	0	0047	38	104	7	14	878									
	05	5	OE	IS	1243	ç	420	34	964	27	176						14	882									

REFERENCE CTRY ID, CODE NO,	SHIP	LATITU	DE		MAR SQU	SDEN		TIME TI	YEAS	2	ORIGII CRUISE NO.	STATIC NUMB	S N FR	DEPT TO BOTTO		AX. PTH O PF DIR	W BSEP	A VE VATIONS	WEA- THER CODE	CLOUD	-	5 14	NODC LATION UMBER	
218001	EV	40.26	N (16022 4	160		6 22	100	104	4	0	60		1.20	4		- ["]	3 3	-	0.0				
1 310001		4025		0)020 ₩	150				190	0	7.	*** **		420		24 21	-	5 6	1	0 4			0050	
						0108	TRANC	SPE	ED M	A RÓ FT F I		WE	VIS	NO. 085.		SPECIAL	,							
						CODE	(m) D	IR, O FOR	R ICE (1	nbs)	BULB	BUL	8	DEPTH	15 082	CRVATUN	2							
							2	0 51	4 2	21	3 178	16	7 7	16	-									
		1 1										1	5 1 0			1	-							
	TIME HR 1/10	LCAST NO.	CARD TYPE	DEPTH (m)	T	°C	s =4	• 51	GMA-T		ANOMALY-1	U M E 10 ⁷	5YN, M x 10 ³	' vi	ELOCITY	0.2 m		PO4-P ygroti	fOTAL=P µg = at/l	NO7=N 9g = 01/1	NO3-N V9-01'I	ا to - وير ا to - وير	рH	, c c
			STI	D 0000	1	643	3605	. 2	647		00156	58	0000		513	1								
	104	3	085	0000	1	643	3605	1 2	647					1	513	1								
			ST	0010	1	643	3606	2	648		00156	د د	0016		513.	3								
	1.0		STI	0020	1	642	3606	2	648		00156	57	0031	1	513	4								
	101	3	065	0026	1	642	3606	2 2	648		00166	-	2212		513	5								
			510		1	640	2609	2	650		001554	+ /	0041		513	-								
	1.0		200	0050	1		2019	~ 4	652		001551	58	0078	5 4	514	(
	100	5	065	10055	1	600	2010	9 2	652				0110		514	y								
			51	0075	1	.501	3604	2	665		00141	90	0115		5110	8								
	1.0		51	0 0100		403	3591	~ 4	611		00131	55	0149	/ 1	5090	0								
	10	3	085	10106	1	443	3587	9 2	679				-		5084	4								
			ST	0 0125	1	.423	3585	Z	681		00128	9	0181	1 1	508	0								
			51	0 0150	1	396	3580	2	683		00127	17	021:	5 1	507	5								
		_	ST	0200	1	340	3571	2	688		00123	32	0278	5 1	506	4								
	10	3	085	T0210	1	.329	3568	6 2	688					1	506	1								
			ST	0 0250	1	295	3560	2	689		00124	37	0338	3 1	505	5								
			ST	0 0300	1	231	3549	2	693		00121	+ 1	0400	0 1	504	1								
	10	3	OBS	T0313	1	.210	3546	0 Z	695					1	503	5								
		_	ST	0 0400	1	026	3528	2	714		00102	33	0511	1	498	2								
	10	3	OBS	T0412	1	001	3525	3 2	717					. 1	497	5								
			ST	0 0500	0	805	3510	2	736		00081	+4	0003	3 1	491	5								
			ST	D 0600	0	641	3500	2	752		00066	÷Ο	0677	7 1	486	6								
	10	3	OBS	T0610	0	628	3498	9 Z	753			_		1	486	2								
			ST	0/00	0	557	3499	2	762		00057	+ 7	0/39	9 I	484	9								
			ST	00800	0	496	3498	2	769		00051	7 (0793	31	484	0								
	10	3	OBS	70811	0	491	3498	2 2	769					1	484	0								
			ST	0 0900	0	464	3498		772		00048	28	0843	3 1	484	4								
			ST	0 1000	C	1440	3498		775		00046	50	0890		485	0								
	10	3	OBS	T1032	0	434	3497	5 Z	775					1	485	3								
		-	ST	0 1100	0	426	3496	. 2	775		00047	51	0937	7 1	486	1								
	11	9	OBS	T1179	0	0417	3494	6 2	775					1	487	<u>o</u>								
			51	0 1200	0	414	3495	· 2	115		00047	18	0984	+ 1	487	د.								
			ST	0 1300	0	401	3495	· 4	777		00046	+5	1031		488	4								
			51	0 1400	0	389	3495	· 2	118		00045	31	107	(1	489	5								
	11		085	1410	0	388	3495	4 4	178					1	489	7								
			ST	D 1500	0	383	3495	2	779		00045	51	1122	2 1	491	0								
			ST	U 1750	0	368	3495	, Z	780		00045	13	1437	/ 1	4941	6								
	11	7	085	1000	0	0000	3495	4 4	181		0.0.0		126		496)								
	· · ·		ST	U 2000	0	1351	3496	<u>2</u>	783		00044	76	1350	ן נ י	498	1								
	11	1	085	12345	0	321	3496	0 2	185				14-1	, <u>1</u>	503	0								
		~	ST	U 2500	0	1314	3496	2	186		00043	25	1071	L L	D 05	1								
	11	9	085	12860	0	285	3493	2	187		22242				510	U								
		~	ST	0 3000	0	214	3493	2	: 787		JJJJ42	59	1186	5 L	212	U a								
	11	7	OBS	13357	0	1241	3492	:U 2	:789					1	517	U								

REFERENC	CE SH	LIP	LATITU	DE	LONGITUOE	MARSDEN SQUARE	STATION T	IME YEA	RCR		TOR'S	DEPTH TO	DEPTH	OB	WAVE SERVATIONS	WEA-	CLOUD			NODC	
ODE N	ö. ^{CO}	01	•	1/10	* '1/10 ^O ≝	10" 1"	MO DAY H	R.1/10	1	NO. N	UMBER	BOTTON	A S'MPL	S DIR.	HGT PEP S	EA CODE	TYPE AM	7	1	NUMBER	
3180	01 E	V	4042	N	05021 W	150 00	05 23	157 19	66	95	59	3795	j 13	22	4 3	×1	3 5		-	0051	
						WAT	ER V	VIND	ARO.	AIR TEN	NP. °C	NO.	1			,					
						COLOR	TRANS. DIR.	SPEED N	AETER	DRY	WET COD	OBS.	OBSERV	ATIONS							
						CODE		FORCE	(mbs)	BOLB	BULB		1								
	_						22	518	186	167	156 7	11						_			
	MES	SENGR	CAST NO.	C A R D TYPE	DEPTH (m)	5° 7	s •4.	SIGMA-	T SPE	CIFIC VOLUA	AE ₹ △ C DYN. A x 10 ³	A. SO	UND OCITY	0 2 m(/)	PO4-P µg + ot/1	7014L=P µg + ot/i	NO2=N vg - al/l	NO3=N 29 - 01/1	51 O 4-	Si pH	S C C
	11	17.10						-												-	+
				ST	0000 0	1613	3598	2649	6	01553	7 000	0 19	5121 [↓]						1	1	
		157		085	0000	1613	35978	2649				19	121								
				ST	D 0010	1609	3597	2649	0	01553	2 001	6 15	121								
				51	D 0020	1602	3596	2650	Ċ	01546	9 003	1 15	121								
		157		085	0027	1596	35958	2651				15	120								
				ST	0030	1592	3597	2653	C	01523	1 0044	6 15	119								
				ST	D 0050	1565	3603	2664	0	01427	007	6 15	115								
		157		085	0053	1560	36032	2665				15	114								
				5 T	0075	1510	3599	2673	0	01346	1 011	1 15	102								
				ST	0 0100	1460	3593	2679	C	01292	5 014	4 15	089								
		157		085	10108	1445	35914	2681				15	085								
				ST	0 0125	1422	3587	2683	C	01265	3 017	5 15	080								
				ST	D 0150	1389	3580	2685	0	01256	5 020	7 15	073								
				ST	D 0200	1325	3568	2689	C	01230	+ 026	9 15	058								
		157		085	T0218	1303	35642	2690				15	053								
				57	0250	1269	3558	2692	C	01207	9 033	0 15	046								
				ST	0 0300	1208	3548	2696	0	01178	0391	0 15	033								
		157		085	T0321	1180	35436	2698				15	026								
				51	0 0400	1057	3530	2711	a	01059	050	2 14	994								
		121		005	0428	1013	35254	2715		00930		14	982								
				51	D 0500	0831	3212	2734	0	00838	2 099	1 14	925								
		157		0.95	T0637	0591	34067	2721	0	100015	001	2 14	867								
		1.21		6 1	0700	0544	34957	2100	_	0.0684	0.7.2	14 - 14	0.02								
				51	0,000	0486	349/	2767	0	00520	070	5 14	034								
		157		OBS	T0850	0465	34034	2760	0	00329	019	1 14	0.36								
		1		ςτ.	0000	0459	3494	2770	0	0.05.02	0.84	14 2 1 /	0 3 2								
				51		0447	3496	2772	0	000000	3 0.89	2 14	041								
		157		085	1082	0435	34040	2776	0	004080	5 009	⊆ ⊥4 1/3	220								
		1		51	0 1100	0432	3497	2775	0	00472	0940	149 14	864								
				STI	1200	0416	3495	2775	0	004714	0.00	7 14	874								
		157		085	T1272	0403	34944	2776	0	0011		14	880								

REFE	RENCE					~	MAR	SDEN	STATIC	N TIM	E			DRIGINA	TOR'S		DEPTH	MAX.		WAVE	w	EA-	CLOUD			NODC	
CTRY	ID.	SHIP	LATITU	DE	LON	SITUDE HED	squ	ARE	١G	MD		(EAR	CPUISE	S	ATION		TO	DEPTH	085	ERVATION	S TH	HER DDE	CODES		S	UMBER	
CODE	NO,			1/10		1/10 -	10°	1'	MO DA	Y HR.	1/10		NU.	14	UMBER			S.Whr.	DIR	HGTPER	SEA		TYPE AM				
31	8001	Eν	4120	N	050)20 W	150	10	05 2	3 2	11 1	966		95	50	_	3930	13	23	6 4	1)	(4	7 8			0052	
								WAT	TER	W1	ND	BARC	. 🖵	AIR TEA	1.P. °C	VIS	NO.	SPE	CIAL								
								COLOR	TRANS,	DIR.	OR	METE		DRY	WET	CODE	DEPTHS	OBSERV	ATIONS								
										-+	FORCE	(1105			0000	+	-										
										20	\$25	13	9 1	78	167	7	11			T							
		MESSENGR	CAST	CAR	20	6 / 0T 1 / - 1	7	°C		,	000		SPECIFIC	VOLU	AE S	AD	SOL	IND	0.2 m1/1	PO4-P	TOTA	L - P	NO2-N	NO3-N	51.04-51	nH	S
		TIME	T NO.	1 Y P	PE	DEFIN (MI	'	L			31G /m	~=1	ANOM	ALY=X10	, 0	x 10 ³	. VELO	CITY	01.001	hð = q4/	P0 - 1	at/1	µg ≈ at/1	µg - a1∕1	90 - 01/	pre	C
		116 1710	+ +						1	- 1							-										
			1	<i>c</i> .		0000	1	601	340	۰, ^۱	746	.a.	001	614	່ດ່ເ	000	15	118		t.							
				~ ~	10	0000	1	601	250	04	205	2	001	514	2 0	000	15	118									
		21	1	с UD.	3 T ()	0010	1	596	360	1	265	5	001	495	6 0	015	15	118									
					TD .	0020	. i	590	360	3	265	8	001	476	3 0	030	15	118									
				5	TD	0030	1	585	360	4	266	0	001	457	7 0	045	15	118									
				S	TD	0050	1	575	360	7	266	4	001	419	9 0	073	15	119									
		21	1	OB.	s	0051	1	574	360	69	266	5					15	119									
			•	S	TD	0075	1	338	356	2	268	1	001	265	1 0	107	15	041									
		21	1	OB.	S	0078	1	322	355	92	268	12					15	036									
				S	T0	0100	1	314	356	8	269	1	001	181	2 0	137	15	038									
		21	1	OB:	S	T0106	1	312	356	99	269	3					15	039									
				\$	τD	0125	1	311	356	9	269	2	001	174	9 0	167	15	041									
				S	TD	0150	1	307	356	8	269	2	001	181	3 C	196	15	044									
				\$	тD	0200	1	289	356	4	269	93	001	189	3 C	256	5 15	046									
		21	1	0 B	S	0211	1	283	356	28	269	3					15	045									
				S	TD	0250	1	273	355	9	269	92	001	208	3 (316	15	048									
				5	τυ	0300		221	300	1	265	<i>46</i>	001	1180	6 L	515	16	030									
		21	1	OB	5	10318		1192	354	()	205	19	0.00				ريد ۱۵	050									
			_	- 5		0400		964	352		271	19	000	1913	a (403	10	047									
		21	1	UB C	5	0423		780	301	42	214	26	0.00	1810	1 0	573	3 14	0042									
				2	70	0,000		1643	340	5	270	18	000	1703	7 0	649	2 14	866									
		21	1	08	s	0633		045	349	34	274	52	000				14	856									
		21	1	c C C	TD	0700	Ì	544	349	5	276	50	000) 584	2 (713	3 14	843									
				ŝ	TD	0800	Č	475	349	6	270	59	000	500	5 0	767	7 14	831									
		21	1	OB	s	10842	Ċ	0454	349	67	27	72					14	830									
			-	S	TD	0900	0)444	349	6	27	73	000)472	5 0	816	5 14	835									
				S	TD	1000	C)428	349	6	27	75	000)462	7 (863	3 14	845									
		21	1	OB	s	T1072	(0418	349	54	27	75					14	853									
				S	тD	1100	0	0414	349	6	27	76	000	0458	6 0	909	9 14	856									
				S	TD	1200	0	402	349	6	27	77	000	0450	7 0	954	4 14	868									
		21	1	08	S	T1258	(396	349	60	27	78					14	875									

REFER	ENCE	T T						S D EN	57.67	101.1			0	RIGINA	108'5	T		MAX.		14/ A 1/E			CLOUD		1	
CTRY	ID	SHIP	LATITU	DE	LONGITUD	E	sot	JARE	3141	GMT	IVIE	YEAR	CRUISE	51	ATION		TO	DEPTH	OBS	ERVATIO	NS	THER	CODES		5 T	ATION
CODE	NO.	CODE	•	1/10	• •	/10 2	10*	1.	MD	DAY H	R.1/10		NO.	N	JMBER		BOTTOM	S'MPL'S	DIR	HGTPER	5EA	CODE	TYPE A.M.		N	UMBER
31	8001	EV	4150	N	05020	w	150	10	0.5	24	20.9	1044		054	1		2202	24	01	4 2						2252
51	0001		4130	14 1	0 3 0 2 0	11	1100	WA	TER		VIND	1300		IR TEM	P. "C		3373	4		14 2		1 84	1 7.3	1	1	0023
								COLDR	TRANS		SPEED	METE	8 0	RY	WET		085.	SPEC								
								CODE	(m)	Unk.	FORCE	{mbs	} B1	JL8	BUL8		DEPTHS	OBJERT								
										01	508	14	6 1	00	079	4	1.4									
			1 1					1	1	01	500	1 1 4		00	<	0	└┼╧┯╌╵			1	1	- 1				
		TIME	LCAST VNO.	C A1	DEP DEP	(m) H		°C	5	•4	SIGA	1 A - 1	ANOM	VOLUA ALY-XIO	,ε δ	YN. M	SOL		0 2 ml/l	PO 4-	P T	OTAL=P	NO ₂ =N	NO3-N	51 O 4 - Si	pН
		HR 1/10														X 103				pg - 01	<u> </u>	pg - 61/1	99 - 077 F	9g - 01/1	10 × 01-1	
				S	TD O	000	(0713	33	71	26	41	001	6279	> 0	000	14	779								
		009	7	QВ	s 0	000	(713	33	712	26	41					14	779								
				S	TD O	010	(717	- 33	81	26	48	001	5609	0	016	14	783								
				S	TD 01	020	(720	- 33	89	26	54	001	5074	• 0	031	14	787								
		009	9	0 B	S 01	23	(721	33	910	26	55					14	788								
				S	TD O	030	(0701	33	92	26	59	001	4616	5 Q	046	14	782								
		009	9	ΟВ	s 0	048	(664	- 33	979	26	69					14	771								
				S	TD 01	050	()664	34	00	26	70	001	356	1 0	074	14	771								
				S	TD 01	075	(661	34	26	26	91	001	1626	o	106	14	778								
		009	9	0B	S TO	98	(658	34	454	27	07					14	783								
				S	TD 0	100	9	0655	34	46	27	08	001	0109	0	133	14	782								
				S	10 0	125	9	0623	- 34	52	27	16	000	9309	9 0	157	14	774								
				5	10 0	150	(1592	34	57	27	25	000	853.	3 0	180	14	767								
		0.07	-			200	(1535	34	69	27	41	000	105	0	219	14	753								
		003	9	UB	5 10	201		1534	34	090	27	41				201	14	753								
				- 5	TD O	250	(1480	34	15	27	52	000	6010	0 0	251	14	740								
		009	9	OR	5 10	292	(1445	34	179	27	58			-		14	732								
				- 5	TU 0.	300	9	9441	34	78	27	59	000	5404	• 0	280	14	732								
		009	,	OB	5 0	390	, i	1407	34	192	21	64					14	733								
				S	10 0	+00	(1407	34	80	21	64	000	4986	> 0	332	14	735								
		0.07	~					1411	34	85	21	68	000	4 / 5 :	0	380	14	754								
		003	9	00	5 IU.	500		1413	34	002	21	70	200			(.	14	770								
				5	TD 0	700		1412	34	07 90	21	70	000	4010		421	14	771								
		0.00	2	08	c 0	793		1390	34	97 901	27	72	000	4403	0	475	14	701								
		003	,	00	3 U	900	2	1297	34	9071	27	71	000	11.26		517	14	704								
				 c	TD 0	300		1384	34	91	27	75	000	443.		541	14	910								
					TO 1	100		1387	34	02	27	76	000	1369		>01 505	14	025								
		0.00	2	08	c 1	200		1382	34	010	27	76	000	4,700	• •	009	14	025								
		00	, ,	Š	τ0 1	100	Ì	1372	34	92	27	77	000	4329		640	14	920								
		017	7	08	ς τÌ	152	2	9460	34	920	27	78	000	7720	, v	.,,	14	845								
		••		S S	τD 1	200	Ì	PAF	34	02	27	78	0.00	436	> 0	692	14	953								
					10 1	300	2	1360	34	93	27	78	0000	440	2 0	734	14	870								
				5	TD 1	400		369	34	93 -	27	79	000	4450		780	14	887								
		017	7	08	ς τ <u>ι</u>	421	Ì	369	34	934	27	79	000		. 0		14	891								
		÷4.		S	το 1	500	Č	366	34	94	27	79	000	4481	0	825	14	003								
				s	TO 1	750	Č	355	34	94	27	80	000	452	3 0	938	14	940								
		017	7	OB	s 11	916	Ċ) 346	34	938	27	81					14	965								
				S	TD 2	000	(341	34	94	27	82	000	4519) 1	051	14	977								
		017	7	OB	s T2	438	(309	34	937	27	85		-	-		15	0.38								

REFERENCE					×	MAR	DEN	STAT	ION TH	νE		T	ORIĞIN	ATOR	•5	T	DEPTH			WAVE		WEA-	CLOUD		N	ODC	
CTRY ID.	SHIP	LATITU	DE	LON	GITUDE BO	sou	ARE		IGMT)		YEAR	CRU	ISE	TATI	2N		to Bottom	OF	UB	SERVATIO	N 5	- CODE	LODES	-	NU	JAABER	
CODE NO.	CODE		3710		1/10 =	10*	1*	MO	DAY HE	,1/10			0.	40 Mi	3EK	+		S.W.PL.	2 DIK	H GT PEP	SEA		TUPE A M				
318001	EV	4216	N	050	029 W	150	20	05	24 0	59	1966	6	-95	62		_4	2926	12	01	14 2		X6	X 8	1		0054	
							WAT	ER	w	IND	BAR	RO	A IP TE	ΜΡ. ^Ν	C	VIS	NO.	SPE	CIAL								
							COLOR	TRANS	DIR.	OR	2 ME1	TER	DRY BULB	BU	1 C	1005	DEPTHS	OBSERV	A TION 5								
									++	FORC	E ()	_			- +	-											
									35	510	0 1	5 Z	056	0	56	6	13	·								_	Τ,
	MESSENGR	CAST	CAR	D	DEPTH (m)	1	*c	s	•/	SIG	MA-T	SPEC	THE VOL	IME	₹ Z DYN	Δ. M.	SO		Og ml/	PO4-	P t	OTAL-P	NO ₂ -N	NO3=N	SLO4-SI	рĦ	C C
	HR 1/10	T NO.	TYP	PE	0.01111				-			-	0	~	x	103	Vel	ocini		20.01		pg - 0	pg = 001	99 - 001	P.9		+
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	1		5	ם י	0000		422	33	38	26	50	0	01544	5	00	00	14	656									
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	0,2,5	,	ŝ	TD	0010	Ō	367	33	44	26	60	0	01445	55	00	15	14	635									
			Š	TD	0020	C	323	33	53	28	571	0	01338	88	00	29	14	619									
	059	7	OB	5	0024	C	1309	33	571	20	576						14	615									
			5	τD	0030	C	287	33	64	21	683	0	01225	66	00	42	14	607									
	059	,	0B	5	0049	C	258	33	888	2	706						14	601									
			5	ΤD	0050	C	1261	33	91	2	707	0	01003	12	00	64	14	603									
	059	9	ОB	5	0074	C	316	34	272	2	731	~			•		14	635									
			5	ТD	0075	C	1316	34	28	2	731	0	00774	+U	00	80	1/	+6 30									
	059)	08	s	0099	, L	325	- 34	100	2	737	0	0071	7.6	0.1	0.5	14	4044									
			5	TD	0100		000	34	101	2	130	0	0071	14	01	22	14	697									
			5		0125		1431	34	81	2	755	0	00564	12	01	36	14	730									
	0.5	n	08	10	T0150		494	34	805	2	755	0	0020		÷		14	+730									
	0.50	י <i>י</i> ב	08	5	0198	Č	505	34	876	2	759						14	+743									
	0,0	·	5	TD	0200	(505	34	88	2	760	0	0052	67	01	64	14	4744									
			š	TD	0250	Ċ	498	34	92	2	764	0	0049	47	01	89	14	4749									
	059	9	OB	5	10299	(486	34	937	2	766						14	4753									
			5	TD	0300	()486	34	•94	2	766	C	0047	41	02	213	3 14	4753									
	05	9	0B	15	0397	()448	34	+916	2	769						14	4753									
			5	тD	0400	(0448	34	+92	2	769	C	0045	73	04	260) 14	4753									
			5	TD	0500		0433	34	¥91	2	770	C	0045	30	0 -	306) 14 1	4/04									
	05	9	08	35	T0595		3419	34	+910	2	112	_	0044	0.1	0	וםג	1.	4113									
			5	TD	0600		3418	بو مد	491 201	4	773		0044	94	0.	300	5 1	4784									
		~	0.0		10700		1200	2	• • • •	2	775		0045	-	0.	- / -	1	4795									
	05	9	00	35 TD	0800		0390	31	491	2	775	C	0043	49	04	439	γī.	4795									
			-	TD	0900		0384	3.	491	2	775	Ċ	0043	69	04	482	2 1	4809									
			-	STD	1000		0377	3.	491	2	776	0	00043	75	05	526	5 1	4823									
	05	9	OE	35	1018		0376	34	4913	2	776						1	4826									
		-	5	STD	1100		0370	3.	491	2	777	(00043	48	0	57(0 1	4837									
			5	STD	1200		0361	3	492	2	778	(00043	08	00	613	3 1	4850									
	05	9	OE	35	T1200		0361	3	4916	2	778						1	4850									

REFEREN	C E	C SU D			⊨ č.	MARSO	DEN	STAT	ION TI	ME		1	ORIGIN	ATOR	s		FPTH	MAX.		WAVE		WEA.	CLOU				1
CTRY I	ID. CODE					SQUA	RE		GMTI		YEAR	CRUIS	E	TATIC	N	1.	10	DEPTH OF	OBSI	RVATION	S	THER	CODE	Ś	S	TATION	
COUL N	···		1	/10	*1/10 =	10*	1*	MOI	DAYR	R.1/10		NO.		NUMB	ER	80	MOIN	S*MPL*S	DIR.	HGTPER	\$EA	CODE	TYPE A	11	h	UMBER	
3180	01	Evi	42295	NC	5030 W	150	20	05	24 0	84	1966		95	63		2	103	12	21	3 5		x 2	7			0055	1
						L	WAI	ER	Ň	IND	BAR	o- 🗌	AIR TE	MP. °C	_		NO.									0055	
						0	COLOR	TRANS.	DIR.	SPEED OR	MET	ER	DRY	WE			OBS.	OBSERV	ATIONS								
						Ĥ				FORCE	limp	\$7		001		-											
	_								32	\$11	_ 17	3	061	05	6 7		13										
	MI	ESSEN GR	CAST	CARD		, T	*~		• /	1		SPECIE	c volu	ME	≲ ∆ t)	sou	ND	_	PO P	te	0.1.4.1	NO ₂ -N	NO	90.0	1	5
	н	P 1.10	NO.	TYPE	000000		0	'		3166	VIA = 1	ANO	V # [Y = ¥]	0'	x 10 ³	^-	VELO	CITY	0 2 ml/l	µg • ot/	d D	10 + 01/1	µg = a1/	µg = 01/1	ug - 01/1	PH	0
								1							-	+		-			+			<u> </u>		-	-+-
				STR	0000	0.4	31	22.			e ,	0.0		-				1		ļ	ſ	1		1		1	
		084		085	0000	04	31	33	130	20	54	00	1200	1	0000	5	146	61									
				STD	0010	04	21	33	50	26	67	00	1376	5	001		140	60									
				STD	0020	04	11	33	77	26	82	00	1239	6	002	7	146	60									
		084	,	085	0024	04	0.6	33	338	26	88			•		•	146	59									
				STC	0030	03	91	33	95	26	98	00	1085	5	003	9	146	56									
				STD	0050	03	71	34.	27	27	26	00	824	2	0058	8	146	55									
		084	•	OBS	0050	03	71	34	274	27	26						146	55									
				ST0	0075	04	13	34	58	27	46	00)637	8	0076	5	146	81									
		084		OBS	0075	04	13	33	79P	26	83P																
				STD	0100	05	18	34	75	27	48	000	0626	7	0092	2	147	31									
		084	•	OBS	0101	05	20	34	756	27	48						147	32									
				STO	0125	04	64	34	71	27	51	000	599	2	0108	8	147	12									
		0.04		STU	0150	04	36	34	71	27	54	000	571	7	0122	2	147	04									
		004		085	10153	04	35	34	109	27	54					_	147	05									
		084		310 nac	0200	04	76	240	34	27	60	000	1255	و	0150	J	147	30									
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				STD	0200	04	97	34	70	27	62 64	000	1492	1	017:	2	14/	18									
		0.84		nBc	10307	03	95	34	1.81	27	61	000	,409	1	0143	9	147	14									
				STD	0400	04	12	348	15	27	68	000	466	3	0243	7	147	14									
		084		085	0408	04	13	348	154	27	68	000		-		•	147	39									
				STD	0500	04	04	348	16	27	69	000	459	8	0294		147	51									
				STD	0600	03	96	348	6	27	70	000	460	3	0340		147	64									
		084		DBS	T0614	03	95	348	865	27	71						147	66									
				STD	0700	03	90	348	37	27	71	000	455	4	0385	5	147	78									
				STO	0800	03	85	348	88	27	73	000	451	3	0431	L	147	93									
		084		285	T0824	03	84	348	84	27	73						147	96									
				STD	0900	03	80	348	19	27	74	000	450	7	0476	>	148	07									
		00,		STU	1000	03	16	348	19	27	74	000	1453	3	0521	L	148	23									
		004		205 6 T D	11045	60	74	348	88	27	75	0.00		~			148	29									
				510	1200	60	70	340	14	21	15	000	454	9	0266	2	148	38									
		084	,	3IU DBS	1200	03	10	340	17	21	10	000	461	0	0012	-	148	53									
		004	,	203	11663	0.9	07	240	120	61	()						148	28									

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REFER	ENCE	61110			- a	MAR	DEN	STAT	ION TI	ΜĒ			0	RIGINA	TOR'S		DEPTH	DEPTH		WAV	ONS	WEA-	CLOU	DD			NODC		
18Y	ID.	CODE	LATITU	DE	LON	GITUDE S	200	ARE		GMI		TEAR	1	CRUISE	S1	ATION		BOTTON	101	00	THE R A	0.10	CODE	THAT			Ň	UMBER	
1001	NO.			1/10		*1/10 =	10*	1*	MO	DAY H	8.1/10		-	-NU.	PN IN	UMBER			S MYL	S DIR.	HG1 P	W 261	·	TANK V					
31	8001	EV	4242	N	050	035 W	150	20	05 2	24	106	196	6		950	54		1372	1.12	26	34	•	X 2	7	8			0056	
								WAT	ER	V	/IND	BA	RO		IR TEA	P C	- vis	NO.	SPE	CIAL									
								COLOR	TRANS	DIR.	SPEES OR	D MI	ETER		NRY I	WET	COD	E DEPTHS	OBSERV	VATIONS									
								CODE	100.0		FORC	CE 10	1051		0.00	8000	-	1	+										
										28	50	6 1	73	3 0	44	039	7_	12	1						_			1	_
		MESSENGR	CAST	CA	RD D			**		• /	1			SPECIFIC	VOLU	AE 3	A D	so	UND	Ob m1/	, PO	4-P	TOTAL-P	NO2-	N	NO3-N	51 04-51	оH	5
		TIME	NO.	TY	PE	DEPTH (m)	1 '	6	2	14.4	510	- MA-1	1	ANOM	ALY=11	2 0	x 10 ¹	. VEI	.0CITY	0,1		01/1	i/ia - وير	hð + 01	1/1	µg = et∕l	48 - 61/I		¢
		MR 1710		-			-	_			+		1							-									Т
									-		1		Ť					1											
				S	TD	0000	0	268	33	13	20	644		001	272		000	1	4507 										
		106	6	08	S	0000	0	268	22	129	20	644		001	667	-	014	: 17	+20/ 										
				5	10	0010	0	233	20	17	20	647		001	525		010	1	4902										
				2	10	0020	0	230	33	170	2	461 091		001	,,,,	• (10 3 1	1	4574										
		106		08	5	0020	0	176	22	110	2	648		001	375	5 (044	. 1	4554										
		104		00	10	0030	0	150	22	525	2	499		001				1	4548										
		106	>	00	5	0042	0	177	22	90J 92	2	707		001	005	2 (0.70	1 1	4565										
		104		~ ~ ~		0050	0	220	34	131	2	728			002	2		1	4590										
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		104	-	08	c	0087	, in the second s		34	216	-																		
		100	,	 	тр	0100	C	230	34	25	2	737		000	721	8 (111	1 14	4602										
				Š	TD	0125	č	243	34	30	2	740		000	695	8 (128	8 14	4612										
				š	TO	0150	Ċ	260	34	34	2	742		000	681	2 (146	5 1	4625										
		106	5	08	s	10155	C	264																					
		100	5	0B	s	0175	C	282	34	379	2	743						1	4639										
				S	TD	0200	C	289	34	39	2	743		000	672	0 0	179	9 1	4646										
				S	TD	0250	C	304	- 34	43	2	745		000	658	9 (21:	3 1.	4661										
		11	7	08	IS	10291	¢	315	34	463	2	746						1.	4673										
				S	τO	0300	C	318	34	48	2	748		000	638	1 ()24!	5 1	4676										
		11	7	80	s	0387	C)340	34	585	2	754						1	4701										
				S	5TD	0400	C)343	34	59	2	754		000	587	9 (300	6 1	4705										
				5	5T0	0500	C	362	34	66	2	758		000)563	4)36	4 1	4730										
		11	7	08	s	10583	C)379	34	717	2	760						1	4752										
				5	TD	0600	C)384	34	73	2	761		000)543	7	041	9 1	4757										
				5	STD	0700	(0408	34	81	2	765		000	520	6	J47	5 1	4785										
		11	7	06	s	T0787	()421	34	867	2	768						. 1	4806										
				5	ST0	0800	C	0420	34	87	2	768		000)500	8	JDZ	4 1	4807										
				S	ST0	0900	9	1409	34	8/	2	770		000	1473	2	121	ן כ י	*819 4033										
				5	510	1000	9	1398	34	88	2	1/1		000	1406	U 1	JUZ.	2 1 0 1	4032										
			_	5	510	1100	(1388	34	69	2	113		000	1411	5	101	υ <u>ι</u> τ	4064										
		11	7	P	ιc	T I I S I	(14/9	- 44	A 9 (1		114						1	* 0 34										

REFERENCE CTRY ID.	REFERENCE SHIP LATITUDE				M A R SQU	SDEN	STATI	ON 1 SMTI	TIME	YEAR	CRUISI	ORIGIN#	TOR'S ATION		DEPTH TO	DEPTH OF	085	W A V ERV A	e tions	W E THI	A - (CLOUD CODES			NODC STATION	
CODE NO.	DE NO. 1/10			1/10	10"	1.	MOD	AY	HR,1/10		NO.	I N	UMBER		101107	. S.WAL	S DIR.	MGTI	VER S	EA CO	1	YPE & AA	r			-
318001	EV	42505N	050)36 W	150	20	05 2	4	135	1966		950	55		0324	03	27	4	2	×	1	4 6			0057	ń –
						WAT	£ R		WIND	BAR	0.	AIR TEN	P. °C		NO.	5.00	CIAL									
						COLOR	TRANS, Imi	DIR.	SPEE OP FORG	О МЕТ с (ть	ER 181	DRY BULB	₩ 8 T 8 U L 8	COO	E DEPTHS	OBSERV	ATION S									
								28	S10	0 17	9 (67	050	7	08											
	MESSENGE TIME HR 1/10	CAST CA	RD	DEPTH (m)	T	°C	S	•/	SIC	5 M A - T	SPECIFI	C VOLUA AALY-X10	ne ₹ D	∆ D YN М x 10 ³	SO VEL	UND OCITY	02 mi/l	PC وبر	- 01/1	TOTAL. µg • ol	-P N /1 U	10 ₂ = N g = 01/1	NO3-N 9 - 01/1	51 O 4 - 12 9 - 0	-5) pH	500
			STO	0000		284	333	17	2	662	00	1428	 5 0	000) 14	597										1
	13	5 OF	is.	0000	č	284	33		2	662					14	597										
	• •	-	TD	0010	Č	260	333	37	2	664	00	1406	7 0	014	• 14	588										
			TD	0020	č	236	333	19	2	668	00	1373	3 Õ	028	3 14	580										
	13	5 OF	s	0025	õ	223	334	10	2	670					14	575										
			TD	0030	C	202	334	4	21	674	00	1310	5 0	041	L 14	567										
		S	TD	0050	C	156	335	57	2	688	00	1182	4 0	066	5 14	552										
	13	5 08	s	0050	C	156	335	667	2	688					14	1552										
		S	STD	0075	C	180	33	10	2	697	00	1098.	2 0	095	5 14	568										
	13	5 08	3s	0075	C	180	331	01	2	697					14	1568										
		5	STD	0100	C	190	338	86	2	709	000	0985	5 0	121	L 14	579										
	13	5 08	3s	0101	C	190	338	861	2	709					14	579										
		9	STD	0125	C	198	339	95	2	715	000	0924	5 0	145	5 14	588										
		9	5 T O	0150	C	213	340)5	2	722	000	0861	5 0	167	7 14	+600										
	13	5 06	3s	T0153	C	215	34(65	5 2	723					14	602										
		\$	510	0200	C	262	342	28	2	737	000	0731	o c	207	7 14	633										
	13	5 08	35	10203	C	264	34	290) 2	737					14	+634										
		5	5T0	0250	C	287	34:	39	2	743	000	0673	4 0	242	2 14	+653										
	13	5 06	3s	T0287	C	290	344	+02	2 2	744					14	661										

REFERENCE CTRY ID. CODE LATITUDE CODE NO. 1/10		ASDEN STATION TO JARE IGMTJ	AE YEAR	ORIGINATOR'S CRUISE STATION NO. NUMBER	DEPTH MAX TO DEPTH BOTTOM OF S'MPL	H OBSERVATIONS	WEA- CLOUD THER CODES CODE TYPE JAMT	NOOC STATION NUMBER
318001 EV 4300 N	05036 W 150	0 30 05 24 WATER V COLOR TRANS CODE (m) DIR.	49 1966 IND BAR SPEED MET FORCE (mb	9566 0- AIR TEMP. C ER DRY WET SI BULB BULB	NO. OBS. DEPTHS OBSER	ECIAL VATIONS	x1 1 2	0058
MESSENGR CAST C. TIME of NO. T HP 1/10	IRD DEPTH Im) T	27 1 °C 5 °4.	SOB 17 SIGMA-T	73 089 072 7 SPECIFIC VOLUME S△ C DYN. A X 103 X 103	05 SOUND VELOCITY	02 mi/l P04-P pg = ot/t	10ΤΑL-P NO2-N NO3-N SIO μg - οι/1 μg - οι/1 μg -	→Si pH
149 OF	5TD 0000 0 55 0000 0 5TD 0010 0	0411 3346 0411 33460 0390 3347	2657 2657 2660	0014713 0000	0 14653 14653 5 14645			
149 OF 5 149 OF	S 0015 0 TD 0020 0 TD 0030 0 S 0040 0	378 33468 360 3350 328 3356 299 33634	2661 2666 2673 2682	0013945 0029 0013212 0043	14641 9 14635 2 14624 14614			
149 OF 149 OF	10 0050 0 IS 0065 0 ITD 0075 0 IS 0075 0	0265 3373 0242 33830 0245 3387 0245 33870	2693 2702 2705 2705	0011404 006 ⁻ 0010197 0094	7 14602 14596 4 14599 14599			
REFERENCE SHIP LATITUDE	LONGITUDE	SDEN STATION TI JARE IGMTE	1E YEAR	ORIGINATOR'S	DEPTH MAX TO DEPTH	WAVE OBSERVATIONS	WEA- CLOUD THEP CODES	

31800	1 EV	4309	N	0503	39 W	15	0 30	o c	5	24	160	1966		95	67		0	079	01	27	5	2	X1	0	2		0059	
							V	VATE	R	1	VIND	BAR	n. I	A IR TE	W.P. *		T	NO.		C141	1							
							COL	OP 1 DE	IRANS. Imi	DIR	SPEED OR FORCE	M ET I Imbs	ER 1)	DRY BULB	W 8 8 U 1	t cot	DE D	OBS. EPTHS	OBSER	ATIONS								
										27	S08	17	3	089	0	2 7		05										
	MESSENGI TIME H.R. 1710	CAST	C A P TYP	Ð	DEPIH (n) ;	t °c		s	٠/	SIG7	n a – T	SPEC	CIFIC VOLU IOMALY1	м Е 0 ⁷	₹ △ C DYN. 7 x 10 ³	М.	SOU. VELO	ND CITY	0 2 ml/l	PC PG	0 4 - P • 01/1	101AL+P µg = a1/l	NO2+N µg = aL'	NO3-N Vg - 01'l	SIO4⊶ 29 • al	Si pH	sec
								1																				T
			\$1	D D	0000)	051	3	330	54	26	60	0	01443	5	000	0	146	597									
	16	0	OBS	5	0000)	051	3	330	ь37	26	60						146	597									
			51	0	0010)	048	9	336	54	26	63	0	01414	8	001	4	146	589									
	16	0	OBS	5	0010)	048	9	330	542	26	63						146	589									
			51	D	0020)	048	4	330	55	26	64	0	01406	0	002	8	146	89									
	16	0	OBS	5	0025	5	047	2	336	551	26	66	-		-			144	85									
			SI	D	0030)	043	8	330	57	26	71	0	01344	9	004	2	146	572									
			SI	rD.	0050	1	031	5	33	73	26	 8.8	0	01182	1	00.6	7	144	22									
	16	0	089	-	0050)	031	5	33	732	26	88		01402	•	550	'	144	27									
	16	õ	085	5	0060)	026	3	331	850	27	02						146	504									

REFERENCE	SHIP					MARSO	DEN	STA	TION	TIME			ORIGINA	TO R°S		DEP	н	MAX	~	WAV	E	w	EA-	CLOUD			NODC	
CIRY ID. CODE NO.	CODE	1	1 10	1.1(18 D	10*	1.	моТ	DAY	, H8.1710	TEAR	CRUISE	ST. NU	A TION	5	BOTT	5 M 5	OF MPL'S	DIR	HGT	HUNS FER 5		DE	TYPE AM	r.		NUMBER	
31800	1 EV	4440	N	04920 W		149	49	05	25	025	1966		956	8		005	57	00	32	0	4	×	4	x 9	1		0060	
						ſ	WA	rer		WIND	BAR	a. 1	AIR TEAN	, "С		NO	. [FALC]								
						C	COLOR CODE	TRA N Im 1	DIP	SPEED OP FORC	D AAET	ER s) B	DRY	WÉI BULB	CODI	OB5 DEPT	Hs O	BSERVA	TIONS									
	,								30	500	5 19	3 0	28	02	2 0	04	•			1	_							_
	MESSENG TIME HIR 1/10	NO.	C A T Y	PE DEPTH	(m.)	Ţ	*С	2	•	SIG	MA-T	SPECIFIC	C VOLUM	E	E △ D DYN. M X 10 ³	. v	SOUNI	D TY	O2 ml/	PC עע	- of 1	total µg+o	- P 1 / 1	NOg≁N µg + al, 1	NO3-N NO3-N	SLO4~S µg•al	ы рН	s c c
						1																						Т
	0.2	5	S	TD 000	0	03	326	33	39	26	60	001	4444		0000	 1	461	15		1								,
	0.2	5	5 08	TO 001	0	03	317	33	36	26	558 558	001	4651	C	0015	1	46	13										
	02	-	S	TD 002	õ	02	295	33	36	26	60	001	4463	(00 Z 9	1	460)5										
	02	5	ов 5	S 002 TD 003	0	02	288	33	357 36	26	561 561	001	4378	(044	1	.460 .460)3)3										
	0.2	5	OB	5 004	5	0.2	87	33	373	26	562					1	460	16										

REFER	ENCE	SHIP				1	MARS	DEN	STA	TION T	IME	YFAR		ORIG	INATO	R*5		DEPTH	DE	/ AX. EPTH	08	WAN SERVA	TIONS		WEA- THEP	CLOUD			NODC	4
CODE	ID. NO.	CODE	•	1/10	LON	1/10	10*	3.	M0	DAY	HR.1/10		1	NO.	NUN	BER	_	BOTTOM	1 S"A	VIPL'S	C IP	HGT	PER S	ξA	CODE	TYPE A A	1	-	NUMBE	₽
314	3001	ΕV	4436	N	04	906 W	149	49	05	25	039	196	6	9	569			0064		01	31	2	2		X4	X S			006	1
			-					WA	TER		WIND	8/	RO	A IR	TEMP	°C	VIS.	NO.		SPEC	TAL									
								COLOR CODE	TRAN (m1	S, DIR.	SPEEC OR FORC	e In	ETER nbs}	DRY BULB	91 81	/ E Y J L B	CODE	DEPTHS	OB	SERV	A TION S									
										31	504	1	. 8 3	028	3 0	22	5	04				L								
		MESSENG TIME	LCAST	C A Ti	PD PE	DEPTH (m)	т	*C		•4.	SIG	M A → Î		SPECIFIC VO	DLUME 	S DY X	∆ D N. M 10 ³	. SO VEL	UND OCIT	D TY	0 2 ml/	1 PC	0.4-P - ot/1	τς	DTAL-P	NO2=N vg = o1/1	NO3⇔N µg + al/l	SIO∉- µg - a	-Si pi	н
		HR 171	,				-				-																			
		0.2	1	5	TD	0000	0	276	33	321	26	50	,	00154	424	00	000	14	+59	91										
		وں	9	00	5	0000	0	262	33	323	26	53		0015	150	00	015	14	+58	37										
		03	9	0	35	0010	ō	262	33	3229	26	553						14	+58	37										
			-	5	STD	0020	0	225	33	325	26	557		0014	710	00	030) 14	+57	13										
		03	9	0 ί	3s	0025	0	209	31	3282	2 2 6	61				~		14	+56	57										
					STD	0030	0	195	3.	332	24	565		0013	964	00	J45 570	> 14	+ > 0 // c = c	2										
				:	STD	0050	0	153	3:	356	28	588		0011	857	0.	J / (, 14	+25	50										
		03	9	01	3s	0055	C	147	3.	3642	2 20	595						14	455	0U										

2661	RENCE			04	MARSDEN	STATION TIME		(DRIGINATOR'S	DEPTH	XAX	WAVE	WEA-	CLOUD		NODC
CTRY	TD.	SHIP	LATITUDE	LONGITUDE	SQUARE	(GMT)	YEAR	CRUISE	STATION	TO BOTTOM	OF OBS	ERVATIONS	CODE	CODES		STATION NUMBER
CODE	NO,		1, 10	'1/10 =	10" 1"	MO DAY HR.1/10		NO,	NUMBER		S MILS UN	NG1 / C* 3C*	+			
31	8001	Ev	4433 N	04850 W	149 48	05 25 057	1966		9570	1317	121-31	3121	X4	X 9	l.	0062
					COLO	R TRANS, DIR SPEI	D METE	D	DRY WET COS	NO. OBS.	SPECIAL OBSERIVATIONS					

CODE FORCE AND FORCE	
29 504 179 028 025 4 13	
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	SLO ₄ —Si µg+oli PH
STD 0000 0218 3231 2583 0021795 0000 14554	
057 086 0000 0218 32308 2583 14554	
STD 0010 0214 3264 2610 0019250 0021 14558	
STD 0020 0200 3294 2635 0016878 0039 14558	
057 085 0026 0188 33105 2649 14556	
STO 0030 0163 3321 2659 0014576 0054 14547	
STO 0050 0094 3364 2698 0010874 0080 14525	
0.57 0.85 0.053 0.092 33684 2702 14525	
STD 0075 0156 3391 2715 0009229 0105 14561	
057 085 0080 0164 33947 2718 14565	
STO 0100 0168 3399 2721 0008714 0127 14571	
057 085 0105 0172 34014 2723 14574	
STO 0125 0214 3417 2732 0007707 0148 14598	
STD 0150 0255 3431 2740 0006996 0166 14622	
0.57 0.85 T0158 0265 34348 2742 14628	
STD 0200 0283 3440 2744 0006591 0200 14644	
057 085 0209 0287 34415 2745 14647	
STO 0250 0316 3452 2751 0006026 0232 14668	
STD 0300 0342 3462 2756 0005565 0261 14688	
057 085 0310 0346 34632 2757 14692	
STD 0400 0360 3470 2761 0005230 0315 14714	
057 DBS T0409 0362 34706 2761 14716	
STD 0500 0386 3479 2766 0004922 0365 14742	
STD 0600 0401 3485 2769 0004734 0414 14766	
057 OBS 10609 0402 34858 2769 14768	
STD 0700 0401 3486 2769 0004765 0461 14783	
STD 0800 0399 3486 2770 0004834 0509 14799	
057 0BS 0810 0399 34859 2770 14800	
STD 0900 0399 3487 2771 0004843 0558 14815	
STD 1000 0395 3488 2772 000+812 0606 14830	
057 OBS T1032 0393 34883 2772 14835	
STD 1100 0388 3489 2773 0004780 0654 14844	
STD 1200 0377 3489 2774 0004703 0701 14856	
057 OBS T1213 0375 34889 2775 14858	

REFEREN	CE						a	MA	RSTEN	STAT		IAAF	_		ORIGIN	ATOP'S			MAX	1				1				1
CTPY I	D.	COOE	LATITU	DE	LON	GITUD	E DOR	50	UARE	(GMT		YEAR	CRUISE	s	TATION		TO	DEPTH	08	SERVA	TIONS	THER	CODE			NODC	l
CODE N	0.			1/10		· '1/	10 =	10*	1.	MO	AYH	R.1/10		NO.	Þ	UMBER		BOTTOM	S'MPL'	S DIR.	HGT	PER SEA	CODE	TYPE AN	1		NUMBER	
3180	01	EV	4430	N	04	836	w	114	9 48	05	25 0	283	1966		95	71		2486	12	21	1	2		1 7 0				
									WA	TER	V	VIND	BARC	. /	AIR TEA	AP. °C	1	NO.	- 12		2	5	1 14	8	1		0063	J
									COLOR	TRANS.	OIR.	SPEED	METE	RC	DRY	WET	CODI	OBS.	OBSERV	ATIONS								
									0000			FORCE	Imps	, ,	018	8018	+											
	r	-	,,				_			<u> </u>	29	504	17	9 0	28	022	0	13										
	1	MESSENGR	CAST	CAS	20	DEPT	H (m)		I °C	1 5	•/	1 100		SPECIFIC	volu	ME S	ΔD	sou	JND	_	PO	A-P	TOTAL-P	NOn-N	NOLEN	si 0.		Is
		HR 1/10	NO.	ŤŸŔ	'E					1		31014		ANOM	ALY→XII	7 0	X 10 ³	VELC	OCITY	0 2 m1/1	νę	01/1	µg = 01/1	hð - ai/l	با/tog=it ا/tog=at/1	10-04 10-04	/1 pH	C
												-						-			+-			_				-+-
			· · · ·	S	тр่	0.0	0.0	'	0.300	334	. 4	264	ا د د	001	395	2 0	000	1.	(0.5		ļ	1						
		083	3	OB	s	00	00		0300	334	41	266	56	001	105	2 0	000	140	605									
				s	TD	00	10		0267	334	16	265	71	001	343	5 N	014	140	503									
				S	τD	00	20		0250	334	8	26	74	001	314	6 0	027	14	587									
		083	5	OB:	s	00	22		249	334	86	26	74				• • • •	14	587									
				\$	τD	00	30		0263	336	7	268	38	001	183	2 0	039	14	597									
		083	}	08:	s_	00	47		284	339	77	271	11					14	613									
				S	TD	00	50	(285	340	1	271	13	000	945	60	061	146	614									
		083		08	s	00	70		0293	342	25	273	30					140	624									
		0.93		00		00	15		1296	342	1	273	33	000	760	4 0	082	140	627									
		003	•	00;	5	00	92		0310	344	وور	274	+5					146	638									
						01	26		1318	344	6	274	•6	000	638	60	100	146	643									
		083		08		01	42		1350	342	21	2/5	2	000	5871	5 Q	115	146	662									
				ς. ζ.	rn -	01	50		1366	346		215	22	000	667		1.20	146	672									
		083		OB	5	01	91 91	Ì	373	346	07	215	0	000	2220	5 0	129	146	674									
				S	r D	02	00	Ċ	374	347	í	276	.0	000	512		156	140	607									
				S	D	02	50	(0380	347	6	276	4	000	4854	5 0	181	144	507									
		083		083	5	02	88	(385	347	83	276	5			· •	- 0 1	14	707									
				S 1	D	03	00	(387	347	9	276	5	000	4749) 0	205	14	710									
		083		085	5	T 0 3	86	(397	348	12	276	6					14	728									
				\$1	D	04	00	(397	348	2	276	7	000	4729	5 0	252	147	731									
				\$1	D	05	00	(398	348	5	276	9	000	4608	3 0	299	147	748									
		083		085	5	05	80	9	399	348	65	277	0					147	762									
				51	0	06	00	(398	348	7	277	1	000	4553	0	345	147	765									
		0.83		21	U	107	00	(1393	348	9	277	3	0004	4439	9 0.	389	147	780									
		003		005	-n	107	1 0		1386	349	02	277	4	0.000				147	790									
				51	'n	0.0	00		1178	349	0	211	4	0004	4362	2 04	+33	147	/94									
		083		089		0.9	94	6	372	340	ña.	211	2	0004	433(, 0,	+ / /	148	507									
				ST	D	10	00	Ċ	372	349	õ	277	6	0004	4367	,	521	148	\$∠U ≥21									
				ST	D	11	00	č	367	349	ō	277	6	0004	430	0	564	140	136									
		083		085	,	т11	71	c	364	349	03	277	7				.04	148	346									
												- · ·	-															

REFERENCE	SHIP	LATITU	DE	LONG	SITUDE TO	M A R SQL	SDEN ARE	STAT	GMT	ME	YEAR	CPUIS	ORIGIN	ATOR'	5 N	DEPTH	DI	AAX. EPTH OF	OBSE	WAVE RVAŤI	ONS	WEA- THER	CLOUE			NODC	N
CODE NO.	CODE	•	1/10		1/10	10*	1"	MOE	AYH	R.1/10		NO.	,	NU M8	R	BOTTO	M 5'A	WPL*S	019	H G T PE	P SE	A CODE	TYPE A A	1	3	THE IN DE	_
218001	EV	4.4.27	AL	04.8	121 W	149	48	0.5	25	104	1966		95	72		3274	4	12	25	1 2		X4	7 8		9	006	4
510001		4421		040			WAT	ER	V	VIND	20.0		A IR TE	M.P. C		NO.	T	COEC L							-		
							COLOR	TRANS.	DIR.	SPEED	MET	R	DRY	WE	i coc	DEPTH	, 08	SERVA	TIONS						, ,		
							CODE	tm1		FORCE	(mb:		BOUB	801	B		-										
							1		26	\$05	18	6	017	01	7 0	13								¥			
	MESSENGR TIME HR 1/10	CAST NO.	C A T Y	R D P E	DEPTH (m)		°c	s	•4.,	SIG	1-AN	SPECIF	C VOLU	1 AA E	₹ △ C DYN, A x 10 ³	A SC	LOCI	ry C)₂ m(/1	PO 4	- P 01/1	TOTAL-P vg - styl	NO2=N μg = αt/1	NO3-N vg + al/	51 O4 99 -	-Si p	н
																								1			
	1		s	TD	0000	C	683	34	22	26	85	00	1210	16	000	0 1	477	4									
	10	4	OВ	s	0000	(683	34	219	26	85					1.	477	4									
			S	τD	0010	(684	34	23	26	86	00	1205	7	001	2 1	477	6									
			S	TD	0020	0	685	34	24	26	86	00	1200	8	002	4 1	411	18									
	10	4	οв	S	0025	0	685	34	244	26	87	• •	1 - 7 -		003	< 1. 1.	411	22									
			S	TD	0030	9	0689	34	28	26	84	00	1111	1.0	005		470	24									
			S	TD	0050		1706	34	40	20	96	00	1113	0	005	1	479	34									
	10-	4	08	5	0051		101	- 24	404	20	1 2	0.0	0063	12	00.8	5 Î	476	19									
				10	0075		1622	34	40 //0/	27	12	00	0.40.	2	000	- î	476	9									
	10	4	08	5	0076		10.21	34	400 60	27	27	00	0822	7	010	7 1	475	58									
		,			0100		1507	34	60 607	27	28	00	0022		010	í ī	476	57									
	10	4	00	TD	0101		1540	34	63	2	36	0.0	0749	50	012	7 1	470	42									
			3	TD	0150		1517	34	69	2	43	00	0676	55	014	5 1	47	38									
	10		0.8		T0152	ì)516	34	697	27	44	00	0			1	473	38									
	10	-		τΟ	0200		1552	34	90	2 7	55	00	0571	0	017	6 1	476	53									
	10	4	O F	is	0200	(0552	34	895	27	55					1	476	53									
	10	7	~	TD	0250		0497	34	87	2	60	00	0530	90	020	3 1	474	48									
				TD	0300		0461	34	87	2	63	00	0499	92	022	9 1	474	42									
	10	4	08	s	0300		0461	34	865	2	163					1	474	42									
	10	4	08	s	T0398		0448	34	892	2	167				-	1	47	53									
			5	STD	0400		0448	34	89	2	167	00	047	45	027	8 1	47	53									
			\$	STD	0500		0446	34	94	2	771	00	044	95	032	4 1	470	69									
	10	4	08	35	0598		0443	34	981	. 2	775					. 1	47	85									
			\$	5 T O	0600		0443	34	98	2	175	00	042	52	036	1 8	47	85									
			5	STD	0700		0422	34	96	2	775	00	042	56	041	.0 1	47	93									
	10	4	06	3s	T0798		0406	34	946	2	776	~ ~	01.7		04.5	2 1	48	02									
				STD	0800		0406	34	95	2	176	00	042	67 05	045	ג כו ו גו	48	16									
				510	0900		0395	34	94	2	176	00	042	0 0 0	049	10 Å	. + ð 	22									
			Ş	5 T D	1000		0385	34	93	2	111	00	043	08	053	1 1	40	20									
	10	4	06	35	1020		0383	34	931	4	111	0.0	04.2	0.0	05.6	12 1	40	20									
				STD	1100		0315	34	173 .021	2	118	00	042	70	0.00	1	4.9	52									
	10	14	08	35	11198		0305	56	1720	> 2	110					4	0	26									

REFE	ENCE			1	. PK	MAR	DEN	STA	10N 1	LAAF			0	RIGINA	ATOR"		Т	DERTH	MAX.		WAVE		1115.0	CLOUD				
CTRY	łD.	CODE	LATITU	DE	LONGITUDE	SQU	ARE		GMT		YE.	AR	CRUISE	5	TATIO	N	1.	TO	DEPTH	085	RVATION	S	THER	CODES		s	TATION	
CODE	NO.			1/10	* '1/10 ⁼	10*	1.	MO	DAY	HR,1/10			NO.	N	U M 81	R	1	BOTTOM	S'MPL'S	DIR	H GT PER	SE A	CODE	TIPE AMT	ĺ	N	UMBER	
31	8001	EV	4428	N	04808 W	149	48	05	25	123	19	66		95	73		1.	3365	12	27	2 2		¥ /.	v a			0065	
							WA1	ER	[WIND	Í	RARO		IR TEA	1.P. C			NO.		<u> </u>	2121		~ 4	~ 0	,		0000	
							COLOR	TRANS	DIR,	SPEEL	· /	METER	2 0	RY	W E 1	con	S DE	OBS.	OBSERV	ATIONS								
							CODE	(0.1		FORC	ŧ	(mbs)		JUB	801	3		o crittis										
									27	\$0	5	186	5 0	33	02	8 6		13										
		MESSENGR	CAST	CAF	D		200					.	SPECIFIC	VOLUP	A E	≤ △ (0	SOU	INO		PO P	10	1.1	NON	NO. N	SIG. 6		[
		HR 1/10	Y NO.	ŤΥΡ	E DEPTH (m)	1	C		· · ·	SIG	MA-	-	ANOM	A (Y - X) 0	2	DYN, / X 10 ¹	м. З	VELO	CITY	02 m1/1	pg = of/	1 41	g = ot/f	µg - a1/1	µg = at/1	.si⊖1∞si µg = α1/i	рН	0
						1				1								1										ł
			1	c	ro 0000		941	34	4 3	2	~ ~ /	1	001	1.20	- ·	~~~	_							1				I.
		123	4	08	5 0000	ő	841	34	633 633	20	594 504		001	120.	2	000	υ	140	840									
		•••	•	5		ň	841	34	64	24	. O 6		001	114	2	001	1	1.4	040									
				S	10 0020	ő	841	34	64	26	395		001	119	5	001	2	140	042 07.2									
		123	3	08	5 0025	õ	841	34	647	26	595		001			002	٤.	14	945 944									
				S	TD 0030	Ó	841	34	65	26	96		001	111	в	003	4	14	845									
				S	TO 0050	0	839	34	67	26	97		001	100	7	005	6	148	848									
		123	3	OB:	5 0051	0	839	34	669	26	98						-	14	848									
				S	0 0075	0	831	34	78	21	107		001	0109	9	008.	2	14	851									
		123	3	08:	5 0076	0	831	34	782	2	708							148	851									
				S	r0 c100	0	876	34	96	27	14		000	949	2	010	7	148	374									
		123	3	OB:	5 0102	0	877	34	967	27	15							148	375									
				S	r0 0125	0	828	34	94	27	20		000	896	7	013	0	148	360									
				S	rD 0150	0	774	34	93	27	28		000	830	1	015	1	148	343									
		123	(OB	5 0152	0	770	34	928	27	28							148	342									
		1.2.5			0200	0	666	34	93	27	43		000	6895	5	018	9	148	309									
		142	,	00;	0203	0	600	34	99I	21	44							148	307									
					ID 0200	0	202 / 93	34	85	21	754		000	572 5794	<i>(</i>	022.	1	14	775									
		123	t.	08	5 0306	ŏ	497	34	9 J J 9 L 3	27	160		000	2400	5	02 51	U	14	125									
		•		S	D 0400	õ	471	34	91	27	166		000	4883	,	130	2	14	767									
		123	5	OB:	TC408	0	470	34	911	27	66		000		-		2	14	764									
				S	D 0500	0	456	34	93	27	69		000	4646	5	034	9	14	773									
				S	0000 01	0	443	34	96	27	73		000	4430)	039	5	147	785									
		123	5	08;	6 0612	0	442	34	959	27	73							147	787									
				S	r0 0700	0	436	34	96	27	74		000	4429	>	0439	9	147	799									
				SI	0 0800	0	428	34	96	27	75		000	4435	5	048	3	148	312									
		123	,	053	10816	0	426	34	BOP	27	62	Ρ																
				51	0 0900	0	416	34	96	27	76		000	4396	b	052	7	148	324									
		173		51	1000	0	404	34	95 25 C	27	77		000	4346	à	057	1	148	335									
		123		033	0 11040	0	3 77 201	34	758 35	27	78		0.00				~	148	340									
					1200	0	278 278	24	77 34	21	61		0004	4338 1.31.0	5	001	5	148	346									
		123		089	5 1212	0	376	34	94 940	27	10		0004	494(, ,	1050	8	146	58									
				. U		0	210	74		21	10							145	3 3 7									

REFERENCE	SHIP					L N	MAR	DEN	STATI	DN TI	WE	YEAR		DRIGIN	ATOR'S		DE	EPTH	MAX DEPTH	OBS	WAVE ERVATIO	45	WEA-	CLOUD		s	NODC	
CTRY ID.	CODE	LATITU	DE LURA	LON	* 1/10	NON-	101	1	MOLD	A Y Li	8.1/10	1.00	CRUIS	E i	NUMBEI		BOI	TTOM	OF S*MPL*S	DIR	HGTPER	SEA	CODE	TYPE AN	т	N	UMBER	
	+ +		1/10		+710	$\left \right $	10			2110			-				20	. 1 .	1.0	~ 7	2 2	_		7.0			0044	
31800	1 EV	4426	N 1	04	752 W	1	149	47	05 4	51	143	1966	·	4 IR TE	MP *C		20	212	14	<u></u>	2 2) X Z	1.9	1	I	0000	
								000			SPEED	BAR	o- ⊢	DRY	WET	- VIS	, ô	D85.	SPEC									
								CODE	im I	DIR.	OF FORCE	(mb	s)	BULB	BULS	1000	DE	EPTHS]	OBJER 1									
										77	505	1.0	4	033	0.2	2 7	Γ,	13										
		-					1			<i>2 </i>	1500	10			1020	5 0 0	t t	121										Τ
	MESSENG TIME	ALCAST	CA	RĎ	DEPTH 4	m)	т	"С	5	·	SIG	T – A M	SPECIF ANO	IC VOLU MALY⊷¥	1.0 ' I	NN. N	ň.	VELO	DCITY	0 2 m1/1	PO4-	Р 1 4	101AL-P	vg + al/l	20 - al'l		pН	6
	H& 1/1	1					I				_					X 10 ⁻⁵	-					-	-					+
																												ł
	1		S	TD	000	0	0	788	34	58	26	98	00	1083	5	0000	С	14	819									
	14	3	OB	s	000	0	0	788	34	580	26	98						14	819									
			S	TD	001	0	0	783	34	58	26	99	00	1077	4	0013	1	14:	819									
			S	тD	002	0	0	779	34	58	27	00	00	1072	8	022	2	14	819									
	14	3	08	5	002	5	0	777	34	583	27	00					_	14:	819									
			S	тD	003	0	C	776	34	58	27	00	00	1068	19	0032	2	14	820									
			S	TD	005	0	C	772	34	59	27	01	00	1062	6	20.54	4	14:	821									
	14	3	ОВ	S	005	1	C	772	34	590	27	01						14	822									
			S	TD	007	5	ç	748	34	27	27	04	00	104	8	2080	0	14	816									
	14	3	08	S	007	0		741	34	50	21	104	00	0.984	5	010	5	14	805									
	1.	2	00		010	2		1706	34	580	27	10	00	0,0.	/ 2			14	804									
	14		00	3 	012	5		674	34	50	27	16	0.0	0939	55	012	9	14	796									
			9	TD	015	ó	ć	641	34	51	27	21	00	0888	31	015	2	14	787									
	1.6		0 P		015	ĩ	Ċ	640	34	509	27	21						14	786									
	14		5	TD	020	ō	Ċ	586	34	70	27	36	00	0756	55	019	3	14	774									
	14	3	OB	s	020	1	C	585																				
	-		S	TD	025	0	C	1556	34	80	27	47	00	065	54	022	9	14	771									
			5	TD	030	0	C	528	34	89	27	158	00	055	71	025	9	14	770									
	14	+3	OE	3S	030	3	C	526	34	898	27	159						14	769									
			S	STD	040	0	()475	34	90	27	165	00	050	33	031	2	14	764									
	14	+3	OE	35	T040	3	()474	34	904	2	165						14	765									
			5	δTD	050	0	(443	34	92	2	770	00	045	92	036	0	14	768									
	11	+ 3	0 E	35	T059	8	(1420	34	934	27	73				~ . ~		14	775									
			5	STD	060	0	(0420	34	93	2	113	00	043	50	040	4	14	796									
			5	STD	0/0	0	(1407	34	93	2	174	00	1045	ور	044	8	14	700									
	14	+3	OE	35	T0/9			1395	34	926	2	115	0.0	04.2	77	040	1	14	707									
			5	510	080	0		1394	34	93	2	110	00	042	00	079	1 1	14	907									
					090	10		1248	34	21 20	2	776	00	1042	42	057	7	14	819									
	1.4		0.6	ac U	T100	1	, i	367	34	20 898	2	776	00			• • •		14	821									
	1.	• >	00	UT 2	1101	na i	ì	361	34	90	2	777	00	043	43	062	0	14	833									
	14	4	O F	35	T116	36	(359	34	902	2	777					-	14	847									
	± -		~.						-		_																	

REFERENC CTRY ID CODE NO	E SHIP CODE	LATITUDE	/10	ONGITUDE	MARSDEN SOUARE	STATION T IGMTI	ME YEAR	ORIGIN CRUISE S	ATOR'S TATION IU MBER	DEPTH TO BOTTON	MAX DEPTH OF	085	WAVE EPVATIONS	WEA- THEP CODE	CLOUD		S N	NODC I A TION UMBER
2200		6610		1721 11	100 13	0.5 0.5					101112				TTTC AM			
1 2100		4419	NIU	4/34 WI	149 47	05 25 J	171 1966	95	75	3876	12	26	2 2	X 2	7 8	i .		0067
					COLOR	TRANS	SPEED MET		WET CO	OBS.	SPE	CIAL						
					CODE	(m) DiR.	FORCE (mb	si BULB	BULB	DEPTHS	OBZERA	ATIONS						
						2)	500 10	6 061	050 7	1.2								
	MESSENCE			-		1 21	509 19	0 001	050 7	112	- -							_
	TIME	V NO.	C A R D TYPE	DEPTH (m)	1 °C	s •4.	SIG MA = T	ANOMALY-XI	ME DYN	N 50		0.2 ml/l	PO4-P	TOTAL-P	NO ₂ -N	NO3-N	SI O4-SI	pН
	HR 1/10			+					X 10-	1 100			nd + 01-1	1 10 - 01/1	nd - 01/1	µg - a1/!	µg • α1/1	
			STD	0000	0641	3420	2689	001175	3 000	0 14	757							
	17	1 (085	0000	0641	34195	2689			14	757							
			STD	0010	0609	3415	2689	001170	3 001	2 14	745							
	17	1 (OBS	0010	0609	34151	2689			14	745							
			510	0020	0599	3416	2691	001152	1 002	3 14	743							
	17	1 (OBS	0025	0594	34166	2692			14	741							
			STD	0030	0654	3430	2695	001117	6 003	5 14	768							
			STD	0050	0799	3465	2702	001055	9 005	6 14	833							
	17	1 (085	0051	0802	34655	2702			14	834							
	17		510	0075	0764	3465	2707	001010	8 008	2 14	823							
	17.	1 (085	0076	0763	34647	2707			14	823							
	17	, ,	210	0100	0774	3414	2713	000962	5 010	7 14	832							
	± r .	1 (003 670	0102	0710	24143	2713	0000.5		14	833							
			STO	0120	0457	3470	2722	000865	2 013	0 14	812							
	17		DB C	0152	0657	2411	2132	000786	/ 015	0 14	795							
	• • •		STD	0200	0605	3408	2755	000573	2 019	. 1.4	794							
	171		085 085	0203	0602	34983	2755	0000773	2 010	4 14	705							
			STD	0250	0545	3490	2756	000566	8 021	3 14	769							
			STO	0300	0504	3481	2754	000591	2 024	2 14	750							
	171	L (DBS	10304	0502	34801	2754		- 0-1	14	758							
			STO	0400	0486	3494	2767	000483	4 029	5 14	769							
	171		DBS	0406	0485	34942	2767			14	770							
			STD	0500	0446	3494	2771	0004500	034.	2 14	769							
			STD	0600	0415	3493	2774	000428	3 038	5 14	773							
	171	. (DBS	0609	0413	34931	2774			14	774							
			STO	0700	0398	3492	2775	000427	4 042	9 14	782							
			STO	0900	0385	3491	2775	000429	1 047	2 14	793							
	171		DBS	T0811	0384	34908	2775			14	795							
			STO	0900	0381	3491	2776	000432	2 051	5 14	808							
			510	1000	0377	3492	2776	0004335	5 0551	3 14	823							
			STD	1100	0373	3492	2777	000435	5 0602	2 14	838							
	171	. (182	11153	0371	34920	2777			14	846							

REFERENCE CTRY ID. CODE NO.	SHIP COOE	LATITUO	E LO		M AR SOL	SDEN ARE			ME	YEAR	CRU'S		ATOR"	N R	DEPTH TO BOTTON	DEP OI		W BSER	VATIONS		A - ER DE -	CLOUD CODES		S	NODC TATION IUMBEP
	+ +				10	+ ' +					-	-				1		-	+++	-	+				
316001	EV	4415	N 04	•712 W	149	47	05 2	51	95	1966	1-1-	95	76		3877	1	1 32	213	3 2 1	X	2	7 8			0068
						WA	ER	- W	SPEED	BARC	<u>-</u>	AIV IE	WP. C		NO.	5	PECIAL								
						COLOR	TRANS. Im?	DIR.	OR	(mbs	к 1	DKT BULB	BUL	8 000	DEPTHS	OBSE	RVATION	5							
																+		1							
		· · · · · · · · · · · · · · · · · · ·		,			Ļ 1	33	510	19	6	256	05	0 7	13	1	1			r	_				
	MESSENGR	CAST	CARD	DEPTH Im)	1	°C	s	4.	SIGA	1 A - T	SPECIE	ις νοιμ	ME	∑ ∆ D DYN. M	50	UND	0.2 m1	71	PO a - P	TOTAL	- P	NO2-N	NO3-N	51 O 4 Si	pH
	HR 1/10	NO.	TYPE								ANU	VALTER	0	X 10 ³	VEL	OCITY			ид = of 1	Vg · 01	71	nð • 01/	µg + at/1	yg - oti	
																					1				
	1		C T D	0000	6	848	345	6	26	8.8	00	1184	6	0000	<u></u> 14										
	196		085	0000	č	848	345	60	26	88	••		•		14	842									
		•	STD	0010	Č	832	345	3	26	87	00	1187	6	0012	14	+837									
	199	5	OBS	0010	C	832	345	27	26	87					14	+837									
			STD	0020	C	826	345	3	26	89	00	1178	5	0024	14	+836									
	195	5	OBS	0025	C	823	345	33	26	89					14	+836									
			STD	0030	C	820	345	4	26	90	00	1167	0	0035	5 14	+836									
			STD	0050	C	808	345	5	26	93	00	1143	3	0059) 14	835									
	195	5	OBS	0051	C	807	345	50	26	93					14	834									
			STD	0075	C	835	347	1	27	01	00	1068	2	0086	5 14	+851									
	195	5	OBS	0076	C	837	347	13	27	01					14	+852									
			STD	0100	C	895	349	1	27	08	00	1015	3	0112	2 14	+880									
	195	5	OBS	0102	C	896	349	22	27	08					14	881									
			STD	0125	C	786	347	4	27	11	00	0983	8	0137	14	4841									
			STD	0150	9	720	346	6	27	14	00	0955	0	0161	14	+818									
	195	5	085	10152	C	717	346	57	27	15						+818									
			STD	0200	C	753	348	8	27	27	00	0848	2	020	14	+842									
	195	5	OBS	0200	0	753	348	177	27	27	~ ~	~ ~ /~		<u></u>	14	+842									
		-	STU	0250		683	345		21	38	00	0142	4	0246	5 I-	• 0 2 4 									
	195		085	10299		625	345	10	21	4/	0.0		ć	0.20	1 1 /	+009 									
	1.04		OBC	0300		643	243	147	21	40	00	0050	0	020.	14	4007									
	19:	2	003 cTD	0400	2	542	340	5	27	60	00	0545	9	034	14	4792									
			510	0500	č	1.93	340	5	27	66	00	0498	12	039	14	4789									
	101		OBS	0598	Č	459	340	47	27	70	00	0.470	-	• • • •	14	4791									
			STO	0500	č	459	349	5	27	70	00	0466	4	0442	2 14	4792									
			STD	0700	č	447	349	6	27	73	00	0455	3	0488	3 14	4803									
	19	5	OBS	10799	Ċ	436	349	64	27	74					14	4815									
			STD	0800	C	436	349	6	27	74	00	0452	4	053	3 14	4815									
			STD	0900	0	424	349	96	27	75	00	0447	9	0578	3 14	4827									
			STD	1000	(412	349	6	27	76	00	0442	9	0623	3 14	4839									
			STD	1100	(400	349	4	27	76	00	0452	3	0668	3 14	4850									
	19	5	OBS	T1136	(396	340	935	27	76					14	4854									

REFER	ENCE						MAR	DEN	STAT	ION	IME	_	-	(ATOR'S		0.50		MÁX.		WA	VE		CH	0110				
CTRY	10,	CODE	LATITU	DE	LON	IGITUDE	sou	ARE		GMT		YE	AR	CRUISE	Ś	TATION		T	0	DEPTH	08	SERV	ATIONS	THER	00	DES			STATION	
CODE	NO.		·	1/10		1/10	10*	1.	MO	DAY	HR,1/10			NO.	N	U M 8ER		8011	TOM	S'MPL'S	DIR.	HGI	PER SE	A CODE	TYPE	A 64 T			NUMBER	
31	8001	EV	4407	N	04	631 W	149	46	05	25	230	19	966		95	77		39	31	12	31	2	2	X1	8	3	í .		0060	
								WA	ER		WIND		BARC		AIR TEA	лР. °С	-	NC	0,	t nt/	141) -			. 0	2			0009	
								COLOR	TRANS.	OIR.	SPEEL		METE	R (DRY	WET	COD	DEPT	S. THS	OBSERV	ATIONS									
										-	FORC	E	(mos		010	8018														
										33	508	3	19	3 0	72	056	7	1	3											
		MESSENGR	CAST	CA	RD		,	*~		• /			.	SPECIFIC	VOLU	ME S	ΔD		sou	ND			PO -P	IOTAL -P	NOa	-N	NONN	51.05		5
		HR 1/30	NO.	ΤY	PE	OCFTR (m)	· ·	C	3	·• •	310	MA-	-'	ANOM	ALY-XH	07 0	¥Ν, Μ X 10 ³	^. `	VELO	CITY	0 2 m1/	' v	g = 01/1	µg • α†/i	ug -	a1/1	vg • o1/1	µg + at/	PH PH	C
																					~ • •	+				-				+
		[- 0	2000							1														1			
		22/		- 5	10	0000	I I	083	34	79	20	66	2	001	389	0 0	000	. כ	149	931										
		230)	UB C	5	0000	, L	083	34	188	20	566	2				.		149	931										
		22/	,	08	10	0010	1	074	34	79 703	20	68	5	001	312	3 0	014	÷	149	930										
		250	,	600	3 T ()	0010	1	074	34	195 03	20	200	5	0.0.1	276	2 0	0.27	,	149	930										
		230)	08	<	0020	1	077	34		20	213	, ,	001	215	5 0	021	1	149	733										
		200	·	Š	TO	0030	1	082	35	26	24	82	-	001	241	3 0	040	, i	149	932										
				ŝ	тр	0050	i	101	35	07	26	85		001	224	5 0 6 0	064		140	549										
		230)	OB	S	0051	ī	102	35		26	585	5			0 0	•0-	•	140	950										
				S	TD	0075	0	841	34	65	26	96	5	001	121	6 D	094		146	853										
		230)	08	s	0076	0	834	341	541	26	96							148	350										
				S	TD	0100	0	773	340	50	27	702	2	001	061	9 0	121	ι :	148	330										
		230)	QВ	S	0102	0	769	340	501	2 7	103	3						148	829										
				S	ТD	0125	0	746	340	50	27	06	, ,	001	035	0 0	147	7 3	148	324										
				S	тD	0150	0	731	34	59	27	107	7	001	023	6 0	173	3 3	148	322										
		230)	08	S	T0155	υ	729	34	587	27	707	7						148	322										
				S	ΤD	0200	0	733	34	75	27	20)	000	913	9 0	221	L I	148	333										
		230)	OB	S	0203	0	733	34	761	27	20)						148	334										
				 	10	0250	0	/19 4 0 3	341	53	2	28	\$	000	843	70	265	5	148	337										
		230		00	c .	10207	0	(9 9 J	240	90 900	21	22	,	000	118	/ 0	206		148	535										
		200	·	S	тп	0400	a	605	340	370 34	27	157	>	000	631	3 0	376	. :	148	5 3 5										
		230	1	08	<	0406	ň	600	340		27	163		000	0.51	5 0	210		140	212										
		200		S	TD	0500	a	538	34	25	21	161	,	000	548	4 0	4 3 6	. :	140	307										
				S	тD	0600	0	490	34	97	27	6.8		000	4921		487	; ;	146	305										
		230)	08	s	10609	Ū.	486	34		27	69	,	000		0 0			148	304										
				S	TD	0700	0	467	34	98	27	72		000	464	7 0	535	;	148	112										
				S	тÖ	0800	0	448	34	98	27	74		000	452	2 0	581	i	148	321										
		230	>	08	s	T0815	0	445	34	984	27	75			_	-		1	148	322										
				S	TD	0900	0	429	34	98	27	76		000	439	2 0	626	, i	148	329										
				S	TD	1000	0	412	349	97	27	77	r	000	435	5 0	669) 1	148	339										
				S	ΤD	1100	0	396	349	96	27	78	1	000	432(6 0	713	3 1	148	349										
		230)	08	S	T1152	0	388	340	748	27	78	5					1	148	354										

REFER	ENCE							MAR	DEN	STA	ION T	IME		T	OF	IGINA	TO R*S		DEPTH	H MA	X.	W	AVE	WEA-	CLOL	a		N	ODC	
CTRY	1D.	SHIP	LATITU	DE	LONG	SITUDE	200	sou	ARE		IGMTI		YEAR	Î	CRUISE	ST	ATION		TO ROTTO	M 0	F	BZEK	VATIONS	CODE	000	15		NI NI	J M BER	
CODE	NO.	000.		\$/10		1/10	-	10*	1.	MD	DAY	(R,1/10		_	NO.	N	JM8ER			5.WI	L'S DI	- H	GT PER SEA		TYPE	MI				
31	8001	FV	4404	N	045	52 W		149	45	05	26	024	196	6		957	8		396	8 1	2 3	112	2 2	× 1	8	6		1.1	0700	
	0001								WA	ER	`	WIND	84	RO	AI	RTEM	P. *C	- vis.	NO.	1	PECIAL									
									COLOR	TRANS	DIR.	SPEEL	D MI	ETER	R DF	I P	WET	COD	DEPTH	0856	PVATION	S								
									000			FORC	: 6 ("	.0.51								-								
											35	510	0 2	0	7 06	57	056	8	13		_	1,					T			-
		MESSENGE	CAST	CAR					**		• /				SPECIFIC	VOLUN	12		s	OUND	0.0	121	PO 4-P 1	OTAL-P	NO2-	N	N03-N	SI O 4 - SI	рH	S
		TIME	T NO.	TYP	E	DEPTH	[m]	'	C	Ι,	· • •	310	200 A = 1		ANOMA	LY - X 10		x 10 ³	. VE	LOCITY	0.1		µg = a1/1	vg • ot/l	µg • 61		µg = d1/1	µg = ot/		C
		RK T/TO				_						-		-†		-					-									
					1					1										60.20	1	1								
				5	TD	000	0	1	350	35	88	20	699		0010	0740		1000	, T	5030	2									
		024	4	OB;	S	000	0	1	350	35	884	Z	699						1	5036										
		0.24	4	08;	S_	000	8	I	352	35	885	21	699		0.0.1				1	5030										
				5	TO	001	0		352	35	89	21	699		0010	180			. 4	5005	,									
				5	TD	002	0	1	352	30	89	21	699		0010	102	2 (1022	: + 1	5040	,									
		024	4	08	5	002	٤	1	352	32	880	2	649		0010	185	7 (0.33	, i	5041	5									
					10	003	0		3/0	22	00	2	697		0010	, , ,	<i>(</i>)	50 52	. î	5044										
		024	4	08	5	004	0		347	ر ر ء د	070	2	400		0.010	<u>م</u> هد	<u>د</u> ،	10.54	. î	5044										
				د د د	10	005		1	227	25	010	2	400		0010		J (JO J-	' î	504										
		024	4	00	5	007	1	1	277	20	83	2	700		001	าสจ	7 1	ากละ	, î	5040										
					10	007	2	1	204	22	701	2	700		001	,0,		5002	 1	503/	<u></u>									
		024	4	UB	5	009	0		306	25	70	2	701		0010	าตร	1	0100	ຸ ົ	503	7									
				2	10	010	10	;	206	26	70	2	701		0010	190	n i	0136	í	504	i									
		0.2	,	2		- U12			200	20	781	2	702		001	5,0		0-20	í	504	-									
		024	4	06	5	016	0		299	39	78	2	7.02		001	092	6	016	3 Ī	504	3									
		0.2		- 12	20	010			275	30	733	2	703		001		•		1	504	1									
		024	4	00	3 7 D	020	0		262	7.	72	2	705		001	076	5	021	7 1	503	3									
					10	020	0		177	3.	67	2	717		000	971	3	026	9 1	501	5									
		0.2		08	c .	T 0 2 8	24		105	3.6	627	2	727				-			499	5									
		02	4	00	тп	030	0		056	3.	552	2	728		000	873	4	031	5 1	498	5									
		0.2		A	5	0.35	74		1859	3.6	5135	2	731		000				1	491	5									
		02	*	5	- τ0	040	00	č	0806	35	10	2	736		000	796	3	0391	8 1	489	9									
				5	τD	050	iõ.	(0636	35	00	2	753		000	642	5	047	o i	1484	7									
		0.2	4	08	S	1054	•5	(0578	34	+967	7 Z	758						1	1483	1									
			-	Š	TO	060	00	(0551	34	•97	2	761		000	565	8	053	1 1	1482	9									
				5	тО	070	00	(509	3.	+98	2	767		000	517	0	0>8	5 1	482	9									
				5	то	080	00	(0473	3.	+98	2	771		000	483	2	063	5 1	1483	1									
		03	0	OB	s	108	17	(0468	34	984	+ 2	772						1	1483	2									
			-	5	TD	090	00)445	3	498	2	774		000	459	0	068	2 1	1483	6									
				ŝ	TO	100	00	(0424	3	498	2	777		000	443	0	072	7 1	1484	4									
				S	10	110	00		0411	3	497	2	777		000	443	8	077	1]	1485	5									
		03	0	OB	s	T115	51		0407	3	4963	3 2	777						1	1486	2									

REFERENCE CTRY ID. CODE NO. 318001 EV	4700	DE 1/10 N	LONGITUDE 1/10	MARSDEN SOUARE 10" 1" 149 78 W COLC	MO DA 05 20 ATER	N TIME ATI Y HR, 1/10 b 190 WIND SPEE DIR OP	YEAR 1966 8AR(0 METE	ORIGINA CRUISE ST NO. N 95 - AIR TEM DR BULB	108'S ATION JMBER 9 P. *C VIS WET COE BULB	DEPTH TO BOTTON 0130 NO. OBS. DEPTHS	MAX. DEPTH OF S'MFL* D 01 SPE OBSERV	ORS DIP. 17 CTAL CTAL	WAVE ERVATIONS HOT PER S 3 4	WEA THER CODE	CLOUD CODES TYPE AM	T	N ST NU	IODC ATION JMBER
						16 51	4 15	2 056	033 6	07	-							
MESSEI TIM	CAST	C A R T Y P	D DEPTH Imi	7 °C	5 */	. Sto	GMA-T	SPECIFIC VOLUA ANOMALY-X10	€ \$ △ 0 DYN. / X 10 ³	A. SC	LOCITY	02 ml/l	PO4-P pg = 01/1	TOTAL-P pg • of 1	NO2=N µg + otzi	NO ₃ =N vg - at l	51 O 4 - 51 99 + 61 1	PH C
		51	0000 01	0254	3314	+ 2	646	001576	000	0 14	4581							
1	90	089 S1	5 0000 TD 0010	0254	331 331	39 2 2 2	646 644	001594	001	14 6 14	4581 4582							
1	90	083 51	S 0010 TD 0020	0253	331 331	15 2 2 2	644 646	001576	003	14 2 14	4582							
1	90	089	5 0025 TD 0030	0217 0199	331 331 332	172 42	647 651	001535	004	7 14 7 1 7 1	4568 4562 4541							
1	90	089	5 0050 5 0050	0142	332	5 2 5 2	664 682	001237	011	14 0 14	4541 4532							
1	90	08	5 0075 TD 0100	0106	334 338	52 2 3 2	682 711	000964	3 013	1 7 1	4532 4553							
1	90 90	08 08	5 0100 S 0120	0131	338 338	332 932	711 715			$\frac{1}{1}$	4553 4560							

REFERENCE	SHIP	LATITU	DE		M SC	ARSDEN QUARE	STA	TION IG M1		YEAR		STAT	DR'S TION ABER	DEP I 80TT	TH DEPT	х. Н ОВS	WAVE SERVATIO	NS	WEA- THER CODE	CLOUD			NODC STATION	
318001	ΕV	4700	N	04744 W	14	9 77	05	26	232	1966		_9580)	010	61 0	1 16	3 2	SEA	x 2	3 B			0072	
						COLOR	TRAN (m)	5. D18	SPEED OR FORC	BARC METE E (mbs	D ER L BI	JLB BI		E DEPT	D, SP IS. THS OBSER	ECIAL VATIONS								
								16	5 512	2 15	2 0	50 C	39 8	0	7									
	MESSENGI TIME H.R. 1/10	CAST	CAR	E DEPTH (m	3	r "c		•/	SIG	MA-T	SPECIFIC	VOLUME ALY-X107	₹ Δ C DYN. A x 10 ³	λ	SOUND	0.2 m1/1	PO4- 20 - 01	Р тс // "	DTAL—P /g·at/)	NO2=N ug - al/l	NO3-N yg - 01/1	51 O 4 - 5 19 = 01/	pH	s C C
	22		s	TO 0000	ļ	0187	32	97	26	38	001	6548	0000		14549								1	
	23	2	uв S	TD 0010		0187	32	971 97	26	538 538	001	6582	001	,	14549 14550									
	23	2	OB:	S 0010		0185	32	965	5 26	38	001	6474	00.3		14550									
	23	2	OB	s 0025		0157	32	96	7 26	40				. 1	14540									
			5	TD 0050		0042	33	23	26	547 568	001	3741	004	+ 1 	14527									
	23.	2	OB. S	S 0050 TD 0075		0042 0055	33 33	225	5 26 26	68 80	001	2513	0111	1 1 1	14496									
	23.	2	08	S 0075		0055	33	395	5 26	80	0.0.1	1457	014		14508									
	23	2	OB:	s 0100		0052	33	505	26	89	001	1001	0142	: 1	14512									
		_	5	TO 0125 TO 0150		0089 0167	33	70 99	27 27	03 21	001	0391 8752	0169		14536 14579									
	23.	2	OB:	5 0150		0167	33	986	> 27	21				1	14579									

REF	RENCE	SHIP	LATITUI	DE	LONGIT	UDE H		PSDEN UARE	51AT	ION GMT	TIME .	YEAR	COULS	ORIGIN	ATOR'S		DEPTH TO	DEPTI	- 0	W.A BSEPV	A VE	45	WEA-	CLO COI	UD DES			NODC	
CODE	NO.	CODE	•	1/10	'	1.10	2 10*	1*	MO	YAC	HR.1/10		NO.	N	UMBE	P	BOTTON	A S'MPL	S DIR.	нG	TPER	SEA	CODE	PYPL	AMT			NUMBER	ł
31	8001	Εv	4700	N	0473	o w	14	9 77 WA	05	27	005 WIND	1966		95	81 AP "C		0198	يا مع	1	4 2	2		x 2	3	8			0073	
								COLOR	TRANS.	DIR.	SPEEL OR FORC	D MET	5- ER s)	DRY BULB	W E T B U L B	COD	OBS. DEPTHS	SP OBSER	VATION !										
										16	510	0 15	9 (050	034	7	08												
		MESSENGE TIME HR 1/10	CAST NO.	C AS TYP	RD D	EPTH (m)		t "C	S	·	\$1G	MA-T	SPECIF	IC VOLU	и.е 17 С	ΣΔ D DYN. M X 10 ³	. SO	UND OCITY	Og ml	ין וי ע	PO 4 - P	۲¢	DTAL⇒P /g = o1/1	NO2- 29 - 0	-N 1/1	NO3-N V9 + al/l	5) O 4- ug - 01	Si Zi gH	S C C
				S	TD	0000		0130	331	00	26	544	00	1594	9 (0000	14	524											
		00	5	08 5	S TO	0000 0010		0130 0127	331	001 99	. 28 26	544 544	00	1601	4 (0016	14	524											
		00	5	08 S	S TD	0010 0020		0127 0123	32° 33(990 20	20	544 544	00	1593	7 (032	14 14	524											
		00	5	08 S	S T D	0025 0030		0119 0116	33) 33(000 03	20	545 548	00	1564	4 (048	14	523											
		00	5	S OB	т0 S	0050 0050		0089 0089	33) 33))9)85	28	554 554	00	1506	5 (078	14 14	515											
		00	5	S OB	TD S	0075 0075		0024 0024	330 330)4)36	26	53 553	00	1508	5 (116	14 14	489											
		0.0	5	S O B	ТО 5	0100 0100		0029 0029	33) 33)	48 478	26	589 589	00	1173	8 (0150	14 14	502 502											
				S S	10 10	0125 0150		0069 0134	33) 33)	53 86	26	599 713	00	1080 094 7	2030)178)203	14	526											
		00	5 5	08 08	S T S	0150 0183		0134 0258	33) 34)	360 280	2	713 737					14 14	562 628											

REFE	ID.	SHIP	LATITU	DE	LOP	GITUDE	DRIFT 4DCTR	MARS SQU	ARE	STAT) ((on t Smti	IME	YEAR	CPUIS	ORIGIN	STATIO	'5 DN	DEP TO BOTT		DTH OF	OB	W A SER∨	A TIONS		WEA- THEP CODE	CLOU	ES			NODC STATION NUMBER	
CODI	NO.			1/10	0.4	1/10	-	10.	1*	MO D	AY	AR.1/10	1966	NO.	0.5	NUME	IER	039	5.1	APL'S	17	H G 1	2	E A	¥ 2	TYPE A	A .		-	0074	
31	8001	EVI	4700	N	04	/12 W		149	WAT	LER	1	WIND	1900		AIR TE	MP. 1	c	NC				1			~ -	-	0			00	
									COLOR	TRANS Im1	D IR.	SPEE OR FOR	D MET	ER	DRY BULB	W E B U		DEPT	5. HS 08	SPEC Serva	TION S										
											16	51	0 19	52	050	0	36 6	0	9			1_									
		MESSENG TIME	CAST NO.	C A TY	R D PE	DEPTH	lm I	t	°C	2	•/	\$10	SMA-T	SPECH	IC VOLI	UME 10 ²	₹ △ C DYN, A x 10 ³	A. \	SOUND /ELOCIT	Y	0 2 m1/		PO 4- P 19 - 01/1	101 94	ra L = P + of /1	NO2- V9-01	N	NO3-N vg • at/1	51 O4-5 99 + of	Si pH	100
			1													1															
				S	5TD	000	0	0	152	330	06	2	648	00	1563	39	000	0	1453	5											
		01	9	OB	s	000	0	0	152	33(060	2	648						1453	2											
				5	5TD	001	0	0	088	33(22	2	649	00	1004	26	001	Ь	1450	7											
		01	9	OF	S .	001	0	0	088	100	124	. 2	647	0.0	1.70		003	1	1450	2											
					STU.	002	0	0	012		12	2	671	00	141(003	1	1460	2											
		01	9	08	5	002	2	0	000	23	1/0	2	667	00	137	74	004	5	1440	8											
				2		005	0	0	051	33/	45	2	685	00	1210	n 5	007	í	1450	3											
		0.1	0	0.5	a c	005	õ	ő	051	33/	446	. 2	685	ŰÇ				-	1450	3											
		01	7		55	007	5	Ő	138	330	59	2	699	00	1079	98	009	9	1455	0											
		01	0	OF	A C	007	5	Ő	138	330	587	2	699						1455	0											
		Ŭ 1			STD	010	ō	Ō	167	33	85	2	709	00	0980	05	012	5	1456	9											
		01	9	0 Ē	35	010	0	0	167	33	845	5 2	709						1456	9											
				5	STD	012	5	0	217	34	33	2	720	00	0871	88	014	8	1459	7											
				9	5 T D	015	0	0	259	34	19	2	730	00	079	35	016	9	1462	2											
		01	9	08	3 S	T015	2	0	262	34	204	2	731				_		1462	4											
				5	5 T D	020	0	0	317	34	42	2	743	00	067	73	020	6	1465	8											
		01	9	06	BS	020	0	0	317	34	417	7 2	743						1465	8											
				5	STD	025	0	0	324	34	48	2	747	00	063	87	023	9	1467	1											
					STD	030	0	0	331	34	55	2	752	00	059	96	027	0	1468	33											
		01	9	08	35	T031	4	С)333	34	566	5 2	753						1468	56											

REFERENC	SHIP CODE	LATITU	DE		MARSDEN SQUARE	STA	TION TI IGMTI	ME	YEAR	CRUISI NO.	ORIGIN	A TOR'S	u R	DEPTH TO BOTTO	4 DEP1 01 M S'MP	X. H OBS	WAVE ERVATI	IONS R SEA	WEA- THER CODE	CLOUD CODES	Ţ	51 N	ATION UMBER	
31800	91 EV	4700	N	04658 W	149 7	5 0.5 VATER	27 0		1966 BAR	0.	95 AIR TE	83 MP. "C		111 NO.	6 1 5	1 17	2 2		X2	3 8	1		0075	
					COL	OP TRAN	S. DIR.	PORC	- AMET :E (mb	5R \$1	D P Y B U L B	BULE	000	DEPTH	IS OBSE	R VATIONS								
							16	510	0 15	2 (050	03	6 4	13										
	MESSENG TIME HR 1/10	CAST NO.	C A R TYP	D DEPTH (m)	т °с		s ·4.	SIG	GMA-T	SPECIFI	IC VOLU	ме 0 ⁷	≦ ∆ D DYN M x 10 ³	N. ∨E	OUND	0 2 ml/l	PO 4 پچ	a1/1	τοτΑι⊸Ρ μg = α1/1	N Ö 2 - N VQ - at / I	NO3-N vg - at/1	\$1.04++\$1 99 = atri	p∺	SCO
							_					1												
			S1	rD 0000	040	9 3	404	2	103	00	1034	و	0000	1	4629									
	04	2	OB:	s 0000	040	9 3	4038	2	703	0.0		7		- 1	40 27									
		-	5	10 0010	046	4 3	442	2	720	00	0002	1	0003	7 1	4680									
	04	2	08	5 0010	040	4) [.] 7 2	4422	2	720	0.01	0744	1	0017	7 1	4698									
	o. (2	2	0020	047	1 2	4 7 2	2	727	00	0144	-	001	1	4701									
	04	2	00	5 0020	040	4 J	457	2	738	0.0	0709	9	0024	4 Ī	4701									
			 	TD 0050	046	γ́ i	461	2	742	00	0671	3	0038	3 1	4700	,								
	6.4	2	0 B	\$ 0053	046	7 3	4615	2	743					1	4700									
	0 -	2	S	10 0075	044	9 3	463	2	746	00	0637	7	0054	4 1	4696	,								
	04	2	0B	5 0079	044	6 3	4636	2	747					1	4696	,								
		-	S	TD 0100	043	7 3	466	2	750	00	0605	1	007(0 1	4696	•								
	04	2	OВ	s 0106	043	63	4670	2	751					1	4697	·								
			S	TD 0125	043	8 3	468	2	751	00	0594	0	008	51	4701									
			S	TD 0150	044	1 3	470	2	753	00	0584	+8	0100	0 1	4707									
	04	2	OВ	S T0157	044	2 3	4701	2	753					- 1	4708	3								
			S	TD 0200	038	9 3	474	2	761	00	0505	51	012	7 1	4691	5								
	04	2	OВ	S 0209	038	1 3	4743	2	762		<u>.</u>		016	- 1	4692	<u>.</u>								
			S	TD 0250	038	2 3	476	2	764	00	040	0	017	د ⊾ د ۱	4077	2								
			S	TD 0300	038	4 3	419	2	166	00	047		ψ1 Π	1	4710									
	04	2	OВ	S T0312	038	5 3	4/92	2	166	00	01.61		022	2 1	4728	4								
			S	TU 0400	039	0 3	402	2	768	00	0404	• •	0 - 2	- 1 1	4730	,)								
	04	-2	UB	5 0410	0.29	0 3	4023	2	760	0.0	0469	57	026	9 Î	474	,								
			5	10 0500	0.29	2 3	405	2	760	00	046	75	031	6 1	476	3								
		-		10 0600	037	4 3	400	2	760	00	040		0	1	476	5								
	04	• 2	08	5 10609	030	12 3	4040	2	770	0.0	046	51	036	2 Î	4779	2								
			5	TD 0800	0.26	9 3	488	2	772	00	045	59	040	8 1	479	5								
	0.	. 2	08	S T0817	038	18 3	4881	2	773					1	479	7								
	0.		c	TD 0900	038	3 3	489	2	774	00	0450	25	045	4 1	480	9								
			2	TD 1000	037	16 3	490	2	775	00	044	37	049	8 1	482	3								
	0.	+2	oĕ	S T1095	036	8 3	4903	3 2	776					1	483	5								
	~																							

REFE	RENCE	SHIP				04 1 1 1	MAR	SDEN	STAT	ON TI	ME			DRIGIN	A TOR'S		DE	PTH	MAX.		WAV		WEA-	CLOUD			новс	
CIRY	ID. NO.	CODE		2E	LON		-100		NO ID	AN DI	2.1/10	YEAR	CRUISE	S	TATION	4	1 801	TO TOM	OF	085	ERVAT	IONS	CODE	CODE		S	UMBER	
		+		17 10		17.10	10	1	m0 0	A1 F	<, 17 TU					`		-	3 MPL 3	Ulk	HGTP	R SEA	·	TYPE AN	1			
31	8001	Εv	4700	N	046	645 W	149	76	<u>۾ اچ</u>	7 4	64	1966		95	84		11	89	11	<u>17</u>	2 2		X6	X 8			0076	
								COLOR	101116	- 1	SPEED	BAR	· –		AP. C	- VIS.		0. 85.	SPE	IAL								
								CODE	(m)	DIR.	FORCE	(mbs) B	ULB	BULB	000	DEP	PTHS	OBSERV	A TION S								
										14	\$10	12	a	72	04	, ,	1,	2										
			1		1					10	510	123	910	12	00	13	1	3							T			
		TIME	LCAST UND.	CAR	ED I	DEPTH (m)	T	°C	s	4.	SIG	MA-T	SPECIFIC	C VOLU	ME 0	≥∆D DYN,M		SOU	ND	0 2 m1/1	PÓ.	- P	TOTAL-P	NO2-N	NO3-N	SI O 4-SI	рН	S
		H.P. 1/10	1													X 10 ³		VELO	CIII		. 9u	01/1	10 - 01/i	hð - aisi	yg = at∕t	μg = 01/1		<
					- 1																							1
				S	TD	0000	0	483	34	4	27	35	000	737	1 (0000) (146	597									
		064	•	085	s	0000	0	483	345	35	27	35						146	597									
				S	TD	0010	0	477	345	4	27	36	000	729	5 (0007	,	146	596									
		064	•	065	\$	0010	0	477	345	38	27	36						146	596									
				S	тD	0020	0	464	349	5	27	38	000	707	7 (015		146	593									
		064	•	08	S	0025	0	459	345	61	27	40						146	592									
				S	TD	0030	0	456	349	7	27	41	000	685	3 (0021		146	591									
		0.4.4		5	TU	0050	0	449	346	0	27	44	000	657	5 (035	•	146	592									
		064	•	085	5	0052	0	448	346	09	27	45						146	592									
		0.4.4		5		0075	0	445	346	.9	27	51	000	588	4 (0050)	146	596									
		064	•	065	5	0077	U V	444	346	98	27	52						146	596									
		0.67		000		0100	0	433	341	U C E	21	53	000	1570	9 (0065		146	595									
		004	•	003	70	0105	0	4 2 2	247	0.5	21	54	0.00					146	595									
				5	10	0120	0	427	241	-	21	55	000	1201	8 (1079		146	597									
		067		00		10150	0	421	341	2	21	20	000	1248	4 (0093	•	146	598									
		004		500	5 T ()	0200	0	395	347	7	27	63	000		0	110	,	140	299									
		0.64		0 B 4	5	0200	0	392	347	76	27	64	000	400	0 ('	140	270									
			·	SI	TD.	0250	ň	392	348	1	27	67	000	460	5 (163		1470	7.0.6									
				SI	TD	0300	Ő	392	348	4	27	69	000	442	7 0	165		147	712									
		064		OBS	S	T0313	0	392	348	43	27	69			, ,	/+05		147	715									
				51	τD	0400	0	396	348	5	27	69	000	449	3 (210		147	731									
		0.64	•	085	5	0415	0	397	348	55	27	70			-			147	134									
				SI	тD	0500	0	396	348	7	27	71	000	443	5 0	254		147	748									
				S 1	τD	0600	0	392	348	9	27	73	000	435	8 0	298		147	763									
		064	•	083	5	0619	0	391	348	90	27	73						147	166									
				S1	T D	0700	0	385	349	0	27	74	000	427	4 0	342		147	777									
				51	T D	0800	0	377	349	0	27	75	000	427	3 (384		147	90									
		064	•	089	S	T0821	0	376	349	01	27	75						147	793									
				51	TD .	0900	0	371	349	0	27	76	000	427	6 0	427		148	304									
				51	ED.	1000	0	366	345	0	27	77	000	429	6 0	470)	148	319									
		0.4.4		51	0	1100	0	361	349	0	27	77	000	431	4 (>13		148	333									
		064	•	085	>	11122	0	360	349	04	27	77						148	336									

REFERENCE CTRY ID. CODE NO.	SHIP CODE	LATITU	DE 1/10		MAR SQU	DEN ARE	STATIO IG/ MO DA	N TIM MTJ Y HR.	E	YEAR	CRUISE NO.	ORIGIN S	ATOR'S TATION IUMBER		DEPT TO BOTTO	TH DM	MAX DEPTH DF S"MPL"S	D	W BSER HC	A VE VA TIO	N S SEA	WEA- THER CODE	C		T		NODC STATION NUMBER	
318001	Εv	4700	N	04630 W	149	76	05 2	7 08	37	1966		95	85		060	26	06	1	2 2	3		X4		7 8			0077	ĺ
						WA	I E R	WI	ND	BAR		AIR TEA	AP C	VIS	NO.	.	SPEC	CIAL										
						COLOR	TRANS C	SIR	OR	Lmbs	R 6	DRY	W ET BULB	CODI	DEPT	h. HS	OBSERV	ATION	s									
									COR	1.			0.70						-									
		1 - 1					<u>ل</u>	10	305	14	0 _ (94	078	10	1 1 4				-l	··					1			-
	TIME HR 1/10	LCAST NO	CAR	D DEPTH (m)	T	°C	S */		SIGN	^ A = T	SPECIFI ANON	C VOLU	vie ≥ y7 D	YN. M X 10 ³	v	SO U EL O	CITY	0 2 mi	21	PO 4- 29 - 01	P 1	IOTAL-F µg - stil	NC 94	12 = N - a1/1	NO ₀ =N µg + 01/1	SI O.4- VQ - 01	57 р.Н. 21 р.Н.	
							1																					-
			S	0000 Q1	0	482	344	1	27.	25	000	829	1 0	000	<u>_</u> 1	44	595											
	087	,	08	5 0000	0	482	344	11	27	25					1	46	595											
	087		QB3	5 0009	0	480	344	14	27	26					1	46	596											
			Ş	rD 0010	0	481	344	2	27	26	000	825	6 0	008	1	46	596											
			S	rD 0020	0	485	344.	2	273	26	000	824	9 0	017	1	4	700											
	087		083	5 0024	0	487	344	28	27	26					1	4	701											
			S	rD 0030	0	480	3444	4	27.	28	000	808	5 0	025	1	46	599											
			S	D 0050	0	461	344	7	27:	32	000	770	0 0	040	1	46	595											
	087	r -	08:	5 0050	0	461	344(57	27:	32					1	.46	595											
	0.8	, ,	OB:	5 0074	0	442	3450	3	271	37					1	46	592											
			5	FD 0075	0	443	345	1	27:	37	000	725	1 0	059	1	. 46	592											
	0.0.7		5	FD 0100	0	441	345:	2	274	40	000	696	7 0	077	1	. 46	599											
	081		OB3	5 0100	0	447	345	52	274	40					1	.46	599											
			5	0125	0	419	3470)	279	55	000	558	8 0	093	1	.46	593											
	0.0.5	,	3	0150	0	403	347	*	270	64	000	476	5 0	106	· 1	.46	592											
	08		065	0150	0	403	3479	91	270	64					1	. 4 6	592											
	0.83		00	0200	0	409	3484	2	278	55	000	468	9 0	129	4	.4	703											
	001		003	0200	0	409	348.	16	270	55	000			160	1	. 4	703											
			с. С.	0 0200	0	400	340	7	270	700 70	000	441	2 0	174	1	· · ·	710											
	0.81	,	080	TO 304	0	407	348	72	27-	70	000	400	5 0	114	1	4 1	7 2 0											
	007		 C 	0 0400	ň	400	3488	ر ، د	27	71	0.00	434	1 0	210	1	4 7	720											
	0.87		08	5 0403	ň	400	348	, 76	27	71	000		. 0	¢ 10	1	4	122											
			5	0 0500	õ	395	3488	3	27	72	000	437	2 0	261	1	4	147											
			51	0000	õ	391	3488	3	27	72	000	441	3 0	305	i	47	762											
	087		OBS	0606	0	391	3487	78	27	72	000			-0,	1	47	763											

REFEREN	ICE	SHIP	LATITU	DE	LON		MARS	ARE	STA	IG M	TIME T}		YEAR	CRU	ORIC	SINATO	P'S		DEP1 TC BOTTC	TH OM	MAX. DEPTH OF		OBSE	VAV RVA	TIONS		WEA- THER CODE	CLO	DES			NODC STATION NUMBER	
318	NO. 001	EV	4700	1/10 N	04	610 W	149	76	05	27	HR, 1/	10 1 1	966		A IR	2586 TEMP	°C		030 NO	24	03		7	3	3	t A	X 4	7	8			0078	
								COLOP	TRAN	IS DI	R. 51 F(PEED OR DRCE	M ET Imb	ER 5.)	DRY BULE	8 BI	FET DILB	CODE	DEPT	S. HS	DBSERV	A TIO	NS										
										1	7 S	06	13	9	100	o c	89	0	09	9							_					· · · · · · · · · · · · · · · · · · ·	
		MESSENG TIME	CAST	C A T Y	R D PE	DEPTH (m)	ſ	°C		s * (SIG M	A - T	SPE AP	CIFIC V	OLUME ~ X10 ⁷	∑ DY X			SOUN /ELOC	D D D TTY	02	m1/1	PC V9	- 01/1	01 4	TA L - P	NO2	-N 01/1	NO3-N µg - al/l	kð - aj Nð - aj	S) 73 pH	500
			-																		1												
				S	TD	0000	0	516	3	444		27	24	0	800	430	00	000		147	09												
		11	1	OE	IS	0000	0	516	3	444	2	27	24				~		. :	147	09												
				5	TD	0010	0	1495	3	445	~	27.	27	0	008	150	01	008	,	14/ 167	102												
		11	1	0 E	s	0010	0	1495	د د	445	0	21	21	~		100	0	016		147	104												
				S	STD.	0020	0	1495	د د	446	0	21.	27	0	000	109	0	010		147	104												
		11	1	OF	5	0025		492	2	440	0	27	20	0	007	900	0	024		147	705												
						0050		1492	2	447		27	27	0	007	582	ŏ	040	5	147	04												
		11	1	O F		0051	c	479	3	451	4	27	34	Ŭ			•			147	103												
				~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	TD	0075	Č	466	3	452		27	35	0	007	390	0	059	9	147	102												
		11	1	O F	15	0077	Ċ	465	3	451	9	27	36							147	02												
		••	•		510	0100	c	)446	3	454		27	39	0	007	046	0	077	7	146	598												
		11	1	OE	35	0102	C	)445	3	454	1	27	40							146	598												
				4	510	0125	C	)429	3	466		27	51	С	005	993	0	093	3	146	597												
				4	STD	0150	0	0416	3	475		27	59	С	005	207	0	101	7	146	597												
		11	1	OB	35	70153	C	0415	3	476	3	27	60							146	597												
					STD	0200	(	0408	3	485		27	68	C	004	426	0	131	1	147	703												
		11	1	OB	€S	10201	(	0408	3	485	5	27	68				~			147	703												
				:	STD	0250	(	0400	3	487		27	70	C	0004	254	0	153	و	141	801												
				:	STD	0300	(	0392	3	486	1	27	72	C	0004	120	0	174	4	14:	113												
		11	1	01	35	10304	(	0391	Э	488	12	27	72							14	113												

REFER	ID.	SHIP	LATITUDE		MARSDEN SOUARE	STATION TIME	YEAR	OPIC CRUISE NO,	STATION NUMBER	DEPTH TO BOTTOM	MAX DEPTH OF S'MPL'S	OBSERV DIR HO	A VE VATIONS	WEA- THER CODE	CLOUD CODES	NODC STATION NUMBER
31	8001	ΕV	4719 N	04610 W	149 76	05 27 136 ATER WIND R TRANS. DIR. OF Imi DIR. OF	1966 8AR	D+ AIR ER DRY s) BULL	TEMP TC V	0358 NO. OBS. DEPTHS	03 SPEC OBSERV	17 2	4	X4	x 9	0079

				20	\$08 13	35 100 0	89 3	10								h
MESSENGE CAST TIME OF NO. HR 1/10	CARD TYPE	DEPTH (m)	1 °C	s •/	SIG M A - T	SPECIFIC VOLUME ANOMALY-X107	∑ ∆ 0 DYN. M x 10 ³	SOUND VELOCITY	0 2 ml/l	PO4-P yg - 01/1	TOTAL-P µg • oI/I	NO2~N µg - a1/1	NO3+N µg - at/i	St Ο ₄ —Si μg + α1/1	pН	S C C
																11
	STO	0000	0490	3446	2728	0007994	0000	14699								
136	085	0000	0490	34462	2728			14699								
150	STD	0010	0489	3445	2728	0008062	8000	14700								
136	OBS	0010	0489	34453	2728			14700								
	STD	0020	0488	3448	2730	0007860	0016	14702								
136	085	0026	0486	34485	2730			14702								
190	STD	0030	0480	3448	2731	0007785	0024	14700								
	STO	0050	0459	3447	2732	0007656	0039	14694								
136	OBS	0052	0458	34469	2732			14694								
	STD	0075	0450	3449	2735	0007437	0058	14695								
136	OBS	0077	0449	34493	2735			14695								
	STD	0100	0437	3453	2740	0007026	0076	14694								
136	OBS	0103	0435	34541	2741			14694								
	STD	0125	0414	3461	2748	0006212	0093	14690								
	STO	0150	0400	3469	2756	0005492	0107	14689								
136	OBS	10154	0399	34698	2757			14689								
	STD	0200	0408	3483	2766	0004575	0133	14703								
136	OBS	0204	0409	34843	2767			14704								
	STD	0250	0407	3486	2769	0004362	0155	14711								
	STD	0300	0404	3488	2771	0004227	0176	14718								
136	OBS	0304	0404	34886	2771			14719								
136	OBS	T0344	0392	34888	2773			14720								

REFERENCE					_		MAR	SDEN	STAT	10N 1	IME		1	ORIGIN	ATOR'S				MAX,		WAVE			CLOUD	T			
CTRY ID.	CODE	<b>LATITU</b>	DE	LON	GITUOE	DC1	SQL	ARE		GMT		YEAR	CRUIS		STATIO	4		10	DEPTH	085	ERVAT	ions	THER	CODES		5	NODC	
CODE NO.		•	1/10		1/1	0 =	10*	1.	MO	DAY I	HR,1/10		NO.		NUMBE	R	BOT	TTOM	S'MPL"	DIR	HGT	R SE	A CODE	TYPE AM	Ť	N	UMBER	
318001	EV	4742	N	046	10 4		140	76	0.5	27	140	1044		0.6			1.0		1.0			, [						
210001				040	10 ,		142	WA	TÉR		WIND	1 700		A IR TE	MP. C			10.	<u> </u>	<u> </u>	2.2		×4	' X 9	,	1	0080	
								COLOR	TRANS.	DIR.	SPEED	MET	ER	DRY	WET		. 0	85.	OBSERV	ATIONS								
								CODE	lm1		FORC	E (mb	s) (	BULB	8018		DE	PTHS										
										21	506	11	2 0	67	06	1 2	1	13										
	MESSENGR	CAST	CAR	D			ĺ .		1				SPECIEL			ξΔp	T	< <u>.</u>	ND									T.
	TIME 0	ΎNO.	TYP	E	DEPTH	(m )	'	Ç	,	•/••	SIG	M A T	ANON	ALY-XI	07	2ΥΝ. Μ Υ.Ιο ³	•	VELO	CITY	02 ml/l	101	01/1	yg = at/1	vg = o1/1	NO3-N	yg - ot/i ≥104-51	pН	
	118 17 10			-					+								-+-		-	_	+					-		+
		1 1					1		1													1						
			5	τυ	000	00	0	495	34	46	27	27	000	809	4 1	0000	)	147	701									
	109		05	5	000	0	0	495	34	456	27	27			_			147	701									
	160		~ ~ ~		001	0	0	507	34	53	27	32	000	166	7	0008	1	147	708									
	103		00:	5 7 D	001	0	0	507	34	532	21	32		36.0	-			147	708									
	160		08	c .	002	5	0	501	34.	546	21	30	000	1159	1	1019	•	14/	109									
	10,		<u> </u>	r D	002	10	ő	491	34	545	21	34	0.00	7 20				14	109									
			5.	10	005	0	ő	458	34	52	27	20	000	1450	3 (	1023	•	14,	106									
	169		OB	5	005	0	ŏ	458	34	517	27	44	000	10 14	., .	10 51		140	070									
	169		OB:	s	007	4	0	434	34	541	27	49						144	200									
			s	T D	007	5	ō	434	34	54	27	49	000	612	9 (	1053		146	200									
	169		08	5	009	9	0	424	34	563	27	51			í .			146	90									
			S	rD	010	0	0	423	34	56	27	52	000	587	5 (	0068	1	146	90									
			S	r0	012	5	0	410	341	59	27	55	000	558	5 (	082		146	589									
	169		08	5	T014	8	0	403	34	710	27	57						146	90									
			S	r O	015	0	0	403	34	71	27	58	000	534	6 (	096		146	91									
			S1	r D	020	0	0	410	34	31	27	65	000	473	7 (	)121		147	103									
	169		0B3	5	020	0	0	410	348	311	27	65						147	103									
			SI	r D	025	0	0	411	341	34	27	67	000	457	4 (	)144		147	12									
	1 ( 0		SI	r D	030	0	0	411	341	36	27	68	000	448	7 (	0167		147	21									
	169		083	5	030	0	0	411	348	159	27	68			_			147	21									
	140		00		040	0	0	401	348	\$ /	27	70	000	441	7 (	0211		147	33									
	109		003		040	0	0	401	348	367	27	70						147	33									
	169		084		T059	7	0	392	340	38	21	12	000	431	6 (	255		147	46									
	10,		51	, D	060	6	ő	383	340	101	27	74	000	4.25	6 (	1200		147	58									
			51	rD d1	070	õ	0	375	348	10	27	75	0000	420	ן ר ז ר	1270		147	27									
			51	D	080	0	ő	367	344	0	27	76	000	418	<u> </u>	392		147	86									
	169		085	5	1080	4	õ	367	348	397	27	76	000	10				147	86									
			SI	D	090	0	0	362	349	0	27	77	000	418	7 (	424		149	00									
			ST	D	100	0	0	360	349	90	27	77	000	424	8 0	466		148	16									
	169		084	;	T103	9	0	359	349	03	27	77						1/10	22									

REF	ERENCE	SHIP	LATITU	DE	LONGITUE	E III	N N S	ARSDEN QU'ARE	STA	GMT)	IME	YEAR	CRUIS		ATOR'S		DEPT TO	H DEPT	(. Н ОЕ	W A ISERV	VE A TION	s	WEA- THER	CLC	OES .		51	ATION	
coa	NO.	CODE	1/10 · ·			/10	ž 10	P   1"	MO	DAY	(R,1/10		NO.	1	UMBER	2	80110	M S'MPL	15 DIR.	HG	PER	SÉA	CODE	TYPE	AMT		N	UWAFK	
3	18001	EV	4759	N	04610	W	14	9 76	05	27	200	1,966	<u> </u>	-95	89		117	<u>0</u> 1	1 20	3	3		X4	x	9			0081	
								W	ATER	- '	NIND	BAR	<u>o-</u>	AIR TEA	ир, °С		NO.	SP	ECIAL										
								COLC	E Ini	S OIR.	OR	, (mb	5× 5)	BULB	BULB	C001	DEPTH	S OBSER	VATIONS	1									
								-	+						0.5					1									
			1							17	505		2 1	561	026	510	1 14	1		- -		-							Τ.
		MESSENGR TIME HR 1/10	CAST NO.	C A F T Y F	DEP	tH Im	1	J* 1		s •4.	SIG	M A →Ť	SPECIF	NALY-AI	ME 07 0	2 A B 21N. M X 10 ³	. VI	OUND ELOCITY	02 ml	ו וי ע	904-P g - 01/1	10	TAL→P g = at/1	NO2 29 -	N a1/1	NO3-N vg - qt/l	SLO4=\$+ 99 - a1/1	pН	00
					1					_					_														
		I			• ດ່ ດ	000		0514	3	454	27	132	00	0765	1 0	2000	1	4710											
		201	n	08	s 0	000		0514	3	4543	27	732	00		•		1	4710											
		20.	~	Š	το ο	010		0511	3	454	27	32	000	0762	2 (	0008	1	4710											
		20	0	OB	s o	010		0511	3	4544	27	732					1	4710											
				S	то о	020		0495	3	455	27	734	00	0744	9 1	0015	1	4705											
		20	0	08	s 0	025		0489	3	4545	27	735					1	4704											
				s	то о	030		0488	3	455	27	735	00	0734	7 (	2023	1	4704											
		2.0	0	08	s o	048		0475	3	4574	27	739					1	4702											
				S	TO 0	050		0470	) 3	458	27	740	00	0694	9	0037	1	4700											
		20	0	OB	S 0	072		0434	• 3	4632	27	748					1	4690											
				S	TD 0	075		0436	, 3	464	2	748	00	0616	5	0053	1	4691											
		20	0	08	S 0	097		0443	3 3	4692	27	752					1	4698											
				S	TO 0	100		0443	3 3	469	2	752	00	0586	7	0068	1	4699											
				S	TD D	125		0441	. 3	470	2	753	00	0579	7	0083		4702											
		20	0	08	s to	146		0435	5 3	4712	2	754			-		1	4703											
				S	TD O	150		0431	. 3	472	2	755	00	0558	9	009	1	4103											
		20	0	08	S 0	195		0402	2 3	4786	2	764						4699											
				S	TO 0	200		0404	<b>ز</b> ک	479	2	164	00	0481	.44	0122	, 1 , 1	4700											
		2.0		5	TU 0	200		0403	, , , , ,	403	2	767	00	0429	0	014	1	4718											
		20	0	08	5 10	293		0406	2 2	4027 / 84	2.	740	0.0	0444	6	0160	1	4719											
				 	TD 0	400		0400		486	2.	769	00	0452	8	0214		4735											
		20	0	08	s 0	400		0409	1 3	4869	2	770	00					4750											
		20	0	ç	το ο	500		0403		487	2.	770	00	0451	2	0259	2	4751											
		20	с	OB	5 0	589		0389	9 3	4892	2	773					1	4760											
		20	0	S	το ο	600		0388	3 3	489	2	773	00	0427	6	0303	3	4761											
				ŝ	TD 0	700	1	0378	3 3	490	2	775	00	0423	2	0346	5 1	4774											
		20	0	08	S TO	788	i i	0372	2 3	4897	2	775					1	4786											
		_		s	το ο	800	)	0372	2 3	490	2	776	00	0421	0	038	3 1	4788											
				s	<b>TO</b> 0	900	)	036	73	490	2	776	00	0424	6	043(	) 1	4802											
				S	TO 1	000	)	036	33	490	2	777	00	0428	15	047	3 1	4817											
		20	0	OB	S T1	004	,	036	33	4901	. 2	777					1	4818											
				\$	TO 1	100	)	0358	3 3	490	2	777	00	042	78	051	5 )	4832											
		20	0	O B	c 1	114		035	73	4904	. 2	778					1	4834											

REFERENCE	SHIP	LATITUI	DE	LONGITUDE	NDC 18	PSDEN UARE	STA	ION IGMT	71ME	YEAR			DR'S TION	DEPTI TO BOTTO		H OB	WA ISERVA	VE A TIONS	WEA- THER CODE	CLOUD	÷		NODC STATION NUMBER	
31800	1 EV	4722	0 N	050050W	15		05		WIND SPEE	1966 BARC METE	D-	959( AIR TEMP. DRY BULB 8		DEPTH	5 O	ECIAL VATIONS	0	2	x 2	0 4			0082	Į
						01	50	22	2 50	2 16	9 (	067 _0	50 7	10			1.							
	MESSENG TIME H.R. 1/31	P CAST	CAR Typ	D DEPTH In	n }	т °С	s	٠/	sic	GM A = T	SPECIFI	C VOLUME	₹ Δ 0 DYN. / x 10 ²	y s	OUNO	02 ml/	רן <b>א</b> אין	04-P 2 = 01/1	TOTAL⊶P µg = at/l	NO2-N vg = al/l	NO3-N vg + al/1	51 O 4- 29 - 0	нч ¹²⁻	SC C
	HR 1/10 119 O 0 0 0			TO 0000 S 0000 TD 0010 S 0010 S 0015	) ) ) )	0275 0275 0265 0265 0265	33 33 33 33 32	00 000 01 009	20 20 20 5 20 5 20 5 20	633 633 635 635 632	001	16982 16869	000	0 1 1 7 1 1	4588 4588 4585 4585 4585					1		I		
	0 0 0 0		5 08 5 08 08	TO 0020 S 0020 TD 0030 S 0030 S 0045 TD 0050		0202 0202 0174 0174 0166 0125	33 33 33 33 33 33 33	01 01 03 03 02 02	2 0 2 0 2 0 2 0 2 2 0 2	640 640 644 644 643 651	002	16361 16017 15320	003	4 1 0 1 1 1 1	4560 4560 4549 4549 4548 4531									
			08: 08: 08: 500	S 0050 S 0060 S 0070 TO 0075 S 0084	5 5 5 5	0125 0083 0062 0062 0062	33 33 33 33 33	08 20 40 41	0 2 0 2 5 2 0 2	651 663 681 681 682	00	12437	011	1 1 6 1 1	4531 4516 4511 4512 4513									

REFE	RENCE	SHIP				εĔ	MARS	DEN	ST A	TION	TIME			(	RIGINAT	DR*S		DEPTH	MAX		WA	VE		WEA-	CLOU	>		NODC	
CODE	ID. NO.	CODE	• LATINUT	1/10	LONGITUDE	S O Z	10*	11		16 M	U HR 1/1	YEA	KR	CRUISE NO.	STA NII	TION		TO BOTTOM	OF	08	SERV	A TION	5	CODE	CODE	S		NUMBER	
		-					10			011	118,173	1					- +		3 /1112	3 018	10	PER			STPE A				
31	8001	٤V	4739	ONI	049580W		149	79	05	28	138	119	66		959	47		0104	1 01	22	0	21		X 5	04	, I.		0083	1
							t t	01.08	TRAN		SPE	ED A	BARO		NPY	VET	VIS.	NO. OBS.	SPE	CIAL									
							1	CODE	(m)	- DI	P. 0 FOR	R	imbsi	B	JLB I	ULB	COOR	DEPTHS	OR25K	ATIONS									
								DT	s	2	2 50	2	184	5 0	50	)39	7	11			1								
		MESSENG TIME	CAST NO.	C A R T Y P	ID DEPTH I	ml	т	ъ		s •/	51	GMA-	τ	SPECIFIC	VOLUME ALY-107	2 DY	△ D N. M.	SOL VELC	UND Y11:0C	0 2 ml/		PO4-P 9 - 01/1	10	9 + 01/1	NO2=N yg = at/	NO3-N 29 - 01/1	5104- 29-0	S) pH	soc
		114 17 1	·						1				-+			1					+		+				-		+
			; [	5	το οοοι	י ר	0.3	75	1	05	,	620	1	0.01	7360	1		14	607		ł		1	1		1		ļ	ļ
		13	я	08	s 000	ő	01	275	32	205	n 2	629		001	1200	01	000	14	501										
			0	0B	5 000-	4	02	49	32	2970		633						14	577										
				S	TD 001	) )	0.2	242	32	998	2	634		001	6918	00	717	14	575										
				08	5 001	5	02	242	32	297	5 2	634		00*	0/10	0.		14	575										
				OB:	5 001	5	0	230	32	2940	0 2	632						14	570										
				S	TD 002	5	0	153	33	300	2	642		001	6141	00	34	14	538										
				08	s 002	С	01	153	32	99	5 2	642						14	538										
				S	TD 003	2	01	34	33	302	2	646		001	5831	00	050	14	531										
				08	5 003	)	01	34	33	3020	) 2	646				-		14	531										
				085	5 004	3	01	30	33	3010	0 2	645						14	531										
				S	TD 005	2	01	11	33	302	2	647		001	5690	00	081	14	524										
				08	s 005	2	01	11	33	3020	) 2	647						14	524										
				085	5 006	C	00	71	33	3170	) 2	661						14	510										
				S	TD 007	5	00	)51	33	346	2	686		001	1996	0.	116	14	507										
				08	s 007	5	00	)51	33	3460	0 2	686						14	507										
				08	5 009	С	00	63	33	3590	0 2	696						14	517										

CTRY ID. CODE NO.	SHIP CODE	LATITUC	DE 1/10	LONGITUDE		ISDEN JARE	51		THE THE	(10	YEAR			ATO	I'S DN NFR	-	DEPTH TO BOTTOM	MAX. DEPTH OF	08	W A	A TION	s	WEA- THER CODE	CLOU	D		NODC STATION	
318001	ΕV	48060	N	049550W	149	89	05 TER	28	16 WIN	2	966 BAR		95 AIR TE	92 MP 1		5.	0170 NO.	02 SPE	- 31	2	2	3F 4	X4	0	•		008	4
						COLOR	TRA (m		R. F	OR	Imbs	R	ORY BULB	BU	T CO	DE	DEBIH2	OBSERV	ATIONS									
			_			οτ	s	D 3	5 S	06	17	6 0	)33	0.	28 3		14											
	MESSENGR TIME HR 1 10	LCAST NO.	C A RD TYPE	OEPTH In	ni 1	°C		s •4		51G M	A ~ T	SPEC IFI ANON	C VOLU (ALY1	ΜΕ 0.7	₹ △ DYN. X 10	о м.	SOU VELO	IND ICITY	0.2 ml/		 PO₄P g = o1/I	T C	) TA L - P g + o1/l	NO ₂ -M µg - at/	NO3- 29-0	N SLO4- /1 µg - a	Si pH	s C C
							1																				-	
			ST	D 0000	) C	238	3	277		261	8	001	843	8	000	0	14	569										
	162	-	085	0000		238	3	277	0	261	8						14	569										
			080	0 0010		144	3	279	~	262	27	001	764	1	001	8	149	529										
			5003	0 0010		1030	د	219	0	201		001	430	2	007	-	14	29										
	003	3	OBS	0020	) ŭ	030	3	287	0	264	10	001	.0	5	003	9	144	480										
			ST	D 0030	- 0	015	3	288		264	3	001	610	8	005	1	144	462										
			085	0030	) -0	015	3	288	0	264	•3	•••		Ŭ		•	144	462										
			OBS	0042	-0	083	3	294	0	265	0						144	+33										
			ST	0 0050	) (	020	3	307		265	6	001	481	1	008	2	144	484										
			OBS	0050	) 0	020	3	307	0	265	6						144	+84										
			085	0060	0	043	3	310	0	265	57						144	+96										
			ST	0 0075	-0	076	3	316		266	8	001	370	4	011	8	144	45										
			085	0075	-0	076	3	316	0	266	8						144	+45										
			085	0080	-0	020	3	324	0	267	2						144	+72										
			085	0090	0	023	3	333	0	267	7						144	•95										
			ST	0 0100	0	028	3	344		268	6	001	202	2	015	0	145	501										
			OBS	0100	0	028	3	344	0	268	6						145	501										
			ST	0 0125	0	065	3	368		270	3	001	039	9	017	8	145	525										
			0BS	0125	0	065	3	368	0	270	3						145	525										
			ST	0 0150	0	100	3	380		271	0	000	970	3	020	3	145	546										
			085	0150	0	100	3	380	0	271	0						145	646										
			085	0160	0	117	3	385	ο.	271	3						145	56										

REFERS	NCE	SHIP				14	MAR	DEN	\$TA	TION	TIME	YEAD	-	ORIGIN	ATOR	s	DEPTH	MAX. DEPTH	OBS	WAN	E	V	NEA-	CLOI				NODC	
CIRY	1D. N O.	CODE	LA TITU	DE 1/10	LONG		10*	1"	MO	DAY	HR.1/10	TEAR	CRUIS NO.	E 9	NUMB	ER	BOTTON	S'MPL	S DIA	нgf	PER SI	A C	ODE	TYPL	A AST			NUMBER	
316	001	ΕV	4830	ON	045	9410W	149	WAT COLOR CODE	05 ER	28 Dir	198 WIND SPEE	1966 BAR MET CE Imb	0 ER s1	95 AIR TE DRY BULB	93 MP. C	VIS T COD 8	0296 NO. OBS. EDEPTHS	SPE OBSERV	CIAL ZZ	2	2		X 4	0	4			0085	
								DT	sD	28	3 50	3 18	6	117_	_08	3 3	10	<u> </u>		_		-							
		MESSENG TIME H.R. 1/1	P CAST	CAR	RD PE	DEPTH Imi	т	°C	2	•/	SI	GMA-T	SPECIF ANO	IC VOLU MALY~X1	1 M E 1 0 ⁷	≦ △ D DYN, N X 10 ³	VEL	DUND LOCITY	0.2 ml/l	P( vg	04-P + a1/1	1014 29 -	01/1	NO 7- 1/9 - 0	N 1/1	NO3-N µg - al/l	51 O 4-	Si pH	S
				s	TD	0000	C	168	32	77	2	623	00	1794	6	0000	) 14	4538									l		
		19	8	08	5	0000	0	168	32	277	2	623	0.0	1/57			14	4538											
				08	TU S	0010	c	080	32	288	υ ź	638	00	1001	0	001	14	4502											
				ŝ	TD	0020	C	060	32	297	2	646	00	1582	21	0033	3 14	4495											
		00	1	08	S	0020	C	060	32	296	5 2	646					14	4495											
				S	TD	0030	C	005	33	303	2	654	00	1505	>1	0049	9 14	4473											
				08	S	0030	0	005	33	5031	υ 2 -	654		1200		00.70	2 1/	4413											
					10	0050	-0	090	21	211	¥ ۵	665	00	1246	37	0070	1/	4433											
				00	5 TD	0075	-0	0.08	31	333	2	678	00	1268	39	011	1 1	4478											
				08	S	0075	-0	0008	3	333	οŽ	678					14	4478											
				S	TD	0100	C	0041	3	352	2	691	00	1148	32	014	1 1	4508											
				08	s	0100	(	041	33	352	0 Z	691					1	4508											
				s	TD	0125	C	087	33	376	2	708	00	0993	38	016	8 1	4536											
				06	S	0125	C	087	3	375	8 Z	708					1.	4536											
				S	ТD	0150	0	0175	34	405	2	725	00	0832	26	019	1 1	4583											
				08	S	0150	(	1175	34	+05	0 2	/25					1.	4583											
				08	S	0156	(	0189	- 34	+09	0 Z	727					- <b>1</b> .	4591											

-					- 1		1.0		DEN	514	TION	TIME		0	RIGINATOR'S	DEPTH	XAM		WA	VE		WEA-	CLO	υÞ		NODC
RE	IFERE	ID	SHIP	LATITU	05	LONGITUDE	DC1	SOU	ARE	10	(G M I	3	YEAR	CRUISE	STATION	TO	OF	089	ERV.		NS	CODE	i co	DES		NUMBER
çõi	DE	NO.	CODE	•	1/10	1/1	0 2	10*	1.	MO	DAY	HR,1/10		NO.	NUMBER	10000	S'MPL'S	S I C	HGT	PER	SEA		TYPE	AMT		
	18	001	Ev	4854	N	04935 ¥		149	89	05	28	225	1,966	L	9594	1317	12	1	3	3		1 X4	0	4	1	0086
-									COLOS	TER	5 00	WIN D SPEE	BARG	)	DRY WET COT	NO. OBS.	SPEC OBSERV	A TION S								

				CODE	Im1 D1K,	FORCE	(mbs)	1 8018	80	LB		CPTPIS									
				DT	SD 16	\$10	180	6 061	0	50 0		22									-
MESSENGR	CAST NOI	CARD TYPE	DEPTH (m)	1 °C	s •4.	SIGMA	-T	SPECIFIC VOLUA	Λ.Ε. 7	∑ ∆ DYN ¥ 10	р м.	SOU VELC	IND ICITY	02 m1/)	PD_4-P 9.9 = 01/1	101AL-P μg = 01/1	NÖ2-N ug = 01/1	NO3-14 49 • al·1	SLO4+Si µg + o⊡	¢Н	S C C
HR 1/10									-												ļ
		STD	0000	0439	3405	270	1	001055	3	000	00	14	672								
225		OBS	0000	0439	34050	270	1					14	672								
223		STD	0010	0390	3419	271	7	000902	2	001	0	14	655								
		OBS	0010	0390	34190	271	7					14	655								
		STD	0020	0375	3436	273	2	000760	7	00	18	14	653								
002		OBS	0020	0375	34360	273	2					14	653								
		STD	0030	0345	3440	273	9	000703	2	00	25	14	642								
		085	0030	0345	34400	273	9					14	642								
		STD	0050	0338	3455	275	1	000585	4	00	38	14	645								
		085	0050	0338	34550	275	1					14	645								
		STD	0075	0334	3455	275	2	000583	6	00	53	14	647								
		085	0075	0334	34550	275	2		_			14	647								
		STD	0100	0323	3464	276	0	000507	7	00	67	14	648								
		OBS	0100	0323	34640	276	0			• • •	-	14	648								
		STD	0125	0357	3471	276	Z	000489	1	00	19	14	601								
		085	0125	0357	34710	276	Z	A	,	0.01	. 1	14	601								
		STD	0150	0366	3474	276	4	000477	6	00	91	14	475								
		OBS	0150	0366	34740	276	-4-	000/53	7	0.1	1.	14	480								
		STD	0200	0376	3479	276	-	000455	'	01	14	14	480								
		OBS	0200	0376	34791	2/6	7	000453	2	01	37	14	607								
		STD	0250	0380	3480	276	. 7	000433	5	0.4	, ,	14	699								
		OBS	0250	0380	34803	210		000445	6	01	60	14	709								
		STU	0300	0384	2402	276	.0	000449	Ŷ	•••	00	14	709								
		085	0300	0384	3484	270	10	000445	7	02	04	14	726								
		510	0400	0386	34840	277	70			÷ .		14	726								
		005	0400	0389	3486	277	71	000445	5	02	49	14	745								
		080	0500	0389	34857	271	71	-				14	745								
		003 CTD	0600	0389	3487	27	12	000445	0	02	93	14	761								
		OBS	0600	0389	34870	271	72					14	+761								
		STD	0700	0389	3488	27	72	000448	3	03	38	14	778								
		OBS	0700	0389	34878	27	72					14	+778	1							
		STD	0800	0388	3489	27	73	000445	9	03	83	14	+794	•							
		OBS	0800	0388	34892	27	73					14	+794								
		STD	0900	0380	3490	27	75	000438	31	04	27	14	+808	5							
		OBS	0900	0380	34902	27	75					14	+808	5							
		STD	1000	0375	3491	27	76	000431	13	04	71	1.4	+022								
		OBS	1000	0375	34907	27	76	0004.24		05	1.	1.4	+044 Lo34								
		STD	1100	0367	3491	27	11	000434	+ 1	09	14	1	+0JC	<u> </u>							
		085	1100	0367	34910	27	17	00043		05	67	1	-0.00	, ,							
		STD	1200	0357	3492	27	19	000422	()	09	51	1	-0-+7 6840	, ,							
		OBS	1200	0357	34921	27	19					1	4854								
		OBS	1250	0351	34925	21	a u					1	-0.)-	•						1	9

REFERENCE CTRY ID, CODE NO,	SHIP CODE	LATITU	DE 1/10		MARSDEN SQUARE	TAT2	IDN TI/ GMTI DAY HR	ME YE	AR	ORIGH CRUISE NO.	STATION NUMBE	1	DEPTH TO BOTTOM	MAX. DEPTH OF S'MPL'S	OB! DIR	WAVE SERVATIONS	WEA- THER CODE	CLOUD CODES			NODC STATION NUMBER	
31800	L EV	4904	N	04932 W	149 99	05	28 2	36 19	66	99	595_	-,	1335	13	17	02	x1	04			0087	
					COL	DR TRANS,	DIR.	SPEED OR FORCE	BARO MÉTEI (mbs)	R ORY BULB	WET BULB	CODE	NO. OBS. DEPTHS	SPEC OBSERVA	IAL TIONS							
					DI	5D	17	510	160	6 050	030	7	23		-							
	MESSENGR TIME HR 1/10	CAST NO.	CARE	DEPTH (m)	T °C	s	•4.	SIGMA-	-1	SPECIFIC VOL	UME 2	E A O DYN, M. K 10 ³	SDU VELO	ND	D2 m1/1	PO4-P 22 + 01/1	TOTAL=P pg = ot/1	NO2-N µg - at/i	NO ₃ -N 99 - al/l	SIO4-5 بوء ما/	рН	SOO
	230	5	ST 085 5T 085 5T	D 0000 0000 0 0010 0010 D 0020	0470 0470 0445 0445 0444	344 344 344 344 344	41 410 46 460	2726 2726 2733 2733 2741	) ) ) ) )	000817	70 0 +3 0 92 0	0000 0008	140 140 140 140 140	590 590 582 582 582								†
	00	5	085 ST 085	0020 D 0030 0030	0444 0438 0438	345 345 345	560 57 570	2741 2743 2743	5	000666	5 (	022	140 140 140	584 584 584								
			ST 085 ST	D 0050 0050 D 0075	0429 0429 0405	345 345 346	57 570 55	2744 2744 2752		000659	92 C	035 050	146 146 146	583 583 578								
			085 51 085	0075 D 0100 0100	0405 0412 0412	346 346 346	50 8 8 80	2752 2754 2754		000564	1 C	065	146 146 146	578 586 586								
			ST OBS ST	D 0125 0125 D 0150	0410 0410 0392	347 347 347	71 710 74	2757 2757 2761	,	000542	10 C	079	$146 \\ 146 \\ 146$	589 589 586								
			085 085	D 0200 0200	0392	347 347 347	78 78 780	2761 2766 2766		000463	0 0	116	146 146 146	586 589 589								
			OBS ST	0250 0250 0300	0385	348 348 348	10 14	2767 2767 2768		000453	9 C	139	147 147 147	701 701 714								
			5T 085	D 0400 0400	0390	348 348 348	140 143	2769		000447	7 0	206	147 147 147	28								
			OBS ST	0500	0390	348 348 348	55 6	2770 2771 2771		000448	.0 0	296	147	45								
			ST OBS ST	0700	0381 0381 0385	348 348 348	7	2772		000445	2 0	340	147	75								
			085 STI 085	0800 0900 0900	0385 0383 0383	348 349 349	90	2774 2775 2775		000443	1 0	429	147	93								
			ST OBS ST	0 1000 1000 0 1100	0376 0376 0368	349 349 349	0 04 1	2776 2776 2777		000440	70	473 517	148 148 148	23								
			OBS STI OBS	1100 1200 1200	0368 0362 0362	349 349 349	10 2 15	2777 2778 2778		000432	8 0	560	148 148 148	36 51								
			STO OBS OBS	0 1300 1300 1320	0357 0357 0357	349 349 349	2 20 20	2779 2779 2779 2779		000431	2 0	604	148 148 148	65 65 69								
OFFEDENCE				a	MARSDEN	STATION	TIME	1	ORIG	INATOR'S	-	DEPTH	MAX.		WAVE	WEA	. CLOU		1	корс		
------------	----------	--------	-------	-------------	---------	----------------	---------	--------	----------	----------	--------	------------	-------------	----------	-----------	---------	---------	-------	-----------------------------------------	--------	---	
REPERCIVES	SHIP	LATITU	DE LO	NGITUDE	SQUARE	IGN	TI	YEAR	CRUISE	STATION		to	DEPTH OF	OBS	ERVATIONS	THER	CODE	s	S	TATION		
CODE NO.	CODE	•	1/10	· '1/10 = 3	10" 1"	MO DAY	HR.1 10	1	NO.	NUMBER	۲	BOTTOM	S'MPL'S	OIR.	HGT PER S	EA COD	TYPE AP	47	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	UMBER		
												1 . 1 7	1.0									
318001	EV	4915	N O	4933 W	149 99	105129	WIND	11966		596 _		1311	د ب	****	1'4'		. 0 4			0080		
					C010	RTEANS	SPEE	D MET	ER DRY	WET	- vis	OBS.	SPE	CIAL								
					CODI	int D	IR. OR	CE (mb	s1 8UL8	BULB	0000	DEPTHS	O D JEII V									
					DT	<0 1	7 51	0 17	3 061	0.50	1 7	23										
						1 3014					< ^ n			1							s	
	MESSENGR	CAST	CARD	DEPTH (m1	5° 1	s •4	. 510	GMA-T	ANOMALY-	LUME	SYN. M	SOI	DOUTY	0 2 m1/1	PO4=P	TOTAL-R	NO2=N	NO3=N	90 - 01/l	pН	Ċ	
	HR 1/10	T_NO.	TTPE								x 103			-					-		-	
	1		STD	0000	0478	3449	2	732	00076	55 1	0000	14	694									
	010	٦ ر	085	0000	0478	3449	0 2	732				14	694									
	010		STD	0010	0478	3449	2	732	00076	66 1	0008	14	696									
			OBS	0010	0478	3449	0 2	732				14	696									
			STD	0020	0450	3450	2	736	00073	05	0015	14	686									
	006	5	OBS	0020	0450	3450	0 2	736				14	686									
			STD	0030	0437	3456	2	742	00067	30	0022	14	683									
			OBS	0030	0437	3456	o 2	742				14	683									
			STD	0050	0416	3460	) 2	747	00062	34	0035	14	678									
			OBS	0050	0416	3460	0 2	747				14	678									
			STD	0075	0410	3461	7 2	754	00056	572	0050	) 14	681									
			OBS	0075	0410	346	70 2	754				14	681									
			STD	0100	0410	3470	) Z	756	00054	+71	0064	14	685									
			OBS	0100	0410	3470	DD 2	756				14	685									
			STD	0125	0390	3479	3 2	764	0004	729	0077	14	682									
			OBS	0125	0390	347	75 2	764				14	682									
			STD	0150	0398	347	7 2	163	00048	571	0089	/ 14	689									
			085	0150	0398	347	10 2	163				14	1007									
			STD	0200	0385	3480	) 2	766	0004:	061	0112	- 14	+692									
			OBS	0200	0385	3480	00 Z	766			. 1	. 14	693									
			STD	0250	0385	348	2 2	168	00044	+95	013	> 14 14	+701									
			OBS	0250	0385	348	10 2	768	0004	20	016	, 14	701									
			STU	0300	0385	) <u>340</u> .	2 2	107	0004	+27	019	14	709									
			085	0300	0385	> 340. 340	20 Z	7770	00044	. 36	0203	2 14	1729									
			510	0400	1950	348	50 2	770	0004	• .0	0-01	14	729									
			005	0400	0391	348/	5 2	771	00044	444	0246	5 14	+745									
			085	0500	0390	348	50 2	771				14	+745									
			STD	0600	0389	348	7 2	771	0004	+88	0293	14	+761									
			OBS	0600	0389	348	55 Z	771				14	4761									
			STD	0700	0383	3 348	7 2	2772	0004	474	0335	5 14	4775									
			OBS	0700	0383	3 348	70 2	2772				14	+775									
			STD	0800	0381	348	9 2	2774	0004	430	0380	D 14	4791									
			OBS	0800	0383	348	85 2	2774				14	4791									
			STD	0900	0380	349	0 2	2775	0004	396	042	4 14	4808									
			OBS	0900	0380	349	00 2	2775				14	8084									
			STD	1000	0374	4 349	1 2	2776	0004	376	046	8 14	4822									
			OBS	1000	0374	+ 349	05 2	2776				14	4822									
			STC	1100	0360	5 349	1 2	2777	0004	366	051	2 1	4835									
			OBS	1100	0360	5 349	05 2	2777				14	4835									
			STD	1200	0360	349	1 2	2778	0004	340	055	5 1	4850									
			OBS	1200	036	349	10 2	2778				14	4850									
			STD	1300	035	5 349	2	2779	0004	324	059	8 1	4864									
			OBS	1300	035	5 349	15	2779				1.	4864									
			085	1310	035	5 349	15 2	2779				14	4866									

REFERENCE					_≅ M	ARSDEN	STATION 1	IME		1	RIGINA	OR'S		DERTH	MAX.		WAVE			10				
CTRY ID.	CODE	LATITU	DE	LONGITUDE	100	QUARE	(G M T)		YEAR	CRUISE	ST.	TION		10	DEPTH	085	ERVATION	S TH	R COD	ES		STAT	DC ION	
CODE NO.			1/10	1/10	= 10	)* <u>)</u> *	MO DAY	1R, 1/10		NO.	NL	MBER		80TTOM	S'MPL'S	DIP	HGTPER	SEA CO	DE TYPE	MT		NUM	BER	
318001	EV	4923	N	04926 W	1	0 00	05 20	0.20	1044		05.0	-		1 2 8 0								_		
510000		4727		04)20 <b>n</b>		WA	TER	WIND	1900		IR TEM	°C	T 1		1 14	-20	2121	, X	0'0'	4	1	00	)89 ¹	
						COLOR	TRANS. DIR.	SPEED	MET	ER C	RY	WET	CODE	085.	SPEC OBSERV/	ATION S								
						CODE	(m)	FORCE	(mbi	L) B(	31.8	BULB		DEVINS										
						DT	SD 18	\$14	14	6 0	67	056	7	22										
	MESSENGR	LCAST	CARD		T			1		CRECIELC	NOLINA	1	ΔD	501										ī
	TIME C	ND.	TYPE	DEPTH	m)	t C	s •4.	SIG A	1 – A A	ANOM	LY-1107	DY	N, M.	VELO	OCITY	02 ml/l	PO4=P	TOTAL-	-P NO2=	N   NO3-	SID4	- Si	pH	0
	INK IZIU											+	10.		-				-					_
	[				1		1			l		1							1				1	
	0.20		ST	0000	2	0468	3455	27	38	000	7098	00	000	14	691									
	028		085	0000	2	0468	34550	27	38					14	691									
			086	0010	,	0468	3455	27	38	000	/109	00	207	14	693									
			51	0.0010	,	0466	3450	21	38	0.00	1 .	0.0		140	693									
	004		085	0020	5	0468	34590	27	44 L 7.1	000	0014	00	J 1 4	141	692									
	004		51	0.020	, i	0400	3461	27	41	0.0.0	6 2 / 1	0.0		140	695									
			085	0030	5	0426	34610	27	47	0000	5241	00	21	140	679									
			ST	0 0050	5	0383	3465	27	55	000	5520	00	132	140	665									
			OBS	0050	5	0383	34650	27	55	000			- 52	14	445									
			ST	D 0075	5	0399	3472	27	59	000	5185	00	146	14	677									
			OBS	0075	5	0399	34720	27	59				0	14	677									
			ST	D 0100	)	0422	3477	270	60	000	5069	00	) 5 9	14/	691									
			OBS	0100	C	0422	34770	270	60					14/	691									
			ST	0125	5	0415	3477	27	61	000	5022	00	071	146	692									
			085	0125	5	0415	34770	270	61					146	692									
			ST	0150	)	0380	3477	270	64	0004	4727	00	083	140	682									
			085	0150	)	0380	34765	278	54					146	582									
			ST	0200	)	0373	3479	270	67	000	4514	01	106	146	587									
			085	0203		0373	34790	276	57					146	687									
			ST	0250	)	0384	3483	270	59	0004	+372	01	129	14	701									
			OBS	0250	)	0384	34830	270	59					14	701									
			511	> 0300	)	0390	3483	270	58	0004	481	01	51	147	712									
			085	0300	,	0390	34830	276	58					14	712									
			080	0400	,	0394	3485	276	59	0004	4468	01	196	14	730									
			005	0400	<u></u>	0394	34850	275	59					14	730									
			085	0500	, )	0393	3401	21	11	0004	+439	02	40	147	746									
			510	0500	, 1	0386	34905	27	71	000		0.7		141	146									
			085	0600	, i	0396	34945	21	έλ. 71	0000	+424	02	285	14	160									
			510	0000	5	0381	3488	27	73	0000		0.7	2 2 0	141	150									
			085	0700	)	0381	34875	27.	73	000	141)	0.5	27	147	172									
			ST	0080	)	0381	3489	27	74	0004	101	0.3	173	147	701									
			OBS	0800	)	0381	34890	27	74	000	, , , ,			147	791									
			STO	0900	)	0380	3491	27	75	0004	+359	04	17	148	808									
			OBS	0900	)	0380	34905	277	75			-		148	308									
			ST	> 1000	)	0371	3491	27	77	0004	304	04	60	148	321									
			085	1000	1	0371	34910	277	77					148	321									
			STO	1100	1	0362	3491	273	78	0004	281	05	03	148	334									
			OBS	1100	1	0362	34910	277	78					148	334									
			STO	1200	1	0357	3492	277	78	0004	267	05	46	148	348									
			OBS	1200		0357	34915	271	78					148	348									
			UBS	1220		0357	34915	277	78					148	352									

	CE D.	SHIP	LATITI	UDE LO		MARSDEN	STATION TI	YEAR	ORIGINATO	DR"S	DEPTH DEPT TO OF BOTTOM CAR	H OB	WAVE SERVATIONS	WEA- THER CODE	CLOUD CODES	-	2 11	NODC TATION UMBEP
3180	001	Εv	4930	0 N 04	923 W	149 99 WA	05 29 C	1966 1ND BAF	5 9598	°C VIS	1353 1 NO. S	3 20 PECIAL	3-2	×o	0 4			0090
						COLOR	TRANS. DIR.	SPEED MET OR (mb	TER DRY V SSI BULB B	VET CODE ULB	DEPTHS OBSE	EVATION 5						
	_			-		DT	SO 17	S12 14	4 <u>2 067 (</u>	)56 7	23					,		1
		MESSENG TIME H.R. 1/1	P CAST	CARD TYPE	DEPTH Im1	r °c	s •/	SIG M A = T	SPECIFIC VOLUME	₹ △ D DYN, M. x 10 ³	SOUND VELOCITY	02 ml/	PO4-P P9 * 01/1	fOTAL=P µg - o1/1	NO ₂ —N ug - 01/l	NO3+N 99 - ot/l	\$1 O.4→51 µg = ot/1	ρН
			1	STD	0000	0457	3454	2738	0007042	0000	14686		ł			1		
		0.4	3	085	0000	0457	34542	2738	0001042	0000	14686							
		~ ~		STO	0010	0456	3455	2739	0006952	0007	14688							
				OBS	0010	0456	34554	2739			14688							
				STD	0020	0444	3457	2742	0006739	0014	14685							
		00	4	OBS	0020	0444	34567	2742			14685							
				STD	0030	0423	3459	2745	0006398	0020	14678							
				OBS	0030	0423	34585	2745			14678							
				OBS	0040	0395	34620	2751			14668							
				STD	0050	0402	3465	2753	0005717	0033	14673							
				STD	0075	0407	3471	2757	0005341	0046	14680							
				OBS	0075	0407	34710	2757	0005028	0050	14680							
				510	0100	0396	3474	2761	0000020	0009	14680							
				005	0125	0390	34740	2764	0004724	0072	14678							
				085	0125	0382	34765	2764	0004724	0072	14678							
				085	0140	0367	34775	2766			14675							
				STD	0150	0376	3479	2767	0004499	0083	14680							
				085	0150	0376	34790	2767			14680							
				STD	0200	0375	3480	2767	0004467	0105	14688							
				085	0200	0375	34799	2767			14688							
				STD	0250	0382	3482	2768	0004426	0128	14700							
				OBS	0250	0382	34820	2768			14700							
				STO	0300	0386	3484	2769	0004402	0150	) 14710							
				085	0300	0386	34835	2769			14710							
				STD	0400	0389	3485	2770	0004437	0194	14728							
				OBS	0400	0389	34847	2770	0004419	0729	14728							
				510	0500	0360	3480	2771	0004418	0430	14745							
				005	0500	0360	3487	2772	0004450	0283	14761							
				085	0600	0389	34870	2772	0004400	~~ 0 .	14761							
				STO	0700	0383	3488	2773	0004415	0327	14775							
				085	0700	0383	34878	2773			14775							
				STO	0800	0380	3489	2774	0004381	0371	14791							
				OBS	0800	0380	34890	2774			14791							
				STO	0900	0378	3490	2775	0004358	0415	14807	,						
				OBS	0900	0378	34902	2775			14807	,						
				STO	1000	0371	3491	2777	0004304	0458	3 14821							
				OBS	1000	0371	34910	2777			14821							
				STD	1100	0366	3491	2777	0004329	0001	1483							
				OBS	1100	0366	34910	2777	0006233	05/	1463	2						
				510	1200	0355	3492	2119	0004221	0,141	14940							
				085	1200	0350	34910	2780			14854	·						
				003	1200	0000	34763	6100			0 ) (	-						

REFERENCE			1		MARSOEN	STATION T	WE		ORIGI	ATOR'S		OFFIC	MAX.		WAVE	W F A	. cic	0110			NODE	1
CTRY ID.	CODE	LATITUDE	LO	NGITUDE 20	SQUARE	(GMT)		YEAR	CPUISE	STATION		TO	DEPTH	OBS	ERVATION	THE	CO	OES			STATION	
CODE NO.		. 1/	/10	1/10 = =	10* 1*	MO DAY H	R.1/10		NO.	NUMBER		BOLLOW	S'MPL'S	DIR	HGT PEP	EA COD	E TYPE	AMT	1		NUMBER	
318001	EV	4942 1		4920 W	149 99	05 29 0	151	1966	0		- 1	1290	12	17	3 2							
210001				· · 20 A.	WA	TER V	/IN D	1200	AIRTE	MP. C		NO	1 1 2		1 3 1 2 1	• * * 2	· 0	4			0091	
					COLOR	TRANS. DIR	SPEED	METE	R DRY	WET	CODE	O85.	SPEC	ATIONS								
					CODE	Im1 DIR	FDRC	E (mba	I) BULB	BULB		DEPTHS	•••••									
					DT	SD 17	512	: 13	2 067	056	7	23										
	MERCENCE					1 - 1 -	1						_			1					1	1
	TIME	V NO.	TYPE	DEPTH (m)	1 °C	s •/	SIG	MA-T	ANOMALY-X	107 D	YN, M	SOL		0 2 ml/l	PO4-P	TOTAL-	NO ₂	-N	NO3-N	5104-5	pH	0
	HR 1/10	1 amr									X 10 ¹	-			pg • 67/1	µg + 01/1	- 6d	1/1	µg + o1/1	yg - 01/	-	
												1									1	
			STD	0000	0447	3454	27	39	000693	7 0	000	14	682									
	05	1 (	DBS	0000	0447	34542	27	39			-	14	682									
			STD	0010	0446	3454	27	40	000693	0 0	007	14	683									
		(	OBS	0010	0446	34543	27	40				14	683									
			STD	0020	0446	3455	27	40	000691	8 0	014	14	685									
	014	4 (	DBS	0020	0446	34546	27	40				14	685									
			STD	0030	0444	3455	27	40	000686	2 0	021	14	686									
		(	085	0030	0444	34552	27	40			-	14	686									
			STO	0050	0408	3458	27	46	000634	1 0	034	14	674									
		(	CBS	0050	0408	34575	27	46				14	674									
			STD	0075	0397	3464	27	52	000578	1 0	049	14	675									
		(	⊃BS	0075	0397	34638	27	52				14	675									
			STD	0100	0406	3469	27	55	000552	0 0	063	14	683									
		(	DBS	0100	0406	34688	27	55				14	683									
			STO	0125	0408	3474	27	59	000519	0 0	077	14	689									
		(	DBS	0125	0408	34738	27	59				14	689									
			STD	0150	0411	3473	27	58	000534	3 0	090	14	694									
		(	DBS	0150	0411	34725	27	58				14	694									
		(	DBS	0165	0380	34800	27	67				14	685									
			STD	0200	0399	3483	27	67	000451	7 0	114	14	699									
		(	DBS	0200	0399	34825	27	67				14	699									
			STO	0250	0398	3484	27	68	000445	0 0	137	14	707									
		(	DBS	0250	0398	34839	27	68				14	707									
			STD	0300	0398	3485	27	69	000441	6 0	159	14	715									
		(	DBS	0300	0398	34850	27	69				14	715									
			STD	0400	0398	3486	27	70	000441	4 0	203	14	732									
		(	DBS	0400	0398	34863	27	70				14	732									
			STD	0500	0388	3486	27	71	000440	17 0	247	14	744									
		(	DBS	0500	0388	34862	27	71				14	744									
			570	0600	0380	3486	27	72	000439	15 Q	291	14	757									
		(	DBS	0600	0380	34864	27	72				14	757									
			STO	0700	0380	3488	27	73	000437	4 0	335	14	774									
		L L	JBS	0700	0380	34879	27	73				14	774									
			310	0800	0380	3490	21	74	000434	4 0	319	14	791									
		,	203	0000	0300	34895	21	14	000400			14	791									
			310	0900	0372	3490	21	16	000428	0 0	422	14	804									
		, i	200	1000	0364	34903	21	16	000477		4.4.4	14	804									
		6	310	1000	0366	3491	21	77	000424	• • · ·	+64	14	819									
		, i	203 STD	1100	0360	3402	21	79	000427	1 0	507	1.4	614									
			210	1100	0360	2472	21	10	000422	- U	101	141	0 <b>00</b>									
		, i	203 CTD	1200	0300	34913	21	70	000/3-		5/0	14	0.00									
		(	3 IU 3 R S	1200	0355	2492 24010	21	70	000422	1 0	949	141	548 0/0									
		,	500	1200	0340	3403	21	17	000/10		6.01	141	848									
			310	1300	0349	2492	21	00	000419	2 0	1991	14	862									
		L L	102	1200	0349	34923	27	80				14	862									

											_							_													1
REFERENC	E					-	.œ[ /	MARS	DEN	5	TATION T	IME			ORIGIN	ATOR	*S		DEPTH	XAM	l	W.	L V E		WEA-	CLO	UD			NODC	
CTRY ID		SHIP	LATITU	DE	LON	GITUDE	8	sou.	ARE		IG MT		YEAR	CRUS	SE	STATIO	DN	٦.	TO	OF	( OBS	ERV	A TION!	s.	THER	CO	DES			STATION	
CODE NO	). [`		•	1/10		1/10	2	10*	1.	MO	DAY	R,1/10		NC		NUME	IE P	8	.0110.M	S'MPL'S	DIR	НG	T PER 1	SEA.	CODE	79.81	AMT				
		_					- I.																								
31600	D 11	EV	4950	) N	049	919 W	1	149	1331	TEP	गरवर्ष		1966	1	1 9 E	AAP Y	- 1	-4	636	-14	-24	14	ا و ا		× 2	0	4		1	0092	
								}	0000	L		SPEED	- BAR	0-	CORK 14	1	V	¥\$.	OBS.	SPEC	LAL										
									COLUR	TR	mi DiR.	OR	(mb	51	BULB	801	LB	101	DEPTHS	ORZEKA	ATIONS										
										+-		1	·																		
	_								DT	1	50 21	524	12	25	061	0	06 7	7	23			_		÷ -							
			CAST	CA	20						/			SPECI	FIC VOL	UME	ΣΔ	D	sou	UND	0		PO4-P	10	DTAL-P	NO2.	-N	NO3-N	St O 4 -	51	1
		TI M E	Y NO.	TY	PE	DEPTH (m	'	1	L		5 . 4.	SIG	M A - I	ANO	MALY-X	107	TATION,	3	VELO	DCITY	02 mi/i		/g = 01/1		(g + o1/L	µg - (	it L	µg = 01/1	µg - ot	4 <b>P</b>	1
	1	18 1/10	-							+			_	+				-				+		+-							$\pm$
			1									1		1		1				l.					ļ						
				S	TD	0000		0	439		3454	27	40	00	0690	7 (	000	00	14	679											
		078	8	08	is	0000		0	439		34535	27	40						14	679											
				S	TD	0010		0	438		3453	27	39	00	0694	+5	000	7 (	14	680											
				08	IS	0010		0	438		34530	27	39						14	680											
				S	TD	0020		0	438		3453	27	39	00	069	55	001	14	14	682											
		00	4	08	IS .	0020		0	438		34530	27	39						14	682											
				ç	TD	0030		Ó	433		3454	27	40	00	068	76	002	21	14	681											
				0 e	35	0030		õ	433		34535	27	40						14	681											
				Č	TD	0050		0	400		3461	27	50	00	059	9.8	003	34	14	672											
				08	15	0050		Ó	400		34610	27	50						14	672											
				6	TD	0075		ō	411		3466	27	52	00	057	94	004	48	14	681											
				n P	10	0075		ō	411		34655	27	52				-		14	681											
				6	TO	0100		ō	411		3470	27	55	00	055	19	006	63	14	686											
				0.6	ic i	0100		ň	411		34605	27	155			•			14	686											
					3 . TD	0125		ň	387		34073 3473	27	60	0.0	ທຸລຸດ	14	00.	76	14	680											
				05		0125		ő	397		24726 24726	27	40					~~	14	680											
				00	22	0150		ő	376		2412J 2476	27	6.2	0.0	04.8	77	001	00	14	670											
						0150		0	275		, , , , , , , , , , , , , , , , , , ,	21	600	00	/040	<i>L</i> 1	000	00	1.4	(70											
				UE	5	0150		0	515		34143	21	60	~ ~				• •	14	619											
				5	TD	0200		0	371		3479	21	67	υu	1045.	32	01.	12	14	686											
				OF	S	0200		0	371		34785	24	67				. 1.	<b>.</b>	14	686											
				5	STO	0250		0	379		3481	21	68	00	0044	11	01	54	14	698											
				06	\$5	0250		U	379		34810	4	68				~ 1 /		14	698											
				5	5T0	0300		0	385		3462	Z	68	00	045	04	019	57	14	709											
				OB	as .	0300		0	385		34820	2	68						14	109											
				5	5 T D	0400		0	390		3485	2 1	69	00	044	62	020	01	14	728											
				06	₿S -	0400	)	0	390		34845	27	69				_		14	728											
				\$	510	0500	•	0	390		3486	27	770	00	044	66	024	46	14	745											
				08	3s	0500	)	0	390		34857	27	770						14	745											
				5	570	0600	)	0	385		3487	27	772	00	044	43	020	91	14	760											
				0 E	3S	0600	)	0	385		34865	21	772						14	760											
				5	5 T O	0700	)	0	384		3488	27	772	0(	044	48	03	35	14	176											
				08	3s	0700	)	0	384		34875	2	72						14	776											
				5	5T0	0800	)	0	383		3489	2	174	00	044	16	03	79	14	792											
				06	35	0800	)	0	383		34890	2	774						14	792											
				5	STD	0900	)	0	382		3490	2	775	00	043	90	04.	23	14	809											
				08	3S	0900	)	0	382		34904	2.	775						14	809											
				5	STD	1000	)	0	375		3491	2	776	00	0043	66	04	67	14	822											
				08	3 S	1000	)	0	1375		34908	2	776						14	+822											
					STD	1100	)	0	365		3491	2	777	0	0043	17	05	11	14	835											
				08	BS	1100	)	0	365		34910	2	777						14	835											
					STD	1200	)	C	358		3491	2	778	01	0042	94	05	54	14	+849											
				O P	35	1200	)	c	358		34913	2	778						14	+849											
					STD	1300	)	Ő	353		3492	2	779	01	0042	78	05	96	14	864											
				01	35	1300	5	õ	353		34918	2	779						14	864											
					STD	1400	)	ň	349		3493	2	780	0	042	35	06	39	14	879											
				0	Ac	1400	5		340		34929	2	780						14	879											
				00	23	1-00	-	0	,,,,,		27726								-	~											

REFER	ENCE	SHIP				- #	MAR	SDEN	STAT	ION TI	ME			ORIGIN	ATOR'S	5	DEPTH	MAX	:	w	AVE	WEA	CLOUD			NODC	]
CTRY	ID.	CODE	LATITU	DE	LONGIT		sau	ARE		GMTI		YEAR	CRUIS	E 1	STATIO	N	TO	OF	1 OB	SER	VATIONS	THER	CODES			STATION	
	NO.	-		1/10		1/10 =	10.	1.	MOLD	DAY H	R,1/10		NO.	+'	10 M B2	8		S'MPL	S DIR.	н	ST PER SEA	A 0000	TYPE AM	-		NUMBER	-
31	8001	EV	5000	ON	0491	80w	185	09	05	29 0	196	1966		96	01		157	3 14	23	4	31	×2	04			0097	d
								WAT	ER	V V	/IND	BAR	o.	AIR TE	MP. C	- VIS	NO.	5.91	CIAL	]		~-	•••			0093	
								COLOR	TRANS,	DIR.	SPEED OR	METE	R	DRY	WET	COD	DEPTH	OBSER	VATION S								
											FORCE					·		+	_	{							
			,					OT	Ş.D	22	\$20	12	5	078	0,6	7 7	25			Ι.,	,						
		MESSENG	CAST	CAR		FPTH Im1	I T	*C.	1 5	•/	SIGU		SPECIF	ic volu	ME	∑ ∆ D	sc	DUND	0		PO4-P	TOTAL-P	NO2-N	NO ₁ -N	51 04-	5+	5
		HR 1/10	NO.	TYP	25			-	-		1.01	10-1	ANO	NALY-X:	07	x 10 ³	VE	OCITY	0.2 miz	1	µg • o1/I	µg • qt/l	µg = a1/1	µg • αi∕i	¥9 - 01	/I PH	à
					-						1		_							-+							+
		1		c .	<b>T</b> D	0000		1. 61.	34	50		< 1 ·	~~~		£ 1								1			I	ι
		0.9	6	08	c .	0000	0	464	34	500	27	4 1 7.1	000	1015	5	0000	, 1.	+670									
			0		с. Т.П.	0010	ň	462	34	50	27	41	0.01	1674	<u>د</u>	0007	1	+690									
				08	ς ς	0010	ŏ	462	34	590	27	42	001	JU /4	· ·	0001	1	4071									
				5	тр	0020	õ	462	34	51	27	43	0.04	1664	2	0013	1	4071									
		00	5	08	5	0020	õ	462	34/	505	27	43	000	,004	· ·	0013	, <u>.</u>	1072									
			-	S	TD	0030	ŏ	455	340	56	27	48	0.01	1616	7	0020	1	4692									
				08	s	0030	ō	455	340	560	27	48			·	0020	1	4692									
				S	TD	0050	0	425	34	58	27	52	00	0576	3	0032	1	683									
				OB:	s	0050	0	425	340	575	27	52					14	+683									
				S	TD	0075	0	420	34	70	27	55	000	0554	9	0046	14	+685									
				OB:	s	0075	0	420	34	700	27	55					14	+685									
				S	TD	0100	0	416	34	72	27	56	000	0542	0 1	0060	14	688									
				08:	s	0100	0	416	34	715	27	56					14	688									
				S	TD	0125	0	410	34	75	27	59	001	0515	8	0073	14	+690									
				08:	S	0125	0	410	34	745	27	59					14	+690									
				5		0150	0	411	- 34	17	27	61	000	)50Z	0 1	0086	. 14	+695									
				000	5	0190	0	411	- <u>94</u>	200	21	61					14	+695									
				00. c	3 TD	0200	0	300	24	199	21	67 4 E	0.0		-		14	+696									
				08	6	0200	0	389	34	100	27	0 J 4 6	000	,40/	1	0110	1	+094									
				S	TD D	0250	õ	393	348	12	27	67	000	454	0 1		14	17.74									
				08	s	0250	ō	393	348	20	27	67		,,,,,	· ·		14	704									
				S	TD	0300	0	392	348	34	27	69	000	0440	5 (	0155	14	+713									
				08	s	0300	0	392	348	143	27	69					14	+713									
				S	TD	0400	0	400	348	17	27	70	000	)442	1 1	0199	14	+733									
				08	S	0400	0	400	348	965	27	70					14	+733									
				51	TD	0500	0	391	348	7	27	71	000	)441	7 (	0244	14	+745									
				083	S	0500	0	391	348	865	27	71					14	+745									
				S	T D	0600	0	385	348	37	27	72	000	)440	6 (	0288	14	+760									
				089	5	0600	0	385	348	170	27	72			_		14	+760									
				S	TO .	0700	0	383	348	18	27	73	000	)443	7 (	0332	14	+775									
				003	5	0700	0	383	348	1/5	27	13					14	+775									
				2			0	383	348	<b>99</b>	21	74	000	)441	6 (	0376	14	+792									
				00:	5	0000	0	181	348	190	21	14					14	792									
				089		0900	0	282	345	0	21	75	000	)443	1 (	0420	14	809									
						1000	0	270	240	100	21	75	0.00			-	14	809									
				08	5	1000	ő	379	349	0.5	27	75	000	, , , ,	0 (	, , , ,	14	924									
				SI	TD D	1100	ŏ	368	349	ĩ	27	77	000	)435	3 (	0509	14	836									
				08	s	1100	Ō	368	349	10	27	77			- `		14	836									
				s	D	1200	Ō	357	349	2	27	79	000	423	0 0	0552	14	849									
				085	5	1200	0	357	349	20	27	79					14	849									
				51	rD	1300	0	346	349	3	27	80	000	414	0 0	0593	14	861									
				085	S	1300	0	346	349	25	27	80					14	861									
				S	D	1400	0	338	349	4	27	82	000	401	0 0	0634	14	874									
				085	5	1400	0	338	349	40	27	82					14	874									
				085	5	1420	0	337	349	43	27	83					14	877									

REFER	ID.	SHIP	LATITU	DE	LONGITUDE		SDEN	STATION (GMT	1AA E	YEAR		GINAT	DR'S	DEPTH	MAX DEPTH	ов	WAVE SERVATIC	INS	WEA- THER	CLOUD		1 1 2	ATION	
CODE	NO.	0000	•	1/10	* '1/10	= 10*	1.	MO DAY	HR,1/10		NO.	NU	ABER	80110	M S'MPL	S DIR	NGT PER	SE A	CODE	TYPE A M	T	r4	UMBER	
318	8001	εv	4955	SON	049280W	149		05 29	119 WIND	1966	0- A1P	9602 TEMP	°.	137. NO.	2/12	23	3 2	[	X4	0 4			0094	
							COLOR	TRANS DIR.	SPEED OR FORC	F (mb	ER DRY s) BUL	8 8	VET COD	DEPTH	5 OBSER	VATIONS								
							DT	SD 23	\$10	) 13	2 07	8 (	072 6	22										
		MESSENG	CAST	C ARD TYPE	DEPTH Imi	, .	r "C	s •	sig	MA-T	SPECIFIC V	OLUME	₹ △ C DYN A x 10 ³	SC VE	DUND LOCITY	0.2 mU	PO4- 20-0	- P 1771	TOTAL=P ug + ot/I	NO2+N ug+al.i	NO3+N vg • al l	SLO ₄ ⇔Sr µg + aL1	рН	N U C
		HK 1730			_	-		-					1				-							+
			•	ST	0000 0		)456	3456	2	740	0006	895	0000	) <u>1</u>	4686									
		11	9	085	0000		1470	34560	2	740	0006	896	000	7 1	4686									
					0010		1455	34560	2	740	0000	090	000	( î	4687									
				51	D 0020	, i	449	3455	2	740	0005	919	001	i i	4686									
		00	2	OBS	0020	Ċ	)449	34550	2	740				1	4686									
			-	ST	D 0030	(	)440	3454	2	740	0006	911	002	1	4684									
				OBS	0030	(	)440	34540	2	740				1	4684									
				ST	0 0050	(	0406	3463	2	751	0005	908	003	4 1	4674									
				0BS	0050	(	0406	34630	2	751				1	4674									
				ST	0 0075	(	0407	3469	2.	755	0005	491	004	8 1	4680									
				OBS	0075	(	0407	34690	2	755				1	4680									
				ST	0 0100	(	0406	3470	2	756	0005	430	006	1 1	4684									
				OBS	0100	(	1406	34700	2	156	0004	0.00	007	L 1	4684									
				0.86	0125		1973	24759	<u> </u>	102 742	0004	909	007	+ <u>1</u>	4002									
				005	0125		1202	3480	2	162	0004	505	00.8	<u>۱</u>	4688									
				085	0150	Ì	1101	34800	2	766	0004	,,,	000	i	4688									
				ST	D 0200	Ì	392	3482	2	767	0004	482	010	9 <b>1</b>	4696									
				OBS	0200	(	392	34820	2	767				1	4696									
				ST	0 0250		391	3483	2	768	0004	429	013	1 1	4704									
				OBS	0250	1	391	34832	2	768				1	4704									
				ST	D 0300	1	0391	3484	2	769	0004	454	015	31	4712									
				OBS	0300		0391	34835	2	769				1	4712									
				ST	D 0400		3390	3485	2	770	0004	403	019	8 1	4728									
				085	0400	1	0390	34853	2	770	0001	200	0.74		4728									
				51	0 0500		3387	3486	2	(/1	0004	198	024	2 1	4744									
				005	D 0500		1284	34003	2	772	0004	105	028	6 I	4750									
				085	0600		3384	34870	2	772	0004	171	020	1	4759									
				51	D 0700		0380	3488	2	773	0004	381	032	9 Ī	4774									
				OBS	0700		0860	34878	2	773				1	4774									
				ST	0 0800		0860	3490	2	774	0004	344	037	31	4791									
				OBS	0800		0380	34899	2	774				1	4791									
				ST	D 0900		0379	3490	2	775	0004	362	041	71	4807									
				OBS	0900		0379	3490	3 2	775				1	4807									
				ST	D 1000		0372	3491	2	777	0004	315	046	0 1	4821									
				085	1000		0372	34910	) Z	177	0001	241	050	1 2 1	4821									
				ST	0 1100		10101	3491	2	1 ( ( 7 <b>7 7</b>	0004	541	090	ע כ ו	4836									
				005	D 1200		0301	34910	, <u>2</u>	779	0004	213	054	6 I	4848									
				0.80	1200		0355	34910	2 2	779	0004	- 1 )	0.74	ĩ	4848									
				085	1250	1	0352	34920	2	779				ī	4855									

REFER	ENCE					a	MAR	OFN	STA.	LON T	IMF			ORIGIN	ATOR'S		DIATH	MAX.			V.F			CLOUR				l l
CTRY	ID.	SHIP	LATITU	DE	LONGITUDE	DC1	SQU	ARE		(GMT)		YEAR	CRUIS		TATION	_	TO	DEPTH	085	ERV	ATIONS	TH	ER	CODES		s	ATION	Ĺ
CODE	NO.	0001	•	1/10	1/10	ĭ≚	10°	1*	MO	OAY	1R,1/10		NO.		NUMBER		BOTTON	S'MPL'	S DIR.	HG	T PER 5	EA CO	DE	TYPE AMI		N	UMBER	
316	3001	EV	4940		0494004		14.0	00	0.6	20	127	104	(	0.6	0.3		1226		2.2	1			_		-			
511	001				0494004		147	<b>77</b> WA	TER	471	1.37 J	130		AIR TE	WP. "C	T (	1222	╘┼──┻┻	⊥ત્રવ	و ا	121	i X	2 '	0'4	1	1	0095	
								C01.08	TRANS		SPEED			ORY	WET	- vis.	OBS.	SPE	CIAL									
								CODE	(m)	Dir.	FORC	{ (m)	55)	BULB	BULS		DEPTHS	OBSERV	ATIONS									
							Í	DT	50	23	514	1	12	172	061	7	23	1										
		herence					T		1.00	14.5	1	·	<u> </u>				125	<u> </u>				1	Т					-
		TIME	UCAST	CARD TYPE	OEPTH I	lm)	T	°C	S	٠/.,	SIG	T-AM	SPECIFI ANO/	C VOLU AALY=X1	% [ð	YN. M	SO VEL		0 2 m1/1		PO4-P	TOTAL	- P	NO2+N	NO3-N	SI O4-SI	pн	à
		HR 1/10													_	X 103				ľ	9 . 01/1	28 - 01	~	2g = ai/i	Vg - 61/1	VG = 01/1		1
											[		1															
				ST	D 000	0	0	461	34	59	27	42	000	0672	3 0	000	) 14	689										
		13	7	OBS	000	0	0	461	34	590	27	42					14	689										
				ST	D 001	0	0	461	- 34	59	27	42	000	673	4 0	007	14	690										
				OBS	001	0	0	461	34	590	27	42					14	690										
				ST	D 002	0	0	461	34	59	27	42	000	)673	0 0	013	14	692										
		00	1	OBS	002	0	0	461	34	592	27	142				<b>.</b>	14	692										
				21	0 003	0	v v	401	24	60	21	42	000	1669	6 Q	020	) 14	694										
				005	D 005	0	0	401	34	298	21	42					14	694										
				085	005	ñ	0	415	34	69 460	21	191 161	000	1204	8 U	033	14	618										
				085	006	õ	0	406	34	659	21	153					14	676										
				51	D 007	5	Ő.	407	34	69	27	55	0.07	1540	1 0	047	14	610										
				OBS	007	5	ō	407	34	690	27	155	000	,,,,,		• • •	14	600										
				ST	D 010	0	0	407	34	71	27	57	000	537	3 0	0.60	14	684										
				OBS	010	0	ō	407	34	709	27	57	000		- <b>•</b>	• • • •	14	684										
				ST	D 012	5	0	405	34	74	27	60	000	515	1 0	074	14	688										
				OBS	012	5	0	405	34	739	27	60					14	688										
				ST	D 015	0	0	399	34	79	27	64	000	)474	6 0	086	14	690										
				OBS	015	0	0	399	34	788	27	64					14	690										
				OBS	017	0	0	383	34	790	27	66					14	687										
				ST	0 0200	0	0	390	34	83	27	68	000	440	2 0	109	14	695										
				OBS	020	0	0	390	34	828	27	68					14	695										
				OBS	0220	0	0	394	34	839	27	69					14	700										
				51	0 025	u a	0	400	34	84	21	68	000	447	1 0	131	14	708										
				082	025	0	0.	400	34	839	27	68			<b>.</b> .	1	14	708										
				080	0 0300	0	0	389	34	84	21	69	000	)443	3 0	153	14	711										
				005	0.000	0	0	207	24	957	21	09	0.00			100	14	711										
				085	040	0	0	392	34	852	27	70	000	1445	2 0	190	14	729										
				51	D 050	ñ	0	391	34	86	27	70	0.00	444	2 0	24.2	14	745										
				OBS	050	õ	0	391	34	859	27	71	000	,440	2 0	272	14	745										
				ST	D 0600	0	0	389	34	87	27	72	000	445	8 0	287	14	761										
				OBS	0600	0	0	389	34	869	27	72	•••		•		14	761										
				ST	D 0700	С	0	385	34	88	27	73	000	442	3 0	331	14	776										
				OBS	070	0	0	385	34	088	27	73					14	776										
				ST	D 0800	C	0	384	34	89	27	74	000	441	3 0	375	14	793										
				OBS	080	C	0	384	34	892	27	74					14	793										
				ST	0 0900	0	0	379	34	91	27	76	000	432	50	419	14	807										
				OBS	0900	0	0	379	34	908	27	76					14	807										
				ST	0 1000	Û	0	366	34	91	27	77	000	425	Z 0	462	14	819										
				OBS	1000	U O	0	366	34	909	27	77			_	<i>.</i> .	14	819										
				ST	U 1100	0	0:	354	34	92	27	79	000	410	5 0	504	14	831										
				OBS	1100	0	0	354	34	921	27	79					14	831										

REI CTR COD	TERENCE	SHIP CODE	LATITU	IOE 1	ONGITUDE	DRIFT INDCTR	MAR SQU	SDEN ARE	STATE IC	DN TI	ME R.1/10	YEAR	ORIGIN CRUISE NO.	ATOR'S STATION NUMBER		DEPTH TO BOTTO	MAX DEPTI OF S'MPL	H OBS	WAVE ERVATION	S THER	CLOUD CODES	T	S N	NODC TATION UMBER	
3	1800	1 EV	4939	5N (	050140w		150	90 WA	05 2	9	165 1 VINO	966		04 MP °C	- VIS.	0492 NO. OBS.	2 0 9		3 3	X 4	04			0096	
								CODE	Im1	DIR.	OR FORCE	(mbs)	BULS	BULS	000	DEPTH	SUCASEA								
								DT	SD	19	S22	08	1 056	056	5	17									
		MESSEN TIME HR 1/	GR CAST NO.	C ARD T (PE	DEPTH	lm 1	T	°C	s ·	·/	SIG M	A = T	SPECIFIC VOLL ANOMALY-X	ME 2 07 0	Δ D YN, M x 10 ³	- SC VEI	LOCITY	0.2 ml/l	PO_4=P µg = a1/	101AL-1 µg + 01/1	NÖ2=N µg = 01/1	NO3-N µg - 01/1	St O ₄ =Si yg + st/l	pН	SCO
		1	55	 	000	0	0	380 380	342	8	272	26	000824	8 C	000		4650 4650		1	1					1
		-		ST( 085	0 001	0	0	380 380	342 342	8 79	272	26	000825	6 0	000		4652								
		0	01	085 510	002	20	0	373	343 343 344	60 1	273	33 33 40	000758	8 C	023	1	4652 4638								
				OBS OBS	003	0 7	0	335	344 344 346	80	274	+0 47	000587	'n (	0.34	1	4638 4634 4645								
				OBS	005	0	0	339	345 346	2	279	51	000543	1 0	0050		4645								
				085 510 085	007 0 010 010	00	0	366 366	346 346 346	520 56 561	279	56 57 57	000532	:5 0	064	+ 1+	4653 4666 4666								
				STI OBS	012	25	0	362	346 346	59 588	276	50 50	000510	)5 ( )5 (	007		4669 4669 4478								
				085 STI	015	0	0	1373 1422	341 348	720 33	276	51 55	000472	21 0	)114	1	4678 4708								
				085 085 51	020 024 0.25	0 0 0	0	422	348 348 348	330 320 32	270	55 54 55	000474	.0 (	0131	1	4708 4717 4712								
				OBS OBS	025	5	0	407	348 348	320	270	56 59				1	4711								
				085 510 085	028 030 035	95 00	0	420	348 348 348	358 36 354	270	57 57 57	000459	9 (	16	1 1 1	4724 4731								
				STI	0 040	00 55	0	411	348 348	36 360	276	58 70	000460	00 0	20	1 1	4737 4742								

REFERENCE CTPY ID. CODE NO.	SHIP	LATITU	DE L	ONGITUDE	MARSDEN SQUARE	STATION T IGMT	TME YEAR	ORIGINA CRUISE ST. NO. NU	TOR'S A TION I MBEP	DEPTH TO BOTTOM	MAX. DEPTH OF S'MPL*	OBS S DIR	WAVE ERVATIONS	WEA- THER CODE	CLOUD CODES	T-	ST N	NODC IATION UMBER	
31800	1 EV	4930	ONO	50305W		05 29 TER 1 1RANS DIR.	185 1966 WIND BARD SPEED METE OR Imbs	AIR TEM		0326 NO. 085. EDEPTHS	03 SPE OBSERV	CIAL ATIONS	5 3	X 6	0 4			0097	
					DT	SD 19	522 05	1 056	056 5	15		. 1							
	MESSENG TIME HR 171	CAST	CARD Type	DEPTH Im)	т <b>*</b> с	s •4.	SIG M A -T	SPECIFIC VOLUM	ε ΣΔD ΟΥΝ.Μ x 10 ³	. <u>sou</u> velo	IND CITY	0 2 ml/1	PO4-P µg - at/l	101AL-P µg+01/I	NO2-N µg - 01/1	NO3-N µg + at. I	\$1.04—\$1 µg = ot/1	рH	S
			STO	0000	0290	3372	2689	0011697	0000	 ) 14a	604							I	
	18	5	OBS STD	0000	0290 0290	33715 3372	2689 2690	0011658	0012	14	604 606								
	0.0	1	OBS STC	0010	0290 0285 0285	33721 3379 33790	2690 2696 2696	0011100	0023	140 3 140 140	606 606 606								
		•	5TC 085	0030	0225	3403 34030	2720	0008809	0033	3 14 14	585 585								
			OBS OBS	0034 0040	0259 0260	34060 34050	2719 2718			14) 14)	601 602								
			OBS STC	0043	0238	34080 3412	2723	0008255	0050	14) ) 14)	594 596								
			STC	0050	0240	34120 3425 34245	2733	0007621	0070	) 14	570 618 618								
			510 085	0100	0324	3448	2747	0006328	0087	14	646 646								
			STO	0 0125 0130	0377 0382	3465 34670	2755 2756	0005538	0102	2 14	675 678								
			STC OBS	0150	0380 0380	3471 34705	2759 2759	0005177	0116	14	681 681								
			STD 085	0200	0400	3477 34765	2762	0004977	0141	14	698 698 705								
			OBS OBS	0250	0399 0392	34775 34820	2763	0004940	0100	14	706 711								

REFERENCE	SHIP	LATITU	DE		MARS	DEN ARE	STAT	ION GMT	TIME 1	YEAR		ORIGIN A	TOR'S	_	OEPTH TO BOLLOM	DEPTH OF	OBS	WA ER∨	VE	WEA THE	R C				NODC STATION	
CODE NO.			1/10	'1/10 =	10	1.	MO	DAY	HR.1/10		NO.	N1	JMBER			S'MPL"	S DIR.	HGI	PER S	EA COL	TYI	E AM				
318001	Ev	4924	Ν	05045 W	150	90 WA1		29	210	1966		960	16		0335	03	21	4	4	x	;	7 8			0098	ł
						COLOR	TRANS. (m.)	DIR	SPEE OR	D METE	D- R [ .) 8	DRY	W ET BULB	VIS. CODI	OBS. DEPTHS	SPE OBSERV	CIAL ATIONS									
					ſ			20	52	0 04	1 0	61	061	1	09											
	MESSENG TIME	ALCAST	C A T Y	DEPTH tml	т	°C	s	•/	sic	MA-T	SPECIFIC	VOLUN	E ND	△ D N. M 10 ³	SOL VELO	UND DCITY	0 2 ml/l	, P	°O4-P g = 01/I	TOTAL- yg - alv	P NC	02-N - 01/1	NÖ3-N 29 - 01/1	= 4 SI O4 9 - 9 V	Si pH	
																										1
			S	TD 0000	0	322	33	72	2	587	001	1918	0	000	14	618										
	21	0	08	s 0000	0	322	33	722	2 20	587					14	618										
			S	TD 0010	0	323	33	76	21	590	001	1623	0	012	14	621										
	21	0	08	s 0010	0	323	33	763	3 20	590					14	621										
			S	TD 0020	0	320	33	75	2	589	001	1701	. 0	023	3 14	621										
	21	0	OВ	S 0025	0	315	33	74	7 2	589					14	620										
			S	TD 0030	0	294	33	75	2	592	001	1484	+ 0	035	5 14	611										
			S	TD 0050	0	244	33	84	2	703	001	0404	• 0	057	7 14	594										
	21	0	08	S 0051	0	243	33	84	7 2	704					14	594										
			S	TD 0075	0	257	34	13	2	725	000	8330	) ()	080	) 14	608										
	21	0	08	S 0076	0	258	34	137	72	726					14	609										
			S	TD 0100	0	301	34	38	2	741	000	6836	0	099	9 14	635										
	21	0	OB	s 0102	0	304	34	39	7 2	742					14	636										
			S	TO 0125	0	339	34	50	2	747	000	6298	3 0	116	, 14	657										
			S	TO 0150	0	365	34	59	2	752	000	15892	2 0	131	. 14	673										
	21	0	08	S 0152	0	367	34	594	4 2	752					14	674										
			S	TD 0200	0	382	34	68	2	757	000	5430	) 0	159	14	690										
	21	0	OВ	s 0203	0	383	34	689	92	758					14	691										
			S	TD 0250	0	394	34	75	2	762	000	5075	0	186	5 14	704										
	21	0	- 08	S 0295	0	402	34	79:	5 2	764					14	715										

REFER	ENCE	SHIP	LATITU	36	LONGITUØE	SCIR SCIR	ARSDEN	STATIO (G)	N TIME AT}	YEAR	ORIGIN	ATOR'S	DEPTH	MAX DEPTH	OBZ	WAVE ERVATION	WEA	CLOUD			NODC	
CODE	NO.	CODE	•	1/10	1,10	8 Z 11	0* 1*	MO DA	Y HR.1/10		NO. N	NUMBER	BOTTOM	OF S"MPL"S	D IR.	HGTPER	EA CODE	TYPE AM	r	N	UMBER	
31	8001	Εv	4919	N	05054 W	1	50 90		226 WIND	1966	96 - AIR TE	07 wp. *c	0342 NO.	O 3 SPEC	20	6 3	Х5	7 8			0099	
							CODE	TRANS. [	IR. OR	CE (mbs	ER DRY BULB	BULB	DEPTHS	OSSERV	a tion s							
									20 51	8 03	4 056	056 1	08				,					
		MESSENG TIME H.R. 1/10	P CAST	C A TY	RD DEPTH	(m.)	1 °C	s •/		GMA-T	SPECIFIC VOLU ANOMAUY-X1	ME ≦∆0 07 OYN.7 x 103	SOL VELO	UND OCITY	02 ml/l	PO4-P 29 - 01/1	TÖTAL⇒P µg + al/l	NO ₂ -N yg - at/l	NO3-N yg + al/l	SIO ₄ —Si yg - ot /	рн	500
																						Τ
		22	6	5	10 000	0	0232	3324	+ 2	656	001480	2 000	0 14	573								
		~ ~ ~	0	 	TD 001	0	0229	332	2	657	001472	0 001	5 14	573								
				Š	TD 002	õ	0226	3326	2	658	001463	9 002	9 14	573								
		22	6	ОB	s 002	5	0224	3326	54 2	659	001.05	,	14	574								
				S	TD 003	0	0201	3331	2	669	001362	8 004	4 14	566								
				S	TD 005	0	0150	3371	2	699	001073	7 006	8 14	551								
		22	6	ОB	S 005	0	0150	3370	5 2	699			14	551								
				S	TO 007	5	0179	3395	5 2	717	000907	3 009	3 14	571								
		22	6	ОB	S 007	5	0179	3395	52 2	717			14	571								
				S	TD 010	0	0276	3423	3 2	731	000774	9 011	4 14	622								
		22	6	OB	5 010	0	0276	3329	9P 2	656P												
				5	10 012	>	0333	344:	5 2	142	000576	9 013	2 14	653								
			,	- 5	10 015	0	0365	345	2	750	000603	5 0141	8 14	673								
		22	D	00	5 015	0	0365	347	1 2	750	0.005 ( )	0.17	- 14	613								
		22	4		F T020	0	0353	3404	2 2	10/	000541	9 017	1 14	611								
		22	0	00	5 1020 TO 025	<u>~</u>	0353	2404	2	101	000400	0 020	14	6//								
				 	10 020	õ	0377	3479	. 2	744	000499	0 020.	2 14	705								
		22	6	08	S 1031	4	0386	3480	, <u>2</u>	766	000472	0 022	14	712								
		~~~	~	~~~		•		~~~~	/	1 1 1 1			1.77	1 1 2								

REFERENCE	SHIP CODE	LATITU	DE 1/10		MARSD SOUA	PE PE		N TIM ATE	E YEAR	CRUISI NO.	ORIGINA E ST	TOP" ATIO	S IN ER	DEPTH TO BOTTON	MAX. DEPTH OF S'MPL*		WA SERV	VE ATIONS	WEA THEP CODI	CLOU CODE	D S		NODC STATION NUMBER	
318001	EV	4914	ON	051060W	150	91 WAT	05 29	9 2 W1	37 1966 ND BAR SPEED MET OR INI	0- ER s)	960 AIR TEM DRY BULB) 8 P. *C WE BUL	T CODI	0348 NO. 085. DEPTHS	03 SPE OBSERV	CIAL CIAL	4	2	Х4	0	•		0100	1
						DT	SD 2	21	510 0	.1 0	056	0.5	0 5	12										
	MESSENGR TIME HR 1/10	CAST NO.	CAPD TYPE	DEPTH im!	т	°C	s •/	••	SIGMA-T	SPECIFI	IC VOLUA	Λ, E	₹ △ D DYN. M x 10 ³	SO VEL	UND OCITY	0.2 ml/l	1 4	PO 4-P	FOTAL→ µg • at/	NO2-1 µg + 01/	i NO3=Ν μg = α//	SI 04- 49 • 01	Si pH	0
															,									ļ
			ST	0000	02	250	3323	3	2654	00	1504	5	0000	14	580									
	23	1	085	D 0010	02	250	3323	30	2654	00	1504	,	0015	5 14	582									
			OBS	0010	02	250	3323	30	2654			-		14	582									
			ST	D 0020	02	249	3329	5	2656	00	1489	3	0030	14	583									
	00	4	OBS	0020	0 2	249	3325	50	2656					14	583									
			ST	D 0030	01	138	3328	8	2666	00	1389	5	0044	4 14	\$35									
			OBS	0030	01	138	332	78	2666					14	+536									
			ST	D 0050	00	062	3336	6	2677	00	1282	С	0071	1 14	+507									
			OBS	0050	00	062	3336	60	2677					14	\$507									
			ST	D 0075	00	095	3372	2	2704	00	1027	3	0100	5 14	+531									
			OBS	0075	00	095	337.	20	2704					14	+531									
			51	D 0100	01	145	3398	8	2721	00	0866	6	0124	4 14	+561									
			OBS	0100	01	145	339	75	2721				01/	. 14	4561									
			ST	D 0125	02	240	342	5	2136	00	0131	L	0144	4 14	+610									
			0BS	0125	02	240	342	50	2136	~ ~	o / 7)	,	01/	1.	+610									
			ST	D 0150	02	276	343	<u></u>	2143	00	0671	0	016.	1 1.	+0 32									
			OBS	0150	02	276	343	71	2143	0.0	0.5 / 0		010	2 1	46 32									
			ST	0 0200	01	324	345	1	2194	00	0203	ø	0191	2 1	+002									
			OBS	0200	0	324	345	70	2154			2	0.3.14	0 1	+603									
			ST	0 0250	0	351	347	U .	2162	00	0498	د	ULI	A 1.	+0000									
			OBS	0250	03	351	347	04	2762					1.	4682									
			085	0283	03	374	347	85	2766					14	4701									

PE	FERENCE	5				_≝ MA	SDEN	STATION	TIME			OPIGIN	ATOR'S		DEPTH	MAX.		WAVE	WEA	CLOUE	2		VODC	
CT CO	RY ID.	CODE	LATITUDE	LO	NGITUDE	20 SO	JARE	16.0	1)	YEAR	CPUIS	s s	TATION		BOTTON	A OF	00	JUCTIONS	CODE	TYPE	<u>,</u>	Ň	UMBER	
-			1/	10	1/10	10-	1-	MO DAY	HR, 171			0	• •			3 MITL.	010	1. 2		1000				
4	18001	EV	490651	1 05	01160W	150	141	05 30	1015	1966	·	96	09		0326	03	21	[4 2	X4	0 4			0101	
							W A	JER -	WIND GE	BAR	0-	AIR TER	MF. C	- vis	NO.	SPE	CIAL							
							COLOR	TRANS D	.R. 0	P INET	5R 5)	DRY BULB	BULB	CODI	DEPTHS	OBSERV	ATIONS							
							DT	SD 2	0 51	0 0	37 ()56	050	6	21									
			r 1			1	_	+							1 10						NO N	0.0 0		
		TIME	LCAST 1	CARD TYPE	DEPTH (n)	1 °C	s •/.	• S1	GMA-T	ANOA	AALT-11	7 D	YN, M	VEL	OCITY	02 ml/	1 90 4- P	+g - o1/l	µg = 01/1	yg - at/l	siO4⇔si yg = al/l	pН	0
		HP 1/10							_		<u>+</u>				-				-		1			+
				C T D	1 0000		224.0	3309		642	00.	1615	<u> </u>	000	14	1678			!	1	1	1	1	1
		0.1.5		SID	0000		7247	3308	3 2	642	00	1017	0 0	000	14	4578								
		01.	, (STD	0010	, ,	1245	3309	2	643	00	1607	0 0	016	, i	+578								
			0	085	0010		0245	3309	0 2	643					14	+578								
		001	ı d	BS	0015	5	0243	3307	9 2	642					14	+578								
				STD	0020	י כ	0195	3313	2	650	00	1540	2 0	032	2 14	+558								
			(DBS	0020	י כ	0195	3313	0 2	650					14	+558								
				STD	0030	י כ	0115	3326	2	666	00	1392	7 0	047	7 14	+526								
			(DBS	0030)	0115	3325	5 2	666					14	+526								
			(DBS	0031	3	0128	3326	5 2	666					14	4532								
			(282	0040		0062	3326	1 2	670	~ ~	1200	, ,		2 1/	+504								
			,	510	0050		0036	3332	0 7	675	00	1200	1 0	10 73	1	4494								
				785	0050		0030	3334	0 2	679					14	4482								
					005	7	0030	3336	0 2	679					14	4493								
				DBS	0060		0000	3337	0 2	681					14	4480								
			Ċ	DBS	0064		0071	3338	2 2	685					14	4448								
				STD	0075	5 -	0036	3355	2	697	00	1089	2 0	103	3 14	4469								
			(08S	0075	5 -	0036	3354	9 2	697					14	4469								
			(OBS	008	2	0015	3352	6 2	693					14	4493								
			(OBS	009	2 -	0014	3356	0 2	2697					14	4482								
				STD	0100	2	0016	3365	2	2703	00	1034	6 0	1130) 14	4498								
			(OBS	0100	5	0016	3365	2 2	2703					14	4498								
				STD	012	5	0126	3396	2	2721	00	0865	6 (1154	4 14	4556								
			(OBS	012	2	0126	3396	0 2	.721					14	4000								
				STD	0150	2	0210	3419	2	1734	000	0753	5 (0174	+ 14	4601								
				STD	0150	, o	0292	3447		749	00	0613	0 0	208	s 12	4648								
				OBS	020	D	0292	344	2 2	749					1.	4648								
				STD	025	С	0338	3466	2	2760	00	0520	1 0	236	5 14	4679								
				OBS	025	υ	0338	3465	8 2	2760					1	4679								
			(OBS	029	D	0378	3479	0 2	2766					1	4704								

REFER	ID.	SHIP CODE	LATITU	DE	LONGITUDE	DRIFT VDCTR	MARS	DEN ARE	STAT	ION IGMTI	TIME	YEAR	0	O	RIGINAT	OR'S	_	DEPTH	DEPT	н ов	W. Serv	A VE	45	WEA- THER	CLC CC	DUD			NODC	
	NO.			1/10	1/10	=	10.	3	MO	DAY	HR.1/10			NO,	NU	MBER		BOILOW	S'MPL	S DIR	HG	T PER	\$ E A	CODE	TYPE	A M T			NUMBER	
31	8001	Eν	4856	0 N	051420W	1	150	81	05	30	045	196	6		961	C		0326	03	3 31	3	2		X4	x	9			0102	
							Ļ	WA	TER		WIND	BA	RO-	AI	RTEMP	°C		NO.		CIAL	1									·
								COLOR	TRANS. Im1	DIR.	SPEEL OR FORC	D ME (m	ETER 1651	D7 BU	RY LB B	W ET ULB	COD	OBS. DEPTHS	OBSER	VATIONS										
										30	S15	5 0	51	. 04	+4	033	6	09	t —		1									
		MESSENGR TIME H.R. 1/10	CAST NO.	C AR TYP	D DEPTH I	m 1	т	Ċ	s	•4.	SIG	MA-T	1	SPECIFIC	VOLUME	₹ DY X	△ D N. M 10 ³	SO VEL	UND OCITY	0.2 ml/	1	PO4-1	n 1	OTAL-P 49 - 01/i	NO2 19-1	-N 01/1	NO3-N µg - ot/i	_40 SIO4 با g - ot	Si /1 рН	\$10 ¢
													-							_	1					-+				+
				S	TD 000	C	0.	245	33	09	20	543		0016	074	00	000	14	576		,		1	1		1	1		1	
		049	5	083	5 000	С	0.	245	33	089	26	543						14	576											
		049	5	08	5 000	9	0;	246	33	108	26	544						14	578											
				5	TD 0014	С	0	246	33	11	26	545		0015	925	00	016	14	579											
				S	TD 002	С	0.	244	33	14	26	547		0015	683	00	32	14	580											
		049	5	089	5 002.	2	0	243	33	147	26	548						14	580											
				S	rD 0030	0	01	180	33	19	26	556		0014	844	00)47	14	554											
		04	5	089	5 0044	4	01	101	33	261	26	67						14	522											
				5	10 0050	5	00	386	33	28	26	69		0013	576	00	75	14	517											
		04	~	085	5 006	5	00	061	- 33	352	26	577						14	509											
				51	0 007	2	00	045	33	41	26	82		0012	344	01	108	14	504											
		04	>	089	5 008	3	00) 39	33	509	26	91						14	505											
				S	010		00) /6	33	52	26	97		0010	920	0	37	14	525											
				51	012	2	01	44	33	55	27	11		0009	0612	01	63	14	563											
		04	2	083	5 1013	2	01	161	33	905	27	15						14	572											
		0		51	0150)	01	195	341	5	27	24		0008	477	01	85	14	592											
		045	>	OBS	5 f0174	5	02	243	34.	260	27	37						14	621											
				5	0200	2	02		34	+0	27	45		0006	537	02	223	14	641											
		045	5	085	5 T0259	, 9	03	350	34	54 569	27	158 160		0005	355	02	253	14	679											
																		• •	000											

PEF	ID.	SHIP CODE	LATITUDE	LONGITUDE	DRIFT NDC1R	M ARSI SOU A	DEN ARE	STA	IGM1	TIME	YEAR	CRUISE	DRIGINATOR'S STATION	DEPTH TO BOILOM	MAX. DEPTH OF	OBS	W A	VE	WEA- THER	CLO CO	DES	NODC STATION
31	8001	Εv	48455N	052070W		150	82	мо 05	30	HR.1/10	1966	NO,	9611	0293	5'MPL'S	D18 32	н GT 4	4	X4	TYPE 7	8	0103
							W A COLOR CODE	TER TRAN tml	S. Dir	WIND SPEE	BARC METE)	AIR TEMP. "C VI DRY WET CO ULB BULB	NO. DE OBS. DEPTHS	SPEC OBSERVA	IAL TION S						

2-N NO3-N SIO4-Si ol/I µg - ol/I µg - ol/I pH C
2

REFERENCE			IDE		CTR C	MARS	DEN	STAT	ION 1	IME	YEAR	C	RIGINAT	DR*5		DEPTH	MAX. DEPTH	085	WAVE	W EA-	CLOUD		, ST	NODE
CODE NO.	CODE	•	1/10	1/1	0 NO	10*	1*	MO	DAY	(R.1/10		NO,	NU	MBER		BOTTOM	S"MPL	S DIP	HGT PER S	CODE	TYPE AM		N	UMBER
31800	1 EV	4835	ON	052450	V	150	82	05	30	103	1966		961	2		0113	01	32	3 2	× 2	7 8			0104
							W A 1	ER		WIND	BARC). A	IR TEMP	°C	. VIS	NO.	598	CIAL						
							COLOR	TRANS Im]	DIR.	SPEED OR FORCE	M ETE (mbs	Я С) ВІ	ULB E	V ET U L B	COD	DEPTHS	OBSERY	A TION S						
								-	34	515	12	2 0	56)44	7	06								
	MESSENG TIME H.R. 1/10	CAST NO.	C A R TYP	D DEPTH	(m)	т	°C	s	•4.	SIGA	AA-T	SPECIFIC	VOLUME	₹ DY X	△ D N. M 10 ³	SOI VELI	UND DCITY	02 m1/1	PO4-P 29 + 01/1	TOTAL-P µg = ol/l	NO ₂ =N µg + 01/1	NO3-N vg - et/l	51 O 4 - 51 21 O 4 - 51	рH
			S	TD 00	00	0	322	32	01	25	50	002	4667	0	000) 14	595							
	10	3	OВ	5 00	00	0	322	32	008	25	50					14	595							
			5	TD 00	10	С	017	32	73	26	29	001	7426	0	021	. 14	471							
	10	3	08	5 00	10	0	017	32	727	26	29					14	471							
			5	TD 00	20	~0	022	32	80	26	36	001	6693	0	038	5 14	456							
	10	3	ОВ	5 00	25	-0	035	32	826	26	39			~		. 14	451							
			5	TD 00	30	-0	036	32	85	26	41	001	6250	0	055	14	451							
	10	3	OB	5 00	49	-0	040	32	896	26	45	0.01	6921	~	<u> </u>	14	495							
	10	2	5	LD 00	50 7 7	-0	043	32	90	25	40	001	2031	0	08	14	432							
	10	د	OB.	5 00	12	-0	104	34	311	20	40	0.0.1	5401	0	124	14	4.20							
	10	3	0B	5 00	96	-0	120	32	936	20	51	001	5491	0	120	14	424							

REFER	ENCE					L at	MAR	DEN	ST.A	TION	TIME	1			ORIGIN	ATOR	's	DEPT	н ,	MAX		WA	V٤		WEA.	CLOI	au			NODC	
CTRY	ID.	CODE	LATITU	DE	LONGITUDE	0 SEF	squ	ARE		IG M	n	Y	EAR	CRUISE	5	TATIO	DN N	TO		OF	01	SERV	ATION	s	THER	COD	EŞ			NUMBER	
CODE	N 0.	0000		1/10	171	0 =	10.	1.	MO	DAY	H9,1/1(NO.	h -	U M B	IER	00110	S	5"MPL*5	DIR	HGT	PER	\$EA		TYPE #	MT				
31	8001	Εv	4839	ON	052240	4	150	82	05	30	124	1	966		96	13		024	7	02	34	3	2		X 2	3	8			0105	
								WA	TER	1	WIND		84.90		AIR TEA	M.P. "0	2	NÔ.		Cato	1.41]									
								COLOR	TRA N (m)	S. DI	SPE DI FOR	ED L	M ETE	R E	DRY ULB	9 U 1	T COD	DEPTI	Hs O	BSERV	A TION S										
									-	3	1 50	8	13	9 0)44	0	39 6	08													
		MESSENG TIME HR 1/10	CAST	C A R TYP	D DEPTH	(m)	т	°C		s +4.	SI	GМ	A. = T	SPECIFI	C VOLU	ме 0`	₹ △ D DYN. M x 10 ³	v	ELOC	D SITY	0 2 ml,	ء ا ^ر لا	°O ₄− P 9 + 01/1	то "	g = 01/1	NO2- 29 - 61	N /	NO3-N 49 - 01 1	SI D4 - yg - 61	\$1 pH	500
				5	TD 00	00	0	218	3.	259	2	60	5	001	965	6	0000	1	45	58		I		1	1						
		12	4	OB:	5 00	00	0	218	3.	259	0 2	60	5					1	45	58											
				5	TD 00	10	0	148	3.	260	2	61	1	001	911	0	0019	1	.45	28											
				S	TD 00	20	0	073	3.	264	2	61	9	001	839	8	0038	1	.44	97											
		12	4	OB.	5 00	20	0	073	37	263	6 Z	61	9			_		1	.44	97											
				5	TD 00	30	-0	017	3.	270	2	62	8	001	747	5	0056	, 1	. 44	58											
		12	4	0B	5 00	36	-0	058	3.	273	92	63	3					1	44	41											
				5	TD 00	50	-0	065	3.	279	2	63	7	001	658	8	0090) 1	44	40											
				S	TD 00	75	-0	078	3.	289	2	64	6	001	576	5	0131	. 1	44	40											
		12	4	ОB	5 00	76	-0	078	3.	289	5 2	64	6						44	40											
				5	TD 01	00	-0	081	3.	295	2	65	1	001	528	0	0169) I	44	43											
				5	TD 01	25	-0	084	3	309	2	66	2	00	1418	5	0206		44	48											
		12	4	OВ	5 01	32	- 0	085	3	314	92	66	7				_	1	44	50											
				S	TD 01	50	0	000	3	332	2	67	7	00	1278	3	0240) 1	44	94											
		12	4	ОB	5 TO1	52	0	007	3	334	0 Z	67	9					1	44	-98											
		12	4	ΟВ	5 01	83	0	051	3	357	0 2	69	5					1	45	27											
				5	TD 02	00	0	097	3	375	2	70	7	00	1006	7	029		145	53											
		12	4	OB	5 TO2	28	0	206	3	412	52	72	9					1	46	11											

REFE CTRY	RENCE	SHIP	LATITU	DE	LONGITUDE	DRIFT 4 DC FR	MARS SQU	ARE	SIA	TION IG M T	TIME)	YEA	R	ORIGI CRUISE	NATOR [®]	S N	0	0EPTH 10	MAX. DEPTH	OBS	WA EPV	VE A TIONS		WEA- THER	CLOUD			NDDC	
CODE	NO,		•	1/10	1/10	~ <u>-</u>	10°	1.	MO	DAY	HR,3/10	1		NO.	NUM8	ER	80	MOTTO	S'MPL"	DIR.	HGT	PER S	EA	CODE	TYPE AMT			NUMBER	
31	8001	Εv	5144	ON	054490W		186	14	05	31	086	196	66	90	514		0	182	02	21	0	2		X 1	0 4			0106	
								WA	TER		WIND	В	ARO	A IR TI	MP. *C		1	ND.	103								,		
								COLOR CDDE	TRAN (m)	DIR	SPEE OF	D M	terer (mbs)	DRY BULB	W E BUL	T CO		OBS. EPTHS	OBSERV	ATIONS									
								DT	sc	20	50	6	139	9 033	02	2 7		11											
		MESSENG TIME H.R. 1/11	CAST NO.	C AT TY	PD DEPTH	(m.)	Ţ	*c	5	•4.	SI	SMA-1	т	SPECIFIC VOL	U M E 10 ⁷	₹ △ I DYN. x 10	р. м.	SOU VELO	ND CITY	02 m1/1	P × (04-P 1 - 01/ł	TO پر	TA L - P 2 - 01/1	NO ₂ —N µg = a1/1	NO3-N µg - at/l	51 O 4 - 49 - 61	51 / pH	
															1						t		Í		-				+
				S	TD 000	0	-0	053	32	22	2	591		00210	32	000	ο່	144	30						1			l.	
		08	6	08	s 000	0	-0	053	32	219	2	591						144	30										
				5	TD 001	0	-0	057	32	23	2	591		002096	6	002	1	144	30										
		~ ~		08	S 001	0	-0	057	- 32	225	2	591						144	• 30										
		00	1	08	5 001	2	-0	125	32	560) 2	621						144	403										
				5	10 002	0	-0	101	32	60	2	623		001798	31	004	0	144	+16										
				08	S 002	0	-0	101	32	595	, 2	623					_	144	+16										
					10 003	Š.	-0	131	22	11	2	633		001646	91	005	8	144	02										
				00	5 005 TD 005	õ	-0	102	22	110	2	633		00164			~	144	+02										
				08	F 005	0	-0	102	22	94	2	649		001544	5 (009	0	144	+20										
				600	5 007	š	-0	0.05	22	920	, <u>2</u>	049		00129	-	012	-	144	425										
				08	S 007	5	-0	005	22	10	2	660		001304	• /	012	(144	+ 78										
				ँद	TO 010	ó	_0	032	33	28	2	677		001330	10	016	1	144	+ / 0										
				08	5 010	õ	Ő	032	33	274	2	672		001000		010	1	149	500										
				ŝ	TO 012	5	-0	014	33	49	2	692		001143	7	019	2	142	86										
				OB	5 012	5	-0	014	33	490	2	692					-	144	86										
				s	TO 015	0	0	022	33	72	2	708		000985	52	021	8	149	510										
				08	s 015	0	0	022	33	720	2	708					-	149	510										
				08	S 017	0	0	038	33	830	2	716						149	522										

REFERENCE CTRY ID. CODE NO.	SHIP CODE	LATITUD	DE L	ONGITUDE 1/10		RSDEN UARE	STA MO	ION T (GM1) DAY H	R.1/10	YEAR	D CPUISE NO.	RIGINA ST/ NU	OR'S TION MBER		DEPTH TO BOTTON	MAX DEPTH OF S'MPL	OBS S DIR.	WAVE ERVATIO	2NC	WEA- THEP CODE	CLDUC CODE	D S 11		NODC TATION UMBER	
318001	εv	51530	DN 0	54210W	18	6 14	05	31	107 1	966		961	5		0238	02	21	0 2		x 1	0 /			0107	
					110	WA	TER		VIND	Tara		IR TEMI	°C	1 m 1	NO	1.02		012	(1 1 1	1 0 9	• •		0107	
						COLOR	TRANS (m)	DIR	SPEED OR FOPCE	METE	R D 3 8U	RY JLB	WE7 BULB	CODE	OBS. DEPTHS	OBSERV	CIAL ATIONS								
						DT	SD	20	505	14	6 0	50	033	8	19										
	MESSENGE TIME H.R. 1/10	CAST OF NO.	CARD TYPE	DEPTH In	nl	t °C	s	÷	SIGM	A - T	SPECIFIC	VOLUM	Х DY х	△ D N. M 10 ³	. SO VEL	UND OCITY	0:2 mi/i	PO 4-	- P 51/1	TOTAL=P pg + of/l	NO2—N µg - at/1	NO3-N µg = a1/1	SI O ₄ =5 99 - 017	pН	200
	10	 7	STC OBS	0000		0063 0063	32	83 830	263	85 85	001	6869	00	000	14	492 492							1		I
			STD	0010)	0052	32	86	263	37	0010	6620	0	017	14	489									
			OBS	0010)	0052	32	855	263	37					14	489									
			STO	0020)	0025	32	97	264	+7	001	5644	00	033	14	479									
	00	4	085	0020	2	0025	32	965	264	+7			~	· · ·	14	479									
				0030		0060	33	210	261	11	001.	3402	01	047	14	445									
			085	0030		8400	23	210	267	70					14	445									
			OBS	0034	• -	0005	33	330	267	78					14	478									
			085	0042	2 -	0012	33	370	268	32					14	472									
			085	0043	3	0000	33	370	268	81					14	477									
			STO	0050	5	0001	33	40	268	34	0012	2203	0	073	14	479									
			OBS	0050)	0001	33	400	268	34					14	479									
			OBS	0062	2	0015	33	445	268	37					14	488									
			085	006	7 -	0024	33	550	269	7					14	473									
			STC	0075	5	0019	33	62	270)1	0010	0609	0	102	14	495									
			085	0075	5	0019	33	620	270	01					14	495									
			085	0082	2	0041	33	620	269	99					14	506									
			085	0088	3 -	0010	33	735	271	1					14	485									
			085	0090)	0030	33	760	271	11					14	504									
			STC	0100	0	0062	33	85	271	6	0009	9128	0	126	14	522									
			OBS	0100)	0062	33	845	271	6					14	522									
			STO	0125	2	0165	34	18	273	86	000	7300	0	147	14	576									
			OBS	0125	2	0165	34	175	273	36					14	576									
			STO	0150	J	0211	34	33	274	+5	0000	6486	0	164	14	603									
			085	0150		0211	34	330 51	274	•5	0.000	- 7 0 •	<u> </u>	1.05	14	603									
			084	0200	י ר	0285	34	510	275	2	000	5781	0.	195	14	646									
			503	0200	-	5205		~ 10	2/0							040									

*

REFERENCE CTRY 1D, CODE NO.	SHIP CODE	LATITU	DE 1/10	LONGITU	DE 1/10	DRIFT INDC12	M A R SOU	DEN ARE	st MO	ATION T	TME 18,1/10	YEA	* C	ORIĜI CRUISE NO.	STATIO NUMBE	N P	DE BOT	PTH to tom	MAX. DEPTH OF S"MPL'S	O85	WAV ERVA	VE TIONS PEP SE	WEA THEF COD	- CI C E TYP	OUD ODES			NOOC STATION NUMBER	
31800	1 EV	5200	ON	05357	οw		186	23	05	31	130	190	56	91	516		03	49	03	22	2	2	xc		4	1		0108	
1 91000	1 C V	1200	0.14	0,000,0	0 11		100	WA	TER	11-1	WIND		480.	AIRT	MP. C		N	10.											
								COLOR CODE	1 R.A jn	NS DIR.	SPEED OR FORC		ETER	ORY BULB	W 83 8 U L	COD B	DEF	PTHS	OBSERV	ATIONS									
								DT	S	D 19	509	9	146	061	04	4 7	1	8				_		-,		_			
	MESSENG TIME HR 1/1	CAST NO.	C ARI TYPE		ртн	(m 1	T	°C		s •:	sig	6MA-	t i	SPECIFIC VOL ANOMALY=	UME 110 ⁷	₹ △ D DYN. № x 10 ³		SOU VELO	IN D CITY	0 2 ml/l	PC 22	04-P	101AL- 29 * 01/	P NO	- ot/1	NQ3~N µg + atri	SID4-5 µg - ol	p ⊨	SCC
	13	0	ST	D G	000	0	0	140	3	336	20	672 672		00133	20	0000		$149 \\ 149$	533 533					ļ					
	1.5		51 085	rD (001	0	C	142		340	21	675 675		00130	31	0013	3	14 14	537 537										
	00	1	ST	rd (5 (002	0 0	C C	141 141	3	343 3425	2	678 678		00127	98	0026	5	$\frac{14}{14}$	538 538										
			085 S1	5 (10 () 0 2) 0 3	5	C	114	191 091	3495 351	2	685 685		00121	0 2	003	9	14	528 537										
			089 089	5 1	003	0	0	133		3510 3560	2	685 690		00111	, ,	007	2	14	537 532										
			085	10 I S I T D)05)05	0		095	1	3361 3605 386	2	695 695 717		00090	40 53	008	2	14	525 521										
			089	S I)07)07	5	0	070		33861 94112	2	717 733		00070		000		14	521 558										
			ST OBS	TD I S I		0	0)167)167		3416 34160	2	735 735		00074	20	010	8	14 14	573 573										
			S 089	TD I S	012 012	5	()215)215		3434 34335	2	745		00064	68	012	5	14	601 601										
			083	TD S		0	(281		3454 34538	2	756		00055	02	014	0	14	636										
			OB: S	S T D	01; 020	0	(300		9455: 3464 9463	2	760		00051	62	016	7	14	663										
			08:	S S T D	020	25	()351)352		34689 3469	2 5 2 2	761		00051	36	019	2	14	681										
			08: S	s TD	025	50	1)352)355		34689 3470	5 2 2	761 762		00050	95	021	8	14 14	685 695										
			OB: OB:	S S	030	25	1)355)356		3470(3471)	2 2 2 2	762 762						14 14	695										

REFER	ID.	SHIP	LA TITUC	DE	LONGITUDE	MAR Jonesou	SDÊN ARÊ	577	ATION (GM	TI M TI	£	YÉAR	CPUISE	ORIGIN	ATOR	'S DN	DEPTI TO BOTTO	н M	MAX. DEPTH OF	08	W A SERV	A TION!	5	WEA- THER CODE	CLO COD	J D DES			NODC STATION NUMBER	
CODE	NO.	0001	•	1/10	'1/10	4 10°	1.	MO	DAY	HR.	1/10		NO.		NUMB	1.1	2 . 2	1	S MPL S	Dik.	185	7		× 1		1		1	01.05	1
31	8001	Ēν	52070	DN	053380W	186	23	05	31	14	+1 1	966	I.,	96	17		042	<u>u</u> 1.	02	21	14	<	1	× 1	U U	4		-	010,	1
							WA	TEP		WI	NO	BARC	»-	AIR TE/	MP C		NO.	1	SPEC	LAL.										
							COLOR	TRAN Inv	1 ⁵ 01	IR.	OR FORCE	M ETE (mbs	R } E	ORY BULB	8U1	B CODI	DEPTH	HS C	OBSERV	A TION S										
							DT	\$	D 2	3	S06	15	2 0	72	0	56 7	11				l,		-			-				-
		MESSENGA TIME	CAST NO.	CAR	D DEPTH Im	, 1	•c		s +.		\$IG M	A →Ť	SPECIES	C VOLU	0 7	∑ ∆ D DYN. M x 10 ³	S VI		ND CITY	02 ml/	a ,	PO4=P	т (, ,	0141-9 29 - 01 1	NO2- 29 - 0	N 171	NO3-N Pg - pt I	SI Ο.4 μg - αι	рн I	0
				s	TD 0000	9	0180	3	339		26	72	00	1332	0	0000	1	45	552 552				and a							I
		14	1	08	S 0000		1180	د د	347		26	73	00	1319	6	0013	, ī	45	558											
				~ ~ ~	0010		100	2	341	5	26	73					1	45	558											
				05	5 0010		140	3	341		26	75	0.0	1301	4	0026	. 1	45	546											
					10 0020		160		341	้า	26	75	•••				1	45	546											
				08	S 0020 ≭D 0020		146	3	341		26	79	0.0	1271	1	0039	ə 1	40	542											
				S	TD 0030		1140	2	344		20	70	00		•		1	40	542											
				08	5 0030		1141	2	341		260	96	00	1103	37	00.63	3 1	40	520											
							0000	3	361		26	06	00				1	49	520											
				08	5 0050		2103	2	374		27	05	00	1018	36	0090	5 I	4	535											
				5	10 0075		2103	2	272		27	05	00			•	้า	44	535											
				0B	5 0075		1105	2	1201	10	27	27	0.0	0816	58	0112	> 1	44	546											
								3	1401 1401	0	27	27	••				3	149	546											
				08	5 0100		1227	3	437	2	27	44	0.0	0660	2	013	1 1	146	606											
				00	0123		1227		4433	30	27	44	••				1	146	606											
				08	S 0123		1280	3		20	27	48	00	0620	9	014	7 1	146	635											
					10 0150	<u></u>	0200	3		a	27	40	••				1	146	635											
				Q E			0200	2	3460	, ,	27	56	00	0544	97	017	5 I	148	667											
				0.0	10 0200	<u>.</u>	0230	2	3460	กัล	27	56		•			1	14	667											
				08	05 U2UU		0251	3	146	7	27	59	0.0	0524	53	020	з :	14	685											
				OE	S 0250)	0351		3466	, 58	27	59	50					14	685											

CTRY ID. CODE NO.	SHIP CODE	LATITUDE	10 LDM		2 NAR SQL 2 10*	SDEN JARE	STA MD	TIDN (GMT DAY	TIME	YEAR	CRUISE ND.	STA NU	DR"S TID N MBER	DEPT TO BOTTO		AX, TH F	DBS	WAV ERVA	TIDNS	WEA- THER CODE	CLOL	D ES		NDDC STATION NUMBER
31800	1 EV	520701	05	3380W	186	23	05	31	158	1966		961	7	042	0 0	13	21	2	2	×1	4	1	-	0110
						CDLDR CDDE	TER TRANS	^{5.} Dir	WIND SPEE OR FORC	D METE	D- IR I) E	AIR TEMP. DRY V IULB B	VET CO	S. DBS	HS DBSE	PECIA RVA TI	il ION S							0110
	MESSENG	PLCAST	CARD TYPE	DEPTH Imj	T	'c	5	23	3 50	6 15	2 C		56 7	04	IOUND	0	2 ml/i	PC	4-P	TOTAL-P	NO2-1	ND3-N	51.04-	-S:
	HR 1/1	8 0	BS	10135		278	34	376		743	-		x 10-		4430			94	- 01/1	g • ol∕l	9 - 0l	yg = ot/l	hð - 0	
	15	8 0	STD BS	0150	0	320	34	45	2	747	000	6280		1	4630 4641 4658									
	15	8 C	STD	0250	0	367	34 34 34	61 70 714	2	756 760 761	000	5521		1	4670 4692 4696									
	15	8 C	STD BS	0300 0348	0	372 372	34 34	72 735	2	762 763	000	5095		1 1	4702 4710	1								
REFERENCE CTRY ID, CODE NO.	SHIP	LATITUDE	LDN		SOU	SDEN ARE	STAT	ION I IGMTI	TIME	YEAR		DRIGINATO STAT	IDN	DEPTI TD BDTTD	H DEPT	X. TH	OBSE	WAV RVA	e IIDNS	WEA- THER	CLDU CDD	D		NDDC STATION
31800	1 EV	5211 N	05	325 W	186	23	05	31	170	1966		9618	10 10 10 10 10 10 10 10 10 10 10 10 10 1	039	3 0	3	21	н GT Р 1 (ER SE	×0	TYPE A)		0111
						COLOR	TRANS	DIR.	SPEED	BARD METE		SPY W	ET COD	DEPTH	OBSER	PECIAL RVATIO	L DNS							

		_							
WA1	ER	V	IND	BARD	AIR TE	M.P. °C	1	ND	
COLOR	TRANS Im1	DIR.	SPEED OR	METER	DRY	WET	CODI	D85,	SPECIAL OBSERVATION

		CODE	[m]		FORCE	{mbs)	8018	61	LB		DEPTHS				
				16	S05	14	6	067	0	50	8	08				
DEPTH (m)	τ	*C	s	•:.	SIGMA	-т	SPE(CIFIC VOLU	ме 07	₹ DYI	△ D N. M.	SDI VELI	UND	02 ml/l	PD 4-P	10

				10		40 001 0		001							
MESSENGE CAST TIML OF NO. HR 1/10	C ARD TYPE	OEPTH (m)	т °с	s •:,	SIG MA -T	SPECIFIC VOLUME ANOMALY	ΣΔD DYN. M. × 10 ³	SDUND VELDCITY	02 ml/l	PD4-P 02 - 01/1	TOTAL=P µg = u1/1	NO2-N Pg - 01/1	ND3-N µg = at/1	51 D.4 51 µg - ot/1	pН
	STD	0000	0219	3323	2656	0014826	60000	14567		ļ					
170	OBS	0000	0219	33228	2656			14567							
	STD	0010	0196	3326	2660	0014421	0015	14559							
170	OBS	0015	0183	33266	2662			14554							
	STD	0020	0159	3327	2664	0014100	0029	14544							
	STD	0030	0125	3328	2667	0013837	0043	14531							
170	OBS	0037	0112	33279	2668		0049	14526							
	STO	0050	0128	3341	2677	0012832	0070	14537							
170	OBS	0060	0131	33485	2683			14541							
	STO	0075	0112	3354	2689	0011746	0100	14536							
170	OBS	0083	0109	33591	2693			14537							
	STD	0100	0135	3383	2710	0009698	0127	14554							
	STD	0125	0184	3412	2730	0007855	0149	14584							
170	OBS	10129	0193	34161	2733		• - · ·	14589							
	STD	0150	0256	3432	2740	0006929	0167	14623							
170	085	0176	0320	34485	2748		0107	14457							
	SID	0200	0328	3452	2750	0006081	0400	14665							
	STD	0250	0345	3460	2755	0005684	0229	14681							
	STD	0300	0362	3468	2760	0005288	0257	14698							
170	OBS	0349	0379	34762	2764		v = <i>y</i> :	14714							

REESDENICE								· · · · · · · · · · · · · · · · · · ·										
CTRY ID. CDDE	LATITUDE	LONGITUDE	SOUARE	N ST	ATION IGM	TIME T)	YEAR	CRUISE	DRIGINATOR'S STATION	DEPTH TO	DEPTH	08	WAVE ERVATE	DNS	WEA- THEP	CLOUD	ND	DC
	1/10	1/10 =	10" 1	MD	DAY	HR,1/10		NÔ.	N U M BER	BOTTOM	S'MPL'S	DIR.	HGT PE	SEA	CODE	TYPE AMI	NUA	ABER
318001 EV	5215 N	05305 W	185 2	3 05	31	186	1966		9619	0262	02	21	22		xo	0	0	112
				WATER	_	WIND	BARC	>	AIR TEMP. C	ND.	SPEC	IAL				Ū	, U	116

			COLDR	TRANS. DIR.	OR FORCE	AN ET &	R DRY BULB	94 81	VÊT Ulb	CODE	DBS. DEPTHS	DBSER	VATIONS							
				16	505	14	6 067	0	50	8	08		_							
MESSENGE CAST TIME OF ND. HR 1/10	CAPD TYPE	DEPTH ImJ	J. 1	s •41	\$IG M A	-1	SPECIFIC VOLU ANOMALY-1	м E 0 ⁷	S DYI X	10 ³	SD VEL	UND DCITY	D2 mL1	PO4-P 29 - 01/1	ΤΟΤΑ L - P νg · σ!/1	NÖ2-N µg = al/l	NO3-N 29 - 01/1	5) O4-5) 49 - at/3	рН	500
186	STD OBS STD	0000	0248 0248 0210	3343 33433 3348	2670	 2 2 7	001349	2	00	00	14	582 582								1
185	OBS STD	0010	0210 0215	33480 3354	2677	7 L	001244	1	00	26	14	568 573								
186	OBS STD	0030 0035 0050	0220 0223 0194	3359 33614 3364	2685 2687 2691	7 [001210	5	00 00	38 62	14 14 14	577 580 570								
186	OBS STD OBS	0060 0075 0085	0179 0167	33704 3389	2697	7 3	000945	7	00	88	14	565								
186	STD OBS	0100 0110	0193 0217	34013 3418 34279	2723 2734 2740) 	0007460	5	01	09	14 14 14	565 585 598								
186	STD STD OBS	0125 0150 T0157	0272 0338 0351	3440 3456 24506	2745		0006448	3 7	01 01	27 42	14	626 661								
186	STD OBS	0200	0362 0364	3470 34702	2754 2761 2761	•	0005079	5	01	69	14	668 681 684								

REFERENCE	SHIP	LATITU	DE		DRIFT INDCTR	ARSD QUAR	EN E	STAT	ION GMT	TIME HB 1/1	Y	EAR	CRUI	O R IC	GINATO STAT NUA	ION ABER		DEPTH TO BOTTOM	DEPTI OF S'MPL	S DIP	W A SEPV	A TION	S SEA	WEA- THER CODE	C LC C C TYPE	DUD		5	NODC STATION NUMBER	
31800	ΕV	5220	N	05252 W	1	36	22	05	31	201	1	966		9	9620			0284	02	21	2	2		X 1	4	2			0113	
						ŕ	WAT	ER	T	WIND		BARC		A IR	TEMP	°C		NO.	50	CIAL										
						C	OLOR ODE	TRANS Im)	DIR	L SPE FO	EED DP RC.E	MÉTE (mbs	ER F1	DRY BULE	8 B	ULB C	006	OBS. DEPTHS	OBSER	VATIONS										
									20) sc	9	15	9	06	7 0	50	6	09												
	MESSENG TIME HR 1/10	CAST NO.	C A R T Y PI	D DEPTH	(m.)	Ţ	°C	s	•/•+	S	iGM	N — T	SPECI	FIC VI	OLUME	∑ ∆ DYN Y 1	03 03	SOI VEL	UND DCITY	0 2 ml '	1 1 2	PO ₄ =P	to P	↑A L = P g + ∪//1	NO2 NG -	=N at/l	NO3+N yg + atri	SLO∦≁S yg + at	рК	
			51	000	0	0.2	47	33	41	1	266	9	0.0	130	636	i 00	00	14	582											
	20	1	084	. 000	ũ	02	47	33	41	3 2	266	9		_		-		14	582											
	20	•	51	001	ō	0.2	0.2	33	47	2	267	7	00	121	894	00	13	14	564											
	20	1	OB	5 001	õ	02	0.2	33	46	7 2	267	7	• •			•		14	564											
		•	51	0.02	0	01	94	33	48	2	267	8	00	12	741	00	26	14	562											
	20	1	08	5 002	5	01	87	33	50	1 2	268	0						14	560											
	L +	*	S	rD 003	0	01	66	33	55	2	268	6	00	12	017	00	38	14	553											
			Š	rD 005	0	01	17	33	73	2	270	3	00	10	354	00	61	14	537											
	20	1	OBS	5 005	υ	01	17	33	72	7 2	270	3						14	537											
	20	1	OB:	5 007	4	01	33	33	89	7 2	271	6						14	550											
			S	rD 007	5	01	36	33	91	2	271	7	00	109	093	00	85	14	552											
	20	1	OBS	5 009	8	02	00	34	180	6	273	4						14	588											
	_	-	S	rD 010	0	0.2	0.5	34	20	â	273	5	00	07	400	01	06	14	590											
			- Si	D 012	5	02	64	34	36	â	274	3	00	06	681	01	23	14	622											
	20	1	OB:	5 T014	7	03	05	34	47	7	274	9						14	645											
			S	TD 015	0	03	09	34	49		274	9	00	006	114	01	39	14	648											
			S	TD 020	0	03	60	34	66		275	8	00	05	360	01	68	3 14	680											
	20	1	08	5 020	0	03	60	34	66	0	275	8						14	680											
	2.0	1	OB	5 T024	6	03	185	34	75	8	27 t	3						14	700											

REFERENCE CTRY III	CE D.	SHIP CODE	LATITU	DE	LON	GITUDE	DRIFT	MAR SOU	DEN	STAT	ION IGMT		YEAR	CRUISE NO.	STA NU	DR'S	DEPTH TO BOTTO	DEPT		W DBSER	A VE VATION	S SEA	WEA- Ther Code	CLOUD CODES			NODC STATION NUMBER
3180	0.	EV	5222	1/ 10 N	05	243		186	22	05	31	210	1966		9621		024	1 0.	2 2	1 2	2 2		X0	0			0114
2100									WA	LEX		WIND	RAR). A	IR TEMP.	°C	NO.		ECIAL								
									COLOR	TRANS Imt	DIR	SPEEC OM FORC	M ETE	R () .) BI	DRY V ULB 8	VET COD	DEPTH	S OBSER	VATION	I S							
											20	505	5 16	6 1	00 0	72 8	08										
		MESSENG TIME HR 1/10	CAST NO.	C A TY	RD PE	DEPTH	im)	Т	°C	s	•/	SIG	M A = T	SPECIFIC	VOLUME ALT=110	₹ △ C DYN, A K 10 ³) SC A VE	DUND LOCITY	0.7 17	dz L	PO _A = P µg = ol '	101	A L → P • 01	NO2-N VQ - 01/1	NDg=N µg+ofi	21 O 4 − 21 O 4 −	Si pH
				s	TD	000	00	0	224	33	62	26	587	001	1893	000	0 1	4574				10					
		21	0	08	STD	001	ეკ 10	C	224 184	33 33	620 62) 26 26	587 590	001	1591	001	2 1	4574 4558									
		21	0	OB	SS STD	00	10 20	C	184 149	33 33	622	2 26	590 703	001	0382	002	1 3 1	4558 4546									
		21	0	OE	S	00	25	C	139	33	801	1 2	708	0.00	9657	003	1	4543									
				0	TD	00	50	C	156	34	00	2	722	000	8563	005	1 1	4558									
		21	0	06	SS STD	00	50 75	C	222	34	22	2	735	000	7347	007	1 1	4594									
		21	0	OE	BS STD	00	75 00	C	222	34 34	221 41	3 2 2	735 746	000	6416	008	8 1	4594 4625									
		21	0	OE	S TD	01	00 25	0	278	34	409	9 2' 2'	746 750	000	6012	010	$\frac{1}{4}$	4625 4643									
		21	0	OE	35 5 TD	T01	47 50	0	330	34	568	9 2 2	753	000	5660	011	1 8 1	4657									
		21	0	OE	STD	02 T02	00 21	0	367	34	+68 +691	2 8 2	759	000	5279	014	6 1 1	4683 4691									

REFE	ENCE	1.00	_			.≌ MA	SDEN	STA	TION	TIME			ORIGIN	ATOR	' S	DEPTH	XAM			A VF			C10	1D				į
CTRY	ID.	CODE	LATITU	DE	LONGITUDE	SQ SQ	UARE		IGMT	}	YEAR	CRUIS	£	STATIO)N	to	DEPTI OF	нj	OBSEP	VA TIO	NS	THER	COD	ES			STATION	
	NO.			1/10	'1/10	- 10°	1*	MO	DAY	HR, 1/10		NO		NUME	ER	BOTION	S"MPL	•s c	DIR. H	TPER	SEA	CODE	TYPE	N NIT			NUMBER	
31	8001	Εv	5226	5 N	05229 W	180	22	05	31	233	1966		96	22		0269	02	2	20 2	2		XI	0	2			0115	
							WA	TER	1.	WIND	BAR	o. L	AIR TE	M.P. "(NO.	1 10						•				0115	
							COLOR	TRANS Im)	D IR.	SPEEL OP FORC	E (mb	ER 5)	DRY BULB	W E B U L	T COD	OBS. DEPTHS	OBSER	VATIC	DN S									
									21	50	5 17	9	067	0 5	0 8	09	1											
		MESSENG TIME	CAST	C A R Typi	D DEPTH Im	3	r °c	S	·4.	StG	M A - T	SPECIE	IC VOLU	JME 107	E A D	SO VEL	UND	0 2	m1/1	PO 4-	P f	014 L - P	NO2-	N /1	NO3-N	SI 0.4-	5і рН	s
			,					-				<u>+</u>		-+	X 10-						-			+	pg = 0.01	19.01		-
	1		1 1	51	0000 0		274	33	84	2	00	00	1063	36	0000	14	599				ļ						ļ	
		23	3	085	5 0000	(274	33	838	2	00				0-00	14	599											
				51	D 0010	(273	33	83	27	00	00	1066	3	0011	14	600											
		23	3	089	0010	(273	33	834	27	00					14	600											
				S1	0020	L.	280	33	84	21	00	00	1067	8	0021	14	605											
		23	3	085	0025	(283	33	859	27	01					14	607											
				51	D 0030	(239	- 33	88	27	07	00	1005	3	0032	14	589											
				51	D 0050	(153	-34	J 3	27	25	0.0	0833	0	3050	14	557											
		23	3	OBS	0050	(153	34	025	27	25					14	557											
				S1	D 0075	(245	34	31	27	40	00	0687	3	0069	14	605											
		23	3	OBS	0075	(245	34	310	27	40					14	605											
				ST	D 0100	Č,	268	34	42	27	47	00	0626	3	0085	14	621											
		23	3	OBS	0100		268	34	418	27	47					14	621											
				ST	D 0125		1335	34	55	27	52	00	0588	15	0101	14	656											
		23	3	OBS	T0149	0	377	34	639	27	54					14	679											
				ST	D 0150	C	378	34	64	27	54	00	0564	5	0115	14	679											
		23	3	OBS	0198	C	396	34	699	27	57					14	695											
				ST	D 0200	C	1396	34	70	27	57	00	0542	5	0143	14	696											
		23	3	085	T0248	C	402	34	714	27	58					14	706											

CODE NO. CODE 1/10	1. 10 Z 10	STATION TIME IGMTI MO DAY HR.1/11	YEAR	ORIGINATOR'S CRUISE STATION NO. NUMBER	DEPTH TO BOTTOM	DEPTH OBS	WAVE WEA	E TYPE ANT	NODC STATION NUMBER
318001 EV 5231 N 052	211 w 186 2	2 06 01 009 ATER WIND DR TRANS DIR OF E IMI DIR FOR	1966 BARG METH CE Imbi	9623 AIR TEMP. "C DRY WET BULB BULB	0300 IS NO. OBS. DEPTHS	03 21 SPECIAL OBSERVATIONS	3 2 XI	0 3	0116

					20	301 1	10 010 0	74 /	001								
MESSENGR TIME OF HR 1 10	CAST NO.	C ARD TYPE	DEPTH (m)	т "с	s •4.	SIG M A - T	SPECIFIC VOLUME ANOMALT-110	₹ △ D DYN, M. X 10 ³	SOUND VELOCITY	Og mbil	PO ₄ -P µg = a1/1	fOTAL⇒P µg + of/t	NO2-N yg - otyl	NO3=N µg + a1/1	51 O 4 = 51 pg = a1 /1	pН	SCC
																	Π
		STD	0000	0150	3327	2665	0014000	0000	14537		4						
009		OBS	0000	0150	33274	2665			14537								
		STD	0010	0107	3335	2674	0013155	0014	14520								
		STD	0020	0073	3342	2681	0012426	3026	14508								
009		OBS	0025	0059	33459	2685			14503								
		STD	0030	0053	3349	2688	0011781	0038	14501								
		STD	0050	0027	3363	2701	0010579	0061	14495								
009		085	0055	0021	33675	2705			14493								
		STD	0075	0089	3390	2719	0008869	0085	14531								
009		OBS	0099	0161	34126	2732			14570								
		STD	0100	0163	3413	2732	0007618	0106	14571								
		STD	0125	0219	3427	2739	0006991	0124	14602								
		STD	0150	0268	3439	2745	0006504	0141	14629								
009		OBS	0198	0339	34566	2752			14670								
		STD	0200	0341	3457	2753	0005850	0172	14671								
		STD	0250	0385	3468	2757	0005506	0200	14699								
009		OBS	T0287	0397	34720	2759			14711								

	-	T	-		1							_	1						A Y					1			- 1		
REFE	RENCE	SHIP	LATIT	J D F	LOP	GITUDE		JARE	STA	TION IGMT	TI MA E 1	YEAR	C 010	ORIGIN	OTAI	P*5	DEPTI TO	H DE	PTH	085	W A V ERV A	tions.	THER	1	CODES		1	NODC STATION	
CTRY	NO.	CODE		1/10		1/10	2 10°	-1-1-	MO	DAY	HR,1/10		NC	5E),	NUM	BER	BOTTO	M S'M	DF IPL'S	DIR	HGT	PER SE	A COD	E	TPE A VT			NUNBER	
31	8001	FV	5230	2 N	0.5	154 W	1.80	21	06	01	027	1966		96	24		056	7 0	05	21	2	2	×1		7 7			0117	
-							1.2.0	WA	TER	Ť	WIND			A IR TE	AA P	*C	NO.	<u> </u>											
								COLOR	TRANS	0.0	SPEE	O MET	ER	DRY	W	ET COD	085.	085	SPEC D ERVA1	AL TIONS									
								CODE	(m.)	0.00	FORC	:e (m)	120	\$U1_B	BU	168	DEPTH	15											
										20	500	6 20	00	056	0	44 7	07												
		MESSENC	RCAST	CA	A P D								SPEC	RC VOL	JME	≶ ∆ D	s	OUND			PC) 4 P	TOTAL	N	107-N	NO3-N	51.04-	Si	S
		TIME	I NO.	T	PE	DEPTH (#	1	C		- /	210	; M A =1	ANG	DAªALY∼K	10"	Y 10 ³	- ve	LOCITI	r U	22 miri	+ 2	- a1 1	5 g + 01	P.	9 - ot 1	µg - a⊡	vg = al	1 PH	č
		116 171				· · · -			-				+																-
				1	STD	0000		0264	33	90	2	706	00	1010	' ונ	0000) i 1	4590	6										
		0.2	8	OB	ŝs	0000		264	- 33	898	3 2	706					1	4590	6										
				5	STD	0010		0363	34	26	2	726	00	0823	39	0009) 1	464	5										
		02	8	06	35	0015	1	399	34	406	2	734					1	466	3										
					STD	0020		0400	34	45	2	737	00	0716	9	0017	7 1	466	4										
				4	STD	0030		0401	34	53	2	743	00	0658	37	0024	+ 1	466	8										
					STD	0050		3403	34	65	2	753	00	0570)5	0036	5 1	467	3										
		02	8	Ob	3S	0050		0403	34	653	3 2	753					1	467	3										
				1	STD	0075		3409	34	71	2	757	00	0536	51	0050) 1	468	1										
				1	STD	0100		0414	34	76	2	760	00	0503	39	0063	3 1	468	8										
		0.2	8	06	35	0100		0414	34	763	3 2	760					1	468	8										
				-	STD	0125		0416	34	79	2	762	00	0488	32	0075	5 1	469	3										
				1	STD	0150		0418	34	82	2	765	00	0470	3	00.81	7 1	469	8										
					STD	0200		0421	34	85	2	767	00	0453	31	0110) 1	470	8										
		02	8 8	01	3s	0200		0421	34	854	+ 2	767					1	470	8										
				:	STD	0250		0419	34	186	2	768	00	00451	15	0131	3 1	471	6										
				:	STD	0300		0418	34	86	2	768	00	0455	55	0156	5 1	472	4										
		02	28	0	BS	T0396		0414	34	871	1 2	769					1	473	8										
				:	STD	0400		0414	34	87	2	769	00	0452	29	020:	1	473	9										
					STD	0500		0410	34	87	2	770	00	00456	50	0246	5 1	475	4										
		02	28	01	₿S	0523		0409	34	875	> 2	770					1	475	1										

REF CTPY CODE	ID.		SHIP	LATITUDE	LONGITUDE	DPIFT	M ARS SQU	DEN ARE	STA	TION (GMT	TIME 1 HP.1/10	YEAR	CRUISE NO.	ORIGIN	ATOR'S TATION NUMBER		DEPTH TO BOTTOM	MAX DEPTH OF S"MPL"S	Di	N OBSER		IONS R SEA	WEA- THER CODE	C1 C	OUD ODES	T	NODC STATION NUMBER
3	1800	1	Εv	5243 N	05140 W	1	186	21	06	01	045	1966		96	25		1682	12	2	<u>.</u>]:	2 X	(X 1		6		0118
								COLOP CODE	TRA N	S Dia	SPEE OR FORG	BARC METE (mbs	D+ R LI E	DRY BULB	W ET BULB	VIS CODE	NO. OBS. DEPTHS	SPEC Observ	A TLOP	NS							

				20	\$10	200	056	0	44 7	12									
	r				510	200		-									0.0 0		s
MESSENGE CAST	CARD	DEPTH Imi	t "C	s *	SIGMA	-T 5	ANOMALY-KI	м Е 0 [°]	DYN, M	VEL	UND DCITY	Og mili	PO4=P	FOTAL-P yg + of 1	NO1-N PG - 05	NO3≁N Va•al I	yg + of 1	pН	Ċ
HR 1/10									¥ 10 ²					-					
								_											
	STD	0000	0448	3454	273	9	000695	5	0000	14	683								
045	OBS	0000	0448	34541	273	9				14	683								
	STD	0010	0427	3455	274	2	000668	2	0007	14	676								
	STD	0020	0411	3456	274	5	000645	5	0013	14	671								
045	OBS	0025	0405	34568	274	6				14	669								
	STD	0030	0492	3458	274	7	000620	3	0020	14	669								
	STD	0050	0391	3465	275	4	000564	1	0032	14	668								
045	OBS	0051	0390	34648	275	4				14	668								
	STD	0075	0396	3469	275	7	000537	8	0045	14	675								
0.45	OBS	0076	0396	34697	275	7				14	675								
	STD	0100	0412	3476	276	0	000504	1	0058	14	687								
045	OBS	0102	0413	34767	276	1				14	688								
	STD	0125	0414	3479	276	2	000489	5	0071	14	692								
	STD	0150	0416	3481	276	4	000478	6	0083	14	697								
	STD	0200	0419	3485	276	7	000456	0	0106	14	707								
045	OBS	T0203	0419	34849	276	7				14	708								
	STD	0250	0415	3486	276	8	000449	8	0129	14	714								
	STD	0300	0411	3487	276	9	000444	6	0151	14	721								
045	OBS	T0305	0411	34866	276	9				14	722								
	STD	0400	0404	3488	277	1	000437	9	0195	14	735								
045	OBS	0406	0404	34878	277	1				14	736								
	STD	0500	0392	3488	277	2	000431	6	0239	14	746								
	STD	0600	0384	3488	277	3	000432	0	0282	14	759								
0.45	OBS	T0609	0383	34885	277	3				14	760								
049	STD	0700	0380	3489	277	4	000428	7	0325	14	774								
	STD	0800	0377	3490	277	5	000429	0	0368	14	790								
045	OBC	0806	0377	34898	277	5				14	791								
040	STD	0900	0368	3490	277	6	000425	6	0411	14	803								
	STD	1000	0362	3490	277	7	000427	1	0453	14	817								
045	OBS	T1027	0361	34902	277	7				14	821								
040	< T h	1100	0359	3491	277	8	000424	5	0496	14	833								
	510	1200	0359	3492	277	9	000425	5	0538	14	+849								
045	OBS	T1208	0359	34922	277	9				14	851								

REFE	RENCE	SHIP	LATITU	D.	LONCITU		MAR	SDEN	STATION	TIME			OR	IGINA	TO R'S		DEPTH	MAX,		WAVE	WEA	CLOUD			1000	
CODE	NÓ,	CODE	•	1/10		1/10 5 g	101	1 1	HOLDAN		10	AK	CRUISE	ST NI	ATION		TO BOTTOM	OF	085	ERVATION	CODE	CODES		S1 N	ATION	
		Gut		17 10		17.10	10		MU DAI	1 258,17				143	TAUDEN			D.Whr.	D18	HGT PER	SEA	TYPE AM				
1 3 1	8001	EV	5247	NI	05129	9 W	186	21	06 01	061	19	966		962	6		2250	12	21	2 2	X 1	4 7			0119	
								COLOR	EK -	WIND	ED	BARO	-	TEM	P. °C	- vis	NO.	SPE	CIAL							
								CODE	TRANS. D	IR. C	RCF	(mbs)		8	BULB	CODE	DEPTHS	OBSERV	ATIONS							
									1	6 51	0	2.00	07	2	061	17	12		_							
				~~~~			1			0 3.		200	5 01	2	001	11	12				-r					_
		TIME	LCAST	CAR	D DE	PTH (m)	1	°C	s •/,	.   s	IGMA	-1	SPECIFIC N	OLUM	E D	ΔD rN, M	SOL	ND	0 2 m1/1	PO P	TOTAL-P	NO2-N	NO3-N	SI O 4 - SI		
		HR 1/10					1			_					)	K 10 ³	VELC	C IIY	-	r at/i 9 = at/i	µg • ot/l	µg = a1/1	µg - a!∕î i	µg = otz I	p.,	R
																										T
				S	TD (	0000	0	481	3453	ž	2734	4	0007	417	0	000	14	696								
		062	-	08	s c	0000	0	481	3452	6 2	2734	4					14	696								
				S	TD C	010	0	458	3457	Ĩ	2740	)	0006	853	0	007	14	689								
		_		S	tD C	020	0	440	3462	i	2746	Ś	0006	300	0	014	14	684								
		062	2	08	S C	025	0	432	3463	3 2	748	3					14	681								
				S	<b>I</b> D C	1030	0	428	3465	4	750	)	0005	996	0	020	14	680								
		0.6.7				050	0	411	3470	- 4	755	5	0005	469	0	031	14	677								
		0.02		00:		076	0	410	3469	1 4	156				-		14	677								
		062	,	080		1075	0	407	3470	<u>د</u> 4	156	2	0005	417	0	045	14	580								
		002		00; c		1070	0	407	3470	5 4	151		0005	1 1 1	0		144	680								
		0.62		089		102	0	404	3474	2 2	740	) )	00000	111	0	0 2 0	140	503								
				ς.	0 0	125	ő	400	3477		762	, ,	0004	840	0	071	140	504								
				Š	ro a	150	õ	396	3479	5	765	-	00004	700	0	0 6 7	14	600								
				Š	τΩ 0	200	õ	388	3483		769	Ś	0004	361	0	105	1.4	607 607								
		062		OB	5 TO	203	ŏ	387	3483	1 2	769	Ś	0004	201	0	105	14	574 504								
				S	0 0	250	0	387	3484	2	769	7	0004	324	0	127	14	702								
				S	rD o	300	0	386	3485	2	770	)	0004	291	õ	148	14	710								
		062		08;	5 <b>T</b> O	307	0	386	3485	1 2	770	5		- / -	-	•	14	711								
				SI	o o	400	0	392	3487	2	771	l	0004	292	0	191	14	729								
		062		083	5 0	408	0	392	3487	6 2	772	2					14	731								
				SI	0 01	500	0	385	3488	Z	773	3	0004	240	0.	234	14	743								
				SI	rD 0	600	0	380	3488	2	773	3	0004	276	0.	277	14	758								
		062		085	5 0	611	0	379	3488	3 2	774	•					14	759								
				51	0 0	700	0	377	3489	2	774	•	0004	256	0	319	14	773								
		063		0.0	0 0	800	0	314	3489	. 4	775	,	0004	317	0	362	14	789								
		002		005		014	0	374	3489	1 2	775	,					14	791								
				21		900	0	310	3490	2	176		0004	294	0.	405	148	304								
		0.6 °		000	1 1	000	0	300	3491	2	177		0004	281	04	448	146	319								
		002		083	י חו וו סו	100	0	364	3490	o 2	717	,	000:		0		148	325								
				اد ۲ ک	1 0	200	0	364	3491	4	111		0004	298	0	991 537	148	5 5 5								
		062		089	ιο <u>ι</u> . τι	221	0	364	3492	<u>د</u> ۲	110	<b>)</b>	0004	222	0	5 5 4	148	551								
		0.02		003	, i 1	~ ~ .	0	-0-	2471	0 2	110	,					148	300								

REFER	REFERENCE SHIP ID. CODE NO. LATITUDE 1/				LONGITUDE	NDCTR SC	RSDEN	STATION T	IME	YEAR		STATIO	N. P	DEPTH TO BOTTOM	MAX. DEPTH OF	085	WAVE ERVATION	S THER	- CLOUD CODES	-	S	NODC TATION NUMBER	
		- C		1/10	1/10	10		MO DAT P	0.7.0				<u>~</u>	25.20	SMPL	S Dik	IN GT PER	51A	ITPE AM	1			1
1 31	8001	EVI	5250		05118 W	18	0 21	16 UI		1966	90 AIR T	521 MP. *C	_	2523	1 12	23	13121	X2	7 8	1	1	0120	1
							COLOR	TRANS DIR.	SPEED OR FORCE	METI (mbs	D- DRY BULB	W ET BULE	VIS COD	DEPTHS	SPE OBSERV	CIAL ATIONS							
								21	508	21	7 067	05	6 8	12									
		MESSENGR TIME HR 1/10	CAST NO.	C ARD TYPE	DEPTH	m)	⊺ °C	s •/	SIGA	-L	SPECIFIC VOL ANOMALY-1	UME 1107	₹ △ D DYN. M X 10 ³	SQI VELI	UND DCITY	Q2 mi/i	PO4-P 49 + 017	1014L-1 µg + q1/1	NO2+N ug + at/1	NO3+N 49 - ot/l	nð - ar 21 O∜−2	pН	
		ł		ST	D 000	0	0456	3446	27	31	00076	35	0000	) 14	685								
		07	9	085	000	0	0456	34455	27	31				14	685								
				ST	D 001	0	0425	3446	27	35	00073	38	0008	3 14	674								
				ST	D 002	0	0403	3449	27	40	000690	2 2	0015	5 14	666								
		07	9	OBS	002	5	0395	34502	27	42				14	664								
				ST	D 003	0	0394	3453	27	44	00065	21	0021	14	665								
		079 079		ST	D 005	0	0390	3464	27	53	00056	75	0034	+ 14	668								
				QBS	005	1	0390	34651	27	54				14	668								
				ST	D 007	5	0405	3481	27	65	00045	40	0046	5 14	681								
				085	007	5	0405	34814	27	65				14	681								
				ST	D 010	0	0461	3483	27	61	00050	18	0058	3 14	708								
		07	9	0BS	010	0	0461	34832	27	61				14	708								
				ST	D 012	5	0456	3484	27	62	00049	31	007	1 14	710								
				ST	D 015	0	0451	3484	27	63	00049	05	008:	3 14	712								
				ST	D 020	0	0440	3485	27	65	00047	42	010.	7 14	716								
		07	9	0 B S	T020	0	0440	34853	27	65				14	716								
				ST	D 025	0	0426	3486	27	67	00045	83	0130	0 14	719								
				ST	D 030	0	0415	3487	27	69	00044	55	0153	3 14	723								
		07	9	OBS	T030	4	0414	34870	27	69				14	723								
				ST	D 040	0	0405	3488	27	71	00043	71	019	7 14	735								
		07	9	OBS	040	6	0404	34880	27	71		_		14	736								
				\$ T	0 050	0	0385	3488	27	73	00042	40	0240	) 14	743								
				ST	D 060	0	0371	3488	27	74	00041	77	028.	2 14	754								
	079 079 079		9	OBS	060	9	0370	34877	27	74		-		14	755								
				ST	D 070	0	0367	3488	21	75	00042	24	0321	4 14	769								
			51	080	2	0364	3489	27	16	00042	03	0266	5 14	784									
			085	0000	2	0364	34892	27	70	20062	0.0	040	a 14	700									
			51	D 100	0	0356	3409	21	70	00042	26	045	5 14 1 14	814									
			085	T102	6	0354	34807	21	77	00042	20	U-4 J.	14	820									
			005	0 110	õ	0354	3490	27	77	00043	10	049	3 14	831									
			्रा	n 120	õ	0350	3490	27	77	00044	33	053	7 14	849									
		07	0		U 120	~ ^	0250	3/ 806	21	77	00044	~ ~	<i></i>	· • • •	957								
		07	4	005	1141	7	~ > 7 7 7	24042	21					14	072								

REFERENCE CTRY ID. CODE NO.	SHIP CODE	LATITU	DE 1/10	LONGITUDE	DRIFT	MAR SOU	ARE	STATIC (G MO   DA	MT)	ME	YEAR	CRUISE NO.	DRIGINA S' N	A TOR'S		DEPTH TO BOITOM	MAX. DEPTH OF S'MPL'	OB DIR	WAVE SERVATI	ONS R SEA	WEA- THER CODE	CLOUD CODES	7	5	NODC TATION NUMBER
318001	ΕV	5250	N	05104 ¥	1	186	21	06 0	1 0	96 1	966		96	28		2889	12	20	3 2		×5	78	1		0121
	1		. 1		1		WAT	ER	w	IND			IR TEN	4.P. °C		NO	1	1 00	(- (-	1	1		1	1	0101
							COLOR	TRANS, Imi	DIR.	SPEED OP FORCE	METE	R C	DRY ULB	W E T B U L B	CODI	OBS. DEPTHS	OBSERV	CIAL ATIONS							
									21	508	22	7 0	67	056	8	12									
	MESSENGR TIME C HR 1/10	CAST	C AR TYPI	D DEPTH	(m.)	т	°C	5 •	•••	SIGM	A-T	SPECIFIC	VOLUA ALY-X10		ΔD YN. M X 10 ³	SOU	UND OCITY	O 2 m1/1	PO a	- P 01/1	FOTAL-P µg·ol/l	NO2~N µg - ot/l	NO ₃ —N µg = al/l	SI O ₄ =S µg = a1/	рН
			ST	0 000	00	0	460	345	3	273	57	000	713	30	000	14	687			1	,				
	097	,	085	5 000	0	ō	460	345	34	273	37					14	687								
			51	0 00	0	0	458	345	4	273	8.8	000	707	4 (	007	14	688								
			51	0 002	20	0	455	345	4	273	88	000	705	9 0	014	14	689								
	097	,	089	00	25	0	454	345	49	273	9					14	689								
			51	0 003	30	0	445	345	5	274	0	000	688	8 (	021	14	686								
			51	D 00	50	0	416	345	8	274	6	000	637	7 (	034	14	678								
	097		085	; 00	50	0	416	345	81	274	• 6					14	678								
			SI	00 01	75	0	394	346	6	275	4	000	562	3 (	049	14	674								
	097	,	085	5 00	75	0	394	346	55	275	4					14	674								
			51	0 010	00	0	404	347	7	276	2	000	4880	0 0	063	14	683								
	0.97	,	083	5 010		0	404	347	75	276	Z					14	684								
			51	0 014	.5	0	401	348	0	276	,4	000	469	4 (	075	5 14	687								
			5	0 01:	00	0	399	248	2	276		000	424		086	14	690								
	0.01	,	5	10 020 • TO20	10	0	393	348	6	211	0	000	422	5 (	0108	14	697								
	071		UD3 51	0 020	5.0	0	39/	340	28	211	70	0.00	422	6	1.20	14	704								
			51	0 02.	0	c	396	348	7	277	71	000	425	1 0	1127	14	715								
	097	,	0.8	030	5	õ	396	348	70	277	1	000	425		- 20	14	715								
			51	D 040	0	0	386	348	6	277	1	000	427	8 0	193	14	727								
	097	,	OBS	5 040	7	0	385	348	63	277	1					14	728								
			51	0 050	00	0	383	348	7	277	2	000	430.	2 0	236	14	742								
			51	0 060	00	0	381	348	8	277	3	000	431	9 (	279	14	758								
	097	,	085	5 TO6:	0	0	381	348	77	277	13					14	760								
			51	0 070	00	0	376	348	8	277	14	000	432	1 0	1322	14	773								
			S 1	0 080	0 (	0	370	348	8	277	74	000	434	1 0	1365	14	787								
	097	,	083	5 080	9	0	369	348	85	277	75					14	788								
			51	0 090	0	0	361	348	8	277	6	000	429	4 (	409	14	800								
			51	rD 100	0	0	356	348	8	277	16	000	433	4 (	452	: 14	814								
	097	,	OBS	5 102	21	0	355	348	82	277	6					14	817								
			S 1	D 110	00	0	355	348	9	277	6	000	437	0 0	495	5 14	830								
			\$1	0 120	00	0	354	348	9	277	7	000	440	9 (	539	14	847								
	0.97	,	083	5 T12	. 3	0	354	348	92	277	77					14	849								

REFERENCE	SHIP	LATITU	DE	LON	GITUDE	CRIFT NDCTR	MARS SQU	DEN ARE	\$T A	tion IGMT	TIME	YEAR	c	RUISE	RIGINA1	OR'S		DEPTH TO ROTIOM	DEPTH OF	+ c	W A BSERV	A TIO	∿S	WEA- THER	CLOU	D ES			NODC STATION NUMBER	
NO.			1.10		11	0 -	10"	1.	MO	DAI	H.P.1110		+	NO.	NU	VVREK			S*M PL	S DIP	нG	T PER	SEA		1 Y P& A	AS T				
318001	LEV	5927	N	044	+27 +	1	185	94	06	03	062	196	6		962	9		0324	03	4	<u>9</u>  X	X		X4		9			0122	i
							ļ	W A	TER		WIND		RO-	A	IR TEMP	. °С	- vis	NO.	SP	CIAL										
								COLOR	TRANS (m.)	DIR	- OF	C1 (m	TER (bs)	0 BL	RY JLB	W ET B U L B	CODI	DEFTHS	08529	VA TION	S									
							Ĩ			29	9 50	5 0	37	0	28	011	6	07												
	MESSENG TIME H.P. 1.10	CAST NO	СА ТУ	R D P E	DEPTH	(m )	т	°C	s	·	SIC	SMA-T	s	PECIFIC	VOLUMI	N D	△ D N. M 10 ³	. SOI VELO	UND DCITY	0 2 m		PO 4 - 1 9 * 61	P r	rotal—# µg = olul	NO2-1 µg - at	N N 1 Pg	03-N 2 - al/1	SI O 4-1 V9 - ot	Si pH	500
				-			1	1.20																						1
	0.6	2	08	10	000	10	-0	128	32	01 817	, 2	041 641		001	6253	U	000	14	403											
	ւ	-	S	TO	00	0	-0	119	32	84	2	643		001	6055	0	016	14	409											
			S	TD	00	20	-0	078	33	00	2	655		001	4950	0	032	14	432											
	06	3	08	S	002	4	-0	053	33	096	2	662						14	440											
			S	τD	003	30	0	021	33	40	2	683		001	2304	0	045	14	485											
	06	3	ОB	5	004	+8	0	208	34	141	1 2	730						14	582											
			S	<b>T</b> O	00	50	0	220	34	17	2	731		000	7720	0	065	14	588											
			5	T0	00	75	0	354	34	52	2	747		000	6249	0	083	14	655											
	06	3	08	5	009	97	0	438	34	729	<del>,</del> 2	755						14	697											
			\$	TD	010	00	0	441	34	74	2	756		000	5493	0	097	14	699											
			\$	10	014	- 5	0	466	34	79	2	757		000	5415	0	111	14	714											
	-		- 5	TD	01	0	0	483	34	83	2	758		000	5332	0	125	14	726											
	0.0	5	O R	5	101	11	0	491	34	846	2	759						14	733											
	0.6	5	08	5	1019	15	0	494	34	851	2	159			6360	~	161	14	738											
			5	10	020	50	0.	494	34	07	2	750		000	9990 5240	0	1 7 1 1 7 1	14	129											
	Эь	3	0 B	5	T 0 2 9	34 34	0	472	34	872	2 2	763		000	269	0	118	14	745											

											_									
REFERENCE	¢ H/P				MARSDEN	STATION TH	ME	ORIC	INATOR	S	DEPTH	DEPTH	0.00	WAVE	WEA	CLOUD			1000	
CTRY ID.	CODE	LATITU	DE	ONGITUDE	SQUARE	(GMT)	YEA	CRUISE	STATIC	N I	TO BOTTOM	OF	085	SERVATION	CODE	CODES	1	ST N	UM8ER	
CODE NO.			1/10	1/10 -	10* 1*	MO DAY HE	1,1/10	NO.	NUMB	C R		S-Whf-2	DIR	HGTPER	EA	TYPE A MI	-			
318001	EV	5917	ONO	44550W	185 94	06 04 1	33 196	6 9	630		1994	15	11	22	X6	04			0123	
					W A	TER W	IND B	ARO- AIR	TEMP, *C		NO.	SPEC	141							
					COLOR	TRANS DIR.	SPEED M	ETER DRY	WE	T CODI	OBS.	OBSERV	ATIONS							
					CODE	Im]	FORCE	mbs) BULS	BUL	В	OCT INS,									
					DT	SD 11	509 (	027 044	03	97	27									
					1	· · · · ·			in the second	₹ ∧ p				PO. P		NO. N	NO N	90.5		5
	TIME	LCAST	C ARD TYPE	DEPTH Im1	T °C	S */++	SIGMA-1	ANOMALT	-x10 ⁷	DYN M	VELO	DCITY	0 2 ml/1	PQ - 611	UD A L=P	vg = al/1	ug - a1/1	yg = 61/1	рH	C
	HR 1/10	1								X 10 ⁻⁷										-
														,	ļ					
			STD	0000	0371	3450	2744	00064	+90	0000	14	650								
	13:	3	OBS	0000	0371	34501	2744				14	650								
			STD	0010	0378	3452	2745	00064	15	0006	14	655								
			OBS	0010	0378	34521	2745				14	655								
			STD	0020	0480	3464	2743	00066	511	0013	14	700								
			OBS	0020	0480	34635	2743				14	700								
			STD	0030	0440	3477	2758	0005	221	0019	14	687								
			OBS	0030	0440	34765	2758				14	687								
			OBS	0035	0468	34801	2758				14	700								
			STD	0050	0485	3477	2753	00050	87	0030	) 14	709								
			OBS	0050	0485	34770	2753				14	709								
			OBS	0060	0445	34810	2761				14	695								
			STD	0075	0465	3487	2763	0004	748	0043	14	706								
			OBS	0075	0465	34870	2763				14	706								
			STO	0100	0485	3490	2764	0004	764	0055	5 14	719								
			OBS	0100	0485	34901	2764				14	719								
			STD	0125	0500	3495	2766	0004	596	0066	5 14	730								
			OBS	0125	0500	34950	2766				14	730								
			STO	0150	0519	3498	2766	0004	521	0078	3 14	742								
			OBS	0150	0519	34980	2766				14	742								
			STO	0200	0532	3501	2767	0004	620	0101	14	756								
			OBS	0200	0532	35009	2767				14	756								
			STD	0250	0539	3502	2767	0004	594	0124	+ 14	768								
			OBS	0250	0539	35019	2767				14	768								
			STD	0300	0540	3503	2767	0004	726	0148	3 14	776								
			OBS	0300	0540	35025	2767				14	776								
			STD	) 0400	0529	3502	2768	0004	756	0195	5 14	788								
			OBS	0400	0529	35020	2768				14	788								
			STD	) 0500	0507	3500	2769	0004	758	024	3 14	+796								
			085	0500	0507	35000	2769				14	+796								
			STO	0600	0494	3500	2770	0004	754	0290	0 14	+807								
			OBS	0600	0494	34995	2770				14	807								
			STC	0700	0476	3499	2772	0004	691	0338	3 14	+816								
			OBS	0700	0476	34989	2772				14	+816								
			OBS	0750	0470	34970	2771			-	14	+821								
			STC	0800	0438	3497	2774	0004	511	038	4 14	+816								
			OBS	0800	0438	34965	2774				14	+816								
			STO	0 0 0 0	0413	3496	2776	0004	360	0421	3 14	+823								
			OBS	0900	0413	34958	2776				14	+823								
			STO	1000	0388	3494	2777	0004	278	047	1 14	+829								
			OBS	1000	0388	34941	2777				14	+829								
			STU	1100	0379	3495	2779	0004	191	051	4 14	4842								
			OBS	1100	0379	34950	2779			_	14	+842								
			ST	1200	0363	3496	2781	0004	046	055	5 14	+852								
			OBS	1200	0363	34955	2781				14	+852								
			ST	1300	0355	3496	2782	0004	016	059	5 14	+865								
			OBS	1300	0355	34957	2782				14	4865								
			ST	D 1400	0350	3496	2782	0004	034	063	5 14	4880								
			OBS	1400	0350	34957	2782				_ 14	4880								
			ST	D 1500	0336	3496	2784	0003	930	067	5 14	4891								
			OBS	1500	0336	34958	2784				14	4891								

REFERENCE CTRY ID. CODE NO	SHIP CODE	LATITU	DE	ONGITUDE 1180	M A R SI	DEN	STAT	GMT	ME	YEAR	CRUI	ORIGI	ATOR'S	4	DEPTH TO		TH OB	WAVE SERVATION	is	WEA- THER	CLOU	s		NODC	
210001	EV 59235N			1/10 ~	10'	1*	MD	DAY H	R.1/10		NC	D.	NUMBE	2	100110	~ S*MI	L'S DIR	HGTPER	SE A	CODE	TYPE AP	AT		NUMBER	
1 318001	EV	5423	5N   0	144410W	185	94 WA		04 []		1966	 	96	31		140	8 1	2 12	22		X6	04	.		0124	
						COLOR	TRANS.	DIR	SPEED	METE	D	DRY	WET	- VIS.	OBS.	OBSE	PECIAL								
					-	CODE	(m		FORCE	lmbs	.)	8018	BULB	_	DEPTH	S									
					,	DT	SD	12	509	01	4	050	04	+ 7	26					_		-, <u> </u>			
	MESSENGR TIME HR 1/10	CAST NO.	C ARD TYPE	DEPTH (m)	T	°C	S	•/	SIGM	A =T	SPECI AND	IFIC VOLU	JME 107	ε Δ D	. Se	LOCITY	02 ml/	PO4-P µg = a1/	, , ,	OTAL-P µg = at/t	NÖ2=Ν νg - α1/1	NO3-N 29 - 61/1	SI O4-5 40 - 01/	pH	SOC
							1		-																Τ
	146		085	0000	03	179	34	53	274	46	00	0634	+1 (	0000		4653									
	140	,	STO	0010	03	380	34	55	274	+0 47	00	0621	6 (	10.06	1	4653 4655									
			085	0010	03	80	34	550	274	47					1	4656									
			STD	0020	03	390	34	59	274	+9	00	0602	1 (	012	1	4662									
	003	1	085	0020	03	90	34	590	274	49					1	4662									
			085	0030	0 2	397	344	62 610	279	51	00	0588	19 (	018	1 1	4667									
			5TD	0050	04	25	34	518 70	275	54	0.0	0561	2 (	0.20	1	4667									
			085	0050	04	25	34	695	275	54	00	10001		10 9 0	1	4683									
			085	0070	04	•50	34	850	276	53					- ī-	4699									
			STD	0075	04	80	344	88	276	52	00	0487	5 (	043	1	4713									
			085	0075	04	80	34	875	276	52					1	4713									
			085	0100	05	31	34	931	276	51	~ ~				1	4736									
			085	0100	0.5	32	340	340	276	51	00	0500	, (	10.55	1	4739									
			OBS	0114	05	32	349	968	276	53					1	4742									
			STD	0125	05	41	349	7	276	2	00	0492	1 (	068	1	4747									
			OBS	0125	05	41	349	70	276	2					14	4747									
			STO	0150	05	49	350	22	276	5	00	0471	3 (	080	14	+755									
			510	0150	05	949 .53	350	12	276	5	0.0	04.70	2 0	1.0.	14	4755									
			085	0200	05	53	350	21	276	5	00	04/0	5 (	104	14	+/02									
			085	0215	05	53	350	22	276	5					14	+768									
			STD	0250	05	45	350	2	276	6	00	0475	1 0	127	14	+770									
			085	0250	05	45	350	221	276	6					14	+770									
			085	0300	05	29	350	100	276	6	00	0477	9 (	151	14	+771									
			STD	0400	05	16	350	000	276	8	00	0474	6 0	100	14	+//1									
			085	0400	05	16	350	000	276	8	••	• • • •	0 0	- / /	14	+783									
			STD	0500	05	15	350	1	276	9	00	0476	8 0	246	14	799									
			OBS	0500	05	15	350	012	276	9					14	+799									
			570	0600	04	95	349	99	277	0	00	0478	1 0	294	14	807									
			510	0800	04	72	345	193	217	0	0.0	0476			14	807									
			085	0700	04	72	349	72	277	1	00	0410	<b>o</b> U	542	14	814									
			STD	0800	04	63	349	7	277	2	00	0476	1 0	390	14	827									
			085	0800	04	63	349	70	277	2					14	827									
			STO	0900	04	49	349	7	277	3	00	0475	0 0	437	14	838									
			085	1000	04	49	349	265	277	3	0.0				14	838									
			085	1000	04	30	345	0	217	3	00	0476	5 0	485	14	850									
			STO	1100	04	19	349	6	277	5	00	0462	7 0	5 3 2	14	858									
			085	1100	04	19	349	58	277	5	÷ • 1		. 0		14	858									
			STD	1200	04	11	349	16	277	6	000	0462	1 O	578	14	872									
			OBS	1200	04	11	349	58	277	6					14	872									
			OBS	1215	04	10	349	58	277	6					14	874									

REFERENC CTRY ID. CODE NO	E SHIP CODE	LATITU	JDE 1	ONGITUDE	M A 8 SQU	SDEN ARE	ST/	TION (GMT	TIME   HR,1/11	YE	A R	CPUISE NO.	DRIGIN/ S	TOR'S	v R	0 80	TO TO DTTOM	MAX. DEPTH OF S'MPL'S	OBS	W SEP	A VE VA TION	S Se a	WEA. THER CODE	CLOUD CODE	1 ST	ST N	IODC ATION JMBEP	
31800	01 EV	5912	20N 0	45085W	185	95	06	04	176	19	66		96	32		21	085	15	16	12	2 2		X6	0 4			0125	
						WA	TER	Τ.	WIND		BARC		AIR TEA	∖P °C	-	T	NO.	SPEC	IAL	Ľ								
						COLOR	TRAN Imi	S DIR.	SPE		M ETE (mbs	R     1   8	ULB	W ET B U L B	COD	Di	OBS. EPTHS	OBSERV	A TION S									
						DT	5	) 15	50	7	99	7 0	50	04	4 7	-	23											
	MESSENG	CAST	CARD		1		T		1			SPECIFIC	: volu	A E	₹ ∆ D	>	sou	ND		T	PO - P	1	0141-P	NO1=N	NO3-N	SLOA-SI		s
	TIME HR 1/1	NO.	TYPE	DEPTH (m)		-C		5 *	51	GMA-	-T	ANOM	ALV=X1		X 10 ³	^.	VELO	CITY	0 2 m l/l		µg = at∕l		µg + ot/L	µg = αI/l	µg - ot l	νg × α≀1	pН	c
		-																		-+								T
			ST	0000	C	498	3	+89	2	761	L	000	487	2 (	0000	0	14	708										
	17	2	085	0000	0	498	5	+890 501	2	761		0.00		<b>_</b>	000	5	14	708										
			085	0010		501	2	491 491	5 2	762	,	000	480	2	000:	>	14	/11 711										
			SI	0020	c	502	3	+91	2	763	-	000	476	8	0010	0	14	713										
	00	4	085	0020	Č	502	3	4913	2	763	3	500		•		•	14	713										
			ST	0030	C	503	3	492	2	763	3	000	477	6	0014	4	14	715										
			085	0030	C	503	3	4915	5 2	763	3						14	715										
			STO	0050	C	505	3	493	2	764	•	000	)471	1	0024	4	14	720										
			085	0050	0	1505	3	4930	) 2	764	•	000		E .	~~~		14	720										
			085	0075		1490	2	493 4933	, 2	765	5	000	462	2	00.50	¢	14	720										
			ST	0100	0	487	3	495	. 2	767	7	000	)445	7	004	7	14	721										
			OBS	0100	C	487	3	4945	5 Z	767	7						14	721										
			ST	0125	C	487	3	495	2	767	7	000	)443	4	005	8	14	725										
			OBS	0125	C	487	3	4952	2 2	767	7						14	725										
			STO	0150	0	489	3	497	_ Z	768	3	000	)435	9	006	9	14	730										
			085	0150		489	د م	4963 (09	* 2 7	768	5	0.00		7	000	1	14	7.50										
			085	0200	0	498	ر 3	4983	3 2	769	7	000		'	009	1	14	742										
			51	0250	0	499	3	499	2	769	- -	000	)443	7	011	3	14	751										
			STI	0300	C	0500	3	500	2	765	7	000	)447	1	013	5	14	760										
			085	0300	0	0500	3	4995	5 2	769	9						14	760										
			STI	0400		0470 V 70	3	497	. 4	770	) ``	000	)446	Ŧ	018	U	14	763										
			085	0400		1410	د د	496; 496;	2	772	J 2	0.00	1420	9	022	4	14	769										
			085	0500	0	)444	3	496:	1 2	773	3	000	, - 2 ,	,	0-2	7	14	769										
			ST	D 0600	Ċ	)429	ž	494	2	773	3	000	)435	5	026	7	14	779										
			085	0600	(	)429	3	4944	+ 2	773	3						14	779										
			STI	D 0700	(	0402	3	495	Z	777	7	000	0409	0	030	9	14	785										
			085	0700	(	0402	3	495	1 2	777	7			~	• 1 F		14	785										
			ST	00800		1384	د	495		112	8 0	000	0407	8	025	0	14	796										
			005	0 0900		1171	2	495	, 2	770	9	000	1398	1	039	0	14	806										
			085	0900	č	373	3	494	5 2	779	ş	000	,,,,	<b>^</b>	,	Ŭ	14	806										
			ST	D 1000	(	361	3	495	2	780	0	000	392	7	043	0	14	817										
			OBS	1000	(	0361	3	494	5 2	780	С			_			14	817										
			51	D 1100	(	3356	3	495		782	2	000	388	5	046	9	14	832										
			085	1100	2	1326	3	4951 495	+ 4	784	2	0.04	1 3 9 1	٦	050	8	14	846 846										
			085	1200		)349	ר ג	4950	o 2	782	2	000		2	520	5	14	846										
			51	D 1300	,	0340	3	495	2	78	3	000	0386	8	054	7	14	859										
			OBS	1300	(	0340	3	495.	2 2	783	3						14	859										
			51	D 1400	(	0332	3	495	Z	784	4	000	384	8	058	6	14	872										
			OBS	1400	(	332	3	495.	2 2	784	4				o		14	872										
			ST	D 1500		0318	3	495		785	5	000	0377	Ť	062	4	14	883										
			065	1200		J 1 L H	- 1	- 74 '	7 4	10	3							002										

CODE   NO.   NUMBER   BUTIOM   State   CODE   NO.   NUMBER   BUTIOM   State   CODE   NO.   NUMBER   BUTIOM   State   CODE   CODE   State   CODE   NO.   NUMBER   BUTIOM   State   CODE   State   CODE   NO.   NUMBER   BUTIOM   State   CODE   State   CODE   NO.   NUMBER   BUTIOM   State   CODE   NO.   NO.   State   CODE   NO.   NO.   State   State   NO.   State   State   NO.   State   State   NO.   State	NUMBR     0   4   0126     NO2-N   NO1-N   5104-51     yg - o1/1   yg - o1/1   yH
318001 EV 59030N 045230W 185 95 06 04 190 1966 9633 2377 15 17 3 3 x2   WATE WIND BARO- TORCE ARE TEMP. 'C VIL OPY BULB VIL OPS BULB SPECIAL OBSERVATIONS SPECIAL OBSERVATIONS SPECIAL OBSERVATIONS SPECIAL OBSERVATIONS   MESSENCE CAST TME D CAST TYPE CARD TYPE DEPTH Im) T 'C S 'L'. SIGMA-T SPECIAL ANOMALY-LIO' SOUND VELOCITY O2 mI/I PO4-P TOTAL-P   MESSENCE CAST TWE D DEPTH Im) T 'C S 'L'. SIGMA-T SPECIAL ANOMALY-LIO' SOUND VELOCITY O2 mI/I PO4-P TOTAL-P   MESSENCE CAST TYPE DEPTH Im) T 'C S 'L'. SIGMA-T SPECIAL ANOMALY-LIO' SOUND VELOCITY O2 mI/I PO4-P TOTAL-P   NO. STD 00000 0513 3487 2758 0005188 0000 14714	0 4 0126
COLOR TRANS, CODE   DIR. Imit   Tree or DT   DIR. SOURCE   Tree Tree Tree   DIR. SOURCE   Step Attree Tree Tree   DPY BULB   WET BULB   OBS, BULB   Step Attree DEPTH   OBS, OBSERVATIONS   Step Attree DEPTH   OBSERVATIONS     MESSINGE   CAST   CARD TIME or NO.   DEPTH (m)   T   C   S '.   SIGMA-T   SHCHIC VOLUME ANOMALT-TIO   SOUND VELOCITY   O2 mI/L   PO4-P 107A-D   107A-L=P 109 - 01/L   PO4-P 107A-L   107A-L   PO4-P 107A-L   107A-L <th>NO2-N NO3-N SIO4-51 pH S gg - ar/1 yg - ar/1 yg - al/1 C</th>	NO2-N NO3-N SIO4-51 pH S gg - ar/1 yg - ar/1 yg - al/1 C
DT   SD   11   SO5   997   056   044   7   23     MESSENGE   CAST   CARD   DEPTH (m)   T   C   5 * '.'.   SIGMA-T   SECURE VOLUME ANOMALT-LIO?   SOUND VELOCITY   O 2 mi/L   PO4-P   TOTAL-P     HR   1/10   T   C   5 * '.'.   SIGMA-T   SECURE VOLUME ANOMALT-LIO?   SOUND VELOCITY   O 2 mi/L   PO4-P   TOTAL-P     STD   0000   0513   3487   2758   0005188   0000   14714	NO2-N NO3-N \$104-51 pH \$ ug - a1/1 ug - a1/1 ug - a1/1 c
MESSENCE   CAST   CARD   DEPTH Im)   T   C   S '4'.   SIGMA-T   SPECIFIC VOLUME ANOMALT_LIO?   SOUND VELOCITY   O = P   TOTAL=P     HR   1/10   STD   0000   0513   3487   2758   0005188   0000   14714	NO2-N NO3-N \$104-51 ug-a1/1 ug-a1/1 ug-a1/3 pH \$2
STD 0000 0513 3487 2758 0005188 0000 14714	
STD 0000 0513 3487 2758 0005188 0000 14714	
STD 0020 0512 3490 2750 0004988 0010 14715	
002 0B5 0020 0513 34900 2760 0004788 0010 14718	
STD 0030 0518 3492 2761 0004915 0015 14721	
OBS 0030 0518 34919 2761 14721	
OBS 0340 0516 34919 2761 14722	
STD 0050 0516 3494 2763 0004764 0025 14724	
STD 0075 0517 3498 2766 0004503 0036 14729	
OBS 0075 0517 34980 2766 14729	
STD 0100 0518 3498 2766 0004531 0048 14734	
OBS 0100 0518 34982 2766 14734	
STD 0125 0518 3499 2766 0004540 0059 14738	
055 0125 0518 34985 2766 14738	
STD 0150 0521 3500 2767 0004502 0070 14743	
STD 0250 0525 55011 2768 0004515 0115 14755	
STD 0220 0517 3301 2768 0004513 0115 14759	
085 0300 0513 35010 2749 14755	
STD 0400 0495 3699 2769 0004560 0193 14777	
STD 0500 0448 3496 2772 0004360 0228 14771	
OBS 0500 0448 34959 2772 14771	
STD 0600 0421 3495 2774 0004256 0271 14776	
OBS 0600 0421 34945 2774 14776	
STD 0700 0401 3494 2776 0004138 0313 14784	
OBS 0700 0401 34943 2776 14784	
STD 0800 0383 3494 2778 0004023 0354 14793	
OBS 0800 0383 34943 2778 14793	
STD 0900 0373 3494 2779 0004011 0394 14806	
OBS0900037334941277914806	
STD 1000 0362 3495 2780 0003939 0434 14818	
085 1000 0362 34945 2780 14818	
STU 1100 0356 3494 2781 0003974 0473 14832	
5 1100 0355 34942 2781 14832 5 10 1300 0352 3495 3323 0003070 0513 14977	
0 BS 1200 0352 34950 2782 0003949 0313 14847	
STD 1300 0351 3492 2182 0003081 0553 2497	
OBS 1300 0351 34965 2782 0003981 0353 14863	
STD 1400 0345 3496 2783 0003087 0502 14853	
0B5 1400 0345 34965 2783 0003987 0392 14878	
STD 1500 0335 3496 2784 0003930 0622 14900	
OBS 1500 0335 34955 2784 0003757 0852 14890	

REFE	ENCE	SHIP					⊨ č.	MARS	DEN	S T A	TION	TIME			PIGINA	TD 8'S		DEP	тн	MAX		WA	VE		WEA-	CLC	duc			NODC
CTRY	ID.	CODE	LATITU	DE	LONG	TUDE	NOC	SQU	A.P.E		(G M 1	0	YEAR	CRUISE	\$1	ATIDN	1	TO		OF	08	SERV	A TIDI	NS	THER	co	DES		s	TATION
	NO.			1/10		1/10	=	10*	1.	MO	DAY	HR.1/30		NO.	N	J AN BER		8011	JW	S*M PL*S	D18	H G1	PER	SEA	CODE	TYPE	A M T		N	UMBER
Э1	8001	ΕV	5903	ON	045	230W		185	95	06	04	197	1966	,	963	13		237	17	23	17	3	3		X 2	7	8			0127
								[	W A	TER	T	WIND	PAP	0- 4	IR TEM	P, *C	1	NO	T.			1					-			0121
									COLOR	TRAN (m)		SPEE OR FOR	D MET	ER E s) B	) RY U L B	W ET BULB	CODI	DEPT	HS	OBSERVA	A TION S									
											1	I SO	5 95	7 0	56	044	• 7	03	3		-	1								
		MESSENG TIME HR 1/10	CAST	C AI TYI	RD PE	DEPTH	(m )	т	°C	1	s •4.	SIC	GMA-T	SPECIFIC ANOM	VOLUN ALT-X10	,E Z	E △ D YN. M X 10 ³	v	SOU	ND CITY	0 ; ml/	l F	04-1 9 • 01	P T (	01AL=P g = a1/1	NO2- 29 - 0	-N 01/1	NO3-N 29 - al/1	SID≱→Si NG × 01/1	рН
	1	10	7	S	TD	150	0	0	338	34	94	2	782	000	4109				48	388										
		19	'	S	5 TD TO	175	0	0	321 291	34	+95 +95	2	782 784 788	000	4012 3732	2		1	148 149 149	923										
		19	7	OВ	s ·	T 201	5	0	289	34	955	5 2	788					1	49	55										
		19	7	ОВ	S	226	7	0	244	34	924	+ 2	790					1	40	78										

CTRY CODE	ID, NO.	SHIP	LATITU	DE 1/10	LON	GITUDE 1/10	CRIFT INDCTR	MARS SQUA	DEN ARE	st MO	IG MT	TIME HR,1/10	YEAR	CRUIS NO,		ATOR'S TATION UMBER		D 8	EPTH TO TTOM	MAX. DEPTH OF S'MPL'S	OE DIR.	W) ISERV	A VE A TIOI	N S SEA	WEA- THER CODE	CLO COD TYPE	U D DES		5T Pi	IODC ATION JMBER	
31	8001	Εv	5849	N	04	551 W		185	85	06	04	222	1966	<u>،</u>	96	34		25	560	15	26	6	3		×1	0	4			0128	
								F	WA	TER		WIND CREE	BAS		A IR TE	M.P. °C	VIS	1	NO.	SPEC	IA L										
									COLOR	TRA In	NS DIR.	FORC	E (mt	51	BULB	BULB	COD	DE	EPTHS	OBSERVA	a tion s										
									DT	S	D 26	51	5 00	00 0	050	030	7	i	24												
		MESSENGE TIME	CAST NO.	C A R TYP	RD YE	DEPTH I	m 1	Ť	°C	T	s •4,	510	- A - T	SPECIF	IC VOLU	ME 0	E A D DYN. N X 10 ³	4	SON AFFO	IND DCITY	Og mi	4	PO_4	Р Т /I	TOTAL=P µg - pi∕i	NO2- vg - o	-N 171	NO3=14 yg + ol/1	St O 4 ~~ Si µg + ot i l	pН	\$CC
		HK 1710								+		-		+	~~~			-+				• †									1
				s.	TD	000	0 ′	0	473	3	470	2	749	00	0602	5 (	0000	ο'	140	695											
		22	2	08	s	000	0	0	473	3	4700	2	749	0.0	04.03			,	140	695											
				081	10	001	0	0	413	2	470	2	749	00	0003	6 (	0008	D	14	697											
				S	TD	002	õ	õ	473	3	471	2	750	00	0597	3 (	0012	2	14	698											
		00	4	OB	S	002	0	0	473	3	4710	2	750						14	698											
				S	TD	003	0	0	473	3	479	2	756	00	0538	4 (	001	8	14	701											
				OB.	5	003	0	0	473	3	34790 17.93	) 2	750	0.0	051/	6	10.24	9	14	701											
				08	20	005	0 ()	0	410	2	403	, 2	759	00	0914	0	0020	0	14	707											
				S	TD	007	5	ŏ	476	3	3489	2	764	00	0472	6	004	1	14	711											
				0B	S	007	5	0	476	3	34889	2	764						14	711											
				S	ΤD	010	0	0	490	3	3492	2	764	00	0467	8	005	2	14	721											
				OB	S	010	0	0	490		34920	2	764	~ ~			20.6	,	14	721											
				S	τυ	012	5	0	490	-	3494 3404/	2	766	00	0423	8	10.6	4	14	726											
				00 S	тр	012	o l	ă	490	-	3496	2	767	00	0446	0	007	5	14	730											
				08	S	015	õ	õ	490		3495	7 Z	767						14	730											
				S	ТD	020	0	0	498	3	3497	2	768	00	0450	)7	009	8	14	742											
				ΟВ	S	020	Q	0	498	3	3497	1 2	768			-	- 1 -		14	742											
				S	TD	025	0	0	493	-	3498	2	769	00	0444	+9	012	0	14	748											
				UB c	S TD	025	0	0	492	-	3497	7 2 2	770	0.0	0443	6	014	2	14	756											
				08	S	030	õ	ŏ	491		3498	7 2	770	00	· · · ·			-	14	756											
				Š	TD	040	0	0	480		3496	2	769	00	0459	92	018	7	14	767											
				ОB	S	040	0	0	480	1	3496	32	769						14	767											
				S	TD	050	0	0	459	-	3494	2	770	00	046	37	023	3	14	775											
				OB	S	050	0	0	459		3493' 3496	+ Z	773	0.0	044	3.1	027	9	14	786											
				08	S	060	õ	ŏ	445	-	3495	9 Z	773	00	••••	-		-	14	786											
				S	TD	070	0	0	420		3495	2	775	00	042	99	032	2	14	792											
				OB	S	070	0	0	420	1	3495	1 2	775					_	14	792											
				S	TD	080	0	0	403	-	3495	2	776	00	042	)4	036	5	14	802											
				OB	S	080		0	1403		3495 2495	J 2 2	779	0.0	040	57	040	6	14	811											
				ов 0 В		090	0	0	386		3499	2	778	00	040	21	0+0	0	14	811											
				S	TD	100	10	c	370		3494	2	779	00	040	70	044	7	14	821											
				OB	IS	100	0	C	370	;	3494	0 2	779						14	821											
				S	TD	110	0	C	365		3494	2	780	00	040	89	048	8	14	836											
				08	s	110	0	C	365		3494	1 2	780	0.0	0.6.1	1 2	050	0	14	836											
				S	STD	120	0	0	1360		3494 3401	1 2	780	00	041	1 4	092	7	14	850											
				0 D	STD	130	0	0	359		3496	2	782	00	040	55	057	0	14	867											
				08	35	130	0	č	359		3495	7 2	782						14	867											
				S	STD	140	00	C	353		3496	2	782	00	040	65	061	1	14	881											
				OB	as_	140	00	C	353		3495	8 2	782	0.0		0.5		,	14	881											
				5	STU .	150	00	0	341		3496 2405	2 م	183	00	1039	82	לסט	1	14	1993											
				UE	10	100	~ ~	. U	1241		2772	, 2	.07																		

REFE	RENCE	SHIP					14	MARS	DEN	STA	TION	TIME	YEAR		0	RIGINA	OR"S		DEPTH	DEPTH	- o	W / BSERV	A VE	45	WEA- THER	CLOUD		5	NODC ATION	
CTRY	ID.	CODE	LATITU	DE	LONG	STUDE	100	saur	~**		10 141 1	·	12/1	<u>ا</u>	ERUISE	STA	TION	1	BOTTON	OF			1	7	CODE	1.01 1.00	-	N	UMBER	
CODE	NO.		•	1/10		1/1	0	10"	)*	MO	DAY	HR.1/10	)		NO.	NU	MBER			S.W.P.	-7 DI8	HG	TPEP	75 W		TTPL AM				
31	8001	Εv	5849	N	045	51 1	N	185	85	06	04	235	196	66		963	4		2560	25	5 20	26	3		X 1	76			0129	
								[	WA	TER	T	WIND		480	A	IR TEMP	° °С		NO.		COLA:									
									COLOR	TRAN (m)	S DIR	SPEE OF FOR	D M	ETER mbs)	D BU	RY ILB	W E T 8 U L B	CODI	OBS. DEPTHS	OBSER	VATION	s								
											26	5 51	5 (	000	0 09	50	039	7	03			L,								-
		MESSENG TIME	CAST NO.	СА	RD PE	OEPTH	I (m)	1	'C		s •⁄	51	G M A =1	7	SPECIFIC AND MA	VOLUM	e ž	∆ D YN M X 10 ³	SO VEL	UND OCITY	0 2 m	I	PO 4-1	n 10	OTAL⇒P ug × ol 11	NO2-N 49 - 61	NO3⊷N µg - al l	SLO ₄ -S pg - ot l	¢Н	500
										-		-																		ļ
		23	5	08	IS STD STD	T15 17 20-	10 50 00	00000	342 319 295	3.	494( 494 494	2 2 2 7 2	782 784 786 786		000	4031 3889			14	892 922 955										
		23	5	OE	35	120	62	0	235	3	492	5 2	790						ī.	8008										

REFERENCE CTRY ID. CODE NO.	SHIP	LATITU	DE		MARSDEN SOUARE	ST	ATION T	IME	YÉAR	CRUISE	ORIGIN	ATOR"	s N	DEPTH TO	MAX. DEPTH OF	280	WAVE ERVATIONS	W EA- THER	CLOUD			NODC	
220.001			3/10	1/10 -	10" 1"	MO	DAY	IR,1/10		NO.		NUM8	R	10110M	S'MPL'S	DIR,	HGT PER SI	EA CODE	TYPE AM	1		NUMBER	
318001	EV	5815	NIC	04659 W	185 86	06	05	055	1966	L	96	35		3017	15	29	4 3	×1	0 4			0130	[
					i cou	ATEK	-	NIN D	BARC	·	AIR TE	M.P. "C	- vis.	NO.	SPEC	IAL							
					COD	E Im	DIR.	OR	(mbs	K   [	ULB	BUL	COD	DEPTHS	OBSERV	A TION S							
					01	S	0 27	\$10	00	3 0	44	03	3 7	24									
	MESSENGR	0.00				1		1			_				1			_	_				
	TIME	NO.	C ARD TYPE	DEPTH (m)	t "C		s *4.	SIGN	1 – A A	ANOM	ALY-11	M E 07	≥ ∆ D DYN, M	SOU	DA	0.2 ml/1	PO4-P	TOTAL-P	NO2-N	NO3-N	5104-5	вн	1
	HR 1/10												X 10 ³				29 × 01/1	l/lo - gu	hð - 01/1	µg + al/l	µg = 01/		0
		1	6.77	0000					1									.					1
	0.50	<b>`</b>	086	0000	0503	و	487	21	59	000	507	7	0000	14	710								
	0.00	,	510	0000	0503	2	4870	21	59		EAE	,	0005	14	710								
			085	0010	0502	ר ק	407	27	59	000	505	0	0005	14	711								
			STE	0020	0502	3	488	27	5 <del>5</del> 6 0	000	501	5	0010	1.4	712								
	005	,	085	0020	0502	ž	4880	27	60	000	201	2	0010	14	713								
			STO	0030	0501	3	490	27	61	000	488	1	0015	14	714								
			OBS	0030	0501	3	4898	270	61			-		14	714								
			STC	0050	0485	3	492	270	65	000	457	8	0025	14	711								
			085	0050	0485	3	4918	270	65					14	711								
			STL	0075	0483	3	+92	270	65	000	457	8	0036	14	714								
				0075	0483	3	4919	270	55					14	714								
			085	0100	0472	.ر د	493	210	67	000	444	1	0047	147	714								
			510	0125	0460	3	+920	270	5/ 40	000		2		147	714								
			085	0125	0460	3	1035	276	19 10	000	420	5	0058	14	113								
			STD	0150	0464	3.	95	27	70	000	423	8 1	1060	147	110								
			OBS	0150	0464	3.	948	27	70	000				147	719								
			STD	0200	0453	3	+94	271	70	000	421	8 (	0090	147	23								
			OBS	0200	0453	3	+942	277	70		-			147	23								
			STD	0250	0447	34	+94	27	71	000	422	9 (	0111	147	129								
			OBS	0250	0447	34	+939	27	71					147	29								
			STD	0300	0444	- 34	+94	277	71	000	425	7 (	0132	147	136								
				0300	0444	34	938	271	71					147	36								
			085	0400	0430	34	+94	211	12	000	422	1 (	0175	147	746								
			STD	0500	0430	2	•930 •930	275	í∠ 77.	000				147	46								
			OBS	0500	0421	3.	938	277	74	0000	420	/ (	5211	147	59								
			STO	0600	0420	34	96	27	75	0004	413	3 (	1/58	147	75								
			OBS	0600	0420	34	960	277	75			- `		147	76								
			STD	0700	0397	34	95	277	77	000	404(	o c	299	147	82								
			OBS	0700	0397	34	950	277	7					147	82								
			STD	0800	0368	34	92	277	8	000	3999	9 (	)339	147	85								
			005	0000	0368	34	923	217	18					147	86								
			085	0900	0361	34	022	211	, 9 10	0004	4005	> (	0380	148	00								
			STD	1000	0356	34	923	211	19	000				148	00								
			085	1000	0356	34	920	277	0	000	+05.		-20	148	15								
			STD	1100	0354	34	93	279	10	0004	4079	5 0	1460	140	31								
			OBS	1100	0354	34	925	278	0					148	31								
			STD	1200	0350	34	93	278	0	0004	+109	9 0	501	148	46								
			OBS	1200	0350	34	925	278	0					148	46								
			STD	1300	0350	34	93	278	0	0004	+160	) (	)543	148	63								
			OBS	1300	0350	34	929	278	0					148	63								
			SID	1400	0350	34	94	278	1	0004	+174	+ 0	584	148	06								
			UBS	1400	0350	34	938	278	1					148	80								
			085	1500	0351	34	75	278	1	0004	+219	> C	1626	148	97								
			005	1900	10001	54	740	213	1					148	97								

REFERENCE	SHIP	LATITU	DE I	ONGITUDE	MARSDEN SQUARE	STATION TO	vi E	rE A R		INATO STATI	e's ON	DEP	тн	MAX, DEPTH	0858	WAVE RVATIONS	WEA- THER	CLOUD		N ST	IODC ATION	
CODE NO.	CODE	•	1/10	• '1/10 ^{C Z}	10. 1.	MO DAY H	1/10		NO.	NUM	8E 8	8011	OM .	S'MPL'S	DiR.	HGT PER SI	A CODE	TYPE AM		N	J W RFK	
318001	Εv	5743	ON	48070W	185 78	06 05 1	05 1	966	9	636		329	94	15	28	4 3	×1	0 4			0131	
					WA.	TER W	SPEED	BARC	R DRY	TEMP.		NO	5	SPEC								
					CODE	imi DIR.	OR FORCE	(mbs	1 BULB	80	LB	DEPT	THS	0030844								
					DT	SD 27	514	03	0 078	0	50 7	2	7									
	MESSENGR	CAST	CARD	DEPTH (m)	r °c	s •/	SIGM	A – T	SPECIFIC VO		₹ ∆ D DYN, M		5001	ND	0.2 ml/l	PO 4-P	TOTAL-P	NO2-N	NO3-N	SI O 4-SI	рН	S
	HR 1/10	NO.	TYPE								x 10 ³	_	VELOU			1/16 + DU	pg - 07/1	09 - 01/1	90 - 01/1	bg • divi		-
		1	_			1							1 /			1					I	l
	105		ST	0000	0503	3490	276	1	00040	552	0000		147	10								
	10,	,	ST	0010	0502	3490	276	2	00048	38	0005	5	147	11								
			OBS	0010	0502	34902	276	2					147	711								
			ST	0020	0501	3490	276	2	00048	339	0010	) [	147	713								
	003	•	085	0020	0501	34902	276	2	000/14		0016		147	713								
			STL	0030	0501	3490	276	.2	00048	544	001:		147	714								
			510	0050	0494	3489	276	1	00049	25	0024		147	714								
			085	0050	0494	34885	276	1					147	714								
			ST	0075	0476	3491	276	5	00045	668	0036	5	147	711								
			OBS	0075	0476	34910	276	5					147	711								
			085	0085	0449	34930	277	0					147	702								
			085	0090	0462	34930	270	10	0004	76	004	7	147	700								
			085	0100	0458	34940	277	ŏ	000+.		004		147	109								
			ST	0125	0458	3496	277	1	00040	)54	005	7	147	713								
			OBS	0125	0458	34960	277	1					147	713								
			STI	0150	0458	3495	277	0	0004	180	0068	8	147	717								
			085	0150	0458	34947	277	0				-	147	717								
			STI	0200	0447	3494	211	( 1 7 1	0004.	152	0088	5	141	720								
			510	0200	0447	3490	277	72	00040	97	0104	9	147	713								
			OBS	0250	0410	34903	271	2					14	713								
			085	0275	0396	34900	277	73					147	711								
			ST	D 0300	0412	3491	277	12	0004	154	0130	С	147	722								
			OBS	0300	0412	34905	277	12	0004	17.0	017	,	141	122								
			085	0400	0416	3493	27	12	0004	140	UI I.	1	14	740								
			51	0400	0395	3493	27	75	00040	014	0413	2	147	748								
			OBS	0500	0395	34925	271	75					14	748								
			ST	D 0600	0380	3490	271	75	0004	127	025	3	14	758								
			OBS	0600	0380	34900	27	75			0.20	,	147	758								
			ST	0700	0373	3490	21	16 74	0004	134	029	4	14:	112								
			51	0,000	0369	3491	27	76	0004	144	033	6	14	787								
			OBS	0800	0369	34905	27	76				-	14	787								
			ST	D 0900	0360	3491	27	78	0004	105	037	7	148	800								
			085	0900	0360	34908	27	78				_	148	BOU								
			ST	D 1000	0352	3491	27	78	0004	103	041	8	148	813								
			OBS	1000	0352	34907	27	78	000/	197	046	a	148	813								
			085	1100	0352	34917	27	70 78	0004	104	045	7	148	830								
			ST	D 1200	0350	3491	27	79	0004	234	050	1	148	845								
			OBS	1200	0350	34908	27	79					148	846								
			ST	D 1300	0350	3491	27	79	0004	307	054	4	141	862								
			OBS	1300	0350	34909	27	79	0.001	201	050	-	148	862								
			ST	D 1400	0351	3492	27	80	0004	296	028	(	141	880 880								
			51	0 1500	0350	3492	271	30	0004	363	003	0	141	896								
			OBS	1500	0350	34923	271	30		-			14	896								

REFERENCE CTRY ID. CODE NO.	SHIP	LATITU	DE 1/10	ONGITUDE 11/10	MARSDEN SGUARE	ST MO	ATION IGM	TIME 1) [HR, 1/10	YEAR	CRUISE NO.	DRIGINATO STA NU	R*S TION ABER		DEPTH TO BOTTOM	MAX. DEPTH OF S"MPL"	OBS S DIR	WAV ERVA	VE TIONS PER S	WEA THER CODE	CLOUD CODES	T	S'N	ADDC TATION UMBER
31800	εν	5743	ON O	48070W	185 78	06	05	116	1966		9636	,		3294	32	28	4	3	×1	84			0132
					Ŵ	ATER	1	WIND	BAR	o- [ /	AIR TEMP.	°C		NO.		CIAL							
					COLC	R TRA		R. OS FOR	D MET	ER ( s) B	DRY NULB B	VET ULB	CODI	OBS. DEPTHS	OBSERV	ATIONS							
							2	7 51	4 03	0 0	78 (	50	7										
	MESSENGR TIME O	CAST NO.	C ARD TYPE	DEPTH (m)	т °с		s •/	. 51	GMA-T	SPECIFIC	C VOLUME	₹ ∠ DYN X	∆ D 4. M 10 ³	. SOI	UND DOITY	O2 m1/1	P( v 9	04⊷P  + q1/(	ТОТАЦ—Р µg = a1/1	NO2=N µg + otzi	NO3=N 49 - at/1	\$1 D ₄ =\$1 µg = 61/1	pН
												1			_								
	['] 116	, ,	OBS	T1483	0357	<u>'</u> 3	492	8 2	779					14	893								
			STD	1500	0357	3	493	2	780	000	4400			14	896								
			STD	1750	0355	3	493	2	780	000	4580			14	938								
	116		OBS	<b>T</b> 1979	0354	. 3	493	8 2	781					14	976								
			STD	2000	0353	3	494	2	781	000	)4684			14	979								
	116	, ,	OBS	2462	0318	3	493	8 2	784					15	043								
			STD	2500	0314	3	494	2	784	000	04500			15	048								
	116		OBS	2948	0392	P 3	492	4 2	776P														
			STD	3000	0233	3	492	2	790	000	)3732			15	100								
	116	<b>,</b>	OBS	3151	0200	) 3	491	0 Z	792					15	112								

REFEPEN	CE	SHIP		.			MAR	SDEN	STATI	ON TI	ME		0	RIGINA	TOR'S	_	DEPTH	MAX		WAVE		WEA-	CLOU	JD			морс –	
CTRY I	D. 0.	CODE	tannu •	DE	LON		500		1	» M II		YEAR	CRUISE	ST	ATION		TO	OF	OBS	ERVATION	IS C	THER	COD	ES		S	TATION	
3190	0.1	EN	5 7 0 7	17.50	0.0		10.		M0 0	AY HI	R.1/10		- NO.	140				SWPL	S DIR	HGT PER	SEA		TYPEA	LM1	_		0 10 6 6 6	
2 TBC		EV	5101	N	049	911 W	185	79	0610	5	.68	1966		963	7	,l	3530	15	29	33	1	Х2	0	4		[	0133	
								WA	ξK	w	SPEED	- SAR	- AI	RTEM	P, °C	vis	NO,	SPE	CIAL									
								CODE	TRANS. Im)	DIR.	08	(mbs	R DF	LB	WET BULB	CODE	DEPTHS	OBSERV	ATIONS									
								DT	sn	20	512	0.7	7 07	0	050	7	20											
	ſ			· · ·					30	20	512	103	1 01	0	100	1	29	l,			,							_
		MESSENGR TIME 0	CAST	CAR	D	DEPTH (m)	т	"C	s	1.	SIG	MA-T	SPECIFIC	VOLUM	E S	∆ D N. M.	so	UND	0.2 m1/1	PO4-P	TOTA	L-P	N02-	NN	103-N	5104-51		5
		HR 1/10	NO.	1 1 1 1									ANOMA	LY-X10.	x	103	VEL	OCITY	01 101	ug = a1/	1 vg -	01/1	10 - QV	/l y	g = 01/1	µg - o1∕1	рн	2
																_									-			+
				ST	D	0000	0	494	347	8	27	53 '	0005	645	00	000	14	705		1	1	- 1		1	1			
		168		OBS	5	0000	0	494	347	81	27	53					14	705										
				SI	D	0010	0	483	348	0	27	55	0005	432	00	06	14	702										
				OBS	5	0010	0	483	347	95	27	55					14	702										
		0.07		51		0020	0	425	348	0	27	62	0004	778	00	11	14	680										
		007		085	2	0020	0	425	348	02	27	62					14	680										
				0.00		0030	0	201	340	2	21	68	0004	219	00	115	14	666										
				003 57	п	0050	0	392	340	1.4	21	68	00/04	1	00		14	666										
				089		0050	a.	382	348	30	27	60	0004	100	00	24	14	667										
				ST	0	0075	õ	384	348	8	27	73	0003	823	0.0	12/	14	473										
				OBS		0075	õ	384	348	80	27	73	0000		00		14	673										
				OBS	, ,	0085	Ō	413	348	70	27	69					14	615										
				OBS	,	0092	Ū	397	349	00	27	73					14	681										
				ST	D	0100	0	422	349	1	27	71	0004	034	00	) 4 3	14	693										
				OBS	,	0100	Ũ	422	349	8 0	27	71					14	693										
				ST	D	0125	0	407	348	9	27	71	0004	039	00	54	14	691										
				OBS		0125	0	407	348	90	27	71					14	691										
				UBS		0140	0	385	348	90	27	74					14	684										
				080	U	0150	0	398	349	1	27	74	0003	621	00	63	14	691										
				085		0160	0	415	349	00	27	74					14	591										
				OBS		0180	ŏ	398	348	90	27	72					14	496										
				ST	D	0200	ō	413	349	ĩ	27	72	0004	034	00	83	14	706										
				OBS		0200	Ō	413	349	09	27	72	0001	0,00	00	.0.2	14	706										
				ST	D	0250	O	403	349	0	27	73	0004	046	01	03	14	710										
				OBS		0250	0	403	349	00	27	73					14	710										
				ST	D	0300	0	395	349	0	27	73	0004	047	01	23	14	715										
				085		0300	0	395	348	95	27	73					14	715										
				0.90	υ	0400	0	387	349	0	21	74	0004	006	01	64	14	727										
				500	'n	0400	0	202	340	99	21	74	0.004	1.0.0	0.2	0.5	14	727										
				085	0	0500	0	377	348	0 75	21	72	0004	140	02	05	14	740										
				ST	0	0600	ŏ	368	349	۰,	27	76	0004	010	0.2	46	14	753										
				OBS		0600	ō	368	348	98	27	76	000.	010	01	-0	14	753										
				ST	D	0700	0	365	349	0	27	77	0004	035	04	86	14	768										
				OBS		0700	0	365	349	02	27	77					14	768										
				ST	D	0800	0	358	349	0	27	77	0004	049	03	26	14	782										
				OBS		0800	0	358	349	01	27	77					14	78∠										
				SI	D	0900	0	352	349	0	27	78	0004	065	03	67	14	796										
				005	0	1000	0	372 251	349	101	27	78	0.000	104	0.4	20	14	796										
				OBS	0	1000	0	351	340	1 0 5	27	10	0004	100	04	08	14	812										
				ST	D	1100	0	350	349	1	27	79	0004	146	04	40	14	912										
				OBS		1100	0	350	349	09	27	79	0004	0	0.4	• /	14	829										
				ST	D	1200	0	349	349	1	27	79	0004	215	04	91	14	845										
				OBS		1200	0	349	349	09	27	79			-	-	14	845										
				ST	D	1300	0	350	349	1	27	79	0004	300	05	33	14	862										
				085		1300	0	350	349	10	27	79					14:	862										
				ST	0	1400	0:	349	349	1	27	79	0004	359	05	77	14	879										
				UBS	0	1400	0	349	349	11	271	79					14	879										
				51	0	1500	0	148 148	349	۲ ۱۲	27	79	0004	396	06	20	14	895										
				005		1200	0	548	349	12	27	19					148	895										

REF CTRY CODI	ID.	SHIP CODE	LATITU	1/10	LONGITUDE	DRIFT INDC18	MARS SQU	DEN ARE		ON TH GMTI AY HI	v.e	YEAR	CRUIS		ATOR'S TATION	i R	DEPTH TO BOTTOA	MAX DEPTH OF S'MPL'S	OBS DIR	WAVE SERVATION HGT PER	N S SEI	WEA- THEP CODE	C LC C C TYPE	DUD DES		S N	NODC TATION UMBER	
3	18001	Εv	5639	ON	050020	w 📃	186	60	06 0	5 2	23	1966		96	38		3566	15	26	4 2		×2	0	4			0134	
							[	WA	TER	w	IND	BAR		AIR TE	NP C	V15	NO.	SPEC	TAL									
								CODE	TRANS (m)	DIR,	SPEED OR	/ MET	R	DRY BULB	BULB	CODI	DEPTHS	OBSERVA	A TION S									
							2	ΟI	50	28	508	01	7	061	0.5	5 7	24	1										
			1				1		1				Inter			₹ ∆ D				10		1014	NO.		NOUL	00. L		5
		TIME	입CAST 약 NO.	CAR	D DEPTI	H (m)	T	ъ	S	•/	ŝig	M A - T	ANO	NALY-31	07	2 10 ³	VEL	OCITY	0 2 ml/l	P.9 - 01	1	- ug + of /	NO2	at/1	1403=14 yg - at/1	nð - ot i 2103-21	рн	E
		HR 1/10	· •						-		-						-			-	+							+
				51	00 0	0.0	0	525	34	10	27	143	0.01	0663	5	0000	14	•716		1	)			1			5	
		22	3	085	5 00	00	ō	525	346	95	27	143	••		-		14	716										
				51	D 00	10	0	525	34	0	27	143	00	0663	2	0007	14	718										
				085	00	1Ū	0	525	348	97	27	143					14	•718										
		0.0		S1	00 D	20	0	505	34	6	27	750	00	0594	8	0013	1/	4712										
		00	4	085		20	0	505 787	34	160	21	750	20	nsne	6	0018	14	4708										
				084	L 00	30	0	487	348	150	2	759	00	0,000	0	0010	14	+708										
				SI	D 00	50	0	413	348	6	27	768	00	0425	8	0028	14	+680										
				085	5 00	50	0	413	348	59	27	768					14	4680										
				S1	D 00	75	0	399	348	36	27	770	00	0413	3	0038	14	+679										
				089	5 00	75	0	399	348	350	27	770	~ ~	~ ~ ~ ~		00/0	14	4679										
				089	0 01	00	0	203	340	365	2	771	00	0408		0045	14	4680										
				51		25	õ	393	348	38	2	772	00	0348	6	0059	1	4685										
				085	6 01	25	0	393	341	\$78	2	772					14	4685										
				S	rD 01	50	0	392	348	38	2	772	00	0397	υ	0069	14	4688										
				085	5 01	50	0	392	341	382	2	72	0.0		0	00.00	14	4688										
				51	02	00	0	393	340	19 197.	2	//3 773	00	0346	.8	0088	1.	4697										
				ς ·	rD 02	50	õ	393	340	20	2	773	00	0397	9	010 <i>a</i>	1 Î.	4705										
				089	5 02	50	0	393	34	395	2	773					14	4705										
				S	rD 03	00	0	393	34	90	2	773	00	0402	6	0128	3 14	4714										
				08	5 03	00	0	393	341	995	2	773					1	4714										
				S	TD 04	00	0	394	34	90	2	773	00	0413	2	0169	9 14	4731										
				083	S 04	00	0	394	34	395	2	173	0.0	0415		0210	1.	4731										
				081	10 05 5 05	000	0	385	340	29	2	77/.	00	0415	0	9210	1	4743										
				S	TD OF	00	õ	375	34	58	2	774	00	0419	1	0252	2 1	4750										
				OB	5 06	00	0	375	34	384	2	774					1	4756										
				S	TD 07	00	0	367	34	58	2	775	00	0420	)6	0294	+ 1	4769										
				08:	S 07	00	0	367	34	382	2	775	0.0	A		0 2 2 4	1	4769										
				08	r 08 In 08		0	301	34	30	2	115	00	0420	19	0000	1	4781										
				ς. ς.	5 00 10 09	000	á	353	34	38	2.	776	00	0424	7	0379	9 1	4796										
				08:	5 09	000	ō	353	34	378	2	776					1	4796										
				S	TD 10	000	0	362	34	99	2	776	00	0433	3 Q	0421	1	4817										
				08	5 10	000	0	362	34	392	2	776	0 -	0 / 7 -			1.	4817										
				S	נו טז יי	00	0	361	34	909 90	2	177	00	0435	98	0465	י <u>ג</u> ק	4833										
				5	5 13 TD 12	200	0	352	34	91	2	778	00	0425	51	0508	3 1	4846										
				08:	5 12	200	õ	352	34	÷09	2	778					1	4846										
				S	TD 13	300	0	355	34	91	2	778	00	0436	51	055	1 1	4864										
				0B	S 13	00	0	355	34	910	2	778					1	4864										
				S	TD 14	•00	0	352	34	91	2	779	00	0440	34	0599	5 1	4880										
				08	5 14	100 500	0	352	34	910. 910.	2	779	0.0	044	7 1	0620	a 1.	4880 4895										
				08	s 14	500	0	351	34	910	2	779	00	J-14		505	1	4896										
				<i></i>	بنج ب		<b>v</b>				-						-	w . v										

REFERENCE	SHIP CODE	LATITU	DE		MARS SQU	DEN ARE	STA	TIDN IGMT	TIME	Y	EAR		DRIGIN	A TOR'S	NR	80	TO TO DITOM	MAX DEPTH OF	0	W A SERV	ATION	IS CEA	WEA- THEP CODE	CLOUD CODES	-	N STA N L	IODC ATION J.M.BER	
31800	1 EV	5639	0N C	150020W	186	60	06	0 S	23	4 1	966		96	38		3	566	35	26	4	2	31.4	× 1	8 6		(	0135	
	-, -, ,		011   1		1.0-	WA	TER	Ť	WIN		BARC		AIR TE	AP °C		Ť	NO.	1		י 'ך							••••	
						COLOR	TRAN 1m)	5 DIR	λ. S	REED OR DRCE	M ETE (mbs	R	DRY BULB	W ET B U L B	COD	DE D	OBS. EPTHS	OBSERV	ATIONS									
								28	8 S	08	01	7	061	05	67	-	05	-		1								
	MESSENG TIME	CAST	CARD TYPE	DEPTH (m)	т	°C		•4.		SIGMA	- T	SPECIA	FIC VOLU	₩ E 0 '	≦ ∆ 0 DYN # × 10 ³	D M 1	SDU VELO	IND CITY	0 ; ml	1	PO 4 - P g - of		OTAL—F	ND2=** ug = 01*1	NO3=14	دا میلاد ۱۱ محلولا	рH	
		-			-		-															1						Ť
	23	4	085	T1517	0	357	34	899	9	277	7						14	899										
			STL	1750	0	356	34	92		217	9	00	0465	4			14	838										
	23	4	085	2024	0	300	34	97.	7	278	1	00	0400	2			14	980										
	23	-	ST	2500	õ	331	34	94	,	278	3	00	0471	1			15	055										
	23	4	OBS	T2548	0	328	34	94	1	278	3						15	062										
			STO	3000	0	293	34	+94		278	7	00	0445	ь			15	140										
	23	4	085	T3037	0	288	34	94	4	278	7						15	130										
	23	4	085	T3461	0	204	34	91	3	279	2						15	168										

CTRY 10. CODE NO.	SHIP CODE	LATITU	DE 1	ONGITUDE	MARSD SQUAT	RE 1*	STATION IGMT	TIME	YEAR	CRUISE NO.		ATOR'S TATION NUMBER	_	DEPT TO BOTTO		AX, TH IF PL*S	OBS	W A ER V	A TION	45 58A	WEA- THER CODE	CLOUD CODES			NODC STATION NUMBEI	1
318001	Εv	5602	N O	5106 W	186	61	06 06	021	1966		96	39		347	5 1	5	29	3	2	11.	× 1	0.4			013	6
					Ĺ	WA	TER	WIND	BAR		AIR TE	MP. C		NO.		PECI							Ť	,	015	Ç,
					C	OLOR	TRANS DIR		0 MET	ER   LI E	DRY BULB	WET BULB	CODI	DEPT	S OBSE	RVA	TIONS									
						DT	SD 28	51	0 01	4 0	50	044	7	24												
	MESSENGR	CAST	CARD		T 1			1		SRCIE	C NO		Δο	· · · ·					•					61.0		5
	TIME HR 1/10	Ϋ́ΝΟ.	TYPE	DEPTH (m)	1	°C	s •/	SIC	GMA-T	ANON	(ALT=1)	D D	YN, M X 10 ³	· v	ELOCITY	0	0.2 m1/1		10 - ati	a   1	vg = 01/1	NO2-N ug = 01/1	н03-н1 µg - at/1	9 - Q - C	-51 pH	Ċ
		1			1													+-								-+-
	1	,	STD	0000	05	20	3478	2	750	000	)594	źo	000	) ¹ 1	4716	<b>`</b>		1								
	02	1	085	0000	05	20	34780	2	750					1	4716	>										
			086	0010	05	19	3478	4	750	000	1242	0 0	006	1	4717	,										
			510	0020	05	19	3478	2	750	000	1596	3 0	012	1	4718	1										
	004	4	085	0020	05	19	34779	2	750					1	4718	,										
			STD	0030	04	94	3476	Z	751	000	585	3 0	018	1	4709	)										
			OBS	0030	04	94	34758	2	751					1	4709	2										
			STU	0050	04	00	3479	2	764	000	2466	J Q	U 28		4674	•										
			510	0050	04	19	34788	2	770	0.00	1412	7 0	0.20	, 1	46/4	,										
			OBS	0075	04	19	34888	2	770	000			•	1	4687	,										
			STD	0100	04	26	3488	2	768	000	0430	1 0	050	1	4694											
			OBS	0100	04	26	34878	2	768					1	4694											
			STC	0125	03	80	3486	2	771	000	0407	3 0	060	) 1	4681											
			OBS	0125	03	86	34857	2	771		_		_	1	4681											
			STU	0150	03	87	3486	2	771	000	0405	4 0	070	) 1	4686	2										
				0150	03	067	34864	2	772	000	1404	3 0	001	1	4686	2										
			OBS	0200	04	06	34898	2	772	000	, , , , ,	<i>,</i> , , , , , , , , , , , , , , , , , ,	0,1	1	4703	ŝ										
			STD	0250	04	08	3489	2	771	000	)415	9 0	111	. 1	4712											
			OBS	0250	04	08	34892	2	771					1	4712	:										
			STO	0300	03	93	3490	2	773	000	040Z	ь 0	132	1	4714	•										
				0300	03	193	34895	2	773	0.00			1.77	1	4714	•										
			085	0400	03	91	34889	2	774	000	.403	<b>c</b> U	112	1	4120	,										
			STD	0500	03	68	3488	2	774	000	0407	1 0	213	i	4736	,										
			OBS	0500	03	68	34878	2	774					1	4736	2										
			STO	0600	03	61	3488	2	775	000	0408	3 0	253	1	4750	)										
			OBS	0600	03	61	34878	2	775	0.00		E 0	201	1	4750	)										
			085	0700	03	51	34869	2	775	000	9412	5 U	294	1	4762											
			STD	0800	03	60	3489	2	776	000	)413	9 0	336	. i	4783											
			OBS	0800	03	60	34892	2	776					1	4783	3										
			STD	0900	03	63	3490	2	777	000	)419	8 0	377	1	4801											
			OBS	0900	03	63	34900	Z	777					1	4801											
			STO	1000	03	55	3490	2	777	000	0418	9 0	419	1	4814	•										
			055	1000	وں د 0	22 53	34900	2	111	0.00	14.73	<i>د</i>	4 4 1	1	4814	,										
			085	1100	6 U S	53	34903	2	778	000		5 0	+01	1	4830	'n										
			STO	1200	03	51	3490	2	778	000	0428	з о	504	, î	4846	,										
			OBS	1200	03	51	34903	2	778					1	4846											
			STD	) 1300	03	50	3490	2	778	000	)434	4 0	547	1	4862											
			085	1300	03	>0 50	34904	2	778	0.00		0 0	501	1	4862											
			085	1400	03	50	34910	2	779	000	) = 2 [	- 0	- 71	1	4879											
			STD	1500	03	50	3492	2	779	000	)439	2 0	635	i	4896											
			QBS	1500	03	50	34919	2	779					1	4896											

REFERENCE CTRY ID. CODE NO.	SHIP	LATITU	DE 1/10		MARSD SQUAI	RE 1°	STATION IGA	TIMI	E /10	YEAR	CRUISE	DRIGIN	ATOR'S		0 80	TO MOTIOM	MAX. DEPTH OF S'MPL'S	0.85 910	WAVE ERVATION HGT PER	S Sea	WEA- THEP CODE	CLOUD CDDES		5 7	IODC ATICN UMBER	
318001	Ev	5524	ON	052070W	186	52	06 06	09	7 1	966		96	40		3	191	15	32	5 3		×1	0 4		1	0137	
					Ĺ	WAT	TER	WIN	D	BARC		AIR TE	MP °C		1	ND.	SPEC	IAI							0131	
					C	OLOR	TRANS D	IR.	OR	M ETE (mbs	р ) Е	UL B	W ET BULB	COD	E DE	OBS. EPTHS	OBSERVA	ATIONS								
				······	, [	DT	SD 3	5 5	510	03	4 C	61	050	5 7	İ.	24				_						
	MESSENGR TIME HR 1/10	CAST NO.	C A P D T Y P E	DEPTH (m)	T	°C	s • :		\$IG M	A — T	ANON	VOLU ALY-31	07 C	E A D YN. M X 10 ³	à	SOU VELO	ND CITY	Og mi i	PO4-P	rc v	DTAL—₽ 1g - q?	NO2-N 20-01-1	NO3-N V9-0t	SIO₄⇔Si ⊻g + of I	рH	SCO
			C T	0000	0.6	20	3466		274		0.00	640		000		147	701									
	097	,	085	0000	04	89	3466	0	274	4	000	049	0 (	/000	,	141	701									
			ST	D 0010	04	89	3466		274	4	000	651	0 0	0007	7	14	703									
			OBS	0010	04	89	3466	0	274	+ 4						14	703									
			ST	D 0020	04	89	3467	,	274	5	000	644	6 (	0013	3	14	705									
	003		OBS	0020	04	89	3467	0	274	-5						14	705									
			ST	D 0030	04	80	3467		274	•5	000	643	2 (	0019	7	14	736									
			085	0030	04	88	3467	2	274	15	0.00	5 ( )				147	706									
			51	0050	04	43	3412		215	94 57	000	563	3 (	031		146	592									
			510	0075	04	17	3476	0	270	58 58	0.00	523	3 (	045		140	574									
			085	0075	04	17	347	8	275	58	0.00	, ,				144	585									
			ST	D 0100	04	06	3478	ĩ	276	3	000	483	0 0	055	5	146	585									
			085	0100	04	J6	3478	0	276	3		-	-			146	585									
			SŤ	D 0125	04	02	3482		276	6	000	452	8 (	069	9	146	588									
			085	0125	04	02	3481	8	276	6						146	588									
			ST	0 0150	04	00	3483		276	8	000	441	9 (	0081	1	140	591									
			OBS	0150	04	00	3483	13	276	8						146	591									
			ST	0 0200	04	00	3485		216	99	000	431	8 (	0102	2	14	700									
			005	0200	04	00	3487	,	270	77 71	0.00	4.21	6 (	124		14	700									
			085	0250	04	00	3487	3	277	71	000	421	0 (	/124	•	14	708									
			ST	D 0300	04	02	3489	-	277	2	000	418	1 (	0149	ō	14	717									
			085	0300	04	Ū2	3488	7	277	12						147	717									
			ST	D 0400	04	02	3490	1	277	13	000	415	9 (	186	5	14	734									
			OBS	0400	04	02	3490	13	277	13						14	734									
			ST	0 0500	03	97	3491		277	14	000	414	8 (	) 2 2 8	3	147	749									
			OBS	0500	03	97	3491	0	277	14	0.00				_	14	749									
			0.90	0 0600	03	01	3491	~	211	2	000	417	> \	1210	J	14.	163									
				0 0700	وں د 0	86	3403		211	10	0.00	413	7	1311	1	14	103									
			084	0700	03	86	3495	0	277	76	000				•	14	777									
			ST	D 0800	03	83	3492		277	16	000	417	9 (	353	3	14	793									
			085	0800	03	83	3492	2	277	76						14	793									
			ST	D 0900	03	77	3492	!	277	17	000	419	1 (	395	5	148	807									
			OBS	0900	03	77	3492	3	277	77						148	807									
			ST	D 1000	03	71	3493		277	78	000	419	3 (	) 4 3 6	Б	148	821									
			OBS	1000	03	71	3492	5	277	78						148	821									
			ST	1100	03	60	3493	5	277	19	υυι	418	2 (	9478	5	148	836									
			005	D 1200	<b>د ں</b>	60	3493	0	211	19	0.07	4.10		15.7	~	140	010									
			089	1200	د ں د ن	50	3403	'n	277	70	000	-+19	ן כי	1726		140	990 950									
			51	D 1300	03	59	3494		278	10	000	422	7	)562	2	145	866									
			OBS	1300	03	59	349	15	278	10	000					148	866									
			ST	D 1400	03	54	3494		278	31	000	420	9 (	0604	÷	148	881									
			OBS	1400	03	54	3494	0	278	1						148	881									
			ST	D 1500	03	53	3494	•	278	31	000	427	7 (	0647	7	148	895									
			OBS	1500	03	53	3494	υ	278	31						148	898									

REFE CTPY	RENCE	SHIP	LATITU	DE	LONG	GITUDE	DELET	M ARS SQU /	DEN ARE	ST/	GM1	TIME 1	YEAR	CRUISE	ORIGIN	STATIO	S	D E P	ртн О	MAX DEPTH OF	08	W A SERV	VE A TION S	;	WEA- THEP	CLD CDI	U D DES		5	NODC
CODE	NO.			1/10		1/10	) - 4	10"	1*	MO	DAY	HP.1/10	1	NO.		NUMB	R	BDTT	10-W	S'M PL'S	DIR	HGT	PER	EA	CDDE	1 Y P E	A 65 T		N	UMBER
31	8001	Εv	5524	N	052	07 W	1	186	52	06	06	108	1966	5	96	40		31	91	30	32	5	3		×1	7	6			0138
								(	WA	TER		WIND	BAE	- L	AIR TE	MP °C	T	NO	o.	1050		1								
									COLOR CODE	TRAN	S D IR	SPEE OR FOR	D AMET	ER sl i	DRY BULB	W E1 BUL	COD	E DEP	is. TH S	OBSERVA	ATIONS									
								1			3 5	5 51	0 0:	34 0	061	05	6 7	0	4											
		MESSENC TIME H.R. 173	CAST NO.	C.A T Y	PD PE	DEPTH	(m	τ	•c		s •4.	sic	GMA+T	SPECIFI	C VOLL	U M E 10 ⁷	∑ △ D DYN. N X 10 ³	, ,	SOU VELO	ND	Dg ml/	1 P	04-P 2 - 01/1	tot va	A L - P - 01/1	NO2- 49 - 0	N	NO3≁N µg - o1'l	SIO4—5 1 to - gч	pН
		10	8	08 S	S STD	T150 175	4 50	0	354 345	3	<b>9</b> 2(	2 2	7790																	
		10	8	08	SS STD	T198 200	4 )0	0	332 331	3	4931 494	7 2	783 783	000	)439	90			149	966 969										
		10	8	OE	STD	T247	75	0.	290	3.	4936 494	5 2	786	0.00	1417				150	032										
		10	8	οē	s	1299	5	Ő.	217	3	4920	2	792	000	5712	. ,			150	91										

REFERENCE	SHIP	-			1- ¥	MAR	SDEN	51	ATION	TIME	1	Т	OF	GINA	TOR'S		DEPT	нΙ	MAX,		WAVE		WEA	. cu	DUD			NODC	1
CTRY ID.	CODE	LATITU	DE	LONG		squ	ARE		IGMT	1	YEAR	С	RUISE	ST	ATION		TO		OF	OBS	ERVATIC	ONS	THE	CC	DES	ļ		STATION	
21000	5.4	663.3	4/10	0.6.0	1/10 =	10*	1.	MO	DAY	HR.1/10		-+-	NQ,	N (	JMBER	-	-	S. 21	'MPL'S	DIE	HGTPER	581	- 000	TYPE	AMT	ļ		NUMBER	-
31000	I EV I	5512	N	0.52	36 W	186	52	06	06	133	196	6		964	<u>1</u>	,l	296	3	15	_29	63	l	X 1	0	4	1		0139	2
							COLOR	784		SPEE	D MF	RO-			P. C.	VIS	NO. 085		SPEC	AL									
							CODE	tm	DIR	FOR	CE (m	(bs)	BUL	в	BULB	CODE	DEPTH	45 0	BSERVA	TIONS									
							DT	S	D 36	51	8 0	64	07	8	056	7	24												
	MESSENG	CAST	CAS	PD 0				T				5	PECIFIC V	0.11M	۶ <u>۲</u>	ΔD	1		D T		80.		1014						Τ,
	HR 1/10	NO.	TYP	PE	DEPTH (m)	1	C		\$ %.	Sto	GMA⇒ĭ		ANOMAL	-110	DY X	N, M 10 ³	'   VE	ELOCI	111	0.2 m1/1	29 - a	171	vg + ol/l	рд -	ot/1	µg - αt/l	51 O 4 - Vg ~ 01	/I pH	0
						1		+				+					-				+				-	-		-	+
		, (	s	то 🖢	0000	<u></u> 0	474	3	453	2	736		0007	297	. ' o	200	i 1	460	93			ł		)		1			1
	13	3	08	s	0000	0	474	3	4532	2	736			- / .			1	469	93										
			.5	TD	0010	0	472	3	453	2	736		0007.	286	0	007	1	469	94										
			OB.	S	0013	0	472	3	4532	2	736					_	1	469	94										
	0.0		5		0020	0	412	3	457	2	739		0006	990	00	014	. 1	469	96										
	00	4	00. s	5 TD	0020	0	412	د	4773 460	2	739		0006	0/0			1	469	96										
			OB.	S	0030	ŏ	452	3	4685	2	750		0000	740		21	1	403	51 01										
			S	τo	0050	0	414	3	476	2	760		0004	997	0	32	î	468	90 -										
			OB:	s	0050	0	414	3	4762	2	760						1	468	30										
			S	TD	0075	0	421	3	482	2	764		0004(	658	00	)44	1	468	87										
			08	5	0075	0	421	د د	4820	2	764						1	468	87										
			08	5	0100	0	419	ر ہ	400 485 -	<u></u>	767		00044	400	00	122	1	469	91										
			S	TO	0125	õ	420	3	486	2	768		0004	384	0.	066	i	460	91 96										
			OB:	s	0125	0	420	3	4862	2	768						1	469	96										
			S	TD	0150	0	411	3	486	2	769		0004.	315	0.	77	1	469	96										
			OBS	s	0150	0	411	3	4862	2	769						1	469	96										
			S	TU	0200	0	407	3	488	2	770		0004.	203	00	98	1	470	3										
			00:	5 T D	0200	0	407	د	4 <b>8</b> 78 489	2	170		0004	225	0.1	110	1	470	23										
			OB	5	0250	ŏ	408	3	4883	2	771		00044	220	0.	13	1	471	12										
			S	TD	0300	ō	406	3	490	2	772		0004	134	01	40	1	471	19										
			OBS	S	0300	0	406	3	4899	2	772				-		1	471	19										
			S	TD	0400	0	403	3	491	2	773	(	00041	125	01	82	1	473	35										
			OB:	S	0400	0	403	3	4909	2	773						1	473	35										
			5	10	0500	0	394	3	491	2	774	(	00041	100	04	223	1	474	+7										
			003 51	5 T D	0500	0	374	2	4912 4912	2	114 776		00040	167	0.3		1	474	* /										
			OB	s	0600	ŏ	375	3	4902	2	776	,	00040	,,,,	04	.04	1	479	56										
			S	TD	0700	0	372	3	491	2	777	(	00040	053	03	304	1	477	71										
			08	S	0700	0	372	3	4910	2	777						1	477	71										
			S	TD	0800	0	371	3	491	2	776	(	0004	167	03	345	1	478	37										
			085	5	0800	0	371	و م	4905 601	2	776	,	00040				1	478	37										
			084	5	0900	0	354 354	2	1000 1000	2	770		00040	28	0 -	80	1	419	<i>† (</i>										
			S	TD	1000	ŏ	352	3.	491	2	779	(	00040	066	04	27	1	481	13										
			085	s	1000	Ō	352	3.	912	2	779				•	21	1	481	3										
			S	TD	1100	0	351	3	91	27	779	(	00041	136	04	68	1 -	482	29										
			OBS	S	1100	0	351	3	912	2	779						1	482	9										
			51	10	1200	0	354	3.	+93	2	780	(	00041	157	05	09	1.	484	• 7										
			083	ວ ເກ	1300	0	954 350	۰ <u>د</u>	+925 503	2	780		2006	0.0	0.5	1	1 4	484	1										
			08	s	1300	0	350	.ر. بە	+925 1925	2	780 780	(	50043	183	05	101	1.	486 484	3										
			SI	TD	1400	õ	352	3	93	27	780	(	00042	43	05	93	1	-00 488	0										
			085	5	1400	0	352	3	¥932	27	780				0-		14	488	10										
			SI	T D	1500	0	352	3	94	27	781	(	00042	279	06	36	1 4	489	7										
			OBS	5	1500	0	352	3	938	27	781						14	489	7										

REFERENCE CTRY ID. CODE NO.	SHIP CODE	LATITU	IDE 1/10	LONGITUDE	NAI SQI	ISDEN JARE	STA MO	GMT	11ME HR,1/210	YEAR	CRUISE NO.	ORIGIN	ATOR'S		DEPTA TO BOTTO	H DI M S*A	AAX EPTH OF APL"S	OBS	WAVE ERVAT	IONS R SI	WEA- THER CODE	CLOUI CODE TYPE AF			NDDC TATION NUMBER	
318001	EV	5500	ON	052560W	186	52	06	06	155	1966		96	42		228	6	15	29	3 2		X 6	04			0140	
						W.A	TER		WIND	BAR	>- <u> </u>	AIR TE	M.P. °C	VIS	NO.		SPEC	IAL								
						COLOR	TRAN Imi	DIP.	OR	METE	R   B	DRY IUL9	W ET BULB	CODE	DEPTH	IS DB	SERVA	ATION S								
						DT	50	34	512	05	8 0	)56	033	7	23	-										
			-						1							1			1							
	TIME	UCAST V NO.	CAR	D DEPTH Im	1	r "C	1	•4.	SIG	M A = T	SPECIFII ANOM	C VOLU	ME 07			OUND	Y	0 2 ml/l	PO.	(← P	TOTAL-P	NO2+N	NO3-N	SIO4=S	pН	0
	HR 1/10	-												X 103			-		+				PA - 001	- PP - 4-1		+
	1		1				1														t 1		1			
	16	E.	0.80	0000		1481	بو بو	65	21	44	000	1044	4 (	1000	1	469	8									
	15	2	500	0000	, in the second s	1401	34	647	21	44	0.00	ารรถ	5 0	006	. 1	409	0									
			089	0010	Č	0481	34	649	27	44	000	,0 ,0			1	469	9									
			51	0 0020	Ċ	0479	34	65	27	44	000	649	5 0	013	ī	470	ó									
	00	4	OBS	0020	Ċ	479	34	649	27	44					1	470	0									
			51	D 0030	(	)476	34	65	27	45	000	647	4 (	019	1	470	1									
			OBS	, 0030	(	)476	34	649	27	45					1	470	1									
			51	D 0050	(	)471	34	65	27	45	000	643	5 0	032	1	470	2									
			OBS	s 0050	(	)471	34	650	27	45					1	470	2									
			51	D 0075	(	0470	34	69	27	49	000	613	7 (	048	1	470	6									
			OBS	0075	(	)47U	34	692	27	49					1	470	5									
			51	D 0100	(	0432	34	79	27	60	000	0506	1 0	062	1	469	6									
			085	5 0100		1432	34	785	21	60	~~~				1	469	6									
			0.00	0 0125		1421	34	07	21	66	000	7458	4 (	10 74	1	464	8									
			003	0120		1427	34	86	21	66	0.00	1460		0.84	. 1	407	3									
			089	0150	Ì	)420 )428	34	860	2	67	000		0 0	000	1	470	3									
			51	D 0200	, i	426	34	88	2	68	0.00	442	7 (	108	ī	471	ĩ									
			OBS	0200	(	420	34	875	21	68					1	471	1									
			51	D 0250	(	)419	34	88	27	69	000	0438	8 0	130	1	471	6									
			51	D 0300	(	0414	34	8 5	27	70	000	)437	0 0	152	1	472	ć									
			085	5 0300	(	)414	34	879	27	70					1	472	۷									
			51	0 0400	(	0413	34	90	27	71	000	)433	9 (	195	, 1	473	9									
			OBS	6 0400	(	0413	34	895	27	71					1	473	9									
			\$1	D 100	(	0409	34	91	2	73	000	)428	8 0	1238	1	475	4									
			OBS	5 .500		1409	34	909	2	73	0.00				1	475	4									
			080	0600		1400	34	910	21	14	000	1421	6 (	12.81	1	476	6									
			500	n 0000	Ì	1190	34	.910 .01	27	74	0.00	424	2 0	1324	. î	410	0									
			089	0700	Č	390	34	912	27	75	000	2 -	2 0	524	i	477	9									
			51	D 0800		382	34	92	27	76	000	0421	9 (	366	, ī	479	ź									
			OBS	0800	(	382	34	915	27	76					ī	479	2									
			51	D 0900	(	378	34	92	27	77	000	)4∠1	0 0	408	1	480	7									
			085	0900	(	378	34	922	27	77					1	480	7									
			51	D 1000	(	)367	34	93	27	79	000	410	9 (	450	1	481	9									
			085	5 1000	(	0367	34	930	27	79					1	481	9									
			51	ID 1100	(	359	34	93	27	79	000	0409	8 (	491	. 1	483	3									
			OBS	1100	(	359	34	930	27	79					1	483	3									
			51	D 1200	(	357	34	93	21	80	000	)414	2 0	1532	2	484	9									
			085	1200	(	0357	34	932	2	80					1	484	9									
			51	ru 1300	(	1351	34	93	21	80	000	0415	0 0	1574	1	486	3									
			085	5 1300	(	1351	34	932	2	080	0.00				1	486	5									
			51	0 1400		1349	يو بر	94	2	101 101	000	5419	4 (	1012	י ג י	48/	7									
			005	5 1400 m 1500		1247	دو مرد	1741 .05	2	61 182	0.00	1411	2	16.5+	. 1	-+0/ 480	7									
			080	1500		1747	34	95)	21	182	000		) (	0.00	, <u>1</u>	407	5									
			003	, ,,,,,,,,	,	1		1256	<i>C</i> 1	04					1	404	·									

REFERENCE	S LUIP		- T		. #	MARS	DEN	STA	TION	TIME			DRIGIN	A TOR"S		DEPTH	MAX		w	Α∨E		W 8A .	. ctou	5		NODC	1
CTRY ID.	CODE	LATITU	DE	LONGITUDE		SQU	ARE		(G M 1	ri	YEAR	ĊRU	SE S	TATION		TO	OF	08	SERV	A TIC	)NS	THER	CODE	s	5	TATION	Ĺ
CODE NU.			1/10	1/10	-	10*	1.	MO	DAY	HR,1/10		N	>. ►	NU MIBER		0011010	S" AM PL"S	DIP	MG	T PEP	SE A	1000	TTPE A7	AT			L
31800	1 EV	5500	ON	052560W		186	52	06	06	166	1966		96	42		2286	21	29	3	2		X6	8	,		0141	l
						[	WA	TER		WIND	84.8	· ·	AIR TEA	чР. ℃		ND.	(		1								
							COLOR	TRAN Imi	DIR	SPEE OF FOR	D MET	ER	DRY BULB	W ET BULB	CODI	OBS. DEPTHS	DASERV	ATIONS									
									34	4 51	2 05	8	056	033	7	02											
	MESSENC TIME HR 1/1	CAST	C A P TYP	D DEPTH	(m.)	т	°C	5	•	510	SMA-T	SPEC	IFIC VOLU DMALY-11	ΜΈ 0' D	△ D YN. M x 10 ³	SO I VELO	JND DCITY	D2 ml		PD 4-	• P 1	TOTAL—P µg = a1/1	NO2~N µg = ot/1	NO3≁N vg • at/l	51 D 4 - 5 20 - 01	ρН	
	16	6	085 51	5 T191 TD 200 5 T214	0 0	0000	307 298 283	34	930	5 2 2 4 2	785 786 787	00	0395	8		14 14	943 955 972										

PEEFOR	NCE						a					1	081010	14 109'5			MA	X.		T									
- CAL	10	SHIP	LATITUDE LOP			SQUA	RE GMT		YEAR		6.01	ur d	STATION .		DEPTH TO	DEP	TH OB	ERVATIONS		WEA-	000	DES		5	NODC				
ODE NO.	NO.	CODE	•	1/10	• 1/10 ² 2	10*	1.	MO DAY H		R.1/10	1/10		0.	NUMBER		BOTTO	M STMP	PL'S DIA	HGT PER SEA		CODE	TYPE	A MT		Ň	UMBER			
2.20		<b>C</b>		0.01		1.0.				0.0			-										-						
310	001	C, V	5451	UNIC	123020W	190	43 WA1	0610	101	185	85 1966		96	9643		118	9 1	2 29	32		X 4	0	4			0142			
						ŀ	0100	LIER	*	SPEED	BA	-01	DAX DAX	mr. c	- vis	NO. 085.	SF	PECIAL											
							CODE	(m)	DIR.	OR	Lmb	55)	BULB	BULB	COC	DEPTH	IS OBSE	RVATIONS											
						ŀ	DT	50	22	c13	100	18	044	03	1,	22													
	ſ		T							1.1.1	- I . Ŭ	1-1	0+4	103		1 2 2	. [						-	1			-		
	1	MESSENG TIME	CAST	CARD	DEPTH (m)	Ţ	°C	5	• 4	SIG/	MA-T	SPE	CIFIC VOL	IME	ΣΔD DYN. A	5. SI	OUND	0 2 ml/	PO4-P	TO	TAL-P	NO2-	N	NO3-N	51 Q4-5		s c		
		HR 1/1	NO.	TYPE									ANUMALISTI		x 10 ³		LOCITY		µg • o!/	1 28	2 • 0+/1	µg • a1/l		µg + o1/1	yg • 01/l		C		
															-												-		
	1			ST	്രാറാ	-00	022	328	3282 2		38	່ດ	001655		6່ ວວວດ		4453		I.	1			1			,			
		18	5	085	0000	-00	0.2.2	32	819	26	38	Ŭ		•		1	14453												
			-	STO	0010	-00	022	32	92	26	46	0	01578	30 0	0016	5 1	4456												
				085	0010	-00	022	32	920	26	46					1	4456												
				ST	0020	-0	107	33	3317 2		69	0	0135	3 00	003	1 1	4421												
		00	7	085	0020	-0	107	33	170	26	69					1	4421												
				STO	0030	- 0	102	33.	26	26	77	0	0128	873 0	)Ü44	. 1	4426												
				085	0030	-0	102	33.	260	26	77					1	4426												
				085	0042	-00	062	33.	422	26	88					1	4449												
				STO	0050	-00	092	33	53	26	98	О	01082	28 (	0068	31	4438												
				085	0050	-00	092	33	530	26	98					1	4438												
				STO	0075	-00	020	33	75	27	13	0	00942	29 (	009.	5 1	4479												
				OBS	0075	-00	020	33	750	27	13					1	4479												
				STO	0100	00	072	340	5	27	32	0	00762	29 (	0114	+ 1	4529												
				085	0100	00	072	341	250	27	32					1	4529												
				STL	0125	0	178	34.	27	27	43	0	00661	6 (	0132	2 1	4584												
				516	0150	0.	264	344	44	21	49	0	00609	13 1	)148	5 1	4626												
				085	0150	0	264	344	440	27	49	0	0051		. 1 - 1 - 1	1	4628												
				516	0200	0.	314	340	50	21	50	U	00549	49 (	)17	( <u>1</u>	4686												
				005	0200		1.74	240	760 760	21	20					+	4000												
				003	0250	0.	420	34	73	21	50	0	00544		204	: 1	4712												
				0.95	0250	0	.16	2/-	720	21	50	0	0004	• ) (	20.	, <u>r</u>													
				510	0200	0.	412	34	7.20 83	27	50	0	0.05.21		123.	i î	4740												
				OBS	0300	0.	459	34	н 3 О	27	61	0	0072.			1	4740												
				510	0,400	0.	473	344	88	27	63	0	0051	90	128	4 I	4763												
				OBS	0400	Ő.	473	34	880	27	63	0			0.	i	4763												
				510	0 0500	0	451	341	88	27	66	n	00498	12 0	1334	. ī	4771												
				085	0500	ů.	451	34	380	27	66	0	20.70			. 1	4771												
				ST	0 0600	0.	428	34	88	27	68	0	00484	2 0	างค	i i	4778												
				085	0600	Ő.	428	34	877	27	68	v	00.00			1	4778												
				STO	0700	0.	416	348	39	27	70	0	00474	2 0	1431	. ī	4789												
				OBS	0700	ŏ	416	34	385	27	70					ī	4789												
				STO	0080 0	0.	409	34	90	27	72	0	0046	88 0	0478	3 1	4803												
				085	0800	0.	409	34	901	27	72					1	4803												
				STO	0900	0.	387	34	91	27	75	0	00441	9 (	0523	3 Ī	4811												
				085	0900	0	387	34	908	27	75					1	4811												
				STO	1000	0	372	34	91	27	77	0	00430	1 0	0566	5 1	4821												
				085	1000	0	372	34	912	27	77					1	4821												
				STO	1100	0	356	34	92	27	79	0	00414	3 (	0604	2 1	4831												
				085	1100	0	356	349	919	27	79					1	4831												
				OBS	1160	0.	348	340	921	27	80					1	4838												
REFER	REFERENCE SHIP LATITUDE CODE NO. CODE + 1/1				KCT R	MARS SQU	OFN	T A T Z	ION T	IME	YEAR	-	ORIGIN	ATOR'S		OEPT	н	MAX DEPTH	OBS	WA' ERVA		WEA	CLC				NODC	i	
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CODE			1/10	1/10	21	10"	1.1.	MOLO		18.1/10		ICR	NO.	NUMBE	R	BOTTO	S₩ ,	OF MPL 15	Due	- Hot	PE0 5	CODE	11.01	1	-	Ň	UMBEP		
21	0001	EV I	6443		0631004	t t,	9.4	1.2	0.6	24	204	1.04					0.6.4	6	0.5	- 20				-		· · · · ·	-		Ł
51	0001		9449		000100₩	4	00	4 J WA	TER	101		140	0	90	144 MP **	1	1050	10	05	29	6	4	X6	0	- 4			0143	1
							Ì	COLOR	TRANS	OIR.	SPEED	- BA ME	RO+ TER	ORY	WET	- vis coc	NO. OBS DEPTI	HS C	SPEC Serva	IAL TIONS									
							ŀ	0	6.0	30	FORC	E (IN	017	0000	0010			_											
			,	,					50	28	510	5 1	08	028	02.	2 6	10												
		MESSENGE TIME HR 1/10	UCAST	C ARC TYPE	OEPTH	(m.)	T	rc	S	•	SIG	M A - T	SPE A	ECIFIC VOLL NOMALY-X	M E	₹ △ 0 0 YN A X 10 ³		ELO C	D DTY	0 2 m1/i	PC P V	0 <b>4-</b> P - u1 1	TOTAL-P 29 + 01/1	NO2- 29 - 1	=N 01/1	$NO_3 = N$ $\mu g + at, 1$	\$1 O4-51 µg - q1	рн	
											1																		
				ST	D 000	0	-0	027	32	85	26	541	Ċ	01630	16	0000	ວ່ 1	44	51										
		20	4	085	000	0	-0	027	32	849	26	641					1	44	51										
				ST	D 001	0	-0	027	321	85	26	541	C	01630	12 1	0016	61	44	52										
				085	001	0	-0	027	321	849	26	641					1	44	52										
				ST	D 002	J	-0	037	32	85	26	641	C	01624	2 1	003.	3 1	44	49										
		00	8	085	002	0	-0	037	32	851	28	×41					1	44	49										
				ST	D 003	0	-0	095	320	93	26	50	C	01542	4	0041	8 1	44	25										
				OBS	003	0	-0	095	329	930	26	50					1	44	25										
				OBS	004	5	-0	129	اوو	041	26	000			_		1	44	13										
				51	005	0	-0	118	33.	10	26	64	C	01403	8	0071	5 I	44	20										
				005	005	2	-0	118		100	26	564					1	44	20										
				085	005	6	-0	102		210	20	7.5					1	44	30										
				065	000	2 6	-0	113	22	200	20	0.2	0	01124	6		1	44	24										
				21	0 007	2 6	-0	112	22.	32	20	002	U	101234		011.	1 1	. 44	30										
				003	0.010	0	-0	0.97	23.	521	20	01	-	011/3		014	1 1	. 44 44	20										
				0.96	010	0	-01	007	22	+7 1. E A	20	091	0	01143	14 1	014	1 1	. 44	48										
				005	010	6	-0	067	22	4 3 U 6 a	20	700	0	01267		01.0	ـــــــــــــــــــــــــــــــــــــ	. 44 44	40										
				085	012	5	-0	050	23	580	2	200	U	101051	0	0100	0 <u>1</u>	. 44 44	71										
				003 CT	D 015	0	-0	050	33	74	2	713	0	00936	6	010	a 1	44	77										
				085	015	õ	-0	050	33	730	2	713	0	100993	0 1	019.	י ו	44	77										
				51	0 020	õ	0	120	34	25	2	729	C	00794	7	023/	6 1	45	67										
				0.85	020	õ	õ	120	34	550	2	729						45	67										
				ST	D 025	õ	ō	171	34.	26	2	142	0	00675	7	027	a i	46	ai										
				085	0.25	ò	ā	171	34	258	2	142				• - • •	1	46	01										
				ST	D 030	ò	Ő.	339	34	53	27	150	0	00619	5 (	0304	5 <b>1</b>	46	86										
				085	030	0	0	339	34	532	2	150	Ŭ		-		1	46	86										
				ST	0 040	0	0	418	34	73	21	157	C	00561	7	0364	4 Ī	47	38										
				085	040	0	0	418	34	731	27	757					1	47	38										
				ST	D 050	0	0	431	341	86	27	166	C	00493	8	041	7 1	47	62										
				085	050	0	0	431	34	855	21	66					1	47	62										
				085	054	0	0	428	341	864	27	167					1	47	68										

REFERENCE CTRY ID. CODE NO,	SHIP CODE	LATITU			A LOZ	DEN	STAT	ION GMT		YEA	8		RIGIN	ATOR'S		DEP TO BOTT	O O O M	MAX. DEPTH OF		085	W A \ R V A	re Tions		WEA- THER COOF	CLC CO	U D O E S		5	NODC	
31800	1 EV	5427	0.0	52370W	1.04	1.2	0.0		226	1.0								2 W PL		D19	нст	PERIS	EA		TYPE	A 1/1 T				
1000		5451		JJJ70W,	100	42	0.6	10	215	190	56	_	96	45		03.	201	03		321	5	4	ł	X 1	0	4			0144	
					-	101.08		÷	SPEED	- B	A 20-			NF. C	vis	N C	5.	SPE		.										
						CODE	Im I	DIR	OR FORC	E	mbsl	BI	JLB	BULB	CODI	DEPT	THS	OBSERV		2112										
					Ī	DT	SD	29	,		129	0	28	022	7	1	6													
	MESSENGE TIME HR 1/10	CAST NO.	CAPD TYPE	DEPTH (m)	т	°C	S	۰	\$1G	MA -1	1	ANOM	VOLU/	ME \$			SOUN	ND DITY	07	m1/1	PC PG	• 01 'l	101 24	TAL-P	NO ₂ -	- N	NO3-N NO3-N	51 O4-51 49 - 07/1	рн	200
																														1
	216		STU	0000	00	37	32	54	26	21		001	817	2 0	000		144	77												
	c	,	510	0000	00	121	32	542 .,	20	21		0.0.1	o 1 -		•••		144	77												
			085	0010	00	37	32	54 542	20	21		001	8171	1 0	OIR	:	144	79												
			STD	0020	00	35	32	53	26	20		001	824	a n	035		144	73												
	003		085	0020	00	135	32	530	26	20		vv 1	024	/ 0	• 50		144	79												
			STD	0030	-00	50	32	54	26	25		001	780	2 0	054	j	144	42												
			085	0030	-00	)50	32	540	26	25					-	j	144	42												
			085	0040	-01	14	32	935	26	51						1	144	18												
			STD	0050	-01	10	32	98	26	54		001	502(	0 0	087	)	144	22												
			OBS	0050	-01	10	32	975	26	54						1	144	22												
			085	0060	-01	18	33	128	26	58						1	144	21												
			085	0070	-01	01	33	120	26	65						1	144	32												
			SIU	0075	-01	10	33	16	26	69		001	358	0 0	123	1	144	29												
			085	0075	-01	10	33	161	26	69						1	144	29												
			310	0100	-01	11	33	34	26	83		001.	2199	9 0	155	1	44	35												
			005	0100	-01	11	33	339	26	83						1	144	35												
			0.95	0125	-00	175	22	21	26	96		001	1010	0 0	184	1	L44	58												
			005	0125	-00	22	20	10	26	96						1	144	58												
			086	0150	-00	22	000		21	08		000	9866	> 0,	210	1	44	89												
			085	0150	-00	22	330	983	21	0.8						1	144	89												
			510	0200	00	00	21	195	21	16		0.00		6	200	1	45	04												
			DBS	0200	01	90	34	200	21	30		000	1324	• 0.	453	1	46	00												
			STO	0250	01	72	244	00	21	30		<u> </u>			107	1	46	00												
			085	0250	03	72	341	60	21	47		0000	212	, U.	60/	1	46	72												
			085	0260	03	85	34	200	27	47						1	. 46	92												
				0200	• • •			20	61	00						<b>±</b>	47	01												

				-																										
REFE	RENCE SHIP LATITUDE					MAP	SDEN .	STA	TION	TIME	¥ 6			DRIGIN	ATOR"	s		DEPTH	MAX. DEPTH	0.85	WA	VE		WEA-	CLOI	JD			NOD	с
CODE	NO.	CODE	•	1/10	· · · · · · · · · · · · · · · · · · ·	10*	1.1.	HO I	DAY	- HB 1/10		A.K.	CRUISE	S	TATIO	N	1	BOTTOM	OF	085	ERV.	AHONS	,	CODE	COD	ES			STATIC	)N FR
				17 10	17.10	10	++		UAT	HK, 17 IQ					U M BI		+		S-WEPL-S	DIR	HGT	PER S	EA		TYPE 4	-MT		$\rightarrow$		
31	8001	εv	54320	) N	053500W	186	43	06	06	237	19	966		96	+6		0	0241	_02	32	5	31		X1	0	4			01	45
							WAT	TER	-	WIND	-	BARC	·	A IR TEA	∧P. ℃	v1	IS I	NO.	SPEC											
							COLOR	TRANS (m)	DIR	- OR	CE	Imbs (mbs	R     }   B	ULB	W E1 BUL	B CO	DE	DEPTHS	OBSERV	ATIONS										
							DT	SD	32	2 51	9	12	2 C	28	01	7 7	1	11												
		MESSENG TIME	CAST	C A R TYP	D DEPTH (m)	7	•c	s	•4.	510	GMA	- T	SPECIFIC	VOLU ALY-XI	A E	₹ Δ : DYN.	D M. 3	SOU VELO	ND CITY	0.2 m1/1	P	0 <b>4-</b> P 0 - a1/1	۲ C	0TAL-P g - 01/1	NO2-	N /1	NO3=N µg - ot/1	SI O 4 -	. Si L 1 F	ан с
						+			_	+					+			-			+	_	+							
				51	0000 0	6	069	32	72	2.	626	. 1	0.01	772	4	00.0	0	14	1.03				1						J	
		23	7	OBS	0000	ŏ	069	32	722	2	626		001	112	•	000	0	140	493											
				ST	0 0010	0	074	32	77	2	629	2	001	739	1	001	8	144	497											
				083	0010	0	074	32	769	2	629	,			-		~	144	497											
				SI	0 0020	0	116	33	15	2	65	7	001	473	1	003	4	149	523											
		00	2	OBS	0020	0	116	33	150	2	651	7						14	523											
				S1	D 0030	0	188	33	19	2	655	5	001	490	С	004	8	14	557											
				085	0030	0	188	- 3 3	190	2	655	5						149	557											
				SI	0 0050	0	050	33	49	2	689	9	001	174	9	007	5	149	503											
				085	0050	0	050	33	492	2	689	7						14	503											
				_ S1	0 0075	0	011	33	72	2	703	3	000	980	7	010	2	144	493											
				OBS	0075	0	011	33	720	) 2	709	9						144	493											
				51	0 0100	0	072	- 33	94	2	723	3	000	848	C	012	5	149	527											
				083	0100	0	072	33	938	2	72	3						149	527											
				51	0 0125	0	146	34	07	2	729	9	000	796	2	014	5	145	567											
				OBS	0125	0	146	34	070	2	729	9						149	567											
				51	0 0150	0	214	34	28	2	741	L	000	688	7	016	4	146	504											
				OBS	0150	0	214	34	280	2	74]	L						146	504											
				51	0 0200	0	340	34	64	2	758	3	000	531	5	019	4	146	571											
				UBS	0200	0	340	34	640	2	758	3						146	571											
				083	0230	0	408	- 34	122	2	158	3						14-	706											

REFER	ENCE	SHIP				-	≞ MA	RSDEN	5	TATION	TIME				ORIGIN	ATO	2'5	T	01010	MAX		341									1
CTRY	ID.	CODE	LATITE	IDE	LONGIT	UDE 🛓	5 20	UARE	Ì	IG M	TI -	YE	AR	CRUISE		STATI	0N	-	TO	DEPTH	08	SERV	a v e / a tions	T T	VEA-	C01	des l			NODC	1
CODE	NO.			1/10		1, 10	≤ 10*	1*	MO	DAY	HR 1 '	0		NO.	i	NUM	BER	B	MOTTOM	S"MPL"	S DIR	THIC	TPERS	C EA	ODE	TYPE				NUMBER	
31	8001	εv	5425	ON	0540	20W	18	5 44	06	07	008	3 19	966		96	47		0	225	0.2	32	4	2	-	¥ 1	0	4			01/1	1
								W A	TER		WIND		8480		AIR TE	MP 1	с	T	NO		1 22	1		+	^ 1	0	4			0146	d -
								COLOR	t tra	NS. DI	3 SPI C FO	ED R FCE	M ETEI Imbs	R E	DRY Ulb	W I B U	ET COI	s Dł D	OBS. DEPTHS	SPE OBSERV	ATIONS										
		,						DT	5	D 3	2 50	)9	13	5 C	28	0	17 7	+	11												
		MESSENGR TIME o HR 1/10	CAST NO.	C A R TYP	PE D	EPTH (m)		ī °C		s •	5	IGMA	-1	SPECIFIC	Σ VOLU Αιγ_κ1	M.E 0	₹ △ 0 DYN 7 x 10 ³	D M J	SOU VELO	ND CITY	0; ml/		PO4~P 19 - 01 1	TOTA vg -	L - P 01 /1	NO2- vg - di	N //	NOg~N vg - o1/l	\$1 Q4 = \$ 99 + 01/	рн	S C C
				د	TD	0000	1	10.20		767					105					_										+	+
		008		08	<	0000		10 2 9	2	201		023	>	001	195	в	000	0	144	+74											
				<ul> <li></li> <li><td>TD</td><td>0010</td><td></td><td>0 2 5</td><td>3</td><td>260</td><td>2</td><td>623</td><td></td><td>~ ~ `</td><td>701</td><td>,</td><td></td><td>~</td><td>144</td><td>474</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></li></ul>	TD	0010		0 2 5	3	260	2	623		~ ~ `	701	,		~	144	474											
				OB	s	0010		0 2 5	3	2661	2 2	624	•	001	191	4	001	8	144	+ 74											
				S	TD	0020	-0	0002	3	268	2	626		001	760	4	00.2		144	+ / 4											
				083	s	0020	-0	0002	3	2680	2	626	,	001	104	0	0031	D	144	+03 . 4 3											
				S	T O	0030	- 0	0 9 8	3	310	2	664		001	411	>	005	2	141	.26	1										
				085	5	0030	- (	098	3	3100	) 2	664				<b>6</b>	0051	L	144	26											
				\$1	τD	0050	- 0	125	3	323	2	674		001	305	9	007	9	144	18											
				08	s	0050	-0	125	3	3225	5 2	674							144	18											
				SI	10	0075	- (	099	3	346	2	693		001	132	7	0109	9	144	38											
				085	5	0075	-0	099	3	3460	) 2	693							144	38											
				51	10	0100	-0	070	3	356	2	700		001	067	3	0131	7	144	57											
				085	5	0100	- C	070	3	3558	3 2	700							144	57											
				51	TD (	0125	- C	028	3	370	2	709		000	979	9	0162	2	144	83											
				085	5 (	0125	-0	028	3	3695	2	709							144	83											
				51	TD (	0150	C	047	3	387	2	719		000	888	9	0186	5	145	23											
				UBS	) (	0150	C	047	3	3865	2	719							145	23											
				51		1200	0	200	3	434	2	747		000	634	5	0224	4	146	07											
				085	s (	1200	0	200	3	4340	2	747							146	07											
				0 B S	5 (	0220	0	296	3	4465	2	748							146	53											

CTRY CODE	ID.	SHIP CODE	HIP LATITUDE LONGITUDE					DEN ARE	ST A	IGMT	TIME 1 HR.1/10	YEAR	R ;	CRUISE NO.	DRIGIN A ST N	TO P'S A TION J M BEI	N R	DEPTH TO BOTTOP	DEPTH OF S'MPL	- + (	W VRBSERV R TH G	A VE /A TID! d] per]	N S Sea	WEA- THER CODE	CLO COI	U D DES			NODC STATION NUMBEP	
318	001	Εv	5418	ON	05415	ow	186	44	06	07	020	196	6		964	8		0201	02	3	14	2		X1	0	4	-	-	0147	
						, ,	[	WA	TER	1	WIND			A	IR TEM	P. *C	1	ND.	Τ΄		-1									
								COLOR CODE	TRAN (m.)	S DIR.	SPEE OR FORG	0 M	ETER mbs)	C BL	DEB	W E T BULB	COD	DBS. DEPTH	SPI COBSER	VATION	15									
								DT	S E	31	50	9 1	32	2 0	22	01	1 7	12												
		MESSENGI TIME H.R. 1/10	CAST	C A T YI	RD DEP	'TH (m)	т	°C		· /	\$10	5 M A - T		SPECIFIC	¥010A	,E	₹∆р ртн м х10 ³	SC VEL	DUND OCITI	02 7	11	PO4-1	P T	014 L=P 5 g = 01/l	NO2- 29-0	•N 1	NO3+N 29 - aM	51 D 4 - 5 49 - 61	р.н.	0.010
		0.2		S	TD 0	000	0	049	32	260	20	617		001	8536	- (	0000	14	482											
		02	0	U B 5	5 U TD 0	010	0	049	32	2602	2	01/ 618		001	84.83		2010	2 1 A	4482											
				08	5 0	010	0	049	32	2608	2	618		001	0400	, ,		14	484											
				S	TD 0	020	0	049	32	262	2	619		001	8394	. (	0037	14	486											
				08	5 0	020	0	049	- 32	2620	21	619						14	486											
				5	τ0 Ο	030	-0	075	- 32	290	2	646		001	575	) (	0054	14	4434											
				08	5 0	030	-0	075	32	2895	2	646						14	434											
				S	TD 0	050	-0	098	33	308	2	661		001	4292	2 (	0084	14	429											
				06	5 0	050	-0-	098	33	3075	21	661						14	+429											
				08	5 0	067	-0	125	د و	270	2	678						14	+422											
				- 5	10 0	075	-0	100	د ف	29	2	679		001	262	) (	3118	5 14	435											
				08	5 0	075	-0	100	د و	290	2	679						14	4435											
				00	5 0	100	-0	116	22	334U 1/6	2	683		0.01	11.61		01/0	1	+4 52											
				08	0	100	-0	075	22	242 1463	2	601 601		001	1404	•	0140	1	+4))) ./ E 3											
				5	τ0 0	125	-0	015	1	360	2	702		001	0433		1179	1	4425											
				08	5 0	125	-0	056	33	3595	2	702		501					4468											
				S	το ο	150	-0	018	33	380	2	717		000	904		0200	14	493											
				ОŘ	5 0	150	-0	018	33	8800	2	717			0.40			14	+493											
				ОB	5 0	175	ō	051	33	3945	2	725						14	+530											

REF	RENCE	CHIP				MARS	DEN	ST A 1	ION	TIME		(	DRIGIN	ATOR'S		DEPTH	MAY.	1		WA	VE		WEA-	CL	OUD	NDDC
CTBY	1D. NO.	CODE	LATITUDE 1/10	LONGITUDE 1/10	INDO	10"	1"	MO	DAY	, HR 1-10-	YEAR	CRUISE NÔ,	S	TATION IUMBER		TO BOTTOM	OF S'MPL'S		OB2 DIR	HGT	PEP	SEA.	CODE	TTPE	AMI	NUMBER
31	8001	Εv	54110N	054270W		186	44	06	07	031	1966		96	49		0166	02		29	3	3		xo	6	4	0148
						[	₩ A	TER		WIND	54.90	. 4	A IR TEA	AP °C		NO.	SPEC	-								
							COLOR CODE	TRANS Im1	D IR.	SPEED OR FORC	e (mbs	R (	DRY ULB	W ET BULB	CODI	OBS. DEPTHS	DBSERV	A TIC	DN S							
							DT	C A	20	500	12	0 0	35	0.2.2	7	11										

				50 28	506 1.	ں ا دوں ا دو	22 1	11								
MESSENGE CAST TIME OF NO. HR 1/10	C ARD TYPE	DEPTH (m)	1 °C	s •4.	SIGMA-T	SPECIFIC VOLUME ANOMALY-X10'	∑ △ D DYN, M x 10 ³	SOUND VELOCITY	0.7 ml. l	PO4-P 29-01/1	1014 L-P #9 - 01/1	NO2~N µg = 01.1	NO3=N vg = of 1	SLO∉~Sr µg = at I	рH	S C C
	STD	0000	0075	3260	2616	0018686	0000	14494								
031	OBS	0000	0075	32600	2616			14494								
	STD	0010	0074	3260	2616	0018679	0019	14495								
	085	0010	0074	32600	2616			14495								
	STO	0020	0062	3267	2622	0018080	0037	14492								
002	OBS	0020	0062	32670	2622			14492								
	STD	0030	-0071	3281	2639	0016432	0054	14435								
	OBS	0030	-0071	32809	2639			14435								
	OBS	0040	-0133	32910	2649			14409								
	STD	0050	-0117	3305	2660	0014439	0085	14420								
	OBS	0050	-0117	33048	2660			14420								
	STD	0075	-0111	3329	2679	001_596	0119	14430								
	OBS	0075	-0111	33289	2679			14430								
	STD	0100	-0100	3342	2689	0011632	0149	14441								
	OBS	0100	-0100	33418	2689			14441								
	STD	0125	-0062	3359	2702	0010459	0177	14465								
	OBS	0125	-0062	33589	2702			14465								
	STD	0150	-0014	3374	2712	0009524	0402	14494								
	065	0150	-0014	33739	2712			14494								
	OBS	0165	-0009	33797	2716			14499								

REFER CTRY CODE	ID.	SHIP CODE	LATITU	U D E	LON		MAR	ARE	STAT	ION 1 GMTI	TIME	YEAR	CRUISE	ORIGINA	A TIO	7	DEPTH TO BOILO	DEPTH OF	085	W A	VEATIONS	WEA THE	. c	OUD ODES			NODC STATION	
318	3001	Εv	5403	30N	054	4380W	186	44	06 0	07	043	1966	NO.	96	000	ĸ	0182	3 02	29	н GT 3	BER S	X	- TYF	) 4		-+-	0149	
								WAT	TER		WIND	BAR		ALR TEN	P. C		NO.	501	CIAL								•	
								COLOR	TRANS.	DIR.	SPEEC OR FORC	e (mbs	R	ULB	W E T BUL B	COD	DEPTH	OBSER	VATIONS									
								DT	SD	28	506	14	6 C	33	01	7 7	11											
		MESSENG TIME H.R. 1/10	CAST NO.	CA TY	R D PE	DEPTH (m)	1	°C	s	•4.	sig	MA-T	SPECIFIC	VOLUA	Α.Ε. 7	≨ △ D DYN. M X 10 ³	. SC VEL	DUND	0 2 m1/1	P V	904-P 9 - 01/1	TOTAL- 20 - 01/	NC ₽g	- al/i	NO3-N µg - ol/l	51 O ₄ —5 µg + al/	г ј рН	500
																							1				1	T
				S	10	0000	0	051	32	52	26	18	001	840	9	0000	14	4483										
		04	3	08	S	0000	0	051	320	5 Z O	26	18					14	+483										
				- 5	10	0010	0	050	321	52	26	18	001	840.	2	0018	14	4484										
				00	5	0010	0	0,00	22	520 15	20	818	001	014		00.2.7	1	+484										
		0.0	2	08	5	0020	0	040	32	550	20	21	001	010	L '	0031	1/	+400										
		00	2	S	то	0030	0	103	32	330	26	41	001	6304		0054	14	1400										
				OB	s	0030	õ	103	32	, , , , ,	26	41	•••	0.50		000-	14	4516										
				OB	s	0040	-0	115	33	120	26	66					14	+420										
				S	ТD	0050	-0	118	33.	23	26	75	001	304	1	0083	14	4422										
				ОB	s	0050	-0	118	33.	230	26	75					14	+422										
				S	TO	0075	-0	092	33	÷5	26	91	001	1460	5 I	0114	14	4441										
				ОB	S	0075	-0	092	33	445	26	91					14	4441										
				S	TD	0100	-0	072	33	59	27	02	001	0398	3	0141	14	4457										
				ØВ	S	0100	-0	072	33	593	27	02					14	4457										
				S	TD	0125	-0	008	33	79	27	15	000	9208	3	0166	, 14	+493										
				OB	5	0125	-0	116	33	185	27	15	0.000	7 / 2 /		010-	14	4493										
				S	10	0150	0	115	341	10	27	30	000	/63(	ינ	0187	14	+557										
				08	5	0150	0	110	340	160	21	00					14	+55/										
				00	5	0100	Ų	113	340	100	21	50					14	+200										

REF	ERENCE	E SHIP LATITUDE LONGIT		LONGITUDE	MARS SOU	DEN ARE	577	IG M1	TIME	YEAR	CRUISE	DRIGINATOR'S STATION	DEPTH TO	MAX. DEPTH OF	08	WAV SERVA	e tions	WEA THER	CLC CO	DES	NODC
CODE 3	NO.	EV	. 1/10 53550N	054500W	186	1' 34	мо 0 <b>6</b>	DAY 07	HR.1/10	1966	NO.	NUMBER 9651	0174	S'MPL'S	DIR 29	HGT I	3.	X 1	TYPE	4 AMT	0150
						COLO	TRAN	TER WIND BARO- TRANS. DIR. OR (mba)		R	AIR TEMP. "C VIE DRY WET COE	NO. OBS. DEPTHS	SPEC OBSERV	CIAL ATIONS							

			0000		FORCE	(most )	0020			_									
			DT	SD 28	S07	152	039	0	28 7		12	_							
MESSENGR CAST TIME OF NO. HR 1/10	CARD TYPE	DEPTH (m)	7" T	s •/	SIGM A -	T SPECIF	NC VOLU	ме 0 ^{,7}	₹ △ DYN. x 10	D M. 3	SOUND VELOCITY	Og mi/i	PO 4-P 99 + o1/1	TOTAL⊸P µg + at/l	NO2-N ug + al/l	NO3-N 1/1 = 01/1	51 O 4 — 51 9 9 = 01/3	рH	SCC
																	1		1
	STD	0000	0120	3301	2646	00	1581	9	000	0	14520								
053	OBS	0000	0120	33010	2646						14520								
	STD	0010	0119	3306	2650	00	1544	1	001	6	14522								
	OBS	0010	0119	33059	2650						14522								
	STD	0020	0120	3306	2650	00	1544	0	003	1	14524								
003	OBS	0020	0120	33060	2650						14524								
	STD	0030	0123	3308	2651	00	1532	1	004	6	14527								
	OBS	0030	0123	33078	2651						14527								
	OBS	0040	009Ú	33580	2693						14521								
	STD	0050	0125	3373	2703	00	1039	8	007	2	14540								
	OBS	0050	0125	33728	2703						14540								
	OBS	0060	0034	33920	2724						14503								
	STD	0075	0124	3401	2725	00	0827	0	009	6	14548								
	085	0075	0124	34008	2725						14548								
	STD	0100	0188	3420	2736	00	0726	3	011	5	14583								
	OBS	C100	0188	34201	2736						14583								
	STD	0125	0205	3435	2747	00	0631	4	013	2	14596								
	OBS	0125	0205	34345	2747						14596								
	STD	0150	0374	3467	2757	00	0540	3	014	7	14678								
	OBS	0150	0374	34667	2757						14678								
	OBS	0160	0375	34669	2757	,					14680								

REFERENCE CTRY ID.	SHIP LATITUDE			LONG	ITUOE	DRIFT NDCTR	MARS SQUI	OEN ARE	STAT	ION GMT	TIAN E I	YEAR	c	0 RUISE	RIGINA ST	TOR'S ATION	_	CEPTH TO	M AX DEPTH OF	0	W A SERV	VE A TION	s	WEA-	CLOU	D S		NOD	JC I
CODE NO.			1/10		1/10		10*	1*	MO I	DAY	HR,1/10	1	_	NO,	NL	MBER		80110	S'MPL	S DIR	HGI	PEP	SEA	CODE	TYPE A	11		NUM	BER
31800	1 EV	5348	ON	055	035W	1	186	35	06	27	065	196	5		965	2		0152	01	29	3	3		×1	0	•		01	51
							[	WA	ER		WIND	ВА	RO-	A	IR TEM	Р. °С	- 1/15	NO.	5.01	CTAL	]								
								COLOR	TRANS (m)	DIR.	SPEE OR FOR	D ME	TER Ds)	BL	IRY JLB	WET BULS	COD	OBS. DEPTHS	OBSER	A TION S									
							[	DŤ	SD	28	50	7 1	52	0	33	022	7	10											
	MESSENG TIME HR 1/10	NO.	C A R TYP	ie Ie	DEPTH (r	n)	T	°C	5	•4.	sic	SMA-T	s,	PECIFIC	VOLUM	E 2 D)	△ D N. M 10 ³	SOI VELC	UND OCITY	O2 ml/	ז ד ע	°О4—Р 9 - от П	10 1	DTAL=P g = a+/l	NO ₂ -N ug - 01/	NO3- 49 - 01	N SLO. /L Pg +	1 = 5) 1 × 10	рН
			s	tD	0000		0	108	32	70	2	622	1	001	8085	0	000	14	510				1						
	06	5	QB:	S	0000	)	0	108	32	703	2	622						14	510										
			S	TD	0010	)	0	108	32	72	2	623		001	7977	0	018	14	512										
			OB:	S	0010	)	0	108	32	717	2	623						14	512										
			S	TD	0020	2	0	106	32	74	2	525		001	7790	0	036	14	513										
	0.0	1	OB:	S	0020	2	0	106	32	740	2	625						14	513										
			5		0030	,	+01	070	22	24	21	674	1	001	3136	0	051	14	441										
			00:	5	0050	5	-01	070	22	240 ///	2	674		0.01	1600	0	070	14	441										
			08	(U)	0050	2	-0	097	22	44 660	2	601 601		001	1900	U	076	1 14	4 22										
			5	с ТП	0076	5	-0	0.08	33	440 65	2	703		001	0325	0	1.63	14	400										
			08	5	0075	5	Ő	008	33	65C	2	703		001	0525	0	• • • •	14	490										
			08	S	0085	5	- 0	013	33	B10	2	717						14	484										
			S	TD	0100		0	037	33	99	2	729		000	7885	0	126	14	512										
			OB:	s	0100	)	0	037	33	990	2	729			•	-		14	512										
			5	тD	0125	5	Û	170	34	29	2	745	(	000	6466	0	144	14	580										
			OB:	S	0125	5	0	170	34	Z 9 C	2	745						14	580										
			08:	S	0140	)	О.	240	34	390	2	747						14	615										

REFERENCE	SHIP	1.4.11	DIC 1		14	MAR	DEN	STAT	ION TI	ME			ORIGIN	ATOR'S		DEPTH	MA	л. ru		WAVE		WEA-	CLO	gu			NOOC	]
CTRY 1D. CODE NO.	CODE	1/1		LONGIUDE	NDO	500	A.KE		GMD		YEAR	CRUISE	5	TATION	1	to BOTTO	u 6	F	OBSI	PVA TIC	DNS.	THER	CO	DES		S	TATION	
2.0.0.0	1 5		1/10	1733		10*	1 ¹	MOL	H YAC	R.1/10		NU.		U M BE	~		5°M 8	L*S	DIR.	HGT PER	SE/	A CODE	TYPE	4 M I			O W R 5 N	
1 31800	ILEV	5339	ON	055150	1	186	35	06 0	070	075	1966		96	53		0302	2 0	3	35	2 3		×1	0	4			0152	
							WAT	ER	- · · ·	IND	BAR	o-	AIR TEA	AP C		NO.	5	PECIA										
							COLOR	TRANS. Imi	OIP.	OR	M ET E	R -	DRY ULB	W E T BLILB	COD	E OBS. DEPTH	OBSE	RVATI	ONS									
							DT	SD	20	50.5	15	2 0	39	0.21	7	16												
	MESSENGE			-		1				1				1	<u> </u>	10		T										
	TIME HR 1/10	NO.	TYP	D DEPTH	(m.l	T	°C	S	•/	SIGN	A A — T	ANOM	ALY-11	ме 1 ⁷ С	х 10 ³	SC VEL	OCITY	02	m1/1	PO4- 19-0	- P	fotAL=P µg - al/l	NO2- 29 - 0	N	NO3-N 29 + 01/1	SIO₄—S) µg - p)/l	pН	0
						1																						
		_	S	TD 000	0	0	183	329	93	26	35	001	683	2 (	0000	) 14	+547											
	07	5	OB	5 000	0	0	183	329	930	26	35					14	547											
			S	TD 001	0	0	150	329	99	26	42	001	615	1 (	016	14	535											
	0.0.*	2	089	5 001	2	0	150	329	991	26	42					14	535											
	00.	2	00:		2	0	1 3 8	325	997	26	43					14	530											
			000	- 002	0	0	173	325	99 200	264	40	001	632	7 (	033	14	540											
			000	5 002 TD 003	0	0	172	223	188	264	40					14	546											
			080	003	0	0	132	325	12	26.	38	001	6541	5 C	049	14	529											
			08	5 000	0	-0	192	223	1 6 0	26.	38					14	529											
			5003	5 004 10 005	0	-0	0.05	222	150	260	66	0.01	25.0			14	448											
			080	S 005	ă	0	005	222	221	200	69	001	2281	5 U	10 79	14	479											
			OB	5 005	š	-0		222	200	200	74					14	479											
			51	rn 007	5	_0	012	233	21	20	10	0.0.1	76.0			14	413											
			OB	\$ 007	5	-0	075	112	300	200	80	001	200	5 (	112	14	441											
			08	5 008	õ	-0	109	333	14.2	200	93					14	441											
			51	D 010	0	-0	084	3 3 6	11	260	08	001	084		1.41	14	455											
			OBS	5 010	õ	-0	084	335	529	260	98	001	004		141	14	450											
			ST	D 012	5	-0	042	336	59	270	29	000	978	а (	167	14	476											
		0		5 012	5	-0	0.4.2	336	88	270	ñ g				101	14	476											
				D 015	0	0	030	338	37	272	20	000	8748	3 0	100	14	516											
				5 015	0	0	030	338	371	272	2.0				- / •	14	516											
				D 020	0	0	149	341	9	27	38	000	7089	5 0	230	14	582											
			OBS	5 020	0	0	149	341	91	27	38				0	14	582											
			51	D 025	0	0	243	34	34	270	4 3 4 3	000	6723		264	14	202											
			QBS	5 025	0	0	243	34	40	274	43	000	0,20	- 0	-04	14	43/											
			OBS	028	0	Ő.	241	343	860	270	45					14	410											
						-					* <i>*</i>						0.00											

REFERENCE		SHIP	LATITUDE		LONGITUDE	ORIFT NDC TP	MAR	SDEN ARE	STATION TIME			YEAR	ORIGINATO CRUISE STAT		ATOP'S	P'S ION		TO	MAX DEPTH OF	08	W A SER∨	WAVE ERVATIONS		WEA-	CLO COI	U D DES			NODC STATION		
CODE	NQ,		1/10		'1/10	-	10*	1.	MO (	DAY HR.		/10		NO,	NUMBER		R	+		S'MPL*	.*S DIR	HG1	PER S	A U		TYPĮ	A 14 T		$\rightarrow$		-
3180	318001 E		EV   53350		055280W		186	35	06	07	088	3 1	966	1	96	54	_,	0	144	01	22	2	٤		<b>X</b> 1	0	4			0153	3
								WA	TER	WIND			BAR	o. 🔔	A IR TEMP. C				NO.	SPE	CIAL										
								COLOR	TRANS, Imi	DI	R, C FO	EED DR RCE	METE (mbs	R 1 8	DRY	W ET BULB	B	D	OBS. EPTHS	OBSERV	SERVA TION S										
								DT	SD	2	5 50	)5	5 15	2	)39	02	28 7		11												
	MESSENC TIME HR 1/1		CAST NO.	C A R TYP	D DEPTH	[m]	т	Ċ	s •4.			SIG M A - T		SPECIFI	C VOLU	ME p'	₹ △ D DYN. A x 10 ³		SOU VELC	DAD DOITY	0 g m1/1	90 94	04-P 2 • 01 1	101 94	A L - P 01/1	NO2- 19 - 0	•N 1/l	NO3-N µg = at/1	\$1 O 4++ 99 - 01	iSi DA рн	500
																								1							1
				SI	STD 0000		-0	015	32	49	9 Z		. 1	001	910	9	0000	0	14	451											
		088		089	000	0	+0	015	32	48	9	261	1					_	14	451											
				S	rD 001	0	-0	036	32	52		261	14	001	878	4	001	9	14	444											
				OBS	5 001	0	-0	036	32	52	0	261	.4		070	-			14	444											
				5	0 002	0	-004	043	32	22		261	. ว	001	.0/54	4	0031	8	14	442											
		003		089	5 002	0	-0	043	32	52	U .	261	. 5				00 F		14	442											
				5	003	0	-0047		3231			201		001	1990	08	0050	6	14	442											
				085	5 003	6	-0	047	32	21	0	201	1.44 1.7						14	442											
				083	5 004	0	-0	-0151 320	59	7 2		02	0.0	1661	0 0	<u> </u>		14	597												
					005	0	-0	151 5277 2		203	0	0010014		9 009.		۷	14	400													
				005	5 005	E C	-0	121	32	70	<b>,</b>	263	88		15445				144	400											
				003	5 005	5	-0	122	22	01	· ·	203	0	0.0		6	012	2	14	413											
					007	5	-0	-0133		2000		204		001544		5	013		14	415											
				000		0	-0	112	22	00	7	204 264		0.0	1400	~	014	0	14	412											
				040	010	0	-0	-0116		09	7 2		) ) ]	00.	1409	0	010	4	14	427											
				000	5 010 TD 012	5		103	22	31	· ·	266	3 O	0.0	247	3	020	2	1442	469											
				08	- 012	0125		103	32	20	6	200	10	001	1241	2	0 - 0	2	14	····2											
				08	s 0120		-0	104	22	31	0 2	208	11						14	442											
				$ \cup$ $ \cup$ ,	_ 015	0100 =0		7 4 4	JJJ10 20		- 00																				

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and the factor of the state of the