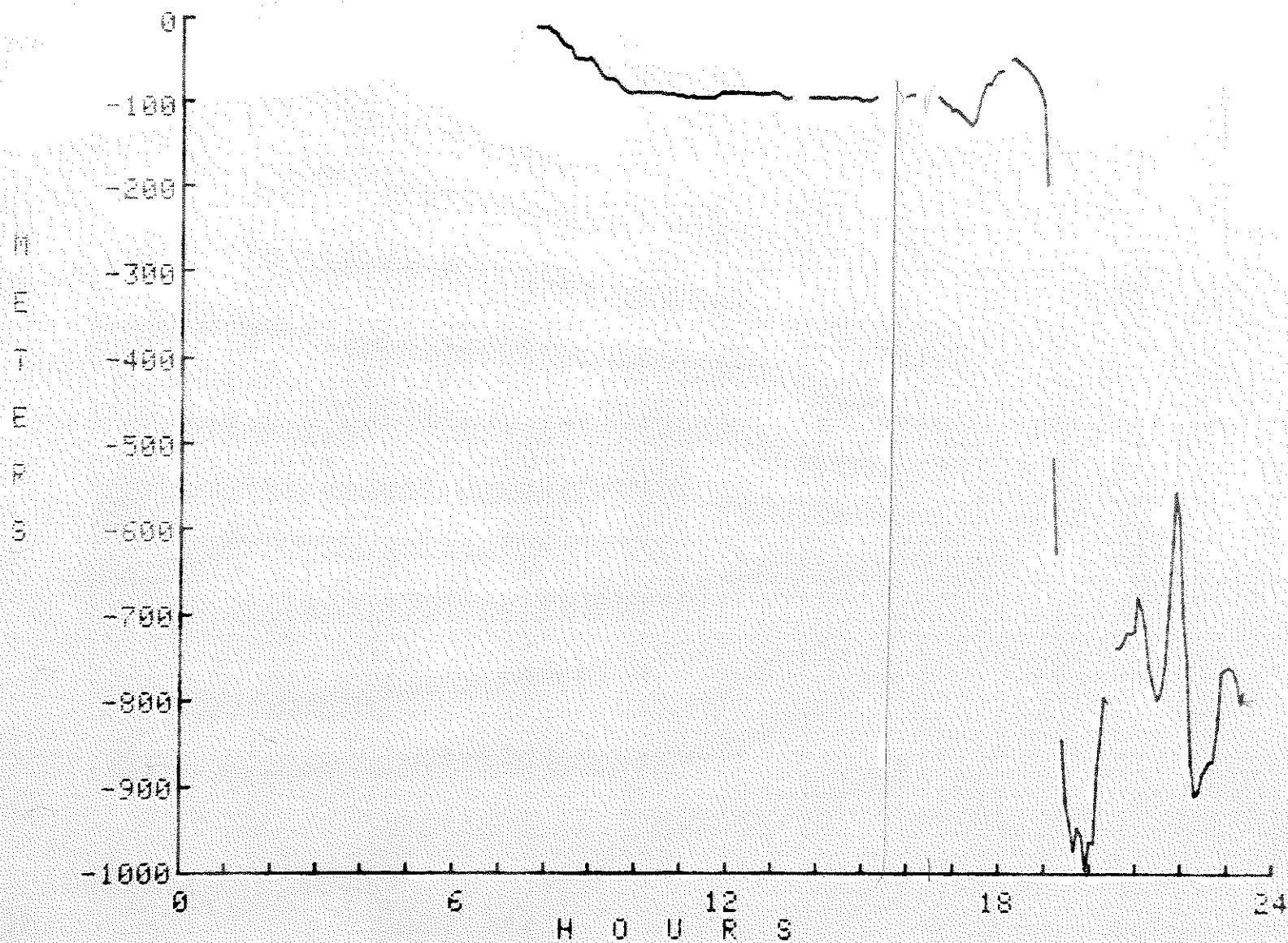


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YEAR-1977 JULIAN DAY- 93 CRUISE IG- 24

BATHYMETRY

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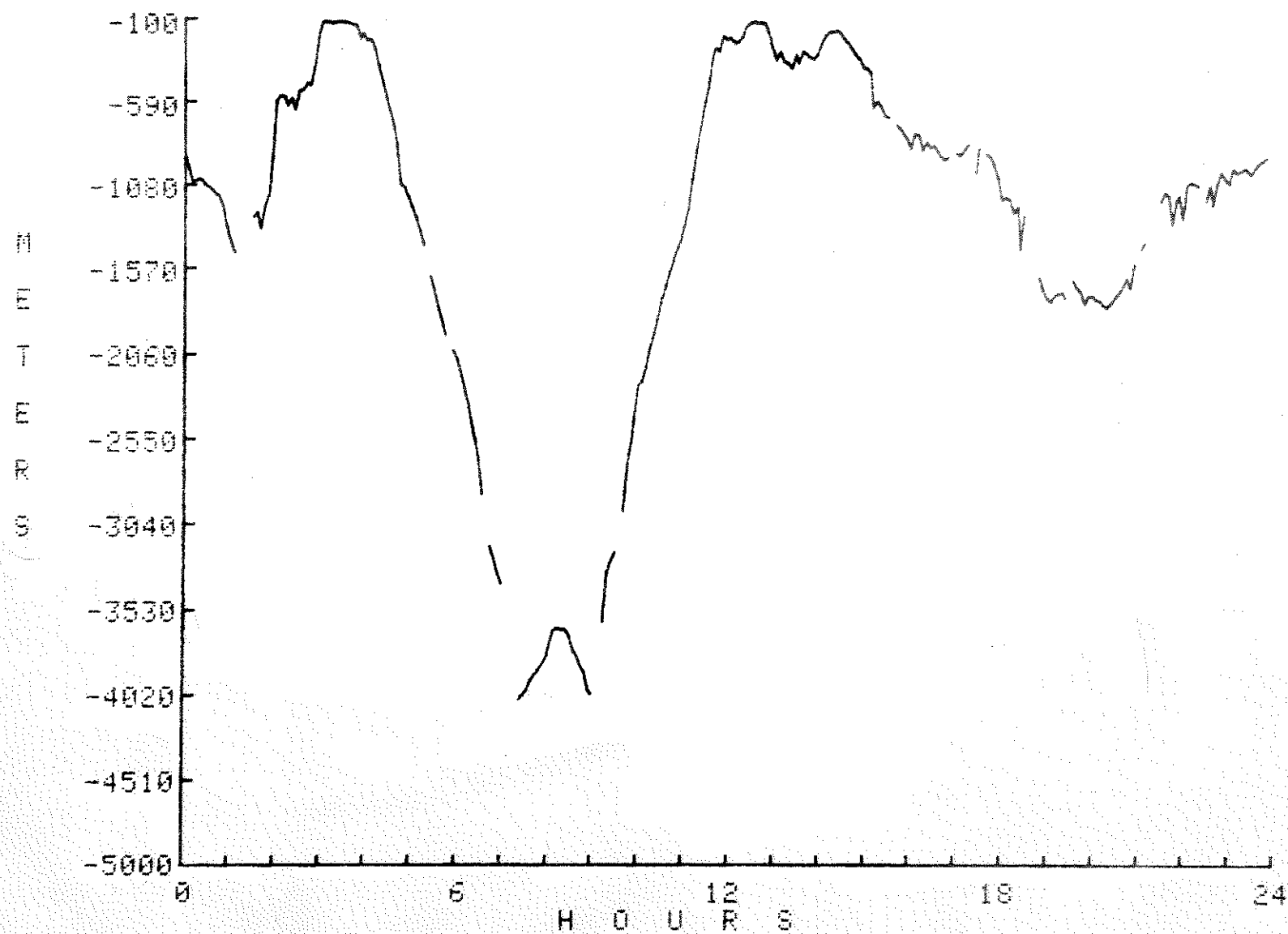
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CRUISE		AREA		PROJECT		DATE	
IG 243a		Costa Rica		MAT		14/77	
TIME		TIME		TIME		TIME	
0000	897	0300	120	0600	2075	0900	4008
05	995		113		2172		?
10	1073		113		2270		?
15	1050		121		2355		3608
20	1048		120		2450		3310
25	1075		120		2553		3250
0030	1089	0330	120	0630	2675	0930	3200
35	1106		121		2870		0
40	1133		130		0		2965
45	1148		140		3165		2697
50	1205		207		3235		2560
55	1335		180		3313		2425
0100	1420	0400	215	0700	3375	1000	2250
05	1475		215		0		2216
10	0		275		0		2133
15	0		377		0		2047
20	0		466		0		1968
25	0		564		4040		1861
0130	1275	0430	652	0730	4022	1030	1763
35	1245		750		3985		1685
40	1342		852		3927		1596
45	1200		1075		3897		1526
50	1140		1095		3870		1474
55	887		1155		3835		1424
0200	582	0500	1217	0800	3788	1100	1325
05	547		1281		3725		1212
10	562		1353		3650		1045
15	607		1437		3638		872
20	565		0		3641		750
25	635		1615		3645		607
0230	517	0530	1690	0830	3613	1130	475
35	515		1790		3750		338
40	476		1865		3790		267
45	486		1952		3850		281
50	365		0		3883		197
55	205		2044		3941		220
							365
							1050
							1558
							965

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Day 94
file 7



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BATHYMETRY

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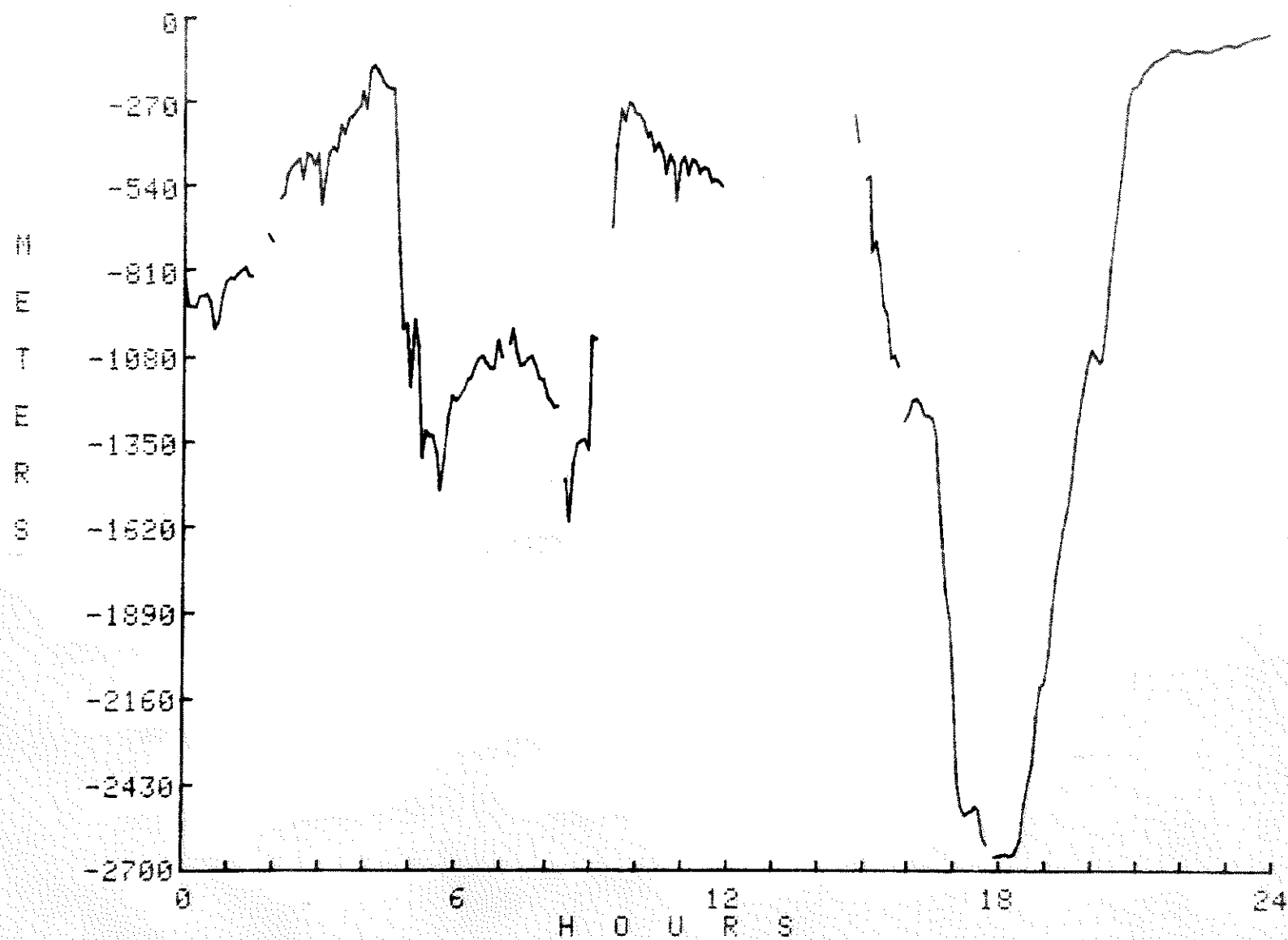
of

CRUISE		AREA				PROJECT				DATE			
IG 24-3a		Costa Rica				MAT				BATHY			
										95/77			
TIME		TIME		TIME		TIME		TIME		TIME		TIME	
0000	823	0300	600	0600	1220	0900	1015	1200		1500	520	1800	2655
05	923		495		1205		1026			510		2652	183
10	924		435		1185		0			750		2652	169
15	927		415		1150		1057			720		2653	153
20	990		425		1150		0			793		2650	145
25	986		343		1115		675			925		2630	140
0030	883	0330	370	0630	1085	0930	403	1230		1530	952	1830	2600
35	913		323		1079		287			1086		2485	120
40	993		312		1100		330			1078		2420	105
45	972		292		1117		271			1115		2364	111
50	872		283		1119		280			0		2213	107
55	846		232		1030		304			1284		2122	115
0100	833	0400	287	0700	1083	1000	310	1300		1600	1258	1900	2110
05	832		158		0		332			1212		2025	116
10	823		150		1042		383			1217		1875	112
15	808		168		790		365			1231		1759	109
20	802		1200		1060		425			1267		1710	110
25	824		214		1110		400			1271		1625	112
0130	831	0430	225	0730	1105	1030	430	1330		1630	1277	1930	1569
35			225		1085		500			1335		1485	111
40			425		1076		440			1480		1342	107
45			750		1115		470			1658		1260	102
50	693		990		1150		590			1825		1179	95
55	319		975		1155		467			1905		1106	93
0200		0500	1175	0800	1210	1100	448	1400		1700	2110	2000	1063
05	582		965		1218		503			2412		1084	96
10	565		1050		1240		453			2495		1105	92
15	504		1400		1235		465			2525		1090	84
20	480		1315		0		500			2515		979	83
25	468		1330		1465		480			2519		805	77
0230	450	0530	1330	0830	1600	1130	488	1430		1730	2498	2030	687
35	522		1380		1420		528			2510		565	69
40	435		1500		1354		520			2592		453	69
45	444		1400		1345		525		310	2620		283	66
50	475		1275		1342		540		400	0		227	60
55	433		1205		1375		0			2658		222	45

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IN METERS

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Bathymetry
DAY 25
File 8



YEAR-1977 JULIAN DAY- 95 CRUISE IG- 24

BATHYMETRY

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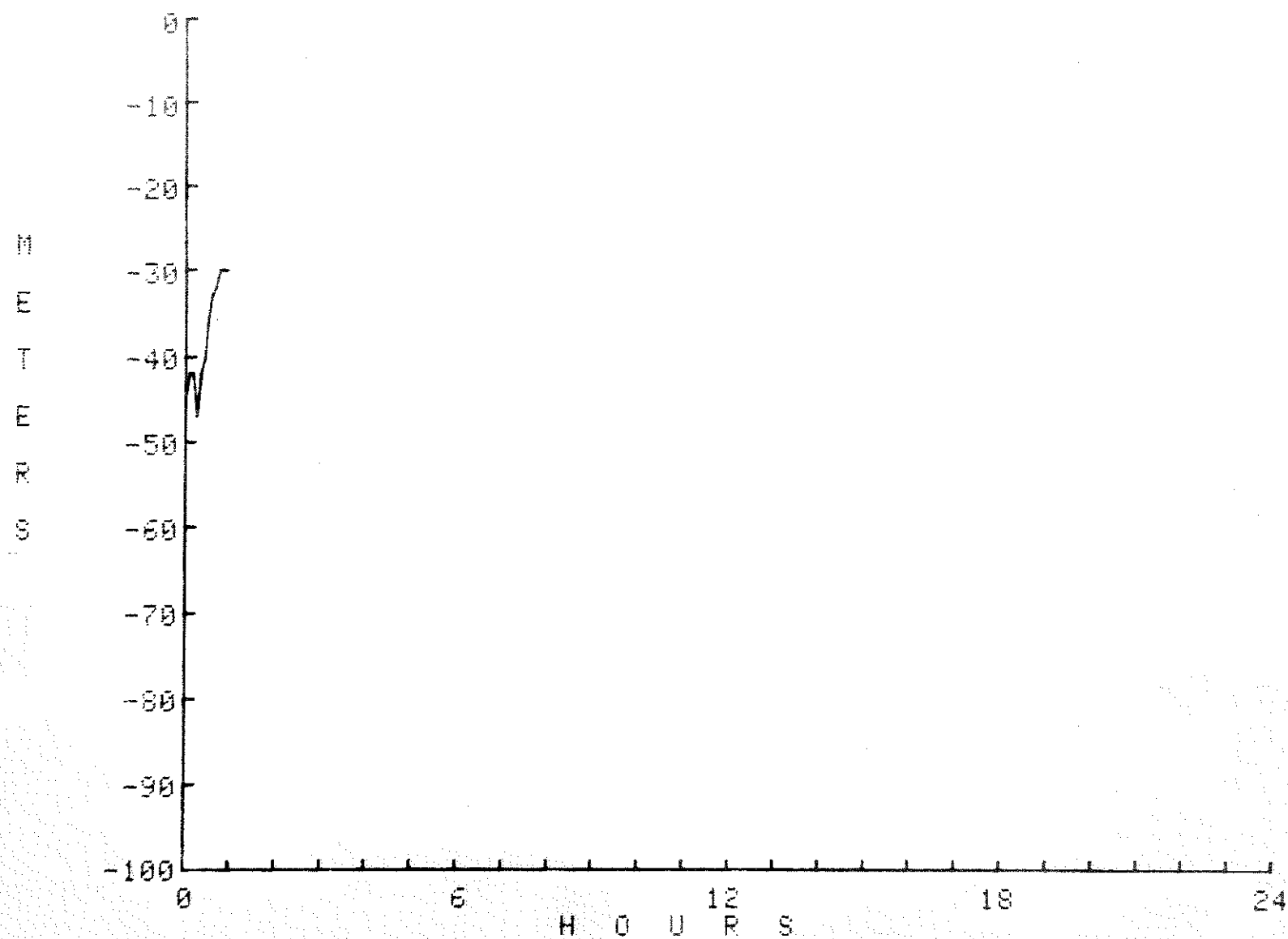
OF

CRUISE			AREA			PROJECT			DATE		
IG 24-3a			COSTA RICA			MAT			96/77		
TIME		TIME		TIME		TIME		TIME		TIME	
0000		0300		0600		0900		1200		1500	
05											
10											
15											
20											
25											
0030		0330		0630		0930		1230		1530	
35											
40											
45											
50											
55											
0100		0400		0700		1000		1300		1600	
05											
10											
15											
20											
25											
0130		0430		0730		1030		1330		1630	
35											
40											
45											
50											
55											
0200		0500		0800		1100		1400		1700	
05											
10											
15											
20											
25											
0230		0530		0830		1130		1430		1730	
35											
40											
45											
50											
55											

IN METERS

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Bathymetry
DAY 96
File 9



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BATHYMETRY

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CRUISE IG-24-3b				AREA Costa Rica				PROJECT Middle America Trench				DATE 79/77			
TIME		TIME		TIME		TIME		TIME		TIME		TIME		TIME	
0000		0300		0600		0900		1200		1500		1800		2100	
05										33		78		305	
10										33		80		318	
15										33		81		337	
20										33		83		341	
25										33		83		351	
0030		0330		0630		0930		1230		1530		1830		2130	
35										34		85		381	
40										35		85		395	
45										34		86		404	
50										35		84		418	
55										37		85		436	
0100		0400		0700		1000		1300		1600		1900		2200	
05										38		85		468	
10										0		86		480	
15										40		87		490	
20										41		88		500	
25										41		89		509	
0130		0430		0730		1030		1330		1630		1930		2230	
35										42		90		523	
40										44		91		543	
45										45		92		551	
50										45		94		558	
55										48		97		577	
0200		0500		0800		1100		1400		1700		2000		2300	
05										52		102		646	
10										54		105		672	
15										56		108		697	
20										57		113		740	
25										58		118		783	
0230		0530		0830		1130		1430		1730		2030		2330	
35										60		125		798	
40										63		136		828	
45										65		153		864	
50										68		178		897	
55										33		201		922	
										33		253		951	
										33		285		981	

April
9,
1977

IN METERS

Bathymetry

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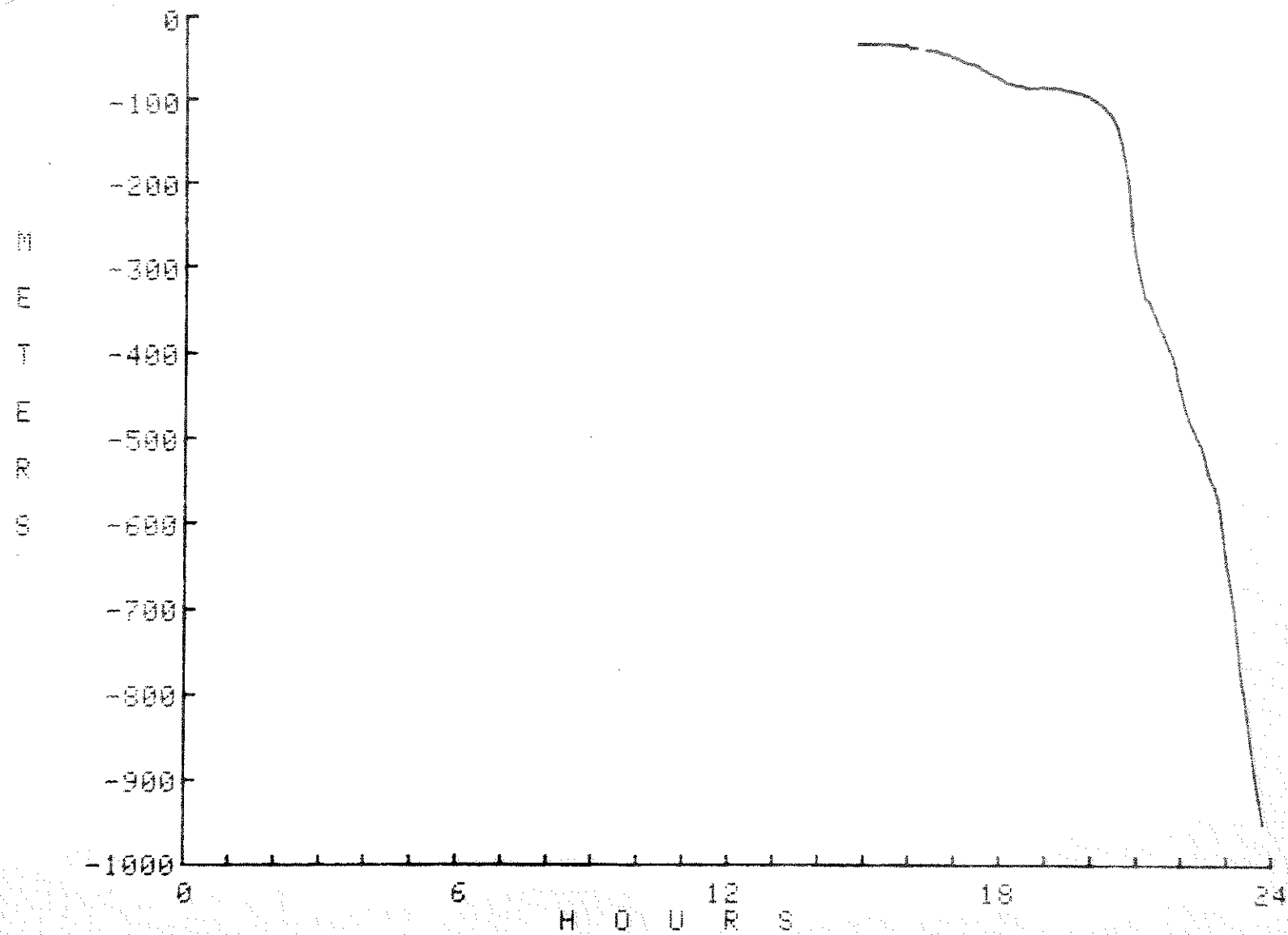
DAY 99
FILE 10

La Puntarenas,
Costa Rica

Begin

bath.

IG-24-3b



YEAR-1977 JULIAN DAY- 99 CRUISE IG- 24

CRUISE		AREA		PROJECT		DATE	
I6-2436		Costa Rica		M AT		100/77	
TIME		TIME		TIME		TIME	
0000	1016	0300	1183	0600	3475	0900	0
05	1046		1810		3530		0
10	1075		1836		3555		0
15	1108		1896		4210		0
20	1143		1951		6070		0
25	1176		1975		0		0
0030	1212	0330	2013	0630	3597	0930	0
35	1246		2042		3665		0
40	1284		2072		3710		0
45	1310		2121		3703		0
50	1346		2131		3550		0
55	1378		2137		3635		0
0100	1411	0400	2155	0700	3607	1000	0
05	1431		2172		3467		0
10	1455		2215		3250		0
15	1494		2230		3250		0
20	1518		2230		3250		0
25	1547		2340		3170		0
0130	1567	0430	2340	0730	3165	1030	0
35	1572		2395		3214		0
40	1593		2356		0		0
45	1604		2415		2928		0
50	1617		2440		2810		0
55	1621		2615		2613		0
0200	1630	0500	2650	0800	2520	1100	0
05	1638		2695		2487		0
10	1645		2700		2504		0
15	1648		2852		2485		0
20	1649		2925		2542		0
25	1685		2970		2676		0
0230	1688	0530	3000	0830	2580	1130	0
35	1689				2565		0
40	1686		3100		2468		0
45	1717		3310		2428		0
50	1730		3313		2408		0
55	1746		3367		0		0
					2082		0
					2323		0
					2100		0

April 10

records
between

1900

2131

may be

off

by 1 sec

checked

it out

could find

no evidence

to refute

written

records

a 8-sec

sweep

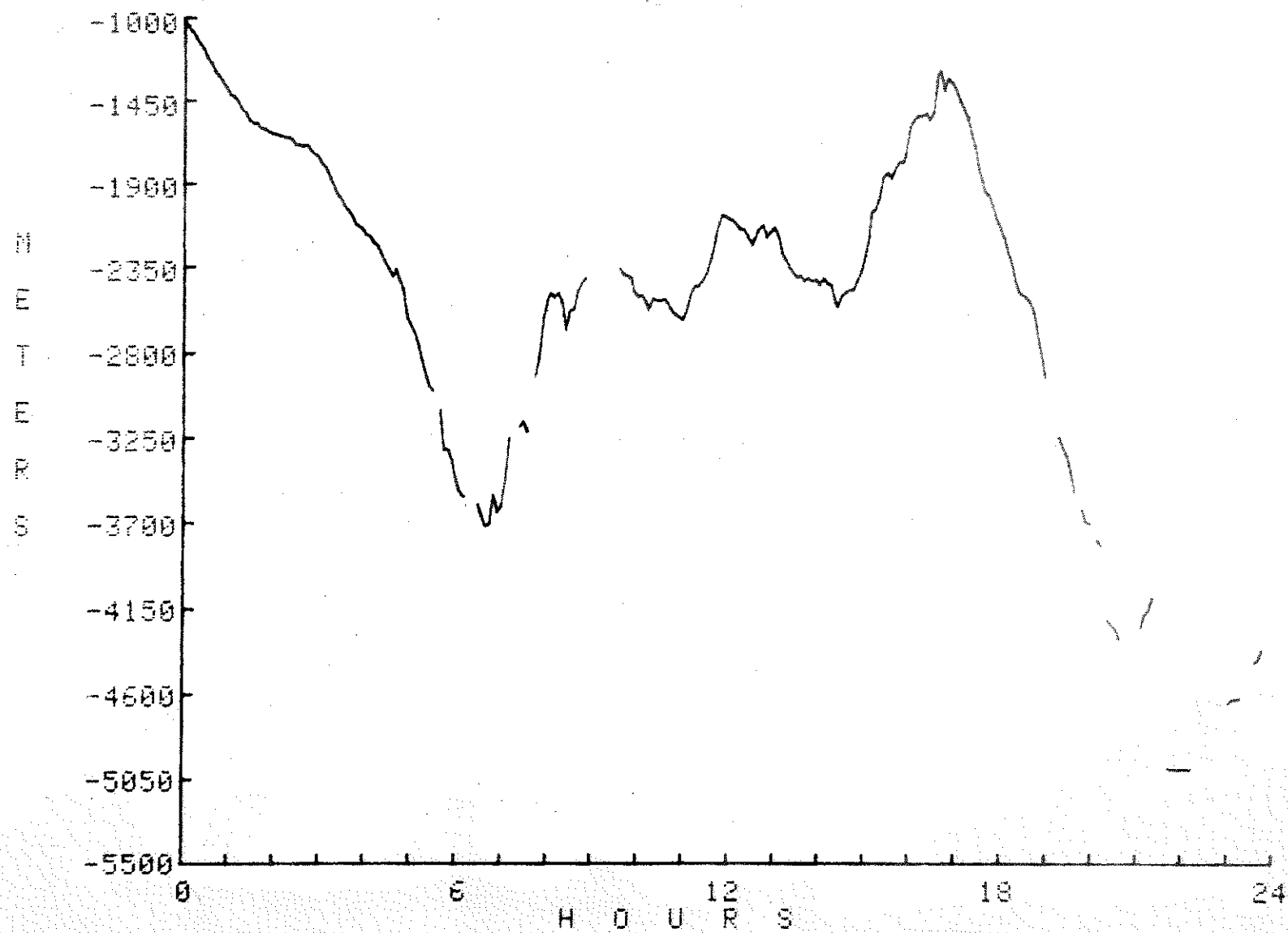
somewhere

in record

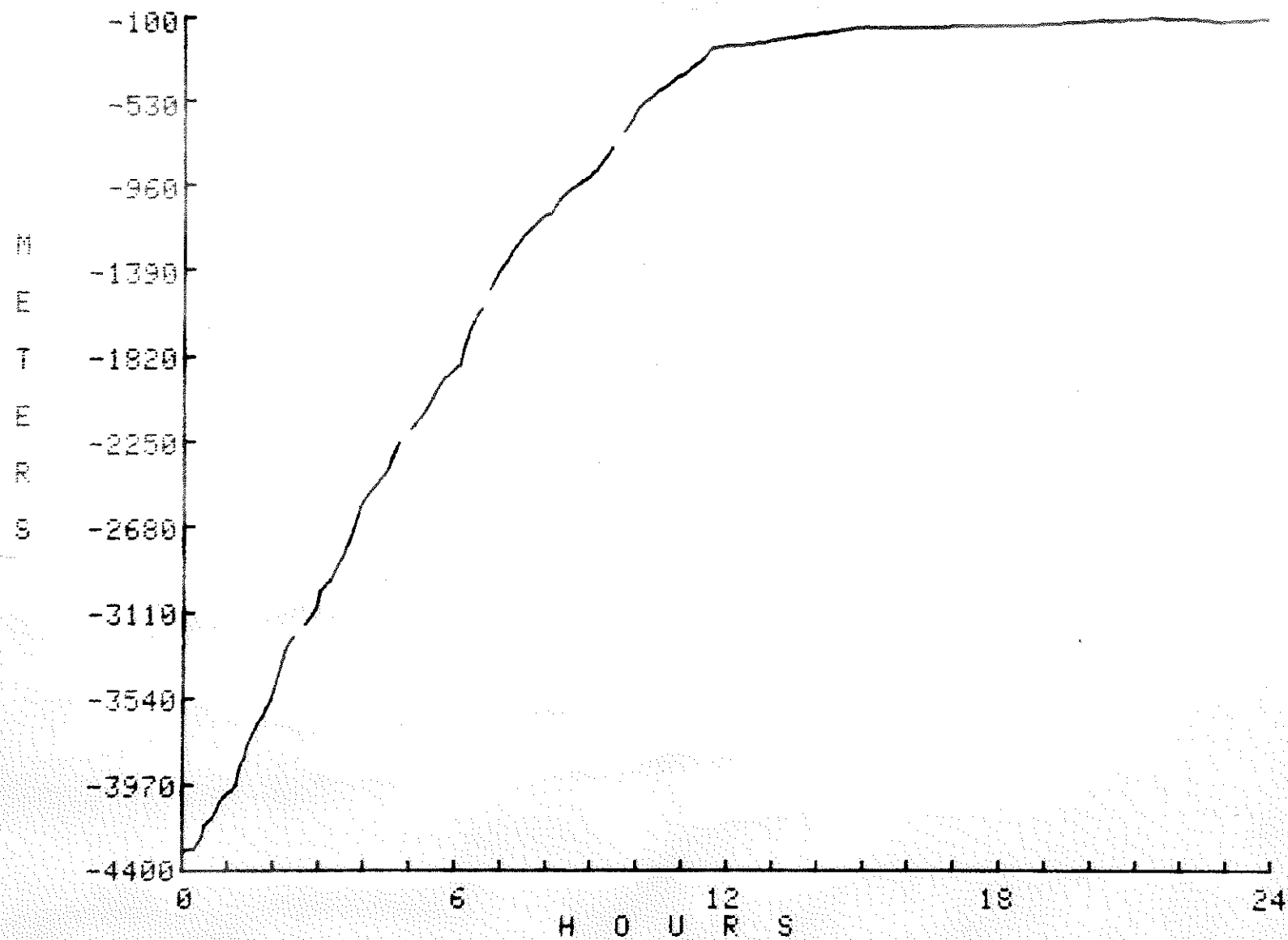
would have

been most

helpful



YEAR-1977 JULIAN DAY-100 CRUISE IG- 24



YEAR-1977 JULIAN DAY-101 CRUISE IG- 24

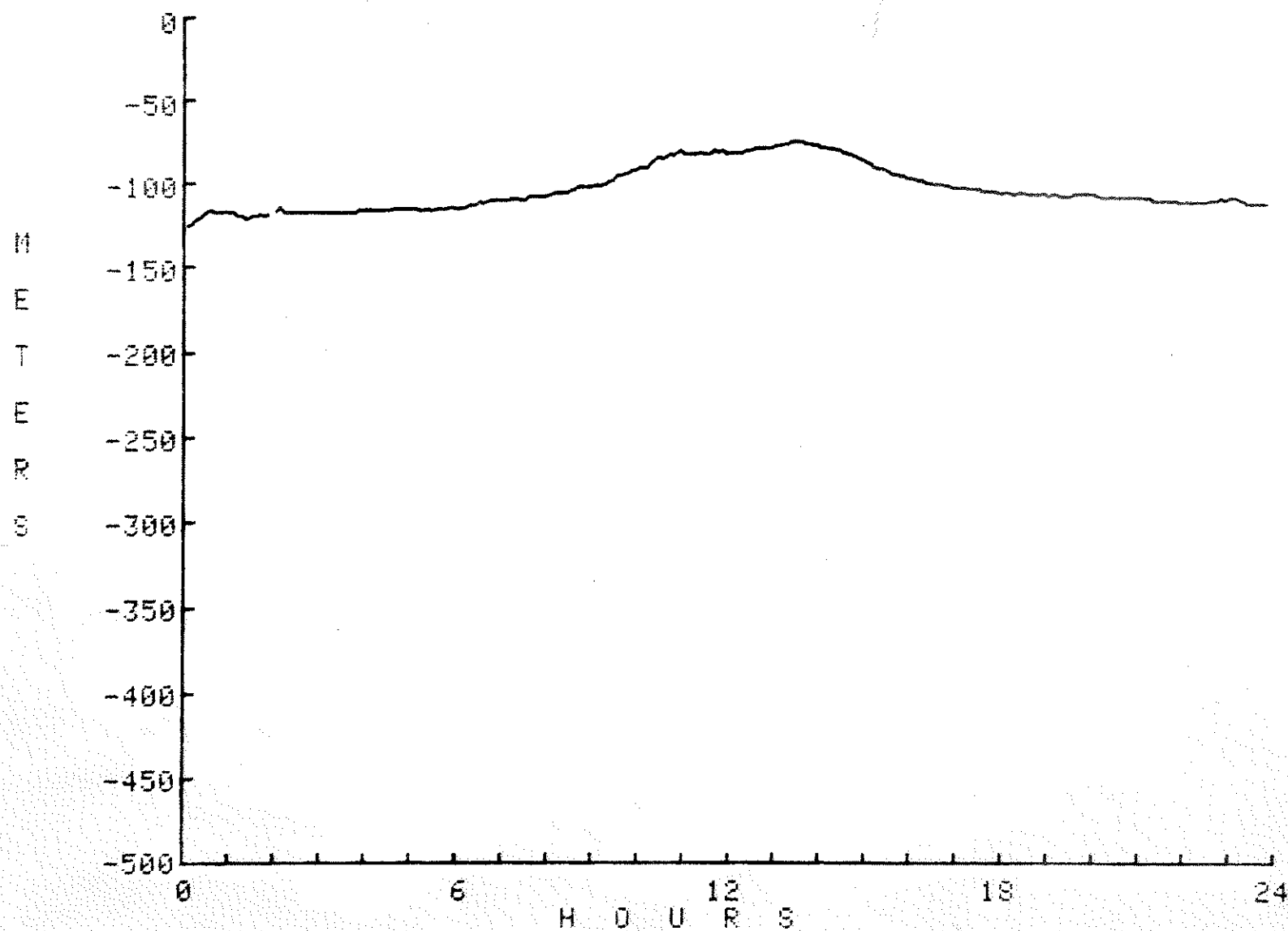
CRUISE		AREA				PROJECT						DATE	
It 2436		Costa Rica - Nicaragua				MAT						102/77	
TIME		TIME		TIME		TIME		TIME		TIME		TIME	
0000		0300	117	0600	115	0900	101	1200	81	1500	87	1800	107
05	126		117		114		101		81		88		106
10	125		117		114		101		81		90		107
15	122		117		113		100		81		91		108
20	121		117		113		99		80		91		107
25	119		117		113		98		80		92		107
0030	117	0330	117	0630	111	0930	95	1230	79	1530	93	1830	107
35	116		117		112		95		78		95		108
40	117		117		111		94		78		95		108
45	117		117		110		93		78		96		108
50	117		116		110		92		78		96		108
55	117		116		110		92		78		97		107
0100	117	0400	116	0700	110	1000	90	1300	77	1600	97	1900	109
05	117		116		110		90		77		98		108
10	120		116		109		90		76		99		108
15	120		116		109		88		76		99		109
20	121		116		109		86		75		100		109
25	121		116		110		84		75		100		109
0130	120	0430	116	0730	110	1030	85	1330	75	1630	101	1930	109
35	120		115		108		84		75		101		108
40	119		115		108		82		76		101		108
45	120		115		108		83		76		102		108
50	119		115		108		81		77		102		108
55	0		115		108		80		77		103		108
0200	118	0500	115	0800	107	1100	82	1400	78	1700	103	2000	108
05	114		115		106		82		78		103		109
10	117		116		105		82		79		103		110
15	117		116		105		82		79		104		110
20	117		115		105		81		80		104		110
25	117		116		105		82		80		104		109
0230	117	0530	116	0830	104	1130	82	1430	81	1730	104	2030	110
35	117		115		103		81		82		105		110
40	117		115		102		80		83		105		110
45	117		115		102		81		84		105		110
50	117		114		102		80		85		105		110
55	117		114		102		82		86		107		110

Apr. 12

5825
11/11/85

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day 102
file 13Paper
change



YEAR-1977 JULIAN DAY-102 CRUISE IG- 24

CRUISE			AREA			PROJECT			DATE		
TG 2436			Casta Rica - Nicaragua			MAT			103/77		
TIME		TIME		TIME		TIME		TIME		TIME	
0000	114	0300	111	0600	103	0900	87	1200	80	1500	67
05	114		110		103		87		79		67
10	114		110		103		86		78		66
15	115		109		102		86		78		65
20	114		108		102		86		77		65
25	114		109		101		86		78		65
0030	114	0330	110	0630	100	0930	85	1230	79	1530	63
35	114		110		100		85		77		63
40	114		110		99		85		77		62
45	114		110		99		84		76		61
50	114		110		98		84		75		60
55	114		110		98		84		75		60
0100	114	0400	110	0700	97	1000	83	1300	70	1600	59
05	114		110		97		83		75		58
10	115		110		96		82		75		57
15	115		110		95		80		75		57
20	115		110		95		79		75		56
25	115		109		94		79		75		56
0130	115	0430	108	0730	94	1030	79	1330	74	1630	56
35	115		108		94		80		74		56
40	114		108		94		78		74		56
45	114		108		94		79		74		55
50	114		108		94		79		74		55
55	114		108		93		79		74		55
0200	113	0500	108	0800	93	1100	79	1400	73	1700	55
05	113		107		92		79		73		55
10	113		107		92		78		73		55
15	113		106		91		78		72		55
20	113		106		92		78		71		55
25	113		106		90		78		71		55
0230	113	0530	106	0830	89	1130	79	1430	69	1730	55
35	113		105		89		80		69		55
40	112		105		89		81		69		55
45	113		105		88		82		68		55
50	112		104		88		81		68		55
55	112		104		87		80		68		55

April 13

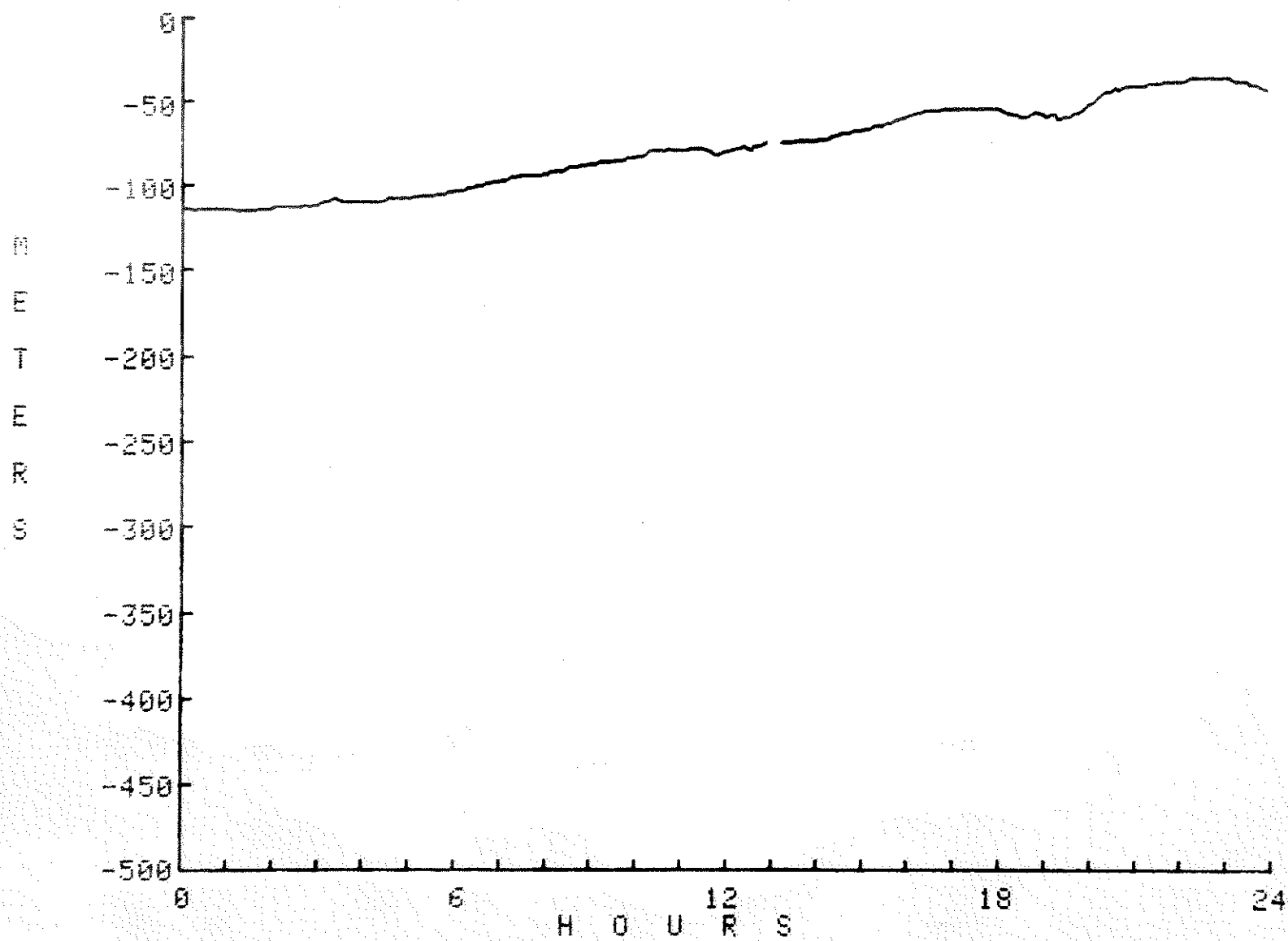
14 METERS

bathymetry

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DAY 103

file 14



YEAR-1977 JULIAN DAY-103 CRUISE IG- 24

CRUISE		AREA		PROJECT		DATE	
IG 2436		Nicaragua - E/ Salvador		MAT		104/77	
TIME		TIME		TIME		TIME	
0000		0300		0600		0900	
05							
10							
15							
20							
25							
0030		0330		0630		0930	
35							
40							
45							
50							
55							
0100		0400		0700		1000	
05							
10							
15							
20							
25							
0130		0430		0730		1030	
35							
40							
45							
50							
55							
0200		0500		0800		1100	
05							
10							
15							
20							
25							
0230		0530		0830		1130	
35							
40							
45							
50							
55							

bathymetry

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file 15

J.O. 104

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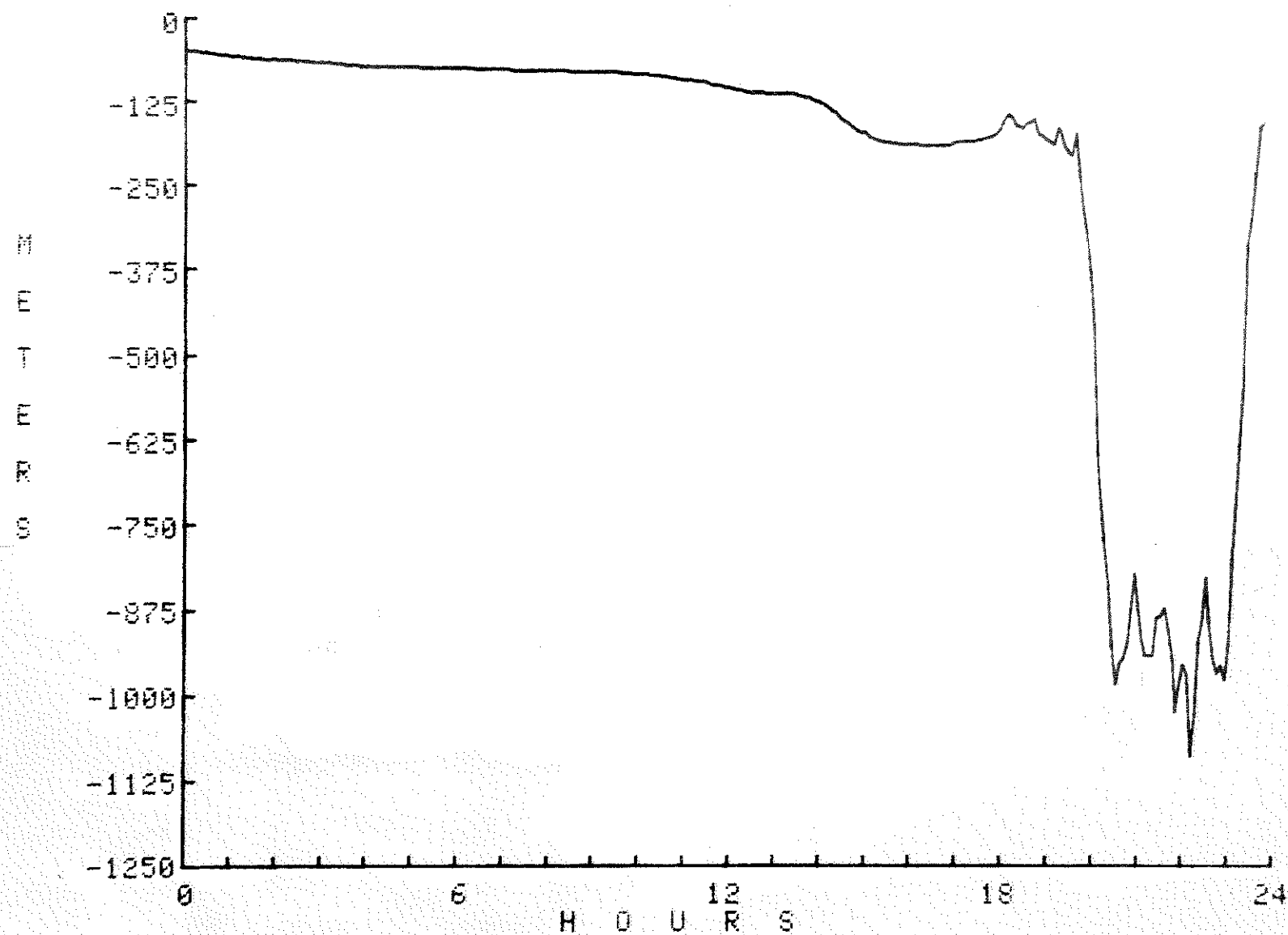
29

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Apr 14

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IN METERS



YEAR-1977 JULIAN DAY-104 CRUISE IG- 24

CRUISE			AREA			PROJECT			DATE		
I62438			El Salvador - Guatemala			MAS - MAT			105/77		
TIME		TIME		TIME		TIME		TIME		TIME	
0000	133	0300	199	0600	143	0900	117	1200	120	1500	582
05	133		196		143		116		120		613
10	133		194		142		116		121		640
15	154		192		142		116		121		655
20	158		189		142		116		122		650
25	160		187		138		116		123		657
0030	162	0330	185	0630	137	0930	115	1230	124	1530	672
35	230	255	183		137		115		125		690
40	220	205	182		135		115		125		677
45	370		181		134		115		127		675
50	541		180		134		115		128		670
55	514		178		133		114		129		656
0100	531	0400	176	0700	132	1000	115	1300	131	1600	667
05	539		175		130		115		133		676
10	515		174		130		115		135		665
15	465		172		130		114		137		661
20	437		171		129		114		140		666
25	421		169		127		114		144		697
0130	410	0430	167	0730	127	1030	115	1330	148	1630	696
35	403		166		126		115		154	739	715
40	393		165		125		115		161		715
45	378		163		124		115		170		655
50	363		162		123		115		184		636
55	348		160		123		115		204		621
0200	335	0500	160	0800	123	1100	115	1400	229	1700	575
05	320		158		122		115		256		538
10	301		156		121		115		280		515
15	282		155		121		116		294		498
20	264		153		120		117		310		474
25	250		152		120		117		324		448
0230	236	0530	151	0830	119	1130	117	1430	341	1730	420
35	225		150		119		117		357		398
40	217		149		118		117		400		384
45	211		148		118		118		461		358
50	207		147		117		118		505		340
55	203		145		117		119		548		325

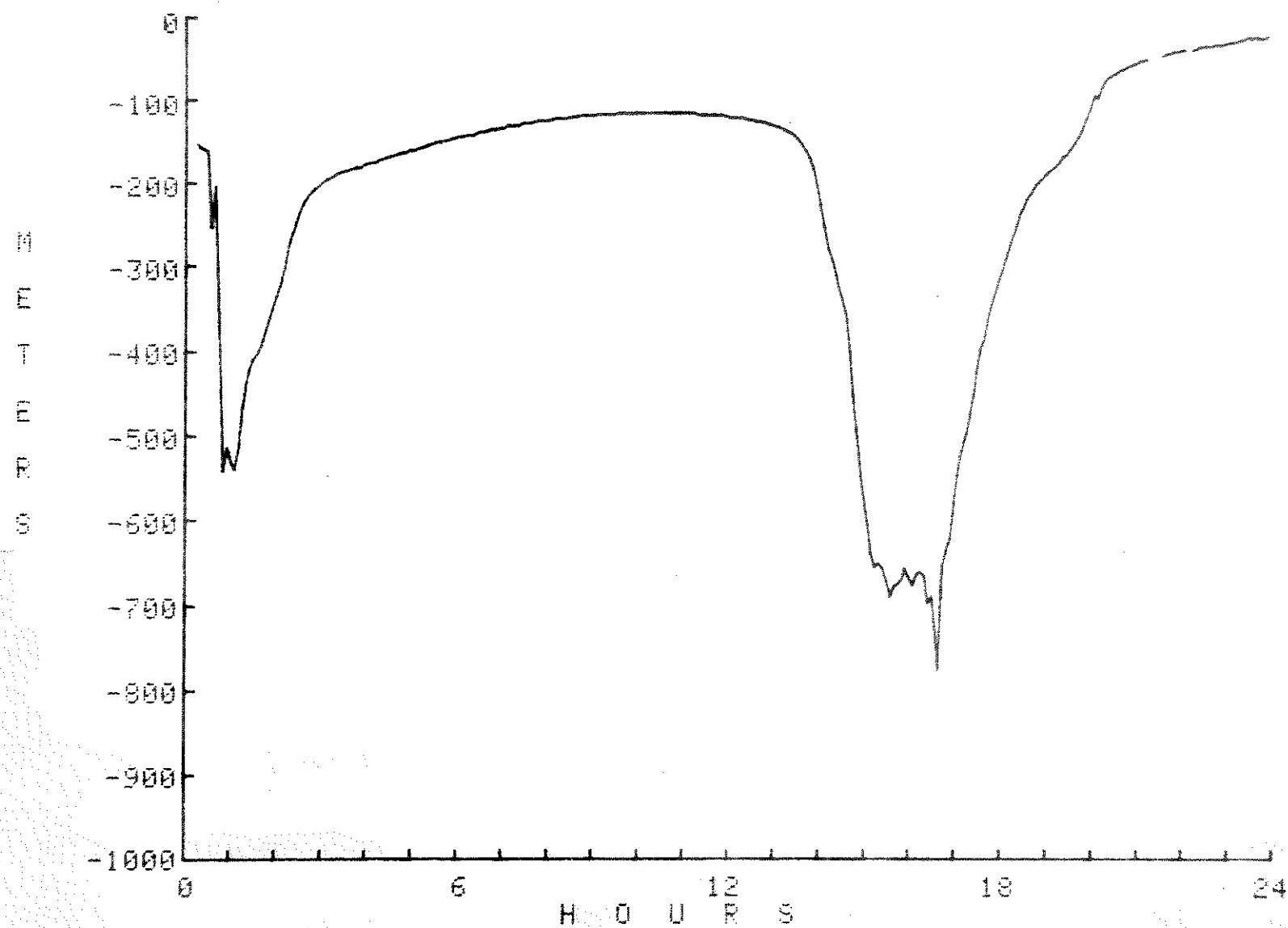
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Apr. 15

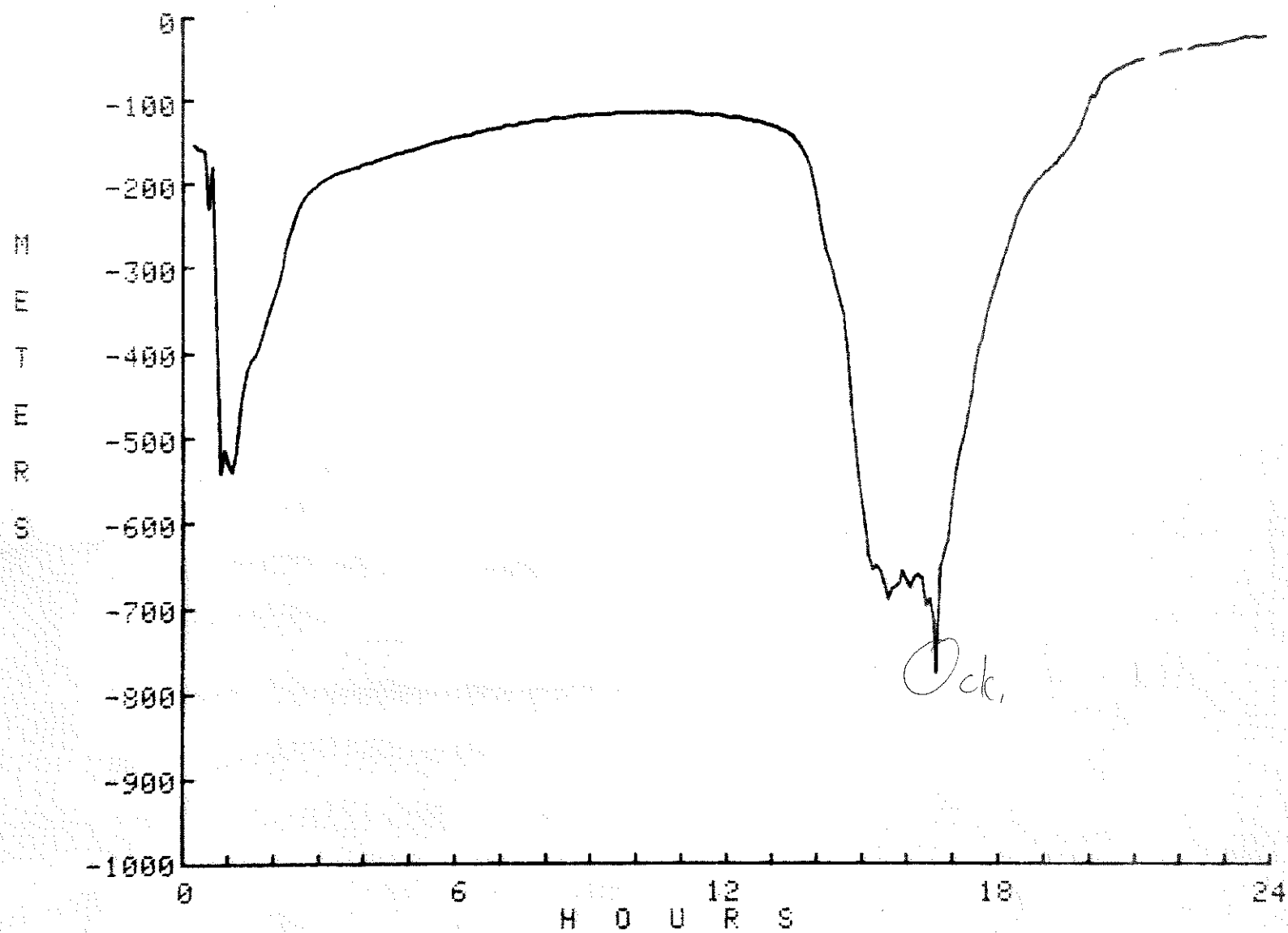
IN METERS

8

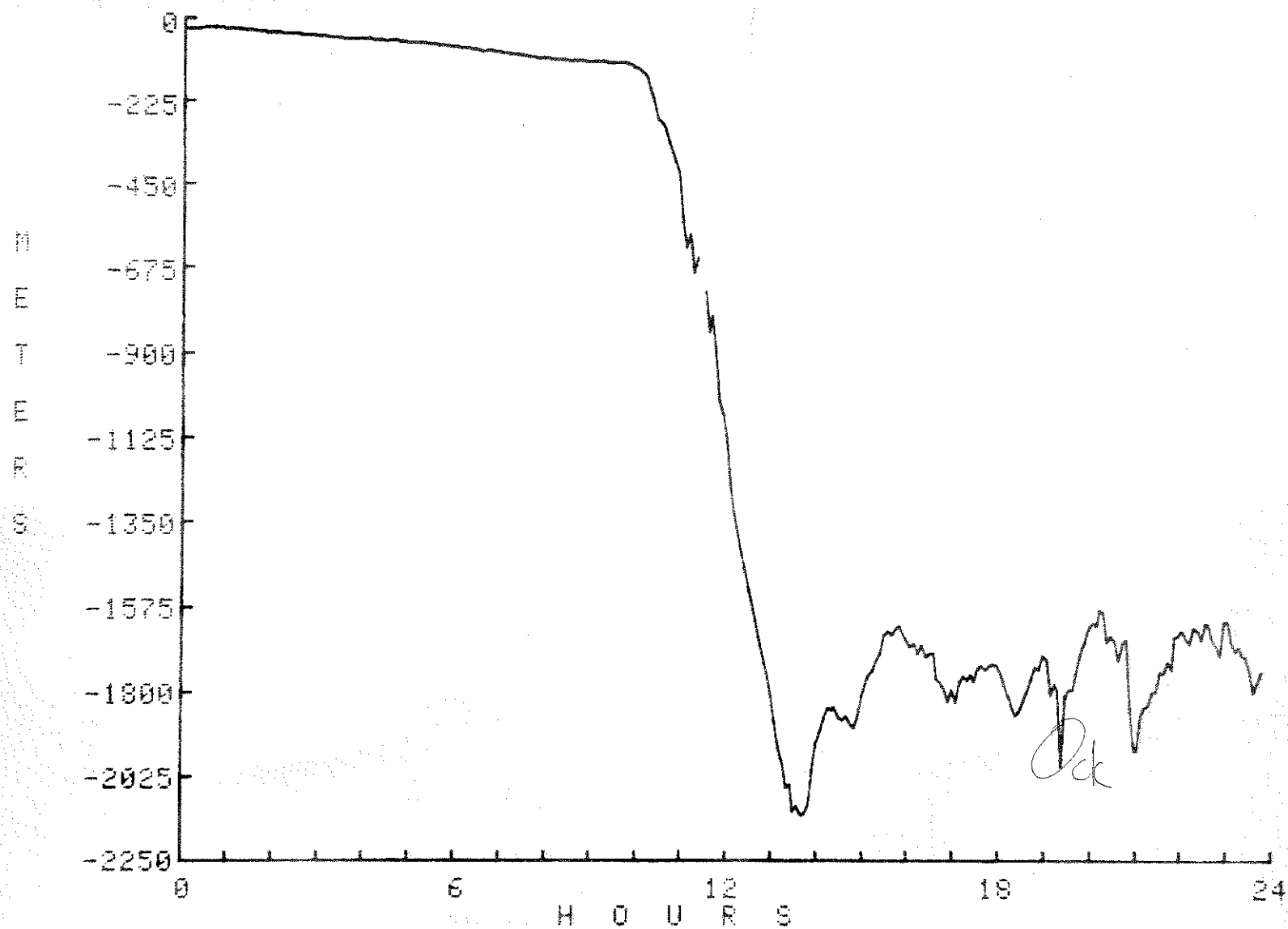
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p24file 16
J.O. 105



YEAR-1977 JULIAN DAY-105 CRUISE IG- 24



YEAR-1977 JULIAN DAY-105 CRUISE IG- 24



YEAR-1977 JULIAN DAY-106 CRUISE IG- 24

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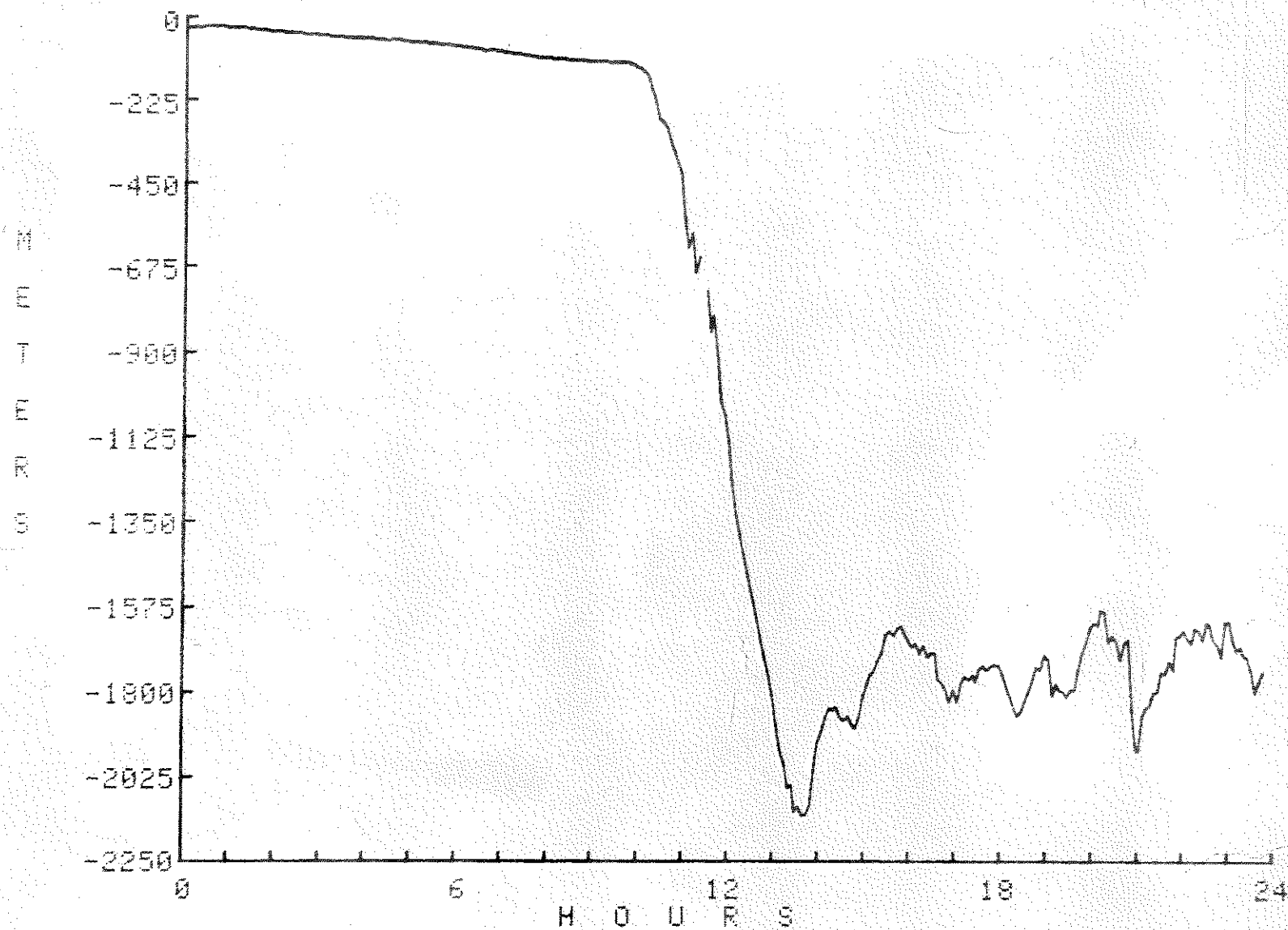
1

CRUISE				AREA				PROJECT				DATE						
I6 24-36				Gootend				MAS - MIFT				106/77						
TIME		TIME		TIME		TIME		TIME		TIME		TIME		TIME				
0000		27	0300		47	0600		76	0900	115	1200	1135	1500	1809	1800	1733	2100	1955
05		27			48			77		116		1252		1775		1755		1956
10		27			49			77		116		1330		1756		1788		1865
15		27			50			79		117		1331		1744		1815		1844
20		26			51			80		118		1437		1718		1845		1835
25		25			52			81		118		1424		1697		1825		1805
0030		25	0330		53	0630		83	0930	118	1230	1535	1530	1652	1830	1853	2130	1797
35		25			54			88		118		1563		1640		1825		1750
40		25			55			84		119		1612		1652		1800		1753
45		25			55			85		122		1662		1634		1770		1722
50		25			56			87		126		1711		1628		1735		1743
55		26			56			88		131		1756		1645		1743		1657
0100		27	0400		56	0700		90	1000	137	1300	1810	1600	1665	1900	1706	2200	1654
05		27			56			91		146		1883		1680		1718		1641
10		28			57			93		160		1950		1673		1810		1659
15		29			58			94		190		1986		1698		1778		1674
20		30			59			96		225		2054		1678		1795		1634
25		31			60			97		275		2048		1707	1747	1797	21	1641
0130		32	0430		59	0730		99	1030	280	1330	2118	1630	1700	1930	1814	2230	1663
35		33			58			100		301		2103		1700		1795		1620
40		34			59			102		340		2127		1764		1795		1625
45		35			61			103		371		2125		1774		1742		1662
50		36			62			104		393		2100		1792		1700		1678
55		37			63			105		424		2005		1825		1670		1709
0200		37	0500		64	0800		107	1100	556	1400	1935	1700	1795	2000	1633	2300	1615
05		38			65			108		622		1904		1825		1620		1615
10		39			65			109		586		1868		1775		1625		1671
15		40			66			110		691		1844		1758		1584		1694
20		41			68			110		651		1846		1768		1592		1685
25		42			68			111	lost it	0		1840		1754		1670		1705
0230		42	0530		69	0830		112	1130	738	1430	1867	1730	1772	2030	1653	2330	1710
35		43			70			113		845		1875		1740		1670		1748
40		44			71			114		805		1865		1731		1718		1802
45		44			72			114		900		1883		1741		1672		1775
50		45			73			115		1032		1895		1730		1663??		1747
55		46			74			115		1068		1864		1729		1855??		1738

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YEAR-1977 JULIAN DAY-106 CRUISE IG- 24

CRUISE			AREA				PROJECT						DATE		
T6 24-36			Fudencala El Sander				MAS - MAT						10/1/77		
TIME		TIME		TIME		TIME		TIME		TIME		TIME		TIME	
0000	1743	0300	1885	0600	2362	0900	1975	1200	406	1500	195	1800	49	2100	
05	1825		1905		2369		1926		395		187		43		
10	1737		1910		2365		1886		384		177		~38		
15	1721		1925		2382		1840		371		164		~38		
20	1702		1953		2388		1810		359		155		~33		
25	1804		1968		2393		1776		347		150		~29		
0030	1842	0330	1977	0630	2413	0930	1743	1230	353	1530	145	1830	~27	2130	
35	1859		2000		2422		1705		320		141		arrive		
40	1780		2018		2432		1569		306		140		at		
45	1757		2035		2428		1591		359		138		port		
50	1754		2048		2422		1522		279		136				
55	1713		2049		2420		1449		269		135				
0100	1709	0400	2067	0700	2400	1000	1378	1300	262	1600	130	1900		2200	
05	1712		2105		2382		1375		256		127				
10	1724		2118		2367		1324		250		124				
15	1740		2115		2318		1263		245		122				
20	1726		2111		2310		1217		239		120				
25	1718		2071		2308		1180		234		114				
0130	1702	0430	2086	0730	2265	1030	1154	1330	223	1630	111	1930		2230	
35	1713		2095		2278		1108		225		107				
40	1722		2103		2245		1040		222		102				
45	1723		2117		2230		1000		219		100				
50	1725		2128		2251		912		217		97				
55	1730		2134		2270		912		218		94				
0200	1734	0500	2144	0800	2293	1100	~843	1400	218	1700	91	2000		2300	
05	1747		2166		2300		785		217		89				
10	1736		2188		2292		825		219		86				
15	1745		2237		2290		~710		219		85				
20	1736		2317		2283		~700		220		82				
25	1750		2315		2288		~575		220		77				
0230	1766	0530	2315	0830	2286	1130	518	1430	220	1730	73	2030		2330	
35	1777		2297		2245		472		219		69				
40	1793		2288		2213		444		215		66				
45	1813		2305		2149		440		212		61				
50	1830		2325		2089		428		210		56				
55	1855		2355		2033		418		206		53				

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