WOODS HOLE OCEANOGRAPHIC INSTITUTION

Woods Hole, Massachusetts

REFERENCE NO. 65-44

A COMPILATION OF MOORED CURRENT METER OBSERVATIONS

Volume I

by

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TECHNICAL REPORT

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Approved for Distribution

Paul M. Fye, Director

PREFACE

This is the first volume of a series of data reports intended as a means for presenting summaries of measurements collected from moored ocean stations.

The prospect of being able to collect long time series of measurements at a point in the ocean has stimulated new approaches to the study of ocean currents. Unfortunately, all too often the results which are obtained fall far short of those which were anticipated. It is to provide others with some realistic examples of the character of observations which we have collected with moored current meters that these data summaries are presented. Many of the examples clearly show the shortcomings and limitations which must be overcome before the system can realize its full potential.

In spite of the limitations of the data, they are providing new information about the character of ocean currents. The dissemination of these moored current meter observations beyond the group which has collected and processed them will, it is hoped, provide a stimulus to the formulation of experiments on oceanic motions using these new techniques.

Hopefully, the group at Woods Hole can benefit from a wider consideration of the problems: Can the new instruments be used more effectively and in new ways to study ocean currents? Can these data presentations, and the operations leading to them be improved?

Suggestions and advice are welcome.

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INTRODUCTION

This volume contains summaries of observations collected with Richardson-type current meters at three moored stations. One station was located in deep water, just off the Continental Shelf south of Woods Hole. The other two stations were set nearly a year later, about 5 km. apart, near Bermuda. All were designed primarily to study the behaviour of the current meter in response to mooring motions and mooring noise. In order to follow the response to high-frequency motions, a rapid sampling rate was chosen. In turn, the data storage capacity of the instruments limited the duration of the observations. As a consequence, all the records contained in this volume are less than two days in duration.

Two days of data are insufficient for defining motions having time scales greater than a few hours. These observations are therefore frustratingly short as a source of information about processes with time scales of interest to most oceanographers. They have been included nevertheless in order to illustrate some of the characteristic difficulties which have been encountered with the moored current meter systems. The most common difficulties are instrument malfunctions, indicated here, where known, by such comments as "sticking compass". The patterns of malfunction can be used for recognition of other instances where errors due to mechanical failure, data readout or analysis have damaged the effectiveness of the information.

Fortunately, one can note that even in the interval between the earliest and latest of these observations, some improvements in the techniques are apparent. Better data readout, control of origin times, and determination of stroke intervals can be seen. The high noise level of most of these observations has now been nearly entirely eliminated

through the use of subsurface mooring systems.

A description of the Richardson current meter system has been given by Richardson, Stimson and Wilkins (1963). The procedures used to read the film records and perform the elementary analysis have been described by Webster (1964).

References:

Richardson, W. S., P. B. Stimson, and C. H. Wilkins, 1963.

Current measurements from moored buoys. Deep-Sea Research, 10, (4), 369-388.

Webster, F., 1964. Processing moored current meter data.

Woods Hole Oceanographic Institution, Technical Report
64-55, 35 pp.

ABSTRACT

Summaries of current measurements made with Richardson current meters at three moored stations in the Western North Atlantic are presented. Averaged quantities are presented in the form of computer-plotted curves.

Station No. 107

<u>39° 24'.7</u>	Set:	<u>1014 Q</u>	<u>23</u>	<u>VII</u>	<u>63</u>
latitude		hour	day	month	year

<u>71° 01'.3</u>	Retrieved:	<u>1600 Q</u>	<u>24</u>	<u>VII</u>	<u>63</u>
longitude		hour	day	month	year

Set by: Webster Ship: Crawford Cruise: 96

MOORING:

2250 m. of plaited nylon line. Toroidal surface float. Weak link above anchor, of poly-vinyl-alcohol (PVA). Mooring was located in deep water off Continental Shelf south of Woods Hole. All current meters were mounted with external fins. Winds during station were light, with sea state 1 or 2.

PURPOSE OF STATION:

(1) To obtain records from current meters modified to resolve high-frequency fluctuations in speed and direction. These modifications consisted of strobing circuits, critical damping of vane follower, and increased film speed.

(2) To follow surface motion of buoy with LORAN and RADAR.

COMMENTS ON RESULTS:

All gear was recovered. The slow-dissolving PVA release did not let go as planned. The ship was steamed for four hours to break the link. Possibly the pelican hook of the release had fouled.

Film 1074 did not run through the camera.

Examination of films indicated that strobe rate could be halved without loss of high-frequency resolution. Films were computer readable.

The noise level on the records dropped as depth increased, away from wave action, then increased again as speeds became low. (See film logs for details).

Inaccuracies in LORAN prevented adequate resolution of surface buoy motion. However, ship's drift could be determined. It indicated a drift with inertial period of 19 hours, and speeds at times exceeding 50 cm./sec.

CAUTION: Because these films were machine-read at Information International by an early version of the strobe-film program, the indicated speeds at low values may be too high. Several improvements in reading the rotor pulses of high-speed films were incorporated in the program after examining these films.

Station No. 107

Film No. 1071

C.M.	Film	Duration
No. <u>G 274</u>	begins <u>1100 Q:23: VII : 63</u>	of film <u>: 14 : 7</u>
	<u>hour day month year</u>	<u>days hours min</u>

C.M. Water Magnetic Sampling
depth 250 m. depth 2390 m. variation 14°W interval 0.5 sec.

PURPOSE:

Film 1071 was intended to be a current record from above the local thermocline.

COMMENTS ON RESULTS:

Compass stuck. Directions are untrustworthy.

Directions indicate a + 15° angular noise motion of the vane.

Average vane reading nearly constant due to external fin.

Speeds are much smaller than those calculated from the surface drift of the ship. (16 cm./sec. vs. 50 cm./sec)

Time of film origin not known exactly.

ND. DIR

6	0
0	3
3	6
0	8
1	11
1	14
1	17
0	20
0	23
1	25
3	28
0	31
0	34
0	37
0	39
0	42
0	45
0	48
1	51
0	53
0	56
3	59
1	62
1	65
0	68
0	70
1	73
0	76
4	79
1	82
7	84
2	87
1	90
9	93
2	96
1	98
10	101
24	104
51	107
95	110
60	113
257	115
635	118
301	121
635	124
641	127
844	129
494	132
413	135
741	138
220	141
889	143
066	146
583	149
150	152
786	155
399	158
477	160
560	163
543	166
190	169
411	172
526	174
157	177
88	180
73	183
16	186
6	188
8	191
7	194
0	197
2	200
1	203
1	205
2	208
0	211
0	214
0	217
2	219
0	222
0	225
1	228
0	231
0	233
0	236
0	239
12	242
0	245
0	248
0	250
0	253
0	256
9	259
10	262
1	264
2	267
1	270
1	273
1	276
0	281
2	284
0	287
0	290
0	293
1	295
0	298
0	301
0	304
1	307
0	309
0	312
0	315
0	318
0	321
0	323
1	326
0	329
0	332
0	335
0	338
1	340
0	343
1	346
0	349
1	352
1	354
3	355

1777328

*	27	1
*	0	2
*	18	3
*	0	4
*	0	5
*	30	6
*	447	7
*****	1543	8
*****	4447	9
*****	6447	10
*****	7188	11
*****	6233	12
*****	9121	13
*****	9716	14
*****	12096	15
*****	12719	16
*****	13137	17
*****	8190	18
*****	4899	19
*****	1990	20
*****	687	21
*****	268	22
*****	239	23
*****	207	24
*****	300	25
*****	147	26
*****	268	27
*****	327	28
*****	455	29
*****	179	30
*****	119	31
*	30	32
*	0	33
*	0	34
*	0	35
*	0	36
*	0	37
*	0	38
*	0	39
*	0	40
*	30	41
*	0	42
*	0	43
*	0	44
*	0	45
*	0	46
*	0	47
*	0	48
*	0	49
*	0	50
*	0	51
*	0	52
*	0	53
*	0	54
*	0	55
*	30	56
*	0	57
*	0	58
*	0	59
*	0	60
*	0	61
*	0	62
*	0	63
*	0	64
*	0	65
*	0	66
*	0	67
*	29	68
*	0	69
*	0	70
*	0	71
*	0	72
*	0	73
*	0	74
*	0	75
*	0	76
*	0	77
*	0	78
*	0	79
*	0	80
*	0	81
*	0	82
*	0	83
*	0	84
*	41	85
*	0	86
*	30	87
*	0	88
*	0	89
*	0	90
*	0	91
*	0	92
*	0	93
*	0	94
*	0	95
*	0	96
*	29	97
*	0	98
*	0	99
*	0	100
*	0	101
*	0	102
*	0	103
*	0	104
*	0	105
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*	0	125
*	0	126
*	0	127
*	0	128
*	0	129
*	0	130
*	0	131
*	0	132
*	0	133
*	0	134
*	0	135
*	0	136
*	0	137
*	0	138
*	0	139
*	0	140
*	0	141
*	0	142
*	0	143
*	0	144
*	0	145
*	0	146
*	0	147
*	0	148
*	0	149
*	0	150

1777329

VECTOR AVERAGED VALUES 2400 TERMS PER VALUE.

MAGNETIC VARIATION OF 0 DEGREES APPLIED.

EAST NORTH SEQ NO		
X	*	
172	-187	1200
125	-134	3600
126	-111	6000
115	-101	8400
110	-98	10800
101	-85	13200
104	-86	15600
103	-85	18000
100	-95	20400
95	-85	22800
102	-96	25200
104	-99	27600
100	-97	30000
101	-103	32400
103	-106	34800
103	-116	37200
105	-117	39600
105	-119	42000
107	-130	44400
115	-143	46800
104	-134	49200
99	-128	51600
100	-131	54000
101	-136	56400
102	-145	58800
105	-145	61200
89	-142	63600
83	-134	66000
73	-125	68400
59	-105	70800
46	-84	73200
47	-89	75600
35	-74	78000
40	-95	80400
61	-112	82800
53	-107	85200
48	-105	87600
43	-102	90000
37	-95	92400
30	-88	94800
40	-99	97200
41	-87	99600

FILM101071
FIRST INPUT CYCLE NO. = 1
FINAL INPUT CYCLE NO. =101663

CURRENT METER LISTING AND PLOT, FILM NO. 101071

SLOW STROKE, 2400 TERMS BETWEEN STROBES

RESULTANT SPEED AND DIRECTION, MAGNETIC VARIATION INCLUDED

MAGNETIC VARIATION OF 0 DEGREES APPLIED.

DIRECTION

SEQ DJR

VEL

SPEED(MM/SEC)

ST

101071

0.0
KILOMETERS

Film No. 1072

C.M. Film Duration
No. G282 begins 1100 Q: 23: VII : 63 of film: : 14 : 53
hour day month year days hours min

C.M. Water Magnetic Sampling
depth 1250 m. depth 2390 m. variation 14°W interval 0.5 sec

PURPOSE:

1072 was paired with 1073 for comparison.

COMMENTS ON RESULTS:

Vane noise level about +8°.

Directions could not be compared with 1073 (See 1073 log).

Speeds agree with 1073.

Time of film origin not known exactly.

*****	6503	0
*****	6693	3
*****	5412	6
*****	3215	8
*****	1819	11
*****	1104	14
*****	711	17
*****	794	20
*****	1209	23
*****	1291	25
*****	1156	28
*****	936	31
*****	1343	34
*****	1757	37
*****	1094	39
*****	900	42
*****	999	45
*****	960	48
*****	1354	51
*****	1635	53
*****	2144	56
*****	3435	59
*****	2880	62
*****	2134	65
*****	2304	68
*****	2888	70
*****	1872	73
*****	1174	76
*****	878	79
*****	859	82
*****	879	84
*****	397	87
*****	199	90
*****	94	93
*****	27	96
*****	9	98
*****	1	101
*****	0	104
*****	1	107
*****	1	110
*****	0	113
*****	0	115
*****	1	118
*****	0	121
*****	1	124
*****	3	127
*****	0	129
*****	0	132
*****	1	135
*****	0	138
*****	0	141
*****	0	143
*****	0	146
*****	0	149
*****	0	152
*****	0	155
*****	1	158
*****	0	160
*****	1	163
*****	0	166
*****	2	169
*****	0	172
*****	1	174
*****	0	177
*****	1	180
*****	2	183
*****	4	186
*****	1	188
*****	0	191
*****	0	194
*****	0	197
*****	0	200
*****	0	203
*****	0	205
*****	2	208
*****	0	211
*****	0	214
*****	0	217
*****	20	219
*****	40	222
*****	64	225
*****	92	228
*****	96	231
*****	70	233
*****	93	236
*****	109	239
*****	100	242
*****	66	245
*****	69	248
*****	34	250
*****	31	253
*****	23	256
*****	50	259
*****	47	262
*****	27	264
*****	23	267
*****	22	270
*****	5	273
*****	7	276
*****	21	278
*****	8	281
*****	9	284
*****	15	287
*****	16	290
*****	16	293
*****	26	295
*****	13	298
*****	33	301
*****	24	304
*****	28	307
*****	26	309
*****	28	312
*****	36	315
*****	19	318
*****	23	321
*****	31	323
*****	19	326
*****	21	329
*****	56	332
*****	187	335
*****	619	338
*****	1699	340
*****	3810	343
*****	6697	346
*****	8020	349
*****	8178	352
*****	7585	354
*****	6243	357

1777022

532	1
0	2
11714	3
6753	4
24131	5
38872	6
20755	7
3867	8
209	9
149	10
30	11
0	12
0	13
10	14
0	15
0	16
2	17
4	18
0	19
30	20
0	21
0	22
29	23
1	24
0	25
0	26
0	27
0	28
0	29
0	30
0	31
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4	42
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0	44
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30	47
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0	50
0	51
0	52
0	53
3	54
0	55
0	56
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30	58
5	59
9	60
1	61
2	62
2	63
1	64
0	65
0	66
0	67
0	68
0	69
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1	83
0	84
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0	131
0	132
0	133
0	134
0	135
0	136
0	137
0	138
0	139
0	140
0	141
0	142
0	143
0	144
0	145
0	146
0	147
0	148
0	149
0	150

VECTOR AVERAGED VALUES 2400 TERMS PER VALUE.

NORTH AND EAST COMPONENTS

EAST	NORTH	SEQ NO
X	*	
-25	0	1200
17	44	3600
26	53	6000
37	54	8400
41	53	10800
48	47	13200
50	37	15600
50	30	18000
51	28	20400
46	24	22800
47	23	25200
44	16	27600
39	13	30000
33	4	32400
25	7	34800
25	12	37200
12	21	39600
0	36	42000
-3	35	44400
-7	36	46800
-14	43	49200
-10	51	51600
-5	53	54000
-5	58	56400
-4	58	58800
-9	58	61200
-10	57	63600
-9	59	66000
-11	60	68400
-11	59	70800
-13	57	73200
-14	54	75600
-12	50	78000
-11	50	80400
-4	49	82800
2	49	85200
4	54	87600
2	56	90000
3	50	92400
0	52	94800
-4	52	97200
3	45	99600
8	47	102000
5	49	104400

MAGNETIC VARIATION OF 0 DEGREES APPLIED.

FILM101072
FIRST INPUT CYCLE NO. = 1
FINAL INPUT CYCLE NO. =107176

Film No. 1073

C.M.	Film	Duration
No. <u>G 156</u>	begins <u>1100 Q: 23 :VII : 63</u>	of film <u>:15 : 11</u>
	hour day month year	days hours min

C.M. Water Magnetic Sampling
depth 1260 m. depth 2390 m. variation 14°W interval 0.5 sec

PURPOSE:

1073 was paired with 1072, for comparison.

COMMENTS ON RESULTS:

Vane follower apparently stuck.

Because the vane is stuck near the position to which the external fin would normally align it, the directions from 1073 have a misleading similarity to those from 1072.

Speeds agree with 1072.

Film origin time not known exactly.

****	798	0
***	468	3
*****	10548	6
*****	1374	8
*****	850	11
*****	1396	14
*****	1878	17
*****	1688	20
*****	1911	23
*****	2776	25
*****	8920	28
*****	18846	31
*****	573	34
*****	322	37
*****	0	39
*****	0	42
*****	2	45
*****	2	48
*****	1	51
*****	0	53
*****	0	56
*****	0	59
*****	0	62
*****	0	65
*****	0	68
*****	2	70
*****	0	73
*****	0	76
*****	0	79
*****	0	82
*****	0	84
*****	0	87
*****	0	90
*****	5	93
*****	0	96
*****	0	98
*****	0	101
*****	0	104
*****	0	107
*****	0	110
*****	1	113
*****	2	115
*****	0	118
*****	0	121
*****	0	124
*****	0	127
*****	0	129
*****	0	132
*****	0	135
*****	0	138
*****	1	141
*****	0	143
*****	0	146
*****	1	149
*****	0	152
*****	0	155
*****	0	158
*****	1	160
*****	0	163
*****	0	166
*****	0	169
*****	0	172
*****	0	174
*****	0	177
*****	0	180
*****	1	183
*****	0	186
*****	0	188
*****	0	191
*****	0	194
*****	1	197
*****	0	200
*****	0	203
*****	1	205
*****	109	208
*****	134	211
*****	2	214
*****	3	217
*****	3	219
*****	2	222
*****	4	225
*****	34	228
*****	6	231
*****	2	233
*****	1	236
*****	9	239
*****	9	242
*****	2	245
*****	7	248
*****	4	250
*****	27	253
*****	37	256
*****	10	259
*****	21	262
*****	9	264
*****	6	267
*****	10	270
*****	7	273
*****	11	276
*****	5	278
*****	3	281
*****	11	284
*****	14	287
*****	1	290
*****	11	293
*****	24	295
*****	17	298
*****	22	301
*****	12	304
*****	20	307
*****	6	309
*****	8	312
*****	3	315
*****	28	318
*****	16	321
*****	27	323
*****	33	326
*****	18	329
*****	15558	332
*****	8493	335
*****	6396	338
*****	4448	340
*****	2539	343
*****	3975	346
*****	2859	349
*****	9534	352
*****	1619	354
*****	791	357

1777030

1777032

VECTOR AVERAGED VALUES 2400 TERMS PER VALUE.

NORTH AND EAST COMPONENTS

EAST NORTH SEQ NO		
X	*	
-16	18	1200
20	45	3600
30	52	6000
28	62	8400
33	61	10800
35	59	13200
31	56	15600
30	50	18000
30	50	20400
28	47	22800
26	44	25200
24	41	27600
19	37	30000
-8	31	32400
-7	26	34800
-10	24	37200
-10	23	39600
-11	22	42000
-11	24	44400
-14	28	46800
-19	35	49200
-21	40	51600
-24	44	54000
-25	46	56400
-26	49	58800
-26	51	61200
-25	54	63600
-23	60	66000
-21	61	68400
-18	59	70800
-15	59	73200
-12	58	75600
-8	51	78000
-9	60	80400
-7	51	82800
-6	51	85200
5	50	87600
6	58	90000
6	58	92400
6	61	94800
6	56	97200
9	48	99600
15	42	102000
19	39	104400
21	39	106800

MAGNETIC VARIATION OF 0 DEGREES APPLIED.

FILM101073

FIRST INPUT CYCLE NO. = 1

FINAL INPUT CYCLE NO. =109329

RESULTANT SPEED AND DIRECTION, MAGNETIC VARIATION INCLUDED

DIRECTION		SFD DIR		VEL	SPEED(MM/SEC)
		X	X	V	
*		1200	318	24	
*	X	3600	25	49	V
*	X	6000	31	60	V
*	X	8400	25	68	V
*	X	10800	28	70	V
*	X	13200	31	69	V
*	X	15600	28	64	V
*	X	18000	31	58	V
*	X	20400	31	59	V
*	X	22800	31	55	V
*	X	25200	31	51	V
*	X	27600	31	47	V
*		30000	28	41	V
*	X	32400	346	32	V
*	X	34800	346	27	V
*	X	37200	338	26	V
*	X	39600	338	25	V
*	X	42000	335	25	V
*	X	44400	335	27	V
*	X	46800	335	32	V
*	X	49200	332	40	V
*	X	51600	332	45	V
*	X	54000	332	50	V
*	X	56400	332	52	V
*	X	58800	332	56	V
*	X	61200	332	57	V
*	X	63600	335	59	V
*	X	66000	340	65	V
*	X	68400	340	64	V
*	X	70800	343	62	V
*	X	73200	346	61	V
*	X	75600	349	59	V
*	X	78000	352	51	V
*	X	80400	352	60	V
*	X	82800	352	51	V
*	X	85200	352	51	V
*A		87600	6	50	V
*A		90000	6	58	V
*A		92400	6	58	V
*A		94800	6	61	V
*A		97200	6	56	V
*X		99600	11	49	V
*X		102000	20	45	V
*X		104400	25	44	V
*X		106800	28	44	V

MAGNETIC VARIATION OF 0 DEGREES APPLIED.

Film No. 1075

C.M. Film Duration
No. G287 begins 1100 Q: 23: VII : 63 of film : 15 : 16
hour day month year days hours min

C.M. Water Magnetic Sampling
depth 1510 m. depth 2390 m. variation 14°W interval 0.5 sec

COMMENTS ON RESULTS:

Vane noise level about $\pm 8^\circ$, rising to about $\pm 20^\circ$ at low speeds.

Speeds are untrustworthy below 30 mm./sec.

Time of film origin not known exactly.

***	229	0
***	142	3
***	168	6
***	140	8
***	168	11
*****	322	14
***	248	17
***	244	20
***	197	23
***	263	25
***	265	28
***	244	31
***	352	34
*****	606	37
*****	709	39
*****	1265	42
*****	1887	45
*****	2002	48
*****	2140	51
*****	1781	53
*****	1842	56
*****	2240	59
*****	2055	62
*****	2044	65
*****	2531	68
*****	2372	70
*****	1999	73
*****	1343	76
*****	956	79
*****	680	82
*****	381	84
*****	379	87
*****	350	90
*****	208	93
*****	240	96
*****	205	98
***	175	101
***	137	104
**	79	107
**	95	110
**	86	113
**	82	115
*	35	118
*	32	121
*	25	124
*	20	127
*	27	129
*	17	132
*	9	135
*	12	138
*	19	141
*	17	143
*	5	146
*	11	149
*	6	152
*	6	155
*	8	158
*	5	160
*	7	163
*	3	166
*	3	169
*	3	172
*	6	174
*	2	177
*	3	180
*	2	183
*	5	186
*	3	188
*	3	191
*	6	194
*	2	197
*	4	200
*	11	203
*	21	205
*	31	208
*	26	211
*	23	214
*	47	217
*	46	219
*	52	222
**	91	225
**	114	228
**	179	231
**	196	233
**	245	236
**	369	239
**	353	242
**	351	245
**	510	248
**	594	250
**	572	253
**	363	256
**	301	259
**	302	262
**	390	264
**	198	267
**	386	270
**	336	273
**	467	276
**	420	278
**	513	281
**	688	284
**	630	287
**	716	290
**	994	293
**	1078	295
**	1535	298
**	1569	301
**	1731	304
**	1976	307
**	2303	309
**	4108	312
**	4029	315
**	3874	318
**	4373	321
**	2944	323
**	2405	326
**	3579	329
**	5366	332
**	5448	335
**	6413	338
**	4904	340
**	2915	343
**	1872	346
**	927	349
**	845	352
**	562	354
**	485	357

*****	2501	1
*	0	2
*****	38793	3
*****	29422	4
*****	30598	5
*****	4768	6
**	625	7
*	358	8
*	89	9
*	179	10
*	179	11
*	149	12
*	60	13
*	90	14
**	627	15
**	628	16
*	209	17
*	359	18
*	150	19
*	0	20
*	0	21
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*	0	23
*	0	24
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*	0	140
*	0	141
*	0	142
*	0	143
*	0	144
*	0	145
*	0	146
*	0	147
*	0	148
*	0	149
*	0	150

NUMBER EXCEEDING 150 CM/SEC = 0

VECTOR AVERAGED VALUES 2400 TERMS PER VALUE.

NORTH AND EAST COMPONENTS

EAST	NORTH	SEQ NO
X	*	
-133	-58	1200
-46	-16	3600
-3	25	6000
20	27	8400
30	27	10800
26	24	13200
23	16	15600
23	13	18000
28	11	20400
32	11	22800
29	9	25200
26	13	27600
23	15	30000
20	13	32400
21	8	34800
19	0	37200
8	11	39600
-24	4	42000
-24	9	44400
-25	11	46800
-28	14	49200
-31	19	51600
-36	30	54000
-33	30	56400
-34	30	58800
-29	30	61200
-25	28	63600
-24	27	66000
-26	27	68400
-26	30	70800
-24	28	73200
-22	36	75600
-16	31	78000
-15	28	80400
-13	27	82800
-11	28	85200
-15	29	87600
-16	35	90000
-14	34	92400
-15	32	94800
-17	39	97200
-21	40	99600
-19	41	102000
-13	41	104400
-12	41	106800

MAGNETIC VARIATION OF 0 DEGREES APPLIED.

800
FILM101075
FIRST INPUT CYCLE NO. = 1
FINAL INPUT CYCLE NO. =109933

RESULTANT SPEED AND DIRECTION, MAGNETIC VARIATION INCLUDED

Film No. 1076

C.M. Film Duration
No. G 136 begins 1100 Q: 23: VII: 63 of film : 15 : 9
hour day month year days hours min

C.M. Water Magnetic Sampling
depth 2010 m. depth 2390 m. variation 14°W interval 0.5 sec

PURPOSE:

1076 was paired with 1077, for comparison.

COMMENTS ON RESULTS:

Vane noise level about +30°, rising to about +45° at low speeds, and dropping to about +15° at the end of the film.

Speeds centered in the range from 5 to 6 cm./sec.

Speeds not reliable below 3 cm./sec.

Comparison with 1077 indicates that the speeds of 1077 are about 40% greater than those of 1076. This is most likely due to increased noise level at 1077. Between hours 6 and 12 (See progressive vector diagram) an approximate 45° difference in directions is apparent. This can be attributed to a sticky compass in 1077 during this period.

Time of film origin not known exactly.

*	31	0
*	15	3
*	20	6
*	18	8
*	29	11
*	66	14
**	92	17
**	46	20
**	84	23
**	131	25
***	182	28
***	182	31
***	164	34
***	222	37
***	255	39
***	259	42
***	262	45
***	311	48
***	397	51
***	375	53
***	448	56
***	566	59
***	569	62
***	505	65
***	624	68
***	664	70
***	785	73
***	738	76
***	793	79
***	1108	82
***	954	84
***	820	87
***	785	90
***	915	93
***	1205	96
***	1119	98
***	1351	101
***	1526	104
***	1313	107
***	955	110
***	883	113
***	772	115
***	723	118
***	716	121
***	854	124
***	986	127
***	914	129
***	811	132
***	685	135
***	535	138
***	464	141
***	325	143
***	317	146
***	224	149
***	198	152
***	190	155
***	172	158
***	163	160
***	200	163
***	197	166
***	205	169
***	222	172
***	238	174
***	298	177
***	306	180
***	359	183
***	449	186
***	450	188
***	488	191
***	797	194
***	929	197
***	1105	200
***	1369	203
***	1761	205
***	2381	208
***	2566	211
***	3020	214
***	3473	217
***	3614	219
***	3593	222
***	3884	225
***	3558	228
***	3304	231
***	2828	233
***	2771	236
***	2853	239
***	2125	242
***	1993	245
***	2073	248
***	1614	250
***	1622	253
***	1282	256
***	1459	259
***	1351	262
***	1202	264
***	1132	267
***	966	270
***	1008	273
***	753	276
***	487	278
***	444	281
***	418	284
***	493	287
***	618	290
***	695	293
***	818	295
***	933	298
***	762	301
***	805	304
***	1039	307
***	1032	309
***	845	312
***	762	315
***	729	318
***	682	321
***	398	323
***	159	326
***	44	329
*	20	332
*	21	335
*	25	338
*	35	340
*	32	343
*	22	346
*	20	349
*	27	352
*	27	354
*	19	357

*	57	1
*	0	2
*****	6582	3
*****	7994	4
*****	28374	5
*****	30372	6
*****	18025	7
*****	2006	8
*****	977	9
*****	1186	10
*****	1182	11
*****	917	12
*****	1542	13
*****	415	14
*****	119	15
*****	89	16
*****	59	17
*****	30	18
*****	29	19
*****	0	20
*****	0	21
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*****	0	142
*****	0	143
*****	0	144
*****	0	145
*****	0	146
*****	0	147
*****	0	148
*****	0	149
*****	0	150

NUMBER EXCEEDING 150 CM/SEC = 0

VECTOR AVERAGED VALUES 2400 TERMS PER VALUE.

NORTH AND EAST COMPONENTS

EAST	NORTH	SEQ NO
X	*	
-56	-73	1200
-51	-97	3600
-59	-86	6000
-27	-14	8400
16	21	10800
35	23	13200
48	21	15600
57	12	18000
65	6	20400
55	-7	22800
49	-9	25200
53	-13	27600
51	-16	30000
41	-23	32400
34	-27	34800
28	-22	37200
13	-27	39600
-9	-30	42000
-19	-40	44400
-28	-46	46800
-33	-48	49200
-37	-47	51600
-39	-43	54000
-36	-39	56400
-42	-30	58800
-41	-30	61200
-36	-31	63600
-34	-34	66000
-37	-35	68400
-42	-40	70800
-43	-36	73200
-44	-31	75600
-49	-22	78000
-46	-24	80400
-41	-30	82800
-37	-28	85200
-32	-30	87600
-36	-22	90000
-40	-10	92400
-40	-6	94800
-43	3	97200
-44	17	99600
-45	27	102000
-43	33	104400
-43	45	106800

MAGNETIC VARIATION OF 0 DEGREES APPLIED.

FILM101076
FIRST IMPHT CYCLE NO. = 1
FINAL IMPHT CYCLE NO. =109025

RESULTANT SPEED AND DIRECTION, MAGNETIC VARIATION INCLUDED

Film No. 1077

C.M.	Film	Duration
No. <u>G275</u>	begins <u>1100 Q: 23 : VII :63</u>	of film <u>: 15 :28</u>
	hour day month year	days hours min

C.M.	Water	Magnetic	Sampling
depth <u>2020 m.</u>	depth <u>2390 m.</u>	variation <u>14°W</u>	interval <u>0.5 sec</u>

PURPOSE:

1077 was paired with 1076, for comparison.

COMMENTS ON RESULTS:

Vane noise level about +35°, rising to about +55° at low speeds, and dropping to about +20° at the end of the film.

Speeds centered in the range from 6 to 8 cm./sec.

Speeds not reliable below 3 cm./sec.

Comparison with 1076 indicates that speeds of 1077 are about 40% greater than those of 1076. This is most likely due to increased noise level at 1077. Between hours 6 and 12 (see Progressive vector diagram) an approximate 45° difference in direction from 1076 can be attributed to a sticky compass in 1077.

Time of film origin not known exactly.

*	27	1
*	0	2
**	412	3
*****	1182	4
*****	6366	5
*****	17912	6
*****	23884	7
*****	21235	8
*****	17036	9
*****	9162	10
*****	6131	11
*****	2771	12
*****	1828	13
*****	1389	14
*****	147	15
*	0	16
*	60	17
*	89	18
*	117	19
*	60	20
*	30	21
*	178	22
*	119	23
*	89	24
*	117	25
*	119	26
*	60	27
*	29	28
*	30	29
*	30	30
*	0	31
*	30	32
*	0	33
*	0	34
*	30	35
*	0	36
*	0	37
*	30	38
*	0	39
*	29	40
*	0	41
*	119	42
*	0	43
*	59	44
*	57	45
*	59	46
*	30	47
*	30	48
*	30	49
*	0	50
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*	0	145
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*	0	147
*	0	148
*	0	149
*	0	150

NUMBER EXCEEDING 150 CM/SEC = 0

VECTOR AVERAGED VALUES 2400 TERMS PER VALUE.

NORTH AND EAST COMPONENTS
VALUE EXCEEDS RANGE

EAST NORTH SEQ NO		
-262	-135	1200
-84	-71	3600
-106	-67	6000
-76	-28	8400
-10	13	10800
44	6	13200
46	7	15600
54	6	18000
62	1	20400
65	-3	22800
66	-8	25200
66	-12	27600
70	-25	30000
63	-31	32400
65	-34	34800
46	-47	37200
11	-54	39600
-26	-50	42000
-61	-39	44400
-71	-30	46800
-72	-31	49200
-74	-26	51600
-77	-21	54000
-78	-14	56400
-78	-8	58800
-80	-7	61200
-75	-12	63600
-75	-15	66000
-73	-17	68400
-77	-15	70800
-79	-11	73200
-78	-5	75600
-76	6	78000
-75	13	80400
-71	6	82800
-67	-2	85200
-66	-3	87600
-62	-2	90000
-57	11	92400
-53	19	94800
-47	22	97200
-47	22	99600
-48	33	102000
-46	44	104400
-41	48	106800
-41	51	109200

MAGNETIC VARIATION OF 0 DEGREES APPLIED.

FILM101077

FIRST INPUT CYCLE NO. = 1

FINAL INPUT CYCLE NO. =111409

RESULTANT SPEED AND DIRECTION, MAGNETIC VARIATION INCLUDED

Station No. 139

<u>32° 07'.5 N</u>	Set:	<u>1319 Q</u>	<u>26</u>	<u>XI</u>	<u>63</u>
latitude		hour	day	month	year

<u>64° 32'.0 W</u>	Retrieved:	<u>1330 Q</u>	<u>2</u>	<u>XII</u>	<u>63</u>
longitude					

Set by: Fofonoff Ship: Crawford Cruise: 101

MOORING:

Single plaited-nylon line. Toroidal surface float.
Current meters were mounted with external fins.

PURPOSE OF STATION:

To study mooring motion. Station 139 was set near station 140 for comparison between single and tripod mooring systems. Current meters were set in pairs for comparison. An experimental program of optical tracking of the surface from Bermuda was carried out.

This was the first station of a series set near Bermuda. It was hoped that by using Bermuda as a base, stations could be set in deep water with ready access.

Film No. 1391

C.M.	Film	Duration
No. <u>H-525</u>	begins <u>1137Q :26: XI : 63</u>	of film <u>: 40 :</u>
	hour day month year	days hours min

C.M. Water Magnetic Sampling
depth 60 m. depth 3160 m. variation 14°W interval 1.0 sec

PURPOSE:

1391 was paired with 1392, for comparison.

COMMENTS ON RESULTS:

Compass noise $+30^\circ$

Vane noise $+40^\circ$ at 25 cm./sec
 $\mp 20^\circ$ at 40 cm./sec

Directional
noise +45° at 25 cm./sec.
+20° at 40 cm./sec.

Speeds are approximately +15 cm./sec.

Gross features agree with 1392.

1777626

16	0
8	3
11	6
19	8
12	11
17	14
19	17
22	20
19	23
21	25
23	28
24	31
35	34
32	37
35	39
55	42
67	45
65	48
82	51
71	53
89	56
75	59
85	62
81	65
70	68
58	70
50	73
54	76
64	79
63	82
58	84
52	87
49	90
50	93
58	96
38	98
57	101
65	104
64	107
79	110
70	113
79	115
85	118
106	121
106	124
109	127
107	129
99	132
125	135
135	138
152	141
152	143
207	146
215	149
250	152
345	155
389	158
505	160
519	163
716	166
844	169
1026	172
1330	174
1565	177
2041	180
2482	183
2947	186
3610	188
4359	191
5201	194
5981	197
6858	200
7382	203
7842	205
7963	208
7966	211
7759	214
7370	217
6846	219
6298	222
5744	225
5160	228
4615	231
4168	233
3736	236
3132	239
2633	242
2240	245
1831	248
1417	250
1144	253
856	256
667	259
516	262
401	264
304	267
219	270
191	273
143	276
104	278
101	281
77	284
74	287
47	290
37	293
42	295
30	298
30	301
32	304
22	307
24	309
18	312
15	315
16	318
16	321
12	323
10	326
10	329
9	332
7	335
6	338
13	340
13	343
9	346
10	349
8	352
10	354
10	357

	NO.	SPD
*	1	1
*	0	2
*	0	3
*	0	4
*	0	5
*	0	6
*	12	7
*	15	8
*	87	9
*	128	10
*	210	11
*	316	12
*	407	13
*	510	14
*	568	15
*	810	16
*	939	17
*	1313	18
*	1666	19
*	1875	20
*	2688	21
*	3806	22
*	5366	23
*	7493	24
*	6200	25
*	7633	26
*	8716	27
*	10112	28
*	5603	29
*	11772	30
*	5492	31
*	11822	32
*	5597	33
*	5219	34
*	5190	35
*	4997	36
*	4824	37
*	4733	38
*	1560	39
*	3483	40
*	2599	41
*	1656	42
*	1284	43
*	111	44
*	724	45
*	512	46
*	24	47
*	291	48
*	216	49
*	46	50
*	108	51
*	37	52
*	57	53
*	6	54
*	57	55
*	34	56
*	26	57
*	7	58
*	12	59
*	43	60
*	6	61
*	43	62
*	20	63
*	6	64
*	18	65
*	41	66
*	35	67
*	6	68
*	25	69
*	23	70
*	32	71
*	1	72
*	30	73
*	14	74
*	16	75
*	11	76
*	20	77
*	19	78
*	10	79
*	20	80
*	10	81
*	5	82
*	9	83
*	11	84
*	0	85
*	0	86
*	16	87
*	0	88
*	5	89
*	0	90
*	0	91
*	0	92
*	4	93
*	0	94
*	0	95
*	0	96
*	0	97
*	0	98
*	0	99
*	0	100
*	0	101
*	4	102
*	0	103
*	0	104
*	0	105
*	0	106
*	0	107
*	0	108
*	4	109
*	0	110
*	0	111
*	0	112
*	0	113
*	0	114
*	0	115
*	0	116
*	4	117
*	0	118
*	0	119
*	0	120
*	0	121
*	0	122
*	0	123
*	0	124
*	0	125
*	0	126
*	0	127
*	0	128
*	0	129
*	0	130
*	0	131
*	0	132
*	0	133
*	0	134
*	0	135
*	0	136
*	1	137
*	0	138
*	0	139
*	0	140
*	0	141
*	0	142
*	0	143
*	0	144
*	0	145
*	0	146
*	0	147
*	0	148
*	0	149
*	0	150

VECTOR AVERAGED VALUES 1200 TERMS PER VALUE.

NORTH AND EAST COMPONENTS

VALUE EXCEEDS RANGE

MAGNETIC VARIATION OF 0 DEGREES APPLIED.

EAST	NORTH	SEQ NO
X	*	
154	79	600
83	-119	1800
49	-72	3000
14	-149	4200
-34	-139	5400
-56	-145	6600
-124	-503	7800
-107	-203	9000
-99	-146	10200
-125	-209	11400
-132	-197	12600
-127	-170	13800
-133	-173	15000
-224	-167	16200
-233	-147	17400
-241	-197	18600
-212	-231	19800
-204	-205	21000
-183	-243	22200
-203	-206	23400
-209	-220	24600
-198	-224	25800
-217	-243	27000
-229	-229	28200
-218	-240	29400
-251	-229	30600
-230	-205	31800
-220	-205	33000
-256	-171	34200
-254	-181	35400
-255	-205	36600
-212	-157	37800
-210	-185	39000
-212	-209	40200
-204	-201	41400
-206	-199	42600
-166	-155	43800
-188	-153	45000
-195	-188	46200
-209	-172	47400
-227	-150	48600
-201	-201	49800
-200	-188	51000
-187	-195	52200
-206	-153	53400
-137	-157	54600
-153	-142	55800
-180	-128	57000
-148	-149	58200
-127	-175	59400
-109	-200	60600
-112	-205	61800
-111	-224	63000
-156	-281	64200
-167	-312	65400
-172	-298	66600
-138	-299	67800
-139	-322	69000
-153	-344	70200
-138	-331	71400
-148	-343	72600
-143	-343	73800
-133	-337	75000
-144	-311	76200
-127	-305	77400
-139	-329	78600
-130	-341	79800
-123	-326	81000
-129	-325	82200
-111	-315	83400
-128	-300	84600
-90	-294	85800
-75	-291	87000
-90	-285	88200
-92	-275	89400
-97	-287	90600
-104	-293	91800
-61	-266	93000
-93	-247	94200
-106	-252	95400
-143	-242	96600
-150	-230	97800
-172	-210	99000
-173	-184	100200
-159	-223	101400
-174	-216	102600
-168	-210	103800
-157	-244	105000
-167	-234	106200
-136	-238	107400
-132	-234	108600
-116	-257	109800
-129	-256	111000
-137	-240	112200
-141	-235	113400
-114	-226	114600
-101	-232	115800
-123	-240	117000
-119	-247	118200
-137	-247	119400
-159	-251	120600
-124	-243	121800
-109	-243	123000
-97	-238	124200
-67	-251	125400
-100	-265	126600
-138	-282	127800
-155	-269	129000
-131	-263	130200
-131	-264	131400
-97	-262	132600
-47	-253	133800
-48	-260	135000
-72	-271	136200
-62	-246	137400
-101	-250	138600
-108	-231	139800
-81	-226	141000
-68	-233	142200

FILM101391
FIRST INPUT CYCLE NO. 1
FINAL INPUT CYCLE NO. 143882

RESULTANT SPEED AND DIRECTION, MAGNETIC VARIATION INCLUDED

Film No 1392

C.M.	Film	Duration
No. <u>H-527</u>	begins <u>1143 Q: 26 :XI : 63</u>	of film <u>:44 :52</u>
	hour day month year	days hours min

C.M. Water Magnetic Sampling
depth 70 m. depth 3160 m. variation 14°W interval 1.0 sec

PURPOSE:

1392 was paired with 1391, for comparison.

COMMENTS ON RESULTS:

Gross features agree with 1391.

Compass noise about $+30^\circ$.

Vane noise about $\pm 40^\circ$ at 20 cm./sec
 $\pm 12^\circ$ at 40 cm./sec

Directional
noise about $\pm 40^\circ$ at 20 cm./sec
 $\pm 20^\circ$ at 40 cm./sec

Speeds are about ± 15 cm./sec.

*	1	1
*	0	2
*	16	3
*	0	4
*	0	5
*	7	6
*	6	7
*	37	8
*	105	9
**	192	10
**	234	11
**	363	12
**	394	13
**	476	14
**	471	15
**	581	16
**	640	17
**	913	18
**	1247	19
**	1389	20
**	2254	21
**	3579	22
**	5505	23
**	8307	24
**	7498	25
**	9309	26
**	10796	27
**	12289	28
**	6732	29
**	13187	30
**	6697	31
**	12082	32
**	5571	33
**	5273	34
**	5591	35
**	9815	36
**	6146	37
**	6158	38
**	3081	39
**	4423	40
**	3052	41
**	2375	42
**	1491	43
**	393	44
**	923	45
**	518	46
**	140	47
**	291	48
**	124	49
*	73	50
*	81	51
*	8	52
*	47	53
*	45	54
*	34	55
*	13	56
*	30	57
*	7	58
*	12	59
*	36	60
*	13	61
*	36	62
*	29	63
*	34	64
*	17	65
*	9	66
*	23	67
*	32	68
*	5	69
*	26	70
*	21	71
*	21	72
*	40	73
*	10	74
*	5	75
*	10	76
*	10	77
*	15	78
*	24	79
*	27	80
*	10	81
*	0	82
*	13	83
*	4	84
*	4	85
*	5	86
*	4	87
*	0	88
*	0	89
*	4	90
*	0	91
*	4	92
*	0	93
*	0	94
*	8	95
*	0	96
*	0	97
*	0	98
*	0	99
*	0	100
*	0	101
*	0	102
*	0	103
*	0	104
*	0	105
*	0	106
*	0	107
*	0	108
*	0	109
*	0	110
*	0	111
*	0	112
*	0	113
*	0	114
*	0	115
*	0	116
*	0	117
*	0	118
*	0	119
*	0	120
*	0	121
*	0	122
*	0	123
*	0	124
*	0	125
*	0	126
*	0	127
*	0	128
*	0	129
*	0	130
*	0	131
*	0	132
*	0	133
*	0	134
*	0	135
*	0	136
*	0	137
*	0	138
*	0	139
*	0	140
*	0	141
*	0	142
*	0	143
*	0	144
*	0	145
*	0	146
*	0	147
*	0	148
*	0	149
*	0	150

VECTOR AVERAGED VALUES 1200 TERMS PER VALUE.

EAST	NORTH	SEQ NO
130	97	600
69	-36	1800
63	-24	3000
59	-118	4200
30	-107	5400
-49	-160	6600
-78	-510	7800
-134	-260	9000
-119	-229	10200
-223	-264	11400
-200	-259	12600
-185	-237	13800
-212	-228	15000
-267	-245	16200
-196	-175	17400
-250	-322	18600
-215	-280	19800
-217	-288	21000
-187	-269	22200
-198	-232	23400
-192	-243	24600
-158	-271	25800
-187	-303	27000
-173	-271	28200
-180	-310	29400
-211	-259	30600
-208	-247	31800
-197	-233	33000
-245	-222	34200
-230	-251	35400
-221	-218	36600
-168	-177	37800
-193	-264	39000
-173	-233	40200
-164	-240	41400
-140	-196	42600
-163	-146	43800
-170	-191	45000
-182	-212	46200
-198	-167	47400
-178	-190	48600
-175	-200	49800
-175	-202	51000
-189	-250	52200
-169	-139	53400
-137	-130	54600
-169	-129	55800
-142	-163	57000
-110	-240	58200
-91	-252	59400
-90	-238	60600
-80	-229	61800
-91	-262	63000
-116	-344	64200
-132	-324	65400
-116	-323	66600
-101	-325	67800
-119	-351	69000
-100	-331	70200
-106	-353	71400
-111	-356	72600
-92	-346	73800
-102	-327	75000
-92	-304	76200
-107	-335	77400
-109	-339	78600
-90	-330	79800
-114	-327	81000
-86	-313	82200
-106	-304	83400
-81	-293	84600
-45	-290	85800
-72	-290	87000
-74	-271	88200
-81	-285	89400
-85	-292	90600
-53	-260	91800
-89	-249	93000
-94	-249	94200
-128	-244	95400
-138	-230	96600
-168	-209	97800
-164	-189	99000
-155	-227	100200
-166	-216	101400
-154	-215	102600
-134	-251	103800
-141	-241	105000
-106	-243	106200
-108	-248	107400
-82	-254	108600
-108	-260	109800
-114	-235	111000
-117	-230	112200
-80	-229	113400
-88	-225	114600
-89	-251	115800
-115	-252	117000
-127	-245	118200
-117	-242	119400
-65	-252	120600
-87	-238	121800
-53	-235	123000
-39	-253	124200
-80	-267	125400
-75	-263	126600
-66	-237	127800
-68	-247	129000
-69	-259	130200
-37	-253	131400
0	-242	132600
-30	-277	133800
-44	-272	135000
-38	-242	136200
-74	-234	137400
-65	-233	138600
-51	-227	139800
-18	-228	141000
-53	-214	142200
-62	-207	143400
-34	-223	144600
-13	-214	145800
3	-227	147000
-21	-245	148200
-12	-265	149400
-12	-258	150600
-19	-255	151800
-32	-271	153000
-35	-263	154200
-4	-269	155400
-7	-286	156600
6	-275	157800
-4	-270	159000
0	-274	160200

MAGNETIC VARIATION OF 0 DEGREES APPLIED.

FILM101392

FIRST INPUT CYCLE NO. 1

FINAL INPUT CYCLE NO. 101421

RESULTANT SPEED AND DIRECTION, MAGNETIC VARIATION INCLUDED

MAGNETIC VARIATION OF 10 DEGREES APPLIED.

Film No. 1393

C.M. Film Duration
No. H-517 begins 1158 Q: 26 : XI: 63 of film : 43 : 21
hour day month year days hours min.

C.M. Water Magnetic Sampling
depth 570 m. depth 3160 m. variation 14°W interval 1.0 sec

PURPOSE:

1393 was paired with 1394, for comparison.

COMMENTS ON RESULTS:

Compass read about 30° less than 1394; one of these instruments was probably mechanically defective. Except for this systematic difference in direction gross features are similar.

Compass noise about $\pm 5^\circ$ to $\pm 25^\circ$, apparently increasing with speed.

Vane noise about $\pm 12^\circ$, apparently increasing with speed.

Directional noise about $\pm 12^\circ$.

Speeds are about ± 4 cm./sec.

1775123

224	0
222	3
179	6
206	8
192	11
187	14
186	17
153	20
140	23
132	25
130	28
93	31
103	34
65	37
69	39
74	42
61	45
57	48
68	51
61	53
56	56
77	59
66	62
79	65
82	68
66	70
58	73
82	76
56	79
70	82
64	84
73	87
69	90
83	93
92	96
94	98
91	101
108	104
110	107
125	110
138	113
155	115
168	118
245	121
292	124
370	127
431	129
543	132
721	135
786	138
851	141
858	143
1082	146
1324	149
1657	152
1931	155
2214	158
2241	160
2033	163
2094	166
2340	169
2919	172
4006	174
5418	177
6697	180
7190	183
7741	186
8259	188
8362	191
7938	194
6966	197
6086	200
5854	203
6157	205
6880	208
7422	211
7212	214
5612	217
4535	219
3770	222
2842	225
1982	228
1373	231
944	233
566	236
349	239
209	242
149	245
99	248
72	250
46	253
36	256
19	259
14	262
7	264
3	267
5	270
2	273
1	276
4	278
3	281
0	284
3	287
2	290
0	293
5	295
2	298
5	301
7	304
11	307
12	309
17	312
23	315
15	318
19	321
22	323
24	326
24	329
40	332
47	335
64	338
105	340
153	343
179	346
207	349
213	352
250	354
205	357

*	5	1
*	0	2
*	0	3
*	0	4
*	15	5
*	281	6
*	1307	7
*	2813	8
*	3572	9
*	3613	10
*	3789	11
*	4019	12
*	3781	13
*	4403	14
*	7704	15
*	12279	16
*	11846	17
*	14124	18
*	11736	19
*	12787	20
*	14660	21
*	11608	22
*	11265	23
*	9189	24
*	4381	25
*	3729	26
*	1254	27
*	654	28
*	368	29
*	96	30
*	110	31
*	109	32
*	31	33
*	32	34
*	42	35
*	12	36
*	41	37
*	33	38
*	11	39
*	28	40
*	39	41
*	19	42
*	27	43
*	24	44
*	25	45
*	33	46
*	16	47
*	45	48
*	30	49
*	15	50
*	22	51
*	30	52
*	0	53
*	0	54
*	0	55
*	0	56
*	0	57
*	0	58
*	6	59
*	0	60
*	0	61
*	12	62
*	0	63
*	0	64
*	0	65
*	0	66
*	0	67
*	0	68
*	0	69
*	0	70
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*	0	137
*	0	138
*	0	139
*	0	140
*	0	141
*	0	142
*	0	143
*	0	144
*	0	145
*	0	146
*	0	147
*	0	148
*	0	149
*	0	150

CURRENT AFTER FILM NO. 101393

VECTOR AVERAGED VALUES 1200 TERMS PER VALUE.

NORTH AND EAST COMPONENTS

EAST NORTH SEQ NO

MAGNETIC VARIATION OF 0 DEGREES APPLIED.

FILM101393

FIRST INPUT CYCLE NO. 1

FINAL INPUT CYCLE NO. 125982

RESULTANT SPEED AND DIRECTION, MAGNETIC VARIATION INCLUDED

MAGNETIC VARIATION OF 2 DEGREES APPLIED.

Film No. 1394

C.M.	Film	Duration
No. <u>H-533</u>	begins <u>1218 Q: 26: XI : 63</u> of film	<u> : 47 : 15</u>
	hour day month year	days hours min

C.M. Water Magnetic Sampling
depth 580 m. depth 3160 m. variation 14°W interval 1.0 sec

PURPOSE:

1394 was paired with 1393, for comparison.

COMMENTS ON RESULTS:

Compass read about 30° greater than 1393; one of these instruments was probably mechanically defective. Except for this systematic difference in direction, gross features are similar.

Compass noise from $\pm 5^\circ$ to $\pm 25^\circ$, apparently increasing with speed.

Vane noise about $\pm 12^\circ$, apparently increasing with speed.

Directional noise about $+ 12^\circ$

Speeds are about + 4 cm./sec.

Comparison with Station 140 suggests that 1394 compass is mechanically defective.

1783874

1783

	NO.	SPD
***	423	1
***	44	2
***	1	3
***	11	4
***	0	5
***	27	6
***	498	7
*****	1710	8
*****	2804	9
*****	2999	10
*****	3721	11
*****	4016	12
*****	5501	13
*****	6825	14
*****	9597	15
*****	13403	16
*****	12008	17
*****	14923	18
*****	13889	19
*****	15465	20
*****	16306	21
*****	11734	22
*****	10738	23
*****	9358	24
*****	5043	25
*****	5136	26
*****	1905	27
*****	1082	28
*****	533	29
***	150	30
***	169	31
***	65	32
***	8	33
***	5	34
***	10	35
***	1	36
***	1	37
***	1	38
***	1	39
***	0	40
***	0	41
***	0	42
***	0	43
***	8	44
***	0	45
***	0	46
***	8	47
***	0	48
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***	0	139
***	0	140
***	0	141
***	0	142
***	0	143
***	0	144
***	0	145
***	0	146
***	0	147
***	0	148
***	0	149
***	0	150

1783876

VECTOR AVERAGED VALUES 1200 TERMS PER VALUE.

NORTH AND EAST COMPONENTS

EAST NORTH SEQ NO

X	*	
-134	-87	600
-170	-109	1800
-175	-97	3000
-175	-90	4200
-176	-73	5400
-186	-76	6600
-211	-84	7800
-240	-60	9000
-235	-47	10200
-227	-51	11400
-216	-66	12600
-226	-79	13800
-242	-93	15000
-222	-81	16200
-217	-89	17400
-224	-69	18600
-221	-53	19800
-213	-47	21000
-205	-52	22200
-198	-53	23400
-195	-52	24600
-202	-40	25800
-192	-14	27000
-184	-5	28200
-168	-7	29400
-154	-15	30600
-143	5	31800
-137	8	33000
-135	-6	34200
-138	-28	35400
-123	-27	36600
-125	-48	37800
-166	-60	39000
-160	-71	40200
-128	-77	41400
-137	-82	42600
-133	-95	43800
-131	-104	45000
-142	-82	46200
-153	-78	47400
-150	-93	48600
-164	-78	49800
-187	-65	51000
-183	-89	52200
-196	-109	53400
-211	-109	54600
-209	-100	55800
-163	-125	57000
-148	-130	58200
-155	-121	59400
-165	-116	60600
-178	-110	61800
-177	-123	63000
-174	-129	64200
-177	-143	65400
-171	-167	66600
-174	-158	67800
-163	-153	69000
-151	-161	70200
-135	-155	71400
-131	-129	72600
-111	-138	73800
-123	-128	75000
-128	-137	76200
-118	-127	77400
-142	-147	78600
-144	-143	79800
-116	-166	81000
-119	-125	82200
-95	-138	83400
-92	-159	84600
-85	-169	85800
-83	-180	87000
-98	-162	88200
-103	-147	89400
-109	-164	90600
-112	-162	91800
-110	-154	93000
-132	-154	94200
-156	-139	95400
-151	-112	96600
-150	-111	97800
-166	-139	99000
-167	-170	100200
-161	-159	101400
-165	-124	102600
-164	-106	103800
-190	-94	105000
-200	-79	106200
-196	-79	107400
-189	-65	108600
-178	-62	109800
-153	-70	111000
-160	-49	112200
-150	-28	113400
-97	-25	114600
-89	-21	115800
-97	-37	117000
-102	-39	118200
-67	-44	119400
-72	-46	120600
-63	-64	121800
-51	-71	123000
-36	-87	124200
-6	-108	125400
16	-105	126600
7	-120	127800
-18	-137	129000
-40	-142	130200
-46	-137	131400
-40	-146	132600
-86	-132	133800
-87	-131	135000
-63	-142	136200
-50	-143	137400
-79	-127	138600
-82	-144	139800
-82	-158	141000
-71	-155	142200
-82	-169	143400
-85	-173	144600
-79	-132	145800
-87	-120	147000
-87	-114	148200
-99	-125	149400
-143	-131	150600
-127	-132	151800
-123	-171	153000
-139	-192	154200
-109	-177	155400
-127	-157	156600
-118	-121	157800
-90	-107	159000
-114	-93	160200
-103	-106	161400
-141	-78	162600
-114	-76	163800
-108	-79	165000
-115	-61	166200
-109	-56	167400
-98	-65	168600

MAGNETIC VECTOR (111) OF 0 DEGREES APPLIED.

FILM101394

FIRST INPUT CYCLE NO. = 1

FINAL INPUT CYCLE NO. = 1/002/

RESULTANT SPEED AND DIRECTION, MAGNETIC VARIATION INCLUDED

MAGNETIC VARIATION OF 0 DEGREES APPLIED.

Film No. 1395

C.M. Film Duration
No. H-530 begins 1145 Q: 26 : XI : 63 of film : 38 :
hour day month year days hours min

C.M. Water Magnetic Sampling
depth 1230 m. depth 3160 m. variation 14°W interval 1.0 sec

PURPOSE:

1395 was paired with 1396, for comparison.

COMMENTS ON RESULTS:

1396 film did not run through, preventing adequate comparison.

Compass appears to read 45° greater than 1396, systematically.

Compass noise negligible.

Vane noise about +30°.

3 tidal cycles, apparent in the directions, are wholly in the vane record and are not indicated by the compass record. Possibly the current was too weak to align case in the current.

Transient high speeds at beginning of record are due to setting.

*****	666	0
*****	747	3
*****	629	6
*****	739	8
*****	700	11
*****	678	14
*****	779	17
*****	785	20
*****	815	23
*****	729	25
*****	708	28
*****	724	31
*****	709	34
*****	718	37
*****	803	39
*****	857	42
*****	820	45
*****	890	48
*****	1194	51
*****	1404	53
*****	1729	56
*****	1831	59
*****	1936	62
*****	2046	65
*****	2212	68
*****	2450	70
*****	2352	73
*****	2482	76
*****	2512	79
*****	2374	82
*****	2247	84
*****	2163	87
*****	1879	90
*****	1534	93
*****	1423	96
*****	1270	98
*****	1207	101
*****	1066	104
*****	1100	107
*****	1000	110
*****	1012	113
*****	906	115
*****	1022	118
*****	1042	121
*****	1031	124
*****	999	127
*****	1073	129
*****	1109	132
*****	1114	135
*****	1028	138
*****	1056	141
*****	1071	143
*****	901	146
*****	874	149
*****	856	152
*****	686	155
*****	633	158
*****	546	160
*****	612	163
*****	473	166
*****	469	169
*****	480	172
*****	483	174
*****	481	177
*****	417	180
*****	388	183
*****	471	186
*****	361	188
*****	358	191
*****	373	194
*****	376	197
*****	382	200
*****	325	203
*****	375	205
*****	478	208
*****	551	211
*****	524	214
*****	484	217
*****	427	219
*****	505	222
*****	388	225
*****	458	228
*****	494	231
*****	662	233
*****	860	236
*****	839	239
*****	969	242
*****	1222	245
*****	1364	248
*****	1619	250
*****	1616	253
*****	1736	256
*****	1706	259
*****	1754	262
*****	1851	264
*****	1892	267
*****	1897	270
*****	1753	273
*****	1858	276
*****	1773	278
*****	1585	281
*****	1480	284
*****	1342	287
*****	1292	290
*****	1205	293
*****	1120	295
*****	1025	298
*****	985	301
*****	1027	304
*****	1002	307
*****	944	309
*****	941	312
*****	977	315
*****	998	318
*****	1053	321
*****	1124	323
*****	1186	326
*****	1273	329
*****	1417	332
*****	1443	335
*****	1500	338
*****	1480	340
*****	1424	343
*****	1343	346
*****	1085	349
*****	968	352
*****	778	354
*****	774	357

1526	1
26113	2
48349	3
35349	4
16321	5
4504	6
889	7
267	8
196	9
253	10
421	11
493	12
472	13
327	14
271	15
226	16
232	17
236	18
242	19
251	20
253	21
193	22
159	23
189	24
85	25
127	26
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0	148
0	149
0	150

VECTOR AVERAGED VALUES 1200 TERMS PER VALUE.

NORTH AND EAST COMPONENTS

VALUE EXCEEDS RANGE

EAST	NORTH	SEQ NO
117	137	600
59	-41	1800
275	238	3000
121	87	4200
90	58	5400
47	16	6600
30	-3	7800
25	13	9000
21	19	10200
25	9	11400
17	8	12600
27	7	13800
23	10	15000
19	9	16200
27	2	17400
27	1	18600
31	3	19800
40	-2	21000
30	8	22200
26	8	23400
29	7	24600
30	2	25800
26	-5	27000
22	-12	28200
13	-25	29400
17	-32	30600
-3	-22	31800
-20	4	33000
-32	0	34200
-14	10	35400
-1	26	36600
-17	22	37800
-19	33	39000
-40	15	40200
-36	5	41400
-38	7	42600
-36	11	43800
-27	10	45000
-28	11	46200
-24	19	47400
-14	33	48600
-17	38	49800
-15	30	51000
-12	37	52200
-5	43	53400
-8	38	54600
-14	32	55800
-9	20	57000
-8	10	58200
-8	11	59400
-7	11	60600
5	5	61800
16	0	63000
22	5	64200
24	0	65400
23	1	66600
23	-2	67800
21	-14	69000
19	-19	70200
22	-19	71400
24	-21	72600
25	-31	73800
17	-26	75000
10	-25	76200
5	-21	77400
0	-23	78600
-11	-1	79800
-7	-5	81000
-16	9	82200
-20	-2	83400
-28	-9	84600
-27	13	85800
-11	20	87000
-20	12	88200
-27	-3	89400
-26	-2	90600
-26	-9	91800
-26	-6	93000
-23	-1	94200
-21	5	95400
-24	9	96600
-22	14	97800
-6	18	99000
-6	15	100200
-4	18	101400
6	11	102600
19	2	103800
20	-7	105000
16	-9	106200
13	-3	107400
18	10	108600
10	0	109800
8	-7	111000
6	-8	112200
18	1	113400
17	3	114600
9	5	115800
6	19	117000
15	19	118200
10	16	119400
10	-6	120600
-11	-1	121800
2	10	123000
2	-1	124200
2	-11	125400
-21	-18	126600
-19	-27	127800
-32	-12	129000
-46	-5	130200
-47	-12	131400
-42	-6	132600
-35	-15	133800
-37	-21	135000
-37	-15	136200
-42	-2	137400

MAGNETIC VARIATION OF 0 DEGREES APPLIED.

FILM101395

FIRST INPUT CYCLE NO. = 1

FINAL INPUT CYCLE NO. =138981

RESULTANT SPEED AND DIRECTION, MAGNETIC VARIATION INCLUDED

6

N
1396

0 0.5
KILOMETERS

0

Film No. 1396

C.M. Film Duration
No. H-526 begins 1247 Q: 26: XI :63 of film : 7 : 48
hour day month year days hours min

C.M. Water Magnetic Sampling
depth 1240 m. depth 3160 m. variation 14°W interval 1.0 sec

PURPOSE:

1396 was paired with 1395, for comparison.

COMMENTS ON RESULTS:

1396 film jammed in current meter, preventing adequate comparison with 1395. Compass appears about 45° less, systematically.

A compass light pipe channel dim; could not be machine-read accurately.

Compass noise negligible.

Vane noise about ± 30°.

Transient high speeds during setting.

*****	717	0
*****	661	3
*****	921	6
*****	1097	8
*****	1119	11
*****	1125	14
*****	1091	17
*****	1003	20
*****	758	23
*****	747	25
*****	702	28
*****	536	31
*****	502	34
*****	432	37
*****	430	39
*****	311	42
*****	295	45
*****	259	48
*****	223	51
*****	229	53
*****	205	56
*****	172	59
*****	163	62
*****	144	65
*****	150	68
*****	153	70
*****	157	73
*****	133	76
*****	160	79
*****	135	82
*****	118	84
*****	103	87
*****	104	90
*****	83	93
*****	85	96
*****	84	98
*****	75	101
*****	54	104
*****	45	107
*****	30	110
*****	20	113
*****	25	115
*****	14	118
*****	6	121
*****	10	124
*****	10	127
*****	8	129
*****	5	132
*****	8	135
*****	5	138
*****	7	141
*****	7	143
*****	1	146
*****	6	149
*****	3	152
*****	2	155
*****	3	158
*****	0	160
*****	4	163
*****	1	166
*****	1	169
*****	1	172
*****	2	174
*****	2	177
*****	0	180
*****	0	183
*****	5	186
*****	1	188
*****	0	191
*****	3	194
*****	4	197
*****	2	200
*****	1	203
*****	0	205
*****	3	208
*****	3	211
*****	2	214
*****	4	217
*****	1	219
*****	1	222
*****	1	225
*****	4	228
*****	3	231
*****	0	233
*****	3	236
*****	2	239
*****	6	242
*****	4	245
*****	9	248
*****	7	250
*****	13	253
*****	11	256
*****	20	259
*****	13	262
*****	16	264
*****	25	267
*****	34	270
*****	43	273
*****	39	276
*****	38	278
*****	54	281
*****	67	284
*****	75	287
*****	100	290
*****	107	293
*****	114	295
*****	121	298
*****	142	301
*****	172	304
*****	159	307
*****	146	309
*****	226	312
*****	266	315
*****	299	318
*****	306	321
*****	370	323
*****	416	326
*****	585	329
*****	699	332
*****	980	335
*****	913	338
*****	1059	340
*****	1027	343
*****	909	346
*****	820	349
*****	758	352
*****	573	354
*****	673	357

1775141

.....	1	1
.....	908	2
.....	7919	3
.....	8826	4
.....	3552	5
.....	1027	6
.....	525	7
.....	392	8
.....	272	9
.....	264	10
.....	340	11
.....	382	12
.....	364	13
.....	356	14
.....	223	15
.....	199	16
.....	211	17
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.....	152	19
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.....	166	21
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.....	0	140
.....	0	141
.....	0	142
.....	0	143
.....	0	144
.....	0	145
.....	0	146
.....	0	147
.....	0	148
.....	0	149
.....	0	150

CURRENT METER FILM NO. 101396

VECTOR-AVERAGED VALUES 1200 TERMS PER VALUE.

NORTH AND EAST COMPONENTS

EAST NORTH SED NO		
X	*	
58	167	600
-256	159	1800
-107	144	3000
-29	113	4200
2	66	5400
25	33	6600
6	29	7800
-8	30	9000
9	34	10200
4	28	11400
-6	25	12600
-13	25	13800
-16	16	15000
-10	26	16200
-5	26	17400
6	26	18600
11	31	19800
-4	30	21000
4	28	22200
11	28	23400
17	26	24600
23	21	25800
30	16	27000

MAGNETIC VARIATION OF 0 DEGREES APPLIED.

FILM101396

FIRST INPUT CYCLE NO. = 1

FINAL INPUT CYCLE NO. = 24019

RESULTANT SPEED AND DIRECTION, MAGNETIC VARIATION INCLUDED

DIRECTION		SFO DIR	VEL	SPEED(MM/SEC)	
* X	X	600 20	177	V	V
		1800 301	301		
* X	X	3000 323	179	V	V
* X	X	4200 346	116	V	V
* X	X	5400 3	66	V	V
* X	X	6600 37	41	V	V
* X	X	7800 11	30	V	V
* X	X	9000 346	31	V	V
* X	X	10200 14	35	V	V
* X	X	11400 8	29	V	V
* X	X	12600 346	26	V	V
* X	X	13800 332	28	V	V
* X	X	15000 312	23	V	V
* X	X	16200 338	28	V	V
* X	X	17400 349	26	V	V
* X	X	18600 11	27	V	V
* X	X	19800 20	33	V	V
* X	X	21000 352	30	V	V
* X	X	22200 8	29	V	V
* X	X	23400 20	30	V	V
* X	X	24600 34	31	V	V
* X	X	25800 48	31	V	V
* X	X	27000 62	34	V	V

MAGNETIC VARIATION OF 0 DEGREES APPLIED.

Film No. 1397

C.M.	Film	Duration
No. <u>H-524</u>	begins <u>1316 Q: 26 : XI : 63</u>	of film <u>:44 :40</u>
	hour day month year	days hours min

C.M. Water Magnetic Sampling
depth 1990 m. depth 3160 m. variation 14°W interval 5 min

PURPOSE:

1397 was paired with 1398, for comparison.

COMMENTS ON RESULTS:

Film too dim to be automatically machine-read. Eye-ball readings at 5-minute intervals were taken.

Gross features agree with 1398.

Three tidal cycles apparent, wholly represented by changes in the vane record. Currents possibly too weak to align fin of instrument.

Transient high speeds during setting.

VECTOR AVERAGED VALUES 4 TERMS PER VALUE.

NORTH AND EAST COMPONENTS

VALUE EXCEEDS RANGE
VALUE EXCEEDS RANGE
VALUE EXCEEDS RANGE
VALUE EXCEEDS RANGE

EAST NORTH SEQ NO

X	*	
-101	368	2
113	247	6
70	132	10
.55	88	14
.25	24	18
-17	-2	22
-2	20	26
7	14	30
15	7	34
17	10	38
16	8	42
17	9	46
15	12	50
14	16	54
11	15	58
12	14	62
12	10	66
19	5	70
19	9	74
18	6	78
14	2	82
15	9	86
19	9	90
24	7	94
19	7	98
16	5	102
6	-4	106
-4	0	110
-18	-10	114
-17	32	118
12	-4	122
24	-9	126
-31	-14	130
-37	3	134
-39	6	138
-43	19	142
-34	31	146
-34	29	150
-30	46	154
-33	43	158
-38	36	162
-33	49	166
-44	38	170
-39	35	174
-41	34	178
-28	38	182
-9	46	186
5	34	190
-1	28	194
8	33	198
1	21	202
17	13	206
16	9	210
16	12	214
14	16	218
15	11	222
17	13	226
20	15	230
17	12	234
19	5	238
20	-1	242
26	-4	246
21	8	250
24	3	254
22	5	258
16	6	262
3	11	266
17	-22	270
2	-29	274
1	-21	278
-2	-24	282
-23	-13	286
-28	-24	290
-35	-13	294
-43	2	298
-42	9	302
-44	12	306
-37	19	310
-32	26	314
-22	32	318
-17	31	322
-19	22	326
-22	16	330
-26	12	334
-6	22	338
8	17	342
4	13	346
7	10	350
-4	16	354
3	20	358
17	20	362
22	18	366
24	12	370
16	16	374
15	13	378
16	8	382
25	8	386
25	10	390
17	17	394
8	12	398
0	-24	402
14	-30	406
17	-20	410
-24	5	414
-32	-12	418
-27	-13	422
-27	-19	426
-24	-27	430
-26	-33	434
-24	-35	438
-25	-40	442
-29	-32	446
-38	-17	450
-43	2	454
-53	10	458
-49	17	462
-53	11	466
-46	8	470
-33	10	474
-29	1	478
-31	-2	482
-23	8	486
-3	13	490
8	15	494
9	19	498
9	18	502
12	12	506
16	14	510
12	15	514
7	9	518
1	16	522
-2	20	526
-5	15	530
-8	20	534

MAGNETIC VARIATION OF 0 DEGREES APPLIED.

FILM101397

FIRST INPUT CYCLE NO. = 1

FINAL INPUT CYCLE NO. = 0

RESULTANT SPEED AND DIRECTION. MAGNETIC VARIATION INCLUDED

MAGNETIC VARIATION OF 0 DEGREES APPLIED.

Film No. 1398

C.M. Film Duration
No. H-528 begins 1248 Q: 26 : XI :63 of film : 42 : 11
hour day month year days hours min

C.M. Water Magnetic Sampling
depth 2000 m. depth 3160 m. variation 14°W interval 1.0 sec

PURPOSE:

1398 was paired with 1397, for comparison.

COMMENTS ON RESULTS:

Gross features agree with 1397.

Compass noise negligible.

Vane noise about +30°.

Three tidal cycles apparent, wholly represented by changes in the vane record. Currents possibly too weak to align fin of instrument.

High speeds during setting.

861	0
850	3
840	6
890	8
869	11
1037	14
1167	17
1297	20
1452	23
1612	25
1672	28
1755	31
1773	34
1614	37
1215	39
1144	42
1234	45
1367	48
1602	51
1729	53
1957	56
2184	59
2468	62
2631	65
2886	68
2851	70
2911	73
2590	76
2290	79
2222	82
1907	84
1650	87
1520	90
1432	93
1291	96
1167	98
1195	101
1142	104
1149	107
1170	110
1233	113
1187	115
1228	118
1122	121
1131	124
1020	127
889	129
790	132
769	135
683	138
640	141
640	143
563	146
614	149
554	152
533	155
455	158
399	160
424	163
471	166
410	169
385	172
417	174
426	177
431	180
478	183
507	186
533	188
554	191
563	194
629	197
695	200
700	203
693	205
648	208
662	211
612	214
465	217
409	219
441	222
413	225
395	228
314	231
356	233
394	236
389	239
420	242
446	245
475	248
515	250
592	253
713	256
697	259
736	262
832	264
843	267
963	270
1079	273
1338	276
1338	278
1396	281
1578	284
1777	287
1707	290
1768	293
1937	295
1960	298
2065	301
1871	304
1944	307
1936	309
1874	312
1867	315
1889	318
1996	321
1937	323
1805	326
1852	329
1821	332
1781	335
1785	338
1564	340
1578	343
1410	346
1288	349
1167	352
1089	354
971	357

*****	2241	1
*****	40100	2
*****	50286	3
*****	24511	4
*****	17532	5
*****	9584	6
*****	3663	7
*****	918	8
*****	228	9
*****	227	10
*****	353	11
*****	303	12
*****	348	13
*****	251	14
*****	241	15
*****	193	16
*****	110	17
*****	76	18
*****	122	19
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*****	0	148
*****	0	149
*****	0	150

1777718

VECTOR AVERAGED VALUES 1200 TERMS PER VALUE.

NORTH AND EAST COMPONENTS

VALUE EXCEEDS RANGE
VALUE EXCEEDS RANGE

EAST NORTH SFU NO

X	*
76	1/8 600
75	41 1800
22	36 3000
-1	-4 4200
-20	15 5400
-4	20 6600
8	11 7800
14	7 9000
16	9 10200
16	10 11400
12	17 12600
11	15 13800
12	11 15000
13	4 16200
16	5 17400
23	5 18600
25	4 19800
21	-1 21000
20	-8 22200
21	-8 23400
22	-8 24600
24	-8 25800
18	1 27000
12	-7 28200
5	-15 29400
-10	-5 30600
-8	-18 31800
-13	-1 33000
-7	-10 34200
1	-8 35400
-23	-19 36600
-40	-8 37800
-39	11 39000
-36	19 40200
-32	29 41400
-26	32 42600
-33	35 43800
-35	36 45000
-40	35 46200
-42	36 47400
-38	45 48600
-26	50 49800
-31	46 51000
-35	37 52200
-26	38 53400
-11	39 54600
-5	33 55800
3	26 57000
5	20 58200
-2	16 59400
3	15 60600
14	18 61800
15	13 63000
17	5 64200
14	4 65400
18	6 66600
23	8 67800
22	6 69000
19	-1 70200
15	-12 71400
15	-15 72600
17	-10 73800
14	-12 75000
7	-8 76200
10	-4 77400
16	-6 78600
14	-14 79800
-2	-15 81000
-18	-1 82200
-18	16 83400
-19	17 84600
-25	16 85800
-33	18 87000
-35	21 88200
-35	23 89400
-35	26 90600
-31	22 91800
-28	32 93000
-13	38 94200
-2	32 95400
-8	27 96600
-15	19 97800
-2	20 99000
2	17 100200
6	16 101400
14	5 102600
10	5 103800
7	11 105000
13	14 106200
22	17 107400
29	13 108600
33	10 109800
27	7 111000
25	-2 112200
22	-8 113400
25	-6 114600
29	1 115800
21	0 117000
9	-10 118200
7	-18 119400
5	-23 120600
10	-18 121800
-8	-1 123000
-18	15 124200
-5	15 125400
-14	8 126600
-24	0 127800
-22	-19 129000
-13	-38 130200
-15	-46 131400
-29	-29 132600
-44	-12 133800
-46	5 135000
-49	16 136200
-41	23 137400
-26	28 138600
-15	25 139800
-11	13 141000
-10	0 142200
-27	4 143400
-18	9 144600
1	11 145800
9	16 147000
12	12 148200
13	8 149400
16	8 150600

MAGNETIC VARIATION OF 0 DEGREES APPLIED.

FILM101398

FIRST INPUT CYCLE NO. 1

FINAL INPUT CYCLE NO. 151048

RESULTANT SPEED AND DIRECTION, MAGNETIC VARIATION INCLUDED

MAGNETIC VARIATION OF 0 DEGREES APPLIED.

Station No. 140

<u>32° 05'.25 N</u>	Set:	<u>1551 Q : 26 : XI : 63</u>
latitude		hour day month year
<u>64° 33'.75 W</u>	Retrieved:	<u>0900 Q : 2: XII : 63</u>
longitude		hour day month year

Set by: Fofonoff Ship: Crawford Cruise: 101

MOORING:

Tripod mooring: three legs, each of 4500 m. polypropylene, set about 120° apart, with current meters suspended from a fourth line of plaited nylon. Central toroidal float, with smaller auxiliary floats on each leg. All current meters were mounted with external fins.

PURPOSE OF STATION:

To study the characteristics of a tripod mooring; to gain experience in setting and retrieving such an instrument, and to compare its behaviour with a single-line mooring (Station 139). Surface float was tracked optically from Bermuda. Current meters were paired for comparison.

COMMENTS ON RESULTS:

One of the tripod legs and the instrument line broke, and the hydrostatic weak link on another of the legs pulled out. The order of the breaks is not known, but good evidence of the times of two breaks is given on the current meter records.

1st break: 0930Q/27:XI:63

2nd break: 15050/27:XI:63

Before the first break, the speed and direction of the records from Station 140 are similar to those from station 139. (Except for 1394, which suggests that 1394 came from a defective instrument).

Six current meters, at depths below 800 m., were lost.

341-05-22222

1401

1401

1401

1401

1401

1401

1401

1401

1401

1401

1401

1401

1401

1401

1401

1401

1401

Film No. 1401

C.M.	Film	Duration
No. <u>H-532</u>	begins <u>1441 Q: 26 : XI : 63</u>	of film <u> : 46 : 52</u>
	hour day month year	days hours min

C.M. Water Magnetic Sampling
depth 60 m. depth 3385 m. variation 14°W interval .9895 sec

PURPOSE:

1401 was paired with 1402, for comparison.

COMMENTS ON RESULTS:

Compass noise about $+25^\circ$; decreasing with speed.

Vane noise about $+20^\circ$, centered on lubber line $\sim 0^\circ$.

Resultant direction noise about $\pm 30^\circ$.

Good comparison with 1402.

Data plots are based on the nominal sampling rate of once per second.

177726

	NO.	SPD
*	2	1
*	5	2
*	0	3
*	0	4
*	0	5
*	7	6
*	5	7
*	26	8
*	69	9
*	179	10
***	334	11
*****	580	12
*****	716	13
*****	1326	14
*****	1940	15
*****	2732	16
*****	3935	17
*****	5516	18
*****	7709	19
*****	7722	20
*****	7076	21
*****	7657	22
*****	8499	23
*****	8940	24
*****	9966	25
*****	6790	26
*****	7063	27
*****	7081	28
*****	7277	29
*****	7012	30
*****	3288	31
*****	6672	32
*****	3208	33
*****	2827	34
*****	5444	35
*****	2965	36
*****	2982	37
*****	3284	38
*****	3641	39
*****	3333	40
*****	3382	41
*****	3077	42
*****	2656	43
*****	1559	44
*****	2401	45
*****	1747	46
*****	1725	47
*****	995	48
*****	1034	49
*****	780	50
*****	628	51
*****	389	52
*****	215	53
*****	166	54
*****	41	55
*****	53	56
*****	13	57
*****	34	58
*****	0	59
*****	9	60
*****	0	61
*****	0	62
*****	4	63
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*****	0	150

CURRENT METER FILM NO. 101401

VECTOR AVERAGED VALUES 1200 TERMS PER VALUE.

NORTH AND EAST COMPONENTS

EAST NORTH SEQ NO

X		
-98	-35	600
-71	49	1800
-69	67	3000
35	262	4200
-90	278	5400
-191	83	6600
-176	27	7800
-217	2	9000
-217	3	10200
-219	-10	11400
-237	-31	12600
-218	-18	13800
-160	-48	15000
-181	-88	16200
-183	-82	17400
-201	-112	18600
-211	-128	19800
-183	-147	21000
-177	-176	22200
-170	-194	23400
-150	-203	24600
-165	-175	25800
-175	-184	27000
-193	-192	28200
-198	-198	29400
-185	-214	30600
-201	-191	31800
-211	-204	33000
-171	-204	34200
-157	-225	35400
-170	-223	36600
-170	-227	37800
-181	-226	39000
-200	-223	40200
-189	-202	41400
-183	-213	42600
-165	-241	43800
-162	-248	45000
-180	-285	46200
-204	-269	47400
-176	-286	48600
-193	-302	49800
-238	-294	51000
-221	-305	52200
-213	-302	53400
-200	-277	54600
-203	-278	55800
-195	-290	57000
-230	-289	58200
-246	-309	59400
-249	-325	60600
-267	-339	61800
-300	-360	63000
-320	-326	64200
-329	-275	65400
-335	-276	66600
-332	-282	67800
45	-180	69000
-22	-232	70200
-36	-263	71400
-43	-299	72600
-43	-270	73800
-46	-313	75000
-29	-330	76200
-52	-339	77400
-80	-344	78600
-75	-356	79800
-68	-332	81000
-81	-348	82200
-95	-361	83400
-125	-377	84600
-124	-399	85800
-150	-452	87000
-208	-412	88200
-61	-139	89400
15	-122	90600
24	-243	91800
-5	-270	93000
-14	-274	94200
-25	-259	95400
-22	-250	96600
-15	-229	97800
3	-222	99000
-12	-221	100200
-90	-213	101400
-43	-226	102600
-49	-221	103800
-33	-218	105000
-36	-218	106200
-55	-219	107400
-53	-224	108600
-54	-221	109800
-72	-224	111000
-82	-220	112200
-74	-208	113400
-62	-207	114600
-70	-201	115800
-74	-209	117000
-58	-215	118200
-35	-212	119400
-47	-202	120600
-33	-205	121800
-39	-206	123000
-90	-168	124200
-113	-154	125400
-149	-138	126600
-124	-149	127800
-127	-168	129000
-110	-166	130200
-108	-162	131400
-135	-170	132600
-116	-176	133800
-119	-183	135000
-109	-189	136200
-104	-202	137400
-113	-195	138600
-110	-190	139800
-91	-197	141000
-103	-204	142200
-93	-206	143400
-105	-201	144600
-80	-226	145800
-97	-219	147000
-91	-216	148200
-71	-242	149400
-101	-248	150600
-97	-232	151800
-76	-238	153000
-50	-244	154200
-59	-254	155400
-78	-240	156600
-82	-244	157800
-101	-228	159000
-95	-236	160200
-115	-210	161400
-123	-207	162600
-143	-195	163800
-190	-166	165000
-215	-122	166200
-204	-100	167400

MAGNETIC VARIATION OF 0 DEGREES APPLIED.

FILM101401

FIRST INPUT CYCLE NO. = 1

FINAL INPUT CYCLE NO. = 168619

RESULTANT SPEED AND DIRECTION, MAGNETIC VARIATION INCLUDED

MAGNETIC VARIATION OF 1 DEGREES APPLIED.

Film No. 1402

C.M.	Film	Duration
No. <u>H-534</u>	begins <u>1327 Q: 26: XI :63</u>	of film <u>: 43 :38</u>
	hour day month year	days hours min

C.M. Water Magnetic Sampling
depth 70 m. depth 3385 m. variation 14°W interval 1.0136 sec

PURPOSE:

1402 was paired with 1401, for comparison.

COMMENTS ON RESULTS:

Compass noise about $\pm 30^\circ$; decreasing with speed.

Vane noise about $\pm 20^\circ$; centered on
lubber line $\sim 240^\circ$.

Resultant direction noise about $+ 35^\circ$.

Good comparison with 1401.

Data plots are based on the nominal sampling rate of once per second.

*	4	1
*	0	2
*	0	3
*	0	4
*	8	5
*	0	6
*	11	7
*	68	8
***	169	9
*****	718	10
*****	1605	11
*****	2590	12
*****	3926	13
*****	4735	14
*****	5137	15
*****	5342	16
*****	6294	17
*****	5726	18
*****	4923	19
*****	5419	20
*****	6193	21
*****	5009	22
*****	5517	23
*****	6109	24
*****	4381	25
*****	7248	26
*****	5180	27
*****	5627	28
*****	5711	29
*****	2915	30
*****	5716	31
*****	3069	32
*****	5644	33
*****	2625	34
*****	3266	35
*****	5706	36
*****	3804	37
*****	3612	38
*****	3748	39
*****	2806	40
*****	2642	41
*****	2857	42
*****	1714	43
*****	2715	44
*****	1080	45
*****	1402	46
*****	806	47
*****	880	48
*****	507	49
***	265	50
***	249	51
***	160	52
*	56	53
*	46	54
*	21	55
*	28	56
*	7	57
*	17	58
*	0	59
*	6	60
*	10	61
*	6	62
*	15	63
*	0	64
*	0	65
*	5	66
*	0	67
*	6	68
*	3	69
*	0	70
*	0	71
*	6	72
*	0	73
*	0	74
*	0	75
*	0	76
*	0	77
*	0	78
*	0	79
*	0	80
*	0	81
*	0	82
*	0	83
*	0	84
*	0	85
*	0	86
*	0	87
*	0	88
*	0	89
*	0	90
*	0	91
*	0	92
*	0	93
*	0	94
*	0	95
*	0	96
*	0	97
*	0	98
*	0	99
*	4	100
*	0	101
*	0	102
*	0	103
*	0	104
*	0	105
*	0	106
*	0	107
*	0	108
*	0	109
*	0	110
*	0	111
*	0	112
*	0	113
*	0	114
*	0	115
*	0	116
*	0	117
*	0	118
*	0	119
*	0	120
*	0	121
*	0	122
*	0	123
*	0	124
*	0	125
*	0	126
*	0	127
*	0	128
*	0	129
*	0	130
*	0	131
*	0	132
*	0	133
*	0	134
*	0	135
*	0	136
*	0	137
*	0	138
*	0	139
*	0	140
*	0	141
*	0	142
*	0	143
*	0	144
*	0	145
*	0	146
*	0	147
*	0	148
*	0	149
*	0	150

VECTOR AVERAGED VALUES 1200 TERMS PER VALUE.

NORTH AND EAST COMPONENTS

EAST	NORTH	SEQ NO
X	*	
-155	-221	600
-111	-114	1800
-85	-94	3000
-74	-101	4200
-85	-17	5400
-104	23	6600
-74	97	7800
-153	306	9000
-219	42	10200
-191	-32	11400
-196	-71	12600
-214	-88	13800
-203	-79	15000
-214	-114	16200
-211	-91	17400
-147	-93	18600
-142	-137	19800
-155	-143	21000
-158	-181	22200
-161	-185	23400
-130	-208	24600
-112	-226	25800
-106	-238	27000
-87	-238	28200
-107	-218	29400
-110	-235	30600
-122	-244	31800
-132	-256	33000
-107	-258	34200
-146	-245	35400
-131	-258	36600
-97	-256	37800
-96	-266	39000
-89	-259	40200
-107	-265	41400
-130	-264	42600
-145	-258	43800
-138	-237	45000
-125	-256	46200
-90	-282	47400
-91	-304	48600
-121	-319	49800
-124	-317	51000
-92	-332	52200
-127	-337	53400
-137	-334	54600
-123	-332	55800
-127	-321	57000
-118	-301	58200
-110	-312	59400
-108	-315	60600
-160	-346	61800
-154	-377	63000
-161	-385	64200
-164	-428	65400
-180	-417	66600
-210	-359	67800
-229	-372	69000
-222	-357	70200
31	-198	71400
-17	-230	72600
-46	-261	73800
-51	-304	75000
-59	-276	76200
-45	-313	77400
-24	-328	78600
-53	-338	79800
-80	-340	81000
-74	-349	82200
-72	-333	83400
-95	-317	84600
-99	-332	85800
-107	-356	87000
-148	-383	88200
-167	-374	89400
-188	-320	90600
-6	-23	91800
18	-116	93000
-118	-223	94200
-176	-207	95400
-175	-186	96600
-162	-162	97800
-158	-136	99000
-129	-154	100200
-105	-154	101400
-124	-137	102600
-118	-139	103800
-90	-148	105000
-95	-150	106200
-83	-148	107400
-90	-139	108600
-85	-146	109800
-94	-143	111000
-116	-140	112200
-126	-131	113400
-122	-117	114600
-102	-121	115800
-123	-118	117000
-130	-122	118200
-123	-130	119400
-113	-128	120600
-128	-114	121800
-116	-117	123000
-105	-134	124200
-100	-129	125400
-121	-112	126600
-146	-102	127800
-108	-122	129000
-103	-148	130200
-80	-145	131400
-79	-148	132600
-101	-150	133800
-92	-153	135000
-77	-158	136200
-98	-156	137400
-99	-162	138600
-110	-151	139800
-79	-166	141000
-86	-162	142200
-102	-164	143400
-113	-146	144600
-114	-158	145800
-105	-165	147000
-107	-160	148200
-105	-164	149400
-133	-167	150600
-140	-162	151800
-123	-161	153000
-121	-162	154200
-100	-185	155400

MAGNETIC VARIATION OF 0 DEGREES APPLIED.

FILM101402

FIRST INPUT CYCLE NO. 1

FINAL INPUT CYCLE NO. 196974

RESULTANT SPEED AND DIRECTION, MAGNETIC VARIATION INCLUDED

MAGNETIC VARIATION OF 0.0 DEGREES APPLIED.

Film No. 1403

C.M.	Film	Duration
No. <u>H-531</u>	begins <u>1355Q : 26 : XI : 63</u>	of film : 43 : 37

C.M. Water Magnetic Sampling
depth 510 m. depth 3385 m. variation 14°W interval 1.0085 sec

PURPOSE:

1403 was paired with 1404, for comparison.

COMMENTS ON RESULTS:

Bad light pipe in compass; machine read-out not accurate.

Compass noise level about $+15^\circ$.

Vane noise level about $\pm 12^\circ$, centered on lubber line $\sim 0^\circ$.

Direction noise about $+12^\circ$.

Good comparison with 1404.

Data plots are based on the nominal sampling rate of once per second.

1783893

.	6	1
.	40	2
.	28	3
.	128	4
.	446	5
.....	1009	6
.....	1951	7
.....	2704	8
.....	3611	9
.....	4996	10
.....	5658	11
.....	6664	12
.....	7285	13
.....	9785	14
.....	8838	15
.....	8678	16
.....	9509	17
.....	6401	18
.....	8693	19
.....	7291	20
.....	5802	21
.....	7867	22
.....	3930	23
.....	6073	24
.....	6448	25
.....	4329	26
.....	4304	27
.....	4119	28
.....	3937	29
.....	3763	30
.....	1683	31
.....	3148	32
.....	1463	33
.....	2276	34
.....	911	35
.....	761	36
.....	633	37
.....	463	38
.....	339	39
.....	261	40
.....	186	41
.....	162	42
.....	97	43
.....	36	44
.....	37	45
.....	42	46
.....	0	47
.....	17	48
.....	0	49
.....	23	50
.....	46	51
.....	7	52
.....	7	53
.....	36	54
.....	28	55
.....	28	56
.....	6	57
.....	14	58
.....	0	59
.....	13	60
.....	0	61
.....	0	62
.....	0	63
.....	0	64
.....	0	65
.....	0	66
.....	0	67
.....	5	68
.....	0	69
.....	0	70
.....	0	71
.....	0	72
.....	0	73
.....	0	74
.....	0	75
.....	0	76
.....	0	77
.....	0	78
.....	0	79
.....	0	80
.....	0	81
.....	0	82
.....	0	83
.....	0	84
.....	0	85
.....	0	86
.....	0	87
.....	0	88
.....	0	89
.....	0	90
.....	0	91
.....	0	92
.....	0	93
.....	0	94
.....	0	95
.....	0	96
.....	0	97
.....	0	98
.....	0	99
.....	0	100
.....	0	101
.....	0	102
.....	0	103
.....	0	104
.....	0	105
.....	0	106
.....	0	107
.....	0	108
.....	0	109
.....	0	110
.....	0	111
.....	0	112
.....	0	113
.....	0	114
.....	0	115
.....	0	116
.....	0	117
.....	0	118
.....	0	119
.....	0	120
.....	0	121
.....	0	122
.....	1	123
.....	2	124
.....	0	125
.....	0	126
.....	0	127
.....	0	128
.....	0	129
.....	0	130
.....	0	131
.....	0	132
.....	0	133
.....	0	134
.....	0	135
.....	0	136
.....	0	137
.....	0	138
.....	0	139
.....	0	140
.....	0	141
.....	0	142
.....	0	143
.....	0	144
.....	0	145
.....	0	146
.....	0	147
.....	0	148
.....	0	149
.....	0	150

1783894

VECTOR AVERAGED VALUES 1200 TERMS PER VALUE.

NORTH AND EAST COMPONENTS

EAST NORTH SFO VO		
X	Y	Z
137	-246	600
52	-129	1800
26	-63	3000
-49	-39	4200
-16	-97	5400
-11	-141	6600
-103	-114	7800
-50	-111	9000
-73	-80	10200
-77	-88	11400
-79	-114	12600
-46	-112	13800
-45	-110	15000
-107	-120	16200
-106	-119	17400
-108	-101	18600
-48	-110	19800
-114	-92	21000
-124	-103	22200
-143	-117	23400
-128	-116	24600
-131	-129	25800
-146	-139	27000
-106	-164	28200
-95	-164	29400
-116	-166	30600
-131	-167	31800
-136	-170	33000
-135	-149	34200
-141	-119	35400
-125	-119	36600
-88	-116	37800
-69	-132	39000
-69	-134	40200
-80	-112	41400
-78	-115	42600
-71	-90	43800
-75	-93	45000
-64	-80	46200
-68	-74	47400
-61	-85	48600
-75	-92	49800
-80	-103	51000
-85	-98	52200
-100	-114	53400
-103	-108	54600
-102	-128	55800
-107	-147	57000
-127	-158	58200
-133	-138	59400
-118	-139	60600
-123	-114	61800
-106	-115	63000
-111	-109	64200
-104	-114	65400
-111	-141	66600
-117	-136	67800
-105	-133	69000
-4	-55	70200
43	-13	71400
52	-39	72600
61	-43	73800
24	-84	75000
-14	-73	76200
-85	-57	77400
-121	-68	78600
-122	-65	79800
-107	-58	81000
-112	-68	82200
-98	-49	83400
-91	-59	84600
-75	-61	85800
-73	-68	87000
-86	-58	88200
-55	-116	89400
-7	96	90600
-37	70	91800
-30	-17	93000
-21	-80	94200
-12	-61	95400
-3	-85	96600
0	-129	97800
7	-171	99000
-4	-163	100200
-5	-191	101400
44	-231	102600
-5	-258	103800
-14	-269	105000
-1	-279	106200
-6	-275	107400
9	-246	108600
17	-314	109800
21	-313	111000
18	-301	112200
6	-303	113400
-3	-308	114600
-16	-306	115800
-17	-301	117000
-30	-289	118200
7	-295	119400
-18	-275	120600
-13	-263	121800
-28	-250	123000
-23	-250	124200
-34	-250	125400
-16	-257	126600
-16	-251	127800
-35	-244	129000
-49	-240	130200
-58	-234	131400
-62	-224	132600
-61	-210	133800
-64	-226	135000
-75	-223	136200
-54	-206	137400
-65	-213	138600
-78	-223	139800
-75	-234	141000
-70	-225	142200
-68	-200	143400
-65	-207	144600
-61	-200	145800
-46	-204	147000
-10	-213	148200
13	-214	149400
1	-214	150600
1	-210	151800
1	-225	153000
-19	-221	154200
-33	-218	155400

MAGNETIC VARIATION OF 0 DEGREES APPLIED.

FILM101403

FIRST INPUT CYCLE NO. 0

FINAL INPUT CYCLE NO. 060000

MAGNETIC VARIATION OF 0 DEGREES APPLIED.

Film No. 1404

C.M.	Film	Duration
No. <u>H-522</u>	begins <u>1402 Q: 26 : XI : 63</u>	of film <u>: 43 : 48</u>
	hour day month year	days hours min

C.M.	Water	Magnetic	Sampling
depth 580 m.	depth 3385 m.	variation 14°W	interval 1.0086 sec

PURPOSE:

1404 was paired with 1403, for comparison.

COMMENTS ON RESULTS:

Bad light pipe in vane; machine read-out not accurate.

Vane noise about +15°, centered on lubber line
 $\sim 120^\circ$.

Directional noise about $+12^\circ$.

Comparison with 1403 good.

Data plots are based on the nominal sampling rate of once per second.

STOCK FORM NO. 14110-20

STOCK FORM NO. 14110-20

33	0
29	3
28	6
40	8
33	11
33	14
50	17
59	20
64	23
74	25
86	28
90	31
89	34
124	37
148	39
193	42
193	45
208	48
219	51
252	53
197	56
224	59
207	62
171	65
181	68
212	70
196	73
194	76
222	79
201	82
220	84
278	87
260	90
258	93
255	96
280	98
285	101
306	104
295	107
302	110
259	113
287	115
268	118
270	121
224	124
244	127
228	129
222	132
240	135
244	138
272	141
270	143
313	146
373	149
388	152
490	155
609	158
678	160
814	163
958	166
1166	169
1470	172
1502	174
1875	177
2052	180
2574	183
3238	186
3783	188
4497	191
4615	194
5311	197
6296	200
7136	203
7430	205
7701	208
7318	211
6959	214
6616	217
6188	219
6773	222
6862	225
6851	228
6406	231
5721	233
4666	236
3750	239
2608	242
2154	245
1724	248
1238	250
985	253
738	256
558	259
474	262
366	264
292	267
270	270
219	273
215	276
192	278
182	281
201	284
168	287
147	290
141	293
148	295
103	298
123	301
91	304
88	307
102	309
87	312
92	315
82	318
52	321
67	323
63	326
52	329
71	332
72	335
61	338
51	340
53	343
38	346
39	349
32	352
33	354
41	357

*	1	1
*	18	2
*	55	3
*****	415	4
*****	1048	5
*****	1341	6
*****	2199	7
*****	3263	8
*****	4994	9
*****	5502	10
*****	6325	11
*****	7679	12
*****	10861	13
*****	11253	14
*****	11940	15
*****	10997	16
*****	10990	17
*****	9017	18
*****	6907	19
*****	7108	20
*****	6727	21
*****	4925	22
*****	4678	23
*****	2808	24
*****	4185	25
*****	2622	26
*****	2493	27
*****	2514	28
*****	2529	29
*****	2316	30
*****	1123	31
*****	2210	32
*****	1005	33
*****	1758	34
*****	722	35
*****	709	36
*****	565	37
*****	530	38
*****	402	39
*****	391	40
*****	278	41
*****	244	42
*****	171	43
*****	128	44
*****	0	45
*****	72	46
*****	44	47
*****	0	48
*****	27	49
*****	23	50
*****	0	51
*****	9	52
*****	0	53
*****	4	54
*****	0	55
*****	1	56
*****	0	57
*****	1	58
*****	0	59
*****	0	60
*****	0	61
*****	0	62
*****	0	63
*****	0	64
*****	0	65
*****	0	66
*****	0	67
*****	0	68
*****	0	69
*****	0	70
*****	0	71
*****	0	72
*****	0	73
*****	0	74
*****	0	75
*****	0	76
*****	0	77
*****	0	78
*****	0	79
*****	0	80
*****	0	81
*****	0	82
*****	0	83
*****	0	84
*****	0	85
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*****	0	92
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*****	0	101
*****	0	102
*****	0	103
*****	0	104
*****	0	105
*****	0	106
*****	0	107
*****	0	108
*****	0	109
*****	0	110
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*****	0	112
*****	0	113
*****	0	114
*****	0	115
*****	0	116
*****	0	117
*****	0	118
*****	0	119
*****	0	120
*****	0	121
*****	0	122
*****	0	123
*****	0	124
*****	0	125
*****	0	126
*****	0	127
*****	0	128
*****	0	129
*****	0	130
*****	0	131
*****	0	132
*****	0	133
*****	0	134
*****	0	135
*****	0	136
*****	0	137
*****	0	138
*****	0	139
*****	0	140
*****	0	141
*****	0	142
*****	0	143
*****	0	144
*****	0	145
*****	0	146
*****	0	147
*****	0	148
*****	0	149
*****	0	150

1775719

VECTOR AMPLITUDE VALUES 1200 TERMS PER VALUE.

NORTH AND EAST COMPONENTS

EAST	NORTH	SEQ NO
X	*	
-47	-133	600
-43	-82	1800
-26	20	3000
-77	15	4200
-106	-56	5400
-163	-31	6600
-109	-52	7800
-100	-69	9000
-119	-75	10200
-115	-84	11400
-110	-100	12600
-112	-92	13800
-109	-111	15000
-107	-122	16200
-110	-105	17400
-117	-98	18600
-106	-84	19800
-108	-81	21000
-117	-84	22200
-110	-78	23400
-115	-83	24600
-107	-48	25800
-103	-27	27000
-101	-64	28200
-105	-42	29400
-112	-20	30600
-116	6	31800
-122	37	33000
-93	47	34200
-83	56	35400
-94	57	36600
-108	48	37800
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<p>Woods Hole Oceanographic Institution Reference No. 65-44</p> <p>A COMPILATION OF MOORED CURRENT METER OBSERVATIONS by Ferris Webster and N. P. Fofonoff. Volume 1. 112 pp. August 1965. Contract No. NONR-3351(00).</p> <p>Summaries of current measurements made with Richardson current meters at three moored stations in the Western North Atlantic are presented. Averaged quantities are presented in the form of computer-plotted curves.</p>	<ol style="list-style-type: none">1. Ocean current measurements2. Oceanographic data processing. <ol style="list-style-type: none">I. Webster, FerrisII. Fofonoff, Nicholas P.III. NONR 3351(00) <p>This card is UNCLASSIFIED</p>
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