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UNIVERSITY OF CALIFORNIA SCRIPPS INSTITUTION OF OCEANOGRAPHY

data report

PHYSICAL AND CHEMICAL DATA

Cato Expedition

Leg VI, 7 November - 16 December 1972

SIO Reference 79-3

15 April 1979

UNIVERSITY OF CALIFORNIA
SCRIPPS INSTITUTION OF OCEANOGRAPHY

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Leg VI, 7 November - 16 December 1972

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INTRODUCTION

The purpose of Leg VI of the Cato expedition was to study the deep circulation of the Southwestern Atlantic Ocean. From 7 November to 16 December 1972, Nansen bottle casts and in situ vertical profiles of salinity and temperature (STD lowerings) were made from the Scripps Institution of Oceanography Research Vessel Melville in the region of the Rio Grande Rise. Samples were taken for measurement of oxygen, phosphate, nitrate, nitrite, and silica; direct measurements of deep currents were made. The work was supported by the Office of Naval Research.

STANDARD PROCEDURES

Hydrographic Cast Data

Temperature was measured using paired deep-sea reversing thermometers and is reported to hundredths of a Celsius degree except for some of the deepest levels where specially scaled low-range thermometers were read and tabulated to thousandths of a degree. Most bottles below 100 meters included unprotected (pressure) thermometers for depth determination.

Water samples were obtained from Nansen bottles which were hung on the STD wire in conjunction with the STD lowerings on all stations except lowering 46 when no bottles were used.

Salinity was determined using a University of Washington (1960) conductive salinometer for all samples collected on Leg VI.

Dissolved oxygen was determined by the Winkler method as modified by Carpenter (1965) using equipment and procedures outlined by Anderson (1971).

A standard Beckman Model DU spectrophotometer was used in determining all nutrients. Reactive phosphate was done using the method of Murphy and Riley (1962), with the specific procedure outlined by Anderson (1971);

reactive silicate by the method of Strickland and Parsons (1968); nitrite by the method of Bendschneider and Robinson (1952) and nitrate by the method of Wood et al. (1967).

The observed data has been evaluated using the method described by Klein (1973). This involves consideration of their variation as functions of density or depth and their relations to each other, and comparison with adjacent observations.

In situ Salinity/Temperature/Depth Recorder (STD) Data

A Bissett-Berman (HYTECH) Model 9006 STD was used for most lowerings. The exceptions are lowerings 1 through 7 and 69 through 79 when a Plessey Environmental Systems Model 9040 CSTD was used. Data was recorded in analog format on the Leeds-Northrup analog recorder and in digital, at an interval of approximately one instantaneous count every 2 meters, on the shipboard IBM 1800 computer. With few exceptions, the data was recorded only during descent.

Precise PDR observations of bottom depths were recorded and a pinger was placed on the wire below the STD. Comparison of these records with the frequencies recorded by the STD on the deep lowerings was used to determine a linear correction to the depth, calculated from the pressure.

After initial smoothing of the STD data, second-order polynomial corrections to the temperature and salinity were determined by comparison with the observed Nansen bottle data. It should be noted that the two STD models, 9006 and 9040, deviated from their respective hydrographic data quite differently. Furthermore, the best fit of an individual lowering can be quite different even when the same instrument is used, primarily due to the difference (4 to 6 hours at approximately 5000 meters) between the time the

STD reaches the greatest depth and the thermometers are reversed.

All STD temperature and salinity data in this report is tabulated to the nearest hundredth from both shallow and deep lowerings.

TABULATED DATA

The time reported is Greenwich Mean Time. For STD data it is the "start down" time of the first lowering, usually the deeper, and for bottle casts it is the time of messenger release, with the first and last release times listed for multiple casts.

Bottom depths, determined acoustically, have been corrected using Matthews' (1939) tables and are reported in meters. Weather and dominant waves are coded using the National Oceanographic Data Center (NODC) method.

Data from the bottle casts appears on the even-numbered pages. The observed data was tabulated on the left of the page with computed values of thermosteric anomaly. Temperature, salinity, and oxygen interpolated at standard levels with computed values of sigma-t, thermosteric anomaly, and geopotential anomaly were included on the right.

Data from the STD lowerings appears on the facing odd-numbered pages. Temperature and salinity are tabulated at closer standard intervals than in previous reports. However, some depth intervals may not appear on stations where "spiking" caused data to be rejected.

The column headings are to be interpreted as follows:

Z	Depth	Meters
T	Temperature	°C
S	Salinity	‰
O2	Dissolved oxygen	ml/L
PO4	"Reactive" inorganic phosphate-phosphorus	µg at/L
SiO3	"Reactive" inorganic silicate-silicon	µg at/L
NO2	"Reactive" nitrite-nitrogen	µg at/L
NO3	"Reactive" nitrate-nitrogen	µg at/L
DT	δ_T Thermosteric anomaly	cl/ton
SI:GT	$\sigma_t = (\rho_{s,t,0} - 1)10^3$ where $\rho_{s,t,0}$ is the density the parcel would have if moved isothermally to the sea surface.	g/L
DD	Geopotential anomaly, referred to the sea surface.	dyn. meters

FOOTNOTES

In addition to footnotes, several special notations are used without footnotes because the meaning is always the same.

A and B: After depth value indicates successively deeper casts on expedition legs which have multiple cast stations. The upper cast originating at or near the surface has no letter following the depth.

P: After depth value indicates the Nansen bottles posttripped.

U: Uncertain value. Values which are not used in interpolation because they seem to be in error without apparent reason. NOTE: "U" following STD station number indicates the up cast data are being reported.

V: Because of time differences, overlapping casts show some differences. Values not used in interpolation.

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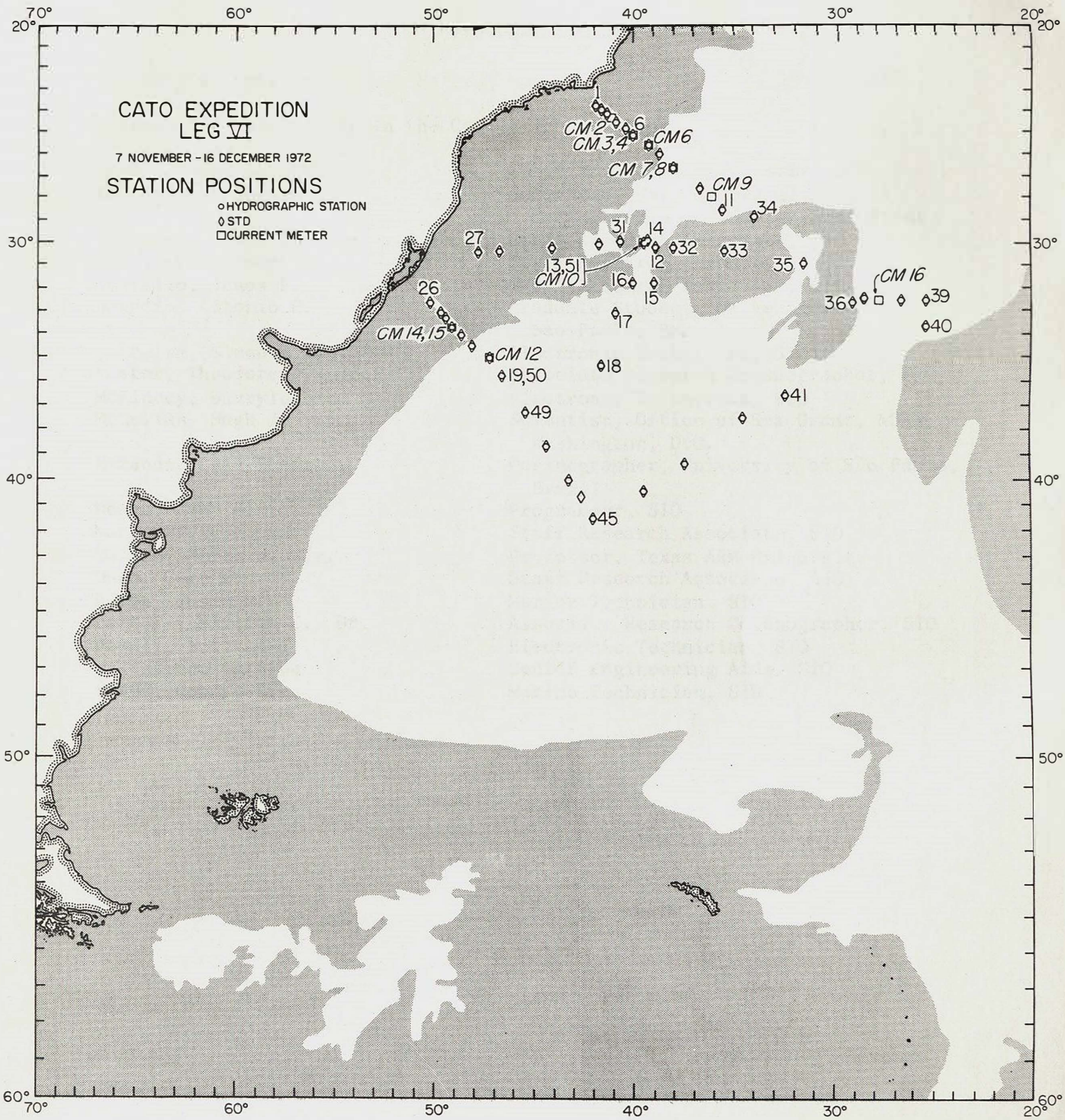


FIGURE 1

PERSONNEL.

Ship's Captain: Ferris, Noel L.

RV MELVILLE

Personnel Participating in the Collection of Data:

Reid, Joseph L. Prof.	Chief Scientist, Professor, SIO
Bertholini, Sergio	Commander, Navy of Brazil, Brazil Hydrographic and Navigation Office
Burgener, Bruce C.	Staff Research Associate, SIO
Coatsworth, James L.	Staff Research Associate, SIO
Costello, James P.	Staff Research Associate, SIO
Donadio, Antonio E.	Graduate Student, University of São Paulo, Brazil
Ferreira, Simon M.	Electronic Technician, SIO
Foster, Theodore D. Dr.	Associate Research Oceanographer, SIO
McKinney, Darryle	Electronic Technician, SIO
McLellan, Hugh J. Dr.	Scientist, Office of Sea Grant, NOAA, Washington, D.C.
Miranda, Luiz B. de	Oceanographer, University of São Paulo, Brazil
Moore, John M.	Programmer, SIO
Muus, David A.	Staff Research Associate, SIO
Nowlin, Worth D., Jr.	Professor, Texas A&M University
Owen, Gary P.	Staff Research Associate, SIO
Patla, Susan M.	Marine Technician, SIO
Patzert, William C. Dr.	Associate Research Oceanographer, SIO
Powell, William J.	Electronic Technician, SIO
Valentine, Sarilee	Senior Engineering Aide, SIO
Yates, Robert E.	Marine Technician, SIO

RV MELVILLE

CATO EXPEDITION VI

1

Z	LATITUDE		LONGITUDE		MO/DAY/YR		MESSENGER TIME		BOTTOM		WIND		SPEED		WEATHER		DOMINANT WAVES	
	T	S	O2	P04	SI03	N02	N03	DT	Z	T	S	O2	SIGT	DT	DD			
0	22.36	35.982	5.05	0.13	1.0	0.01	0.2	308.0	0	22.46	35.982	5.05	24.880	308.0	0.000			
10	22.38	35.978	5.05	0.10	1.7	0.00	0.0	308.8	10	22.58	35.978	5.05	24.872	308.8	0.031			
21	22.37	35.977	5.110	0.16	1.5	0.01	0.1	308.6	20	22.57	35.976	5.10	24.873	308.7	0.062			
54	20.60	36.322	5.080	0.18	1.0	0.02	0.0	237.0	30	22.07	36.081	5.1000	25.039	292.9	0.092			
86	17.85	35.957	4.73	0.43	2.1	0.45	2.7	195.9	50	20.91	36.284	5.08	25.513	247.8	0.146			
117	15.88	35.652	4.63	0.42	2.5	0.10	5.6	173.7	75	18.81	36.112	4.85	25.937	207.5	0.2040			
170	14.20	35.412	4.75	0.78	2.8	0.04	7.6	155.9	100	16.87	35.807	4.66	26.182	184.3	0.2540			
222	13.69	35.355	4.84	0.65	3.3	0.03	8.8	149.9	125	15.5200	35.598	4.64	26.434	169.8	0.299			
279	12.15	35.136	4.71	0.88	5.1	0.02	12.4	136.6	150	14.64	35.473	4.68	26.433	160.4	0.341			
356	10.53	34.903	4.68	1.20	7.1	0.00	16.2	125.3	200	13.89	35.378	4.820	26.521	152.1	0.422			
433	8.72	34.690	4.45	1.49	11.6		21.4	112.4	250	12.98	35.253	4.79	26.611	143.6	0.499			
510	7.00	34.511	4.70	1.73	15.1		24.4	101.5	300	11.69	35.069	4.70	26.720	133.3	0.572			
587	5.69	34.395	4.87	1.84	19.0	0.00	27.1	93.9	400	9.50	34.777	4.53	26.882	117.9	0.705			
665	5.42	34.380	4.90	1.8900	20.7		27.6	91.9	500	7.21	34.532	4.66	27.042	102.8	0.624			
745	5.16	34.363	4.91	1.92	22.4		28.5	90.2	600	5.65	34.396	4.88	27.141	93.3	0.929			
782	5.093	34.361	4.92	1.91	22.4		28.4	89.6	700	5.30	34.372	4.90	27.165	91.1	1.030			
824	4.920	34.351	4.94	1.97	23.2	0.00	28.6	88.5	800	5.03	34.362	4.93	27.188	89.2	1.129			

RV MELVILLE

CATO EXPEDITION VI

2

Z	LATITUDE		LONGITUDE		MO/DAY/YR		MESSENGER TIME		BOTTOM		WIND		SPEED		WEATHER		DOMINANT WAVES	
	T	S	O2	P04	SI03	N02	N03	DT	Z	T	S	O2	SIGT	DT	DD			
0	24.37	37.036	4.79	0.06	0.8	0.00	0.1	288.0	0	24.47	37.036	4.79	25.090	288.0	0.000			
10	24.40	37.033	4.73	0.04	0.8	0.00	0.0	289.1	10	24.40	37.033	4.73	25.079	289.1	0.029			
20	24.39	37.034	4.71	0.04	1.0	0.00	0.1	288.7	20	24.59	37.034	4.71	25.082	288.7	0.058			
31	24.38	37.031	4.70	0.07	1.0	0.00	0.0	288.6	30	24.58	37.030	4.70	25.083	288.6	0.087			
63	22.24	36.814	4.83	0.08	0.7	0.00	0.0	244.7	50	23.25	36.918	4.77	25.334	264.8	0.142			
93	20.91	36.552	4.85	0.19	1.0	0.07	0.4	228.4	75	21.73	36.724	4.84	25.624	237.3	0.206			
125	18.43	36.071	4.74	0.25	1.5	0.02	1.7	201.4	100	20.38	36.443	4.83	25.778	222.6	0.264			
177	15.96	35.661	4.83	0.60	2.0	0.02	4.1	174.7	125	18.43	36.071	4.74	26.001	201.4	0.318			
230	14.02	35.371	4.72	0.66	3.5	0.03	8.5	155.3	150	17.09	35.839	4.77	26.155	186.8	0.368			
288	13.13	35.253	4.72	0.76	4.2	0.02	9.9	146.5	200	15.02	35.515	4.79	26.383	165.2	0.459			
367	11.32	35.003	4.72	1.10	6.0		14.2	131.5	250	13.66	35.323	4.72	26.526	151.6	0.541			
445	9.36	34.761	4.57	1.33	9.8		19.4	116.9	300	12.88	35.218	4.72	26.603	144.3	0.619			
524	7.80	34.591	4.69	1.66	12.4		23.0	106.4	400	10.48	34.894	4.65	26.806	125.1	0.762			
602	6.45	34.460	4.79	1.74	16.1		25.9	98.2	50000	8.24	34.638	4.64	26.973	109.2	0.888			
644A	5.84	34.446	4.68U	1.82	17.6		26.4		600	6.48	34.464	4.79	27.088	98.4	1.001			
682	5.44	34.379	4.89	1.89	19.6		27.7	92.2	700	5.26	34.369	4.89	27.167	90.9	1.104			
762	4.74	34.345	4.90	1.96	24.1		29.1	87.0	800	4.55	34.343	4.85	27.227	85.2	1.200			
772A	4.80	34.348	4.93	2.01	24.2		28.8		1000	3.77	34.347	4.82	27.312	77.2	1.379			
801	4.55		4.84	1.95	25.2		29.8		1200	3.50	34.441	4.51	27.433	65.7	1.539			
846	4.29	34.335	4.91	2.04	28.7		30.0	83.1	1500	3.63	34.737	4.56	27.636	46.4	1.740			
848A	4.32	34.336	4.87	1.94	28.0		30.4	83.3	1750	3.83	34.875	5.06	27.726	37.9	1.880			
925A	3.90	34.34	4.86	2.10	32.5		31.2	78.8										
1001A	3.77	34.346	4.82	2.15	34.4		31.4	77.1										
1052A	3.69	34.357	4.77	2.16	37.0		31.6	75.6										
1129A	3.48	34.381	4.67	2.20	41.2		32.3	71.8										
1232A	3.24	34.472	4.44	2.20	48.0		33.1	62.8										
1335A	3.31	34.573	4.42	2.14	48.0		32.0	55.3										
1440A	3.505	34.676	4.46	1.99	42.8		30.1	49.8										
1547A	3.718	34.781	4.67	1.79	34.8		27.0	43.9										
1653A	3.845	34.853	4.95	1.68	29.7		25.1	39.7										
1734A	3.823	34.875	5.03	1.60	28.2		24.5	37.8										
1761A	3.839	34.876	5.09	1.60	27.7		25.2	37.9										

1 STD						CATO EXPEDITION VI						2 STD					
LATITUDE		LONGITUDE		MO/DAY/YR		START TIME		LATITUDE		LONGITUDE		MO/DAY/YR		START TIME			
23 54.2S		41 50.0W		11/08/72		0419 GMT		24 07.8S		41 38.0W		11/08/72		1056 GMT			
Z	T	S	SIGMA T	DT	DU	Z	T	S	SIGMA T	DT	DU	Z	T	S	SIGMA T	DT	DU
0	22.29	35.98	24.899	306.3	0.000	0	24.03	36.96	25.134	283.6	0.000	0	24.03	36.96	25.134	283.6	0.000
10	22.28	35.98	24.902	306.0	0.031	10	24.05	36.97	25.136	283.6	0.028	10	24.05	36.97	25.136	283.6	0.028
20	22.25	35.98	24.910	305.2	0.061	20	24.06	36.97	25.133	283.9	0.057	20	24.06	36.97	25.133	283.9	0.057
30	22.19	36.09	25.010	295.6	0.091	30	24.07	36.97	25.130	284.2	0.085	30	24.07	36.97	25.130	284.2	0.085
40	21.81	36.24	25.231	274.6	0.120	40	23.83	36.90	25.148	282.4	0.114	40	23.83	36.90	25.148	282.4	0.114
50	21.27	36.32	25.442	254.6	0.147	50	22.78	36.79	25.372	261.1	0.141	50	22.78	36.79	25.372	261.1	0.141
60	20.49	36.28	25.624	237.3	0.171	60	22.19	36.75	25.511	248.0	0.167	60	22.19	36.75	25.511	248.0	0.167
70	19.76	36.24	25.788	221.7	0.195	70	21.85	36.68	25.554	243.9	0.192	70	21.85	36.68	25.554	243.9	0.192
80	18.44	35.97	25.922	209.0	0.216	80	21.31	36.62	25.659	233.9	0.216	80	21.31	36.62	25.659	233.9	0.216
90	17.75	35.92	26.055	196.3	0.237	90	20.92	36.54	25.705	229.5	0.239	90	20.92	36.54	25.705	229.5	0.239
100	17.67	35.93	26.082	193.7	0.257	100	20.72	36.48	25.714	228.7	0.263	100	20.72	36.48	25.714	228.7	0.263
125	15.62	35.47	26.213	181.3	0.305	125	18.63	35.99	25.889	212.1	0.319	125	18.63	35.99	25.889	212.1	0.319
150	14.54	35.46	26.447	159.2	0.348	150	17.29	35.81	26.083	193.7	0.371	150	17.29	35.81	26.083	193.7	0.371
200	13.77	35.38	26.547	149.7	0.428	200	14.91	35.47	26.371	166.3	0.463	200	14.91	35.47	26.371	166.3	0.463
250	12.72	35.23	26.645	140.3	0.504	250	13.21	35.21	26.531	151.2	0.546	250	13.21	35.21	26.531	151.2	0.546
300	11.44	35.03	26.737	131.6	0.575	300	12.82	35.19	26.594	145.1	0.624	300	12.82	35.19	26.594	145.1	0.624
350	10.43	34.91	26.826	123.1	0.643	350	11.73	35.01	26.667	138.3	0.699	350	11.73	35.01	26.667	138.3	0.699
400	9.25	34.80	26.941	112.3	0.705	400	10.41	34.85	26.783	127.2	0.770	400	10.41	34.85	26.783	127.2	0.770
450	8.24	34.63	26.968	109.6	0.765	450	8.87	34.66	26.909	115.4	0.835	450	8.87	34.66	26.909	115.4	0.835
500	7.05	34.52	27.055	101.5	0.822	500	7.89	34.56	26.966	110.0	0.895	500	7.89	34.56	26.966	110.0	0.895
550	6.45	34.47	27.097	97.5	0.876	550	7.01	34.51	27.053	101.7	0.953	550	7.01	34.51	27.053	101.7	0.953
600	5.52	34.39	27.152	92.3	0.927	600	6.27	34.42	27.082	99.0	1.007	600	6.27	34.42	27.082	99.0	1.007
650	5.35	34.40	27.181	89.6	0.976	650	5.80	34.40	27.126	94.8	1.060	650	5.80	34.40	27.126	94.8	1.060
700	5.28	34.39	27.181	89.5	1.025	700	5.16	34.34	27.156	91.9	1.111	700	5.16	34.34	27.156	91.9	1.111
750	5.06	34.36	27.183	89.3	1.074	750	4.89	34.34	27.187	89.0	1.160	750	4.89	34.34	27.187	89.0	1.160
800	5.02	34.36	27.188	88.9	1.123	800	4.53	34.32	27.212	86.7	1.208	800	4.53	34.32	27.212	86.7	1.208
850	4.79	34.35	27.206	87.2	1.171	850	4.29	34.33	27.246	83.5	1.254	850	4.29	34.33	27.246	83.5	1.254
						900	4.02	34.33	27.274	80.8	1.300	900	4.02	34.33	27.274	80.8	1.300
						950	3.84	34.33	27.292	79.0	1.344	950	3.84	34.33	27.292	79.0	1.344
						1000	3.76	34.35	27.316	76.7	1.387	1000	3.76	34.35	27.316	76.7	1.387
						1100	3.56	34.36	27.344	74.1	1.471	1100	3.56	34.36	27.344	74.1	1.471
						1200	3.31	34.45	27.440	65.0	1.549	1200	3.31	34.45	27.440	65.0	1.549
						1300	3.27	34.54	27.515	57.9	1.620	1300	3.27	34.54	27.515	57.9	1.620
						1400	3.44	34.65	27.586	51.1	1.684	1400	3.44	34.65	27.586	51.1	1.684
						1500	3.61	34.73	27.633	46.7	1.745	1500	3.61	34.73	27.633	46.7	1.745
						1600	3.79	34.82	27.686	41.6	1.803	1600	3.79	34.82	27.686	41.6	1.803
						1700	3.84	34.87	27.721	38.4	1.858	1700	3.84	34.87	27.721	38.4	1.858
						1779	3.84	34.88	27.729	37.6	1.900	1779	3.84	34.88	27.729	37.6	1.900

RV MELVILLE

CATO EXPEDITION VI

LATITUDE		LONGITUDE		MO/DAY/YR		MESSENGER		TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES		
24 20.9S		41 18.2W		11/ 8/72		1939 2213		GMT	2299M	07U	1AKT	1	050 B		
Z	T	S	02	P04	SI03	N02	N03	DT	Z	T	S	02	SI0T	DT	DD
0	23.08	36.789	4.93	0.03	1.0	0.01	0.0	269.5	0	23.08	36.789	4.93	25.285	269.5	0.000
9	23.11	36.789	4.59	0.02	0.8	0.00	0.0	270.5	10	23.11	36.787	4.58	25.276	270.2	0.027
20	23.09	36.792	4.43	0.02	0.8	0.00	0.0	269.5	20	23.09	36.792	4.43	25.284	269.5	0.054
30	23.09	36.791	4.77	0.04	1.0	0.00	0.0	269.6	30	23.09	36.791	4.77	25.283	269.6	0.061
62	22.28	36.873	4.85	0.05	1.0	0.00	0.0	241.5	50	22.66	36.848	4.82	25.454	253.4	0.134
93	21.47	36.685	5.16	0.08	0.8	0.07	0.1	233.4	75	21.91	36.800	5.01	25.629	236.7	0.196
125	21.14	36.612	4.73	0.10	0.8	0.16	0.0	230.1	100	21.42	36.670	5.09	25.669	232.9	0.255
177	18.57	36.101		0.35	1.3	0.01	2.2	202.6	125	21.14	36.612	4.73	25.699	230.1	0.314
229	16.15	35.702	4.82	0.48	1.7	0.01	3.7	175.9	150	20.05	36.383	4.75	25.821	218.5	0.372
286	14.74	35.471	4.87	0.55	2.5	0.00	6.0	162.7	200	17.42	35.903	4.79	26.123	189.9	0.477
363	13.25	35.273	4.80	0.76	3.6		9.7	147.3	250	15.54	35.601	4.84	26.332	170.0	0.570
433A	11.41	35.011	4.49U	1.09	6.2	0.01	14.3	132.5	300	14.47	35.434	4.87	26.440	159.8	0.657
441	11.34	35.007	4.63	1.05	5.9		14.7	131.6	400	12.17	35.111	4.72	26.662	138.8	0.816
519	9.51	34.777	4.57	1.37	9.3		18.5	118.1	500	10.09	34.851	4.58	26.841	121.7	0.957
561A	8.20	34.804	U	4.73U	1.46	10.6		19.9	600	7.53	34.560	4.52	27.018	105.0	1.080
598	7.56	34.562	4.52	1.63	13.5	0.00	23.4	105.2	700	5.79	34.403	4.60	27.129	94.5	1.190
638A	6.87	34.497	4.60	1.58	15.0		24.9	100.8	800	4.90	34.352	4.90	27.195	88.3	1.290
676	6.14	34.429	4.58	1.81	16.7		26.2	96.7	1000	3.71	34.356	4.86	27.326	75.8	1.471
716A	5.60	34.389	4.73U		19.1		27.4	93.3	1200	3.41	34.467	4.49	27.444	64.7	1.629
758	5.26	34.366	4.72	1.94	21.4		28.0	91.1	1500	3.58	34.728	4.58	27.634	46.6	1.828
792A	4.96	34.353	4.85	1.91	23.8		29.1	88.8	1750	3.87	34.886	5.13	27.731	37.4	1.969
795	4.88	34.346	4.91	1.98	23.5		29.1		2000	3.55	34.939	5.56	27.805	30.4	2.095
841	4.601	34.343	4.78	2.05	26.1	0.00	29.6	85.7	2250	2.93	34.935	5.87	27.862	25.0	2.204
843A	4.54	34.341	4.86	2.04	26.7		30.3	85.2							
919A	4.03	34.348	4.79	2.14	33.3	0.00	31.6	79.5							
1021A	3.65	34.358	4.87	2.16	37.5		32.2	75.1							
1124A	3.45	34.387	4.62	2.24	42.7		32.5	71.1							
1329A	3.33	34.607	4.39	2.13	48.0		31.1	53.4							
1536A	3.65	34.749	4.65	1.91	37.7		28.1	45.6							
1743A	3.88	34.885	5.12	1.61	27.0		24.2	37.6							
1953A	3.721	34.936	5.49	1.45	23.3		21.7	32.2							
2165A	2.994	34.938	5.82	1.40	29.2		20.7	25.4							
2219A	2.931	34.936	5.92	1.38	30.4		20.7	25.0							
2272A	2.924	34.935	5.84	1.38	31.0	0.00	20.6	25.0							

RV MELVILLE

CATO EXPEDITION VI

LATITUDE		LONGITUDE		MO/DAY/YR		MESSENGER		TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES		
24 41.3S		40 49.3W		11/ 9/72		0505 0711		GMT	2768M	10U	21KT	6	100 6		
Z	T	S	02	P04	SI03	N02	N03	DT	Z	T	S	02	SI0T	DT	DD
0	23.10	36.729	4.91	0.00	0.8	0.00	0.0	274.3	0	23.10	36.729	4.91	25.233	274.3	0.000
10	23.10	36.730	5.27	0.00	1.0	0.00	0.0	274.3	10	23.10	36.730	5.27	25.234	274.3	0.027
20	23.08	36.732	4.96	0.00	0.7	0.00	0.0	273.6	20	23.08	36.732	4.96	25.242	273.6	0.055
30	23.05	36.753	5.10	0.01	0.8	0.00	0.0	271.2	30	23.05	36.753	5.10	25.266	271.2	0.082
61	22.36	36.811	5.05	0.03	0.8	0.00	0.0	248.2	50	22.64	36.794	5.07	25.418	256.8	0.135
92	21.98	36.765	5.05	0.07	0.8	0.00	0.0	241.2	75	22.21	36.805	5.05	25.549	244.4	0.199
123	20.94	36.555	5.10	0.14	0.8	0.11	0.3	229.0	100	21.79	36.726	5.06	25.607	238.8	0.260
154	18.92	36.160	4.81	0.27	1.4	0.03	1.4	206.8	125	20.82	36.527	5.08	25.725	227.6	0.319
207	16.84	35.793	4.82	0.36	1.5	0.01	2.9	184.7	150	19.19	36.209	4.85	25.914	209.7	0.375
311	14.45	35.454	4.96	0.53	2.3	0.01	6.3	158.0	200	17.05	35.827	4.82	26.155	186.8	0.477
417	12.52	35.187	4.83	0.82	4.2		11.3	139.7	250	15.69	35.620	4.88	26.314	171.7	0.571
521	10.13	34.848	4.64	1.23	7.9	0.00	17.8	122.8	300	14.64	35.477	4.95	26.437	160.0	0.658
585A	8.44	34.658	4.60	1.50	11.4	0.01	22.2	110.6	400	12.83	35.231	4.86	26.624	142.3	0.819
624	7.77	34.591	4.56	1.63	13.6		24.1	106.0	500	10.65	34.916	4.67	26.793	126.3	0.964
662A	6.82	34.513	4.54	1.80	16.9	0.00	26.0	99.0	600	8.18	34.632	4.58	26.977	108.8	1.093
726	5.68	34.414	4.63	1.91	21.0	0.00	28.5	92.3	700	6.09	34.451	4.60	27.128	94.6	1.205
739A	5.65	34.415	4.61	1.92	21.5		28.5		800	4.65	34.344	4.81	27.217	86.1	1.304
816A	4.48	34.336	4.87	2.05	27.4		30.1	84.9	1000	3.57	34.409	4.46	27.381	70.6	1.477
893A	4.09	34.357	4.65	1.99	33.6		31.5	79.4	1200	3.40	34.551	4.38	27.511	58.3	1.623
995A	3.59	34.406	4.46	2.10	42.6		32.7	70.9	1500	3.85	34.806	4.73	27.669	43.3	1.810
1098A	3.39	34.460	4.41	2.23	46.8	0.00	32.7	65.0	1750	3.87	34.924	5.29	27.762	34.5	1.944
1253A	3.41	34.597	4.36	2.09	46.1		31.1	54.9	2000	3.62	34.956	5.69	27.812	29.7	2.066
1405A	3.73	34.744	4.58	1.90	37.5		28.0	46.8	2250	3.43	34.952	5.80	27.837	27.3	2.181
1558A	3.89	34.837	4.83	1.72	30.7		25.8	41.3	2500	3.01	34.938	5.77	27.857	25.5	2.291
1711A	3.90	34.914	5.20	1.55	24.8		23.0	35.6	2750	2.74	34.925	5.82	27.871	24.2	2.397
1915A	3.71	34.952	5.60	1.37	22.0	0.01	21.0	30.9							
2120A	3.48	34.956	5.77	1.32	22.8		20.3	28.5							
2326A	3.24	34.950	5.82	1.31	25.6		20.2	26.7							
2534A	2.965	34.936	5.76	1.35	29.9		20.6	25.3							
2637A	2.842		5.80	1.37	32.0		20.7								
2690A	2.794	34.925	5.81	1.35	33.2		20.7	24.7							
2742A	2.75	34.925	5.82	1.36	34.1	0.00	20.9	24.3							

3 STD						CATO EXPEDITION VI						4 STD					
LATITUDE		LONGITUDE		MO/DAY/YR		START TIME		LATITUDE		LONGITUDE		MO/DAY/YR		START TIME			
24 20.9S		41 18.2W		11/08/72		1640 GMT		24 41.5S		40 49.3W		11/09/72		0333 GMT			
Z	T	S	SIGMA T	DT	DD	Z	T	S	SIGMA T	DT	DD	Z	T	S	SIGMA T	DT	DD
0	23.09	36.79	25.283	269.7	0.000	0	23.08	36.74	25.248	273.0	0.000	0	23.08	36.74	25.248	273.0	0.000
10	23.08	36.78	25.278	270.1	0.027	10	23.09	36.75	25.252	272.6	0.027	10	23.09	36.75	25.252	272.6	0.027
20	23.10	36.79	25.280	269.9	0.054	20	23.10	36.75	25.249	272.8	0.055	20	23.10	36.75	25.249	272.8	0.055
30	23.10	36.79	25.280	269.9	0.081	30	23.10	36.77	25.265	271.4	0.082	30	23.10	36.77	25.265	271.4	0.082
40	23.08	36.80	25.293	268.7	0.108	40	22.94	36.83	25.356	262.6	0.109	40	22.94	36.83	25.356	262.6	0.109
50	22.54	36.87	25.5020	248.8	0.1340	50	22.42	36.80	25.483	250.6	0.1350	50	22.42	36.80	25.483	250.6	0.1350
60	22.33	36.870	25.562	243.1	0.159	60	22.34	36.81	25.514	247.70	0.160	60	22.34	36.81	25.514	247.70	0.160
70	22.14	36.83	25.586	240.9	0.184	70	22.16	36.77	25.534	245.7	0.185	70	22.16	36.77	25.534	245.7	0.185
80	21.94	36.76	25.604	239.1	0.208	80	22.12	36.79	25.561	243.2	0.209	80	22.12	36.79	25.561	243.2	0.209
90	21.69	36.75	25.652	234.6	0.232	90	22.10	36.80	25.574	241.9	0.234	90	22.10	36.80	25.574	241.9	0.234
100	21.37	36.65	25.665	233.3	0.256	100	21.50	36.65	25.629	236.8	0.258	100	21.50	36.65	25.629	236.8	0.258
125	21.12	36.63	25.719	228.2	0.314	125	20.90	36.56	25.726	227.6	0.317	125	20.90	36.56	25.726	227.6	0.317
150	20.23	36.33	25.732	227.0	0.373	150	19.00	36.12	25.894	211.6	0.374	150	19.00	36.12	25.894	211.6	0.374
200	17.08	35.84	26.157	186.7	0.479	200	17.12	35.80	26.116	190.5	0.477	200	17.12	35.80	26.116	190.5	0.477
250	15.62	35.62	26.328	170.4	0.572	250	15.84	35.65	26.301	172.900	0.572	250	15.84	35.65	26.301	172.900	0.572
300	14.57	35.47	26.446	159.2	0.659	300	14.75	35.50	26.430	160.8	0.659	300	14.75	35.50	26.430	160.8	0.659
350	13.62	35.37	26.570	147.4	0.740	350	14.25	35.46	26.507	153.4	0.743	350	14.25	35.46	26.507	153.4	0.743
400	12.16	35.14	26.685	136.5	0.816	400	13.13	35.30	26.617	143.0	0.822	400	13.13	35.30	26.617	143.0	0.822
450	11.17	35.01	26.771	128.4	0.887	450	11.95	35.08	26.679	137.1	0.898	450	11.95	35.08	26.679	137.1	0.898
500	9.85	34.85	26.880	118.1	0.954	500	10.55	34.90	26.797	125.9	0.969	500	10.55	34.90	26.797	125.9	0.969
550	8.51	34.68	26.965	110.0	1.017	550	9.51	34.78	26.883	117.8	1.036	550	9.51	34.78	26.883	117.8	1.036
600	7.53	34.58	27.034	103.5	1.075	600	8.11	34.63	26.988	107.9	1.098	600	8.11	34.63	26.988	107.9	1.098
650A	6.77	34.51	27.086	98.6	1.131	650	7.09	34.52	27.050	102.0	1.155	650	7.09	34.52	27.050	102.0	1.155
700A	6.05	34.42	27.1100	96.3	1.184	700	6.19	34.45	27.116	95.7	1.210	700	6.19	34.45	27.116	95.7	1.210
750A	5.34	34.37	27.158	91.7	1.236	750A	5.37	34.38	27.16300	91.3	1.26100	750A	5.37	34.38	27.16300	91.3	1.26100
800A	4.78	34.36	27.215	86.3	1.285	800A	4.75	34.35	27.211	86.7	1.31000	800A	4.75	34.35	27.211	86.7	1.31000
850A	4.44	34.35	27.241	83.9	1.331	850A	4.25	34.34	27.258	82.3	1.356	850A	4.25	34.34	27.258	82.3	1.356
900A	4.14	34.34	27.269	81.2	1.377	900A	4.04	34.37	27.304	78.0	1.401	900A	4.04	34.37	27.304	78.0	1.401
950A	3.85	34.35	27.307	77.6	1.421	950A	3.80	34.38	27.336	74.9	1.443	950A	3.80	34.38	27.336	74.9	1.443
1200A	3.31	34.42	27.416	67.3	1.623	1000A	3.62	34.41	27.378	70.9	1.483	1000A	3.62	34.41	27.378	70.9	1.483
1300A	3.24	34.53	27.510	58.4	1.695	1100A	3.39	34.46	27.440	65.0	1.560	1100A	3.39	34.46	27.440	65.0	1.560
1400A	3.42	34.67	27.604	49.4	1.759	1200A	3.41	34.57	27.526	56.9	1.629	1200A	3.41	34.57	27.526	56.9	1.629
1500A	3.53	34.71	27.625	47.5	1.819	1300A	3.48	34.64	27.574	52.3	1.694	1300A	3.48	34.64	27.574	52.3	1.694
1600A	3.74	34.79	27.668	43.4	1.878	1400A	3.71	34.74	27.631	46.9	1.755	1400A	3.71	34.74	27.631	46.9	1.755
1700A	3.87	34.86	27.710	39.4	1.934	1500A	3.86	34.80	27.663	43.8	1.813	1500A	3.86	34.80	27.663	43.8	1.813
1800A	3.88	34.90	27.741	36.5	1.986	1600A	3.89	34.86	27.708	39.6	1.869	1600A	3.89	34.86	27.708	39.6	1.869
1900A	3.83	34.92	27.762	34.5	2.040	1700A	3.91	34.91	27.746	36.0	1.922	1700A	3.91	34.91	27.746	36.0	1.922
2000A	3.66	34.94	27.795	31.4	2.090	1800A	3.81	34.94	27.780	32.8	1.9720	1800A	3.81	34.94	27.780	32.8	1.9720
2100A	3.23	34.95	27.845	26.60	2.136	1900A	3.72	34.95	27.797	31.2	2.021	1900A	3.72	34.95	27.797	31.2	2.021
2200A	2.96	34.94	27.863	25.0	2.178	2000A	3.59	34.96	27.818	29.20	2.068	2000A	3.59	34.96	27.818	29.20	2.068
2287A	2.85	34.93	27.865	24.8	2.213	2100A	3.47	34.96	27.830	28.1	2.114	2100A	3.47	34.96	27.830	28.1	2.114
						2200A	3.36	34.95	27.833	27.8	2.159	2200A	3.36	34.95	27.833	27.8	2.159
						2300A	3.26	34.94	27.834	27.6	2.204	2300A	3.26	34.94	27.834	27.6	2.204
						2400A	3.16	34.95	27.852	26.0	2.249	2400A	3.16	34.95	27.852	26.0	2.249
						2500A	3.01	34.94	27.858	25.4	2.292	2500A	3.01	34.94	27.858	25.4	2.292
						2600A	2.89	34.93	27.861	25.1	2.335	2600A	2.89	34.93	27.861	25.1	2.335
						2700A	2.79	34.92	27.862	25.0	2.378	2700A	2.79	34.92	27.862	25.0	2.378
						2774A	2.63	34.90	27.860	25.2	2.4090	2774A	2.63	34.90	27.860	25.2	2.4090

RV MELVILLE

CATO EXPEDITION VI

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LATITUDE		LONGITUDE		MO/DAY/YR		MESSENGER		TIME		BOTTOM		WIND		SPEED		WEATHER		DOMINANT WAVES	
25 47.35		39 23.7W		11/10/72		1517 2030		GMT		3911M		110		22KT		1		150 10	
Z	T	S	U2	P04	SI03	NO2	NO3	DT	Z	T	S	U2	STGT	DT	DD				
0	23.05	36.888	4.96	0.00	1.2	0.00	0.1	261.5	0	23.05	36.888	4.96	25.368	261.5	0.000				
10	23.06	36.886	5.01	0.00	1.0		0.1	261.9	10	23.06	36.886	5.01	25.364	261.9	0.026				
26	23.09	36.888	5.04	0.00	1.0	0.00	0.0	262.6	20	23.08	36.885	5.03	25.360	262.3	0.052				
42	22.43	36.797	5.06	0.02	1.2		0.0	251.1	30	22.94	36.863	5.05	25.383	260.1	0.079				
78	22.15	36.859	4.99	0.05	1.0	0.00	0.1	239.0	50	22.57	36.823	5.05	25.517	247.3	0.130				
115	21.35	36.664	4.98	0.06	1.0	0.11	0.1	2231.8	75	22.17	36.858	5.00	25.599	239.6	0.191				
146	20.83	36.549	4.94	0.10	1.2	0.12	0.3	226.5	100	21.69	36.752	4.98	25.654	234.4	0.251				
177	18.73	36.121	4.77	0.29	1.5	0.02	1.6	205.0	125	21.26	36.641	4.98	25.690	231.0	0.311				
234	16.34	35.721	4.93	0.38	1.8		3.2	178.7	150	20.59	36.495	4.92	25.762	224.1	0.369				
553	14.27	35.437	4.92	0.56	2.8		7.1	155.5	200	17.60	35.918	4.802	26.092	192.7	0.476				
568	9.46	34.777	4.63	1.35	9.2		19.2	117.3	250	15.96	35.666	4.93	26.287	174.3	0.572				
720	6.20	34.430	4.95	1.74	16.8		26.2	97.4	300	14.97	35.531	4.92	26.405	163.1	0.660				
847	4.61	34.327	5.05	2.00	25.0	0.00	29.6	87.0	400	13.27	35.289	4.83	26.580	146.5	0.825				
975	3.79	34.354	4.72	2.14	37.0		32.2	76.7	500	11.04	34.979	4.69	26.770	128.5	0.974				
1102	3.32	34.434	4.46	2.24	48.6		33.4	66.3	600	8.71	34.686	4.69	26.939	112.5	1.106				
1230	3.03	34.503	4.39	2.20	54.4		32.9	58.6	700	6.58	34.465	4.90	27.075	99.6	1.223				
1396A	2.95	34.618	4.43	2.15	57.9	0.00	31.6	49.2	80022	5.09	34.350	5.01	27.171	90.5	1.327				
1436	3.04	34.672	4.50	2.00	54.0		30.2	45.9	1000	3.68	34.369	4.66	27.339	74.6	1.510				
1572A	3.12	34.763	4.78	1.99	49.1		28.022	39.7	1200	3.08	34.487	4.41	27.490	60.2	1.661				
1646	3.230	34.805	5.00221.76	43.2	0.00	26.8	37.6	1500	3.09	34.726	4.62	27.680	42.3	1.844					
1649A	3.19	34.792 V	4.94V	1.83	46.022		27.0	1750	3.16	34.834	5.31	27.760	34.6	1.970					
1800A	3.14	34.851	5.43	1.80	41.2		24.8	33.3	2000	3.33	34.928	5.62	27.819	29.1	2.086				
1951A	3.32	34.918	5.55	1.33	29.9		22.2	29.8	2250	3.21	34.944	5.81	27.843	26.8	2.197				
2104A	3.35	34.945	5.75	1.29	25.2	0.00	20.7	27.9	2500	3.05	34.938	5.66	27.853	25.9	2.306				
2257A	3.20	34.947	5.81	1.30	26.8		20.6	26.7	2750	2.90	34.931	5.81	27.861	25.2	2.416				
2411A	3.10	34.938	5.80	1.36	29.2		20.7	26.4	3000	2.76	34.924	5.81	27.868	24.5	2.525				
2419B	3.10	34.939	5.88	1.38	28.8		20.7	26.3	3250	2.59	34.911	5.86	27.874	23.9	2.633				
2618A	2.97	34.936	5.83	1.32	30.3		20.7	25.4	3500	2.13	34.865	5.67	27.875	23.7	2.738				
2623B	2.97	34.936	5.50U	1.33	30.4	0.00	20.7	25.4	3750	1.18	34.766	5.30	27.867	24.5	2.831				
2824B	2.85	34.928	5.80	1.39	33.1		21.0	24.9	4000	0.66	34.716	5.16	27.860	25.2	2.911				
3027B	2.75	34.924	5.81	1.35	34.7		20.9	24.4											
3231B	2.60	34.913	5.87	1.38	37.6		21.2	23.9											
3438B	2.34	34.889	5.78	1.45	47.3		22.2	23.7											
3644B	1.58	34.808	5.39	1.75	79.2	0.00	26.4	24.1											
3853B	0.87	34.735	5.24	2.05	109.7		30.4	25.0											
3933B	0.756	34.720	5.16	2.10	114.2		31.3	25.5											
3959B	0.710	34.717	5.16	2.11	118.8	0.00	31.2	25.4											

RV MELVILLE

CATO EXPEDITION VI

A

LATITUDE		LONGITUDE		MO/DAY/YR		MESSENGER		TIME		BOTTOM		WIND		SPEED		WEATHER		DOMINANT WAVES	
26 11.0S		38 45.8W		11/11/72		0353 0650		GMT		4058M		050		18KT		1		080 5 6	
Z	T	S	U2	P04	SI03	NO2	NO3	DT	Z	T	S	U2	STGT	DT	DD				
0	22.78	36.835	4.98	0.00	1.0	0.00	0.0	257.9	0	22.78	36.835	4.98	25.406	257.9	0.000				
10	22.79	36.833	4.97	0.00	0.7	0.00	0.0	258.3	10	22.79	36.833	4.97	25.402	258.3	0.026				
26	22.77	36.830	5.01	0.00	1.0	0.00	0.0	258.0	20	22.78	36.829	4.99	25.404	258.1	0.052				
42	22.50	36.787	5.02	0.00	1.0	0.00	0.0	253.7	30	22.73	36.820	5.01	25.413	257.3	0.078				
78	21.04	36.609	5.13	0.02	1.0	0.00	0.0	227.7	50	22.20	36.748	5.05	25.508	248.2	0.128				
115	20.21	36.449	5.08	0.06	0.8	0.08	0.0	217.9	75	21.17	36.623	5.12	25.700	229.9	0.189				
146	18.43	36.087	4.95	0.20	1.3	0.03	1.2	200.2	100	20.59	36.530	5.10	25.789	221.5	0.246				
177	16.96	35.827	4.73	0.41	2.0	0.01	3.6	184.9	125	19.67	36.334	5.05	25.884	212.5	0.301				
235	15.38	35.581	4.84	0.47	2.1	0.01	5.2	168.1	150	18.22	36.046	4.92	26.0362	198.1	0.354				
353	13.66	35.358	4.90	0.69	3.2	0.01	8.8	149.1	200	16.21	35.705	4.77	26.258	177.0	0.451				
568	8.75	34.688	4.72	1.45	10.4	0.00	20.5	113.0	250	15.12	35.547	4.85	26.384	165.1	0.540				
722	5.49	34.365	5.11	1.85	18.2	0.00	26.9	93.8	300	14.55	35.447	4.87	26.476	156.4	0.624				
851	4.30	34.328	4.96	2.09	28.5	0.00	30.4	83.7	400	12.67	35.209	4.84	26.640	140.8	0.782				
978	3.70	34.385	4.54	2.20	40.3	0.00	32.6	73.5	500	10.40	34.893	4.75	26.818	123.9	0.926				
1066A	3.31	34.423	4.47	2.25	48.1	0.00	33.1	67.1	600	7.98	34.599	4.81	26.982	108.4	1.053				
1107	3.22	34.439	4.48	2.24	50.0	0.00	33.3	65.1	700	5.89	34.397	5.06	27.112	96.1	1.165				
1219A	3.30	34.560	4.39	2.20	49.8		31.7	56.6	800	4.65	34.328	5.02	27.204	87.4	1.265				
1236	3.33	34.573	4.38	2.152	48.4	0.00	31.6	55.9	1000	3.59	34.397	4.52	27.370	71.8	1.44122				
1372A	3.26	34.652	4.44	2.05	50.5		30.5	49.4	1200	3.29	34.541	4.41	27.514	58.0	1.587				
1576A	3.61	34.838	4.93	1.78	35.1		25.4	38.6	1500	3.46	34.770	4.72	27.679	42.4	1.770				
1780A	3.69	34.927	5.38	1.40	26.0		22.5	32.6	1750	3.68	34.916	5.32	27.775	33.3	1.899				
1983A	3.52	34.948	5.71	1.32	24.1	0.00	21.0	29.4	2000	3.51	34.949	5.72	27.817	29.3	2.017				
2188A	3.37	34.958	5.80	1.37	24.5		20.5	27.3	2250	3.18	34.945	5.80	27.846	26.6	2.129				
2188A	3.20	34.946	5.79	1.33	26.5		20.5	26.6	2500	3.10	34.939	5.84	27.849	26.3	2.239				
2596A	3.07	34.937	5.86	1.38	29.0		20.5	26.2	2750	2.97	34.936	5.84	27.858	25.4	2.350				
2800A	2.94	34.935	5.83	1.35	31.2		20.8	25.2	3000	2.82	34.926	5.82	27.865	24.822	2.461				
3005A	2.82	34.927	5.82	1.42	33.7	0.00	21.0	24.7	3250	2.60	34.911	5.82	27.872	24.1	2.571				
3211A	2.63	34.913	5.82	1.38	36.9		21.0	24.2	3500	2.08	34.862	5.70	27.877	23.7	2.675				
3417A	2.37	34.893	5.80	1.46	45.8		22.0	23.6	3750	1.21	34.770	5.26	27.868	24.5	2.768				
3626A	1.595	34.814	5.49	1.75	78.4		26.3	23.7	4000	0.66	34.715	5.14	27.859	25.3	2.848				
3835A	0.99	34.745	5.16	1.97	103.1		29.5	25.0											
3913A	0.817	34.732	5.18	2.07	112.0	0.00	30.4	24.9											
3992A	0.685	34.717	5.15	2.13	117.2		31.1	25.3											
4045A	0.510	34.701	5.10	2.19	124.7	0.00	32.2	25.5											

7 STD

CATC EXPEDITION VI

8 STD

LATITUDE 25 47.3S		LONGITUDE 39 23.7W		MO/DAY/YR 11/10/72		START TIME 0936 GMT		LATITUDE 26 11.0S		LONGITUDE 38 45.8W		MO/DAY/YR 11/11/72		START TIME 0217 GMT			
Z	T	S	SIGMA T	DT	DD	Z	T	S	SIGMA T	DT	DD	Z	T	S	SIGMA T	DT	DD
0	23.08	36.89	25.361	262.2	0.000	0	22.80222	36.82	25.389	259.5	0.000	0	22.80222	36.82	25.389	259.5	0.000
10	23.08	36.89	25.361	262.2	0.026	10	22.762	36.842	252410	257.5	0.026	10	22.762	36.842	252410	257.5	0.026
20	23.09	36.84	25.351	263.2	0.053	20	22.79	36.85	25.415	257.1	0.052	20	22.79	36.85	25.415	257.1	0.052
30	23.08	36.88	25.354	262.9	0.079	30	22.79	36.85	25.415	257.1	0.077	30	22.79	36.85	25.415	257.1	0.077
40	22.62	36.76	25.396	258.9	0.105	40	22.71	36.82	25.415	257.1	0.103	40	22.71	36.82	25.415	257.1	0.103
50	22.22	36.78	25.525	246.6	0.131	50	22.44	36.77	25.455	253.3	0.129	50	22.44	36.77	25.455	253.3	0.129
60	22.27	36.86	25.572	242.2	0.155	60	22.04	36.74	25.546	244.7	0.154	60	22.04	36.74	25.546	244.7	0.154
70	22.22	36.86	25.586	240.8	0.180	70	21.50	36.67	25.644	235.3	0.178	70	21.50	36.67	25.644	235.3	0.178
80	22.15	36.85	25.598	239.7	0.204	80	21.03	36.60	25.720	228.0	0.202	80	21.03	36.60	25.720	228.0	0.202
90	22.04	36.82	25.606	238.9	0.228	90	20.92	36.56	25.720	228.1	0.225	90	20.92	36.56	25.720	228.1	0.225
100	21.82	36.77	25.630	23626	0.252	100	20.78	36.53	25.735	226.6	0.248	100	20.78	36.53	25.735	226.6	0.248
125	21.40	36.72	25.710	229.1	0.312	125	19.72	36.30	25.844	216.3	0.304	125	19.72	36.30	25.844	216.3	0.304
150	20.70	36.50	25.734	226.7	0.370	150	18.45	36.08	26.003	201.2	0.358	150	18.45	36.08	26.003	201.2	0.358
200	17.78	35.95	26.071	194.6	0.479	200	16.45	35.68	26.183	184.1	0.457	200	16.45	35.68	26.183	184.1	0.457
250	16.00	35.64	26.257	177.2	0.575	250	15.27	35.57	26.368	166.6	0.548	250	15.27	35.57	26.368	166.6	0.548
300	14.91	35.53	26.418	161.9	0.664	300	14.32	35.43	26.469	157.1	0.633	300	14.32	35.43	26.469	157.1	0.633
350	14.25	35.43	26.484	155.6	0.748	350	13.79	35.37	26.535	150.8	0.715	350	13.79	35.37	26.535	150.8	0.715
400	13.22	35.25	26.560	148.4	0.830	400	12.59	35.16	26.617	143.0	0.794	400	12.59	35.16	26.617	143.0	0.794
450	12.30	35.12	26.643	140.6	0.908	450	11.61	35.04	26.713	133.9	0.868	450	11.61	35.04	26.713	133.9	0.868
500	11.20	34.99	26.750	130.4	0.981	500	10.59	34.90	26.790	126.6	0.939	500	10.59	34.90	26.790	126.6	0.939
550	9.79	34.81	26.859	120.1	1.050	550	9.24	34.71	26.872	118.8	1.006	550	9.24	34.71	26.872	118.8	1.006
600	8.58	34.65	26.931	113.2	1.114	600	7.93	34.58	26.975	109.0	1.068	600	7.93	34.58	26.975	109.0	1.068
650	7.39	34.50	26.991	107.5	1.174	650	6.72	34.45	27.045	102.4	1.126	650	6.72	34.45	27.045	102.4	1.126
700	6.56	34.45	27.067	100.4	1.232	700	5.59	34.37	27.128	94.6	1.180	700	5.59	34.37	27.128	94.6	1.180
750	5.80	34.38	27.110	96.3	1.286	750	5.07	34.33	27.158	91.7	1.231	750	5.07	34.33	27.158	91.7	1.231
800	5.13	34.37	27.183	89.4	1.337	800	4.62	34.30	27.186	89.1	1.280	800	4.62	34.30	27.186	89.1	1.280
850	4.63	34.33	27.209	87.0	1.386	850	4.30	34.33	27.244	83.6	1.328	850	4.30	34.33	27.244	83.6	1.328
900	4.22	34.32	27.245	83.5	1.432	900	4.08	34.35	27.284	79.8	1.373	900	4.08	34.35	27.284	79.8	1.373
950	3.87	34.33	27.289	79.5	1.477	950	3.89	34.37	27.319	76.5	1.416	950	3.89	34.37	27.319	76.5	1.416
1000	3.67	34.36	27.333	75.1	1.520	1000	3.63	34.39	27.361	72.5	1.457	1000	3.63	34.39	27.361	72.5	1.457
1100	3.28	34.43	27.427	66.3	1.599	1100	3.28	34.45	27.443	64.8	1.534	1100	3.28	34.45	27.443	64.8	1.534
1200	3.08	34.48	27.485	60.7	1.670	1200	3.15	34.52	27.510	58.3	1.604	1200	3.15	34.52	27.510	58.3	1.604
1300	2.91	34.56	27.564	53.2	1.736	1300A	3.31	34.62	27.575	52.2	1.668	1300A	3.31	34.62	27.575	52.2	1.668
1400	2.94	34.63	27.617	46.2	1.796	1400A	3.48	34.72	27.638	46.2	1.728	1400A	3.48	34.72	27.638	46.2	1.728
1500	3.08	34.72	27.676	42.6	1.851	1500A	3.57	34.79	27.685	41.8	1.784	1500A	3.57	34.79	27.685	41.8	1.784
1600	3.13	34.77	27.711	39.3	1.903	1600A	3.63	34.85	27.727	37.8	1.837	1600A	3.63	34.85	27.727	37.8	1.837
1700A	3.10	34.80	27.738	36.8	1.953	1700A	3.71	34.90	27.758	34.9	1.888	1700A	3.71	34.90	27.758	34.9	1.888
1800A	3.24	34.88	27.789	32.0	2.001	1800A	3.69	34.93	27.784	32.4	1.937	1800A	3.69	34.93	27.784	32.4	1.937
1900A	3.11	34.86	27.785	32.3	2.047	1900A	3.59	34.95	27.810	29.9	1.984	1900A	3.59	34.95	27.810	29.9	1.984
2000A	3.41	34.94	27.820	29.0	2.093	2000A	3.51	34.95	27.818	29.2	2.030	2000A	3.51	34.95	27.818	29.2	2.030
2100A	3.34	34.94	27.827	28.4	2.138	2100A	3.45	34.96	27.832	27.9	2.075	2100A	3.45	34.96	27.832	27.9	2.075
2200A	3.27	34.94	27.833	27.7	2.183	2200A	3.37	34.96	27.840	27.1	2.120	2200A	3.37	34.96	27.840	27.1	2.120
2300A	3.17	34.94	27.843	26.8	2.227	2300A	3.30	34.95	27.838	27.3222	2.165	2300A	3.30	34.95	27.838	27.3222	2.165
2400A	3.12	34.93	27.840	27.1	2.271	2400A	3.21	34.95	27.847	26.4	2.210	2400A	3.21	34.95	27.847	26.4	2.210
2500A	3.04	34.93	27.847	26.4	2.316	2500A	3.13	34.94	27.847	26.5	2.255	2500A	3.13	34.94	27.847	26.5	2.255
2600A	2.99	34.94	27.860	25.2	2.360	2600A	3.06	34.94	27.853	25.8	2.299	2600A	3.06	34.94	27.853	25.8	2.299
2700A	2.91	34.93	27.859	25.3	2.403	2700A	2.98	34.93	27.853	25.9	2.344	2700A	2.98	34.93	27.853	25.9	2.344
2800A	2.87	34.93	27.863	25.0	2.447	2800A	2.94	34.93	27.856	25.5	2.389	2800A	2.94	34.93	27.856	25.5	2.389
2900A	2.81	34.93	27.868	24.4	2.491	2900A	2.87	34.93	27.863	25.0	2.433	2900A	2.87	34.93	27.863	25.0	2.433
3000A	2.74	34.93	27.875	23.8	2.534	3000A	2.82	34.92	27.859	25.3	2.478	3000A	2.82	34.92	27.859	25.3	2.478
3100A	2.68	34.93	27.880	23.3	2.577	3100A	2.73	34.92	27.868	24.5	2.522	3100A	2.73	34.92	27.868	24.5	2.522
3200A	2.62	34.92	27.877	23.6	2.619	3200A	2.63	34.91	27.868	24.4	2.566	3200A	2.63	34.91	27.868	24.4	2.566
3300A	2.253	34.91	27.877	23.6	2.662	3300A	2.54	34.90	27.868	24.4	2.610	3300A	2.54	34.90	27.868	24.4	2.610
3400A	2.41	34.90	27.879	23.4	2.705	3400A	2.38	34.89	27.874	23.9	2.653	3400A	2.38	34.89	27.874	23.9	2.653
3500A	2.28	34.90	27.890	22.3	2.746	3500A	2.19	34.87	27.874	23.9	2.695	3500A	2.19	34.87	27.874	23.9	2.695
3600A	1.94	34.85	27.878	23.5	2.786	3600A	1.72	34.83	27.879	23.4	2.734	3600A	1.72	34.83	27.879	23.4	2.734
3700A	1.46	34.80	27.874	23.9	2.823	3700A	1.41	34.80	27.878	23.5	2.770	3700A	1.41	34.80	27.878	23.5	2.770
3800A	0.98	34.75	27.867	24.5	2.857	3800A	1.10	34.77	27.875	23.8	2.804	3800A	1.10	34.77	27.875	23.8	2.804
3900A	0.77	34.72	27.857	25.5	2.889	3900A	0.83	34.73	27.86122	25.1	2.83622	3900A	0.83	34.73	27.86122	25.1	2.83622
3980A	0.67	34.71	27.855	25.7	2.916	4000A	0.64	34.70	27.849	26.3	2.867	4000A	0.64	34.70	27.849	26.3	2.867
						4079A	0.45	34.68	27.844	26.8	2.891	4079A	0.45	34.68	27.844	26.8	2.891

RV MELVILLE										CATO EXPEDITION VI						
LATITUDE 26 45.7S		LONGITUDE 37 59.0W		MO/DAY/YR 11/11/72		MESSENGER 1540 1847		TIME GMT	BOTTOM 4295M	WIND 08U	SPEED 14KT	WEATHER 2	DOMINANT WAVES 049 82			
Z	T	S	02	P04	SI03	N02	N03	DT	Z	T	S	02	SI0T	DT	DD	
0	21.77	36.518	5.16	0.00	0.8	0.01	0.0	253.5	0	21.77	36.518	5.16	25.453	253.5	0.000	
10	21.77	36.514	5.11	0.00	0.8	0.00	0.0	253.7	10	21.77	36.514	5.11	25.450	253.7	0.025	
26	21.76	36.508	5.15	0.00	1.0	0.00	0.0	253.9	20	21.76	36.508	5.14	25.449	253.9	0.051	
42	21.38	36.533	5.22	0.00	1.0	0.00	0.0	242.1	30	21.68	36.512	5.17	25.475	251.4	0.076	
80	20.53	36.484	5.22	0.02	1.0	0.00	0.0	223.5	50	21.29	36.551	5.22	25.614	238.1	0.125	
116	17.76	35.956	4.89	0.22	1.5	0.05	1.9	193.9	75	20.70	36.509	5.22	25.743	225.92	0.184	
148	16.85	35.816	4.89	0.28	1.6	0.02	3.0	183.2	100	18.99	36.185	5.03	25.946	206.6	0.239	
179	15.91	35.663	4.97	0.46	2.1	0.01	4.3	173.5	125	17.43	35.903	4.89	26.120	190.1	0.290	
236	14.97	35.542	4.99	0.47	2.3	0.01	5.5	162.3	150	16.79	35.804	4.89	26.200	182.5	0.337	
354	13.68	35.386	4.97	0.64	3.0	0.01	8.4	147.4	200	15.49	35.604	4.98	26.346	168.7	0.428	
569	8.90	34.699	4.97	1.41	9.7	0.00	20.3	114.4	250	14.82	35.525	4.99	26.435	160.3	0.514	
721	5.56	34.362	5.22	1.81	17.2	0.00	26.6	94.8	300	14.27	35.463	4.98	26.504	153.7	0.596	
849	4.22	34.300	5.30	2.02	26.4	0.00	29.7	85.0	400	12.79	35.246	4.97	26.645	140.4	0.753	
891P	3.86	34.300	5.20	1.98	29.9	0.00	30.4	81.5	500	10.60	34.923	4.97	26.807	125.1	0.897	
997P	3.44	34.360	4.78	2.16	41.6	0.00	31.8	73.0	600	8.142	34.609	5.02	26.966	109.9	1.025	
1106P	3.17	34.427	4.57	2.22	48.1	0.00	32.8	65.5	700	5.96	34.395	5.18	27.101	97.2	1.139	
1194P	3.05	34.488	4.40	2.21	53.3	0.00	32.8	59.9	800	4.63	34.31122	5.27	27.19222	88.522	1.240	
1347A	3.03	34.591	4.37	2.16	55.1	0.00	31.8	51.9	1000	3.43	34.362	4.77	27.357	72.822	1.417	
1499A	2.94	34.685	4.55	2.03	55.5		29.722	44.0	1200	3.05	34.493	4.40	27.498	59.5	1.566	
1653A	2.86	34.741	4.70	1.9222	55.2		28.5	39.1	1500	2.942	34.686	4.55	27.662	44.0	1.749	
1856A	3.18	34.87722	5.31	1.62	36.8		24.0	31.7	1750	2.99	34.805	4.97	27.75322	35.4	1.876	
2059A	3.38	34.954	5.79	1.32	24.1		20.5	27.7	2000	3.45	34.940	5.69	27.825	28.5	1.991	
2262A	3.11	34.935	5.71	1.35	29.0	0.00	21.0	26.7	2250	3.13	34.938	5.71	27.845	26.7	2.101	
2466A	3.01	34.925	5.73	1.35	30.7		21.0	26.5	2500	2.99	34.925	5.75	27.848	26.3	2.210	
2670A	2.91	34.930	5.842	1.35	31.5		20.7	25.3	2750	2.86	34.928	5.85	27.862	24.9	2.319	
2874A	2.79	34.926	5.87	1.39	33.6		21.0	24.6	3000	2.72	34.921	5.85	27.870	24.3	2.427	
3079A	2.67	34.918	5.83	1.38	35.8		21.1	24.2	3250	2.52	34.911	5.82	27.880	23.3	2.534	
3286A	2.48	34.91	5.82	1.49	42.1	0.00	21.1	23.2	3500	2.09	34.866	5.67	27.879	23.4	2.637	
3492A	2.11	34.869	5.68	1.56	55.6		23.5	23.4	3750	1.44	34.797	5.44	27.874	23.9	2.731	
3700A	1.56	34.808	5.50	1.79	79.7		26.5	24.0	4000	0.78	34.735	5.13	27.86722	24.6	2.814	
3909A	1.05	34.765	5.25	1.98	99.2		29.62	23.8	4250	0.34	34.690	5.13	27.858	25.42	2.886	
4119A	0.50	34.701	5.07	2.17	123.9		32.5	25.4								
4198A	0.422	34.695	5.14	2.21	124.4	0.00	31.9	25.5								
4277A	0.302	34.687	5.12	2.25	128.6		32.622	25.4								
4330A	0.290	34.683	5.13	2.26	129.2	0.00	32.9	25.7								

RV MELVILLE										CATO EXPEDITION VI						
LATITUDE 27 41.3S		LONGITUDE 36 42.2W		MO/DAY/YR 11/12/72		MESSENGER 0658 1012		TIME GMT	BOTTOM 4677M	WIND 090	SPEED 17KT	WEATHER 2	DOMINANT WAVES 090 6 8			
Z	T	S	02	P04	SI03	N02	N03	DT	Z	T	S	02	SI0T	DT	DD	
0	21.43	36.536	5.14	0.02	1.0	0.00	0.0	243.2	0	21.43	36.536	5.14	25.562	243.2	0.000	
10	21.44	36.531	5.17	0.00	0.8	0.00	0.0	243.8	10	21.44	36.531	5.17	25.555	243.8	0.024	
26	21.44	36.531	5.17	0.00	0.8	0.00	0.0	243.8	20	21.44	36.529	5.17	25.555	243.8	0.049	
41	21.43	36.535	5.18	0.01	1.0	0.00	0.0	243.2	30	21.44	36.530	5.17	25.557	243.6	0.073	
78	20.47	36.419	5.25	0.04	0.8	0.00	0.0	226.7	50	21.32	36.530	5.19	25.590	240.5	0.122	
114	18.29	35.977	5.32	0.14	1.0	0.01	0.1	204.9	75	20.60	36.436	5.24	25.715	228.5	0.18122	
155	17.28	35.848	5.23	0.25	1.4	0.10	0.7	190.7	100	19.1422	36.144	5.30	25.877	213.2	0.237	
186	16.32	35.721	4.93	0.41	1.7		3.2	178.3	125	17.96	35.926	5.30	26.009	200.6	0.290	
258	14.93	35.543	5.00	0.48	2.0	0.01	5.4	161.4	150	17.37	35.854	5.24	26.099	192.2	0.340	
361	13.70	35.395	4.99	0.63	3.0	0.01	8.1	147.2	200	15.99	35.677	4.94	26.289	174.1	0.435	
566	9.27	34.743	4.75	1.36	8.9	0.00	19.1	116.6	250	15.042	35.557	4.99	26.409	162.722	0.522	
720	5.88	34.389	5.16	1.77	15.8	0.00	25.8	96.6	300	14.41	35.485	5.00	26.491	154.9	0.606	
873	4.18	34.288	5.32	2.03	24.5	0.00	29.5	85.5	400	12.96	35.278	4.92	26.634	141.4	0.764	
1027	3.44	34.350	4.82	2.20	38.7	0.00	32.2	73.8	500	10.85	34.958	4.79	26.790	126.5	0.909	
1181	3.06	34.444	4.51	2.25	50.0	0.00	33.2	63.3	600	8.45	34.644	4.83	26.946	111.9	1.039	
1336	2.93	34.551	4.39	2.12	55.1	0.00	54.1	54.1	700	6.27	34.423	5.10	27.083	98.9	1.155	
1492	2.84	34.651	4.47	2.08	56.2	0.00	45.8	45.8	800	4.83	34.315	5.242	27.174	90.3	1.259	
1573A	2.82	34.681	4.56	2.06	56.6	0.01	30.4	43.3	1000	3.52	34.333	4.92	27.326	75.822	1.441	
1648	2.789	34.716	4.69	1.97	55.8	0.00	40.4	40.4	1200	3.04	34.457	4.48	27.471	62.1	1.595	
1778A	2.79	34.777	4.87	1.87	51.3		27.4	35.8	1500	2.84	34.656	4.48	27.647	45.5	1.783	
1983A	2.83	34.828	5.19	1.72	47.0		25.4	32.3	1750	2.79	34.767	4.83	27.740	36.7	1.913	
2187A	2.89	34.878	5.48	1.61	38.6		23.2	29.0	2000	2.842	34.832	5.22	27.788	32.0	2.029	
2391A	2.92	34.910	5.65	1.38	33.3		21.5	26.9	2250	2.91	34.88922	5.54	27.82822	28.2	2.141	
2595A	2.87	34.916	5.75	1.40	33.8	0.00	21.22	26.0	2500	2.90	34.913	5.71	27.847	26.3	2.249	
2800A	2.79	34.921	5.81	1.38	33.8		21.0	24.9	2750	2.81	34.919	5.80	27.860	25.2	2.358	
3107A	2.63	34.914	5.82	1.42	36.2		21.1	24.1	3000	2.69	34.916	5.82	27.869	24.2	2.466	
3209A	2.57	34.905	5.85	1.44	38.6		21.3	24.3	3250	2.53	34.902	5.84	27.871	24.2	2.573	
3415A	2.33	34.887	5.80	1.47	45.1		22.4	23.7	3500	2.19	34.873	5.75	27.877	23.6	2.678	
3621A	1.97	34.853	5.66	1.65	59.9	0.00	24.2	23.5	3750	1.70	34.822	5.54	27.8742	23.9	2.777	
3827A	1.55	34.805	4.57	1.78	78.4		26.7	24.1	4000	1.34	34.782	5.39	27.869	24.4	2.869	
4034A	1.31	34.779	5.38	1.93	88.2		27.9	24.5	4250	1.12	34.753	5.31	27.860	25.02	2.958	
4241A	1.143	34.758	5.32	1.97	97.1		29.1	25.0	45002	0.39	34.689	5.07	27.854	25.8	3.036	
4449A	0.57	34.698	5.04	2.17	118.4		32.0	26.1								
4555A	0.23	34.681	5.10	2.25	127.0	0.00	32.9	25.5								
4606A	0.186	34.675	5.17	2.26	130.1		32.9	25.7								
4659A	0.189	34.674	5.16	2.27	128.2	0.00	33.0	25.8								

LATITUDE		LONGITUDE		MO/DAY/YR		START TIME		LATITUDE		LONGITUDE		MO/DAY/YR		START TIME			
26 45.7S		37 59.0W		11/11/72		1359 GMT		27 41.3S		36 42.2W		11/12/72		0520 GMT			
Z	T	S	SIGMA T	DT	DD	Z	T	S	SIGMA T	DT	DD	Z	T	S	SIGMA T	DT	DD
0	21.81	36.52	25.443	254.4	0.000	0	21.43	36.52	25.549	244.3	0.000	0	21.43	36.52	25.549	244.3	0.000
10	21.78	36.51	25.444	254.3	0.025	10	21.44	36.52	25.547	244.6	0.024	10	21.44	36.52	25.547	244.6	0.024
20	21.77	36.52	25.449	253.9	0.051	20	21.43	36.52	25.549	244.3	0.049	20	21.43	36.52	25.549	244.3	0.049
30	21.77	36.51	25.447	254.0	0.076	30	21.44	36.52	25.547	244.6	0.074	30	21.44	36.52	25.547	244.6	0.074
40	21.36	36.54	25.584	241.0	0.101	40	21.44	36.53	25.554	243.9	0.098	40	21.44	36.53	25.554	243.9	0.098
50	20.84	36.52	25.712	228.9	0.125	50	21.45	36.53	25.551	244.1	0.123	50	21.45	36.53	25.551	244.1	0.123
60	20.80	36.51	25.715	228.6	0.148	60	21.41	36.59	25.608	238.7	0.147	60	21.41	36.59	25.608	238.7	0.147
70	20.78	36.54	25.743	225.9	0.171	70	21.36	36.60	25.630	236.7	0.171	70	21.36	36.60	25.630	236.7	0.171
80	20.67	36.50	25.743	225.9	0.194	80	21.13	36.50	25.617	237.9	0.195	80	21.13	36.50	25.617	237.9	0.195
90	19.94	36.32	25.801	220.4	0.217	90	19.80	36.19	25.739	226.3	0.219	90	19.80	36.19	25.739	226.3	0.219
100	18.86	36.06	25.884	212.6	0.239	100	19.72	36.22	25.783	222.1	0.241	100	19.72	36.22	25.783	222.1	0.241
125	17.60	35.87	26.054	196.4	0.291	125	18.01	35.94	26.006	200.9	0.295	125	18.01	35.94	26.006	200.9	0.295
150	16.75	35.78	26.189	183.6	0.339	150	17.45	35.87	26.090	193.0	0.346	150	17.45	35.87	26.090	193.0	0.346
200	15.62	35.64	26.344	168.9	0.430	200	16.18	35.70	26.261	176.7	0.441	200	16.18	35.70	26.261	176.7	0.441
250	14.84	35.54	26.441	159.7	0.516	250	15.09	35.57	26.409	162.8	0.529	250	15.09	35.57	26.409	162.8	0.529
300	14.40	35.50	26.505	153.6	0.598	300	14.44	35.50	26.497	154.4	0.613	300	14.44	35.50	26.497	154.4	0.613
350	13.75	35.39	26.559	148.5	0.672	350	13.76	35.40	26.564	148.0	0.693	350	13.76	35.40	26.564	148.0	0.693
400	12.83	35.24	26.631	141.7	0.756	400	13.20	35.30	26.603	144.4	0.771	400	13.20	35.30	26.603	144.4	0.771
450	11.67	35.08	26.732	132.0	0.830	450	11.92	35.10	26.700	135.1	0.847	450	11.92	35.10	26.700	135.1	0.847
500	10.65	34.92	26.795	126.1	0.900	500	10.74	34.93	26.787	126.9	0.918	500	10.74	34.93	26.787	126.9	0.918
550	9.35	34.69	26.839	122.0	0.966	550	9.58	34.78	26.871	118.9	0.985	550	9.58	34.78	26.871	118.9	0.985
600	8.08	34.59	26.961	110.4	1.031	600	8.28	34.62	26.954	111.1	1.048	600	8.28	34.62	26.954	111.1	1.048
650	6.85	34.48	27.051	101.8	1.090	650	7.21	34.47	26.993	107.3	1.108	650	7.21	34.47	26.993	107.3	1.108
700	5.91	34.38	27.096	97.6	1.144	700	6.28	34.41	27.072	99.8	1.165	700	6.28	34.41	27.072	99.8	1.165
750	5.20	34.31	27.128	94.6	1.197	750	5.49	34.35	27.125	94.9	1.218	750	5.49	34.35	27.125	94.9	1.218
800	4.63	34.30	27.185	89.2	1.247	800	4.90	34.32	27.170	90.6	1.269	800	4.90	34.32	27.170	90.6	1.269
850	4.18	34.29	27.226	85.4	1.295	850	4.27	34.28	27.208	87.0	1.318	850	4.27	34.28	27.208	87.0	1.318
900	3.84	34.31	27.276	80.5	1.340	900	4.06	34.30	27.246	83.4	1.364	900	4.06	34.30	27.246	83.4	1.364
950	3.72	34.33	27.304	77.9	1.384	950	3.87	34.31	27.273	80.8	1.410	950	3.87	34.31	27.273	80.8	1.410
1000	3.45	34.37	27.363	72.3	1.425	1000	3.52	34.33	27.324	76.0	1.453	1000	3.52	34.33	27.324	76.0	1.453
1100	3.17	34.43	27.437	65.3	1.501	1100	3.24	34.39	27.399	68.9	1.533	1100	3.24	34.39	27.399	68.9	1.533
1200	3.04	34.49	27.497	59.6	1.572	1200	3.05	34.46	27.472	62.0	1.607	1200	3.05	34.46	27.472	62.0	1.607
1300	2.92	34.57	27.572	52.5	1.636	1300	2.97	34.52	27.527	56.8	1.674	1300	2.97	34.52	27.527	56.8	1.674
1400A	2.98	34.62	27.606	49.3	1.696	1400	2.88	34.60	27.595	49.9	1.737	1400	2.88	34.60	27.595	49.9	1.737
1500A	3.03	34.69	27.657	44.5	1.753	1500	2.82	34.65	27.644	45.7	1.794	1500	2.82	34.65	27.644	45.7	1.794
1600A	2.87	34.71	27.688	41.6	1.807	1600	2.79	34.70	27.687	41.6	1.848	1600	2.79	34.70	27.687	41.6	1.848
1700A	2.98	34.78	27.733	37.2	1.858	1700A	2.81	34.74	27.717	38.8	1.898	1700A	2.81	34.74	27.717	38.8	1.898
1800A	3.10	34.83	27.762	34.5	1.906	1800A	2.79	34.78	27.751	35.6	1.947	1800A	2.79	34.78	27.751	35.6	1.947
1900A	3.26	34.89	27.795	31.4	1.953	1900A	2.81	34.81	27.773	33.5	1.994	1900A	2.81	34.81	27.773	33.5	1.994
2000A	3.23	34.93	27.829	28.1	1.998	2000A	2.82	34.83	27.788	32.1	2.039	2000A	2.82	34.83	27.788	32.1	2.039
2100A	3.24	34.92	27.820	29.0	2.042	2100A	2.87	34.86	27.807	30.2	2.084	2100A	2.87	34.86	27.807	30.2	2.084
2200A	3.14	34.93	27.838	27.3	2.086	2200A	2.89	34.88	27.821	28.9	2.128	2200A	2.89	34.88	27.821	28.9	2.128
2300A	3.11	34.93	27.841	27.0	2.130	2300A	2.91	34.90	27.835	27.5	2.172	2300A	2.91	34.90	27.835	27.5	2.172
2400A	3.06	34.93	27.845	26.6	2.174	2400A	2.91	34.91	27.843	26.8	2.215	2400A	2.91	34.91	27.843	26.8	2.215
2500A	2.96	34.93	27.855	25.7	2.218	2500A	2.90	34.91	27.844	26.7	2.259	2500A	2.90	34.91	27.844	26.7	2.259
2600A	2.93	34.93	27.857	25.5	2.261	2600A	2.84	34.92	27.858	25.4	2.302	2600A	2.84	34.92	27.858	25.4	2.302
2700A	2.88	34.92	27.854	25.6	2.304	2700A	2.81	34.92	27.860	25.2	2.345	2700A	2.81	34.92	27.860	25.2	2.345
2800A	2.81	34.92	27.860	25.2	2.348	2800A	2.77	34.92	27.864	24.8	2.388	2800A	2.77	34.92	27.864	24.8	2.388
2900A	2.75	34.92	27.866	24.7	2.392	2900A	2.74	34.93	27.875	23.8	2.430	2900A	2.74	34.93	27.875	23.8	2.430
3000A	2.70	34.92	27.870	24.3	2.435	3000A	2.67	34.92	27.873	24.0	2.473	3000A	2.67	34.92	27.873	24.0	2.473
3100A	2.63	34.92	27.876	23.7	2.477	3100A	2.63	34.91	27.868	24.4	2.516	3100A	2.63	34.91	27.868	24.4	2.516
3200A	2.58	34.92	27.881	23.3	2.520	3200A	2.57	34.91	27.874	23.9	2.559	3200A	2.57	34.91	27.874	23.9	2.559
3300A	2.47	34.91	27.882	23.1	2.562	3300A	2.48	34.90	27.873	23.9	2.602	3300A	2.48	34.90	27.873	23.9	2.602
3400A	2.33	34.90	27.886	22.7	2.603	3400A	2.36	34.89	27.876	23.7	2.644	3400A	2.36	34.89	27.876	23.7	2.644
3500A	2.15	34.88	27.885	22.8	2.644	3500A	2.22	34.88	27.879	23.4	2.686	3500A	2.22	34.88	27.879	23.4	2.686
3600A	1.83	34.84	27.879	23.5	2.683	3600A	2.03	34.86	27.879	23.4	2.726	3600A	2.03	34.86	27.879	23.4	2.726
3700A	1.58	34.81	27.873	23.9	2.720	3700A	1.80	34.84	27.881	23.2	2.765	3700A	1.80	34.84	27.881	23.2	2.765
3800A	1.32	34.79	27.876	23.7	2.756	3800A	1.62	34.82	27.879	23.5	2.803	3800A	1.62	34.82	27.879	23.5	2.803
3900A	1.11	34.77	27.875	23.8	2.790	3900A	1.45	34.79	27.867	24.6	2.859	3900A	1.45	34.79	27.867	24.6	2.859
4000A	0.75	34.73	27.866	24.7	2.821	4000A	1.33	34.77	27.859	25.3	2.876	4000A	1.33	34.77	27.859	25.3	2.876
4100A	0.48	34.70	27.858	25.4	2.850	4100A	1.24	34.77	27.866	24.7	2.912	4100A	1.24	34.77	27.866	24.7	2.912
4200A	0.42	34.76	27.862	25.1	2.878	4200A	1.17	34.76	27.863	25.0	2.947	4200A	1.17	34.76	27.863	25.0	2.947
4300A	0.27	34.69	27.862	25.0	2.905	4300A	1.10	34.76	27.867	24.5	2.982	4300A	1.10	34.76	27.867	24.5	2.982
4400A	0.26	34.68	27.855	25.7	2.924	4400A	0.87	34.73	27.858	25.4	3.015	4400A	0.87	34.73	27.858	25.4	3.015
4500A						4500A	0.45	34.69	27.852	26.0	3.046	4500A	0.45	34.69	27.852	26.0	3.046
4600A						4600A	0.21	34.68	27.857	25.5	3.073	4600A	0.21	34.68	27.857	25.5	3.073
4682A																	

RV MELVILLE										CATO EXPEDITION VI						
LATITUDE 28 35.0S		LONGITUDE 35 28.2W		MO/DAY/YR 11/12/72		MESSENGER 2123 0024		TIME GMT	BOTTOM 4334M	WIND 090	SPEED 11KT	WEATHER 1	DOMINANT WAVES 090 7			
Z	T	S	U2	P04	SI03	NO2	NO3	DT	Z	T	S	O2	SI07	DT	DD	
0	20.63	36.225	5.24	0.06	1.0	0.00	0.0	244.8	0	20.63	36.225	5.24	25.544	244.8	0.000	
10	20.62	36.219	5.32	0.05	1.0	0.00	0.0	245.0	10	20.62	36.219	5.32	25.542	245.0	0.025	
21	20.40	36.204	5.39	0.06	1.2	0.00	0.0	240.4	20	20.42	36.204	5.39	25.585	241.0	0.049	
42	20.01	36.169	5.31	0.06	1.0	0.00	0.0	233.1	30	20.24	36.188	5.36	25.621	237.5	0.073	
62	19.42	36.128	5.40	0.07	0.8	0.00	0.0	221.3	50	19.76	36.148	5.34	25.719	228.2	0.120	
94	19.41	36.174	5.28	0.08	1.0	0.00	0.0	217.8	75	19.42	36.145	5.36	25.807	219.9	0.176	
125	19.33	36.165	5.28	0.11	1.0	0.00	0.0	216.4	100	19.39	36.170	5.28	25.831	217.6	0.232	
156	18.74	36.038	5.33	0.14	1.2	0.11	0.1	211.2	125	19.55	36.165	5.28	25.843	216.4	0.287	
208	16.37	35.701	5.11	0.46	1.7	0.01	2.4	180.8	150	18.90	36.068	5.32	25.882	212.8	0.342	
260	15.08	35.506	5.13	0.56	2.1	0.01	4.6	167.2	200	16.76	35.749	5.15	26.165	185.9	0.445	
312	14.23	35.414	5.10		2.6	0.01	6.1	156.4	250	15.27	35.534	5.13	26.342	169.1	0.537	
415	13.05	35.271	5.08	0.73	3.3	0.00	9.5	143.6	300	14.40	35.430	5.11	26.452	158.6	0.623	
569	9.39	34.758	4.84	1.35	8.8	0.00	19.0	117.6	400	13.23	35.296	5.08	26.594	145.2	0.785	
723	6.36	34.435	5.06	1.75	15.6	0.00	25.5	99.0	500	11.13	34.989	4.93	26.762	129.3	0.933	
876	4.59	34.318	5.16	1.99E	24.1	0.00	28.6E	87.4	600	8.70	34.676	4.87	26.931	113.2	1.066	
921A	4.31	34.317	5.11	2.08	26.9	0.01	30.0	84.6	700	6.75	34.471	5.02	27.057	101.3	1.184	
1031	3.70	34.344	4.91	2.14E	36.5	0.00	31.2E	76.6	800	5.31	34.356	5.11	27.150	92.5	1.291	
1076A	3.61	34.363	4.77	2.19	38.0		31.8	74.4	1000	3.84	34.334	4.98	27.295	78.8	1.481	
1229A	3.16	34.458	4.45	2.27	51.2		32.8	63.1	1200	3.24	34.439	4.49	27.347	65.3	1.642	
1382A	3.00	34.551	4.35	2.34	55.4		31.9	54.7	1500	2.90	34.626	4.46	27.617	48.2	1.840	
1536A	2.87	34.646	4.51	2.08	57.7		30.8	46.4	1750	2.81	34.747	4.84	27.722	38.3	1.975	
1739A	2.81	34.742	4.83	1.83	53.4	0.00	28.1	38.6	2000	2.85	34.828	5.13	27.785	32.3	2.094	
1943A	2.79	34.807	5.02	1.66	49.2		26.2	33.5	2250	2.97	34.899	5.59	27.829	28.1	2.206	
2197A	2.98	34.893	5.53	1.47	35.9		22.6	28.7	2500	2.93	34.918	5.77	27.849	26.2	2.315	
2453A	2.94	34.917	5.74	1.45	32.8		21.5	26.5	2750	2.83	34.924	5.85	27.862	25.0	2.423	
2708A	2.85	34.927	5.85	1.38	32.0		20.8	25.0	3000	2.70	34.912	5.84	27.864	24.8	2.532	
2964A	2.72	34.913	5.84	1.44	34.9	0.00	20.9	25.0	3250	2.52	34.902	5.86	27.873	24.0	2.640	
3222A	2.54	34.905	5.86	1.41	38.7		21.1	24.1	3500	2.20	34.873	5.81	27.876	23.7	2.745	
3479A	2.24	34.878	5.83	1.52	50.1		22.6	23.7	3750	1.67	34.819	5.54	27.874	23.9	2.843	
3738A	1.69	34.821	5.55	1.71	72.2		25.6	23.9	4000	1.39	34.783	5.31	27.866	24.7	2.936	
3999A	1.39	34.783	5.31	1.84	85.4		27.5	24.7	4250	1.16	34.761	5.40	27.864	24.8	3.025	
4208A	1.187	34.766	5.33	1.94	94.8	0.00	28.8	24.6								
4261A	1.157	34.760	5.42	1.99	96.1		29.0	24.9								
4312A	1.137	34.757	5.33	1.99	98.0	0.00	28.9	25.0								

RV MELVILLE										CATO EXPEDITION VI						
LATITUDE 30 15.2S		LONGITUDE 38 48.5W		MO/DAY/YR 11/13/72		MESSENGER 2118 0207		TIME GMT	BOTTOM 4135M	WIND 030	SPEED 14KT	WEATHER 1	DOMINANT WAVES 040 6			
Z	T	S	U2	P04	SI03	NO2	NO3	DT	Z	T	S	O2	SI07	DT	DD	
1	20.53	36.032	5.27	0.03	1.0	0.01	0.0	259.3	0	20.70	36.032	5.27	25.379	260.6	0.000	
10	20.69	36.046	5.26	0.02	1.0	0.00	0.0	242.2	10	20.69	36.046	5.26	25.392	259.3	0.026	
36	20.22	36.117	5.28	0.02	1.0	0.00	0.0	242.2	20	20.51	36.044	5.27	25.440	254.7	0.052	
63	18.39	35.940	5.44	0.06	0.8	0.00	0.0	210.0	30	20.33	36.078	5.28	25.515	247.6	0.077	
95	17.65	35.898	5.22	0.17	1.4	0.05	0.3	195.6	50	19.29	36.028	5.37	25.750	225.2	0.125	
113A	17.27	35.835	5.26	0.14	1.5	0.00	0.4	191.4	75	18.02	35.919	5.36	25.990	202.5	0.179	
157	16.05	35.665	5.12	0.34	1.8	0.02	2.7	176.4	100	17.55	35.881	5.23	26.076	194.3	0.229	
216A	15.14	35.589	5.06	0.43	2.1		4.5	162.4	125	16.93	35.783	5.23	26.148	187.4	0.278	
319A	14.06	35.440	5.02	0.59	2.8	0.00	7.2	151.1	150	16.24	35.688	5.15	26.238	178.9	0.325	
422A	12.79	35.239	4.93	0.81	3.9		10.2	141.0	200	15.34	35.601	5.07	26.378	165.6	0.413	
525A	10.75	34.939	4.78	0.96	6.4		15.3	126.4	250	14.76	35.544	5.05	26.462	157.7	0.498	
629A	8.00	34.595	4.82	1.51	11.3		21.6	108.9	300	14.24	35.470	5.03	26.517	152.5	0.579	
732A	5.89	34.376	5.32	1.71	14.7		24.9	97.7	400	13.10	35.288	4.95	26.614	143.3	0.737	
887A	4.31	34.281	5.47	1.95	22.9	0.00	28.2	87.3	500	11.51	35.018	4.81	26.751	130.3	0.885	
990A	3.67	34.288	5.27	2.05	31.2		30.3	80.6	600	8.77	34.684	4.81	26.927	113.6	1.019	
1247A	2.95	34.443	4.57	2.26	52.8		32.8	62.4	700	6.47	34.431	5.16	27.064	100.6	1.137	
1451A	2.82	34.564	4.42	2.16	59.2	0.00	31.9	52.2	800	5.03	34.313	5.39	27.149	92.6	1.243	
1644B	2.81	34.695	4.51	2.04	57.7	0.00	29.8	42.2	1000	3.62	34.293	5.24	27.284	79.8	1.432	
1654A	2.80	34.693	4.61	2.02	57.8		29.7	42.2	1200	3.01	34.409	4.69	27.434	65.6	1.594	
1951B	2.90	34.828	5.29	1.70	47.1	0.00	25.2	32.9	1500	2.82	34.613	4.44	27.614	48.6	1.791	
2258B	2.94	34.891	5.65	1.50	37.1	0.00	22.6	28.5	1750	2.83	34.729	4.83	27.706	40.2	1.929	
2566B	2.877	34.919	5.83	1.40	33.7		21.4	25.8	2000	2.91	34.841	5.37	27.789	32.0	2.050	
2874B	2.74	34.911	5.81	1.36	35.2		21.0	25.3	2250	2.94	34.889	5.64	27.825	28.6	2.162	
3284B	2.319	34.884	5.78	1.47	47.1		22.1	23.9	2500	2.90	34.915	5.81	27.849	26.2	2.272	
3699B	1.585	34.812	5.50	1.77	77.4		26.2	23.8	2750	2.81	34.915	5.82	27.857	25.4	2.380	
4012B	1.222	34.766	5.34	1.93	94.7		29.0	24.9	3000	2.64	34.905	5.80	27.864	24.8	2.488	
4116B	1.100	34.752	5.30	1.99	99.4		28.3U	25.1	3250	2.36	34.887	5.78	27.873	24.0	2.594	
									3500	1.94	34.845	5.65	27.875	23.8	2.695	
									3750	1.52	34.804	5.47	27.873	24.0	2.789	
									4000	1.23	34.766	5.35	27.864	24.8	2.878	

F) NUTRIENT SAMPLES AT 876 AND 1031 METERS APPEAR TO HAVE BEEN REVERSED. THEY ARE ASSUMED TO NOW BE IN THE CORRECT ORDER.

11 STD						CATO EXPEDITION VI						12 STD					
LATITUDE 28 35.0S		LONGITUDE 35 28.2W		MO/DAY/YR 11/12/72		START TIME 2002 GMT		LATITUDE 30 15.2S		LONGITUDE 38 48.5W		MO/DAY/YR 11/13/72		START TIME 1952 GMT			
Z	T	S	SIGMA T	DT	DD	Z	T	S	SIGMA T	DT	DD	Z	T	S	SIGMA T	DT	DD
0	20.62	36.22	25.543	244.9	0.000	0	20.74	36.04	25.374	261.0	0.000	0	20.64	36.04	25.401	258.5	0.026
10	20.59	36.21	25.544	244.9	0.025	10	20.32	35.05	25.495	249.6	0.051	10	20.32	35.05	25.495	249.6	0.051
20	20.48	36.21	25.573	242.1	0.049	20	20.20	36.06	25.534	245.8	0.076	20	20.20	36.06	25.534	245.8	0.076
30	20.42	36.21	25.589	240.5	0.073	30	20.17	36.13	25.595	240.0	0.101	30	20.17	36.13	25.595	240.0	0.101
40	20.38	36.20	25.593	240.2	0.097	40	19.93	36.13	25.659	233.9	0.125	40	19.93	36.13	25.659	233.9	0.125
50	19.82	36.15	25.703	229.7	0.121	50	18.78	36.02	25.874	213.5	0.147	50	18.78	36.02	25.874	213.5	0.147
60	19.40	36.11	25.783	222.1	0.144	60	17.76	35.85	25.999	201.6	0.168	60	17.76	35.85	25.999	201.6	0.168
70	19.36	36.13	25.808	219.7	0.166	70	17.61	35.87	26.051	196.7	0.188	70	17.61	35.87	26.051	196.7	0.188
80	19.37	36.16	25.829	217.6	0.188	80	17.46	35.84	26.065	195.4	0.208	80	17.46	35.84	26.065	195.4	0.208
90	19.40	36.18	25.836	217.1	0.210	90	17.31	35.85	26.109	191.2	0.228	90	17.31	35.85	26.109	191.2	0.228
100	19.39	36.18	25.839	216.8	0.232	100	16.73	35.76	26.179	184.6	0.276	100	16.73	35.76	26.179	184.6	0.276
125	19.31	36.17	25.852	215.6	0.287	125	16.33	35.70	26.226	180.0	0.322	125	16.33	35.70	26.226	180.0	0.322
150	19.14	36.11	25.850	215.8	0.343	150	15.35	35.59	26.366	166.8	0.412	150	15.35	35.59	26.366	166.8	0.412
200	16.70	35.70	26.140	188.3	0.447	200A	14.83	35.56	26.458	158.0	0.497	200A	14.83	35.56	26.458	158.0	0.497
250	15.21	35.51	26.336	169.7	0.540	250A	14.31	35.49	26.517	152.5	0.578	250A	14.31	35.49	26.517	152.5	0.578
300	14.33	35.41	26.451	158.7	0.626	300A	13.74	35.41	26.576	146.9	0.658	300A	13.74	35.41	26.576	146.9	0.658
350	13.88	35.39	26.531	151.1	0.708	350A	13.04	35.28	26.620	142.7	0.735	350A	13.04	35.28	26.620	142.7	0.735
400	13.28	35.32	26.602	144.4	0.787	400A	12.15	35.13	26.679	137.1	0.811	400A	12.15	35.13	26.679	137.1	0.811
450	12.32	35.16	26.670	138.0	0.863	450A	11.14	34.99	26.761	129.3	0.883	450A	11.14	34.99	26.761	129.3	0.883
500	11.32	35.00	26.736	131.7	0.937	500A	10.22	34.86	26.824	123.4	0.953	500A	10.22	34.86	26.824	123.4	0.953
550	9.86	34.82	26.855	120.4	1.006	550A	8.71	34.67	26.926	113.7	1.018	550A	8.71	34.67	26.926	113.7	1.018
600	8.70	34.68	26.936	112.8	1.070	600A	7.76	34.56	26.985	108.1	1.079	600A	7.76	34.56	26.985	108.1	1.079
650	7.81	34.57	26.985	108.1	1.131	650A	6.79	34.46	27.044	102.6	1.137	650A	6.79	34.46	27.044	102.6	1.137
700	6.70	34.46	27.056	101.4	1.188	700A	5.72	34.34	27.088	98.3	1.192	700A	5.72	34.34	27.088	98.3	1.192
750	6.01	34.40	27.099	97.3	1.243	750A	5.12	34.30	27.129	94.5	1.245	750A	5.12	34.30	27.129	94.5	1.245
800	5.23	34.34	27.148	92.7	1.296	800A	4.68	34.28	27.163	91.2	1.296	800A	4.68	34.28	27.163	91.2	1.296
850	4.72	34.32	27.191	88.7	1.346	850A	4.18	34.27	27.210	86.9	1.345	850A	4.18	34.27	27.210	86.9	1.345
900	4.39	34.31	27.219	86.0	1.394	900A	3.94	34.27	27.235	84.5	1.392	900A	3.94	34.27	27.235	84.5	1.392
950	4.04	34.32	27.264	81.7	1.440	950A	3.55	34.27	27.274	80.8	1.457	950A	3.55	34.27	27.274	80.8	1.457
1000	3.78	34.33	27.298	78.4	1.484	1000A	3.24	34.34	27.359	72.7	1.522	1000A	3.24	34.34	27.359	72.7	1.522
1100A	3.56	34.37	27.352	73.4	1.568	1100A	3.02	34.42	27.443	64.7	1.598	1100A	3.02	34.42	27.443	64.7	1.598
1200A	3.23	34.43	27.431	65.8	1.647	1200A	2.92	34.47	27.492	60.1	1.669	1200A	2.92	34.47	27.492	60.1	1.669
1300A	3.05	34.49	27.496	59.7	1.718	1300A	2.84	34.53	27.547	54.9	1.735	1300A	2.84	34.53	27.547	54.9	1.735
1400A	2.96	34.55	27.550	54.6	1.785	1400A	2.80	34.60	27.606	49.3	1.796	1400A	2.80	34.60	27.606	49.3	1.796
1500A	2.88	34.61	27.607	49.2	1.846	1500A	2.79	34.67	27.663	43.9	1.853	1500A	2.79	34.67	27.663	43.9	1.853
1600A	2.84	34.67	27.658	44.3	1.903	1600A	2.82	34.72	27.700	40.4	1.906	1600A	2.82	34.72	27.700	40.4	1.906
1700A	2.82	34.73	27.708	39.6	1.956	1700A	2.83	34.76	27.731	37.4	1.956	1700A	2.83	34.76	27.731	37.4	1.956
1800A	2.80	34.76	27.734	37.2	2.006	1800A	2.86	34.81	27.768	33.9	2.0042	1800A	2.86	34.81	27.768	33.9	2.0042
1900A	2.79	34.79	27.758	34.8	2.054	1900A	2.92	34.84	27.787	32.2	2.0502	1900A	2.92	34.84	27.787	32.2	2.0502
2000A	2.79	34.81	27.774	33.3	2.100	2000A	2.94	34.87	27.809	30.1	2.095	2000A	2.94	34.87	27.809	30.1	2.095
2100A	2.84	34.84	27.794	31.52	2.146	2100A	2.94	34.88	27.817	29.3	2.140	2100A	2.94	34.88	27.817	29.3	2.140
2200A	2.98	34.89	27.821	28.9	2.191	2200A	2.94	34.90	27.833	27.8	2.184	2200A	2.94	34.90	27.833	27.8	2.184
2300A	2.99	34.90	27.828	28.3	2.236	2300A	2.50	34.912	27.844	26.7	2.228	2300A	2.50	34.912	27.844	26.7	2.228
2400A	2.98	34.92	27.845	26.7	2.280	2400A	2.91	34.92	27.851	26.0	2.271	2400A	2.91	34.92	27.851	26.0	2.271
2500A	2.96	34.92	27.847	26.5	2.323	2500A	2.87	34.92	27.855	25.7	2.314	2500A	2.87	34.92	27.855	25.7	2.314
2600A	2.88	34.92	27.854	25.8	2.367	2600A	2.82	34.91	27.851	26.0	2.357	2600A	2.82	34.91	27.851	26.0	2.357
2700A	2.86	34.92	27.856	25.6	2.410	2700A	2.76	34.91	27.857	25.5	2.401	2700A	2.76	34.91	27.857	25.5	2.401
2800A	2.81	34.92	27.860	25.2	2.454	2800A	2.71	34.92	27.869	24.3	2.444	2800A	2.71	34.92	27.869	24.3	2.444
2900A	2.73	34.92	27.868	24.5	2.497	2900A	2.65	34.91	27.867	24.6	2.487	2900A	2.65	34.91	27.867	24.6	2.487
3000A	2.70	34.92	27.870	24.3	2.540	3000A	2.56	34.90	27.867	24.6	2.530	3000A	2.56	34.90	27.867	24.6	2.530
3100A	2.64	34.92	27.875	23.7	2.583	3100A	2.47	34.90	27.874	23.9	2.572	3100A	2.47	34.90	27.874	23.9	2.572
3200A	2.57	34.90	27.866	24.7	2.626	3200A	2.36	34.88	27.868	24.5	2.614	3200A	2.36	34.88	27.868	24.5	2.614
3300A	2.48	34.91	27.881	23.2	2.669	3300A	2.19	34.89	27.890	22.4	2.655	3300A	2.19	34.89	27.890	22.4	2.655
3400A	2.37	34.90	27.883	23.1	2.711	3400A	1.98	34.86	27.883	23.1	2.694	3400A	1.98	34.86	27.883	23.1	2.694
3500A	2.19	34.87	27.874	23.922	2.75222	3500A	1.74	34.83	27.878	23.6	2.733	3500A	1.74	34.83	27.878	23.6	2.733
3600A	2.02	34.85	27.872	24.1	2.793	3600A	1.62	34.81	27.870	24.2	2.770	3600A	1.62	34.81	27.870	24.2	2.770
3700A	1.80	34.83	27.873	24.0	2.833	3700A	1.48	34.79	27.865	24.8	2.807	3700A	1.48	34.79	27.865	24.8	2.807
3800A	1.64	34.81	27.869	24.4	2.871	3800A	1.32	34.78	27.868	24.4	2.843	3800A	1.32	34.78	27.868	24.4	2.843
3900A	1.50	34.79	27.863	24.9	2.909	3900A	1.22	34.76	27.859	25.3	2.879	3900A	1.22	34.76	27.859	25.3	2.879
4000A	1.40	34.79	27.870	24.2	2.946	4000A	1.08	34.75	27.861	25.2	2.9142	4000A	1.08	34.75	27.861	25.2	2.9142
4100A	1.29	34.77	27.86222	25.0	2.982	4100A	1.03	34.74	27.856	25.6	2.928	4100A	1.03	34.74	27.856	25.6	2.928
4200A	1.20	34.77	27.869	24.4	3.017	4200A											
4300A	1.14	34.77	27.873	24.0	3.052												
4360A	1.03	34.75	27.864	24.9	3.072												

RV MELVILLE

CATO EXPEDITION VI

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LATITUDE		LONGITUDE		MO/DAY/YR		MESSENGER		TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES		
30 09.3S		39 24.7W		11/14/72		0949 1209		GMT	4760M	010	9KT	1	01U 4		
Z	T	S	02	P04	SI03	NO2	NO3	DT	Z	T	S	02	SI0T	DT	DD
0	20.60	36.206	5.23	0.02	1.5	0.01	0.0	245.4	0	20.60	36.206	5.23	25.538	245.4	0.000
36A	20.28	36.236	5.21	0.10	0.7	0.00	0.0	235.1	10	20.56	36.224	5.22	25.564	242.9	0.024
53	19.97	36.212	5.29	0.02	1.0	0.00	0.0	229.0	20	20.48	36.235	5.22	25.594	240.1	0.049
94	18.41	35.980	5.31	0.08	1.2	0.01	0.0	207.5	30	20.57	36.237	5.21	25.626	237.0	0.073
112A	17.86	35.902		0.19	1.2	0.04	0.1	200.2	50	20.04	36.217	5.28	25.699	230.1	0.120
126	17.64	35.893	5.46	0.10	1.3	0.02	0.0	195.7	75	19.18	36.095	5.30	25.830	217.6	0.176
157	17.12	35.831	5.20	0.19	1.0	0.09	1.0	188.2	100	18.21	35.948	5.35	25.964	204.9	0.230
188A	16.34	35.739	5.15	0.29	1.3	0.04	2.0	177.4	125	17.65	35.892	5.46	26.058	196.0	0.281
289A	14.65	35.526	4.99	0.49	2.0	0.01	5.8	156.8	150	17.25	35.848	5.27	26.122	189.9	0.330
440A	12.88	35.255	4.94	0.80	3.7	0.01	10.2	141.5	200	16.09	35.708	5.13	26.288	174.2	0.424
591A	9.58	34.780	4.78	1.29	8.0	0.00	18.5	118.9	250	15.20	35.599	5.05	26.407	162.9	0.512
895A	4.47	34.282	5.45	1.93	21.1		28.0	88.9	300	14.53	35.510	4.98	26.485	155.5	0.596
1298A	2.96	34.435	4.56	2.26	51.8		32.9	63.1	400	13.38	35.338	4.95	26.596	145.0	0.756
1500A	2.81	34.567	4.34	2.18	59.3		32.1	51.8	500	11.63	35.062	4.86	26.726	132.7	0.906
1904A	2.87	34.791	4.92	1.85	51.6	0.00	27.0	35.4	600	9.49	34.754	4.80	26.883	117.8	1.044
2208A	2.95	34.873	5.42	1.56	40.1		23.3	29.9	700	7.43	34.523	5.01	27.003	106.5	1.168
2614A	2.89	34.914	5.75	1.40	33.6		21.4	26.5	800	5.77	34.371	5.23	27.106	96.7	1.280
3022A	2.67	34.911	5.81	1.39	37.0		21.1	24.7	1000	4.08	34.333	5.29	27.269	81.2	1.476
3537A	1.934	34.844	5.54	1.61	62.1		24.0	23.9	1200	3.33	34.408	4.84	27.404	68.4	1.643
4056A	0.407	34.689	5.13	2.22	124.9	0.00	32.5	25.8	1500	2.81	34.567	4.34	27.579	51.8	1.849
4370A	0.242	34.678	5.15	2.26	129.7		32.7	25.8	1750	2.85	34.720	4.61	27.697	40.6	1.991
4634A	0.239	34.675	5.14	2.26	131.2		32.7	26.0	2000	2.90	34.823	5.09	27.775	33.3	2.115
4687A	0.238	34.675	5.18	2.25	131.4	0.00	32.6	26.0	2250	2.94	34.877	5.47	27.814	29.4	2.230
									2500	2.91	34.902	5.69	27.838	27.0	2.341
									2750	2.84	34.915	5.77	27.854	25.6	2.451
									3000	2.69	34.911	5.81	27.865	24.7	2.560
									3250	2.42	34.888	5.72	27.869	24.4	2.667
									3500	2.01	34.850	5.57	27.873	24.0	2.770
									3750	1.26	34.771	5.35	27.865	24.7	2.863
									4000	0.55	34.703	5.16	27.856	25.6	2.942
									4250	0.51	34.683	5.14	27.854	25.8	3.012
									4500	0.24	34.677	5.15	27.853	25.9	3.078

RV MELVILLE

CATO EXPEDITION VI

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LATITUDE		LONGITUDE		MO/DAY/YR		MESSENGER		TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES		
30 07.0S		39 19.7W		11/14/72		1518 1730		GMT	4833M	080	12KT	6	08U 4 8		
Z	T	S	02	P04	SI03	NO2	NO3	DT	Z	T	S	02	SI0T	DT	DD
0	20.52	36.218	5.23	0.03	1.0	0.00	0.0	242.5	0	20.52	36.218	5.23	25.569	242.5	0.000
52A	20.22	36.268	5.21	0.05	1.0	0.00	0.0	231.2	10	20.46	36.226	5.23	25.591	240.3	0.024
53	20.18	36.266	5.28	0.02	0.6	0.00	0.0	230.4	20	20.40	36.235	5.22	25.614	238.2	0.048
78A	19.06	36.067	5.35	0.08	1.0	0.00	0.0	216.9	30	20.35	36.245	5.22	25.637	236.0	0.072
95	18.09	35.920	5.42	0.08	0.8	0.00	0.0	204.3	50	20.23	36.264	5.21	25.683	231.7	0.119
127	17.22	35.840	5.24	0.19	1.2	0.09	0.7	189.9	75	19.21	36.097	5.34	25.823	218.3	0.176
129A	17.60	35.865	5.36	0.14	1.0	0.04	0.0		100	17.92	35.901	5.41	26.000	201.6	0.229
158	16.17	35.682	5.04	0.34	1.7	0.02	2.6	177.8	125	17.26	35.842	5.26	26.115	190.6	0.279
207A	15.71	35.624	5.02	0.42	1.8	0.01	3.5	172.0	150	16.42	35.720	5.09	26.221	180.5	0.327
284A	14.78	35.519	4.99	0.49	2.0	0.01	5.5	160.0	200	15.73	35.625	5.02	26.307	172.4	0.418
387A	13.85	35.426	5.02	0.60	2.5	0.01	7.6	147.9	250	15.19	35.563	5.00	26.381	165.4	0.505
541A	10.49	34.902	4.79	1.17	6.8		16.2	124.7	300	14.66	35.510	5.00	26.458	158.1	0.591
694A	7.15	34.500	5.03	1.57	12.2		23.0	104.3	400	13.61	35.387	5.00	26.585	146.0	0.753
1002A	3.87	34.270	5.39	2.03	26.9		29.6	83.8	500	11.50	35.052	4.84	26.743	131.1	0.903
1412A	2.84	34.524	4.41	2.22	58.8		32.8	55.3	600	9.13	34.722	4.86	26.899	116.3	1.039
1617A	2.80	34.653	4.52	2.08	58.8		30.6	45.3	700	7.05	34.490	5.04	27.031	103.8	1.160
2026A	2.91	34.831	5.19	1.68	46.0		25.1	32.8	800	5.64	34.363	5.22	27.116	95.7	1.270
2332A	2.96	34.901	5.60	1.49	37.3	0.00	22.5	27.9	1000	3.88	34.271	5.39	27.241	83.9	1.468
2742A	2.81	34.917	5.82	1.40	34.9		21.5	25.4	1200	3.37	34.400	4.92	27.393	69.5	1.639
3150A	2.552	34.903	5.84	1.43	40.1		21.5	24.3	1500	2.82	34.585	4.46	27.591	50.7	1.845
3664A	1.673	34.822	5.45	1.75	74.2		26.0	23.7	1750	2.82	34.722	4.71	27.701	40.3	1.985
4182A	0.54	34.694	5.06	2.21	125.2		32.1	26.2	2000	2.90	34.822	5.14	27.775	33.3	2.109
4495A	0.177	34.670	5.17	2.28	132.5		33.1	26.1	2250	2.95	34.886	5.50	27.821	28.9	2.223
4755A	0.198	34.677	5.18	2.26	132.3		33.2	25.6	2500	2.92	34.909	5.73	27.842	26.5	2.333
4807A	0.208	34.674	5.17	2.24	132.5	0.00	33.4	25.9	2750	2.81	34.916	5.82	27.858	25.4	2.442
									3000	2.68	34.910	5.83	27.865	24.6	2.550
									3250	2.41	34.889	5.78	27.871	24.2	2.657
									3500	2.00	34.851	5.60	27.874	23.9	2.758
									3750	1.47	34.798	5.36	27.872	24.1	2.853
									4000	0.91	34.735	5.16	27.859	25.3	2.938
									4250	0.43	34.687	5.08	27.850	26.2	3.015
									4500	0.18	34.671	5.17	27.851	26.1	3.083
									4750	0.20	34.678	5.18	27.856	25.6	3.148

13 STD						CATO EXPEDITON VI						14 STD					
LATITUDE		LONGITUDE		MO/DAY/YR	START TIME	LATITUDE		LONGITUDE		MO/DAY/YR	START TIME	LATITUDE		LONGITUDE		MO/DAY/YR	START TIME
30 09.35		39 24.7W		11/14/72	0748 GMT	30 07.05		39 19.7W		11/14/72	1337 GMT	30 07.05		39 19.7W		11/14/72	1337 GMT
Z	T	S	SIGMA T	DT	DD	Z	T	S	SIGMA T	DT	DD	Z	T	S	SIGMA T	DT	DD
0	20.62	36.21	25.536	245.6	0.000	0	20.55	36.22	25.562	243.1	0.000	0	20.55	36.22	25.562	243.1	0.000
10	20.52	36.22	25.570	242.4	0.024	10	20.50	36.24	25.591	240.4	0.024	10	20.50	36.24	25.591	240.4	0.024
20	20.35	36.23	25.623	237.3	0.048	20	20.36	36.23	25.621	237.5	0.048	20	20.36	36.23	25.621	237.5	0.048
30	20.29	36.23	25.639	235.8	0.072	30	20.26	36.21	25.632	236.5	0.072	30	20.26	36.21	25.632	236.5	0.072
40	20.17	36.24	25.679	232.0	0.096	40	20.23	36.21	25.640	235.7	0.096	40	20.23	36.21	25.640	235.7	0.096
50	20.02	36.21	25.596	230.4	0.119	50	20.22	36.25	25.673	232.5	0.119	50	20.22	36.25	25.673	232.5	0.119
60	19.77	36.19	25.747	225.5	0.142	60	20.20	36.26	25.686	231.3	0.142	60	20.20	36.26	25.686	231.3	0.142
70	19.59	36.20	25.802	220.3	0.165	70	20.03	36.22	25.701	229.9	0.166	70	20.03	36.22	25.701	229.9	0.166
80	18.91	36.06	25.871	213.8	0.187	80	19.48	36.13	25.777	222.7	0.189	80	19.48	36.13	25.777	222.7	0.189
90	18.65	36.02	25.907	210.4	0.208	90	19.15	36.02	25.779	222.5	0.211	90	19.15	36.02	25.779	222.5	0.211
100	18.19	35.96	25.977	203.7	0.229	100	18.59	35.98	25.891	211.8	0.233	100	18.59	35.98	25.891	211.8	0.233
125	17.70	35.90	26.052	196.6	0.280	125	17.75	35.87	26.017	199.9	0.286	125	17.75	35.87	26.017	199.9	0.286
150	17.45	35.87	26.090	193.0	0.330	150	17.06	35.80	26.126	189.6	0.336	150	17.06	35.80	26.126	189.6	0.336
200A	16.19	35.80	26.336	169.6	0.423	200	15.82	35.62	26.283	174.7	0.430222	200	15.82	35.62	26.283	174.7	0.430222
250A	15.10	35.59	26.422	161.5	0.510	250	15.17	35.57	26.391	164.42	0.518	250	15.17	35.57	26.391	164.42	0.518
300A	14.57	35.55	26.507	153.4	0.593	300	14.49	35.51	26.494	154.7	0.602	300	14.49	35.51	26.494	154.7	0.602
350A	14.18	35.49	26.545	149.8	0.673	350	14.21	35.49	26.538	150.4	0.683	350	14.21	35.49	26.538	150.4	0.683
400A	13.60	35.40	26.597	144.8	0.752	400	13.46	35.37	26.603	144.3	0.762	400	13.46	35.37	26.603	144.3	0.762
450A	12.81	35.24	26.635	141.3	0.830	450	12.52	35.20	26.662	138.8	0.838	450	12.52	35.20	26.662	138.8	0.838
500A	11.81	35.09	26.714	133.8	0.904	500	11.43	35.02	26.731	132.2	0.912	500	11.43	35.02	26.731	132.2	0.912
550A	10.74	34.92	26.779	127.6	0.976	550	10.43	34.86	26.803	125.4	0.983	550	10.43	34.86	26.803	125.4	0.983
600A	9.62	34.76	26.849	121.1	1.045	600	9.35	34.742	26.878	118.3	1.050	600	9.35	34.742	26.878	118.3	1.050
650A	8.25	34.61	26.951	111.4	1.109	650	8.37	34.63	26.948	111.7	1.113	650	8.37	34.63	26.948	111.7	1.113
700A	7.08	34.43	26.980	108.6	1.169	700	7.23	34.50	27.014	105.4	1.173	700	7.23	34.50	27.014	105.4	1.173
750A	6.27	34.40	27.066	100.5	1.227	750	6.40	34.42	27.065	100.6	1.230	750	6.40	34.42	27.065	100.6	1.230
800A	5.64	34.35	27.106	96.7	1.281	800	5.38	34.31	27.106	96.7	1.285222	800	5.38	34.31	27.106	96.7	1.285222
850A	4.88	34.29	27.149	92.6	1.334	850	4.87	34.29	27.150	92.5	1.337	850	4.87	34.29	27.150	92.5	1.337
900A	4.53	34.26	27.164	91.2	1.384	900	4.48	34.27	27.177	89.9	1.387	900	4.48	34.27	27.177	89.9	1.387
950A	4.13	34.26	27.207	87.1	1.433	950	4.06	34.26	27.214	86.4	1.435	950	4.06	34.26	27.214	86.4	1.435
1000A	3.90	34.27	27.239	84.1	1.480	1000	3.81	34.26	27.240	84.0	1.482	1000	3.81	34.26	27.240	84.0	1.482
1100A	3.46	34.31	27.314	77.0	1.569	1100	3.38	34.31	27.322	76.2	1.570	1100	3.38	34.31	27.322	76.2	1.570
1200A	3.15	34.37	27.391	69.62	1.651	1200	3.04	34.35	27.385	70.2	1.651	1200	3.04	34.35	27.385	70.2	1.651
1300A	2.96	34.43	27.456	63.5	1.726	1300	2.97	34.44	27.463	62.8	1.726	1300	2.97	34.44	27.463	62.8	1.726
1400A	2.86	34.48	27.505	58.8	1.795	140022	2.86	34.51	27.529	56.6	1.795	140022	2.86	34.51	27.529	56.6	1.795
1500A	2.82	34.56	27.573	52.5	1.860	1500	2.81	34.57	27.581	51.622	1.858	1500	2.81	34.57	27.581	51.622	1.858
1600A	2.79	34.63	27.631	46.9	1.920	1600	2.80	34.63	27.630	47.0	1.917	1600	2.80	34.63	27.630	47.0	1.917
1700A	2.81	34.69	27.677	42.6	1.975	1700	2.81	34.69	27.677	42.6	1.972	1700	2.81	34.69	27.677	42.6	1.972
1800A	2.84	34.74	27.714	39.0	2.027	1800	2.83	34.74	27.715	38.9	2.02522	1800	2.83	34.74	27.715	38.9	2.02522
1900A	2.85	34.78	27.745	36.1	2.077	1900	2.85	34.78	27.745	36.1	2.074	1900	2.85	34.78	27.745	36.1	2.074
2000A	2.92	34.83	27.779	32.9	2.125	2000	2.91	34.83	27.788	32.8	2.122	2000	2.91	34.83	27.788	32.8	2.122
2100A	2.96	34.86	27.799	31.0	2.17122	2100	2.93	34.86	27.802	30.7	2.168	2100	2.93	34.86	27.802	30.7	2.168
2200A	2.95	34.87	27.808	30.2	2.216	2200	2.97	34.8922	27.822	28.8	2.213	2200	2.97	34.8922	27.822	28.8	2.213
2300A	2.93	34.89	27.825	28.5	2.261	2300	2.96	34.9022	27.831	28.0	2.257	2300	2.96	34.9022	27.831	28.0	2.257
2400A	2.97	34.91	27.838	27.3	2.306	2400	2.94	34.91	27.840	27.1	2.300	2400	2.94	34.91	27.840	27.1	2.300
2500A	2.94	34.91	27.840	27.1	2.350	2500	2.93	34.92	27.849	26.2	2.344	2500	2.93	34.92	27.849	26.2	2.344
2600A	2.89	34.91	27.845	26.6	2.394	2600	2.89	34.93	27.861	25.1	2.387	2600	2.89	34.93	27.861	25.1	2.387
2700A	2.88	34.92	27.854	25.8	2.438	2700	2.85	34.93	27.865	24.8	2.430	2700	2.85	34.93	27.865	24.8	2.430
2800A	2.81	34.92	27.860	25.2	2.482	2800	2.79	34.93	27.870	24.3	2.473	2800	2.79	34.93	27.870	24.3	2.473
2900A	2.77	34.92	27.864	24.8	2.525	290022	2.75	34.93	27.874	23.922	2.515	290022	2.75	34.93	27.874	23.922	2.515
3000A	2.70	34.91	27.862	25.0	2.569	3000	2.69	34.92	27.871	24.2	2.558	3000	2.69	34.92	27.871	24.2	2.558
3100A	2.63	34.91	27.868	24.4	2.612	3100	2.61	34.92	27.878	23.52	2.600	3100	2.61	34.92	27.878	23.52	2.600
3200A	2.52	34.91	27.878	23.5	2.655	3200	2.52	34.91	27.878	23.5	2.642	3200	2.52	34.91	27.878	23.5	2.642
3300A	2.39	34.89	27.873	24.0	2.697	3300	2.40	34.90	27.880	23.3	2.684	3300	2.40	34.90	27.880	23.3	2.684
3400A	2.25	34.88	27.377	23.6	2.739	3400	2.23	34.89	27.887	22.7	2.725	3400	2.23	34.89	27.887	22.7	2.725
3500A	2.09	34.86	27.874	23.9	2.779	3500	2.08	34.86	27.875	23.8	2.765	3500	2.08	34.86	27.875	23.8	2.765
3600A	1.89	34.83	27.866	24.7	2.820	3600	1.85	34.84	27.877	23.6	2.805	3600	1.85	34.84	27.877	23.6	2.805
3700A	1.68	34.82	27.374	23.9	2.858	3700	1.65	34.82	27.876	23.7	2.842	3700	1.65	34.82	27.876	23.7	2.842
3800A	1.54	34.80	27.86822	24.4	2.896	3800	1.48	34.80	27.873	24.0	2.879	3800	1.48	34.80	27.873	24.0	2.879
3900A	0.98	34.73	27.851	26.1	2.9312	39002	1.33	34.78	27.867	24.5	2.915	39002	1.33	34.78	27.867	24.5	2.915
4000A	0.66	34.70	27.847	26.4	2.964	4000	1.18	34.77	27.870	24.3	2.950	4000	1.18	34.77	27.870	24.3	2.950
4100A	0.40	34.69	27.855	25.7	2.993	4100	0.88	34.73	27.858	25.4	2.983	4100	0.88	34.73	27.858	25.4	2.983
4200A	0.27	34.68	27.854	25.8	3.020	4200	0.53	34.69	27.847	26.4	3.0142	4200	0.53	34.69	27.847	26.4	3.0142
4300A	0.25	34.68	27.855	25.7	3.047	4300	0.33	34.68	27.851	26.1	3.043	4300	0.33	34.68	27.851	26.1	3.043
4400A	0.23	34.67	27.848	26.3	3.073	4400	0.17	34.67	27.852	26.0	3.070	4400	0.17	34.67	27.852	26.0	3.070
4500A	0.23	34.67	27.842	26.3	3.100	4500	0.16	34.67	27.852	26.0	3.095	4500	0.16	34.67	27.852	26.0	3.095
4600A	0.23	34.67	27.848	26.3	3.127	4600	0.17	34.67</									

RV MELVILLE

CATO EXPEDITION VI

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LATITUDE		LONGITUDE		MO/DAY/YR		MESSENGER		TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES		
31 54.7S		38 57.0W		11/15/72		0750 0956		GMT	4040M	150	15KT	1	10 10		
Z	T	S	O2	P04	SI03	N02	N03	DT	Z	T	S	O2	SI0T	DT	DD
1	18.98	35.994	5.44	0.03	1.0	0.01	0.0	220.3	0	18.98	35.994	5.44	25.803	220.3	0.000
43	18.60	36.013	5.58	0.04	0.8	0.00	0.0	209.7	10	18.89	35.999	5.49	25.831	217.6	0.022
85	18.31	35.999	5.46	0.04	1.0	0.00	0.0	203.8	20	18.80	36.005	5.54	25.859	214.9	0.044
93A	18.12	35.981	5.48	0.10	1.2	0.01	0.0		30	18.71	36.009	5.56	25.885	212.5	0.065
107	18.07	35.967	5.41	0.06	1.0	0.00	0.0	200.4	50	18.56	36.013	5.57	25.926	208.6	0.107
128	17.63	35.925	5.52	0.09	1.2	0.11	0.1	193.1	75	18.58	36.005	5.50	25.963	205.0	0.160
195A	16.61	35.837	5.40	0.19	1.5	0.04	1.1	176.3	100	18.16	35.977	5.42	25.998	201.7	0.211
297A	15.00	35.570	5.00	0.54	2.7	0.01	5.4	160.9	125	17.70	35.930	5.50	26.076	194.3	0.262
400A	13.76	35.406	5.00	0.55	3.1		7.9	147.6	150	17.26	35.895	5.48	26.155	186.8	0.311
502A	12.00	35.112	4.84	0.90	4.8		12.7	135.6	200	16.53	35.823	5.38	26.276	175.3	0.404
707A	6.74	34.423	5.39	1.66	11.3		23.8	104.7	250	15.72	35.695	5.18	26.363	167.1	0.493
809A	5.19	34.299	5.65	1.77	15.6	0.00	26.2	95.3	300	14.96	35.565	5.00	26.433	160.4	0.579
911A	4.54	34.293	5.37	1.95	22.1		28.6	88.8	400	13.76	35.406	5.00	26.569	147.6	0.743
1267A	3.00	34.385	4.74	2.23	49.2		33.2	67.2	500	12.04	35.118	4.84	26.692	135.9	0.897
1421A	2.82	34.486	4.46	2.25	58.2		33.5	58.0	600	9.45	34.733	5.03	26.855	120.4	1.038
1676A	2.83	34.670	4.57	2.11	61.5		30.7	44.2	700	6.91	34.441	5.36	27.011	105.7	1.162
1982A	2.97	34.809	5.07	1.76	49.2	0.00	26.5	34.9	800	5.29	34.507	5.64	27.113	96.0	1.273
2339A	3.09	34.913	5.69	1.46	33.4		21.8	28.1	1000	4.03	34.297	5.19	27.246	83.3	1.471
2647A	2.96	34.923	5.85	1.39	32.1		21.0	26.2	1200	3.19	34.353	4.84	27.374	71.2	1.642
2852A	2.83	34.918	5.74	1.39	34.1		21.1	25.5	1500	2.82	34.548	4.49	27.563	53.4	1.856
3263A	2.631	34.911	5.82	1.43	38.0		21.2	24.4	1750	2.86	34.710	4.67	27.688	41.5	2.001
3625A	1.916	34.842	5.62	1.67	66.0	0.00	24.7	23.9	2000	2.98	34.616	5.11	27.762	34.5	2.127
3987A	1.221	34.765	5.34	1.97	96.2		28.8	24.9	2250	3.08	34.894	5.56	27.816	29.4	2.245
4040A	1.158	34.756	5.29	1.97	100.0	0.00	29.1	25.2	2500	3.04	34.923	5.77	27.842	26.9	2.358
									2750	2.89	34.920	5.80	27.853	25.8	2.470
									3000	2.79	34.918	5.76	27.861	25.0	2.580
									3250	2.64	34.911	5.82	27.869	24.4	2.691
									3500	2.19	34.867	5.71	27.872	24.1	2.798
									3750	1.65	34.812	5.53	27.870	24.1	2.896
									4000	1.20	34.762	5.33	27.862	25.0	2.987

RV MELVILLE

CATO EXPEDITION VI

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LATITUDE		LONGITUDE		MO/DAY/YR		MESSENGER		TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES		
31 54.0S		39 55.1W		11/15/72		1716 1928		GMT	4005M	180	14KT	1	180 5 6		
Z	T	S	O2	P04	SI03	N02	N03	DT	Z	T	S	O2	SI0T	DT	DD
0	19.73	36.163	5.33	0.02	1.2	0.00	0.0	226.5	0	19.73	36.163	5.33	25.737	226.5	0.000
41	19.47	36.162	5.36	0.01	1.0	0.00	0.0	220.1	10	19.66	36.162	5.34	25.755	224.8	0.023
73A	19.30	36.154	5.32	0.08	1.0	0.00	0.0	216.5	20	19.60	36.162	5.34	25.772	223.1	0.045
83	19.00	36.119	5.34	0.03	1.0	0.00	0.0	211.7	30	19.54	36.162	5.35	25.788	221.6	0.067
105	18.22	35.961	5.37	0.07	1.0	0.00	0.0	204.4	50	19.42	36.158	5.34	25.815	219.1	0.112
125A	17.46	35.867	5.23	0.18	1.2	0.10	0.6	193.4	75	19.25	36.147	5.32	25.852	215.6	0.167
126	17.45	35.861	5.23	0.11	1.3	0.10	0.6	193.6	100	18.41	35.998	5.32	25.952	206.1	0.220
229A	15.22	35.599	5.00	0.47	2.1	0.01	5.0	163.4	125	17.46	35.867	5.23	26.085	193.4	0.271
333A	14.01	35.434	4.99	0.60	2.7		7.6	150.5	150	16.99	35.761	5.19	26.118	190.3	0.320
436A	12.69	35.224	4.91	0.80	3.7		10.8	140.2	200	15.92	35.628	5.08	26.268	176.1	0.415
641A	8.54	34.654	4.83	1.47	9.8		21.1	112.4	250	14.94	35.564	5.00	26.438	160.0	0.502
744A	6.23	34.414	5.14	1.72	14.1		25.0	98.9	300	14.34	35.485	4.99	26.506	153.5	0.585
847A	4.99	34.311	5.37	1.85	18.2		27.2	92.2	400	13.19	35.304	4.94	26.608	143.8	0.743
1206A	3.22	34.379	4.72	2.23	44.5		32.5	69.6	500	11.54	35.049	4.89	26.733	132.0	0.893
1361A	2.91	34.463	4.51	2.27	54.2		33.0	60.5	600	9.47	34.767	4.85	26.878	118.3	1.030
1574P	2.83	34.599	4.61	2.18	58.9	0.00	31.7	49.6	700	7.16	34.503	5.00	27.026	104.2	1.153
1826P	2.89	34.729	4.61	1.97	56.5		29.1	40.3	800	5.47	34.348	5.28	27.125	94.9	1.263
2117P	3.24	34.881	5.35	1.55	35.9		23.4	31.9	1000	3.90	34.292	5.22	27.255	82.4	1.458
2366P	3.23	34.922	5.69	1.40	29.0		21.3	28.7	1200	3.23	34.376	4.74	27.388	69.9	1.628
2530P	3.16	34.931	5.70	1.36	28.4		20.9	27.4	1500	2.86	34.556	4.55	27.565	53.1	1.840
2856P	2.950	34.934	5.84	1.36	30.4	0.00	20.5	25.3	1750	2.87	34.694	4.61	27.674	42.8	1.986
3140P	2.599	34.891	5.64	1.48	43.7		22.5	25.6	2000	3.10	34.826	5.03	27.758	34.8	2.115
3451P	2.066	34.837	5.44	1.68	64.7		25.0	25.5	2256	3.23	34.906	5.57	27.810	29.9	2.236
3488P	1.98	34.844	5.52	1.64	63.4	0.00	24.6	24.3	2500	3.18	34.929	5.70	27.834	27.6	2.353
									2750	3.03	34.935	5.81	27.852	25.8	2.467
									3000	2.79	34.913	5.76	27.857	25.5	2.580
									3250	2.44	34.874	5.57	27.856	25.6	2.690
									3500	1.96	34.846	5.54	27.873	24.0	2.793

15 STD						CATO EXPEDITION VI						16 STD					
LATITUDE		LONGITUDE		MO/DAY/YR		START TIME		LATITUDE		LONGITUDE		MO/DAY/YR		START TIME			
31 54.7S		38 57.0W		11/15/72		0618 GMT		31 54.0S		39 55.1W		11/15/72		1547 GMT			
Z	T	S	SIGMA T	DT	DD	Z	T	S	SIGMA T	DT	DD	Z	T	S	SIGMA T	DT	DD
0	19.24	36.05	25.779	222.6	0.000	0	19.84	36.21	25.744	225.9	0.000	0	19.84	36.21	25.744	225.9	0.000
10	19.18	36.05	25.794	221.1	0.022	10	19.82	36.20	25.741	226.1	0.023	10	19.82	36.20	25.741	226.1	0.023
20	18.85	36.03	25.864	214.5	0.044	20	19.76	36.18	25.742	226.0	0.045	20	19.76	36.18	25.742	226.0	0.045
30	18.69	36.03	25.904	210.6	0.065	30	19.68	36.17	25.755	224.7	0.068	30	19.68	36.17	25.755	224.7	0.068
40	18.61	36.02	25.917	209.4	0.087	40	19.47	36.16	25.803	220.3	0.090	40	19.47	36.16	25.803	220.3	0.090
50	18.60	36.01	25.912	209.9	0.108	50	19.45	36.15	25.800	220.5	0.112	50	19.45	36.15	25.800	220.5	0.112
60	18.57	36.01	25.919	209.2	0.129	60	19.40	36.15	25.813	219.2	0.135	60	19.40	36.15	25.813	219.2	0.135
70	18.53	36.01	25.930	208.2	0.150	70	19.30	36.14	25.832	217.5	0.157	70	19.30	36.14	25.832	217.5	0.157
80	18.45	36.01	25.950	206.3	0.171	80	19.01	36.11	25.884	212.6	0.179	80	19.01	36.11	25.884	212.6	0.179
90	18.31	36.01	25.985	203.0	0.192	90	18.92	36.08	25.884	212.6	0.200	90	18.92	36.08	25.884	212.6	0.200
100	18.22	36.01	26.007	200.8	0.212	100	18.42	35.99	25.942	207.0	0.221	100	18.42	35.99	25.942	207.0	0.221
125	17.95	35.97	26.044	197.4	0.263	125	17.45	35.85	26.075	194.4	0.273	125	17.45	35.85	26.075	194.4	0.273
150A	17.27	35.93	26.180	184.5	0.312	150A	17.16	35.80	26.107	191.4	0.322	150A	17.16	35.80	26.107	191.4	0.322
200A	16.58	35.85	26.283	174.7	0.404	200A	15.98	35.67	26.284	174.5	0.416	200A	15.98	35.67	26.284	174.5	0.416
250A	15.64	35.66	26.354	167.9	0.494	250A	15.13	35.56	26.392	164.3	0.5042	250A	15.13	35.56	26.392	164.3	0.5042
300A	14.97	35.61	26.466	157.3	0.579	300A	14.47	35.48	26.475	156.5	0.589	300A	14.47	35.48	26.475	156.5	0.589
350A	14.43	35.54	26.530	151.3	0.661	350A	13.98	35.41	26.526	151.7	0.671	350A	13.98	35.41	26.526	151.7	0.671
400A	13.80	35.44	26.587	145.9	0.741	400A	13.23	35.26	26.5662	147.9	0.751	400A	13.23	35.26	26.5662	147.9	0.751
450A	12.85	35.28	26.658	139.1	0.818	450A	12.62	35.20	26.642	140.6	0.828	450A	12.62	35.20	26.642	140.6	0.828
500A	12.10	35.14	26.697	135.4	0.893	500A	11.64	35.09	26.668	138.1	0.904	500A	11.64	35.09	26.668	138.1	0.904
550A	11.11	34.99	26.767	128.8	0.965	550A	10.23	34.83	26.799	125.7	0.976	550A	10.23	34.83	26.799	125.7	0.976
600A	9.96	34.83	26.846	121.3	1.034	600A	9.19	34.70	26.873	118.8	1.043	600A	9.19	34.70	26.873	118.8	1.043
650A	8.33	34.62	26.946	111.6	1.099	650A	8.21	34.56	26.916	114.5	1.108	650A	8.21	34.56	26.916	114.5	1.108
700A	7.04	34.45	27.002	106.6	1.159	700A	7.08	34.44	26.988	107.8	1.169	700A	7.08	34.44	26.988	107.8	1.169
750A	5.73	34.33	27.079	99.2	1.216	750A	6.13	34.36	27.052	101.7	1.227	750A	6.13	34.36	27.052	101.7	1.227
800A	5.22	34.30	27.117	95.6	1.269	800A	5.45	34.32	27.106	96.7	1.281	800A	5.45	34.32	27.106	96.7	1.281
850A	4.88	34.31	27.165	91.1	1.320	850A	4.96	34.29	27.140	93.5	1.334	850A	4.96	34.29	27.140	93.5	1.334
900A	4.53	34.29	27.188	88.9	1.370	900A	4.62	34.28	27.170	90.6	1.384	900A	4.62	34.28	27.170	90.6	1.384
950A	4.29	34.29	27.214	86.5	1.418	950A	4.30	34.27	27.197	88.1	1.433	950A	4.30	34.27	27.197	88.1	1.433
1000A	4.03	34.28	27.233	84.6	1.466	1000A	3.97	34.28	27.239	84.0	1.481	1000A	3.97	34.28	27.239	84.0	1.481
1100A	3.52	34.31	27.308	77.5	1.555	1100A	3.56	34.31	27.302	78.1	1.571	1100A	3.56	34.31	27.302	78.1	1.571
1200A	3.19	34.36	27.379	70.6	1.638	1200A22	3.27	34.35	27.364	72.2	1.654	1200A22	3.27	34.35	27.364	72.2	1.654
1300A	2.98	34.42	27.447	64.4	1.714	1300A	3.06	34.43	27.447	64.3	1.731	1300A	3.06	34.43	27.447	64.3	1.731
1400A	2.85	34.47	27.498	59.5	1.785	1400A	2.85	34.47	27.498	59.5	1.802	1400A	2.85	34.47	27.498	59.5	1.802
1500A	2.82	34.55	27.565	53.2	1.8502	1500A	2.80	34.53	27.550	54.6	1.868	1500A	2.80	34.53	27.550	54.6	1.868
1600A	2.80	34.62	27.622	47.8	1.910	1600A	2.81	34.61	27.613	48.6	1.929	1600A	2.81	34.61	27.613	48.6	1.929
1700A	2.84	34.66	27.666	43.6	1.967	1700A	2.90	34.68	27.66122	44.1	1.987	1700A	2.90	34.68	27.66122	44.1	1.987
1800A	2.86	34.73	27.704	40.0	2.020	1800A	2.86	34.71	27.688	41.5	2.041	1800A	2.86	34.71	27.688	41.5	2.041
1900A	2.91	34.78	27.740	36.6	2.071	1900A	2.90	34.77	27.733	37.3	2.093	1900A	2.90	34.77	27.733	37.3	2.093
2000A	3.01	34.83	27.770	33.7	2.119	2000A	3.07	34.83	27.765	34.2	2.142	2000A	3.07	34.83	27.765	34.2	2.142
2100A	3.08	34.87	27.796	31.3	2.166	2100A	3.18	34.87	27.786	32.2	2.190	2100A	3.18	34.87	27.786	32.2	2.190
2200A	3.11	34.90	27.817	29.3	2.212	2200A	3.22	34.90	27.806	30.3	2.238	2200A	3.22	34.90	27.806	30.3	2.238
2300A	3.09	34.91	27.827	28.2	2.258	2300A	3.22	34.93	27.830	28.0	2.284	2300A	3.22	34.93	27.830	28.0	2.284
2400A	3.07	34.92	27.836	27.4	2.303	2400A	3.18	34.93	27.83422	27.7	2.329	2400A	3.18	34.93	27.83422	27.7	2.329
2500A	3.04	34.93	27.847	26.4	2.347	2500A	3.15	34.94	27.845	26.6	2.375	2500A	3.15	34.94	27.845	26.6	2.375
2600A	3.00	34.93	27.851	26.1	2.391	2600A	3.09	34.94	27.851	26.1	2.420	2600A	3.09	34.94	27.851	26.1	2.420
2700A	2.95	34.92	27.848	26.4	2.436	2700A	3.05	34.94	27.854	25.8	2.465	2700A	3.05	34.94	27.854	25.8	2.465
2800A	2.87	34.92	27.855	25.7	2.481	2800A	2.97	34.94	27.862	25.1	2.510	2800A	2.97	34.94	27.862	25.1	2.510
2900A	2.82	34.92	27.859	25.3	2.525	2900A	2.91	34.93	27.859	25.3	2.5542	2900A	2.91	34.93	27.859	25.3	2.5542
3000A	2.78	34.92	27.863	24.9	2.569	3000A	2.80	34.92	27.861	25.1	2.599	3000A	2.80	34.92	27.861	25.1	2.599
3100A	2.74	34.92	27.867	24.6	2.614	3100A	2.63	34.90	27.860	25.2	2.643	3100A	2.63	34.90	27.860	25.2	2.643
3200A	2.68	34.91	27.864	24.8	2.658	3200A	2.50	34.88	27.856	25.6	2.687	3200A	2.50	34.88	27.856	25.6	2.687
3300A	2.64	34.91	27.867	24.5	2.703	3300A	2.34	34.87	27.861	25.1	2.731	3300A	2.34	34.87	27.861	25.1	2.731
3400A	2.50	34.90	27.872	24.1	2.747	3400A	2.06	34.84	27.860	25.2	2.772	3400A	2.06	34.84	27.860	25.2	2.772
3500A	2.33	34.87	27.862	25.0	2.790	3500A	1.85	34.83	27.869	24.4	2.812	3500A	1.85	34.83	27.869	24.4	2.812
3600A	2.06	34.85	27.868	24.4	2.832	3600A	1.38	34.78	27.864	24.9	2.849	3600A	1.38	34.78	27.864	24.9	2.849
3700A	1.84	34.83	27.870	24.3	2.873	3700A	0.93	34.73	27.854	25.7	2.884	3700A	0.93	34.73	27.854	25.7	2.884
3800A	1.57	34.80	27.866	24.6	2.911	3800A	0.63	34.70	27.849	26.2	2.915	3800A	0.63	34.70	27.849	26.2	2.915
3900A	1.36	34.77	27.857	25.5	2.948	3900A	0.42	34.69	27.854	25.8	2.944	3900A	0.42	34.69	27.854	25.8	2.944
4000A	1.19	34.76	27.861	25.1	2.984	4000A	0.36	34.68	27.849	26.3	2.972	4000A	0.36	34.68	27.849	26.3	2.972
4074A	0.92	34.73	27.855	25.7	3.009												

RV MELVILLE

CATO EXPEDITION VI

17

LATITUDE		LONGITUDE		MO/DAY/YR	MESSENGER		TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES			
33 10.2S		40 44.5W		11/16/72	1035	1231	GMT	4723M	130	18KT	1	10U	7		
Z	T	S	O2	P04	SI03	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
0	18.65	36.032	5.72	0.05	1.5	0.00	0.0	209.5	0	18.65	36.032	5.72	25.916	209.5	0.000
21A	18.40	36.088	5.58	0.13	1.0	0.00	0.0	199.4	10	18.51	36.065	5.63	25.978	203.7	0.021
42	18.32	36.083	5.62	0.04	1.0	0.00	0.0	197.9	20	18.41	36.095	5.58	26.019	199.7	0.041
63	18.29	36.093	5.47	0.09	0.8	0.00	0.0	196.5	30	18.35	36.080	5.60	26.029	198.8	0.061
99A	17.59	36.016	5.51	0.12	1.2	0.01	0.0	185.6	50	18.31	36.082	5.57	26.042	197.6	0.101
105	17.31	35.963	5.56	0.09	1.3	0.03	0.0	183.0	75	18.20	36.096	5.48	26.080	193.9	0.150
126	16.85	35.900	5.4322	0.13	1.2	0.202	0.6	177.1	100	17.54	36.006	5.52	26.172	185.2	0.198
203A	15.82	35.746	5.25	0.34	1.5	0.01	3.2	165.5	125	16.86	35.899	5.44	26.255	177.3	0.245
358A	14.05	35.470	4.96	0.54	2.6	0.01	7.8	148.7	150	16.47	35.844	5.35	26.305	172.5	0.290
514A	10.80	34.928	4.85	1.08	5.5	0.01	15.3	128.1	200	15.85	35.750	5.25	26.376	165.8	0.377
719A	6.01	34.383	5.44	1.71	12.3		24.1	98.6	250	15.34	35.677	5.15	26.436	160.1	0.462
1027A	3.71	34.280	6.10	2.06	28.5		30.0	81.5	300	14.77	35.589	5.05	26.494	154.7	0.5452
1233A	2.99	34.353	4.86	2.23	44.5		32.5	69.5	400	13.262	35.330	4.93	26.613	143.4	0.704
1438A	2.74	34.473	4.47	2.25	57.0	0.01	32.6	58.4	500	11.13	34.978	4.86	26.754	130.0	0.852
1644P	2.82	34.626	4.39	2.13	58.7		31.4	47.5	600	8.67	34.645	5.05	26.913	115.0	0.986
1824P	2.97	34.740	4.70	1.97	53.1		28.3	40.1	700	6.41	34.416	5.37	27.060	101.1	1.1052
2049P	3.09	34.831	5.15	1.69	42.4		25.0	34.3	800	5.05	34.316	5.61	27.149	92.6	1.21122
2358P	3.15	34.914	5.62	1.47	31.72		22.0	28.62	1000	3.76	34.276	6.04	27.257	82.4	1.403
2660P	2.99	34.922	5.81	1.40	30.5	0.00	20.6	26.6	1200	3.07	34.337	5.08	27.372	71.42	1.574
3035P	2.74	34.913	5.78	1.38	34.6		20.9	25.1	1500	2.76	34.522	4.452	27.547	54.9	1.7892
3406P	1.652	34.810	5.28	1.81	77.1		26.5	24.5	1750	2.91	34.697	4.55	27.674	42.9	1.937
3624P	1.115	34.733	4.98	2.07	106.1		30.22	26.7	2000	3.07	34.815	5.05	27.753	35.4	2.068
3804P	0.840	34.716	5.10U	2.16	112.5		31.1	26.3	2250	3.13	34.889	5.48	27.807	30.3	2.188
3842P	0.78	34.715	4.96	2.17	114.5	0.00	31.5	26.0	2500	3.09	34.922	5.74	27.837	27.4	2.3042
									2750	2.97	34.924	5.80	27.849	26.2	2.417
									3000	2.78	34.915	5.78	27.860	25.2	2.529
									3250	2.15	34.854	5.52	27.865	24.7	2.634
									3500	1.40	34.775	5.13	27.858	25.5	2.730
									3750	0.92	34.721	4.97	27.848	26.42	2.816

RV MELVILLE

CATO EXPEDITION VI

18

LATITUDE		LONGITUDE		MO/DAY/YR	MESSENGER		TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES			
35 26.5S		41 29.0W		11/17/72	0349	0559	GMT	4839M	160	12KT	1	10U	10		
Z	T	S	O2	P04	SI03	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
0	18.36	35.949	5.46	0.09	1.4	0.00	0.0	208.6	0	18.36	35.949	5.46	25.926	208.6	0.000
41	17.94	35.998	5.53	0.07	1.0	0.00	0.0	195.1	10	18.26	35.943	5.48	25.948	206.5	0.0212
63	17.34	35.979	5.54	0.10	1.2	0.00	0.0	182.5	20	18.16	35.949	5.502	25.978	203.62	0.0412
105	17.00	35.958	5.40	0.1522	1.3	0.05	0.9	176.3	30	18.05	35.966	5.522	26.016	200.02	0.0622
125A	16.62	35.901	5.26V	0.242	1.5	0.02	1.9		50	17.69	35.990	5.53	26.124	189.8	0.101
126	16.77	35.923	5.27	0.23	1.3	0.02	1.8	173.6	75	17.20	35.974	5.52	26.232	179.5	0.148
158	16.09	35.786	5.12	0.34	1.5	0.02	3.4	168.5	100	17.02	35.961	5.43	26.265	176.4	0.193
203A	15.10	35.642	5.06					157.7	125	16.78	35.924	5.28	26.293	173.7	0.238
280A	14.59	35.583	5.31	1.49	2.2	0.02	15.4	151.4	150	16.28	35.822	5.15	26.333	169.92	0.2822
385A	13.40	35.352	5.11	0.75	3.1	0.01	8.7	144.4	200	15.16	35.648	5.06	26.454	158.4	0.367
540A	8.47	34.583	5.20	1.30	7.6	0.01	19.5	116.6	250	14.72	35.598	5.21	26.512	152.9	0.448
695A	5.19	34.248	5.97	1.69	11.8		24.2	99.2	300	14.45	35.558	5.29	26.539	150.4	0.528
900A	4.09	34.227	5.89	1.96	19.9		27.4	89.2	400	12.97	35.272	5.12	26.628	142.0	0.6842
1207A	2.95	34.313	5.08	2.24	42.3		32.4	72.2	500	9.84	34.765	5.18	26.815	124.3	0.828
1412A	2.68	34.441	4.54	2.25	57.8		33.5	60.3	600	6.98	34.411	5.50	26.979	108.7	0.9542
1616A	2.82	34.585	4.35	2.23	60.6	0.00	32.1	50.6	700	5.14	34.246	5.97	27.083	98.8	1.067
1820A	2.90	34.689	4.48	2.09	59.5		30.1	43.4	800	4.38	34.213	5.93	27.143	93.2	1.170
2024A	3.02	34.781	4.86	1.92	52.5		27.5	37.5	100022	3.64	34.244	5.67	27.243	83.92	1.36322
2329A	3.19	34.895	5.48	1.51	36.0		21.8	30.4	1200	2.97	34.311	5.10	27.36022	72.6	1.535
2736A	2.89	34.90	5.65	1.50	38.7		21.5	27.4	1500	2.72	34.505	4.42	27.537	55.8	1.753
3144A	2.576	34.890	5.69	1.47	44.6	0.00	22.1	25.5	1750	2.87	34.657	4.44	27.644	45.6	1.905
3658A	1.129	34.734	4.96	2.14	109.4		30.6	26.7	2000	3.00	34.771	4.81	27.724	38.1	2.042
4175A	0.354	34.686	5.11	2.27	128.8		32.6	25.8	2250	3.16	34.871	5.34	27.789	31.9	2.168
4489A	0.209	34.671	5.18	2.28	130.1		32.4	26.1	2500	3.10	34.907	5.55	27.824	28.6	2.287
4751A	0.163								2750	2.89	34.900	5.65	27.838	27.3	2.402
4804A	0.1622	34.663 E	5.18	2.29	132.2	0.00	33.1	26.5	3000	2.73	34.897	5.68	27.850	25.92	2.516
									3250	2.40	34.857	5.54	27.855	25.7	2.625
									3500	1.60	34.781	5.18	27.848	26.2	2.726
									3750	0.94	34.721	4.99	27.846	26.5	2.816
									4000	0.54	34.696	5.06	27.851	26.1	2.895
									4250	0.40	34.682	5.13	27.853	25.8	2.965
									4500	0.21	34.671	5.18	27.850	26.2	3.032
									4750	0.16	34.665	5.18	27.847	26.4	3.098

E) MEAN VALUE OF 34.655 AND 34.671 PPT.

17 STD						CATO EXPEDITION VI						18 STD					
LATITUDE	LONGITUDE		MO/DAY/YR	START TIME		LATITUDE	LONGITUDE		MO/DAY/YR	START TIME		LATITUDE	LONGITUDE		MO/DAY/YR	START TIME	
33 10.2S	40 44.5W		11/16/72	0902 GMT		35 26.5S	41 29.0W		11/17/72	0215 GMT		35 26.5S	41 29.0W		11/17/72	0215 GMT	
Z	T	S	SIGMA T	DT	DD	Z	T	S	SIGMA T	DT	DD	Z	T	S	SIGMA T	DT	DD
0	18.57	36.02	25.927	208.4	0.000	0	18.47	35.97	25.914	209.7	0.000	0	18.47	35.97	25.914	209.7	0.000
10	18.59	36.03	25.930	208.2	0.021	10	18.49	35.98	25.917	209.4	0.021	10	18.49	35.98	25.917	209.4	0.021
20	18.38	36.08	26.021	199.5	0.041	20	18.48	35.98	25.919	209.2	0.042	20	18.48	35.98	25.919	209.2	0.042
30	18.32	36.08	26.036	198.1	0.061	30	18.48	35.98	25.919	209.2	0.063	30	18.48	35.98	25.919	209.2	0.063
40	18.30	36.09	26.048	196.9	0.081	40	18.11	36.02	26.042	197.5	0.083	40	18.11	36.02	26.042	197.5	0.083
50	18.30	36.09	26.048	196.9	0.101	50	17.70	36.00	26.129	189.3	0.103	50	17.70	36.00	26.129	189.3	0.103
60	18.27	36.09	26.056	196.2	0.121	60	17.38	35.98	26.191	183.4	0.122	60	17.38	35.98	26.191	183.4	0.122
70	17.74	36.01	26.126	189.5	0.140	70	17.27	35.972	26.210	181.6	0.1402	70	17.27	35.972	26.210	181.6	0.1402
80	17.74	36.06	26.165	185.9	0.159	80	17.20	35.97	26.227	179.9	0.159	80	17.20	35.97	26.227	179.9	0.159
90	17.21	35.93	26.194	183.1	0.178	90	17.13	35.992	26.259	176.9	0.177	90	17.13	35.992	26.259	176.9	0.177
100	16.98	35.92	26.242	178.6	0.197	100	17.09	35.99	26.269	176.0	0.195	100	17.09	35.99	26.269	176.0	0.195
125	16.72	35.92	26.304	172.7	0.241	125	16.76	35.93	26.302	172.9	0.239	125	16.76	35.93	26.302	172.9	0.239
150	16.37	35.85	26.332	170.0	0.285	150	16.222	35.79	26.321	171.0	0.283	150	16.222	35.79	26.321	171.0	0.283
200	15.84	35.77	26.393	164.2	0.372	200	15.17	35.66	26.460	157.9	0.368	200	15.17	35.66	26.460	157.9	0.368
250	14.91	35.60	26.471	156.8	0.455	250	14.95	35.70	26.540	150.3	0.449	250	14.95	35.70	26.540	150.3	0.449
300	14.65	35.58	26.513	152.9	0.537	300	14.66	35.62	26.542	150.12	0.528	300	14.66	35.62	26.542	150.12	0.528
350	14.11	35.48	26.552	149.1	0.617	350	14.39	35.55	26.546	149.7	0.6082	350	14.39	35.55	26.546	149.7	0.6082
400	13.41	35.35	26.598	144.8	0.696	400	13.07	35.25	26.590	145.5	0.687	400	13.07	35.25	26.590	145.5	0.687
450	12.37	35.16	26.660	138.9	0.773	450	11.42	35.00	26.717	133.5	0.762	450	11.42	35.00	26.717	133.5	0.762
500	11.33	34.99	26.726	132.7	0.846	500	9.80	34.74	26.803	125.4	0.832	500	9.80	34.74	26.803	125.4	0.832
550	9.89	34.61	26.842	121.7	0.916	550	7.86	34.49	26.915	114.8	0.897	550	7.86	34.49	26.915	114.8	0.897
600	8.53	34.62	26.915	114.7	0.981	600	6.59	34.36	26.992	107.5	0.957	600	6.59	34.36	26.992	107.5	0.957
650	7.24	34.48	26.997	107.0	1.042	650	5.67	34.28	27.047	102.2	1.014	650	5.67	34.28	27.047	102.2	1.014
700	6.09	34.34	27.042	102.6	1.099	700	5.09	34.23	27.077	99.4	1.068	700	5.09	34.23	27.077	99.4	1.068
750	5.48	34.30	27.086	98.6	1.154	750	4.79	34.23	27.111	96.2	1.121	750	4.79	34.23	27.111	96.2	1.121
800	5.04	34.25	27.099	97.4	1.208	800	4.50	34.22	27.136	93.9	1.173	800	4.50	34.22	27.136	93.9	1.173
850	4.67	34.26	27.149	92.6	1.259	850	4.23	34.22	27.165	91.1	1.223	850	4.23	34.22	27.165	91.1	1.223
900	4.33	34.25	27.178	89.9	1.309	900	4.05	34.21	27.176	90.1	1.272	900	4.05	34.21	27.176	90.1	1.272
950	4.03	34.25	27.209	86.9	1.358	950	3.82	34.22	27.207	87.1	1.320	950	3.82	34.22	27.207	87.1	1.320
1000	3.84	34.26	27.237	84.3	1.405	1000	3.63	34.23	27.234	84.6	1.367	1000	3.63	34.23	27.234	84.6	1.367
1100	3.41	34.30	27.311	77.3	1.494	1100	3.23	34.27	27.304	77.9	1.456	1100	3.23	34.27	27.304	77.9	1.456
1200	3.08	34.33	27.366	72.1	1.577	1200	2.99	34.30	27.350	73.5	1.540	1200	2.99	34.30	27.350	73.5	1.540
1300	2.85	34.38	27.426	66.3	1.654	1300	2.77	34.36	27.416	67.2	1.618	1300	2.77	34.36	27.416	67.2	1.618
1400	2.79	34.45	27.488	60.5	1.726	1400	2.70	34.42	27.472	62.022	1.69022	1400	2.70	34.42	27.472	62.022	1.69022
1500	2.80	34.53	27.550	54.6	1.792	1500	2.73	34.50	27.533	56.222	1.758	1500	2.73	34.50	27.533	56.222	1.758
1600	2.83	34.59	27.596	50.3	1.854	1600	2.63	34.58	27.588	51.0	1.821	1600	2.63	34.58	27.588	51.0	1.821
1700	2.84	34.67	27.658	44.3	1.912	1700	2.87	34.63	27.624	47.6	1.881	1700	2.87	34.63	27.624	47.6	1.881
1800	2.92	34.72	27.691	41.2	1.967	1800	2.90	34.68	27.661	44.1	1.939	1800	2.90	34.68	27.661	44.1	1.939
1900	3.00	34.77	27.723	38.1	2.019	1900	2.95	34.73	27.696	40.7	1.994	1900	2.95	34.73	27.696	40.7	1.994
2000	3.05	34.82	27.759	34.8	2.069	2000	3.04	34.78	27.728	37.7	2.046	2000	3.04	34.78	27.728	37.7	2.046
2100	3.10	34.86	27.786	32.2	2.117	2100	3.04	34.82	27.76022	34.7	2.097	2100	3.04	34.82	27.76022	34.7	2.097
2200	3.11	34.88	27.801	30.8	2.165	2200	3.08	34.86	27.788	32.1	2.146	2200	3.08	34.86	27.788	32.1	2.146
2300	3.13	34.91	27.823	28.7	2.211	2300	3.10	34.88	27.802	30.7	2.194	2300	3.10	34.88	27.802	30.7	2.194
2400	3.15	34.93	27.837	27.4	2.256	2400	3.14	34.90	27.814	29.6	2.241	2400	3.14	34.90	27.814	29.6	2.241
2500	3.14	34.94	27.846	26.6	2.301	2500	3.11	34.91	27.825	28.6	2.288	2500	3.11	34.91	27.825	28.6	2.288
2600	3.02	34.93	27.849	26.2	2.346	2600	2.99	34.91	27.836	27.5	2.334	2600	2.99	34.91	27.836	27.5	2.334
2700	2.97	34.93	27.854	25.82	2.391	2700	2.87	34.90	27.839	27.2	2.379	2700	2.87	34.90	27.839	27.2	2.379
2800	2.93	34.94	27.865	24.7	2.435	2800	2.86	34.91	27.848	26.4	2.425	2800	2.86	34.91	27.848	26.4	2.425
2900	2.82	34.92	27.859	25.3	2.479	2900	2.81	34.91	27.852	25.9	2.469	2900	2.81	34.91	27.852	25.9	2.469
3000	2.77	34.92	27.864	24.8	2.523	3000	2.75	34.91	27.858	25.4	2.514	3000	2.75	34.91	27.858	25.4	2.514
3100	2.65	34.91	27.867	24.6	2.567	3100	2.63	34.91	27.868	24.4	2.558	3100	2.63	34.91	27.868	24.4	2.558
3200	2.52	34.90	27.870	24.3	2.610	3200	2.53	34.90	27.869	24.4	2.601	3200	2.53	34.90	27.869	24.4	2.601
3300	2.24	34.86	27.862	25.1	2.653	3300	2.22	34.84	27.847	26.4	2.644	3300	2.22	34.84	27.847	26.4	2.644
3400	1.75	34.80	27.853	25.9	2.693	3400	1.85	34.80	27.845	26.6	2.686	3400	1.85	34.80	27.845	26.6	2.686
3500	1.49	34.77	27.848	26.4	2.732	3500	1.64	34.80	27.861	25.1	2.725	3500	1.64	34.80	27.861	25.1	2.725
3600	1.23	34.76	27.858	27.4	2.768	3600	1.32	34.75	27.844	26.7	2.762	3600	1.32	34.75	27.844	26.7	2.762
3700	1.02	34.72	27.841	27.1	2.802	3700	1.11	34.72	27.835	27.6	2.799	3700	1.11	34.72	27.835	27.6	2.799
3800	0.85	34.71	27.844	26.8	2.836	3800	0.93	34.72	27.847	26.5	2.833	3800	0.93	34.72	27.847	26.5	2.833
3900	0.67	34.69	27.839	27.2	2.869	3900	0.76	34.71	27.849	26.2	2.866	3900	0.76	34.71	27.849	26.2	2.866
4000	0.45	34.68	27.844	26.8	2.899	4000	0.57	34.69	27.845	26.7	2.897	4000	0.57	34.69	27.845	26.7	2.897
4100	0.31	34.67	27.844	26.8	2.928	4100	0.44	34.68	27.845	26.7	2.927	4100	0.44	34.68	27.845	26.7	2.927
4200	0.21	34.66	27.841	27.0	2.955	4200	0.33	34.68	27.851	26.1	2.955	4200	0.33	34.68	27.851	26.1	2.955
4300	0.15	34.65	27.837	27.4	2.982	4300	0.28	34.68	27.854	25.8	2.982	4300	0.28	34.68	27.854	25.8	2.982
4400	0.11	34.65	27.839	27.2	3.009	4400	0.23	34.67	27.848	26.3	3.009	4400	0.23	34.67	27.848	26.3	3.009
4500	0.08	34.64	27.832	27.8	3.035	4500	0.19	34.67	27.851	26.1	3.036	4500	0.19	34.67	27.851	26.1	3.036
4600	0.06	34.64	27.833	27.8	3.061	4600	0.19	34.67	27.851	26.1	3.062	4600	0.19	34.67	27.851	26.1	3.062

RV MELVILLE

CATO EXPEDITION VI

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LATITUDE		LONGITUDE		MO/DAY/YR		MESSENGER		TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES		
35 52.9S		46 37.3W		11/18/72		0612 0921		GMT	4907M	040	30KT	6	040 12		
Z	T	S	02	P04	SI03	NO2	NO3	DT	Z	T	S	02	SIGT	DT	DD
0	19.23	36.085	5.35	0.11	1.1	0.00	0.0	219.8	0	19.23	36.085	5.35	25.808	219.8	0.000
41	17.44	35.798	5.70	0.15	1.4	0.00	0.0	198.0	10	18.71	35.968	5.44	25.853	215.5	0.022
62	16.87	35.833	5.86	0.14	1.4	0.00	0.0	182.4	20	18.24	35.883	5.53	25.905	210.6	0.043
104	15.20	35.656	5.19	0.43	1.8	0.07	4.7	158.8	30	17.83	35.826	5.61	25.964	204.9	0.064
109A	15.07	35.635	5.22V	0.44	2.0		4.8		50	17.19	35.810	5.79	26.107	191.3	0.104
125	15.03	35.629	5.27	0.43	2.0	0.04	4.8	157.2	75	16.30	35.783	5.66	26.299	173.1	0.150
155	14.94	35.662	5.45	0.42	1.8	0.02	4.3	152.9	100	15.44	35.675	5.26	26.435	160.2	0.192
187A	14.80	35.650	5.47	0.43	1.8		4.4	150.8	125	15.03	35.629	5.27	26.467	157.2	0.233
264A	14.55	35.602	5.56	0.42	1.9		5.1	149.2	150	14.95	35.654	5.42	26.505	153.6	0.273
367A	12.64	35.212	4.99	0.88	3.6		4.7U	140.1	200	14.79	35.650	5.49	26.537	150.5	0.351
522A	8.37	34.577	5.37	1.38	7.6		4.9U	115.6	250	14.63	35.619	5.54	26.548	149.5	0.430
677A	5.37	34.275	5.84	1.61	11.7		4.5U	99.2	300	14.03	35.489	5.37	26.577	146.8	0.508
3226P	2.30	34.850	5.35	1.70	58.9		24.8	26.3	400	11.75	35.057	5.07	26.700	135.1	0.658
3738P	1.000	34.722	4.93	2.21	111.4		31.7	26.8	500	8.99	34.653	5.32	26.868	119.2	0.795
4251P	0.33	34.682	5.10	2.26	126.4		33.0	26.0	600	6.76	34.400	5.60	27.000	106.7	0.918
4561P	0.196	34.676	5.17	2.31	128.6		33.0	25.7	3250	2.23	34.843	5.32	27.849	26.3	
4820P	0.159	34.673	5.17	2.32	129.9		33.2	25.7	3500	1.58	34.776	5.10	27.846	26.6	
4872P	0.164	34.670	5.20	2.28	129.4		32.9	26.0	3750	0.98	34.721	4.93	27.844	26.8	
									4000	0.58	34.696	4.98	27.848	26.4	
									4250	0.43	34.683	5.10	27.852	26.0	
									4500	0.21	34.677	5.16	27.855	25.7	
									4750	0.17	34.675	5.17	27.855	25.7	

RV MELVILLE

CATO EXPEDITION VI

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LATITUDE		LONGITUDE		MO/DAY/YR		MESSENGER		TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES		
35 11.9S		47 07.3W		11/18/72		1944 2317		GMT	4821M	280	29KT	2	280 10 7		
Z	T	S	02	P04	SI03	NO2	NO3	DT	Z	T	S	02	SIGT	DT	DD
0	19.27	35.898	5.33	0.08	1.3	0.00	0.1	234.3	0	19.27	35.898	5.33	25.655	234.3	0.000
42	19.25	35.908	5.33	0.08	0.8	0.00	0.0	233.1	10	19.27	35.899	5.33	25.658	234.0	0.023
47A	18.95	36.035	5.26	0.09	1.4	0.01	0.1	216.6	20	19.26	35.902	5.33	25.661	233.7	0.047
63	18.84	36.125	5.35	0.07	1.0	0.00	0.0	207.4	30	19.26	35.904	5.33	25.664	233.4	0.070
98A	18.07	36.105	5.12	0.18	0.8	0.05	0.9	190.4	50	18.93	36.050	5.26	25.860	214.8	0.115
105	18.04	36.094	5.11	0.16	1.3	0.03	1.1	190.5	75	18.56	36.136	5.29	26.020	199.6	0.168
127	17.89	36.093	5.07	0.17	1.0	0.01	1.3	187.0	100	18.06	36.100	5.12	26.117	190.4	0.217
158	17.57	36.029	5.09	0.19	1.0	0.01	1.8	184.2	125	17.91	36.091	5.07	26.148	187.4	0.266
176A	17.67	36.082	5.12	0.21	1.0	0.01	1.4	182.7	150	17.63	36.038	5.08	26.176	184.8	0.313
279A	15.35	35.649	4.96	0.48	2.1	0.01	4.9	162.5	200	17.31	36.024	5.10	26.242	178.5	0.407
435A	13.48	35.353	4.88	0.70	3.1	0.01	9.0	145.9	250	16.21	35.816	5.03	26.345	168.8	0.498
589A	9.97	34.827	4.72	1.22	7.2	0.01	17.3	121.7	300	15.09	35.607	4.95	26.438	160.0	0.584
795A	6.00	34.383	5.29	1.79	14.1		24.8	98.5	400	13.89	35.417	4.89	26.551	149.3	0.749
1103A	3.68	34.283	5.26	2.10	29.5		30.2	81.0	500	12.07	35.127	4.79	26.693	135.8	0.904
1307A	3.06	34.375	4.75	2.26	45.1		33.1	68.5	600	9.72	34.793	4.75	26.857	120.2	1.044
1511A	2.94	34.511	4.39	2.27	54.5	0.01	33.1	57.2	700	7.66	34.544	5.00	26.987	108.0	1.170
1715A	3.26	34.689	4.53	2.04	47.0		29.2	46.6	800	5.94	34.379	5.29	27.091	98.1	1.285
2022A	3.57	34.864	5.16	1.68	32.4		24.2	36.2	1000	4.12	34.277	5.27	27.221	85.8	1.488
2327A	3.26	34.890	5.34	1.58	35.8		22.9	31.4	1200	3.31	34.318	5.03	27.334	75.0	1.667
2736A	2.84	34.895	5.51	1.54	41.2		22.5	27.3	1500	2.95	34.505	4.40	27.517	57.8	1.894
3145A	2.182	34.828	5.18	1.76	66.5	0.00	25.9	27.0	1750	3.52	34.716	4.60	27.650	45.1	2.052
3657A	1.116	34.751	4.84	2.17	110.5		31.2	26.8	2000	3.56	34.856	5.11	27.738	36.8	2.191
4174A	0.34	34.689	5.06	2.23	125.7		32.1	25.5	2250	3.37	34.890	5.32	27.785	32.3	2.321
4485A	0.185	34.680	5.16	2.23	130.2		33.2	25.3	2500	3.10	34.898	5.45	27.817	29.3	2.442
4747A	0.144	34.672	5.16	2.30	132.2		32.7	25.7	2750	2.82	34.892	5.50	27.838	27.3	2.558
4800A	0.160	34.678	5.16	2.27	130.9	0.00	33.1	25.4	3000	2.44	34.853	5.32	27.840	27.1	2.669
									3250	1.96	34.806	5.08	27.841	27.0	2.776
									3500	1.44	34.758	4.91	27.842	26.9	2.874
									3750	0.94	34.720	4.86	27.846	26.6	2.963
									4000	0.55	34.699	4.96	27.853	25.9	3.042
									4250	0.29	34.686	5.09	27.858	25.4	3.112
									4500	0.18	34.680	5.16	27.859	25.4	3.177
									4750	0.14	34.667	5.16	27.850	25.7	3.240

19 STD						CATO EXPEDITION VI						20 STD					
LATITUDE		LONGITUDE		MO/DAY/YR	START TIME	LATITUDE		LONGITUDE		MO/DAY/YR	START TIME	LATITUDE		LONGITUDE		MO/DAY/YR	START TIME
35 52.9S		46 37.3W		11/18/72	0425 GMT	35 11.9S		47 07.3W		11/18/72	1644 GMT	35 11.9S		47 07.3W		11/18/72	1644 GMT
Z	T	S	SIGMA T	DT	DD	Z	T	S	SIGMA T	DT	DD	Z	T	S	SIGMA T	DT	DD
0	19.34	36.10	25.791	221.4	0.000	0	19.26	35.93	25.682	231.7	0.000	0	19.26	35.93	25.682	231.7	0.000
10	19.36	36.11	25.793	221.2	0.022	10	19.25	35.93	25.685	231.5	0.023	10	19.25	35.93	25.685	231.5	0.023
20	19.17	36.09	25.827	217.9	0.044	20	19.25	35.93	25.685	231.5	0.046	20	19.25	35.93	25.685	231.5	0.046
30	17.86	35.76	25.906	210.5	0.066	30	19.22	35.93	25.677	232.2	0.070	30	19.22	35.93	25.677	232.2	0.070
40	17.53	35.81	26.025	199.2	0.086	40	19.24	35.93	25.687	231.3	0.093	40	19.24	35.93	25.687	231.3	0.093
50	17.18	35.82	26.117	190.4	0.106	60	18.83	36.12	25.937	207.5	0.137	60	18.83	36.12	25.937	207.5	0.137
60	17.06	35.81	26.138	188.4	0.125	70	18.75	36.10	25.942	207.0	0.158	70	18.75	36.10	25.942	207.0	0.158
70	16.65	35.89	26.297	173.3	0.143	80	18.39	36.11	26.041	197.6	0.179	80	18.39	36.11	26.041	197.6	0.179
80	16.60	35.95	26.355	167.8	0.161	90	18.16	36.10	26.091	192.9	0.198	90	18.16	36.10	26.091	192.9	0.198
90	16.51	35.94	26.368	166.5	0.178	100	18.10	36.09	26.098	192.2	0.218	100	18.10	36.09	26.098	192.2	0.218
100	15.81	35.76	26.392	164.3	0.194	125	17.88	36.10	26.161	186.3	0.266	125	17.88	36.10	26.161	186.3	0.266
150	14.96	35.69	26.530	151.3	0.275	250A	15.79	35.72	26.366	166.7	0.495	250A	15.79	35.72	26.366	166.7	0.495
200	14.79	35.67	26.552	149.2	0.353	300A	15.04	35.62	26.458	158.0	0.580	300A	15.04	35.62	26.458	158.0	0.580
250	14.56	35.64	26.579	146.6	0.430	350A	14.40	35.53	26.528	151.4	0.662	350A	14.40	35.53	26.528	151.4	0.662
300	14.31	35.59	26.594	145.1	0.507	400A	13.87	35.43	26.564	148.0	0.743	400A	13.87	35.43	26.564	148.0	0.743
350	13.21	35.33	26.624	142.3	0.584	450A	12.96	35.27	26.628	141.9	0.821	450A	12.96	35.27	26.628	141.9	0.821
400	11.95	35.11	26.702	134.9	0.658	600A	9.74	34.78	26.844	121.5	1.037	600A	9.74	34.78	26.844	121.5	1.037
450	10.55	34.88	26.782	127.4	0.729	650A	8.25	34.59	26.935	112.9	1.102	650A	8.25	34.59	26.935	112.9	1.102
500	9.07	34.68	26.877	118.4	0.795	700A	7.34	34.51	27.006	106.1	1.162	700A	7.34	34.51	27.006	106.1	1.162
550	7.42	34.47	26.964	110.2	0.857	750A	6.45	34.41	27.050	102.0	1.220	750A	6.45	34.41	27.050	102.0	1.220
600	6.48	34.39	27.030	103.8	0.915	950A	4.64	34.29	27.176	90.1	1.432	950A	4.64	34.29	27.176	90.1	1.432
650	5.77	34.30	27.051	101.9	0.971	1000A	4.28	34.29	27.215	86.4	1.481	1000A	4.28	34.29	27.215	86.4	1.481
700	5.00	34.24	27.095	97.7	1.025	1100A	3.71	34.29	27.274	80.8	1.574	1100A	3.71	34.29	27.274	80.8	1.574
750	4.90	34.26	27.123	95.1	1.077	1200A	3.40	34.31	27.320	76.4	1.661	1200A	3.40	34.31	27.320	76.4	1.661
800	4.53	34.24	27.148	92.7	1.128	1300A	3.20	34.36	27.379	70.8	1.744	1300A	3.20	34.36	27.379	70.8	1.744
850	4.23	34.22	27.165	91.1	1.178	1400A	3.01	34.42	27.444	64.6	1.821	1400A	3.01	34.42	27.444	64.6	1.821
900	3.96	34.22	27.193	88.5	1.226	1700A	3.17	34.67	27.628	47.2	2.021	1700A	3.17	34.67	27.628	47.2	2.021
950	3.74	34.23	27.223	85.6	1.274	1800A	3.40	34.75	27.670	43.2	2.080	1800A	3.40	34.75	27.670	43.2	2.080
1000	3.56	34.24	27.249	83.1	1.320	1900A	3.48	34.81	27.710	39.5	2.136	1900A	3.48	34.81	27.710	39.5	2.136
1100	3.40	34.28	27.296	78.7	1.409	2000A	3.50	34.85	27.739	36.6	2.190	2000A	3.50	34.85	27.739	36.6	2.190
1200	3.01	34.30	27.348	73.7	1.493	2200A	3.51	34.91	27.786	32.2	2.293	2200A	3.51	34.91	27.786	32.2	2.293
1300	2.88	34.37	27.416	67.3	1.571	2300A	3.29	34.90	27.800	30.9	2.342	2300A	3.29	34.90	27.800	30.9	2.342
1400	2.72	34.40	27.454	63.7	1.645	2500A	3.22	34.92	27.822	28.8	2.439	2500A	3.22	34.92	27.822	28.8	2.439
1500	2.69	34.48	27.520	57.4	1.714	2600A	3.20	34.94	27.840	27.1	2.486	2600A	3.20	34.94	27.840	27.1	2.486
1600	2.70	34.53	27.559	53.7	1.779	2700A	3.03	34.92	27.840	27.1	2.532	2700A	3.03	34.92	27.840	27.1	2.532
1700	2.80	34.59	27.598	50.0	1.841	2800A	2.81	34.90	27.844	26.7	2.578	2800A	2.81	34.90	27.844	26.7	2.578
1800	2.73	34.63	27.636	46.4	1.900	3200A	2.12	34.82	27.840	27.2	2.753	3200A	2.12	34.82	27.840	27.2	2.753
1900	3.03	34.73	27.689	41.4	1.956	3300A	1.82	34.80	27.847	26.4	2.794	3300A	1.82	34.80	27.847	26.4	2.794
2000	3.00	34.76	27.716	38.9	2.010	3400A	1.54	34.76	27.836	27.5	2.833	3400A	1.54	34.76	27.836	27.5	2.833
2100	2.99	34.78	27.732	37.3	2.062	3500A	1.34	34.75	27.843	26.9	2.871	3500A	1.34	34.75	27.843	26.9	2.871
2200	3.00	34.81	27.755	35.1	2.113	3600A	1.22	34.75	27.851	26.1	2.907	3600A	1.22	34.75	27.851	26.1	2.907
2300	2.96	34.83	27.775	33.3	2.163	3700A	1.02	34.73	27.849	26.3	2.942	3700A	1.02	34.73	27.849	26.3	2.942
2400	2.98	34.85	27.789	31.9	2.212	3800A	0.86	34.71	27.843	26.8	2.975	3800A	0.86	34.71	27.843	26.8	2.975
2500	2.96	34.87	27.807	30.3	2.260	4100A	0.44	34.69	27.853	25.9	3.067	4100A	0.44	34.69	27.853	25.9	3.067
2600	2.98	34.90	27.829	28.2	2.307	4200A	0.35	34.69	27.858	25.5	3.095	4200A	0.35	34.69	27.858	25.5	3.095
2700	2.81	34.88	27.828	28.2	2.353	4300A	0.25	34.68	27.855	25.7	3.122	4300A	0.25	34.68	27.855	25.7	3.122
2800	2.90	34.92	27.852	26.0	2.398	4400A	0.20	34.68	27.858	25.4	3.148	4400A	0.20	34.68	27.858	25.4	3.148
2900	2.72	34.89	27.845	26.7	2.443	4500A	0.16	34.68	27.860	25.2	3.173	4500A	0.16	34.68	27.860	25.2	3.173
3000	2.59	34.87	27.840	27.1	2.488	4600A	0.14	34.67	27.853	25.9	3.198	4600A	0.14	34.67	27.853	25.9	3.198
3100	2.52	34.88	27.854	25.8	2.532	4800A	0.15	34.67	27.853	25.9	3.249	4800A	0.15	34.67	27.853	25.9	3.249
3200	2.31	34.86	27.856	25.6	2.575												
3300	2.16	34.85	27.860	25.2	2.617												
3400	1.77	34.80	27.851	26.1	2.658												
3500	1.54	34.78	27.852	26.0	2.696												
3600	1.24	34.74	27.842	27.0	2.733												
3700	1.07	34.73	27.845	26.6	2.769												
3800	0.93	34.72	27.847	26.5	2.803												
3900	0.74	34.70	27.842	26.9	2.836												
4000	0.56	34.69	27.846	26.6	2.867												
4100	0.45	34.69	27.852	26.0	2.896												
4200	0.36	34.68	27.849	26.3	2.925												
4300	0.29	34.68	27.853	25.9	2.952												
4400	0.23	34.66	27.856	25.6	2.978												
4500	0.20	34.67	27.850	26.2	3.005												
4600	0.18	34.67	27.851	26.1	3.031												
4700	0.17	34.67	27.852	26.0	3.057												
4800	0.15	34.67	27.853	25.9	3.082												
4900	0.16	34.67	27.852	26.0	3.108												

LATITUDE		LONGITUDE		MO/DAY/YR		MESSENGER		TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES		
34 37.5S		47 59.0W		11/19/72		1007 1229		GMT	4495M	180	21KT	1	220	10	6
Z	T	S	O2	PO4	SI03	NO2	NO3	DT	Z	T	S	O2	SI6T	DT	DD
0	19.29	35.825	5.32	0.14	1.6	0.00	0.0	240.1	0	19.29	35.825	5.32	25.594	240.1	0.000
42	19.28	35.826	5.33	0.12	1.6	0.00	0.0	239.8	10	19.29	35.824	5.32	25.595	240.0	0.024
64	18.82	36.051	5.39	0.10	1.0	0.00	0.0	212.211	20	19.29	35.824	5.32	25.596	239.9	0.048
105	18.19	36.126	5.17	0.14	1.0	0.05	0.7	191.7	30	19.28	35.825	5.33	25.597	239.9	0.072
117A	18.12	36.120	5.12	0.18	1.0	0.03	0.8	190.5	50	19.13	35.905	5.361	25.698	230.2	0.119
126	18.02	36.119	5.16	0.16	1.0	0.02	1.0	188.2	75	18.61	36.099	5.35	25.979	203.5	0.174
158	17.95	36.129	5.20	0.13	1.0	0.01	1.1	185.3	100	18.24	36.131	5.21	26.095	192.4	0.224
194A	17.74	36.106	5.17	0.20	1.2	0.01	1.2	182.5	125	18.03	36.117	5.15	26.138	188.4	0.273
271A	15.88	35.70411	5.06	0.39	1.8	0.01	4.4	169.9	150	17.94	36.125	5.19	26.167	185.6	0.3211
374A	14.71	35.553	4.89	0.53	2.4	0.01	6.5	156.1	200	17.62	36.076	5.16	26.209	181.7	0.4161
529A	12.32	35.159	4.80	0.90	4.1	0.00	12.0	138.1	250	16.44	35.821	5.09	26.293	173.7	0.509
683A	8.95	34.689	4.87	1.26	8.8		19.1	115.6	300	15.49	35.645	5.01	26.377	165.7	0.598
990A	4.27	34.226	5.91	1.82	17.5		27.1	91.1	400	14.37	35.498	4.67	26.510	153.1	0.768
1396A	3.04	34.381	4.71	2.00	47.1		32.7	67.9	500	12.83	35.243	4.82	26.833	141.5	0.928
1599A	2.79	34.487	4.42	2.26	58.8		33.6	57.7	600	10.78	34.9281	4.83	26.780	127.6	1.076
2005A	3.15	34.750	4.71	1.91	50.5		28.0	40.8	700	8.59	34.646	4.93	26.925	113.8	1.210
2207A	3.16	34.832	5.02	1.72	44.9	0.00	25.5	34.9	800	6.80	34.439	5.29	27.025	104.3	1.331
2510A	3.34	34.927	5.70	1.36	28.8		20.9	29.3	1000	4.24	34.232	5.89	27.172	90.4	1.547
2813A	3.14	34.936	5.92	1.34	28.5		20.7	26.9	1200	3.63	34.316	5.42	27.302	78.2	1.733
3217A	2.66	34.911	5.76	1.40	39.5		21.5	24.6	1500	2.88	34.434	4.53	27.466	62.51	1.972
3621A	0.920	34.730	4.90	2.12	115.1		31.5	25.7	175011	2.87	34.590	4.53	27.5901	50.8	2.140
3924A	0.335	34.688	5.05	2.24	128.0	0.00	32.9	25.5	2000	3.12	34.747	4.71	27.694	41.0	2.286
4228A	0.171	34.678	5.14	2.27	129.3		32.7	25.4	2250	3.19	34.848	5.12	27.768	33.9	2.419
4431A	0.119	34.671	5.18	2.27	132.0		32.8	25.7	2500	3.34	34.993	5.68	27.8151	29.5	2.5431
									2750	3.20	34.939	5.91	27.839	27.2	2.664
									3000	3.01	34.935	5.85	27.854	25.5	2.782
									3250	2.52	34.894	5.68	27.866	24.7	2.895
									3500	1.45	34.780	5.13	27.859	25.3	2.994
									3750	0.61	34.707	4.96	27.856	25.6	3.076
									4000	0.27	34.684	5.08	27.857	25.5	3.1461
									4250	0.16	34.678	5.15	27.858	25.4	3.210
									4500	0.10	34.669	5.19	27.855	25.7	3.2731

LATITUDE		LONGITUDE		MO/DAY/YR		MESSENGER		TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES		
34 11.4S		48 32.0W		11/19/72		2123 2310		GMT	3571M	220	16KT	1	220	5	5
Z	T	S	O2	PO4	SI03	NO2	NO3	DT	Z	T	S	O2	SI6T	DT	DD
0	19.19	35.935	5.15	0.10	1.5	0.01	0.0	229.7	0	19.19	35.935	5.15	25.704	229.7	0.000
42	18.98	35.935	5.35	0.10	1.5	0.00	0.0	224.5	10	19.14	35.934	5.20	25.717	228.4	0.023
63	18.08	36.000	5.27	0.13	1.5	0.06	0.1	198.2	20	19.09	35.934	5.25	25.730	227.2	0.046
104A	17.40	35.985	5.15	0.18	1.6	0.04	1.3		30	19.04	35.934	5.29	25.742	226.0	0.069
105	17.77	36.101	4.88	0.19	1.3	0.02	1.4	183.6	50	18.64	35.956	5.33	25.861	214.7	0.113
126	17.14	35.945	4.99	0.24	1.6	0.02	2.0	180.4	75	17.95	36.015	5.13	26.079	194.1	0.165
158	16.54	35.834	5.00	0.31	1.8	0.01	2.8	174.9	100	17.79	36.081	4.91	26.170	185.3	0.213
207A	15.61	35.665	5.07	0.40	1.9	0.01	4.2	166.9	125	17.17	35.952	4.98	26.2211	180.5	0.259
311A	14.87	35.618	5.17	0.44	2.2	0.01	5.4	154.6	150	16.67	35.854	5.00	26.265	176.3	0.305
414A	13.40	35.340	5.02	0.76	3.6		9.4	145.3	200	15.73	35.685	5.06	26.354	168.0	0.394
518A	11.54	35.036	4.82	0.96	5.7	0.01	15.6	133.0	250	15.25	35.635	5.13	26.424	161.2	0.480
621A	8.91	34.692	4.60	1.05	9.3		19.9	115.1	300	14.95	35.619	5.17	26.483	155.7	0.563
826A	5.17	34.295	5.64	1.79	15.3		25.511	95.4	400	13.63	35.384	5.05	26.579	146.6	0.725
982A	4.15	34.276	5.38	1.99	24.3		29.4	86.1	500	11.90	35.091	4.85	26.697	135.4	0.877
1187A	3.35	34.307	5.12	2.12	36.6	0.00	31.7	76.2	600	9.46	34.756	4.80	26.873	118.7	1.017
1391A	2.85	34.409	4.61	2.25	51.8	0.01	32.9	64.1	700	7.19	34.488	5.13	27.010	105.7	1.141
1597A	3.08	34.584	4.43	2.06	53.5	0.00	31.4	52.9	800	5.51	34.326	5.54	27.102	97.1	1.253
1802A	3.41	34.749	4.69	1.92	43.0		28.0	43.4	1000	4.061	34.277	5.36	27.227	85.2	1.454
2007A	5.49	34.838	5.01	1.66	36.9		24.6	37.4	1200	3.50	34.312	5.09	27.330	75.4	1.632
2212A	3.5211	34.900	5.17	1.51	30.3		22.9	33.0	1500	2.92	34.498	4.51	27.514	58.0	1.860
2417A	3.442	34.920	5.57	1.40	27.0	0.00	21.4	30.8	1750	3.53	34.712	4.601	27.645	45.6	2.018
2623A	3.29	34.942	5.78	1.34	27.4		21.0	27.8	2000	3.49	34.83611	5.001	27.730	37.6	2.159
2881A	2.980	34.926	5.76	1.40	32.6		20.9	26.2	2250	3.51	34.904	5.241	27.782	32.6	2.290
3138A	2.235	34.850	5.47	1.60	56.8		23.8	25.8	2500	3.39	34.929	5.68	27.814	29.5	2.416
3449A	0.968	34.721	4.74	2.07	114.3		31.9	26.7	2750	3.1711	34.940	5.77	27.843	26.811	2.536
3553A	0.563	34.701	4.78	2.22	123.7	0.00	31.9	25.8	3000	2.68	34.894	5.66	27.852	26.0	2.651
									3250	1.80	34.802	5.16	27.851	26.1	2.756
									3500	0.77	34.713	4.76	27.851	26.3	2.844

21 STD						CATO EXPEDITION VI						22 STD					
LATITUDE		LONGITUDE		MO/DAY/YR		START TIME		LATITUDE		LONGITUDE		MO/DAY/YR		START TIME			
34 37.5S		47 59.0W		11/19/72		0229 GMT		34 11.4S		48 32.0W		11/19/72		2008 GMT			
Z	T	S	SIGMA T	DT	DD	Z	T	S	SIGMA T	DT	DD	Z	T	S	SIGMA T	DT	DD
0	19.31	35.83	25.593	240.2	0.000	0	19.23	35.90	25.667	233.2	0.000	0	19.23	35.90	25.667	233.2	0.000
10	19.31	35.83	25.593	240.2	0.024	10	19.250	35.92	25.677	232.2	0.023	10	19.250	35.92	25.677	232.2	0.023
20	19.32	35.83	25.590	240.5	0.0480	20	19.22	35.93	25.6920	230.8	0.0460	20	19.22	35.93	25.6920	230.8	0.0460
30	19.31	35.83	25.593	240.2	0.072	30	19.07	35.94	25.7390	226.4	0.069	30	19.07	35.94	25.7390	226.4	0.069
40	19.31	35.84	25.601	239.50	0.096	40	19.00	35.93	25.749	225.4	0.092	40	19.00	35.93	25.749	225.4	0.092
50	19.30	35.86	25.6180	237.80	0.120	50	18.93	35.93	25.767	223.7	0.115	50	18.93	35.93	25.767	223.7	0.115
60	18.94	36.15	25.932	208.0	0.143	60	17.76	36.01	26.116	190.5	0.157	60	17.76	36.01	26.116	190.5	0.157
70	18.77	36.17	25.991	202.4	0.164	70	18.02	36.140	26.157	186.6	0.1760	70	18.02	36.140	26.157	186.6	0.1760
80	18.57	36.17	26.042	197.6	0.184	80	17.89	36.12	26.173	185.0	0.195	80	17.89	36.12	26.173	185.0	0.195
90	18.46	36.17	26.069	194.9	0.204	90	17.74	36.110	26.203	182.3	0.213	90	17.74	36.110	26.203	182.3	0.213
100	18.31	36.15	26.092	192.8	0.224	100	17.18	35.93	26.201	182.4	0.260	100	17.18	35.93	26.201	182.4	0.260
125	18.10	36.15	26.144	187.8	0.272	125	16.47	35.80	26.270	175.8	0.306	125	16.47	35.80	26.270	175.8	0.306
150	17.93	36.16	26.182	184.2	0.3200	150	15.68	35.69	26.368	166.6	0.394	150	15.68	35.69	26.368	166.6	0.394
200	17.72	36.120	26.215	181.1	0.414	200A	15.30	35.68	26.446	159.2	0.479	200A	15.30	35.68	26.446	159.2	0.479
400	14.72	35.56	26.482	155.8	0.770	300A	14.86	35.62	26.498	154.3	0.562	300A	14.86	35.62	26.498	154.3	0.562
450	13.83	35.39	26.542	150.1	0.852	350A	14.47	35.56	26.537	150.6	0.643	350A	14.47	35.56	26.537	150.6	0.643
600	10.83	34.92	26.763	129.2	1.082	400A	13.73	35.41	26.578	146.7	0.722	400A	13.73	35.41	26.578	146.7	0.722
650	9.90	34.79	26.825	123.3	1.152	450A	12.77	35.25	26.651	139.8	0.800	450A	12.77	35.25	26.651	139.8	0.800
700	8.48	34.62	26.923	114.0	1.218	500A	11.79	35.08	26.710	134.2	0.874	500A	11.79	35.08	26.710	134.2	0.874
750	7.08	34.47	27.012	105.6	1.27900	550A	10.78	34.93	26.780	127.6	0.946	550A	10.78	34.93	26.780	127.6	0.946
800	6.38	34.40	27.051	101.6	1.337	600A	9.07	34.70	26.892	116.9	1.013	600A	9.07	34.70	26.892	116.9	1.013
850	5.50	34.28	27.068	100.3	1.393	650A	7.86	34.53	26.9470	111.8	1.076	650A	7.86	34.53	26.9470	111.8	1.076
900	4.91	34.23	27.098	97.5	1.447	700A	6.42	34.39	27.038	103.1	1.135	700A	6.42	34.39	27.038	103.1	1.135
950	4.58	34.24	27.143	93.2	1.499	750A	5.65	34.30	27.066	100.5	1.191	750A	5.65	34.30	27.066	100.5	1.191
1000	4.22	34.21	27.158	91.8	1.550	800A	5.33	34.31	27.112	96.1	1.245	800A	5.33	34.31	27.112	96.1	1.245
1100	4.00	34.27	27.228	85.1	1.648	850A	5.02	34.32	27.156	91.9	1.297	850A	5.02	34.32	27.156	91.9	1.297
1200	3.44	34.270	27.284	79.8	1.746	900A	4.78	34.31	27.176	90.1	1.347	900A	4.78	34.31	27.176	90.1	1.347
1300	3.07	34.32	27.359	72.7	1.825	950A	4.34	34.27	27.193	88.5	1.396	950A	4.34	34.27	27.193	88.5	1.396
1400	3.11	34.40	27.419	67.0	1.904	1000A	4.05	34.28	27.231	84.8	1.444	1000A	4.05	34.28	27.231	84.8	1.444
1500	2.96	34.44	27.464	62.7	1.978	1100A	3.66	34.30	27.2870	79.6	1.535	1100A	3.66	34.30	27.2870	79.6	1.535
1700	2.87	34.57	27.57600	52.1	2.114	1200A	3.30	34.31	27.329	75.5	1.621	1200A	3.30	34.31	27.329	75.5	1.621
1800	2.87	34.62	27.616	48.4	2.175	1300A	3.17	34.36	27.381	70.6	1.703	1300A	3.17	34.36	27.381	70.6	1.703
1900	3.00	34.69	27.660	44.2	2.234	1400A	2.89	34.40	27.439	65.1	1.780	1400A	2.89	34.40	27.439	65.1	1.780
2000	3.08	34.76	27.708	39.6	2.290	1500A	3.00	34.50	27.508	58.5	1.851	1500A	3.00	34.50	27.508	58.5	1.851
2100	3.11	34.79	27.729	37.6	2.343	1600A	3.06	34.59	27.573	52.4	1.917	1600A	3.06	34.59	27.573	52.4	1.917
2200	3.14	34.83	27.758	34.9	2.395	1700A	3.15	34.65	27.614	48.5	1.979	1700A	3.15	34.65	27.614	48.5	1.979
2300	3.24	34.88	27.789	32.0	2.445	1800A	3.35	34.74	27.667	43.5	2.039	1800A	3.35	34.74	27.667	43.5	2.039
2400	3.37	34.92	27.808	30.100	2.494	1900A	3.33	34.78	27.700	40.3	2.095	1900A	3.33	34.78	27.700	40.3	2.095
2500	3.36	34.9300	27.817	29.3	2.543	2000A	3.47	34.84	27.734	37.1	2.149	2000A	3.47	34.84	27.734	37.1	2.149
2600	3.29	34.94	27.83200	27.9	2.592	2100A	3.48	34.87	27.757	34.9	2.202	2100A	3.48	34.87	27.757	34.9	2.202
2700	3.28	34.94	27.837	27.6	2.640	2200A	3.51	34.90	27.778	33.0	2.253	2200A	3.51	34.90	27.778	33.0	2.253
3000	2.98	34.94	27.861	25.1	2.781	2300A	3.48	34.92	27.797	31.2	2.3040	2300A	3.48	34.92	27.797	31.2	2.3040
3100	2.88	34.93	27.862	25.0	2.827	2400A	3.45	34.93	27.808	30.1	2.353	2400A	3.45	34.93	27.808	30.1	2.353
3200	2.72	34.92	27.868	24.4	2.872	2500A	3.40	34.93	27.813	29.7	2.403	2500A	3.40	34.93	27.813	29.7	2.403
3300	2.49	34.90	27.873	24.0	2.916	2600A	3.33	34.95	27.836	27.5	2.452	2600A	3.33	34.95	27.836	27.5	2.452
3400	1.96	34.84	27.866	24.4	2.957	2700A	3.23	34.94	27.837	27.4	2.499	2700A	3.23	34.94	27.837	27.4	2.499
3500	1.44	34.77	27.852	26.0	2.995	2800A	3.12	34.94	27.848	26.4	2.547	2800A	3.12	34.94	27.848	26.4	2.547
3600	1.03	34.73	27.848	26.4	3.030	2900A	2.96	34.93	27.855	25.7	2.593	2900A	2.96	34.93	27.855	25.7	2.593
3700	0.76	34.71	27.849	26.2	3.063	3000A	2.75	34.90	27.850	26.2	2.638	3000A	2.75	34.90	27.850	26.2	2.638
3800	0.46	34.70	27.859	25.5	3.093	3100A	2.38	34.88	27.866	24.7	2.682	3100A	2.38	34.88	27.866	24.7	2.682
3900	0.34	34.69	27.858	25.4	3.120	3200A	1.80	34.78	27.833	27.8	2.723	3200A	1.80	34.78	27.833	27.8	2.723
4000	0.27	34.69	27.862	25.0	3.147	3300A	1.42	34.75	27.837	27.4	2.762	3300A	1.42	34.75	27.837	27.4	2.762
4100	0.20	34.68	27.858	25.4	3.172	3400A	1.11	34.72	27.835	27.6	2.798	3400A	1.11	34.72	27.835	27.6	2.798
4200	0.17	34.67	27.852	26.0	3.196	3500A	0.83	34.70	27.837	27.4	2.832	3500A	0.83	34.70	27.837	27.4	2.832
4300	0.13	34.67	27.854	25.6	3.223	3570A	0.53	34.68	27.839	27.2	2.854	3570A	0.53	34.68	27.839	27.2	2.854
4400	0.10	34.67	27.855	25.7	3.248												
4500	0.10	34.67	27.855	25.7	3.273												

LATITUDE		LONGITUDE		MO/DAY/YR	MESSENGER			TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES		
33 43.3S		49 02.7W		11/20/72	0508	0644		GMT	3307M	26U	18KT	0	240 8		
Z	T	S	U2	P04	SI03	N02	N03	DT	Z	T	S	U2	SIGT	DT	DD
0	19.40	35.990	5.35	0.09	1.3	0.01	0.0	230.8	0	19.40	35.990	5.35	25.691	230.8	0.000
42	19.55	36.082	5.35	0.09	1.3	0.01	0.0	227.9	10	19.44	36.010	5.35	25.699	230.1	0.023
51A	19.30	36.078	5.27	0.11	1.3	0.00	0.0	222.0	20	19.47	36.032	5.35	25.706	229.4	0.046
63	18.57	36.068	5.28	0.11	1.2	0.01	0.0	205.0	30	19.51	36.054	5.35	25.714	228.7	0.069
77A	18.17	36.055	5.20	0.19	1.4	0.07	0.4	196.4	50	19.54	36.077	5.28	25.775	222.800	0.115
105	17.76	36.027	5.19	0.21	1.4	0.02	1.60	188.2	75	18.21	36.056	5.2100	26.046	197.10	0.168
181A	17.47	36.0230	5.29	0.22	1.5	0.01	1.8	182.3	100	17.81	36.030	5.19	26.126	189.5	0.217
258A	15.76	35.693	4.94	0.41	1.7	0.02	4.3	168.1	125	17.69	36.036	5.23	26.159	186.4	0.265
361A	14.72	35.574	5.08	0.50	2.2	0.01	5.9	154.7	150	17.60	36.038	5.26	26.183	184.1	0.312
464A	12.93	35.257	4.99	0.75	3.8	0.01	10.3	142.3	200	17.08	35.943	5.21	26.237	179.0	0.406
568A	10.68	34.922	5.060	1.10	5.4	0.00	14.9	126.5	2500	15.95	35.728	4.98	26.336	169.6	0.497
670A	7.88	34.543	5.15	1.45	9.6	0.02	20.6	111.1	300	15.29	35.636	4.97	26.415	162.2	0.584
772A	6.19	34.392	5.33	1.670	12.9	0.00	24.3	100.10	400	14.11	35.466	5.05	26.541	150.2	0.751
925A	4.638	34.298	5.330	1.90	20.6	0.00	28.0	99.4	500	12.21	35.146	5.00	26.680	137.0	0.9060
1128A	3.49	34.273	5.35	2.10	31.8	0.01	30.4	30.0	600	9.77	34.789	5.08	26.845	121.4	1.048
1333A	3.10	34.410	4.63	2.19	47.3	0.01	32.3	66.2	70000	7.50	34.485	5.21	26.992	107.5	1.175
1536A	2.93	34.547	4.41	2.22	54.9		32.4	54.4	800	5.84	34.367	5.33	27.094	97.8	1.288
1740A	3.16	34.693	4.53	2.00	50.3		29.0	45.4	10000	4.11	34.273	5.34	27.219	85.9	1.491
2047A	3.42	34.862	5.21	1.61	35.1	0.01	24.1	35.0	1200	3.50	34.313	5.11	27.332	75.3	1.670
2252A	3.44	34.907	5.64	1.42	26.9		21.6	31.8	1500	2.94	34.523	4.42	27.532	56.3	1.895
2458A	3.32	34.942	5.72	1.37	27.4	0.00	20.9	28.0	1750	3.17	34.701	4.55	27.65200	45.0	2.050
2666A	3.090	34.936	5.81	1.36	28.6	0.00	20.5	26.4	2000	3.59	34.842	5.09	27.744	36.2	2.1870
2875A	2.502	34.885	5.61	1.51	46.6		22.7	25.3	2250	3.44	34.906	5.6400	27.791	31.8	2.315
2980A	1.274	34.744	4.90	2.05	101.4	0.01	30.1	26.9							

LATITUDE		LONGITUDE		MO/DAY/YR	MESSENGER			TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES		
33 20.8S		49 21.5W		11/20/72	1712	1838		GMT	2333M	210	20KT	1	210 5 5		
Z	T	S	U2	P04	SI03	N02	N03	DT	Z	T	S	U2	SIGT	DT	DD
0	19.77	36.034	5.26	0.10	1.6	0.00	0.0	236.8	000	19.77	36.034	5.26	25.628	236.8	0.000
42	19.68	36.069	5.33	0.09	1.6	0.00	0.0	232.1	10	19.75	36.041	5.27	25.640	235.7	0.024
57A	19.30	36.073	5.36	0.12V	1.6	0.00	0.0	222.4	20	19.73	36.049	5.29	25.652	234.6	0.047
63	18.76	36.138	5.32	0.09	1.2	0.00	0.0	204.5	30	19.71	36.057	5.31	25.664	233.4	0.071
105	17.89	36.082	5.00	0.20	1.5	0.02	1.5	187.8	50	19.48	36.069	5.35	25.733	226.9	0.117
126	17.92	36.134	5.09	0.17	1.5	0.02	1.3	184.7	75	18.51	36.120	5.20	26.019	199.7	0.171
161A	17.80	36.120	5.20	0.17	1.6		1.2	182.9	100	17.99	36.087	5.02	26.123	189.8	0.220
265A	15.94	35.735	4.94	0.38	2.0		4.2	168.9	125	17.92	36.131	5.08	26.176	184.8	0.268
369A	14.53	35.526	4.82	0.50	2.9		6.7	154.3	1500	17.86	36.133	5.17	26.19100	183.3	0.315
492A	12.84	35.246	4.72	0.80	4.1		10.8	141.4	200	17.21	35.991	5.15	26.24300	178.5	0.409
575A	10.83	34.948	4.83	1.04	5.9	0.01	14.7	127.10	250	16.26	35.798	5.00	26.318	171.4	0.50000
678A	8.32	34.6090	4.88	1.40	9.6		20.4	112.5	300	15.46	35.659	4.89	26.396	164.0	0.588
780A	6.28	34.410	5.13	1.68	13.9		24.8	99.8	400	14.05	35.446	4.78	26.538	150.4	0.756
934A	4.77	34.307	5.24	1.88	20.2		27.9	90.2	500	12.33	35.169	4.74	26.674	137.600	0.912
1087A	3.59	34.278	5.18	2.02	30.5		30.0	80.6	600	10.22	34.859	4.84	26.823	123.5	1.056
1240A	3.20	34.361	4.66	2.19	44.3	0.00	32.3	70.8	700	7.83	34.555	4.93	26.97100	109.5	1.185
1394A	3.06	34.475	4.36	2.22	52.2		32.7	60.9	8000	6.02	34.390	5.14	27.089	98.3	1.300
1548A	2.78	34.526	4.27	2.21	60.4		32.7	54.7	1000	4.19	34.284	5.21	27.218	86.0	1.504
1702A	3.07	34.663	4.41	2.00	53.7		30.4	46.8	1200	3.25	34.334	4.81	27.352	73.3	1.681
1907A	3.467	34.83	4.88	1.67	37.0		25.4	37.8	1500	2.84	34.509	4.30	27.530	56.5	1.903
2113A	3.565	34.923	5.35	1.44	27.9	0.00	22.4	31.7	1750	3.18	34.707	4.51	27.656	44.5	2.0570
2270A	3.371	34.903	5.36	1.50	32.8		22.9	31.4	2000	3.51	34.879	5.12	27.762	34.5	2.1930
2321A	3.24		5.39	1.53	36.7	0.00	23.3		2250	3.41	34.907	5.36	27.7940	31.5	2.3190

LATITUDE		LONGITUDE		MO/DAY/YR	MESSENGER			TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES		
33 08.9S		49 35.5W		11/20/72	2119	2213		GMT	1399M	160	17KT	0	190 3 4		
Z	T	S	U2	P04	SI03	N02	N03	DT	Z	T	S	U2	SIGT	DT	DD
0	19.50	35.920	5.53	0.10	1.7	0.00	0.0	238.4	0	19.50	35.920	5.53	25.612	238.4	0.000
41	19.52	35.918	5.38	0.10	1.7	0.00	0.0	239.0	10	19.50	35.918	5.49	25.610	238.6	0.024
48A	19.51	35.918	5.32	0.11	1.6	0.01	0.0	238.8	20	19.51	35.918	5.46	25.609	238.7	0.048
63	19.43		5.35	0.10	1.6	0.00	0.000		30	19.51	35.917	5.42	25.607	238.9	0.072
100A	18.88	36.233	5.41	0.08	1.0	0.01	0.00	200.50	50	19.50	35.930	5.32	25.620	237.7	0.120
104	18.71	36.201	5.23	0.10	1.0	0.040	0.1	198.7	75	19.25	36.071	5.37	25.793	221.2	0.178
126	18.11	36.124	5.30	0.15	1.2	0.02	1.1	189.9	100	18.88	36.233	5.41	26.011	200.5	0.231
153A	17.92	36.099	5.31	0.12	1.0	0.02	1.1	187.3	125	18.13	36.123	5.30	26.118	190.2	0.281
257A	16.80	35.884	4.99	0.28	1.5	0.02	3.0	177.1	150	17.93	36.099	5.31	26.149	187.3	0.330
360A	14.87	35.580	4.95	0.50	2.2	0.01	6.3	157.4	200	17.50	36.019	5.18	26.192	183.3	0.425
463A	13.64	35.372	4.92	0.65	3.1		8.6	147.7	250	16.90	35.902	5.02	26.248	178.0	0.519
566A	11.59	35.046	4.98	0.99	5.0		13.8	133.1	300	16.00	35.753	4.97	26.344	168.9	0.6100
666A	8.92	34.691	4.88	1.34	8.8		19.4	115.3	400	14.40	35.502	4.93	26.508	153.3	0.7820
768A	6.64	34.440	5.17	1.65	12.700		24.000	102.1	500	12.99	35.264	4.95	26.617	142.9	0.943
870A	5.23	34.313	5.50	1.80	15.8	0.01	26.1	94.7	600	10.70	34.917	4.93	26.786	127.0	1.092
1022A	4.26	34.300	5.20	2.02	25.9		29.3	85.4	700	8.09	34.594	4.95	26.962	110.3	1.223
1124A	3.76	34.306	5.07	2.07	31.8		30.2	80.1	800	6.12	34.3900	5.29	27.077	99.5	1.340
1227A	3.52	34.340	4.89	2.15	38.000		31.4	75.2	1000	4.55	34.296	5.27	27.212	86.6	1.546
1331A	3.290	34.388	4.70	2.21	44.3		32.4	69.5	1200	3.57	34.330	4.94	27.319	76.5	1.728
1583A	3.146	34.442	2.22		50.0	0.01	32.3	64.2							

23 STD

CATO EXPEDITION VI

24 STD

LATITUDE		LONGITUDE		MO/DAY/YR		START TIME		LATITUDE		LONGITUDE		MO/DAY/YR		START TIME			
33 43.3S		49 02.7W		11/20/72		0350 GMT		33 20.8S		49 21.5W		11/20/72		1615 GMT			
Z	T	S	SIGMA T	DT	DD	Z	T	S	SIGMA T	DT	DD	Z	T	S	SIGMA T	DT	DD
0	19.40	35.99	25.691	230.8	0.000	0	19.77	36.03	25.625	237.1	0.000	0	19.77	36.03	25.625	237.1	0.000
10	19.42	36.00	25.694	230.6	0.023	10	19.78	36.04	25.630	236.7	0.024	10	19.78	36.04	25.630	236.7	0.024
20	19.44	36.04	25.709	229.2	0.046	20	19.72	36.05	25.654	234.4	0.047	20	19.72	36.05	25.654	234.4	0.047
30	19.55	36.07	25.713	228.8	0.069	30	19.68	36.05	25.664	233.4	0.071	30	19.68	36.05	25.664	233.4	0.071
40	19.53	36.07	25.719	228.3	0.092	40	19.70	36.07	25.674	232.5	0.094	40	19.70	36.07	25.674	232.5	0.094
50	19.40	36.06	25.745	225.8	0.115	50	19.69	36.08	25.684	231.5	0.118	50	19.69	36.08	25.684	231.5	0.118
60	18.88	36.03	25.856	215.2	0.137	60	18.89	36.01	25.838	216.9	0.140	60	18.89	36.01	25.838	216.9	0.140
70	18.44	36.02	25.960	205.3	0.158	70	18.38	36.08	26.021	199.5	0.161	70	18.38	36.08	26.021	199.5	0.161
80	18.11	36.02	26.042	197.5	0.179	80	18.12	36.06	26.071	194.6	0.181	80	18.12	36.06	26.071	194.6	0.181
90	18.04	36.08	26.106	191.5	0.199	90	18.00	36.06	26.100	192.0	0.201	90	18.00	36.06	26.100	192.0	0.201
100	17.77	36.02	26.127	189.5	0.218	100	17.89	36.07	26.135	188.7	0.220	100	17.89	36.07	26.135	188.7	0.220
150A	17.78	36.15	26.224	180.3	0.313	125	17.92	36.13	26.174	185.0	0.268	125	17.92	36.13	26.174	185.0	0.268
300A	15.26	35.66	26.440	159.8	0.578	150A	17.78	36.06	26.155	186.8	0.316	150A	17.78	36.06	26.155	186.8	0.316
350A	14.71	35.59	26.508	153.4	0.662	200A	17.46	36.01	26.195	183.0	0.411	200A	17.46	36.01	26.195	183.0	0.411
400A	14.43	35.55	26.538	150.5	0.743	250A	16.38	35.74	26.246	178.2	0.505	250A	16.38	35.74	26.246	178.2	0.505
450A	13.48	35.36	26.591	145.4	0.823	300A	15.34	35.66	26.422	161.5	0.594	300A	15.34	35.66	26.422	161.5	0.594
500A	12.43	35.19	26.671	137.8	0.900	350A	14.79	35.58	26.482	155.7	0.679	350A	14.79	35.58	26.482	155.7	0.679
550A	11.34	35.04	26.763	129.1	0.974	400A	14.21	35.47	26.523	151.9	0.761	400A	14.21	35.47	26.523	151.9	0.761
600A	9.83	34.75	26.805	125.1	1.044	450A	13.30	35.32	26.598	144.8	0.841	450A	13.30	35.32	26.598	144.8	0.841
650A	8.04	34.54	26.928	113.6	1.110	500A	12.36	35.13	26.639	140.9	0.919	500A	12.36	35.13	26.639	140.9	0.919
700A	7.44	34.52	27.000	106.7	1.170	550A	11.27	35.00	26.745	130.9	0.993	550A	11.27	35.00	26.745	130.9	0.993
750A	6.39	34.42	27.066	100.5	1.228	600A	10.34	34.86	26.803	125.3	1.064	600A	10.34	34.86	26.803	125.3	1.064
900A	4.63	34.27	27.161	91.5	1.387	650A	9.21	34.70	26.870	119.1	1.132	650A	9.21	34.70	26.870	119.1	1.132
950A	4.32	34.28	27.203	87.5	1.436	700A	7.66	34.54	26.984	108.2	1.195	700A	7.66	34.54	26.984	108.2	1.195
1000A	4.12	34.29	27.232	84.8	1.483	750A	6.72	34.44	27.038	103.2	1.253	750A	6.72	34.44	27.038	103.2	1.253
1100A	3.62	34.29	27.283	79.9	1.575	800A	5.81	34.35	27.085	98.6	1.309	800A	5.81	34.35	27.085	98.6	1.309
1200A	3.39	34.33	27.337	74.8	1.661	850A	5.12	34.29	27.121	95.2	1.363	850A	5.12	34.29	27.121	95.2	1.363
1300A	3.17	34.39	27.405	68.3	1.741	900A	4.94	34.30	27.150	92.5	1.414	900A	4.94	34.30	27.150	92.5	1.414
1400A	2.93	34.44	27.467	62.5	1.816	950A	4.75	34.32	27.187	89.0	1.465	950A	4.75	34.32	27.187	89.0	1.465
1500A	2.86	34.51	27.529	56.6	1.885	1000A	4.29	34.31	27.230	85.0	1.513	1000A	4.29	34.31	27.230	85.0	1.513
1600A	2.98	34.58	27.574	52.3	1.949	1100A	3.59	34.30	27.293	78.9	1.604	1100A	3.59	34.30	27.293	78.9	1.604
1800A	3.16	34.73	27.677	42.6	2.068	1200A	3.34	34.35	27.357	72.8	1.689	1200A	3.34	34.35	27.357	72.8	1.689
1900A	3.35	34.80	27.714	39.0	2.123	1300A	3.21	34.41	27.417	67.2	1.768	1300A	3.21	34.41	27.417	67.2	1.768
2000A	3.49	34.86	27.748	35.6	2.176	1400A	3.10	34.49	27.491	60.2	1.841	1400A	3.10	34.49	27.491	60.2	1.841
2100A	3.50	34.89	27.771	33.6	2.227	1500A	3.04	34.56	27.553	54.3	1.908	1500A	3.04	34.56	27.553	54.3	1.908
2400A	3.37	34.93	27.816	29.4	2.376	1600A	2.90	34.57	27.573	52.4	1.972	1600A	2.90	34.57	27.573	52.4	1.972
2500A	3.27	34.92	27.818	29.2	2.424	1700A	3.26	34.68	27.626	47.4	2.033	1700A	3.26	34.68	27.626	47.4	2.033
2600A	3.16	34.93	27.836	27.5	2.472	1800A	3.36	34.77	27.689	41.4	2.091	1800A	3.36	34.77	27.689	41.4	2.091
2700A	3.01	34.93	27.850	26.2	2.518	1900A	3.42	34.83	27.731	37.4	2.145	1900A	3.42	34.83	27.731	37.4	2.145
2800A	2.87	34.92	27.855	25.7	2.563	2000A	3.57	34.90	27.772	33.5	2.197	2000A	3.57	34.90	27.772	33.5	2.197
2900A	2.25	34.85	27.853	25.9	2.605	2100A	3.61	34.92	27.784	32.4	2.247	2100A	3.61	34.92	27.784	32.4	2.247
3000A	1.26	34.74	27.840	27.1	2.643	2200A	3.50	34.93	27.803	30.6	2.296	2200A	3.50	34.93	27.803	30.6	2.296
						2300A	3.35	34.89	27.786	32.2	2.346	2300A	3.35	34.89	27.786	32.2	2.346
						2339A	3.25	34.89	27.796	31.3	2.365	2339A	3.25	34.89	27.796	31.3	2.365

25 STD

LATITUDE		LONGITUDE		MO/DAY/YR		START TIME	
33 08.9S		49 35.5W		11/20/72		2029 GMT	
Z	T	S	SIGMA T	DT	DD	Z	T
0	19.50	35.92	25.612	238.4	0.000	0	19.50
10	19.53	35.93	25.612	238.4	0.024	10	19.53
20	19.51	35.92	25.609	238.6	0.048	20	19.51
30	19.51	35.92	25.609	238.6	0.072	30	19.51
40	19.53	35.92	25.604	239.1	0.096	40	19.53
50	19.51	35.93	25.617	237.9	0.120	50	19.51
60	19.45	35.89	25.602	239.3	0.144	60	19.45
70	19.39	35.88	25.610	238.6	0.168	70	19.39
80	18.87	36.17	25.965	204.8	0.190	80	18.87
90	18.87	36.23	26.011	200.5	0.211	90	18.87
100	18.73	36.23	26.047	197.1	0.231	100	18.73
125	18.12	36.13	26.124	189.7	0.281	125	18.12
150A	17.99	36.12	26.149	187.4	0.329	150A	17.99
200A	17.89	36.14	26.189	183.6	0.425	200A	17.89
250A	17.04	35.93	26.235	179.2	0.519	250A	17.04
300A	15.73	35.69	26.357	167.6	0.610	300A	15.73
350A	15.04	35.62	26.458	158.0	0.697	350A	15.04
400A	14.64	35.53	26.477	156.3	0.781	400A	14.64
450A	13.81	35.42	26.569	147.5	0.863	450A	13.81
500A	12.83	35.24	26.631	141.7	0.942	500A	12.83
550A	11.58	35.04	26.718	133.4	1.017	550A	11.58
600A	10.45	34.88	26.800	125.7	1.089	600A	10.45
750A	7.05	34.47	27.016	105.2	1.281	750A	7.05
800A	6.23	34.40	27.071	100.0	1.338	800A	6.23
850A	5.44	34.33	27.115	95.8	1.392	850A	5.44
900A	4.97	34.30	27.146	92.9	1.444	900A	4.97
950A	4.46	34.27	27.180	89.7	1.495	950A	4.46
1000A	4.26	34.29	27.217	86.2	1.543	1000A	4.26
1100A	3.91	34.31	27.269	81.2	1.636	1100A	3.91
1200A	3.60	34.33	27.316	76.7	1.725	1200A	3.60
1300A	3.34	34.37	27.373	71.3	1.808	1300A	3.34
1400A	3.05	34.49	27.496	59.7	1.884	1400A	3.05

RV MELVILLE CATO EXPEDITION VI

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LATITUDE		LONGITUDE		MO/DAY/YR		MESSENGER		TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES		
32 47.9S		50 11.7W		11/21/72		025R 0344		GMT	R039M	220	19KT	1	220 5 6		
Z	T	S	02	P04	SIG3	N02	N03	DT	Z	T	S	02	SIGT	DT	DD
0	22.11	36.670	4.98	0.07	1.0	0.00	0.0	251.6	0	22.11	36.670	4.98	25.473	251.6	0.000
41	21.96	36.691	5.03	0.06	1.4	0.00	0.0	246.0	10	22.07	36.670	5.00	25.485	250.5	0.025
62	21.88	36.713	5.03	0.06	1.2	0.00	0.0	242.3	20	22.04	36.674	5.01	25.498	249.2	0.050
84A	21.89	36.728	5.00	0.05	0.8	0.00	0.0	241.5	30	22.00	36.680	5.02	25.513	247.8	0.075
104	21.79	36.748	5.04	0.05	1.0	0.00	0.0	237.4	50	21.92	36.698	5.03	25.549	244.3	0.125
125	21.11	36.633	4.85	0.09	1.0	0.07	0.2	227.7	75	21.89	36.720	5.01	25.575	241.9	0.186
137A	20.02	36.407	4.95	0.15	1.2	0.09	0.7	216.1	100	21.81	36.737	5.04	25.610	238.5	0.247
187A	17.97	36.075	5.17	0.20	1.2	0.04	1.0	190.2	125	21.11	36.633	4.85	25.724	227.7	0.306
239A	16.49	35.776	4.87	0.37	1.6	0.01	3.4	178.0	150	19.26	36.272	5.05	25.943	207.0	0.362
336A	13.08	35.269	4.85	0.78	3.9	0.01	10.3	144.3	200	17.58	35.997	5.11	26.157	186.6	0.463
409A	9.13	34.743	4.77	1.40	9.7		19.7	114.7	250	16.18	35.725	4.87	26.282	174.7	0.557
478A	6.64	34.460	4.98	1.70	13.9		24.6	100.6	300	14.52	35.471	4.86	26.458	158.1	0.645
549A	5.44	34.362	5.08	1.84	18.2	0.01	27.1	93.4	400	9.61	34.799	4.77	26.881	118.0	0.792
619A	4.63	34.299	5.31	1.93	20.9	0.03	27.9	89.3	500	6.17	34.420	5.01	27.093	97.9	0.907
688A	4.28	34.297	5.20	1.99	24.7	0.00	29.2	85.8	600	4.81	34.512	5.26	27.174	90.2	1.008
759A	3.83	34.304	5.11	2.10	30.5		30.5	80.9	700	4.20	34.298	5.18	27.230	85.0	1.102
806A	3.69	34.315	5.04	2.10	33.2	0.00	30.8	78.7	800	3.70	34.314	5.05	27.293	78.9	1.190

RV MELVILLE CATO EXPEDITION VI

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LATITUDE		LONGITUDE		MO/DAY/YR		MESSENGER		TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES		
30 35.4S		47 40.6W		11/21/72		2306 0016		GMT	1594M	190	20KT	2	170 10		
Z	T	S	02	P04	SIG3	N02	N03	DT	Z	T	S	02	SIGT	DT	DD
0	21.99	36.834	5.11	0.06	1.0	0.00	0.0	236.5	0	21.99	36.834	5.11	25.631	236.5	0.000
10	22.01	36.831	5.13	0.05	1.0	0.00	0.0	237.3	10	22.01	36.831	5.13	25.623	237.3	0.024
21	21.95	36.828	5.08	0.03	0.8	0.00	0.0	235.9	20	21.96	36.826	5.09	25.636	236.1	0.047
41	21.77	36.817	5.08	0.04	1.0	0.00	0.0	231.9	30	21.87	36.821	5.08	25.657	234.1	0.071
82	21.59	36.799	5.07	0.05	0.8	0.00	0.0	228.4	50	21.73	36.807	5.08	25.686	231.4	0.118
113	20.33	36.494	5.05	0.10	0.8	0.14	0.4	217.7	75	21.62	36.797	5.07	25.708	229.2	0.176
144	18.58	36.139	5.18	0.13	1.0	0.13	0.5	200.1	100	20.95	36.638	5.06	25.773	223.0	0.233
185	17.64	36.029	5.16	0.19	1.0	0.04	1.4	185.8	125	19.63	36.341	5.10	25.901	210.9	0.289
208A	17.26	35.943	5.09	0.27	1.3	0.02	2.3	183.3	150	18.38	36.111	5.18	26.045	197.3	0.341
260A	16.17	35.757	4.98	0.37	1.6	0.02	3.8	172.3	200	17.39	35.973	5.12	26.184	184.0	0.439
311A	15.12	35.610	4.92	0.49	2.0	0.02	5.8	160.5	250	16.39	35.790	5.00	26.282	174.8	0.533
364A	14.35	35.501	4.97	0.53	2.4	0.01	7.2	152.5	300	15.33	35.637	4.93	26.407	162.9	0.622
465A	11.80	35.079	4.88	0.96	4.6		13.3	134.5	400	13.54	35.363	4.94	26.582	146.3	0.786
567A	8.91	34.696	4.96	1.31	9.2		19.5	114.8	500	10.81	34.939	4.91	26.781	127.5	0.935
670A	6.23	34.396	5.40	1.67	12.9		24.6	100.3	600	7.97	34.584	5.09	26.971	109.5	1.064
770A	4.77	34.274	5.72	1.76	17.4		26.3	92.6	700	5.68	34.344	5.54	27.096	97.6	1.177
871A	4.36	34.300	5.29	1.91	19.7	0.01	29.2	86.4	800	4.60	34.276	5.62	27.168	90.8	1.280
974A	3.78	34.321	5.02	2.12	33.2		30.9	79.1	1000	3.71	34.326	4.98	27.302	78.1	1.465
1075A	3.54	34.347	4.88	2.13	38.8	0.00	31.9	74.9	1200	3.17	34.433	4.66	27.439	65.1	1.625
1177A	3.18	34.422	4.67	2.18	48.4	0.03	32.0	66.0	1500	3.21	34.633	4.54	27.593	50.5	1.828
1280A	3.12	34.458	4.63	2.23	50.4	0.02	32.6	62.7							
1434A	3.082	34.563	4.45	2.10	53.8	0.02	31.6	54.5							
1538A	3.312	34.674	4.62	2.00	47.2	0.03	29.7	48.2							
1590A	3.446	34.729	4.72	1.90	43.7	0.02	28.4	45.2							

RV MELVILLE CATO EXPEDITION VI

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LATITUDE		LONGITUDE		MO/DAY/YR		MESSENGER		TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES		
30 35.6S		46 40.1W		11/22/72		0729 0905		GMT	3261M	140	9KT	1	210 10 8		
Z	T	S	02	P04	SIG3	N02	N03	DT	Z	T	S	02	SIGT	DT	DD
0	20.65	36.408	5.24	0.05	1.0	0.00	0.0	232.1	0	20.65	36.408	5.24	25.678	232.1	0.000
42	20.68	36.413	5.18	0.04	1.0	0.00	0.0	232.5	10	20.66	36.407	5.22	25.677	232.2	0.023
63	19.45	36.302	5.16	0.07	1.3	0.00	0.0	209.5	20	20.66	36.408	5.21	25.676	232.3	0.047
105	17.91	36.124	5.28	0.14	1.2	0.12	0.5	185.2	30	20.67	36.410	5.19	25.675	232.4	0.070
146	17.45	36.023	5.14	0.21	1.4	0.02	1.7	181.8	50	20.24	36.371	5.17	25.761	229.2	0.116
165A	16.98	35.923	5.01	0.28	1.7	0.02	2.5	178.4	75	18.89	36.242	5.20	26.016	200.0	0.169
187	16.33	35.797	4.91	0.37	1.9	0.02	3.9	173.0	100	18.03	36.141	5.27	26.155	186.8	0.219
269A	14.85	35.573	4.94	0.54	2.4	0.01	6.0	157.5	125	17.67	36.067	5.24	26.189	183.6	0.266
372A	13.61	35.377	4.81	0.66	3.3	0.01	9.0	146.7	150	17.96	36.002	5.11	26.214	181.2	0.313
476A	11.61	35.055	4.79	1.01	5.2	0.01	13.4	132.8	200	16.03	35.746	4.91	26.332	170.1	0.403
579A	9.05	34.713	4.76	1.35	9.4		20.2	115.6	250	15.11	35.605	4.93	26.432	160.5	0.489
681A	6.99	34.563	4.95	1.66	13.3	0.00	24.3	100.0	300	14.48	35.517	4.90	26.502	153.9	0.572
784A	5.63	34.367	5.12	1.86	17.3		26.8	95.3	400	13.14	35.298	4.80	26.614	143.3	0.731
887A	4.50	34.301	5.22	1.94	23.8		29.3	87.8	500	11.02	34.969	4.78	26.767	128.8	0.878
1040A	3.72	34.333	4.93	2.17	35.1		31.7	77.6	600	8.58	34.654	4.79	26.934	113.0	1.010
1194A	3.22	34.398	4.52	2.26	46.8		33.4	68.2	700	6.70	34.452	4.98	27.049	102.1	1.129
1348A	3.06	34.508	4.43	2.26	50.3	0.00	33.5	58.4	800	5.43	34.354	5.15	27.134	94.0	1.237
1502A	3.14	34.631	4.45	2.09	52.1		31.4	49.9	1000	3.86	34.318	5.04	27.280	80.2	1.429
1655A	3.37	34.746	4.68	1.89	44.2		28.7	43.3	1200	3.21	34.403	4.52	27.411	67.8	1.594
1911A	3.52	34.871	5.27	1.62	33.0		24.3	35.2	1500	3.14	34.631	4.45	27.599	50.0	1.800
2218A	3.375	34.929	5.53	1.43	27.4		21.5	29.5	1750	3.46	34.801	4.90	27.705	39.9	1.943
2525A	3.12	34.936	5.83	1.33	28.3	0.00	20.6	26.7	2000	3.50	34.895	5.37	27.776	33.2	2.073
2730A	2.943	34.931	5.83	1.34	30.3		20.7	25.5	2250	3.35	34.931	5.57	27.819	29.1	2.194
2937A	2.724	34.915	5.82	1.36	36.0		19.7	24.8	2500	3.14	34.937	5.81	27.843	26.8	2.309
3143A	2.080	34.853	5.60	1.65	60.2		24.4	24.4	2750	2.93	34.930	5.83	27.858	25.4	2.421
3246A	1.987	34.846	5.59	1.67	64.3	0.00	24.9	24.2	3000	2.52	34.894	5.75	27.866	24.7	2.529
									3250	1.98	34.846	5.59	27.871	24.1	2.630

26 STD

CATO EXPEDITION VI

27 STD

LATITUDE 32 47.9S		LONGITUDE 50 11.7W		MO/DAY/YR 11/21/72		START TIME 0212 GMT		LATITUDE 30 35.4S		LONGITUDE 47 40.6W		MO/DAY/YR 11/21/72		START TIME 2212 GMT			
Z	T	S	SIGMA T	DT	DD	Z	T	S	SIGMA T	DT	DD	Z	T	S	SIGMA T	DT	DD
0	22.11	36.67	25.473	251.6	0.000	0	22.00	36.83	25.625	237.1	0.000	0	22.00	36.83	25.625	237.1	0.000
10	22.09	36.67	25.478	251.1	0.025	10	22.00	36.83	25.625	237.1	0.024	10	22.00	36.83	25.625	237.1	0.024
20	22.06	36.68	25.495	249.5	0.050	20	21.95	36.82	25.632	236.5	0.047	20	21.95	36.82	25.632	236.5	0.047
30	21.97	36.69	25.528	246.4	0.075	30	21.83	36.81	25.658	234.0	0.071	30	21.83	36.81	25.658	234.0	0.071
40	21.74	36.70	25.544	244.9	0.100	40	21.81	36.81	25.664	233.4	0.095	40	21.81	36.81	25.664	233.4	0.095
50	21.91	36.70	25.552	244.1	0.124	50	21.77	36.80	25.667	233.1	0.118	50	21.77	36.80	25.667	233.1	0.118
60	21.91	36.70	25.552	244.1	0.149	60	21.60	36.76	25.684	231.5	0.142	60	21.60	36.76	25.684	231.5	0.142
70	21.91	36.70	25.552	244.1	0.174	70	21.61	36.80	25.712	228.8	0.165	70	21.61	36.80	25.712	228.8	0.165
80	21.90	36.72	25.570	242.3	0.198	80	21.58	36.79	25.713	228.8	0.188	80	21.58	36.79	25.713	228.8	0.188
90	21.81	36.74	25.610	238.5	0.223	90	21.51	36.77	25.717	228.4	0.211	90	21.51	36.77	25.717	228.4	0.211
100	21.78	36.75	25.626	237.0	0.247	100	21.39	36.75	25.735	226.6	0.234	100	21.39	36.75	25.735	226.6	0.234
125	20.93	36.56	25.717	228.3	0.306	125A	19.84	36.34	25.843	216.4	0.291	125A	19.84	36.34	25.843	216.4	0.291
150A	19.32	36.30	25.946	206.4	0.362	150A	18.77	36.20	26.014	200.2	0.344	150A	18.77	36.20	26.014	200.2	0.344
200A	17.88	36.10	26.161	186.3	0.463	200A	17.52	35.97	26.150	187.3	0.444	200A	17.52	35.97	26.150	187.3	0.444
250A	15.70	35.67	26.349	168.5	0.5552	250A	16.48	35.79	26.260	176.8	0.539	250A	16.48	35.79	26.260	176.8	0.539
300A	14.88	35.57	26.455	158.4	0.641	300A	15.39	35.652	26.403	163.3	0.628	300A	15.39	35.652	26.403	163.3	0.628
350A	12.36	35.12	26.631	141.7	0.721	350A	14.49	35.53	26.509	153.2	0.712	350A	14.49	35.53	26.509	153.2	0.712
400A	9.39	34.76	26.887	117.4	0.790	400A	13.60	35.38	26.582	146.3	0.792	400A	13.60	35.38	26.582	146.3	0.792
450A	7.44	34.53	27.008	106.0	0.850	450A	12.42	35.18	26.666	138.4	0.869	450A	12.42	35.18	26.666	138.4	0.869
500A	6.22	34.41	27.080	99.1	0.905	500A	11.05	34.94	26.739	131.5	0.943	500A	11.05	34.94	26.739	131.5	0.943
550A	5.45	34.36	27.137	93.7	0.956	550A	9.33	34.75	26.889	117.2	1.011	550A	9.33	34.75	26.889	117.2	1.011
600A	4.76	34.31	27.178	89.6	1.005	600A	6.80	34.45	27.035	103.4	1.131	600A	6.80	34.45	27.035	103.4	1.131
650A	4.44	34.30	27.206	87.2	1.053	700A	5.60	34.31	27.079	99.2	1.187	700A	5.60	34.31	27.079	99.2	1.187
700A	4.24	34.30	27.227	85.2	1.099	750A	4.95	34.28	27.133	94.1	1.239	750A	4.95	34.28	27.133	94.1	1.239
750A	3.88	34.31	27.272	80.9	1.144	800A	4.85	34.31	27.168	90.8	1.290	800A	4.85	34.31	27.168	90.8	1.290
800A	3.65	34.31	27.295	78.7	1.187	850A	4.46	34.30	27.203	87.4	1.339	850A	4.46	34.30	27.203	87.4	1.339
835A	3.54	34.31	27.306	77.7	1.217	900A	4.16	34.30	27.235	84.4	1.386	900A	4.16	34.30	27.235	84.4	1.386
						950A	3.89	34.32	27.279	80.3	1.431	950A	3.89	34.32	27.279	80.3	1.431
						1000A	3.74	34.33	27.302	78.1	1.475	1000A	3.74	34.33	27.302	78.1	1.475
						1100A	3.46	34.36	27.354	73.2	1.559	1100A	3.46	34.36	27.354	73.2	1.559
						1200A	3.19	34.43	27.435	65.5	1.636	1200A	3.19	34.43	27.435	65.5	1.636
						1300A	3.12	34.47	27.473	61.8	1.709	1300A	3.12	34.47	27.473	61.8	1.709
						1500A	3.29	34.66	27.609	49.0	1.840	1500A	3.29	34.66	27.609	49.0	1.840
						1600A	3.45	34.74	27.657	44.5	1.899	1600A	3.45	34.74	27.657	44.5	1.899

28 STD

LATITUDE 30 35.6S		LONGITUDE 46 40.1W		MO/DAY/YR 11/22/72		START TIME 0614 GMT	
Z	T	S	SIGMA T	DT	DD	Z	T
0	20.67	36.42	25.682	231.7	0.000	0	20.67
10	20.68	36.42	25.679	232.0	0.023	10	20.68
20	20.68	36.42	25.679	232.0	0.046	20	20.68
30	20.68	36.42	25.679	232.0	0.070	30	20.68
40	20.68	36.42	25.679	232.0	0.093	40	20.68
50	20.68	36.42	25.679	232.0	0.116	50	20.68
60	19.52	36.30	25.896	211.3	0.139	60	19.52
70	18.56	36.11	25.998	201.7	0.160	70	18.56
80	18.31	36.07	26.031	198.6	0.180	80	18.31
90	17.99	36.11	26.141	188.21	0.200	90	17.99
100	17.90	36.11	26.163	186.0	0.219	100	17.90
125	17.79	36.11	26.190	183.4	0.266	125	17.79
150	17.27	35.96	26.203	182.3	0.2313	150	17.27
200A	15.95	35.68	26.299	173.1	0.404	200A	15.95
250A	15.16	35.65	26.454	158.4	0.491	250A	15.16
300A	14.50	35.56	26.530	151.2	0.572	300A	14.50
350A	14.02	35.47	26.563	148.1	0.652	350A	14.02
400A	13.15	35.32	26.628	141.9	0.730	400A	13.15
450A	11.97	35.11	26.699	135.3	0.805	450A	11.97
500A	10.85	34.94	26.775	128.0	0.876	500A	10.85
550A	9.67	34.77	26.848	121.1	0.944	550A	9.67
600A	8.54	34.65	26.937	112.7	1.008	600A	8.54
650A	7.73	34.57	26.997	107.0	1.069	650A	7.73
700A	6.61	34.45	27.060	101.0	1.126	700A	6.61
750A	5.93	34.37	27.086	98.6	1.181	750A	5.93
800A	5.29	34.33	27.133	94.1	1.234	800A	5.29
850A	4.75	34.30	27.171	90.5	1.285	850A	4.75
900A	4.32	34.30	27.218	86.0	1.333	900A	4.32
950A	4.07	34.31	27.253	82.6	1.380	950A	4.07
1000A	3.85	34.32	27.283	79.9	1.425	1000A	3.85
1100A	3.48	34.35	27.344	74.1	1.510	1100A	3.48
1200A	3.23	34.40	27.408	68.1	1.590	1200A	3.23
1300A	3.06	34.47	27.479	61.3	1.663	1300A	3.06
1400A	3.05	34.54	27.536	55.9	1.731	1400A	3.05
1500A	3.13	34.64	27.608	49.1	1.7942	1500A	3.13
1600A	3.24	34.70	27.645	45.5	1.853	1600A	3.24
1700A	3.45	34.77	27.681	42.2	1.909	1700A	3.45
1800A	3.60	34.84	27.722	38.3	1.964	1800A	3.60
1900A	3.52	34.89	27.769	33.8	2.015	1900A	3.52
2000A	3.52	34.91	27.785	32.3	2.065	2000A	3.52
2100A	3.57	34.94	27.804	30.5	2.113	2100A	3.57
2200A	3.44	34.94	27.817	29.3	2.161	2200A	3.44
2300A	3.33	34.94	27.828	28.3	2.208	2300A	3.33
2400A	3.25	34.94	27.835	27.5	2.254	2400A	3.25
2500A	3.15	34.94	27.845	26.6	2.299	2500A	3.15
2600A	3.07	34.93	27.844	26.7	2.345	2600A	3.07
2700A	2.96	34.93	27.855	25.7	2.389	2700A	2.96
2800A	2.90	34.92	27.852	26.0	2.434	2800A	2.90
2900A	2.77	34.92	27.864	24.6	2.478	2900A	2.77
3000A	2.61	34.90	27.862	25.0	2.522	3000A	2.61
3100A	2.33	34.88	27.870	24.3	2.564	3100A	2.33
3200A	1.96	34.84	27.868	24.4	2.603	3200A	1.96
3270A	1.95	34.83	27.861	25.1	2.631	3270A	1.95

RV MELVILLE

CATO EXPEDITION VI

29

LATITUDE		LONGITUDE		MO/DAY/YR		MESSENGER		TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES		
30 19.1S		43 59.6W		11/23/72		0315 0457		GMT	3439M	060	7KT	1	190 10		
Z	T	S	O2	P04	S103	N02	N03	DT..	Z	T	S	O2	SIGT	DT	DD
0	19.99	36.142	5.38	0.02	1.0	0.00	0.0	234.5	0	19.99	36.142	5.38	25.652	234.5	0.000
41	18.87	36.037	5.53	0.03	1.0	0.00	0.0	214.5	10	19.72	36.114	5.42	25.704	229.6	0.023
51A	18.18	35.996	5.50	0.08	1.2	0.00	0.0	200.9	20	19.44	36.087	5.45	25.756	224.7	0.046
63	17.86	36.003	5.58	0.04	1.2	0.00	0.1	192.8	30	19.17	36.062	5.49	25.807	219.8	0.068
104	16.98	35.910	5.16	0.17	1.6	0.04	1.9	179.3	50	18.24	35.998	5.50	25.993	202.2	0.111
131	16.36	35.819	5.16	0.26	1.5	0.03	5.0	172.0	75	17.59	35.987	5.49	26.146	187.6	0.160
155A	15.77	35.709	5.06	0.36	1.8	0.02	3.9	167.1	100	17.06	35.923	5.21	26.226	180.1	0.207
258A	14.56	35.536	5.07	0.58	2.3	0.01	6.3	154.2	125	16.50	35.840	5.16	26.295	173.5	0.252
									150	15.89	35.731	5.08	26.453	168.0	0.296
									200	14.98	35.576	5.06	26.439	159.9	0.380
									250	14.58	35.533	5.07	26.493	154.7	0.462

RV MELVILLE

CATO EXPEDITION VI

30

LATITUDE		LONGITUDE		MO/DAY/YR		MESSENGER		TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES		
30 16.2S		41 39.5W		11/23/72		1806 2010		GMT	3829M	320	8KT	1	180 5 9		
Z	T	S	O2	P04	S103	N02	N03	DT	Z	T	S	O2	SIGT	DT	DD
0	20.35	36.093	5.26	0.05	1.0	0.00	0.0	247.2	0	20.35	36.093	5.26	25.519	247.2	0.000
41	19.73	36.071	5.32	0.03	0.8	0.00	0.0	233.2	10	20.31	36.088	5.30	25.526	246.5	0.025
73	18.17	35.941	5.38	0.07	1.0	0.00	0.0	204.6	20	20.20	36.082	5.32	25.551	244.2	0.049
114	17.48	35.882	5.32	0.12	1.0	0.07	0.2	192.8	30	20.02	36.079	5.32	25.597	239.8	0.074
157	16.76	35.766	5.05	0.29	1.5	0.04	1.8	184.8	50	19.30	36.034	5.34	25.753	225.0	0.120
207A	16.14	35.746	5.21	0.27	1.4	0.02	2.2		75	18.12	35.936	5.38	25.977	203.7	0.175
219	15.72	35.664	5.08	0.33	1.6	0.01	3.1	169.3	100	17.63	35.898	5.34	26.068	195.0	0.225
310A	14.73	35.548	5.08	0.48	2.2	0.01	5.4	156.8	125	17.30	35.852	5.25	26.115	190.6	0.274
413A	13.62	35.383	5.02	0.55	3.0		8.3	146.5	150	16.88	35.784	5.09	26.163	186.0	0.322
517A	11.31	35.010	4.83	0.98	5.4		14.0	130.8	200	16.02	35.689	5.07	26.290	174.0	0.415
620A	8.53	34.659	4.85	1.47	9.8		20.5	111.8	250	15.35	35.623	5.08	26.393	164.2	0.503
722A	6.74	34.462	5.10	1.60	13.4		23.3	101.8	300	14.82	35.560	5.08	26.460	157.8	0.588
825A	5.32	34.340	5.29	1.80	17.3	0.02	26.3	93.7	400	13.79	35.411	5.03	26.566	147.8	0.751
1031A	3.87	34.291	5.26	2.03	29.2	0.02	29.0	82.2	500	11.75	35.076	4.86	26.715	133.7	0.904
1236A	3.15	34.389	4.74	2.23	45.8	0.01	32.2	68.2	600	9.05	34.718	4.85	26.909	115.3	1.040
1441A	2.89	34.530	4.42	2.22	57.2		32.2	55.3	700	7.07	34.497	5.04	27.034	103.5	1.161
1647A	2.83	34.649	4.52	2.10	58.1		30.4	45.8	800	5.63	34.364	5.25	27.118	95.5	1.271
1955A	3.24	34.858	5.31	1.55	48.0		23.2	33.6	1000	4.01	34.288	5.26	27.241	83.9	1.469
2262A	3.11	34.905	5.57	1.49	32.6		21.9	28.9	1200	3.23	34.367	4.84	27.380	70.7	1.641
2469A	3.05	34.917	5.85	1.43	32.4	0.01	21.0	27.5	1500	2.87	34.569	4.45	27.574	52.4	1.853
2674A	3.00	34.929	5.79	1.33	30.2		20.4	26.2	1750	2.96	34.726	4.77	27.691	41.2	1.997
2880A	2.898	34.929	5.82	1.37	31.9		20.5	25.3	2000	3.24	34.870	5.36	27.782	32.6	2.124
3085A	2.754	34.922	5.87	1.38	33.7		20.6	24.6	2250	3.12	34.904	5.56	27.820	29.0	2.240
3396A	2.331	34.885	5.73	1.45	47.5		22.0	23.9	2500	3.04	34.918	5.84	27.838	27.3	2.354
3706A	1.133	34.759	5.18	1.99	96.2		28.4	24.8	2750	2.97	34.929	5.79	27.854	25.8	2.466
3809A	0.899	34.735	5.15	2.08	109.1	0.01	29.2	25.2	3000	2.82	34.925	5.85	27.864	24.8	2.578
									3250	2.59	34.908	5.80	27.871	24.1	2.688
									3500	1.93	34.840	5.53	27.871	24.1	2.791
									3750	1.02	34.748	5.17	27.863	25.0	2.881

LATITUDE			LONGITUDE			MO/DAY/YR			START TIME			LATITUDE			LONGITUDE..			MO/DAY/YR..			START TIME		
20 19.15			43 59.6w			11/23/72			0158 GMT			30 16.25			41 39.5w..			11/23/72			1622 GMT		
Z	T	S	SIGMA T	DT	DD	Z	T	S	SIGMA T	DT	DD	Z	T	S	SIGMA T	DT	DD	Z	T	S	SIGMA T	DT	DD
0	19.98	36.14	25.654	234.4	0.000	0	20.17	36.07	25.550	244.3	0.000	0	19.88	36.10	25.650	234.8	0.024	10	19.98	36.14	25.654	234.4	0.000
10	19.98	36.14	25.654	234.4	0.023	10	19.88	36.10	25.650	234.8	0.024	10	19.88	36.10	25.650	234.8	0.024	20	19.78	36.13	25.699	230.1	0.047
20	19.78	36.13	25.699	230.1	0.047	20	19.79	36.10..	25.673	232.6	0.047	20	19.79	36.10..	25.673	232.6	0.047	30	19.77	36.13	25.701	229.9	0.070
30	19.77	36.13	25.701	229.9	0.070	30	19.76	36.09..	25.673	232.5	0.071	30	19.76	36.09..	25.673	232.5	0.071	40	19.76	36.14	25.712	228.9	0.093
40	19.76	36.14	25.712	228.9	0.093	40	19.74	36.09..	25.679	232.0	0.094	40	19.74	36.09..	25.679	232.0	0.094	50	19.05	36.03	25.812	219.3	0.115
50	19.05	36.03	25.812	219.3	0.115	50	19.69	36.08..	25.684	231.5	0.117	50	19.69	36.08..	25.684	231.5	0.117	60	17.98	35.96	26.029	198.8	0.137
60	17.98	35.96	26.029	198.8	0.137	60	19.07	36.03..	25.807	219.8	0.140	60	19.07	36.03..	25.807	219.8	0.140	70	17.77	35.99	26.104	191.7	0.156
70	17.77	35.99	26.104	191.7	0.156	70	18.56	35.98..	25.894	211.6	0.162	70	18.56	35.98..	25.894	211.6	0.162	80	17.49	35.97	26.157	186.6..	0.176
80	17.49	35.97	26.157	186.6..	0.176	80	18.33	35.91	25.904	210.7	0.183	80	18.33	35.91	25.904	210.7	0.183	90	17.42	35.97	26.174	185.0..	0.194..
90	17.42	35.97	26.174	185.0..	0.194..	90	18.06	35.92	25.978	203.6..	0.204	90	18.06	35.92	25.978	203.6..	0.204	100	17.30	35.97	26.203..	182.2	0.213
100	17.30	35.97	26.203..	182.2	0.213	100	17.98	35.91	25.991	202.4..	0.225	100	17.98	35.91	25.991	202.4..	0.225	125	16.41	35.80	26.284	174.5	0.259
125	16.41	35.80	26.284	174.5	0.259	125	17.54	35.88	26.076..	194.3	0.276	125	17.54	35.88	26.076..	194.3	0.276	150	16.16	35.79	26.335..	169.7	0.303
150	16.16	35.79	26.335..	169.7	0.303	150	17.03	35.83	26.161	186.3	0.324	150	17.03	35.83	26.161	186.3	0.324	200	15.33	35.67	26.432	160.5	0.388
200	15.33	35.67	26.432	160.5	0.388	200	16.30	35.75	26.272	175.7	0.418	200	16.30	35.75	26.272	175.7	0.418	250	14.81	35.59	26.486	155.4	0.470
250	14.81	35.59	26.486	155.4	0.470	250	15.36	35.62	26.387	164.8..	0.506	250	15.36	35.62	26.387	164.8..	0.506	300	14.26	35.51	26.543	150.0	0.551
300	14.26	35.51	26.543	150.0	0.551	300	14.77	35.53	26.448	159.0	0.591	300	14.77	35.53	26.448	159.0	0.591	350	13.42	35.36	26.604	144.2	0.629
350	13.42	35.36	26.604	144.2	0.629	350	14.33	35.52	26.536..	150.7	0.674	350	14.33	35.52	26.536..	150.7	0.674	400	12.40	35.18	26.670	138.0	0.705
400	12.40	35.18	26.670	138.0	0.705	400	13.82	35.42	26.567	147.7	0.754	400	13.82	35.42	26.567	147.7	0.754	450	11.49	35.04	26.735	131.8	0.777
450	11.49	35.04	26.735	131.8	0.777	450	13.10	35.31	26.631	141.7	0.832	450	13.10	35.31	26.631	141.7	0.832	500	10.25	34.87	26.827	123.1	0.847
500	10.25	34.87	26.827	123.1	0.847	500	12.07	35.14	26.703	134.9	0.907	500	12.07	35.14	26.703	134.9	0.907	550	9.01	34.70	26.902	116.0	0.912
550	9.01	34.70	26.902	116.0	0.912	550	10.78	34.95	26.795	126.1	0.979	550	10.78	34.95	26.795	126.1	0.979	600	7.91	34.58	26.978	108.6	0.973
600	7.91	34.58	26.978	108.6	0.973	600	9.33	34.74	26.881	118.0	1.046	600	9.33	34.74	26.881	118.0	1.046	650	6.82	34.45	27.032	103.7	1.032
650	6.82	34.45	27.032	103.7	1.032	650	7.99	34.57	26.959	110.6	1.109	650	7.99	34.57	26.959	110.6	1.109	700	5.84	34.35	27.081	99.0	1.087
700	5.84	34.35	27.081	99.0	1.087	700	7.15	34.50	27.025	104.3	1.169	700	7.15	34.50	27.025	104.3	1.169	750	5.03	34.27	27.116	95.6	1.140
750	5.03	34.27	27.116	95.6	1.140	750	6.37	34.43	27.076	99.5	1.225	750	6.37	34.43	27.076	99.5	1.225	800	4.52	34.24	27.149	92.6	1.191
800	4.52	34.24	27.149	92.6	1.191	800	5.62	34.36	27.117	95.7	1.279	800	5.62	34.36	27.117	95.7	1.279	850	4.21	34.26	27.198	87.9	1.240
850	4.21	34.26	27.198	87.9	1.240	850	5.06	34.33	27.157	91.8	1.331	850	5.06	34.33	27.157	91.8	1.331	900	3.98	34.26	27.222	85.6	1.288
900	3.98	34.26	27.222	85.6	1.288	900	4.60	34.29	27.180	89.6	1.381	900	4.60	34.29	27.180	89.6	1.381	950	3.71	34.26	27.250	83.1	1.334
950	3.71	34.26	27.250	83.1	1.334	950	4.33	34.29	27.210	86.9	1.429	950	4.33	34.29	27.210	86.9	1.429	1000	3.49	34.29	27.295..	78.7	1.378
1000	3.49	34.29	27.295..	78.7	1.378	1000	4.01	34.29	27.243	83.7	1.477	1000	4.01	34.29	27.243	83.7	1.477	1100	3.20	34.34	27.363..	72.3	1.461
1100	3.20	34.34	27.363..	72.3	1.461	1100	3.53	34.32	27.315	76.8	1.565	1100	3.53	34.32	27.315	76.8	1.565	1200	2.96	34.41	27.440	65.0	1.538
1200	2.96	34.41	27.440	65.0	1.538	1200	3.24	34.39	27.399	68.9	1.647	1200	3.24	34.39	27.399	68.9	1.647	1300	2.95	34.48	27.497	59.6	1.608
1300	2.95	34.48	27.497	59.6	1.608	1300	3.04	34.44	27.457	63.4	1.722	1300	3.04	34.44	27.457	63.4	1.722	1400	2.86	34.54	27.553	54.3	1.674
1400	2.86	34.54	27.553	54.3	1.674	1400	2.96	34.50	27.512	58.2	1.792	1400	2.96	34.50	27.512	58.2	1.792	1500	2.86	34.61	27.609	49.0	1.735
1500	2.86	34.61	27.609	49.0	1.735	1500	2.86	34.56	27.569	52.8	1.856	1500	2.86	34.56	27.569	52.8	1.856	1600	2.86	34.66	27.649	45.2	1.792
1600	2.86	34.66	27.649	45.2	1.792	1600	2.83	34.61	27.611	48.9	1.917	1600	2.83	34.61	27.611	48.9	1.917	1700	2.97	34.73	27.694	40.9	1.846
1700	2.97	34.73	27.694	40.9	1.846	1700	2.85	34.68	27.665	43.7	1.974	1700	2.85	34.68	27.665	43.7	1.974	1800	3.16	34.79	27.725	38.1	1.898
1800	3.16	34.79	27.725	38.1	1.898	1800	2.88	34.74	27.711	39.4	2.027	1800	2.88	34.74	27.711	39.4	2.027	1900	3.35	34.67	27.770	33.7	1.948
1900	3.35	34.67	27.770	33.7	1.948	1900	2.84	34.77	27.738	36.8	2.078	1900	2.84	34.77	27.738	36.8	2.078	2000	3.34	34.90	27.795	31.4	1.996
2000	3.34	34.90	27.795	31.4	1.996	2000	3.15	34.86	27.781	32.7	2.126..	2000	3.15	34.86	27.781	32.7	2.126..	2100	3.35	34.94	27.826	28.5	2.043
2100	3.35	34.94	27.826	28.5	2.043	2100	3.18	34.89	27.802	30.7	2.173	2100	3.18	34.89	27.802	30.7	2.173	2200	3.33	34.95	27.836	27.5	2.088
2200	3.33	34.95	27.836	27.5	2.088	2200	3.08	34.89	27.812	29.8	2.219	2200	3.08	34.89	27.812	29.8	2.219	2300	3.27	34.95	27.841	27.0	2.132
2300	3.27	34.95	27.841	27.0	2.132	2300	3.14	34.92	27.830	28.1	2.264	2300	3.14	34.92	27.830	28.1	2.264	2400	3.21	34.95	27.847	26.4	2.177
2400	3.21	34.95	27.847	26.4	2.177	2400	3.05	34.92	27.838	27.3	2.309	2400	3.05	34.92	27.838	27.3	2.309	2500	3.16	34.95	27.852	26.0	2.222
2500	3.16	34.95	27.852	26.0	2.222	2500	3.04	34.93	27.847	26.4	2.354	2500	3.04	34.93	27.847	26.4	2.354	2600	3.09	34.96	27.866..	24.6	2.266
2600	3.09	34.96	27.866..	24.6	2.266	2600	3.01	34.93	27.850	26.2	2.398	2600	3.01	34.93	27.850	26.2	2.398	2700	3.03	34.95	27.864..	24.8	2.309
2700	3.03	34.95	27.864..	24.8	2.309	2700	2.99	34.94	27.860	25.2	2.442	2700	2.99	34.94	27.860	25.2	2.442	2800	2.95	34.95	27.871	24.1	2.353
2800	2.95	34.95	27.871	24.1	2.353	2800	2.96	34.94	27.863	25.0	2.486	2800	2.96	34.94	27.863	25.0	2.486	2900	2.90	34.94	27.868	24.4	2.397
2900	2.90	34.94	27.868	24.4	2.397	2900	2.89	34.94	27.869	24.4	2.531	2900	2.89	34.94	27.869	24.4	2.531	3000	2.84	34.94	27.874	23.9	2.441
3000	2.84	34.94	27.874	23.9	2.441	3000	2.84	34.93..	27.866	24.7	2.575	3000	2.84	34.93..	27								

RV MELVILLE										CATO EXPEDITION VI						
LATITUDE		LONGITUDE		MO/DAY/YR		MESSENGER		TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES			
30 09.5S		40 32.0W		11/24/72		0427 0639		GMT	4218M	330	15KT	1	190 10			
Z	T	S	O2	PO4	SI03	NO2	NO3	DT	Z	T	S	O2	SI6T	OT	DD	
0	19.33	36.015	5.34	0.03	1.0	0.00	0.0	227.3	0	19.33	36.015	5.34	25.729	227.3	0.000	
41	19.12	35.989	5.43	0.04	1.0	0.00	0.0	224.0	10	19.28	36.007	5.36	25.737	226.5	0.023	
73	18.43	35.975	5.49	0.04	1.0	0.00	0.0	208.4	20	19.23	36.001	5.39	25.745	225.7	0.045	
114	17.76	35.902	5.44	0.06	1.0	0.00	0.0	197.8	30	19.18	35.995	5.41	25.754	224.9	0.068	
157	17.27	35.881	5.32	0.14	1.0	0.09	0.6	188.0	50	18.94	35.985	5.45	25.807	219.9	0.113	
209A	16.11	35.716	5.17	0.20	1.5	0.02	2.2	174.0	75	18.39	35.970	5.49	25.935	207.7	0.167	
218	15.92	35.694	5.20	0.30	1.5	0.01	2.6	171.5	100	17.96	35.926	5.46	26.008	200.8	0.219	
311A	14.91	35.566	5.05	0.48	1.9	0.01	5.1	159.3	125	17.64	35.898	5.41	26.065	195.3	0.269	
413A	13.79	35.408	5.03	0.57	2.6		7.7	148.0	150	17.36	35.885	5.34	26.125	189.6	0.318	
516A	11.89	35.099	4.89	0.95	4.8		12.7	134.6	200	16.33	35.746	5.18	26.263	176.6	0.413	
617A	9.49	34.767	4.81	1.23	8.2		18.8	118.5	250	15.47	35.640	5.15	26.377	165.7	0.502	
719A	7.49	34.541	4.96	1.53	12.1		22.3	105.8	300	14.98	35.576	5.07	26.437	160.0	0.588	
921A	4.50	34.280	5.54	1.89	20.5		27.8	89.4	400	13.95	35.432	5.03	26.549	149.4	0.753	
1124A	3.56	34.299	5.16	2.09	33.7	0.01	30.8	78.7	500	12.23	35.152	4.91	26.682	136.9	0.908	
1327A	3.06	34.432	4.57	2.22	50.5		32.6	64.2	600	9.90	34.818	4.81	26.847	121.2	1.050	
1529A	2.87	34.559	4.41	2.15	57.5		31.9	53.0	700	7.83	34.578	4.92	26.987	107.9	1.177	
1730A	2.86	34.682	4.59	2.01	56.9		30.0	43.6	800	6.09	34.402	5.23	27.090	98.2	1.291	
2034A	3.07	34.832	5.18	1.66	43.6		24.7	34.1	1000	3.99	34.269	5.46	27.228	85.1	1.494	
2336A	3.21	34.928	5.73	1.38	28.6		21.0	28.1	1200	3.33	34.344	4.93	27.353	73.3	1.670	
2538A	3.10	34.930	5.83	1.35	29.4	0.01	20.6	27.0	1500	2.88	34.542	4.43	27.352	54.4	1.889	
2841A	2.93	34.927	5.87	1.34	31.5		20.3	25.7	1750	2.87	34.694	4.62	27.674	42.8	2.037	
3146A	2.727	34.914	5.88	1.36	35.1		20.7	24.9	2000	3.04	34.817	5.11	27.758	34.9	2.167	
3450A	2.062	34.853	5.65	1.58	59.1		23.9	24.2	2250	3.19	34.908	5.60	27.816	29.4	2.286	
3757A	0.871	34.732	5.21	2.04	108.3		30.0	25.2	2500	3.15	34.938	5.82	27.840	27.1	2.401	
4063A	0.374	34.687	5.11	2.21	126.6		32.2	25.8	2750	2.98	34.927	5.86	27.851	26.0	2.514	
4166A	0.335	34.683	5.12	2.21	128.9	0.01	32.3	25.9	3000	2.86	34.923	5.88	27.859	25.3	2.626	
									3250	2.55	34.898	5.83	27.866	24.6	2.737	
									3500	1.86	34.831	5.57	27.869	24.3	2.840	
									3750	0.90	34.735	5.22	27.860	25.2	2.929	
									4000	0.42	34.693	5.13	27.855	25.7	3.004	

RV MELVILLE										CATO EXPEDITION VI						
LATITUDE		LONGITUDE		MO/DAY/YR		MESSENGER		TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES			
30 19.2S		37 51.1W		11/24/72		2100 2245		GMT	3473M	310	12KT	1	310 3 5			
Z	T	S	O2	PO4	SI03	NO2	NO3	DT	Z	T	S	O2	SI6T	OT	DD	
0	20.47	36.168	5.27	0.05	1.4	0.00	0.0	244.8	0	20.47	36.168	5.27	25.544	244.8	0.000	
41	20.35	36.168	5.27	0.05	1.2	0.00	0.0	241.8	10	20.44	36.167	5.27	25.554	243.9	0.024	
62	20.31	36.165	5.27	0.05	1.0	0.00	0.0	241.0	20	20.40	36.167	5.27	25.562	243.1	0.049	
82A	19.51	36.172	5.30	0.07	1.3	0.00	0.0		30	20.38	36.167	5.27	25.570	242.4	0.073	
83	19.55	36.171	5.36	0.08	1.0	0.00	0.0	221.4	50	20.33	36.165	5.27	25.580	241.4	0.122	
126	19.35	36.164	5.28	0.08	0.8	0.00	0.0	217.0	75	19.86	36.166	5.29	25.707	229.3	0.181	
160A	17.98	35.932	5.09	0.20	1.3	0.05	0.7	200.8	100	19.46	36.164	5.33	25.809	219.7	0.238	
263A	15.34	35.590	5.01	0.39	1.7	0.01	4.4	166.6	125	19.35	36.162	5.28	25.836	217.1	0.294	
366A	14.04	35.441	5.03	0.61	2.8	0.01	7.3	150.6	150	18.43	36.004	5.15	25.953	206.0	0.348	
469A	12.31	35.160	4.88	0.86	4.3	0.01	11.7	137.8	200	16.74	35.755	5.06	26.173	185.1	0.449	
572A	9.95	34.822	4.75	1.24	7.4	0.01	17.5	121.8	250	15.57	35.613	5.02	26.334	169.8	0.541	
675A	7.75	34.575	4.82	1.59	12.6	0.01	23.0	106.9	300	14.82	35.535	5.02	26.442	159.6	0.628	
778A	5.89	34.397	5.06	1.69U	16.8	0.01	26.4	96.1	400	13.53	35.359	4.99	26.581	146.4	0.791	
881A	4.70	34.299	5.2	1.95	21.5	0.01	28.2	90.0	500	11.62	35.055	4.83	26.721	133.1	0.942	
1086A	3.51	34.328	4.99	2.12	36.9	0.01	31.6	76.1	600	9.33	34.747	4.77	26.887	117.5	1.080	
1290A	3.01	34.446	4.53	2.22	51.2	0.00	33.1	62.7	700	7.25	34.525	4.88	27.030	103.9	1.202	
1496A	2.86	34.580	4.41	2.15	57.7	0.01	31.9	51.3	800	5.59	34.370	5.10	27.127	94.6	1.312	
1701A	2.82	34.692	4.62	2.03	56.8	0.01	29.5	42.5	1000	3.87	34.294	5.08	27.260	82.0	1.507	
2008A	2.89	34.814	5.10	1.74	47.1	0.00	25.9	33.9	1200	3.17	34.389	4.73	27.404	68.4	1.674	
2316A	2.921	34.882	5.54	1.51	38.4	0.00	22.7	29.0	1500	2.86	34.584	4.41	27.587	51.1	1.881	
2522A	2.925	34.910	5.73	1.41	34.0	0.00	21.3	26.9	1750	2.83	34.716	4.69	27.695	40.8	2.022	
2727A	2.846	34.918	5.78	1.40	33.5	0.00	21.1	25.6	2000	2.89	34.811	5.09	27.767	34.0	2.147	
3036A	2.72	34.911	5.85	1.40	35.5	0.01	21.0	25.1	2250	2.92	34.871	5.46	27.812	29.8	2.263	
3347A	2.501	34.897	5.86	1.44	41.2		21.5	24.3	2500	2.92	34.907	5.72	27.840	27.1	2.375	
3451A	2.235	34.874	5.78	1.51	49.7	0.00	22.6	24.0	2750	2.84	34.917	5.79	27.856	25.6	2.485	
									3000	2.74	34.911	5.84	27.861	25.1	2.595	
									3250	2.57	34.901	5.86	27.867	24.6	2.704	
									3500	2.21	34.872	5.77	27.874	23.9	2.811	

E) ALTERNATE VALUE. 34.409 PPT.

31 STD						32 STD					
LATITUDE 30 09.5S	LONGITUDE 40 32.0W	MO/DAY/YR 11/24/72	START TIME 0253 GMT	LATITUDE 30 19.2S	LONGITUDE 37 51.1W	MO/DAY/YR 11/24/72	START TIME 1938 GMT	LATITUDE 30 09.5S	LONGITUDE 40 32.0W	MO/DAY/YR 11/24/72	START TIME 0253 GMT
Z	T	S	SIGMA T	DT	DD	Z	T	S	SIGMA T	DT	DD
0	19.60	36.06	25.693	230.7	0.000	0	20.65	36.18	25.505	248.6	0.000
10	19.32	36.04	25.750	225.2	0.023	10	20.44	36.18	25.561	243.2	0.025
20	19.29	36.03	25.750	225.2	0.045	20	20.38	36.18	25.577	241.7	0.049
30	19.21	36.03	25.771	223.3	0.068	30	20.38	36.18	25.577	241.7	0.073
40	19.17	36.03	25.781	222.3	0.090	40	20.36	36.18	25.583	241.2	0.097
50	19.14	36.02	25.782	222.3	0.113	50	20.36	36.18	25.583	241.2	0.122
60	18.78	35.99	25.851	215.7	0.135	60	20.11	36.18	25.649	234.8	0.146
70	18.36	35.99	25.957	205.6	0.156	70	19.67	36.18	25.766	223.8	0.169
80	18.30	35.98	25.964	204.9	0.177	80	19.58	36.18	25.789	221.5	0.191
90	18.12	35.97	26.002	201.4	0.197	90	19.50	36.18	25.810	219.5	0.214
100	17.94	35.95	26.031	198.6	0.218	100	19.45	36.17	25.816	219.0	0.236
125	17.71	35.93	26.073	194.60	0.268	125	19.32	36.15	25.834	217.3	0.292
150	17.41	35.91	26.1300	189.1	0.317	150	18.47	36.20	26.090	193.0	0.344
200	16.29	35.74	26.267	176.2	0.41100	200	16.49	35.73	26.212	181.4	0.441
250	15.61	35.67	26.369	166.500	0.501	250	15.34	35.59	26.368	166.6	0.531
300	14.96	35.59	26.453	158.6	0.586	300	14.57	35.47	26.446	159.2	0.617
350	14.47	35.53	26.513	152.6	0.669	350	14.07	35.41	26.50700	153.5	0.700
400	13.92	35.44	26.561	148.2	0.749	400	13.3200	35.28	26.563	148.2	0.780
450	13.17	35.30	26.609	143.8	0.828	450	12.42	35.13	26.627	142.0	0.859
500	12.23	35.15	26.679	137.1	0.905	500	11.5100	34.95	26.693	135.8	0.954
550	11.02	34.96	26.760	129.5	0.978	550	10.21	34.81	26.787	126.9	1.006
600	9.99	34.81	26.825	123.3	1.048	600	9.09	34.67	26.865	119.4	1.073
650	8.71	34.68	26.934	113.0	1.113	650	7.95	34.53	26.933	113.0	1.137
700	7.84	34.56	26.973	109.3	1.175	700	6.96	34.44	27.005	106.3	1.198
750	6.91	34.42	26.996	107.1	1.235	750	6.21	34.38	27.058	101.2	1.255
800	6.10	34.36	27.056	101.4	1.292	800	5.46	34.31	27.097	97.6	1.310
850	5.34	34.33	27.127	94.7	1.347	850	4.89	34.28	27.140	93.5	1.362
900	4.72	34.27	27.151	92.4	1.398	900	4.57	34.27	27.168	90.8	1.413
950	4.32	34.28	27.203	87.5	1.44800	950	4.13	34.26	27.207	87.1	1.462
1000	4.07	34.27	27.221	85.8	1.496	1000	3.89	34.29	27.256	82.5	1.508
1100	3.660	34.30	27.287	79.6	1.587	1100	3.45	34.30	27.307	77.6	1.597
1200	3.24	34.33	27.351	73.5	1.672	1200	3.17	34.35	27.373	71.3	1.680
1300	3.09	34.41	27.429	66.1	1.751	1300	3.00	34.41	27.437	65.3	1.756
1400	2.97	34.49	27.503	59.0	1.822	1400	2.92	34.50	27.516	57.8	1.827
1500	2.97	34.56	27.559	53.7	1.888	1500	2.87	34.55	27.560	53.6	1.892
1600	2.84	34.61	27.611	48.9	1.950	1600	2.83	34.61	27.611	48.8	1.953
1700	2.86	34.67	27.657	44.5	2.007	1700	2.82	34.67	27.660	44.1	2.010
1800	2.89	34.72	27.694	41.0	2.062	1800	2.84	34.72	27.698	40.5	2.0640
1900	2.95	34.78	27.736	37.0	2.113	1900	2.87	34.77	27.735	37.0	2.115
2000	3.04	34.83	27.768	34.0	2.162	2000	2.90	34.80	27.757	35.0	2.164
2100	3.20	34.88	27.792	31.6	2.210	2100	2.91	34.83	27.780	32.8	2.212
2200	3.22	34.91	27.814	29.5	2.257	2200	2.90	34.84	27.788	32.0	2.259
2300	3.24	34.92	27.820	29.0	2.303	2300	2.94	34.87	27.809	30.1	2.305
2400	3.17	34.93	27.835	27.6	2.349	2400	2.96	34.90	27.831	28.0	2.351
2500	3.13	34.93	27.839	27.2	2.395	2500	2.93	34.90	27.833	27.7	2.395
2600	3.04	34.93	27.847	26.4	2.440	2600	2.92	34.90	27.834	27.6	2.440
2700	3.01	34.93	27.850	26.2	2.485	2700	2.88	34.91	27.846	26.5	2.485
2800	2.94	34.93	27.856	25.5	2.530	2800	2.84	34.91	27.850	26.2	2.530
2900	2.88	34.92	27.854	25.8	2.575	2900	2.79	34.91	27.854	25.8	2.575
3000	2.82	34.92	27.859	25.3	2.620	300000	2.76	34.91	27.857	25.5	2.619
3100	2.74	34.92	27.867	24.6	2.664	3100	2.67	34.91	27.865	24.8	2.664
3200	2.67	34.92	27.873	24.0	2.708	3200	2.60	34.91	27.871	24.2	2.707
3300	2.54	34.90	27.868	24.4	2.752	3300	2.53	34.91	27.877	23.6	2.750
3400	2.35	34.88	27.869	24.4	2.795	3400	2.43	34.89	27.870	24.3	2.793
3500	1.86	34.84	27.876	23.7	2.836	3456	2.22	34.87	27.871	24.1	2.817
3600	1.45	34.79	27.867	24.6	2.873						
3700	1.16	34.75	27.855	25.7	2.908						
3800	0.77	34.72	27.857	25.5	2.941						
3900	0.56	34.70	27.853	25.8	2.971						
4000	0.45	34.69	27.852	26.0	3.000						
4100	0.34	34.680	27.850	26.2	3.028						
4200	0.32	34.68	27.8510	26.0	3.056						

RV MELVILLE

CATO EXPEDITION V1

33

LATITUDE		LONGITUDE		MO/DAY/YR		MESSENGER		TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES		
30 26.5S		35 19.6W		11/25/72		1150		GMT	1413M	280	11KT	1	240 6		
Z	T	S	O2	PO4	SI03	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
0	19.59	36.029	5.38	0.04	1.0	0.00	0.0	232.7	0	19.59	36.029	5.38	25.672	232.7	0.000
11	19.47	36.027	5.36	0.05	1.0	0.00	0.0	229.9	10	19.48	36.025	5.36	25.699	230.1	0.023
33	19.46	36.052	5.46	0.08	1.0	0.00	0.0	227.8	20	19.47	36.036	5.39	25.710	229.1	0.046
54	18.48	35.961	5.49	0.09	1.0	0.00	0.0	210.6	30	19.46	36.047	5.44	25.720	228.1	0.069
75	17.76	35.872	5.48	0.11	1.0	0.00	0.0	200.0	50	18.69	35.980	5.49	25.867	214.2	0.114
127	16.63	35.769	5.28	0.20	1.4		1.4	181.7	75	17.76	35.672	5.48	26.016	200.0	0.166
179	15.79	35.673	5.19	0.30	1.5		2.5	170.2	100	17.14	35.811	5.39	26.121	190.1	0.215
232	14.99	35.581	5.15	0.43	1.7		4.4	159.8	125	16.66	35.770	5.29	26.203	182.2	0.263
283	14.40	35.509	5.18	0.48	2.2	0.01	5.8	152.9	150	16.24	35.725	5.23	26.268	176.1	0.309
387	13.35	35.340	5.11	0.65	3.0	0.01	8.6	143.9	200	15.46	35.634	5.17	26.376	165.8	0.397
490	11.17	34.991	4.87	1.02	5.3	0.01	14.3	129.8	250	14.77	35.554	5.16	26.468	157.1	0.481
593	9.11	34.712	4.96	1.33	8.1		19.1	116.6	300	14.26	35.489	5.17	26.528	151.4	0.562
695	6.70	34.449	5.11	1.62	12.2		23.5	102.2	400	13.08	35.298	5.08	26.624	142.3	0.719
797	5.42	34.333	5.39	1.78	15.4		25.9	95.4	500	10.98	34.963	4.68	26.770	128.5	0.866
899	4.61	34.310	5.22	1.93	21.6	0.01	28.0	88.3	600	8.93	34.691	4.97	26.907	115.6	1.000
1001	4.02	34.296	5.21	2.02	27.6		29.4	83.3	700	6.62	34.441	5.13	27.052	101.8	1.119
1104	3.611	34.325	4.98	2.08	33.4		31.0	77.2	800	5.39	34.332	5.39	27.122	95.2	1.228
1207	3.311	34.367	4.77	2.18	42.2		31.6	71.3	1000	4.02	34.297	5.21	27.247	83.4	1.425
1362	3.003	34.459	4.55	2.19	48.7		31.8	61.6	1200	3.33	34.365	4.78	27.369	71.7	1.597
1414	2.985	34.465	4.61	2.21	51.5	0.01	32.3	61.0							

RV MELVILLE

CATO EXPEDITION V1

34

LATITUDE		LONGITUDE		MO/DAY/YR		MESSENGER		TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES		
28 56.7S		33 51.5W		11/26/72		0214		0437	5782M	340	16KT	1	220 6 3		
Z	T	S	O2	PO4	SI03	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
0	19.51	35.765	4.87	0.08	1.0	0.00	0.1	249.9	0	19.51	35.765	4.87	25.491	249.9	0.000
31	19.05	35.761	5.16	0.07	0.8	0.00	0.0	238.4	10	19.42	35.757	4.95	25.510	248.1	0.025
62	17.97	35.812	5.57	0.07	1.0	0.00	0.0	209.3	20	19.27	35.756	5.04	25.548	244.5	0.050
103	17.18	35.828	5.24	0.13	1.0	0.01	0.6	189.8	30	19.05	35.759	5.15	25.605	239.0	0.074
144	16.59	35.752	5.21	0.20	1.0	0.02	1.3	182.0	50	18.39	35.789	5.44	25.797	220.9	0.120
161A	16.06	35.676	5.31	0.18	1.3	0.17	0.9	175.8	75	17.67	35.824	5.50	26.002	201.3	0.173
185	15.77	35.641	5.29	0.22	1.2	0.10	1.5	172.1	100	17.22	35.828	5.28	26.114	190.7	0.223
264A	14.53	35.520	5.10	0.48	2.0	0.02	5.6	154.8	125	16.91	35.802	5.22	26.168	185.5	0.271
367A	13.57	35.384	5.09	0.57	2.7	0.03	7.8	145.4	150	16.40	35.723	5.25	26.229	179.8	0.318
470A	11.16	34.986	4.78	1.04	5.9	0.01	14.5	130.0	200	15.53	35.616	5.26	26.345	168.7	0.408
573A	8.67	34.671	4.71	1.37	10.3	0.01	20.8	113.0	250	14.75	35.540	5.13	26.461	157.8	0.493
677A	6.43	34.447	4.90	1.67	16.0		24.8	99.0	300	14.23	35.489	5.10	26.533	151.0	0.574
780A	5.06	34.343	5.08	1.89	21.7		28.0	90.6	400	12.88	35.264	4.99	26.639	140.9	0.730
883A	4.26	34.315	5.06	1.98	28.2	0.03	29.2	84.3	500	10.42	34.884	4.76	26.807	125.0	0.874
1088A	3.32	34.388	4.67	2.13	45.1	0.03	32.0	69.8	600	8.03	34.602	4.75	26.976	109.0	1.002
1292A	2.98	34.516	4.41	2.17	56.4	0.02	32.5	57.1	700	6.06	34.416	4.95	27.105	96.8	1.115
1498A	2.83	34.641	4.50	2.02	58.1	0.02	30.8	46.4	800	4.87	34.334	5.08	27.183	89.3	1.217
1702A	2.80	34.731	4.80	1.88	55.2		27.5	39.4	1000	3.63	34.345	4.86	27.324	76.1	1.399
2009A	2.79	34.821	5.22	1.67	47.7		27.7	32.5	1200	3.08	34.456	4.50	27.465	62.6	1.554
2316A	2.85	34.880	5.56	1.49	38.7	0.02	22.5	28.6	1500	2.83	34.643	4.50	27.637	46.3	1.744
2521A	2.83	34.898	5.68	1.43	36.8	0.03	21.6	27.0	1750	2.80	34.749	4.87	27.724	38.1	1.876
2726A	2.796	34.908	5.75	1.40	35.8	0.01	21.4	26.0	2000	2.79	34.819	5.21	27.781	32.6	1.995
3035A	2.654	34.906	5.78	1.39	37.8		21.0	24.9	2250	2.84	34.670	5.50	27.818	29.2	2.107
3345A	2.392	34.884	5.79	1.45	46.4		21.8	24.4	2500	2.83	34.896	5.67	27.839	27.1	2.217
3657A	1.751	34.822	1.68	1.78			25.2	24.3	2750	2.79	34.908	5.75	27.853	25.9	2.327
3761A	1.673	34.814	5.54	1.69	75.1	0.02	25.4	24.3	3000	2.68	34.906	5.78	27.862	25.0	2.436
									3250	2.50	34.893	5.79	27.867	24.5	2.544
									3500	2.06	34.850	5.73	27.869	24.4	2.648
									3750	1.68	34.814	5.55	27.870	24.3	2.747

33 STC						CATO EXPEDITION VI						34 STD					
LATITUDE	LONGITUDE	MO/DAY/YR	START TIME			LATITUDE	LONGITUDE	MO/DAY/YR	START TIME			LATITUDE	LONGITUDE	MO/DAY/YR	START TIME		
30 26.5S	35 19.8W	11/25/72	1051 GMT			28 56.7S	33 51.5W	11/26/72	0042 GMT								
Z	T	S	SIGMA T	DT	DD	Z	T	S	SIGMA T	DT	DD	Z	T	S	SIGMA T	DT	DD
0	19.42	36.04	25.724	227.7	0.000	0	19.57	35.80	25.502	248.8	0.000	0	19.57	35.80	25.502	248.8	0.000
10	19.42	36.05	25.732	227.0	0.023	10	19.53	35.79	25.505	248.6	0.025	10	19.53	35.79	25.505	248.6	0.025
20	19.40	36.04	25.730	227.2	0.046	20	19.11	35.77	25.599	239.7	0.049	20	19.11	35.77	25.599	239.7	0.049
30	19.41	36.05	25.735	226.7	0.063	30	19.04	35.76	25.609	238.7	0.073	30	19.04	35.76	25.609	238.7	0.073
40	19.42	36.06	25.740	226.3	0.091	40	18.95	35.76	25.632	236.5	0.097	40	18.95	35.76	25.632	236.5	0.097
50	19.35	36.05	25.750	225.3	0.114	50	18.38	35.76	25.776	222.8	0.120	50	18.38	35.76	25.776	222.8	0.120
60	18.30	35.95	25.942	207.1	0.136	60	18.11	35.77	25.851	215.6	0.142	60	18.11	35.77	25.851	215.6	0.142
70	17.96	35.88	25.973	204.1	0.156	70	17.96	35.81	25.944	206.9	0.164	70	17.96	35.81	25.944	206.9	0.164
80	17.57	35.84	26.038	197.9	0.177	80	17.52	35.79	26.012	200.4	0.184	80	17.52	35.79	26.012	200.4	0.184
90	17.39	35.83	26.074	194.5	0.197	90	17.33	35.83	26.089	193.1	0.204	90	17.33	35.83	26.089	193.1	0.204
100	17.17	35.83	26.127	189.4	0.216	100	17.17	35.83	26.127	189.4	0.224	100	17.17	35.83	26.127	189.4	0.224
125	16.65	35.77	26.205	182.1	0.264	125	16.84	35.78	26.168	185.6	0.272	125	16.84	35.78	26.168	185.6	0.272
150	16.29	35.74	26.267	176.2	0.309	150	16.52	35.71	26.190	183.5	0.319	150	16.52	35.71	26.190	183.5	0.319
200	15.56	35.63	26.350	168.4	0.398	200A	15.42	35.63	26.381	165.4	0.409	200A	15.42	35.63	26.381	165.4	0.409
250	14.95	35.58	26.447	159.1	0.484	250A	14.64	35.54	26.484	155.6	0.493	250A	14.64	35.54	26.484	155.6	0.493
300	14.35	35.50	26.516	152.5	0.566	300A	14.26	35.49	26.528	151.4	0.573	300A	14.26	35.49	26.528	151.4	0.573
350	13.93	35.46	26.575	147.0	0.645	350A	13.81	35.43	26.577	146.8	0.653	350A	13.81	35.43	26.577	146.8	0.653
400	13.25	35.31	26.600	144.6	0.723	400A	12.67	35.20	26.632	141.6	0.730	400A	12.67	35.20	26.632	141.6	0.730
450	11.84	35.08	26.700	135.1	0.799	450A	11.59	35.03	26.709	134.3	0.804	450A	11.59	35.03	26.709	134.3	0.804
500	10.98	34.96	26.767	128.8	0.871	500A	10.34	34.86	26.803	125.3	0.875	500A	10.34	34.86	26.803	125.3	0.875
550	9.95	34.77	26.801	125.6	0.940	550A	9.30	34.71	26.863	119.7	0.942	550A	9.30	34.71	26.863	119.7	0.942
600	8.71	34.64	26.903	115.9	1.006	600A	8.11	34.59	26.956	110.9	1.005	600A	8.11	34.59	26.956	110.9	1.005
650	7.53	34.50	26.971	109.4	1.068	650A	7.33	34.51	27.008	106.0	1.064	650A	7.33	34.51	27.008	106.0	1.064
700	6.46	34.43	27.065	100.6	1.126	700A	6.10	34.42	27.104	96.9	1.120	700A	6.10	34.42	27.104	96.9	1.120
750	5.54	34.34	27.111	96.2	1.180	750A	5.42	34.37	27.149	92.6	1.172	750A	5.42	34.37	27.149	92.6	1.172
800	5.17	34.30	27.123	95.0	1.232	800A	4.91	34.34	27.185	89.2	1.222	800A	4.91	34.34	27.185	89.2	1.222
850	4.81	34.31	27.173	90.4	1.283	850A	4.40	34.32	27.226	85.3	1.270	850A	4.40	34.32	27.226	85.3	1.270
900	4.55	34.31	27.201	87.6	1.332	900A	4.10	34.32	27.258	82.3	1.316	900A	4.10	34.32	27.258	82.3	1.316
950	4.32	34.31	27.226	85.3	1.380	950A	3.79	34.32	27.289	79.3	1.360	950A	3.79	34.32	27.289	79.3	1.360
1000	4.04	34.31	27.256	82.5	1.427	1000A	3.55	34.35	27.337	74.8	1.403	1000A	3.55	34.35	27.337	74.8	1.403
1100	3.63	34.33	27.313	77.0	1.515	1100A	3.29	34.41	27.410	67.9	1.482	1100A	3.29	34.41	27.410	67.9	1.482
1200	3.37	34.37	27.370	71.6	1.598	1200A	3.08	34.47	27.477	61.5	1.555	1200A	3.08	34.47	27.477	61.5	1.555
1300	3.14	34.42	27.432	65.8	1.676	1300A	2.97	34.52	27.527	56.8	1.622	1300A	2.97	34.52	27.527	56.8	1.622
1400	3.01	34.45	27.468	62.4	1.749	1400A	2.89	34.59	27.590	50.8	1.685	1400A	2.89	34.59	27.590	50.8	1.685
1429	2.94	34.47	27.490	60.3	1.770	1500A	2.85	34.64	27.634	46.7	1.743	1500A	2.85	34.64	27.634	46.7	1.743
						1600A	2.83	34.69	27.675	42.7	1.798	1600A	2.83	34.69	27.675	42.7	1.798
						1700A	2.80	34.73	27.710	39.4	1.850	1700A	2.80	34.73	27.710	39.4	1.850
						1800A	2.80	34.76	27.734	37.2	1.900	1800A	2.80	34.76	27.734	37.2	1.900
						1900A	2.78	34.79	27.759	34.7	1.948	1900A	2.78	34.79	27.759	34.7	1.948
						2000A	2.80	34.82	27.782	32.7	1.994	2000A	2.80	34.82	27.782	32.7	1.994
						2100A	2.81	34.83	27.789	32.0	2.040	2100A	2.81	34.83	27.789	32.0	2.040
						2200A	2.83	34.85	27.803	30.6	2.085	2200A	2.83	34.85	27.803	30.6	2.085
						2300A	2.84	34.87	27.818	29.2	2.130	2300A	2.84	34.87	27.818	29.2	2.130
						2400A	2.84	34.87	27.818	29.2	2.175	2400A	2.84	34.87	27.818	29.2	2.175
						2500A	2.85	34.90	27.841	27.0	2.220	2500A	2.85	34.90	27.841	27.0	2.220
						2600A	2.81	34.90	27.844	26.7	2.263	2600A	2.81	34.90	27.844	26.7	2.263
						2700A	2.80	34.90	27.845	26.6	2.307	2700A	2.80	34.90	27.845	26.6	2.307
						2800A	2.76	34.91	27.857	25.5	2.351	2800A	2.76	34.91	27.857	25.5	2.351
						2900A	2.72	34.91	27.860	25.2	2.395	2900A	2.72	34.91	27.860	25.2	2.395
						3000A	2.68	34.90	27.856	25.6	2.438	3000A	2.68	34.90	27.856	25.6	2.438
						3100A	2.65	34.90	27.859	25.3	2.483	3100A	2.65	34.90	27.859	25.3	2.483
						3200A	2.53	34.90	27.869	24.4	2.526	3200A	2.53	34.90	27.869	24.4	2.526
						3300A	2.47	34.89	27.866	24.6	2.569	3300A	2.47	34.89	27.866	24.6	2.569
						3400A	2.27	34.88	27.875	23.8	2.612	3400A	2.27	34.88	27.875	23.8	2.612
						3500A	2.13	34.86	27.871	24.2	2.653	3500A	2.13	34.86	27.871	24.2	2.653
						3600A	1.94	34.84	27.870	24.3	2.693	3600A	1.94	34.84	27.870	24.3	2.693
						3700A	1.72	34.82	27.871	24.2	2.732	3700A	1.72	34.82	27.871	24.2	2.732
						3787A	1.62	34.81	27.870	24.2	2.765	3787A	1.62	34.81	27.870	24.2	2.765

RV MELVILLE										CATC EXPEDITION VI							35
LATITUDE	LONGITUDE		MO/DAY/YR	MESSENGER		TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES						
30 56.2S	31 23.9W		11/26/72	213A	2354	GMT	4678M	040	35KT	2	040 14						
Z	T	S	02	PO4	SI03	NO2	NO3	CT	Z	T	S	02	STGT	DT	DD		
0	19.46	35.926	5.36	0.06	1.0	0.00	0.0	237.000	0	19.46	35.926	5.36	25.627	237.0	0.000		
31	19.49	35.921	5.36	0.05	0.8	0.00	0.0	238.1	10	19.47	35.923	5.36	25.623	237.3	0.02400		
62	17.47	35.777	5.64	0.09	1.0	0.00	0.0	200.2	20	19.48	35.921	5.36	25.620	237.7	0.048		
94	16.88	35.772	5.51	0.13	1.0	0.00	0.000187.1		30	19.49	35.920	5.36	25.616	238.0	0.071		
125	16.02	35.678	5.15	0.32	1.5	0.04	2.8	174.8	50	18.29	35.827	5.54	25.85100	215.7	0.117000		
144A	15.95	35.677	5.24V	0.31	1.4	0.04	2.6		75	17.16	35.773	5.59	26.087	193.3	0.169		
154	15.44	35.607	5.10	0.40	1.6	0.01	3.8	167.5	100	16.71	35.755	5.44	26.179	184.5	0.2170		
247A	14.34	35.435	5.05	0.56	2.1	0.02	6.2	157.1	125	16.02	35.678	5.15	26.281	174.8	0.262		
350A	13.53	35.365	5.04	0.63	2.7	0.02	8.2	146.0	150	15.51	35.615	5.11	26.350	168.3	0.306		
453A	11.53	35.041	4.85	1.02	5.0	0.01	13.4	132.4	200	14.80	35.510	5.08	26.426	161.1	0.391		
583A	8.53	34.649	4.83	1.41	9.7	0.01	21.0	112.6	250	14.32	35.433	5.05	26.471	156.8	0.474		
737A	5.68	34.367	5.20	1.79	16.2	0.01	26.0	95.8	300	13.9700	35.409	5.04	26.527	151.5	0.555		
865A	4.32	34.270	5.45	1.95	22.4		28.0	88.3	400	12.6500	35.221	4.95	26.652	139.7	0.711000		
1070A	3.37	34.308	5.11	2.13	36.7		31.4	76.3	500	10.44	34.886	4.84	26.806	125.1	0.854		
1275A	3.02	34.435	4.56	2.19	51.2		32.0	63.6	600	8.16	34.608	4.86	26.961	110.3	0.983		
1480A	2.82	34.563	4.45	2.19	63.2		31.7	52.2	700	6.27	34.418	5.10	27.080	99.2	1.098		
1685A	2.79	34.688	4.56	2.00	58.6	0.01	29.6	42.5	800	4.92	34.308	5.35	27.158	91.7	1.202		
1992A	2.79	34.787	5.06	1.79	51.2		26.0	35.1	1000	3.58	34.280	5.29	27.278	80.4	1.391		
2301A	2.80	34.853	5.47	1.57	42.7		23.0	30.2	1200	3.10	34.384	4.75	27.406	68.2	1.556		
2506A	2.79	34.880	5.59	1.41	39.0		22.5	28.0	1500	2.8200	34.578	4.45	27.586	51.2	1.761		
2712A	2.76	34.895	5.69	1.42	37.3		21.4	26.6	1750	2.79	34.716	4.65	27.699	40.5	1.902		
3021A	2.60	34.893	5.77	1.41	41.1	0.01	21.5	25.5	2000	2.79	34.78900	5.07	27.758	34.9	2.027		
3331A	2.300	34.874	5.69	1.56	51.0		22.8	24.5	2250	2.80	34.844	5.42	27.801	30.8	2.143		
3642A	1.845	34.827	5.51	1.70	69.6		25.0	24.6	2500	2.79	34.879	5.59	27.830	28.1	2.256		
3954A	1.364	34.768	5.45U	1.94	93.1		27.6	25.7	2750	2.75	34.895	5.71	27.846	26.5	2.366000		
4058A	1.138	34.747	5.19	1.99	102.3	0.01	28.5	25.80	3000	2.62	34.893	5.77	27.857	25.5	2.476		
									3250	2.39	34.880	5.72	27.865	24.7	2.583		
									3500	2.06	34.849	5.60	27.867	24.5	2.687000		
									3750	1.70	34.808	5.44	27.863	24.9	2.787		
									4000	1.27	34.759	5.24	27.855	25.7	2.881000		

RV MELVILLE										CATO EXPEDITION VI							36
LATITUDE	LONGITUDE		MO/DAY/YR	MESSENGER		TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES						
32 39.2S	28 51.1W		11/27/72	1848	1848	GMT	3479M	230	40KT	6	230 25						
Z	T	S	02	PO4	SI03	NO2	NO3	DT	Z	T	S	02	STGT	DT	DD		
0	18.00	C 35.88	C					205.1	0	18.00	35.880		25.963	205.1	0.000		
60	18.00	C 35.88	C					205.1	10	18.00	35.879		25.963	205.1	0.021		
115	17.20	35.802	5.45	0.12	1.0	0.00	0.0	192.2	20	18.00	35.879		25.963	205.1	0.041		
216	15.08	35.561	5.25	0.37	1.6	0.02	3.7	163.200	30	18.0000	35.879		25.963	205.100	0.062		
316	14.01	35.454	5.10	0.49	2.3	0.01	6.8	149.000	50	18.00	35.879		25.963	205.100	0.103		
415	12.44	35.185	4.99	0.83	3.6		14.6	138.4	75	17.73	35.852		26.008	200.700	0.154		
515	10.44	34.887	4.79	1.10	6.0		15.9	125.0	100	17.30	35.812		26.082	193.700	0.204		
614	8.11	34.594	4.82	1.45	10.1		20.2U	110.6	1250	17.02	35.779	5.43	26.12500	189.7	0.253		
713	5.95	34.370	5.34	1.70	13.2		22.8U	98.8	150	16.55	35.72300	5.3800	26.194	183.100	0.301		
813	4.95	34.29600	5.46	1.81	17.5	0.02	25.1U	92.9	2000	15.46	35.60100	5.2800	26.349	168.400	0.392		
911	4.25	34.25700	5.32	1.93	20.9		25.7U	88.5	250	14.6900	35.528	5.19	26.465	157.400	0.476		
1108	3.26	34.297	5.140	2.12	36.1		28.0U	76.1	300	14.16	35.473	5.12	26.53600	150.700	0.557		
1305	2.92	34.41000	4.63	2.22	48.5		28.1U	64.6	400	12.71	35.23100	5.0100	26.649	140.0	0.712		
1503	2.80	34.532	4.41	2.19	58.6		29.1U	54.40	50000	10.76	34.93200	4.8200	26.784	127.1	0.857		
1800	2.80	34.713	4.50	1.98	56.1		26.8U	40.7	600	8.44	34.633	4.8200	26.93800	112.6	0.988		
2100	2.83	34.804	4.92	1.7300	50.6	0.0000	24.4	34.1	700	6.20	34.393	5.27	27.069	100.1	1.105		
2455	2.793	34.866	5.46	1.5500	41.1		21.7	29.1	800	5.04	34.302	5.44	27.13900	93.5	1.211		
2657	2.76	34.888	5.51U	1.47	40.2		21.0	27.2	1000	3.73	34.261	5.25	27.248	83.2	1.405		
2812	2.670	34.888	5.63	1.46	41.4		21.0	26.4	1200	3.05	34.346	4.90	27.38100	70.6	1.575		
3022	2.514	34.879	5.63	1.50	45.7		21.4	25.8	1500	2.80	34.531	4.41	27.55100	54.6	1.789		
3341	2.15000	34.845	5.56	1.61	59.2		22.7	25.5	1750	2.80	34.688	4.48	27.675	42.7	1.936		
3449	2.045	34.836	5.44	1.64	64.4	0.0000	23.2	25.4	2000	2.82	34.780	4.7600	27.748	35.80	2.064		
3500	2.01	34.832						25.4	2250	2.82	34.835	5.17	27.792	31.7	2.184		
									2500	2.79	34.872	5.50	27.8240	28.6	2.298		
									2750	2.71	34.888	5.62	27.844	26.7	2.409		
									3000	2.53	34.880	5.63	27.853	25.900	2.518		
									3250	2.26	34.854	5.58	27.8560	25.5	2.625		
									3500	2.01	34.832		27.858	25.4	2.729		

C) THESE VALUES HAVE BEEN ENTERED FROM THE STD AS NO NANSEN BOTTLES WERE PLACED ON THE WIRE00 ABOVE 115 METERS.

35 STD						CATO EXPEDITION VI						36 STE					
LATITUDE		LONGITUDE		MO/DAY/YR	START TIME	LATITUDE		LONGITUDE		MO/DAY/YR	START TIME	LATITUDE		LONGITUDE		MO/DAY/YR	START TIME
30 56.2S		31 23.9W		11/26/72	1955 GMT	32 39.2S		28 51.1W		11/27/72	1642 GMT	30 56.2S		31 23.9W		11/27/72	1642 GMT
Z	T	S	SIGMA T	DT	DD	Z	T	S	SIGMA T	DT	DD	Z	T	S	SIGMA T	DT	DD
0	19.42	35.88	25.602	239.3	0.000	0	18.00	35.88	25.963	205.1	0.000	0	18.00	35.88	25.963	205.1	0.000
10	19.43	35.88	25.600	239.6	0.024	10	17.99	35.88	25.965	204.8	0.021	10	17.99	35.88	25.965	204.8	0.021
20	19.41	35.89	25.613	238.3	0.048	20	18.01	35.88	25.960	205.3	0.041	20	18.01	35.88	25.960	205.3	0.041
30	19.41	35.89	25.613	238.3	0.072	30	18.01	35.88	25.960	205.3	0.062	30	18.01	35.88	25.960	205.3	0.062
40	19.36	35.86	25.603	239.3	0.096	40	18.00	35.88	25.963	205.1	0.082	40	18.00	35.88	25.963	205.1	0.082
50	18.31	35.74	25.779	222.6	0.119	50	16.00	35.88	25.963	205.1	0.103	50	16.00	35.88	25.963	205.1	0.103
60	17.64	35.78	25.975	203.9	0.141	60	18.00	35.88	25.963	205.1	0.124	60	18.00	35.88	25.963	205.1	0.124
70	17.36	35.80	26.058	196.0	0.161	70	17.96	35.88	25.973	204.1	0.144	70	17.96	35.88	25.973	204.1	0.144
80	17.08	35.82	26.141	188.1	0.180	80	17.94	35.87	25.970	204.4	0.165	80	17.94	35.87	25.970	204.4	0.165
90	16.87	35.77	26.153	187.0	0.199	90	17.71	35.83	25.996	201.9	0.186	90	17.71	35.83	25.996	201.9	0.186
100	16.63	35.76	26.202	182.3	0.218	100	17.18	35.78	26.086	193.3	0.206	100	17.18	35.78	26.086	193.3	0.206
125	15.98	35.66	26.277	175.3	0.264	125	16.67	35.72	26.162	186.1	0.254	125	16.67	35.72	26.162	186.1	0.254
150	15.50	35.58	26.325	170.7	0.308	150	16.01	35.63	26.247	178.1	0.301	150	16.01	35.63	26.247	178.1	0.301
200A	15.08	35.58	26.418	161.8	0.394	200	15.20	35.57	26.384	165.1	0.389	200	15.20	35.57	26.384	165.1	0.389
250A	14.33	35.46	26.490	155.1	0.476	250	14.62	35.53	26.481	155.9	0.473	250	14.62	35.53	26.481	155.9	0.473
300A	14.17	35.47	26.532	151.1	0.557	300	14.26	35.48	26.520	152.2	0.554	300	14.26	35.48	26.520	152.2	0.554
350A	13.52	35.36	26.583	146.2	0.636	350	13.81	35.43	26.577	146.8	0.633	350	13.81	35.43	26.577	146.8	0.633
400A	12.71	35.22	26.639	140.9	0.713	400	13.23	35.31	26.604	144.2	0.711	400	13.23	35.31	26.604	144.2	0.711
450A	11.78	35.04	26.681	137.0	0.788	450	12.15	35.09	26.649	140.0	0.788	450	12.15	35.09	26.649	140.0	0.788
500A	10.41	34.85	26.783	127.2	0.859	500	10.95	34.92	26.741	131.2	0.862	500	10.95	34.92	26.741	131.2	0.862
550A	9.24	34.74	26.896	116.6	0.926	550	9.86	34.77	26.816	124.1	0.931	550	9.86	34.77	26.816	124.1	0.931
600A	8.29	34.55	26.896	116.4	0.990	600	8.85	34.64	26.881	118.0	0.998	600	8.85	34.64	26.881	118.0	0.998
650A	7.15	34.49	27.018	105.0	1.050	650	7.74	34.50	26.941	112.3	1.061	650	7.74	34.50	26.941	112.3	1.061
700A	6.38	34.41	27.059	101.1	1.107	700	6.73	34.43	27.028	104.0	1.120	700	6.73	34.43	27.028	104.0	1.120
750A	5.67	34.35	27.103	97.0	1.161	750	5.80	34.32	27.063	100.8	1.177	750	5.80	34.32	27.063	100.8	1.177
800A	4.84	34.27	27.137	93.7	1.213	800	5.19	34.28	27.105	96.8	1.231	800	5.19	34.28	27.105	96.8	1.231
850A	4.33	34.27	27.194	88.4	1.263	850	4.75	34.26	27.140	93.5	1.283	850	4.75	34.26	27.140	93.5	1.283
900A	4.09	34.28	27.227	85.2	1.311	900	4.31	34.27	27.196	88.2	1.333	900	4.31	34.27	27.196	88.2	1.333
950A	3.79	34.27	27.250	83.1	1.357	950	4.09	34.24	27.195	88.2	1.381	950	4.09	34.24	27.195	88.2	1.381
1000A	3.53	34.30	27.299	78.4	1.401	1000	3.84	34.26	27.237	84.3	1.428	1000	3.84	34.26	27.237	84.3	1.428
1100A	3.28	34.34	27.355	73.1	1.484	1100	3.34	34.29	27.310	77.4	1.517	1100	3.34	34.29	27.310	77.4	1.517
1200A	3.11	34.40	27.419	67.0	1.563	1200	3.09	34.34	27.373	71.4	1.600	1200	3.09	34.34	27.373	71.4	1.600
1300A	2.99	34.47	27.485	60.7	1.635	1300	2.93	34.40	27.435	65.5	1.676	1300	2.93	34.40	27.435	65.5	1.676
1400A	2.92	34.52	27.532	56.3	1.702	1400	2.83	34.48	27.508	58.6	1.747	1400	2.83	34.48	27.508	58.6	1.747
1500A	2.83	34.56	27.588	51.0	1.765	1500	2.78	34.54	27.560	53.6	1.812	1500	2.78	34.54	27.560	53.6	1.812
1600A	2.82	34.63	27.628	47.2	1.824	1600	2.77	34.61	27.617	48.3	1.873	1600	2.77	34.61	27.617	48.3	1.873
1700A	2.80	34.69	27.678	42.5	1.880	1700	2.77	34.65	27.649	45.2	1.930	1700	2.77	34.65	27.649	45.2	1.930
1800A	2.79	34.72	27.703	40.1	1.932	1800	2.78	34.70	27.688	41.5	1.984	1800	2.78	34.70	27.688	41.5	1.984
1900A	2.79	34.75	27.727	37.6	1.983	1900	2.79	34.74	27.719	38.6	2.036	1900	2.79	34.74	27.719	38.6	2.036
2000A	2.78	34.79	27.759	34.7	2.032	2000	2.81	34.77	27.741	36.5	2.087	2000	2.81	34.77	27.741	36.5	2.087
2100A	2.78	34.81	27.775	33.2	2.079	2100	2.82	34.80	27.764	34.3	2.135	2100	2.82	34.80	27.764	34.3	2.135
2200A	2.79	34.84	27.798	31.1	2.126	2200	2.81	34.83	27.789	32.0	2.183	2200	2.81	34.83	27.789	32.0	2.183
2300A	2.79	34.85	27.806	30.3	2.171	2300	2.82	34.84	27.796	31.3	2.229	2300	2.82	34.84	27.796	31.3	2.229
2400A	2.80	34.87	27.821	28.9	2.216	2400	2.80	34.86	27.813	29.6	2.275	2400	2.80	34.86	27.813	29.6	2.275
2500A	2.79	34.88	27.830	28.0	2.260	2500	2.80	34.87	27.821	28.9	2.320	2500	2.80	34.87	27.821	28.9	2.320
2600A	2.78	34.88	27.831	28.0	2.305	2600	2.78	34.89	27.839	27.2	2.365	2600	2.78	34.89	27.839	27.2	2.365
2700A	2.77	34.89	27.840	27.1	2.350	2700	2.73	34.89	27.844	26.8	2.409	2700	2.73	34.89	27.844	26.8	2.409
2800A	2.74	34.89	27.843	26.9	2.394	2800	2.68	34.89	27.848	26.4	2.453	2800	2.68	34.89	27.848	26.4	2.453
2900A	2.70	34.90	27.854	25.8	2.438	2900	2.60	34.89	27.855	25.7	2.496	2900	2.60	34.89	27.855	25.7	2.496
3000A	2.63	34.89	27.852	25.9	2.482	3000	2.53	34.88	27.853	25.9	2.539	3000	2.53	34.88	27.853	25.9	2.539
3100A	2.57	34.89	27.858	25.4	2.526	3100	2.46	34.88	27.859	25.3	2.582	3100	2.46	34.88	27.859	25.3	2.582
3200A	2.50	34.89	27.864	24.9	2.570	3200	2.39	34.87	27.857	25.5	2.625	3200	2.39	34.87	27.857	25.5	2.625
3300A	2.38	34.88	27.866	24.7	2.613	3300	2.20	34.85	27.857	25.5	2.668	3300	2.20	34.85	27.857	25.5	2.668
3400A	2.22	34.86	27.863	24.9	2.655	3400	2.09	34.84	27.858	25.4	2.709	3400	2.09	34.84	27.858	25.4	2.709
3500A	2.12	34.85	27.864	24.9	2.697	3484	2.00	34.83	27.857	25.5	2.744	3484	2.00	34.83	27.857	25.5	2.744
3600A	1.97	34.83	27.860	25.3	2.738												
3700A	1.76	34.81	27.860	25.2	2.778												
3800A	1.59	34.79	27.857	25.5	2.818												
3900A	1.45	34.78	27.859	25.3	2.856												
4000A	1.28	34.76	27.855	25.7	2.893												
4088A	1.08	34.73	27.845	26.7	2.924												

RV MELVILLE										CATO EXPEDITION VI						
LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER		TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES						
32 27.9S	28 13.0W	11/28/72	1015	1250	GMT	4085M	210	17KT	1	200	10	5				
Z	T	S	O2	PO4	SI03	NO2	NO3	DT	Z	T	S	O2	SI0T	DT	DD	
0	17.82	35.738	5.67	0.12	1.6	0.00	0.0	211.2	0	17.82	35.738	5.67	25.899	211.2	0.000	
41	17.73	35.760	5.53	0.11	1.2	0.00	0.0	207.5	10	17.80	35.733	5.61	25.901	210.9	0.021	
82	17.18	35.735	5.62	0.10	1.3	0.00	0.0	196.6	20	17.78	35.735	5.57	25.908	210.2	0.042	
124	16.15	35.656	5.41	0.21	1.6	0.06	1.0	178.8	30	17.75	35.743	5.54	25.920	209.2	0.063	
166	15.10	35.530	5.22	0.38	1.7	0.01	4.0	165.9	50	17.65	35.758	5.55	25.957	205.7	0.105	
207	14.59	35.486	5.14	0.47	2.1	0.00	5.3	158.5	75	17.51	35.742	5.61	26.028	198.9	0.156	
233A		35.506	5.13V	0.46	2.2	0.01	5.7		100	16.76	35.706	5.55	26.131	189.1	0.205	
336A	13.41	35.351	5.07	0.65	3.0	0.01	6.3	144.7	125	16.10	35.652	5.40	26.243	178.5	0.252	
439A	11.77	35.063	4.87	0.88	4.8	0.01	12.3	135.1	150.	15.46	35.575	5.28	26.330	170.2	0.297	
542A	9.13	34.723	4.89	1.37	8.2	0.00	18.2	116.1	200	14.66	35.490	5.15	26.443	159.5	0.382	
645A	6.80	34.445	5.18	1.60	11.7	0.00	25.5	103.8	250	14.21	35.456	5.11	26.512	153.0	0.463	
749A	5.10	34.281	5.63	1.80	14.9	0.03	27.2	95.7	300	13.76	35.402	5.09	26.567	147.7	0.542	
851A	4.43	34.266	5.56	1.95	20.2	0.01	25.0U	89.7	400	12.49	35.185	4.94	26.657	139.2	0.695	
1057A	3.46	34.299	5.15	2.12	34.7	0.02	24.4U	77.8	500	10.25	34.857	4.88	26.817	124.0	0.838	
1261A	2.91	34.381	4.75	2.22	48.7	0.01	22.7U	66.7	600	7.76	34.555	5.03	26.981	108.5	0.965	
1466A	2.79	34.521	4.40	2.22	59.0	0.00	20.8U	55.1	700	5.80	34.342	5.44	27.080	99.1	1.078	
1671A	2.78	34.642	4.49	2.10	59.6	0.00	23.7U	45.9	800	4.70	34.265	5.60	27.149	92.6	1.183	
1979A	2.80	34.752	4.94	1.84	53.6	0.02	25.2	37.8	1000	3.68	34.284	5.28	27.271	81.0	1.373	
2286A	2.82	34.839	5.34	1.57	45.5	0.00	22.8	31.4	1200.	3.03	34.352	4.87	27.387	70.0	1.540	
2492A	2.80	34.869	5.48	1.54	42.2	0.00	22.0	29.0	1500	2.79	34.544	4.41	27.562	53.4	1.751	
2697A	2.76	34.878	5.59	1.50	41.2	0.01	20.9	27.9	1750.	2.78	34.676	4.59	27.668	43.4	1.897	
3007A	2.565	34.882	5.64	1.50	45.2	0.00	21.2	26.0	2000	2.80	34.759	4.97	27.733	37.3	2.028	
3316A	2.167	34.842	5.56	1.60	57.5	0.00	22.7	25.9	2250	2.82	34.831	5.30	27.788	32.0	2.150	
3626A	1.56	34.785	5.38	1.83	83.6	0.00	25.1	25.7	2500	2.80	34.869	5.49	27.821	28.9	2.265	
3937A	1.219	34.756	5.38U	1.98	96.4	0.00	25.0U	25.6	2750	2.74	34.879	5.60	27.835	27.6	2.377	
4041A	1.162	34.737	5.21	1.99	100.4	0.00	21.1U	26.7	3000	2.57	34.881	5.64	27.851	26.0	2.488	
									3250	2.27	34.852	5.59	27.853	25.9	2.596	
									3500	1.80	34.807	5.46	27.854	25.8	2.699	
									3750	1.49	34.771	5.32	27.855	25.7	2.795	
									4000	1.18	34.748	5.22	27.852	26.2	2.885	

RV MELVILLE										CATO EXPEDITION VI						
LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER		TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES						
32 29.9S	26 29.2W	11/29/72	005A	0307	GMT	4435M	260	7KT	1	240	3	5				
Z	T	S	O2	PO4	SI03	NO2	NO3	DT	Z	T	S	O2	SI0T	DT	DD	
0	17.87	35.608	5.46	0.12	1.3	0.01	0.0	221.8	0	17.87	35.608	5.46	25.787	221.8	0.000	
21	17.84	35.619	5.53	0.10	1.0	0.00	0.0	220.3	10	17.86	35.612	5.50	25.794	221.1	0.022	
41	17.75	35.615	5.54	0.10	1.0	0.00	0.0	218.5	20	17.84	35.617	5.53	25.802	220.4	0.044	
62	16.90	35.664	5.56	0.17	1.2	0.00	0.0	195.4	30	17.80	35.616	5.53	25.811	219.5	0.066	
82	16.07	35.624	5.44	0.20	1.2	0.00	0.3	179.9	50	17.43	35.637	5.55	25.916	209.5	0.110	
103	15.34	35.544	5.25	0.36	1.5	0.00	2.9	169.9	75	16.35	35.644	5.49	26.178	184.6	0.159	
124	14.93	35.489	5.12	0.44	1.7	0.00	4.2	165.3	100	15.43	35.555	5.28	26.322	171.0	0.204	
155	14.55	35.446	5.08	0.50	1.9	0.00	5.2	160.6	125	14.92	35.487	5.12	26.384	165.1	0.247	
186A	14.21	35.402	5.07	0.56	2.3		6.1	156.9	150	14.60	35.451	5.09	26.425	161.2	0.289	
206	14.02	35.389	4.94	0.57	2.2	0.00	6.7	154.0	200	14.07	35.391	4.98	26.492	154.8	0.371	
290A	13.57	35.326	5.18	0.63	2.3		7.4	149.7	250	13.79	35.363	5.01	26.529	151.3	0.451	
393A	12.05	35.124	5.01	0.86	3.9		11.4	135.7	300	13.46	35.312	5.18	26.558	148.5	0.529	
496A	9.83	34.808	4.81	1.28	7.5		17.6	120.9	400	11.91	35.102	4.99	26.705	134.6	0.680	
652A	6.88	34.477	4.91	1.68	13.6		24.4	102.5	500	9.75	34.798	4.81	26.856	120.3	0.818	
755A	5.17	34.323	5.27	1.83	17.9		26.9	93.3	600	7.81	34.573	4.88	26.986	108.0	0.943	
909A	3.94	34.276	5.31	2.06	27.0		29.7	84.0	700	6.03	34.395	5.08	27.093	97.9	1.055	
1114A	3.19	34.341	4.73	2.21	42.1		32.1	72.2	800	4.70	34.296	5.28	27.173	90.3	1.158	
1320A	2.90	34.458	4.45	2.25	54.5		32.1	60.8	1000	3.52	34.294	5.08	27.295	78.7	1.344	
1525A	2.78	34.591	4.07U	2.20	61.1		32.1	49.8	1200	3.03	34.386	4.58	27.414	67.4	1.505	
1730A	2.79	34.695	4.52	2.04	59.1		29.9	42.0	1500	2.79	34.577	4.48	27.588	51.0	1.709	
2037A	2.79	34.797	4.85	1.74	52.0		26.3	34.3	1750	2.79	34.704	4.54	27.689	41.4	1.851	
2344A	2.76	34.851	5.20	1.60	45.8		24.1	30.0	2000	2.79	34.787	4.80	27.756	35.0	1.976	
2549A	2.73	34.876	5.45	1.56	42.1		23.1	27.8	2250	2.77	34.838	5.09	27.798	31.0	2.093	
2857A	2.71	34.893	5.69	1.48	39.3		21.6	26.4	2500	2.74	34.869	5.39	27.827	28.3	2.206	
3166A	2.513	34.886	5.64	1.55	45.2		22.4	25.3	2750	2.72	34.886	5.63	27.842	26.7	2.316	
3681A	1.748	34.810	5.39		75.1		26.1	25.1	3000	2.64	34.892	5.67	27.853	25.8	2.427	
4096A	1.21	34.754	5.25	1.99	98.9		29.1	25.7	3250	2.40	34.874	5.60	27.860	25.3	2.535	
4304A	1.057	34.734	5.07	2.06	105.4		30.0	26.2	3500	2.04	34.838	5.48	27.860	25.2	2.640	
4410A	1.038	34.731	4.99	2.09	109.4		30.0	26.3	3750	1.65	34.799	5.37	27.860	25.2	2.740	
									4000	1.32	34.765	5.29	27.856	25.5	2.834	
									4250	1.09	34.739	5.12	27.851	26.1	2.924	

E) ALTERNATE VALUE, 2.69 DEGREES CELSIUS.

37 STD						CATO EXPFOITION VI						38 STD					
LATITUDE		LONGITUDE		MO/DAY/YR		START TIME		LATITUDE		LONGITUDE		MO/DAY/YR		START TIME			
32 27.9S		28 13.0W		11/28/72		0820 GMT		32 29.9S		26 29.2W		11/28/72		2302 GMT			
Z	T	S	SIGMA T	DT	DD	Z	T	S	SIGMA T	DT	DD	Z	T	S	SIGMA T	DT	DD
0	17.97	35.76	25.879	213.1	0.000	0	17.86	35.63	25.806	219.9	0.000	0	17.86	35.63	25.806	219.9	0.000
10	17.96	35.77	25.889	212.1	0.021	10	17.84	35.63	25.811	219.5	0.022	10	17.84	35.63	25.811	219.5	0.022
20	17.82	35.77	25.923	208.8..	0.042.	20	17.85	35.63	25.809	219.7	0.044	20	17.85	35.63	25.809	219.7	0.044
30	17.81	35.76	25.918	209.3	0.063	30	17.79	35.62	25.816	219.0	0.066	30	17.79	35.62	25.816	219.0	0.066
40	17.73	35.76	25.938	207.5	0.084..	40	17.74	35.62	25.828	217.9	0.088	40	17.74	35.62	25.828	217.9	0.088
50	17.68	35.76	25.950	206.3	0.105..	50	17.69	35.62	25.840	216.7	0.110	50	17.69	35.62	25.840	216.7	0.110
60	17.62	35.76	25.965	204.9.	0.126	60	17.38	35.59	25.893	211.7	0.131	60	17.38	35.59	25.893	211.7	0.131
70	17.57	35.75	25.969..	204.5	0.147..	70	16.70	35.59	26.055	196.3	0.152	70	16.70	35.59	26.055	196.3	0.152
80	17.19	35.72	26.038	197.9	0.167	80	16.28	35.60	26.161	186.2	0.171	80	16.28	35.60	26.161	186.2	0.171
90	17.02	35.73	26.087	193.3	0.187	90	15.70	35.58	26.279	175.0	0.190	90	15.70	35.58	26.279	175.0	0.190
100	16.60	35.69	26.156	186.8	0.206	100	15.49	35.56	26.311	172.0	0.207	100	15.49	35.56	26.311	172.0	0.207
125	16.11	35.66	26.247	178.1	0.253	125	14.92	35.50	26.392	164.3	0.250	125	14.92	35.50	26.392	164.3	0.250
150	15.46	35.58	26.334	169.9	0.297	150	14.64	35.47	26.430	160.7	0.292	150	14.64	35.47	26.430	160.7	0.292
200	14.68	35.48	26.429	160.8.	0.383	200	14.34	35.46	26.488	155.3	0.374	200	14.34	35.46	26.488	155.3	0.374
250A	14.35	35.49	26.509	153.3	0.464	300A	13.50	35.37	26.595	145.1	0.531	300A	13.50	35.37	26.595	145.1	0.531
300A	13.92	35.44	26.561	148.2	0.544	350A	12.79	35.24	26.639	140.9	0.607.	350A	12.79	35.24	26.639	140.9	0.607.
350A	13.31	35.32	26.596	145.0	0.622	400A	12.04	35.10	26.677	137.3	0.681.	400A	12.04	35.10	26.677	137.3	0.681.
400A	12.50	35.16	26.635	141.3	0.698	450A	10.86	34.93	26.765.	128.9.	0.753	450A	10.86	34.93	26.765.	128.9.	0.753
450A	11.48	35.03	26.729	132.3	0.772	500A	9.89	34.82	26.850	120.9	0.821	500A	9.89	34.82	26.850	120.9	0.821
500A	10.53	34.88	26.785	127.0	0.842	550A	8.92	34.65	26.877..	118.3	0.886	550A	8.92	34.65	26.877..	118.3	0.886
550A	9.25	34.71	26.871	118.9	0.910	600A	7.59	34.53	26.986..	108.0	0.948.	600A	7.59	34.53	26.986..	108.0	0.948.
600A	7.74	34.58	27.004	106.4	0.971	650A	6.89	34.45	27.022	104.6	1.006.	650A	6.89	34.45	27.022	104.6	1.006.
650A	6.67	34.43	27.036	103.3..	1.029	700A	6.00..	34.37	27.077	99.4	1.062	700A	6.00..	34.37	27.077	99.4	1.062
700A	5.63	34.33	27.092	98.0	1.084	750A	5.14	34.30	27.127	94.7	1.115	750A	5.14	34.30	27.127	94.7	1.115
750A	5.07	34.30	27.135	93.9	1.136	800A	4.38	34.29	27.204	87.4	1.214	800A	4.38	34.29	27.204	87.4	1.214
800A	4.65	34.28	27.167	90.9	1.186	850A	4.03	34.27	27.225	85.4	1.261	850A	4.03	34.27	27.225	85.4	1.261
850A	4.45	34.28	27.189	88.8	1.235	900A	3.76	34.28	27.261	82.0..	1.307	900A	3.76	34.28	27.261	82.0..	1.307
900A	4.11	34.27	27.217	86.2	1.283	950A	3.56..	34.29	27.288	79.4	1.351..	950A	3.56..	34.29	27.288	79.4	1.351..
950A	3.94	34.28	27.242	83.7	1.340	1000A	3.24	34.33	27.351	73.5	1.436	1000A	3.24	34.33	27.351	73.5	1.436
1000A	3.73	34.30	27.280	80.2	1.375	1100A	3.02	34.38	27.411	67.8	1.514	1100A	3.02	34.38	27.411	67.8	1.514
1100A	3.32	34.31	27.328	75.7	1.461	1200A	2.84	34.51	27.531	56.4	1.655	1200A	2.84	34.51	27.531	56.4	1.655
1200A	3.08	34.35	27.382	70.5	1.542	1300A	2.77	34.59	27.601	49.8	1.717	1300A	2.77	34.59	27.601	49.8	1.717
1300A	2.92	34.42	27.452	65.9	1.617.	1400A	2.77	34.63	27.633	46.7	1.775	1400A	2.77	34.63	27.633	46.7	1.775
1400A	2.87	34.48	27.504	58.9.	1.688	1500A	2.76	34.69	27.681	42.1	1.850	1500A	2.76	34.69	27.681	42.1	1.850
1500A	2.83	34.54	27.556	54.0.	1.753	1600A	2.72	34.83	27.797	31.2	2.075	1600A	2.72	34.83	27.797	31.2	2.075
1600A	2.81	34.60	27.605	49.4	1.815	1700A	2.73	34.85	27.812	29.8	2.120	1700A	2.73	34.85	27.812	29.8	2.120
1700A	2.80	34.65.	27.646.	45.5	1.873	1800A	2.74	34.86	27.819	29.1	2.165	1800A	2.74	34.86	27.819	29.1	2.165
1800A	2.81	34.70	27.685	41.8	1.926	1900A	2.73	34.87	27.828	28.3	2.209	1900A	2.73	34.87	27.828	28.3	2.209
1900A	2.82	34.74	27.716	38.9	1.980	2000A	2.64	34.89	27.852	26.0	2.430	2000A	2.64	34.89	27.852	26.0	2.430
2000A	2.81	34.76	27.733	37.3	2.031	2100A	2.58	34.89	27.857	25.5	2.474.	2100A	2.58	34.89	27.857	25.5	2.474.
2100A	2.79	34.80	27.766	34.1	2.080	2200A	2.49	34.89	27.865	24.8..	2.518	2200A	2.49	34.89	27.865	24.8..	2.518
2200A	2.80	34.82	27.782	32.7	2.127	2300A	2.37	34.87	27.859	25.3	2.561	2300A	2.37	34.87	27.859	25.3	2.561
2300A	2.81	34.84	27.797	31.2	2.174	2400A	2.18	34.86	27.867	24.6	2.603	2400A	2.18	34.86	27.867	24.6	2.603
2400A	2.80	34.85	27.805..	30.4	2.220	2500A	2.03	34.83	27.855	25.7	2.645	2500A	2.03	34.83	27.855	25.7	2.645
2500A	2.79	34.87	27.822	28.8	2.265	2600A	1.87	34.83	27.867	24.5	2.685	2600A	1.87	34.83	27.867	24.5	2.685
2600A	2.77	34.88	27.832	27.9	2.310	2700A	1.73	34.81	27.862	25.0	2.725	2700A	1.73	34.81	27.862	25.0	2.725
2700A	2.72	34.88	27.836	27.4	2.355	2800A	1.61	34.79	27.855	25.7	2.764	2800A	1.61	34.79	27.855	25.7	2.764
2800A	2.66	34.88	27.842	26.9	2.399	2900A	1.46	34.78	27.858	25.4	2.802	2900A	1.46	34.78	27.858	25.4	2.802
2900A	2.60	34.88	27.847	26.4	2.443	3000A	1.32	34.76	27.852	26.0	2.839	3000A	1.32	34.76	27.852	26.0	2.839
3000A	2.53	34.87	27.845	26.6	2.487..	3100A	1.20	34.76	27.861	25.2	2.876	3100A	1.20	34.76	27.861	25.2	2.876
3100A	2.41	34.86	27.848	26.4	2.531	3200A	1.12	34.74	27.850	26.2	2.911	3200A	1.12	34.74	27.850	26.2	2.911
3200A	2.32	34.87	27.863	24.9	2.573	3300A	1.05	34.73	27.847.	26.5	2.947	3300A	1.05	34.73	27.847.	26.5	2.947
3300A	2.17	34.84	27.852	26.0	2.616	3400A	1.03	34.73	27.848.	26.4	2.982	3400A	1.03	34.73	27.848.	26.4	2.982
3400A	1.97	34.82	27.852	26.0	2.657	3500A	1.02	34.72	27.841	27.1	2.999	3500A	1.02	34.72	27.841	27.1	2.999
3500A	1.79	34.81	27.858	25.5	2.697	3600A											
3600A	1.64	34.80	27.861	25.1	2.736	3700A											
3700A	1.46	34.78	27.858	25.4	2.774	3800A											
3800A	1.33	34.77	27.859	25.3	2.810	3900A											
3900A	1.23	34.76	27.858	25.4	2.846	4000A											
4000A	1.18.	34.76	27.862	25.0	2.881	4100A											
4089A	1.13	34.75	27.857	25.5	2.912	4200A											
						4300A											
						4400A											
						4446A											

LATITUDE		LONGITUDE		MO/DAY/YR		MESSENGER		TIME	FOOTM	WIND	SPEED	WEATHER	DOMINANT WAVES		
32 30.0S		25 14.9W		11/29/72		1125	1409	GMT	4290M	270	14KT	1	200	5	6
Z	T	S	O2	PO4	SIG3	NO2	NO3	DT	Z	T	S	O2	SIG1	DT	DD
0	18.07	35.767	5.48	0.1111	1.2	0.00	0.0	214.9	0	18.07	35.767	5.48	25.859	214.9	0.000
32	17.94	35.767	5.49	0.10	1.3	0.00	0.0	211.9	10	18.02	35.767	5.48	25.871	213.7	0.021
63	17.87	35.759	5.52	0.10	1.2	0.00	0.0	210.8	20	17.98	35.767	5.49	25.882	212.8	0.043
95	17.39	35.705	5.55	0.10	1.2	0.00	0.0	203.6	30	17.95	35.766	5.49	25.890	212.0	0.064
126	16.08	35.610	5.65	0.15	1.4	0.00	0.0	181.1	50	17.90	35.758	5.51	25.895	211.5	0.107
150A	15.69	35.587	5.53	0.20	1.4		0.9	174.3	75	17.77	35.744	5.53	25.917	209.4	0.160
157	15.42	35.569	5.53	0.12	1.4	0.25	1.1	169.8	100	17.18	35.687	5.57	26.017	200.0	0.212
254A	14.20	35.399	5.07	0.52	2.5		6.0	156.9	125	16.12	35.612	5.65	26.208	181.8	0.260
357A	12.89	35.242	5.04	0.64	3.3		9.1	142.711	150	15.69	35.587	5.53	26.287	174.3	0.306
461A	11.25	35.003	4.88	1.02	5.4		13.8	130.3	200	14.59	35.409	5.35	26.395	164.1	0.393
564A	8.91	34.695	4.80	1.31	9.1		19.6	114.9	250	14.20	35.392	5.09	26.465	157.4	0.477111
667A	6.94	34.486	4.90	1.62	15.0		23.8	102.6	300	13.64	35.332	5.06	26.538	150.5	0.558
874A	4.75	34.329	5.05	1.94	23.6		28.9	88.3	400	12.28	35.153	4.98	26.674	137.6	0.711
1078A	3.38	34.308	5.09	2.09	37.0		31.1	76.4	500	10.38	34.881	4.83	26.813	124.5	0.853
1284A	2.91	34.427	4.56	2.21	52.4		31.2	63.3	600	8.17	34.611	4.83	26.963	110.2	0.981
1489A	2.80	34.561	4.39	2.17	60.4		31.4	52.2	700	6.48	34.446	4.93	27.073	99.8	1.097111
1795A	2.78	34.728	4.70	1.90	58.2		28.7	39.4	800	5.35	34.362	5.01	27.150	92.5	1.203
2103A	2.80	34.815	5.09	1.67	51.4		25.6	33.0	1000	3.80	34.301	5.07	27.272	80.9	1.394
2308A	2.78	34.850	5.32	1.62	46.5		24.6	30.2	1200	3.02	34.370	4.79	27.402	68.6	1.560111
2615A	2.76	34.884	5.57	1.45	41.4		22.6	27.5	1500	2.80	34.570	4.39	27.581	51.7	1.766
2924A	2.69	34.897	5.69	1.44	40.4		21.4	25.9	1750	2.78	34.708	4.63	27.694	41.0	1.908111
3231A	2.883	34.888	5.70	1.42	46.6		22.0	24.9	2000	2.79	34.793	4.96	27.760	34.7	2.033
3542A	2.08	34.852	5.60	1.58	61.1		23.9	24.4	2250	2.79	34.841	5.26	27.800	30.9	2.149111
3854A	1.573	34.798	5.44	1.74	81.8		26.2	24.8	2500	2.77	34.871	5.49	27.825	28.3	2.262
4166A	1.189	34.756	5.20	1.93	100.2		29.0	25.4	2750	2.74	34.890	5.64	27.843	26.7	2.373111
4272A	0.858	34.721	5.12	2.06	117.7		30.4	26.0	3000	2.65	34.896	5.69	27.855	25.6	2.483
									3250	2.46	34.885	5.70	27.864	24.8	2.592
									3500	2.14	34.857	5.62	27.868	24.4	2.698
									3750	1.74	34.815	5.50	27.866	24.611	2.798
									4000	1.44	34.782	5.33	27.861	25.011	2.893
									4250	0.94	34.729	5.14	27.853	25.9	2.982

LATITUDE		LONGITUDE		MO/DAY/YR		MESSENGER		TIME	FOOTM	WIND	SPEED	WEATHER	DOMINANT WAVES		
33 00.9S		25 15.3W		11/30/72		0019	0320	GMT	4623M	320	24KT	1	340	4	4
Z	T	S	O2	PO4	SIG3	NO2	NO3	DT	Z	T	S	O2	SIG1	DT	DD
0	17.49	35.661	5.57	0.13	1.4		0.1	209.1	0	17.49	35.661	5.57	25.920	209.1	0.000
21	17.49	35.658	5.48	0.14	1.3		0.0	209.3	10	17.49	35.659	5.51	25.919	209.2	0.021
42	17.39	35.640	5.50	0.14	1.5		0.0	208.3	20	17.49	35.657	5.48	25.918	209.3	0.042
63	17.20	35.623	5.46	0.16	1.2		0.0	205.2	30	17.46	35.650	5.49	25.921	209.1	0.063
83	16.66	35.630	5.60	0.16	1.5		0.0	192.5	50	17.35	35.641	5.48	25.941	207.1	0.105111
104	15.84	35.610	5.54	0.24	1.4		0.2	175.9	75	16.91	35.626	5.55	26.034	198.3	0.156
136	15.16	35.512	5.26	0.40	1.7		3.2	168.5	100	15.99	35.615	5.55	26.240	178.8	0.204111
177	14.54	35.45	5.22	0.52	2.1		4.7	160.1	125	15.35	35.547	5.36	26.335	169.7	0.248
209	14.44	35.459	5.30	0.49	2.1		4.8	157.4	150	14.90	35.481	5.25	26.382	165.2	0.291
312	13.71	35.406	5.28	0.58	2.3		6.7	146.6	200	14.45	35.454	5.27	26.459	158.0	0.375
399A	12.42	35.189	4.92	0.82	3.8		10.8	137.7	250	14.24	35.459	5.29	26.509	153.2	0.456
415	12.32	35.166	5.15	0.91	3.9		11.3	137.6	300	13.83	35.421	5.28	26.565	147.9	0.535
502A	10.26	34.867	4.83	1.20	6.6		16.4	123.5	400	12.41	35.187	4.93	26.673	137.7	0.687
605A	7.79	34.553	5.00	1.42	10.1		21.6	109.1	500	10.32	34.874	4.84	26.818	123.9	0.829
708A	6.19	34.392	4.99	1.75	13.1		24.6	100.1	600	7.90	34.567	4.99	26.968	109.7	0.956
811A	4.94	34.289	5.36	1.80	16.7		26.8	93.4	700	6.29	34.402	4.99	27.064	100.6	1.072
914A	4.20	34.258	5.44	1.95	21.8		28.4	88.0	800	5.05	34.298	5.32	27.135	94.0	1.179
1119A	3.34	34.300	5.08	2.18	35.9		31.7	76.6	1000	3.76	34.265	5.34	27.248	83.2	1.373
1324A	2.96	34.402	4.51	2.27	49.3		32.4	65.6	1200	3.15	34.336	4.85	27.364	72.3	1.545
1529A	2.77	34.540	4.27	2.24	60.0		32.5	53.5	1500	2.79	34.520	4.28	27.543	55.2	1.763
1733A	2.78	34.666	4.43	2.10	60.9		30.6	44.1	1750	2.78	34.675	4.44	27.667	43.5	1.911
2040A	2.84	34.785	4.68	1.85	53.8		27.3	35.6	2000	2.83	34.773	4.64	27.741	36.5	2.042
2346A	2.85	34.867	5.22	1.66	46.6		24.4	29.5	2250	2.85	34.847	5.06	27.799	31.0	2.161
2550A	2.79	34.872	5.37	1.60	43.7		23.6	28.6	2500	2.81	34.872	5.34	27.823	28.8	2.275
2857A	2.66	34.889	5.55	1.50	42.4		23.0	26.3	2750	2.72	34.884	5.50	27.840	27.1	2.387111
3164A	2.378	34.872	5.55	1.56	50.9		23.3	25.2	3000	2.54	34.882	5.55	27.854	25.7	2.497
3472A	1.991	34.841	5.49	1.69	64.4		24.6	24.6	3250	2.28	34.863	5.54	27.862	25.0	2.603
3884A	1.472	34.786	5.19	1.88	87.0		27.3	25.0	3500	1.96	34.837	5.47	27.866	24.6	2.706
4195A	1.083	34.743	5.12	2.05	103.3		29.7	25.7	3750	1.641	34.803	5.29	27.864	24.9	2.803
4507A	0.818	34.714	5.03	2.15	115.4		31.5	26.3	4000	1.32	34.769	5.16	27.859	25.3	2.897
4611A	0.824	34.714	5.00	2.15	116.3		31.1	26.3	4250	1.02	34.737	5.10	27.8541	25.8	2.985
									4500	0.82	34.715	5.03	27.849111	26.3	3.070

39 STD						CATO EXPEDITION VI						40 STD					
LATITUDE		LONGITUDE		MO/DAY/YR		START TIME		LATITUDE		LONGITUDE		MO/DAY/YR		START TIME			
32 30.0S		25 14.9W		11/29/72		0949 GMT		33 40.9S		25 15.3W		11/29/72		2234 GMT			
Z	T	S	SIGMA T	DT	DD	Z	T	S	SIGMA T	DT	DD	Z	T	S	SIGMA T	DT	DD
3	18.15	35.82	25.880	213.0	0.000	0	17.50	35.68	25.933	207.9	0.000	0	17.50	35.68	25.933	207.9	0.000
10	18.09	35.82	25.895	211.5	0.021	10	17.52	35.67	25.920	209.1	0.021	10	17.52	35.67	25.920	209.1	0.021
20	18.08	35.82	25.897	211.3	0.042	20	17.50	35.67	25.925	208.7	0.042	20	17.50	35.67	25.925	208.7	0.042
30	18.09	35.83	25.902	210.8	0.064	30	17.44	35.65	25.924	208.7	0.063	30	17.44	35.65	25.924	208.7	0.063
40	18.08.	35.82	25.897	211.3	0.085	40	17.38	35.63	25.923	208.8	0.084	40	17.38	35.63	25.923	208.8	0.084
50	18.06	35.82	25.902	210.8	0.106	50	17.29	35.62	25.938	207.5	0.105	50	17.29	35.62	25.938	207.5	0.105
60	18.00	35.81	25.909	210.2	0.127	60	17.19	35.60	25.946	206.6	0.126	60	17.19	35.60	25.946	206.6	0.126
70	18.00	35.80	25.902	210.9	0.149	70	16.97	35.61	26.007	200.9	0.146	70	16.97	35.61	26.007	200.9	0.146
80	17.97	35.82	25.924	208.7	0.170	80	16.82	35.62	26.050	196.8	0.166	80	16.82	35.62	26.050	196.8	0.166
90	17.80	35.79	25.943	206.9	0.191	90	16.04	35.58	26.202	182.4	0.186	90	16.04	35.58	26.202	182.4	0.186
100	17.48.	35.75	25.991	202.4	0.212	100	15.78	35.59	26.269	176.0	0.204	100	15.78	35.59	26.269	176.0	0.204
125	16.43	35.66	26.172	185.2	0.261	125	15.30	35.51	26.316	171.6	0.248	125	15.30	35.51	26.316	171.6	0.248
150	15.68	35.65	26.338	169.5	0.307	150	14.81	35.46	26.386	164.9	0.291	150	14.81	35.46	26.386	164.9	0.291
200	14.87	35.52	26.419	161.8	0.392	200	14.48	35.45	26.450	158.9	0.375	200	14.48	35.45	26.450	158.9	0.375
250	14.35	35.46	26.485	155.5	0.475	250	14.13	35.46	26.532	151.0	0.456...	250	14.13	35.46	26.532	151.0	0.456...
300	13.78	35.39	26.552	149.1	0.555	300	13.82	35.44	26.582	146.3	0.534	300	13.82	35.44	26.582	146.3	0.534
350	13.11	35.30	26.621	142.6	0.632	350	13.44	35.39	26.623	142.4	0.611.	350	13.44	35.39	26.623	142.4	0.611.
400	12.40	35.19	26.677	137.3	0.707	400	12.51	35.19	26.656	139.3	0.686.	400	12.51	35.19	26.656	139.3	0.686.
450	11.37	35.02	26.742	131.1	0.780	450A	11.41	34.96	26.688	136.3	0.760	450A	11.41	34.96	26.688	136.3	0.760
500	10.21	34.87	26.834	122.5.	0.849	500A	10.54	34.89	26.791	126.5	0.832	500A	10.54	34.89	26.791	126.5	0.832
550	9.22	34.76	26.915.	114.8	0.913	550A	9.14	34.69	26.873	118.7	0.898...	550A	9.14	34.69	26.873	118.7	0.898...
600	8.36	34.63	26.949	111.5	0.975	600A	7.90	34.51	26.925	113.8	0.962	600A	7.90	34.51	26.925	113.8	0.962
650	7.60	34.56	27.008.	105.9	1.035	650A	6.95	34.47	27.030	103.9	1.021...	650A	6.95	34.47	27.030	103.9	1.021...
700	6.45	34.44.	27.074	99.7	1.092	700A	6.27	34.41	27.074	99.7	1.077...	700A	6.27	34.41	27.074	99.7	1.077...
750	5.89	34.41	27.122.	95.1	1.146	750A	5.55	34.34	27.109	96.4	1.131	750A	5.55	34.34	27.109	96.4	1.131
800	5.37	34.38	27.163	91.3	1.197	800A	5.00	34.29	27.135	93.9	1.183	800A	5.00	34.29	27.135	93.9	1.183
850	4.82	34.34	27.195	88.2	1.247	850A	4.54	34.26	27.163	91.3	1.234.	850A	4.54	34.26	27.163	91.3	1.234.
900A	4.43	34.31.	27.215.	86.4	1.295	900A	4.26	34.26	27.193	88.4.	1.283	900A	4.26	34.26	27.193	88.4.	1.283
950A	4.04	34.30	27.248	83.2	1.342	950A	3.96	34.26	27.225	85.4	1.331	950A	3.96	34.26	27.225	85.4	1.331
1000A	3.65	34.29	27.280	80.2	1.387	1000A	3.79	34.27	27.250	83.1	1.377	1000A	3.79	34.27	27.250	83.1	1.377
1100A	3.17	34.32	27.350	73.6	1.471	1100A	3.41	34.29	27.303	78.0	1.466	1100A	3.41	34.29	27.303	78.0	1.466
1200A	2.97	34.38	27.416	67.3	1.549	1200A	3.13	34.33	27.361	72.5	1.549	1200A	3.13	34.33	27.361	72.5	1.549
1300A	2.89	34.45	27.479	61.4	1.622	1300A	3.02	34.40	27.427	66.2	1.627	1300A	3.02	34.40	27.427	66.2	1.627
1400A	2.84	34.52	27.539	55.6..	1.689	1400A	2.89	34.46	27.487	60.6	1.699	1400A	2.89	34.46	27.487	60.6	1.699
1500A	2.83	34.57	27.580	51.8.	1.752	1500A	2.82	34.53	27.549	54.7	1.766	1500A	2.82	34.53	27.549	54.7	1.766
1600A	2.80	34.62	27.622	47.8	1.812	1600A	2.77	34.58	27.593	50.5	1.828	1600A	2.77	34.58	27.593	50.5	1.828
1700A	2.79	34.69	27.679..	42.4	1.867	1700A	2.79	34.64	27.639	46.2	1.887	1700A	2.79	34.64	27.639	46.2	1.887
1800A	2.80	34.73	27.710	39.4	1.919	1800A	2.80	34.69	27.678	42.5	1.942	1800A	2.80	34.69	27.678	42.5	1.942
1900A	2.80	34.76	27.734..	37.2	1.970	1900A	2.82	34.74	27.716	38.9	1.995	1900A	2.82	34.74	27.716	38.9	1.995
2000A	2.80	34.79	27.758	34.9	2.018	2000A	2.83	34.78	27.747	35.9	2.045	2000A	2.83	34.78	27.747	35.9	2.045
2100A	2.80..	34.82	27.782	32.7	2.066	2100A	2.84	34.80	27.762	34.5	2.094	2100A	2.84	34.80	27.762	34.5	2.094
2200A	2.80	34.84	27.797	31.1	2.112	2200A	2.84	34.83	27.786	32.2	2.142	2200A	2.84	34.83	27.786	32.2	2.142
2300A	2.80	34.86	27.813	29.6	2.157	2300A	2.83	34.84	27.795	31.4	2.188	2300A	2.83	34.84	27.795	31.4	2.188
2400A	2.79	34.88	27.830	28.0	2.201	2400A	2.82	34.86	27.812	29.8	2.234	2400A	2.82	34.86	27.812	29.8	2.234
2500A	2.78	34.88	27.831	28.0	2.245	2500A	2.77	34.87	27.824	28.6.	2.279	2500A	2.77	34.87	27.824	28.6.	2.279
2600A	2.77	34.90	27.848..	26.4	2.289	2600A	2.75	34.88	27.834	27.7	2.324.	2600A	2.75	34.88	27.834	27.7	2.324.
2700A	2.77	34.91	27.856	25.6	2.332	2700A	2.69	34.88	27.839	27.2	2.368.	2700A	2.69	34.88	27.839	27.2	2.368.
2800A	2.75	34.92	27.866..	24.7	2.375	2800A	2.66	34.89	27.850	26.2	2.412.	2800A	2.66	34.89	27.850	26.2	2.412.
2900A	2.72	34.92	27.869	24.4	2.417	2900A	2.63	34.88..	27.845	26.7	2.456.	2900A	2.63	34.88..	27.845	26.7	2.456.
3000A	2.64	34.91	27.867	24.5	2.460	3000A	2.54	34.89	27.860	25.2	2.499	3000A	2.54	34.89	27.860	25.2	2.499
3100A	2.59	34.91	27.872	24.1	2.503	3100A	2.45..	34.88	27.860	25.2	2.542	3100A	2.45..	34.88	27.860	25.2	2.542
3200A	2.49	34.90	27.873	24.0	2.545	3200A	2.34	34.87	27.861	25.1	2.585	3200A	2.34	34.87	27.861	25.1	2.585
3300A	2.38	34.90	27.882	23.1	2.587	3300A	2.23	34.87	27.871	24.2	2.626	3300A	2.23	34.87	27.871	24.2	2.626
3400A	2.28	34.88	27.874	23.9	2.628	3400A	2.11	34.84	27.856	25.6	2.668	3400A	2.11	34.84	27.856	25.6	2.668
3500A	2.07	34.86	27.876	23.7	2.669.	3500A	1.97	34.84	27.868	24.5	2.708	3500A	1.97	34.84	27.868	24.5	2.708
3600A	1.92	34.85	27.880	23.4	2.709	3600A	1.83	34.82	27.863	25.0	2.748	3600A	1.83	34.82	27.863	25.0	2.748
3700A	1.74	34.83	27.878	23.6	2.747	3700A	1.70	34.81	27.865	24.8	2.787	3700A	1.70	34.81	27.865	24.8	2.787
3800A	1.61	34.81	27.871	24.2	2.785	3800A	1.56	34.80	27.867	24.6	2.825	3800A	1.56	34.80	27.867	24.6	2.825
3900A	1.48	34.80	27.873	24.0	2.822	3900A	1.46	34.80	27.874	23.9	2.862	3900A	1.46	34.80	27.874	23.9	2.862
4000A	1.36	34.79	27.873	24.0	2.858..	4000A	1.36	34.77	27.857	25.5	2.899	4000A	1.36	34.77	27.857	25.5	2.899
4100A	1.24	34.76	27.858	25.4	2.894	4100A	1.24	34.76	27.858	25.4	2.935	4100A	1.24	34.76	27.858	25.4	2.935
4200A	0.91	34.73	27.856	25.6	2.928	4200A	1.08	34.75	27.861	25.2	2.970	4200A	1.08	34.75	27.861	25.2	2.970
4272A	0.84	34.73	27.860	25.2	2.952	4300A	0.91	34.73	27.856	25.6	3.004.	4300A	0.91	34.73	27.856	25.6	3.004.
						4400A	0.83	34.72	27.853	25.9	3.037	4400A	0.83	34.72	27.853	25.9	3.037
						4500A	0.81	34.71	27.846	26.5	3.070	4500A	0.81	34.71	27.846	26.5	3.070
						4600A	0.82	34.71	27.846	26.6	3.104	4600A	0.82	34.71	27.846	26.6	3.104
						4643A	0.81	34.71	27.								

RV MELVILLE

CATO EXPEDITION VI

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RV MELVILLE						CATO EXPEDITION VI									
LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER			TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES				
36 35.2S	32 15.5W	12/ 3/72	0019	U315		GMT	4558M	220	28KT	2	210	17			
Z	T	S	U2	P04	SI03	N02	N03	DT	Z	T	S	U2	SIGT	DT	DD
0	15.45	35.724	5.78	0.20	1.0		1.2	159.1	0	15.45	35.724	5.78	26.446	159.1	0.000
101	15.46	35.721	5.70	0.21	1.2		1.3	159.6	10	15.45	35.723	5.77	26.446	159.2	0.016
153	15.16	35.688	5.43	0.28	1.3		2.9	155.6	20	15.45	35.722	5.76	26.446	159.2	0.032
202	14.81	35.642	5.45	0.38	1.7		4.4	151.6	30	15.45	35.722	5.76	26.445	159.3	0.048
279	14.55	35.587	5.39	0.44	2.0		5.4	150.3	50	15.45	35.721	5.74	26.444	159.4	0.080
356	13.89	35.461	5.31	0.55	2.2		6.9	146.1	75	15.46	35.721	5.72	26.443	159.5	0.120
420A	12.64	35.220	5.01	0.71	3.6		10.4	139.6	100	15.46	35.720	5.70	26.442	159.6	0.161
458	11.58	35.047	4.94	0.97	4.6		12.9	132.9	125	15.34	35.707	5.57	26.459	157.9	0.201
523A	9.54	34.740	5.00	1.06	6.5		17.4	121.3	150	15.18	35.689	5.44	26.481	155.9	0.242
627A	6.32	34.358	5.59	1.31	10.6		22.5	104.2	200	14.82	35.643	5.45	26.524	151.8	0.321
730A	5.04	34.257	5.90	1.71	12.8		24.5	96.8	250	14.65	35.610	5.42	26.537	150.6	0.400
833A	4.42	34.218	5.96	1.72U	15.6		26.3	93.2	300	14.44	35.565	5.37	26.548	149.5	0.479
936A	3.92	34.224	5.79	1.71U	21.4		27.9	87.8	400	13.10	35.305	5.10	26.627	142.1	0.635
1090A	3.32	34.245	5.56	1.92U	30.5		29.8	80.6	500	10.28	34.645	4.98	26.803	125.3	0.780
1244A	2.90	34.314	5.11	1.98U	41.9		31.6	71.7	600	7.06	34.434	5.42	26.985	108.1	0.907
1449A	2.72	34.440	4.52	1.73U	56.7		32.0	60.7	700	5.28	34.274	5.84	27.089	98.3	1.019
1654A	2.69	34.566	4.26	2.07U	64.1		32.0	50.9	800	4.58	34.226	5.94	27.131	94.3	1.123
1961A	2.82	34.723	4.53	1.92U	63.0		29.6	40.1	1000	3.65	34.230	5.71	27.232	84.8	1.318
2268A	2.93	34.826	5.03	1.92U	50.5		25.8	33.3	1200	3.00	34.291	5.25	27.342	74.3	1.493
2472A	2.93	34.869	5.32	1.37U	45.8		23.7	30.1	1500	2.71	34.474	4.42	27.513	58.1	1.717
2676A	2.76	34.870	5.36	1.36U	47.6		23.4	28.5	1750	2.72	34.621	4.29	27.629	47.1	1.873
2984A	2.44	34.854	5.33	1.64U	56.9		23.4	27.1	2000	2.84	34.740	4.59	27.713	39.1	2.010
3292A	1.774	34.780	4.96	1.83	86.3		27.8	27.6	2250	2.93	34.821	5.00	27.771	33.6	2.137
3704A	1.127	34.730	4.93	1.99	110.1		30.9	27.0	2500	2.91	34.870	5.33	27.812	29.8	2.256
4119A	0.526	34.694	5.04	1.75U	123.7		31.7	26.1	2750	2.70	34.868	5.35	27.829	28.1	2.371
4432A	0.302	34.681	5.13	2.25	128.2		31.9	25.9	3000	2.41	34.850	5.31	27.840	27.1	2.482
4537A	0.29	34.679	5.14	2.26	123.1		32.2	26.0	3250	1.87	34.790	5.01	27.836	27.5	2.588
									3500	1.43	34.752	4.94	27.838	27.4	2.687
									3750	1.05	34.725	4.94	27.843	26.9	2.778
									4000	0.68	34.703	5.00	27.848	26.3	2.861
									4250	0.40	34.687	5.08	27.852	26.0	2.935
									4500	0.29	34.680	5.14	27.853	25.9	3.004

RV MELVILLE

CATO EXPEDITION VI

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RV MELVILLE						CATO EXPEDITION VI									
LATITUDE	LONGITUDE	MO/DAY/YR	MESSENGER			TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES				
37 30.0S	34 19.7W	12/ 3/72	1825	2055		GMT	4690M	180	14KT	1	180	6	7		
Z	T	S	U2	P04	SI03	N02	N03	DT	Z	T	S	U2	SIGT	DT	DD
0	15.40	35.667	5.87	0.22	1.2		1.3	162.2	0	15.40	35.667	5.87	26.414	162.2	0.000
10	15.38	35.666	5.88	0.21	1.2		1.3	161.9	10	15.38	35.666	5.88	26.418	161.9	0.016
31	15.33	35.665	5.88	0.20	1.2		1.3	160.9	20	15.36	35.664	5.88	26.423	161.4	0.032
62	15.28	35.664	5.83	0.22	1.2		1.4	159.9	30	15.33	35.664	5.88	26.428	160.9	0.049
93	15.25	35.666	5.81	0.24	1.2		1.6	159.1	50	15.30	35.663	5.85	26.435	160.2	0.081
125	15.06	35.669	5.72	0.30	1.4		2.2	154.9	75	15.27	35.661	5.82	26.440	159.8	0.121
156	14.90	35.642	5.60	0.35	1.5		3.2	153.5	100	15.21	35.667	5.79	26.456	158.2	0.162
207	14.42	35.578	5.54	0.43	1.7		4.6	148.3	125	15.06	35.669	5.72	26.491	154.9	0.202
260	14.21	35.533	5.57	0.44	1.7		4.8	147.3	150	14.93	35.648	5.62	26.504	153.7	0.241
312		35.470	5.45	0.51	2.0		5.8		200	14.49	35.586	5.55	26.554	149.0	0.320
351A	13.51	35.383	5.32	0.61	2.4		7.4	144.3	250	14.24	35.539	5.57	26.570	147.5	0.397
454A	10.77	34.922	4.88	1.10	5.4		14.5	128.0	300	14.03	35.500	5.49	26.585	146.0	0.475
557A	7.70	34.512	5.26	1.39	8.5		20.5	110.9	400	12.36	35.176	5.07	26.675	137.4	0.626
660A	5.46	34.286	5.86	1.76U	13.2		24.9	99.4	500	9.57	34.720	4.99	26.859	120.0	0.765
763A	4.54	34.226	6.01	1.67	14.7		25.3	93.8	600	6.63	34.396	5.52	27.014	105.4	0.887
865A	4.08	34.225	5.90	1.83	18.8		26.4	89.3	700	5.00	34.252	5.92	27.105	96.8	0.996
1070A	3.30	34.252	5.55	2.05	30.5		30.2	79.9	800	4.34	34.223	5.99	27.154	92.1	1.099
1173A	2.96	34.296	5.27	2.12	37.0		30.7	73.6	1000	3.55	34.237	5.69	27.247	83.3	1.289
1378A	2.71	34.410	4.69	2.24	53.0		32.7	62.9	1200	2.90	34.311	5.19	27.366	72.1	1.460
1583A	2.69	34.531	4.39	2.24	62.2		32.7	53.6	1500	2.70	34.485	4.48	27.523	57.2	1.678
1890A	2.81	34.693	4.46	2.05	62.2		29.4	42.3	1750	2.75	34.626	4.43	27.630	47.0	1.833
2197A	2.87	34.789	4.89	1.85	97.6		26.3	35.6	2000	2.84	34.734	4.60	27.709	39.5	1.971
2402A	2.82	34.826	5.09	1.76	53.6		25.8	32.4	2250	2.87	34.801	4.95	27.760	34.7	2.099
2607A	2.66		5.16	1.71	56.7		25.0		2500	2.75	34.829	5.13	27.793	31.3	2.220
2915A	2.384	34.833	5.20	1.73	62.7		25.3	28.2	2750	2.54	34.832	5.18	27.814	29.1	2.336
3325A	1.790		5.09	1.90	84.0		27.6		3000	2.27	34.823	5.18	27.830	28.1	2.447
3737A	1.169	34.736	5.04	2.05	102.4		28.9	26.8	3250	1.91	34.792	5.11	27.834	27.7	2.552
4149A	0.475								3500	1.53	34.762	5.06	27.839	27.2	2.651
4563A	0.197	34.673	5.20	2.23	129.4		32.4	25.9	3750	1.14	34.734	5.04	27.844	26.8	2.744
4668A	0.15	34.669	5.21	2.23	129.6		31.8	26.0	4000	0.71	34.703	5.09	27.846	26.4	2.829
									4250	0.58	34.682	5.14	27.849	26.1	2.905
									4500	0.22	34.674	5.19	27.852	25.9	2.975

41 STC						CATG EXPEDITION VI						42 STD					
LATITUDE		LONGITUDE		MO/DAY/YR		START TIME		LATITUDE		LONGITUDE		MO/DAY/YR		START TIME			
36 35.2S		32 15.5W		12/02/72		2253 GMT		34 30.0S		34 19.7W		12/03/72		1653 GMT			
Z	T	S	SIGMA T	DT	DD	Z	T	S	SIGMA T	DT	DD	Z	T	S	SIGMA T	DT	DD
0	15.42	35.70	26.435	160.3	0.000	0	15.42	35.68	26.419	161.7	0.000	0	15.42	35.68	26.419	161.7	0.000
10	15.42	35.70	26.435	160.3	0.016	10	15.39	35.67	26.418	161.8	0.016	10	15.39	35.67	26.418	161.8	0.016
20	15.40	35.70	26.439	159.8	0.032	20	15.38	35.67	26.421	161.6	0.032	20	15.38	35.67	26.421	161.6	0.032
30	15.42	35.71	26.442	159.5	0.048	30	15.37	35.68	26.431	160.6	0.048	30	15.37	35.68	26.431	160.6	0.048
40	15.43	35.71	26.440	159.7	0.064	40	15.38	35.65	26.405	163.1	0.064	40	15.38	35.65	26.405	163.1	0.064
50	15.45	35.72	26.443	159.4	0.080	50	15.27	35.65	26.430	160.7	0.080	50	15.27	35.65	26.430	160.7	0.080
60	15.44	35.72	26.446	159.2	0.096	60	15.26	35.65	26.432	160.5	0.096	60	15.26	35.65	26.432	160.5	0.096
70	15.44	35.72	26.446	159.2	0.113	70	15.25	35.66	26.442	159.6	0.113	70	15.25	35.66	26.442	159.6	0.113
80	15.44	35.71	26.438	160.0	0.129	80	15.25	35.67	26.450	158.8	0.129	80	15.25	35.67	26.450	158.8	0.129
90	15.46	35.71	26.434	160.4	0.145	90	15.25	35.67	26.450	158.8	0.145	90	15.25	35.67	26.450	158.8	0.145
100	15.45	35.71	26.436	160.2	0.161	100	15.20	35.66	26.453	158.5	0.161	100	15.20	35.66	26.453	158.5	0.161
125	15.41	35.71	26.445	159.3	0.202	125	15.04	35.67	26.497	154.4	0.202	125	15.04	35.67	26.497	154.4	0.202
150	15.20	35.70	26.484	155.6	0.243	150	14.97	35.64	26.489	155.1	0.243	150	14.97	35.64	26.489	155.1	0.243
200	14.81	35.64	26.524	151.8	0.322	200	14.45	35.58	26.556	148.7	0.322	200	14.45	35.58	26.556	148.7	0.322
250	14.60	35.61	26.547	149.6	0.401	250	14.26	35.56	26.582	146.3	0.401	250	14.26	35.56	26.582	146.3	0.401
300	14.37	35.58	26.573	147.1	0.479	300	14.04	35.51	26.590	145.5	0.479	300	14.04	35.51	26.590	145.5	0.479
350	13.90	35.47	26.589	145.7	0.557	350A	13.68	35.42	26.596	144.9	0.557	350A	13.68	35.42	26.596	144.9	0.557
400	13.11	35.31	26.629	141.9	0.634	400A	12.51	35.19	26.656	139.3	0.634	400A	12.51	35.19	26.656	139.3	0.634
450	11.83	35.11	26.725	132.7	0.708	450A	11.23	34.96	26.721	133.1	0.708	450A	11.23	34.96	26.721	133.1	0.708
500A	10.35	34.81	26.763	129.2	0.779	500A	9.83	34.78	26.829	122.9	0.779	500A	9.83	34.78	26.829	122.9	0.779
550A	9.02	34.68	26.885	117.6	0.847	550A	8.15	34.57	26.935	112.9	0.847	550A	8.15	34.57	26.935	112.9	0.847
600A	7.19	34.42	26.957	110.8	0.909	600A	6.32	34.34	27.012	105.6	0.909	600A	6.32	34.34	27.012	105.6	0.909
650A	6.17	34.32	27.016	105.2	0.967	650A	5.59	34.27	27.049	102.1	0.967	650A	5.59	34.27	27.049	102.1	0.967
700A	5.27	34.26	27.080	99.2	1.023	700A	4.97	34.24	27.099	97.4	1.023	700A	4.97	34.24	27.099	97.4	1.023
750A	4.92	34.23	27.097	97.6	1.076	750A	4.62	34.21	27.115	95.9	1.076	750A	4.62	34.21	27.115	95.9	1.076
800A	4.58	34.21	27.119	95.5	1.128	800A	4.40	34.21	27.139	93.6	1.128	800A	4.40	34.21	27.139	93.6	1.128
850A	4.33	34.21	27.146	92.9	1.179	850A	4.16	34.21	27.164	91.2	1.179	850A	4.16	34.21	27.164	91.2	1.179
900A	4.12	34.22	27.176	90.0	1.229	900A	3.92	34.21	27.189	88.8	1.229	900A	3.92	34.21	27.189	88.8	1.229
950A	3.91	34.22	27.198	88.6	1.278	950A	3.67	34.22	27.222	85.7	1.278	950A	3.67	34.22	27.222	85.7	1.278
1000A	3.68	34.22	27.221	85.8	1.325	1000A	3.49	34.23	27.248	83.3	1.325	1000A	3.49	34.23	27.248	83.3	1.325
1100A	3.27	34.25	27.285	79.8	1.416	1100A	3.14	34.26	27.305	77.9	1.416	1100A	3.14	34.26	27.305	77.9	1.416
1200A	3.00	34.29	27.341	74.4	1.501	1200A	2.90	34.31	27.366	72.0	1.501	1200A	2.90	34.31	27.366	72.0	1.501
1300A	2.81	34.36	27.414	67.5	1.579	1300A	2.75	34.36	27.419	67.0	1.579	1300A	2.75	34.36	27.419	67.0	1.579
1400A	2.80	34.42	27.463	62.9	1.653	1400A	2.68	34.41	27.465	62.6	1.653	1400A	2.68	34.41	27.465	62.6	1.653
1500A	2.73	34.47	27.509	58.5	1.722	1500A	2.64	34.47	27.517	57.8	1.722	1500A	2.64	34.47	27.517	57.8	1.722
1600A	2.72	34.54	27.565	53.1	1.787	1600A	2.67	34.53	27.562	53.5	1.787	1600A	2.67	34.53	27.562	53.5	1.787
1700A	2.72	34.60	27.613	48.6	1.848	1700A	2.71	34.59	27.606	49.3	1.848	1700A	2.71	34.59	27.606	49.3	1.848
1800A	2.75	34.65	27.650	45.1	1.906	1800A	2.78	34.65	27.648	45.3	1.906	1800A	2.78	34.65	27.648	45.3	1.906
1900A	2.78	34.69	27.680	42.3	1.961	1900A	2.80	34.69	27.678	42.5	1.961	1900A	2.80	34.69	27.678	42.5	1.961
2000A	2.85	34.74	27.713	39.1	2.015	2000A	2.83	34.74	27.715	38.9	2.015	2000A	2.83	34.74	27.715	38.9	2.015
2100A	2.89	34.78	27.741	36.4	2.066	2100A	2.84	34.77	27.738	36.8	2.066	2100A	2.84	34.77	27.738	36.8	2.066
2200A	2.93	34.81	27.762	34.5	2.116	2200A	2.85	34.80	27.761	34.6	2.116	2200A	2.85	34.80	27.761	34.6	2.116
2300A	2.95	34.84	27.784	32.4	2.165	2300A	2.85	34.82	27.777	33.1	2.165	2300A	2.85	34.82	27.777	33.1	2.165
2400A	2.93	34.86	27.802	30.7	2.212	2400A	2.85	34.84	27.793	31.6	2.212	2400A	2.85	34.84	27.793	31.6	2.212
2500A	2.90	34.87	27.812	29.7	2.259	2500A	2.76	34.84	27.801	30.8	2.259	2500A	2.76	34.84	27.801	30.8	2.259
2600A	2.84	34.88	27.826	28.5	2.305	2600A	2.69	34.85	27.815	29.5	2.305	2600A	2.69	34.85	27.815	29.5	2.305
2700A	2.74	34.87	27.827	28.4	2.351	2700A	2.61	34.85	27.822	28.8	2.351	2700A	2.61	34.85	27.822	28.8	2.351
2800A	2.64	34.87	27.836	27.5	2.396	2800A	2.54	34.85	27.828	28.2	2.396	2800A	2.54	34.85	27.828	28.2	2.396
2900A	2.50	34.85	27.832	27.9	2.441	2900A	2.43	34.85	27.838	27.3	2.441	2900A	2.43	34.85	27.838	27.3	2.441
3000A	2.41	34.86	27.848	26.4	2.484	3000A	2.27	34.83	27.835	27.6	2.484	3000A	2.27	34.83	27.835	27.6	2.484
3100A	2.27	34.84	27.843	26.8	2.527	3100A	2.12	34.82	27.840	27.2	2.527	3100A	2.12	34.82	27.840	27.2	2.527
3200A	1.97	34.80	27.836	27.5	2.570	3200A	1.93	34.80	27.839	27.2	2.570	3200A	1.93	34.80	27.839	27.2	2.570
3300A	1.75	34.78	27.837	27.4	2.610	3300A	1.79	34.79	27.842	27.0	2.610	3300A	1.79	34.79	27.842	27.0	2.610
3400A	1.59	34.77	27.841	27.0	2.650	3400A	1.62	34.78	27.847	26.5	2.650	3400A	1.62	34.78	27.847	26.5	2.650
3500A	1.41	34.76	27.846	26.6	2.688	3500A	1.50	34.77	27.847	26.4	2.688	3500A	1.50	34.77	27.847	26.4	2.688
3600A	1.30	34.75	27.846	26.6	2.725	3600A	1.35	34.76	27.850	26.2	2.725	3600A	1.35	34.76	27.850	26.2	2.725
3700A	1.12	34.74	27.850	26.2	2.760	3700A	1.21	34.75	27.852	26.0	2.760	3700A	1.21	34.75	27.852	26.0	2.760
3800A	0.95	34.72	27.845	26.6	2.795	3800A	1.06	34.74	27.854	25.8	2.795	3800A	1.06	34.74	27.854	25.8	2.795
3900A	0.82	34.71	27.846	26.6	2.828	3900A	0.86	34.72	27.851	26.1	2.828	3900A	0.86	34.72	27.851	26.1	2.828
4000A	0.68	34.70	27.846	26.5	2.860	4000A	0.69	34.70	27.846	26.6	2.860	4000A	0.69	34.70	27.846	26.6	2.860
4200A	0.43	34.69	27.853	25.9	2.920	4200A	0.56	34.69	27.846	26.6	2.920	4200A	0.56	34.69	27.846	26.6	2.920
4300A	0.36	34.69	27.857	25.5	2.947	4300A	0.42	34.68	27.846	26.6	2.947	4300A	0.42	34.68	27.846	26.6	2.947
4400A	0.32	34.68	27.851	26.0	2.975	4400A	0.34	34.68	27.850	26.2	2.975	4400A	0.34	34.68	27.850	26.2	2.975
4500A	0.28	34.68	27.854	25.8	3.002	4500A	0.26	34.67	27.847	26.5	3.002	4500A	0.26	34.67	27.847	26.5	3.002
4558A	0.28	34.68	27.854	25.8	3.017	4558A	0.21	34.67	27.849	26.2	3.017	4558A	0.21	34.67	27.849	26.2	3.017
						4600A	0.17	34.66	27.844	26.8		4600A	0.17	34.66	27.844	26.8	

RV MELVILLE						CATO EXPEDITION VI										
LATITUDE		LONGITUDE		MO/DAY/YR		MESSENGER		TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES			
39 18.0S		37 23.3W		12/ 4/72		1554 1909		GMT	5155M	230	6KT	1	130	4	7	
Z	T	S	G2	P04	SIG3	NO2	NO3	DT	Z	T	S	G2	SIGT	UT	DD	
0	14.96	34.716	6.32	0.49	1.5		4.7	222.4	0	14.96	34.716	6.32	25.781	222.4	0.000	
21	12.55	34.707	6.29	0.48	1.3		4.5	175.6	10	13.53	34.702	6.31	26.073	194.7	0.021	
42	12.40	34.712	6.43	0.50	1.5		4.6	172.4	20	12.61	34.707	6.29	26.261	176.8	0.039	
63	12.24	34.730	6.23	0.54	2.1		5.1	168.1	30	12.49	34.710	6.36	26.288	174.2	0.057	
84	10.80	34.733	6.12	0.74	3.0		9.4	142.4	50	12.54	34.719	6.37	26.325	170.8	0.092	
105	10.46	34.734	6.07	0.80	3.3		10.0	136.6	75	11.43	34.730	6.16	26.506	153.5	0.133	
137	9.40	34.595	6.15	0.90	3.5		12.2	129.8	100	10.50	34.739	6.08	26.680	137.1	0.170	
179	8.51	34.548	5.92	1.14	4.8		15.6	119.8	125	9.82	34.652	6.12	26.730	132.3	0.204	
210	8.13	34.542	6.04	1.16	5.2		15.5	114.7	150	9.07	34.571	6.07	26.791	126.6	0.237	
262	7.33	34.491	5.88	1.33	7.1		18.7	107.4	200	8.24	34.544	6.00	26.900	116.2	0.299	
340	5.29	34.256	6.09	1.63	9.9		23.8	99.7	250	7.54	34.510	5.93	26.977	108.9	0.358	
417	4.49	34.194	6.22	1.73	12.6		25.0	95.7	300	6.32	34.373	5.95	27.038	103.2	0.413	
519	4.01	34.187	6.14	1.83	16.8		26.8	91.4	400	4.60	34.201	6.20	27.109	96.4	0.517	
578A	3.77	34.189	6.00	1.88	19.6		27.9	89.0	500	4.07	34.186	6.15	27.154	92.2	0.615	
681A	3.35	34.208	5.79	1.99	25.0		30.6	83.6	600	3.68	34.193	5.96	27.199	87.9	0.710	
784A	3.01	34.244	5.45	2.03	34.0		28.0U	77.9	700	3.28	34.214	5.73	27.254	82.6	0.800	
887A	2.72	34.293	5.15	2.23U	42.4		32.9	71.8	800	2.96	34.252	5.40	27.314	77.0	0.885	
990A	2.58	34.348	4.89	2.20	49.4		33.3	66.5	1000	2.57	34.354	4.87	27.430	66.0	1.039	
1092A	2.49	34.396	4.70	2.27	56.1		33.3	62.1	1200	2.49	34.450	4.50	27.513	58.1	1.175	
1195A	2.49	34.447	4.51	2.32	60.5		33.5	58.3	1500	2.62	34.614	4.32	27.633	46.8	1.355	
1400A	2.57	34.561	4.28	2.24	66.3		31.9	50.3	1750	2.76	34.727	4.56	27.711	39.4	1.488	
1605A	2.67	34.664	4.37	2.13	66.7		30.7	43.3	2000	2.83	34.806	4.94	27.767	34.0	1.610	
1912A	2.84	34.784	4.82	1.88	56.7		27.9	35.7	2250	2.80	34.849	5.22	27.805	30.4	1.726	
2219A	2.81	34.846	5.19	1.70	50.8		24.8	30.8	2500	2.57	34.844	5.26	27.821	28.0	1.837	
2423A	2.68	34.853	5.31	1.64	52.8		24.3	29.1	2750	2.21	34.815	5.08	27.829	28.1	1.944	
2628A	2.37	34.829	5.14	1.75	63.6		25.9	28.4	3000	1.84	34.784	4.97	27.832	27.8	2.047	
2935A	1.96	34.795	5.01	1.87	78.2		26.8	27.8	3250	1.40	34.744	4.86	27.833	27.8	2.144	
3345A	1.23	34.728	4.83	2.05	108.1		30.6	27.8	3500	1.05	34.717	4.86	27.837	27.4	2.235	
3756A	0.746	34.703	4.96	2.18	120.0		31.7	26.7	3750	0.75	34.704	4.96	27.844	26.7	2.318	
4170A	0.329	34.683	5.13	2.23	126.9		32.0	25.9	4000	0.48	34.690	5.06	27.850	26.1	2.394	
4584A	0.193	34.670	5.24	2.23	129.4		32.4	26.1	4250	0.29	34.680	5.16	27.853	25.9	2.464	
5003A	0.159	34.670	5.25	2.27	129.9		32.4	26.0	4500	0.21	34.672	5.22	27.851	26.1	2.530	
5109A	0.163	34.670	5.25	2.25	130.2		31.6	26.0	4750	0.18	34.671	5.24	27.851	26.1	2.595	
									5000	0.16	34.671	5.25	27.852	26.0	2.660	

RV MELVILLE						CATO EXPEDITION VI										
LATITUDE		LONGITUDE		MO/DAY/YR		MESSENGER		TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES			
40 25.0S		39 27.1W		12/ 5/72		0844 1130		GMT	5172M	030	5KT	2	110	3	8	
Z	T	S	G2	P04	SIG3	NO2	NO3	DT	Z	T	S	G2	SIGT	DT	DD	
0	13.49	34.572	6.41	0.60	1.1		5.6	203.4	0	13.49	34.572	6.41	25.981	203.4	0.000	
21	11.70	34.586	6.61	0.53	0.9		5.4	169.0	10	12.35	34.576	6.51	26.212	181.5	0.019	
31	11.67	34.591	6.56	0.57	0.9		5.9	168.0	20	11.73	34.586	6.60	26.337	169.6	0.037	
63	12.19	34.954	5.93	0.60	2.2		7.5	150.7	30	11.67	34.592	6.57	26.352	168.1	0.054	
95	11.73	34.992	5.88	0.72	2.8		9.1	139.6	50	11.98	34.794	6.19	26.452	158.7	0.087	
126	11.21	34.913	5.69	0.84	3.2		11.1	136.2	75	12.08	34.994	5.91	26.588	145.7	0.125	
158	10.54	34.84	5.55	0.98	4.0		12.9	130.2	100	11.65	34.983	5.85	26.660	138.9	0.161	
207	9.47	34.700	5.61	1.14	5.2		15.3	123.1	125	11.23	34.916	5.70	26.688	136.3	0.196	
262	7.89	34.482	5.70	1.33	6.5		19.0	115.8	150	10.71	34.858	5.58	26.736	131.7	0.231	
313	6.84	34.38	5.68	1.49	8.4		21.1	109.2	200	9.63	34.723	5.60	26.817	124.0	0.297	
364	6.03	34.322	5.77	1.63	9.9		22.6	103.4	250	8.23	34.527	5.68	26.888	117.3	0.359	
414A	4.92	34.224	6.06	1.71	11.9		24.7	98.0	300	7.08	34.400	5.68	26.957	110.8	0.418	
517A	4.38	34.212	6.19	1.80	14.2		25.5	93.2	400	5.22	34.250	5.98	27.077	99.4	0.528	
620A	4.01	34.218	5.89	1.83	20.0		26.3	89.1	500	4.47	34.219	6.17	27.137	93.7	0.630	
723A	3.48	34.216	5.79	2.03	25.0		28.4	84.2	600	4.08	34.218	5.96	27.178	89.9	0.726	
826A	3.22	34.251	5.46	2.06	32.3		30.9	79.2	700	3.59	34.216	5.81	27.226	85.3	0.820	
1032A	2.83	34.341	4.88	2.25	45.8		32.2	69.1	800	3.27	34.241	5.55	27.277	80.5	0.908	
1237A	2.54	34.435	4.55	2.34	59.5		33.8	59.6	1000	2.88	34.327	4.96	27.380	70.6	1.071	
1442A	2.54	34.537	4.29	2.30	67.0		33.4	51.9	1200	2.58	34.418	4.60	27.480	61.2	1.216	
1646A	2.60	34.631	4.28	2.22	69.4		31.4	45.3	1500	2.56	34.567	4.29	27.600	49.9	1.406	
1952A	2.63	34.736	4.53	2.03	67.2		29.1	37.6	1750	2.61	34.672	4.34	27.679	42.4	1.545	
2258A	2.58	34.801	4.88	1.86	63.8		27.4	32.2	2000	2.63	34.750	4.59	27.741	36.5	1.672	
2462A	2.49	34.813	5.01	1.83	63.9		26.6	30.6	2250	2.58	34.800	4.87	27.785	32.3	1.790	
2666A	2.28	34.804	4.98	1.87	70.9		27.4	29.6	2500	2.46	34.812	5.00	27.805	30.4	1.903	
2972A	1.91	34.777	4.88	1.96	83.9		28.5	28.8	2750	2.18	34.797	4.95	27.816	29.3	2.012	
3382A	1.339	34.736	4.88	2.10	106.5		29.6	27.9	3000	1.87	34.774	4.88	27.823	28.8	2.118	
3792A	0.908	34.712	4.90	2.18	117.6		31.0	27.0	3250	1.52	34.749	4.88	27.828	28.2	2.218	
4204A	0.456	34.689	5.01	2.24	126.2		32.3	26.1	3500	1.21	34.729	4.89	27.834	27.6	2.312	
4618A	0.236	34.675	5.22	2.27	126.9		31.9	26.0	3750	0.95	34.715	4.90	27.840	27.1	2.400	
5034A	0.194	34.671	5.22	2.27	132.9		32.7	26.1	4000	0.67	34.700	4.94	27.846	26.5	2.482	
5139A	0.188	34.672	5.23	2.51U	130.3		32.5	26.0	4250	0.42	34.687	5.04	27.851	26.1	2.556	
									4500	0.28	34.678	5.17	27.852	26.0	2.626	
									4750	0.22	34.674	5.22	27.852	26.0	2.692	
									5000	0.20	34.672	5.22	27.851	26.1	2.757	

43 STD						CATO EXPEDITION VI						44 STD					
LATITUDE		LONGITUDE		MO/DAY/YR		START TIME		LATITUDE		LONGITUDE		MO/DAY/YR		START TIME			
39 18.0S		57 23.5W		12/04/72		1420 GMT		40 25.0S		39 27.1W		12/05/72		0708 GMT			
Z	T	S	SIGMA T	DT	DD	Z	T	S	SIGMA T	DT	DD	Z	T	S	SIGMA T	DT	DD
0	13.52	34.69	26.066	195.3	0.000	0	13.49	34.53	25.949	206.5	0.000	0	13.49	34.53	25.949	206.5	0.000
10	12.69	34.69	26.233	179.4	0.019	10	11.81	34.57	26.311	172.1	0.019	10	11.81	34.57	26.311	172.1	0.019
20	12.54	34.70	26.271	175.9	0.037	20	11.67	34.59	26.353	168.1	0.036	20	11.67	34.59	26.353	168.1	0.036
30	12.50	34.72	26.294	173.7	0.054	30	11.65	34.59	26.356	167.8	0.053	30	11.65	34.59	26.356	167.8	0.053
40	12.50	34.73	26.302	172.9	0.072	40	11.74	34.71	26.432	160.5	0.069	40	11.74	34.71	26.432	160.5	0.069
50	12.43	34.74	26.323	170.9	0.089	50	12.14	34.87	26.480	156.0	0.085	50	12.14	34.87	26.480	156.0	0.085
60	11.73	34.76	26.489	155.2	0.105	60	12.19	34.96	26.540	150.3	0.101	60	12.19	34.96	26.540	150.3	0.101
70	11.57	34.79	26.526	151.6	0.121	70	12.22	35.04	26.596	145.0	0.116	70	12.22	35.04	26.596	145.0	0.116
80	10.92	34.77	26.630	141.8	0.136	80	12.10	35.07	26.643	140.6	0.130	80	12.10	35.07	26.643	140.6	0.130
90	10.68	34.74	26.650	139.9	0.150	90	11.85	35.02	26.652	139.7	0.144	90	11.85	35.02	26.652	139.7	0.144
100	10.50	34.71	26.659	139.1	0.164	100	11.76	35.00	26.653	139.5	0.159	100	11.76	35.00	26.653	139.5	0.159
125	9.60	34.63	26.751	130.4	0.198	125	11.22	34.89	26.669	138.1	0.194	125	11.22	34.89	26.669	138.1	0.194
150	8.97	34.55	26.791	126.5	0.231	150	10.71	34.86	26.738	131.5	0.228	150	10.71	34.86	26.738	131.5	0.228
200	8.14	34.55	26.920	114.3	0.293	200	9.57	34.71	26.818	124.0	0.294	200	9.57	34.71	26.818	124.0	0.294
250	7.42	34.48	26.971	109.4	0.351	250	7.94	34.44	26.864	119.6	0.357	250	7.94	34.44	26.864	119.6	0.357
300	5.92	34.29	27.024	104.5	0.406	300	7.11	34.41	26.960	110.5	0.417	300	7.11	34.41	26.960	110.5	0.417
350	4.99	34.20	27.065	100.6	0.460	350	6.31	34.32	26.998	106.9	0.474	350	6.31	34.32	26.998	106.9	0.474
400	4.57	34.17	27.088	98.3	0.511	400A	4.96	34.23	27.092	98.0	0.527	400A	4.96	34.23	27.092	98.0	0.527
450	4.29	34.17	27.119	95.5	0.562	450A	4.69	34.21	27.107	96.6	0.578	450A	4.69	34.21	27.107	96.6	0.578
500	4.18	34.16	27.122	95.1	0.612	500A	4.44	34.20	27.126	94.7	0.629	500A	4.44	34.20	27.126	94.7	0.629
550A	3.91	34.16	27.150	92.5	0.661	550A	4.29	34.21	27.150	92.5	0.678	550A	4.29	34.21	27.150	92.5	0.678
600A	3.71	34.17	27.178	89.8	0.709	600A	4.09	34.23	27.187	89.0	0.726	600A	4.09	34.23	27.187	89.0	0.726
650A	3.50	34.17	27.199	87.9	0.756	650A	3.92	34.23	27.205	87.3	0.773	650A	3.92	34.23	27.205	87.3	0.773
700A	3.30	34.19	27.234	84.6	0.801	700A	3.57	34.21	27.224	85.5	0.819	700A	3.57	34.21	27.224	85.5	0.819
750A	3.14	34.20	27.257	82.4	0.846	750A	3.49	34.22	27.240	84.0	0.864	750A	3.49	34.22	27.240	84.0	0.864
800A	3.01	34.23	27.293	79.0	0.889	800A	3.33	34.24	27.271	81.1	0.908	800A	3.33	34.24	27.271	81.1	0.908
850A	2.89	34.26	27.327	75.7	0.930	850A	3.17	34.26	27.302	78.1	0.951	850A	3.17	34.26	27.302	78.1	0.951
900A	2.75	34.28	27.356	73.0	0.970	900A	3.10	34.28	27.324	76.0	0.992	900A	3.10	34.28	27.324	76.0	0.992
950A	2.67	34.30	27.378	70.8	1.008	950A	2.95	34.29	27.346	74.0	1.033	950A	2.95	34.29	27.346	74.0	1.033
1000A	2.59	34.33	27.409	67.9	1.046	1000A	2.84	34.31	27.372	71.5	1.072	1000A	2.84	34.31	27.372	71.5	1.072
1100A	2.51	34.39	27.464	62.8	1.117	1100A	2.66	34.37	27.435	65.5	1.147	1100A	2.66	34.37	27.435	65.5	1.147
1200A	2.50	34.45	27.513	58.1	1.184	1200A	2.56	34.41	27.476	61.6	1.217	1200A	2.56	34.41	27.476	61.6	1.217
1300A	2.56	34.50	27.548	54.8	1.247	1300A	2.54	34.46	27.517	57.7	1.284	1300A	2.54	34.46	27.517	57.7	1.284
1400A	2.59	34.56	27.593	50.5	1.308	1400A	2.54	34.52	27.565	53.2	1.347	1400A	2.54	34.52	27.565	53.2	1.347
1500A	2.59	34.62	27.641	46.0	1.364	1500A	2.56	34.58	27.611	48.8	1.406	1500A	2.56	34.58	27.611	48.8	1.406
1600A	2.69	34.66	27.664	43.8	1.419	1600A	2.58	34.62	27.641	45.9	1.462	1600A	2.58	34.62	27.641	45.9	1.462
1700A	2.70	34.70	27.695	40.9	1.471	1700A	2.57	34.65	27.666	43.6	1.517	1700A	2.57	34.65	27.666	43.6	1.517
1800A	2.83	34.75	27.723	38.2	1.522	1800A	2.62	34.68	27.686	41.7	1.570	1800A	2.62	34.68	27.686	41.7	1.570
1900A	2.87	34.78	27.743	36.3	1.571	1900A	2.73	34.73	27.716	38.9	1.621	1900A	2.73	34.73	27.716	38.9	1.621
2000A	2.88	34.81	27.766	34.1	1.620	2000A	2.61	34.74	27.735	37.1	1.671	2000A	2.61	34.74	27.735	37.1	1.671
2100A	2.90	34.84	27.789	32.0	1.667	2100A	2.59	34.76	27.752	35.4	1.720	2100A	2.59	34.76	27.752	35.4	1.720
2200A	2.83	34.84	27.795	31.4	1.713	2200A	2.59	34.79	27.776	33.2	1.767	2200A	2.59	34.79	27.776	33.2	1.767
2300A	2.81	34.86	27.813	29.7	1.758	2300A	2.56	34.80	27.787	32.2	1.813	2300A	2.56	34.80	27.787	32.2	1.813
2400A	2.68	34.86	27.824	28.6	1.802	2400A	2.48	34.81	27.802	30.7	1.858	2400A	2.48	34.81	27.802	30.7	1.858
2500A	2.58	34.85	27.825	28.5	1.846	2500A	2.43	34.81	27.806	30.4	1.903	2500A	2.43	34.81	27.806	30.4	1.903
2600A	2.40	34.84	27.832	27.8	1.889	2600A	2.37	34.82	27.819	29.1	1.947	2600A	2.37	34.82	27.819	29.1	1.947
2700A	2.27	34.83	27.835	27.6	1.931	2700A	2.26	34.81	27.820	29.0	1.990	2700A	2.26	34.81	27.820	29.0	1.990
2800A	2.15	34.82	27.839	27.2	1.972	2800A	2.18	34.80	27.819	29.1	2.033	2800A	2.18	34.80	27.819	29.1	2.033
2900A	1.99	34.80	27.834	27.7	2.013	2900A	2.15	34.81	27.829	28.1	2.075	2900A	2.15	34.81	27.829	28.1	2.075
3000A	1.80	34.79	27.841	27.0	2.053	3000A	1.90	34.77	27.817	29.3	2.117	3000A	1.90	34.77	27.817	29.3	2.117
3100A	1.55	34.77	27.844	26.8	2.091	3100A	1.85	34.78	27.829	28.2	2.159	3100A	1.85	34.78	27.829	28.2	2.159
3200A	1.41	34.76	27.846	26.6	2.128	3200A	1.70	34.77	27.832	27.8	2.199	3200A	1.70	34.77	27.832	27.8	2.199
3300A	1.28	34.75	27.847	26.5	2.164	3300A	1.50	34.75	27.831	27.9	2.239	3300A	1.50	34.75	27.831	27.9	2.239
3400A	1.17	34.74	27.847	26.5	2.199	3400A	1.32	34.74	27.836	27.5	2.276	3400A	1.32	34.74	27.836	27.5	2.276
3500A	1.07	34.73	27.845	26.6	2.233	3500A	1.23	34.73	27.834	27.7	2.313	3500A	1.23	34.73	27.834	27.7	2.313
3600A	0.93	34.73	27.854	25.7	2.267	3600A	1.16	34.73	27.839	27.2	2.349	3600A	1.16	34.73	27.839	27.2	2.349
3700A	0.81	34.72	27.854	25.6	2.299	3700A	1.03	34.72	27.840	27.1	2.385	3700A	1.03	34.72	27.840	27.1	2.385
3800A	0.68	34.71	27.854	25.8	2.330	3800A	0.90	34.71	27.840	27.1	2.419	3800A	0.90	34.71	27.840	27.1	2.419
3900A	0.55	34.71	27.862	25.0	2.359	3900A	0.75	34.70	27.842	26.9	2.454	3900A	0.75	34.70	27.842	26.9	2.454
4000A	0.47	34.71	27.867	24.6	2.387	4000A	0.64	34.69	27.841	27.1	2.484	4000A	0.64	34.69	27.841	27.1	2.484
4100A	0.37	34.70	27.865	24.8	2.414	4100A	0.50	34.69	27.849	26.3	2.514	4100A	0.50	34.69	27.849	26.3	2.514
4200A	0.32	34.69	27.859	25.3	2.441	4200A	0.42	34.69	27.854	25.8	2.543	4200A	0.42	34.69	27.854	25.8	2.543
4300A	0.27	34.70	27.870	24.3	2.467	4300A	0.37	34.68	27.849	26.3	2.571	4300A	0.37	34.68	27.849	26.3	2.571
4400A	0.23	34.69	27.864	24.8	2.492	4400A	0.29	34.68	27.853	25.9	2.599	4400A	0.29	34.68	27.853	25.9	2.599
4500A	0.21	34.69	27.866	24.7	2.517	4500A	0.27	34.68	27.854	25.8	2.626	4500A	0.27	34.68	27.854	25.8	2.626
4600A	0.19	34.68	27.859	25.4	2.543	4600A	0.24	34.68	27.856	25.6	2.652	4600A	0.24	34.68	27.856	25.6	2.652

RV MELVILLE

CATO EXPEDITION VI

45

Z	LATITUDE		LONGITUDE			MO/DAY/YR			MESSENGER TIME		BOTTOM		WIND		SPEED		WEATHER		DOMINANT WAVES	
	41 28.6S		41 52.3W			12/ 6/72			0119 0416	GMT	5164M	070	10KT	1		310	7			
T	S	O2	P04	S103	N02	N03	DT	Z	T	S	O2	SIGT	DT	DD						
0	12.81	34.516	6.45	0.62	1.5	7.5	194.5	0	12.81	34.516	6.45	26.075	194.5	0.000						
21	10.58	34.490	6.67	0.68	1.2	7.9	156.7	10	11.56	34.497	6.58	26.500	173.1	0.018						
42	9.82	34.471	6.70	0.73	1.0	9.0	145.6	20	10.65	34.491	6.66	26.461	157.9	0.035						
63	9.52	34.484	6.67	0.78	1.3	9.8	139.9	30	10.14	34.482	6.68	26.544	150.0	0.050						
95	8.82	34.509	6.52	0.89	2.2	11.1	127.3	50	9.69	34.475	6.70	26.615	143.3	0.080						
116	8.28	34.487	6.32	1.01	3.8	14.2	121.0	75	9.28	34.498	6.63	26.699	135.2	0.115						
147	7.98	34.519	6.32	1.08	4.7	15.4	114.3	100	8.68	34.504	6.47	26.800	125.6	0.148						
189	7.30	34.479	5.98	1.32	6.3	19.0	107.9	125	8.17	34.496	6.32	26.873	118.8	0.179						
210	6.79	34.419	6.00	1.40	7.3	21.0	105.6	150	7.94	34.520	6.29	26.926	113.7	0.209						
262	5.32	34.256	6.06	1.63	9.9	24.8	100.0	200	7.04	34.450	5.99	27.001	106.7	0.265						
314	4.66	34.202	6.20	1.72	11.6	25.5	96.9	250	5.64	34.289	6.04	27.058	101.2	0.319						
417	4.07	34.194	6.12	1.82	16.3	27.5	91.5	300	4.79	34.211	6.16	27.096	97.6	0.370						
520	3.58	34.186	6.19	1.90	20.4	29.0	87.4	400	4.13	34.192	6.13	27.152	92.3	0.469						
610A	3.21	34.203	5.77	2.02	26.4	31.2	82.8	500	3.67	34.187	6.18	27.196	88.2	0.563						
622	3.18	34.207	5.76	1.99	27.0	30.4	82.2	600	3.24	34.200	5.81	27.247	83.3	0.653						
713A	2.92	34.245	5.45	2.14	34.3	32.6	77.1	700	2.96	34.239	5.51	27.304	77.8	0.738						
816A	2.78	34.299	5.01	2.12	41.6	32.7	71.8	800	2.80	34.291	5.07	27.360	72.6	0.817						
919A	2.63	34.350	4.89	2.28	49.7	32.5	66.7	1000	2.55	34.392	4.78	27.461	63.0	0.963						
1022A	2.54	34.403	4.74	2.23	56.0	35.5	62.0	1200	2.53	34.517	4.37	27.563	53.4	1.092						
1228A	2.53	34.533	4.32	2.26	66.8	34.6	52.1	1500	2.57	34.654	4.33	27.669	43.3	1.261						
1433A	2.56	34.622	4.25	2.22	69.7	33.3	45.6	1750	2.58	34.743	4.59	27.739	36.7	1.385						
1741A	2.59	34.742	4.60	1.99	68.9	30.8	36.8	2000	2.28	34.730	4.46	27.754	35.3	1.501						
2048A	2.24	34.726	4.44	2.09	81.8	31.5	35.2	2250	2.43	34.780	4.75	27.782	32.6	1.615						
2253A	2.43	34.781	4.76	1.90	70.8	28.9	32.5	2500	2.40	34.821	5.05	27.817	29.3	1.725						
2458A	2.44	34.821	5.05	1.78	62.8	27.5	29.6	2750	2.04	34.791	4.96	27.823	28.7	1.831						
2662A	2.19	34.805	5.04	1.82	72.2	28.0	28.8	3000	1.60	34.753	4.82	27.826	28.4	1.931						
2970A	1.64	34.756	4.80	2.03	94.4	31.0	28.5	3250	1.28	34.732	4.96	27.832	27.9	2.026						
3277A	1.25	34.730	4.98	2.11	109.6	32.2	27.8	3500	1.04	34.718	4.86	27.837	27.4	2.115						
3585A	0.96	34.713	4.81	2.15	115.2	32.0	27.2	3750	0.77	34.704	4.91	27.844	26.7	2.199						
3996A	0.502	34.692	5.10	2.21	125.4	32.4	26.1	4000	0.50	34.692	5.10	27.851	26.1	2.275						
4202A	0.334	34.680	5.15	2.22	126.8	33.2	26.1	4250	0.51	34.679	5.16	27.851	26.1	2.346						
4512A	0.221	34.674	5.22	2.25	131.5	32.5	26.0	4500	0.22	34.675	5.22	27.852	26.0	2.413						
5031A	0.140	34.668	5.28	2.26	130.4	27.6U	26.0	4750	0.17	34.671	5.26	27.852	26.0	2.478						
5135A	0.138	34.670	5.28	2.26	131.9	24.7U	25.9	5000	0.14	34.669	5.28	27.852	26.0	2.542						

45 STD						CATO EXPEDITION VI						46 STD					
LATITUDE		LONGITUDE		MO/DAY/YR		START TIME		LATITUDE		LONGITUDE		MO/DAY/YR		START TIME			
41 2A.6S		41 52.3W		12/05/72		2328 GMT		40 47.7S		42 31.1W		12/06/72		1033 GMT			
Z	T	S	SIGMA T	DT	DD	Z	T	S	SIGMA T	DT	DD	Z	T	S	SIGMA T	DT	DD
0	12.84	34.55	26.096	192.5	0.000	0	14.76	35.07	26.097	192.4	0.000	0	14.76	35.07	26.097	192.4	0.000
20	10.30	34.50	26.530	151.3	0.034	10	14.74	35.07	26.101	192.0	0.019	10	14.74	35.07	26.101	192.0	0.019
30	10.11	34.49	26.555	148.9	0.049	20	14.48	35.26	26.319	171.3	0.037	20	14.48	35.26	26.319	171.3	0.037
40	9.89	34.50	26.600	144.6	0.064	30	14.49	35.31	26.340	169.3	0.055	30	14.49	35.31	26.340	169.3	0.055
50	9.79	34.51	26.625	142.3	0.079	40	14.45	35.31	26.348	168.5	0.072	40	14.45	35.31	26.348	168.5	0.072
60	9.62	34.51	26.654	139.6	0.093	50	13.95	35.25	26.409	162.8	0.088	50	13.95	35.25	26.409	162.8	0.088
70	9.24	34.51	26.716	133.6	0.107	60	12.60	35.11	26.576	146.9	0.104	60	12.60	35.11	26.576	146.9	0.104
80	8.97	34.54	26.783	127.3	0.120	70	11.90	34.99	26.619	142.8	0.119	70	11.90	34.99	26.619	142.8	0.119
90	8.87	34.53	26.791	126.5	0.133	80	12.40	35.16	26.654	139.5	0.133	80	12.40	35.16	26.654	139.5	0.133
100	8.66	34.56	26.848	121.1	0.145	90	11.45	35.05	26.750	130.3	0.147	90	11.45	35.05	26.750	130.3	0.147
125	8.08	34.50	26.890	117.1	0.176	100	11.11	35.05	26.813	124.4	0.160	100	11.11	35.05	26.813	124.4	0.160
150	7.99	34.56	26.951	111.4	0.205	125	11.25	35.11	26.834	122.4	0.191	125	11.25	35.11	26.834	122.4	0.191
200	6.76	34.42	27.016	105.2	0.260	150	11.68	35.23	26.847	121.2	0.222	150	11.68	35.23	26.847	121.2	0.222
250	5.49	34.26	27.053	101.7	0.314	200	10.89	35.06	26.661	119.9	0.285	200	10.89	35.06	26.661	119.9	0.285
300	4.86	34.21	27.088	98.4	0.365	250	8.69	34.60	26.675	118.6	0.347	250	8.69	34.60	26.675	118.6	0.347
350	4.44	34.16	27.111	96.3	0.416	300	6.65	34.30	26.937	112.7	0.407	300	6.65	34.30	26.937	112.7	0.407
400	4.15	34.18	27.141	93.3	0.465	350	5.87	34.25	26.999	106.8	0.464	350	5.87	34.25	26.999	106.8	0.464
450	3.89	34.17	27.160	91.5	0.513	400	5.23	34.21	27.045	102.5	0.519	400	5.23	34.21	27.045	102.5	0.519
500	3.69	34.18	27.188	88.9	0.560	450	4.91	34.19	27.066	100.5	0.572	450	4.91	34.19	27.066	100.5	0.572
550	3.51	34.19	27.214	86.5	0.606	500	4.57	34.18	27.096	97.6	0.624	500	4.57	34.18	27.096	97.6	0.624
600	3.26	34.19	27.238	84.2	0.651	550	4.30	34.18	27.126	94.8	0.674	550	4.30	34.18	27.126	94.8	0.674
650A	3.10	34.22	27.276	80.5	0.694	600	4.08	34.16	27.133	94.1	0.724	600	4.08	34.16	27.133	94.1	0.724
700A	2.95	34.24	27.304	77.7	0.736	650	3.73	34.15	27.160	91.5	0.773	650	3.73	34.15	27.160	91.5	0.773
750A	2.89	34.27	27.335	74.9	0.776	700	3.54	34.17	27.195	88.2	0.821	700	3.54	34.17	27.195	88.2	0.821
800A	2.80	34.29	27.359	72.7	0.815	750	3.41	34.18	27.216	86.3	0.867	750	3.41	34.18	27.216	86.3	0.867
850A	2.72	34.31	27.382	70.5	0.854	800	3.29	34.20	27.243	83.7	0.913	800	3.29	34.20	27.243	83.7	0.913
900A	2.65	34.34	27.412	67.7	0.891	850	3.12	34.21	27.267	81.5	0.957	850	3.12	34.21	27.267	81.5	0.957
950A	2.59	34.37	27.441	64.9	0.926	900	3.02	34.24	27.300	78.3	1.000	900	3.02	34.24	27.300	78.3	1.000
1000A	2.55	34.39	27.461	63.1	0.961	950	2.96	34.28	27.337	74.8	1.041	950	2.96	34.28	27.337	74.8	1.041
1100A	2.53	34.46	27.518	57.6	1.027	1000	2.84	34.31	27.372	71.5	1.080	1000	2.84	34.31	27.372	71.5	1.080
1200A	2.55	34.52	27.564	53.2	1.089	1100	2.75	34.36	27.419	67.0	1.156	1100	2.75	34.36	27.419	67.0	1.156
1300A	2.54	34.55	27.589	50.9	1.149	1200	2.69	34.41	27.464	62.7	1.228	1200	2.69	34.41	27.464	62.7	1.228
1400A	2.55	34.61	27.636	46.4	1.205	1300	2.71	34.47	27.510	58.3	1.296	1300	2.71	34.47	27.510	58.3	1.296
1500A	2.58	34.66	27.673	42.9	1.258	1400	2.73	34.53	27.557	54.0	1.360	1400	2.73	34.53	27.557	54.0	1.360
1600A	2.65	34.71	27.707	39.7	1.309	1500	2.73	34.57	27.589	51.0	1.421	1500	2.73	34.57	27.589	51.0	1.421
1700A	2.60	34.73	27.727	37.8	1.358	1600	2.73	34.62	27.628	47.2	1.480	1600	2.73	34.62	27.628	47.2	1.480
1800A	2.58	34.75	27.745	36.1	1.405	1700	2.80	34.65	27.646	45.5	1.537	1700	2.80	34.65	27.646	45.5	1.537
1900A	2.41	34.75	27.760	34.7	1.451	1800	2.87	34.70	27.680	42.3	1.592	1800	2.87	34.70	27.680	42.3	1.592
2000A	2.25	34.72	27.749	35.7	1.497	1900	2.87	34.74	27.711	39.3	1.645	1900	2.87	34.74	27.711	39.3	1.645
2100A	2.30	34.75	27.769	33.8	1.542	2000	2.91	34.78	27.740	36.6	1.696	2000	2.91	34.78	27.740	36.6	1.696
2200A	2.38	34.77	27.778	33.0	1.587	2100	2.87	34.80	27.759	34.8	1.745	2100	2.87	34.80	27.759	34.8	1.745
2300A	2.47	34.80	27.795	31.4	1.632	2200	2.67	34.78	27.761	34.6	1.794	2200	2.67	34.78	27.761	34.6	1.794
2400A	2.47	34.83	27.818	29.2	1.676	2300	2.67	34.81	27.785	32.3	1.841	2300	2.67	34.81	27.785	32.3	1.841
2500A	2.37	34.81	27.811	29.9	1.719	2400	2.58	34.82	27.801	30.8	1.887	2400	2.58	34.82	27.801	30.8	1.887
2600A	2.32	34.82	27.823	28.7	1.762	2500	2.62	34.84	27.813	29.6	1.932	2500	2.62	34.84	27.813	29.6	1.932
2700A	2.10	34.78	27.809	30.4	1.805	2600	2.51	34.84	27.823	28.7	1.976	2600	2.51	34.84	27.823	28.7	1.976
2800A	1.93	34.79	27.831	28.0	1.846	2700	2.42	34.84	27.831	28.0	2.020	2700	2.42	34.84	27.831	28.0	2.020
2900A	1.74	34.76	27.821	28.9	1.887	2800	2.26	34.82	27.828	28.2	2.063	2800	2.26	34.82	27.828	28.2	2.063
3000A	1.60	34.76	27.832	27.9	1.926	2900	2.08	34.80	27.827	28.4	2.105	2900	2.08	34.80	27.827	28.4	2.105
3100A	1.46	34.74	27.826	28.4	1.964	3000	1.80	34.77	27.825	28.6	2.146	3000	1.80	34.77	27.825	28.6	2.146
3200A	1.33	34.73	27.827	28.3	2.002	3100	1.65	34.76	27.828	28.2	2.186	3100	1.65	34.76	27.828	28.2	2.186
3300A	1.22	34.73	27.835	27.6	2.039	3200	1.53	34.75	27.829	28.2	2.226	3200	1.53	34.75	27.829	28.2	2.226
3400A	1.11	34.72	27.835	27.6	2.074	3300	1.40	34.75	27.838	27.3	2.264	3300	1.40	34.75	27.838	27.3	2.264
3500A	1.03	34.72	27.840	27.1	2.109	3400	1.29	34.74	27.836	27.3	2.300	3400	1.29	34.74	27.836	27.3	2.300
3600A	0.93	34.71	27.838	27.3	2.143	3500	1.17	34.73	27.838	27.3	2.337	3500	1.17	34.73	27.838	27.3	2.337
3700A	0.83	34.71	27.845	26.7	2.177	3600	1.06	34.73	27.846	26.6	2.372	3600	1.06	34.73	27.846	26.6	2.372
3800A	0.70	34.70	27.845	26.7	2.209	3700	0.96	34.72	27.845	26.7	2.406	3700	0.96	34.72	27.845	26.7	2.406
3900A	0.59	34.69	27.844	26.8	2.240	3800	0.85	34.71	27.844	26.8	2.439	3800	0.85	34.71	27.844	26.8	2.439
4000A	0.48	34.69	27.850	26.2	2.269	3900	0.71	34.71	27.852	26.0	2.471	3900	0.71	34.71	27.852	26.0	2.471
4100A	0.40	34.69	27.855	25.7	2.298	4000	0.61	34.70	27.851	26.1	2.502	4000	0.61	34.70	27.851	26.1	2.502
4200A	0.33	34.68	27.851	26.1	2.326	4100	0.54	34.70	27.855	25.7	2.532	4100	0.54	34.70	27.855	25.7	2.532
4300A	0.29	34.68	27.853	25.9	2.353	4200	0.48	34.69	27.850	26.2	2.561	4200	0.48	34.69	27.850	26.2	2.561
4400A	0.25	34.68	27.855	25.7	2.379	4300	0.43	34.69	27.853	25.9	2.590	4300	0.43	34.69	27.853	25.9	2.590
4500A	0.22	34.67	27.849	26.3	2.406	4400	0.33	34.68	27.851	26.1	2.618	4400	0.33	34.68	27.851	26.1	2.618
4600A	0.21	34.68	27.857	25.5	2.432	4500	0.22	34.67	27.849	26.3	2.645	4500	0.22	34.67	27.849	26.3	2.645
4700A	0.19	34.67	27.851	26.1	2.458	4600	0.17	34.67	27.852	26.0	2.671	4600	0.17	34.67	27.852	26.0	2.671
4800A	0.19	34.67	27.851	26.1	2.484	4700	0.17	34.66	27.844								

RV MELVILLE

CATO EXPEDITION VI

LATITUDE		LONGITUDE		MO/DAY/YR		MESSENGER		TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES		
37 16.5S		45 19.2W		12/ 8/72		0440 0733		GMT	5129M	120	14KT	2	08u	8	8
Z	T	S	02	P04	S103	N02	N03	DT	Z	T	S	02	S1GT	DT	DD
0	15.72	34.856	5.94	0.29	1.7		1.6	228.3	0	15.72	34.856	5.94	25.719	228.3	0.000
10	15.71	34.859	5.94	0.30	1.7		1.6	227.9	10	15.71	34.859	5.94	25.724	227.9	0.023
21	15.69	34.852	5.97	0.28	1.7		1.5	227.9	20	15.69	34.852	5.97	25.723	227.9	0.046
52	13.86	34.871	6.19	0.40	1.8		3.4	188.7	30	15.24	34.845	6.05	25.817	219.0	0.068
82	13.00	35.014	5.95	0.56	2.0		5.6	161.5	50	14.00	34.865	6.18	26.101	192.0	0.109
103	12.62	35.053	5.85	0.61	2.4		7.4	151.4	75	13.14	34.981	6.02	26.467	166.7	0.155
135	11.70	34.995	5.71	0.79	3.1		10.1	138.8	100	12.67	35.051	5.86	26.516	152.6	0.195
166	10.96	34.915	5.69	0.90	3.6		12.0	131.8	125	12.00	35.022	5.75	26.624	142.3	0.233
208	10.30	34.857	5.68	1.00	4.8		15.4	124.9	150	11.52	34.956	5.70	26.702	135.0	0.268
260	7.96	34.479	5.85	1.32	6.6		18.5	117.0	200	10.45	34.875	5.68	26.796	126.1	0.336
311	7.01	34.370	5.94	1.44	7.8		20.5	112.1	250	8.42	34.550	5.81	26.877	118.4	0.399
415	5.60	34.265	6.14	1.61	10.1		23.8	102.6	300	7.15	34.383	5.92	26.933	113.1	0.459
520	5.14	34.283	5.85	1.76	14.1		25.9	96.0	400	5.75	34.273	6.13	27.031	103.8	0.573
559A	4.71	34.246	5.99	1.80	15.0		24.8	94.1	500	5.23	34.283	5.89	27.102	97.0	0.679
622	4.43	34.239	5.95	1.84	17.3		27.4	91.7	600	4.53	34.241	5.96	27.149	92.6	0.779
662A	4.00	34.217	6.13	1.86	17.8		22.6U	89.1	700	3.86	34.215	6.05	27.199	87.9	0.876
723	3.83	34.218	6.00	1.94	21.3		28.0	87.4	800	3.59	34.240	5.68	27.245	83.5	0.967
765A	3.73	34.232	5.78	1.90	24.1		28.0	85.3	1000	2.92	34.293	5.22	27.350	73.6	1.137
867A	3.29	34.250	5.56	2.10	32.0		28.9	79.9	1200	2.75	34.410	4.66	27.459	63.2	1.287
970A	2.97	34.277	5.31	2.13	38.4		31.3	75.1	1500	2.69	34.570	4.40	27.590	50.8	1.483
1174A	2.76	34.394	4.71	2.27	51.9		30.6U	64.5	1750	2.74	34.674	4.45	27.670	43.2	1.625
1378A	2.70	34.514	4.42	2.31	61.6		33.0	54.9	2000	2.95	34.791	4.89	27.745	36.1	1.755
1684A	2.68	34.638	4.36	2.19	67.2		31.4	45.4	2250	2.91	34.842	5.21	27.790	31.9	1.876
1988A	2.95	34.788	4.87	1.86	54.9		27.2	36.4	2500	2.68	34.844	5.25	27.811	29.8	1.992
2292A	2.90	34.848	5.25	1.70	48.9		25.1	31.4	2750	2.40	34.828	5.21	27.823	28.6	2.104
2495A	2.69	34.845	5.25	1.72	55.4		25.0	29.8	3000	2.06	34.803	5.11	27.831	27.9	2.211
2799A	2.34	34.825	5.20	1.78	65.1		26.5	28.5	3250	1.62	34.764	4.95	27.834	27.7	2.312
3104A	1.89	34.790	5.05	1.95	83.2		28.6	27.7	3500	1.19	34.729	4.88	27.836	27.5	2.406
3409A	1.33	34.737	4.87	2.14	106.2		30.0	27.8	3750	0.87	34.711	4.96	27.843	26.9	2.493
3715A	0.91	34.713	4.95	2.22	117.8		31.7	26.9	4000	0.58	34.693	5.05	27.846	26.5	2.572
4022A	0.554	34.691	5.06	2.24	123.6		31.5U	26.5	4250	0.34	34.683	5.15	27.851	26.0	2.645
4331A	0.288	34.680	5.18	2.28	128.6		32.8	25.9	4500	0.22	34.678	5.24	27.854	25.8	2.712
4641A	0.194	34.676	5.27	2.29	129.8		33.2	25.7	4750	0.19	34.675	5.27	27.854	25.8	2.777
4953A	0.171	34.671	5.27	2.30	131.5		30.3U	26.0	5000	0.17	34.671	5.28	27.852	26.0	2.841
5058A	0.168	34.670	5.30	2.30	130.3		29.0U	26.0							

RV MELVILLE

CATO EXPEDITION VI

LATITUDE		LONGITUDE		MO/DAY/YR		MESSENGER		TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES		
35 53.0S		46 37.9W		12/ 8/72		1754 2056		GMT	4915M	130	11KT	0	130	6	9
Z	T	S	02	P04	S103	N02	N03	DT	Z	T	S	02	S1GT	DT	DD
0	19.76	36.104	5.38	0.11	1.2		0.0	231.5	0	19.76	36.104	5.38	25.684	231.5	0.000
31	19.03	36.044	5.47	0.11	0.7		0.0	217.8	10	19.50	36.084	5.42	25.737	226.5	0.023
63	18.48	35.975	5.48	0.12	0.9		0.0	209.6	20	19.27	36.064	5.45	25.784	222.1	0.045
104	17.69	36.073	5.20	0.19	1.1		1.5	183.8	30	19.05	36.045	5.47	25.824	218.2	0.068
136	16.76	35.909	5.21	0.27	1.4		2.4	174.4	50	18.69	35.995	5.48	25.877	213.2	0.111
167	16.41	35.870	5.25	0.29	1.6		2.8	169.4	75	18.26	36.010	5.40	25.994	202.1	0.163
209	15.39	35.680	5.11	0.42	1.8		4.6	161.1	100	17.78	36.065	5.23	26.160	186.3	0.213
261	14.93	35.637	5.30	0.42	1.8		4.9	154.5	125	17.06	35.966	5.21	26.260	176.9	0.259
312	14.65	35.606	5.50	0.45	1.9		5.3	150.9	150	16.59	35.889	5.23	26.311	172.0	0.304
416	13.81	35.439	5.28	0.58	2.4		7.4	146.1	200	15.61	35.720	5.14	26.408	162.8	0.390
518	10.89	34.936	5.33	1.00	4.6		13.8	129.0	250	14.98	35.636	5.24	26.484	155.6	0.473
621	7.75	34.528	5.26	1.47	9.2		21.8	110.4	300	14.71	35.613	5.46	26.526	151.6	0.554
663A	6.53	34.404	5.46	1.63	11.1		22.6	103.4	400	14.02	35.482	5.33	26.573	147.2	0.714
724	5.69	34.315	5.76	1.67	11.6		24.3	99.9	500	11.49	35.029	5.32	26.728	132.5	0.865
766A	5.26	34.299	5.76	1.67	12.5		24.4	96.1	600	8.39	34.601	5.27	26.922	114.2	1.000
869A	4.54	34.255	5.79	1.77	17.1		26.6	91.6	700	5.94	34.342	5.66	27.062	100.9	1.118
972A	4.01	34.262	5.56	2.03	23.5		29.0	85.8	800	4.99	34.282	5.77	27.130	94.4	1.225
1075A	3.63	34.276	5.34	2.04	30.0		31.1	81.1	1000	3.90	34.265	5.50	27.234	84.5	1.421
1177A	3.26	34.304	5.16	2.15	36.9		32.1	75.6	1200	3.20	34.315	5.10	27.342	74.3	1.596
1383A	2.90	34.415	4.67	2.30	51.1		34.4	64.1	1500	2.79	34.481	4.51	27.512	58.2	1.822
1588A	2.76	34.531	4.44	2.25	59.5		33.8	54.1	1750	2.83	34.627	4.51	27.624	47.6	1.979
1895A	2.98	34.711	4.57	2.00	56.4		29.8	42.4	2000	3.14	34.781	4.87	27.719	38.6	2.120
2202A	3.39	34.891	5.46	1.55	32.5		23.2	32.5	2250	3.46	34.902	5.54	27.793	31.5	2.248
2405A	3.34	34.926	5.67	1.42	28.4		21.8	29.4	2500	3.18	34.908	5.60	27.817	29.2	2.369
2610A	2.97	34.887	5.49	1.62	41.6		23.5	29.1	2750	2.83	34.885	5.53	27.831	28.0	2.487
2917A	2.69	34.886	5.59	1.59	45.5		23.3	26.7	3000	2.59	34.877	5.56	27.846	26.5	2.600
3225A	2.21	34.844	5.39	1.68	61.1		25.1	26.0	3250	2.14	34.835	5.35	27.850	26.1	2.707
3533A	1.35	34.746	4.91	2.09	104.5		28.8	27.2	3500	1.44	34.756	4.96	27.840	27.1	2.807
3842A	0.847	34.712	4.96	2.19	116.1		32.2	26.6	3750	0.97	34.720	4.95	27.843	26.9	2.897
4153A	0.414	34.687	5.07	2.25	125.7		33.8	26.0	4000	0.61	34.698	5.01	27.849	26.3	2.978
4463A	0.225	34.678	5.22	2.28	127.2		33.4	25.7	4250	0.34	34.683	5.12	27.853	25.9	3.050
4776A	0.162	34.676	5.24	2.45U	131.2		33.6	25.5	4500	0.21	34.678	5.22	27.855	25.7	3.117
4881A	0.162	34.670	5.23	2.29	129.9		33.4		4750	0.16	34.677	5.24	27.857	25.5	3.161

E) AN ERROR OF 1 OHM, .057 PPT, HAS BEEN ASSUMED FOR THIS VALUE.

LATITUDE 37 16.5S		LONGITUDE 45 19.2W		MC/DAY/YR 12/08/72		START TIME 0302 GMT		LATITUDE 35 55.0S		LONGITUDE 46 37.9W		MC/DAY/YR 12/08/72		START TIME 1619 GMT			
Z	T	S	SIGMA T	DT	DD	Z	T	S	SIGMA T	DT	DU	Z	T	S	SIGMA T	DT	DU
0	15.67	34.88	25.749	225.5	0.000	0	19.76	56.11	25.689	231.1	0.000	0	19.76	56.11	25.689	231.1	0.000
10	15.71	34.89	25.747	225.6	0.023	10	19.71	56.10	25.694	230.6	0.023	10	19.71	56.10	25.694	230.6	0.023
20	15.76	34.91	25.751	225.2	0.045	20	19.45	56.10	25.762	224.1	0.045	20	19.45	56.10	25.762	224.1	0.045
30	16.29	35.09	25.768	223.6	0.068	30	19.10	56.05	25.815	219.1	0.068	30	19.10	56.05	25.815	219.1	0.068
40	15.68	34.91	25.770	223.5	0.090	40	18.83	56.01	25.853	215.4	0.090	40	18.83	56.01	25.853	215.4	0.090
50	13.74	34.82	26.121	190.1	0.111	50	18.72	55.99	25.866	214.2	0.111	50	18.72	55.99	25.866	214.2	0.111
60	13.54	34.92	26.240	178.8	0.130	60	18.61	55.96	25.871	213.6	0.130	60	18.61	55.96	25.871	213.6	0.130
70	12.97	34.92	26.356	167.8	0.147	70	17.94	55.87	25.970	204.4	0.147	70	17.94	55.87	25.970	204.4	0.147
80	12.95	35.04	26.452	158.6	0.164	80	17.89	56.04	26.112	190.9	0.164	80	17.89	56.04	26.112	190.9	0.164
90	12.65	35.03	26.504	153.7	0.179	90	17.78	56.05	26.147	187.6	0.179	90	17.78	56.05	26.147	187.6	0.179
100	12.63	35.08	26.547	149.6	0.195	100	17.73	56.09	26.190	183.5	0.195	100	17.73	56.09	26.190	183.5	0.195
125	12.32	35.05	26.585	146.1	0.233	125	17.08	55.96	26.248	177.9	0.233	125	17.08	55.96	26.248	177.9	0.233
150	11.47	34.96	26.677	137.3	0.269	150	16.63	55.91	26.317	171.4	0.269	150	16.63	55.91	26.317	171.4	0.269
200	10.51	34.91	26.812	124.5	0.336	200	15.59	55.70	26.396	163.9	0.336	200	15.59	55.70	26.396	163.9	0.336
250	8.63	34.60	26.884	117.7	0.399	250	15.00	55.62	26.467	157.2	0.399	250	15.00	55.62	26.467	157.2	0.399
300	7.17	34.38	26.928	113.5	0.459	300	14.80	55.62	26.511	153.0	0.459	300	14.80	55.62	26.511	153.0	0.459
350	6.76	34.39	26.993	107.4	0.517	350	14.55	55.60	26.550	149.3	0.517	350	14.55	55.60	26.550	149.3	0.517
400	5.69	34.27	27.037	103.2	0.572	400	14.25	55.62	26.553	149.0	0.572	400	14.25	55.62	26.553	149.0	0.572
450	5.18	34.26	27.090	98.2	0.625	450	12.64	55.19	26.630	141.8	0.625	450	12.64	55.19	26.630	141.8	0.625
500	5.05	34.27	27.113	96.0	0.677	500	11.27	54.91	26.675	137.5	0.677	500	11.27	54.91	26.675	137.5	0.677
550	4.71	34.25	27.136	93.8	0.727	550	9.57	54.69	26.802	125.4	0.727	550	9.57	54.69	26.802	125.4	0.727
600	4.40	34.22	27.147	92.8	0.776	600	7.91	54.52	26.931	113.2	0.776	600	7.91	54.52	26.931	113.2	0.776
650	4.05	34.21	27.176	90.1	0.825	650	6.81	54.47	27.049	102.1	0.825	650	6.81	54.47	27.049	102.1	0.825
700	3.92	34.21	27.189	88.8	0.873	700	6.66	54.37	27.069	100.1	0.873	700	6.66	54.37	27.069	100.1	0.873
750A	3.78	34.23	27.219	86.0	0.920	750A	5.30	54.29	27.100	97.3	0.920	750A	5.30	54.29	27.100	97.3	0.920
800A	3.43	34.22	27.245	83.5	0.965	800A	4.97	54.29	27.138	93.6	0.965	800A	4.97	54.29	27.138	93.6	0.965
850A	3.38	34.26	27.282	80.0	1.009	850A	4.66	54.28	27.166	91.0	1.009	850A	4.66	54.28	27.166	91.0	1.009
900A	3.14	34.25	27.297	78.6	1.052	900A	4.38	54.27	27.188	88.9	1.052	900A	4.38	54.27	27.188	88.9	1.052
950A	3.01	34.27	27.324	76.0	1.093	950A	4.16	54.27	27.212	86.7	1.093	950A	4.16	54.27	27.212	86.7	1.093
1000A	3.01	34.31	27.356	73.0	1.134	1000A	3.94	54.27	27.235	84.5	1.134	1000A	3.94	54.27	27.235	84.5	1.134
1100A	2.84	34.35	27.403	68.5	1.211	1100A	3.57	54.29	27.288	79.5	1.211	1100A	3.57	54.29	27.288	79.5	1.211
1200A	2.76	34.40	27.450	64.0	1.284	1200A	3.18	54.32	27.349	73.7	1.284	1200A	3.18	54.32	27.349	73.7	1.284
1300A	2.68	34.46	27.505	58.6	1.353	1300A	3.02	54.38	27.411	67.8	1.353	1300A	3.02	54.38	27.411	67.8	1.353
1400A	2.70	34.52	27.551	54.5	1.418	1400A	2.89	54.43	27.463	62.9	1.418	1400A	2.89	54.43	27.463	62.9	1.418
1500A	2.72	34.59	27.605	49.4	1.479	1500A	2.77	54.49	27.521	57.3	1.479	1500A	2.77	54.49	27.521	57.3	1.479
1600A	2.68	34.61	27.625	47.5	1.537	1600A	2.74	54.53	27.556	54.0	1.537	1600A	2.74	54.53	27.556	54.0	1.537
1700A	2.74	34.67	27.667	43.5	1.592	1700A	2.79	54.60	27.607	49.2	1.592	1700A	2.79	54.60	27.607	49.2	1.592
1800A	2.77	34.70	27.689	41.5	1.646	1800A	2.84	54.66	27.650	45.1	1.646	1800A	2.84	54.66	27.650	45.1	1.646
1900A	2.81	34.75	27.725	38.0	1.698	1900A	2.96	54.72	27.687	41.6	1.698	1900A	2.96	54.72	27.687	41.6	1.698
2000A	2.87	34.78	27.743	36.3	1.747	2000A	2.97	54.75	27.710	39.4	1.747	2000A	2.97	54.75	27.710	39.4	1.747
2100A	2.93	34.82	27.770	33.8	1.796	2100A	3.25	54.85	27.764	34.3	1.796	2100A	3.25	54.85	27.764	34.3	1.796
2200A	2.95	34.83	27.776	33.2	1.845	2200A	3.41	54.89	27.780	32.8	1.845	2200A	3.41	54.89	27.780	32.8	1.845
2300A	2.85	34.84	27.793	31.6	1.892	2300A	3.34	54.91	27.803	30.6	1.892	2300A	3.34	54.91	27.803	30.6	1.892
2400A	2.82	34.85	27.804	30.6	1.939	2400A	3.33	54.93	27.820	29.0	1.939	2400A	3.33	54.93	27.820	29.0	1.939
2500A	2.71	34.84	27.805	30.4	1.985	2500A	3.28	54.93	27.824	28.6	1.985	2500A	3.28	54.93	27.824	28.6	1.985
2600A	2.54	34.83	27.812	29.7	2.030	2600A	2.92	54.88	27.818	29.1	2.030	2600A	2.92	54.88	27.818	29.1	2.030
2700A	2.53	34.84	27.821	28.9	2.075	2700A	2.95	54.91	27.840	27.1	2.075	2700A	2.95	54.91	27.840	27.1	2.075
2800A	2.35	34.82	27.821	29.0	2.119	2800A	2.71	54.87	27.829	28.1	2.119	2800A	2.71	54.87	27.829	28.1	2.119
2900A	2.17	34.81	27.828	28.3	2.163	2900A	2.74	54.90	27.851	26.1	2.163	2900A	2.74	54.90	27.851	26.1	2.163
3000A	2.01	34.79	27.824	28.6	2.205	3000A	2.64	54.89	27.852	26.0	2.205	3000A	2.64	54.89	27.852	26.0	2.205
3100A	1.92	34.79	27.832	27.9	2.247	3100A	2.53	54.88	27.853	25.9	2.247	3100A	2.53	54.88	27.853	25.9	2.247
3200A	1.71	34.77	27.832	27.9	2.287	3200A	2.33	54.86	27.854	25.8	2.287	3200A	2.33	54.86	27.854	25.8	2.287
3300A	1.47	34.74	27.825	28.5	2.327	3300A	2.01	54.82	27.848	26.3	2.327	3300A	2.01	54.82	27.848	26.3	2.327
3400A	1.34	34.74	27.835	27.6	2.365	3400A	1.60	54.77	27.840	27.1	2.365	3400A	1.60	54.77	27.840	27.1	2.365
3500A	1.21	34.73	27.836	27.5	2.402	3500A	1.43	54.75	27.836	27.5	2.402	3500A	1.43	54.75	27.836	27.5	2.402
3600A	1.08	34.71	27.829	28.2	2.438	3600A	1.24	54.74	27.842	27.0	2.438	3600A	1.24	54.74	27.842	27.0	2.438
3700A	0.97	34.71	27.836	27.5	2.473	3700A	1.10	54.73	27.843	26.8	2.473	3700A	1.10	54.73	27.843	26.8	2.473
3800A	0.83	34.70	27.837	27.4	2.507	3800A	0.95	54.72	27.845	26.6	2.507	3800A	0.95	54.72	27.845	26.6	2.507
3900A	0.70	34.70	27.845	26.7	2.540	3900A	0.75	54.70	27.842	26.9	2.540	3900A	0.75	54.70	27.842	26.9	2.540
4000A	0.57	34.69	27.845	26.7	2.571	4000A	0.64	54.70	27.849	26.3	2.571	4000A	0.64	54.70	27.849	26.3	2.571
4100A	0.47	34.69	27.851	26.1	2.601	4100A	0.49	54.69	27.850	26.2	2.601	4100A	0.49	54.69	27.850	26.2	2.601
4200A	0.36	34.68	27.848	26.4	2.629	4200A	0.37	54.69	27.857	25.6	2.629	4200A	0.37	54.69	27.857	25.6	2.629
4300A	0.32	34.68	27.851	26.0	2.657	4300A	0.31	54.68	27.852	26.0	2.657	4300A	0.31	54.68	27.852	26.0	2.657
4400A	0.26	34.68	27.855	25.7	2.684	4400A	0.26	54.68	27.855	25.7	2.684	4400A	0.26	54.68	27.855	25.7	2.684
4500A	0.22	34.68	27.857	25.5	2.710	4500A	0.20	54.68	27.858	25.4	2.710	4500A	0.20	54.68	27.858	25.4	2.710
4600A	0.19	34.67	27.851	26.1	2.736	4600A	0.18	54.68	27.859	25.3	2.736	4600A	0.18	54.68	27.859	25.3	2.

LATITUDE 30 10.0S		LONGITUDE 39 21.8W		MO/DAY/YR 12/12/72			MESSENGER 1256 1536		TIME GMT	BOTTOM 4829M	WIND 270	SPFED 19KT	WEATHER 1	DOMINANT WAVFS 260 6 6		
Z	T	S	U2	P04	S103	N02	N03	DT	Z	T	S	U2	SI6T	DT	DD	
0	21.12	36.049	5.22	0.01			0.0	270.2	0	21.12	36.049	5.22	25.277	270.2	0.000	
10	21.10	36.045	5.21	0.00	0.8		0.0	270.0	10	21.10	36.045	5.21	25.280	270.0	0.027	
51	20.94	36.090	5.26	0.01			0.0	262.6	20	21.06	36.054	5.22	25.299	268.2	0.054	
62	19.88	36.230	5.42	0.01	1.0		0.0	225.4	30	21.02	36.065	5.23	25.318	266.4	0.081	
103	17.60	35.890	5.45	0.09			0.0	195.0	50	20.94	36.087	5.26	25.356	262.8	0.134	
134	16.91	35.807	5.28	0.18	1.3		0.7	105.2	75	18.93	36.038	5.43	25.850	215.8	0.194	
165	16.05	35.683	5.10	0.34			3.0	175.1	100	17.70	35.889	5.45	26.045	197.2	0.247	
207	15.46	35.640	5.14	0.35	1.7		3.8	165.5	125	17.07	35.826	5.34	26.148	187.5	0.296	
259	14.90	35.582	5.06	0.47			5.5	157.9	150	16.45	35.739	5.18	26.228	179.9	0.343	
311	14.33	35.508	5.07	0.53	2.4		6.7	151.6	200	15.53	35.642	5.13	26.366	166.8	0.432	
415	12.82	35.253	4.96	0.75			10.4	140.5	250	14.99	35.592	5.08	26.448	159.0	0.517	
519	10.84	34.950	4.83	1.08	6.0		15.7	127.1	300	14.46	35.525	5.07	26.513	152.8	0.599	
571	9.43	34.765	4.82	1.28			19.4	117.7	400	13.07	35.295	4.98	26.626	142.1	0.757	
622	8.16	34.617	4.86	1.46	10.2		22.2	109.6	500	11.26	35.010	4.85	26.755	129.9	0.904	
725	5.95	34.385	5.28	1.68	13.9		25.8	97.7	600	8.69	34.678	4.84	26.934	112.9	1.037	
826	4.58	34.271	5.66	1.83	17.6		27.7	90.9	700	6.43	34.432	5.16	27.070	100.1	1.154	
927	4.02	34.287	5.37		25.6		30.5	84.0	800	4.86	34.291	5.60	27.151	92.4	1.260	
1101A	3.33	34.352	4.88	2.10	38.8		31.4	72.6	1000	3.69	34.309	5.15	27.290	79.2	1.448	
1203A	3.10	34.420	4.66	2.10	45.0		32.2	65.4	1200	3.10	34.418	4.67	27.433	65.6	1.610	
1306A	3.00	34.476	4.49	2.05	50.7		32.1	60.3	1500	2.85	34.606	4.46	27.605	49.3	1.809	
1409A	2.86	34.546	4.41	2.14	54.8		32.4	53.9	1750	2.91	34.743	4.79	27.710	39.5	1.947	
1562A	2.85	34.640	4.50	2.00	54.9		31.8	46.7	2000	2.97	34.828	5.18	27.773	33.5	2.070	
1715A	2.90	34.727	4.74	1.79	50.7		28.1	40.5	2250	3.00	34.888	5.56	27.818	29.2	2.186	
1921A	2.95	34.802	5.04	1.70	46.2		26.1	35.3	2500	2.97	34.914	5.76	27.842	26.9	2.298	
2227A	3.00	34.885	5.54	1.34	35.7		21.4	29.5	2750	2.90	34.925	5.87	27.857	25.4	2.408	
2432A	2.97	34.908	5.70	1.31	32.6		20.4	27.5	3000	2.77	34.921	5.88	27.865	24.7	2.518	
2636A	2.95	34.926	5.86	1.30	29.5		20.0	25.9	3250	2.55	34.907	5.88	27.873	24.0	2.627	
2841A	2.85	34.925	5.87	1.31	30.6		20.1	25.2	3500	2.18	34.871	5.81	27.876	23.7	2.732	
3045A	2.74	34.920	5.88	1.29	33.2		19.9	24.6	3750	1.70	34.820	5.61	27.873	23.9	2.830	
3250A	2.55	34.907	5.88	1.32	37.2		21.1	24.0	4000	1.12	34.759	5.36	27.865	24.7	2.920	
3558A	2.08	34.862	5.78	1.49	53.5		23.6	23.7	4250	0.55	34.704	5.22	27.857	25.5	2.999	
3866A	1.44	34.794	5.49	1.74	79.5		26.1	24.2	4500	0.21	34.677	5.19	27.854	25.8	3.068	
4174A	0.722	34.718	5.23	2.01	108.1		30.6	25.4	4750	0.24	34.676	5.24	27.852	26.0	3.134	
4482A	0.206	34.676	5.19	2.16	123.8		33.4	25.7								
4585A	0.223	34.676	5.19	2.19	123.0		32.5	25.8								
4690A	0.233	34.676	5.24	2.17	123.4		33.1	25.9								
4793A	0.244	34.675	5.24	2.12	123.7		32.6	26.0								

LATITUDE	LONGITUDE	MO/DAY/YR	START TIME		
30 10.0S	39 21.0W	12/12/72	1109 GMT		
Z	T	SIGMA T	DT		
			DD		
0	21.12	36.05	25.278	270.2	0.000
10	21.12	36.05	25.278	270.2	0.027
20	21.08	36.06	25.296	268.4	0.054
30	21.06	36.00	25.317	266.4	0.081
40	21.10	36.10	25.321	266.0	0.108
50	21.00	36.08	25.333	264.9	0.134
60	20.10	36.12	25.606	238.9	0.160
70	19.50	36.20	25.805	220.1	0.183
80	18.64	36.04	25.925	208.7	0.205
90	17.93	35.91	26.003	201.2	0.225
100	17.74	35.90	26.042	197.5	0.246
125	17.25	35.86	26.131	189.1	0.295
150	16.44	35.74	26.231	179.6	0.342
200	15.56	35.67	26.380	165.4	0.431
250	15.00	35.59	26.444	159.4	0.516
300	14.31	35.50	26.525	151.7	0.598
350	13.79	35.41	26.566	147.9	0.677
400	13.02	35.28	26.624	142.4	0.755
450	12.13	35.13	26.683	136.7	0.830
500	11.18	34.99	26.754	130.0	0.903
550	9.90	34.60	26.833	122.6	0.972
600	8.70	34.60	26.920	114.3	1.037
650	7.37	34.50	26.994	107.3	1.098
700	6.49	34.45	27.076	99.5	1.155
750	5.58	34.36	27.121	95.2	1.208
800	4.81	34.30	27.165	91.1	1.259
850	4.45	34.26	27.189	88.8	1.309
900	4.17	34.30	27.234	84.5	1.356
950	4.00	34.32	27.268	81.3	1.402
1000	3.80	34.33	27.296	78.6	1.446
1100	3.53	34.39	27.371	71.6	1.530
1200A	3.11	34.41	27.427	66.3	1.607
1300A	2.98	34.47	27.486	60.6	1.679
1400A	2.90	34.54	27.549	54.6	1.745
1500A	2.85	34.60	27.602	49.7	1.807
1600A	2.85	34.66	27.649	45.2	1.864
1700A	2.89	34.72	27.694	41.0	1.918
1800A	2.91	34.76	27.724	38.1	1.970
1900A	2.92	34.80	27.755	35.2	2.019
2000A	2.99	34.84	27.780	32.8	2.066
2100A	3.00	34.86	27.795	31.4	2.113
2200A	3.01	34.88	27.810	29.9	2.159
2300A	2.96	34.89	27.821	28.9	2.204
2400A	2.98	34.90	27.829	28.2	2.249
2500A	2.97	34.91	27.838	27.3	2.294
2600A	2.96	34.93	27.855	25.7	2.338
2700A	2.92	34.92	27.850	26.1	2.382
2800A	2.86	34.93	27.864	24.9	2.426
2900A	2.81	34.92	27.860	25.2	2.470
3000A	2.75	34.92	27.866	24.7	2.514
3100A	2.69	34.91	27.863	24.9	2.558
3200A	2.62	34.91	27.869	24.3	2.602
3300A	2.50	34.90	27.872	24.1	2.645
3400A	2.36	34.69	27.876	23.7	2.688
3500A	2.20	34.87	27.873	24.0	2.730
3600A	1.98	34.85	27.875	23.8	2.770
3700A	1.76	34.83	27.876	23.7	2.809
3800A	1.53	34.80	27.869	24.4	2.847
3900A	1.41	34.79	27.870	24.3	2.883
4000A	1.28	34.77	27.864	24.8	2.919
4100A	0.97	34.74	27.860	25.2	2.953
4200A	0.63	34.71	27.857	25.5	2.985
4300A	0.40	34.69	27.855	25.7	3.014
4400A	0.27	34.68	27.854	25.8	3.041
4500A	0.21	34.67	27.849	26.2	3.068
4600A	0.22	34.68	27.857	25.5	3.094
4700A	0.23	34.68	27.856	25.6	3.120
4800A	0.24	34.68	27.856	25.6	3.146
4824A	0.23	34.67	27.848	26.3	3.152

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