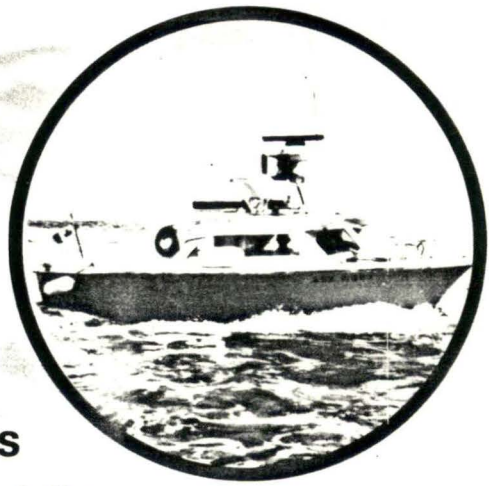
The Canadian Hydrographic Service

Central Region

Technical Report

1984 TIDAL SURVEY OF THE GULF OF BOOTHIA, N.W.T.

DATA REPORT



Ocean Science and Surveys
Department of Fisheries and Oceans
Burlington, Ontario

1984 TIDAL SURVEY OF THE GULF OF BOOTHIA, N.W.T.

DATA REPORT

by

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1.0 INTRODUCTION

As part of an ongoing project to study tidal propogation in the Arctic Archipelago, the Tides, Currents and Water Levels Section, Central Region, deployed six tides gauges in the Gulf of Boothia during 1984 (Figure 1). Five of these gauges were installed from March 7 to April 21, 1984. The remaining gauge was deployed for one year at the east end of Bellot Strait.

This report presents the results of the month-long deployments at five sites in the Gulf of Boothia. It consists of brief descriptions of the field techniques used to collect the data and the analytical methods used during processing. The data are presented in an Appendix at the end of the report.

2.0 METHODS

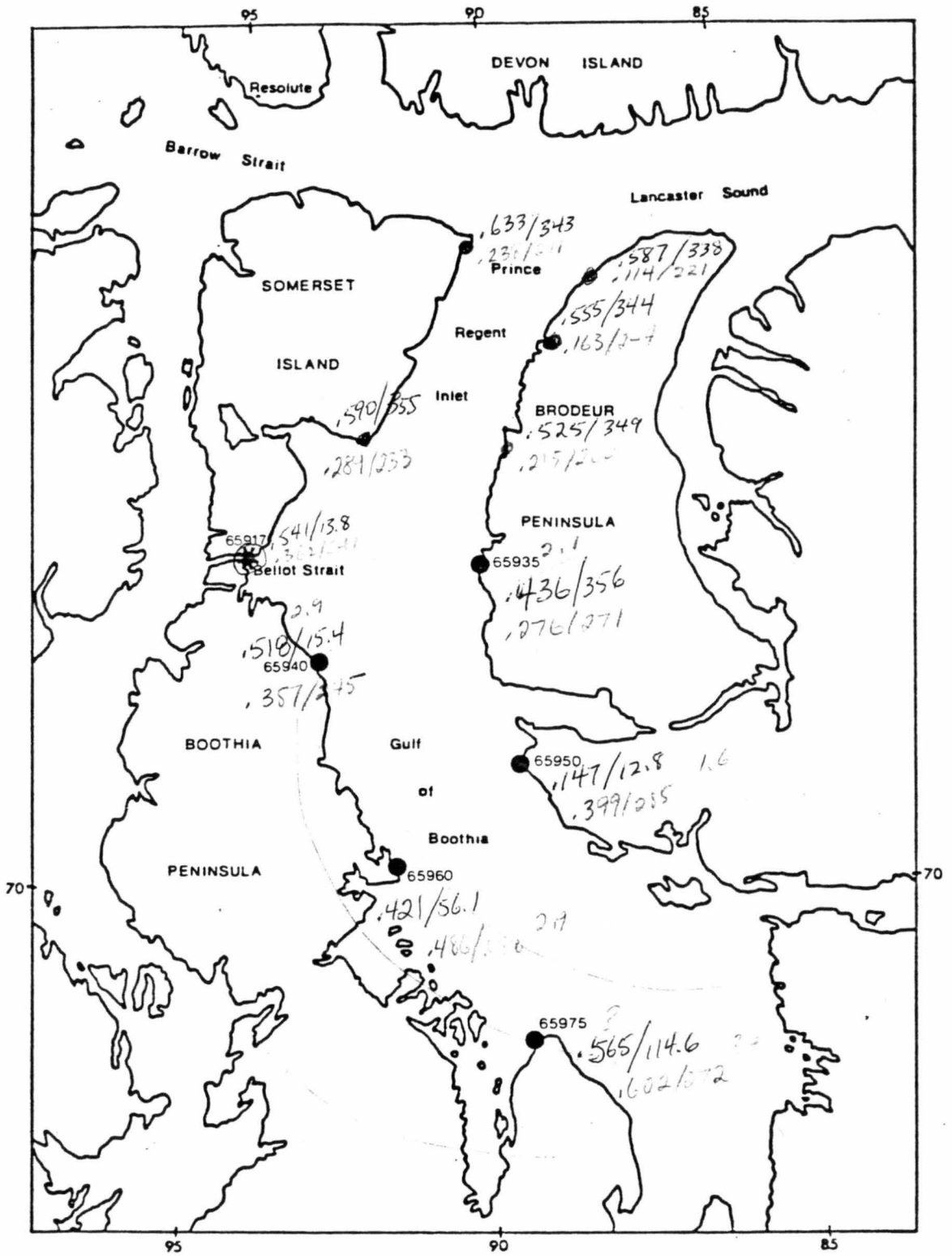
2.1 Calibration

The tide gauges were calibrated for pressure over the full range of the sensors at 0°C. Second order calibration coefficients were computed from the calibration data and applied to the deployment data during processing.

2.2 Data Collection

Five Aanderaa tide gauges were installed through shore-fast ice in the Gulf of Boothia. Briefly, the field operations consisted of:

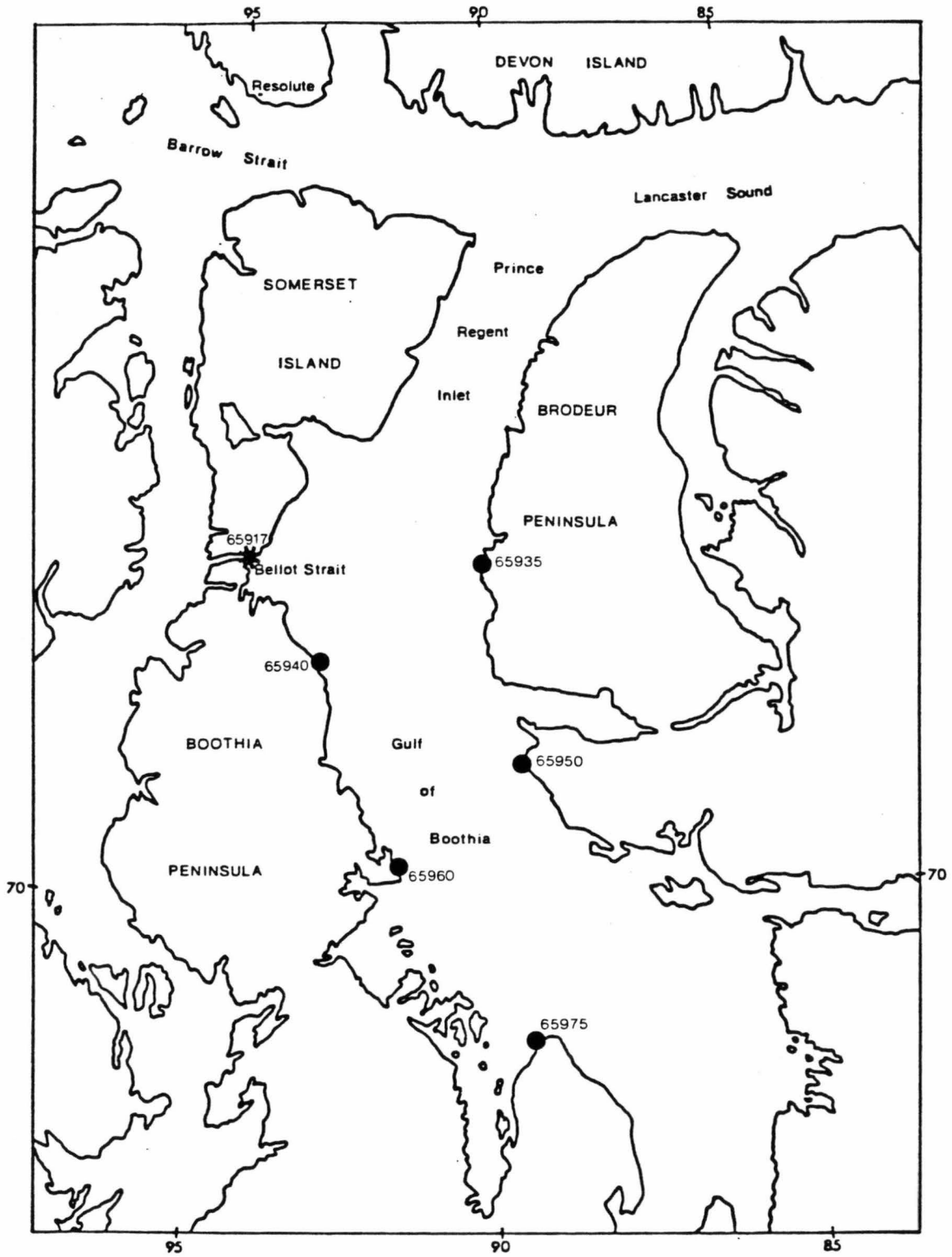
1) gauge initialization - each gauge was set to sample at 15 minute intervals. The sample frequency counts were integrated over a 56 second period.
2) site selection and positioning - the gauge locations were selected to provide adequate coverage and to maximize the chance of recovery. The gauge sites were positioned with the Global Navigation System and/or by reference to prominent shoreline features.



1984 TIDAL SURVEY

GULF OF BOOTHIA

FIGURE 1



1984 TIDAL SURVEY

GULF OF BOOTHIA

FIGURE 1

3) deployment through the ice - the tide gauges were lowered to the sea bed through a 30 cm diameter hole in the ice. The mooring lines were left slack to compensate for the vertical movement of the ice and then secured to a surface marker on the ice.
4) recovery of gauge - the gauges were relocated by visual sighting of the surface markers. The recovery was accomplished by drilling a 30 cm diameter hole adjacent to the surface marker, retrieving the mooring line and raising the gauge from the seabed.
5) gauge shutdown - prior to shutdown, four consecutive readings were monitored and served as a time reference for the end of the record.

Transportation to and from gauging sites was provided by Twin Otter on charter with the Polar Continental Shelf Project (PCSP).

2.3 Translation

The long and short pulses that are recorded on 1/4 inch magnetic tape by the tide gauge were translated to their binary equivalents with a tape translator at the National Water Research Institute, Burlington. The translation consists of a reference word, block count, and a frequency count of the pressure sensor.

2.4 Conversion to Hourly Pressures

The start and end time of the data were verified by cross reference with the deployment/recovery records. The data that were recorded before deployment and after recovery were removed from the record. The calibration coefficients were then applied to the frequency counts to obtain the absolute pressure data. The pressure readings were expressed in millibars and a constant value for atmospheric presure (1013.25 mb) was subtracted from each reading. The 15-minute data were smoothed using a 4,4,5 moving average filter, then decimated to hourly values by simply extracting the filtered sample that occurred on the hour. The hourly data were then filtered using a 24,24,25 low pass filter, to produce a data set of

low-frequency, slowly varying water levels (Figure 2) which were then subtracted from the hourly observations. This removed the low frequency noise from the observations and also adjusted the hourly pressure data to a common reference level, equivalent to a mean pressure (Z0) of zero.

2.5 Data Analysis

The hourly time series (Figure 3) were then analysed by harmonic analysis (Foreman, 1977) to produce the constituent listings given in the Appendix. Since the records were only forty days long, inference was used to determine the amplitude and phase of P_1 and K_2, using the amplitude ratios and phase differences from the constituents at Resolute Bay (station 5560). The residual signal (Figure 4) was calculated by subtracting predicted levels, computed from the analysed harmonic constituents, from the filtered hourly data. The residual levels show the amount of signal in the data that has not been resolved.

The harmonic constituents were used to compute the lunitidal statistics (Ku, 1971), which are also included in the Appendix.

3.0 ACKNOWLEDGEMENTS

We wish to acknowledge the assistance of G. Hobson and his staff at PCSP for aircraft support and accommodation at Resolute, J. Bull for tape translations, and T. Herron for drafting the figures.

4.0 REFERENCES

1. Foreman, M. G. 1977. Manual for Tidal Heights Analysis and Prediction Pacific Marine Science Report 77-10, IOS, Victoria, BC.

2. Ku, L. 1971. The Computation of Mean Tides and Large Tides. CHS Unpublished Report, Ottawa.

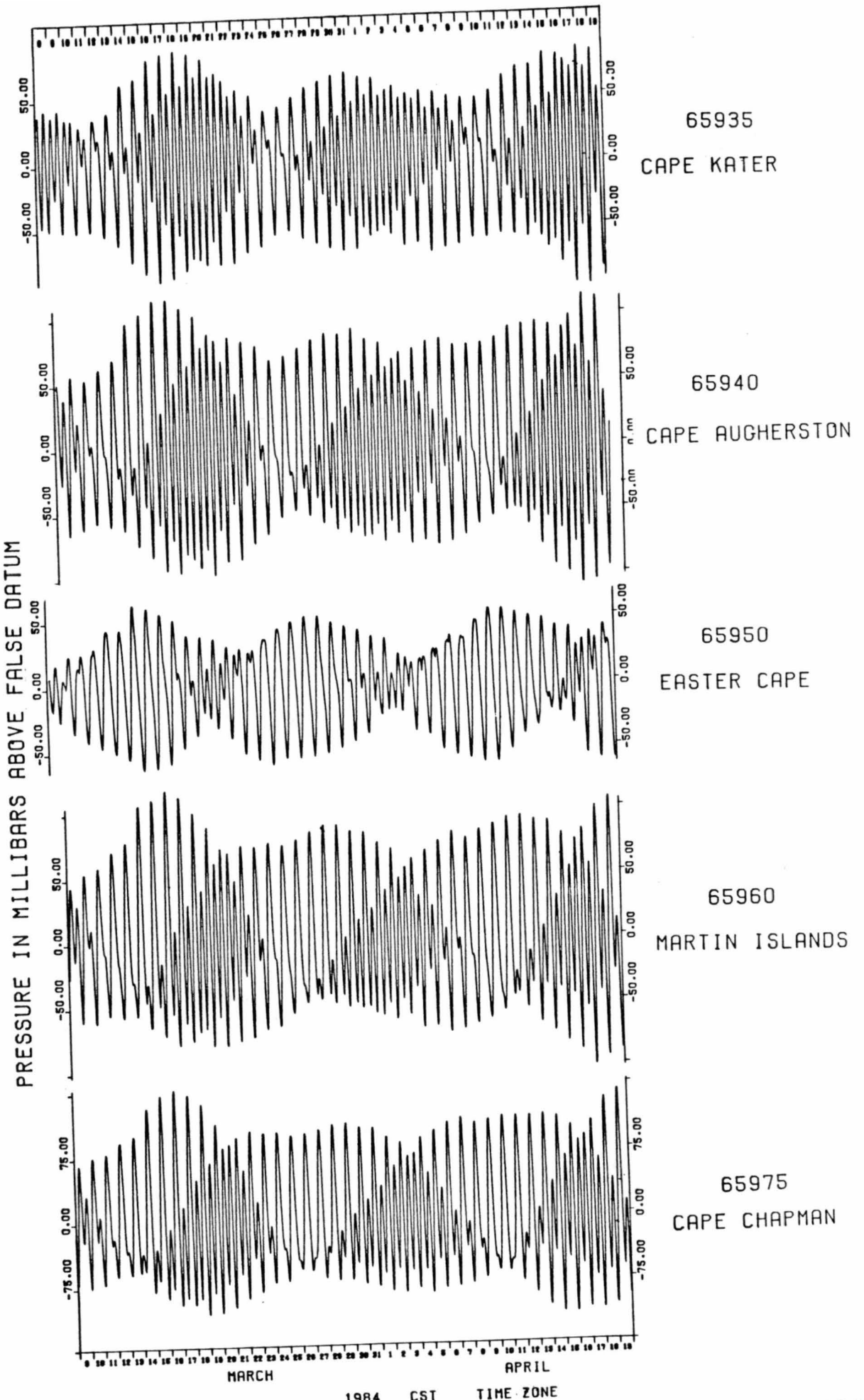

65935
CAPE KATER
65940
CAPE AUGHERSTON
65950
EASTER CAPE
65960
MARTIN ISLANDS
65975
CAPE CHAPMAN
PRESSURE IN MILLIBARS ABOVE FALSE DATUM
MARCH
APRIL
1984 CST TIME ZONE
HOURLY READINGS

FIGURE 3

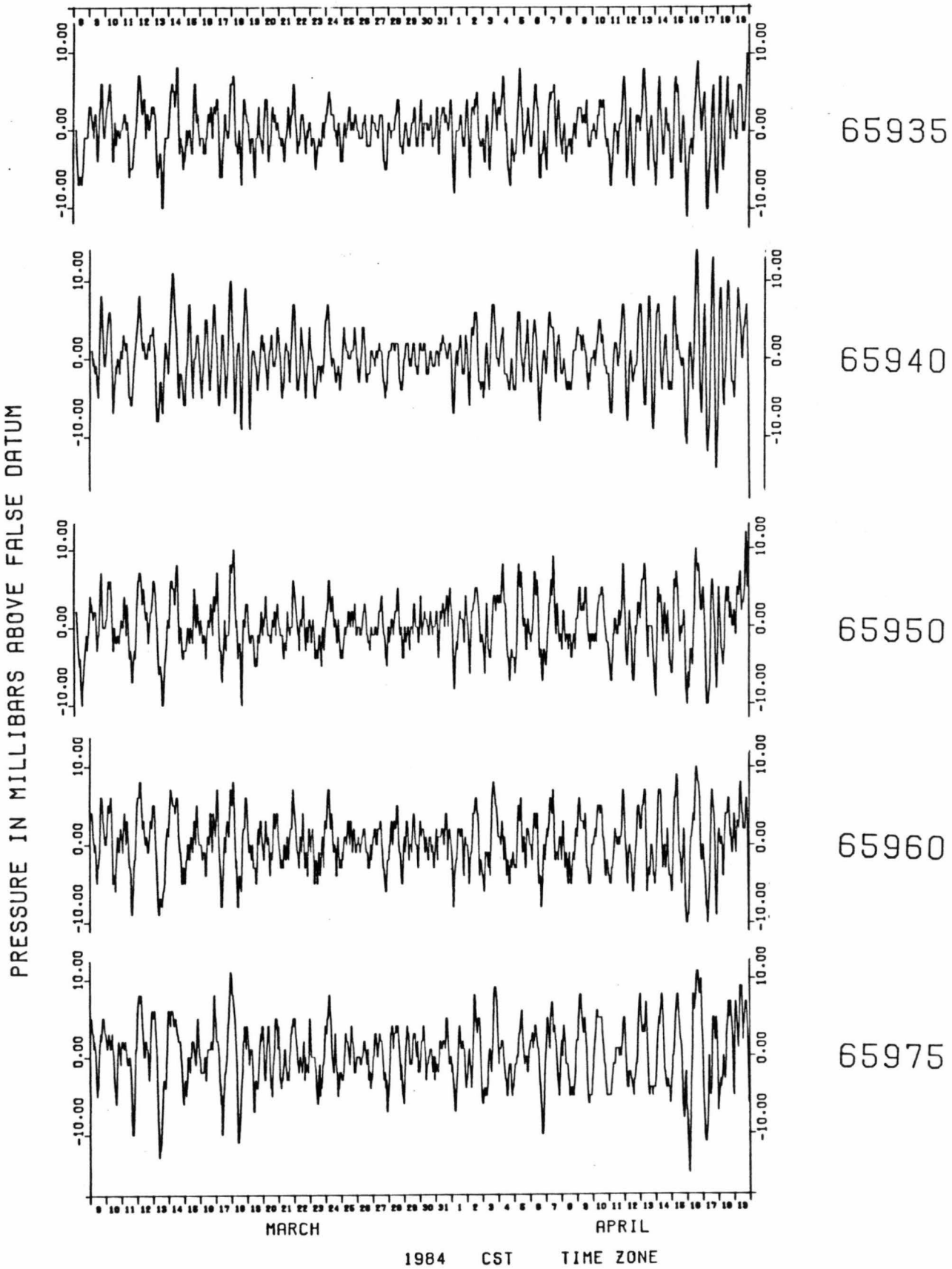

65935
65940
65950
65960
65975
10.00
0.00
-10.00
PRESSURE IN MILLIBARS ABOVE FALSE DATUM
MARCH
APRIL
1984 CST TIME ZONE
RESIDUALS

FIGURE 4

APPENDIX

LUNITIDAL STATISTICS

TIDAL CONSTITUENTS

HOURLY DATA

CAPE KATER

GULF OF BOOTHIA

STATION NUMBER 65935

STATION NUMBER	NAME	ZONE	LAT	LONG	ANALYSIS LENGTH	C.T.
65935	CAPE KATER	+6.0	7158 NORTH	9004 WEST	42 DAYS	384 MOYR

REFERENCE STATION - 5560

Z0 .001 (C.T. 384)

CONSTITUENT	AMPLITUDE	PHASE	CONSTITUENT	AMPLITUDE	PHASE
MM	.001	51.0	MSF	.001	240.3
2Q1	.004	332.8	Q1	.028	175.9
O1	.159	215.7	NO1	.021	224.4
P1	.088	266.3	K1	.276	271.2
J1	.020	285.6	OO1	.009	276.3
MU2	.011	304.7	N2	.094	307.0
M2	.436	356.7	L2	.031	336.5
S2	.177	46.8	K2	.045	39.2
MO3	.006	194.3	M3	.002	106.2
SK3	.005	355.0			
MN4	.001	81.5	M4	.006	255.7
SN4	.004	117.4	MS4	.001	9.8
S4	.001	147.0			
2MN6	.004	207.2	M6	.002	344.7
2MS6	.002	281.0	2SM6	.001	305.7
M8	.001	80.7			

AGE	M2/S2	AGE	K1/O1	DL-SD	DL	SD	DL/SD	DL+SD
50	2.46	56	1.74	72	.33	.48	.69	.81

MEAN TIDES, TIMES AND HEIGHTS

HHW		LHW		HLW		LLW	
1309	.65	2416	.33	1913	-.20	614	-.79

LARGE TIDES		RANGES	
.88	-1.28	1.44	2.15
HHW	LLW	MT	LT

AMPLITUDE VALUES ARE EXPRESSED IN DECIBARS

STATION 65935 PRELIMINARY RESULTS

	CONSTITUENT	FREQUENCY	C	ERR	S	ERR
1	Z0	0.00000000	-.001	.001	0.000	.000
2	MM	.00151215	-.001	.002	-.001	.002
3	MSF	.00282193	.001	.002	-.001	.002
4	ALP1	.03439657	-.001	.002	-.001	.002
5	2Q1	.03570635	-.004	.002	.001	.002
6	Q1	.03721850	-.030	.002	-.008	.002
7	O1	.03873065	.087	.002	.146	.002
8	NO1	.04026859	-.008	.002	.026	.002
9	K1	.04178075	.209	.002	.004	.002
10	J1	.04329290	-.021	.002	-.008	.002
11	OO1	.04483084	.003	.002	.011	.002
12	UPS1	.04634299	.005	.002	-.001	.002
13	EPS2	.07617732	-.000	.002	-.011	.002
14	MU2	.07768947	-.011	.002	.000	.002
15	N2	.07899925	.044	.002	.083	.002
16	M2	.08051140	.172	.002	-.378	.002
17	L2	.08202355	.010	.002	-.015	.002
18	S2	.08333333	.150	.002	.153	.002
19	ETA2	.08507364	.007	.002	-.002	.002
20	MO3	.11924206	.005	.002	-.002	.002
21	M3	.12076710	.002	.002	.000	.002
22	MK3	.12229215	.000	.002	.000	.002
23	SK3	.12511408	.000	.002	.005	.002
24	MN4	.15951065	-.001	.002	.001	.002
25	M4	.16102280	-.003	.002	.004	.002
26	SN4	.16233258	-.002	.002	-.003	.002
27	MS4	.16384473	.001	.002	-.001	.002
28	S4	.16666667	-.001	.002	.001	.002
29	2MK5	.20280355	-.000	.002	-.001	.002
30	2SK5	.20844741	-.000	.002	.000	.002
31	2MN6	.24002205	-.003	.002	-.001	.002
32	M6	.24153420	-.002	.002	.001	.002
33	2MS6	.24435613	-.001	.002	.000	.002
34	2SM6	.24717807	-.000	.002	-.001	.002
35	3MK7	.28331495	.000	.002	.000	.002
36	M8	.32204560	-.000	.002	-.000	.002

NUMBER OF VALID DATA = 1025 AVERAGE = -.00 STANDARD DEVIATION = .40

THEORETICAL RMS = .04 MATRIX CONDITION = .35

RMS OF THE RESIDUES = .04428

THE PREVIOUS C AND S VALUES WILL BE SCALED TO COMPENSATE FOR
THE PRIOR APPLICATION OF MOVING AVERAGE FILTERS

ORIGINAL DT = .25000 HR FILTERS = 4 4 5

ANALYSIS OF HOURLY TIDAL HEIGHTS STN 65935 4H 8/ 3/84 TO 21H 19/ 4/84

NO.OBS.= 1026 NO.PTS.ANAL.= 1026 MIDPT=12H 29/ 3/84 SEPARATION =1.00

TIME ZONE=+6.0 LATITUDE=71D 58M LONGITUDE= 90D 4M REF. STATION= 5560

NO.	NAME	FREQUENCY	M-Y/ M-Y	A	G	AL	GL
1	Z0	0.00000000	384- 484	.0007	180.00	.0007	180.00
2	MM	.00151215	384- 484	.0013	50.95	.0013	238.09
3	MSF	.00282193	384- 484	.0012	240.33	.0012	304.53
4	ALP1	.03439657	384- 484	.0015	283.98	.0016	238.51
5	2Q1	.03570635	384- 484	.0037	332.77	.0042	166.66
6	Q1	.03721850	384- 484	.0284	175.93	.0314	194.57
7	O1	.03873065	384- 484	.1590	215.68	.1713	59.22
8	NO1	.04026859	384- 484	.0212	224.35	.0277	105.89
9	K1	.04178075	384- 484	.2007	270.40	.2110	1.12
10	J1	.04329290	384- 484	.0199	285.58	.0227	200.21
11	OO1	.04483084	384- 484	.0085	276.33	.0118	73.94
12	UPS1	.04634299	384- 484	.0035	2.34	.0047	349.16
13	EPS2	.07617732	384- 484	.0105	216.23	.0110	267.85
14	MU2	.07768947	384- 484	.0109	304.72	.0109	179.74
15	N2	.07899925	384- 484	.0940	307.04	.0973	61.86
16	M2	.08051140	384- 484	.4356	356.75	.4306	294.42
17	L2	.08202355	384- 484	.0305	336.46	.0186	302.97
18	S2	.08333333	384- 484	.2225	45.63	.2227	45.50
19	ETA2	.08507364	384- 484	.0060	155.71	.0080	341.52
20	MO3	.11924206	384- 484	.0058	194.34	.0062	335.54
21	M3	.12076710	384- 484	.0024	106.20	.0024	12.99
22	MK3	.12229215	384- 484	.0004	6.54	.0005	34.93
23	SK3	.12511408	384- 484	.0048	355.00	.0051	85.59
24	MN4	.15951065	384- 484	.0012	81.49	.0012	133.98
25	M4	.16102280	384- 484	.0061	255.70	.0060	131.04
26	SN4	.16233258	384- 484	.0040	117.43	.0041	232.12
27	MS4	.16384473	384- 484	.0014	9.79	.0014	307.33
28	S4	.16666667	384- 484	.0014	147.02	.0014	146.77
29	2MK5	.20280355	384- 484	.0009	270.07	.0009	236.13
30	2SK5	.20844741	384- 484	.0001	73.25	.0001	163.71
31	2MN6	.24002205	384- 484	.0044	207.23	.0044	197.38
32	M6	.24153420	384- 484	.0024	344.66	.0023	157.67
33	2MS6	.24435613	384- 484	.0017	280.97	.0017	156.18
34	2SM6	.24717807	384- 484	.0009	305.70	.0009	243.11
35	3MK7	.28331495	384- 484	.0007	157.47	.0007	61.20
36	M8	.32204560	384- 484	.0007	80.75	.0007	191.42

ANALYSIS OF HOURLY TIDAL HEIGHTS STN 65935 4H 8/ 3/84 TO 21H 19/ 4/84

NO.OBS.= 1026 NO.PTS.ANAL.= 1026 MIDPT=12H 29/ 3/84 SEPARATION =1.00

TIME ZONE=+6.0 LATITUDE=71D 58M LONGITUDE= 90D 4M REF. STATION= 5560

NO.	NAME	FREQUENCY	M-Y/ M-Y	A	G		AL	GL
1	Z0	0.00000000	384- 484	.0007	180.00		.0007	180.00
2	MM	.00151215	384- 484	.0013	50.95		.0013	238.09
3	MSF	.00282193	384- 484	.0012	240.33		.0012	304.53
4	ALP1	.03439657	384- 484	.0015	283.98		.0016	238.51
5	2Q1	.03570635	384- 484	.0037	332.77		.0042	166.66
6	Q1	.03721850	384- 484	.0284	175.93		.0314	194.57
7	O1	.03873065	384- 484	.1590	215.68		.1713	59.22
8	NO1	.04026859	384- 484	.0212	224.35		.0277	105.89
9	P1	.04155259	384- 484	.0879	266.25	INF FR K1	.0874	183.86
10	K1	.04178075	384- 484	.2765	271.15		.2908	1.87
11	J1	.04329290	384- 484	.0199	285.58		.0227	200.21
12	OO1	.04483084	384- 484	.0085	276.33		.0118	73.94
13	UPS1	.04634299	384- 484	.0035	2.34		.0047	349.16
14	EPS2	.07617732	384- 484	.0105	216.23		.0110	267.85
15	MU2	.07768947	384- 484	.0109	304.72		.0109	179.74
16	N2	.07899925	384- 484	.0940	307.04		.0973	61.86
17	M2	.08051140	384- 484	.4356	356.75		.4306	294.42
18	L2	.08202355	384- 484	.0305	336.46		.0186	302.97
19	S2	.08333333	384- 484	.1773	46.78		.1775	46.66
20	K2	.08356149	384- 484	.0446	39.18	INF FR S2	.0497	40.97
21	ETA2	.08507364	384- 484	.0060	155.71		.0080	341.52
22	MO3	.11924206	384- 484	.0058	194.34		.0062	335.54
23	M3	.12076710	384- 484	.0024	106.20		.0024	12.99
24	MK3	.12229215	384- 484	.0004	6.54		.0005	34.93
25	SK3	.12511408	384- 484	.0048	355.00		.0051	85.59
26	MN4	.15951065	384- 484	.0012	81.49		.0012	133.98
27	M4	.16102280	384- 484	.0061	255.70		.0060	131.04
28	SN4	.16233258	384- 484	.0040	117.43		.0041	232.12
29	MS4	.16384473	384- 484	.0014	9.79		.0014	307.33
30	S4	.16666667	384- 484	.0014	147.02		.0014	146.77
31	2MK5	.20280355	384- 484	.0009	270.07		.0009	236.13
32	2SK5	.20844741	384- 484	.0001	73.25		.0001	163.71
33	2MN6	.24002205	384- 484	.0044	207.23		.0044	197.38
34	M6	.24153420	384- 484	.0024	344.66		.0023	157.67
35	2MS6	.24435613	384- 484	.0017	280.97		.0017	156.18
36	2SM6	.24717807	384- 484	.0009	305.70		.0009	243.11
37	3MK7	.28331495	384- 484	.0007	157.47		.0007	61.20
38	M8	.32204560	384- 484	.0007	80.75		.0007	191.42

AFTER INFERENCE, RMS(RESID ERROR)= .03307

```
 65935          CAPE KATER, GULF OF BOOTHIA - 71 58 N  90 04 W
 65935          DATA ARE REFERRED TO CST (+6) TIME ZONE
 65935          DATA ARE PRESSURES IN MILLIBARS
 65935          REFERENCE LEVEL IS Z0 (MEAN PRESSURE)
 65935          ORIGINAL 15 MINUTE DATA SMOOTHED USING A
 65935            4,4,5 MOVING AVERAGE FILTER
 65935          A 24,24,25 LOW PASS FILTER HAS BEEN SUBTRACTED
1 65935      8 384999999999999  38  22   0 -23 -40 -47 -43 -30 -11
2 65935      8 384  12  32  43  42  30  10 -13 -33 -46 -49 -41 -24
1 65935      9 384  -3  19  34  38  33  21   2 -13 -22 -25 -20 -10
2 65935      9 384   7  25  39  43  36  22   2 -21 -41 -50 -50 -41
1 65935     10 384 -24  -3  18  31  36  34  25  12  -1 -10 -13  -9
2 65935     10 384   2  17  31  35  30  19   4 -14 -32 -45 -51 -49
1 65935     11 384 -41 -27  -8  10  24  30  29  24  17  10   4   1
2 65935     11 384   2   9  16  21  22  17   7  -5 -20 -34 -45 -50
1 65935     12 384 -49 -40 -26  -9   8  22  31  35  35  32  28  22
2 65935     12 384  16  13  15  18  20  19  16   7  -4 -16 -29 -42
1 65935     13 384 -51 -54 -50 -39 -23  -6  11  25  36  40  39  33
2 65935     13 384  23  12   2  -2   0   7  11  12   7  -2 -15 -30
1 65935     14 384 -45 -56 -61 -57 -44 -24   0  24  44  56  61  59
2 65935     14 384  51  36  18   3  -5  -3   4  11  15  12   2 -12
1 65935     15 384 -31 -51 -67 -74 -72 -57 -32  -2  28  50  63  65
2 65935     15 384  56  42  24   7  -6 -12  -8   5  19  26  25  14
1 65935     16 384  -4 -28 -54 -74 -83 -79 -59 -30   5  40  65  78
2 65935     16 384  75  59  33   6 -15 -27 -27 -14   8  28  40  39
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2 65935     17 384  82  73  48  14 -18 -40 -45 -36 -14  15  42  55
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2 65935     18 384  84  78  54  20 -13 -41 -54 -53 -37  -9  23  48
1 65935     19 384  60  55  33   0 -36 -65 -81 -78 -58 -27  11  47
2 65935     19 384  73  82  69  40   5 -31 -61 -72 -64 -40  -7  27
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1 65935     27 384 -45 -52 -52 -45 -31 -12   9  28  42  49  50  44
2 65935     27 384  33  19   7  -2  -6  -4   0   4   6   2  -5 -15
1 65935     28 384 -30 -46 -56 -58 -50 -34 -12  13  35  51  57  55
2 65935     28 384  45  30  12  -3 -13 -14  -7   4  13  16  12   2
1 65935     29 384 -12 -30 -48 -61 -62 -53 -33  -7  21  45  59  61
2 65935     29 384  53  36  15  -5 -19 -25 -19  -5  10  23  27  22
1 65935     30 384   9  -9 -33 -55 -66 -63 -46 -22   8  37  57  65
2 65935     30 384  59  43  20  -4 -24 -34 -32 -19   1  20  33  35
1 65935     31 384  25   8 -15 -42 -62 -68 -57 -36  -7  24  52  67
```

2	65935	31	384	66	51	29	2	-24	-40	-42	-31	-9	16	37	46
1	65935	1	484	40	21	-5	-32	-55	-67	-63	-47	-22	8	37	57
2	65935	1	484	64	56	35	7	-22	-43	-51	-45	-26	3	30	48
1	65935	2	484	51	38	15	-13	-39	-55	-57	-49	-29	-2	27	52
2	65935	2	484	63	60	43	16	-15	-41	-54	-54	-39	-14	15	39
1	65935	3	484	50	46	29	5	-18	-37	-49	-50	-39	-18	9	35
2	65935	3	484	52	54	42	20	-7	-33	-50	-56	-47	-26	5	33
1	65935	4	484	52	57	48	29	4	-19	-33	-39	-35	-20	4	30
2	65935	4	484	46	48	37	16	-13	-41	-60	-65	-59	-43	-18	12
1	65935	5	484	38	51	51	40	20	-3	-20	-28	-28	-19	-1	23
2	65935	5	484	40	47	40	24	0	-27	-51	-63	-62	-52	-32	-5
1	65935	6	484	23	45	53	50	36	17	-3	-16	-20	-17	-5	14
2	65935	6	484	31	40	37	24	3	-21	-46	-64	-70	-64	-50	-28
1	65935	7	484	-1	25	44	52	49	36	18	1	-8	-9	-2	11
2	65935	7	484	27	38	39	31	14	-6	-28	-48	-63	-67	-62	-46
1	65935	8	484	-23	3	28	44	49	43	29	14	3	-3	-3	3
2	65935	8	484	12	22	29	27	17	2	-17	-36	-54	-64	-65	-56
1	65935	9	484	-39	-17	7	28	42	47	44	36	27	19	13	10
2	65935	9	484	12	18	23	23	18	8	-6	-22	-38	-51	-58	-60
1	65935	10	484	-54	-41	-23	-2	18	33	43	47	44	38	31	23
2	65935	10	484	17	13	12	14	15	11	4	-6	-18	-32	-44	-54
1	65935	11	484	-60	-58	-50	-35	-14	9	29	44	52	52	45	34
2	65935	11	484	21	9	-1	-4	-1	3	6	6	3	-4	-14	-27
1	65935	12	484	-41	-52	-57	-53	-39	-16	10	36	54	63	59	47
2	65935	12	484	29	8	-10	-21	-22	-14	-1	9	14	14	6	-8
1	65935	13	484	-27	-44	-56	-58	-48	-28	-2	25	50	65	69	61
2	65935	13	484	42	18	-5	-23	-32	-30	-19	-3	13	22	23	13
1	65935	14	484	-6	-27	-48	-60	-59	-48	-27	0	31	56	70	69
2	65935	14	484	56	32	3	-24	-44	-51	-43	-22	5	27	39	38
1	65935	15	484	25	3	-24	-47	-60	-58	-44	-19	13	48	72	78
2	65935	15	484	68	44	10	-27	-55	-68	-64	-47	-19	12	37	49
1	65935	16	484	46	31	8	-21	-48	-63	-61	-43	-16	19	52	74
2	65935	16	484	77	62	34	-4	-41	-70	-80	-69	-43	-8	29	59
1	65935	17	484	73	70	51	21	-16	-49	-66	-61	-40	-8	28	56
2	65935	17	484	68	62	42	8	-31	-68	-93	-96	-78	-44	-4	37
1	65935	18	484	69	82	77	54	19	-17	-44	-53	-43	-20	12	43
2	65935	18	484	63	68	53	21	-18	-55	-86	-97	-87	-60	-22	17
1	65935	19	484	52	75	80	67	43	15	-10	-26	-29	-18	3	27
2	65935	19	484	46	53	48	27	-4	-37	-65	-82	-84999999999999			

CAPE AUGHERSTON

GULF OF BOOTHIA

STATION NUMBER 65940

STATION					ANALYSIS	
NUMBER	NAME	ZONE	LAT	LONG	LENGTH	C.T.
65940	CAPE AUGHERSTON	+6.0	7129	9317	41	384
			NORTH	WEST	DAYS	MOYR

REFERENCE STATION - 5560

Z0 0.000 (C.T. 384)

CONSTITUENT	AMPLITUDE	PHASE	CONSTITUENT	AMPLITUDE	PHASE
MSF	.001	182.8			
2Q1	.003	296.2	Q1	.031	144.8
O1	.207	192.2	NO1	.027	205.8
P1	.123	240.1	K1	.387	245.0
J1	.029	256.9	OO1	.016	255.5
MU2	.009	333.5	N2	.100	324.8
M2	.518	15.4	L2	.018	45.8
S2	.220	62.6	K2	.055	55.0
MO3	.004	169.2	M3	.003	134.4
MK3	.001	69.7	SK3	.004	327.7
MN4	.002	159.2	M4	.006	267.3
SN4	.003	121.9	MS4	.002	5.5
S4	.002	133.9			
2MN6	.003	201.5	M6	.002	331.7
2MS6	.002	297.4	2SM6	.001	37.8
M8	.001	146.1			

AGE	M2/S2	AGE	K1/O1	DL-SD	DL	SD	DL/SD	DL+SD
47	2.35	53	1.87	217	.46	.57	.79	1.03

MEAN TIDES, TIMES AND HEIGHTS

HHW		LHW		HLW		LLW	
1334	.97	12	.23	2016	-.41	630	-.86

LARGE TIDES		RANGES	
HHW	LLW	MT	LT
1.31	-1.56	1.83	2.86

AMPLITUDE VALUES ARE EXPRESSED IN DECIBARS

unitidal intervals

STATION 65940 PRELIMINARY RESULTS

	CONSTITUENT	FREQUENCY	C	ERR	S	ERR
1	Z0	0.00000000	.000	.002	0.000	.000
2	MM	.00151215	.000	.002	-.000	.002
3	MSF	.00282193	-.001	.002	-.001	.002
4	ALP1	.03439657	.006	.002	.002	.002
5	2Q1	.03570635	.002	.002	-.002	.002
6	Q1	.03721850	.031	.002	-.014	.002
7	O1	.03873065	-.208	.002	-.078	.002
8	NO1	.04026859	-.015	.002	-.031	.002
9	K1	.04178075	-.163	.002	.243	.002
10	J1	.04329290	.022	.002	-.023	.002
11	OO1	.04483084	-.022	.002	-.003	.002
12	UPS1	.04634299	-.002	.002	.003	.002
13	EPS2	.07617732	-.002	.002	-.009	.002
14	MU2	.07768947	-.009	.002	.000	.002
15	N2	.07899925	.075	.002	.066	.002
16	M2	.08051140	-.023	.002	-.494	.002
17	L2	.08202355	.008	.002	-.007	.002
18	S2	.08333333	.266	.002	.005	.002
19	ETA2	.08507364	-.002	.002	-.012	.002
20	MO3	.11924206	.001	.002	.004	.002
21	M3	.12076710	-.002	.002	.001	.002
22	MK3	.12229215	-.001	.002	-.000	.002
23	SK3	.12511408	-.003	.002	.002	.002
24	MN4	.15951065	-.001	.002	.001	.002
25	M4	.16102280	.003	.002	.004	.002
26	SN4	.16233258	-.002	.002	.002	.002
27	MS4	.16384473	-.002	.002	-.001	.002
28	S4	.16666667	.001	.002	.000	.002
29	2MK5	.20280355	-.000	.002	.000	.002
30	2SK5	.20844741	.000	.002	-.000	.002
31	2MN6	.24002205	.001	.002	.002	.002
32	M6	.24153420	.001	.002	.000	.002
33	2MS6	.24435613	.001	.002	.000	.002
34	2SM6	.24717807	-.000	.002	.000	.002
35	3MK7	.28331495	.000	.002	.000	.002
36	M8	.32204560	.000	.002	.000	.002

NUMBER OF VALID DATA = 1005 AVERAGE = -.00 STANDARD DEVIATION = .49

THEORETICAL RMS = .05 MATRIX CONDITION = .34

RMS OF THE RESIDUES = .04889

THE PREVIOUS C AND S VALUES WILL BE SCALED TO COMPENSATE FOR
THE PRIOR APPLICATION OF MOVING AVERAGE FILTERS

ORIGINAL DT = .25000 HR FILTERS = 4 4 5

ANALYSIS OF HOURLY TIDAL HEIGHTS STN 65940 4H 9/ 3/84 TO 1H 20/ 4/84

NO.OBS.= 1006 NO.PTS.ANAL.= 1006 MIDPT= 2H 30/ 3/84 SEPARATION =1.00

TIME ZONE=+6.0 LATITUDE=71D 29M LONGITUDE= 93D 17M REF. STATION= 5560

NO.	NAME	FREQUENCY	M-Y/ M-Y	A	G	AL	GL
1	Z0	0.00000000	384- 484	.0004	0.00	.0004	0.00
2	MM	.00151215	384- 484	.0003	132.03	.0003	311.55
3	MSF	.00282193	384- 484	.0013	182.80	.0013	232.78
4	ALP1	.03439657	384- 484	.0062	238.82	.0067	19.98
5	2Q1	.03570635	384- 484	.0026	296.24	.0030	310.16
6	Q1	.03721850	384- 484	.0308	144.83	.0341	335.88
7	O1	.03873065	384- 484	.2075	192.20	.2236	200.53
8	NO1	.04026859	384- 484	.0267	205.82	.0349	244.48
9	K1	.04178075	384- 484	.2810	243.82	.2955	123.96
10	J1	.04329290	384- 484	.0285	256.89	.0326	313.34
11	OO1	.04483084	384- 484	.0158	255.52	.0219	187.19
12	UPS1	.04634299	384- 484	.0028	7.01	.0038	120.26
13	EPS2	.07617732	384- 484	.0088	226.98	.0092	254.66
14	MU2	.07768947	384- 484	.0094	333.50	.0094	176.96
15	N2	.07899925	384- 484	.1001	324.77	.1036	41.42
16	M2	.08051140	384- 484	.5183	15.44	.5124	267.34
17	L2	.08202355	384- 484	.0178	45.83	.0109	318.87
18	S2	.08333333	384- 484	.2759	61.22	.2762	1.09
19	ETA2	.08507364	384- 484	.0093	144.45	.0123	261.50
20	MO3	.11924206	384- 484	.0041	169.24	.0044	69.47
21	M3	.12076710	384- 484	.0028	134.37	.0027	152.49
22	MK3	.12229215	384- 484	.0010	69.72	.0011	201.75
23	SK3	.12511408	384- 484	.0035	327.71	.0037	147.73
24	MN4	.15951065	384- 484	.0015	159.19	.0016	127.74
25	M4	.16102280	384- 484	.0058	267.25	.0056	51.04
26	SN4	.16233258	384- 484	.0031	121.91	.0032	138.43
27	MS4	.16384473	384- 484	.0024	5.46	.0023	197.23
28	S4	.16666667	384- 484	.0017	133.88	.0017	13.63
29	2MK5	.20280355	384- 484	.0005	96.84	.0005	120.76
30	2SK5	.20844741	384- 484	.0004	192.21	.0005	312.09
31	2MN6	.24002205	384- 484	.0030	201.47	.0030	61.91
32	M6	.24153420	384- 484	.0016	331.73	.0016	7.40
33	2MS6	.24435613	384- 484	.0015	297.44	.0015	21.10
34	2SM6	.24717807	384- 484	.0006	37.78	.0006	169.42
35	3MK7	.28331495	384- 484	.0002	155.00	.0002	70.82
36	M8	.32204560	384- 484	.0009	146.13	.0009	73.69

ANALYSIS OF HOURLY TIDAL HEIGHTS STN 65940 4H 9/ 3/84 TO 1H 20/ 4/84

NO.OBS.= 1006 NO.PTS.ANAL.= 1006 MIDPT= 2H 30/ 3/84 SEPARATION =1.00

TIME ZONE=+6.0 LATITUDE=71D 29M LONGITUDE= 93D 17M REF. STATION= 5560

NO.	NAME	FREQUENCY	M-Y/ M-Y	A	G		AL	GL
1	Z0	0.00000000	384- 484	.0004	0.00		.0004	0.00
2	MM	.00151215	384- 484	.0003	132.03		.0003	311.55
3	MSF	.00282193	384- 484	.0013	182.80		.0013	232.78
4	ALP1	.03439657	384- 484	.0062	238.82		.0067	19.98
5	2Q1	.03570635	384- 484	.0026	296.24		.0030	310.16
6	Q1	.03721850	384- 484	.0308	144.83		.0341	335.88
7	O1	.03873065	384- 484	.2075	192.20		.2236	200.53
8	NO1	.04026859	384- 484	.0267	205.82		.0349	244.48
9	P1	.04155259	384- 484	.1232	240.11	INF FR K1	.1225	308.29
10	K1	.04178075	384- 484	.3874	245.01		.4075	125.15
11	J1	.04329290	384- 484	.0285	256.89		.0326	313.34
12	OO1	.04483084	384- 484	.0158	255.52		.0219	187.19
13	UPS1	.04634299	384- 484	.0028	7.01		.0038	120.26
14	EPS2	.07617732	384- 484	.0088	226.98		.0092	254.66
15	MU2	.07768947	384- 484	.0094	333.50		.0094	176.96
16	N2	.07899925	384- 484	.1001	324.77		.1036	41.42
17	M2	.08051140	384- 484	.5183	15.44		.5124	267.34
18	L2	.08202355	384- 484	.0178	45.83		.0109	318.87
19	S2	.08333333	384- 484	.2198	62.62		.2200	2.49
20	K2	.08356149	384- 484	.0552	55.02	INF FR S2	.0616	355.65
21	ETA2	.08507364	384- 484	.0093	144.45		.0123	261.50
22	MO3	.11924206	384- 484	.0041	169.24		.0044	69.47
23	M3	.12076710	384- 484	.0028	134.37		.0027	152.49
24	MK3	.12229215	384- 484	.0010	69.72		.0011	201.75
25	SK3	.12511408	384- 484	.0035	327.71		.0037	147.73
26	MN4	.15951065	384- 484	.0015	159.19		.0016	127.74
27	M4	.16102280	384- 484	.0058	267.25		.0056	51.04
28	SN4	.16233258	384- 484	.0031	121.91		.0032	138.43
29	MS4	.16384473	384- 484	.0024	5.46		.0023	197.23
30	S4	.16666667	384- 484	.0017	133.88		.0017	13.63
31	2MK5	.20280355	384- 484	.0005	96.84		.0005	120.76
32	2SK5	.20844741	384- 484	.0004	192.21		.0005	312.09
33	2MN6	.24002205	384- 484	.0030	201.47		.0030	61.91
34	M6	.24153420	384- 484	.0016	331.73		.0016	7.40
35	2MS6	.24435613	384- 484	.0015	297.44		.0015	21.10
36	2SM6	.24717807	384- 484	.0006	37.78		.0006	169.42
37	3MK7	.28331495	384- 484	.0002	155.00		.0002	70.82
38	M8	.32204560	384- 484	.0009	146.13		.0009	73.69

AFTER INFERENCE, RMS(RESID ERROR)= .04049

```
  65940            CAPE AUGHERSTON, GULF OF BOOTHIA - 70 29 N  93 17 W
  65940            DATA ARE REFERRED TO CST (+6) TIME ZONE
  65940            DATA ARE PRESSURES IN MILLIBARS
  65940            REFERENCE LEVEL IS Z0 (MEAN PRESSURE)
  65940            ORIGINAL 15 MINUTE DATA SMOOTHED USING A
  65940              4,4,5 MOVING AVERAGE FILTER
  65940            A 24,24,25 LOW PASS FILTER HAS BEEN SUBTRACTED
1 65940        9 384999999999999  48  51  44  27   6 -11 -22 -26 -21
2 65940        9 384  -7  12  29  39  39  28   8 -18 -42 -59 -65 -59
1 65940       10 384 -41 -15  14  38  53  57  51  37  18   1 -11 -15
2 65940       10 384 -10   1  13  21  21  14   2 -16 -35 -52 -60 -61
1 65940       11 384 -54 -36 -11  15  35  49  54  51  43  30  16   4
2 65940       11 384  -2  -3  -1   2   4   2  -3 -12 -24 -38 -49 -56
1 65940       12 384 -56 -47 -30  -7  15  36  51  60  62  58  48  35
2 65940       12 384  21   9   1  -3  -4  -4  -5 -10 -15 -24 -35 -46
1 65940       13 384 -54 -59 -55 -42 -24  -1  23  45  61  69  68  59
2 65940       13 384  42  21   0 -15 -21 -21 -18 -14 -13 -16 -23 -36
1 65940       14 384 -48 -57 -62 -57 -42 -18  13  44  70  89  97  92
2 65940       14 384  75  49  18  -9 -28 -34 -33 -26 -18 -13 -13 -20
1 65940       15 384 -33 -50 -65 -74 -73 -57 -27  11  49  80  99 104
2 65940       15 384  93  69  39   6 -23 -41 -44 -35 -20  -4   5   6
1 65940       16 384  -4 -24 -49 -71 -83 -81 -62 -29  16  60  95 114
2 65940       16 384 113  93  58  17 -20 -47 -58 -52 -31  -6  16  28
1 65940       17 384  27  13 -16 -49 -78 -93 -89 -65 -24  26  72 105
2 65940       17 384 117 108  78  35 -11 -49 -70 -70 -52 -20  14  40
1 65940       18 384  51  44  23 -13 -52 -83 -95 -85 -55 -11  40  83
2 65940       18 384 108 108  86  48   3 -39 -69 -81 -70 -43  -7  31
1 65940       19 384  57  64  51  20 -18 -54 -79 -85 -72 -41   4  50
2 65940       19 384  85 102  94  65  22 -26 -67 -91 -91 -71 -34  10
1 65940       20 384  48  73  78  61  29 -11 -49 -74 -78 -59 -25  17
2 65940       20 384  57  84  88  70  36  -8 -51 -83 -97 -86 -56 -15
1 65940       21 384  30  65  83  80  58  25 -12 -45 -63 -60 -41 -10
2 65940       21 384  24  53  67  61  37   3 -34 -67 -87 -87 -68 -34
1 65940       22 384   7  46  75  85  77  56  25  -7 -32 -43 -38 -23
2 65940       22 384   0  24  39  42  29   5 -24 -53 -76 -86 -78 -54
1 65940       23 384 -21  16  51  74  82  73  52  26   0 -20 -29 -26
2 65940       23 384 -15   0  14  21  17   5 -14 -37 -59 -73 -74 -61
1 65940       24 384 -37  -7  26  55  73  78  71  56  37  17   1  -8
2 65940       24 384 -10  -7  -3   1   2  -2 -13 -27 -44 -59 -67 -66
1 65940       25 384 -55 -35  -9  18  43  59  67  66  59  47  32  17
2 65940       25 384   5  -2  -6  -7  -8  -9 -12 -18 -25 -35 -45 -53
1 65940       26 384 -54 -49 -37 -19   4  28  48  62  70  69  61  46
2 65940       26 384  28   9  -6 -16 -21 -22 -20 -19 -20 -22 -28 -36
1 65940       27 384 -44 -49 -48 -41 -25  -3  22  45  64  74  76  67
2 65940       27 384  50  28   5 -15 -28 -32 -30 -24 -17 -14 -14 -18
1 65940       28 384 -28 -40 -50 -53 -47 -31  -6  23  51  72  82  82
2 65940       28 384  70  47  19  -8 -30 -40 -39 -30 -16  -5   1   0
1 65940       29 384  -8 -23 -40 -54 -59 -52 -33  -5  28  59  80  87
2 65940       29 384  81  61  32   0 -28 -45 -48 -38 -21  -2  13  18
1 65940       30 384  14  -1 -23 -45 -61 -64 -52 -28   7  42  70  86
2 65940       30 384  86  70  42   8 -24 -47 -56 -50 -31  -7  16  29
1 65940       31 384  30  19  -2 -28 -53 -67 -65 -47 -16  21  57  83
2 65940       31 384  90  80  55  20 -17 -47 -62 -60 -42 -14  15  37
1 65940        1 484  44  34  13 -15 -43 -64 -70 -60 -36  -2  34  66
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2 65940          1 484  82  81  62  30  -9 -44 -65 -69 -55 -27   8  37
1 65940          2 484  54  53  36   9 -22 -47 -61 -61 -46 -19  17  51
2 65940          2 484  74  79  66  38   0 -37 -64 -74 -66 -43  -8  26
1 65940          3 484  51  60  53  32   5 -23 -46 -59 -57 -38  -9  25
2 65940          3 484  52  66  62  42  11 -23 -52 -68 -68 -51 -19  18
1 65940          4 484  50  69  71  57  31   1 -27 -45 -52 -44 -21   8
2 65940          4 484  34  49  48  32   4 -29 -56 -73 -76 -64 -38  -1
1 65940          5 484  36  63  74  70  53  26  -2 -25 -37 -38 -26  -4
2 65940          5 484  20  37  40  31  11 -18 -46 -67 -74 -70 -50 -19
1 65940          6 484  18  52  73  79  70  49  21  -4 -23 -31 -27 -14
2 65940          6 484   5  20  26  21   6 -16 -42 -64 -77 -77 -63 -38
1 65940          7 484  -4  32  62  79  81  70  48  22   0 -14 -18 -12
2 65940          7 484  -1  12  19  18   8  -8 -28 -50 -67 -75 -72 -56
1 65940          8 484 -28   6  39  64  76  74  61  41  19   1 -10 -15
2 65940          8 484 -12  -5   2   5   2  -8 -22 -39 -56 -67 -70 -61
1 65940          9 484 -42 -15  15  44  65  76  75  66  51  35  18   5
2 65940          9 484  -4  -6  -7  -7  -9 -14 -21 -33 -45 -55 -61 -62
1 65940         10 484 -55 -40 -16  10  35  57  71  77  74  64  49  31
2 65940         10 484  13  -3 -12 -16 -18 -20 -22 -24 -30 -38 -46 -53
1 65940         11 484 -56 -55 -46 -28  -4  23  49  69  80  81  72  54
2 65940         11 484  31   6 -16 -29 -34 -33 -26 -19 -14 -12 -15 -23
1 65940         12 484 -34 -45 -52 -50 -36 -12  18  49  75  88  89  75
2 65940         12 484  50  19 -11 -34 -48 -50 -42 -28 -13   0   6   3
1 65940         13 484  -8 -25 -40 -51 -50 -37 -13  18  51  76  91  90
2 65940         13 484  75  46  11 -23 -49 -63 -62 -47 -25  -2  15  22
1 65940         14 484  18   2 -20 -42 -54 -52 -36  -9  26  60  84  93
2 65940         14 484  84  58  20 -21 -56 -77 -79 -63 -34   1  30  46
1 65940         15 484  46  31   6 -21 -45 -58 -56 -38  -5  37  71  90
2 65940         15 484  90  70  33 -13 -56 -85 -94 -83 -56 -18  22  52
1 65940         16 484  65  62  43  12 -24 -54 -67 -62 -39  -2  40  72
2 65940         16 484  88  83  58  17 -31 -74 -98-100 -79 -40   8  54
1 65940         17 484  86  97  87  58  14 -32 -66 -78 -68 -39   0  39
2 65940         17 484  66  73  60  28 -15 -62 -99-115-105 -73 -24  31
1 65940         18 484  78 107 113  94  59  13 -31 -59 -66 -52 -22  12
2 65940         18 484  43  60  57  34  -3 -46 -84-106-106 -82 -41   9
1 65940         19 484  57  94 111 107  84  50  13 -21 -41 -44 -31  -9
2 65940         19 484  15  33  38  27   2 -30 -62 -85 -96 -89 -65 -28
1 65940         20 484  139999999999999999999999999999999999999999999
2 65940         20 484999999999999999999999999999999999999999999999
```

EASTER CAPE

GULF OF BOOTHIA

STATION NUMBER 65950

STATION NUMBER	NAME	ZONE	LAT	LONG	ANALYSIS LENGTH	C.T.
65950	EASTER CAPE	+6.0	7055 NORTH	8927 WEST	42 DAYS	384 MOYR

REFERENCE STATION - 5560

Z0 0.000 (C.T. 384)

CONSTITUENT	AMPLITUDE	PHASE	CONSTITUENT	AMPLITUDE	PHASE
MM	.002	84.5	MSF	.001	205.4
2Q1	.007	333.9	Q1	.036	183.9
O1	.207	226.8	NO1	.029	236.0
P1	.127	280.3	K1	.399	285.2
J1	.026	300.8	OO1	.014	290.9
MU2	.002	96.9	N2	.025	290.3
M2	.147	12.8	L2	.018	328.4
S2	.070	65.3	K2	.018	57.7
MO3	.007	138.9	M3	.001	311.2
MK3	.001	112.6	SK3	.005	295.9
MN4	.002	317.3	M4	.002	238.4
SN4	.003	9.0	MS4	.002	31.2
S4	.001	76.9			
2MN6	.004	76.3	M6	.001	199.0
2MS6	.003	145.0	2SM6	.002	233.7
M8	.001	296.2			

AGE	M2/S2	AGE	K1/O1	DL-SD	DL	SD	DL/SD	DL+SD
53	2.10	58	1.93	256	.47	.17	2.82	.63

MEAN TIDES, TIMES AND HEIGHTS

HHW		LHW	HLW		LLW
1525	.44			639	-.63

LARGE TIDES		RANGES	
.60	-1.05	1.07	1.64
HHW	LLW	MT	LT

AMPLITUDE VALUES ARE EXPRESSED IN DECIBARS

STATION 65950 PRELIMINARY RESULTS

	CONSTITUENT	FREQUENCY	C	ERR	S	ERR
1	Z0	0.00000000	-.000	.002	0.000	.000
2	MM	.00151215	.000	.002	-.002	.002
3	MSF	.00282193	-.000	.002	-.001	.002
4	ALP1	.03439657	.000	.002	-.002	.002
5	2Q1	.03570635	-.007	.002	.003	.002
6	Q1	.03721850	-.039	.002	-.006	.002
7	O1	.03873065	.123	.002	.185	.002
8	NO1	.04026859	-.009	.002	.037	.002
9	K1	.04178075	.302	.002	.000	.002
10	J1	.04329290	-.028	.002	-.010	.002
11	OO1	.04483084	.006	.002	.018	.002
12	UPS1	.04634299	.005	.002	-.003	.002
13	EPS2	.07617732	-.005	.002	-.006	.002
14	MU2	.07768947	.001	.002	-.002	.002
15	N2	.07899925	.024	.002	.007	.002
16	M2	.08051140	.028	.002	-.137	.002
17	L2	.08202355	-.001	.002	-.010	.002
18	S2	.08333333	.070	.002	.047	.002
19	ETA2	.08507364	.008	.002	-.007	.002
20	MO3	.11924206	-.004	.002	-.006	.002
21	M3	.12076710	-.001	.002	.000	.002
22	MK3	.12229215	-.000	.002	.001	.002
23	SK3	.12511408	.005	.002	-.002	.002
24	MN4	.15951065	.001	.002	-.001	.002
25	M4	.16102280	.001	.002	.001	.002
26	SN4	.16233258	.001	.002	.002	.002
27	MS4	.16384473	-.000	.002	-.002	.002
28	S4	.16666667	.001	.002	.000	.002
29	2MK5	.20280355	.001	.002	.002	.002
30	2SK5	.20844741	.000	.002	-.000	.002
31	2MN6	.24002205	.002	.002	-.001	.002
32	M6	.24153420	.000	.002	-.001	.002
33	2MS6	.24435613	.001	.002	-.002	.002
34	2SM6	.24717807	.000	.002	.001	.002
35	3MK7	.28331495	-.000	.002	-.000	.002
36	M8	.32204560	.000	.002	-.000	.002

NUMBER OF VALID DATA = 1027 AVERAGE = -.00 STANDARD DEVIATION = .30

THEORETICAL RMS = .05 MATRIX CONDITION = .35

RMS OF THE RESIDUES = .05087

THE PREVIOUS C AND S VALUES WILL BE SCALED TO COMPENSATE FOR
THE PRIOR APPLICATION OF MOVING AVERAGE FILTERS

ORIGINAL DT = .25000 HR FILTERS = 4 4 5

ANALYSIS OF HOURLY TIDAL HEIGHTS STN 65950 4H 8/ 3/84 TO 22H 19/ 4/84

NO.OBS.= 1027 NO.PTS.ANAL.= 1027 MIDPT=13H 29/ 3/84 SEPARATION =1.00

TIME ZONE=+6.0 LATITUDE=70D 55M LONGITUDE= 89D 27M REF. STATION= 5560

NO.	NAME	FREQUENCY	M-Y/ M-Y	A	G	AL	GL
1	Z0	0.00000000	384- 484	.0001	180.00	.0001	180.00
2	MM	.00151215	384- 484	.0023	84.54	.0023	271.14
3	MSF	.00282193	384- 484	.0013	205.41	.0013	268.60
4	ALP1	.03439657	384- 484	.0021	337.33	.0023	279.45
5	2Q1	.03570635	384- 484	.0068	333.92	.0078	154.92
6	Q1	.03721850	384- 484	.0359	183.86	.0397	189.08
7	O1	.03873065	384- 484	.2075	226.84	.2236	56.43
8	NO1	.04026859	384- 484	.0290	236.05	.0378	103.20
9	K1	.04178075	384- 484	.2898	284.41	.3048	.09
10	J1	.04329290	384- 484	.0262	300.77	.0299	199.86
11	OO1	.04483084	384- 484	.0136	290.89	.0188	72.37
12	UPS1	.04634299	384- 484	.0042	2.89	.0058	333.04
13	EPS2	.07617732	384- 484	.0075	204.33	.0078	228.49
14	MU2	.07768947	384- 484	.0024	96.92	.0024	303.96
15	N2	.07899925	384- 484	.0251	290.31	.0260	16.67
16	M2	.08051140	384- 484	.1467	12.81	.1450	281.50
17	L2	.08202355	384- 484	.0179	328.42	.0109	265.10
18	S2	.08333333	384- 484	.0878	64.13	.0879	34.00
19	ETA2	.08507364	384- 484	.0080	162.87	.0105	318.10
20	MO3	.11924206	384- 484	.0070	138.86	.0075	237.13
21	M3	.12076710	384- 484	.0010	311.24	.0009	174.55
22	MK3	.12229215	384- 484	.0014	112.64	.0014	97.01
23	SK3	.12511408	384- 484	.0050	295.87	.0053	341.42
24	MN4	.15951065	384- 484	.0017	317.33	.0018	312.37
25	M4	.16102280	384- 484	.0017	238.35	.0017	55.73
26	SN4	.16233258	384- 484	.0028	9.01	.0029	65.23
27	MS4	.16384473	384- 484	.0022	31.23	.0021	269.78
28	S4	.16666667	384- 484	.0010	76.87	.0010	16.61
29	2MK5	.20280355	384- 484	.0025	165.54	.0026	58.59
30	2SK5	.20844741	384- 484	.0002	313.43	.0002	328.85
31	2MN6	.24002205	384- 484	.0036	76.34	.0036	340.07
32	M6	.24153420	384- 484	.0014	199.00	.0014	285.06
33	2MS6	.24435613	384- 484	.0026	145.00	.0025	292.24
34	2SM6	.24717807	384- 484	.0020	233.73	.0019	82.16
35	3MK7	.28331495	384- 484	.0006	78.63	.0006	240.37
36	M8	.32204560	384- 484	.0009	296.18	.0008	290.92

ANALYSIS OF HOURLY TIDAL HEIGHTS STN 65950 4H 8/ 3/84 TO 22H 19/ 4/84

NO.OBS.= 1027 NO.PTS.ANAL.= 1027 MIDPT=13H 29/ 3/84 SEPARATION =1.00

TIME ZONE=+6.0 LATITUDE=70D 55M LONGITUDE= 89D 27M REF. STATION= 5560

NO.	NAME	FREQUENCY	M-Y/ M-Y	A	G		AL	GL
1	Z0	0.00000000	384- 484	.0001	180.00		.0001	180.00
2	MM	.00151215	384- 484	.0023	84.54		.0023	271.14
3	MSF	.00282193	384- 484	.0013	205.41		.0013	268.60
4	ALP1	.03439657	384- 484	.0021	337.33		.0023	279.45
5	2Q1	.03570635	384- 484	.0068	333.92		.0078	154.92
6	Q1	.03721850	384- 484	.0359	183.86		.0397	189.08
7	O1	.03873065	384- 484	.2075	226.84		.2236	56.43
8	NO1	.04026859	384- 484	.0290	236.05		.0378	103.20
9	P1	.04155259	384- 484	.1269	280.29	INF FR K1	.1262	182.94
10	K1	.04178075	384- 484	.3992	285.19		.4198	.87
11	J1	.04329290	384- 484	.0262	300.77		.0299	199.86
12	OO1	.04483084	384- 484	.0136	290.89		.0188	72.37
13	UPS1	.04634299	384- 484	.0042	2.89		.0058	333.04
14	EPS2	.07617732	384- 484	.0075	204.33		.0078	228.49
15	MU2	.07768947	384- 484	.0024	96.92		.0024	303.96
16	N2	.07899925	384- 484	.0251	290.31		.0260	16.67
17	M2	.08051140	384- 484	.1467	12.81		.1450	281.50
18	L2	.08202355	384- 484	.0179	328.42		.0109	265.10
19	S2	.08333333	384- 484	.0700	65.30		.0700	35.17
20	K2	.08356149	384- 484	.0176	57.70	INF FR S2	.0196	29.41
21	ETA2	.08507364	384- 484	.0080	162.87		.0105	318.10
22	MO3	.11924206	384- 484	.0070	138.86		.0075	237.13
23	M3	.12076710	384- 484	.0010	311.24		.0009	174.55
24	MK3	.12229215	384- 484	.0014	112.64		.0014	97.01
25	SK3	.12511408	384- 484	.0050	295.87		.0053	341.42
26	MN4	.15951065	384- 484	.0017	317.33		.0018	312.37
27	M4	.16102280	384- 484	.0017	238.35		.0017	55.73
28	SN4	.16233258	384- 484	.0028	9.01		.0029	65.23
29	MS4	.16384473	384- 484	.0022	31.23		.0021	269.78
30	S4	.16666667	384- 484	.0010	76.87		.0010	16.61
31	2MK5	.20280355	384- 484	.0025	165.54		.0026	58.59
32	2SK5	.20844741	384- 484	.0002	313.43		.0002	328.85
33	2MN6	.24002205	384- 484	.0036	76.34		.0036	340.07
34	M6	.24153420	384- 484	.0014	199.00		.0014	285.06
35	2MS6	.24435613	384- 484	.0026	145.00		.0025	292.24
36	2SM6	.24717807	384- 484	.0020	233.73		.0019	82.16
37	3MK7	.28331495	384- 484	.0006	78.63		.0006	240.37
38	M8	.32204560	384- 484	.0009	296.18		.0008	290.92

AFTER INFERENCE, RMS(RESID ERROR)= .03619

```
  65950            EASTER CAPE, GULF OF BOOTHIA - 70 55 N  89 27 W
  65950            DATA ARE REFERRED TO CST (+6) TIME ZONE
  65950            DATA ARE PRESSURES IN MILLIBARS
  65950            REFERENCE LEVEL IS Z0 (MEAN PRESSURE)
  65950            ORIGINAL 15 MINUTE DATA SMOOTHED USING A
  65950              4,4,5 MOVING AVERAGE FILTER
  65950            A 24,24,25 LOW PASS FILTER HAS BEEN SUBTRACTED
1 65950      8 384999999999999   8   3  -5 -11 -15 -16 -17 -14  -6
2 65950      8 384   4  12  17  18  15   8   0 -10 -18 -24 -25 -20
1 65950      9 384 -12  -6   1   6   7   6   4   3   2   0   2   8
2 65950      9 384  15  20  24  25  23  16   3 -10 -20 -28 -33 -34
1 65950     10 384 -28 -20 -10   1   9  13  15  16  16  14  13  17
2 65950     10 384  23  26  25  22  17  10   0 -12 -23 -31 -38 -41
1 65950     11 384 -41 -36 -27 -14  -3   5  10  17  23  26  26  27
2 65950     11 384  30  30  27  22  16   9   0 -10 -22 -31 -39 -44
1 65950     12 384 -46 -43 -37 -26 -15  -3   8  18  28  36  41  43
2 65950     12 384  44  43  41  35  27  19  10   0 -11 -22 -33 -42
1 65950     13 384 -47 -50 -50 -45 -37 -26 -14   0  14  27  36  42
2 65950     13 384  44  41  37  33  28  22  13   3  -7 -16 -27 -39
1 65950     14 384 -49 -54 -55 -53 -47 -37 -22  -5  12  29  45  57
2 65950     14 384  63  62  54  45  39  31  22  10  -1 -11 -21 -32
1 65950     15 384 -44 -54 -60 -63 -61 -55 -44 -27  -5  15  33  46
2 65950     15 384  55  60  60  53  41  32  26  19   9   0  -9 -17
1 65950     16 384 -27 -40 -52 -59 -62 -60 -54 -42 -21   3  25  43
2 65950     16 384  53  56  55  50  40  29  20  17  13   7   2  -4
1 65950     17 384 -10 -18 -33 -47 -57 -59 -57 -50 -35 -12  11  32
2 65950     17 384  48  51  48  42  32  22  12   6   7  11  10   8
1 65950     18 384   5  -1 -10 -24 -38 -46 -47 -45 -36 -17   4  24
2 65950     18 384  36  39  37  33  25  15   4  -5  -6  -3   2   5
1 65950     19 384   5   3  -4 -14 -25 -33 -37 -37 -33 -21  -4  14
2 65950     19 384  29  36  38  33  20   4  -8 -17 -20 -19 -13  -2
1 65950     20 384   6  12  14  10  -1 -13 -21 -24 -23 -16  -4  12
2 65950     20 384  26  35  36  30  19   1 -16 -26 -32 -31 -26 -14
1 65950     21 384  -1  10  17  18  13   3  -5  -9 -10  -8  -2  11
2 65950     21 384  24  29  30  24  13  -2 -19 -33 -39 -40 -36 -26
1 65950     22 384 -11   4  16  23  24  20  13  10   9   8  10  17
2 65950     22 384  26  28  26  20   9  -2 -18 -36 -47 -52 -51 -44
1 65950     23 384 -32 -15   3  18  25  25  22  20  19  18  18  21
2 65950     23 384  25  27  24  18   8  -1 -14 -32 -46 -55 -57 -53
1 65950     24 384 -43 -29 -11   8  21  27  30  32  34  35  35  34
2 65950     24 384  35  34  30  23  14   4  -7 -22 -38 -51 -59 -61
1 65950     25 384 -58 -48 -35 -18  -2  10  20  28  34  40  42  43
2 65950     25 384  42  40  37  31  22  12   1  -9 -23 -37 -48 -55
1 65950     26 384 -56 -54 -47 -36 -22  -6   8  21  32  41  47  48
2 65950     26 384  47  43  38  31  24  15   5  -4 -13 -24 -36 -46
1 65950     27 384 -53 -56 -54 -48 -39 -24  -8   8  24  37  46  51
2 65950     27 384  52  47  40  32  26  18   9   1  -8 -15 -21 -32
1 65950     28 384 -44 -51 -55 -53 -48 -37 -22  -4  14  30  42  49
2 65950     28 384  52  50  42  32  23  17  13   6  -1  -7 -13 -18
1 65950     29 384 -28 -41 -50 -53 -52 -46 -35 -19   2  20  34  44
2 65950     29 384  47  46  40  30  20  13   9   7   3   1  -2  -5
1 65950     30 384 -10 -24 -37 -45 -49 -47 -38 -25  -6  13  28  39
2 65950     30 384  44  42  36  27  16   7   2   1   2   3   3   2
1 65950     31 384  -1  -9 -24 -37 -43 -44 -39 -30 -14   5  23  34
```

2	65950	31	384	40	41	36	26	15	4	-4	-4	0	5	7	7
1	65950	1	484	4	-3	-14	-27	-35	-38	-38	-33	-23	-5	12	26
2	65950	1	484	35	36	32	22	10	-2	-11	-14	-9	-2	3	7
1	65950	2	484	8	5	-2	-12	-19	-23	-24	-24	-18	-5	9	22
2	65950	2	484	31	34	31	22	10	-3	-14	-21	-19	-14	-6	1
1	65950	3	484	6	7	4	2	-2	-7	-14	-20	-18	-11	-1	9
2	65950	3	484	18	22	21	16	7	-4	-15	-22	-22	-16	-8	1
1	65950	4	484	10	17	19	16	13	9	5	-2	-4	0	7	11
2	65950	4	484	14	15	12	4	-8	-18	-26	-33	-37	-34	-25	-14
1	65950	5	484	-4	6	14	17	17	18	16	11	8	11	16	19
2	65950	5	484	19	18	15	8	-5	-19	-29	-35	-40	-40	-34	-22
1	65950	6	484	-9	4	15	22	24	25	25	23	18	18	22	25
2	65950	6	484	23	18	12	4	-7	-23	-36	-45	-50	-52	-49	-40
1	65950	7	484	-25	-8	8	20	27	30	30	31	31	29	31	35
2	65950	7	484	34	28	20	10	0	-12	-27	-41	-51	-56	-56	-50
1	65950	8	484	-39	-21	-2	12	22	27	30	33	34	33	32	33
2	65950	8	484	33	30	22	12	2	-11	-24	-38	-51	-58	-59	-57
1	65950	9	484	-48	-34	-17	0	15	25	33	39	43	46	46	46
2	65950	9	484	46	42	34	23	10	-4	-17	-32	-44	-53	-60	-62
1	65950	10	484	-58	-51	-39	-23	-7	8	24	36	45	51	55	55
2	65950	10	484	52	48	41	32	19	6	-8	-21	-34	-45	-53	-60
1	65950	11	484	-62	-60	-54	-44	-29	-12	6	24	37	48	54	55
2	65950	11	484	52	46	38	31	22	10	-1	-11	-20	-26	-32	-40
1	65950	12	484	-48	-52	-53	-49	-40	-25	-7	13	30	42	50	52
2	65950	12	484	48	41	32	23	16	9	0	-8	-14	-18	-24	-31
1	65950	13	484	-38	-41	-41	-38	-33	-24	-10	8	25	37	46	49
2	65950	13	484	48	45	36	24	13	4	-3	-10	-15	-18	-22	-26
1	65950	14	484	-32	-34	-35	-33	-30	-27	-19	-4	12	27	37	45
2	65950	14	484	47	43	33	18	3	-7	-11	-12	-14	-15	-13	-11
1	65950	15	484	-13	-17	-21	-23	-21	-19	-16	-7	9	24	36	41
2	65950	15	484	41	35	23	8	-7	-18	-25	-25	-21	-18	-13	-7
1	65950	16	484	-3	-1	-4	-12	-16	-16	-17	-13	-5	9	25	34
2	65950	16	484	39	40	29	10	-8	-22	-31	-34	-32	-22	-7	6
1	65950	17	484	19	26	24	15	5	-5	-11	-12	-8	2	13	21
2	65950	17	484	29	30	21	5	-16	-36	-49	-57	-57	-47	-29	-5
1	65950	18	484	17	32	36	32	23	16	10	5	5	10	20	28
2	65950	18	484	31	28	17	3	-16	-39	-54	-60	-61	-55	-38	-16
1	65950	19	484	8	26	36	40	41	38	33	28	25	26	29	29
2	65950	19	484	28	25	16	3	-14	-32	-45	-54	-60	-6199999999		

MARTIN ISLANDS

GULF OF BOOTHIA

STATION NUMBER 65960

STATION NUMBER	NAME	ZONE	LAT	LONG	ANALYSIS LENGTH	C.T.
65960	MARTIN ISLANDS	+6.0	7019 NORTH	9140 WEST	41 DAYS	384 MOYR

REFERENCE STATION - 5560

Z0 0.000 (C.T. 384)

CONSTITUENT	AMPLITUDE	PHASE	CONSTITUENT	AMPLITUDE	PHASE
MSF	.001	228.9			
2Q1	.003	288.2	Q1	.037	157.3
O1	.247	203.0	NO1	.034	215.5
P1	.155	253.2	K1	.486	258.1
J1	.031	278.0	OO1	.018	269.7
MU2	.015	37.0	N2	.073	13.5
M2	.421	56.1	L2	.019	14.2
S2	.174	101.5	K2	.044	93.9
MO3	.005	147.4	M3	.002	226.1
MK3	.002	110.5	SK3	.005	313.1
MN4	.001	267.0	M4	.002	347.4
SN4	.002	326.3	MS4	.001	67.5
2MN6	.005	42.5	M6	.003	150.1
2MS6	.004	118.1	2SM6	.002	184.1

AGE	M2/S2	AGE	K1/O1	DL-SD	DL	SD	DL/SD	DL+SD
45	2.42	55	1.97	210	.57	.46	1.22	1.03

MEAN TIDES, TIMES AND HEIGHTS

HHW		LHW		HLW		LLW	
1501	.99	124	-.00	2215	-.38	729	-.78

LARGE TIDES		RANGES	
1.37	-1.51	1.77	2.88
HHW	LLW	MT	LT

AMPLITUDE VALUES ARE EXPRESSED IN DECIBARS

STATION 65960 PRELIMINARY RESULTS

	CONSTITUENT	FREQUENCY	C	ERR	S	ERR
1	Z0	0.00000000	-.000	.002	0.000	.000
2	MM	.00151215	.000	.003	-.000	.003
3	MSF	.00282193	.000	.003	-.001	.003
4	ALP1	.03439657	.003	.003	.005	.003
5	2Q1	.03570635	.002	.003	-.002	.003
6	Q1	.03721850	.041	.003	.001	.003
7	O1	.03873065	-.186	.003	-.187	.003
8	NO1	.04026859	-.001	.003	-.044	.003
9	K1	.04178075	-.325	.003	.172	.003
10	J1	.04329290	.035	.003	-.006	.003
11	OO1	.04483084	-.020	.003	-.015	.003
12	UPS1	.04634299	-.000	.003	.003	.003
13	EPS2	.07617732	.001	.003	-.008	.003
14	MU2	.07768947	-.000	.003	-.014	.003
15	N2	.07899925	-.035	.003	.064	.003
16	M2	.08051140	.370	.003	-.157	.003
17	L2	.08202355	.008	.003	-.008	.003
18	S2	.08333333	.072	.003	.198	.003
19	ETA2	.08507364	.008	.003	-.010	.003
20	MO3	.11924206	-.000	.003	.005	.003
21	M3	.12076710	.001	.003	-.002	.003
22	MK3	.12229215	.001	.003	-.002	.003
23	SK3	.12511408	-.004	.003	.000	.003
24	MN4	.15951065	.000	.003	-.001	.003
25	M4	.16102280	-.002	.003	-.000	.003
26	SN4	.16233258	.001	.003	.001	.003
27	MS4	.16384473	.001	.003	-.001	.003
28	S4	.16666667	-.000	.003	-.000	.003
29	2MK5	.20280355	-.001	.003	-.003	.003
30	2SK5	.20844741	-.000	.003	.000	.003
31	2MN6	.24002205	.004	.003	-.001	.003
32	M6	.24153420	.000	.003	-.002	.003
33	2MS6	.24435613	.001	.003	-.003	.003
34	2SM6	.24717807	.001	.003	.001	.003
35	3MK7	.28331495	-.000	.003	.001	.003
36	M8	.32204560	.000	.003	.000	.003

NUMBER OF VALID DATA = 1007 AVERAGE = -.00 STANDARD DEVIATION = .47

THEORETICAL RMS = .06 MATRIX CONDITION = .34

RMS OF THE RESIDUES = .05667

THE PREVIOUS C AND S VALUES WILL BE SCALED TO COMPENSATE FOR
THE PRIOR APPLICATION OF MOVING AVERAGE FILTERS

ORIGINAL DT = .25000 HR FILTERS = 4 4 5

ANALYSIS OF HOURLY TIDAL HEIGHTS STN 65960 2H 9/ 3/84 TO 24H 19/ 4/84

NO.OBS.= 1007 NO.PTS.ANAL.= 1007 MIDPT= 1H 30/ 3/84 SEPARATION =1.00

TIME ZONE=+6.0 LATITUDE=70D 19M LONGITUDE= 91D 40M REF. STATION= 5560

NO.	NAME	FREQUENCY	M-Y/ M-Y	A	G	AL	GL
1	Z0	0.00000000	384- 484	.0000	180.00	.0000	180.00
2	MM	.00151215	384- 484	.0003	120.16	.0003	300.23
3	MSF	.00282193	384- 484	.0007	228.87	.0007	279.86
4	ALP1	.03439657	384- 484	.0056	263.68	.0061	57.19
5	2Q1	.03570635	384- 484	.0027	288.18	.0030	314.91
6	Q1	.03721850	384- 484	.0373	157.28	.0412	1.70
7	O1	.03873065	384- 484	.2466	202.96	.2658	225.23
8	NO1	.04026859	384- 484	.0338	215.47	.0441	268.76
9	K1	.04178075	384- 484	.3526	256.93	.3708	152.11
10	J1	.04329290	384- 484	.0312	278.02	.0356	350.11
11	OO1	.04483084	384- 484	.0181	269.66	.0251	217.47
12	UPS1	.04634299	384- 484	.0021	322.88	.0028	92.84
13	EPS2	.07617732	384- 484	.0082	222.29	.0086	277.36
14	MU2	.07768947	384- 484	.0149	37.03	.0149	268.45
15	N2	.07899925	384- 484	.0725	13.49	.0750	118.55
16	M2	.08051140	384- 484	.4212	56.06	.4164	336.94
17	L2	.08202355	384- 484	.0188	14.20	.0115	316.41
18	S2	.08333333	384- 484	.2185	100.16	.2187	70.03
19	ETA2	.08507364	384- 484	.0105	161.21	.0139	308.95
20	MO3	.11924206	384- 484	.0050	147.39	.0053	90.54
21	M3	.12076710	384- 484	.0019	226.12	.0019	287.71
22	MK3	.12229215	384- 484	.0019	110.54	.0020	286.60
23	SK3	.12511408	384- 484	.0045	313.13	.0048	178.18
24	MN4	.15951065	384- 484	.0011	267.04	.0012	292.98
25	M4	.16102280	384- 484	.0023	347.36	.0023	189.11
26	SN4	.16233258	384- 484	.0015	326.35	.0016	41.28
27	MS4	.16384473	384- 484	.0014	67.50	.0014	318.25
28	S4	.16666667	384- 484	.0004	311.68	.0004	251.42
29	2MK5	.20280355	384- 484	.0032	157.86	.0033	254.80
30	2SK5	.20844741	384- 484	.0001	271.80	.0001	106.73
31	2MN6	.24002205	384- 484	.0049	42.46	.0050	349.28
32	M6	.24153420	384- 484	.0026	150.12	.0025	272.76
33	2MS6	.24435613	384- 484	.0042	118.15	.0041	289.77
34	2SM6	.24717807	384- 484	.0019	184.13	.0019	44.75
35	3MK7	.28331495	384- 484	.0011	80.64	.0011	98.46
36	M8	.32204560	384- 484	.0005	332.82	.0005	16.33

ANALYSIS OF HOURLY TIDAL HEIGHTS STN 65960 2H 9/ 3/84 TO 24H 19/ 4/84

NO.OBS.= 1007 NO.PTS.ANAL.= 1007 MIDPT= 1H 30/ 3/84 SEPARATION =1.00

TIME ZONE=+6.0 LATITUDE=70D 19M LONGITUDE= 91D 40M REF. STATION= 5560

NO.	NAME	FREQUENCY	M-Y/ M-Y	A	G		AL	GL
1	Z0	0.00000000	384- 484	.0000	180.00		.0000	180.00
2	MM	.00151215	384- 484	.0003	120.16		.0003	300.23
3	MSF	.00282193	384- 484	.0007	228.87		.0007	279.86
4	ALP1	.03439657	384- 484	.0056	263.68		.0061	57.19
5	2Q1	.03570635	384- 484	.0027	288.18		.0030	314.91
6	Q1	.03721850	384- 484	.0373	157.28		.0412	1.70
7	O1	.03873065	384- 484	.2466	202.96		.2658	225.23
8	NO1	.04026859	384- 484	.0338	215.47		.0441	268.76
9	P1	.04155259	384- 484	.1546	253.19	INF FR K1	.1537	336.33
10	K1	.04178075	384- 484	.4862	258.09		.5113	153.27
11	J1	.04329290	384- 484	.0312	278.02		.0356	350.11
12	OO1	.04483084	384- 484	.0181	269.66		.0251	217.47
13	UPS1	.04634299	384- 484	.0021	322.88		.0028	92.84
14	EPS2	.07617732	384- 484	.0082	222.29		.0086	277.36
15	MU2	.07768947	384- 484	.0149	37.03		.0149	268.45
16	N2	.07899925	384- 484	.0725	13.49		.0750	118.55
17	M2	.08051140	384- 484	.4212	56.06		.4164	336.94
18	L2	.08202355	384- 484	.0188	14.20		.0115	316.41
19	S2	.08333333	384- 484	.1741	101.54		.1743	71.41
20	K2	.08356149	384- 484	.0438	93.94	INF FR S2	.0488	64.66
21	ETA2	.08507364	384- 484	.0105	161.21		.0139	308.95
22	MO3	.11924206	384- 484	.0050	147.39		.0053	90.54
23	M3	.12076710	384- 484	.0019	226.12		.0019	287.71
24	MK3	.12229215	384- 484	.0019	110.54		.0020	286.60
25	SK3	.12511408	384- 484	.0045	313.13		.0048	178.18
26	MN4	.15951065	384- 484	.0011	267.04		.0012	292.98
27	M4	.16102280	384- 484	.0023	347.36		.0023	189.11
28	SN4	.16233258	384- 484	.0015	326.35		.0016	41.28
29	MS4	.16384473	384- 484	.0014	67.50		.0014	318.25
30	S4	.16666667	384- 484	.0004	311.68		.0004	251.42
31	2MK5	.20280355	384- 484	.0032	157.86		.0033	254.80
32	2SK5	.20844741	384- 484	.0001	271.80		.0001	106.73
33	2MN6	.24002205	384- 484	.0049	42.46		.0050	349.28
34	M6	.24153420	384- 484	.0026	150.12		.0025	272.76
35	2MS6	.24435613	384- 484	.0042	118.15		.0041	289.77
36	2SM6	.24717807	384- 484	.0019	184.13		.0019	44.75
37	3MK7	.28331495	384- 484	.0011	80.64		.0011	98.46
38	M8	.32204560	384- 484	.0005	332.82		.0005	16.33

AFTER INFERENCE, RMS(RESID ERROR)= .03630

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  65960            MARTIN ISLANDS, GULF OF BOOTHIA - 70 19 N  91 40 W
  65960            DATA ARE REFERRED TO CST (+6) TIME ZONE
  65960            DATA ARE PRESSURES IN MILLIBARS
  65960            REFERENCE LEVEL IS Z0 (MEAN PRESSURE)
  65960            ORIGINAL 15 MINUTE DATA SMOOTHED USING A
  65960              4,4,5 MOVING AVERAGE FILTER
  65960            A 24,24,25 LOW PASS FILTER HAS BEEN SUBTRACTED
1 65960        9 3849999 -26  -3  20  37  44  42  34  20   2 -10 -13
2 65960        9 384 -11  -4   7  21  30  28  18   2 -18 -38 -54 -60
1 65960       10 384 -56 -42 -20   7  30  46  54  54  45  30  13   3
2 65960       10 384  -1  -2  -2   4   9  11   5  -6 -20 -34 -48 -59
1 65960       11 384 -61 -55 -38 -15  10  31  46  56  59  53  42  30
2 65960       11 384  19   9  -1  -6  -8  -8  -9 -14 -23 -32 -41 -50
1 65960       12 384 -55 -55 -46 -30  -9  13  34  52  65  71  69  61
2 65960       12 384  49  35  19   5  -5 -12 -16 -18 -22 -28 -35 -42
1 65960       13 384 -50 -55 -57 -54 -43 -25  -2  23  46  65  76  78
2 65960       13 384  69  53  34  13  -6 -20 -28 -31 -31 -30 -31 -36
1 65960       14 384 -41 -47 -52 -56 -53 -42 -21   7  38  67  91 105
2 65960       14 384 106  93  68  39  10 -14 -33 -44 -46 -41 -34 -32
1 65960       15 384 -35 -41 -49 -59 -65 -65 -55 -32   3  40  73  98
2 65960       15 384 110 109  94  64  27  -3 -26 -42 -49 -44 -33 -21
1 65960       16 384 -16 -19 -29 -42 -57 -69 -72 -61 -33   6  49  86
2 65960       16 384 109 117 110  85  47   5 -28 -46 -55 -52 -38 -18
1 65960       17 384   1   9   1 -16 -37 -59 -75 -79 -63 -31  12  57
2 65960       17 384  94 112 111  95  63  21 -21 -51 -62 -57 -44 -21
1 65960       18 384   5  25  29  17  -5 -32 -56 -74 -76 -56 -20  22
2 65960       18 384  61  89 100  94  70  33 -10 -47 -65 -69 -57 -34
1 65960       19 384  -5  22  38  40  25   1 -26 -51 -67 -63 -41  -8
2 65960       19 384  28  62  84  89  72  38  -1 -38 -67 -80 -74 -52
1 65960       20 384 -20  16  46  61  56  36  10 -19 -45 -58 -52 -29
2 65960       20 384   2  33  59  72  66  41   7 -28 -59 -78 -80 -63
1 65960       21 384 -34   2  37  61  69  59  39  14 -14 -37 -45 -37
2 65960       21 384 -16   6  28  44  47  34   9 -21 -48 -68 -77 -68
1 65960       22 384 -44 -11  24  54  72  74  63  44  21  -4 -23 -27
2 65960       22 384 -19  -8   4  15  21  18   2 -23 -46 -63 -74 -74
1 65960       23 384 -59 -30   4  38  62  73  72  63  47  25   4 -11
2 65960       23 384 -15 -14 -11  -5   0   2  -5 -21 -41 -55 -64 -68
1 65960       24 384 -61 -41 -12  19  47  64  74  76  71  57  39  22
2 65960       24 384   8  -2  -8 -13 -14 -14 -16 -25 -38 -51 -60 -66
1 65960       25 384 -65 -55 -38 -13  14  37  56  68  74  73  65  51
2 65960       25 384  35  21   7  -5 -15 -21 -24 -27 -34 -42 -49 -54
1 65960       26 384 -56 -54 -48 -34 -15   8  30  50  66  76  78  72
2 65960       26 384  59  40  21   2 -14 -25 -33 -35 -34 -36 -39 -42
1 65960       27 384 -45 -48 -48 -44 -35 -18   3  27  50  69  81  84
2 65960       27 384  77  61  38  13  -8 -25 -36 -42 -41 -35 -30 -31
1 65960       28 384 -35 -38 -43 -46 -45 -38 -22   2  29  54  75  87
2 65960       28 384  89  79  57  29   1 -20 -34 -42 -42 -35 -24 -16
1 65960       29 384 -16 -23 -31 -38 -46 -49 -42 -24   3  32  59  79
2 65960       29 384  89  85  69  43  12 -16 -34 -42 -43 -35 -21  -6
1 65960       30 384   2  -2 -13 -25 -39 -50 -52 -42 -20  11  41  67
2 65960       30 384  83  84  73  50  20 -12 -36 -47 -49 -40 -23  -4
1 65960       31 384  11  15   5 -10 -25 -42 -53 -52 -36  -9  22  52
2 65960       31 384  74  83  78  60  31  -3 -34 -50 -52 -43 -26  -5
1 65960        1 484  14  24  20   5 -13 -31 -49 -57 -51 -30   0  31
```

2	65960	1	484	58	74	75	61	35	2	-31	-53	-59	-51	-34	-10
1	65960	2	484	15	33	38	29	13	-8	-30	-47	-50	-38	-16	11
2	65960	2	484	40	62	70	61	40	9	-25	-51	-62	-60	-46	-22
1	65960	3	484	7	31	44	47	37	16	-9	-33	-47	-46	-35	-14
2	65960	3	484	14	39	55	55	42	17	-13	-40	-56	-59	-48	-27
1	65960	4	484	4	34	55	62	57	42	17	-11	-32	-38	-35	-24
2	65960	4	484	-6	16	31	33	23	4	-19	-44	-64	-69	-60	-40
1	65960	5	484	-12	21	49	65	68	61	43	16	-8	-21	-25	-23
2	65960	5	484	-13	3	19	25	18	3	-17	-37	-57	-68	-65	-49
1	65960	6	484	-23	9	41	64	75	74	62	40	14	-6	-15	-18
2	65960	6	484	-18	-11	0	7	5	-7	-23	-41	-58	-70	-73	-62
1	65960	7	484	-38	-7	27	56	75	82	77	63	42	19	3	-4
2	65960	7	484	-9	-10	-7	-2	-1	-7	-19	-36	-51	-64	-71	-68
1	65960	8	484	-53	-26	7	37	60	73	77	72	57	37	18	5
2	65960	8	484	-4	-11	-15	-15	-14	-16	-23	-35	-48	-59	-65	-67
1	65960	9	484	-59	-40	-13	16	43	64	78	83	79	68	52	35
2	65960	9	484	20	5	-9	-17	-23	-28	-33	-40	-47	-55	-60	-63
1	65960	10	484	-61	-52	-36	-14	12	37	61	78	87	87	79	64
2	65960	10	484	46	26	6	-12	-24	-33	-39	-43	-45	-46	-49	-53
1	65960	11	484	-57	-56	-51	-40	-22	2	28	53	74	87	92	84
2	65960	11	484	68	44	18	-6	-25	-40	-46	-46	-41	-33	-28	-28
1	65960	12	484	-32	-38	-43	-44	-41	-27	-4	25	53	76	91	93
2	65960	12	484	82	60	31	1	-25	-44	-55	-55	-45	-31	-19	-12
1	65960	13	484	-12	-16	-23	-31	-37	-36	-23	1	29	55	77	89
2	65960	13	484	90	77	51	16	-18	-44	-61	-67	-60	-44	-23	-5
1	65960	14	484	5	7	1	-10	-24	-36	-38	-26	-3	24	54	77
2	65960	14	484	89	85	64	29	-9	-44	-65	-74	-72	-53	-25	4
1	65960	15	484	24	31	28	17	-1	-22	-39	-41	-25	-1	27	56
2	65960	15	484	75	79	65	36	-2	-39	-69	-82	-80	-66	-39	-3
1	65960	16	484	29	49	53	42	23	-1	-28	-46	-46	-30	-3	26
2	65960	16	484	56	74	72	50	17	-20	-56	-81	-89	-77	-48	-8
1	65960	17	484	35	68	82	77	58	28	-8	-38	-56	-54	-37	-11
2	65960	17	484	21	47	55	43	18	-16	-53	-83	-101	-97	-71	-27
1	65960	18	484	22	65	92	99	90	67	34	-4	-33	-44	-38	-22
2	65960	18	484	-2	18	32	33	17	-12	-44	-71	-91	-94	-76	-41
1	65960	19	484	4	48	82	102	106	94	68	35	4	-17	-28	-28
2	65960	19	484	-19	-5	7	12	6	-11	-32	-56	-77	-89	-86	-66

CAPE CHAPMAN

GULF OF BOOTHIA

STATION NUMBER 65975

STATION NUMBER	NAME	ZONE	LAT	LONG	ANALYSIS LENGTH	C.T.
65975	CAPE CHAPMAN	+6.0	6918	8915	41	384
			NORTH	WEST	DAYS	MOYR

REFERENCE STATION - 5560

Z0 0.000 (C.T. 384)

CONSTITUENT	AMPLITUDE	PHASE	CONSTITUENT	AMPLITUDE	PHASE
MM	.001	135.9	MSF	.001	211.9
2Q1	.005	297.5	Q1	.045	166.5
O1	.295	216.1	NO1	.041	230.1
P1	.192	267.7	K1	.602	272.6
J1	.036	294.8	OO1	.023	288.6
MU2	.025	93.8	N2	.104	82.4
M2	.565	114.6	L2	.019	91.0
S2	.230	161.9	K2	.058	154.3
MO3	.012	175.4	M3	.001	220.8
MK3	.005	318.1	SK3	.004	314.7
MN4	.005	175.9	M4	.007	218.5
SN4	.004	347.8	MS4	.004	281.5
S4	.002	318.4			
2MN6	.003	44.0	M6	.002	123.7
2MS6	.003	143.8	2SM6	.001	197.4
M8	.001	118.5			

AGE	M2/S2	AGE	K1/O1	DL-SD	DL	SD	DL/SD	DL+SD
47	2.46	57	2.04	195	.70	.62	1.12	1.32

MEAN TIDES, TIMES AND HEIGHTS

HHW		LHW		HLW		LLW	
1646	1.31	358	-.03	2413	-.71	921	-.83

LARGE TIDES		RANGES	
1.94	-1.75	2.15	3.68
HHW	LLW	MT	LT

AMPLITUDE VALUES ARE EXPRESSED IN DECIBARS

STATION 65975 PRELIMINARY RESULTS

	CONSTITUENT	FREQUENCY	C	ERR	S	ERR
1	Z0	0.00000000	.000	.002	0.000	.000
2	MM	.00151215	.001	.003	-.001	.003
3	MSF	.00282193	-.000	.003	-.001	.003
4	ALP1	.03439657	-.002	.003	.006	.003
5	2Q1	.03570635	.005	.003	-.002	.003
6	Q1	.03721850	.045	.003	.020	.003
7	O1	.03873065	-.096	.003	-.301	.003
8	NO1	.04026859	.025	.003	-.047	.003
9	K1	.04178075	-.455	.003	-.013	.003
10	J1	.04329290	.038	.003	.016	.003
11	OO1	.04483084	-.009	.003	-.029	.003
12	UPS1	.04634299	-.002	.003	.003	.003
13	EPS2	.07617732	.006	.003	-.002	.003
14	MU2	.07768947	.024	.003	-.003	.003
15	N2	.07899925	-.084	.003	-.061	.003
16	M2	.08051140	.232	.003	.486	.003
17	L2	.08202355	.005	.003	.010	.003
18	S2	.08333333	-.262	.003	.093	.003
19	ETA2	.08507364	.016	.003	.001	.003
20	MO3	.11924206	-.011	.003	.004	.003
21	M3	.12076710	.001	.003	-.001	.003
22	MK3	.12229215	-.005	.003	.000	.003
23	SK3	.12511408	-.003	.003	-.003	.003
24	MN4	.15951065	-.001	.003	-.005	.003
25	M4	.16102280	-.003	.003	.005	.003
26	SN4	.16233258	-.002	.003	.003	.003
27	MS4	.16384473	-.002	.003	-.003	.003
28	S4	.16666667	.001	.003	-.001	.003
29	2MK5	.20280355	.001	.003	.002	.003
30	2SK5	.20844741	-.000	.003	-.000	.003
31	2MN6	.24002205	.000	.003	.002	.003
32	M6	.24153420	.002	.003	-.001	.003
33	2MS6	.24435613	.002	.003	.001	.003
34	2SM6	.24717807	-.001	.003	.000	.003
35	3MK7	.28331495	.000	.003	.000	.003
36	M8	.32204560	.000	.003	-.000	.003

NUMBER OF VALID DATA = 1007 AVERAGE = -.00 STANDARD DEVIATION = .60

THEORETICAL RMS = .07 MATRIX CONDITION = .34

RMS OF THE RESIDUES = .07026

THE PREVIOUS C AND S VALUES WILL BE SCALED TO COMPENSATE FOR
THE PRIOR APPLICATION OF MOVING AVERAGE FILTERS

ORIGINAL DT = .25000 HR FILTERS = 4 4 5

ANALYSIS OF HOURLY TIDAL HEIGHTS STN 65975 1H 9/ 3/84 TO 23H 19/ 4/84

NO.OBS.= 1007 NO.PTS.ANAL.= 1007 MIDPT= 0H 30/ 3/84 SEPARATION =1.00

TIME ZONE=+6.0 LATITUDE=69D 18M LONGITUDE= 89D 15M REF. STATION= 5560

NO.	NAME	FREQUENCY	M-Y/ M-Y	A	G	AL	GL
1	Z0	0.00000000	384- 484	.0003	0.00	.0003	0.00
2	MM	.00151215	384- 484	.0010	135.86	.0010	316.47
3	MSF	.00282193	384- 484	.0009	211.89	.0009	263.90
4	ALP1	.03439657	384- 484	.0060	301.46	.0065	107.33
5	2Q1	.03570635	384- 484	.0048	297.52	.0054	337.06
6	Q1	.03721850	384- 484	.0451	166.54	.0499	24.35
7	O1	.03873065	384- 484	.2954	216.06	.3184	252.27
8	NO1	.04026859	384- 484	.0411	230.08	.0536	297.99
9	K1	.04178075	384- 484	.4369	271.47	.4595	181.69
10	J1	.04329290	384- 484	.0365	294.81	.0416	22.54
11	OO1	.04483084	384- 484	.0225	288.56	.0312	252.53
12	UPS1	.04634299	384- 484	.0027	333.66	.0036	120.33
13	EPS2	.07617732	384- 484	.0065	258.60	.0068	341.06
14	MU2	.07768947	384- 484	.0250	93.77	.0251	353.15
15	N2	.07899925	384- 484	.1040	82.40	.1075	215.88
16	M2	.08051140	384- 484	.5650	114.58	.5585	64.45
17	L2	.08202355	384- 484	.0186	91.02	.0114	62.43
18	S2	.08333333	384- 484	.2888	160.55	.2890	160.42
19	ETA2	.08507364	384- 484	.0123	185.83	.0162	4.25
20	MO3	.11924206	384- 484	.0122	175.41	.0130	161.49
21	M3	.12076710	384- 484	.0012	220.79	.0012	325.86
22	MK3	.12229215	384- 484	.0050	318.12	.0052	178.21
23	SK3	.12511408	384- 484	.0044	314.65	.0047	224.75
24	MN4	.15951065	384- 484	.0053	175.92	.0054	259.26
25	M4	.16102280	384- 484	.0072	218.48	.0070	118.21
26	SN4	.16233258	384- 484	.0042	347.77	.0043	121.12
27	MS4	.16384473	384- 484	.0042	281.52	.0041	231.25
28	S4	.16666667	384- 484	.0015	318.38	.0015	318.13
29	2MK5	.20280355	384- 484	.0027	262.87	.0027	72.82
30	2SK5	.20844741	384- 484	.0005	319.44	.0005	229.41
31	2MN6	.24002205	384- 484	.0027	44.00	.0027	77.20
32	M6	.24153420	384- 484	.0024	123.75	.0024	333.33
33	2MS6	.24435613	384- 484	.0030	143.84	.0029	43.44
34	2SM6	.24717807	384- 484	.0010	197.43	.0010	147.04
35	3MK7	.28331495	384- 484	.0007	242.28	.0007	2.10
36	M8	.32204560	384- 484	.0007	118.53	.0007	277.98

ANALYSIS OF HOURLY TIDAL HEIGHTS STN 65975 1H 9/ 3/84 TO 23H 19/ 4/84

NO.OBS.= 1007 NO.PTS.ANAL.= 1007 MIDPT= 0H 30/ 3/84 SEPARATION =1.00

TIME ZONE=+6.0 LATITUDE=69D 18M LONGITUDE= 89D 15M REF. STATION= 5560

NO.	NAME	FREQUENCY	M-Y/ M-Y	A	G		AL	GL
1	Z0	0.00000000	384- 484	.0003	0.00		.0003	0.00
2	MM	.00151215	384- 484	.0010	135.86		.0010	316.47
3	MSF	.00282193	384- 484	.0009	211.89		.0009	263.90
4	ALP1	.03439657	384- 484	.0060	301.46		.0065	107.33
5	2Q1	.03570635	384- 484	.0048	297.52		.0054	337.06
6	Q1	.03721850	384- 484	.0451	166.54		.0499	24.35
7	O1	.03873065	384- 484	.2954	216.06		.3184	252.27
8	NO1	.04026859	384- 484	.0411	230.08		.0536	297.99
9	P1	.04155259	384- 484	.1915	267.69	INF FR K1	.1905	5.79
10	K1	.04178075	384- 484	.6024	272.59		.6335	182.82
11	J1	.04329290	384- 484	.0365	294.81		.0416	22.54
12	OO1	.04483084	384- 484	.0225	288.56		.0312	252.53
13	UPS1	.04634299	384- 484	.0027	333.66		.0036	120.33
14	EPS2	.07617732	384- 484	.0065	258.60		.0068	341.06
15	MU2	.07768947	384- 484	.0250	93.77		.0251	353.15
16	N2	.07899925	384- 484	.1040	82.40		.1075	215.88
17	M2	.08051140	384- 484	.5650	114.58		.5585	64.45
18	L2	.08202355	384- 484	.0186	91.02		.0114	62.43
19	S2	.08333333	384- 484	.2301	161.91		.2303	161.78
20	K2	.08356149	384- 484	.0578	154.31	INF FR S2	.0645	155.11
21	ETA2	.08507364	384- 484	.0123	185.83		.0162	4.25
22	MO3	.11924206	384- 484	.0122	175.41		.0130	161.49
23	M3	.12076710	384- 484	.0012	220.79		.0012	325.86
24	MK3	.12229215	384- 484	.0050	318.12		.0052	178.21
25	SK3	.12511408	384- 484	.0044	314.65		.0047	224.75
26	MN4	.15951065	384- 484	.0053	175.92		.0054	259.26
27	M4	.16102280	384- 484	.0072	218.48		.0070	118.21
28	SN4	.16233258	384- 484	.0042	347.77		.0043	121.12
29	MS4	.16384473	384- 484	.0042	281.52		.0041	231.25
30	S4	.16666667	384- 484	.0015	318.38		.0015	318.13
31	2MK5	.20280355	384- 484	.0027	262.87		.0027	72.82
32	2SK5	.20844741	384- 484	.0005	319.44		.0005	229.41
33	2MN6	.24002205	384- 484	.0027	44.00		.0027	77.20
34	M6	.24153420	384- 484	.0024	123.75		.0024	333.33
35	2MS6	.24435613	384- 484	.0030	143.84		.0029	43.44
36	2SM6	.24717807	384- 484	.0010	197.43		.0010	147.04
37	3MK7	.28331495	384- 484	.0007	242.28		.0007	2.10
38	M8	.32204560	384- 484	.0007	118.53		.0007	277.98

AFTER INFERENCE, RMS(RESID ERROR)= .04168

```
  65975            CAPE CHAPMAN, GULF OF BOOTHIA - 69 18 N  89 15 W
  65975            DATA ARE REFERRED TO CST (+6) TIME ZONE
  65975            DATA ARE PRESSURES IN MILLIBARS
  65975            REFERENCE LEVEL IS Z0 (MEAN PRESSURE)
  65975            ORIGINAL 15 MINUTE DATA SMOOTHED USING A
  65975              4,4,5 MOVING AVERAGE FILTER
  65975            A 24,24,25 LOW PASS FILTER HAS BEEN SUBTRACTED
1 65975        9 384 -69 -70 -57 -32   0  31  56  67  64  47  25   4
2 65975        9 384 -13 -21 -21 -13   3  17  29  32  23   2 -25 -50
1 65975       10 384 -67 -74 -66 -46 -16  16  45  66  76  73  58  38
2 65975       10 384  16  -2 -14 -20 -15  -6   3   8   4  -8 -26 -45
1 65975       11 384 -61 -70 -70 -58 -36  -7  24  51  70  80  78  68
2 65975       11 384  52  32  12  -7 -20 -25 -25 -21 -18 -19 -27 -38
1 65975       12 384 -48 -57 -61 -58 -46 -25   1  30  57  77  90  93
2 65975       12 384  87  72  51  28   4 -16 -29 -35 -35 -33 -32 -35
1 65975       13 384 -41 -47 -54 -59 -60 -53 -39 -17  13  43  72  91
2 65975       13 384 100  97  83  60  30  -1 -28 -48 -57 -57 -49 -41
1 65975       14 384 -36 -36 -40 -46 -53 -56 -53 -39 -11  24  64  98
2 65975       14 384 122 132 126 104  71  31 -10 -44 -69 -80 -77 -63
1 65975       15 384 -47 -34 -31 -35 -46 -57 -67 -67 -53 -22  20  67
2 65975       15 384 108 136 146 134 103  60  14 -29 -62 -84 -88 -75
1 65975       16 384 -54 -30 -12  -8 -17 -37 -57 -72 -77 -60 -24  25
2 65975       16 384  75 119 146 152 133  92  40 -12 -54 -82 -96 -86
1 65975       17 384 -63 -30   0  17  16  -4 -34 -64 -82 -88 -67 -25
2 65975       17 384  27  81 123 146 144 116  68  12 -39 -77 -96 -95
1 65975       18 384 -73 -35   4  35  48  39  10 -28 -66 -89 -89 -65
2 65975       18 384 -21  33  84 121 135 124  85  31 -26 -74-100-107
1 65975       19 384 -92 -57 -12  31  60  67  51  14 -29 -65 -83 -76
2 65975       19 384 -51 -10  39  81 108 112  90  46  -8 -58 -91-106
1 65975       20 384-100 -73 -29  20  61  84  84  61  22 -22 -57 -73
2 65975       20 384 -67 -44  -4  39  72  88  83  54   9 -40 -80 -98
1 65975       21 384-100 -83 -43   4  50  83  96  88  60  20 -20 -49
2 65975       21 384 -62 -55 -35  -4  29  51  58  44  14 -25 -61 -85
1 65975       22 384 -90 -79 -50  -8  35  74  97 103  89  58  22 -13
2 65975       22 384 -36 -44 -40 -30  -7  10  21  19   2 -24 -51 -71
1 65975       23 384 -83 -80 -59 -26  14  54  84 100 100  84  56  24
2 65975       23 384  -4 -22 -32 -38 -30 -21 -12  -7 -12 -25 -42 -60
1 65975       24 384 -72 -72 -57 -34  -1  35  66  89 101  99  86  64
2 65975       24 384  39  16  -2 -19 -29 -33 -35 -33 -33 -36 -45 -57
1 65975       25 384 -67 -71 -65 -50 -26   2  33  59  81  94  97  90
2 65975       25 384  73  52  30  11 -10 -26 -37 -46 -47 -47 -48 -50
1 65975       26 384 -54 -57 -57 -51 -40 -23  -1  25  51  74  91  99
2 65975       26 384  95  81  59  35  11 -16 -36 -50 -59 -58 -54 -49
1 65975       27 384 -45 -45 -45 -45 -42 -36 -24  -5  20  48  74  93
2 65975       27 384 103 101  86  61  30   1 -25 -50 -62 -68 -63 -52
1 65975       28 384 -42 -34 -32 -33 -38 -40 -38 -29  -8  19  49  78
2 65975       28 384  99 109 105  85  55  20 -14 -40 -62 -71 -66 -54
1 65975       29 384 -37 -22 -14 -16 -24 -36 -44 -45 -36 -14  17  51
2 65975       29 384  82 103 110 100  74  38   0 -32 -55 -71 -68 -54
1 65975       30 384 -33 -12   3   5  -4 -20 -39 -51 -52 -41 -13  23
2 65975       30 384  59  89 105 104  85  52  11 -27 -54 -71 -76 -59
1 65975       31 384 -36  -9  12  21  16   0 -23 -45 -57 -54 -36  -4
2 65975       31 384  35  70  95 104  96  68  27 -16 -51 -72 -79 -67
1 65975        1 484 -43 -10  17  34  36  20  -6 -34 -56 -65 -56 -30
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2 65975         1 484   6  44  75  93  92  72  36  -6 -45 -73 -85 -77
1 65975         2 484 -53 -16  21  49  59  51  26  -6 -36 -55 -60 -45
2 65975         2 484 -19  16  51  76  86  76  47   7 -35 -69 -87 -86
1 65975         3 484 -65 -29  12  46  67  70  52  22 -11 -41 -59 -62
2 65975         3 484 -48 -19  18  50  71  73  53  19 -20 -54 -77 -82
1 65975         4 484 -68 -34   8  49  79  91  83  55  18 -18 -47 -61
2 65975         4 484 -61 -43 -13  19  42  50  39  10 -27 -59 -82 -88
1 65975         5 484 -76 -48  -7  37  74  96  99  83  51  16 -16 -38
2 65975         5 484 -50 -47 -29  -5  19  32  30  11 -19 -49 -72 -83
1 65975         6 484 -77 -55 -19  25  65  95 108 103  79  44   9 -20
2 65975         6 484 -39 -47 -42 -27 -10   3   5  -4 -24 -48 -69 -81
1 65975         7 484 -80 -63 -32   7  48  82 105 113 102  77  44  11
2 65975         7 484 -13 -29 -36 -32 -23 -14  -8 -11 -23 -41 -60 -74
1 65975         8 484 -78 -71 -48 -14  24  61  89 106 107  93  67  38
2 65975         8 484   9 -14 -29 -37 -39 -34 -31 -28 -31 -40 -52 -64
1 65975         9 484 -72 -69 -54 -29   3  38  70  95 109 110  99  80
2 65975         9 484  54  26   1 -22 -38 -47 -50 -49 -48 -50 -54 -59
1 65975        10 484 -64 -64 -58 -45 -25   3  35  65  91 108 114 107
2 65975        10 484  90  66  36   7 -20 -42 -57 -65 -65 -61 -56 -53
1 65975        11 484 -52 -53 -53 -51 -44 -30  -8  21  52  80 102 114
2 65975        11 484 111  96  70  37   1 -30 -57 -74 -77 -70 -55 -40
1 65975        12 484 -28 -24 -27 -33 -40 -42 -36 -18   9  42  74 101
2 65975        12 484 114 113  94  64  25 -16 -52 -79 -91 -84 -65 -40
1 65975        13 484 -15   0   6   1 -12 -27 -37 -38 -22   7  41  75
2 65975        13 484 102 115 111  88  50   3 -43 -80-102-106 -90 -60
1 65975        14 484 -24   9  31  36  24   1 -25 -41 -45 -30  -1  36
2 65975        14 484  73 100 112 102  70  24 -26 -71-102-114-107 -75
1 65975        15 484 -31  14  49  66  62  39   6 -26 -48 -52 -38  -8
2 65975        15 484  32  69  95 101  81  39 -12 -62 -99-115-112 -92
1 65975        16 484 -48   1  44  73  83  70  40  -1 -37 -54 -60 -43
2 65975        16 484  -9  32  68  89  88  63  19 -31 -72 -98-110 -95
1 65975        17 484 -60  -9  44  84 106 104  77  34 -11 -44 -70 -74
2 65975        17 484 -56 -24  18  49  62  53  22 -21 -61 -93-111-109
1 65975        18 484 -77 -27  31  83 118 132 120  86  36 -13 -50 -68
2 65975        18 484 -65 -48 -19  12  31  38  25  -7 -46 -81-105-106
1 65975        19 484 -81 -35  19  73 115 139 141 122  86  41  -3 -37
2 65975        19 484 -57 -62 -47 -25  -2  12  11  -6 -36 -68 -959999
```