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NEARSHORE SEDIMENT DYNAMICS - BEAUFORT SEA

The 1986 Monitoring Program

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Summary

In order to increase present understanding of seabed mechanics in shallow water areas of the Beaufort Sea a detailed set of wave, current, suspended sediment and pore water pressure measurements was carried out from August 18 to September 24, 1986 at two locations offshore of North Head on Richards Island. Because the pack ice remained between 100 and 200 km offshore, 1986 proved to be an excellent year for this program and two reasonably energetic storms with significant wave heights ranging up to 2.5 m were monitored in shallow water. The objectives of the study were to measure changes in pore water pressure and near-bed suspended sediment concentrations in response to storm-generated waves and near bottom currents. Ultimately the data are to be used to examine the liquefaction potential of the surficial soils, expected sediment transport rates and the mechanics of wave energy attenuation. This report describes the field monitoring program and presents some basic results found in the new data.

Site-Selection and Instrumentation

Two monitoring sites, one in 10 m and one in 5 m of water, were selected along a northwesterly transect between Pullen and Hooper Islands. This transect provided an open exposure to waves generated by westerly to northerly winds, and coincided with the borehole transect sampled by the Geological Survey of Canada in 1984. Surficial sediments at the monitoring sites were comprised of low plasticity silts with minor clay fractions, consistent with the borehole analysis reported by Hill et al. (1986b).

The instrumentation selected for the monitoring program consisted of:

Instrument	Sampling Scheme	Parameters
	Deep Site 10 m	
Sea Data 635-12	1 Hz for 1024 samples every 4 h	directional waves near-bottom currents (15 min.) wave-induced currents surge and tide (15 min.)
	Shallow Site 5 m	
Sea Data 635-9	1 Hz for 1024 samples every 4 h	directional waves near-bottom currents wave-induced currents surge and tide
Sea Data 635-11	1 Hz for 1024 samples every 2 h	non-directional waves surge and tide (hourly)
Optical Backscatter OBS-1	1Hz for 512 samples every 4 h	suspended sediment concentration 100 cm above seabed
Piezometer probe	1 Hz for 512 samples every 4 h	transient pore water pressure at 80 cm and 180 cm below seabed

In addition, local wind and atmospheric pressure data were collected together with surficial sediment samples. The sediments were analyzed for grain size distribution, mineral content and pore fluid chemistry.

Data recovery rates exceeded 98 percent on the two directional Sea Data gauges, lowered to about 75 percent on the 635-11 due to silt clogging of the pressure orifice. The optical backscatter device performed well with more than 95 percent data recovery. The piezometer probe was a new design constructed specifically for this study. The overall data recovery rate was about 60 percent, reflecting the loss of one sensor out of three.

Preliminary Findings

Both major storms produced wave heights ranging up to 2.3 to 2.4 m (significant) with peak periods of 8 to 9 s in 10 m of water. Substantial energy loss was found as the waves propagated into 5 m of water, giving an average 25 percent reduction in significant wave height between the two gauges, separated by 13,400 m. Intervals of high waves coincided with large surge currents ranging in speed up to 45 cm/s in 10 m depth and 78 cm/s in 5 m depth, 50 cm above the seabed. At these times concentrations of sediment in suspension at 100 cm above the seabed increase from background levels of 50 to 100 mg/L to storm-peaks of 1700 to 4800 mg/L. Pore pressures in the upper two metres of the soil column also increase over background levels by 50 to 70 kPa suggesting that the potential for liquefaction exists.

It was noted, however, that the instrument frame located beside the piezometer probe showed no evidence of sinking during its deployment period. Thus, it appears that despite high transient pore pressures one or more massive losses in soil strength due to liquefaction in the major storms did not take place.

On the basis of a preliminary examination of the data the following analyses are recommended:

(a) a study of sediment transport potential considering modelling of the pore water pressure changes under wave loading and the changes in suspended sediment concentration,

(b) a study of wave energy attenuation examining the relative importance of frictional losses, poroelastic mechanisms, and wave breaking in the energy balance equation.

Résumé.

Afin d'accroître la compréhension de la mécanique des fonds en eaux peu profondes dans la mer de Beaufort, des mesures de vagues, de courants, de concentration de sédiments en suspension et de pression interstitielle ont été effectuées du 18 août au 24 septembre 1986 à deux sites au large de North Head sur l'ile Richards. Etant donné que le pack de glace en dérive ne s'approcha pas de plus de 100 km du rivage, l'année 1986 s'avéra excellente pour ce genre d'observations; deux tempêtes assez fortes, donnant des vagues de hauteur significative allant jusqu'à 2.5 m, traversèrent la région. Les objectifs de l'étude étaient de mesurer les variations de pression interstitielle et de concentration de sédiments en suspension près du fond en relation avec les vagues de vent et les courants près du fond. Ultimement, ces données serviront à examiner la susceptibilité des sols superficiels à la liquéfaction ainsi que les transports de sédiments et les mécanismes d'atténuation des vagues. Dans ce rapport, nous décrivons le programme de mesures sur le terrain et présentons quelques uns des résultats qui découlent de ces nouvelles données.

Choix des sites et instrumentation

Deux sites d'observation, l'un en profondeur de 10 m d'eau, l'autre de 5 m, ont été choisis le long d'une section tendant vers le nord-ouest entre les iles Pullen et Hooper. Cette section offrait un champ libre aux vagues soulevées par des vents soufflant de l'ouest au nord; elle coincidait de plus avec une série de forages échantillonés par le Service Géologique du Canada en 1984. Les sédiments superficiels aux sites d'observation étaient composés de silts de basse plasticité avec fraction peu importantes d'argile, en accord avec les résultats des analyses des forages publiés par Hill et al. (1986b).

Les instruments utilisés pour le programme d'observations étaient les suivants:

Instrument	Mode d'échantillonage	Paramètres observés.
	Au site profond -10 m	
Sea Data 635-12	1 Hz pour 1024 échantillons toutes les quatre heures.	vagues: direction et hauteur; courants dûs aux vagues; courants au fond et niveaux d'eau (toutes les 15 min.)
	Au site peu profond -5 m	
Sea Data 635-9	1 Hz pour 1024 échantillons toutes les quatre heures.	vagues: direction et hauteur; courants au fond; courants induits par les vagues; niveaux d'eau.
Sea Data 635-11	1 Hz pour 1024 échantillons toutes les deux heures.	vagues: hauteur; niveaux d'eau (à chaque heure).

Instrument	Mode d'echantillonage	Parametres observes.
	Au site peu profond -5 m	
Rétrodiffuseur optique OBS-1	1 Hz pour 512 échantillons toutes les quatre heures.	concentration des sédiments en suspension 100 cm au-dessus du fond
Capteur piézométrique	1 Hz pour 512 échantillons toutes les quatre heures.	pression interstitielle à 80 cm et 180 cm sous le fond.

En plus, des mesures de vent et de pression atmosphérique, ainsi que des prélèvements de sédiments superficiels ont été effectués. Les sédiments ont été analysés quant à leur distribution granulométrique, leur composition minéralogique et la composition chimique des eaux interstitielles.

Les mesures effectuées avec les deux appareils directionnels Sea Data ont atteint un taux de succès de 98%; cependant, seulement à peu près 75% de succès fut atteint avec le 635-11, à cause de l'obstruction du trou du capteur de pression par la vase. La performance de l'instrument de rétrodiffusion optique s'avéra excellente, avec plus de 95% de succès. Quant au capteur piézométrique, il était d'une conception nouvelle, spécifiquement construit pour ce projet. Le succés de recueil de données atteint à peu près 60%, à cause de la perte d'un des trois éléments du capteur.

Résultats préliminaires

Les deux tempêtes importantes soulevèrent des vagues de hauteur significative atteignant 2.3 à 2.4 m, avec des périodes de 8 à 9 sec en 10 m d'eau. Une perte importante d'énergie, équivalent à une diminution de 25% en hauteur significative a été observé entre le site profond et celui de 5 m de profondeur, éloigné du premier de 13,400 m. Des épisodes de fortes vagues coincidèrent avec des courants (mesurés à 50 cm au-dessus de fond) atteignant 45 cm/s en 10 m d'eau et 78 cm/s en 5 m. Durant ces épisodes, la concentration en sédiments en suspension à 100 cm au-dessus du fond passa d'une valeur de base de 50-100 mg/L à un maximum de tempête de 1700-4800 mg/L. La pression interstitielle dans les deux premiers métres sous le fond augmenta en même temps de 50-70 kPa, ce qui suggère la possibilité de liquéfaction.

Nous avons cependant remarqué que le cadre supportant les appareils d'échantillonage placé près de la sonde piézométrique n'a pas paru s'enfoncer durant la période d'observations. Il semblerait donc qu'en dépit des hautes valeurs de pression interstitielles observées aucune perte de cohésion des sols ne se produisit durant le programme d'observations.

Après un examen préliminaire des données, nous recommendons les analyses suivantes:

(a) Une étude des transports possibles de sédiments par une modélisation qui triendrait compte des variations de pression interstitielle sous l'effet des vagues et de celles de la concentration des sédiments en suspension.

(b) Une étude de l'atténuation des vagues qui examinerait l'importance relative des pertes frictionelles, des mécanismes poroélastiques et du déferlement dans l'équation de l'énergie.

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ACRONYMS

AES - Atmospheric Environment Service

AGC - Atlantic Geoscience Centre

GSC - Geological Survey of Canada

MSL - Mean sea level

USC - Unified soil classification system

NWT - Northwest Territories

BH - Borehole

BSB - Below sea bed

OBS - Optical backscatter

BMAC - Beaufort Mobile Arctic Caisson (Molikpaq)

GCDU - Gulf Conical Drilling Unit (Kulluk)

CCGS - Canadian Coast Guard Ship

CTD - Conductivity-Temperature-Depth (probe)

1.0 INTRODUCTION

A subsea pipeline is one alternative being considered to bring crude oil ashore from discovery fields in the vicinity of Kugmallit Bay and Mackenzie Bay (Fig. 1.1) in the Canadian Beaufort Sea. Likely shore crossing points for such a pipeline would be located on Richard's Island near North Head, reached by a pipeline traversing the nearshore zone between Pullen and Hooper Islands, or alternatively just to the east of Pullen Island. Surficial sediments in this area are characterized by silts, clayey-silts and fine sands of low plasticity and low permeability (Hill et al., 1986b). The pipeline engineering problems, reviewed by Hodgins et al. (1986b), centre on loss of soil strength due to wave-induced liquefaction and on high rates of sediment transport, related perhaps to liquefaction during storms. A strong coupling between wind-wave attenuation over the soft bottom sediments and sediment resuspension and transport may be expected.

A field monitoring program was undertaken in August-September 1986 to measure a number of key parameters--wave spectra, bottom currents, suspended sediment concentrations and wave-induced pore water pressures--during several storms to establish a database from which sea bed mobility and the potential for liquefaction could be assessed. Surficial sediment samples were also collected and analyzed. The program was designed to take maximum advantage of information derived from the 1984 Atlantic Geoscience Centre (AGC) borehole dataset compiled by the Geological Survey of Canada (see Kurfurst, 1984 and Hill et al., 1986b). The AGC boreholes extended northwestwards from the shoreline of North Head to approximately the 10 m isobath (Fig. 1.1), and instruments were deployed in this study along a nearly-parallel transect.

As a result of this approach a very powerful and unique dataset has been compiled for pipeline engineering and analysis. It contains an extensive sedimentological description, geotechnical data, wave-induced bottom currents and coincident changes in suspended sediment, wave-induced pore water pressures in the upper 2 m of the seabed, and directional wave spectra at two different water depths along the direction of storm wave propagation.

A description of the monitoring program is presented in this report. A brief summary of the sedimentological and geotechnical information available in September 1986 is given in Chapter 2, followed by an overview of the field program in Chapter 3. Chapters 4 through 7 address respectively the instrumentation and methods used for measuring waves and currents, suspended sediment concentrations, porewater pressures and water depth.

A brief discussion of the new data is given in Chapter 8. A catalogue of coincident data on meteorological and ice conditions, and water properties is presented in Chapter 9 followed by recommendations on modelling the database in Chapter 10.

The purpose of this report is largely to describe the setting for the program, the instrumentation and the methods. Extensive data analysis and modelling of the dataset to give conclusions on liquefaction potential, sediment transport and wave attenuation will be the subject of future work. Thus the presentation of results is confined here to the basic data and simple correlations between measured parameters.

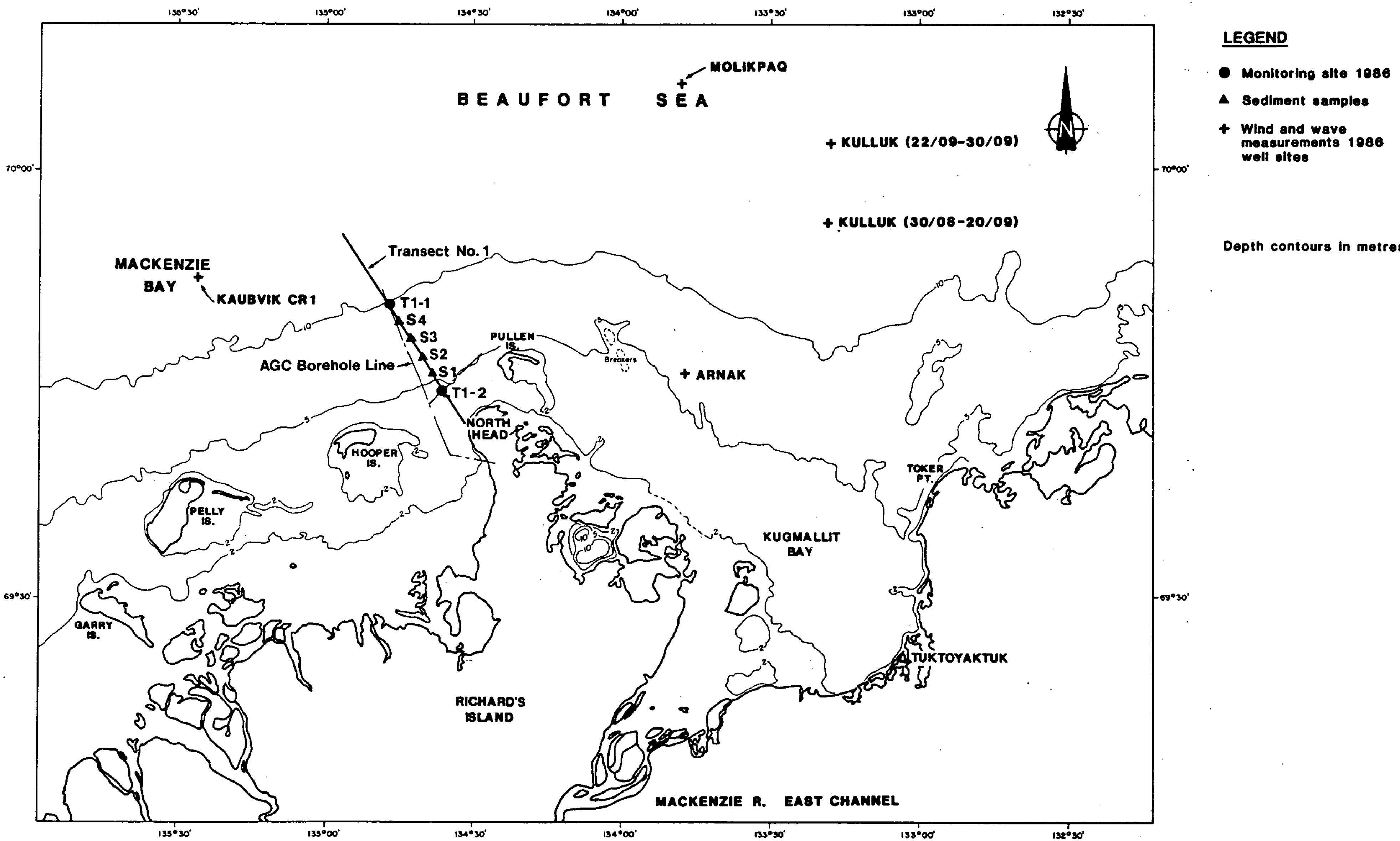


Fig. 1.1 Map showing the study area and monitoring sites, offshore of North Head, NWT.

2.0 SITE DESCRIPTION

2.1 Location

The Canadian Beaufort Sea extends over approximately 2,000 km of coastline comprising 9 physiographical units (Fig. 2.1). The majority of the nearshore area consists of recent silt and clay rich deposits (Hill et al. 1986a) supplied by the Mackenzie River.

The study location is part of the Richards Island physiographic unit, offshore of North Head in a transect bearing approximately 328°T between Pullen and Hooper Islands. The morphological features of North Head are shown in Fig. 2.2 (from Hill et al. 1986b). Details of the field program and monitoring sites are given in Chapter 3.

2.2 Geological Setting

North Head is the northernmost headland of Richards Island and is located approximately 65 km northwest of Tuktoyaktuk, although partially sheltered by Pullen Island and Hooper Island, NWT. It is subjected to direct wave attack from the northwest (Fig. 2.2).

The coastline at North Head features low relief tundra cliffs (generally less than 8 m high) made up of ice-rich, fine grained sediments. The coastline to the southeast is quite irregular due to numerous thaw lakes and features extensive sand flats and bars. To the southwest, the coastline is more continuous comprising cliffs of ice-poor sand-dominated sediments. Moving further south, wide beach flats give way to extensive mud and/or sand flats.

The surficial geology of the seabed shoreward of the 10 m isobath features several distinct sediment facies as derived from the 1984 AGC spring borehold program shown in Fig. 2.3. Fig. 2.4 illustrates the interpreted facies and soil classification.

2.3 Geotechnical Data

Eight separate facies have been interpreted from the borehole data by Hill et al. (1986b; see also 1986a). The predominantly sandy facies are found adjacent to the shorelines of Richards Island and Pullen Island and deeper into the soil strata further offshore.. These facies (7 and 8 on Fig. 2.4) are associated with either deposition in a non-marine environment or prolonged atmospheric exposure. The siltier facies are interpreted as being deposited in a marine environment, bioturbated facies (1 and 2 on Fig. 2.4) being deposited in a low energy environment and facies featuring laminations

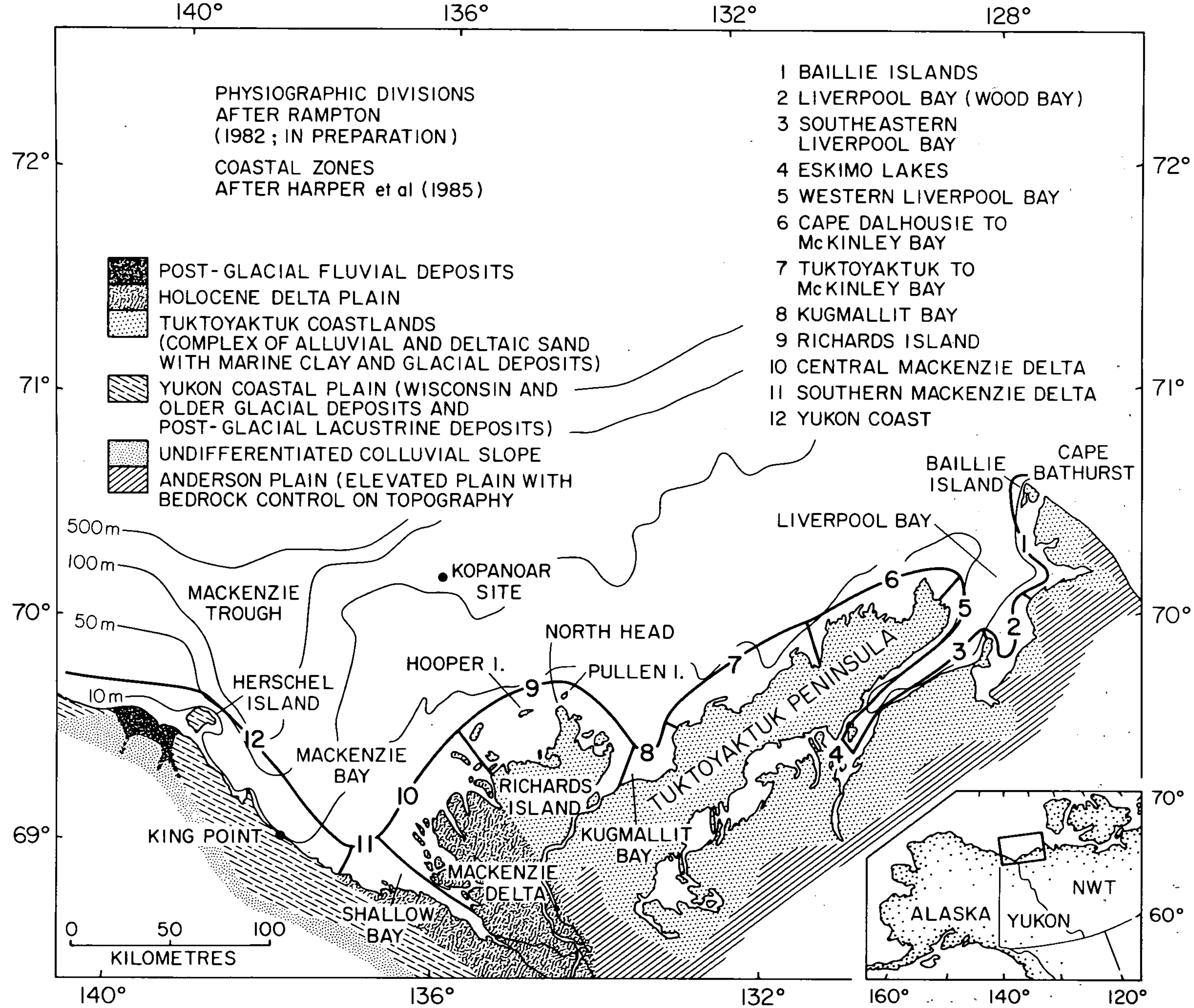
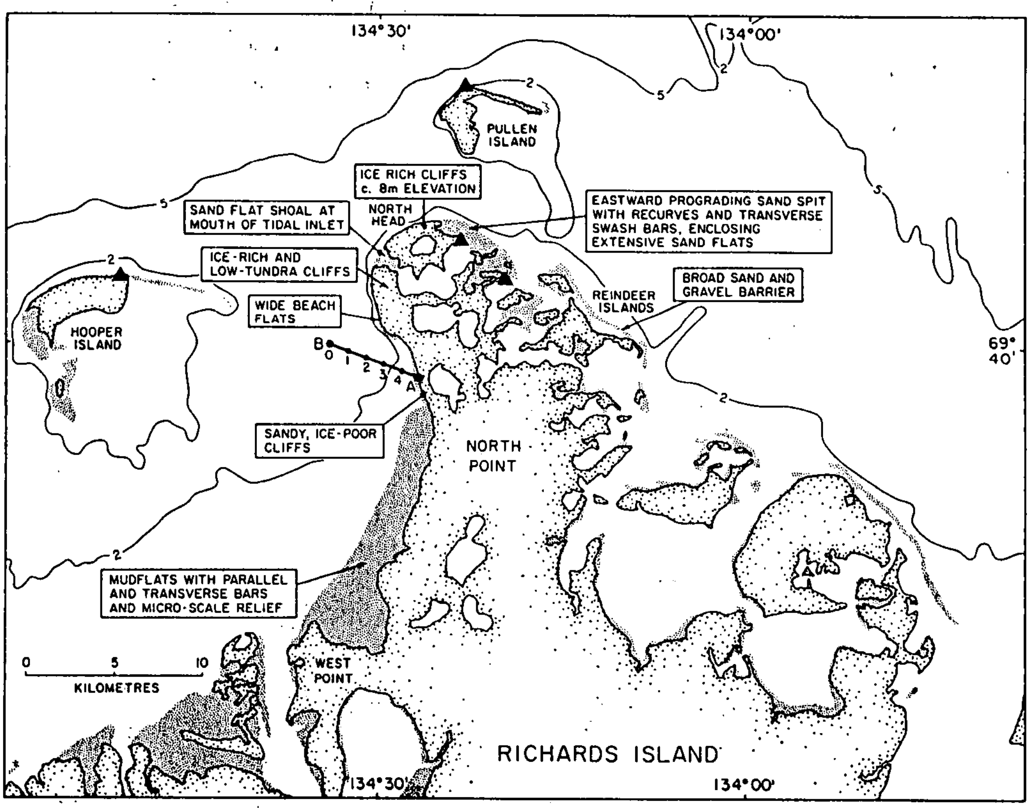


Fig. 2.1 Physiographic description of the Beaufort Sea coastal zone (from Hill et al., 1986a)



▲ Locations of beach profiles (see Table 2.3).

$\overline{AB}$ AGC 1984 boreholes (see Fig. 2.3).

Fig. 2.2 Morphological features of North Point (from Hill et al., 1986b)

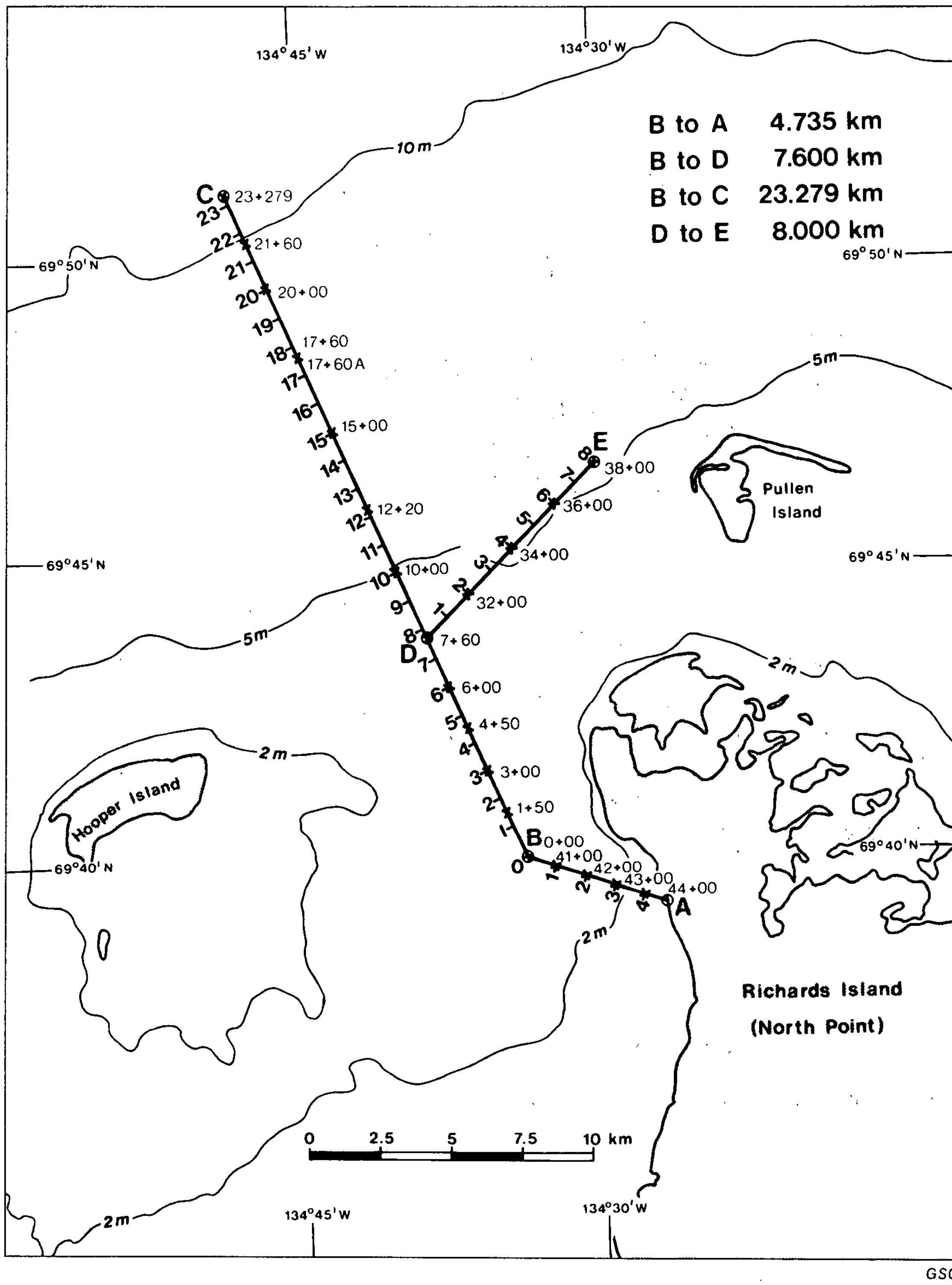


Fig. 2.3 AGC-1984 Spring Borehole Program lines (from Hill et al., 1986b).

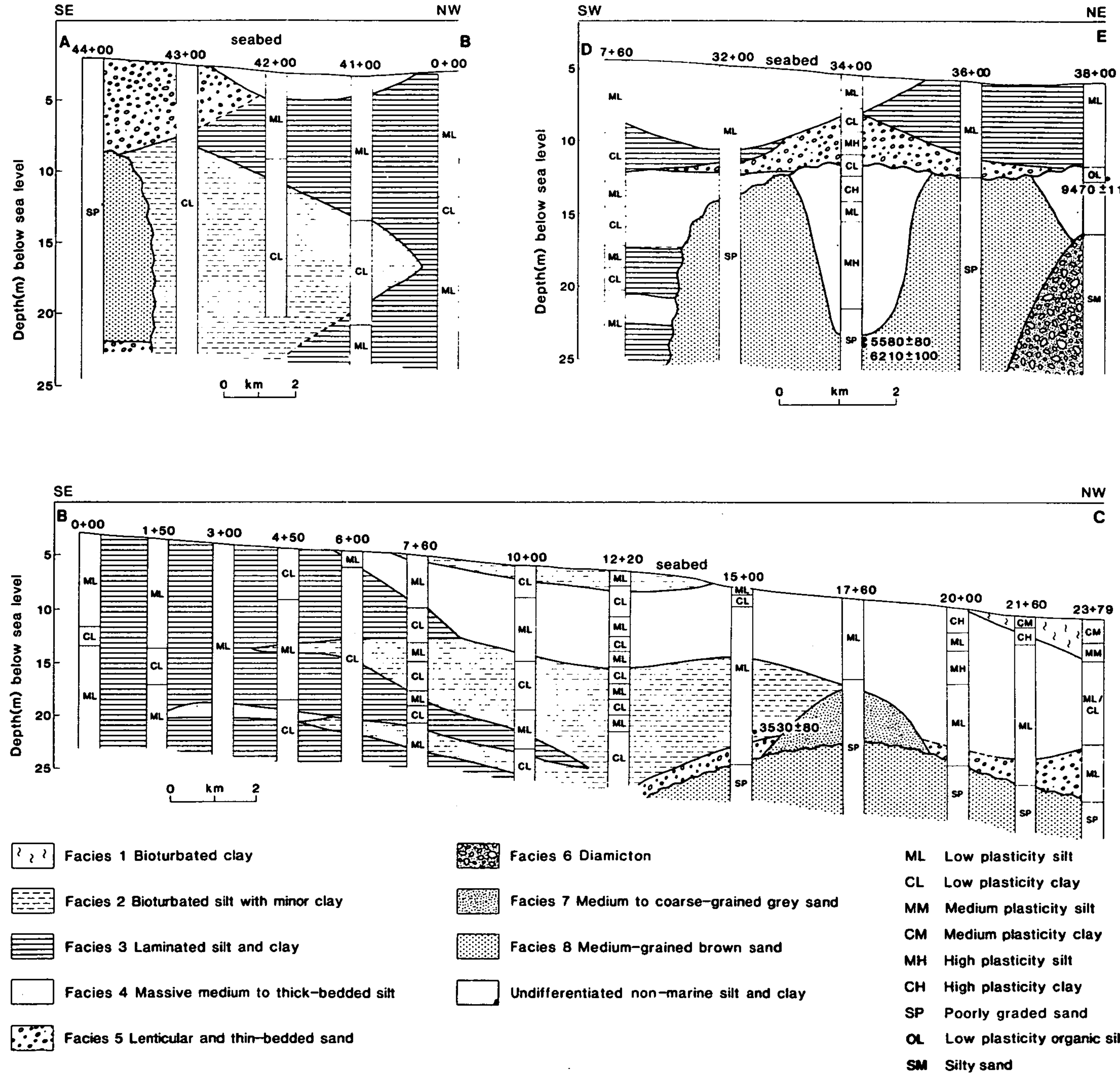


Fig. 2.4 Facies interpretation and soil classification (from Hill et al., 1986b).

and bedding (3 and 4 on Fig. 2.4) being deposited in a high energy environment (P. Hill, AGC, pers. comm., 1986).

The interpreted facies were classified using the Unified Soil Classification (USC) System. Facies 1 to 4 consist of fine-grained sediments and were classified according to the USC plasticity chart method. Coarse-grained sediments, facies 5 to 8, were classified by grain size distribution analysis. Table 2.1 presents a summary of the facies soil classification. More details may be found in Hill et al. (1986b).

Table 2.2 shows some characteristic values for particle diameter obtained from the grain size distribution curves for the fine-grained facies. It may be seen that the surfical sediments consist of silts with median diameter of the order of 0.003 mm near the deep site and of approximately 0.008 mm close to the shallow site. The only sediment sample close to shore (BH 42+00) shows a larger median diameter (0.025 mm) than most others. Beach material information is given in Lawrence et al. (1984) for various locations in the Beaufort Sea. Near North Head, the beaches consist of sand and gravel at the intertidal zone, with tundra cliffs at some locations (Fig. 2.2). The beach sediment characteristics at existing profiles at both Pullen and Hooper Islands and eastwards of North Head are given in Table 2.3. Beach profile locations are shown in Fig. 2.2.

The AGC-1984 borehole program was sampled in the spring of 1984 along the three lines shown in Fig. 2.3. Samples were obtained by means of a skid-mounted rotary coring rig from the landfast ice. Geotechnical properties of the shelby tube samples included grain size analysis, Atterberg limits, water content, bulk density and vane shear strength testing. The results are given in Hill et al. (1986b). Fig. 2.5 and 2.6 show geotechnical properties of some samples located near sites T1.1 and T1.2 of this study respectively. The full database is available at AGC/GSC (P. Hill, AGC, pers. comm., 1986).

The shallow site instrumentation was located in facies 4. This facies has high strength and low liquidity index (Hill et al.,1986b). Near-surface sediment samples showed the highest values of water content (40 to 49%) and lowest shear strengths (4 to 20 kPa).

Two sediment samples from borehole 20+00 (burial depths 4.9 m and 13.7 m) were tested for permeability by Christian (1985). Both samples were organic-rich silts with 10 to 15% clays. The results are presented in Fig. 2.7 and show some difference between measured and predicted values of the permeability coefficient. Three consolidation tests were performed on BH 20+00 samples by Christian and Morgenstern (1986) who found evidence of overconsolidation of the upper layers of sediments to about 10 m below seabed. The consolidation curves are presented in Fig. 2.8. The geotechnical test results performed on the three samples are listed in Table 2.4.

Table 2.1

AGC Facies Classification
(from Hill et al., 1986b)

Fine-Grained Facies

Facies (1)	Classification (2)	$\bar{I}p$ (3)	Ip-range (4)
1	CL; ML	20	15-30
2	CL; ML	10	2-20
3	ML; CL	12.5	2-28
4	ML; CL	11.1	2-23

Coarse-Grained Facies

Facies (1)	Classification (2)	% Sand	% Silt	% Clay
5	ML	0-10	54-59	30-45
6	SM (5)	48-49	18-21	30-33
7	SP (5)	87-95	5-12	0-5
8	SP	80-98	0-16	0-6

Notes:

(1) For facies description see Fig. 2.4.

(2) Classification based on Unified Soil Classification System. It consists of a primary and a secondary descriptive letter. The letters and their meaning are given below.

Primary Letter	Secondary Letter
S: sand	P: poorly-graded
M: silt	M: non-plastic fines
C: clay	L: low plasticity

(3) $\bar{I}p$= linear least square approximation for the plasticity index.

(4) from plasticity charts given in Hill et al (1986b).

(5) contained up to 1% gravel.

Table 2.2

Grain Size Characteristics - AGC 1984 Samples

Facies No.	Sample No.	Depth Below Seabed (m)	D50 (mm)	D90 (mm)
1	23+279	0.1	0.0045	0.016
2	15+00	8.6	0.0065	0.036
3	3+00	0.4	0.0065	0.031
3	38+00	0.8	0.0120	0.140
4	7+60	0.3	0.0075	0.031
4	15+00	0.1	0.0055	0.017
4	20+00	1.6	0.0032	0.018
4	21+60	1.8	0.0030	0.014
4	32+00	2.3	0.0085	0.030
4	34+00	1.2	0.0063	0.024
4	42+00	0.4	0.0250	0.051
5	34+00	6.3	0.0064	0.028

Notes:

For sample locations refer to Fig. 2.3.

Facies	Description
1	Bioturbated clay
2	Bioturbated silt with minor clay
3	Laminated silt and clay
4	Massive medium to thick-bedded silt
5	Lenticular and thin-bedded sand

Table 2.3

Characteristics of Beach Sediments
(from Lawrence et al., 1984)

Sampling Location	Site	Beach Exposure	Position	Profile Between Sites	% Gravel	% Sand	% Silt/Clay
Hooper Island	80-1	N	at MWL		0.9	98.8	0.3
				0.10			
	80-2	N	7 m S of 80-1		0.7	98.8	0.5
				0.042			
	80-3	N	19 m S of 80-1		46.7	53.3	0.2
Pullen Island	81-1	N	at MWL		1.8	98.1	0.1
				0.033			
	81-2	N	6 m S of 81-1		11.6	88.3	0.1
				0.10			
	81-3	N	12 m S of 81-1		26.9	72.6	0.5
Richards Island	69-1	E	-	-	35.3	64.4	0.4
Richards Island	68-1	NE	-	-	9.6	89.6	0.8

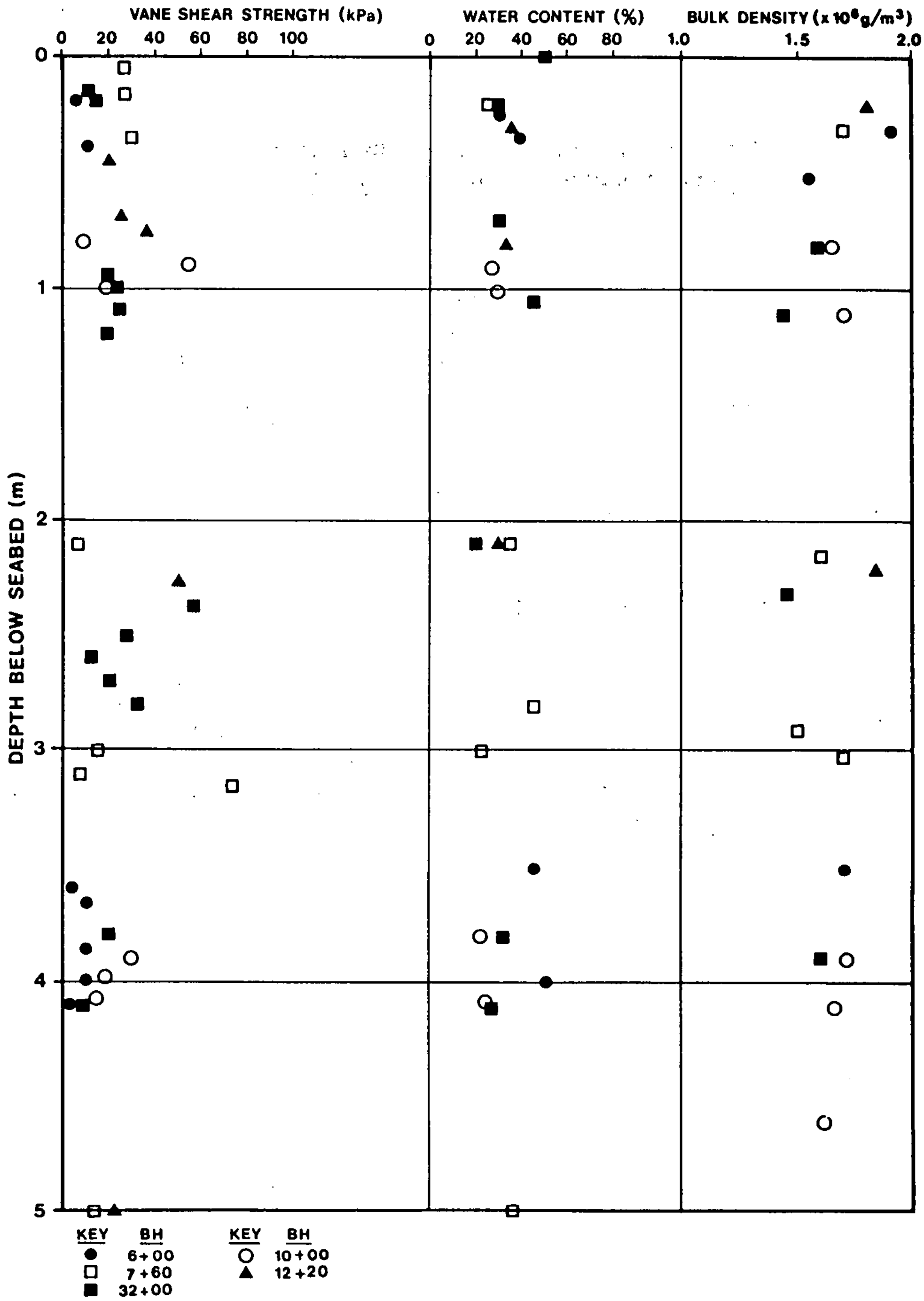


Fig. 2.5 Geotechnical properties of some AGC-1984 samples located near site T1.2 (source: P. Hill, AGC, pers. comm., 1986).

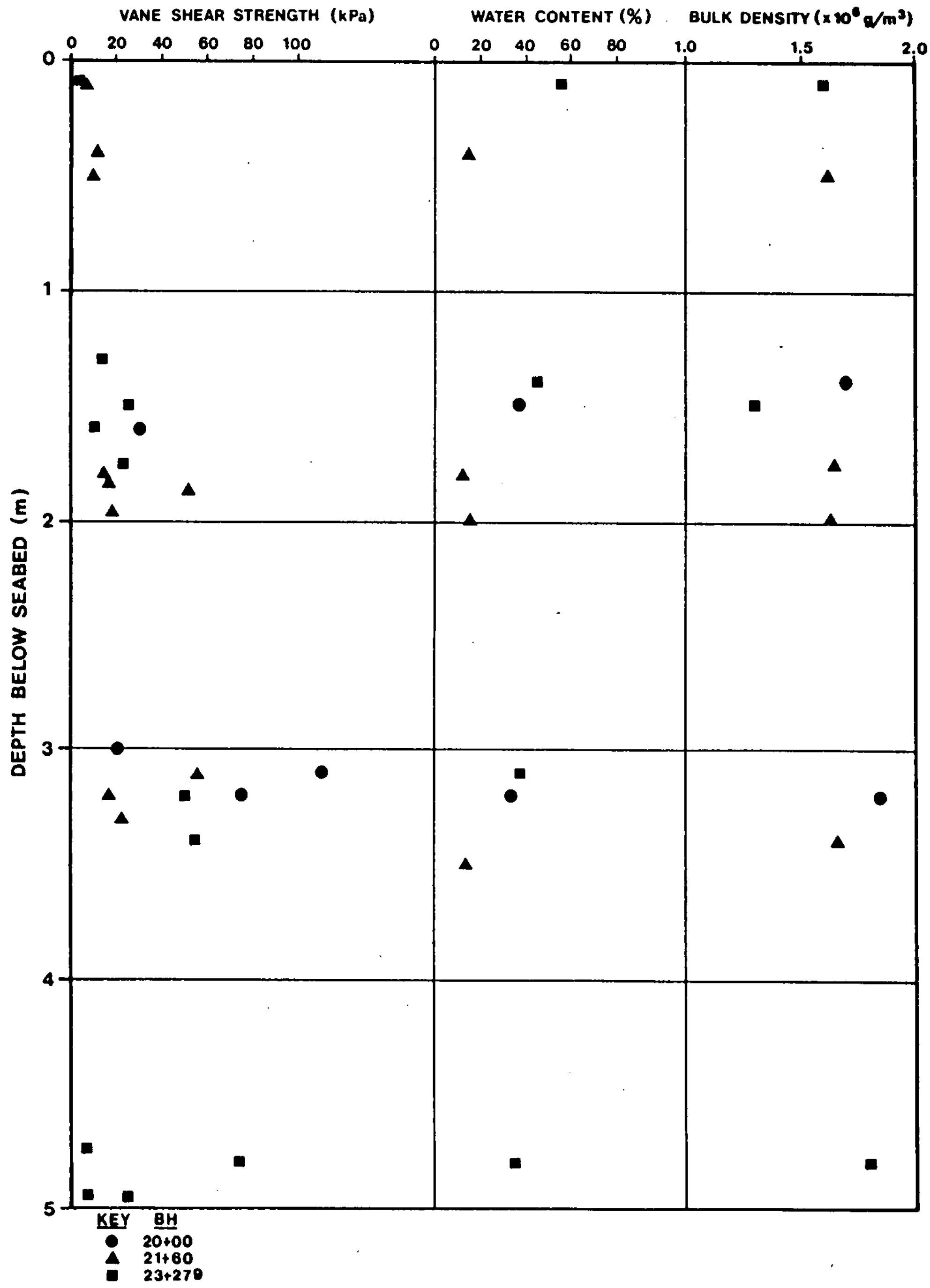


Fig. 2.6 Geotechnical properties of some AGC-1984 samples located near the deeper site T1.1 (source: P. Hill, AGC, pers. comm. 1986).

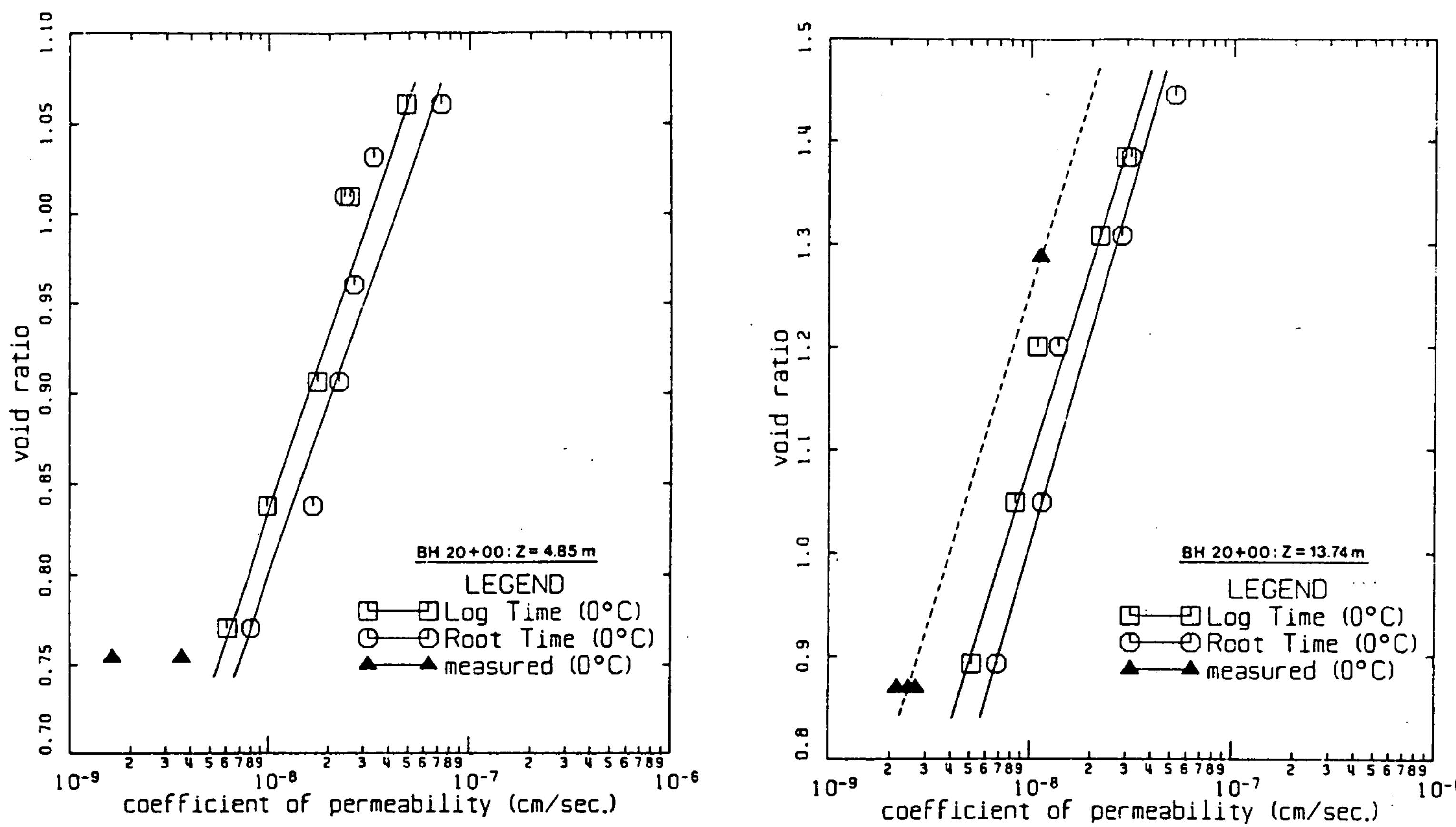


Fig 2.7 Measured and predicted values of the coefficient of permeability versus void ratio at BH20+00 (from Christian, 1985).

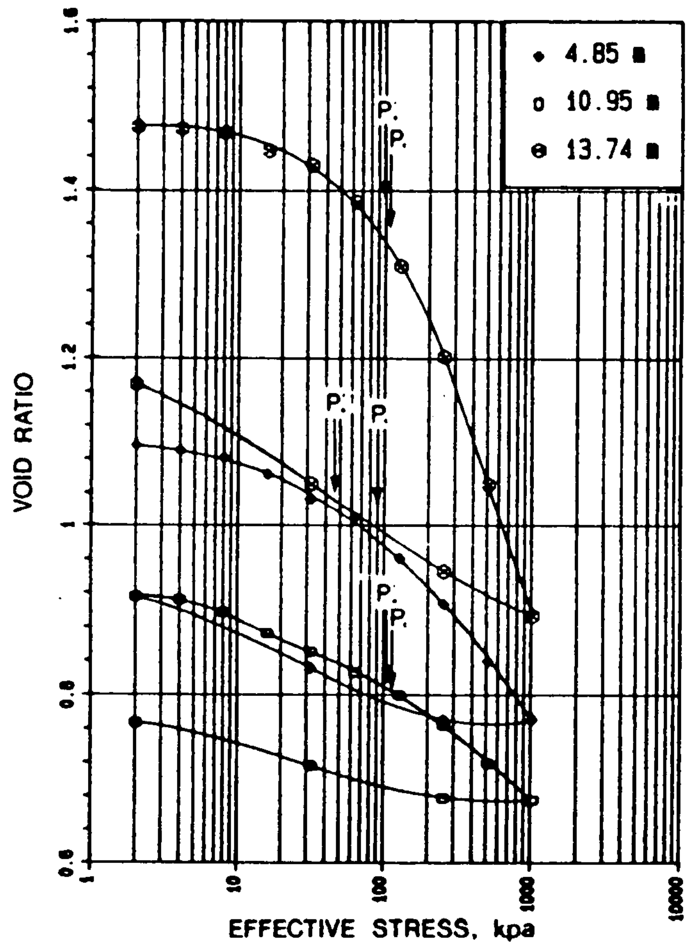


Fig. 2.8 Consolidation curves at BH20+00 (from Christian and Morgenstern, 1986).

Table 2.4

Summary of Data for Consolidation Tests - BH 20+00
(from Christian and Morgenstern, 1986)

Parameter			
Borehole/Core	BH 20+00	BH 20+00	BH 20+00
Latitude	69°49'57.5"	69°49'57.5"	69°49'57.5"
Longitude	134°47'40.0"	134°47'40.0"	134°47'40.0"
Water Depth (m)	9	9	9
Sample Depth BSB (m)	4.85	10.5	13.74
In Situ Void Ratio	0.955	0.877	1.365
Water Content (%)	37.6	31.3	50.2
Liquid Limit (%)	38	36.3	54.1
Plastic Limit (%)	21	23.1	30
Plasticity Index (%)	17.2	13.2	24.1
Liquidity Index	0.98	0.62	0.38
Unit Weight (kN/m)	19.6	19.65	17.3
Specific Gravity	2.73	2.75	2.72
Sand Fraction (%)	0	2	0
Silt Fraction (%)	85	64	89
Clay Fraction (%)	15	34	11
Eff. Overburden Stress (kPa)	46.1	104.7	99.3
Preconsolidation Pressure (kPa)	90	123	108
Overconsolidation Ratio	1.94	1.17	1.09

Five cone penetration tests (CPT) were carried out through the ice in April 1986 as part of GSC investigation of the Richards Island nearshore zone (Kurfurst, 1986). CPT's were undertaken on line AB of the 1984 AGC field program (between boreholes 44+00 and 43+00, see Fig. 2.3). These locations correspond to facies 5 (lenticular and thin-bedded sand) of Fig. 2.4. Table 2.5 presents a summary of the cone tests performed. A typical CPT profile near borehole 43+00 is shown in Fig. 2.9. Penetrations exceeding 15 m have been achieved and the corresponding tabular data giving the soil type description are presented in Table 2.6. From the CPT interpreted results, the surficial soil near hole no. 86-10b (200 m of shorewards of BH43+00) consists of sandy silt to a depth of 2 m below seabed gradually changing to underlying deposits of silty clay or clay that is slightly overconsolidated. Details of the CPT program are found in Kurfurst (1986).

Table 2.5

CPT Sounding Summary Richards Island, N.W.T.
(from Kurfurst, 1986)

Date	Hole No.	Location (1) (m)	Penetration BSB(m)	Remarks
86 04 04	86-10a	200	6.2	stopped on dense sand
86 04 05	86-9	400	4.1	stopped on dense sand
86 04 06	86-8a	500	10.3	stopped on dense sand
86 04 07	86-10b	200	18.6	stopped on frozen ground
86 04 08	86-8b	500	13.2	stopped on frozen ground

(1) Approximate distance in metres shorewards of AGC 1984 borehole 43+00.

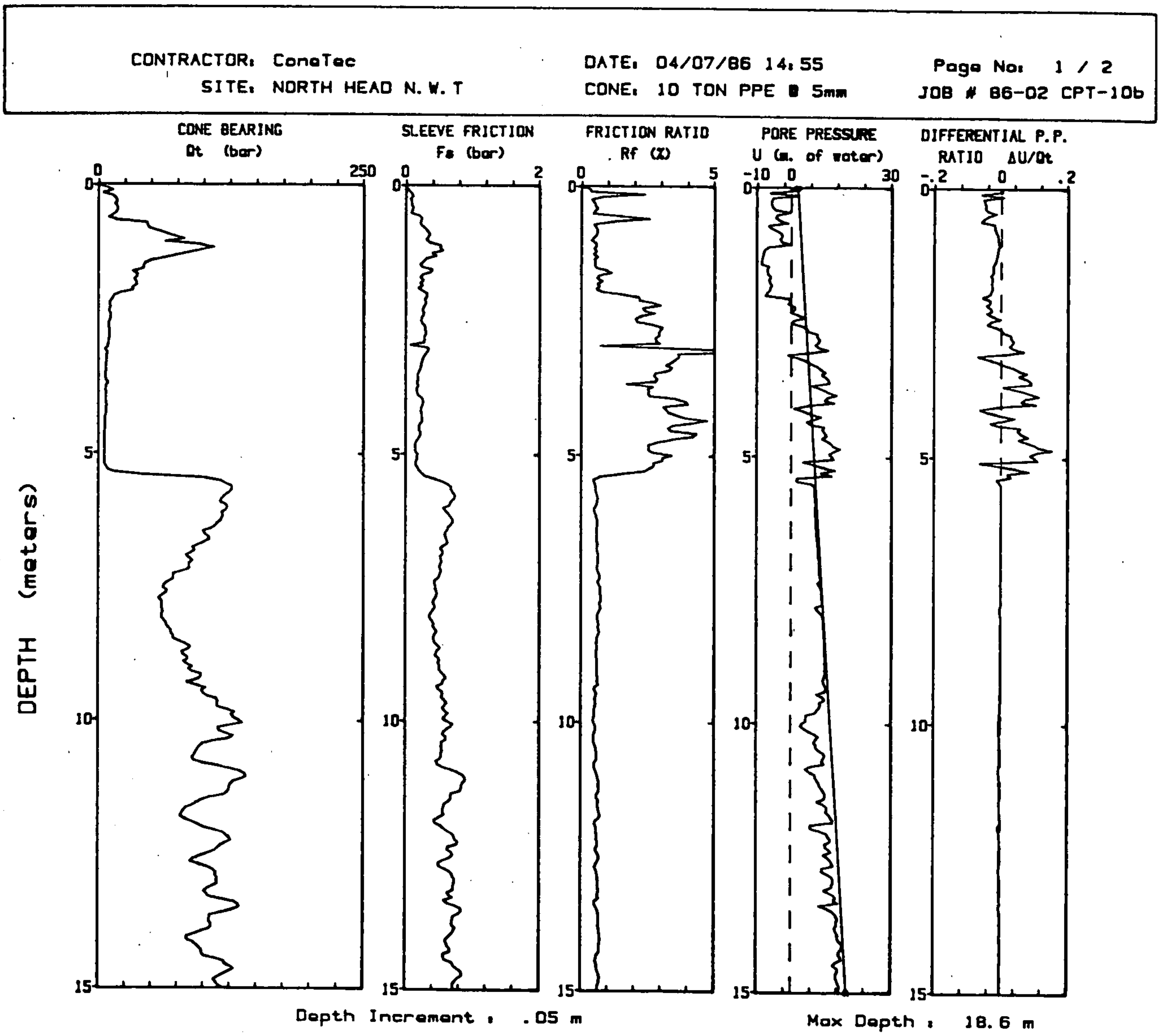


Fig. 2.9 CPT output, hole no. 86-106, 200 m shorewards of BH43+00 (from Kurfurst, 1986).

Table 2.6

Tabular Output from CPT Sounding 86-10b (from Kurfurst, 1986)

Site :ConeTec
On Site Loc:NORTH HEAD N.W.T
Comments :86-02 CPT-10b
Tot. Unit Wt. (avg) : 19 kN/m^3

CPT Date :04/07/86 14:55
Cone Used :10 TON PPE @ 5mm
Water table (meters) : 0

DEPTH (meters)	DEPTH (feet)	Qc (avg) (bar)	Fs (avg) (bar)	Rf (avg) (%)	SIGV' (kPa)	SOIL BEHAVIOUR TYPE	Eq - Dr (%)	PHI deg.	SPT N	Su kPa
0.50	1.64	14.34	0.08	0.54	2.30	sandy silt to clayey silt	UNDFND	UNDFD	6	95.2
1.00	3.28	45.87	0.27	0.60	6.89	sand to silty sand	80-90	>48	11	UNDEFINED
1.50	4.92	72.94	0.38	0.52	11.48	sand to silty sand	80-90	>48	18	UNDEFINED
2.00	6.56	34.09	0.27	0.79	16.08	silty sand to sandy silt	60-70	44-46	11	UNDEFINED
2.55	8.37	11.24	0.27	2.38	20.90	clayey silt to silty clay	UNDFND	UNDFD	6	72.0
3.05	10.01	9.41	0.26	2.82	25.72	silty clay to clay	UNDFND	UNDFD	6	59.1
3.55	11.65	6.69	0.24	3.60	30.32	clay	UNDFND	UNDFD	7	40.4
4.05	13.29	6.75	0.19	2.79	34.91	silty clay to clay	UNDFND	UNDFD	4	40.1
4.55	14.93	6.22	0.23	3.68	39.50	clay	UNDFND	UNDFD	6	36.0
5.05	16.57	5.10	0.17	3.27	44.09	clay	UNDFND	UNDFD	5	27.9
5.55	18.21	31.26	0.25	0.80	48.69	silty sand to sandy silt	40-50	38-40	10	UNDEFINED
6.05	19.85	121.66	0.67	0.55	53.28	sand	80-90	44-46	24	UNDEFINED
6.55	21.49	111.95	0.64	0.57	57.87	sand	70-80	42-44	22	UNDEFINED
7.05	23.13	93.27	0.56	0.60	62.47	sand to silty sand	70-80	42-44	23	UNDEFINED
7.55	24.77	73.61	0.48	0.65	67.06	sand to silty sand	60-70	40-42	18	UNDEFINED
8.05	26.41	60.60	0.42	0.69	71.65	sand to silty sand	50-60	40-42	15	UNDEFINED
8.60	28.22	67.36	0.42	0.62	76.48	sand to silty sand	50-60	40-42	17	UNDEFINED
9.10	29.86	83.78	0.49	0.58	81.30	sand to silty sand	60-70	40-42	21	UNDEFINED
9.60	31.50	94.07	0.54	0.58	85.89	sand	60-70	40-42	19	UNDEFINED
10.10	33.14	119.81	0.59	0.49	90.49	sand	70-80	42-44	24	UNDEFINED
10.60	34.78	116.70	0.59	0.51	95.08	sand	70-80	40-42	23	UNDEFINED
11.10	36.42	106.68	0.59	0.55	99.67	sand	60-70	40-42	21	UNDEFINED
11.60	38.06	122.05	0.78	0.64	104.27	sand	70-80	40-42	24	UNDEFINED
12.10	39.70	86.42	0.53	0.61	108.86	sand to silty sand	60-70	40-42	22	UNDEFINED
12.60	41.34	116.30	0.70	0.60	113.45	sand	60-70	40-42	23	UNDEFINED
13.10	42.98	103.22	0.63	0.61	118.05	sand	60-70	40-42	21	UNDEFINED
13.60	44.62	114.71	0.69	0.60	122.64	sand	60-70	40-42	23	UNDEFINED
14.10	46.26	106.99	0.73	0.68	127.23	sand	60-70	40-42	21	UNDEFINED
14.60	47.90	97.32	0.62	0.64	131.82	sand to silty sand	60-70	38-40	24	UNDEFINED
15.10	49.54	118.61	0.76	0.64	136.42	sand	60-70	40-42	24	UNDEFINED
15.60	51.18	111.59	0.73	0.65	141.01	sand	60-70	40-42	22	UNDEFINED
16.10	52.82	105.77	0.71	0.67	145.60	sand	60-70	38-40	21	UNDEFINED
16.60	54.46	97.45	0.46	0.47	150.20	sand	60-70	38-40	19	UNDEFINED
17.10	56.10	121.17	0.65	0.54	154.79	sand	60-70	38-40	24	UNDEFINED
17.60	57.74	156.11	0.86	0.55	159.38	sand	70-80	40-42	31	UNDEFINED
18.10	59.38	159.53	0.85	0.53	163.98	sand	70-80	40-42	32	UNDEFINED
18.60	61.02	169.51	0.72	0.43	168.57	sand	70-80	40-42	34	UNDEFINED

Dr - All sands (Jamiolkowski et al. 1985) PHI - Robertson and Campanella 1983 Su: Nk= 16

3.0 THE FIELD PROGRAM

3.1 Monitoring Sites

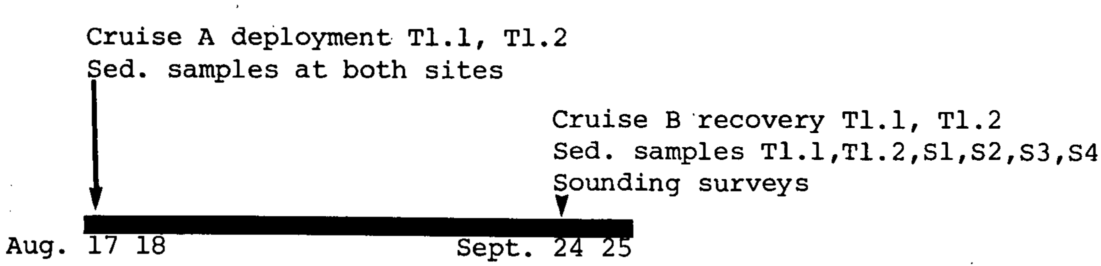
Two monitoring sites and four intermediate stations (Fig. 3.1) were used during the field program. Coordinates for all sites are given Table 3.1. Selection of the monitoring sites was based on analysis of the available geotechnical data gathered during the 1984 AGC field program borehole (Hill et al., 1986b). As shown in the facies interpretation given in Fig. 2.4, facies 4 is composed of a low plasticity silt with low permeability. The fine grain size and low plasticity would lead potentially to sediment resuspension under waves and currents and hence to transport during storms. Also the low permeability is conducive to liquefaction produced by a build-up of porewater pressure by surface waves. In view of these characteristics site T1.2, containing the piezometer probe, was located as close as possible to AGC borehole 32+00 where facies 4 material extends from the seabed down to approximately 7 m. This location falls near the 5 m isobath thus establishing the shallow site in the target water depth for monitoring wave attenuation.

Site T1.1 was located near the 10 m isobath primarily to monitor waves in deeper water as part of the analysis of energy attenuation. It was located as close to borehole 21+60 (Fig. 2.3) as possible for reference to geotechnical data. As can be seen in the facies diagram, the low plasticity silt dips under a thin (3 m) lens of medium plasticity bioturbated clay. However, the facies 1 silt is predominant along the transect, with some low plasticity bioturbated silt at the seabed near boreholes 10+00 and 12+20.

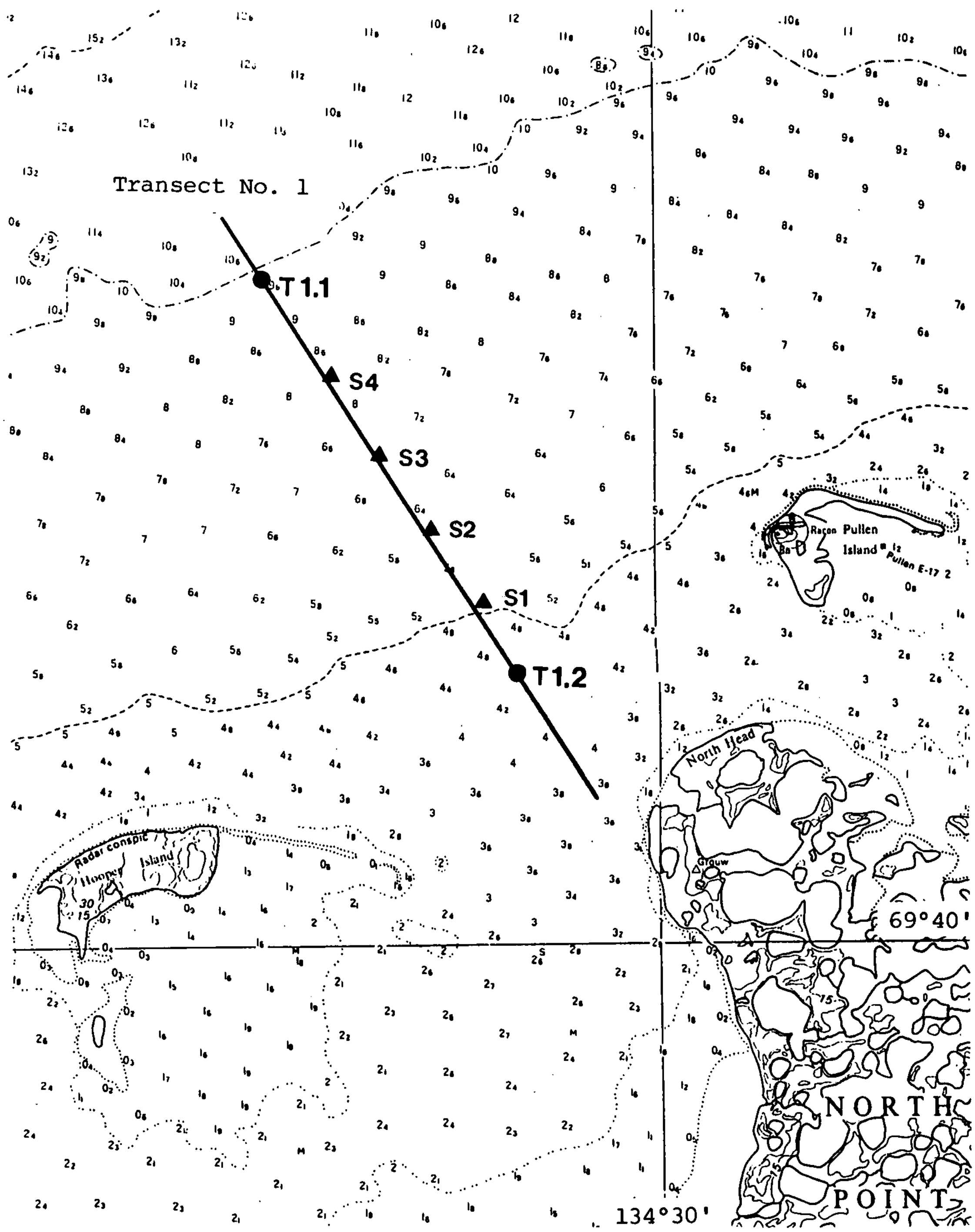
Surficial sediment samples were collected at sites T1.1 and T1.2, and at the four intermediate sites S1 to S4. In all instances sediment was sampled by dragging a barrel across the seabed, giving a recovery depth of about 30 to 50 cm. All samples are highly disturbed by this method.

3.2 Survey Schedule and Instrument Sampling Strategy

The field program consisted of a 38 day monitoring period for all instruments, from August 17, 1986 to September 24, 1986. It included a deployment cruise A and a recovery cruise B. An overview of the field program is shown below. The instrument deployment information is given in Table 3.2.



In situ monitoring period 38 days (5.5 weeks)



depth in metres reduced to Lowest Normal Tides

from CHS chart 7604

key: ● monitoring sites
▲ sediment samples

Fig. 3.1 Location of transect no. 1, off North Head, NWT.

Table 3.1

Monitoring Sites and Transect Stations

Sites		Coordinates	Depth to MWL (m)
Monitoring Shallow Site	T1.2	69° 44.5'N 134° 36.4'W	5.9
Sediment Sample	S1	69° 45.4'N 134° 37.8'W	6.2
Sediment Sample	S2	69° 46.7'N 134° 40.2'W	7.1
Sediment Sample	S3	69° 47.8'N 134° 42.5'W	7.9
Sediment Sample	S4	69° 49.0'N 134° 44.6'W	9.7
Monitoring Deep Site	T1.1	69° 50.6'N 134° 47.6'W	10.5

Table 3.2

Sea Data Instrument Deployment Information Summary

T1.1 Deep Site

Sea Data Instrument	635-12
Instrument Serial No.	03
Instrument Tape No.	1
Latitude	69° 50.6'N
Longitude	134° 47.6'W
Deployed (hour DD/MM/YY)	04:00Z 18/08/86
Recovered (hour DD/MM/YY)	19:10Z 24/09/86
Instrument Depth	10.0 m
Water Depth	10.5 m
Data Recovery	100%

T1.2 Shallow Site

Sea Data Instrument	635-9	635-11	650B-7
Instrument Serial No.	13	113	78
Instrument Tape No.	1	1	1
Latitude	69° 44.54'N	69° 44.54'	69° 44.54'
Longitude	134° 36.67'W	134° 36.67'	134° 36.67'
Deployed	13:26Z 18/08/86	13:26Z 18/08/86	13:26Z 18/08/86
Recovered	16:20Z 24/09/86	16:20Z 24/09/86	16:20Z 24/09/86
Instrument Depth	5.4 m	4.4 m	4.4 m
Water Depth	5.9 m	5.9 m	5.9 m
Data Recovery	100%	100%	75%

(a)

(b)

Fig. 3.2 (a) Instrumented frame at site T1.2
(b) Instrumented frame at site T1.1.

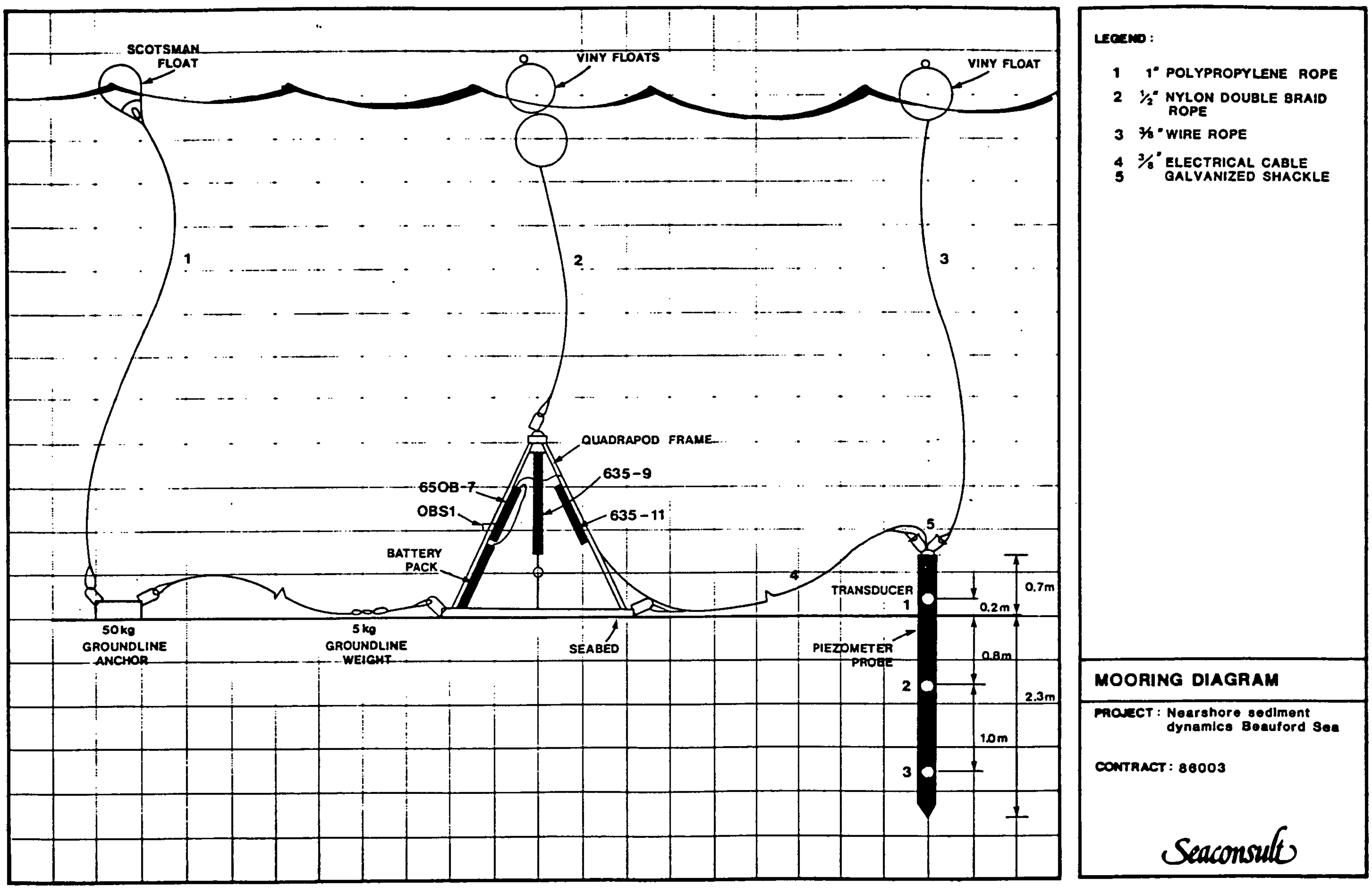


Fig. 3.3 Schematic mooring diagram at the shallow site Tl.2.

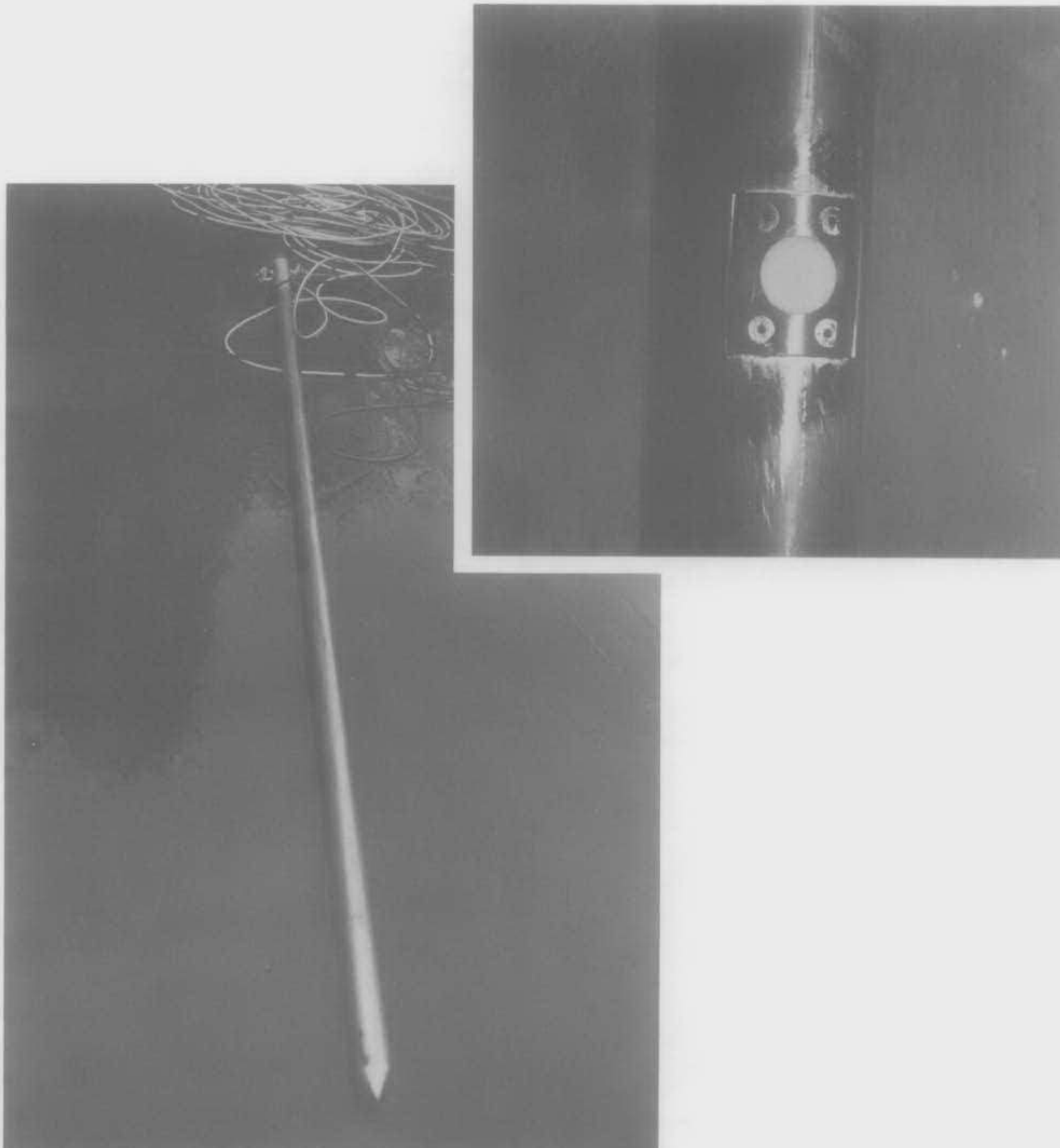


Fig. 3.4 Details of the piezometer probe and pressure transducer.

All in-situ recording equipment at both monitoring sites was housed in two aluminum frames (quadrapods) which were previously used in the sediment transport study on the Scotian Shelf (Hodgins et al., 1986). The frames have high stability and low flow field disturbance. They were custom designed to accommodate Sea Data 635-9/12 instruments (Fig. 3.2).

(a) Cruise A

During cruise A both quadrapod frames were deployed and surficial sediment samples were taken at each of the two monitoring sites. At the deep site (Tl.1) a single Sea Data 635-12 Directional Wave, Tide and Current Recorder was used (Fig. 3.2). This instrument provided measurements of tides and average currents as well as the burst sampled data.

At the shallow site (Tl.2) the following instruments were deployed (Fig. 3.2):

- a Sea Data 635-9 Directional Wave Recorder;
- a Sea Data 635-11 Wave and Tide Recorder;
- a Sea Data 650B-7 Data Logger;
- an OBS-1 Suspended Solids Monitor; and
- the piezometer probe with 3 pressure transducers.

A schematic mooring diagram of the shallow site is shown in Fig. 3.3. Measurements of directional wave spectra, burst currents, surge and tide amplitudes, suspended sediment concentrations and wave induced porewater pressures were obtained with this mooring. The piezometer probe, a unique instrument deployed for the first time in the Beaufort Sea, was designed and fabricated for the field program. It consisted of 3 CEC type 4-313 pressure transducers mounted in a 3 m stainless steel rod (Fig. 3.4). Each transducer was covered with a plastic filter cloth to keep silts out of the sensor. The probe was emplaced to one side of the instrumented quadrapod and interfaced to the Data Logger. Four channels of the 650B-7 Data Logger were used, one connected to the OBS sensor and three to the pressure transducers. The instruments used in this study are listed in Table 3.3 together with the burst sampling scheme.

(b) Cruise B

During cruise B all instruments were recovered. Additional surficial sediment samples were collected at the shallow site (Tl.1) and at four intermediate stations in the transect (S1 to S4 in Fig. 3.1). Also two sounding lines 3 nautical miles apart were surveyed from the shallow site Tl.2 parallel to transect no. 1 to the 20 m isobath offshore of site Tl.1.

One of the main objectives of this study was monitoring of coincident wave spectra and transient porewater pressures so as to establish the validity of

Table 3.3

Instrument Characteristics

Instrument	Sampling Scheme	Engineering Output
Sea Data 635-12 Wave, Tide and Current Recorder	1024 samples at 1 Hz recorded every 4 h Mean current and 8 tide samples every 15 min 450' tape capacity 60 days	average currents burst currents mean wave energy direction directional wave spectra zero-crossing parameters
Sea Data 635-9 Directional Wave Recorder	1024 samples at 1 Hz recorded every 4 h 450' tape capacity 47 days	burst currents mean wave energy direction directional wave spectra zero-crossing parameters surge and tide amplitude
Sea Data 635-11 Wave and Tide Recorder	1024 samples at 1 Hz recorded every 2 h 8 tide samples per h 450' tape capacity 63 days	non-directional wave spectra zero-crossing parameters surge and tide amplitude
OBS-1 and Sea Data 650B-7 Data Logger	512 samples at 1 Hz recorded every 4 h 450' tape capacity 39 days	suspended sediment concentrations
Piezometer probe and Sea Data 650B-7 Data Logger	512 samples at 1 Hz recorded every 4 h 450' tape capacity 39 days	porewater pressure fluctuations

liquefaction calculations forced by ocean waves. As self-recording instruments were used exclusively in this experiment (Sea Data cassette tape loggers) meeting this objective in an unattended program lasting over 30 days required a tradeoff between sampling frequency, burst duration and burst interval. In order to estimate reliable wave spectra a sampling scheme of 1 Hz for 1024 samples was adopted on all wave recorders. However, the 650B-7 logger capacity for the piezometer probe could only accommodate one half of this record length while maintaining a 4 h interval. Thus the compromise reached for this program was to maintain the 1 Hz sampling rate in all instruments, record 512 samples of porewater pressure per burst with coincident 1024 sample wave records, both on a 4 h cycle. The 4 h cycle probably undersamples storm response but this was felt to be an acceptable limitation because the sampling objective was not so much the peak storm wave and pressure response as it was the more gradual build-up and decay of wave-induced pressures.

4.0 WAVE AND CURRENT MEASUREMENTS

4.1 Instrumentation

The Sea Data 635-series instruments were selected for this study because they are the only burst sampling recorders with sufficient memory for long-term deployments of several weeks duration. Because they are self-recording instruments they do not require monitoring during the deployment period, an essential attribute for this study.

(a) Shallow Site

Directional wave data were collected at the shallow site with a Sea Data model 635-9 Directional Wave Recorder. The instrument features a Paroscientific quartz pressure transducer with a Marsh McBirney electromagnetic flow sensor. This instrument provides simultaneous readings of pressure and 2-axis water velocity at various sampling frequencies. The sampling frequency chosen (1024 samples every 4 h at 1 Hz) allowed a possible deployment of up to 64 days. Instrument specifications are given in Table 4.1.

A Sea Data model 635-11 Wave and Tide Recorder was also used at the shallow site. Featuring the same pressure transducer as the 635-9, the Sea Data 635-11 was deployed to provide redundant wave spectra (non-directional) and water level recordings. 1024 wave measurements at 1 Hz were recorded every 2 h and eight tide measurements were obtained every hour.

(b) Deep Site

Directional wave data were measured at the deep site using a Sea Data model 635-12 Wave, Tide and Current Recorder. The 635-12 contains the same transducer and electromagnetic flow sensor as the Sea Data 635-9, and provides additional sampling of averaged pressures for tide estimation and average currents.

4.2 Tide Data

The Sea Data 635-12 instrument used at site T1.1 recorded temperature, pressure and current data every 15 minutes during the deployment period. Time-series plots of total pressure and temperature are presented in Fig. 4.1. The tidal current time-series plot is shown in Fig. 4.2. Tide averaging was performed in each burst interval using 8 samples of pressure and one sample of temperature.

Table 4.1

Sea Data Instrument Sensor Specifications

	Range	Accuracy	Resolution
Sea Data 635-12			
Velocity	±304.8 cm/s	2 cm/s + 2% of signal	0.2 cm/s
Direction	0 - 360°	5°	1.4°
Pressure	0 - 60 m	1.5 cm	0.1 cm
Temperature	-4.5 - 34°C	±0.1°C	0.01°C
Sea Data 635-11			
Velocity	-	-	-
Direction	0 - 360°	1.4°	1.4°
Pressure	0 - 60 m	1.5 cm	0.1 cm
Temperature	-4.5 - 34°C	±0.1°C	0.01°C
Sea Data 635-9			
Velocity	±300 cm/s	2 cm/s + 2% of signal	1.2 cm/s
Direction	0 - 360°	1.5°	1.4°
Pressure	0 - 60 m	1.5 cm	0.2 cm
Temperature	-	-	-

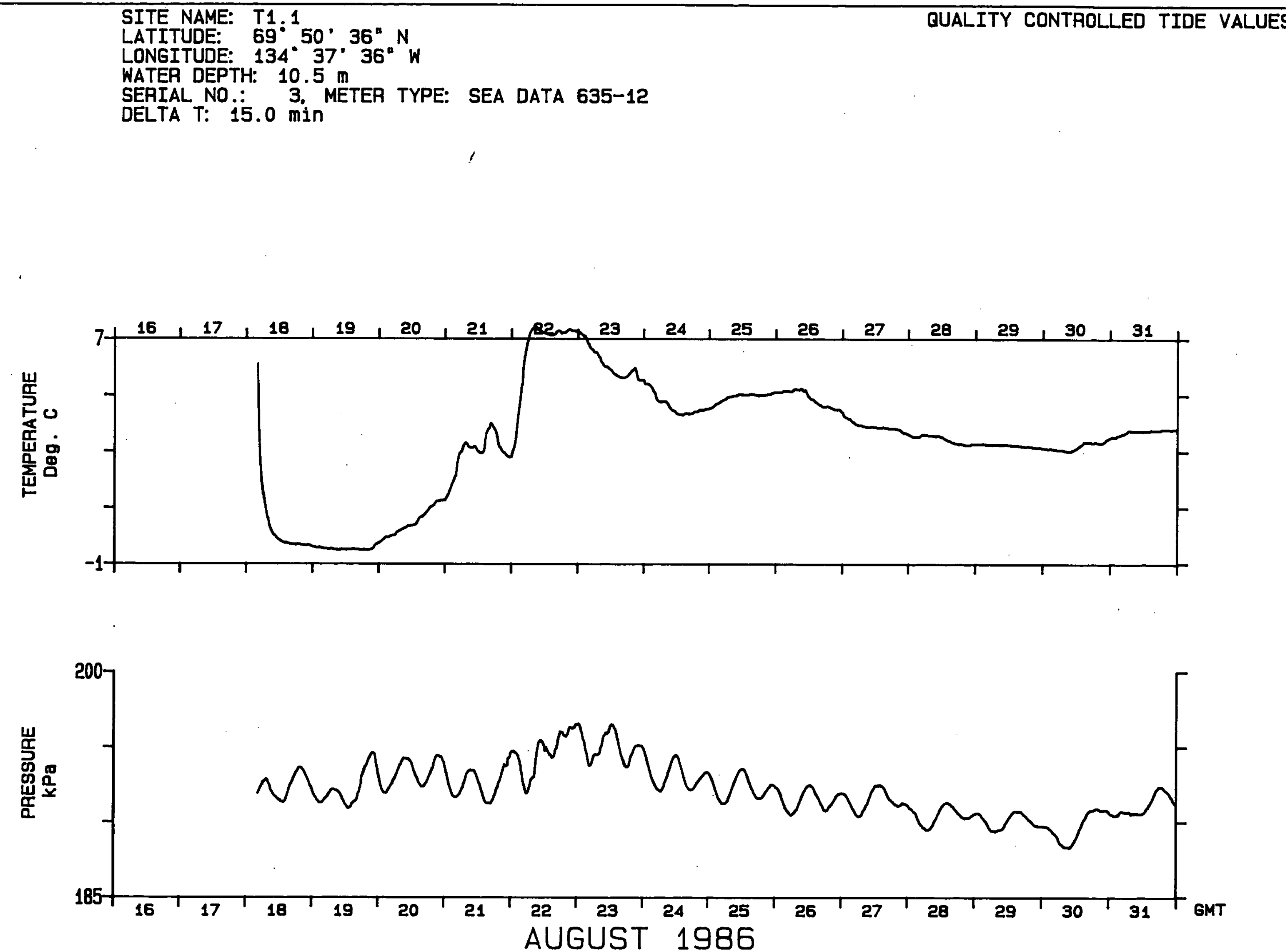


Fig. 4.1(a) Temperature and total pressure at site T1.1 (Sea Data 635-12) August 18-31, 1986.

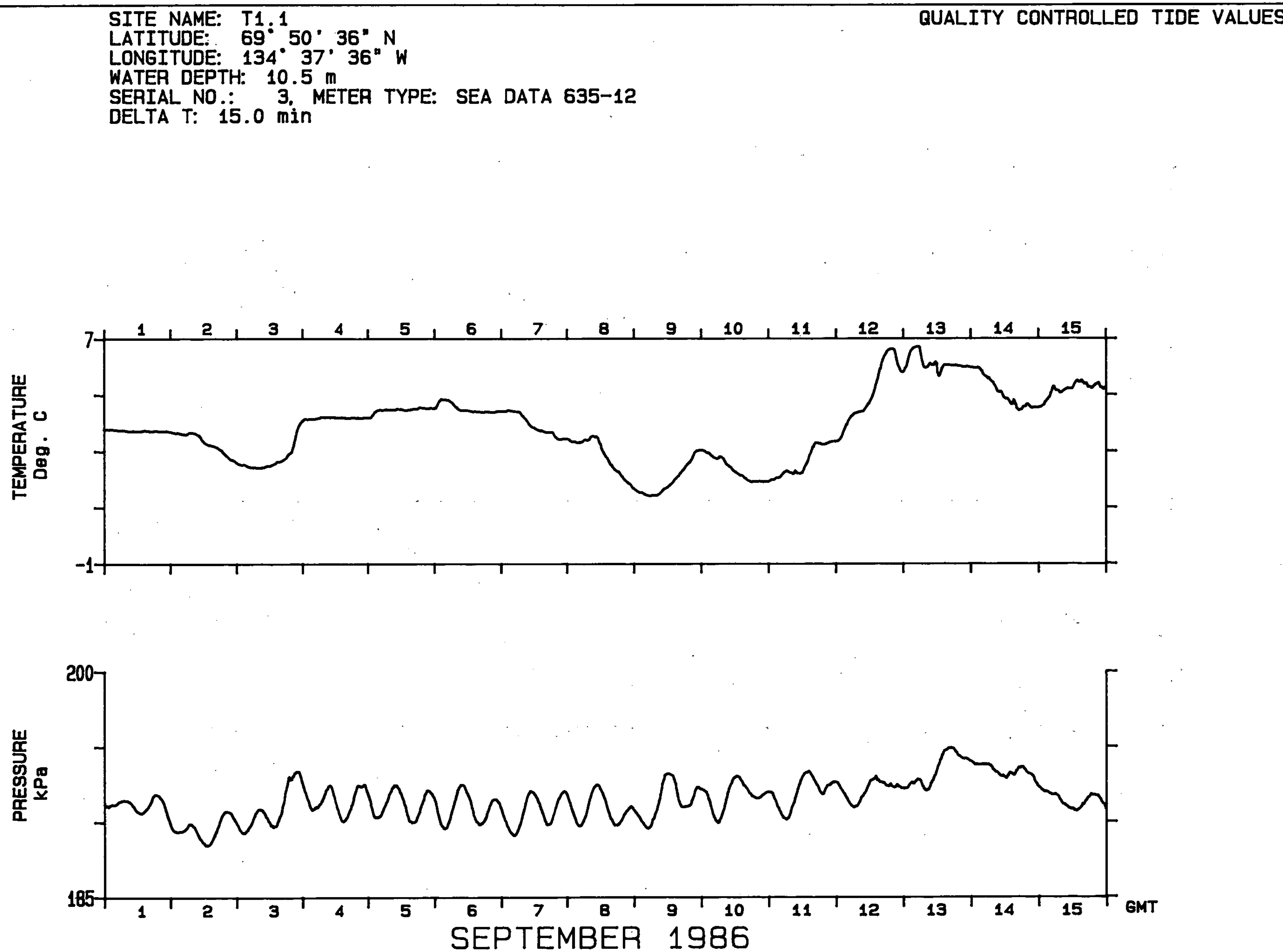


Fig. 4.1(b) Temperature and total pressure at site Tl.1 (Sea Data 635-12) September 1-15, 1986.

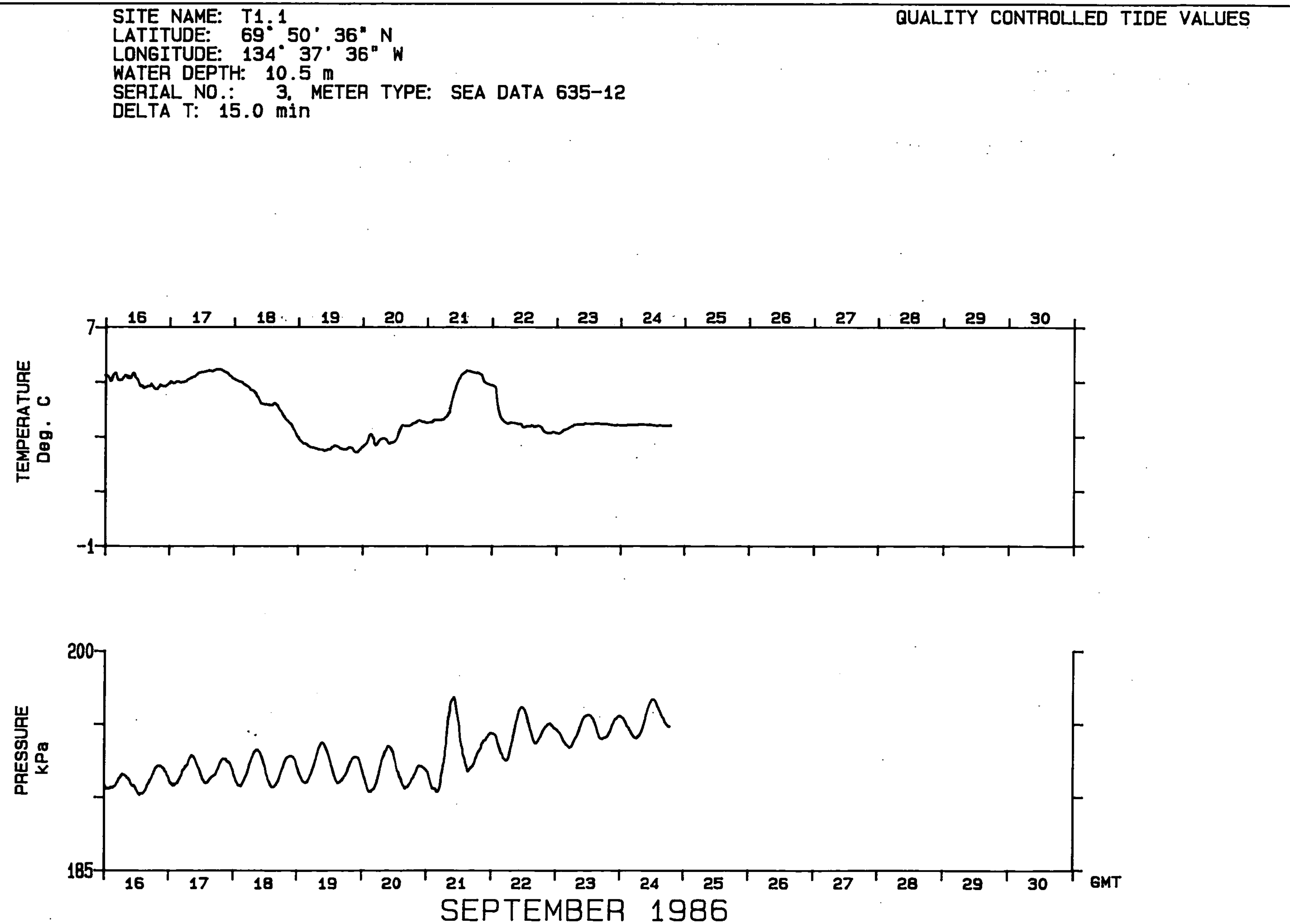


Fig. 4.1(c) Temperature and total pressure at site T1.1 (Sea Data 635-12) September 16-24 1986.

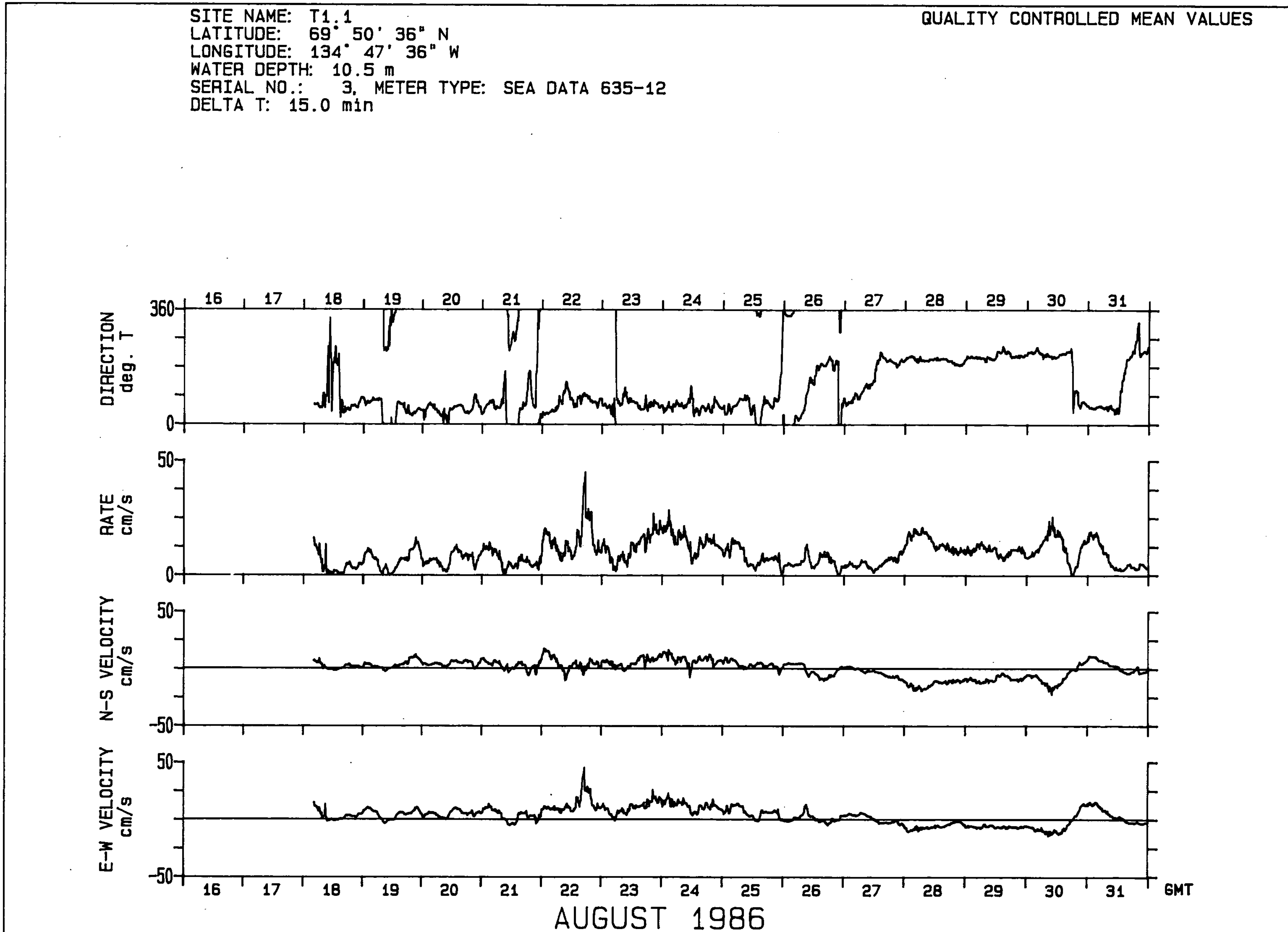


Fig. 4.2(a) Mean current at site T1.1 (Sea Data 635-12) August 18-31, 1986. Direction "to" is plotted in oceanographic convention.

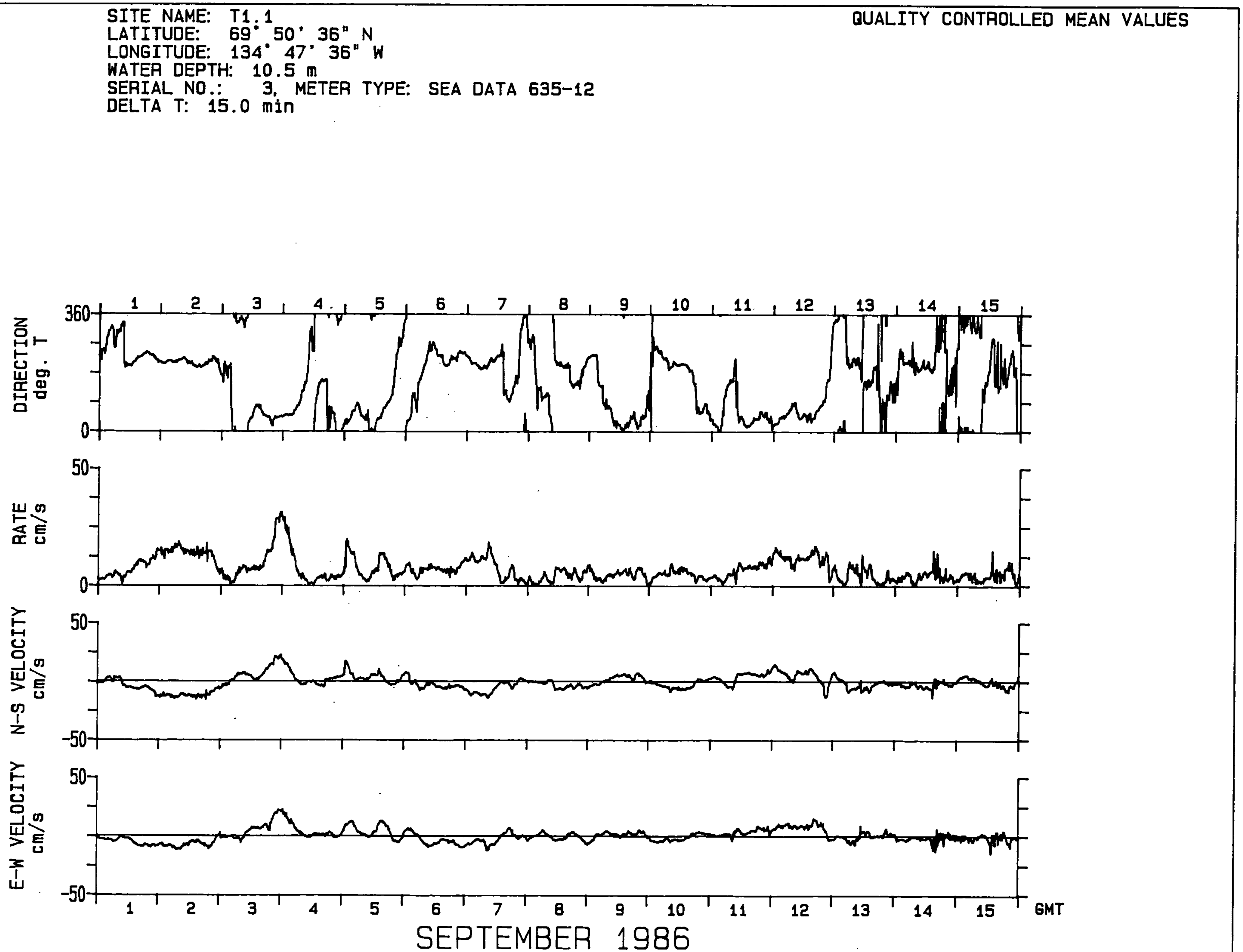


Fig. 4.2(b) Mean current at site T1.1 (Sea Data 635-12) September 1-15, 1986. Direction "to" is plotted in oceanographic convention.

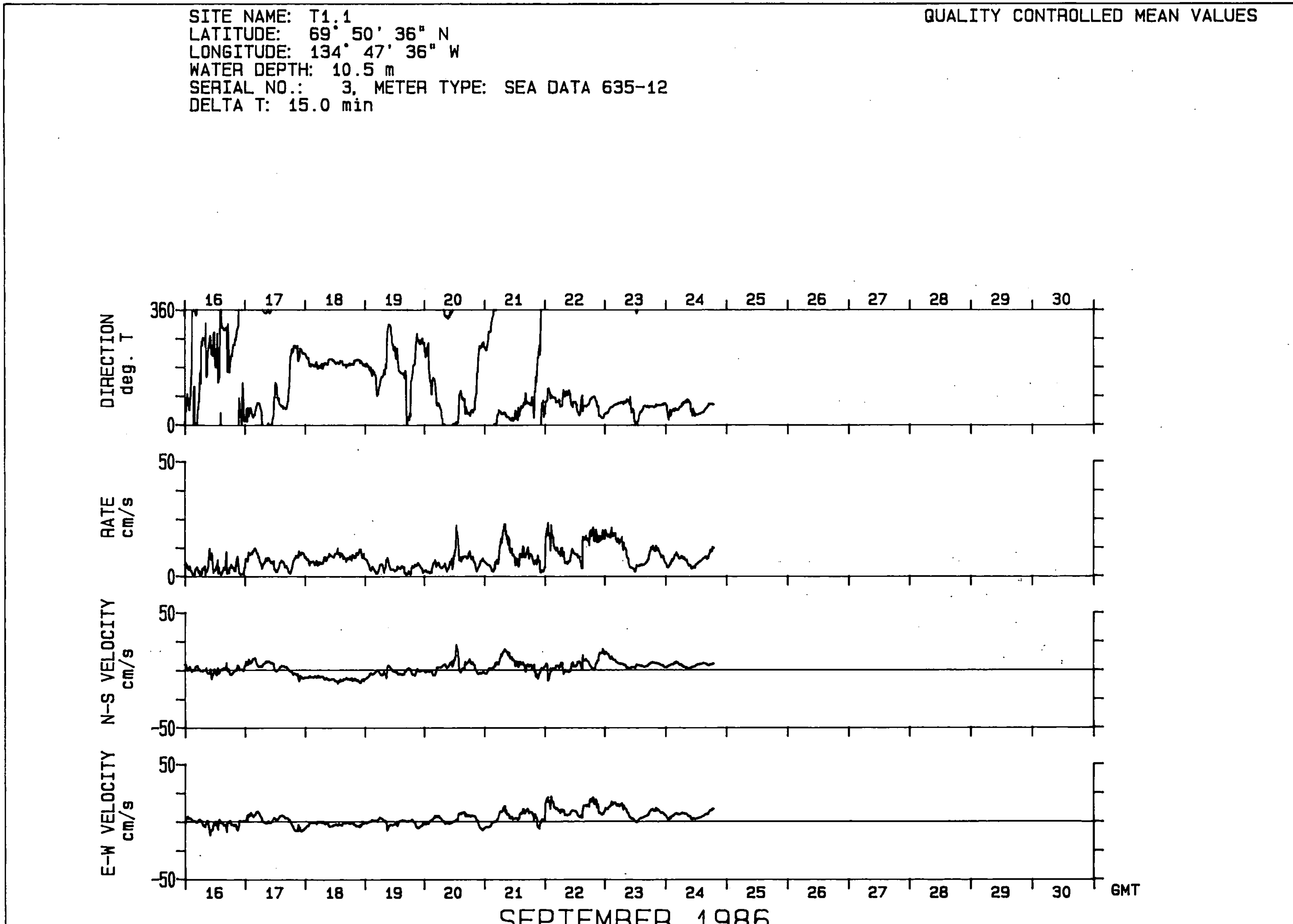


Fig. 4.2(c) Mean current at site Tl.1 (Sea Data 635-12) September 16-24, 1986. Direction "to" is plotted in oceanographic convention.

Temperature values ranged from -0.5°C (86-08-19) to above 7°C (86-08-22). The rapid change in water temperatures in this period may be associated with Mackenzie River plume water moving over the deep water site during the August 22 storm. The total pressure range (i.e. atmospheric plus water pressure) ranged from 196 to 187.5 kPa in the post-storm period of August 1986. For the September 21 storm the maximum value of pressure was 196.5 kPa. These records (Fig. 4.1) show the presence of a tidal range of approximately 0.5 m (5 kPa $\sim$ 0.5 m) as well as longer-term variations of the same order in mean sea level associated with storm surges.

Fig. 4.2 shows speeds ranging from zero up to 45 cm/s. From August 18 to 25 easterly flows were generated by NW winds and the maximum speed occurred at the storm peak (August 22). The September storm with peak speeds of 25/cms featured variable and less intense winds.

Time-series plots for the shallow water site (T1.2) are presented in Fig. 4.3 and 4.4 respectively for the pressure and current data. These data were recorded on the Sea Data 635-9 at a sampling interval of 4 h (see Table 3.3). Each value plotted in these figures represents the mean of the 1024-sample, 1-Hz record. Maximum burst mean pressures recorded during these storms were 152 kPa (August 22) and 153 kPa (September 21), representing the influence of storm surge in producing increased water depths at these times.

Maximum speeds at the shallow water site were 78 cm/s during the August 22 storm and 75 cm/s in the September 21 storm. These values show the depth influence on the measured current data, as they were approximately twice the magnitude of speeds measured at the deep site.

Tide parameters were also measured with the Sea Data 635-11, every 7.5 minutes during the deployment period. Time-series plots for temperature and total pressure are shown in Fig. 4.5. The 635-11 results of mean pressure are compatible with the burst mean pressure data measured by the 635-9 instrument. Water temperature variability is shown to be high during the August 22-24 storm, with maximum values above 9°C. During September temperatures varied between 3 and 8°C and dropped to 1°C after the September 21 storm.

We note that the pressure signal shows a clear tidal response up to August 25 after which time the tidal fluctuations largely disappear (compare with Fig. 4.1). Upon recovery, the pressure sensor on the 635-11 was found to be clogged with silt, and suffered a severe loss in high frequency response. The instrument was mounted with the sensor pointed up. It seems likely that the storm of August 21/22 produced very high suspended sediment concentrations in the water column (see Section 5.3) leading to clogging of the orifice and degraded performance thereafter.

PRESSURES

SITE NAME: T1.2
LATITUDE: 69° 44' 30" N
LONGITUDE: 134° 36' 24" W
WATER DEPTH: 5.9 m
SERIAL NO.: 13, METER TYPE: SEA DATA 635-9
DELTA T: 240.0 min

Upper Panel: water pressure at the sensor. (total-atmospheric)

Middle Panel: total pressure at the sensor.

Lower Panel: atmospheric pressure.

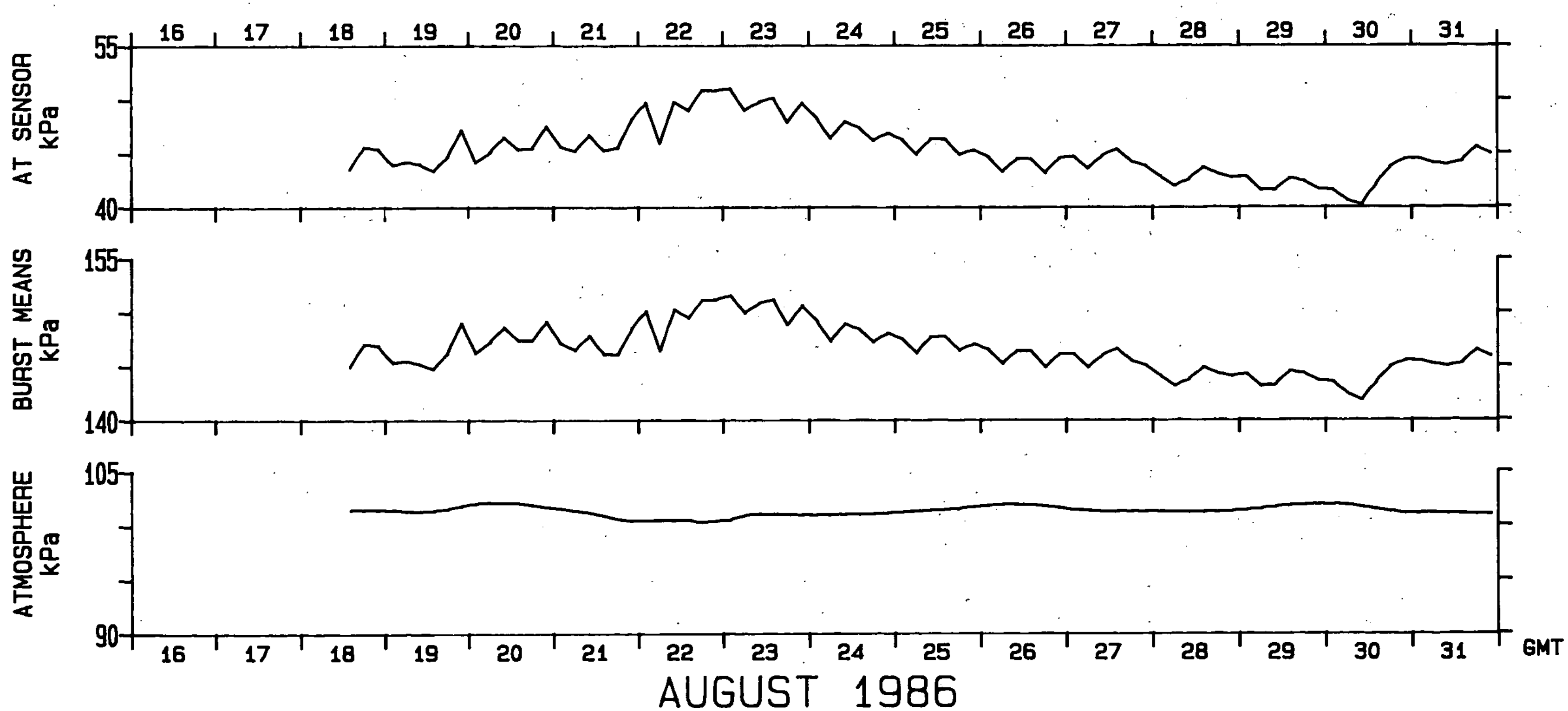


Fig. 4.3(a) Pressure measured at site T1.2 (Sea Data 635-9) August 18-31, 1986.

SITE NAME: T1.2
LATITUDE: 69° 44' 30" N
LONGITUDE: 134° 36' 24" W
WATER DEPTH: 5.9 m
SERIAL NO.: 13, METER TYPE: SEA DATA 635-9
DELTA T: 240.0 min

PRESSURES

Upper Panel: water pressure at the sensor.
(total-atmospheric)

Middle Panel: total pressure at the sensor.

Lower Panel: atmospheric pressure.

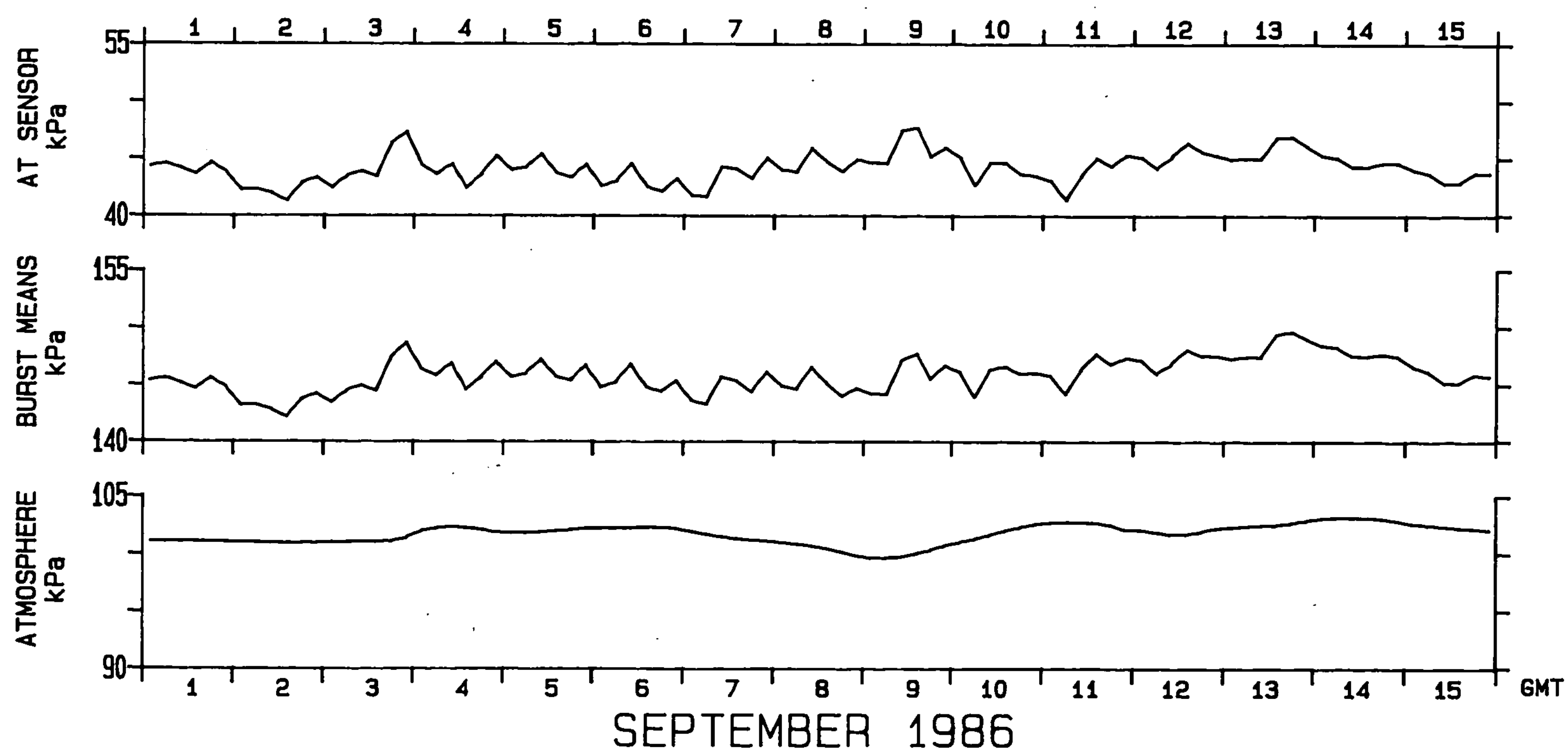


Fig. 4.3(b) Pressure measured at site T1.2 (Sea Data 635-9) September 1-15, 1986.

PRESSURES

SITE NAME: T1.2
LATITUDE: 69° 44' 30" N
LONGITUDE: 134° 36' 24" W
WATER DEPTH: 5.9 m
SERIAL NO.: 13, METER TYPE: SEA DATA 635-9
DELTA T: 240.0 min

Upper Panel: water pressure at the sensor. (total-atmospheric)

Middle Panel: total pressure at the sensor.

Lower Panel: atmospheric pressure.

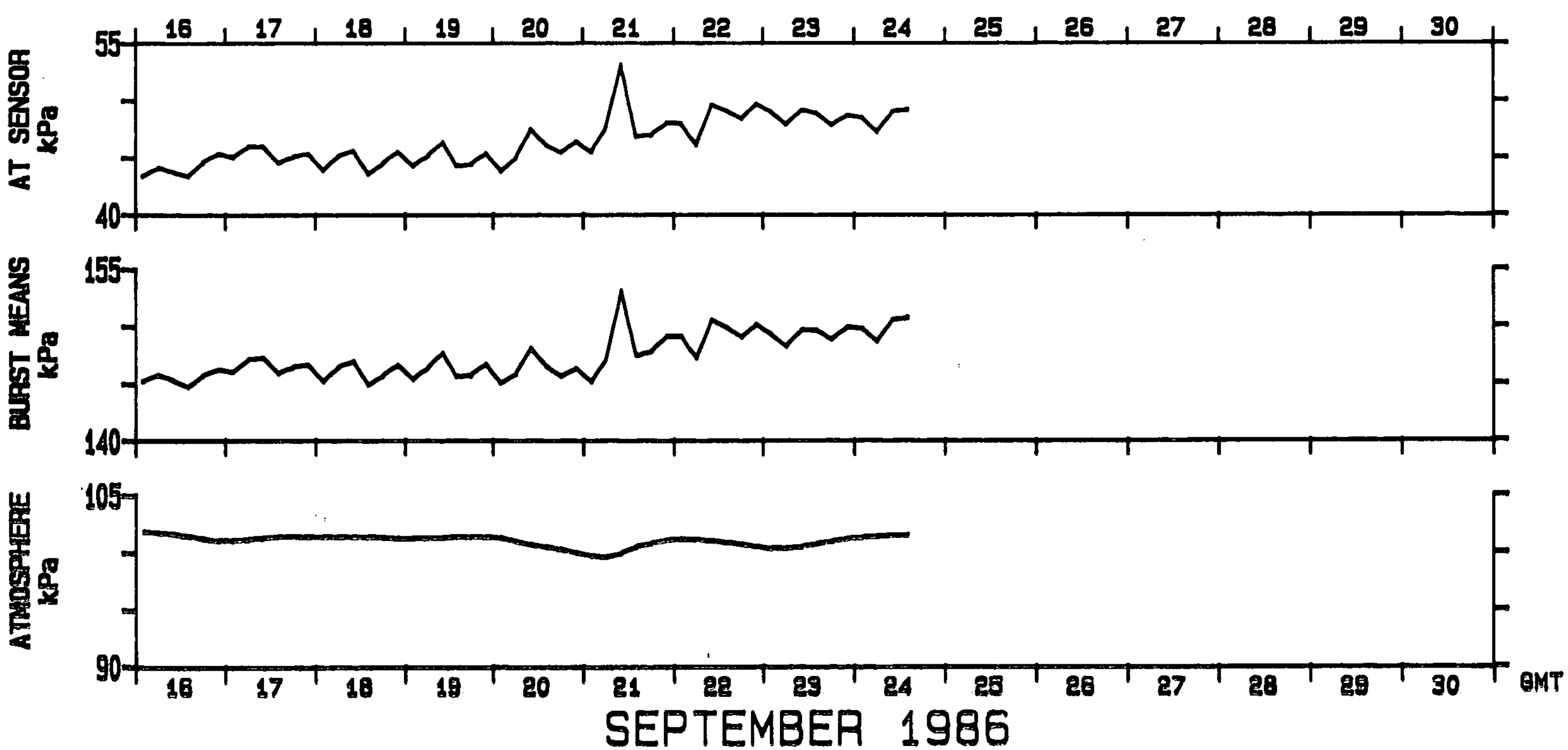


Fig. 4.3(c) Pressure measured at site T1.2 (Sea Data 635-9) September 16-24, 1986.

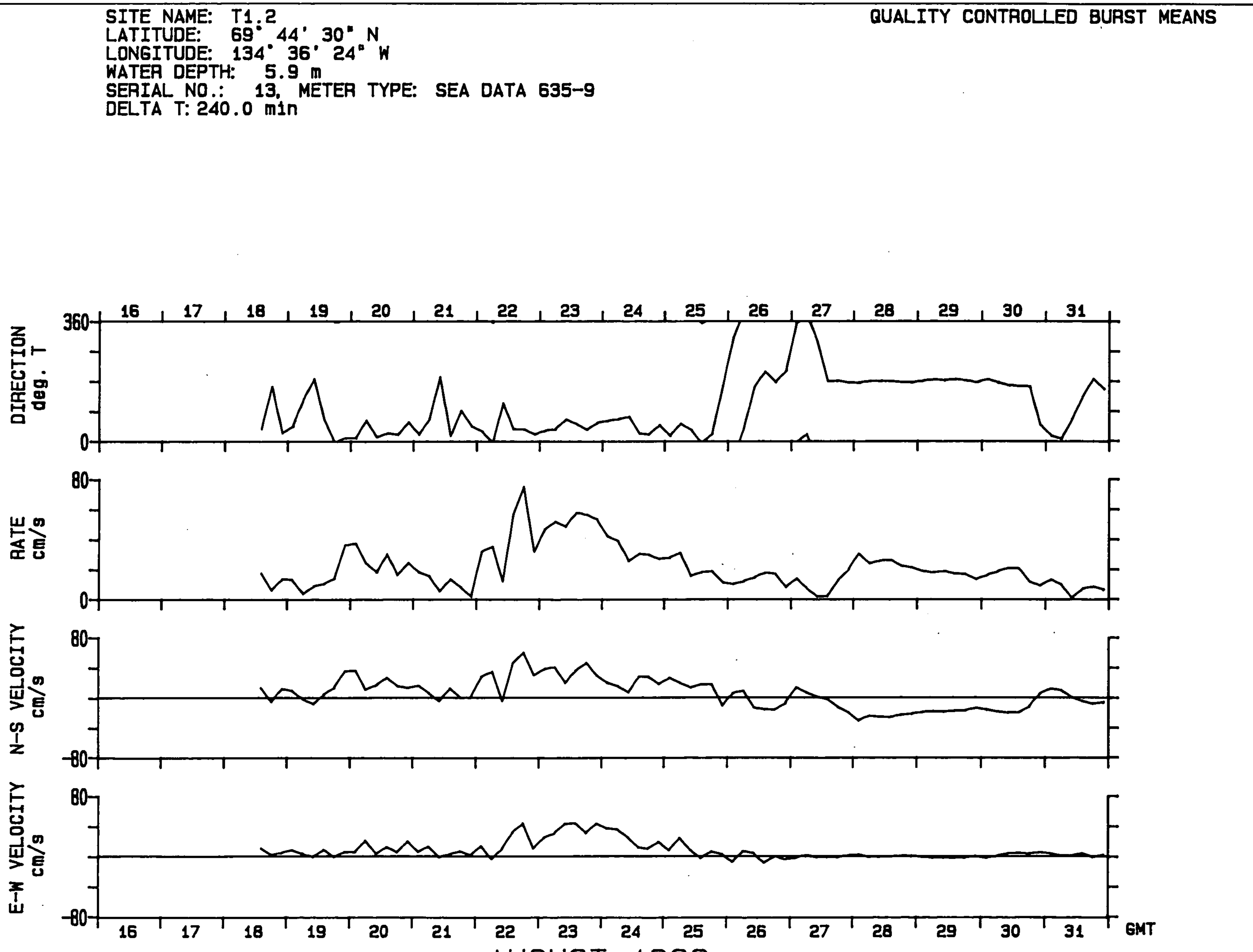


Fig. 4.4(a) Total measured mean current at site T1.2 (Sea Data 635-9) August 18-31, 1986.

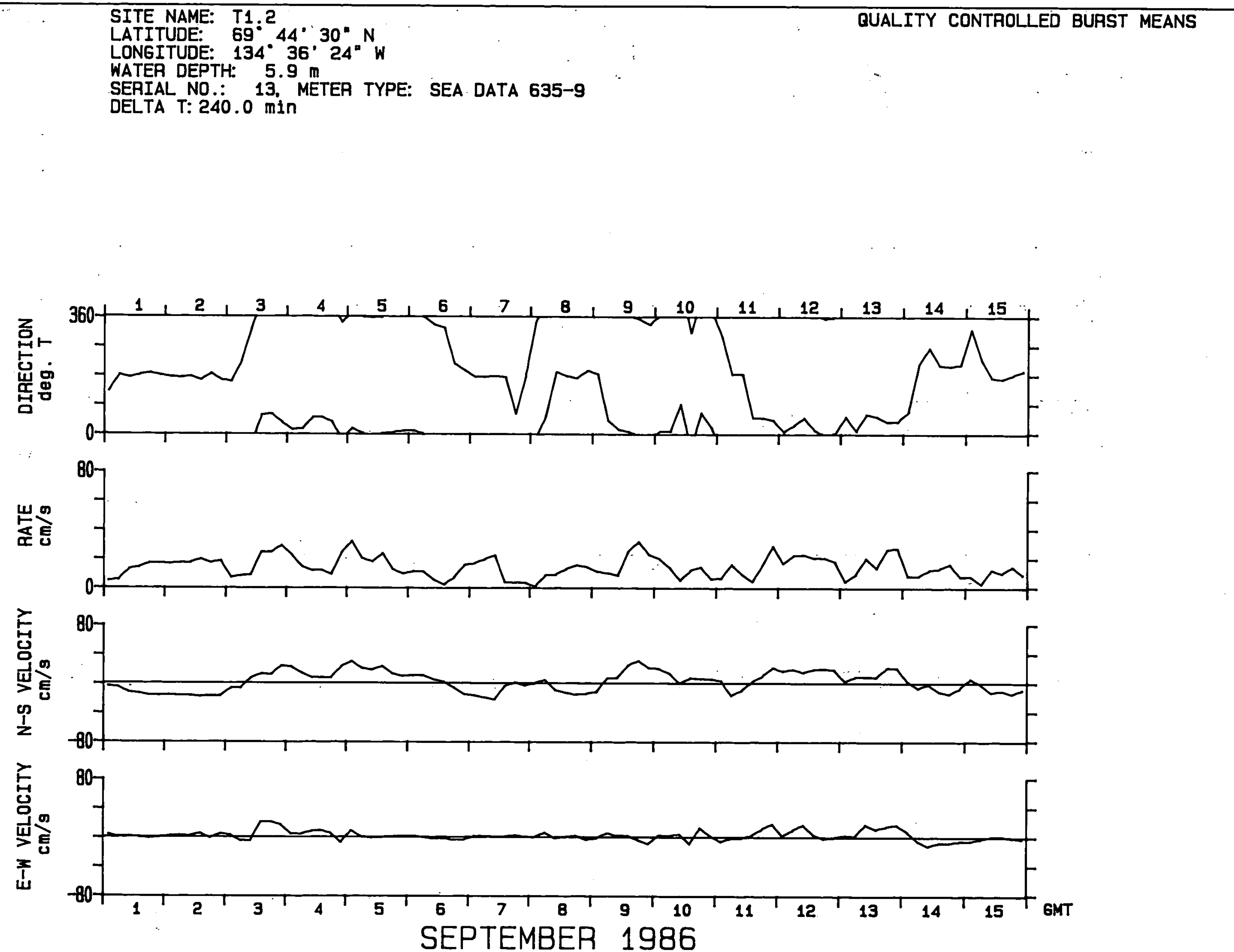


Fig. 4.4(b) Total measured mean current at site T1.2 (Sea Data 635-9) September 1-15, 1986.

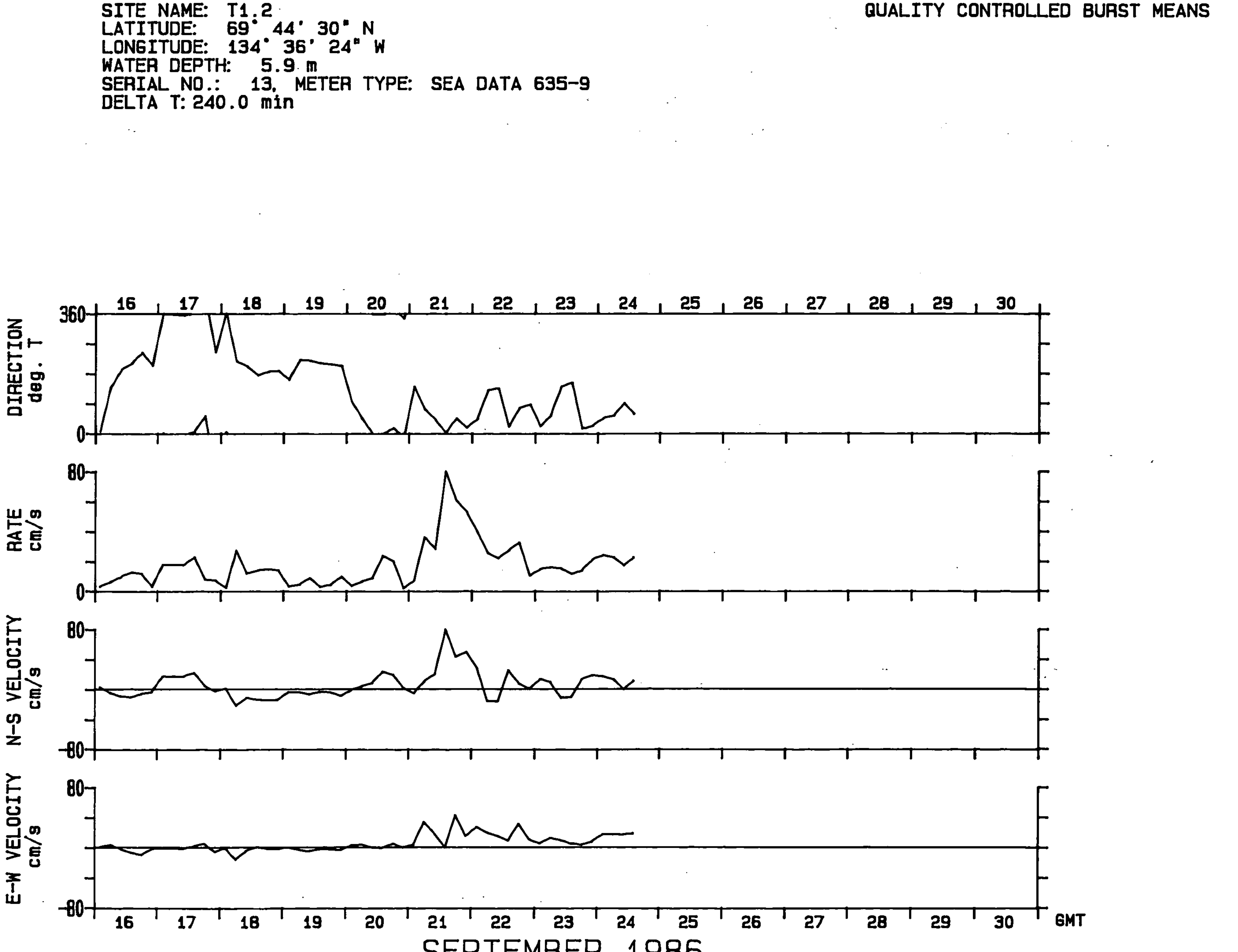


Fig. 4.4(c) Total measured mean current at site T1.2 (Sea Data 635-9) September 16-24, 1986.

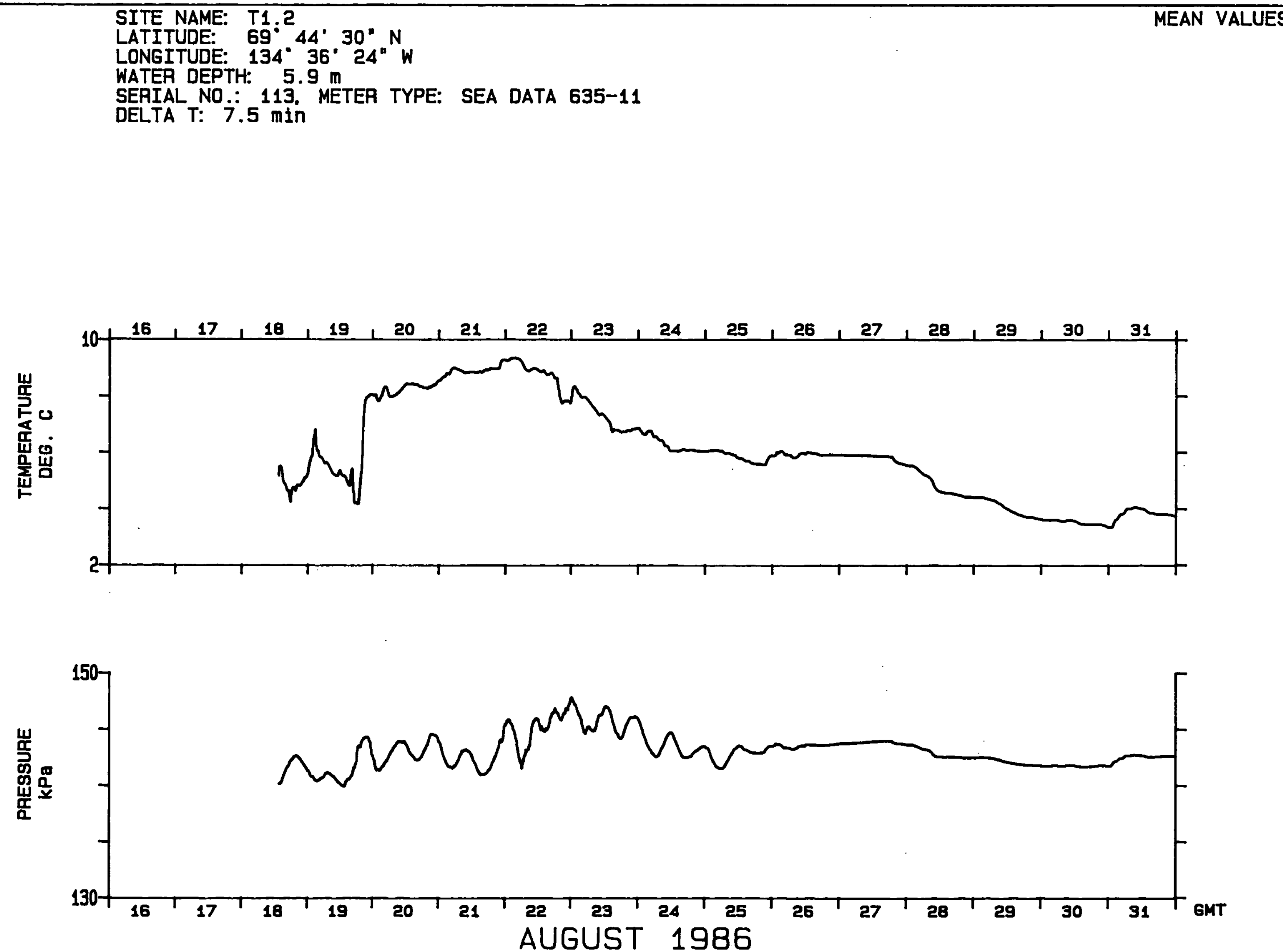


Fig. 4.5(a) Temperature and total pressure at site T1.2 (Sea Data 635-11) August 18-31, 1986.

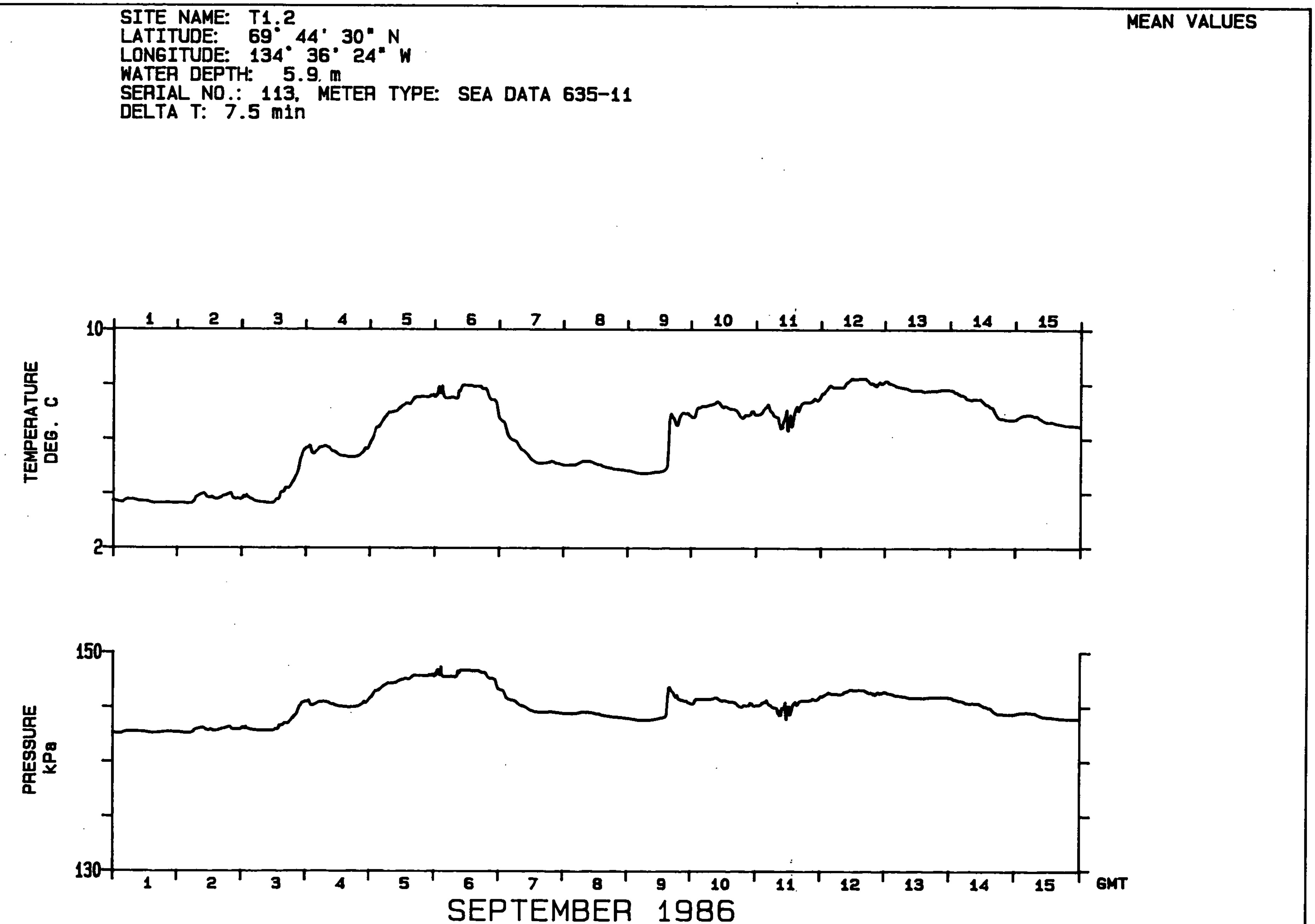


Fig. 4.5(b) Temperature and total pressure at site T1.2 (Sea Data 635-11) September 1-15, 1986.

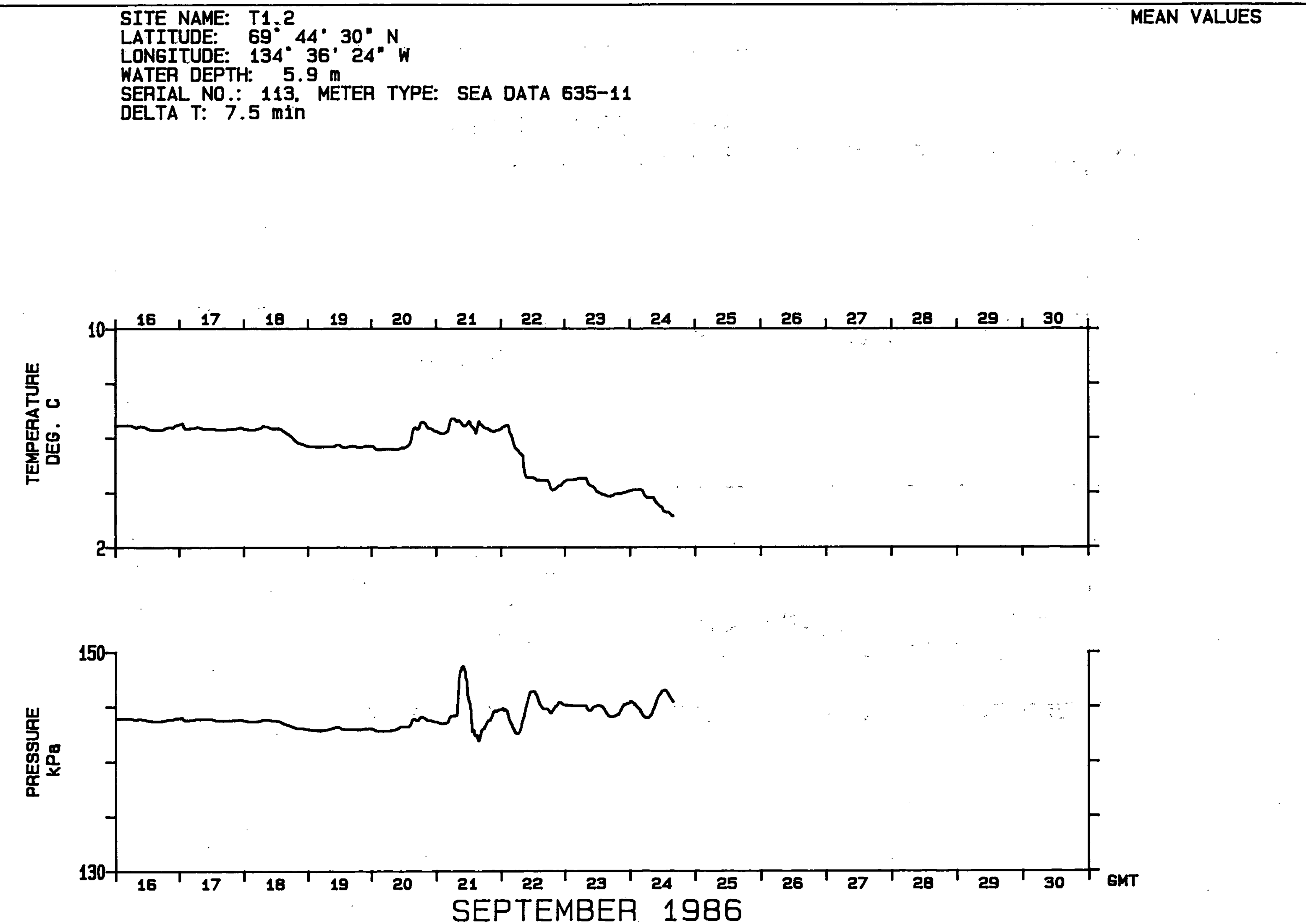


Fig. 4.5(c) Temperature and total pressure at site T1.2 (Sea Data 635-11) September 16-24, 1986.

4.3 Wave Data

(a) Non-directional Properties

Wave conditions at both sites were measured simultaneously during the deployment period (August 18 to September 24). Time-series plots of significant wave height (Hm_o) and peak period (T_p) for site T1.1 are given in Fig. 4.6. For the shallow site, T1.2, two time-series plots were obtained and are presented in Fig. 4.7 and 4.8 for the Sea Data instruments 635-9 and 635-11, respectively. In these plots T_p is assumed to be zero if the Hm_o values are equal to or smaller than 0.2 m.

The wave records show two major storm events, on August 22/23 and on September 21 when significant wave heights exceeded 2 m at the deeper site (T1.1). As can be seen in the time-series plots there is a clear loss in energy between the site in 10 m of water (T1.1) and that in 5 m depth (T1.2). Wave periods (T_p) ranged from 6.4 to 9.2 s during storm episodes with Hm_o greater than 1.5 m.

The record for the 635-11 shows no non-negligible wave response except during the storms. This behavior is attributable to clogging of the pressure orifice with silt and the subsequent loss of high frequency response. Post-deployment tests of the clogged pressure sensor showed a time constant of between 3 and 5 s compared with less than 1 s for a clear port. As a result, this instrument failed to record wave fluctuations with periods less than about 6 s after August 25th, explaining the sporadic response shown in Fig. 4.8.

As remarked above there is clear evidence of wave attenuation in the Hm_o time-series as waves propagate roughly from the deeper to shallower site. Two spectra are shown in Fig. 4.9 and 4.10 that provide further evidence for this attenuation during the August 22/23 storm. In each case the deeper water spectrum is shown as a dashed line. As can be seen in each graph there is a significant loss in energy across the peak frequencies including the equilibrium range to the right of f_m. This is consistent with a frictional loss of energy across a broad range of frequencies.

We note also that there is an increase of energy in the low frequency (infragravity) range of waves, although the power here is about two orders of magnitude less than at f_m.

(b) Directional Results

The pressure and two velocity signals from the Sea Data 635-12 and 635-9 were used to estimate directional spectral wave properties. The pressure signal and the two velocity records were converted to estimates of surface displacement and two orthogonal slopes using linear wave theory. This

Site : BEAUFORT T1.1 INSTRUMENT: 635-12
Latitude : 69° 50' 36" N
Longitude : 134° 47' 36" W
Depth (m) : 10.5

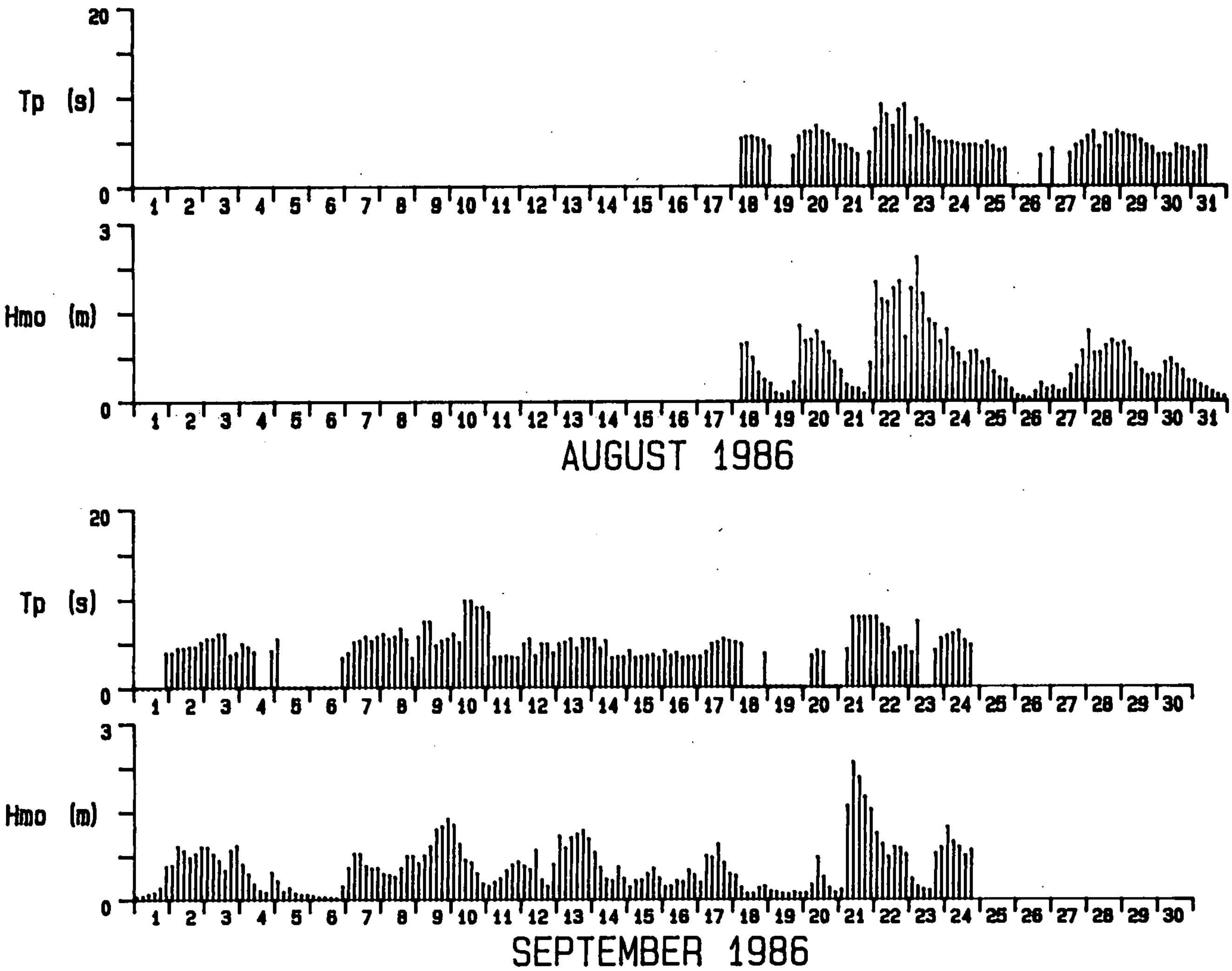


Fig. 4.6 Time-series plot of significant wave height (Hm_o) and peak period (T_p) at site T1.1 (Sea Data 635-12).

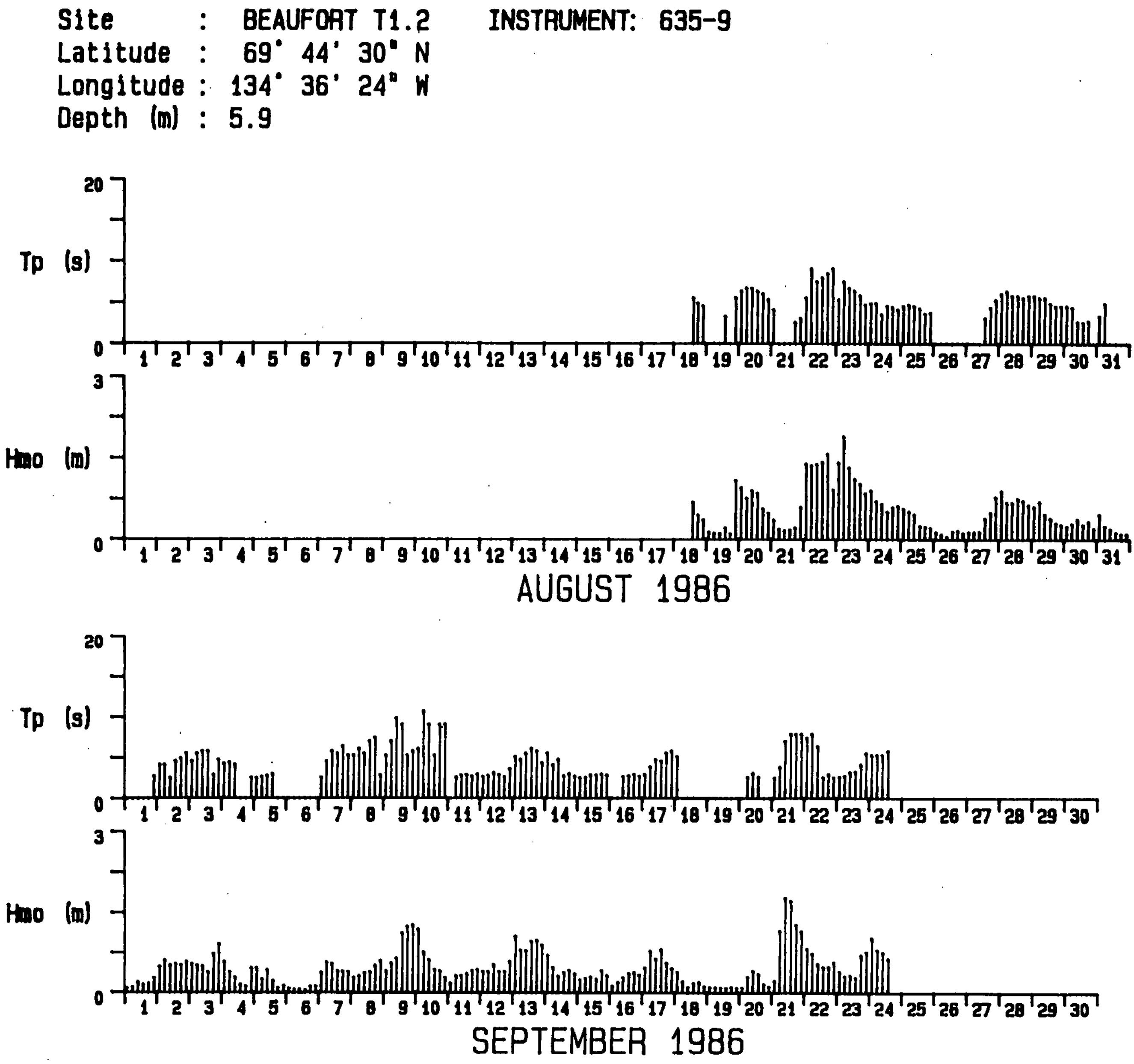


Fig. 4.7 Time-series plot of significant wave height (Hm_o) and peak period (T_p) at site T1.2 (Sea Data 635-9).

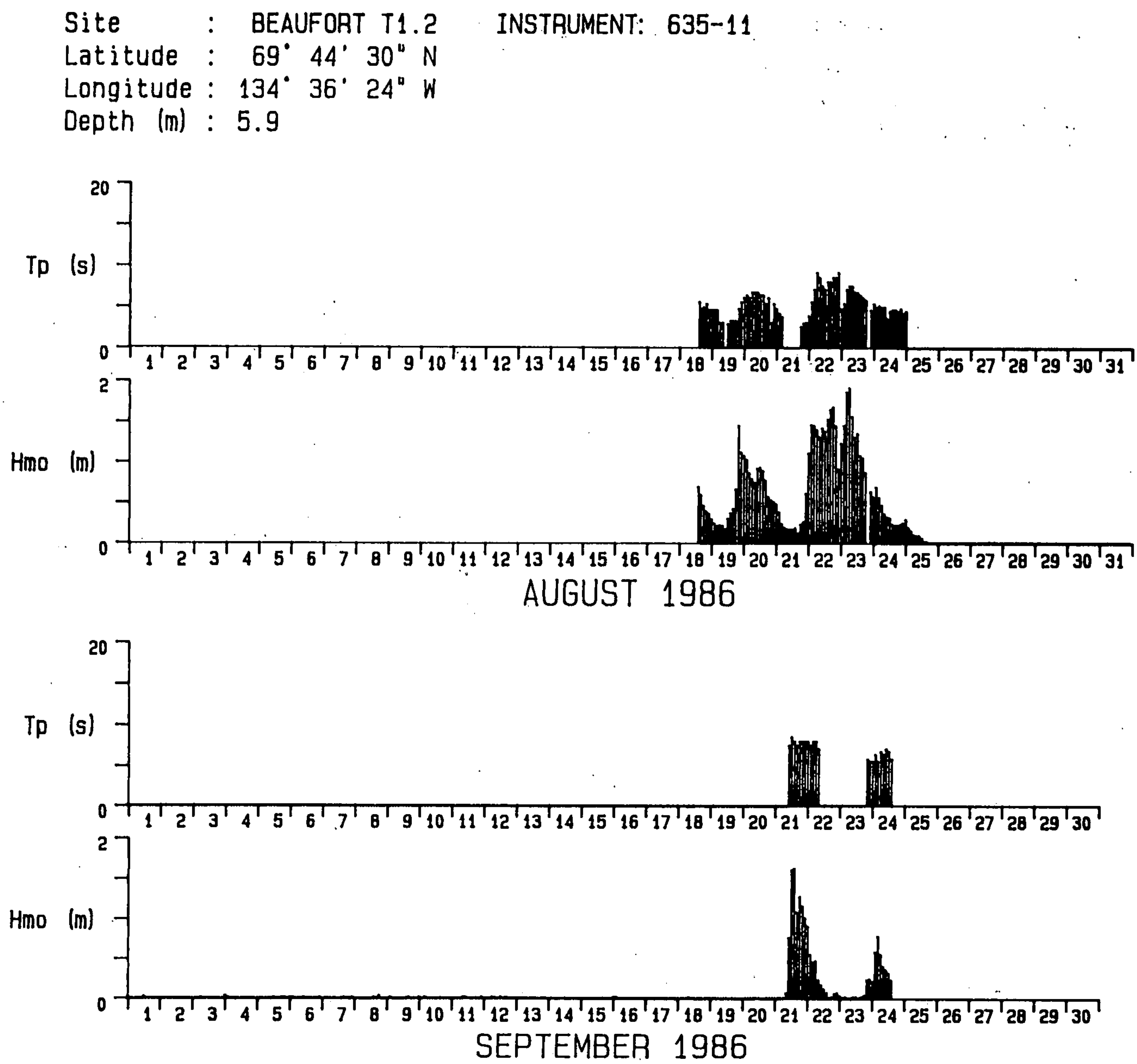


Fig. 4.8 Time-series plot of significant wave height (Hm_o) and peak period (T_p) at site T1.2 (Sea Data 635-11).

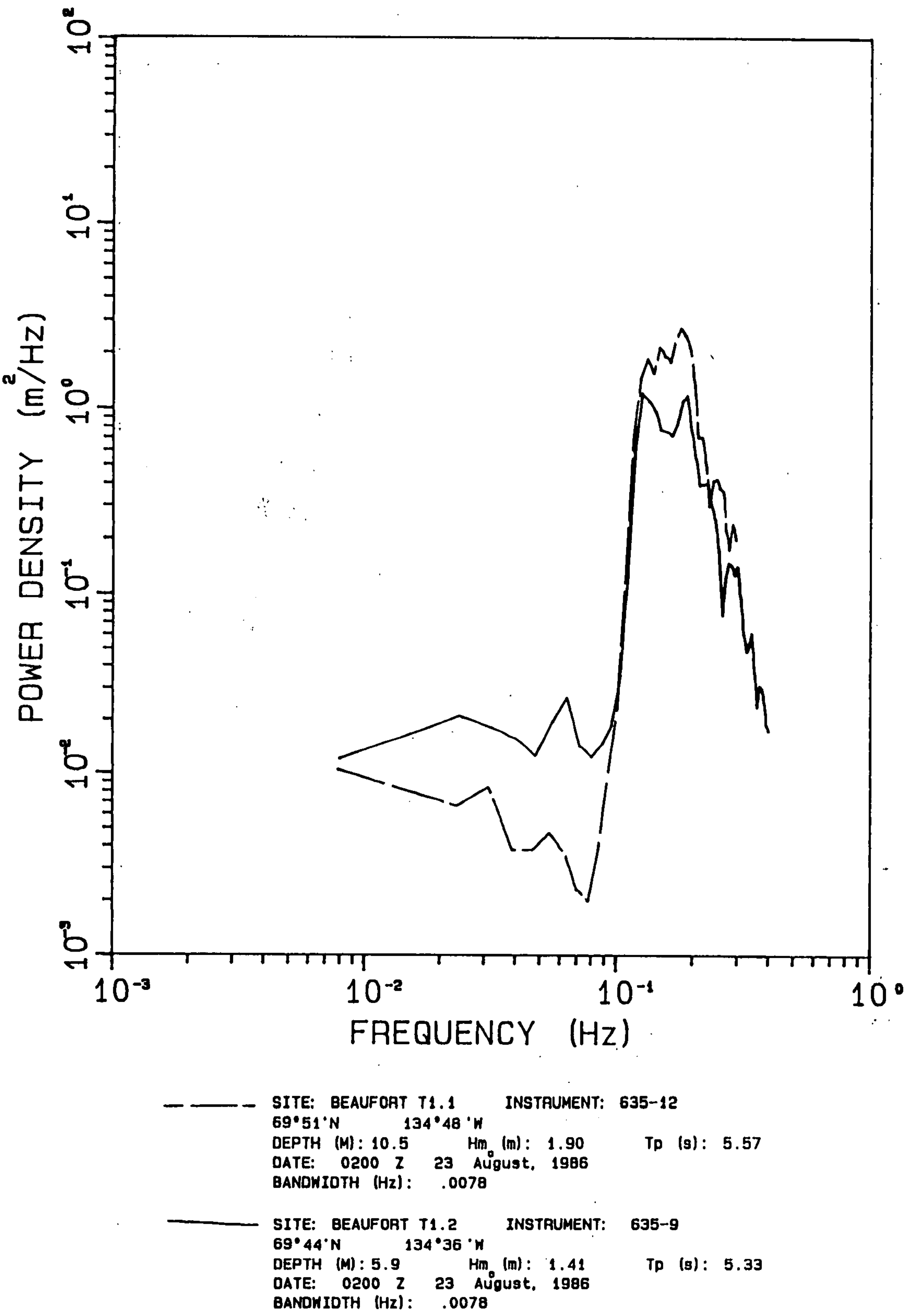


Fig. 4.9 Power density spectra for August 23, 1986 at 0200Z.

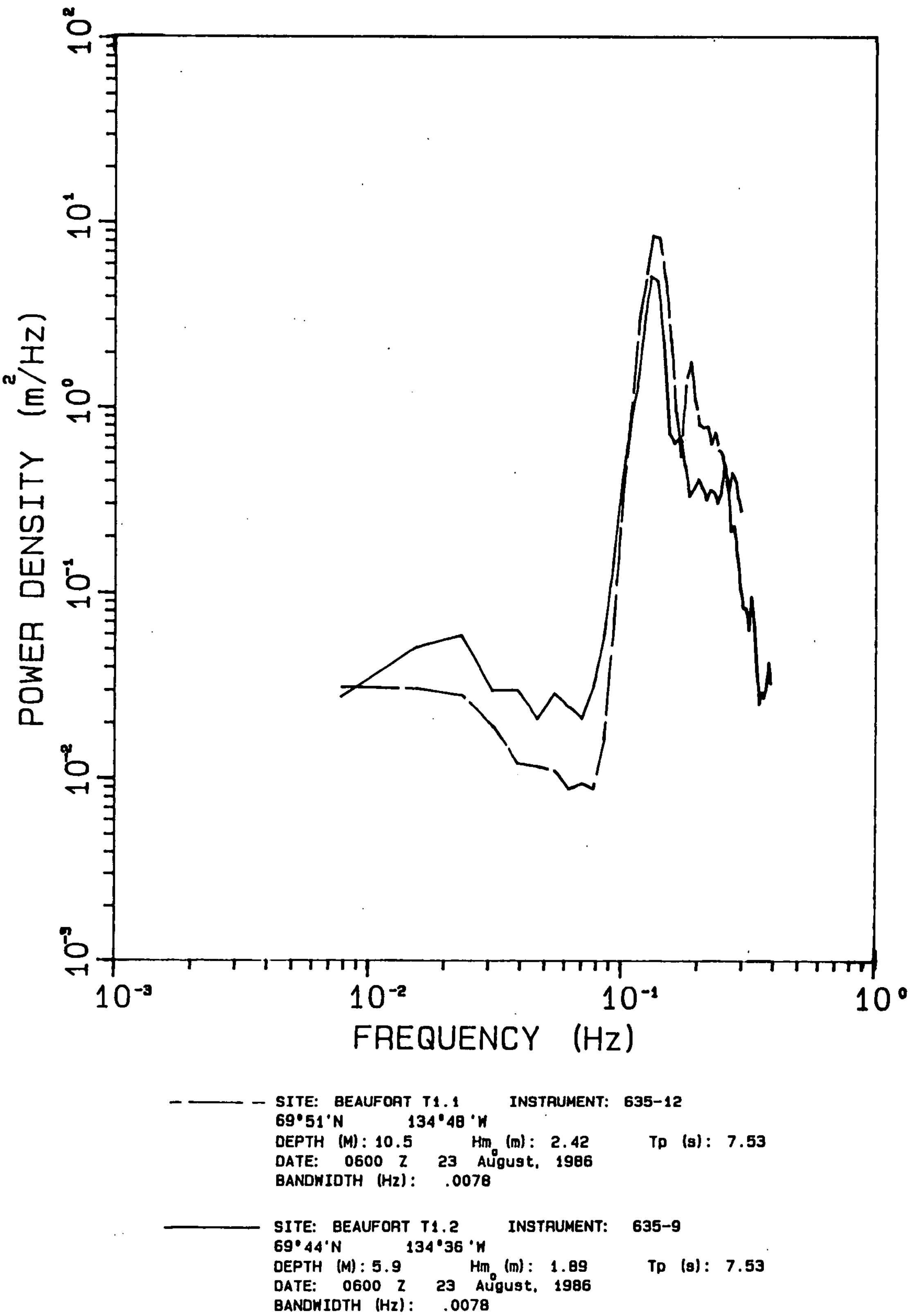


Fig. 4.10 Power density spectra for August 23, 1986 at 0600Z.

provided the heave-pitch-roll response for each burst record, which was then processed using the conventional directional analysis (Long, 1980; Hasselmann et al., 1980).

Time-series of Hm_o, T_p and the peak wave direction (degrees True from) are shown in Fig. 4.11 and 4.12 for stations T1.1 and T1.2 respectively. Wave heights and periods match those presented in the previous section. At the deeper site (T1.1) waves tend to dominant directions out of the southwest, or out of the northwest to north, depending upon local wind conditions. At the shallow site (T1.2) wave directions are predominantly out of the west, swinging to northwest in storm winds from that direction. These directions are consistent with the exposure of each site and local bathymetry.

The directional analysis also provided information on wave directions and the directional spreading exponent as functions of frequency. A typical result near the peak of the August 22/23 storm is shown in Fig. 4.13. Winds during this storm were relatively steady out of the west, and as can be seen here wave directions are uniformly out of the west within a tolerance of ±20° at all frequencies. This indicates that there is no strong shift in direction associated with, for example, swell, and that the energy is contained in waves growing in response to direct wind forcing.

The spreading exponent exhibits the expected variation (see Hasselmann et al., 1980) being largest at the peak frequency f_m, decreasing rapidly to lower frequencies, and falling off more slowly to higher frequencies. Maximum values of the spreading exponent ranged from about 10 to 40 (Fig. 4.14). The higher values indicate a very narrow directional spread.

4.4 Burst Current Data

Four plots are presented in Fig. 4.15 to 4.18 to illustrate the nature of the burst measurements during the first major storm. The data are presented as follows:

	T1.1 (depth = 10 m)		**T1.2** (depth = 5 m)		
Fig.	Hm_o (m)	T_p (s)	Hm_o (m)	T_p (s)	Graph
4.15	1.90	6.7	1.42	8.0	time-series η,u,v at sites T1.1 and T1.2
4.16	1.90	6.7	1.42	8.0	hodograph of current at sites T1.1 and T1.2
4.17	2.02	8.5	1.56	8.5	time-series η,u,v at sites T1.1 and T1.2
4.18	2.02	8.5	1.56	8.5	hodograph of current at sites T1.1 and T1.2

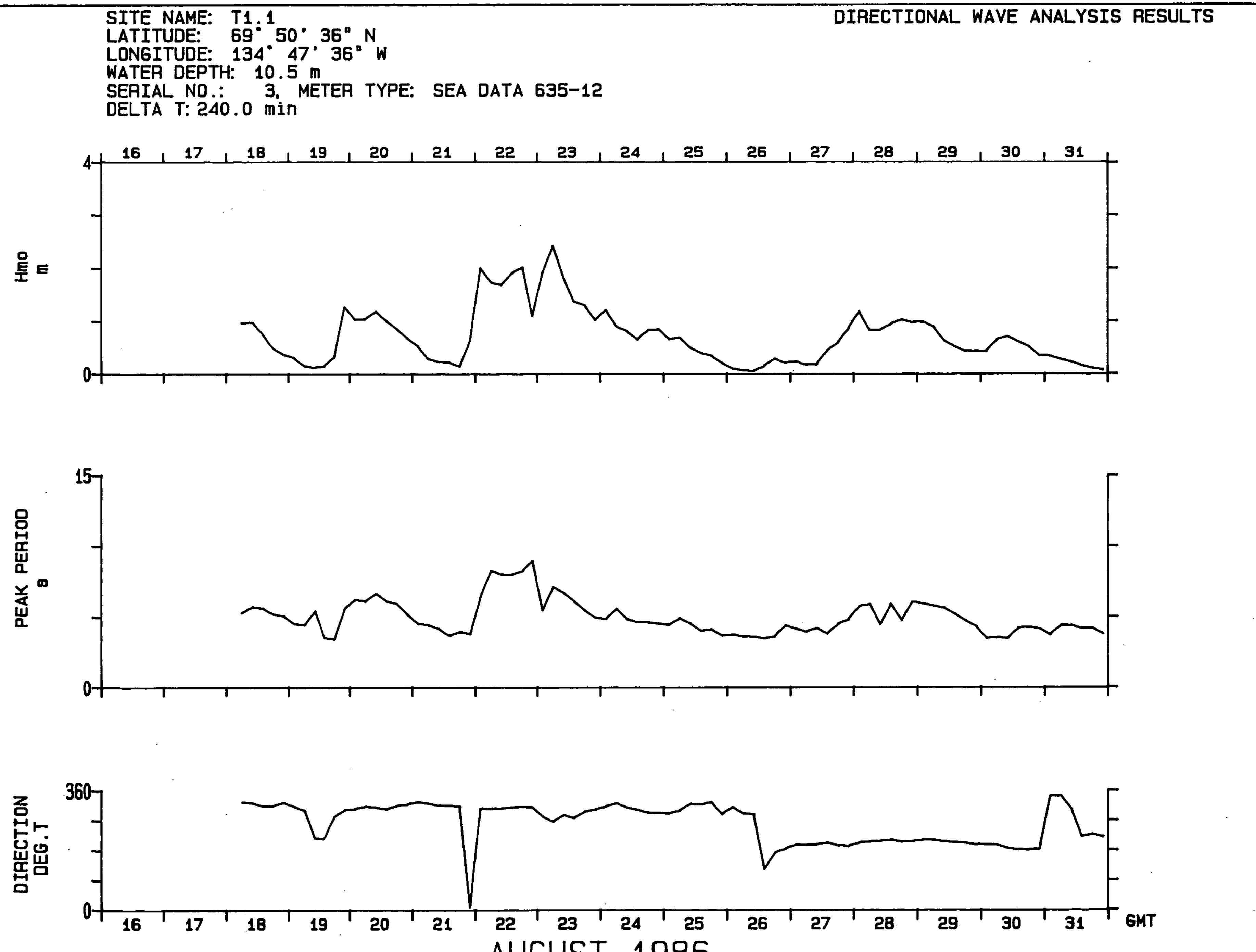


Fig. 4.11(a) Significant wave height, peak period and peak wave direction (from) at site T1.1 (635-12) August 18-31, 1986.

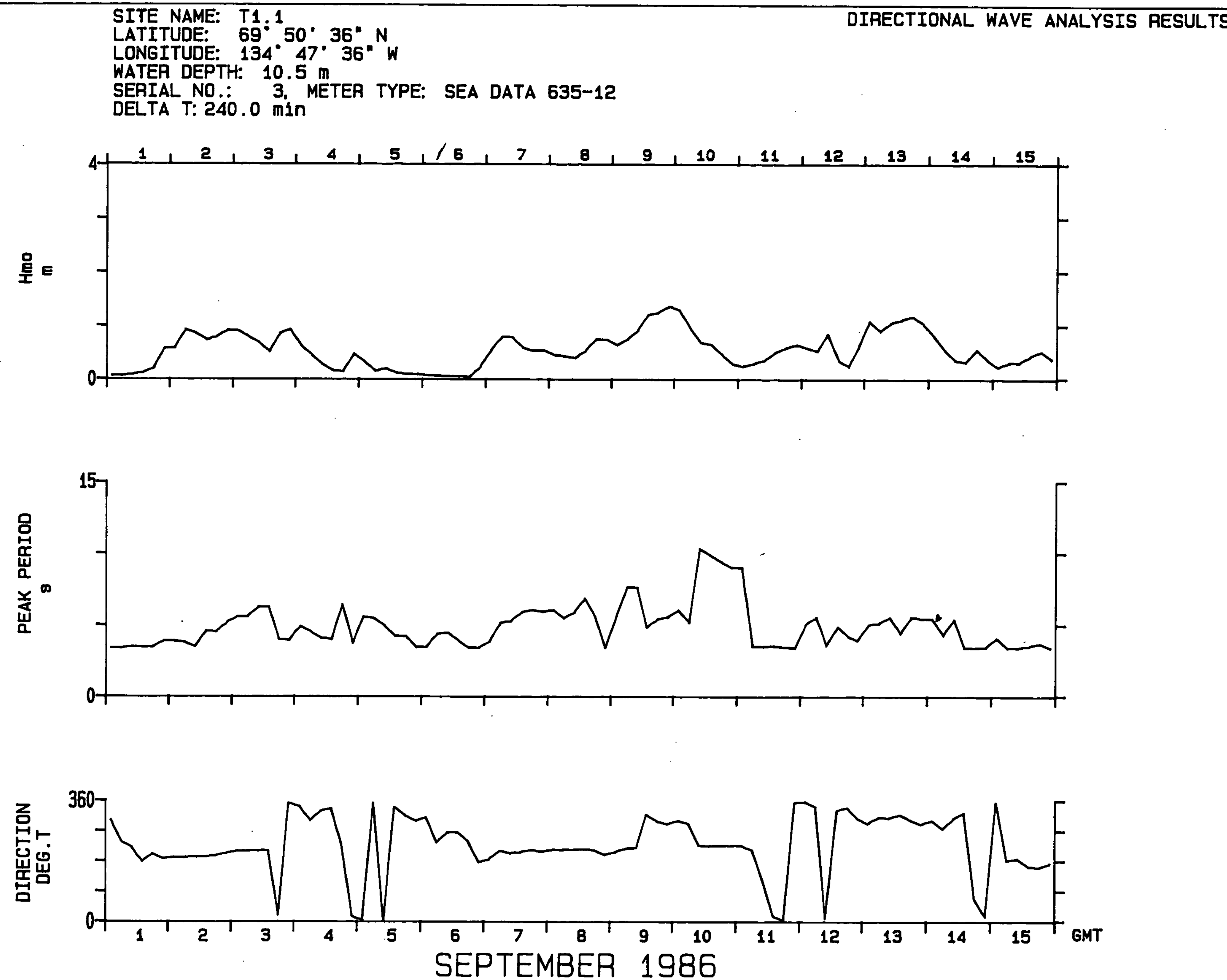


Fig. 4.11(b) Significant wave height, peak period and peak wave direction (from) at site T1.1 (635-12) September 1-15, 1986.

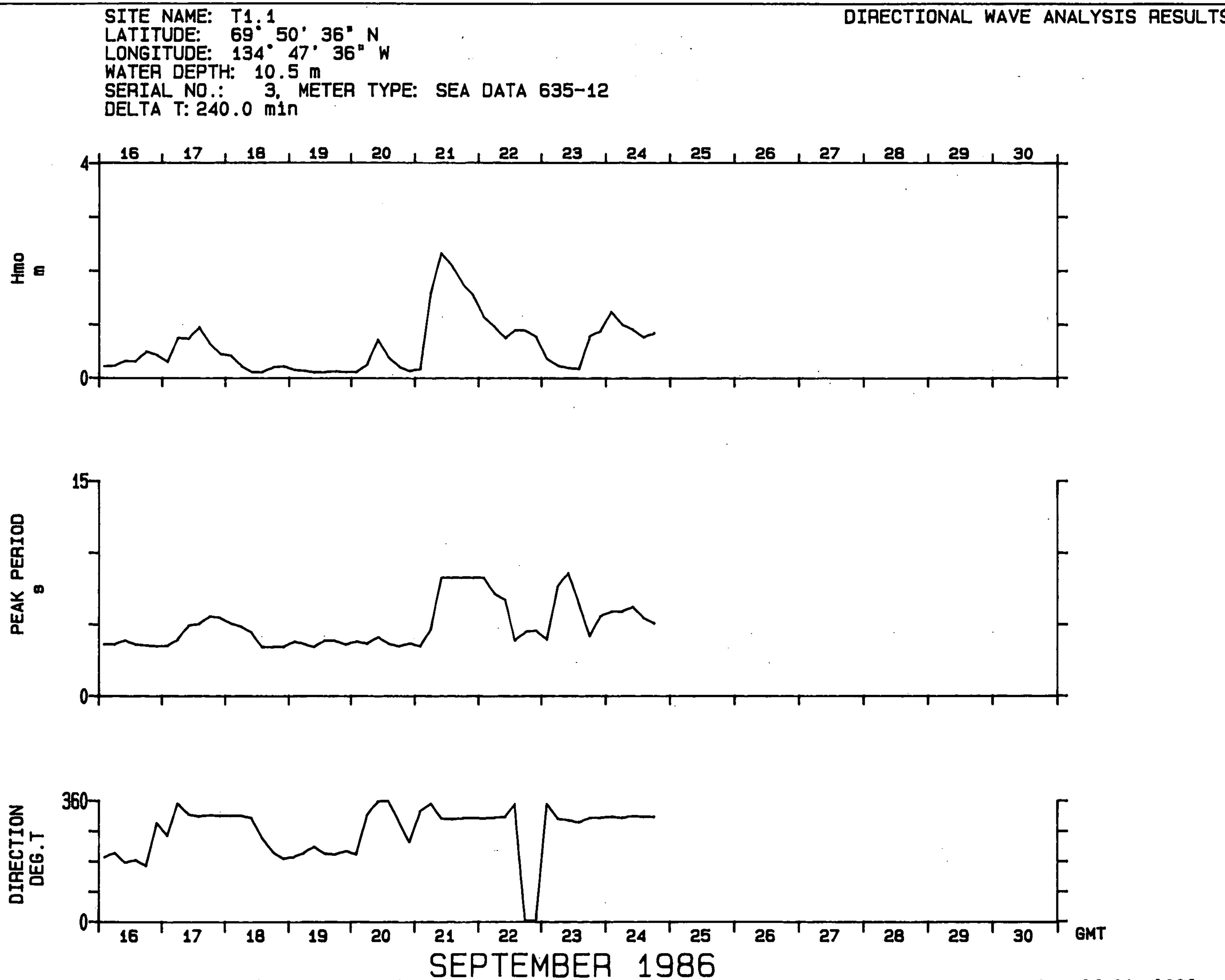


Fig. 4.11(c) Significant wave height, peak period and peak wave direction (from) at site T1.1 (635-12) September 16-24, 1986.

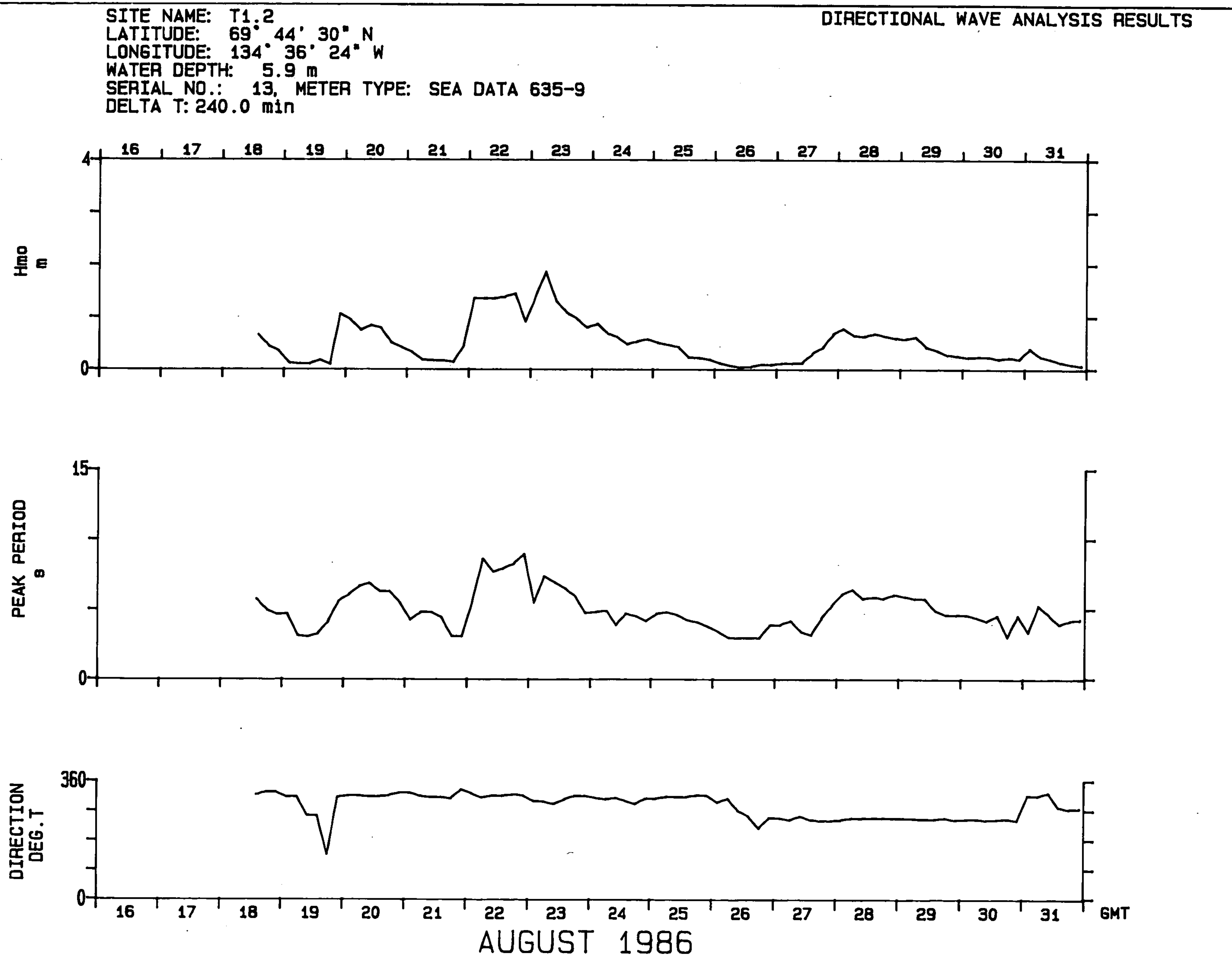


Fig. 4.12(a) Significant wave height, peak period and peak wave direction (from) at site T1.2 (635-9) August 18-31, 1986.

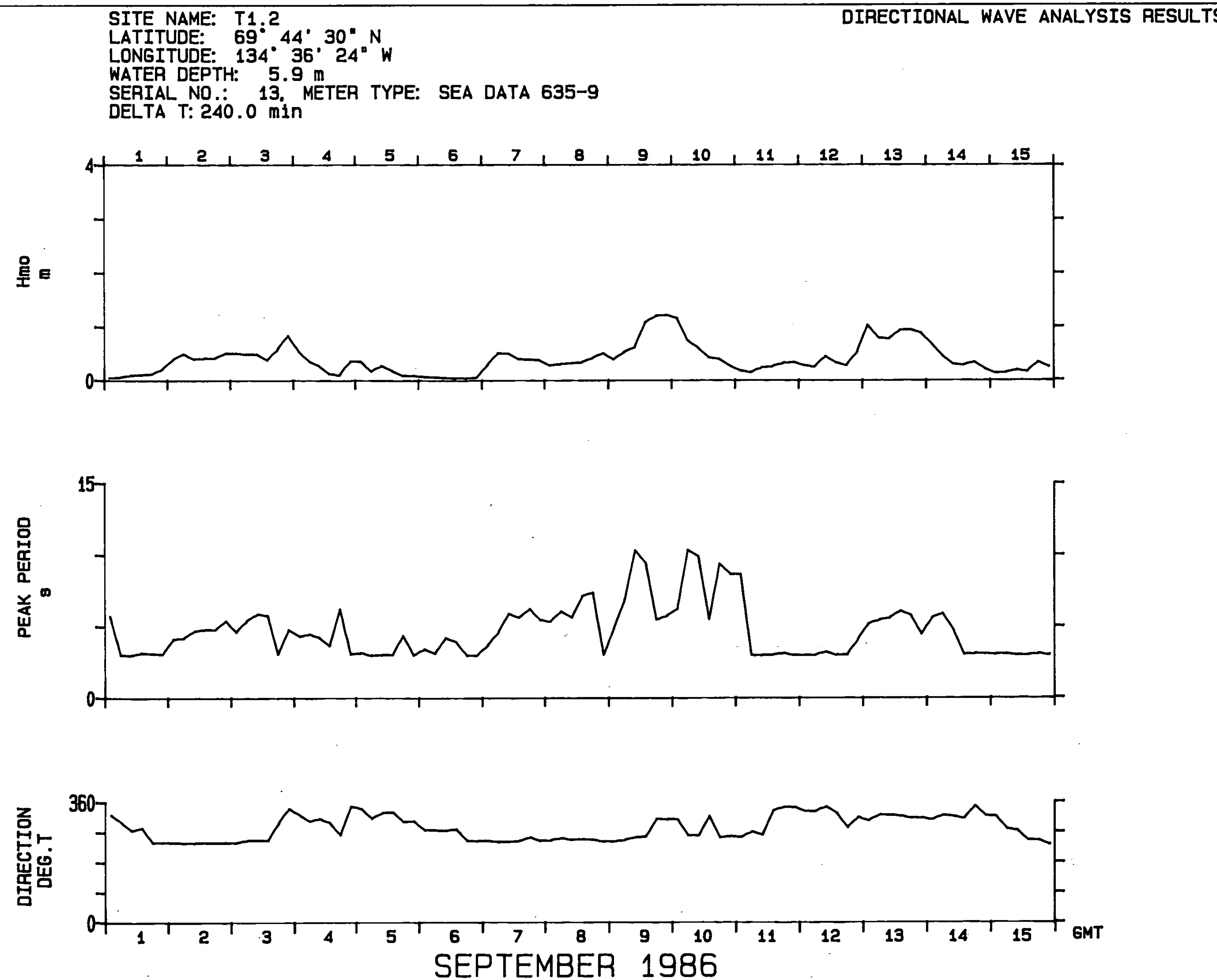


Fig. 4.12(b) Significant wave height, peak period and peak wave direction (from) at site T1.2 (635-9) September 1-15, 1986.

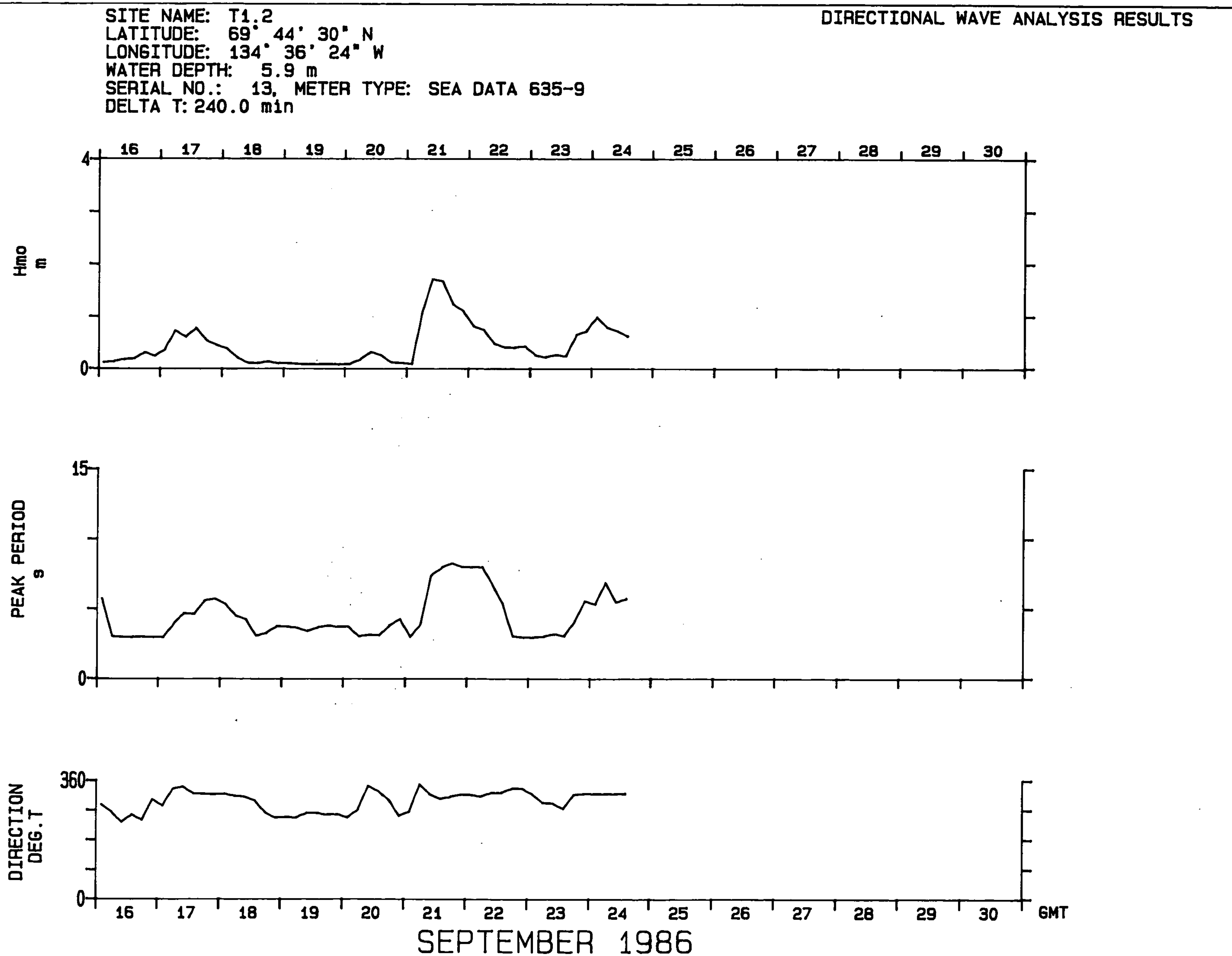


Fig. 4.12(c) Significant wave height, peak period and peak wave direction (from) at site T1.2 (635-9) September 16-24, 1986.

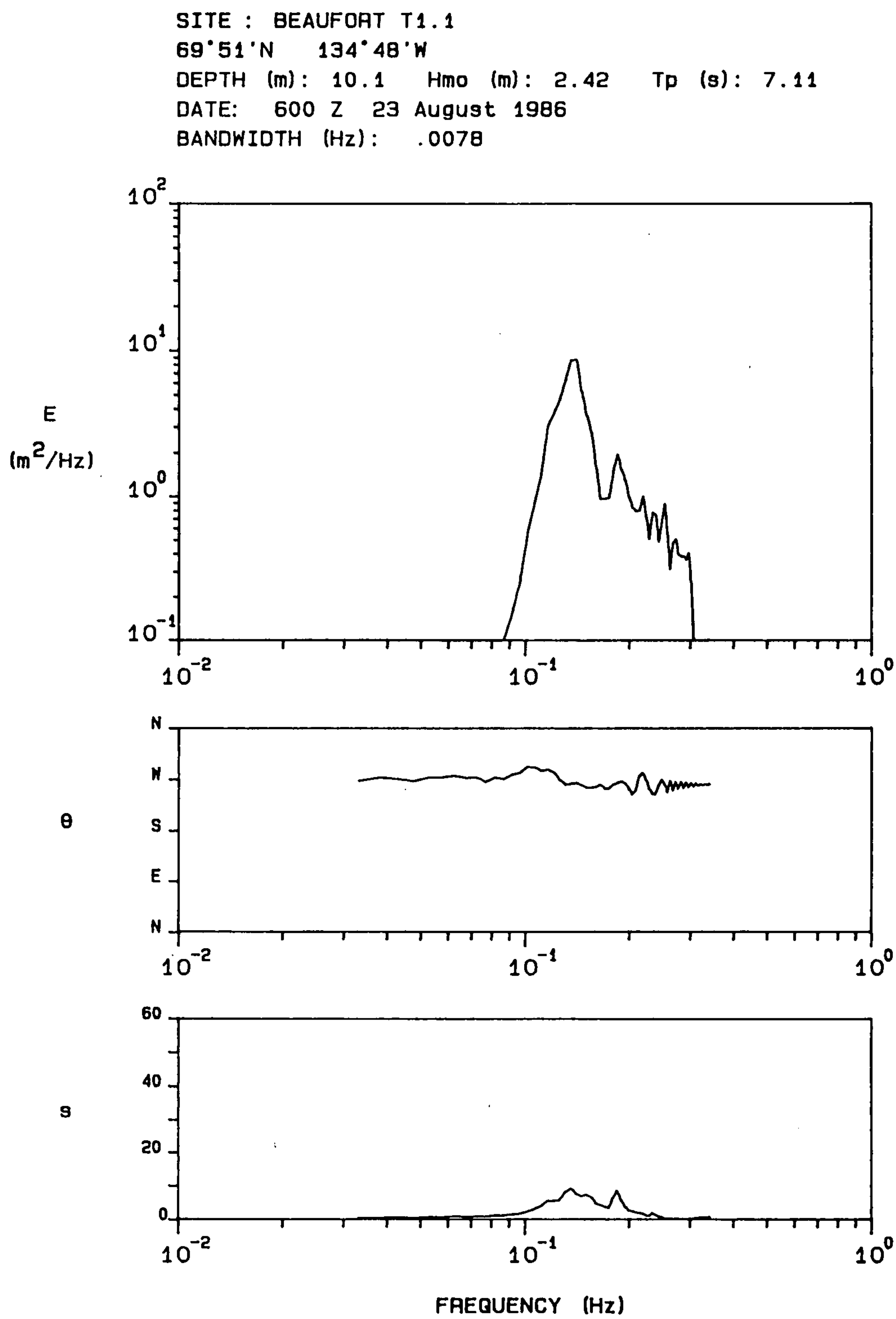


Fig. 4.13 Directional wave properties at site T1.1, 0600 GMT August 23, 1986.

Upper panel: energy density E
Middle panel: wave direction (degrees True from)
Lower panel: spreading exponent s

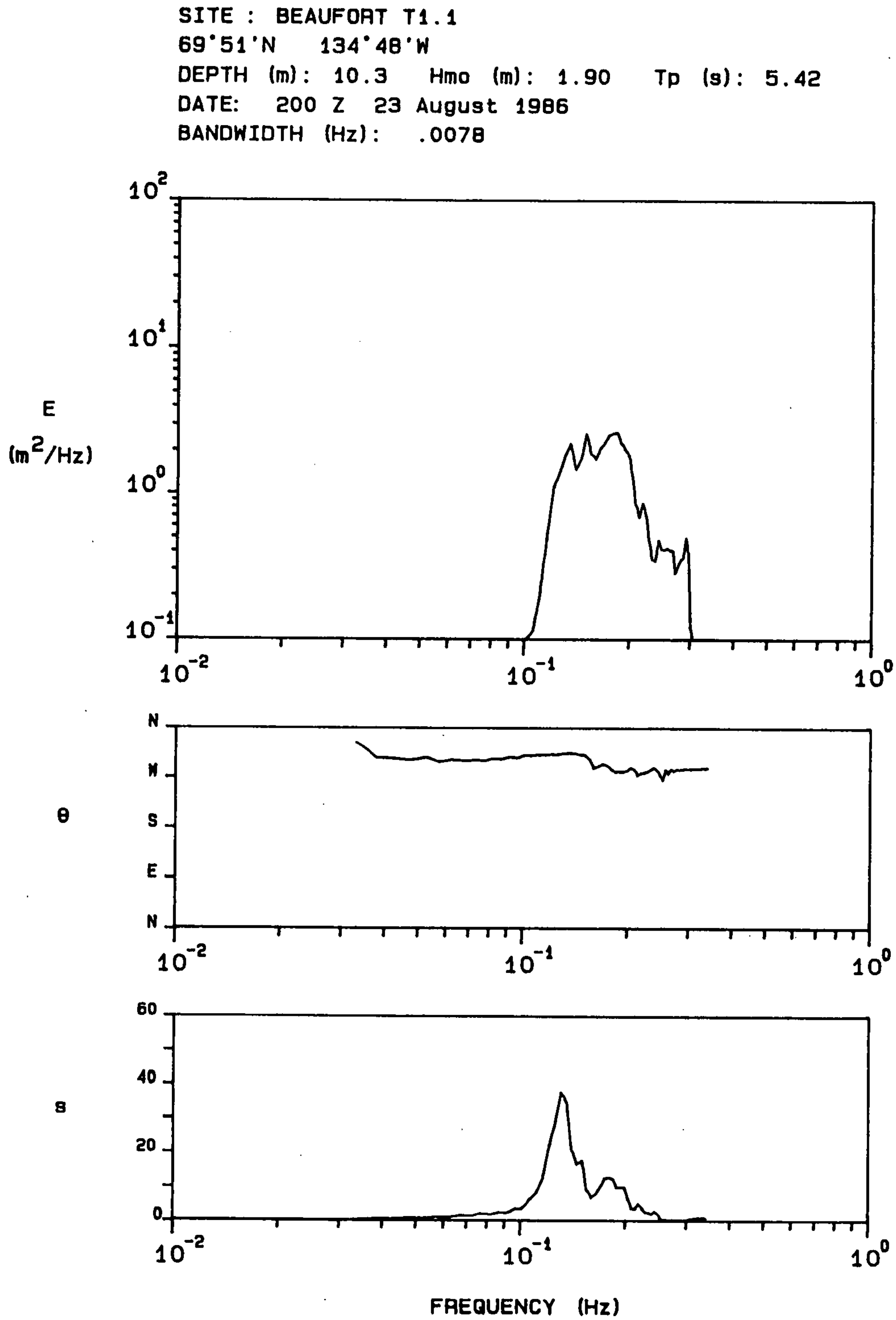


Fig. 4.14 Directional wave properties at site T1.1, 0200 GMT, August 23, 1986.

Upper panel: energy density E
Middle panel: wave direction (degrees True from)
Lower panel: spreading exponent s

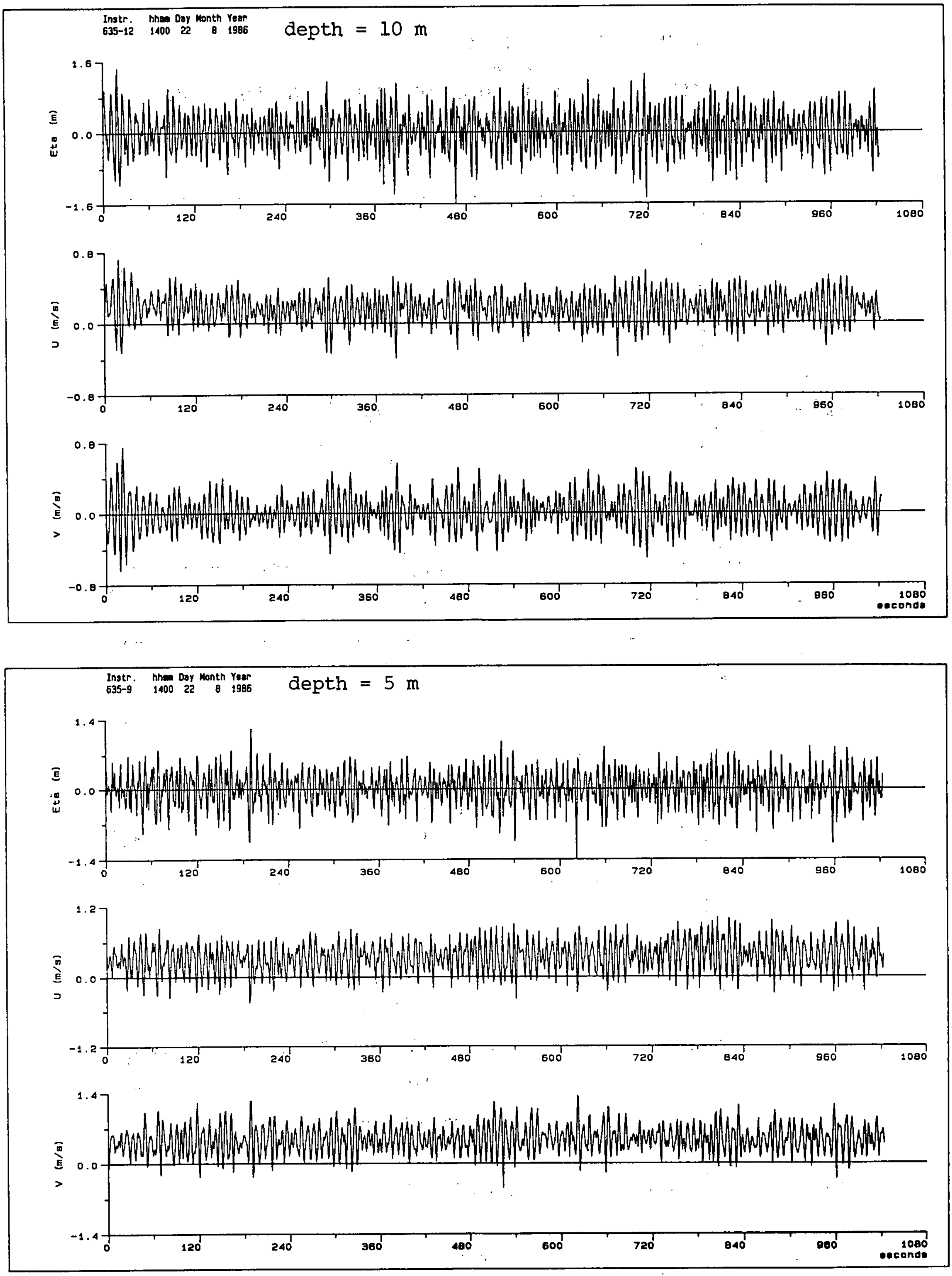
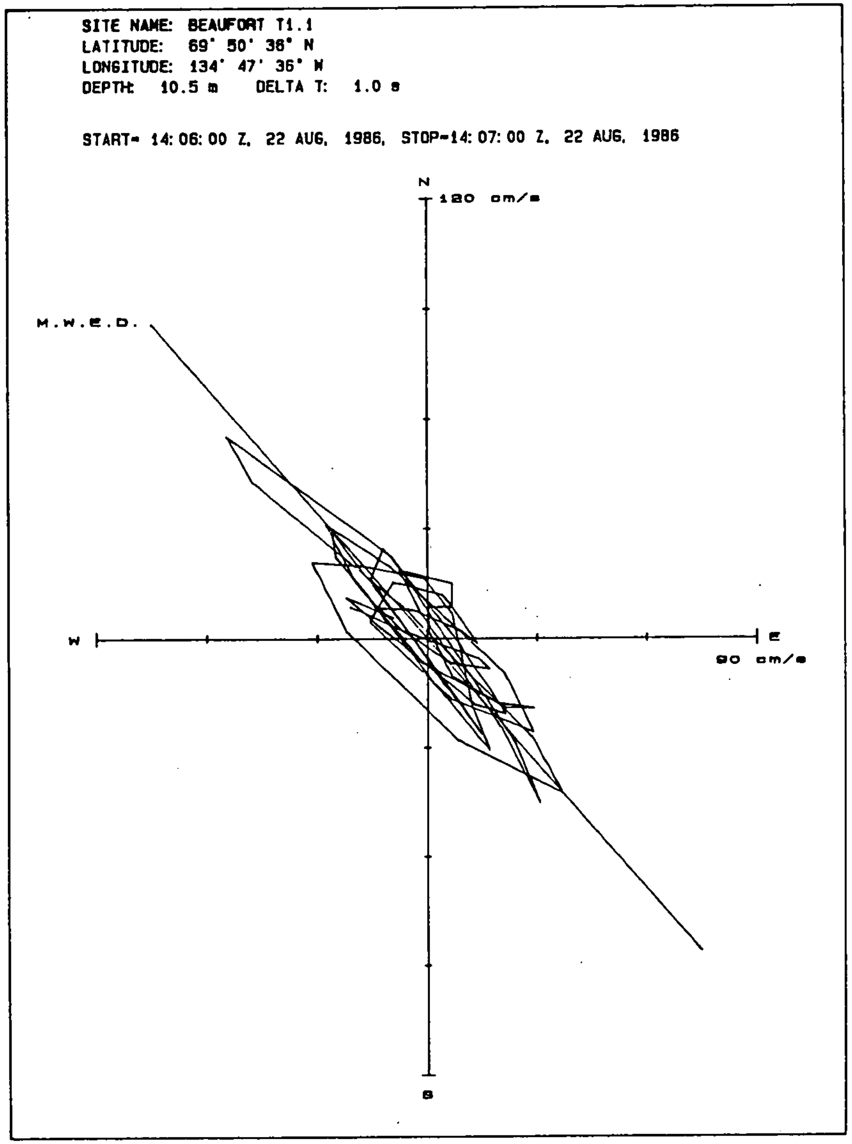


Fig. 4.15 Time-series of η, u,v at Tl.1 (upper panel) and at Tl.2 (lower panel) 1400 GMT August 22, 1986.



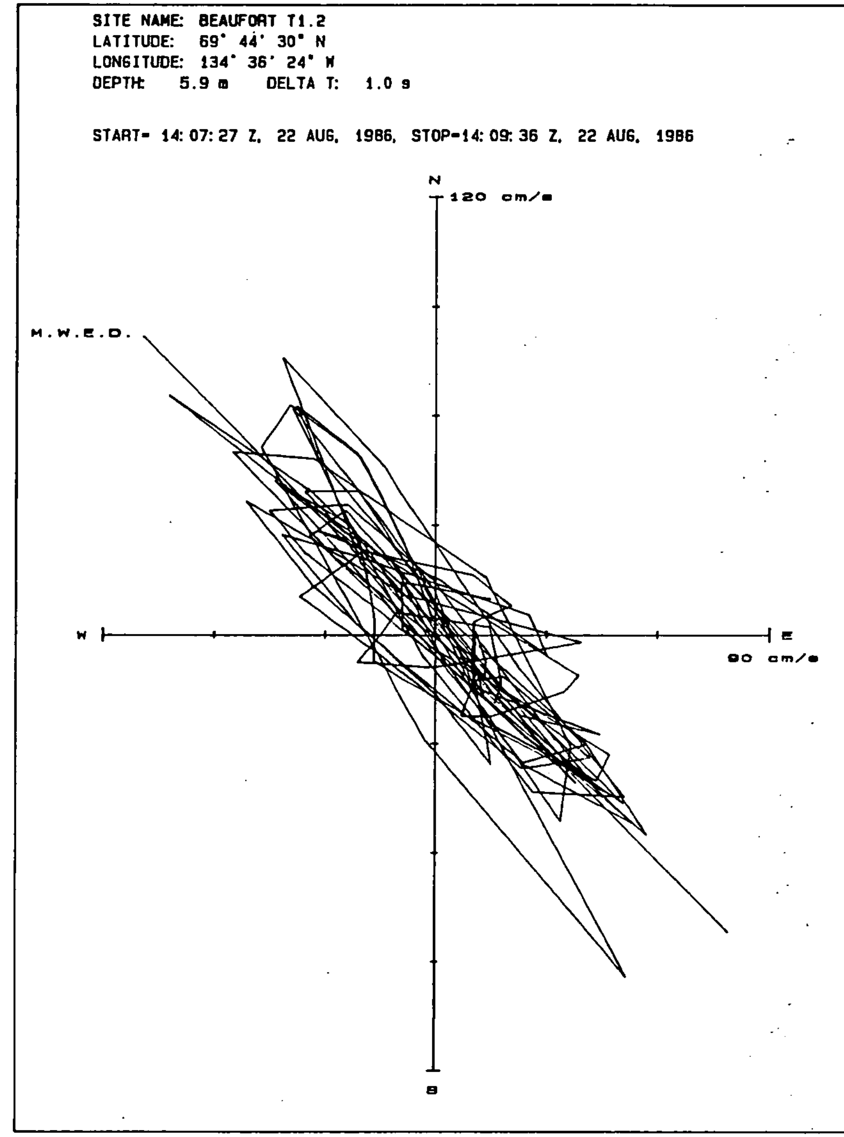


Fig. 4.16 Velocity hodograph for selected intervals from the 1400 GMT burst on August 22, 1986.

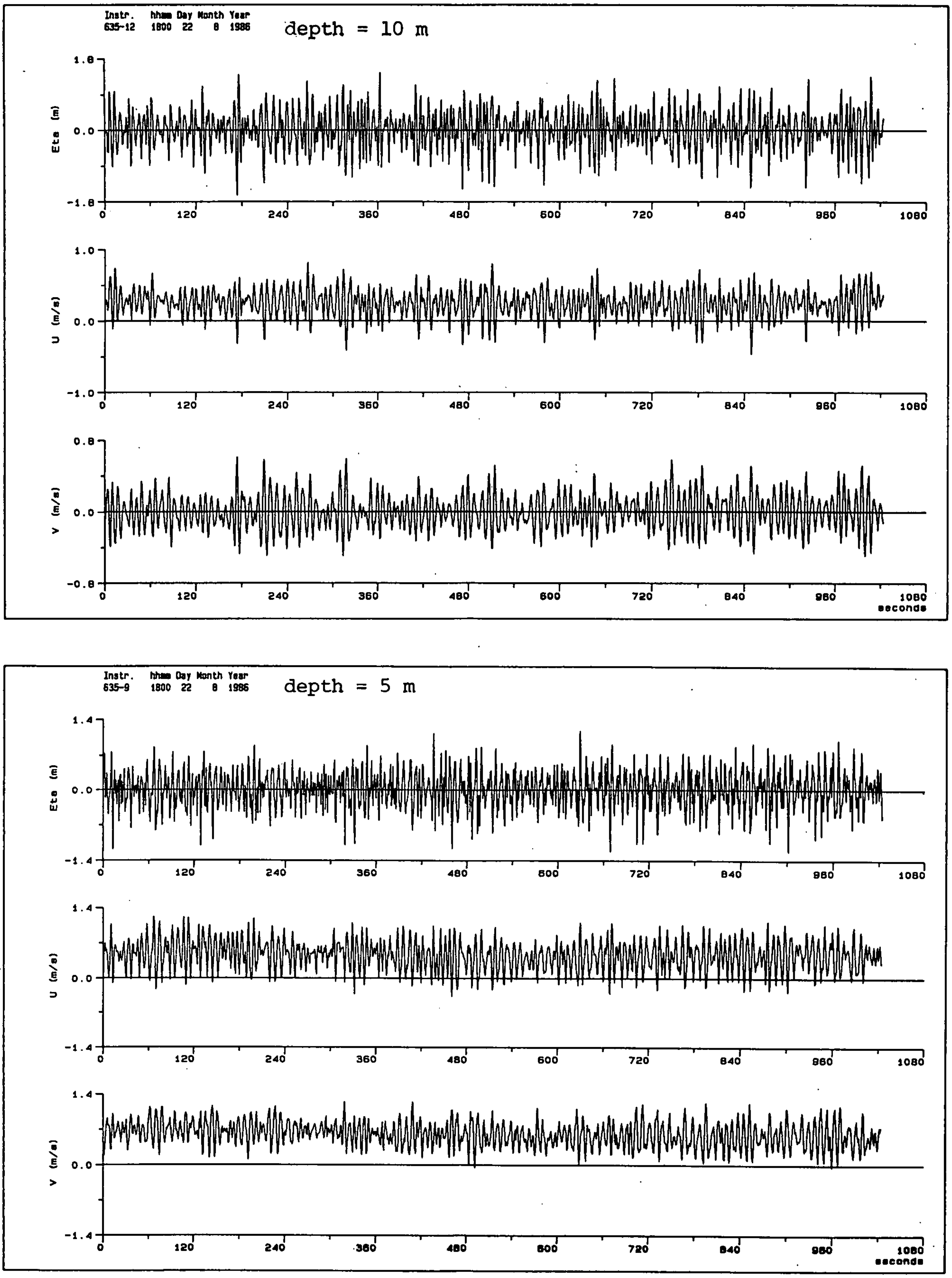
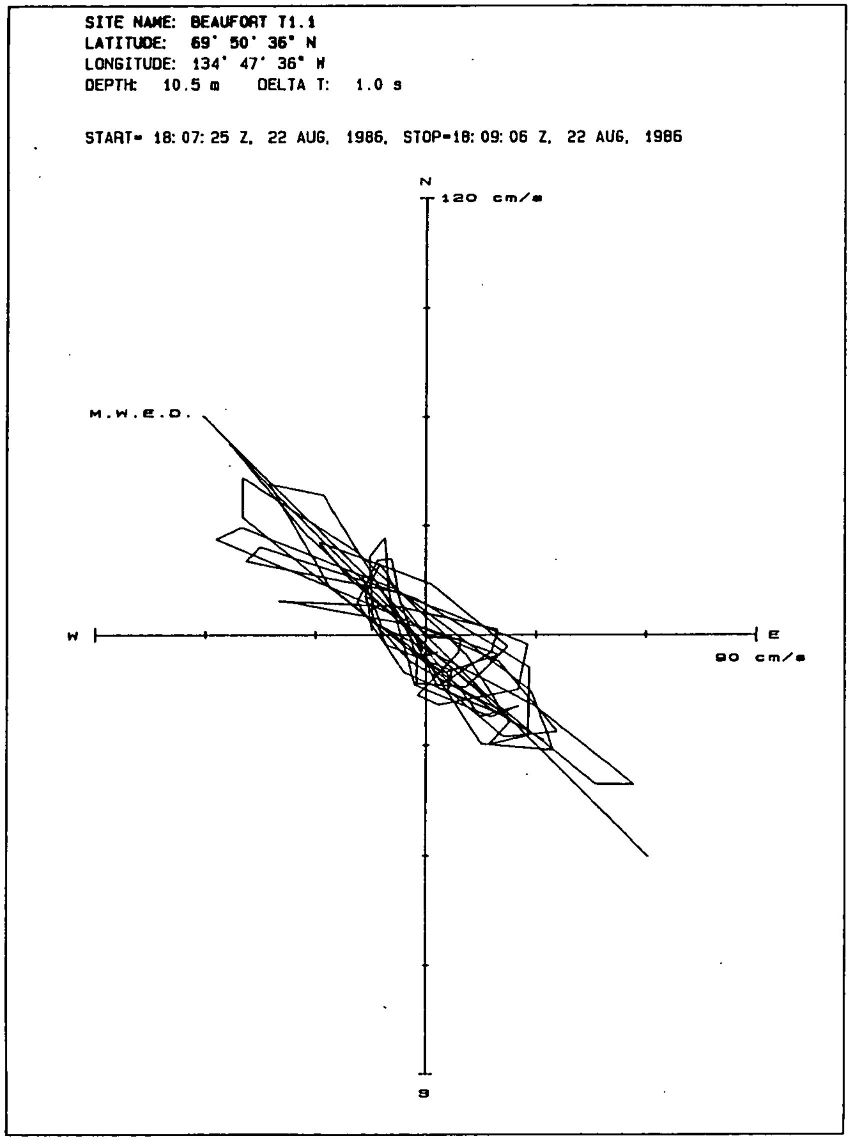


Fig. 4.17 Time-series of η,u,v at Tl.1 (upper panel) and at Tl.2 (lower panel) 1800 GMT August 22, 1986.



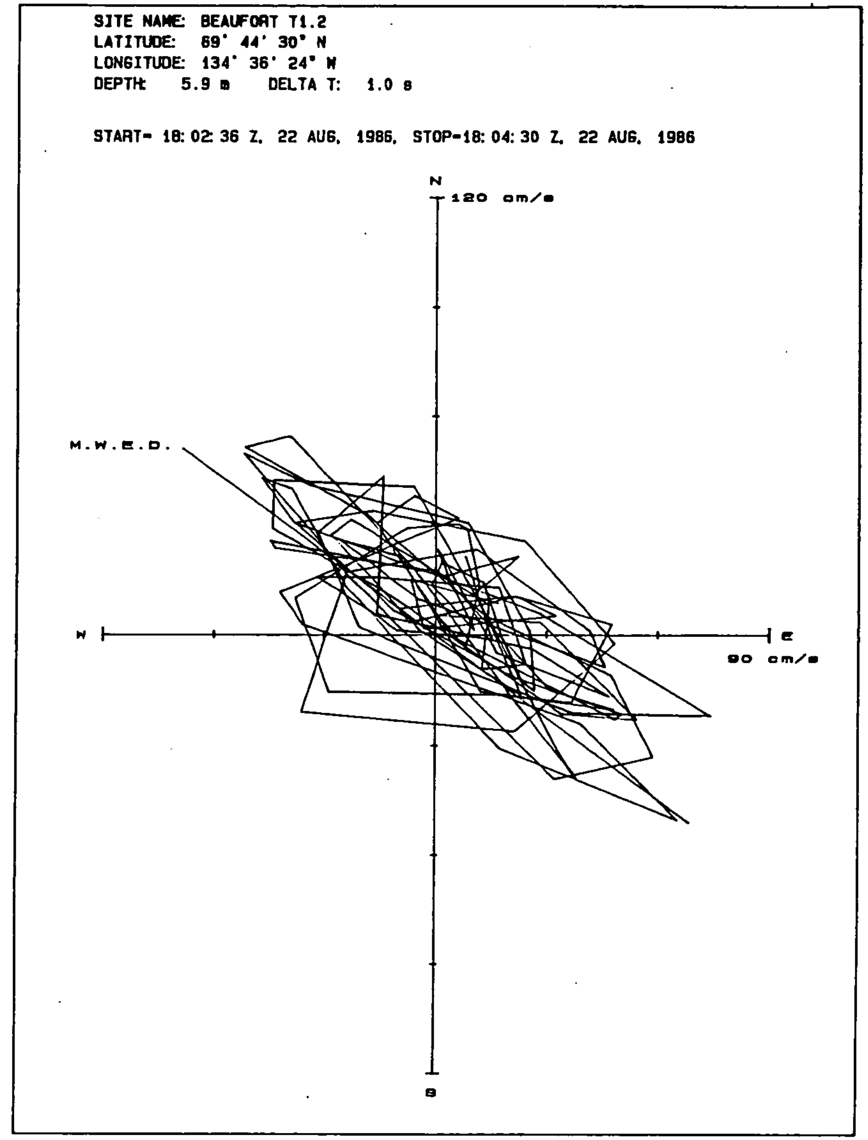


Fig. 4.18 Velocity hodograph for selected intervals from the 1800 GMT burst on August 22, 1986.

Each hodograph shows the locus of the tip of the velocity vector in x-y space for 10 to 20 wave periods, along with the mean wave energy direction (MWED). This MWED is defined as

$$\text{MWED} = 1/2 \ \arctan\left(\frac{\langle 2\, u'v' \rangle}{\langle u'^2 \rangle - \langle v'^2 \rangle}\right)$$

where u',v' are the wave orbital velocity components, and has been used, for example, by Hodgins et al. (1986a) to examine the average direction of wave propagation as inferred from high-frequency current measurements on Sable Island Bank.

The time-series plots are as expected for these wave conditions. There is a more noticeable beat frequency in the velocity components than in the synchronous η-trace, especially at the deeper T1.1 site: this tendency reflects the filtering of high frequency wave components between the free surface and the velocity sensors. The filtering increases with depth, thus accounting for the groupier appearance of the T1.1 site records.

The hodographs (Fig. 4.16 and 4.18) show the increase in orbital velocities expected at the shallower site even though the significant wave heights have decreased slightly (about 0.5 m in 2 m). The spread of energy is relatively narrow at T1.1 in both records indicating that waves are propagating in directions close to the mean wave direction. This spreading characteristic is wider at site T1.2. Here refraction may account for some of the apparent increase in spreading between the two sites as wave rays bend so as to form larger angles off the mean wave direction.

The MWED's agree well with wind directions and hence expected wave directions in this storm. As further evidence of consistency between analyses the MWED's are compared below with the mean directions calculated from the conventional heave-pitch-roll procedure:

Record	Site	MWED	Heave-pitch-roll analysis
860822 1400 GMT	T1.1	319°	310°
	T1.2	316°	313°
860822 1800 GMT	T1.1	315°	311°
	T1.2	307°	319°

Angular differences of the order of 10 degrees are representative for the two methods.

5.0 SUSPENDED SEDIMENT MEASUREMENTS

5.1 Instrumentation

To measure the concentration of suspended sediments at the shallow site an Optical Backscatter Sensor, OBS-1 interfaced to the Sea Data 650B-7 Data Logger was used. The OBS-1 consists of an infrared emitter and a photovoltaic detector which senses infrared radiation reflected from the particles in the water. The instrument is sensitive enough to detect suspended sediment concentrations over several orders of magnitude (Table 5.1)

The OBS-1 has a proven track record in the American Beaufort Sea. Results of a similar study to measure mud concentrations in a river delta in Alaska have been published by Shi et al. (1985) and Downing et al. (1985). In Canada the OBS-1 has been used previously in the Canadian Coastal Sediment Study (Gillie, 1984). The instrument is described in greater detail in Downing (1983).

For this program, the OBS-1 was hardwired to an external power supply, and mounted on a wooden block bolted to a leg of the instrument frame. Held in place on the block by plastic straps and plastic epoxy, the OBS measured sediment concentrations 1 m above the base plates of the frame (Fig. 5.1).

5.2 Calibration

The OBS-1 was calibrated following recovery using bottom sediment collected at the shallow water site. The sensor was mounted in a 77L plastic barrel of water and connected to the power supply. Output voltages for the various mud concentrations were recorded with a voltmeter. Sediment was added to the pail in increments ranging from 10 to 200 g to give five reference concentrations spanning a range of about 20 mg/L to 5000 mg/L. An electric hand-drill with an egg-beater attachment was used to maintain the sediment in suspension. Three samples were collected after each addition of mud and subsequently analyzed for suspended sediment concentration.

The resulting calibration curve is shown in Fig. 5.2. Linear regression through the data points yielded the following relationship for OBS-1 mud concentrations (C) as a function of output voltage (V):

$$C = 85\,V \qquad \text{for} \quad V \leq 1 \text{ volt} \qquad (5.1)$$

and

$$C = 1690\,V - 840 \qquad \text{for } 1 \leq V \leq 4 \text{ volts} \qquad (5.2)$$

where C is given in mg/L and V is output voltage (in volts).

Table 5.1

OBS-1 Specification (from Downing 1983)

Voltage range	±5 V
Current Consumption:	
Continuous sampling	67.5 mA
Minimum duty cycle = 0.5%	10.5 mA
(2.5 second bursts every 8.5 min.)	
Clock frequency	16.384 kHz
ADC conversion time	0.4 ms
(13 clock cycles)	
Output filter (-3 db pt.)	30.0 Hz
Dynamic range:	
Sand	0.1 to 200 ppt
Mud	10 to 10^4 ppm
Maximum deployment time	60 d
Maximum depth	300 m

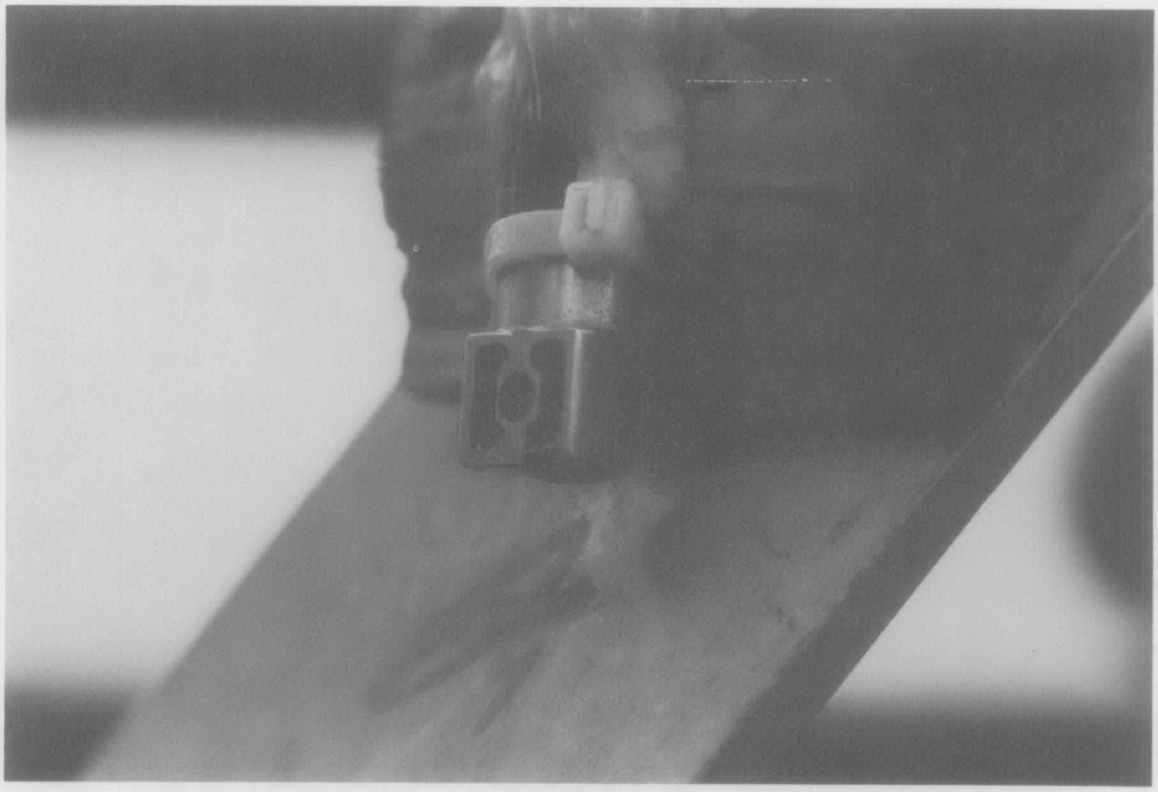


Fig. 5.1 Detail of the OBS-1 sensor off one leg of the frame.

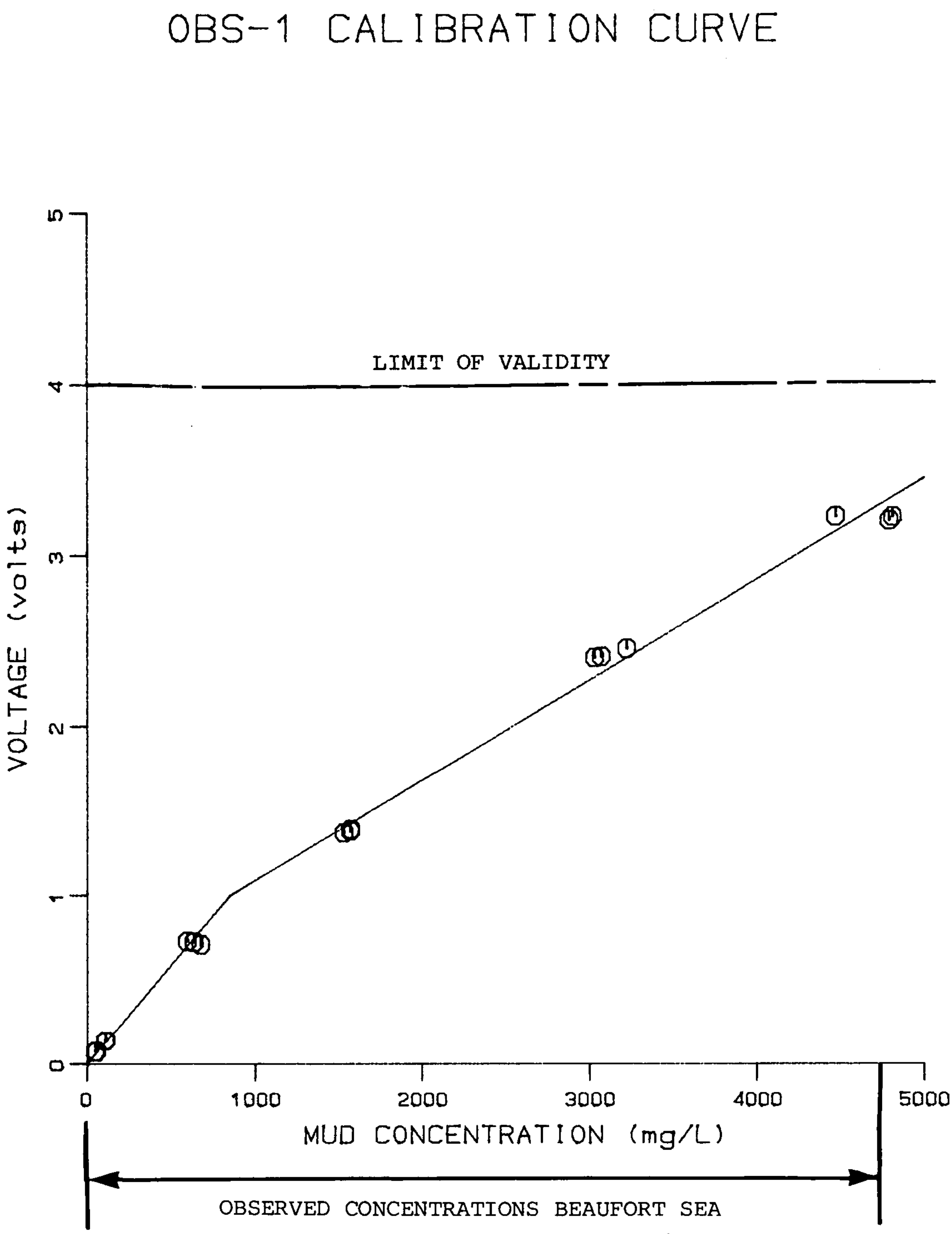


Fig. 5.2 Post-deployment calibration curve for the OBS-1 using Beaufort Sea mud.

The OBS-1 was deployed with a full scale voltage of +5 V that corresponded with mud concentrations of the order of 10^4 mg/L. This range was chosen so that peak concentrations in episodic seabed movements in the Beaufort Sea would be measured but recognizing that there would be a loss of precision in measurements at lower concentrations. The post-deployment calibrations with in-situ muds showed, however, that an effective saturation limit was reached at about 7000 to 8000 mg/L, or a voltage exceeding 4.2 V. This type of saturation was explained by Downing (pers. Comm. 1986) as resulting from absorption of light by the muds at very high concentrations. During the 1986 field program maximum voltages of 3.8 V were recorded, well below the limit of validity shown in Fig. 5.2. Thus, it appears that peak concentrations were accurately monitored without problems associated with saturation of the OBS-1.

5.3 Suspended Sediment Data

Time-series measurements obtained with the OBS-1 at the shallow site are presented in Fig. 5.3, together with vector plots of winds and currents. The wind data were obtained from MOLIKPAQ measurements and currents are plotted from the Sea Data 635-9. For every 512-s burst, mean values of sediment concentrations were obtained and plotted as shown in Fig. 5.3. Peak concentration values were 4800 mg/L during the August 22-23 storm and 1700 mg/L for the September 21-22 storm.

Typical burst records for the OBS-1 just following the storm peak on August 22, 1986 are shown in Fig. 5.4. As can be seen here the variability in concentration at 1 Hz is large relative to the mean when concentrations are high (voltages of 2 to 4 V). This most likely corresponds to periods of strong stirring and resuspension by wave action. As concentrations fall off, so does the variability about the record length mean. This corresponds with diminishing wave heights and presumably also with reduced sediment suspension and vertical mixing.

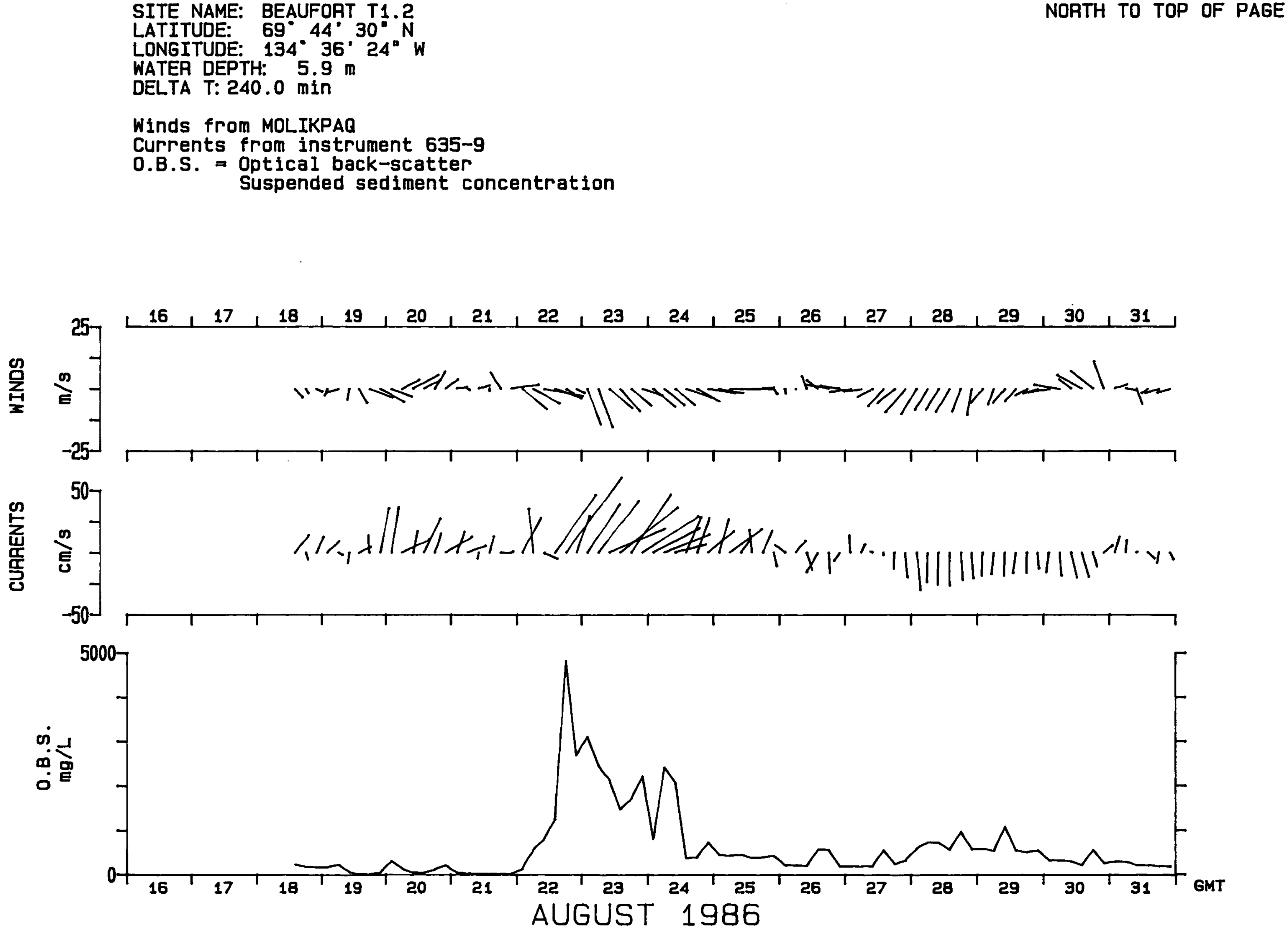


Fig. 5.3(a) Suspended sediment concentration at site T1.2 August 18-31, 1986.

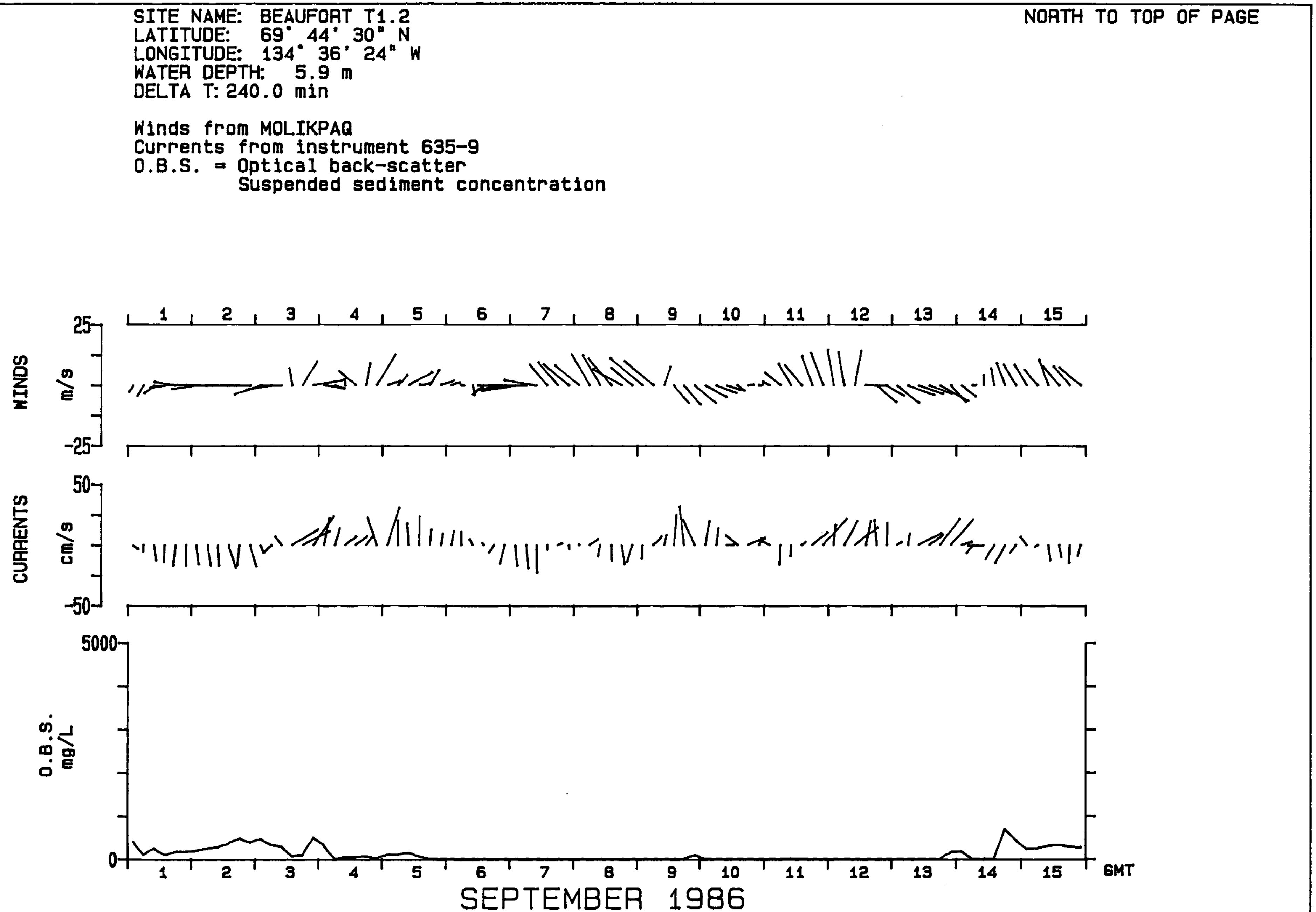


Fig. 5.3(b) Suspended sediment concentration at site T1.2 September 1-15, 1986.

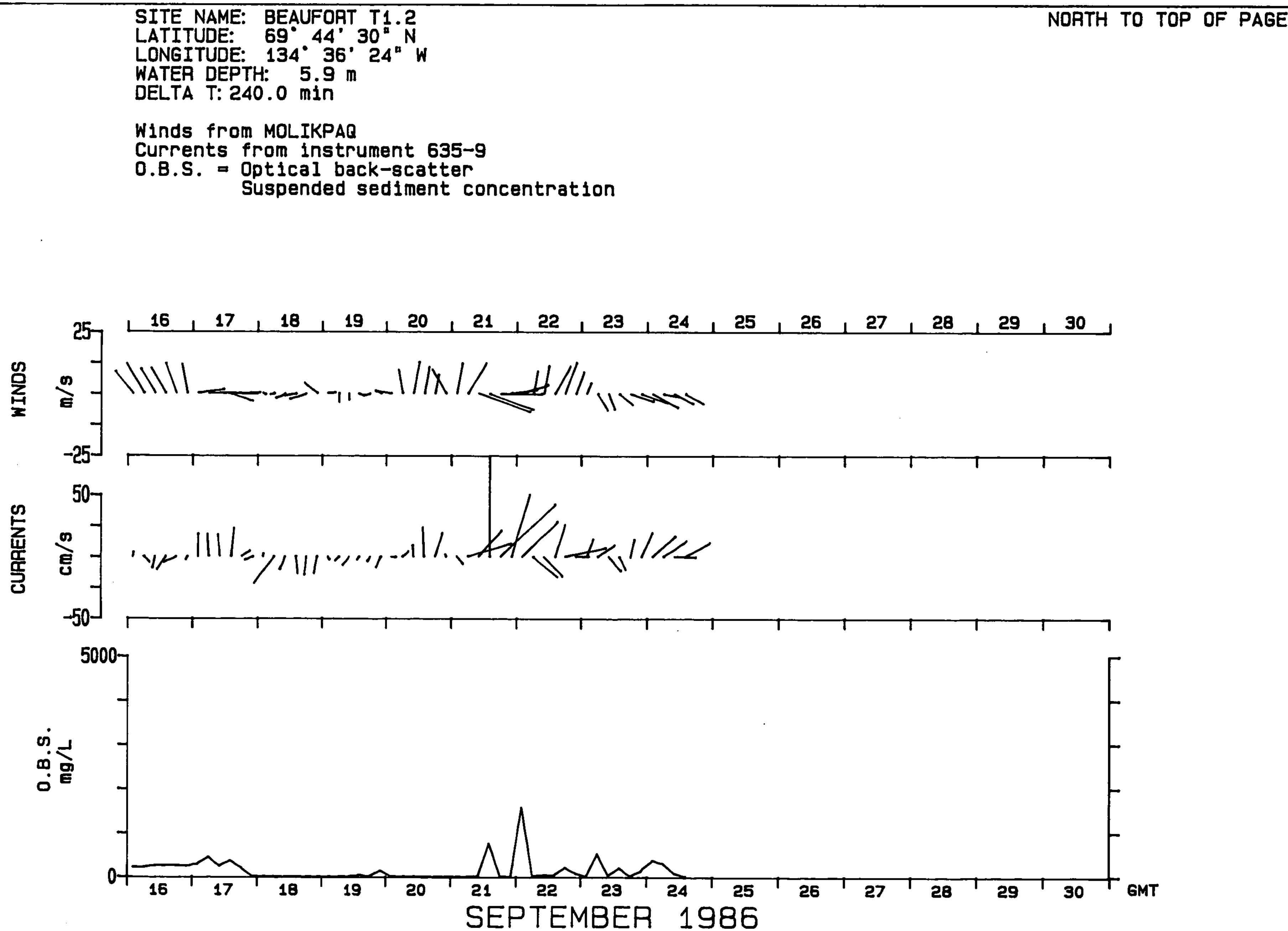
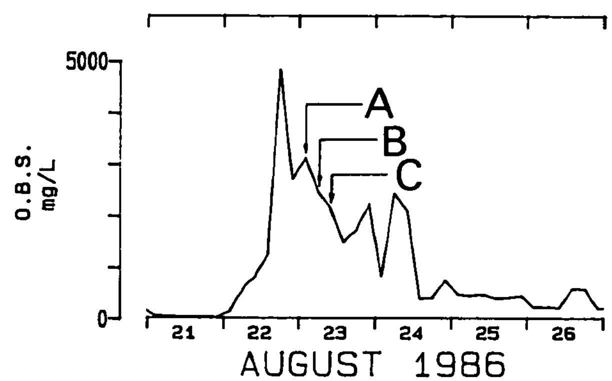


Fig. 5.3(c) Suspended sediment concentration at site T1.2 September 16-24, 1986.



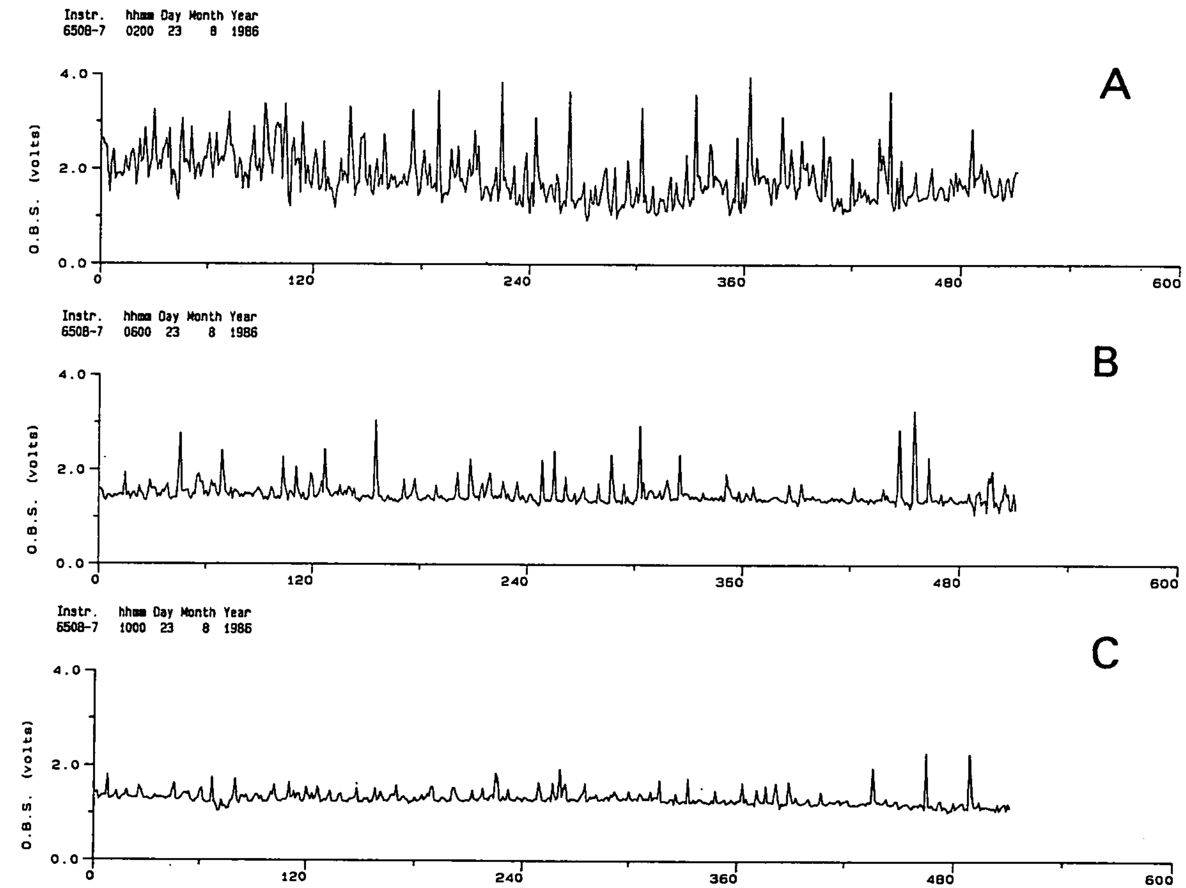


Fig. 5.4 Typical burst records from the OBS-1 at three times following the peak of the August 22/23 storm. The suspended sediment concentrations are shown in the upper left graph.

6.0 POREWATER PRESSURE MEASUREMENTS

6.1 Instrumentation

In situ monitoring of wave-induced porewater pressures was performed using a piezometer probe designed and constructed specifically for this study. Manufactured by Conetec Investigations Ltd., the probe featured sensor and packing technology previously proven in their cone penetrometer work in the Beaufort Sea.

The probe contained 3 CEC type 4-313 pressure transducers (0-75 psi range) mounted in a 3.0 m long, 50 mm diameter stainless steel rod (Fig. 3.5). Transducer specifications are given in Table 6.1. The pressure transducers were wired to an amplifier panel for signal amplification, and the measurements were recorded by the 650B-7 Data Logger at a rate of 1 Hz for 512 samples every 4 h.

6.2 Calibration

Each sensor was calibrated before installation in the piezometer probe using a controlled pressure cell at the University of British Columbia. Applied pressures ranged from 0 to 60 psi, covering the expected range in the field. The calibration curves showing output voltage versus applied pressure are presented in Fig. 6.1. Straight-line fits to these data were used to reduce the field measurements to pressure in pounds per square inch, and then to units of kPa.

6.3 Pore Pressure Data

As shown in Fig. 3.3 the piezometer probe had two sensors emplaced in the silt lens at depths of 80 cm and 180 cm below the seabed. The third sensor was believed to be in clear water just above the mudline. This sensor failed to give reliable data and has not been analyzed. Intermittent data recording errors were noted for the middle sensor at -0.8 m. These errors were detected as full scale voltages (+10 V) occurring either over part of a burst or for entire burst records, and likely resulted from electrical malfunction. Full scale voltages (+10 V) correspond with pressures of 60 psi or about 41 m of hydrostatic head. Since liquifaction pressures are roughly 10 to 12 m of head the full scale readings were treated as errors and eliminated from the processed data. The lowest sensor functioned well with negligible data loss.

Two typical burst records from the peak of the storm on September 21/22 are shown in Fig. 6.2 and 6.3. At 1400 GMT on September 21 the significant wave height of the 1024 sample record (top panel) was 1.71 m with a peak period

Table 6.1

Pressure Transducer Specifications

Transducer:	CEC/Transducer Products, Bell & Howell
Type:	4-313 Pressure transducer
Model:	Absolute pressure, sealed
Full Range:	0-75 psi
Accuracy:	±0.5% over full range
Dimensions:	1.9 cm diameter, 2.5 cm long
Total weight:	38 gm

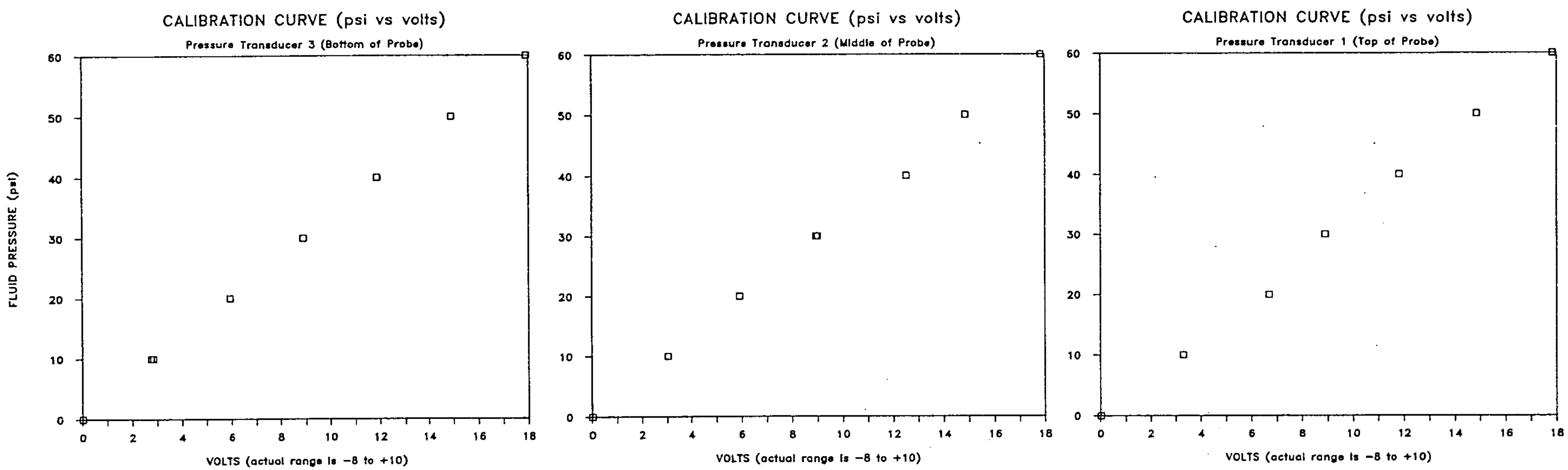
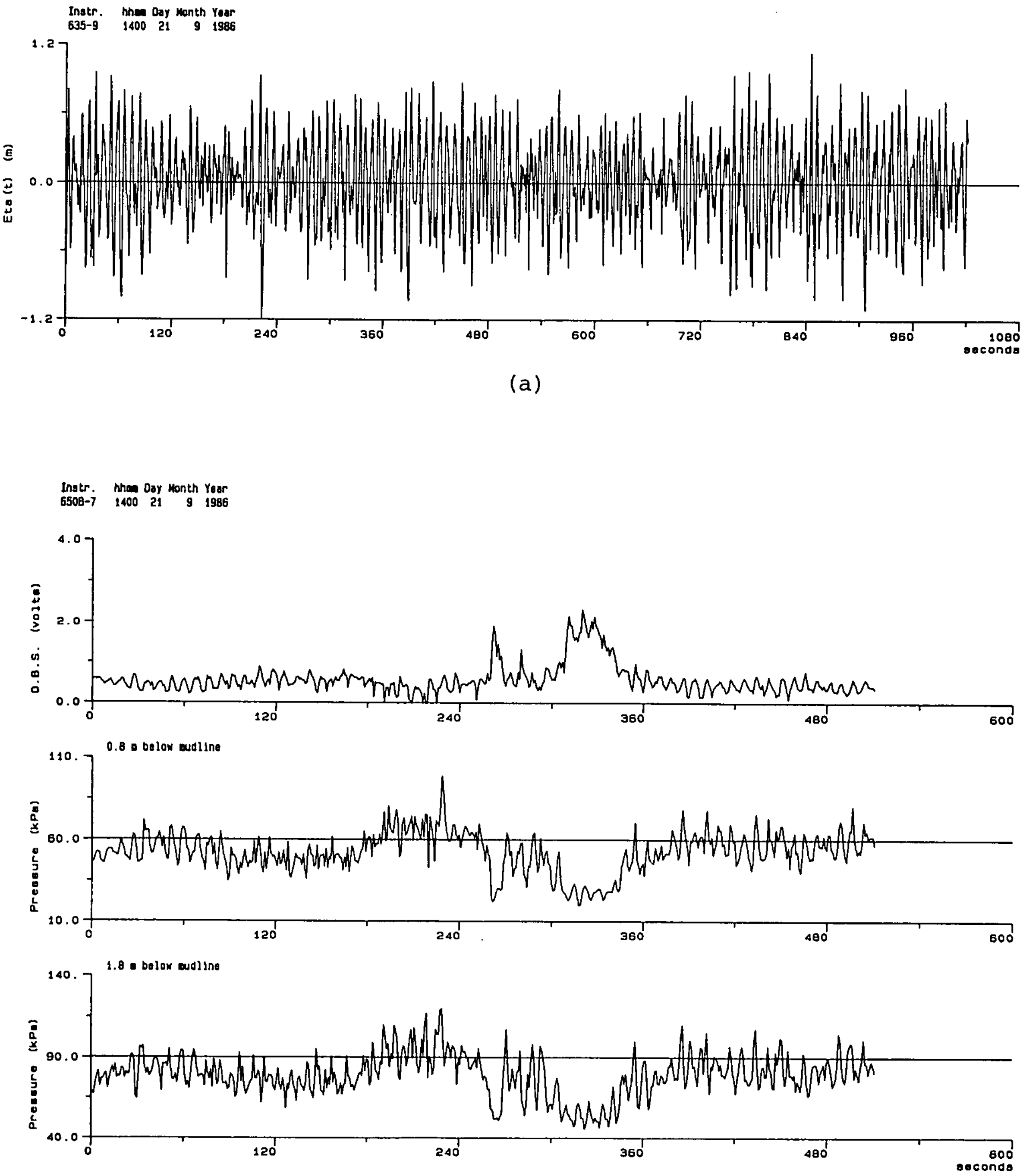
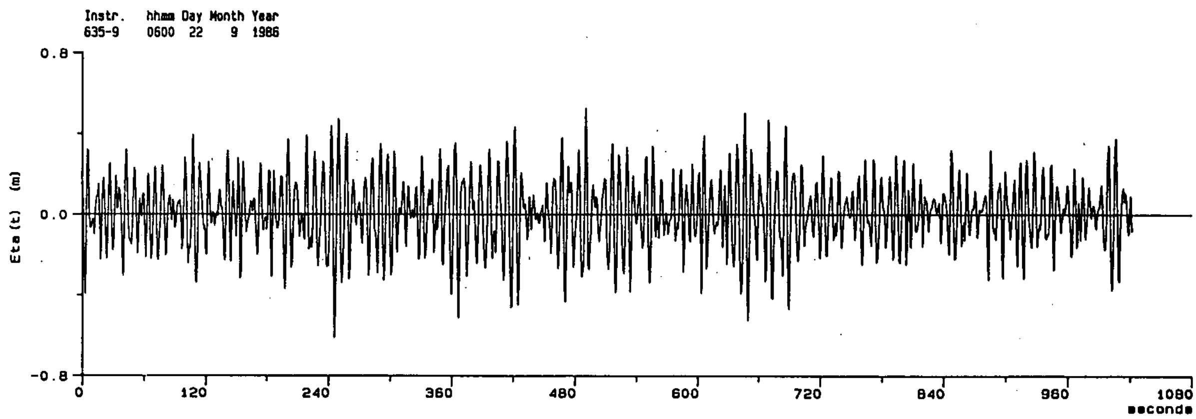


Fig. 6.1 Calibration curves for the three pressure transducers in the piezometer probe. The fluid pressure equals total pressure less one bar (100 KPa).

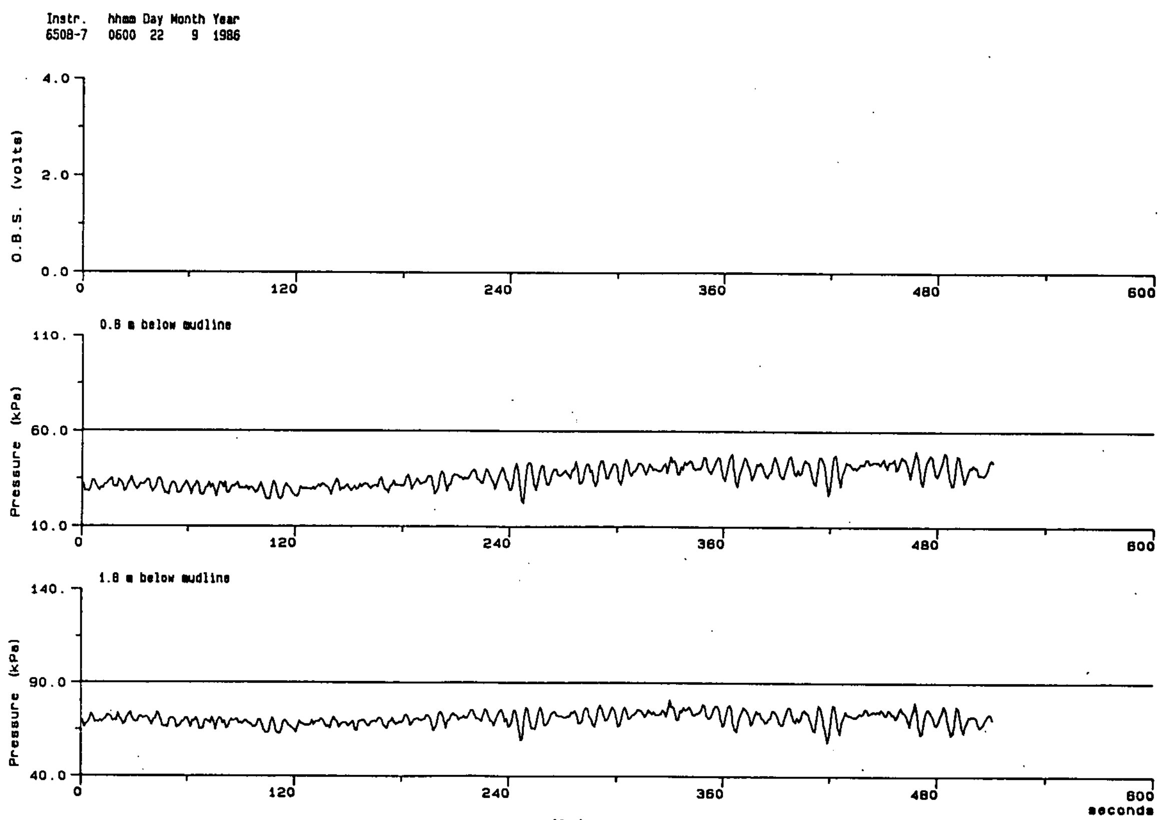


(b)

Fig. 6.2 Measured wave trace (a) from the Sea Data 635-9, and recorded signals for suspended sediment (OBS-1 in volts) and two channels of pressure from the piezometer probe (b) at 1400 GMT, September 21, 1986.



(a)



(b)

Fig. 6.3 Measured wave trace (a) from the Sea Data 635-9, and recorded signals for suspended sediment (OBS-1 in volts) and two channels of pressure from the piezometer probe (b) at 0600 GMT, September 22, 1986 of 8.0 s. As can be seen the wave-induced pressure fluctuations are strongly evident in both pressure records, preserving roughly the 8-s dominant periodicity. We note also the appearance of a long-period oscillation (about 180 s period). Short and long period variations appear well correlated over the 1-m difference in sediment between the two piezometer sensors. The variance in pressure at -0.8 m (mudline) was 150 $(kPa)^2$ compared with 174 $(kPa)^2$ at -1.8 m; i.e. the variance was slightly higher with depth. This relationship does not, however, hold in all records but suggests, in this case, that one cannot automatically assume a large reduction in wave-induced pressure in the upper 2 m of sediment.

The burst data show an unusually long interval, about 30 s in duration, of low pressure correlated strongly with a burst in suspended sediment concentration. A shorter burst at approximately 265 s into the record exhibits similar behavior. We also note a single high-pressure peak in both piezometer records at 230 s, correlated well with the single largest wave in the η-trace above. This latter match suggests that the synchronization of wave and pressure measurements was good (separate recorders were used). However, aside from a long run of large waves between 260 and 500 s there is no obvious relationship between the wave trace and the sediment/pressure signals that would explain either the long-period fluctuation or the burst in suspended material.

The second set of measurements, shown in Fig. 6.3, were made 16 h after those in Fig. 6.2. The significant wave height had diminished to 0.73 m with periods (T_p) still around 8 s. The long-period fluctuations are now not so evident and the variance in each pressure chanel, while still roughly equal, has dropped to a range of 13 to 34 $(kPa)^2$ with the greater value at the upper probe.

For the purpose of presenting the results here all pressures have been calculated from the measured voltages using the predeployment calibration data. This procedure yields the fluid pressure with atmospheric pressure taken as exactly one bar removed. In order to examine changes in pressure over the deployment period, the burst-length mean pressure and the variance of the record were calculated and plotted. These results are shown in Fig. 6.4 and 6.5.

As noted earlier the record at -0.8 m below seabed was sporadic in August. Data quality improved in September, and a rough background pressure of 25 kPa was established in periods of low wave activity. Three very good storm records were recorded on August 23, with peak pressures of 99 kPa, some four times above the "background" or reference pressure. Similarly during the September 21/22 storm peak pressures ranged from 75 to 95 kPa.

The results at -1.8 m below mudline differ. Initially pressures were recorded in 120 to 140 kPa range, followed by a steady decay through the

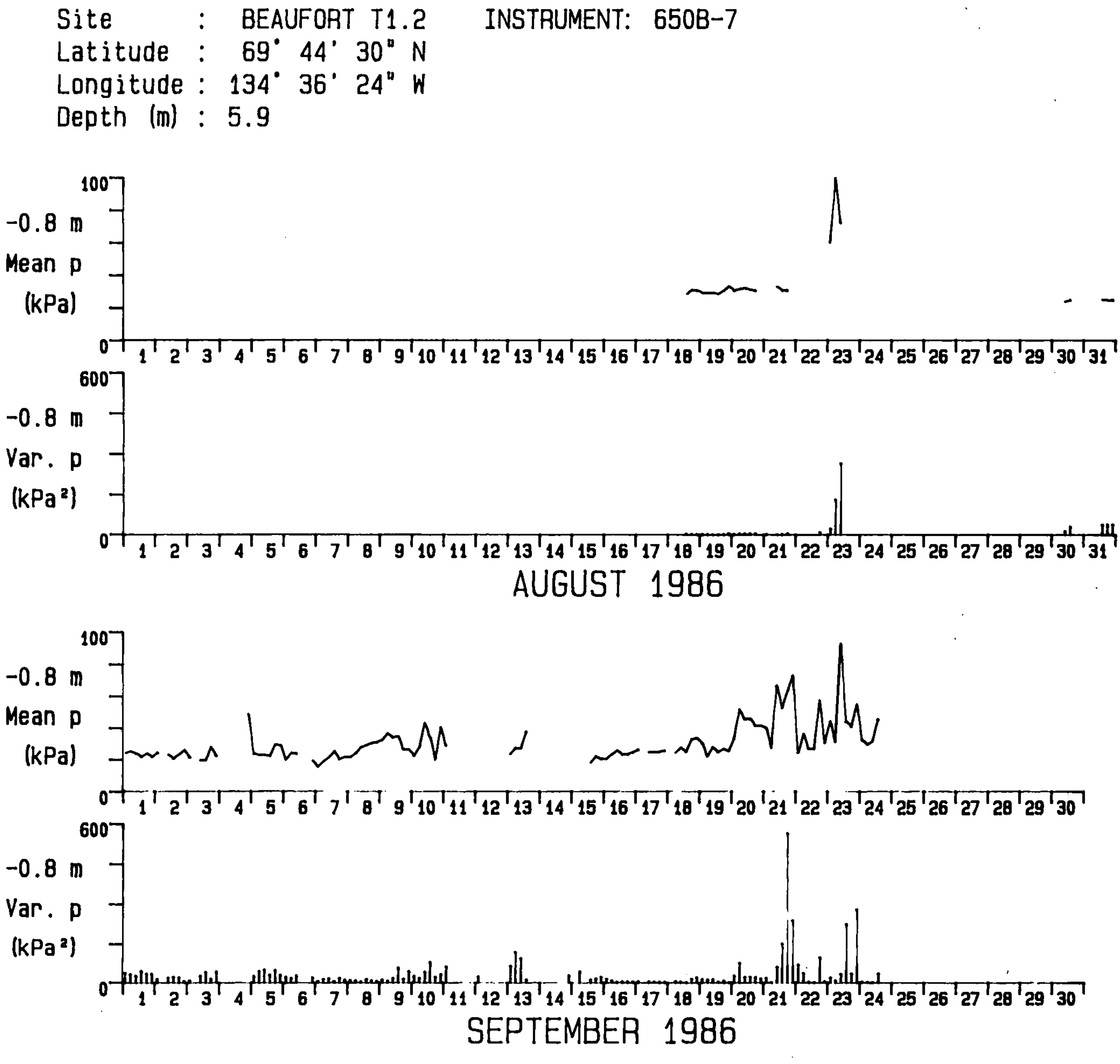


Fig. 6.4 Time-series of mean pressure and the variance in pressure 0.8 m below mudline at site T1.2.

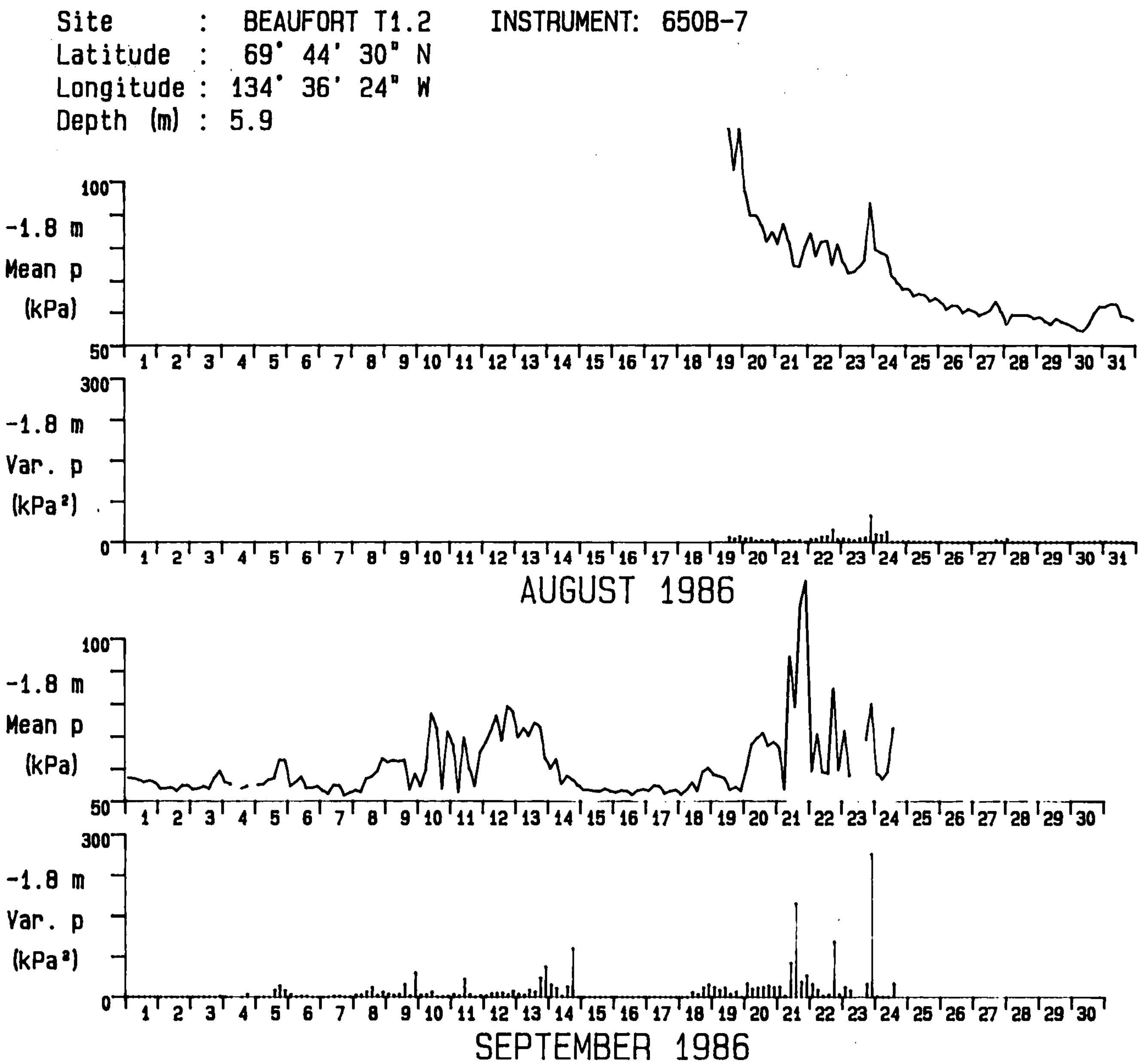


Fig. 6.5 Time-series of mean pressure and the variance in pressure 1.8 m below mudline at site T1.2.

August 22/23 storm. Background pressures of 55 kPa were recorded throughout the low-wave periods, and during the September 21/22 storm, pressures peak at 120 kPa, about 2 1/4 times the background level. At both depths the rate of pressure decay following a large value appears very rapid.

The behaviour of the signal at the beginning of the record is difficult to interpret. It may be that emplacment of the probe produced excess pore pressures that required a day or more to dissipate. However, this is not supported by the central probe located only 1 m higher in the mud column. As a result of this initial behaviour, pressure variations measured at -1.8 m below seabed during the first storm on August 22/23 are uncertain.

7.0 SOUNDING SURVEY AND BOTTOM SEDIMENT SAMPLING

7.1 Introduction

As part of cruise B, two sounding lines were taken in the study area. The first line extended from the shallow site (T1.2) to the deep site (T1.1) and beyond to the 17 m depth contour. The second line was measured parallel to and 3 nautical miles east of the first, extending between 15 m and 7 m of water depth.

Two depth sounders were used during the bathymetric surveying. A Raytheon DE719CM Survey Fathometer provided a continuous paper chart record of the bottom, while a Raytheon DE250 Digital Sounder was used to check the chart record measurement at each fix location.

Sediment sampling was performed on both cruises. Surficial samples were taken at both instrument location sites (T1.1 and T1.2) and at the four intermediate locations on the study transect (S1 to S4). Sediment sampling locations are shown in Fig. 1.1 and 3.1.

7.2 Sounding Survey Data

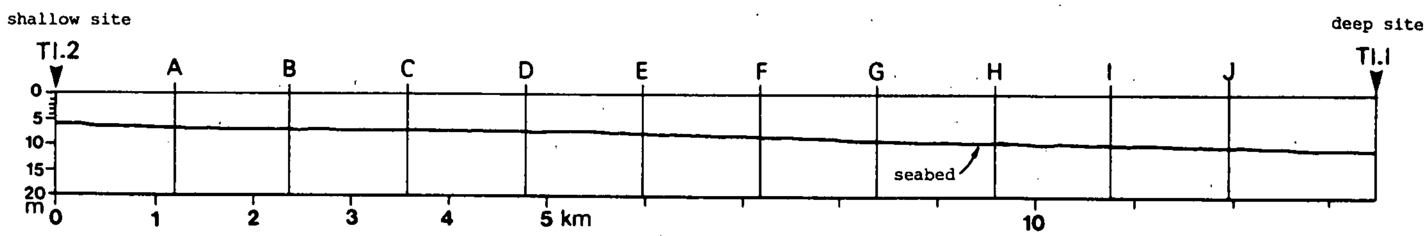
The sounding data, reduced to account for tidal variations provide a bathymetric profile as shown in Fig. 7.1. The variation in bottom topography from the shallow site along the transect to the 17 m depth mark (Fix #7) is seen to be very gradual. The areas immediately offshore of North Head are thus characterized by extremely small bottom slopes. Along the 23.7 km length of the sounding line, the water depth increased from 5.9 m to 17 m, which represents a bottom slope of approximately 4.7×10^{-4}.

7.3 Bottom Sediment Data

Surficial sediments were sampled using a 45 gallon barrel hauled by the deck crane of the vessel at the two instrument sites and at the four intermediate stations mentioned previously. The coordinates of the surficial sediment samples are listed in Table 7.1.

The surficial sediments were observed to be dark brown in colour with a sticky, plastic consistency. All samples consisted of fine silts and clays with traces of sand particles. A series of soil laboratory tests were conducted on the samples consisting of visual assessment, moisture content determinations, grain size analyses and Atterberg indices. Also, X-ray diffraction for clay mineralogy and a pore fluid chemistry assessment were done for two samples. A summary of the soil testing results is given in Table 7.2. Grain size curves are shown in Fig. 7.2 and pore fluid chemistry analysis results are given in Table 7.3.

Transect No. 1



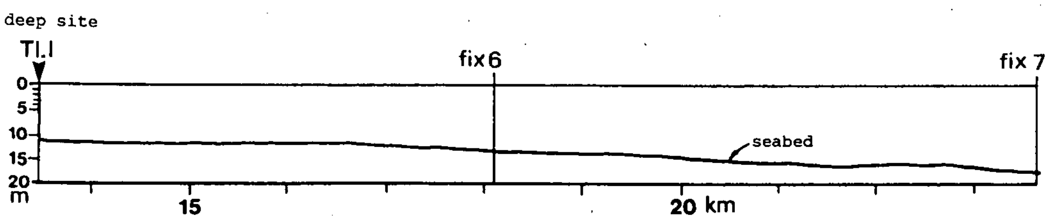


Fig. 7.1 Sounding survey along transect no. 1.

Table 7.1

Surficial Sediment Sample Locations

Sample No.	Cruise	Coordinates	Plan Location
S-1 S-2 S-3	A A B	69°44.5'N 134°36.4'W	Shallow site, T1.2
TS-1	B	69°45.4'N 134°37.8'W	S1
TS-1	B	69°46.7'N 134°40.2'N	S2
TS-3	B	69°47.8'N 134°42.5'W	S3
TS-4	B	69°49.0'N 134°44.6'W	S4
D-1 D-2	A A	69°50.6'N 134°47.6'W	Deep site, T1.1

Table 7.2a

Summary of Soil Laboratory Test Results

Sample No.	Location/ Depth(m)	Colour/ Odour	Visual Class.	D_{50} (mm)	Fines (%)	Clay (%)	Water Content (%)	Liquid Limit (%)	Plastic Limit (%)
AS1	T1.2 5.9	mgb none	CL	0.0074	88	24	54	36	21
AS2	T1.2 5.9	mgb none	CI	-	-	-	59	-	-
AD1	T1.1 10.5	dgb none	CI	0.0034	96	39	55	45	24
AD2	T1.1 10.5	mgb s.org.	CI	-	-	-	52	-	-
BS3	T1.2 5.9	mgb s.org.	CL	-	-	-	58	-	-
BTS1	S1 6.2	dgb none	CI	0.0114	100	20	31	30	19
BTS2	S2 7.1	mgb s.org.	CI	-	-	-	54	-	-
BTS3	S3 7.9	vdgb none	CI	-	-	-	53	-	-
BTS4	S4 9.7	vdgb s.org.	CL	0.0046	95	34	56	42	22

Key: mgb = medium grey brown
dgb = dark grey brown
vdgb = very dark grey brown
s.org.= slight organic

CL = low plasticity clays
CI = medium plasticity clays
% Fines: <0.074 mm by weight
% Clay: <0.002 mm by weight

Notes: Soil lab testing was conducted by Komex Consultants Ltd., Calgary.
For location of samples see Fig. 3.1.

Table 7.2b

Clay Mineralogy; X-Ray Diffraction Test Results

Sample No.	Location (Fig. 3.1)	D_{50} (mm)	Clay (%)	Kaolinite (%)	Illite (%)	Chlorite (%)	Others (%)
AD1	T1.1	0.0034	31.4	12.8	48.7	38.5	0.0
BTS1	S1	0.0114	21.8	15.6	53.1	31.3	0.0

NOTE: X-ray diffraction tests were conducted by GEOTECHnical Resources Ltd., Calgary under contract to KOMEX Consultants Ltd.

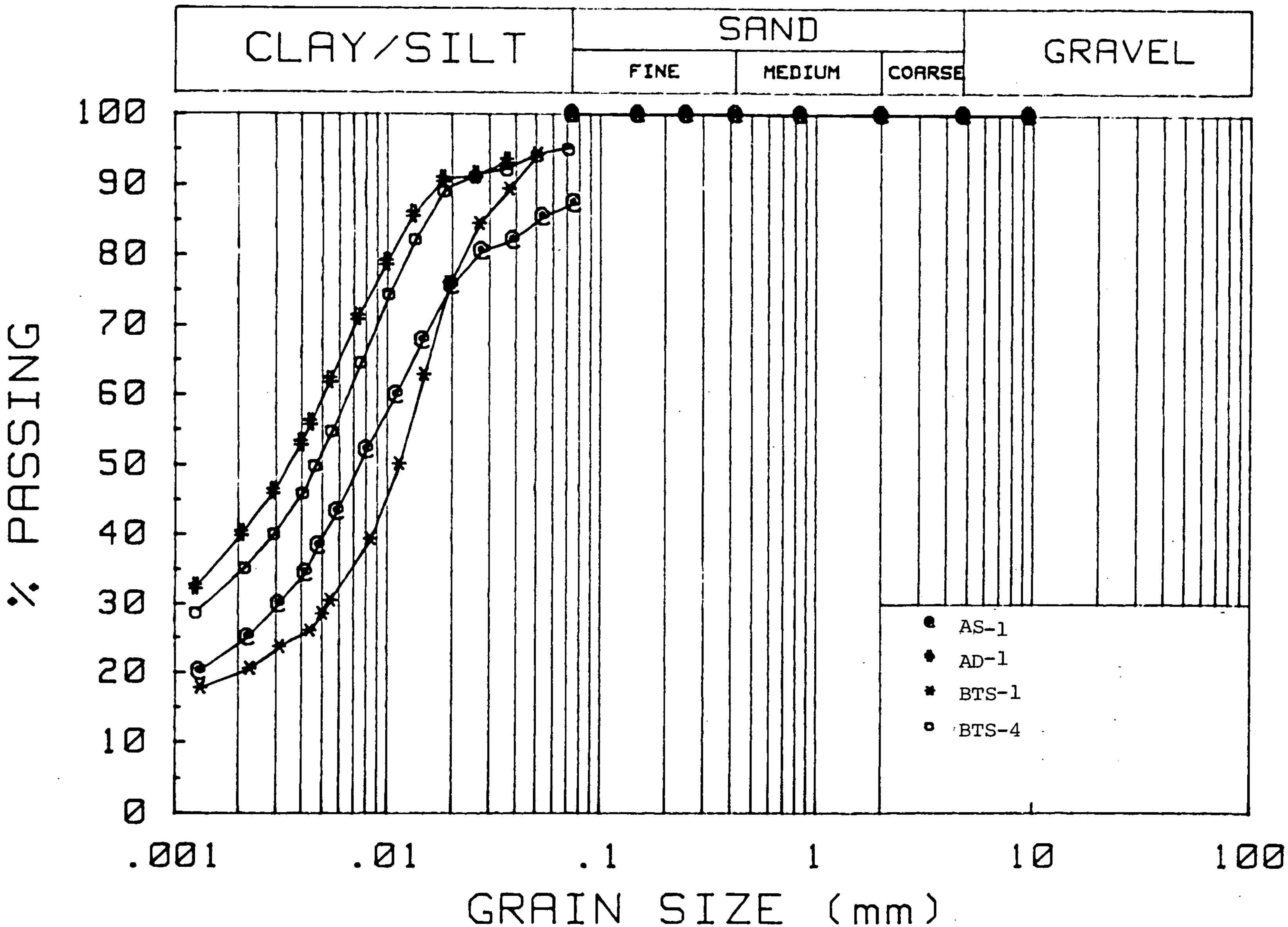


Fig. 7.2 Grain size distribution curves. The site identifiers are given in Table 7.1, with the first letter, A or B, designating the cruise in the 1986 field program.

TABLE 7.3

RESULTS OF PORE FLUID ANALYSES

DESCRIPTION	CRUISE A SAMPLE D1	CRUISE B SAMPLE TS1
Total Hardness (g/m^3)	5686	4200
Total Alkalinity (g/m^3)	188	149
Salinity, NaCl (ppm)	31,798	21,329
Corrosion Tendency	148.90	124.17
pH at 25°C	7.37	7.61
Resistivity at 25°C (Ωm)	0.221	0.307
Na (MEQ/L)	430	274
K (MEQ/L)	29.7	9.0
Ca (MEQ/L)	28.7	18.4
Mg (MEQ/L)	85.2	65.3
Ba (MEQ/L)	0.003	0.005
Sr (MEQ/L)	0.21	0.16
Fe (MEQ/L)	0.026	0.14
B (g/m^3)	7.55	4.25
Cl (MEQ/L)	498	333
HCO_3 (MEQ/L)	3.8	3.0
CO_3 (MEQ/L)	0.00	0.00
OH (MEQ/L)	0.00	0.00
SO_4 (MEQ/L)	62.9	37.1

Testing performed by GEOTECHnical Resources Ltd., Calgary under contract to KOMEX Consultants Ltd.

8.0 BRIEF DISCUSSION OF MEASUREMENTS

The principal objective of this study was to monitor changes in wave, current and seabed conditions during episodes of strong forcing associated with storms. This objective was largely met since in 1986 sea ice remained well offshore and on two occasions--August 22/23 and September 21--strong northwest winds exceeding 30 knots produced significant waves and currents along the instrumented transect. Data from the first of these two storms are summarized in Fig. 8.1, showing the strong correlations that exist between wind, waves, currents and changes in suspended sediment concentration. A similar set of measurements for the September 21st storm is shown in Fig. 8.2.

In both storms waves were incident onto the transect from the northwest, ranging from 2.3 to 2.4 m significant wave height and peak periods of 8 to 9 s at the deeper site in 10 m of water. As can be seen in each figure peak periods and wave directions changed little during the interval of high waves at both sites; there is, however, a definite loss in energy as waves propagate from the 10-m isobath into the vicinity of the 5-m isobath. These energy losses are most probably related to nonlinear fluxes within the energy spectrum due to wave-wave interactions that transfer energy into the wave breaking dissipation range, and to bottom interaction effects, without much complication due to refraction and diffraction.

We also see that at the times of high waves bottom currents were large in response to the wind-driven storm surge; at the T1.2 location in 5 m of water current speeds ranged, for example, up to 70 to 80 cm/s. Peak suspended sediment concentrations increased about two orders of magnitude in the August storm coincident with these peak current speeds. As noted in section 6.3 there were substantial changes in pore pressure, approaching levels conducive to liquefaction, at these times also.

The measurements made in this study indicate that storms play a major role in bottom sediment transport in the nearshore zone. Changes in the concentration of sediments in suspension are accompanied by large increases in pore water pressure, although the precise extent to which liquefaction was approached and the relationship between pore pressures and sediment suspension remain to be investigated. The increases in suspended sediment at times when background currents persisted above 20 to 30 cm/s imply a substantial transport of material (see Fig. 8.1 and 8.2).

It may be noted, however, that upon recovery there were no indications of the quadrapod frames being heavily buried, moved to a large extent laterally, or sinking far into the seabed. At the shallow site, there was virtually no mud adhering to the frame above the base plates (see Fig. 3.2). Thus despite the high measured pore pressures (above hydrostatic) it seems that massive soil liquefaction accompanied by a loss of soil strength such that the frame would sink did not occur. At the deep site in 10 m of water there were clear indications of settlement given by a distinct mud line about 16 cm above the base.

As shown by the grain size distributions (Fig. 7.2) the silt was finer at the deep site (T1.1) with a slightly higher clay percentage than at the shallow site (T1.2). Thus the mud line some 16 cm above the base may have resulted from ordinary consolidation of the soft materials due to the weight of the frame and any impact at the time of deployment, rather than a sudden settlement due to liquefaction.

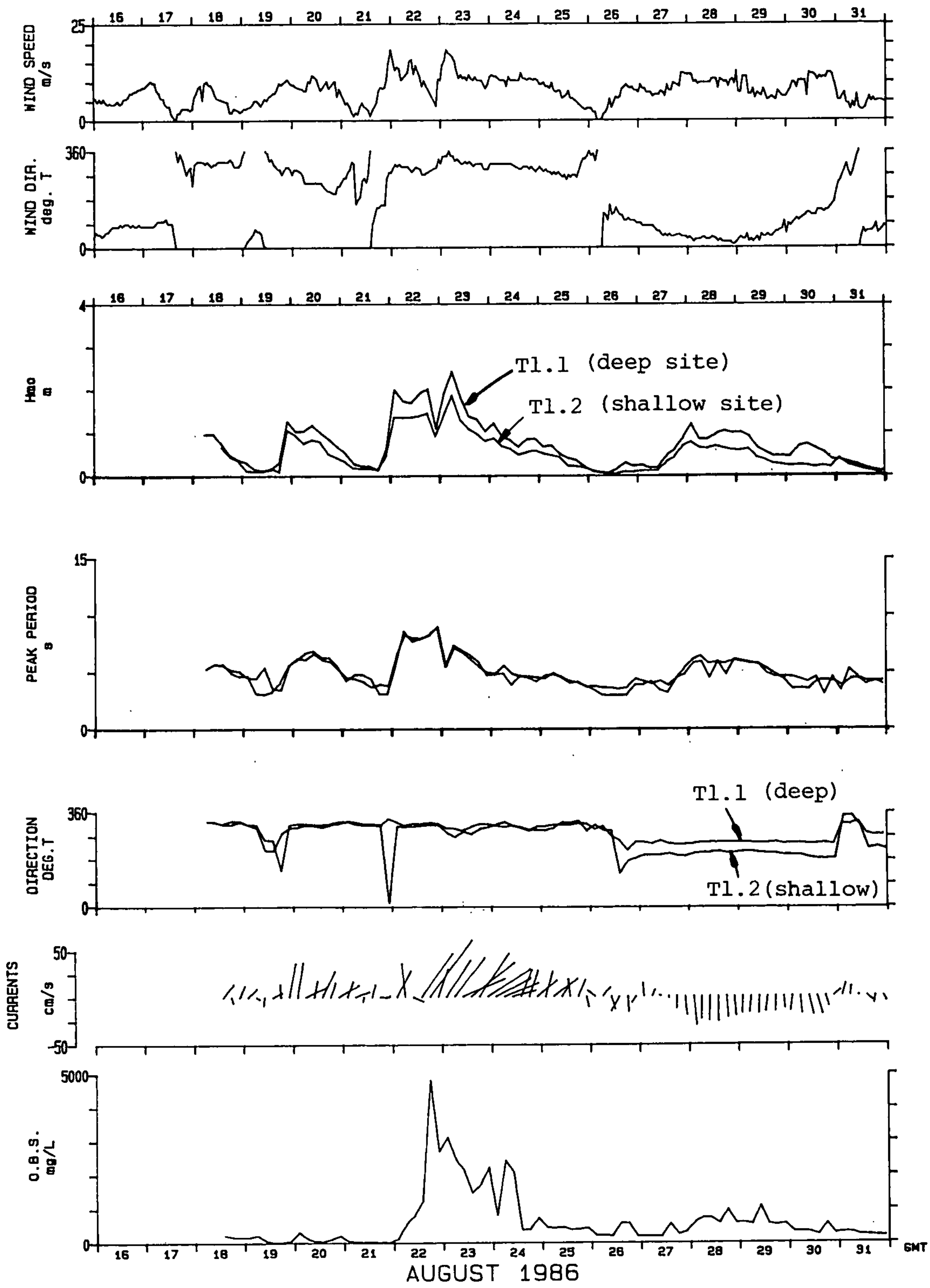


Fig. 8.1 Time-series of wind, wave height, period and direction, currents 50 cm above the seabed, and suspended sediment concentration 100 cm above the seabed, August 18 to 31, 1986.

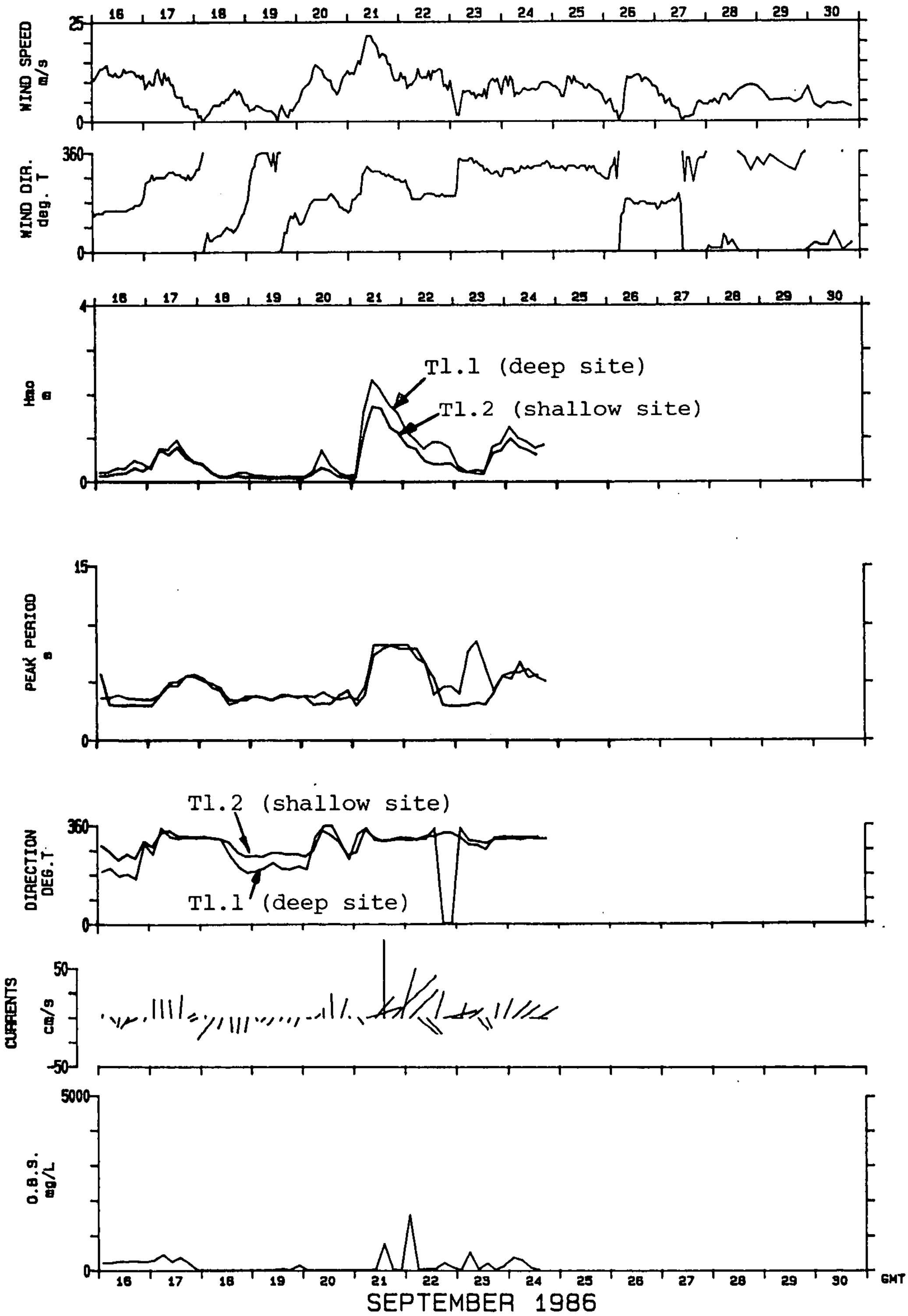


Fig. 8.2 Time-series of wind, wave height, period and direction, currents 50 cm above the seabed, and suspended sediment concentration 100 cm above the seabed, September 16 to 24, 1986.

9.0 ANCILLARY DATA

9.1 Wind and Weather

The Atmospheric Environment Service (AES) of Environment Canada produces surface analysis charts of the Arctic regions. Generated four times a day, these charts illustrate the surface atmospheric pressure isobars and front movements calculated from both land and sea observations throughout North America.

In addition to these charts, AES also provides weather data from remote Arctic observation stations and from offshore rigs in the Beaufort. These data are in aviation format and consist of air pressure and temperature, dewpoint temperature, wind direction and speed, precipitation and cloud cover (only at some stations). The data provided by four such stations (Tuktoyaktuk-YUB, King Point-WOP, BMAC and GCDU) have been collected and catalogued for the oceanographic monitoring period. Table 9.1 lists the station locations and the data recording intervals. Locations of the recording stations are shown in Fig. 1.1.

The data recorded at each of the offshore rigs (BMAC,GCDU) are presented in time-series form in Fig. 9.1. Maximum wind speeds measured at GCDU and BMAC were 22.5 m/s and 23 m/s respectively.

A prolonged period of winds with speeds ranging from 13 to 18 m/s occurred from 2100 GMT on September 6 to 0900 GMT on September 9. The winds were directed out of the southeast during this time, which corresponds with a period of low wave energy at the monitoring sites.

The air temperature during the study period generally ranged between 0°C and 10°C but with high temperatures of 12°C on August 15 and 16, and on September 6, 8, and 9. However, temperatures started to fall continuously on September 21, remaining very close to or below 0°C after September 24, 1986.

The Kamotik crane barge made weather observations at three locations for ESSO Resources Canada Ltd. throughout the 1986 open water season. Table 9.2 gives the coordinates of the three sites and data recording intervals. These data were not available to the present study but are noted here for completeness.

9.2 Ice

The Ice Centre of Environment Canada analyzes daily satellite images together with other reconnaisance data of the Canadian Arctic to provide:

Table 9.1

Wind and Weather Stations

Station or Rig	Co-ordinates		Data Measured
Tuktoyaktuk - YUB (Land Station)	69°26'N 133°01'W		Hourly
King Point - WOP (Land Station)	69°05'N 137°55'W		Three-Hourly
BMAC-MOLIKPAQ (Offshore Rig)	70°06'N 133°48'W		Hourly
GCDU-KULLUK (Offshore Rig)	70°01.5'N 136°30.1'W	August 15 August 28	Hourly
	69°56.5'N 133°17.9'W	August 30 September 20	
	70°02.0'N 133°17.1'W	September 22 September 30	

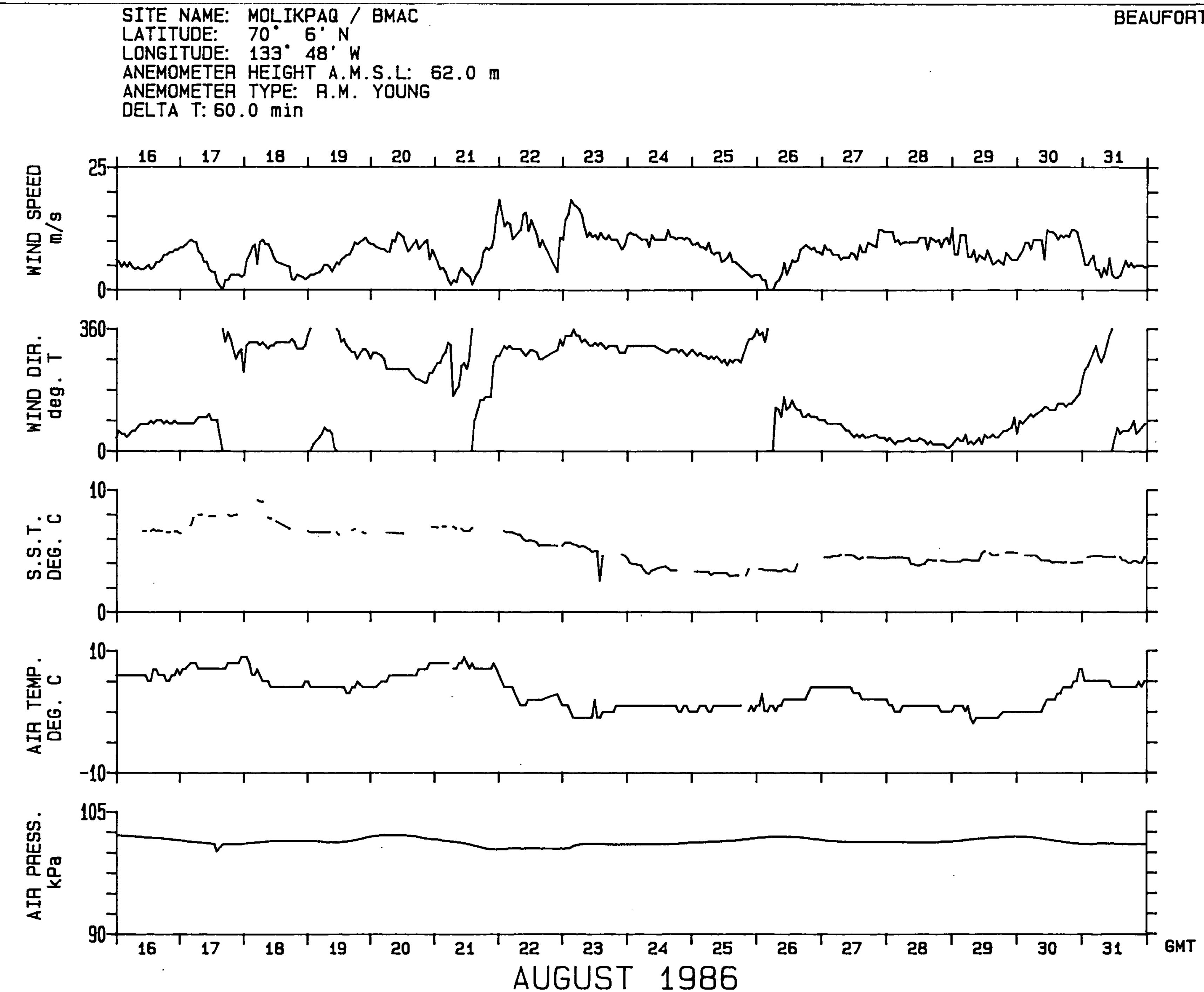


Fig. 9.1(a) Meteorological parameters from BMAC (MOLIKPAQ) August 16-31, 1986.

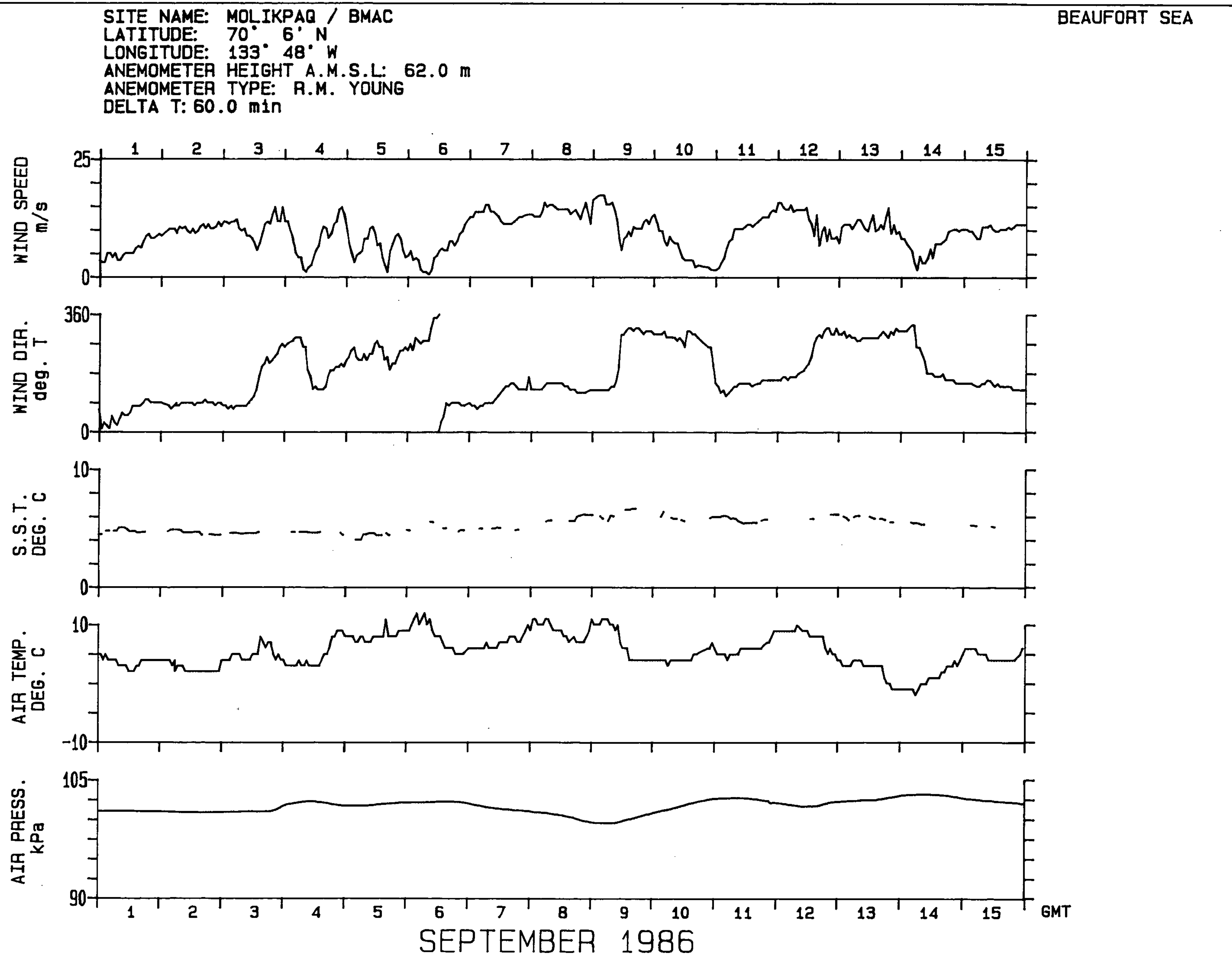


Fig. 9.1(b) Meteorological parameters from BMAC (MOLIKPAQ) September 1-15, 1986.

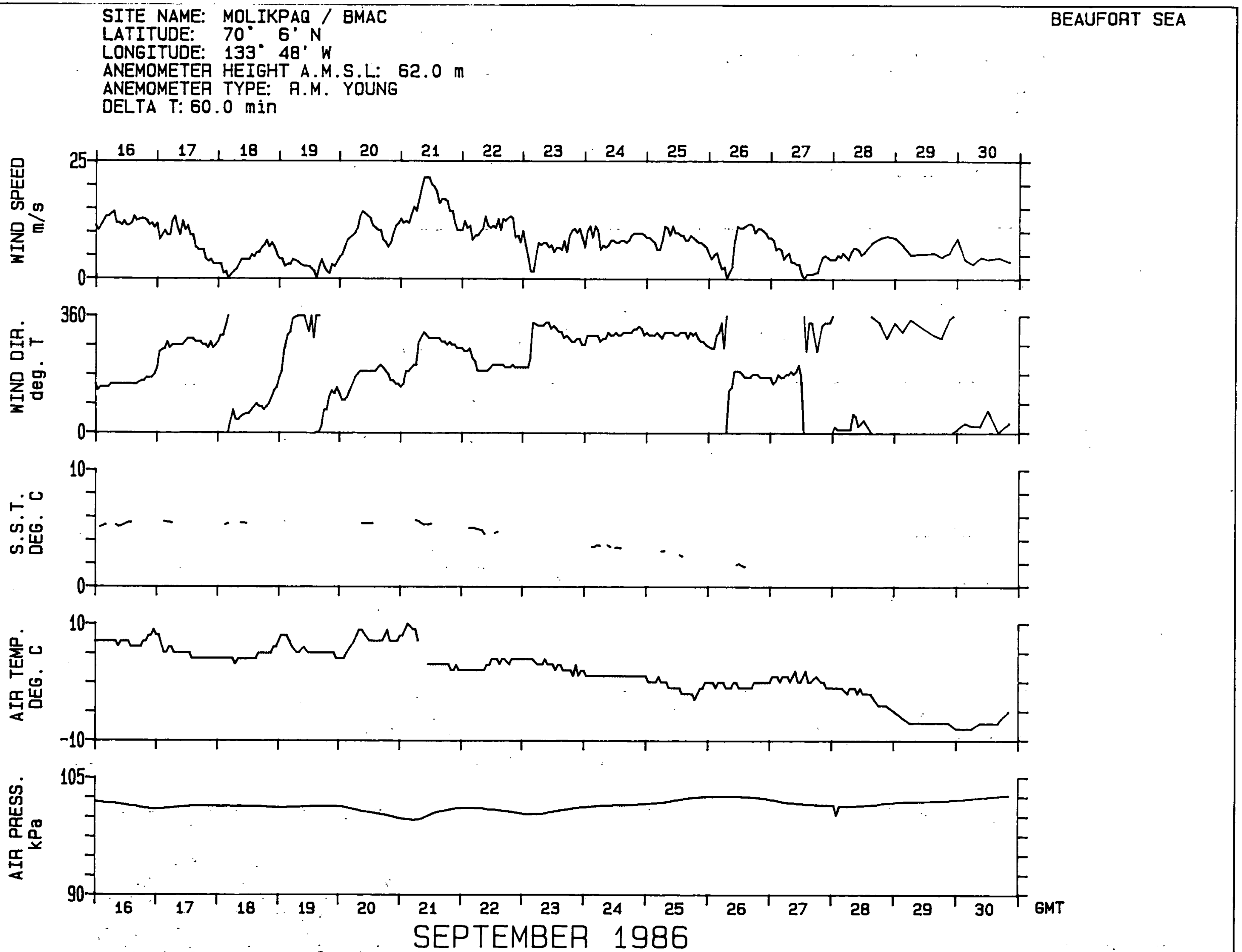


Fig. 9.1(c) Meteorological parameters from BMAC (MOLIKPAQ) September 16-30, 1986.

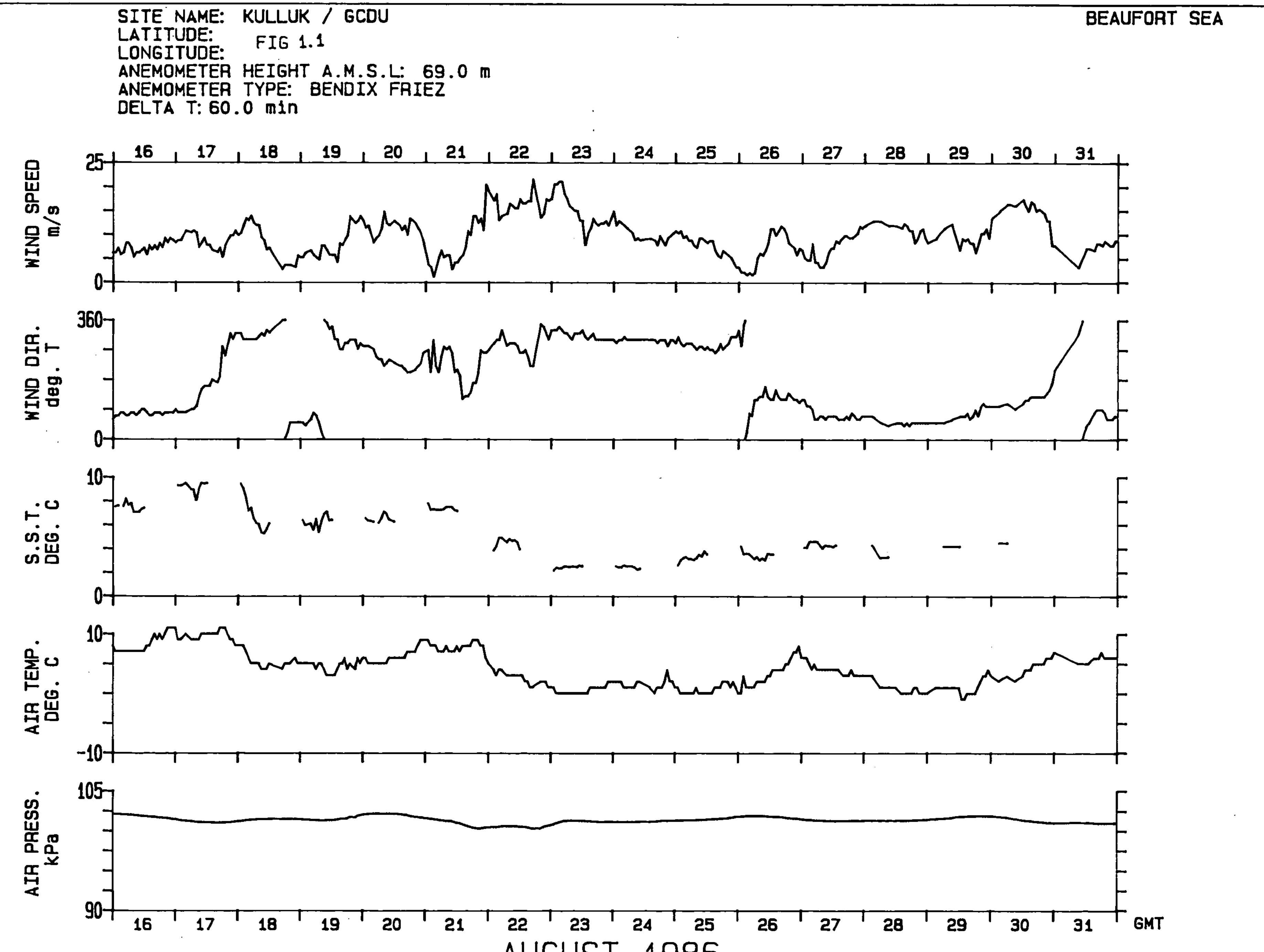


Fig. 9.1(d) Meteorological parameters from GCDU (KULLUK) August 16-31, 1986.

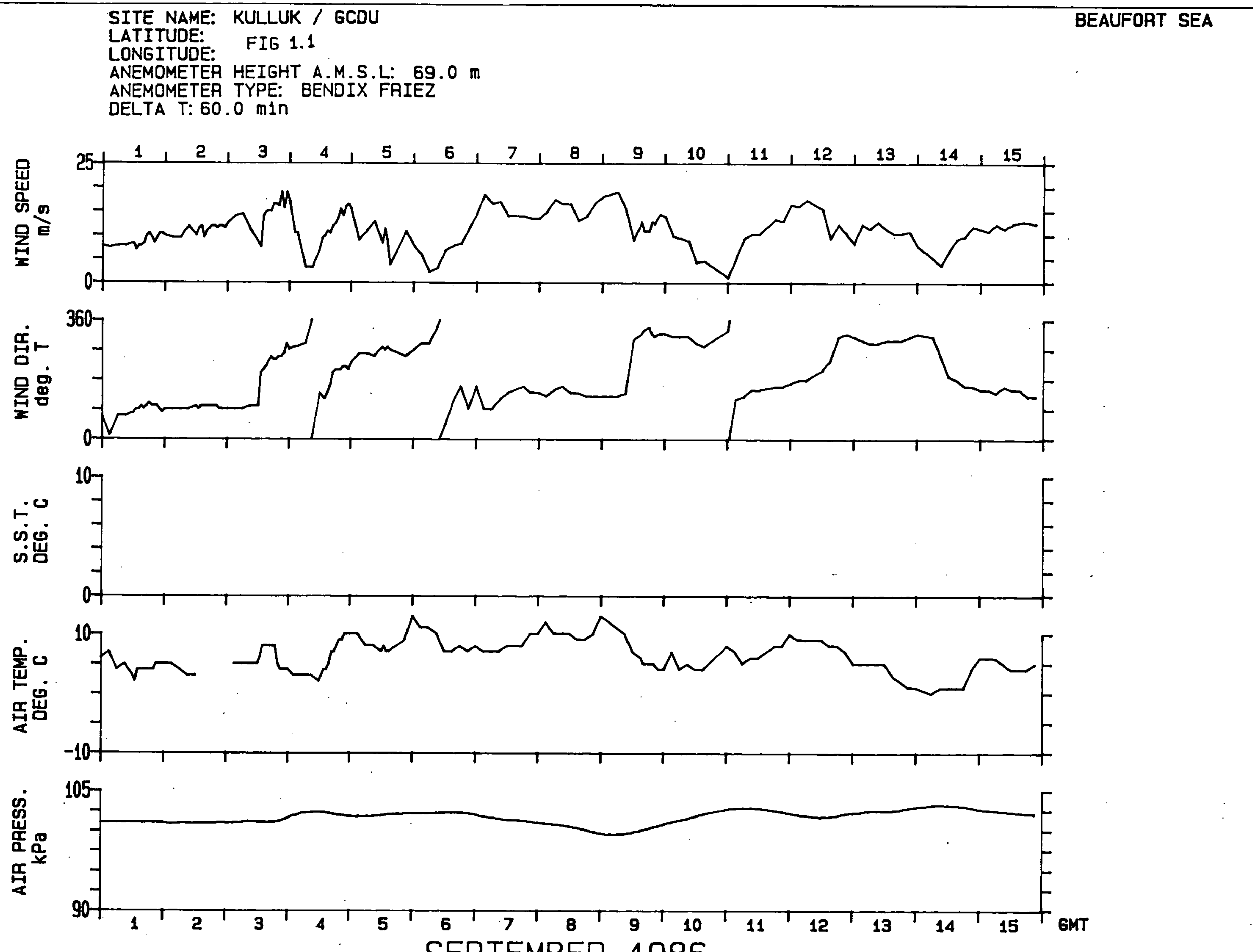


Fig. 9.1(e) Meteorological parameters from GCDU (KULLUK) September 1-15, 1986.

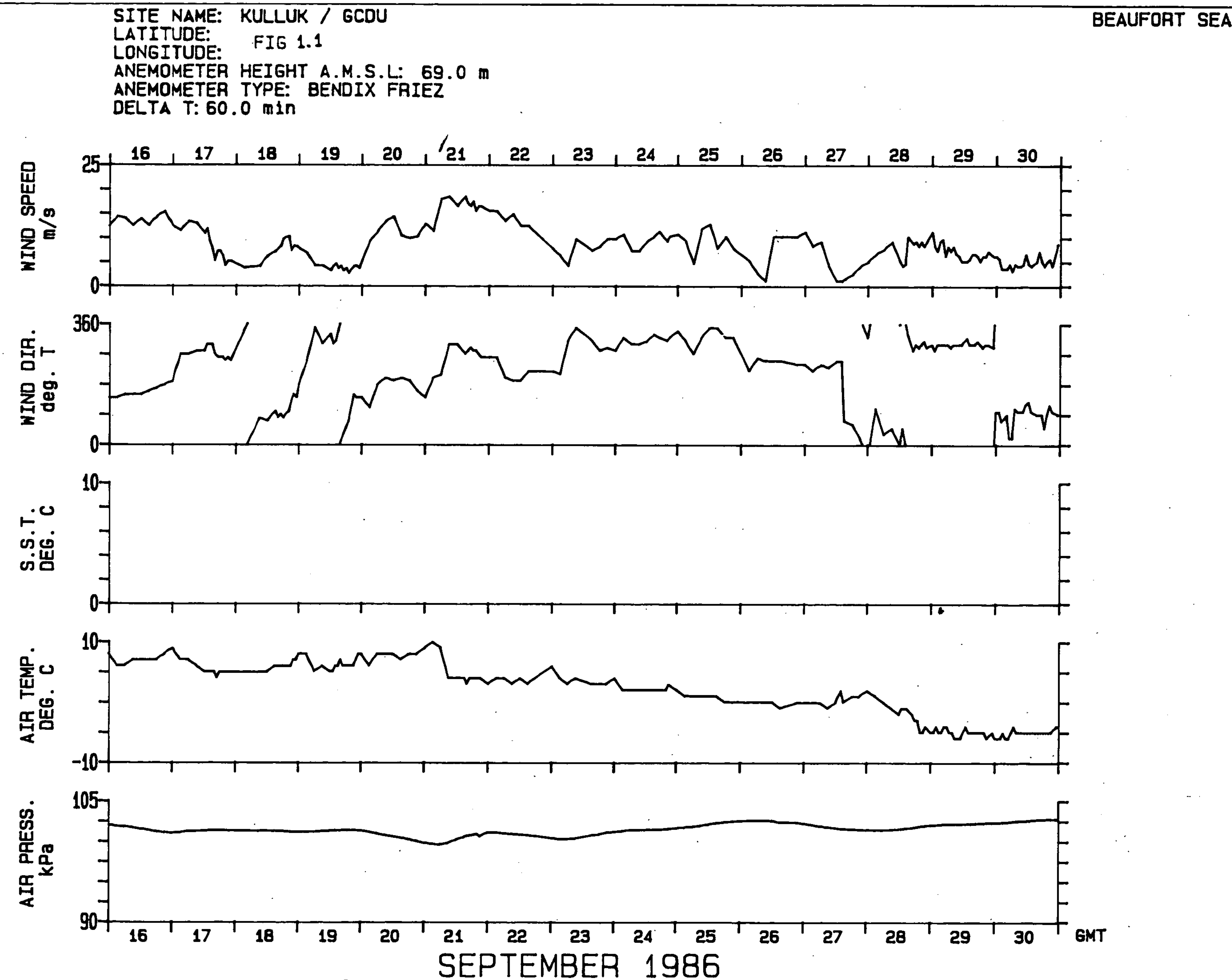


Fig. 9.1(f) Meteorological parameters from GCDU (KULLUK) September 16-30, 1986.

(i) daily analysis ice charts for the Beaufort Sea,
(ii) weekly composite ice charts for the Western Arctic.

The daily charts provide a status report on ice conditions and an indication of expected movements in the Beaufort Sea. The weekly composites feature the average ice front position for the previous week of observations across the entire Western Arctic. Both of these series have been collected for the time period from August 15 to September 30, 1986.

As an aid to interpreting wind and wave conditions monitored during this experiment, daily ice charts have been digitized and replotted to show the 1/10'th and 9/10'th ice edges for three interesting periods: August 19-25, September 7-10, and September 20-23, 1986 (Appendix I). An example of these charts is shown in Fig. 9.2, illustrating the large open-water area just before the August 22/23 storm.

9.3 Waves and Tides

Additional wave measurements were made by ESSO Resources Canada Ltd. at several sites during the 1986 open water season. Measurements using a Sea Data 635-11 Wave and Tide Recorder were made at Kaubvik and Waverider buoys were deployed at Arnak, Minuk and Kaubvik (Table 9.2). The data were not available to the present study but are reported here for completeness.

9.4 Temperature and Salinity

During the 1986 AGC summer survey cruise aboard the CCGS Nahidik five CTD profiles were recorded in the study area. Measured in water depths ranging from 3 to 12 m, the CTD profiling included a collection of water samples for analysis of salinity and suspended sediments. The analysis of the CTD records and the water samples is presently underway at AGC (at November 30, 1986). The location of each of the profiles and the corresponding depths for bottle samples are given in Table 9.3.

Two additional CTD profiles were collected in the study area as part of the NOGAP B6 Project by Fisheries and Oceans, Canada through the Institute of Ocean Sciences in Sidney, B.C. These are also listed in Table 9.3. Tape translation from both locations and water sample analyses of the bottle casts from #27 are presently underway at IOS (at November 30, 1986). However, analysis of the sample from station #28 indicated a suspended concentration of 2.2 mg/L at the water surface (R.W. MacDonald, IOS, pers. comm., 1986).

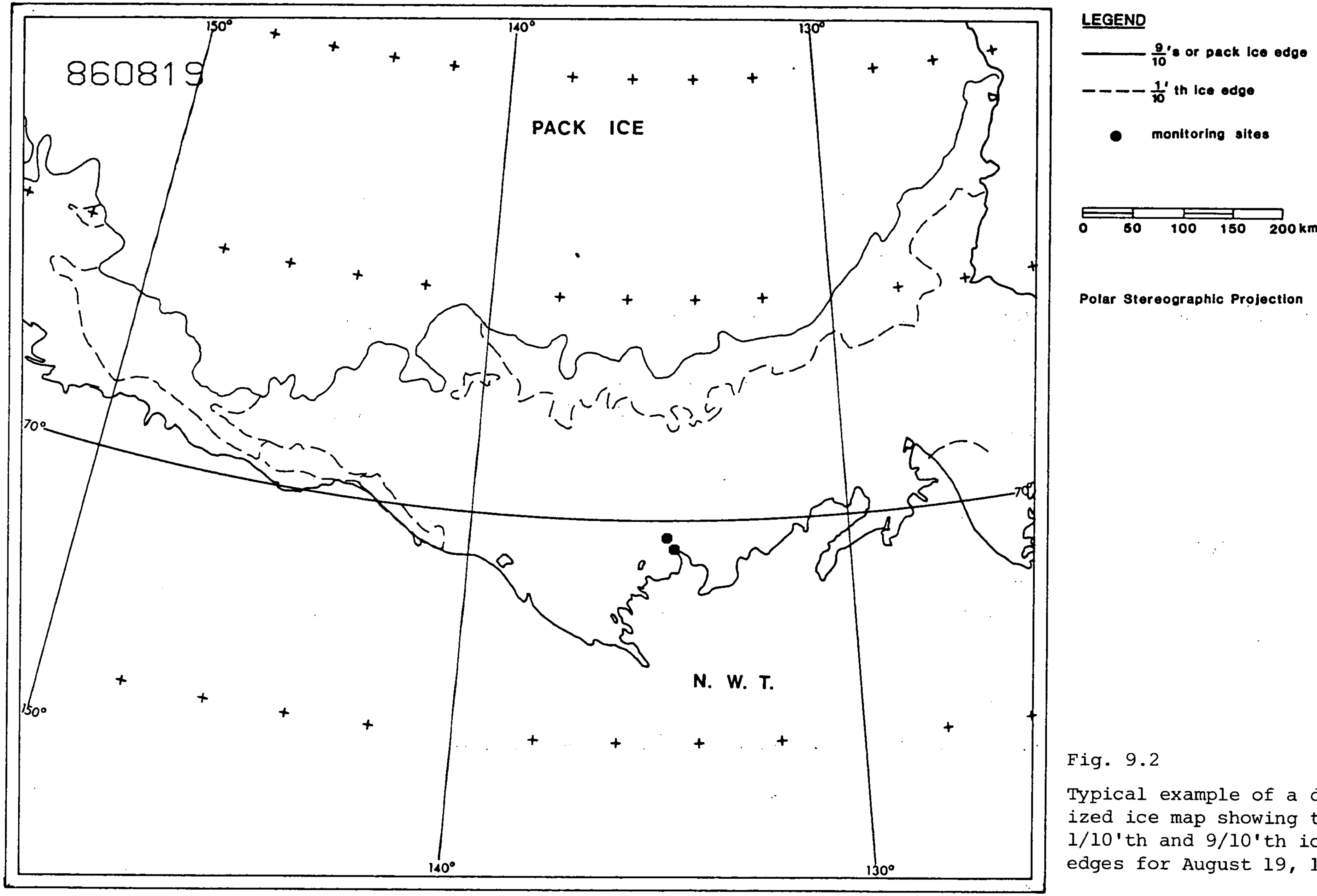


Fig. 9.2

Typical example of a digitized ice map showing the 1/10'th and 9/10'th ice edges for August 19, 1986.

Table 9.2

Esso Weather and Wave Observations - Beaufort Sea 1986

Site	Locations (Fig 1.1)	Weather Data Recording Intervals	Instrument	Wave Data Deployment Periods
Arnak	69°45'40"N 133°46'20"W	86/08/12 - 86/08/22 86/08/24 - 86/08/26	Waverider Buoy	86/08/06 - 86/09/12
Minuk	69°42'35"N 136°27'40"W	86/07/26 - 86/08/11 86/09/11 - 86/09/19	Waverider Buoy	86/07/26 - 86/08/11 86/09/11 - 86/09/19
Kaubvik	69°52'33"N 135°25'21"W	86/08/26 - 86/09/11 86/09/20 - 86/10/10	Waverider Buoy and Sea Data 635-11 Wave and Tide Recorder	86/08/26 - 86/10/04 86/07/27 - 86/10/07

Table 9.3

CTD Profile Locations - AGC and IOS, Summer 1986

CTD	Institute	Location	Depths of samples (m below MSL)
#1	AGC	69°53.25'N 134°51.66'W	2,4,7,9,11
#2	AGC	69°51.03'N 134°47.38'W	2,4,6,8
#3	AGC	69°45.08'N 134°40.51'W	2,4
#4	AGC	69°42.53'N 134°36.98'W	1,2.5
#5	AGC	69°40.03'N 134°33.37'W	0.0,2.5
#27	IOS	69°49.4'N 135°49.2'W	0,3,5,7,10
#28	IOS	69°44.4'W 135°43.2'N	0

10.0 RECOMMENDATIONS FOR MODELLING THE DATABASE

10.1 Sediment Transport Potential

Conventional methods of sediment transport prediction (Hodgins et al., 1986b) do not deal directly with the change in stress states within the soil matrix. Such changes in stress state are produced by both rapid and gradual changes in pore water pressure generated by surface waves. Liquefaction will occur when the effective stress σ_o equals the overburden pressure, and the depth of liquefaction depends on the sediment properties and the wave loading history. Once sediment in this layer becomes liquefied, it may be much more susceptible to being transported. The mechanics of this type of transport are presently poorly understood, although potentially the entire upper layer of the seabed may be mobile. In addition, the rate of momentum (energy) exchange from the surface wave field to the sediment may change abruptly at the point of liquefaction.

The principal objective of this monitoring program was to provide data with which to investigate the linkage between a predictive transport model and changes in seabed strength in fine silts and muds, leading ultimately to a transport model suitable for the in situ material and stratigraphy. Previous cone penetrometer tests (Fig. 2.9) near North Head show a 3 to 4 m layer of silty sand of low permeability overlying a medium to coarse sand layer. The Hill et al. (1986b) facies analysis (Fig. 2.4) shows that seaward of this sounding the surficial sediments are mainly laminated silts and clays and thick-bedded silts of low plasticity. Sand lenses at 10 m depth were found near the 5 to 6 m isobath. Consequently excess pore pressures may be anticipated in the zone above the sand layer.

The program was largely successful in meeting this objective yielding concurrent wave, suspended sediment and pore water pressure measurements that do show significant changes during storms in this silt-clay layer. Moreover, wave measurements between the 10-m and 6-m isobaths exhibit energy loss during the storms consistent with seabed interaction processes. Thus a series of more advanced analyses to model the database is recommended. Their purpose would be to explain the observations in terms of physical processes, leading to better predictive models.

In terms of sediment transport future analyses may proceed as follows:

(1) A careful analysis of the porewater pressure data to establish the absolute pressure (transient and residual) with respect to hydrostatic pressure at the sensor depths. This can be done using the tide pressure from the Sea Data 635-11 and the hydrostatic relationship. An assumption may be required for the reference voltage corresponding with hydrostatic conditions for periods of low wave activity. This is necessary to overcome an apparent and unexplained shift in the sensor calibrations.

(2) Interpretation of burst measurements during storms (e.g. Fig. 5.2) for correlations between waves, transient pressures and changes in suspended sediment concentrations. Such an analysis may yield valuable insight into the mechanics coupling seabed stability and resuspension of material.

(3) Modelling of the measured transient pore water pressures and under waves (e.g. Fig. 5.4) with a Biot analysis for a poroelastic solid. The program STAB-MAX (Siddharthan and Finn, 1979a) which calculates the instantaneous pore pressure distribution and effective stresses could be used for this purpose.

(4) Modelling of residual pore pressures and liquefaction potential. Seed's program (Seed and Rahman, 1977) or the Siddharthan-Finn (1979b) program STAB-W which takes changes in soil moduli over time into account could be considered for this step.

The purpose of this type of modelling would be to test the applicability of these techniques and gauge their sensitivity to input parameters. Geotechnical parameters are among the most important of these, especially the moduli, weight, degree of saturation, and permeabilities. Modelling in steps (3) and (4) would logically follow an appraisal of the data derived in steps (1) and (2) for its suitability.

A second objective would be to establish some correlation between the effective stress analysis (liquefaction) and changes in suspended sediment concentration. In a recent study Shi et al. (1985) have shown that many features in a suspended sediment concentration record obtained in 1.5 m of water on the Beaufort Shelf (Alaska) were well correlated with wave orbital velocities. They provided an explanation of the observed record using a one-dimensional vertical diffusion model, taking a reference concentration proportional to the square root of the excess boundary shear stress, but neglecting any change in stress states within the soil produced by liquefaction.

A similar approach to that followed by Shi et al. could be usefully applied to the data but extended by considering any apparent connection between rapid changes in suspended sediment concentration and loss of soil strength due to excess pore pressures. This could lead to improved descriptions of reference concentrations, and hence to suspended sediment fluxes over the water column.

10.2 Wave Energy Attenuation

The subject of wave energy attenuation over soft muds and clays in deltaic regions has received comparatively little attention in relation to other wave generation-transformation processes. This is due in a large part to the lack of good data to define the physics governing the processes. Soft-bottom attenution has been modelled by Gade (1958) assuming a visco-elastic bottom material. Dalrymple and Liu (1978) considered the bottom to be a viscous fluid; later Hsiao and Shemdin (1980) extended this work to include a visco-elastic bottom for the intermediate depth wave equations. Yamamoto (1982) then considered the problem by introducing Coulomb damping, and treated the transformation of a wave spectrum due to sediment elasticity, damping and seepage loss. Agreement with experimental data at one wave frequency was obtained but the spectral conditions were purely hypothetical.

An important step was made in the SWAMP experiment described by Forristall and Reece (1985). Detailed wave measurements were made in deep and shallow water (Gulf of Mexico) and, for isolated storms, frequency-dependent attenuation factors were calculated. However, Forristall and Reece could not find consistent predictive relations for all meteorological conditions. The most consistent results expressed attenuation at 10 s and 12.5 s periods as a function of deep water significant wave height.

The most important limitation to this work is that attenuation was not explained in terms of a physical process. Thus the results are not yet useful for formulating a predictive model, and do not generalize with seabed material or distance of wave propagation over arbitrary depths.

In each study (Yamamoto and SWAMP) only some of the processes contributing to attenuation of spectral components were examined. Forristall and Reece did consider refraction and shoaling; Yamamoto's approach was yet more hypothetical. One of the most important mechanisms controlling spectral transformation--the nonlinear energy fluxes produced by wave-wave interactions--has not even been considered by these investigators, nor has energy input by the local wind. Resio (1986) has also shown the importance of nonlinear fluxes for shallow water wave transformations.

To be useful for predictive calculations, the wave data must be analyzed and interpreted in terms of all of the important processes that govern spectral transformation. These include: energy input by local wind, refraction and shoaling, energy loss due to whitecapping and breaking (nonlinear fluxes to high frequencies and wave spilling), and interaction with the bottom. A model is required that can account for these processes, formulated so that one may obtain an estimate of the relative importance of nonlinear processes within the wave spectrum versus some form of bottom interaction term.

The data collected in the present program include concurrent directional wave spectra at deep and shallow sites, the local overwater wind, and the ice-governed wave generating area. Together with bathymetry data and geotechnical properties of the soils, these data allow:

(1) calculation of attenuation factors as a function of wave frequency (following an approach similar to that of Forristall and Reece, 1985) and correlation of these factors with changes in seabed properties, wave direction and spectral shape.

(2) modelling of the observed wave attenuation in terms of total energy and in terms of spectral shape by examining the relative importance of the transformation processes named above, incorporating different forms of bottom dissipation. These may include simple friction, momentum exchange to damped elastic waves in the seabed, or momentum exchange with gravity waves in a dense stratified sediment-fluid layer at the seabed.

The purpose would be to explain the attenuation found in (1) in terms of physical processes, and to develop a predictive model for shallow water wave hindcasts in the southeastern Beaufort Sea.

11.0 REFERENCES

Christian, H.A., 1985. Stress history of surficial Beaufort Sea sediments. M.Sc. Thesis, University of Alberta, Edmonton, 334 pp.

Christian, H.A. and N.R. Morgenstern, 1986. Compressibility and stress history of Holocene sediments in the Canadian Beaufort Sea. Proc. of the Third Canadian Conference on Marine Geotechnical Engineering, St. John's, June 10-13, Vol. 1, 275-299.

Dalrymple, R.A. and P.L.F. Liu, 1978. Waves over soft muds: A two-layer fluid model. J. Phys. Oceanogr., 8, 1121-1131.

Downing, J.P., 1983. An optical instrument for monitoring suspended particulates in ocean and laboratory. Proceedings of Oceans '83, San Francisco, 199-202.

Downing, J.P., N.C. Shi and L.H. Larsen, 1985. Two-dimensional sedimentation model for shallow water. Proceedings of the 17th Offshore Technology Conference, Houston, Texas, OTC 4906, 75-86.

Forristall, G.Z. and A.M. Reece, 1985. Measurements of wave attenuation due to a soft-bottom: The SWAMP experiment. J. Geophys. Res., 90(C2),3367-3380.

Gade, H.G., 1958. Effects of a nonrigid impermeable bottom on plane surface waves in shallow water. J. Marine Res., 16, 61-82.

Gillie, R.D., 1984. Canadian Coastal Sediment Study: site maintenance contract. NRC/ACROSES/C2S2 Report No.8, 1984.

Hasselmann, D.E., M. Dunckel and J.A. Ewing, 1980. Directional wave spectra observed during JONSWAP 1973. J. Phys. Oceanogr., 10,1264-1280.

Hill, P.R., D. L. Forbes, S. Dallimore and P. Morgan, 1986a. Shoreface development in the Canadian Beaufort Sea. Proc. ACROSES/NRC Symposium on Cohesive Shores, Burlington, Ontario, 428-448.

Hill, P.R., K. Moran, P.J. Kurfurst and S. Pullan, 1986b. Physical and sedimentological properties of nearshore sediments in the Southern Beaufort Sea. Proc. of the Third Canadian Conference on Marine Geotechnical Engineering, St. John's, June 10-13, Vol. 1, 301-327.

Hodgins, D.O., G. Drapeau and L.H. King, 1986a. Field measurements of sediment transport on the Scotian Shelf, volume I: the radio-isotope experiment. Environmental Studies Revolving Funds, Report No. 041, Ottawa, 160 pp.

Hodgins, D.O., D.A. Huntley, W.D. Liam Finn, B. Long, G. Drapeau and A.J. Bowen, 1986b. Bottom sediment transport--present knowledge and industry needs. Environmental Studies Revolving Funds, Report 027, Ottawa, 394 pp.

Hsiao, S.V. and O.H. Shemdin, 1980. Interaction of ocean waves with a soft bottom. J. Phys. Oceanogr., 10,605-610.

Kurfurst, P.J., 1984. Geotechnical investigation in the southern Beaufort Sea -- spring of 1984. GCS open file 1078.

Kurfurst, P.J., 1986. Geotechnical investigations of the near-shore zone, North Head, Richards Island, N.W.T. GSC open file report in print.

Lawrence, M., B.R. Pelletier and G. Lacho, 1984. Sediment sampling of beaches along the Mackenzie Delta and Tuktoyaktuk Peninsula, Beaufort Sea. Current Research, Part A, Geological Survey of Canada, Paper 84-1A, 633-640.

Long, R.B., 1980. The statistical evaluation of directional spectrum estimates derived from Pitch/Roll Buoy data. J. Physical Oceanogr., 10,944-952.

Resio, D.T., 1986. Wave transformations related to nonlinear fluxes, part 1: theory. Manus. submitted ASCE J. Waterway, Port, Coastal and Ocean Engineering.

Seed, H.B., and M.S. Rahman, 1977. Analysis for wave-induced liquefaction in relation to ocean floor stability. Report No. UCB/TE-77/02, University of California, Berkeley, Calif.

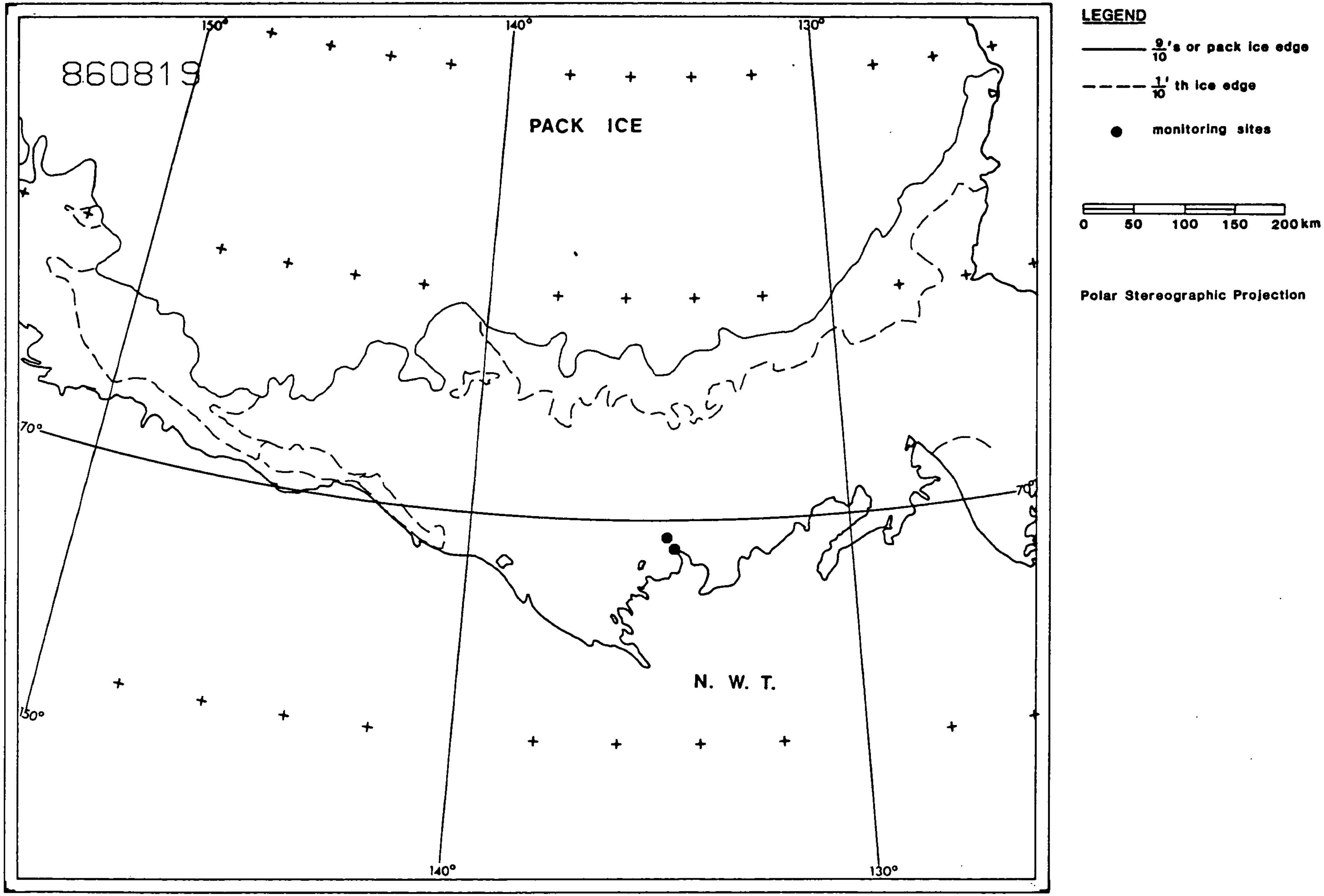
Shi, N.C., L.H. Larsen and J.P. Downing, 1985. Predicting suspended sediment concentration on continental shelves. Marine Geology, 62,255-275.

Siddharthan, R., W.F. Liam Finn, 1979a. STAB-MAX: Analysis of instantaneous instability induced in seafloor sands by large waves. Soil Dynamics Group, Faculty of Graduate Studies, University of British Columbia, Vancouver, British Columbia, Canada.

Siddharthan, R., and W.D. Liam Finn, 1979b. STAB-W: Analysis of instability in seafloor sands by cumulative effects of waves. Soil Dynamics Group, Faculty of Graduate Studies, University of British Columbia, Vancouver, British Columbia, Canada.

Yamamoto, T., 1982. Non-linear mechanics of ocean wave interactions with sediment beds. Applied Ocean Res., 4(2), 99-106.

Appendix I Selected sea ice charts (digitized and replotted) for the 1986 Beaufort Sea monitoring period.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PACK ICE
N. W. T.
150°
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LEGEND
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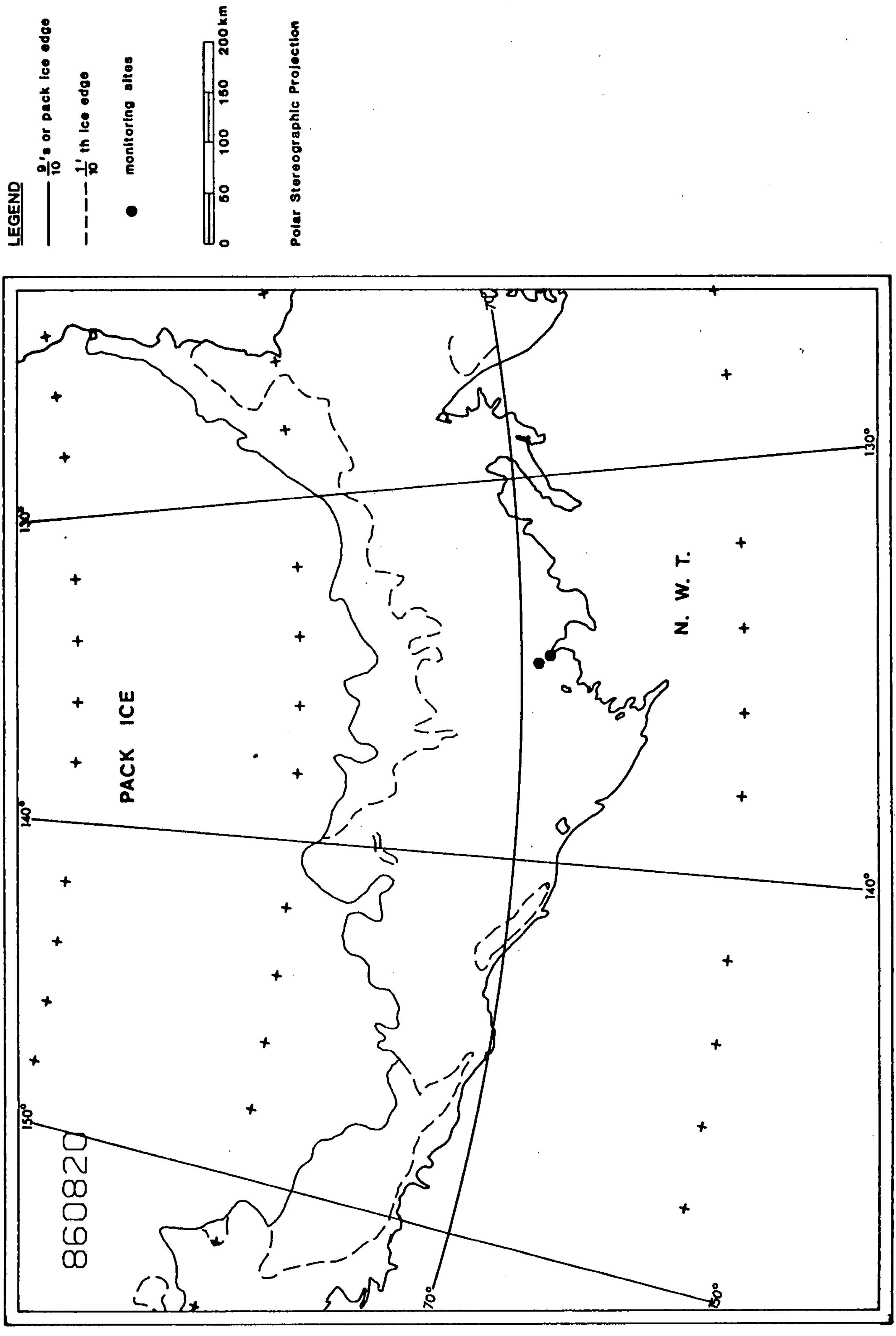
1/10 th ice edge
monitoring sites
0 50 100 150 200km
Polar Stereographic Projection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9/10's or pack ice edge
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monitoring sites
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Polar Stereographic Projection
860820
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130°
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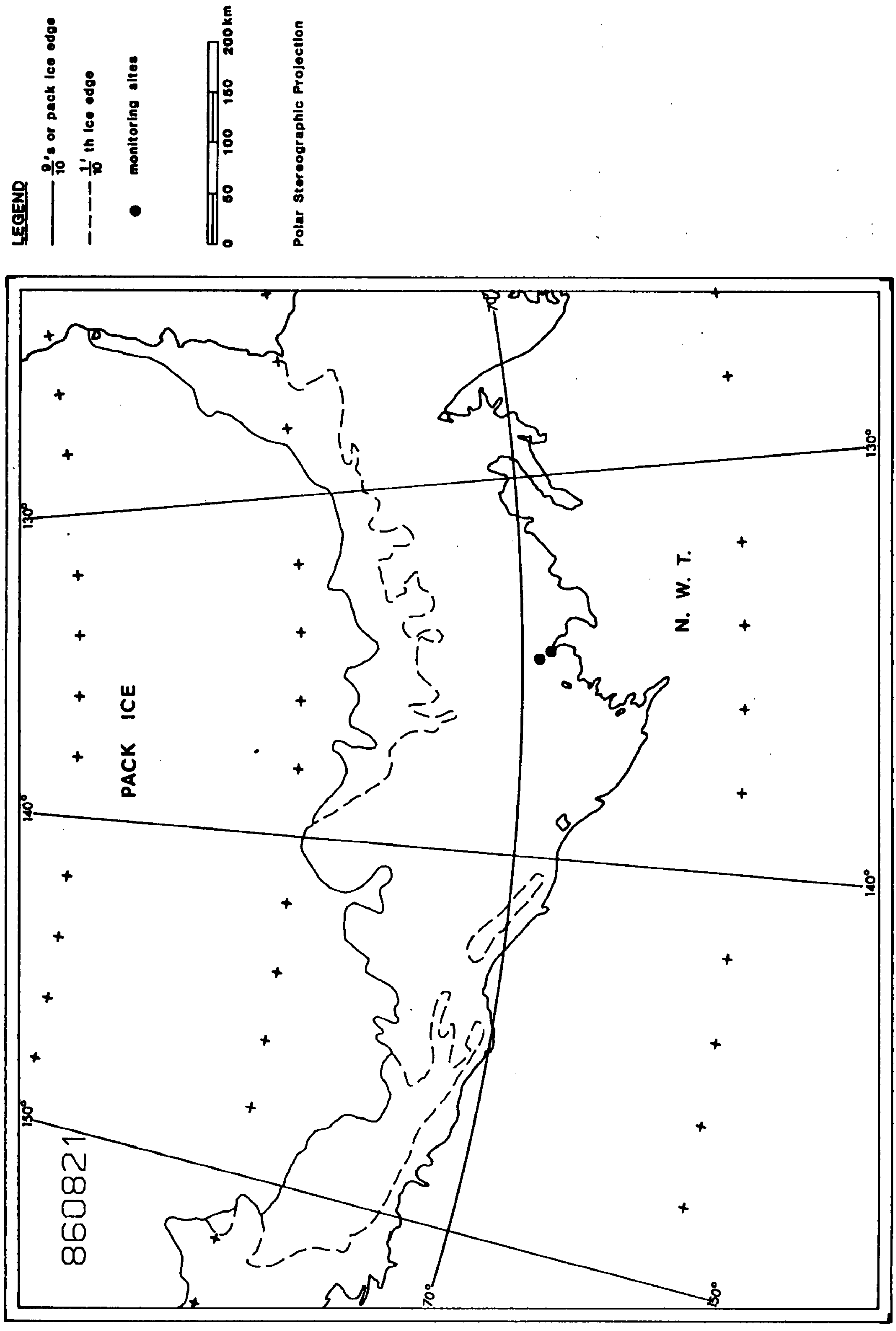
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9's/10 or pack ice edge
1'/10 th ice edge
monitoring sites
0 50 100 150 200 km
Polar Stereographic Projection
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N. W. T.
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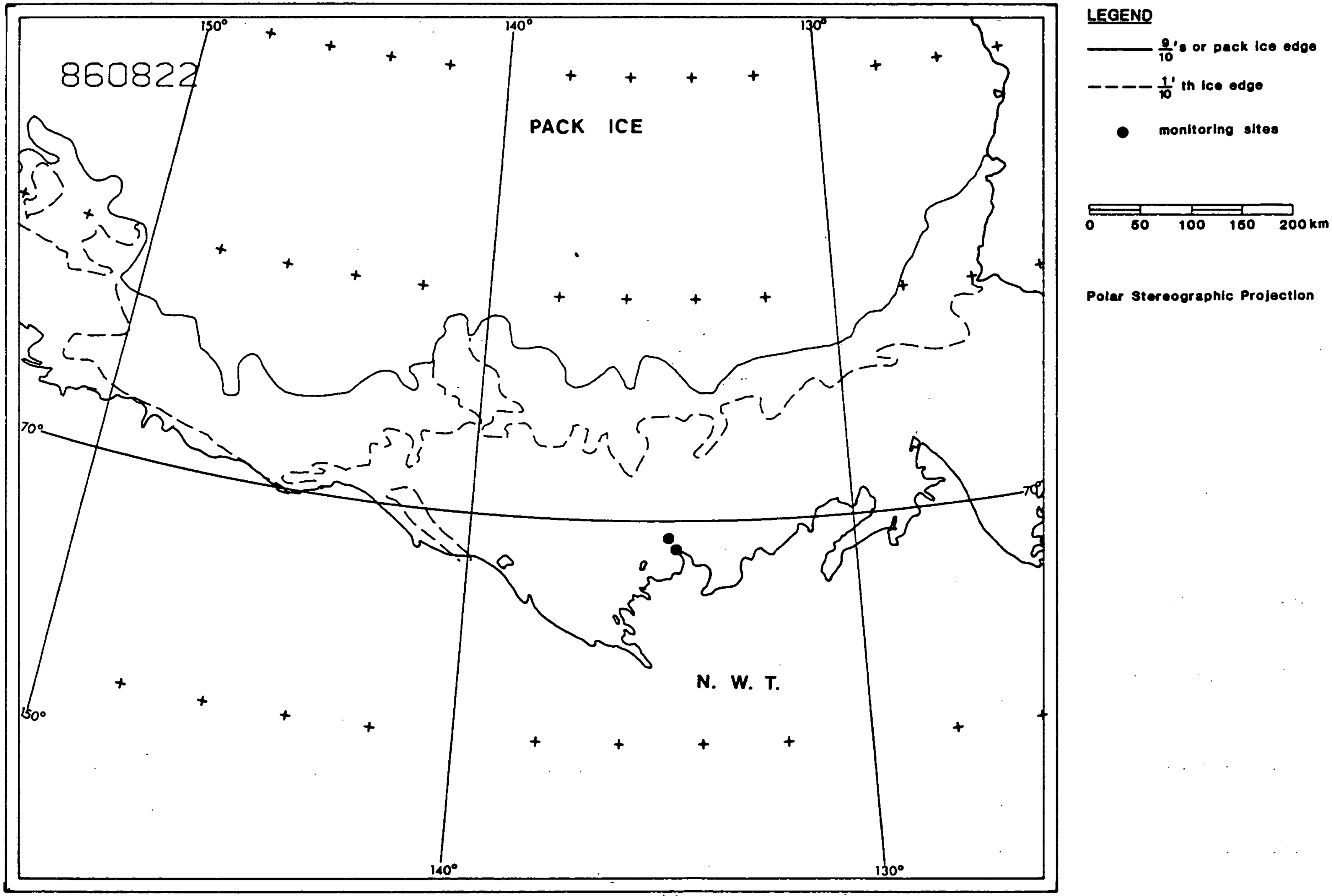
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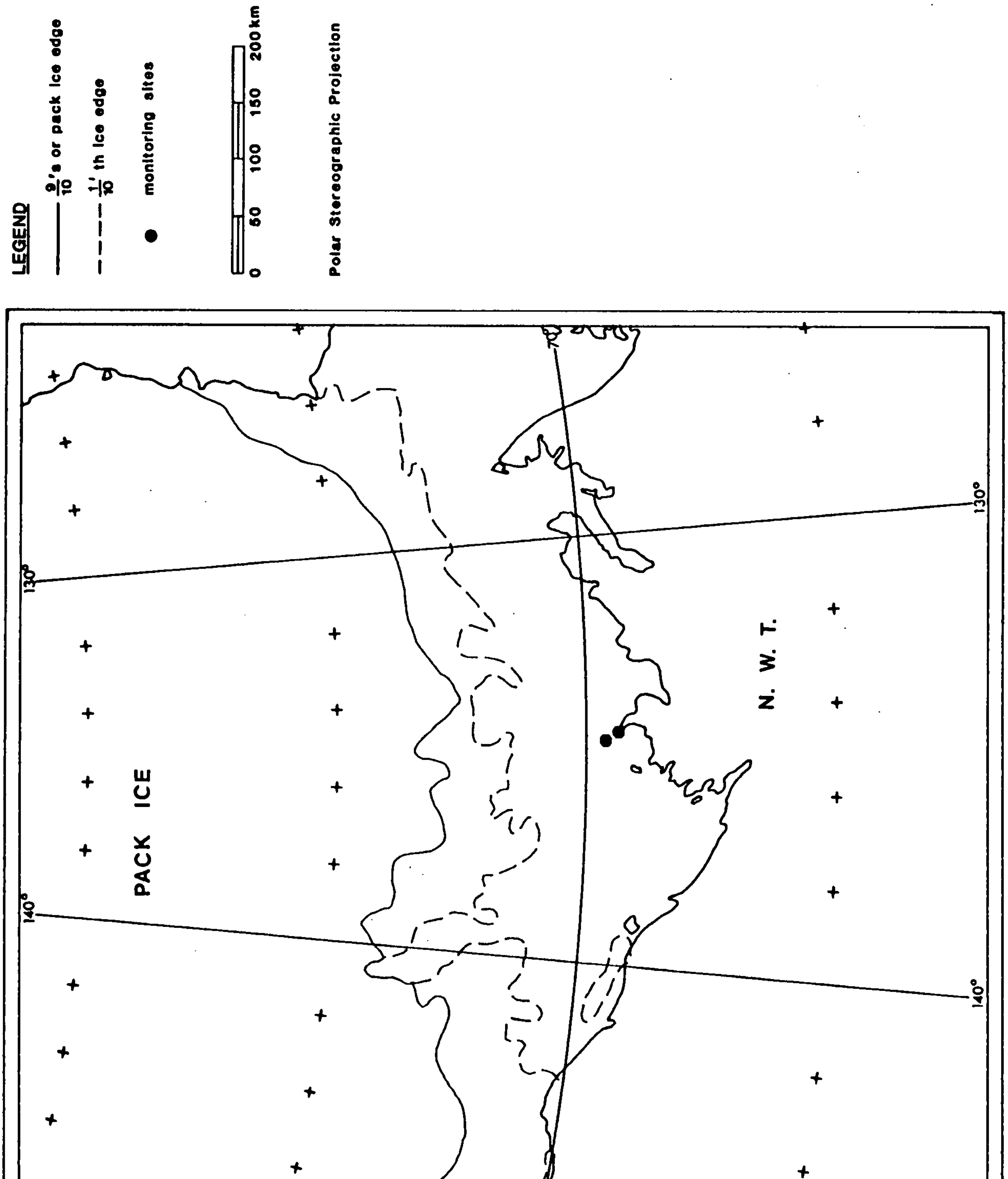
9/10's or pack ice edge
1/10 th ice edge
monitoring sites
0 50 100 150 200 km
Polar Stereographic Projection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9's/10 or pack ice edge
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monitoring sites
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Polar Stereographic Projection
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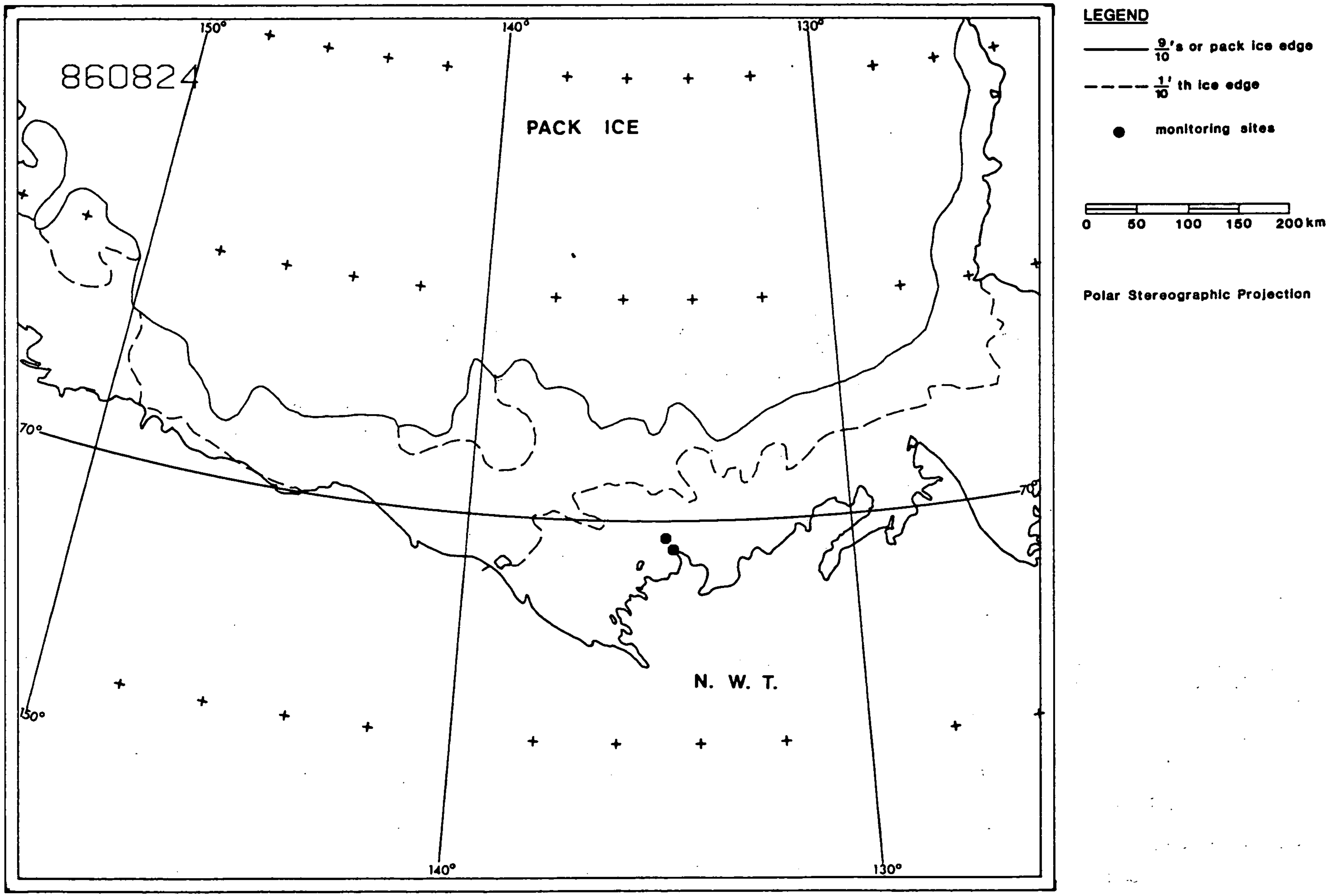
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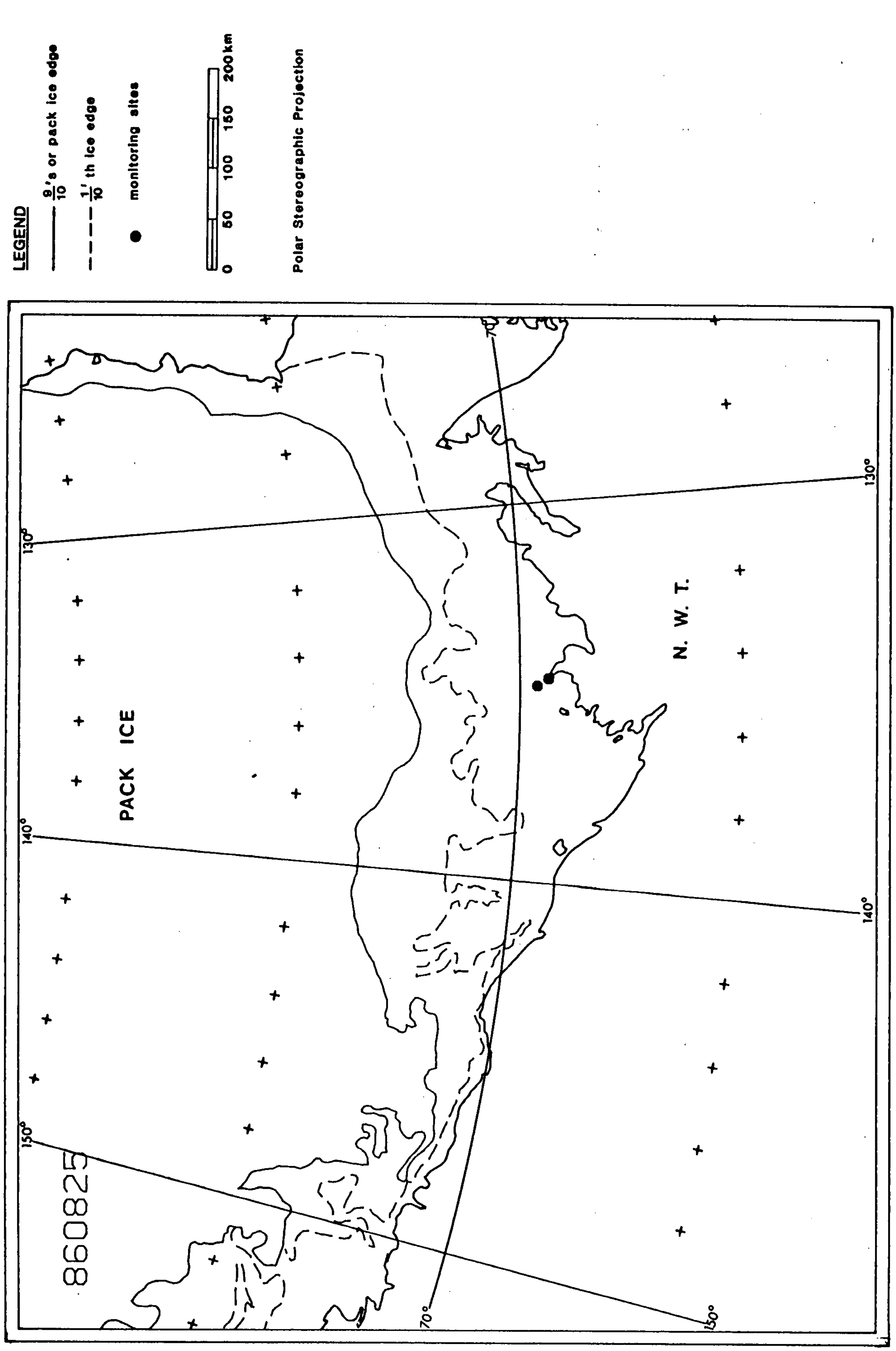
LEGEND
9/10's or pack ice edge
1'/10 th ice edge
monitoring sites
0 50 100 150 200 km
Polar Stereographic Projection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9/10's or pack ice edge
1/10 th ice edge
monitoring sites
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Polar Stereographic Projection
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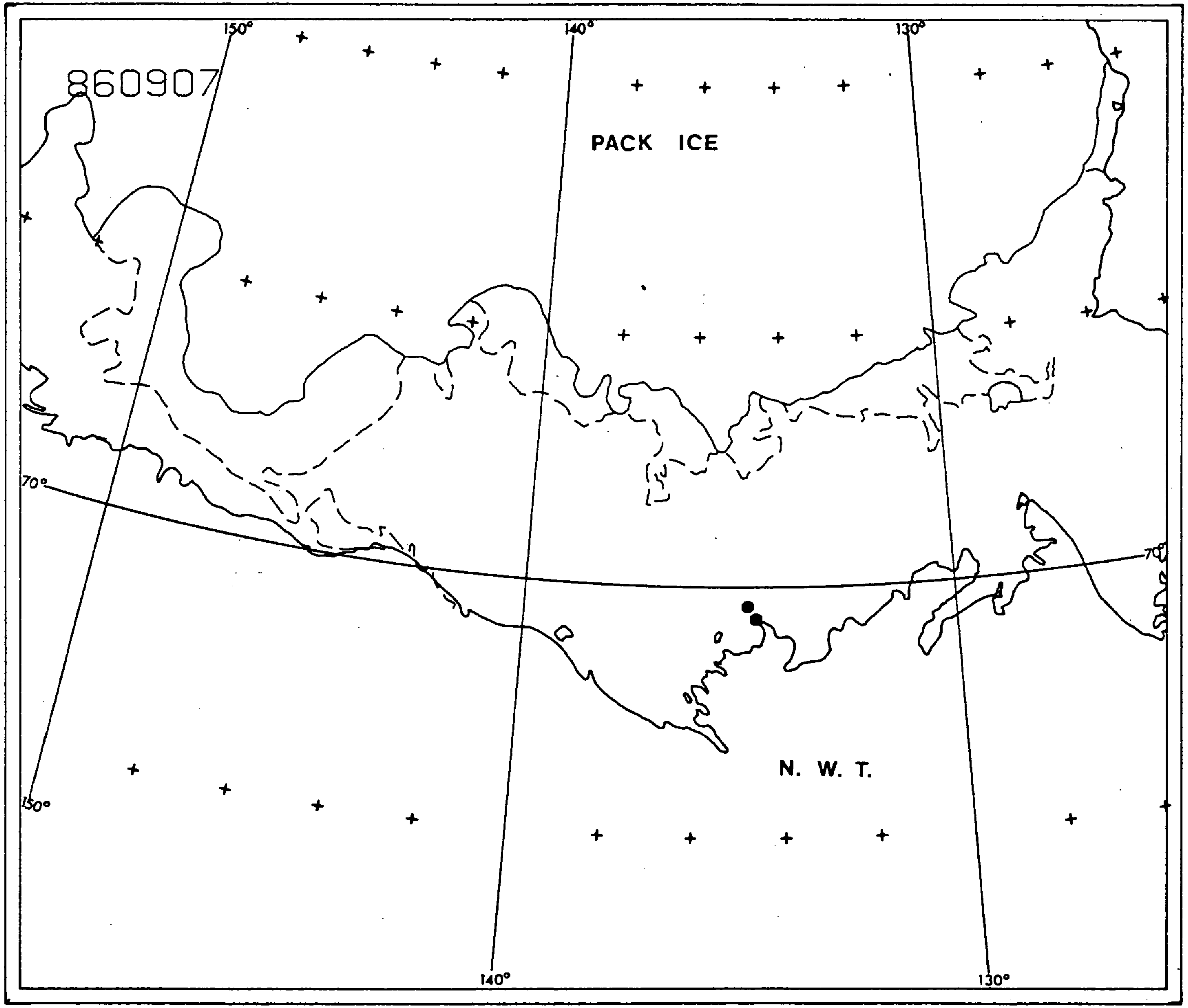


LEGEND

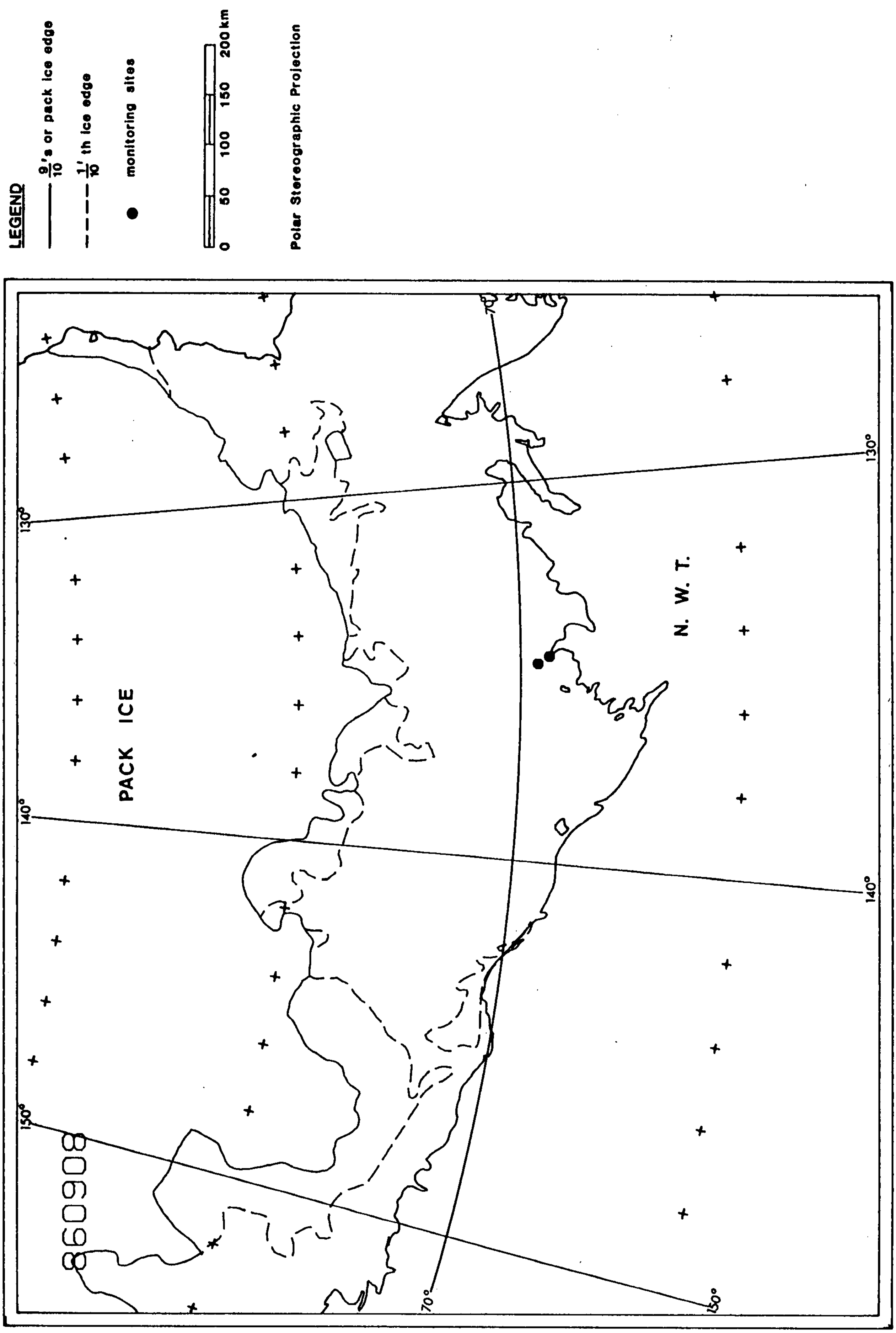
—— $\frac{9}{10}$'s or pack ice edge

– – – – $\frac{1}{10}$'th ice edge

● monitoring sites

0 50 100 150 200 km

Polar Stereographic Projection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monitoring sites
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Polar Stereographic Projection
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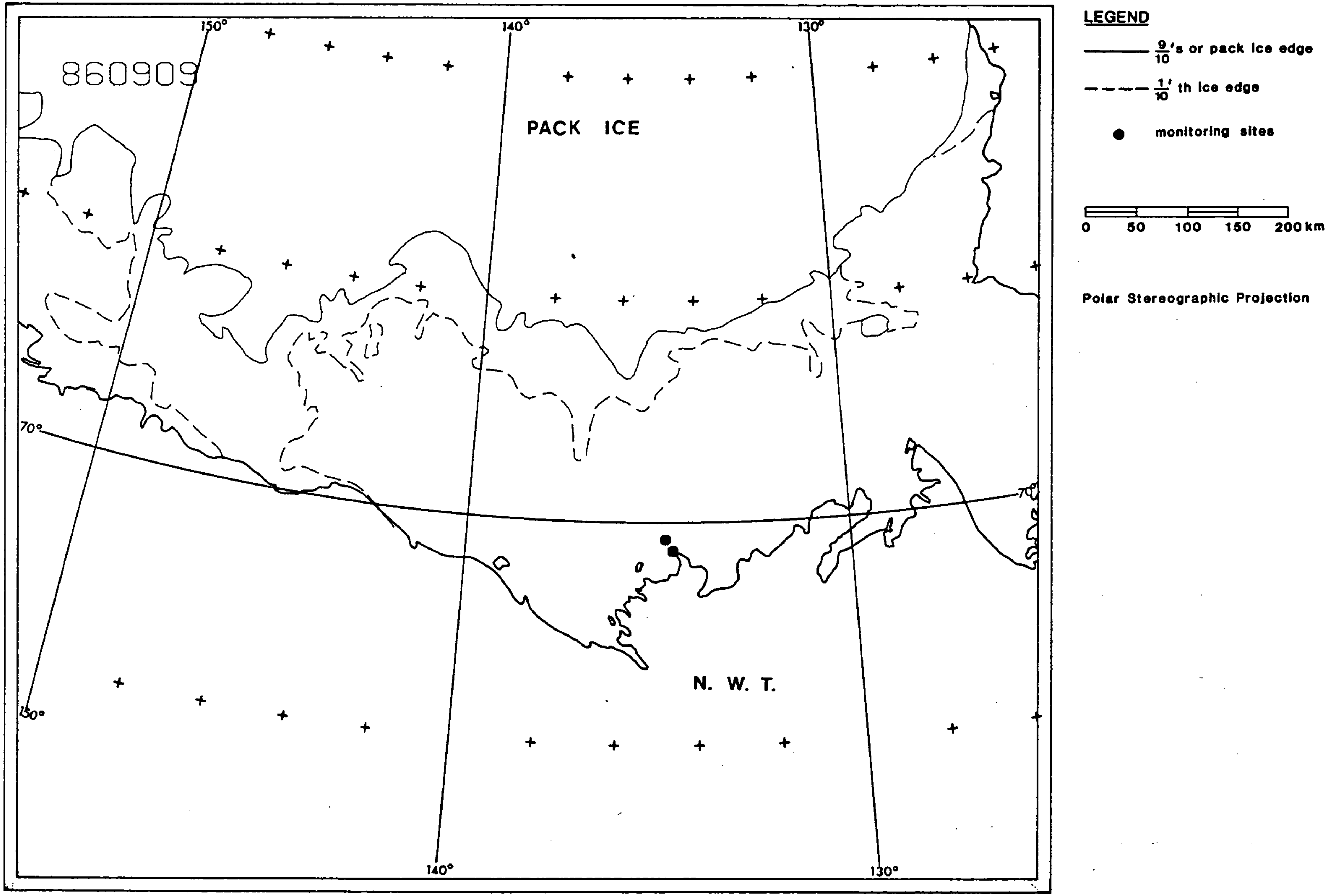
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1/10 th ice edge
monitoring sites
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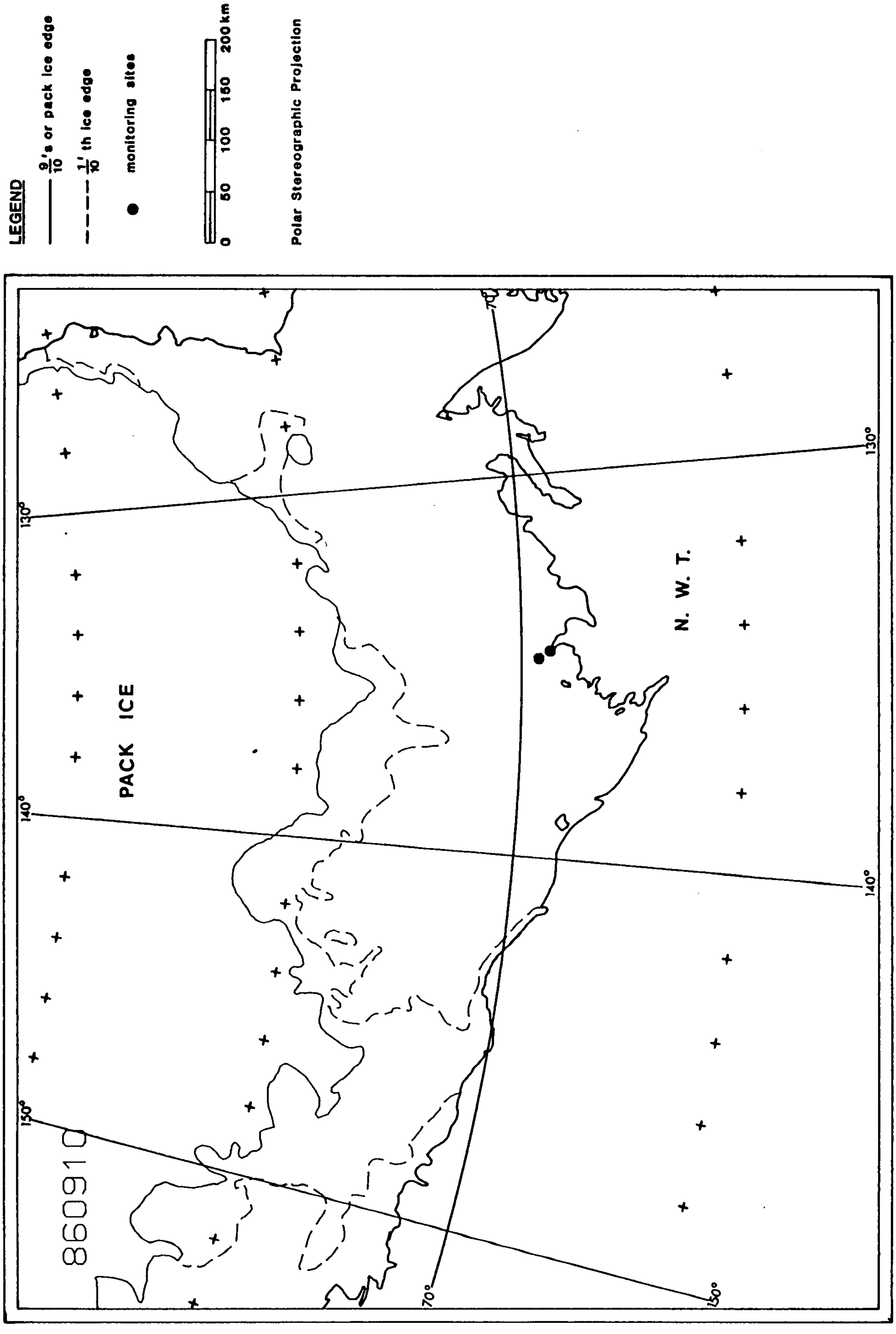
Polar Stereographic Projection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1/10 th ice edge
monitoring sites
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Polar Stereographic Projection
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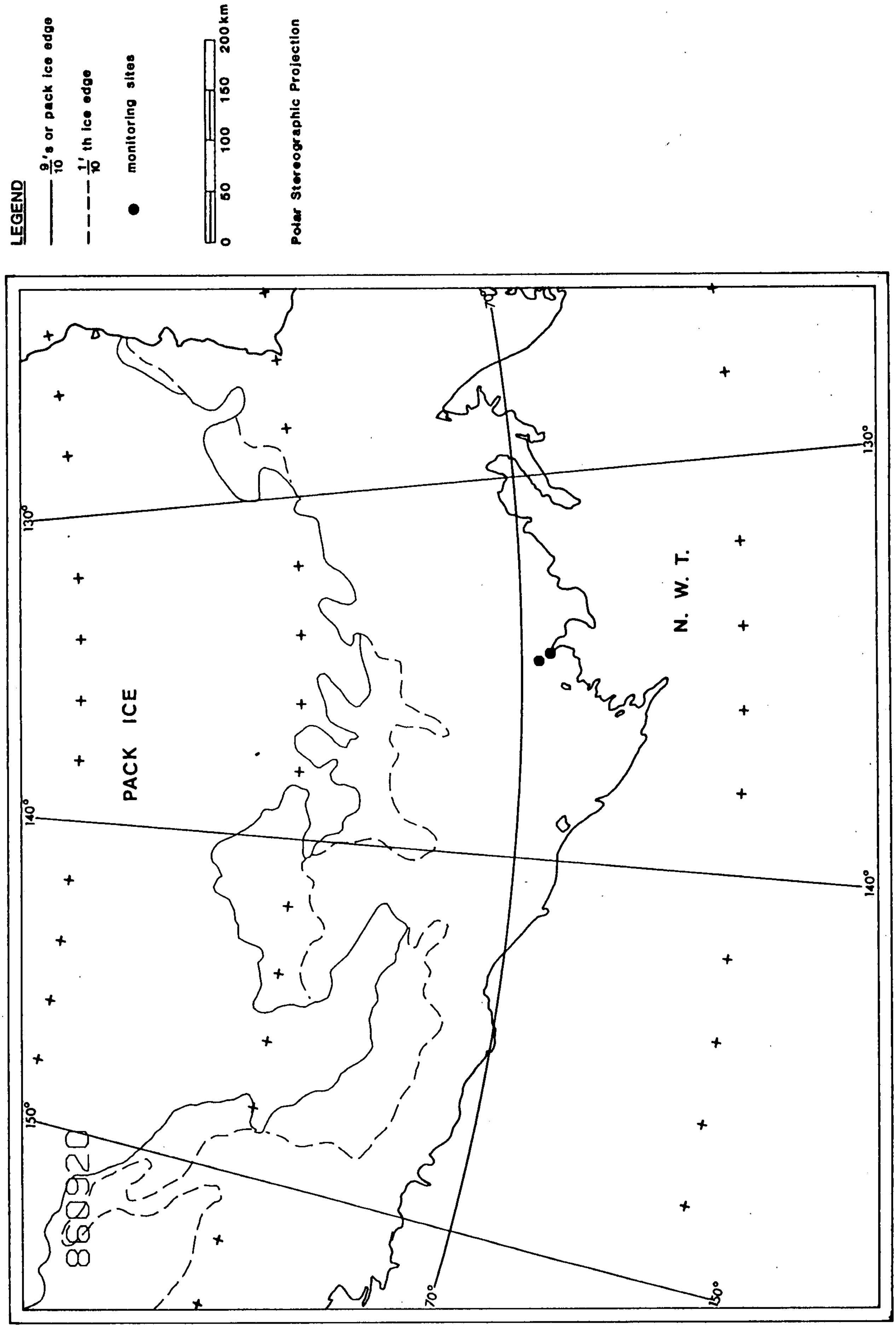
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9/10's or pack ice edge
1/10 th ice edge
monitoring sites
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Polar Stereographic Projection
PACK ICE
N. W. T.
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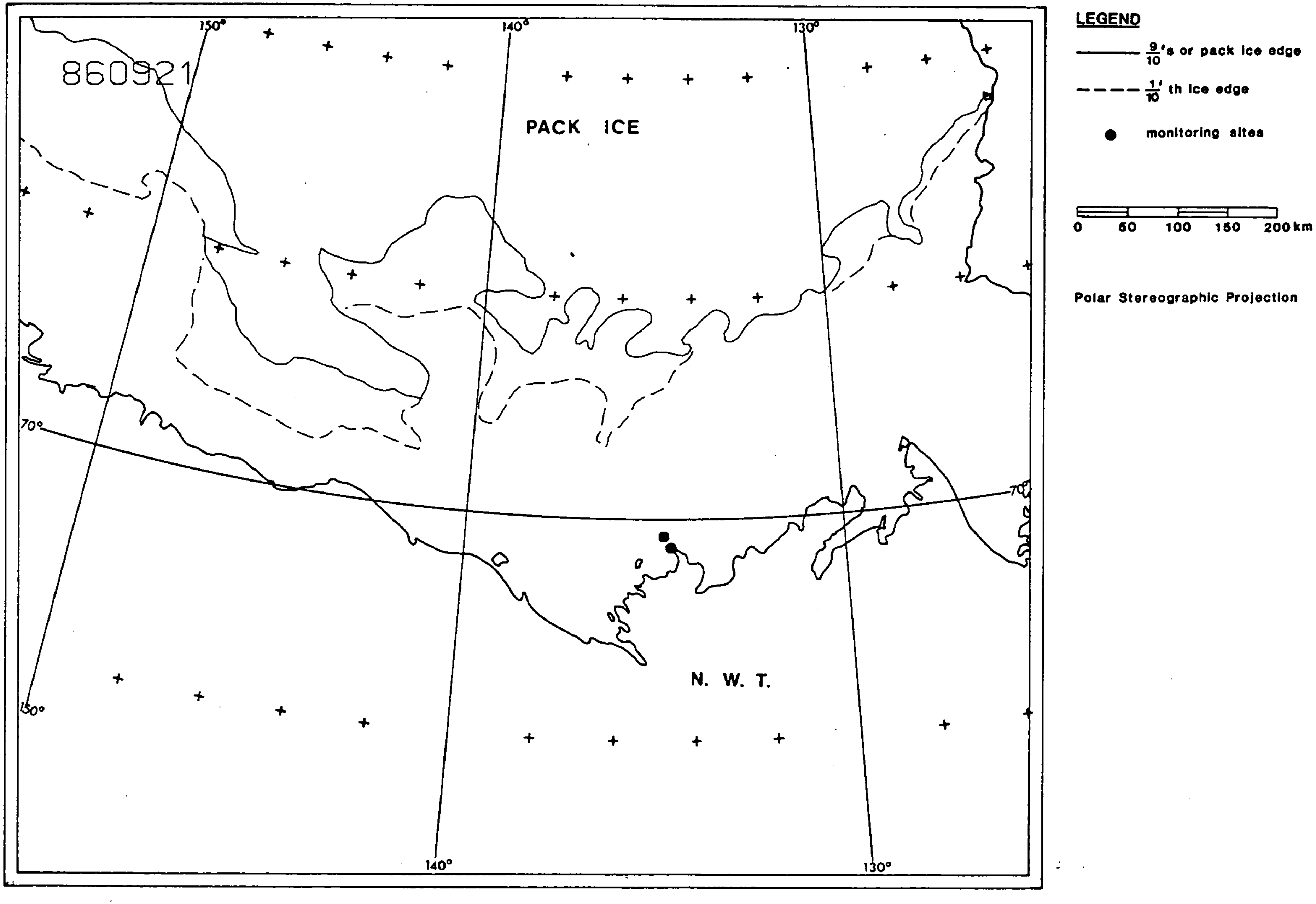
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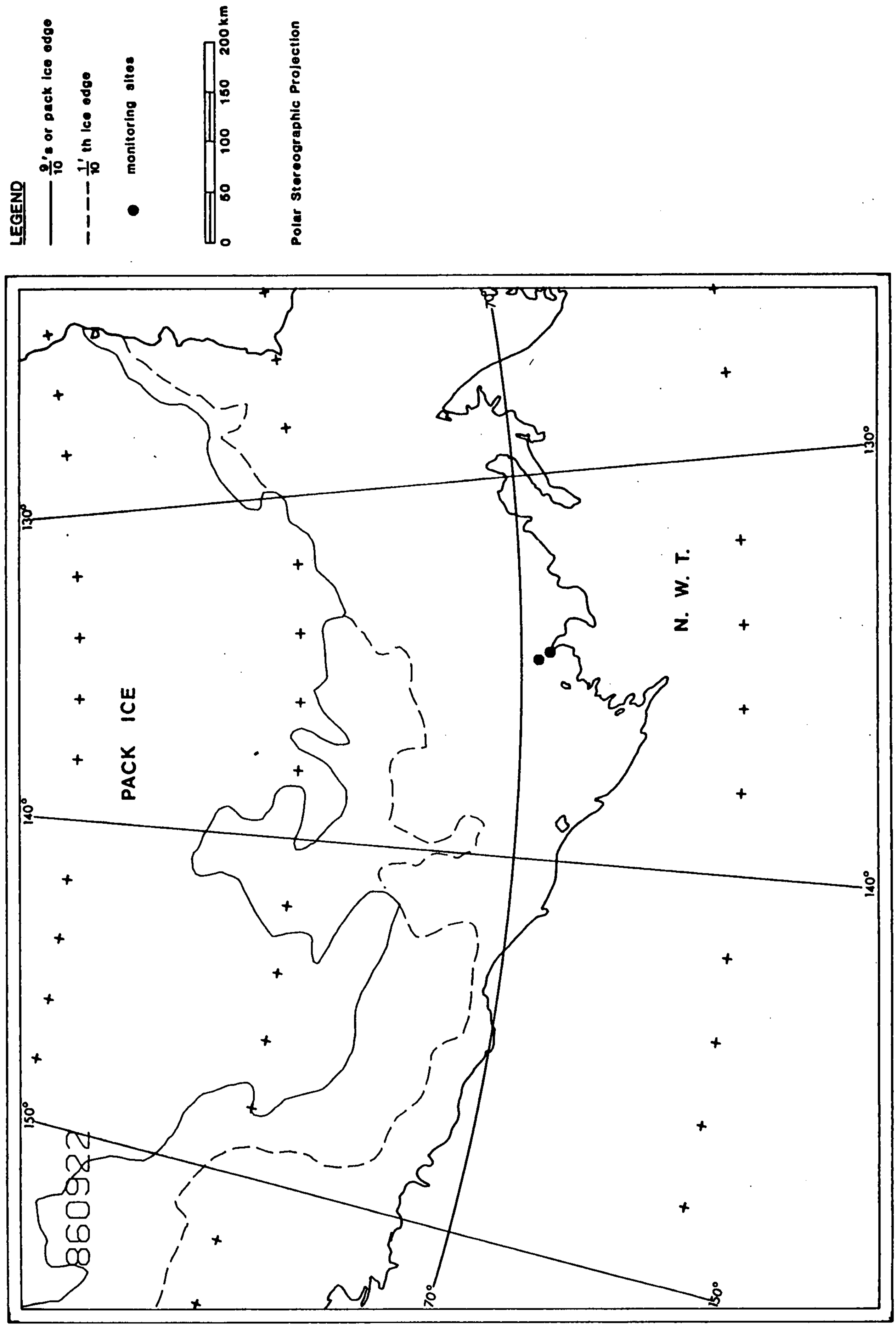
LEGEND
9/10's or pack ice edge
1'/10 th ice edge
monitoring sites
0 50 100 150 200 km
Polar Stereographic Projection



LEGEND
9/10's or pack ice edge
1/10 th ice edge
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Polar Stereographic Projection
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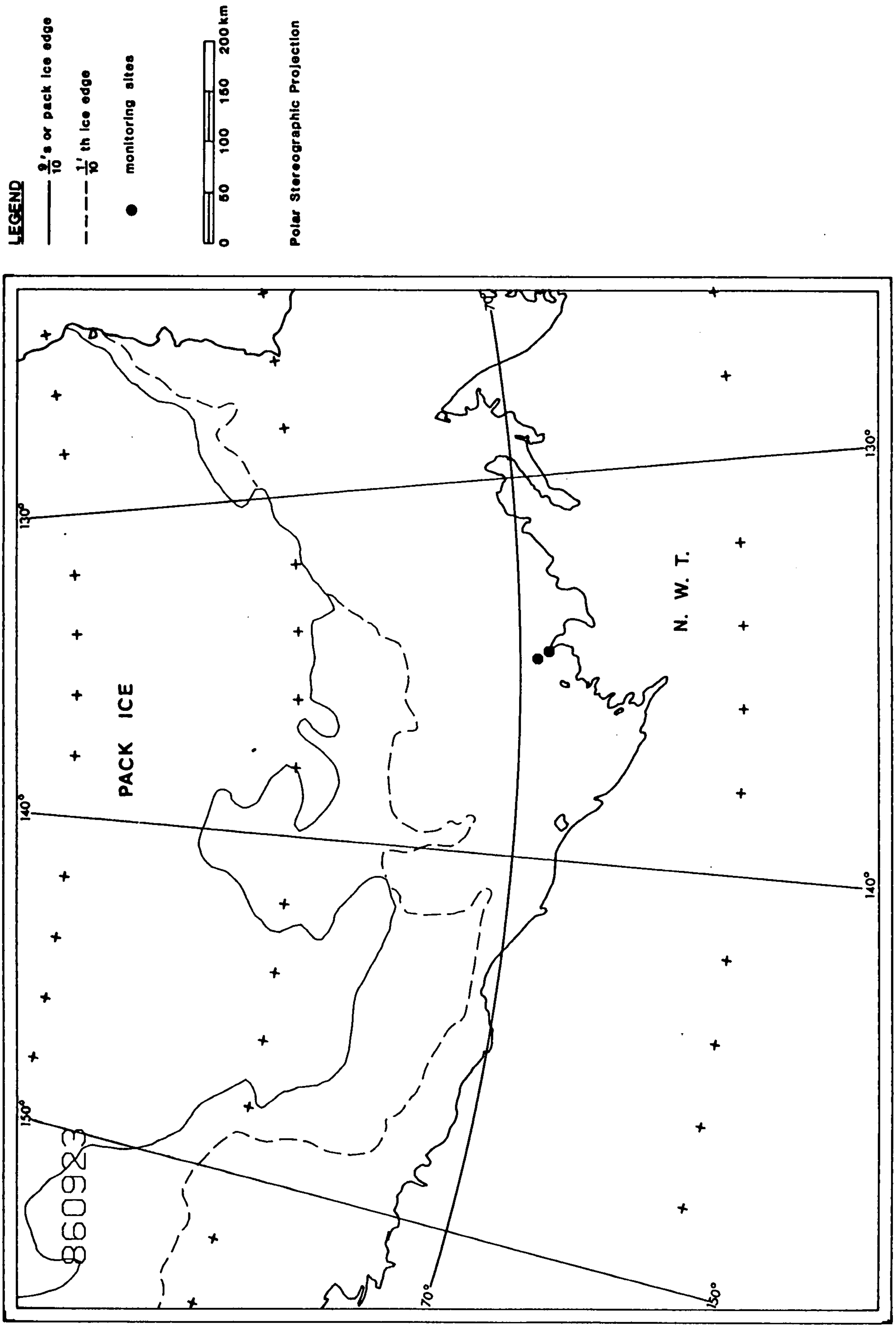
LEGEND
9/10's or pack ice edge
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monitoring sites
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Polar Stereographic Projection
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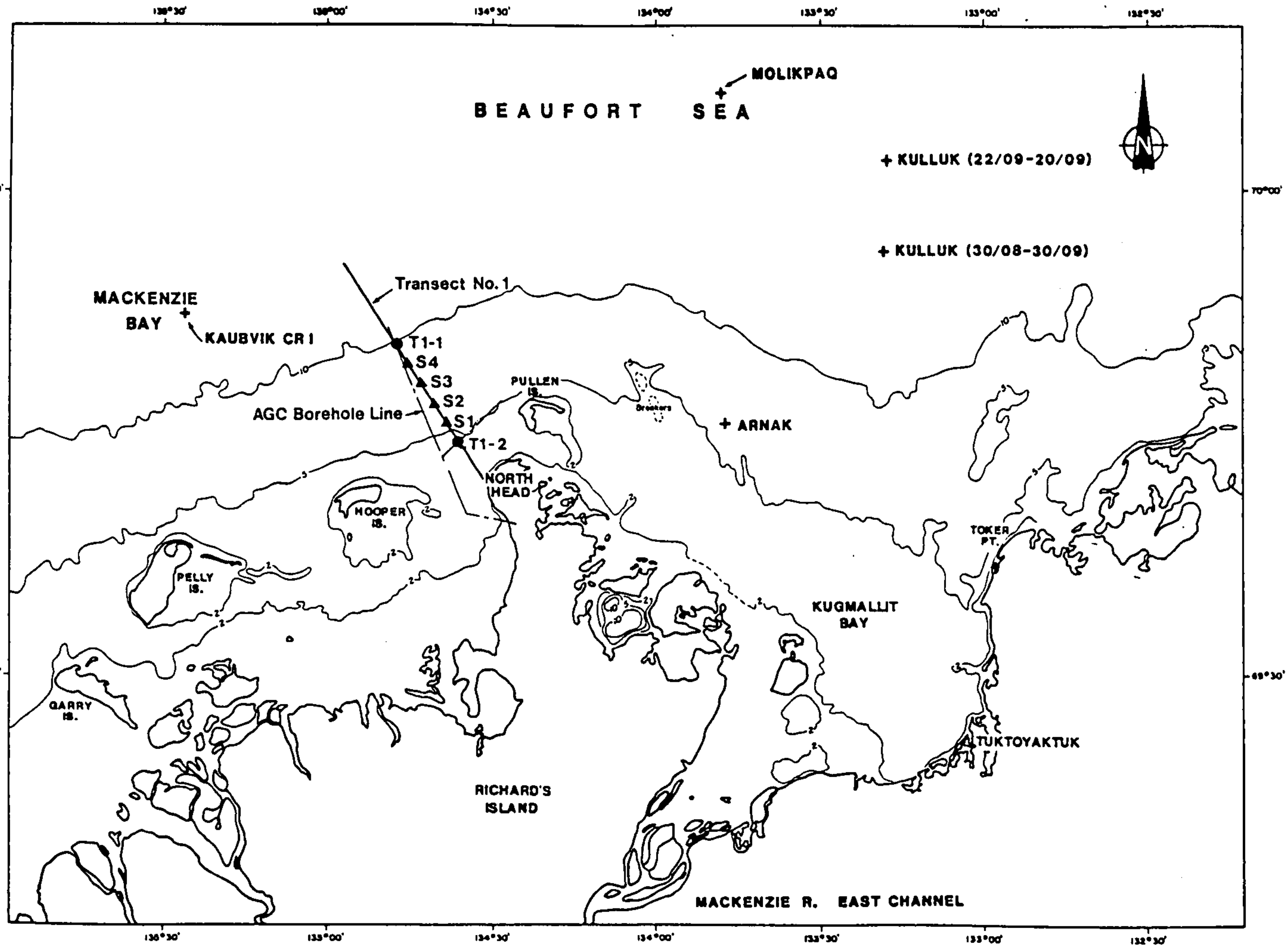
Appendix II Tabulation of wave and current measurements.

Chronological tabulation of the 635-12 measurements at Site T1.1



Notes:

Measured parameters are -

- total pressure (kPa) 75 cm above seabed
- E-W current component (cm/s) positive to the East
- N-S current component (cm/s) positive to the North. Currents measured 50 cm above seabed
- water temperature (°C) 75 cm above seabed

Sampling interval 15 minutes

MEAN VALUE RECORDS

SITE: Beaufort T1.1
INSTRUMENT: Sea Data 635-12, S.N. 3
LATITUDE: 69 deg. 50.6' N LONGITUDE: 134 deg. 47.6' W
NOMINAL WATER DEPTH: 10.5 m
INSTRUMENT HEIGHT ABOVE BOTTOM: 0.5 m
PRESSURE SENSOR HEIGHT ABOVE BOTTOM: 0.75 m
RECORD INTERVAL: 15.0 min
START: 0415Z 18 Aug., 1986 STOP: 1845Z 24 Sept., 1986

YEAR	MONTH	DATE	TIME (GMT)	PRESSURE (kPa)	U (cm/s)	V (cm/s)	RATE (cm/s)	DIRECTION (deg. True)	TEMPERATURE (deg. C)
1986	8	18	0415	191.87	14.8	7.1	16.4	64.30	6.103
1986	8	18	0430	191.94	12.8	7.6	14.9	59.21	4.779
1986	8	18	0445	192.06	11.1	6.0	12.6	61.82	3.804
1986	8	18	0500	192.14	11.8	6.3	13.3	61.99	3.123
1986	8	18	0515	192.27	11.0	5.7	12.4	62.69	2.627
1986	8	18	0530	192.33	10.4	4.9	11.5	65.00	2.245
1986	8	18	0545	192.44	9.4	4.9	10.6	62.30	1.937
1986	8	18	0600	192.50	8.9	6.6	11.0	53.49	1.680
1986	8	18	0615	192.65	6.9	5.0	8.6	54.22	1.478
1986	8	18	0630	192.69	10.5	8.9	13.8	49.85	1.310
1986	8	18	0645	192.73	8.2	5.6	9.9	55.73	1.138
1986	8	18	0700	192.76	5.8	4.4	7.3	53.07	0.980
1986	8	18	0715	192.86	4.1	3.3	5.3	50.70	0.841
1986	8	18	0730	192.81	5.7	3.6	6.8	57.35	0.717
1986	8	18	0745	192.78	1.3	-0.2	1.3	97.47	0.606
1986	8	18	0800	192.70	1.3	-0.2	1.3	97.47	0.606
1986	8	18	0815	192.55	2.4	1.3	2.7	60.76	0.419
1986	8	18	0830	192.47	3.3	2.8	4.3	50.32	0.339
1986	8	18	0845	192.38	3.4	-0.0	3.4	90.82	0.266
1986	8	18	0900	192.16	13.7	1.0	13.7	85.95	0.201
1986	8	18	0915	192.05	1.7	-0.0	1.7	90.02	0.144
1986	8	18	0930	191.99	-0.0	-0.4	0.4	181.57	0.094
1986	8	18	0945	191.88	-2.0	-0.9	2.2	245.00	0.051
1986	8	18	1000	191.80	0.2	0.1	0.2	65.00	0.012
1986	8	18	1015	191.74	-1.3	-1.0	1.6	230.96	-0.004
1986	8	18	1030	191.70	-0.3	0.6	0.7	335.00	-0.012
1986	8	18	1045	191.66	-1.0	-1.0	1.4	223.96	-0.045
1986	8	18	1100	191.61	-0.4	-1.2	1.3	200.00	-0.079
1986	8	18	1115	191.60	0.3	0.4	0.4	38.43	-0.108
1986	8	18	1130	191.51	0.6	-0.9	1.1	144.70	-0.133
1986	8	18	1145	191.48	-0.2	-0.6	0.6	193.66	-0.154
1986	8	18	1200	191.43	-0.2	-0.6	0.6	193.66	-0.154
1986	8	18	1215	191.46	-1.1	-1.9	2.2	209.16	-0.188
1986	8	18	1230	191.39	-0.8	-1.4	1.6	210.30	-0.205
1986	8	18	1245	191.33	-1.5	-0.7	1.6	245.00	-0.221
1986	8	18	1300	191.34	-0.3	-1.6	1.6	189.70	-0.234
1986	8	18	1315	191.30	-0.6	-1.7	1.8	200.00	-0.245
1986	8	18	1330	191.26	-0.1	-1.5	1.5	183.30	-0.255
1986	8	18	1345	191.30	-0.1	-0.3	0.3	200.00	-0.263
1986	8	18	1400	191.35	-0.8	-0.9	1.2	220.56	-0.271
1986	8	18	1415	191.43	0.2	-0.4	0.4	155.00	-0.262
1986	8	18	1430	191.53	0.5	0.2	0.5	65.00	-0.248
1986	8	18	1445	191.70	0.1	0.3	0.3	20.00	-0.260
1986	8	18	1500	191.82	0.9	0.6	1.1	54.70	-0.276
1986	8	18	1515	191.94	1.1	0.3	1.1	75.30	-0.289
1986	8	18	1530	192.12	0.5	0.2	0.5	65.00	-0.296
1986	8	18	1545	192.28	0.5	0.7	0.8	35.26	-0.301
1986	8	18	1600	192.38	0.5	0.7	0.8	35.26	-0.301
1986	8	18	1615	192.50	0.6	0.7	1.0	41.04	-0.311
1986	8	18	1630	192.56	1.8	1.3	2.2	54.70	-0.315
1986	8	18	1645	192.66	2.0	2.6	3.3	37.65	-0.318
1986	8	18	1700	192.78	2.7	2.5	3.7	47.55	-0.322
1986	8	18	1715	192.94	3.6	3.4	5.0	46.20	-0.326
1986	8	18	1730	193.02	4.1	3.3	5.3	50.70	-0.328
1986	8	18	1745	193.12	3.7	2.9	4.7	51.55	-0.330
1986	8	18	1800	193.23	3.1	3.2	4.5	44.15	-0.332
1986	8	18	1815	193.35	3.5	3.3	4.8	46.94	-0.316
1986	8	18	1830	193.36	4.0	4.5	6.0	41.43	-0.294
1986	8	18	1845	193.44	3.9	3.2	5.1	50.14	-0.300
1986	8	18	1900	193.58	3.6	2.1	4.2	59.56	-0.311
1986	8	18	1915	193.62	2.8	1.8	3.3	58.09	-0.320
1986	8	18	1930	193.61	3.1	1.9	3.6	58.66	-0.328
1986	8	18	1945	193.64	2.3	1.5	2.7	56.57	-0.333
1986	8	18	2000	193.62	2.3	1.5	2.7	56.57	-0.333
1986	8	18	2015	193.58	2.9	1.6	3.3	61.53	-0.342

1986	8	18	2030	193.51	2.9	1.6	3.3	61.53	-0.345
1986	8	18	2045	193.46	2.5	1.6	2.9	57.15	-0.347
1986	8	18	2100	193.40	2.2	1.6	2.7	54.51	-0.349
1986	8	18	2115	193.29	1.8	1.4	2.3	52.20	-0.349
1986	8	18	2130	193.23	2.4	1.7	2.9	55.22	-0.350
1986	8	18	2145	193.14	2.8	2.3	3.6	50.58	-0.351
1986	8	18	2200	193.04	3.2	1.5	3.5	65.00	-0.353
1986	8	18	2215	192.93	5.0	1.9	5.3	69.32	-0.339
1986	8	18	2230	192.81	4.3	1.8	4.6	67.49	-0.322
1986	8	18	2245	192.75	5.3	1.2	5.4	76.73	-0.335
1986	8	18	2300	192.63	4.8	0.5	4.9	84.18	-0.353
1986	8	18	2315	192.47	5.1	0.7	5.1	82.02	-0.369
1986	8	18	2330	192.38	4.3	0.3	4.3	85.56	-0.383
1986	8	18	2345	192.30	5.3	0.7	5.3	82.42	-0.394
1986	8	19	0000	192.18	5.3	0.7	5.3	82.42	-0.394
1986	8	19	0015	192.01	6.5	1.6	6.7	76.14	-0.408
1986	8	19	0030	191.91	8.2	3.3	8.8	68.25	-0.412
1986	8	19	0045	191.78	8.2	5.3	9.8	57.37	-0.416
1986	8	19	0100	191.69	8.7	4.3	9.7	63.82	-0.421
1986	8	19	0115	191.64	9.1	4.0	10.0	66.15	-0.427
1986	8	19	0130	191.63	10.0	3.2	10.5	72.13	-0.432
1986	8	19	0145	191.49	10.9	4.6	11.8	66.94	-0.438
1986	8	19	0200	191.42	10.8	4.0	11.5	69.47	-0.443
1986	8	19	0215	191.40	9.8	4.8	10.9	63.95	-0.430
1986	8	19	0230	191.32	9.4	3.0	9.9	72.56	-0.412
1986	8	19	0245	191.26	10.4	3.9	11.1	69.64	-0.421
1986	8	19	0300	191.26	9.3	2.9	9.8	72.63	-0.433
1986	8	19	0315	191.25	8.9	2.5	9.2	74.36	-0.445
1986	8	19	0330	191.29	8.2	0.9	8.2	83.43	-0.454
1986	8	19	0345	191.31	7.4	1.5	7.5	78.85	-0.459
1986	8	19	0400	191.34	7.4	1.5	7.5	78.85	-0.459
1986	8	19	0415	191.41	6.7	1.9	7.0	74.06	-0.462
1986	8	19	0430	191.49	6.5	1.8	6.8	74.32	-0.465
1986	8	19	0445	191.53	7.5	2.1	7.8	74.58	-0.468
1986	8	19	0500	191.59	7.1	1.6	7.3	76.93	-0.472
1986	8	19	0515	191.63	6.3	1.2	6.4	79.47	-0.475
1986	8	19	0530	191.69	6.6	1.4	6.8	77.80	-0.477
1986	8	19	0545	191.76	6.2	1.9	6.5	73.00	-0.479
1986	8	19	0600	191.87	3.7	0.5	3.8	81.99	-0.483
1986	8	19	0615	191.93	3.7	1.0	3.9	75.44	-0.470
1986	8	19	0630	192.00	2.7	0.5	2.8	79.53	-0.452
1986	8	19	0645	192.12	1.6	0.3	1.6	79.04	-0.462
1986	8	19	0700	192.16	1.6	0.3	1.6	79.04	-0.474
1986	8	19	0715	192.18	1.0	0.5	1.1	65.00	-0.485
1986	8	19	0730	192.18	0.5	0.7	0.8	35.26	-0.492
1986	8	19	0745	192.16	0.0	0.4	0.4	1.56	-0.497
1986	8	19	0800	192.15	0.0	0.4	0.4	1.56	-0.497
1986	8	19	0815	192.12	-2.1	-1.7	2.7	229.93	-0.503
1986	8	19	0830	192.10	-2.2	-1.5	2.6	236.25	-0.504
1986	8	19	0845	192.08	-2.7	-2.0	3.4	233.02	-0.507
1986	8	19	0900	192.05	-3.4	-1.8	3.8	241.99	-0.510
1986	8	19	0915	192.08	-3.6	-3.1	4.8	229.22	-0.510
1986	8	19	0930	191.99	-2.9	-2.3	3.7	230.96	-0.510
1986	8	19	0945	191.97	-2.3	-1.3	2.6	240.60	-0.511
1986	8	19	1000	191.91	-2.1	-1.6	2.6	234.11	-0.512
1986	8	19	1015	191.85	-1.1	-0.3	1.1	255.30	-0.496
1986	8	19	1030	191.76	-0.4	0.3	0.4	308.43	-0.474
1986	8	19	1045	191.66	-0.5	-0.2	0.5	245.00	-0.480
1986	8	19	1100	191.55	-0.2	0.5	0.5	335.00	-0.489
1986	8	19	1115	191.45	-0.4	0.3	0.4	308.43	-0.496
1986	8	19	1130	191.38	0.1	0.3	0.3	20.00	-0.499
1986	8	19	1145	191.27	-0.5	0.5	0.7	319.05	-0.502
1986	8	19	1200	191.19	-0.5	0.5	0.7	319.05	-0.502
1986	8	19	1215	191.12	-0.4	0.8	0.9	335.00	-0.505
1986	8	19	1230	191.07	-0.5	1.4	1.5	342.59	-0.503
1986	8	19	1245	191.02	-0.3	1.5	1.6	349.93	-0.503
1986	8	19	1300	190.90	-0.3	2.3	2.3	352.65	-0.502
1986	8	19	1315	190.88	0.0	3.4	3.4	0.82	-0.501
1986	8	19	1330	190.91	1.5	2.9	3.3	27.43	-0.500
1986	8	19	1345	190.95	2.6	2.2	3.4	49.74	-0.500
1986	8	19	1400	191.03	4.1	1.7	4.4	67.60	-0.500
1986	8	19	1415	191.07	4.3	1.6	4.6	69.97	-0.484
1986	8	19	1430	191.20	5.3	2.3	5.8	66.97	-0.462
1986	8	19	1445	191.29	5.3	2.2	5.7	67.01	-0.468
1986	8	19	1500	191.26	6.3	3.4	7.1	61.78	-0.477
1986	8	19	1515	191.32	5.8	2.7	6.4	65.00	-0.484
1986	8	19	1530	191.38	6.8	3.6	7.7	62.03	-0.489
1986	8	19	1545	191.39	6.2	3.5	7.1	60.97	-0.493
1986	8	19	1600	191.44	6.2	3.5	7.1	60.97	-0.493
1986	8	19	1615	191.47	6.3	3.4	7.1	61.78	-0.499

1986	8	19	1630	191.57	5.6	4.4	7.1	51.94	-0.502
1986	8	19	1645	191.85	6.5	2.8	7.1	66.61	-0.505
1986	8	19	1700	191.95	5.4	5.2	7.5	46.32	-0.510
1986	8	19	1715	192.02	4.1	4.9	6.4	40.04	-0.514
1986	8	19	1730	192.24	4.1	6.3	7.5	32.99	-0.518
1986	8	19	1745	192.43	4.7	6.2	7.8	37.45	-0.520
1986	8	19	1800	192.61	3.8	5.6	6.8	33.89	-0.523
1986	8	19	1815	193.08	5.1	3.2	6.0	58.35	-0.509
1986	8	19	1830	193.19	5.4	3.5	6.5	57.00	-0.488
1986	8	19	1845	193.33	4.3	6.0	7.3	35.64	-0.496
1986	8	19	1900	193.51	5.4	9.6	11.0	29.28	-0.506
1986	8	19	1915	193.68	5.6	9.5	11.0	30.73	-0.514
1986	8	19	1930	193.73	5.9	9.8	11.5	31.03	-0.519
1986	8	19	1945	193.79	4.8	10.1	11.2	25.46	-0.521
1986	8	19	2000	193.92	4.8	10.1	11.2	25.46	-0.521
1986	8	19	2015	194.03	6.6	9.1	11.2	35.70	-0.516
1986	8	19	2030	194.16	7.0	9.7	11.9	35.85	-0.510
1986	8	19	2045	194.31	7.8	9.5	12.3	39.48	-0.502
1986	8	19	2100	194.31	7.4	11.7	13.9	32.34	-0.492
1986	8	19	2115	194.47	8.2	10.2	13.1	38.63	-0.481
1986	8	19	2130	194.52	10.5	12.7	16.5	39.52	-0.469
1986	8	19	2145	194.60	9.4	10.0	13.8	43.28	-0.456
1986	8	19	2200	194.63	10.5	9.5	14.1	47.72	-0.439
1986	8	19	2215	194.60	11.0	9.5	14.6	49.05	-0.399
1986	8	19	2230	194.53	10.4	8.7	13.6	50.04	-0.347
1986	8	19	2245	194.52	8.7	8.5	12.2	45.82	-0.322
1986	8	19	2300	194.24	8.2	7.5	11.1	47.71	-0.305
1986	8	19	2315	193.93	7.3	7.6	10.5	43.81	-0.289
1986	8	19	2330	193.68	6.5	6.9	9.5	43.31	-0.275
1986	8	19	2345	193.49	4.8	5.2	7.1	42.75	-0.260
1986	8	20	0000	193.16	4.8	5.2	7.1	42.75	-0.260
1986	8	20	0015	192.97	4.2	4.6	6.2	42.17	-0.230
1986	8	20	0030	192.72	2.6	2.7	3.7	44.62	-0.214
1986	8	20	0045	192.48	0.9	4.3	4.4	11.61	-0.198
1986	8	20	0100	192.34	2.9	4.8	5.6	31.59	-0.182
1986	8	20	0115	192.18	2.0	4.8	5.2	22.35	-0.162
1986	8	20	0130	192.11	4.4	4.0	6.0	47.47	-0.142
1986	8	20	0145	192.02	3.6	3.1	4.8	49.22	-0.122
1986	8	20	0200	191.96	5.0	3.5	6.1	54.61	-0.106
1986	8	20	0215	191.90	4.5	2.5	5.1	60.52	-0.078
1986	8	20	0230	191.92	4.7	2.4	5.3	62.84	-0.049
1986	8	20	0245	191.92	5.5	3.0	6.2	61.31	-0.049
1986	8	20	0300	191.89	6.8	2.7	7.3	68.14	-0.054
1986	8	20	0315	191.99	5.8	3.2	6.6	60.67	-0.054
1986	8	20	0330	192.10	5.3	3.3	6.2	58.56	-0.049
1986	8	20	0345	192.15	6.2	3.5	7.1	60.97	-0.042
1986	8	20	0400	192.25	6.2	3.5	7.1	60.97	-0.042
1986	8	20	0415	192.24	5.2	4.4	6.8	49.74	-0.019
1986	8	20	0430	192.38	6.2	3.9	7.4	57.97	-0.008
1986	8	20	0445	192.43	6.3	3.4	7.1	61.78	0.001
1986	8	20	0500	192.50	4.8	4.9	6.8	44.44	0.008
1986	8	20	0515	192.56	5.0	5.0	7.0	45.02	0.013
1986	8	20	0530	192.70	5.2	4.6	7.0	48.38	0.019
1986	8	20	0545	192.81	5.3	5.4	7.6	44.18	0.028
1986	8	20	0600	192.89	3.2	4.3	5.4	36.05	0.042
1986	8	20	0615	193.01	3.4	3.8	5.1	41.95	0.076
1986	8	20	0630	193.13	4.1	4.8	6.3	40.48	0.119
1986	8	20	0645	193.22	2.9	4.2	5.1	34.42	0.136
1986	8	20	0700	193.37	1.7	3.2	3.6	27.82	0.149
1986	8	20	0715	193.49	2.9	4.8	5.5	31.02	0.166
1986	8	20	0730	193.58	1.7	3.8	4.1	23.95	0.183
1986	8	20	0745	193.73	1.4	3.3	3.6	23.37	0.199
1986	8	20	0800	193.81	1.4	3.3	3.6	23.37	0.199
1986	8	20	0815	193.87	1.5	1.9	2.5	38.43	0.226
1986	8	20	0830	194.01	0.0	1.7	1.7	0.02	0.238
1986	8	20	0845	194.09	1.9	1.6	2.5	48.74	0.251
1986	8	20	0900	194.18	0.9	2.4	2.5	20.00	0.262
1986	8	20	0915	194.27	1.1	1.9	2.2	29.16	0.274
1986	8	20	0930	194.24	0.4	1.4	1.4	14.29	0.284
1986	8	20	0945	194.21	0.7	1.5	1.7	24.76	0.291
1986	8	20	1000	194.20	-0.1	1.4	1.4	356.04	0.297
1986	8	20	1015	194.20	0.9	2.8	3.0	17.27	0.319
1986	8	20	1030	194.15	0.1	2.5	2.5	1.56	0.350
1986	8	20	1045	194.17	3.0	3.6	4.7	39.54	0.354
1986	8	20	1100	194.20	3.6	3.1	4.8	49.22	0.356
1986	8	20	1115	194.11	5.0	4.5	6.7	47.65	0.360
1986	8	20	1130	194.03	6.4	6.2	8.9	45.95	0.366
1986	8	20	1145	193.98	7.1	7.3	10.2	44.25	0.366
1986	8	20	1200	193.93	7.1	7.3	10.2	44.25	0.366
1986	8	20	1215	193.81	7.8	6.5	10.1	50.14	0.372

1986	8	20	1230	193.65	8.1	6.8	10.6	50.17	0.379
1986	8	20	1245	193.51	9.1	6.0	10.9	56.57	0.386
1986	8	20	1300	193.36	9.9	6.6	11.9	56.33	0.392
1986	8	20	1315	193.26	10.2	7.0	12.4	55.69	0.406
1986	8	20	1330	193.11	9.8	6.8	12.0	55.38	0.433
1986	8	20	1345	193.02	10.9	7.5	13.3	55.47	0.469
1986	8	20	1400	192.95	9.5	5.9	11.2	58.32	0.510
1986	8	20	1415	192.80	9.7	6.0	11.4	58.44	0.566
1986	8	20	1430	192.67	8.5	5.0	9.8	59.75	0.619
1986	8	20	1445	192.56	9.4	5.6	11.0	59.24	0.642
1986	8	20	1500	192.51	8.8	5.3	10.3	58.84	0.656
1986	8	20	1515	192.46	8.8	4.9	10.0	61.00	0.668
1986	8	20	1530	192.39	8.6	5.7	10.3	56.63	0.680
1986	8	20	1545	192.31	6.7	4.6	8.1	55.77	0.696
1986	8	20	1600	192.35	6.7	4.6	8.1	55.77	0.696
1986	8	20	1615	192.36	5.2	4.6	7.0	48.38	0.737
1986	8	20	1630	192.36	5.3	5.4	7.6	44.18	0.759
1986	8	20	1645	192.42	5.6	7.0	8.9	38.43	0.785
1986	8	20	1700	192.50	5.0	7.0	8.6	35.75	0.815
1986	8	20	1715	192.58	4.9	6.7	8.3	36.28	0.847
1986	8	20	1730	192.64	5.4	7.9	9.6	34.14	0.878
1986	8	20	1745	192.76	5.6	6.8	8.9	39.59	0.905
1986	8	20	1800	192.82	5.7	6.6	8.8	40.77	0.930
1986	8	20	1815	192.98	5.1	7.5	9.1	34.47	0.971
1986	8	20	1830	193.08	3.3	5.4	6.4	31.56	1.015
1986	8	20	1845	193.20	4.8	6.4	8.1	36.84	1.033
1986	8	20	1900	193.29	5.6	6.8	8.9	39.59	1.043
1986	8	20	1915	193.44	5.9	6.7	9.0	41.30	1.055
1986	8	20	1930	193.55	5.7	6.3	8.5	42.07	1.075
1986	8	20	1945	193.62	5.9	5.6	8.1	46.34	1.100
1986	8	20	2000	193.86	5.9	5.6	8.1	46.34	1.100
1986	8	20	2015	194.00	8.2	5.5	9.9	56.30	1.161
1986	8	20	2030	194.16	6.9	3.0	7.5	66.53	1.194
1986	8	20	2045	194.29	4.6	0.5	4.6	83.82	1.220
1986	8	20	2100	194.37	2.7	-0.2	2.7	93.44	1.235
1986	8	20	2115	194.44	2.3	-0.2	2.3	93.81	1.240
1986	8	20	2130	194.44	3.9	0.2	3.9	87.62	1.242
1986	8	20	2145	194.40	4.7	2.0	5.1	67.25	1.243
1986	8	20	2200	194.42	6.3	1.7	6.5	74.75	1.242
1986	8	20	2215	194.36	6.0	2.3	6.4	68.58	1.257
1986	8	20	2230	194.31	5.5	3.3	6.4	58.76	1.272
1986	8	20	2245	194.32	6.9	5.2	8.6	52.91	1.262
1986	8	20	2300	194.33	6.7	4.6	8.1	55.77	1.251
1986	8	20	2315	194.20	7.3	5.1	8.9	55.33	1.248
1986	8	20	2330	194.05	6.0	7.0	9.2	40.66	1.252
1986	8	20	2345	193.98	5.3	8.9	10.4	31.00	1.264
1986	8	21	0000	193.86	5.3	8.9	10.4	31.00	1.264
1986	8	21	0015	193.64	5.9	8.8	10.6	33.85	1.321
1986	8	21	0030	193.45	6.8	9.0	11.3	37.08	1.360
1986	8	21	0045	193.27	10.0	9.5	13.8	46.43	1.399
1986	8	21	0100	193.06	8.9	7.1	11.4	51.33	1.445
1986	8	21	0115	192.86	9.6	7.4	12.1	52.11	1.498
1986	8	21	0130	192.62	9.5	5.9	11.2	58.32	1.565
1986	8	21	0145	192.44	11.2	6.2	12.8	60.98	1.634
1986	8	21	0200	192.30	10.5	5.3	11.8	63.06	1.694
1986	8	21	0215	192.17	10.1	5.1	11.3	62.97	1.761
1986	8	21	0230	192.02	10.2	5.0	11.3	63.99	1.834
1986	8	21	0245	191.90	10.2	3.7	10.8	69.76	1.887
1986	8	21	0300	191.76	13.9	3.8	14.4	74.59	1.944
1986	8	21	0315	191.71	12.1	4.4	12.8	69.91	2.010
1986	8	21	0330	191.68	10.5	4.7	11.5	66.00	2.074
1986	8	21	0345	191.66	11.4	2.9	11.7	75.83	2.143
1986	8	21	0400	191.64	11.4	2.9	11.7	75.83	2.143
1986	8	21	0415	191.63	8.1	2.0	8.4	76.04	2.336
1986	8	21	0430	191.65	8.6	4.8	9.8	60.91	2.595
1986	8	21	0445	191.69	7.7	6.6	10.2	49.60	2.749
1986	8	21	0500	191.73	8.7	7.5	11.5	49.40	2.860
1986	8	21	0515	191.79	7.4	7.3	10.4	45.35	2.938
1986	8	21	0530	191.81	9.2	6.5	11.3	54.79	2.960
1986	8	21	0545	191.90	8.3	5.3	9.9	57.44	2.974
1986	8	21	0600	192.03	6.5	5.5	8.5	49.98	3.005
1986	8	21	0615	192.13	7.0	5.3	8.8	53.18	3.079
1986	8	21	0630	192.23	6.2	5.1	8.1	50.62	3.176
1986	8	21	0645	192.33	5.3	4.5	6.9	49.96	3.242
1986	8	21	0700	192.56	8.1	6.8	10.6	50.17	3.285
1986	8	21	0715	192.69	6.9	3.7	7.8	61.33	3.309
1986	8	21	0730	192.81	5.5	3.3	6.4	58.76	3.301
1986	8	21	0745	193.02	5.2	1.0	5.3	79.30	3.256
1986	8	21	0800	193.20	5.2	1.0	5.3	79.30	3.256
1986	8	21	0815	193.23	1.6	0.8	1.8	65.00	3.180

1986	8	21	0830	193.32	0.7	-0.6	1.0	131.04	3.155
1986	8	21	0845	193.38	0.5	-0.5	0.7	139.05	3.140
1986	8	21	0900	193.42	0.6	-2.4	2.5	166.77	3.130
1986	8	21	0915	193.47	0.8	-0.6	1.0	125.95	3.120
1986	8	21	0930	193.45	0.4	0.7	0.9	29.46	3.118
1986	8	21	0945	193.44	-0.1	2.4	2.4	357.25	3.125
1986	8	21	1000	193.43	-0.9	3.0	3.1	342.35	3.133
1986	8	21	1015	193.40	-1.3	4.0	4.2	341.79	3.158
1986	8	21	1030	193.43	-3.2	-1.7	3.6	241.82	3.188
1986	8	21	1045	193.41	-4.6	-3.8	6.0	230.50	3.178
1986	8	21	1100	193.31	-4.7	-2.4	5.3	242.84	3.136
1986	8	21	1115	193.21	-4.3	-1.8	4.7	247.44	3.084
1986	8	21	1130	193.15	-5.3	-1.2	5.4	256.73	3.032
1986	8	21	1145	192.99	-4.0	0.1	4.0	271.57	2.989
1986	8	21	1200	192.87	-4.0	0.1	4.0	271.57	2.989
1986	8	21	1215	192.71	-3.2	1.2	3.4	290.00	2.938
1986	8	21	1230	192.57	-2.7	0.5	2.7	281.03	2.930
1986	8	21	1245	192.50	-3.0	0.4	3.1	276.61	2.932
1986	8	21	1300	192.32	-3.4	-0.6	3.4	260.26	2.933
1986	8	21	1315	192.17	-4.5	0.1	4.5	271.57	2.935
1986	8	21	1330	192.00	-4.8	2.0	5.2	292.35	2.953
1986	8	21	1345	191.87	-4.1	2.7	4.9	303.24	3.004
1986	8	21	1400	191.70	-2.5	3.7	4.5	325.96	3.086
1986	8	21	1415	191.55	-1.6	2.2	2.7	324.51	3.245
1986	8	21	1430	191.41	0.5	4.6	4.7	5.96	3.461
1986	8	21	1445	191.33	4.6	6.0	7.6	37.42	3.635
1986	8	21	1500	191.26	6.1	5.1	8.0	50.44	3.713
1986	8	21	1515	191.24	5.3	5.4	7.6	44.89	3.748
1986	8	21	1530	191.24	4.4	4.3	6.1	45.97	3.798
1986	8	21	1545	191.21	6.7	6.0	9.0	48.18	3.835
1986	8	21	1600	191.23	6.7	6.0	9.0	48.18	3.835
1986	8	21	1615	191.25	6.2	2.5	6.7	68.42	3.970
1986	8	21	1630	191.23	5.4	2.7	6.0	63.09	4.011
1986	8	21	1645	191.21	5.1	3.4	6.1	56.47	3.974
1986	8	21	1700	191.30	5.0	3.1	5.8	58.12	3.929
1986	8	21	1715	191.39	5.5	3.0	6.2	61.31	3.883
1986	8	21	1730	191.48	6.4	2.0	6.7	72.77	3.841
1986	8	21	1745	191.53	5.5	-0.1	5.5	91.10	3.800
1986	8	21	1800	191.71	7.7	-2.7	8.1	109.50	3.755
1986	8	21	1815	191.77	3.6	-4.6	5.8	142.15	3.715
1986	8	21	1830	191.91	2.0	-5.9	6.2	161.44	3.646
1986	8	21	1845	192.10	1.3	-6.3	6.4	168.60	3.520
1986	8	21	1900	192.23	1.4	-4.6	4.8	163.47	3.365
1986	8	21	1915	192.32	3.0	-3.0	4.3	134.44	3.248
1986	8	21	1930	192.52	4.0	-1.3	4.2	108.09	3.165
1986	8	21	1945	192.65	3.6	0.7	3.6	79.42	3.122
1986	8	21	2000	192.73	3.6	0.7	3.6	79.42	3.122
1986	8	21	2015	192.87	2.8	1.8	3.3	58.09	3.060
1986	8	21	2030	193.02	3.8	2.3	4.4	58.52	3.021
1986	8	21	2045	193.19	3.2	2.5	4.1	52.32	2.987
1986	8	21	2100	193.39	3.3	2.8	4.3	50.32	2.963
1986	8	21	2115	193.46	4.2	3.0	5.2	54.99	2.948
1986	8	21	2130	193.66	1.2	-5.1	5.2	167.17	2.937
1986	8	21	2145	193.84	1.9	-5.7	6.0	161.65	2.916
1986	8	21	2200	193.69	-3.8	-3.4	5.1	227.98	2.879
1986	8	21	2215	193.71	0.1	2.9	2.9	1.56	2.852
1986	8	21	2230	193.74	-2.6	1.4	3.0	298.13	2.826
1986	8	21	2245	193.76	0.5	2.0	2.1	14.09	2.801
1986	8	21	2300	193.82	-0.6	6.1	6.1	354.03	2.784
1986	8	21	2315	194.28	4.4	6.9	8.2	32.48	2.776
1986	8	21	2330	194.26	1.7	4.7	4.9	20.00	2.778
1986	8	21	2345	194.35	3.1	8.1	8.6	20.94	2.809
1986	8	22	0000	194.60	3.1	8.1	8.6	20.94	2.809
1986	8	22	0015	194.71	9.4	11.8	15.1	38.60	2.944
1986	8	22	0030	194.73	7.9	12.9	15.1	31.31	3.020
1986	8	22	0045	194.69	9.7	14.5	17.5	33.59	3.095
1986	8	22	0100	194.77	9.3	17.8	20.0	27.50	3.199
1986	8	22	0115	194.71	12.0	16.9	20.7	35.46	3.321
1986	8	22	0130	194.61	11.1	16.7	20.0	33.69	3.469
1986	8	22	0145	194.66	10.9	14.3	18.0	37.15	3.652
1986	8	22	0200	194.54	10.5	15.7	18.9	33.83	3.863
1986	8	22	0215	194.52	9.1	15.0	17.5	31.40	4.091
1986	8	22	0230	194.41	10.7	15.5	18.8	34.61	4.311
1986	8	22	0245	194.42	11.3	15.0	18.8	37.07	4.506
1986	8	22	0300	194.18	10.9	13.7	17.5	38.58	4.698
1986	8	22	0315	194.06	9.3	10.6	14.1	41.16	4.890
1986	8	22	0330	193.79	9.5	11.5	14.9	39.64	5.112
1986	8	22	0345	193.71	8.5	8.1	11.7	46.10	5.378
1986	8	22	0400	193.27	8.5	8.1	11.7	46.10	5.378
1986	8	22	0415	193.09	10.1	11.1	15.1	42.35	5.915

1986	8	22	0430	192.67	9.8	11.9	15.4	39.60	6.156
1986	8	22	0445	192.47	8.6	10.3	13.5	39.96	6.363
1986	8	22	0500	192.31	11.0	12.2	16.4	42.03	6.538
1986	8	22	0515	192.11	12.2	8.9	15.1	53.91	6.695
1986	8	22	0530	191.94	8.1	8.9	12.0	42.49	6.829
1986	8	22	0545	191.86	8.8	5.8	10.5	56.79	6.939
1986	8	22	0600	192.00	9.9	8.6	13.1	49.05	7.036
1986	8	22	0615	192.06	8.6	5.8	10.3	56.08	7.138
1986	8	22	0630	192.26	10.2	4.8	11.3	65.00	7.228
1986	8	22	0645	192.38	8.7	0.2	8.7	88.63	7.273
1986	8	22	0700	192.62	9.6	2.5	10.0	75.41	7.303
1986	8	22	0715	192.84	6.4	2.2	6.7	70.96	7.332
1986	8	22	0730	192.83	9.5	2.8	9.9	73.70	7.360
1986	8	22	0745	192.91	5.5	2.8	6.2	63.15	7.390
1986	8	22	0800	193.01	5.5	2.8	6.2	63.15	7.390
1986	8	22	0815	192.94	7.9	-0.7	8.0	95.10	7.409
1986	8	22	0830	193.01	9.4	-2.4	9.7	104.58	7.412
1986	8	22	0845	193.33	8.3	-1.0	8.4	96.79	7.417
1986	8	22	0900	193.79	8.0	-2.5	8.4	107.59	7.404
1986	8	22	0915	194.17	8.9	-4.9	10.2	118.81	7.378
1986	8	22	0930	194.54	10.8	-10.6	15.2	134.53	7.346
1986	8	22	0945	194.91	11.3	-9.2	14.6	128.96	7.312
1986	8	22	1000	195.17	13.2	-5.8	14.4	113.66	7.282
1986	8	22	1015	195.35	14.2	-4.2	14.8	106.44	7.274
1986	8	22	1030	195.35	10.2	-2.1	10.4	101.43	7.275
1986	8	22	1045	195.46	12.0	-2.0	12.1	99.61	7.254
1986	8	22	1100	195.40	10.4	2.4	10.6	76.94	7.233
1986	8	22	1115	195.45	10.6	1.9	10.7	79.55	7.216
1986	8	22	1130	195.37	9.7	1.1	9.8	83.43	7.204
1986	8	22	1145	195.29	6.8	1.7	7.0	75.67	7.194
1986	8	22	1200	195.15	6.8	1.7	7.0	75.67	7.194
1986	8	22	1215	195.02	7.6	4.0	8.6	62.34	7.180
1986	8	22	1230	194.72	6.9	5.2	8.6	52.91	7.176
1986	8	22	1245	194.81	6.8	4.9	8.4	53.96	7.167
1986	8	22	1300	194.99	9.4	4.4	10.4	65.00	7.157
1986	8	22	1315	194.81	8.6	5.2	10.1	58.72	7.148
1986	8	22	1330	194.69	10.2	7.4	12.6	54.05	7.141
1986	8	22	1345	194.63	10.8	7.2	13.0	56.12	7.134
1986	8	22	1400	194.54	20.1	0.9	20.1	87.49	7.121
1986	8	22	1415	194.42	16.4	2.6	16.6	81.14	7.121
1986	8	22	1430	194.52	19.3	2.6	19.5	82.32	7.134
1986	8	22	1445	194.40	19.1	1.5	19.1	85.52	7.130
1986	8	22	1500	194.25	14.6	-0.3	14.6	91.04	7.133
1986	8	22	1515	194.35	12.6	2.9	12.9	77.09	7.144
1986	8	22	1530	194.30	10.9	5.9	12.4	61.77	7.158
1986	8	22	1545	194.37	16.7	3.9	17.2	76.77	7.174
1986	8	22	1600	194.50	16.7	3.9	17.2	76.77	7.174
1986	8	22	1615	194.73	25.8	-1.9	25.9	94.14	7.237
1986	8	22	1630	194.91	28.9	2.0	28.9	86.07	7.269
1986	8	22	1645	194.89	36.3	-5.4	36.7	98.43	7.287
1986	8	22	1700	195.14	39.9	-5.8	40.3	98.26	7.292
1986	8	22	1715	195.45	40.4	-2.1	40.4	93.02	7.286
1986	8	22	1730	195.66	45.2	2.3	45.2	87.08	7.270
1986	8	22	1745	195.83	24.8	-1.4	24.9	93.32	7.232
1986	8	22	1800	196.04	27.4	-1.1	27.5	92.31	7.191
1986	8	22	1815	195.96	25.0	0.4	25.0	89.10	7.190
1986	8	22	1830	195.98	24.3	3.9	24.6	80.79	7.214
1986	8	22	1845	195.99	28.9	4.0	29.2	82.13	7.215
1986	8	22	1900	195.92	26.9	0.6	26.9	88.70	7.207
1986	8	22	1915	195.78	23.1	5.6	23.8	76.40	7.213
1986	8	22	1930	195.76	25.5	9.2	27.1	70.08	7.235
1986	8	22	1945	195.73	26.7	7.3	27.7	74.77	7.265
1986	8	22	2000	195.69	26.7	7.3	27.7	74.77	7.265
1986	8	22	2015	195.69	17.8	7.9	19.5	66.18	7.311
1986	8	22	2030	195.82	16.5	5.5	17.4	71.59	7.325
1986	8	22	2045	195.90	12.2	4.5	12.9	69.87	7.330
1986	8	22	2100	196.09	12.3	5.0	13.3	68.01	7.328
1986	8	22	2115	196.25	11.9	3.9	12.5	71.90	7.323
1986	8	22	2130	196.34	9.4	3.4	10.0	70.14	7.310
1986	8	22	2145	196.29	9.9	4.4	10.8	66.06	7.293
1986	8	22	2200	196.29	7.6	4.5	8.8	59.16	7.271
1986	8	22	2215	196.22	8.3	6.8	10.7	50.45	7.271
1986	8	22	2230	196.28	10.3	5.6	11.7	61.58	7.282
1986	8	22	2245	196.23	14.5	5.1	15.4	70.60	7.274
1986	8	22	2300	196.33	10.8	1.9	11.0	80.30	7.269
1986	8	22	2315	196.31	10.1	1.5	10.2	81.48	7.266
1986	8	22	2330	196.51	10.9	1.7	11.0	81.30	7.261
1986	8	22	2345	196.54	9.7	1.7	9.8	80.31	7.254
1986	8	23	0000	196.47	9.7	1.7	9.8	80.31	7.254
1986	8	23	0015	196.49	11.0	6.9	13.0	57.93	7.230

1986	8	23	0030	196.58	12.1	7.1	14.1	59.69	7.217
1986	8	23	0045	196.52	11.8	7.5	14.0	57.62	7.202
1986	8	23	0100	196.41	14.2	7.1	15.9	63.56	7.184
1986	8	23	0115	196.24	11.8	5.3	12.9	65.89	7.161
1986	8	23	0130	196.03	11.1	6.4	12.8	60.09	7.136
1986	8	23	0145	195.93	7.8	5.6	9.7	54.27	7.114
1986	8	23	0200	195.69	9.4	7.8	12.2	50.28	7.094
1986	8	23	0215	195.48	9.9	8.1	12.8	50.96	7.092
1986	8	23	0230	195.40	9.6	6.1	11.4	57.44	7.094
1986	8	23	0245	195.25	10.1	6.7	12.1	56.47	7.058
1986	8	23	0300	194.93	8.9	4.7	10.0	62.14	7.005
1986	8	23	0315	194.75	6.7	5.5	8.7	50.32	6.939
1986	8	23	0330	194.60	4.4	3.1	5.4	55.36	6.872
1986	8	23	0345	194.35	4.1	6.8	7.9	31.31	6.809
1986	8	23	0400	194.13	4.1	6.8	7.9	31.31	6.809
1986	8	23	0415	193.88	4.9	2.5	5.5	62.92	6.718
1986	8	23	0430	193.73	2.8	6.5	7.1	23.43	6.686
1986	8	23	0445	193.75	1.6	1.3	2.1	50.96	6.657
1986	8	23	0500	193.79	2.3	0.3	2.3	82.65	6.631
1986	8	23	0515	193.86	1.5	3.6	3.9	23.12	6.610
1986	8	23	0530	194.01	0.3	2.8	2.8	7.01	6.579
1986	8	23	0545	194.20	-1.4	-0.9	1.6	237.88	6.540
1986	8	23	0600	194.37	2.6	0.6	2.6	75.89	6.508
1986	8	23	0615	194.49	2.7	0.5	2.8	79.53	6.507
1986	8	23	0630	194.50	6.1	2.8	6.7	65.00	6.521
1986	8	23	0645	194.54	8.1	2.6	8.5	72.46	6.508
1986	8	23	0700	194.45	5.5	2.8	6.2	63.15	6.472
1986	8	23	0715	194.44	5.4	3.5	6.5	57.00	6.431
1986	8	23	0730	194.49	7.3	3.4	8.0	65.00	6.393
1986	8	23	0745	194.53	8.0	4.5	9.1	60.60	6.342
1986	8	23	0800	194.57	8.0	4.5	9.1	60.60	6.342
1986	8	23	0815	194.56	8.0	2.3	8.3	74.01	6.231
1986	8	23	0830	194.85	10.3	-1.3	10.4	97.01	6.185
1986	8	23	0845	195.00	6.6	0.4	6.6	86.16	6.148
1986	8	23	0900	195.10	8.9	-1.7	9.0	100.98	6.113
1986	8	23	0915	195.34	5.0	-2.5	5.6	116.50	6.078
1986	8	23	0930	195.58	5.8	-0.7	5.8	97.32	6.048
1986	8	23	0945	195.75	6.1	-1.1	6.2	100.22	6.020
1986	8	23	1000	195.79	4.7	0.8	4.8	80.78	6.001
1986	8	23	1015	195.86	3.4	1.2	3.6	71.34	6.008
1986	8	23	1030	195.96	5.4	2.5	6.0	65.00	6.018
1986	8	23	1045	195.84	9.3	2.1	9.5	77.14	5.995
1986	8	23	1100	195.86	8.3	1.0	8.4	83.00	5.961
1986	8	23	1115	195.97	7.0	2.7	7.5	68.81	5.933
1986	8	23	1130	195.99	8.9	1.3	9.0	81.82	5.913
1986	8	23	1145	196.19	13.6	4.9	14.5	70.16	5.897
1986	8	23	1200	196.38	13.6	4.9	14.5	70.16	5.897
1986	8	23	1215	196.46	13.4	4.2	14.0	72.38	5.857
1986	8	23	1230	196.52	13.3	4.0	13.8	73.31	5.822
1986	8	23	1245	196.50	10.9	4.3	11.7	68.42	5.785
1986	8	23	1300	196.47	9.6	3.9	10.4	67.75	5.756
1986	8	23	1315	196.38	9.6	4.5	10.6	65.00	5.741
1986	8	23	1330	196.24	12.0	5.2	13.1	66.75	5.731
1986	8	23	1345	196.20	9.4	3.6	10.0	69.00	5.713
1986	8	23	1400	196.09	12.8	5.5	13.9	66.65	5.683
1986	8	23	1415	195.88	11.7	7.4	13.8	57.51	5.669
1986	8	23	1430	195.63	10.6	8.3	13.5	51.69	5.671
1986	8	23	1445	195.48	11.2	9.6	14.8	49.27	5.653
1986	8	23	1500	195.25	11.6	7.2	13.6	58.24	5.636
1986	8	23	1515	195.03	10.7	10.1	14.7	46.81	5.626
1986	8	23	1530	194.87	11.4	11.4	16.1	44.99	5.625
1986	8	23	1545	194.73	12.4	11.2	16.7	47.97	5.620
1986	8	23	1600	194.51	12.4	11.2	16.7	47.97	5.620
1986	8	23	1615	194.38	12.5	11.9	17.3	46.46	5.604
1986	8	23	1630	194.23	12.5	11.9	17.3	46.46	5.606
1986	8	23	1645	194.10	13.4	12.1	18.1	47.97	5.616
1986	8	23	1700	193.94	14.3	10.7	17.9	53.38	5.633
1986	8	23	1715	193.80	15.1	5.8	16.2	68.88	5.650
1986	8	23	1730	193.70	9.8	-0.3	9.8	91.56	5.667
1986	8	23	1745	193.66	9.9	6.4	11.8	57.21	5.680
1986	8	23	1800	193.62	10.3	9.9	14.3	46.18	5.690
1986	8	23	1815	193.66	11.0	12.7	16.8	40.73	5.716
1986	8	23	1830	193.72	17.8	10.1	20.5	60.52	5.752
1986	8	23	1845	193.78	17.1	7.0	18.4	67.80	5.781
1986	8	23	1900	193.97	14.5	7.3	16.2	63.23	5.812
1986	8	23	1915	194.20	11.4	8.5	14.2	53.22	5.842
1986	8	23	1930	194.35	16.2	5.6	17.1	71.04	5.868
1986	8	23	1945	194.47	15.9	8.2	17.9	62.76	5.890
1986	8	23	2000	194.57	15.9	8.2	17.9	62.76	5.890
1986	8	23	2015	194.64	15.4	10.1	18.4	56.56	5.933

1986	8	23	2030	194.79	15.4	10.0	18.4	56.87	5.955
1986	8	23	2045	194.89	26.4	6.3	27.2	76.68	5.974
1986	8	23	2100	194.98	20.4	7.5	21.8	69.74	5.933
1986	8	23	2115	195.07	18.6	7.2	19.9	68.74	5.832
1986	8	23	2130	195.08	18.5	8.6	20.4	65.00	5.712
1986	8	23	2145	195.08	20.5	9.0	22.4	66.28	5.625
1986	8	23	2200	195.10	16.8	7.4	18.4	66.25	5.553
1986	8	23	2215	195.08	17.5	8.7	19.5	63.53	5.520
1986	8	23	2230	195.13	14.4	10.9	18.1	52.88	5.528
1986	8	23	2245	195.10	14.2	10.6	17.7	53.24	5.524
1986	8	23	2300	195.08	15.6	12.7	20.1	50.89	5.519
1986	8	23	2315	195.07	20.0	13.2	24.0	56.60	5.530
1986	8	23	2330	195.07	18.6	10.5	21.4	60.70	5.544
1986	8	23	2345	195.03	17.5	10.1	20.2	59.88	5.543
1986	8	24	0000	194.95	17.5	10.1	20.2	59.88	5.543
1986	8	24	0015	194.85	14.0	12.4	18.7	48.51	5.418
1986	8	24	0030	194.73	10.8	14.7	18.3	36.19	5.392
1986	8	24	0045	194.56	16.8	13.7	21.7	50.84	5.398
1986	8	24	0100	194.41	13.0	15.1	20.0	40.75	5.398
1986	8	24	0115	194.23	16.1	14.1	21.5	48.76	5.390
1986	8	24	0130	194.05	13.2	13.6	18.9	44.27	5.384
1986	8	24	0145	193.89	17.4	13.0	21.7	53.33	5.376
1986	8	24	0200	193.75	17.5	10.2	20.3	59.91	5.351
1986	8	24	0215	193.55	18.8	14.2	23.5	52.97	5.334
1986	8	24	0230	193.40	20.5	6.9	21.6	71.37	5.318
1986	8	24	0245	193.24	23.1	17.0	28.7	53.53	5.269
1986	8	24	0300	193.06	18.6	14.5	23.6	52.02	5.243
1986	8	24	0315	192.94	19.0	13.3	23.1	55.05	5.204
1986	8	24	0330	192.83	17.4	12.3	21.3	54.74	5.142
1986	8	24	0345	192.72	11.3	13.3	17.5	40.34	5.080
1986	8	24	0400	192.60	11.3	13.3	17.5	40.34	5.080
1986	8	24	0415	192.51	18.1	8.7	20.1	64.43	4.963
1986	8	24	0430	192.42	14.6	10.0	17.7	55.59	4.888
1986	8	24	0445	192.32	12.3	7.2	14.3	59.77	4.834
1986	8	24	0500	192.22	10.9	7.7	13.3	54.62	4.797
1986	8	24	0515	192.19	15.6	6.7	17.0	66.68	4.779
1986	8	24	0530	192.15	13.2	3.3	13.6	76.06	4.768
1986	8	24	0545	192.12	12.5	6.3	14.0	63.36	4.755
1986	8	24	0600	192.07	12.3	5.0	13.3	68.01	4.745
1986	8	24	0615	192.05	12.3	6.0	13.7	64.16	4.759
1986	8	24	0630	192.04	16.4	10.6	19.5	57.04	4.787
1986	8	24	0645	192.14	17.7	9.0	19.9	62.99	4.789
1986	8	24	0700	192.21	14.5	8.2	16.7	60.52	4.775
1986	8	24	0715	192.30	15.6	10.1	18.6	56.96	4.769
1986	8	24	0730	192.40	14.4	5.7	15.5	68.32	4.769
1986	8	24	0745	192.57	14.9	9.4	17.6	57.83	4.762
1986	8	24	0800	192.70	14.9	9.4	17.6	57.83	4.762
1986	8	24	0815	192.83	12.6	10.5	16.4	50.20	4.721
1986	8	24	0830	192.94	13.3	10.8	17.1	50.80	4.688
1986	8	24	0845	193.09	18.9	10.8	21.8	60.26	4.639
1986	8	24	0900	193.26	16.3	10.8	19.5	56.45	4.583
1986	8	24	0915	193.41	14.0	10.5	17.5	53.11	4.541
1986	8	24	0930	193.58	14.8	7.5	16.6	63.27	4.516
1986	8	24	0945	193.75	14.3	6.5	15.7	65.73	4.489
1986	8	24	1000	193.89	13.9	4.8	14.7	70.87	4.457
1986	8	24	1015	194.04	12.8	1.8	13.0	82.04	4.446
1986	8	24	1030	194.15	11.0	4.1	11.7	69.40	4.449
1986	8	24	1045	194.26	11.6	5.0	12.6	66.82	4.435
1986	8	24	1100	194.34	10.5	0.7	10.5	86.19	4.427
1986	8	24	1115	194.39	12.2	-7.8	14.5	122.41	4.397
1986	8	24	1130	194.43	7.9	-3.2	8.5	111.91	4.358
1986	8	24	1145	194.48	5.0	0.9	5.1	79.86	4.332
1986	8	24	1200	194.44	5.0	0.9	5.1	79.86	4.332
1986	8	24	1215	194.34	3.7	6.3	7.3	30.01	4.310
1986	8	24	1230	194.30	3.3	7.2	7.9	24.64	4.310
1986	8	24	1245	194.20	6.4	6.2	8.9	45.95	4.310
1986	8	24	1300	194.07	6.1	7.7	9.8	38.43	4.309
1986	8	24	1315	193.88	7.4	5.7	9.3	52.60	4.305
1986	8	24	1330	193.76	5.4	4.7	7.2	48.84	4.299
1986	8	24	1345	193.62	6.8	6.2	9.2	47.94	4.291
1986	8	24	1400	193.50	5.6	6.2	8.4	41.80	4.282
1986	8	24	1415	193.34	3.9	7.2	8.2	28.41	4.295
1986	8	24	1430	193.20	5.3	10.1	11.4	27.83	4.327
1986	8	24	1445	193.03	8.4	10.8	13.7	38.06	4.344
1986	8	24	1500	192.91	12.4	11.2	16.7	47.97	4.359
1986	8	24	1515	192.73	12.2	8.9	15.1	53.91	4.364
1986	8	24	1530	192.61	12.8	7.6	14.9	59.21	4.360
1986	8	24	1545	192.49	11.6	7.1	13.6	58.66	4.350
1986	8	24	1600	192.39	11.6	7.1	13.6	58.66	4.350
1986	8	24	1615	192.31	9.3	7.2	11.8	52.26	4.330

1986	8	24	1630	192.27	9.9	7.6	12.5	52.52	4.327
1986	8	24	1645	192.22	8.9	9.2	12.9	44.03	4.328
1986	8	24	1700	192.16	8.7	10.1	13.4	40.73	4.335
1986	8	24	1715	192.15	10.7	10.0	14.6	46.69	4.343
1986	8	24	1730	192.13	14.2	11.0	18.0	52.13	4.352
1986	8	24	1745	192.12	15.1	9.9	18.1	56.74	4.365
1986	8	24	1800	192.16	14.5	6.5	15.9	65.72	4.376
1986	8	24	1815	192.17	13.2	7.8	15.4	59.40	4.399
1986	8	24	1830	192.19	11.0	9.5	14.6	49.05	4.425
1986	8	24	1845	192.23	10.3	12.4	16.1	39.70	4.426
1986	8	24	1900	192.28	10.3	12.4	16.1	39.70	4.423
1986	8	24	1915	192.38	9.1	12.1	15.1	36.91	4.424
1986	8	24	1930	192.46	8.4	10.8	13.7	38.06	4.431
1986	8	24	1945	192.53	13.2	7.8	15.4	59.40	4.439
1986	8	24	2000	192.60	13.2	7.8	15.4	59.40	4.439
1986	8	24	2015	192.66	11.3	8.7	14.2	52.43	4.475
1986	8	24	2030	192.74	17.9	0.3	18.0	88.99	4.490
1986	8	24	2045	192.80	13.8	3.6	14.2	75.52	4.491
1986	8	24	2100	192.90	12.2	4.1	12.9	71.68	4.484
1986	8	24	2115	192.91	13.2	3.3	13.6	76.06	4.477
1986	8	24	2130	192.98	12.0	4.8	12.9	68.11	4.471
1986	8	24	2145	193.04	11.8	5.7	13.1	64.13	4.469
1986	8	24	2200	193.09	11.5	6.4	13.1	61.07	4.470
1986	8	24	2215	193.13	10.4	7.1	12.6	55.84	4.492
1986	8	24	2230	193.23	10.5	6.9	12.5	56.74	4.521
1986	8	24	2245	193.29	9.2	7.5	11.9	50.85	4.526
1986	8	24	2300	193.28	9.5	7.3	12.0	52.47	4.527
1986	8	24	2315	193.29	8.9	7.6	11.7	49.66	4.529
1986	8	24	2330	193.34	8.4	7.6	11.3	48.01	4.532
1986	8	24	2345	193.32	8.9	6.4	11.0	54.51	4.536
1986	8	25	0000	193.29	8.9	6.4	11.0	54.51	4.536
1986	8	25	0015	193.21	7.8	4.4	8.9	60.50	4.549
1986	8	25	0030	193.21	7.1	4.3	8.2	58.74	4.557
1986	8	25	0045	193.09	4.4	7.4	8.6	30.39	4.567
1986	8	25	0100	192.99	5.6	8.4	10.1	33.36	4.578
1986	8	25	0115	192.90	6.0	10.1	11.7	30.77	4.597
1986	8	25	0130	192.76	7.1	9.4	11.8	37.13	4.622
1986	8	25	0145	192.64	8.6	9.2	12.6	43.11	4.646
1986	8	25	0200	192.49	12.6	5.9	13.9	65.00	4.663
1986	8	25	0215	192.37	9.7	5.1	10.9	62.37	4.687
1986	8	25	0230	192.19	8.9	6.4	11.0	54.51	4.713
1986	8	25	0245	192.08	5.3	5.4	7.6	44.89	4.715
1986	8	25	0300	191.94	5.3	7.6	9.3	34.57	4.719
1986	8	25	0315	191.79	7.4	8.8	11.5	39.77	4.733
1986	8	25	0330	191.66	10.8	9.2	14.2	49.50	4.753
1986	8	25	0345	191.55	13.8	8.8	16.3	57.27	4.772
1986	8	25	0400	191.50	13.8	8.8	16.3	57.27	4.772
1986	8	25	0415	191.41	11.9	7.0	13.8	59.58	4.807
1986	8	25	0430	191.35	11.7	7.4	13.8	57.51	4.818
1986	8	25	0445	191.26	13.4	7.5	15.3	60.89	4.828
1986	8	25	0500	191.21	13.0	7.5	15.0	60.01	4.837
1986	8	25	0515	191.21	12.1	6.9	13.9	60.48	4.848
1986	8	25	0530	191.21	13.0	5.8	14.2	65.81	4.859
1986	8	25	0545	191.20	13.0	5.3	14.0	67.86	4.870
1986	8	25	0600	191.22	14.2	4.0	14.8	74.33	4.880
1986	8	25	0615	191.26	13.4	3.6	13.9	74.94	4.907
1986	8	25	0630	191.32	14.4	1.6	14.5	83.56	4.940
1986	8	25	0645	191.35	12.9	2.2	13.1	80.52	4.948
1986	8	25	0700	191.43	11.5	1.7	11.6	81.56	4.952
1986	8	25	0715	191.56	12.2	2.3	12.4	79.48	4.954
1986	8	25	0730	191.71	11.6	2.2	11.9	79.15	4.958
1986	8	25	0745	191.80	11.3	2.6	11.6	76.99	4.964
1986	8	25	0800	191.94	11.3	2.6	11.6	76.99	4.964
1986	8	25	0815	192.05	12.1	2.0	12.3	80.62	4.977
1986	8	25	0830	192.19	10.1	-0.7	10.2	93.84	4.984
1986	8	25	0845	192.31	6.0	0.1	6.0	88.57	4.990
1986	8	25	0900	192.45	6.5	1.6	6.7	76.14	4.993
1986	8	25	0915	192.56	7.6	1.4	7.8	79.93	4.998
1986	8	25	0930	192.69	5.9	-0.2	5.9	92.00	5.002
1986	8	25	0945	192.81	4.9	0.5	5.0	83.80	5.003
1986	8	25	1000	192.94	4.2	0.5	4.2	83.00	5.003
1986	8	25	1015	193.04	3.7	0.5	3.8	81.99	5.020
1986	8	25	1030	193.14	3.8	2.2	4.4	59.81	5.042
1986	8	25	1045	193.22	3.0	3.0	4.3	44.44	5.041
1986	8	25	1100	193.32	2.6	4.4	5.1	30.38	5.036
1986	8	25	1115	193.40	2.7	4.1	4.9	33.24	5.032
1986	8	25	1130	193.47	3.1	3.2	4.5	44.15	5.031
1986	8	25	1145	193.49	4.0	2.3	4.6	60.03	5.027
1986	8	25	1200	193.53	4.0	2.3	4.6	60.03	5.027
1986	8	25	1215	193.56	3.1	1.7	3.5	61.73	5.018

1986	8	25	1230	193.55	2.0	2.1	2.9	42.83	5.013
1986	8	25	1245	193.52	1.1	2.9	3.1	20.00	5.012
1986	8	25	1300	193.50	0.1	2.0	2.0	1.56	5.011
1986	8	25	1315	193.41	-1.1	3.5	3.6	342.91	5.012
1986	8	25	1330	193.33	-1.0	4.4	4.5	346.56	5.013
1986	8	25	1345	193.22	-0.7	4.5	4.6	351.46	5.014
1986	8	25	1400	193.11	-1.0	5.8	5.9	350.68	5.014
1986	8	25	1415	192.98	-1.7	4.6	4.9	339.67	5.031
1986	8	25	1430	192.83	-1.5	4.2	4.4	340.19	5.054
1986	8	25	1445	192.67	-0.7	5.1	5.1	352.02	5.052
1986	8	25	1500	192.56	2.7	5.9	6.5	24.40	5.045
1986	8	25	1515	192.42	3.8	5.6	6.8	33.89	5.041
1986	8	25	1530	192.32	7.3	5.2	8.9	54.70	5.039
1986	8	25	1545	192.20	8.7	4.3	9.7	63.82	5.032
1986	8	25	1600	192.13	8.7	4.3	9.7	63.82	5.032
1986	8	25	1615	192.00	6.3	0.1	6.3	89.52	5.019
1986	8	25	1630	191.89	5.8	1.3	5.9	77.63	5.011
1986	8	25	1645	191.80	6.1	2.6	6.6	66.74	5.003
1986	8	25	1700	191.77	7.1	2.9	7.7	67.97	4.997
1986	8	25	1715	191.67	6.7	1.5	6.9	77.62	4.991
1986	8	25	1730	191.62	7.5	2.1	7.8	74.58	4.985
1986	8	25	1745	191.58	6.2	2.4	6.6	68.47	4.981
1986	8	25	1800	191.57	6.2	2.7	6.7	66.71	4.978
1986	8	25	1815	191.56	6.0	3.0	6.7	63.29	4.992
1986	8	25	1830	191.56	6.6	3.6	7.5	61.19	5.013
1986	8	25	1845	191.57	6.1	4.3	7.4	54.90	5.009
1986	8	25	1900	191.59	6.1	3.8	7.2	57.78	5.003
1986	8	25	1915	191.62	5.9	4.5	7.5	52.64	5.003
1986	8	25	1930	191.66	6.1	5.1	8.0	50.44	5.005
1986	8	25	1945	191.71	6.7	4.1	7.9	58.42	5.009
1986	8	25	2000	191.78	6.7	4.1	7.9	58.42	5.009
1986	8	25	2015	191.86	6.5	0.6	6.6	84.54	5.024
1986	8	25	2030	191.95	8.0	1.1	8.1	82.31	5.031
1986	8	25	2045	192.06	8.4	2.3	8.7	74.89	5.037
1986	8	25	2100	192.10	8.3	1.2	8.4	81.70	5.044
1986	8	25	2115	192.14	6.8	2.2	7.2	72.22	5.046
1986	8	25	2130	192.23	6.7	1.9	7.0	74.06	5.047
1986	8	25	2145	192.30	6.5	1.3	6.6	79.04	5.047
1986	8	25	2200	192.33	5.8	0.5	5.9	84.98	5.047
1986	8	25	2215	192.37	9.4	-3.4	10.0	110.00	5.067
1986	8	25	2230	192.47	4.2	-5.3	6.8	141.37	5.098
1986	8	25	2245	192.50	1.3	-3.3	3.5	158.27	5.097
1986	8	25	2300	192.51	0.4	-1.8	1.8	167.53	5.100
1986	8	25	2315	192.46	-0.4	-0.2	0.4	245.00	5.108
1986	8	25	2330	192.47	-0.6	0.9	1.1	324.70	5.113
1986	8	25	2345	192.43	0.8	1.4	1.6	30.30	5.114
1986	8	26	0000	192.39	0.8	1.4	1.6	30.30	5.114
1986	8	26	0015	192.31	-0.5	4.2	4.2	353.00	5.110
1986	8	26	0030	192.28	-1.0	4.2	4.3	347.09	5.107
1986	8	26	0045	192.29	-1.3	4.5	4.7	343.65	5.102
1986	8	26	0100	192.24	-1.2	4.3	4.5	344.04	5.102
1986	8	26	0115	192.17	-1.5	4.2	4.4	340.19	5.104
1986	8	26	0130	192.12	-1.5	4.4	4.6	341.20	5.106
1986	8	26	0145	191.99	-1.4	4.7	4.9	343.13	5.108
1986	8	26	0200	191.89	-1.8	5.5	5.7	342.00	5.111
1986	8	26	0215	191.75	-1.7	4.8	5.1	340.60	5.134
1986	8	26	0230	191.58	-1.6	5.1	5.3	342.52	5.163
1986	8	26	0245	191.46	-1.4	4.6	4.8	343.47	5.166
1986	8	26	0300	191.35	-0.8	4.3	4.3	349.68	5.163
1986	8	26	0315	191.19	-0.7	4.5	4.6	351.46	5.161
1986	8	26	0330	191.13	-0.6	4.4	4.4	352.20	5.160
1986	8	26	0345	190.96	0.2	3.9	3.9	2.22	5.158
1986	8	26	0400	190.91	0.2	3.9	3.9	2.22	5.158
1986	8	26	0415	190.84	0.8	4.5	4.6	9.38	5.154
1986	8	26	0430	190.74	2.4	4.3	4.9	29.06	5.152
1986	8	26	0445	190.69	2.2	4.2	4.8	27.65	5.148
1986	8	26	0500	190.60	1.7	4.2	4.5	21.79	5.141
1986	8	26	0515	190.57	2.0	4.8	5.2	22.35	5.135
1986	8	26	0530	190.52	1.3	4.6	4.8	15.73	5.135
1986	8	26	0545	190.47	0.9	4.4	4.5	11.87	5.143
1986	8	26	0600	190.44	1.7	5.0	5.2	18.45	5.156
1986	8	26	0615	190.52	1.9	4.9	5.2	21.55	5.190
1986	8	26	0630	190.54	1.9	4.9	5.2	21.55	5.225
1986	8	26	0645	190.61	2.3	4.1	4.7	29.61	5.233
1986	8	26	0700	190.60	3.8	5.4	6.6	34.93	5.233
1986	8	26	0715	190.67	4.0	5.1	6.5	38.43	5.222
1986	8	26	0730	190.77	3.8	4.8	6.1	38.85	5.209
1986	8	26	0745	190.84	4.6	4.3	6.3	46.56	5.199
1986	8	26	0800	190.86	4.6	4.3	6.3	46.56	5.199
1986	8	26	0815	191.00	6.2	3.5	7.1	60.97	5.188

1986	8	26	0830	191.14	7.4	3.0	8.0	67.86	5.196
1986	8	26	0845	191.25	12.2	-0.6	12.2	92.82	5.220
1986	8	26	0900	191.34	12.4	-2.0	12.6	99.32	5.245
1986	8	26	0915	191.51	13.4	-3.2	13.8	103.53	5.228
1986	8	26	0930	191.61	10.5	-4.1	11.3	111.43	5.190
1986	8	26	0945	191.76	9.3	-5.4	10.8	119.83	5.155
1986	8	26	1000	191.85	5.6	-6.4	8.5	138.69	5.146
1986	8	26	1015	191.97	4.1	-7.1	8.2	150.12	5.169
1986	8	26	1030	192.05	3.2	-5.1	6.0	148.35	5.197
1986	8	26	1045	192.12	4.2	-3.9	5.7	132.46	5.156
1986	8	26	1100	192.22	2.5	-3.2	4.1	142.32	5.084
1986	8	26	1115	192.29	2.4	-2.1	3.2	130.85	5.022
1986	8	26	1130	192.34	3.2	-2.5	4.0	128.43	4.975
1986	8	26	1145	192.40	3.3	-2.3	4.0	125.26	4.938
1986	8	26	1200	192.44	3.3	-2.3	4.0	125.26	4.938
1986	8	26	1215	192.46	1.3	-2.8	3.1	155.00	4.887
1986	8	26	1230	192.47	1.7	-3.6	4.0	155.00	4.869
1986	8	26	1245	192.47	1.4	-4.6	4.8	163.47	4.851
1986	8	26	1300	192.45	-0.5	-4.6	4.7	185.96	4.844
1986	8	26	1315	192.40	-0.6	-4.9	4.9	186.76	4.841
1986	8	26	1330	192.36	-0.2	-5.3	5.3	182.05	4.837
1986	8	26	1345	192.31	1.0	-5.6	5.7	170.26	4.810
1986	8	26	1400	192.23	-0.4	-6.6	6.6	183.12	4.764
1986	8	26	1415	192.12	-0.5	-7.5	7.5	183.61	4.745
1986	8	26	1430	191.99	-2.2	-9.9	10.1	192.78	4.744
1986	8	26	1445	191.88	-2.2	-8.8	9.1	193.76	4.720
1986	8	26	1500	191.78	-1.3	-8.2	8.3	189.26	4.697
1986	8	26	1515	191.71	-1.5	-9.2	9.3	189.54	4.677
1986	8	26	1530	191.65	-0.8	-8.2	8.2	185.61	4.663
1986	8	26	1545	191.58	-0.6	-9.1	9.1	183.81	4.654
1986	8	26	1600	191.46	-0.6	-9.1	9.1	183.81	4.654
1986	8	26	1615	191.37	-1.3	-10.7	10.7	187.06	4.625
1986	8	26	1630	191.26	-0.5	-8.3	8.3	183.72	4.606
1986	8	26	1645	191.19	-1.5	-8.3	8.5	190.38	4.592
1986	8	26	1700	191.10	-2.9	-9.6	10.1	196.78	4.587
1986	8	26	1715	191.03	-2.7	-7.9	8.3	199.03	4.584
1986	8	26	1730	190.90	-4.1	-9.5	10.3	203.14	4.588
1986	8	26	1745	190.81	-4.7	-8.2	9.5	209.46	4.591
1986	8	26	1800	190.75	-5.0	-7.0	8.6	215.75	4.590
1986	8	26	1815	190.75	-2.8	-4.9	5.7	209.34	4.603
1986	8	26	1830	190.76	-3.5	-6.7	7.6	207.52	4.621
1986	8	26	1845	190.75	-2.8	-7.6	8.1	200.50	4.610
1986	8	26	1900	190.78	-2.1	-5.0	5.4	203.01	4.595
1986	8	26	1915	190.87	-2.2	-6.2	6.6	199.38	4.583
1986	8	26	1930	190.98	1.2	-6.7	6.8	170.26	4.572
1986	8	26	1945	191.06	1.1	-6.1	6.2	169.93	4.557
1986	8	26	2000	191.06	1.1	-6.1	6.2	169.93	4.557
1986	8	26	2015	191.13	-0.9	-6.3	6.4	188.44	4.532
1986	8	26	2030	191.19	-1.6	-3.9	4.2	201.91	4.520
1986	8	26	2045	191.27	-1.5	-3.6	3.9	203.12	4.510
1986	8	26	2100	191.34	-0.7	-2.3	2.4	196.63	4.501
1986	8	26	2115	191.42	-0.3	-1.9	1.9	189.51	4.495
1986	8	26	2130	191.51	-0.2	-0.7	0.7	200.00	4.490
1986	8	26	2145	191.60	0.1	0.3	0.3	20.00	4.486
1986	8	26	2200	191.71	-0.5	0.2	0.6	290.00	4.482
1986	8	26	2215	191.72	-0.5	0.2	0.6	290.00	4.495
1986	8	26	2230	191.79	-0.4	1.3	1.3	343.75	4.512
1986	8	26	2245	191.86	0.9	1.9	2.1	25.91	4.502
1986	8	26	2300	191.89	3.9	1.6	4.2	67.73	4.484
1986	8	26	2315	191.86	3.1	2.2	3.9	54.56	4.457
1986	8	26	2330	191.91	3.8	1.8	4.2	65.00	4.424
1986	8	26	2345	191.93	3.5	0.4	3.5	83.43	4.388
1986	8	27	0000	191.94	3.5	0.4	3.5	83.43	4.388
1986	8	27	0015	191.93	3.8	1.3	4.0	70.71	4.304
1986	8	27	0030	191.91	4.3	1.8	4.7	67.44	4.268
1986	8	27	0045	191.90	3.0	1.8	3.5	58.48	4.238
1986	8	27	0100	191.87	3.4	1.6	3.8	65.00	4.220
1986	8	27	0115	191.86	4.2	2.2	4.7	62.56	4.211
1986	8	27	0130	191.79	3.8	1.2	4.0	72.13	4.200
1986	8	27	0145	191.72	4.3	1.6	4.6	69.97	4.180
1986	8	27	0200	191.66	4.8	1.8	5.1	69.48	4.164
1986	8	27	0215	191.58	5.7	2.4	6.2	66.85	4.170
1986	8	27	0230	191.46	5.1	1.6	5.3	72.52	4.175
1986	8	27	0245	191.38	4.9	1.1	5.0	77.65	4.149
1986	8	27	0300	191.30	4.5	1.9	4.9	67.34	4.117
1986	8	27	0315	191.21	5.2	1.9	5.5	70.19	4.092
1986	8	27	0330	191.11	4.3	0.2	4.3	86.80	4.068
1986	8	27	0345	191.04	3.7	0.5	3.8	81.99	4.044
1986	8	27	0400	190.89	3.7	0.5	3.8	81.99	4.044
1986	8	27	0415	190.87	3.7	-0.7	3.8	100.36	4.005

1986	8	27	0430	190.76	4.4	-0.4	4.4	95.07	3.990
1986	8	27	0445	190.72	4.2	-0.5	4.2	96.43	3.975
1986	8	27	0500	190.62	3.0	-0.0	3.0	90.71	3.964
1986	8	27	0515	190.51	3.6	0.7	3.6	79.42	3.955
1986	8	27	0530	190.47	4.3	0.8	4.3	79.68	3.947
1986	8	27	0545	190.43	3.9	0.2	3.9	87.62	3.939
1986	8	27	0600	190.39	4.1	0.7	4.1	80.38	3.929
1986	8	27	0615	190.34	4.7	-0.2	4.7	92.65	3.936
1986	8	27	0630	190.39	4.9	-0.6	4.9	96.76	3.951
1986	8	27	0645	190.40	6.0	-0.8	6.1	97.91	3.941
1986	8	27	0700	190.44	6.8	-1.7	7.0	103.66	3.928
1986	8	27	0715	190.43	5.6	-1.6	5.8	105.82	3.916
1986	8	27	0730	190.53	6.0	-1.6	6.2	105.40	3.905
1986	8	27	0745	190.66	5.4	-2.7	6.0	116.04	3.896
1986	8	27	0800	190.76	5.4	-2.7	6.0	116.04	3.896
1986	8	27	0815	190.83	5.2	-3.4	6.2	123.09	3.883
1986	8	27	0830	190.89	5.1	-3.0	5.9	121.04	3.879
1986	8	27	0845	191.04	4.8	-4.1	6.3	130.48	3.876
1986	8	27	0900	191.13	4.4	-2.6	5.1	120.38	3.873
1986	8	27	0915	191.18	4.0	-1.8	4.4	113.69	3.872
1986	8	27	0930	191.30	3.1	-1.5	3.5	115.83	3.870
1986	8	27	0945	191.44	3.4	-2.6	4.3	127.24	3.869
1986	8	27	1000	191.55	2.7	-1.1	3.0	112.73	3.866
1986	8	27	1015	191.66	2.7	-2.0	3.3	126.11	3.879
1986	8	27	1030	191.79	2.8	-2.3	3.7	129.13	3.898
1986	8	27	1045	191.93	2.6	-1.8	3.1	124.35	3.892
1986	8	27	1100	192.05	2.5	-1.8	3.1	125.95	3.881
1986	8	27	1115	192.14	1.7	-1.6	2.4	132.75	3.873
1986	8	27	1130	192.18	1.2	-1.4	1.9	139.48	3.867
1986	8	27	1145	192.26	0.8	-0.8	1.2	135.02	3.863
1986	8	27	1200	192.34	0.8	-0.8	1.2	135.02	3.863
1986	8	27	1215	192.45	0.2	-2.1	2.1	174.29	3.858
1986	8	27	1230	192.45	0.6	-2.9	3.0	168.57	3.856
1986	8	27	1245	192.40	-0.5	-2.4	2.5	191.87	3.854
1986	8	27	1300	192.46	-1.1	-2.7	3.0	202.73	3.853
1986	8	27	1315	192.46	-0.6	-2.9	3.0	191.87	3.852
1986	8	27	1330	192.38	-1.3	-2.8	3.1	205.19	3.850
1986	8	27	1345	192.42	-1.8	-3.5	3.9	207.25	3.849
1986	8	27	1400	192.49	-1.7	-3.8	4.1	203.95	3.847
1986	8	27	1415	192.44	-3.4	-3.0	4.6	228.54	3.861
1986	8	27	1430	192.39	-3.1	-2.9	4.2	227.00	3.881
1986	8	27	1445	192.39	-2.6	-2.9	3.9	222.38	3.874
1986	8	27	1500	192.35	-2.5	-3.6	4.4	214.93	3.863
1986	8	27	1515	192.31	-2.8	-4.5	5.3	211.61	3.854
1986	8	27	1530	192.25	-2.4	-4.3	4.9	209.06	3.846
1986	8	27	1545	192.17	-2.8	-4.9	5.7	209.34	3.840
1986	8	27	1600	192.06	-2.8	-4.9	5.7	209.34	3.840
1986	8	27	1615	191.98	-2.8	-6.1	6.7	204.21	3.831
1986	8	27	1630	191.85	-2.2	-5.7	6.1	201.33	3.827
1986	8	27	1645	191.73	-2.0	-6.8	7.1	196.57	3.824
1986	8	27	1700	191.63	-2.1	-5.8	6.2	200.00	3.823
1986	8	27	1715	191.56	-2.3	-6.2	6.6	200.62	3.820
1986	8	27	1730	191.49	-2.8	-6.5	7.1	203.43	3.818
1986	8	27	1745	191.46	-3.1	-7.5	8.1	202.49	3.815
1986	8	27	1800	191.43	-3.2	-6.1	6.9	207.63	3.811
1986	8	27	1815	191.35	-2.4	-6.5	6.9	200.00	3.823
1986	8	27	1830	191.33	-2.7	-7.7	8.1	199.50	3.840
1986	8	27	1845	191.29	-2.6	-7.8	8.3	198.53	3.830
1986	8	27	1900	191.24	-2.2	-7.4	7.7	196.33	3.817
1986	8	27	1915	191.19	-2.1	-7.1	7.4	196.70	3.806
1986	8	27	1930	191.14	-1.4	-6.0	6.2	192.79	3.798
1986	8	27	1945	191.13	-1.8	-7.7	7.9	193.32	3.791
1986	8	27	2000	191.09	-1.8	-7.7	7.9	193.32	3.791
1986	8	27	2015	191.06	-2.0	-7.8	8.0	194.44	3.780
1986	8	27	2030	191.06	-0.6	-6.6	6.6	185.07	3.775
1986	8	27	2045	191.06	0.1	-5.8	5.8	179.36	3.767
1986	8	27	2100	191.10	-1.0	-7.3	7.4	187.83	3.747
1986	8	27	2115	191.13	-1.0	-5.6	5.7	190.66	3.722
1986	8	27	2130	191.18	-0.9	-6.7	6.7	187.28	3.699
1986	8	27	2145	191.19	-2.8	-8.6	9.1	198.21	3.677
1986	8	27	2200	191.28	-4.0	-9.7	10.5	202.32	3.659
1986	8	27	2215	191.26	-3.9	-8.9	9.7	203.76	3.661
1986	8	27	2230	191.23	-5.0	-9.6	10.8	207.50	3.672
1986	8	27	2245	191.24	-3.6	-10.0	10.6	200.00	3.661
1986	8	27	2300	191.24	-2.8	-8.7	9.1	197.78	3.648
1986	8	27	2315	191.18	-3.3	-9.4	9.9	199.18	3.637
1986	8	27	2330	191.20	-3.0	-9.9	10.3	196.86	3.626
1986	8	27	2345	191.14	-4.8	-10.7	11.8	204.13	3.614
1986	8	28	0000	191.10	-4.8	-10.7	11.8	204.13	3.614
1986	8	28	0015	191.09	-5.7	-11.9	13.2	205.53	3.589

1986	8	28	0030	191.02	-7.3	-11.5	13.6	212.59	3.577
1986	8	28	0045	190.95	-6.8	-11.8	13.6	209.90	3.568
1986	8	28	0100	190.91	-7.0	-12.7	14.5	208.68	3.559
1986	8	28	0115	190.88	-9.3	-14.6	17.3	212.50	3.545
1986	8	28	0130	190.86	-10.2	-15.2	18.4	213.82	3.528
1986	8	28	0145	190.80	-10.6	-16.2	19.3	213.12	3.514
1986	8	28	0200	190.76	-10.4	-14.3	17.7	215.98	3.507
1986	8	28	0215	190.70	-9.6	-15.5	18.3	211.83	3.518
1986	8	28	0230	190.65	-9.5	-12.5	15.7	217.29	3.533
1986	8	28	0245	190.64	-8.6	-12.5	15.2	214.55	3.527
1986	8	28	0300	190.61	-9.5	-14.7	17.5	212.86	3.524
1986	8	28	0315	190.51	-8.7	-14.9	17.3	210.39	3.524
1986	8	28	0330	190.39	-9.5	-14.2	17.1	213.63	3.532
1986	8	28	0345	190.25	-7.8	-19.0	20.5	202.37	3.543
1986	8	28	0400	190.16	-7.8	-19.0	20.5	202.37	3.543
1986	8	28	0415	190.05	-8.7	-16.5	18.7	207.82	3.576
1986	8	28	0430	189.94	-5.9	-19.2	20.1	197.18	3.600
1986	8	28	0445	189.84	-8.5	-16.2	18.3	207.76	3.614
1986	8	28	0500	189.78	-5.0	-18.7	19.3	194.96	3.621
1986	8	28	0515	189.79	-8.5	-15.9	18.0	208.13	3.618
1986	8	28	0530	189.69	-6.2	-17.1	18.2	200.00	3.613
1986	8	28	0545	189.61	-10.2	-14.3	17.6	215.66	3.609
1986	8	28	0600	189.61	-8.8	-16.0	18.3	208.88	3.598
1986	8	28	0615	189.62	-7.2	-16.4	17.9	203.84	3.601
1986	8	28	0630	189.54	-6.1	-17.1	18.2	199.78	3.609
1986	8	28	0645	189.48	-7.3	-19.5	20.9	200.58	3.594
1986	8	28	0700	189.47	-8.7	-19.2	21.1	204.43	3.582
1986	8	28	0715	189.46	-6.5	-17.9	19.1	200.00	3.575
1986	8	28	0730	189.47	-6.2	-17.8	18.8	199.14	3.574
1986	8	28	0745	189.50	-7.0	-16.9	18.3	202.43	3.575
1986	8	28	0800	189.53	-7.0	-16.9	18.3	202.43	3.575
1986	8	28	0815	189.59	-7.6	-17.7	19.3	203.37	3.577
1986	8	28	0830	189.65	-6.9	-17.7	19.0	201.28	3.575
1986	8	28	0845	189.69	-6.3	-17.1	18.2	200.22	3.570
1986	8	28	0900	189.78	-5.7	-16.6	17.5	199.08	3.565
1986	8	28	0915	189.85	-6.1	-16.3	17.4	200.47	3.557
1986	8	28	0930	189.97	-7.6	-14.2	16.1	208.06	3.550
1986	8	28	0945	190.07	-6.7	-15.0	16.4	203.95	3.546
1986	8	28	1000	190.17	-7.8	-15.3	17.2	206.86	3.544
1986	8	28	1015	190.25	-6.7	-15.0	16.4	203.95	3.558
1986	8	28	1030	190.33	-6.4	-13.5	14.9	205.44	3.576
1986	8	28	1045	190.43	-6.3	-13.7	15.0	204.85	3.566
1986	8	28	1100	190.54	-5.7	-13.4	14.5	203.07	3.550
1986	8	28	1115	190.60	-6.7	-12.4	14.1	208.37	3.535
1986	8	28	1130	190.73	-6.4	-11.3	13.0	209.72	3.524
1986	8	28	1145	190.84	-5.6	-10.4	11.9	208.23	3.515
1986	8	28	1200	190.91	-5.6	-10.4	11.9	208.23	3.515
1986	8	28	1215	190.99	-4.2	-10.0	10.8	202.62	3.495
1986	8	28	1230	191.08	-7.0	-10.9	12.9	212.67	3.477
1986	8	28	1245	191.13	-5.3	-10.1	11.4	207.83	3.461
1986	8	28	1300	191.17	-4.6	-11.2	12.1	202.34	3.448
1986	8	28	1315	191.22	-4.8	-10.7	11.8	204.13	3.435
1986	8	28	1330	191.27	-4.6	-11.2	12.1	202.34	3.423
1986	8	28	1345	191.27	-6.0	-12.3	13.6	205.95	3.410
1986	8	28	1400	191.29	-6.3	-11.5	13.2	208.65	3.394
1986	8	28	1415	191.33	-6.3	-11.5	13.2	208.65	3.394
1986	8	28	1430	191.30	-6.4	-11.8	13.4	208.47	3.400
1986	8	28	1445	191.29	-6.1	-12.7	14.1	205.77	3.382
1986	8	28	1500	191.24	-6.4	-11.5	13.1	209.00	3.362
1986	8	28	1515	191.21	-6.0	-12.3	13.6	205.95	3.345
1986	8	28	1530	191.19	-5.9	-11.6	13.0	206.89	3.332
1986	8	28	1545	191.12	-5.7	-10.9	12.3	207.57	3.322
1986	8	28	1600	191.07	-5.7	-10.9	12.3	207.57	3.322
1986	8	28	1615	191.06	-4.8	-10.1	11.2	205.46	3.307
1986	8	28	1630	191.03	-5.1	-12.2	13.2	202.76	3.300
1986	8	28	1645	190.98	-4.5	-13.6	14.3	198.30	3.294
1986	8	28	1700	190.88	-4.0	-11.7	12.4	199.02	3.289
1986	8	28	1715	190.83	-4.1	-12.6	13.3	198.17	3.284
1986	8	28	1730	190.77	-3.9	-9.9	10.6	201.53	3.279
1986	8	28	1745	190.73	-3.5	-10.2	10.8	198.88	3.274
1986	8	28	1800	190.65	-4.1	-10.5	11.3	201.43	3.268
1986	8	28	1815	190.59	-4.1	-11.0	11.7	200.69	3.279
1986	8	28	1830	190.55	-2.3	-9.7	10.0	193.48	3.294
1986	8	28	1845	190.51	-2.7	-12.0	12.3	192.71	3.284
1986	8	28	1900	190.46	-2.8	-12.4	12.7	192.95	3.271
1986	8	28	1915	190.41	-2.5	-8.8	9.1	196.01	3.258
1986	8	28	1930	190.35	-1.3	-10.9	11.0	186.95	3.250
1986	8	28	1945	190.33	-2.4	-11.6	11.9	191.77	3.243
1986	8	28	2000	190.30	-2.4	-11.6	11.9	191.77	3.243
1986	8	28	2015	190.26	-1.2	-11.1	11.1	186.41	3.233

1986	8	28	2030	190.25	-1.9	-9.4	9.6	191.51	3.230
1986	8	28	2045	190.27	-1.1	-10.6	10.6	186.15	3.228
1986	8	28	2100	190.28	-1.3	-8.9	9.0	188.16	3.228
1986	8	28	2115	190.27	-0.8	-10.4	10.4	184.27	3.229
1986	8	28	2130	190.26	-0.8	-9.9	9.9	184.67	3.231
1986	8	28	2145	190.25	-1.9	-10.1	10.3	190.54	3.235
1986	8	28	2200	190.28	-1.9	-12.2	12.3	189.08	3.238
1986	8	28	2215	190.32	-1.0	-10.5	10.5	185.22	3.258
1986	8	28	2230	190.34	-2.2	-10.9	11.1	191.56	3.285
1986	8	28	2245	190.39	-2.7	-10.5	10.9	194.40	3.285
1986	8	28	2300	190.43	-2.7	-10.5	10.9	194.40	3.280
1986	8	28	2315	190.46	-3.6	-9.1	9.8	201.66	3.276
1986	8	28	2330	190.48	-4.5	-10.6	11.5	203.16	3.274
1986	8	28	2345	190.54	-4.2	-8.3	9.3	206.53	3.272
1986	8	29	0000	190.53	-4.2	-8.3	9.3	206.53	3.272
1986	8	29	0015	190.57	-6.5	-8.6	10.8	216.77	3.270
1986	8	29	0030	190.59	-6.0	-8.2	10.2	216.16	3.272
1986	8	29	0045	190.61	-6.5	-11.1	12.9	210.45	3.273
1986	8	29	0100	190.60	-6.1	-10.1	11.8	211.04	3.273
1986	8	29	0115	190.62	-4.8	-8.6	9.9	209.06	3.270
1986	8	29	0130	190.60	-5.5	-9.0	10.5	211.61	3.269
1986	8	29	0145	190.59	-6.5	-9.1	11.2	215.45	3.267
1986	8	29	0200	190.56	-5.3	-7.1	8.9	216.70	3.263
1986	8	29	0215	190.51	-5.1	-7.5	9.1	214.47	3.275
1986	8	29	0230	190.44	-5.2	-8.8	10.2	210.38	3.292
1986	8	29	0245	190.37	-5.8	-10.0	11.6	210.21	3.286
1986	8	29	0300	190.32	-5.8	-10.0	11.6	210.21	3.275
1986	8	29	0315	190.27	-5.9	-10.6	12.1	209.08	3.267
1986	8	29	0330	190.21	-5.7	-8.7	10.4	212.99	3.262
1986	8	29	0345	190.12	-6.5	-9.3	11.3	214.82	3.257
1986	8	29	0400	190.09	-6.5	-9.3	11.3	214.82	3.257
1986	8	29	0415	190.04	-5.9	-11.4	12.8	207.59	3.252
1986	8	29	0430	189.95	-6.7	-12.4	14.1	208.37	3.250
1986	8	29	0445	189.83	-7.6	-11.4	13.7	213.75	3.248
1986	8	29	0500	189.76	-6.3	-11.5	13.2	208.65	3.247
1986	8	29	0515	189.65	-7.1	-10.4	12.6	214.35	3.247
1986	8	29	0530	189.59	-6.0	-10.1	11.7	210.77	3.245
1986	8	29	0545	189.51	-6.6	-12.6	14.2	207.73	3.244
1986	8	29	0600	189.46	-6.6	-12.6	14.2	207.73	3.242
1986	8	29	0615	189.42	-8.0	-12.8	15.0	211.94	3.257
1986	8	29	0630	189.41	-6.2	-11.7	13.3	207.96	3.277
1986	8	29	0645	189.41	-6.6	-11.7	13.4	209.41	3.272
1986	8	29	0700	189.39	-6.4	-11.8	13.4	208.47	3.264
1986	8	29	0715	189.40	-5.1	-10.6	11.8	205.51	3.257
1986	8	29	0730	189.37	-3.6	-12.2	12.7	196.48	3.253
1986	8	29	0745	189.41	-3.8	-11.3	11.9	198.64	3.250
1986	8	29	0800	189.46	-3.8	-11.3	11.9	198.64	3.250
1986	8	29	0815	189.45	-5.8	-8.3	10.2	214.91	3.248
1986	8	29	0830	189.47	-5.6	-9.9	11.4	209.64	3.247
1986	8	29	0845	189.50	-5.9	-9.4	11.1	212.17	3.247
1986	8	29	0900	189.49	-5.6	-9.5	11.0	210.73	3.246
1986	8	29	0915	189.48	-5.8	-12.2	13.5	205.41	3.245
1986	8	29	0930	189.51	-6.1	-10.2	11.9	210.64	3.243
1986	8	29	0945	189.53	-4.5	-9.7	10.7	204.92	3.242
1986	8	29	1000	189.56	-5.1	-9.8	11.1	207.72	3.240
1986	8	29	1015	189.60	-4.2	-9.8	10.7	203.41	3.253
1986	8	29	1030	189.69	-4.9	-9.9	11.0	206.26	3.272
1986	8	29	1045	189.75	-5.1	-11.0	12.1	205.01	3.265
1986	8	29	1100	189.87	-4.8	-10.8	11.8	203.77	3.255
1986	8	29	1115	189.97	-5.7	-10.9	12.3	207.57	3.247
1986	8	29	1130	190.03	-6.2	-10.9	12.5	209.41	3.241
1986	8	29	1145	190.12	-7.0	-9.7	11.9	215.85	3.236
1986	8	29	1200	190.18	-7.0	-9.7	11.9	215.85	3.236
1986	8	29	1215	190.28	-7.5	-5.9	9.6	231.69	3.230
1986	8	29	1230	190.34	-6.6	-5.3	8.4	231.29	3.227
1986	8	29	1245	190.38	-6.3	-5.4	8.3	229.62	3.225
1986	8	29	1300	190.45	-5.6	-4.8	7.4	229.27	3.223
1986	8	29	1315	190.52	-6.4	-6.2	8.9	225.95	3.220
1986	8	29	1330	190.61	-6.6	-6.7	9.4	224.44	3.217
1986	8	29	1345	190.64	-7.0	-6.5	9.6	227.32	3.215
1986	8	29	1400	190.70	-6.3	-5.4	8.3	229.62	3.211
1986	8	29	1415	190.74	-6.5	-4.3	7.8	236.87	3.223
1986	8	29	1430	190.72	-7.5	-3.3	8.2	246.40	3.242
1986	8	29	1445	190.72	-5.8	-3.2	6.6	240.67	3.234
1986	8	29	1500	190.72	-6.6	-4.7	8.1	234.38	3.222
1986	8.	29	1515	190.73	-5.0	-4.3	6.6	229.29	3.213
1986	8	29	1530	190.69	-5.2	-5.6	7.7	222.78	3.206
1986	8	29	1545	190.73	-6.1	-6.3	8.8	224.29	3.201
1986	8	29	1600	190.71	-6.1	-6.3	8.8	224.29	3.201
1986	8	29	1615	190.73	-7.8	-5.8	9.7	233.11	3.195

1986	8	29	1630	190.71	-7.4	-6.1	9.6	230.53	3.191
1986	8	29	1645	190.70	-6.1	-5.3	8.1	229.25	3.187
1986	8	29	1700	190.66	-7.5	-7.5	10.6	225.20	3.183
1986	8	29	1715	190.58	-6.9	-6.7	9.6	226.19	3.179
1986	8	29	1730	190.55	-5.1	-7.2	8.9	215.26	3.176
1986	8	29	1745	190.49	-5.6	-8.3	10.0	214.33	3.173
1986	8	29	1800	190.46	-5.8	-10.0	11.6	210.21	3.170
1986	8	29	1815	190.41	-6.3	-9.0	11.0	214.93	3.183
1986	8	29	1830	190.40	-6.6	-9.5	11.6	214.89	3.202
1986	8	29	1845	190.36	-6.3	-9.4	11.3	214.12	3.195
1986	8	29	1900	190.28	-5.9	-9.8	11.5	211.03	3.185
1986	8	29	1915	190.24	-6.3	-9.4	11.3	214.12	3.178
1986	8	29	1930	190.19	-7.1	-8.9	11.4	218.43	3.173
1986	8	29	1945	190.13	-6.2	-9.2	11.1	214.04	3.168
1986	8	29	2000	190.10	-6.2	-9.2	11.1	214.04	3.168
1986	8	29	2015	190.07	-5.9	-9.8	11.5	211.03	3.163
1986	8	29	2030	189.99	-6.8	-8.4	10.8	219.15	3.160
1986	8	29	2045	189.97	-7.6	-9.6	12.2	218.23	3.157
1986	8	29	2100	189.90	-6.5	-11.1	12.9	210.45	3.153
1986	8	29	2115	189.84	-7.4	-8.8	11.5	219.77	3.149
1986	8	29	2130	189.80	-6.6	-8.9	11.1	216.35	3.145
1986	8	29	2145	189.78	-6.2	-8.3	10.3	216.70	3.141
1986	8	29	2200	189.77	-5.5	-8.0	9.7	214.74	3.136
1986	8	29	2215	189.76	-7.0	-10.6	12.7	213.19	3.146
1986	8	29	2230	189.75	-5.5	-8.6	10.2	212.40	3.163
1986	8	29	2245	189.74	-6.4	-9.4	11.4	214.38	3.155
1986	8	29	2300	189.71	-6.3	-7.3	9.7	220.56	3.144
1986	8	29	2315	189.77	-6.7	-7.7	10.2	220.70	3.133
1986	8	29	2330	189.71	-5.0	-6.2	7.9	218.76	3.126
1986	8	29	2345	189.71	-5.0	-6.2	7.9	218.76	3.121
1986	8	30	0000	189.72	-5.0	-6.2	7.9	218.76	3.121
1986	8	30	0015	189.72	-5.8	-4.9	7.6	229.68	3.115
1986	8	30	0030	189.71	-5.4	-5.2	7.5	226.32	3.110
1986	8	30	0045	189.75	-5.8	-5.3	7.9	227.26	3.105
1986	8	30	0100	189.71	-6.2	-5.7	8.4	227.00	3.102
1986	8	30	0115	189.71	-6.2	-5.1	8.1	230.62	3.098
1986	8	30	0130	189.67	-6.5	-5.9	8.8	227.80	3.095
1986	8	30	0145	189.70	-6.6	-5.3	8.4	231.29	3.092
1986	8	30	0200	189.66	-6.5	-6.4	9.1	225.18	3.089
1986	8	30	0215	189.68	-7.1	-7.7	10.5	222.59	3.102
1986	8	30	0230	189.61	-6.7	-6.8	9.5	224.66	3.120
1986	8	30	0245	189.58	-6.5	-5.5	8.5	229.98	3.113
1986	8	30	0300	189.52	-6.6	-6.3	9.1	226.37	3.102
1986	8	30	0315	189.53	-7.9	-6.1	9.9	232.22	3.092
1986	8	30	0330	189.45	-9.0	-5.8	10.7	236.95	3.084
1986	8	30	0345	189.40	-10.0	-4.9	11.1	243.97	3.080
1986	8	30	0400	189.31	-10.0	-4.9	11.1	243.97	3.080
1986	8	30	0415	189.26	-8.4	-6.1	10.4	233.91	3.074
1986	8	30	0430	189.25	-9.3	-7.3	11.8	231.79	3.070
1986	8	30	0445	189.20	-7.4	-7.1	10.2	226.21	3.066
1986	8	30	0500	189.15	-8.8	-7.9	11.8	227.79	3.063
1986	8	30	0515	189.08	-8.4	-9.3	12.5	221.92	3.059
1986	8	30	0530	189.05	-9.7	-9.6	13.6	225.23	3.055
1986	8	30	0545	188.97	-8.7	-9.7	13.0	221.97	3.051
1986	8	30	0600	188.82	-9.5	-10.3	13.9	222.66	3.046
1986	8	30	0615	188.72	-6.5	-12.8	14.3	207.09	3.058
1986	8	30	0630	188.62	-8.6	-12.6	15.2	214.23	3.076
1986	8	30	0645	188.53	-10.2	-11.8	15.6	220.74	3.068
1986	8	30	0700	188.53	-10.0	-12.1	15.7	219.74	3.056
1986	8	30	0715	188.52	-10.7	-12.1	16.1	221.61	3.044
1986	8	30	0730	188.47	-9.6	-14.5	17.4	213.41	3.034
1986	8	30	0745	188.38	-12.1	-12.3	17.3	224.68	3.026
1986	8	30	0800	188.33	-12.1	-12.3	17.3	224.68	3.026
1986	8	30	0815	188.35	-9.7	-12.1	15.5	218.60	3.014
1986	8	30	0830	188.30	-11.4	-16.1	19.7	215.18	3.009
1986	8	30	0845	188.34	-11.7	-15.9	19.7	216.23	3.007
1986	8	30	0900	188.34	-14.1	-19.5	24.0	215.88	3.007
1986	8	30	0915	188.34	-9.8	-14.8	17.7	213.37	3.006
1986	8	30	0930	188.33	-13.4	-17.3	21.9	217.85	3.006
1986	8	30	0945	188.32	-10.0	-18.8	21.3	208.02	3.007
1986	8	30	1000	188.26	-11.1	-17.6	20.8	212.15	3.010
1986	8	30	1015	188.31	-12.7	-22.6	25.9	209.41	3.031
1986	8	30	1030	188.41	-11.7	-15.9	19.7	216.23	3.061
1986	8	30	1045	188.43	-11.0	-18.4	21.4	210.86	3.068
1986	8	30	1100	188.50	-10.7	-16.7	19.9	212.75	3.077
1986	8	30	1115	188.60	-8.4	-14.9	17.1	209.27	3.091
1986	8	30	1130	188.69	-9.1	-14.5	17.1	212.14	3.108
1986	8	30	1145	188.74	-9.7	-14.3	17.3	213.98	3.125
1986	8	30	1200	188.83	-9.7	-14.3	17.3	213.98	3.125
1986	8	30	1215	188.91	-11.5	-16.4	20.0	214.97	3.161

1986	8	30	1230	189.00	-11.4	-13.8	17.9	219.58	3.175
1986	8	30	1245	189.13	-11.8	-12.6	17.2	223.20	3.190
1986	8	30	1300	189.24	-12.8	-14.5	19.3	221.49	3.212
1986	8	30	1315	189.34	-11.8	-13.5	18.0	221.01	3.236
1986	8	30	1330	189.49	-11.0	-12.7	16.8	220.73	3.256
1986	8	30	1345	189.59	-12.2	-12.1	17.2	225.30	3.272
1986	8	30	1400	189.69	-10.6	-11.8	15.9	221.99	3.285
1986	8	30	1415	189.79	-11.4	-11.4	16.1	224.99	3.316
1986	8	30	1430	189.93	-7.8	-7.8	11.1	224.93	3.350
1986	8	30	1445	190.07	-8.4	-9.6	12.8	221.45	3.357
1986	8	30	1500	190.17	-6.8	-7.8	10.4	221.15	3.353
1986	8	30	1515	190.20	-7.5	-7.7	10.7	224.19	3.348
1986	8	30	1530	190.28	-9.5	-7.6	12.2	231.19	3.343
1986	8	30	1545	190.35	-7.5	-6.4	9.8	229.69	3.340
1986	8	30	1600	190.50	-7.5	-6.4	9.8	229.69	3.340
1986	8	30	1615	190.57	-4.3	-3.4	5.5	231.22	3.337
1986	8	30	1630	190.68	-4.3	-3.4	5.5	231.22	3.335
1986	8	30	1645	190.73	-3.8	-3.4	5.1	227.98	3.331
1986	8	30	1700	190.74	-3.4	-2.6	4.3	232.91	3.328
1986	8	30	1715	190.79	-2.9	-1.6	3.3	241.53	3.324
1986	8	30	1730	190.76	-1.3	-1.0	1.6	230.96	3.321
1986	8	30	1745	190.79	-0.1	-0.3	0.3	200.00	3.318
1986	8	30	1800	190.80	-0.0	-0.4	0.4	181.57	3.314
1986	8	30	1815	190.84	0.3	0.4	0.4	38.43	3.329
1986	8	30	1830	190.84	0.5	0.2	0.5	65.00	3.349
1986	8	30	1845	190.85	1.6	-0.3	1.6	99.70	3.343
1986	8	30	1900	190.86	2.1	-0.7	2.2	108.15	3.333
1986	8	30	1915	190.91	3.5	-1.0	3.6	106.63	3.324
1986	8	30	1930	190.89	4.0	-1.3	4.2	108.09	3.315
1986	8	30	1945	190.91	3.8	-0.9	3.9	102.75	3.307
1986	8	30	2000	190.91	3.8	-0.9	3.9	102.75	3.307
1986	8	30	2015	190.92	5.1	2.6	5.7	62.99	3.300
1986	8	30	2030	190.85	6.4	3.5	7.3	61.08	3.303
1986	8	30	2045	190.79	7.8	4.8	9.2	58.11	3.310
1986	8	30	2100	190.76	8.2	6.5	10.5	51.76	3.317
1986	8	30	2115	190.79	9.3	5.1	10.6	61.22	3.325
1986	8	30	2130	190.81	12.1	4.0	12.7	71.79	3.337
1986	8	30	2145	190.74	11.7	3.7	12.3	72.47	3.354
1986	8	30	2200	190.75	13.1	4.4	13.8	71.25	3.369
1986	8	30	2215	190.81	13.3	4.0	13.8	73.31	3.401
1986	8	30	2230	190.82	14.0	5.3	14.9	69.22	3.437
1986	8	30	2245	190.84	14.4	6.2	15.7	66.82	3.450
1986	8	30	2300	190.83	12.7	5.7	13.9	65.82	3.461
1986	8	30	2315	190.80	13.2	6.6	14.8	63.45	3.472
1986	8	30	2330	190.74	12.1	7.1	14.1	59.69	3.486
1986	8	30	2345	190.74	12.8	7.6	14.9	59.21	3.500
1986	8	31	0000	190.67	12.8	7.6	14.9	59.21	3.500
1986	8	31	0015	190.56	14.5	9.4	17.3	57.01	3.528
1986	8	31	0030	190.54	12.0	8.8	14.9	53.77	3.537
1986	8	31	0045	190.53	14.9	11.6	18.9	52.14	3.541
1986	8	31	0100	190.50	14.6	10.7	18.0	53.81	3.539
1986	8	31	0115	190.49	15.8	11.0	19.3	55.15	3.537
1986	8	31	0130	190.50	13.5	11.2	17.6	50.49	3.535
1986	8	31	0145	190.43	13.9	10.7	17.5	52.47	3.535
1986	8	31	0200	190.42	13.1	10.7	16.9	50.64	3.535
1986	8	31	0215	190.43	12.1	10.3	15.9	49.65	3.555
1986	8	31	0230	190.45	14.4	11.1	18.1	52.27	3.583
1986	8	31	0245	190.48	12.7	11.1	16.9	48.82	3.589
1986	8	31	0300	190.48	13.8	10.6	17.4	52.40	3.588
1986	8	31	0315	190.54	15.4	10.0	18.4	56.87	3.592
1986	8	31	0330	190.48	15.6	10.9	19.1	55.04	3.605
1986	8	31	0345	190.66	14.7	9.3	17.4	57.75	3.619
1986	8	31	0400	190.68	14.7	9.3	17.4	57.75	3.619
1986	8	31	0415	190.72	13.4	8.0	15.6	59.11	3.637
1986	8	31	0430	190.73	12.1	7.1	14.1	59.69	3.646
1986	8	31	0445	190.71	11.9	7.3	14.0	58.43	3.656
1986	8	31	0500	190.72	10.7	7.4	13.0	55.25	3.666
1986	8	31	0515	190.69	12.0	7.1	14.0	59.66	3.677
1986	8	31	0530	190.67	9.8	6.8	12.0	55.38	3.689
1986	8	31	0545	190.65	9.7	7.2	12.0	53.50	3.703
1986	8	31	0600	190.63	10.6	7.9	13.2	53.18	3.716
1986	8	31	0615	190.68	7.7	6.5	10.0	50.00	3.743
1986	8	31	0630	190.68	7.3	5.8	9.4	51.41	3.772
1986	8	31	0645	190.65	8.6	5.8	10.3	56.08	3.773
1986	8	31	0700	190.66	7.9	6.3	10.1	51.24	3.765
1986	8.	31	0715	190.70	8.6	5.2	10.1	58.72	3.756
1986	8	31	0730	190.64	7.2	6.0	9.4	50.23	3.748
1986	8	31	0745	190.60	5.8	5.9	8.3	44.61	3.741
1986	8	31	0800	190.50	5.8	5.9	8.3	44.61	3.741
1986	8	31	0815	190.56	8.0	4.7	9.3	59.47	3.733

1986	8	31	0830	190.60	4.7	3.6	5.9	52.37	3.733
1986	8	31	0845	190.61	5.2	3.0	6.0	60.24	3.733
1986	8	31	0900	190.55	4.7	2.4	5.3	62.84	3.735
1986	8	31	0915	190.58	3.2	2.5	4.1	52.32	3.735
1986	8	31	0930	190.63	3.4	3.0	4.6	48.54	3.735
1986	8	31	0945	190.60	3.3	3.0	4.4	47.80	3.730
1986	8	31	1000	190.55	3.0	2.6	4.0	48.86	3.725
1986	8	31	1015	190.59	2.5	2.4	3.5	46.56	3.737
1986	8	31	1030	190.57	1.8	2.6	3.1	34.35	3.755
1986	8	31	1045	190.55	1.5	1.9	2.5	38.43	3.750
1986	8	31	1100	190.56	2.2	1.8	2.8	50.47	3.740
1986	8	31	1115	190.53	2.2	3.0	3.8	36.39	3.734
1986	8	31	1130	190.58	2.1	1.6	2.6	54.11	3.731
1986	8	31	1145	190.56	1.6	2.2	2.7	36.56	3.730
1986	8	31	1200	190.59	1.6	2.2	2.7	36.56	3.730
1986	8	31	1215	190.62	1.7	1.6	2.3	47.35	3.730
1986	8	31	1230	190.65	2.4	1.1	2.7	65.00	3.730
1986	8	31	1245	190.69	3.2	-1.2	3.4	110.00	3.732
1986	8	31	1300	190.76	2.8	-0.7	2.8	104.29	3.740
1986	8	31	1315	190.84	1.9	-0.5	2.0	105.91	3.745
1986	8	31	1330	190.93	1.4	-1.8	2.3	142.20	3.749
1986	8	31	1345	190.97	1.6	-1.9	2.5	138.74	3.750
1986	8	31	1400	191.03	1.3	-1.8	2.2	144.70	3.750
1986	8	31	1415	191.13	0.7	-2.3	2.4	164.46	3.765
1986	8	31	1430	191.20	0.9	-2.8	2.9	162.85	3.786
1986	8	31	1445	191.27	-0.0	-3.0	3.0	180.71	3.780
1986	8	31	1500	191.37	-0.4	-3.4	3.4	186.83	3.771
1986	8	31	1515	191.43	-1.7	-3.2	3.6	207.82	3.765
1986	8	31	1530	191.55	-1.7	-3.8	4.1	203.95	3.760
1986	8	31	1545	191.64	-2.1	-4.4	4.9	205.79	3.757
1986	8	31	1600	191.79	-2.1	-4.4	4.9	205.79	3.757
1986	8	31	1615	191.84	-2.4	-4.3	4.9	209.06	3.756
1986	8	31	1630	191.99	-2.7	-3.7	4.6	216.19	3.756
1986	8	31	1645	192.11	-3.0	-4.4	5.3	214.59	3.757
1986	8	31	1700	192.16	-2.5	-3.6	4.4	214.93	3.760
1986	8	31	1715	192.24	-2.4	-2.6	3.5	223.50	3.763
1986	8	31	1730	192.28	-3.0	-2.2	3.7	234.00	3.769
1986	8	31	1745	192.35	-2.5	-2.4	3.5	226.57	3.773
1986	8	31	1800	192.38	-2.8	-2.5	3.8	228.01	3.773
1986	8	31	1815	192.36	-2.7	-2.7	3.8	225.14	3.791
1986	8	31	1830	192.33	-3.2	-1.0	3.3	251.91	3.815
1986	8	31	1845	192.37	-2.6	-0.2	2.6	265.56	3.817
1986	8	31	1900	192.35	-3.2	-0.5	3.2	261.19	3.812
1986	8	31	1915	192.25	-2.5	0.1	2.5	271.57	3.808
1986	8	31	1930	192.23	-1.9	1.5	2.5	308.43	3.804
1986	8	31	1945	192.18	-1.9	2.3	3.0	321.43	3.805
1986	8	31	2000	192.11	-1.9	2.3	3.0	321.43	3.805
1986	8	31	2015	192.08	-2.6	-1.7	3.1	237.65	3.806
1986	8	31	2030	192.07	-2.9	-4.2	5.1	214.42	3.803
1986	8	31	2045	192.03	-3.2	-4.3	5.4	216.05	3.798
1986	8	31	2100	191.99	-3.6	-3.4	5.0	226.20	3.793
1986	8	31	2115	191.94	-3.2	-3.5	4.8	222.75	3.788
1986	8	31	2130	191.85	-3.5	-3.3	4.8	226.94	3.786
1986	8	31	2145	191.79	-3.6	-3.1	4.8	229.22	3.783
1986	8	31	2200	191.68	-4.0	-3.1	5.0	232.35	3.782
1986	8	31	2215	191.63	-3.4	-2.6	4.3	232.91	3.796
1986	8	31	2230	191.58	-3.1	-2.4	3.9	231.68	3.816
1986	8	31	2245	191.47	-2.7	-2.5	3.7	227.55	3.812
1986	8	31	2300	191.36	-2.4	-2.6	3.5	223.50	3.803
1986	8	31	2315	191.30	-2.3	-1.9	3.0	231.43	3.796
1986	8	31	2330	191.24	-2.6	-1.2	2.9	245.00	3.790
1986	8	31	2345	191.19	-2.5	-1.9	3.2	232.28	3.786
1986	9	1	0000	191.15	-2.5	-1.9	3.2	232.28	3.786
1986	9	1	0015	191.11	-1.8	-0.8	2.0	245.00	3.781
1986	9	1	0030	191.06	-2.1	-0.7	2.2	250.19	3.780
1986	9	1	0045	191.08	-1.5	-1.9	2.5	218.43	3.778
1986	9	1	0100	191.06	-2.4	-1.1	2.7	245.00	3.776
1986	9	1	0115	191.05	-2.5	-1.0	2.7	249.24	3.775
1986	9	1	0130	190.98	-3.0	-0.9	3.1	252.35	3.773
1986	9	1	0145	191.05	-2.5	-1.0	2.7	249.24	3.770
1986	9	1	0200	191.12	-2.5	-1.6	2.9	237.15	3.766
1986	9	1	0215	191.10	-2.6	-1.2	2.9	245.00	3.779
1986	9	1	0230	191.14	-2.3	-0.3	2.3	262.65	3.798
1986	9	1	0245	191.18	-3.1	-0.2	3.1	265.77	3.791
1986	9	1	0300	191.15	-2.8	0.9	3.0	287.27	3.780
1986	9	1	0315	191.13	-3.6	1.5	3.9	293.12	3.771
1986	9	1	0330	191.14	-3.4	2.6	4.3	307.24	3.763
1986	9	1	0345	191.13	-3.2	2.7	4.2	309.65	3.758
1986	9	1	0400	191.15	-3.2	2.7	4.2	309.65	3.758
1986	9	1	0415	191.19	-3.3	3.6	4.9	317.30	3.748

1986	9	1	0430	191.23	-2.8	3.3	4.3	320.32	3.745
1986	9	1	0445	191.27	-2.8	3.8	4.7	323.93	3.740
1986	9	1	0500	191.32	-3.1	3.6	4.8	319.22	3.738
1986	9	1	0515	191.36	-3.0	3.0	4.3	314.44	3.735
1986	9	1	0530	191.37	-2.9	2.0	3.6	304.86	3.732
1986	9	1	0545	191.39	-3.1	0.3	3.1	275.65	3.730
1986	9	1	0600	191.41	-3.9	-1.1	4.1	254.93	3.727
1986	9	1	0615	191.44	-4.3	-0.8	4.3	259.68	3.740
1986	9	1	0630	191.41	-5.4	1.7	5.7	287.14	3.758
1986	9	1	0645	191.44	-4.9	4.0	6.3	309.65	3.753
1986	9	1	0700	191.46	-4.8	2.4	5.3	296.84	3.742
1986	9	1	0715	191.43	-4.3	3.2	5.4	306.05	3.732
1986	9	1	0730	191.44	-4.1	3.5	5.4	310.82	3.723
1986	9	1	0745	191.42	-3.9	2.6	4.7	304.04	3.716
1986	9	1	0800	191.43	-3.9	2.6	4.7	304.04	3.716
1986	9	1	0815	191.42	-3.3	2.4	4.1	305.95	3.707
1986	9	1	0830	191.35	-2.6	4.0	4.8	326.53	3.703
1986	9	1	0845	191.34	-2.1	3.2	3.8	327.50	3.700
1986	9	1	0900	191.34	-1.5	3.2	3.5	335.00	3.698
1986	9	1	0915	191.29	-1.0	1.3	1.6	320.96	3.697
1986	9	1	0930	191.26	-0.3	0.6	0.7	335.00	3.694
1986	9	1	0945	191.20	-0.9	-1.9	2.1	205.91	3.693
1986	9	1	1000	191.11	-0.9	-3.6	3.8	194.61	3.690
1986	9	1	1015	191.07	-1.3	-4.0	4.2	198.09	3.705
1986	9	1	1030	191.02	-1.9	-3.3	3.8	209.64	3.725
1986	9	1	1045	190.97	-1.1	-3.4	3.5	197.71	3.721
1986	9	1	1100	190.87	-1.9	-4.1	4.5	205.36	3.714
1986	9	1	1115	190.81	-1.8	-5.0	5.4	200.00	3.710
1986	9	1	1130	190.74	-2.0	-5.6	5.9	200.00	3.707
1986	9	1	1145	190.70	-2.3	-5.5	5.9	202.73	3.707
1986	9	1	1200	190.66	-2.3	-5.5	5.9	202.73	3.707
1986	9	1	1215	190.63	-1.9	-5.3	5.7	200.00	3.710
1986	9	1	1230	190.61	-1.8	-5.2	5.5	198.53	3.712
1986	9	1	1245	190.58	-2.1	-4.9	5.3	203.81	3.715
1986	9	1	1300	190.58	-2.7	-4.7	5.4	209.83	3.718
1986	9	1	1315	190.57	-3.4	-5.8	6.7	210.36	3.720
1986	9	1	1330	190.58	-3.7	-5.7	6.8	213.17	3.722
1986	9	1	1345	190.59	-4.0	-6.1	7.3	213.50	3.723
1986	9	1	1400	190.63	-3.8	-5.6	6.8	213.89	3.722
1986	9	1	1415	190.67	-5.4	-6.7	8.6	218.73	3.735
1986	9	1	1430	190.72	-5.8	-6.1	8.4	223.33	3.752
1986	9	1	1445	190.77	-5.5	-6.4	8.5	220.56	3.744
1986	9	1	1500	190.84	-7.1	-6.3	9.5	228.47	3.734
1986	9	1	1515	190.88	-7.0	-6.9	9.9	225.46	3.726
1986	9	1	1530	190.92	-6.3	-5.8	8.6	227.41	3.719
1986	9	1	1545	190.98	-7.7	-7.2	10.5	226.74	3.714
1986	9	1	1600	191.02	-7.7	-7.2	10.5	226.74	3.714
1986	9	1	1615	191.12	-8.3	-7.3	11.0	228.70	3.707
1986	9	1	1630	191.18	-8.5	-6.9	10.9	230.71	3.705
1986	9	1	1645	191.28	-8.7	-6.9	11.1	231.46	3.705
1986	9	1	1700	191.38	-8.0	-6.0	10.0	233.47	3.704
1986	9	1	1715	191.50	-9.0	-5.8	10.7	236.95	3.703
1986	9	1	1730	191.64	-8.4	-5.1	9.9	238.60	3.703
1986	9	1	1745	191.72	-9.0	-5.8	10.7	236.95	3.703
1986	9	1	1800	191.77	-8.5	-4.7	9.7	240.87	3.702
1986	9	1	1815	191.82	-8.2	-5.3	9.8	237.37	3.716
1986	9	1	1830	191.84	-9.1	-4.2	10.0	245.00	3.737
1986	9	1	1845	191.83	-8.1	-4.6	9.3	240.70	3.733
1986	9	1	1900	191.83	-6.4	-3.5	7.3	241.08	3.725
1986	9	1	1915	191.79	-7.8	-4.4	8.9	240.50	3.718
1986	9	1	1930	191.76	-7.4	-4.9	8.9	236.60	3.712
1986	9	1	1945	191.75	-7.0	-5.3	8.8	233.18	3.707
1986	9	1	2000	191.71	-7.0	-5.3	8.8	233.18	3.707
1986	9	1	2015	191.63	-7.8	-5.4	9.4	235.24	3.702
1986	9	1	2030	191.58	-9.0	-7.0	11.4	231.82	3.700
1986	9	1	2045	191.53	-8.8	-6.7	11.1	232.47	3.700
1986	9	1	2100	191.47	-9.3	-6.8	11.5	233.98	3.700
1986	9	1	2115	191.37	-8.3	-7.8	11.4	226.57	3.699
1986	9	1	2130	191.27	-9.9	-8.1	12.8	230.96	3.698
1986	9	1	2145	191.13	-8.6	-8.2	11.9	226.41	3.695
1986	9	1	2200	190.98	-7.9	-8.9	11.9	221.67	3.692
1986	9	1	2215	190.82	-6.9	-8.4	10.9	219.38	3.705
1986	9	1	2230	190.68	-7.5	-9.5	12.1	218.01	3.725
1986	9	1	2245	190.50	-7.8	-10.5	13.1	216.67	3.720
1986	9	1	2300	190.35	-7.7	-13.4	15.4	209.76	3.709
1986	9	1	2315	190.21	-9.2	-12.8	15.7	215.66	3.700
1986	9	1	2330	190.10	-8.0	-12.2	14.6	213.16	3.690
1986	9	1	2345	189.95	-8.0	-12.6	14.9	212.59	3.682
1986	9	2	0000	189.80	-8.0	-12.6	14.9	212.59	3.682
1986	9	2	0015	189.69	-7.9	-12.5	14.8	212.17	3.669

1986	9	2	0030	189.57	-7.2	-13.4	15.2	208.28	3.662
1986	9	2	0045	189.51	-7.5	-14.2	16.1	207.84	3.654
1986	9	2	0100	189.42	-6.0	-11.3	12.8	207.95	3.647
1986	9	2	0115	189.38	-6.6	-13.1	14.7	206.65	3.642
1986	9	2	0130	189.37	-6.5	-12.3	13.9	207.88	3.637
1986	9	2	0145	189.39	-7.0	-12.7	14.5	208.68	3.632
1986	9	2	0200	189.33	-5.7	-9.7	11.3	210.47	3.627
1986	9	2	0215	189.32	-8.9	-12.8	15.6	214.98	3.640
1986	9	2	0230	189.33	-8.2	-12.7	15.1	212.99	3.658
1986	9	2	0245	189.33	-8.7	-12.3	15.1	215.21	3.649
1986	9	2	0300	189.34	-9.2	-12.6	15.6	216.30	3.636
1986	9	2	0315	189.36	-8.6	-11.3	14.2	217.35	3.625
1986	9	2	0330	189.35	-7.9	-11.0	13.5	215.78	3.617
1986	9	2	0345	189.35	-8.9	-12.0	14.9	216.54	3.609
1986	9	2	0400	189.38	-8.9	-12.0	14.9	216.54	3.609
1986	9	2	0415	189.37	-8.4	-11.8	14.5	215.60	3.597
1986	9	2	0430	189.41	-7.0	-11.8	13.7	210.73	3.592
1986	9	2	0445	189.44	-8.0	-14.2	16.3	209.46	3.589
1986	9	2	0500	189.46	-7.4	-11.7	13.9	212.34	3.585
1986	9	2	0515	189.51	-7.9	-13.5	15.7	210.40	3.585
1986	9	2	0530	189.55	-8.4	-14.0	16.3	211.02	3.586
1986	9	2	0545	189.60	-9.3	-12.9	15.9	216.02	3.592
1986	9	2	0600	189.65	-10.3	-14.5	17.8	215.41	3.599
1986	9	2	0615	189.73	-8.6	-15.2	17.5	209.31	3.624
1986	9	2	0630	189.82	-8.7	-13.3	15.9	213.11	3.654
1986	9	2	0645	189.88	-10.1	-13.0	16.4	217.81	3.659
1986	9	2	0700	189.86	-10.8	-13.1	17.0	219.49	3.662
1986	9	2	0715	189.86	-10.8	-13.6	17.4	218.29	3.662
1986	9	2	0730	189.84	-12.0	-14.4	18.8	219.80	3.664
1986	9	2	0745	189.84	-11.0	-13.0	17.0	220.39	3.664
1986	9	2	0800	189.75	-11.0	-13.0	17.0	220.39	3.664
1986	9	2	0815	189.68	-10.3	-12.4	16.1	219.70	3.654
1986	9	2	0830	189.68	-10.6	-10.8	15.2	224.53	3.645
1986	9	2	0845	189.64	-10.4	-10.7	14.9	224.13	3.637
1986	9	2	0900	189.52	-11.3	-10.9	15.7	226.10	3.628
1986	9	2	0915	189.45	-11.0	-11.0	15.5	225.05	3.615
1986	9	2	0930	189.36	-8.6	-9.9	13.1	221.17	3.602
1986	9	2	0945	189.26	-9.0	-11.3	14.4	218.61	3.587
1986	9	2	1000	189.16	-9.2	-12.1	15.3	217.26	3.569
1986	9	2	1015	189.09	-7.2	-11.2	13.3	212.86	3.562
1986	9	2	1030	188.99	-6.4	-13.0	14.5	206.16	3.557
1986	9	2	1045	188.89	-8.4	-12.5	15.1	213.84	3.522
1986	9	2	1100	188.83	-7.6	-12.6	14.7	211.09	3.478
1986	9	2	1115	188.80	-7.2	-12.4	14.4	210.20	3.433
1986	9	2	1130	188.73	-6.3	-12.7	14.2	206.59	3.392
1986	9	2	1145	188.62	-6.5	-11.1	12.9	210.45	3.355
1986	9	2	1200	188.60	-6.5	-11.1	12.9	210.45	3.355
1986	9	2	1215	188.57	-8.6	-12.5	15.2	214.55	3.304
1986	9	2	1230	188.48	-4.9	-12.3	13.3	201.83	3.286
1986	9	2	1245	188.42	-5.9	-13.6	14.8	203.56	3.268
1986	9	2	1300	188.47	-4.5	-11.8	12.7	200.96	3.253
1986	9	2	1315	188.46	-3.9	-12.6	13.2	197.24	3.241
1986	9	2	1330	188.41	-5.4	-14.2	15.2	200.80	3.228
1986	9	2	1345	188.45	-3.3	-11.8	12.3	195.70	3.215
1986	9	2	1400	188.47	-3.7	-13.2	13.7	195.56	3.203
1986	9	2	1415	188.50	-3.8	-12.2	12.8	197.15	3.207
1986	9	2	1430	188.56	-4.6	-13.2	13.9	199.13	3.220
1986	9	2	1445	188.63	-5.6	-15.6	16.6	199.76	3.208
1986	9	2	1500	188.72	-5.4	-12.0	13.2	204.30	3.193
1986	9	2	1515	188.81	-5.5	-13.8	14.9	201.64	3.183
1986	9	2	1530	188.91	-3.0	-10.9	11.3	195.33	3.177
1986	9	2	1545	189.03	-3.3	-12.3	12.8	194.92	3.170
1986	9	2	1600	189.10	-3.3	-12.3	12.8	194.92	3.170
1986	9	2	1615	189.26	-4.8	-14.3	15.1	198.66	3.151
1986	9	2	1630	189.31	-5.5	-13.8	14.9	201.64	3.140
1986	9	2	1645	189.43	-4.3	-11.7	12.5	200.32	3.128
1986	9	2	1700	189.60	-6.4	-14.7	16.0	203.54	3.116
1986	9	2	1715	189.70	-5.7	-12.5	13.7	204.44	3.101
1986	9	2	1730	189.79	-7.1	-11.9	13.9	210.85	3.085
1986	9	2	1745	190.00	-7.3	-11.7	13.7	211.89	3.066
1986	9	2	1800	190.08	-6.5	-11.9	13.5	208.72	3.043
1986	9	2	1815	190.22	-6.0	-13.3	14.6	204.44	3.034
1986	9	2	1830	190.37	-8.7	-16.0	18.2	208.51	3.029
1986	9	2	1845	190.45	-6.2	-7.5	9.8	219.49	2.996
1986	9	2	1900	190.53	-8.4	-11.3	14.1	216.62	2.964
1986	9	2	1915	190.58	-8.2	-12.1	14.7	214.24	2.933
1986	9	2	1930	190.66	-9.3	-11.6	14.8	218.61	2.904
1986	9	2	1945	190.71	-8.5	-12.0	14.7	215.30	2.875
1986	9	2	2000	190.71	-8.5	-12.0	14.7	215.30	2.875
1986	9	2	2015	190.68	-11.1	-9.0	14.3	230.87	2.829

1986	9	2	2030	190.69	-8.3	-9.0	12.2	222.42	2.809
1986	9	2	2045	190.69	-9.7	-8.5	12.9	228.81	2.787
1986	9	2	2100	190.66	-8.5	-9.4	12.7	222.28	2.762
1986	9	2	2115	190.65	-7.8	-8.3	11.4	223.39	2.738
1986	9	2	2130	190.62	-5.8	-8.3	10.2	214.91	2.715
1986	9	2	2145	190.58	-5.2	-8.3	9.8	212.12	2.696
1986	9	2	2200	190.57	-5.7	-6.6	8.8	220.77	2.678
1986	9	2	2215	190.46	-5.0	-6.0	7.8	220.07	2.678
1986	9	2	2230	190.36	-3.4	-6.4	7.3	207.82	2.686
1986	9	2	2245	190.26	-2.7	-5.9	6.5	204.40	2.670
1986	9	2	2300	190.22	-0.9	-5.8	5.9	188.96	2.651
1986	9	2	2315	190.10	-0.1	-5.9	5.9	181.13	2.634
1986	9	2	2330	190.04	0.5	-4.6	4.6	173.82	2.614
1986	9	2	2345	189.96	1.0	-6.8	6.9	171.86	2.592
1986	9	3	0000	189.88	1.0	-6.8	6.9	171.86	2.592
1986	9	3	0015	189.81	1.3	-5.0	5.2	165.01	2.557
1986	9	3	0030	189.73	3.6	-6.1	7.1	149.37	2.547
1986	9	3	0045	189.60	-1.1	-4.9	5.1	192.78	2.539
1986	9	3	0100	189.50	-1.7	-2.5	3.1	213.39	2.527
1986	9	3	0115	189.43	-0.7	-2.8	2.8	194.29	2.517
1986	9	3	0130	189.39	-1.5	-4.1	4.4	200.00	2.511
1986	9	3	0145	189.31	0.5	-2.7	2.7	170.07	2.506
1986	9	3	0200	189.27	-0.2	-2.1	2.1	186.43	2.501
1986	9	3	0215	189.27	1.0	-3.2	3.3	161.91	2.512
1986	9	3	0230	189.24	-1.3	-4.0	4.2	198.09	2.531
1986	9	3	0245	189.26	-0.8	-2.1	2.3	200.00	2.521
1986	9	3	0300	189.27	-0.7	-2.0	2.1	200.00	2.504
1986	9	3	0315	189.35	-1.6	-3.0	3.4	208.47	2.486
1986	9	3	0330	189.44	0.2	-2.6	2.6	175.56	2.470
1986	9	3	0345	189.46	0.2	0.1	0.2	65.00	2.457
1986	9	3	0400	189.50	0.2	0.1	0.2	65.00	2.457
1986	9	3	0415	189.61	-0.0	1.2	1.2	359.44	2.436
1986	9	3	0430	189.67	-0.3	1.6	1.6	349.04	2.428
1986	9	3	0445	189.74	-0.3	1.8	1.9	350.52	2.424
1986	9	3	0500	189.81	-0.3	1.1	1.1	345.30	2.422
1986	9	3	0515	189.89	0.3	1.1	1.1	12.87	2.421
1986	9	3	0530	189.99	-1.1	2.4	2.7	335.00	2.420
1986	9	3	0545	190.10	-1.4	2.5	2.9	331.05	2.412
1986	9	3	0600	190.24	-2.2	4.6	5.1	335.00	2.403
1986	9	3	0615	190.37	-2.0	4.7	5.1	337.25	2.415
1986	9	3	0630	190.44	-1.8	3.8	4.2	335.00	2.433
1986	9	3	0645	190.59	-1.5	6.3	6.5	346.48	2.424
1986	9	3	0700	190.64	-1.8	6.0	6.3	343.26	2.414
1986	9	3	0715	190.71	-2.3	7.5	7.9	343.03	2.403
1986	9	3	0730	190.77	-0.6	5.1	5.2	353.08	2.399
1986	9	3	0745	190.85	-1.9	6.7	7.0	344.06	2.397
1986	9	3	0800	190.86	-1.9	6.7	7.0	344.06	2.397
1986	9	3	0815	190.86	-2.7	6.8	7.3	338.14	2.399
1986	9	3	0830	190.83	-3.4	6.4	7.3	331.86	2.402
1986	9	3	0845	190.81	-5.8	6.3	8.6	317.41	2.407
1986	9	3	0900	190.85	-3.3	7.5	8.2	336.40	2.416
1986	9	3	0915	190.80	-1.6	7.7	7.9	348.16	2.423
1986	9	3	0930	190.71	-1.9	7.9	8.2	346.31	2.427
1986	9	3	0945	190.65	-1.4	7.2	7.3	349.23	2.431
1986	9	3	1000	190.58	-0.2	5.7	5.7	357.54	2.432
1986	9	3	1015	190.50	0.5	5.3	5.3	5.41	2.451
1986	9	3	1030	190.38	3.2	5.7	6.5	29.36	2.476
1986	9	3	1045	190.31	3.4	6.4	7.3	27.82	2.477
1986	9	3	1100	190.26	3.7	5.1	6.3	35.59	2.475
1986	9	3	1115	190.16	4.2	4.8	6.4	40.85	2.475
1986	9	3	1130	190.04	3.8	5.0	6.2	37.20	2.478
1986	9	3	1145	190.03	4.9	5.1	7.1	43.50	2.483
1986	9	3	1200	189.95	4.9	5.1	7.1	43.50	2.483
1986	9	3	1215	189.81	6.1	4.6	7.7	52.96	2.498
1986	9	3	1230	189.74	5.9	3.2	6.7	61.58	2.507
1986	9	3	1245	189.80	6.8	2.7	7.3	68.14	2.519
1986	9	3	1300	189.75	8.2	2.4	8.5	73.80	2.532
1986	9	3	1315	189.64	6.4	1.8	6.7	74.46	2.546
1986	9	3	1330	189.77	6.4	1.0	6.5	81.19	2.557
1986	9	3	1345	189.73	8.0	1.3	8.1	80.75	2.568
1986	9	3	1400	189.74	6.5	1.6	6.7	76.14	2.576
1986	9	3	1415	189.73	7.3	1.2	7.4	80.73	2.600
1986	9	3	1430	189.83	7.4	2.7	7.8	70.13	2.628
1986	9	3	1445	190.00	6.1	1.1	6.2	79.93	2.633
1986	9	3	1500	190.10	6.7	1.3	6.8	78.63	2.633
1986	9	3	1515	190.23	7.8	3.6	8.6	65.00	2.635
1986	9	3	1530	190.37	6.8	3.7	7.7	61.28	2.640
1986	9	3	1545	190.46	6.1	4.3	7.4	54.90	2.649
1986	9	3	1600	190.55	6.1	4.3	7.4	54.90	2.649
1986	9	3	1615	190.72	6.0	5.4	8.1	47.69	2.669

1986	9	3	1630	191.03	6.1	5.1	8.0	50.44	2.682
1986	9	3	1645	191.19	7.8	6.9	10.4	48.83	2.697
1986	9	3	1700	191.31	7.7	7.2	10.5	46.74	2.712
1986	9	3	1715	191.63	7.5	7.1	10.3	46.39	2.728
1986	9	3	1730	191.95	9.1	9.3	13.0	44.34	2.748
1986	9	3	1745	192.09	9.5	9.5	13.4	44.94	2.768
1986	9	3	1800	192.31	9.9	11.2	15.0	41.35	2.788
1986	9	3	1815	192.44	10.5	11.0	15.2	43.83	2.826
1986	9	3	1830	192.66	9.8	10.0	14.0	44.49	2.872
1986	9	3	1845	192.97	9.6	11.3	14.9	40.33	2.896
1986	9	3	1900	193.03	8.0	11.8	14.2	34.11	2.917
1986	9	3	1915	192.80	6.5	13.7	15.2	25.34	2.937
1986	9	3	1930	192.82	5.2	13.5	14.4	21.12	2.954
1986	9	3	1945	192.85	4.2	15.2	15.7	15.36	2.974
1986	9	3	2000	192.85	4.2	15.2	15.7	15.36	2.974
1986	9	3	2015	193.05	11.4	15.3	19.1	36.56	3.065
1986	9	3	2030	193.05	11.4	14.8	18.7	37.61	3.139
1986	9	3	2045	193.17	14.7	14.7	20.8	44.99	3.229
1986	9	3	2100	193.28	14.4	14.1	20.1	45.58	3.335
1986	9	3	2115	193.28	17.1	19.0	25.5	41.95	3.439
1986	9	3	2130	193.37	18.1	21.9	28.4	39.61	3.554
1986	9	3	2145	193.34	19.4	21.3	28.8	42.35	3.667
1986	9	3	2200	193.37	19.4	20.8	28.4	43.12	3.756
1986	9	3	2215	193.37	20.1	20.2	28.5	44.91	3.828
1986	9	3	2230	193.38	20.1	20.8	28.9	43.93	3.897
1986	9	3	2245	193.26	19.1	18.7	26.7	45.55	3.941
1986	9	3	2300	193.12	21.7	21.1	30.3	45.73	3.980
1986	9	3	2315	192.98	22.7	21.6	31.3	46.39	4.016
1986	9	3	2330	192.78	21.5	19.9	29.3	47.31	4.051
1986	9	3	2345	192.61	21.6	22.8	31.4	43.50	4.084
1986	9	4	0000	192.47	21.6	22.8	31.4	43.50	4.084
1986	9	4	0015	192.32	21.4	19.7	29.1	47.38	4.130
1986	9	4	0030	192.14	20.4	18.5	27.5	47.68	4.144
1986	9	4	0045	192.02	21.5	17.8	27.9	50.27	4.152
1986	9	4	0100	191.94	22.9	17.9	29.1	51.87	4.148
1986	9	4	0115	191.79	19.2	16.6	25.4	49.21	4.143
1986	9	4	0130	191.65	18.2	14.5	23.3	51.32	4.138
1986	9	4	0145	191.53	19.9	16.1	25.6	50.96	4.134
1986	9	4	0200	191.45	16.9	14.3	22.1	49.77	4.130
1986	9	4	0215	191.28	15.9	14.7	21.6	47.24	4.139
1986	9	4	0230	191.10	19.3	15.3	24.6	51.59	4.154
1986	9	4	0245	190.98	14.9	13.3	20.0	48.11	4.147
1986	9	4	0300	190.91	14.5	11.6	18.5	51.26	4.140
1986	9	4	0315	190.79	12.7	11.6	17.2	47.73	4.138
1986	9	4	0330	190.80	12.5	10.3	16.2	50.71	4.141
1986	9	4	0345	190.84	10.3	7.8	12.9	52.91	4.146
1986	9	4	0400	190.86	10.3	7.8	12.9	52.91	4.146
1986	9	4	0415	190.92	14.1	6.4	15.5	65.74	4.156
1986	9	4	0430	190.99	11.3	5.7	12.6	63.18	4.161
1986	9	4	0445	190.94	10.8	5.6	12.2	62.65	4.167
1986	9	4	0500	191.05	10.1	3.9	10.8	68.71	4.173
1986	9	4	0515	191.00	9.7	2.9	10.1	73.53	4.179
1986	9	4	0530	191.10	7.7	1.6	7.9	78.16	4.184
1986	9	4	0545	191.18	5.9	1.0	6.0	80.42	4.188
1986	9	4	0600	191.24	6.7	1.3	6.8	78.63	4.192
1986	9	4	0615	191.24	5.6	0.2	5.6	88.33	4.210
1986	9	4	0630	191.36	4.1	0.2	4.1	87.83	4.234
1986	9	4	0645	191.43	4.8	-0.8	4.8	99.02	4.232
1986	9	4	0700	191.56	4.1	-1.1	4.3	104.29	4.225
1986	9	4	0715	191.64	3.2	-2.1	3.9	123.78	4.220
1986	9	4	0730	191.80	2.3	-1.4	2.7	120.71	4.216
1986	9	4	0745	191.89	4.0	-3.0	5.0	126.39	4.213
1986	9	4	0800	192.05	4.0	-3.0	5.0	126.39	4.213
1986	9	4	0815	192.15	2.5	-3.2	4.1	142.32	4.210
1986	9	4	0830	192.20	1.6	-2.9	3.3	151.53	4.209
1986	9	4	0845	192.23	1.5	-2.3	2.7	146.57	4.207
1986	9	4	0900	192.38	0.9	-2.0	2.2	155.00	4.205
1986	9	4	0915	192.41	0.2	-2.6	2.6	175.56	4.203
1986	9	4	0930	192.45	-0.1	-2.0	2.0	181.57	4.201
1986	9	4	0945	192.45	-0.9	-1.6	1.9	208.75	4.199
1986	9	4	1000	192.38	-0.8	-0.8	1.2	225.02	4.196
1986	9	4	1015	192.29	-0.8	0.1	0.8	274.74	4.209
1986	9	4	1030	192.16	-0.4	0.3	0.4	308.43	4.228
1986	9	4	1045	192.04	-0.8	0.2	0.9	280.54	4.221
1986	9	4	1100	191.83	-0.6	0.7	0.9	322.47	4.212
1986	9	4	1115	191.75	-1.0	0.1	1.0	274.05	4.205
1986	9	4	1130	191.62	-1.2	-0.5	1.3	245.00	4.199
1986	9	4	1145	191.39	-0.8	-0.4	0.9	245.00	4.196
1986	9	4	1200	191.29	-0.8	-0.4	0.9	245.00	4.196
1986	9	4	1215	191.17	0.3	0.4	0.4	38.43	4.191

1986	9	4	1230	190.98	0.4	0.7	0.9	29.46	4.189
1986	9	4	1245	190.87	1.2	0.1	1.2	84.98	4.188
1986	9	4	1300	190.79	2.0	-0.1	2.0	91.56	4.187
1986	9	4	1315	190.60	2.0	-0.7	2.1	110.00	4.186
1986	9	4	1330	190.51	2.3	-1.1	2.6	116.34	4.186
1986	9	4	1345	190.38	2.3	-2.3	3.3	135.46	4.185
1986	9	4	1400	190.27	1.8	-2.8	3.3	148.09	4.184
1986	9	4	1415	190.14	2.0	-3.1	3.6	147.09	4.197
1986	9	4	1430	190.07	1.6	-2.9	3.3	151.53	4.215
1986	9	4	1445	190.04	1.4	-3.5	3.8	158.01	4.207
1986	9	4	1500	190.01	1.8	-3.8	4.2	155.00	4.197
1986	9	4	1515	190.04	1.2	-3.6	3.8	161.01	4.190
1986	9	4	1530	190.09	1.9	-4.2	4.6	155.00	4.184
1986	9	4	1545	190.14	1.5	-2.7	3.1	151.31	4.179
1986	9	4	1600	190.21	1.5	-2.7	3.1	151.31	4.179
1986	9	4	1615	190.28	1.6	-3.4	3.8	155.00	4.175
1986	9	4	1630	190.35	1.6	-3.9	4.2	157.73	4.175
1986	9	4	1645	190.48	1.8	-4.8	5.1	159.48	4.175
1986	9	4	1700	190.60	1.7	-4.6	4.9	159.67	4.174
1986	9	4	1715	190.71	1.3	-2.4	2.7	150.76	4.173
1986	9	4	1730	190.81	-0.1	1.9	1.9	356.25	4.173
1986	9	4	1745	190.88	-0.5	2.2	2.3	347.80	4.175
1986	9	4	1800	191.10	2.1	0.7	2.2	70.19	4.173
1986	9	4	1815	191.17	2.4	0.6	2.5	76.77	4.187
1986	9	4	1830	191.31	0.3	1.9	1.9	9.51	4.206
1986	9	4	1845	191.59	2.3	2.5	3.4	42.25	4.202
1986	9	4	1900	191.77	3.0	0.9	3.1	74.16	4.195
1986	9	4	1915	191.92	4.0	2.6	4.8	56.53	4.187
1986	9	4	1930	192.03	3.8	2.3	4.4	58.52	4.181
1986	9	4	1945	192.20	2.9	2.1	3.6	53.69	4.177
1986	9	4	2000	192.37	2.9	2.1	3.6	53.69	4.177
1986	9	4	2015	192.40	1.8	3.0	3.5	30.41	4.173
1986	9	4	2030	192.45	1.1	2.3	2.6	26.34	4.172
1986	9	4	2045	192.38	-0.6	3.9	4.0	351.14	4.172
1986	9	4	2100	192.37	-1.2	3.4	3.6	341.34	4.171
1986	9	4	2115	192.32	-1.5	2.2	2.6	326.25	4.171
1986	9	4	2130	192.31	-1.1	4.1	4.3	344.46	4.171
1986	9	4	2145	192.37	-1.4	3.5	3.8	338.01	4.171
1986	9	4	2200	192.36	-1.3	4.5	4.7	343.65	4.170
1986	9	4	2215	192.45	-1.0	3.4	3.5	343.13	4.185
1986	9	4	2230	192.50	-0.5	3.7	3.8	351.99	4.205
1986	9	4	2245	192.47	-0.0	3.8	3.8	359.57	4.201
1986	9	4	2300	192.36	0.2	4.3	4.3	2.76	4.193
1986	9	4	2315	192.15	0.6	3.9	4.0	8.69	4.187
1986	9	4	2330	192.04	0.7	4.7	4.8	8.02	4.182
1986	9	4	2345	191.90	1.9	4.9	5.2	21.55	4.180
1986	9	5	0000	191.79	1.9	4.9	5.2	21.55	4.180
1986	9	5	0015	191.67	3.3	5.4	6.4	31.56	4.181
1986	9	5	0030	191.51	4.8	6.9	8.4	35.09	4.184
1986	9	5	0045	191.38	4.8	6.1	7.7	38.10	4.192
1986	9	5	0100	191.08	7.1	17.6	19.0	22.14	4.205
1986	9	5	0115	190.94	9.5	17.5	19.9	28.59	4.233
1986	9	5	0130	190.78	8.3	14.6	16.8	29.70	4.269
1986	9	5	0145	190.60	10.5	15.9	19.0	33.31	4.301
1986	9	5	0200	190.44	9.4	13.4	16.4	34.99	4.327
1986	9	5	0215	190.34	9.6	13.0	16.2	36.53	4.366
1986	9	5	0230	190.33	10.7	11.1	15.4	44.10	4.403
1986	9	5	0245	190.28	11.2	9.2	14.5	50.58	4.416
1986	9	5	0300	190.30	12.0	6.8	13.7	60.41	4.429
1986	9	5	0315	190.30	12.5	6.3	14.0	63.36	4.449
1986	9	5	0330	190.34	11.9	6.0	13.3	63.28	4.468
1986	9	5	0345	190.31	12.9	6.4	14.4	63.41	4.480
1986	9	5	0400	190.38	12.9	6.4	14.4	63.41	4.480
1986	9	5	0415	190.42	12.5	3.4	13.0	74.75	4.482
1986	9	5	0430	190.41	11.6	2.4	11.8	78.21	4.480
1986	9	5	0445	190.53	9.7	1.7	9.8	80.31	4.477
1986	9	5	0500	190.65	7.9	0.3	7.9	88.01	4.475
1986	9	5	0515	190.73	8.7	0.7	8.8	85.71	4.473
1986	9	5	0530	190.87	7.4	1.0	7.4	82.22	4.471
1986	9	5	0545	190.99	6.3	1.3	6.4	78.60	4.469
1986	9	5	0600	191.07	5.3	2.3	5.8	66.97	4.466
1986	9	5	0615	191.18	4.2	2.5	4.9	59.17	4.480
1986	9	5	0630	191.31	3.3	3.0	4.4	47.80	4.501
1986	9	5	0645	191.37	3.6	3.3	4.9	47.30	4.496
1986	9	5	0700	191.50	3.5	3.4	4.9	45.82	4.489
1986	9	5	0715	191.62	3.2	3.1	4.5	45.35	4.484
1986	9	5	0730	191.81	2.5	2.8	3.8	41.80	4.480
1986	9	5	0745	191.89	1.8	2.3	2.9	38.43	4.480
1986	9	5	0800	192.00	1.8	2.3	2.9	38.43	4.480
1986	9	5	0815	192.07	1.5	2.4	2.8	32.99	4.479

1986	9	5	0830	192.23	2.3	1.9	3.0	51.43	4.478
1986	9	5	0845	192.31	1.5	1.5	2.1	45.71	4.477
1986	9	5	0900	192.31	1.0	1.4	1.7	34.04	4.476
1986	9	5	0915	192.46	1.5	0.7	1.6	65.00	4.474
1986	9	5	0930	192.39	1.1	1.9	2.2	29.16	4.472
1986	9	5	0945	192.37	-0.1	2.8	2.8	357.93	4.471
1986	9	5	1000	192.43	0.1	1.8	1.8	4.36	4.472
1986	9	5	1015	192.45	-0.6	2.6	2.6	345.89	4.492
1986	9	5	1030	192.30	-1.2	3.6	3.8	341.01	4.516
1986	9	5	1045	192.24	0.5	3.2	3.2	8.69	4.514
1986	9	5	1100	192.21	-0.1	5.0	5.0	358.50	4.506
1986	9	5	1115	192.06	-0.6	5.6	5.6	353.76	4.501
1986	9	5	1130	191.90	-0.5	6.4	6.4	355.14	4.498
1986	9	5	1145	191.89	0.6	5.1	5.2	6.53	4.498
1986	9	5	1200	191.73	0.6	5.1	5.2	6.53	4.498
1986	9	5	1215	191.59	2.6	6.4	6.9	22.34	4.485
1986	9	5	1230	191.52	3.2	5.1	6.1	32.09	4.473
1986	9	5	1245	191.36	4.4	6.2	7.6	35.07	4.465
1986	9	5	1300	191.15	4.1	4.8	6.3	40.48	4.458
1986	9	5	1315	191.09	3.9	5.2	6.5	36.46	4.453
1986	9	5	1330	190.94	3.9	5.2	6.5	36.46	4.449
1986	9	5	1345	190.70	4.1	4.8	6.3	40.48	4.446
1986	9	5	1400	190.50	7.8	8.3	11.4	43.39	4.443
1986	9	5	1415	190.38	9.2	10.9	14.2	40.06	4.457
1986	9	5	1430	190.21	10.6	7.8	13.2	53.60	4.478
1986	9	5	1445	190.05	11.1	7.6	13.5	55.61	4.478
1986	9	5	1500	190.04	12.7	5.7	13.9	65.82	4.480
1986	9	5	1515	190.04	13.4	4.1	14.0	73.19	4.486
1986	9	5	1530	190.01	12.4	4.4	13.2	70.67	4.494
1986	9	5	1545	189.94	13.3	3.8	13.9	74.12	4.500
1986	9	5	1600	189.99	13.3	3.8	13.9	74.12	4.500
1986	9	5	1615	189.98	11.2	1.8	11.3	80.88	4.510
1986	9	5	1630	189.98	11.8	2.3	12.1	78.92	4.512
1986	9	5	1645	190.00	11.8	0.4	11.8	87.88	4.514
1986	9	5	1700	190.05	10.4	0.2	10.4	88.85	4.516
1986	9	5	1715	190.10	9.6	-0.6	9.6	93.71	4.519
1986	9	5	1730	190.27	7.9	-0.2	7.9	91.24	4.522
1986	9	5	1745	190.35	9.1	-1.1	9.2	97.14	4.524
1986	9	5	1800	190.47	8.8	-1.5	8.9	99.94	4.527
1986	9	5	1815	190.57	8.0	-2.5	8.4	107.59	4.546
1986	9	5	1830	190.66	5.0	-2.1	5.4	113.01	4.569
1986	9	5	1845	190.89	6.2	-2.5	6.7	111.81	4.566
1986	9	5	1900	191.02	2.9	-3.1	4.2	137.00	4.558
1986	9	5	1915	191.16	2.8	-2.9	4.0	136.11	4.549
1986	9	5	1930	191.26	0.4	-2.0	2.1	169.04	4.544
1986	9	5	1945	191.42	-0.6	-2.5	2.6	193.66	4.539
1986	9	5	2000	191.49	-0.6	-2.5	2.6	193.66	4.539
1986	9	5	2015	191.77	-3.8	-2.3	4.4	238.52	4.531
1986	9	5	2030	191.88	-3.8	-2.2	4.4	239.81	4.527
1986	9	5	2045	191.91	-4.3	-1.6	4.6	249.97	4.523
1986	9	5	2100	192.05	-4.8	-0.8	4.9	260.46	4.520
1986	9	5	2115	192.11	-3.5	1.3	3.7	290.00	4.518
1986	9	5	2130	192.10	-4.1	1.1	4.3	284.29	4.516
1986	9	5	2145	192.06	-5.0	-0.9	5.1	259.86	4.514
1986	9	5	2200	192.06	-4.8	-0.5	4.9	264.18	4.512
1986	9	5	2215	192.00	-5.5	0.9	5.5	278.98	4.525
1986	9	5	2230	191.91	-4.6	1.3	4.8	285.73	4.543
1986	9	5	2245	191.89	-4.8	2.0	5.2	292.35	4.537
1986	9	5	2300	191.84	-3.4	3.0	4.6	311.80	4.530
1986	9	5	2315	191.72	-2.6	5.1	5.7	332.99	4.526
1986	9	5	2330	191.66	-1.9	5.7	6.0	341.65	4.524
1986	9	5	2345	191.60	-1.3	5.8	5.9	347.63	4.525
1986	9	6	0000	191.44	-1.3	5.8	5.9	347.63	4.525
1986	9	6	0015	191.33	2.0	7.2	7.5	15.68	4.538
1986	9	6	0030	191.13	3.7	8.0	8.8	24.61	4.552
1986	9	6	0045	190.92	5.0	7.5	9.0	33.60	4.593
1986	9	6	0100	190.67	4.9	7.7	9.1	32.53	4.646
1986	9	6	0115	190.50	5.3	7.6	9.3	34.57	4.695
1986	9	6	0130	190.33	5.2	7.1	8.8	36.39	4.746
1986	9	6	0145	190.16	6.6	7.5	9.9	41.27	4.784
1986	9	6	0200	189.97	6.6	5.7	8.7	49.05	4.810
1986	9	6	0215	189.84	7.0	4.5	8.3	57.36	4.844
1986	9	6	0230	189.76	6.1	-0.6	6.1	95.32	4.871
1986	9	6	0245	189.71	4.8	-2.4	5.3	116.84	4.850
1986	9	6	0300	189.66	6.7	-1.7	6.9	104.70	4.824
1986	9	6	0315	189.56	7.0	-1.9	7.2	105.52	4.825
1986	9	6	0330	189.54	4.6	-2.5	5.2	118.57	4.827
1986	9	6	0345	189.54	5.0	-0.3	5.0	93.61	4.827
1986	9	6	0400	189.57	5.0	-0.3	5.0	93.61	4.827
1986	9	6	0415	189.62	3.5	0.8	3.6	76.31	4.830

1986	9	6	0430	189.70	2.8	1.8	3.3	58.09	4.816
1986	9	6	0445	189.87	2.4	-0.9	2.5	110.00	4.816
1986	9	6	0500	189.95	1.4	-2.5	2.9	151.05	4.818
1986	9	6	0515	190.11	1.6	-2.9	3.3	151.53	4.806
1986	9	6	0530	190.21	1.0	-3.4	3.5	163.13	4.787
1986	9	6	0545	190.47	1.9	-4.5	4.9	157.34	4.764
1986	9	6	0600	190.61	1.1	-5.4	5.5	168.78	4.746
1986	9	6	0615	190.76	1.0	-7.8	7.9	172.74	4.738
1986	9	6	0630	190.90	-0.1	-7.6	7.6	180.56	4.723
1986	9	6	0645	191.08	-0.9	-6.5	6.6	188.21	4.679
1986	9	6	0700	191.24	-1.7	-5.0	5.2	198.45	4.648
1986	9	6	0715	191.38	-3.2	-6.9	7.6	204.81	4.620
1986	9	6	0730	191.55	-3.2	-6.6	7.3	206.10	4.593
1986	9	6	0745	191.74	-4.4	-5.7	7.2	217.72	4.565
1986	9	6	0800	191.93	-4.4	-5.7	7.2	217.72	4.565
1986	9	6	0815	192.12	-5.9	-4.2	7.2	234.62	4.513
1986	9	6	0830	192.21	-6.4	-3.5	7.3	241.08	4.493
1986	9	6	0845	192.31	-6.4	-2.0	6.7	252.77	4.477
1986	9	6	0900	192.38	-6.6	-1.1	6.6	260.71	4.464
1986	9	6	0915	192.48	-7.7	0.8	7.7	276.22	4.454
1986	9	6	0930	192.46	-8.3	-3.7	9.1	246.26	4.446
1986	9	6	0945	192.44	-6.6	-2.5	7.1	249.03	4.441
1986	9	6	1000	192.47	-8.5	-2.8	9.0	252.05	4.434
1986	9	6	1015	192.45	-9.4	-0.2	9.4	268.84	4.444
1986	9	6	1030	192.39	-7.6	0.7	7.6	274.93	4.461
1986	9	6	1045	192.30	-7.7	0.3	7.7	271.90	4.454
1986	9	6	1100	192.16	-8.1	-0.8	8.2	264.32	4.446
1986	9	6	1115	192.07	-7.6	-1.9	7.8	256.02	4.440
1986	9	6	1130	191.94	-7.4	-2.3	7.8	253.13	4.437
1986	9	6	1145	191.87	-7.3	-2.6	7.7	250.19	4.436
1986	9	6	1200	191.76	-7.3	-2.6	7.7	250.19	4.436
1986	9	6	1215	191.66	-5.3	-3.9	6.5	233.52	4.434
1986	9	6	1230	191.53	-5.5	-4.5	7.1	230.38	4.427
1986	9	6	1245	191.40	-6.3	-4.9	8.0	232.01	4.420
1986	9	6	1300	191.21	-6.6	-4.8	8.2	233.69	4.414
1986	9	6	1315	190.97	-6.4	-4.7	8.0	233.41	4.407
1986	9	6	1330	190.89	-5.9	-4.2	7.2	234.62	4.402
1986	9	6	1345	190.63	-5.1	-4.6	6.9	228.14	4.398
1986	9	6	1400	190.45	-4.9	-4.3	6.5	228.81	4.394
1986	9	6	1415	190.34	-5.9	-4.2	7.2	234.62	4.406
1986	9	6	1430	190.21	-4.0	-5.7	6.9	214.74	4.424
1986	9	6	1445	190.13	-2.7	-5.1	5.8	207.73	4.418
1986	9	6	1500	190.00	-2.7	-5.9	6.5	204.40	4.407
1986	9	6	1515	190.00	-2.2	-5.2	5.7	202.86	4.398
1986	9	6	1530	189.96	-2.8	-6.5	7.1	203.43	4.393
1986	9	6	1545	189.89	-2.2	-6.1	6.5	200.00	4.389
1986	9	6	1600	189.79	-2.2	-6.1	6.5	200.00	4.389
1986	9	6	1615	189.82	-2.2	-4.7	5.2	205.48	4.384
1986	9	6	1630	189.83	-2.2	-5.2	5.7	202.86	4.384
1986	9	6	1645	189.91	-3.3	-6.6	7.4	206.58	4.384
1986	9	6	1700	189.87	-3.1	-5.3	6.2	210.54	4.384
1986	9	6	1715	189.98	-3.7	-4.1	5.6	221.67	4.383
1986	9	6	1730	190.01	-2.7	-3.2	4.2	219.65	4.384
1986	9	6	1745	190.04	-2.7	-2.0	3.4	233.02	4.383
1986	9	6	1800	190.12	-6.1	-5.8	8.4	226.35	4.380
1986	9	6	1815	190.23	-4.3	-5.0	6.6	220.77	4.395
1986	9	6	1830	190.32	-4.1	-3.7	5.5	228.20	4.416
1986	9	6	1845	190.51	-5.0	-5.2	7.2	223.79	4.411
1986	9	6	1900	190.67	-4.4	-4.7	6.5	223.20	4.403
1986	9	6	1915	190.77	-4.2	-4.4	6.1	223.90	4.396
1986	9	6	1930	190.90	-5.0	-4.5	6.7	227.65	4.391
1986	9	6	1945	191.06	-3.0	-4.0	5.0	216.39	4.388
1986	9	6	2000	191.16	-3.0	-4.0	5.0	216.39	4.388
1986	9	6	2015	191.26	-5.0	-2.9	5.8	240.07	4.382
1986	9	6	2030	191.36	-6.8	-3.7	7.7	241.28	4.381
1986	9	6	2045	191.45	-6.9	-3.7	7.8	242.06	4.383
1986	9	6	2100	191.46	-7.5	-2.9	8.0	248.58	4.384
1986	9	6	2115	191.50	-7.3	-3.2	8.0	246.43	4.384
1986	9	6	2130	191.52	-6.9	-3.4	7.7	243.51	4.386
1986	9	6	2145	191.52	-7.6	-4.1	8.6	241.67	4.386
1986	9	6	2200	191.51	-8.1	-5.0	9.6	238.40	4.388
1986	9	6	2215	191.46	-8.9	-4.9	10.2	241.07	4.406
1986	9	6	2230	191.41	-9.2	-4.8	10.4	242.25	4.431
1986	9	6	2245	191.28	-9.1	-4.2	10.0	245.00	4.429
1986	9	6	2300	191.30	-9.5	-5.2	10.8	241.29	4.423
1986	9	6	2315	191.22	-9.4	-6.1	11.2	236.80	4.418
1986	9	6	2330	191.05	-9.6	-7.3	12.1	232.57	4.416
1986	9	6	2345	190.93	-9.1	-7.2	11.6	231.56	4.416
1986	9	7	0000	190.82	-9.1	-7.2	11.6	231.56	4.416
1986	9	7	0015	190.66	-7.8	-7.0	10.5	227.78	4.417

1986	9	7	0030	190.49	-7.9	-7.6	11.0	226.40	4.418
1986	9	7	0045	190.39	-7.5	-7.5	10.6	225.20	4.420
1986	9	7	0100	190.26	-6.8	-8.4	10.8	219.15	4.421
1986	9	7	0115	190.11	-6.4	-8.8	10.9	215.84	4.423
1986	9	7	0130	190.04	-6.2	-10.7	12.4	210.16	4.426
1986	9	7	0145	189.96	-5.4	-10.8	12.1	206.71	4.428
1986	9	7	0200	189.81	-6.6	-11.7	13.4	209.41	4.428
1986	9	7	0215	189.70	-7.3	-12.2	14.3	210.86	4.443
1986	9	7	0230	189.64	-6.5	-10.6	12.5	211.44	4.463
1986	9	7	0245	189.53	-6.2	-10.9	12.5	209.41	4.458
1986	9	7	0300	189.43	-6.1	-10.5	12.1	210.39	4.449
1986	9	7	0315	189.36	-5.3	-8.9	10.4	211.00	4.442
1986	9	7	0330	189.30	-4.3	-9.3	10.2	204.76	4.435
1986	9	7	0345	189.23	-3.9	-9.4	10.2	202.39	4.429
1986	9	7	0400	189.19	-3.9	-9.4	10.2	202.39	4.429
1986	9	7	0415	189.13	-3.3	-9.2	9.8	200.00	4.419
1986	9	7	0430	189.08	-2.4	-9.4	9.7	194.58	4.416
1986	9	7	0445	189.09	-3.5	-10.1	10.7	199.25	4.412
1986	9	7	0500	189.15	-2.3	-10.3	10.6	192.30	4.409
1986	9	7	0515	189.20	-1.9	-10.6	10.8	190.17	4.406
1986	9	7	0530	189.28	-2.5	-11.0	11.3	192.79	4.402
1986	9	7	0545	189.39	-2.8	-12.1	12.5	193.16	4.394
1986	9	7	0600	189.48	-3.5	-12.4	12.9	195.60	4.384
1986	9	7	0615	189.61	-4.1	-12.0	12.7	199.04	4.389
1986	9	7	0630	189.75	-4.7	-10.7	11.7	203.81	4.401
1986	9	7	0645	189.83	-3.2	-11.5	12.0	195.60	4.385
1986	9	7	0700	189.97	-3.9	-10.6	11.3	200.00	4.346
1986	9	7	0715	190.17	-3.0	-10.9	11.3	195.33	4.303
1986	9	7	0730	190.34	-2.5	-10.9	11.2	193.10	4.266
1986	9	7	0745	190.52	-4.6	-11.2	12.1	202.34	4.235
1986	9	7	0800	190.67	-4.6	-11.2	12.1	202.34	4.235
1986	9	7	0815	190.84	-8.2	-12.7	15.1	212.99	4.190
1986	9	7	0830	191.02	-7.9	-14.0	16.1	209.63	4.169
1986	9	7	0845	191.23	-12.1	-14.3	18.7	220.35	4.141
1986	9	7	0900	191.39	-9.4	-13.4	16.4	214.99	4.115
1986	9	7	0915	191.56	-12.2	-11.5	16.8	226.57	4.085
1986	9	7	0930	191.72	-11.1	-11.8	16.2	223.33	4.053
1986	9	7	0945	191.82	-8.6	-10.3	13.5	219.96	4.013
1986	9	7	1000	191.90	-7.4	-10.8	13.1	214.34	3.967
1986	9	7	1015	191.97	-6.9	-10.3	12.4	213.88	3.935
1986	9	7	1030	192.04	-6.6	-9.5	11.6	214.89	3.917
1986	9	7	1045	192.04	-7.1	-7.7	10.5	222.59	3.887
1986	9	7	1100	191.98	-6.1	-6.7	9.1	222.38	3.864
1986	9	7	1115	191.97	-7.5	-6.5	9.9	229.13	3.850
1986	9	7	1130	191.95	-6.7	-5.5	8.7	230.32	3.839
1986	9	7	1145	191.91	-7.1	-5.1	8.7	234.46	3.828
1986	9	7	1200	191.84	-7.1	-5.1	8.7	234.46	3.828
1986	9	7	1215	191.77	-5.3	-3.9	6.5	233.52	3.804
1986	9	7	1230	191.71	-4.1	-3.3	5.3	230.70	3.788
1986	9	7	1245	191.61	-4.2	-3.0	5.2	234.99	3.773
1986	9	7	1300	191.53	-3.2	-1.7	3.6	241.82	3.759
1986	9	7	1315	191.40	-3.5	-1.9	4.0	242.14	3.747
1986	9	7	1330	191.28	-1.0	-0.0	1.0	268.96	3.735
1986	9	7	1345	191.20	-1.2	-1.0	1.6	230.07	3.725
1986	9	7	1400	191.03	-0.8	-0.4	0.9	245.00	3.715
1986	9	7	1415	190.85	0.9	-0.3	1.0	110.00	3.721
1986	9	7	1430	190.75	0.8	-0.6	1.0	125.95	3.735
1986	9	7	1445	190.63	1.8	-1.3	2.3	126.19	3.724
1986	9	7	1500	190.51	1.5	-1.1	1.8	125.64	3.708
1986	9	7	1515	190.38	3.0	-2.2	3.8	126.39	3.694
1986	9	7	1530	190.22	2.3	-0.6	2.3	104.81	3.680
1986	9	7	1545	190.07	3.2	-0.5	3.2	98.69	3.668
1986	9	7	1600	189.98	3.2	-0.5	3.2	98.69	3.668
1986	9	7	1615	189.86	3.4	-0.4	3.4	96.83	3.660
1986	9	7	1630	189.78	3.7	-0.1	3.7	90.87	3.659
1986	9	7	1645	189.78	5.0	-0.9	5.1	99.62	3.656
1986	9	7	1700	189.84	6.4	-2.1	6.7	108.19	3.656
1986	9	7	1715	189.87	7.0	-3.0	7.6	113.18	3.656
1986	9	7	1730	189.85	6.6	-3.3	7.4	116.58	3.656
1986	9	7	1745	189.91	7.7	-4.5	8.9	120.06	3.658
1986	9	7	1800	189.98	6.0	-6.5	8.8	137.18	3.660
1986	9	7	1815	190.11	5.3	-6.1	8.1	139.25	3.670
1986	9	7	1830	190.24	3.2	-5.8	6.6	150.67	3.673
1986	9	7	1845	190.40	2.7	-4.6	5.3	149.61	3.643
1986	9	7	1900	190.52	0.3	-2.3	2.3	172.65	3.604
1986	9	7	1915	190.64	1.0	-2.5	2.7	159.24	3.562
1986	9	7	1930	190.81	1.6	-2.5	2.9	147.15	3.524
1986	9	7	1945	190.96	0.6	-2.4	2.5	166.77	3.489
1986	9	7	2000	191.08	0.6	-2.4	2.5	166.77	3.489
1986	9	7	2015	191.22	-0.3	-0.4	0.4	218.43	3.443

1986	9	7	2030	191.35	-1.5	0.1	1.5	273.30	3.430
1986	9	7	2045	191.51	-1.5	1.5	2.1	315.71	3.422
1986	9	7	2100	191.56	-2.4	2.1	3.2	310.85	3.415
1986	9	7	2115	191.65	-1.6	2.9	3.3	331.53	3.412
1986	9	7	2130	191.73	-1.9	3.0	3.5	326.87	3.412
1986	9	7	2145	191.83	-0.4	2.5	2.5	351.26	3.414
1986	9	7	2200	191.91	-0.0	2.2	2.2	359.23	3.415
1986	9	7	2215	191.94	-0.5	2.7	2.7	350.07	3.432
1986	9	7	2230	191.98	1.0	1.7	1.9	30.49	3.455
1986	9	7	2245	192.03	1.1	0.7	1.3	56.25	3.454
1986	9	7	2300	192.02	0.4	1.4	1.4	14.29	3.449
1986	9	7	2315	192.02	-0.2	0.4	0.4	335.00	3.445
1986	9	7	2330	191.97	-0.7	0.6	1.0	311.04	3.442
1986	9	7	2345	191.88	-0.4	0.0	0.4	271.57	3.438
1986	9	8	0000	191.78	-0.4	0.0	0.4	271.57	3.438
1986	9	8	0015	191.66	-2.0	0.5	2.1	284.09	3.429
1986	9	8	0030	191.52	-3.8	-0.1	3.8	268.20	3.424
1986	9	8	0045	191.37	-4.0	-1.3	4.2	251.79	3.405
1986	9	8	0100	191.27	-3.1	0.2	3.1	274.05	3.380
1986	9	8	0115	191.09	-2.2	0.4	2.2	280.84	3.357
1986	9	8	0130	190.92	-1.6	0.9	1.9	298.75	3.338
1986	9	8	0145	190.80	-0.6	0.2	0.6	283.66	3.328
1986	9	8	0200	190.66	-1.2	0.4	1.3	290.00	3.319
1986	9	8	0215	190.52	-1.5	-0.3	1.6	259.93	3.330
1986	9	8	0230	190.39	-0.2	-0.5	0.6	200.00	3.349
1986	9	8	0245	190.25	0.0	-0.5	0.5	176.80	3.340
1986	9	8	0300	190.10	0.2	-0.5	0.5	155.00	3.325
1986	9	8	0315	189.97	0.7	-0.6	1.0	131.04	3.307
1986	9	8	0330	189.87	0.6	0.3	0.7	65.00	3.298
1986	9	8	0345	189.80	0.4	-0.4	0.5	133.20	3.305
1986	9	8	0400	189.75	0.4	-0.4	0.5	133.20	3.305
1986	9	8	0415	189.71	0.4	-0.3	0.4	128.43	3.304
1986	9	8	0430	189.71	1.6	-1.3	2.0	128.43	3.309
1986	9	8	0445	189.75	0.9	-1.0	1.4	137.90	3.316
1986	9	8	0500	189.77	1.6	-0.9	1.9	118.75	3.321
1986	9	8	0515	189.87	1.8	-0.1	1.8	94.36	3.332
1986	9	8	0530	189.97	3.2	-0.7	3.3	102.57	3.359
1986	9	8	0545	190.06	3.0	-0.8	3.1	104.81	3.386
1986	9	8	0600	190.18	3.5	-1.0	3.6	106.63	3.402
1986	9	8	0615	190.29	4.6	-1.5	4.8	108.32	3.422
1986	9	8	0630	190.39	5.7	-2.2	6.1	111.33	3.430
1986	9	8	0645	190.54	5.3	-1.4	5.5	104.81	3.404
1986	9	8	0700	190.72	3.9	-2.0	4.4	117.35	3.379
1986	9	8	0715	190.93	3.9	-2.0	4.4	117.35	3.378
1986	9	8	0730	191.13	3.0	-1.6	3.4	118.47	3.395
1986	9	8	0745	191.32	2.1	-0.8	2.3	110.00	3.426
1986	9	8	0800	191.50	2.1	-0.8	2.3	110.00	3.426
1986	9	8	0815	191.66	1.2	1.0	1.6	50.07	3.498
1986	9	8	0830	191.79	1.5	1.5	2.1	45.71	3.521
1986	9	8	0845	191.93	1.3	1.4	1.9	43.75	3.538
1986	9	8	0900	192.06	0.3	0.6	0.6	26.34	3.550
1986	9	8	0915	192.19	0.3	1.1	1.1	12.87	3.557
1986	9	8	0930	192.27	-0.6	1.4	1.5	335.00	3.548
1986	9	8	0945	192.34	-0.4	1.3	1.3	343.75	3.519
1986	9	8	1000	192.38	-0.8	0.1	0.8	274.74	3.496
1986	9	8	1015	192.44	-1.1	-1.3	1.7	219.98	3.505
1986	9	8	1030	192.48	-2.2	-3.0	3.8	216.39	3.529
1986	9	8	1045	192.49	-3.1	-4.4	5.4	215.12	3.514
1986	9	8	1100	192.47	-3.2	-7.3	8.0	203.54	3.471
1986	9	8	1115	192.40	-3.3	-7.2	7.9	204.64	3.407
1986	9	8	1130	192.34	-3.3	-6.4	7.2	207.33	3.330
1986	9	8	1145	192.22	-3.9	-6.2	7.4	212.17	3.253
1986	9	8	1200	192.13	-3.9	-6.2	7.4	212.17	3.253
1986	9	8	1215	192.04	-2.6	-6.9	7.4	201.10	3.118
1986	9	8	1230	191.96	-3.7	-5.7	6.8	213.17	3.058
1986	9	8	1245	191.86	-2.4	-6.0	6.4	201.89	3.004
1986	9	8	1300	191.71	-2.2	-5.2	5.7	202.86	2.959
1986	9	8	1315	191.60	-2.6	-6.1	6.6	203.08	2.914
1986	9	8	1330	191.51	-2.0	-6.8	7.1	196.57	2.870
1986	9	8	1345	191.34	-1.9	-7.0	7.2	195.52	2.824
1986	9	8	1400	191.13	-2.3	-6.7	7.1	198.85	2.785
1986	9	8	1415	191.00	-3.3	-7.2	7.9	204.64	2.760
1986	9	8	1430	190.83	-3.0	-6.0	6.8	206.60	2.730
1986	9	8	1445	190.68	-1.8	-6.5	6.7	195.79	2.678
1986	9	8	1500	190.56	-1.3	-4.6	4.8	195.73	2.628
1986	9	8	1515	190.40	-2.5	-4.1	4.8	210.98	2.580
1986	9	8	1530	190.24	-2.1	-5.4	5.8	201.40	2.535
1986	9	8	1545	190.17	-1.2	-3.0	3.3	202.49	2.497
1986	9	8	1600	190.14	-1.2	-3.0	3.3	202.49	2.497
1986	9	8	1615	190.01	2.6	-4.6	5.3	150.68	2.435

1986	9	8	1630	189.92	1.9	-3.5	4.0	152.14	2.407
1986	9	8	1645	189.82	2.9	-4.1	5.0	144.59	2.378
1986	9	8	1700	189.74	2.3	-2.8	3.6	140.58	2.351
1986	9	8	1715	189.79	1.6	-1.9	2.5	138.74	2.327
1986	9	8	1730	189.80	3.1	-2.9	4.3	133.20	2.307
1986	9	8	1745	189.78	3.0	-4.2	5.2	144.99	2.290
1986	9	8	1800	189.76	3.6	-4.2	5.5	139.20	2.273
1986	9	8	1815	189.82	4.4	-6.4	7.8	145.42	2.271
1986	9	8	1830	189.92	3.2	-5.1	6.0	148.35	2.267
1986	9	8	1845	189.91	4.3	-6.2	7.6	145.17	2.231
1986	9	8	1900	190.01	3.7	-4.9	6.1	142.77	2.188
1986	9	8	1915	190.06	2.2	-4.8	5.3	155.00	2.150
1986	9	8	1930	190.12	1.9	-4.0	4.4	155.00	2.116
1986	9	8	1945	190.22	1.7	-3.2	3.6	151.82	2.080
1986	9	8	2000	190.30	1.7	-3.2	3.6	151.82	2.080
1986	9	8	2015	190.45	1.7	-1.4	2.2	130.77	2.019
1986	9	8	2030	190.54	0.7	-3.1	3.2	167.72	1.994
1986	9	8	2045	190.56	0.9	-1.4	1.6	147.88	1.968
1986	9	8	2100	190.65	-0.4	-2.6	2.7	189.29	1.945
1986	9	8	2115	190.73	-0.6	-2.9	3.0	191.87	1.923
1986	9	8	2130	190.75	0.4	-2.5	2.5	171.26	1.903
1986	9	8	2145	190.80	-1.1	-3.4	3.5	197.71	1.879
1986	9	8	2200	190.92	-2.1	-5.8	6.2	200.00	1.852
1986	9	8	2215	190.92	-2.1	-5.4	5.8	201.40	1.840
1986	9	8	2230	191.01	-3.3	-5.9	6.8	208.97	1.835
1986	9	8	2245	191.05	-3.4	-4.8	5.9	215.38	1.805
1986	9	8	2300	191.01	-4.2	-4.4	6.1	223.90	1.766
1986	9	8	2315	190.96	-3.8	-4.0	5.5	223.59	1.727
1986	9	8	2330	190.90	-5.0	-4.3	6.6	229.29	1.693
1986	9	8	2345	190.78	-6.5	-6.0	8.8	227.18	1.668
1986	9	9	0000	190.75	-6.5	-6.0	8.8	227.18	1.668
1986	9	9	0015	190.69	-6.0	-4.8	7.7	231.50	1.637
1986	9	9	0030	190.60	-7.2	-5.4	9.0	233.44	1.621
1986	9	9	0045	190.59	-5.0	-3.5	6.1	234.61	1.601
1986	9	9	0100	190.52	-5.9	-4.5	7.5	232.64	1.582
1986	9	9	0115	190.41	-5.7	-3.6	6.8	237.35	1.562
1986	9	9	0130	190.40	-4.8	-3.4	5.9	234.26	1.545
1986	9	9	0145	190.32	-3.7	-2.9	4.7	231.55	1.534
1986	9	9	0200	190.25	-4.3	-3.2	5.4	233.27	1.523
1986	9	9	0215	190.13	-2.4	-1.7	2.9	235.22	1.529
1986	9	9	0230	190.04	-2.5	-1.6	2.9	237.15	1.542
1986	9	9	0245	189.98	-3.1	-2.4	3.9	231.68	1.529
1986	9	9	0300	189.93	-1.2	-1.8	2.1	213.57	1.511
1986	9	9	0315	189.88	1.2	-2.1	2.4	150.24	1.494
1986	9	9	0330	189.78	1.2	-2.1	2.4	150.24	1.480
1986	9	9	0345	189.74	2.2	-2.6	3.4	139.74	1.464
1986	9	9	0400	189.67	2.2	-2.6	3.4	139.74	1.464
1986	9	9	0415	189.61	1.7	-2.1	2.7	139.93	1.437
1986	9	9	0430	189.56	2.5	-2.7	3.7	137.55	1.428
1986	9	9	0445	189.55	2.0	-2.1	2.8	136.56	1.423
1986	9	9	0500	189.53	1.1	-1.5	1.8	142.47	1.418
1986	9	9	0515	189.62	1.9	0.1	1.9	86.25	1.412
1986	9	9	0530	189.65	1.2	0.1	1.2	84.98	1.411
1986	9	9	0545	189.70	1.5	0.3	1.6	79.93	1.410
1986	9	9	0600	189.79	2.6	0.2	2.6	85.56	1.412
1986	9	9	0615	189.95	2.5	1.0	2.7	69.24	1.423
1986	9	9	0630	190.17	3.3	-0.7	3.4	101.53	1.439
1986	9	9	0645	190.18	2.2	0.6	2.2	75.30	1.435
1986	9	9	0700	190.28	4.2	1.5	4.4	70.19	1.430
1986	9	9	0715	190.49	4.3	0.8	4.3	79.68	1.426
1986	9	9	0730	190.62	4.9	1.1	5.0	77.65	1.424
1986	9	9	0745	190.69	4.2	1.4	4.4	71.48	1.426
1986	9	9	0800	190.85	4.2	1.4	4.4	71.48	1.426
1986	9	9	0815	191.05	5.0	1.9	5.3	69.32	1.445
1986	9	9	0830	191.19	3.3	2.3	4.1	55.07	1.459
1986	9	9	0845	191.38	3.5	3.6	5.0	44.04	1.475
1986	9	9	0900	191.53	3.0	4.0	5.0	36.39	1.492
1986	9	9	0915	191.80	1.8	3.5	3.9	27.25	1.512
1986	9	9	0930	192.06	1.1	3.4	3.5	17.71	1.534
1986	9	9	0945	192.26	2.1	3.2	3.9	33.78	1.558
1986	9	9	1000	192.56	2.5	4.6	5.2	28.57	1.580
1986	9	9	1015	192.75	1.9	4.5	4.9	22.49	1.615
1986	9	9	1030	192.83	1.0	5.3	5.4	10.17	1.655
1986	9	9	1045	193.07	2.7	4.2	5.0	32.26	1.667
1986	9	9	1100	193.15	2.5	5.6	6.1	23.99	1.677
1986	9	9	1115	193.16	2.1	5.8	6.2	20.00	1.689
1986	9	9	1130	193.19	2.6	6.6	7.1	21.15	1.707
1986	9	9	1145	193.23	1.8	5.0	5.4	20.00	1.724
1986	9	9	1200	193.22	1.8	5.0	5.4	20.00	1.724
1986	9	9	1215	193.19	0.8	4.5	4.6	9.38	1.761

1986	9	9	1230	193.19	0.6	4.5	4.5	7.28	1.781
1986	9	9	1245	193.13	1.1	5.4	5.5	11.87	1.800
1986	9	9	1300	193.10	-0.4	5.2	5.2	355.17	1.820
1986	9	9	1315	193.09	-1.0	5.6	5.7	350.25	1.839
1986	9	9	1330	193.06	-0.8	5.5	5.5	351.80	1.864
1986	9	9	1345	193.04	1.0	6.3	6.4	9.19	1.889
1986	9	9	1400	192.92	1.6	6.6	6.8	13.40	1.911
1986	9	9	1415	192.78	2.5	6.2	6.7	21.81	1.951
1986	9	9	1430	192.65	1.2	6.4	6.5	10.64	1.997
1986	9	9	1445	192.50	2.8	6.9	7.5	22.16	2.020
1986	9	9	1500	192.20	2.9	5.3	6.1	28.70	2.041
1986	9	9	1515	191.94	1.5	4.6	4.8	18.32	2.067
1986	9	9	1530	191.72	1.1	4.9	5.1	12.78	2.096
1986	9	9	1545	191.47	2.1	4.0	4.5	28.13	2.127
1986	9	9	1600	191.35	2.1	4.0	4.5	28.13	2.127
1986	9	9	1615	191.18	3.6	6.5	7.4	28.75	2.188
1986	9	9	1630	191.12	5.0	4.3	6.6	49.29	2.219
1986	9	9	1645	190.99	5.4	5.7	7.9	43.33	2.249
1986	9	9	1700	190.97	3.4	4.2	5.5	38.90	2.278
1986	9	9	1715	190.97	3.6	3.4	5.0	46.20	2.305
1986	9	9	1730	190.96	2.4	2.8	3.6	40.56	2.334
1986	9	9	1745	190.98	3.4	1.8	3.8	61.99	2.365
1986	9	9	1800	191.01	2.2	1.5	2.6	56.25	2.395
1986	9	9	1815	191.02	2.0	2.6	3.3	37.65	2.436
1986	9	9	1830	191.03	1.1	2.5	2.7	23.01	2.483
1986	9	9	1845	191.03	1.8	3.0	3.5	30.41	2.509
1986	9	9	1900	191.01	2.4	5.8	6.2	22.60	2.532
1986	9	9	1915	191.05	0.9	6.7	6.7	7.28	2.560
1986	9	9	1930	191.10	1.8	7.1	7.3	13.90	2.583
1986	9	9	1945	191.07	2.6	7.5	7.9	18.98	2.613
1986	9	9	2000	191.12	2.6	7.5	7.9	18.98	2.613
1986	9	9	2015	191.21	2.8	7.6	8.1	20.00	2.673
1986	9	9	2030	191.41	5.0	5.0	7.0	45.02	2.711
1986	9	9	2045	191.50	5.0	6.0	7.8	40.07	2.758
1986	9	9	2100	191.64	6.0	4.8	7.7	51.50	2.817
1986	9	9	2115	191.76	4.7	5.6	7.3	39.84	2.876
1986	9	9	2130	191.96	3.3	3.8	5.0	41.50	2.932
1986	9	9	2145	192.11	3.8	3.4	5.1	47.98	2.974
1986	9	9	2200	192.19	3.1	3.2	4.5	44.15	2.992
1986	9	9	2215	192.27	2.9	2.8	4.0	46.11	3.012
1986	9	9	2230	192.33	5.2	2.0	5.5	69.16	3.032
1986	9	9	2245	192.31	3.7	1.0	3.9	75.44	3.031
1986	9	9	2300	192.28	3.3	-1.4	3.6	113.37	3.028
1986	9	9	2315	192.23	0.6	-0.2	0.6	103.66	3.036
1986	9	9	2330	192.15	0.7	-0.5	0.8	125.26	3.044
1986	9	9	2345	192.16	0.5	0.2	0.5	65.00	3.048
1986	9	10	0000	192.16	0.5	0.2	0.5	65.00	3.048
1986	9	10	0015	192.13	-1.5	-0.7	1.6	245.00	3.044
1986	9	10	0030	192.09	0.1	-0.2	0.2	155.00	3.032
1986	9	10	0045	192.09	-0.3	1.5	1.6	349.93	3.021
1986	9	10	0100	192.04	-0.4	-1.2	1.3	200.00	3.011
1986	9	10	0115	192.00	-2.5	1.1	2.7	293.01	2.995
1986	9	10	0130	191.98	-3.6	-1.2	3.8	251.01	2.975
1986	9	10	0145	191.97	-3.6	-1.2	3.8	251.01	2.954
1986	9	10	0200	191.83	-4.1	-0.7	4.1	260.38	2.933
1986	9	10	0215	191.73	-3.7	-0.5	3.8	261.99	2.935
1986	9	10	0230	191.51	-4.0	-0.4	4.0	263.89	2.941
1986	9	10	0245	191.43	-4.2	-1.0	4.3	257.09	2.922
1986	9	10	0300	191.30	-4.0	-1.9	4.4	245.00	2.897
1986	9	10	0315	191.07	-4.7	-2.4	5.3	242.84	2.868
1986	9	10	0330	190.89	-4.3	-1.6	4.6	249.97	2.841
1986	9	10	0345	190.76	-5.0	-2.9	5.8	240.07	2.819
1986	9	10	0400	190.55	-5.0	-2.9	5.8	240.07	2.819
1986	9	10	0415	190.44	-5.2	-2.0	5.5	249.16	2.782
1986	9	10	0430	190.31	-4.5	-2.9	5.3	237.48	2.768
1986	9	10	0445	190.25	-4.0	-3.5	5.3	228.61	2.759
1986	9	10	0500	190.10	-3.5	-3.3	4.8	226.94	2.749
1986	9	10	0515	190.03	-3.2	-3.5	4.8	222.75	2.735
1986	9	10	0530	190.01	-3.8	-4.0	5.5	223.59	2.723
1986	9	10	0545	189.93	-4.1	-4.1	5.9	225.02	2.721
1986	9	10	0600	189.92	-3.6	-3.9	5.3	222.80	2.729
1986	9	10	0615	189.97	-5.1	-4.6	6.9	228.14	2.765
1986	9	10	0630	190.15	-2.7	-3.7	4.6	216.19	2.811
1986	9	10	0645	190.23	-3.1	-3.9	4.9	218.43	2.818
1986	9	10	0700	190.35	-2.7	-4.1	4.9	213.24	2.802
1986	9	10	0715	190.45	-0.7	-4.2	4.2	189.44	2.781
1986	9	10	0730	190.61	-1.3	-5.0	5.2	194.52	2.755
1986	9	10	0745	190.74	-1.4	-4.3	4.5	198.21	2.725
1986	9	10	0800	190.85	-1.4	-4.3	4.5	198.21	2.725
1986	9	10	0815	191.07	-2.5	-6.3	6.8	201.19	2.655

1986	9	10	0830	191.24	-3.5	-8.7	9.4	202.15	2.612
1986	9	10	0845	191.48	-3.7	-8.8	9.6	202.97	2.565
1986	9	10	0900	191.61	-5.1	-6.8	8.5	216.93	2.521
1986	9	10	0915	191.86	-3.7	-6.3	7.3	210.01	2.501
1986	9	10	0930	192.00	-2.9	-4.8	5.6	211.59	2.487
1986	9	10	0945	192.18	-2.9	-5.0	5.7	209.93	2.466
1986	9	10	1000	192.32	-2.9	-5.8	6.5	206.89	2.440
1986	9	10	1015	192.43	-2.1	-4.9	5.3	203.81	2.427
1986	9	10	1030	192.53	-2.6	-5.6	6.2	204.60	2.421
1986	9	10	1045	192.58	-2.1	-5.0	5.4	203.01	2.392
1986	9	10	1100	192.78	-2.4	-5.3	5.8	204.18	2.354
1986	9	10	1115	192.86	-2.6	-5.2	5.8	206.95	2.320
1986	9	10	1130	192.93	-2.9	-6.8	7.4	203.30	2.293
1986	9	10	1145	192.95	-2.3	-4.5	5.1	207.22	2.268
1986	9	10	1200	193.00	-2.3	-4.5	5.1	207.22	2.268
1986	9	10	1215	193.04	-4.1	-7.0	8.1	210.53	2.239
1986	9	10	1230	193.02	-3.0	-6.0	6.8	206.60	2.224
1986	9	10	1245	193.04	-4.0	-7.3	8.3	208.82	2.206
1986	9	10	1300	192.99	-3.1	-5.9	6.6	207.96	2.190
1986	9	10	1315	192.97	-2.7	-5.4	6.0	206.04	2.173
1986	9	10	1330	192.92	-3.5	-7.1	7.9	206.68	2.155
1986	9	10	1345	192.84	-3.0	-6.5	7.2	205.09	2.139
1986	9	10	1400	192.76	-2.9	-6.2	6.9	205.30	2.122
1986	9	10	1415	192.69	-2.8	-6.1	6.7	204.21	2.123
1986	9	10	1430	192.63	-2.3	-7.1	7.5	197.84	2.128
1986	9	10	1445	192.51	-1.7	-6.2	6.5	195.60	2.109
1986	9	10	1500	192.39	-1.1	-4.9	5.1	192.78	2.084
1986	9	10	1515	192.36	-0.4	-5.4	5.4	183.95	2.058
1986	9	10	1530	192.36	-0.7	-5.8	5.8	187.32	2.033
1986	9	10	1545	192.29	-0.8	-5.6	5.6	188.41	2.011
1986	9	10	1600	192.21	-0.8	-5.6	5.6	188.41	2.011
1986	9	10	1615	192.17	-0.9	-5.5	5.5	188.98	1.975
1986	9	10	1630	192.09	0.2	-4.3	4.3	176.80	1.962
1986	9	10	1645	192.01	1.0	-5.2	5.3	169.30	1.951
1986	9	10	1700	191.91	2.6	-4.4	5.1	149.40	1.939
1986	9	10	1715	191.86	2.8	-3.8	4.7	143.93	1.926
1986	9	10	1730	191.85	2.4	-4.0	4.7	148.93	1.913
1986	9	10	1745	191.77	3.0	-2.6	3.9	131.04	1.903
1986	9	10	1800	191.68	1.9	-0.3	1.9	99.51	1.897
1986	9	10	1815	191.66	0.9	0.6	1.1	54.70	1.909
1986	9	10	1830	191.68	2.6	0.6	2.6	75.89	1.928
1986	9	10	1845	191.64	2.6	0.6	2.6	75.89	1.922
1986	9	10	1900	191.60	3.4	1.6	3.8	65.00	1.913
1986	9	10	1915	191.58	3.6	2.7	4.5	53.44	1.911
1986	9	10	1930	191.54	3.1	2.2	3.9	54.56	1.911
1986	9	10	1945	191.54	4.0	2.3	4.6	60.03	1.915
1986	9	10	2000	191.54	4.0	2.3	4.6	60.03	1.915
1986	9	10	2015	191.55	4.0	2.3	4.6	60.03	1.925
1986	9	10	2030	191.55	3.7	1.2	3.8	72.50	1.930
1986	9	10	2045	191.62	3.7	1.2	3.8	72.50	1.935
1986	9	10	2100	191.65	2.7	0.5	2.7	80.07	1.932
1986	9	10	2115	191.68	2.9	0.1	2.9	87.17	1.925
1986	9	10	2130	191.73	2.7	0.3	2.8	84.09	1.922
1986	9	10	2145	191.80	2.6	0.2	2.6	85.56	1.915
1986	9	10	2200	191.80	2.3	0.3	2.3	82.65	1.904
1986	9	10	2215	191.85	2.2	1.5	2.6	56.25	1.912
1986	9	10	2230	191.88	1.6	0.8	1.8	65.00	1.934
1986	9	10	2245	191.91	2.4	1.7	2.9	55.22	1.928
1986	9	10	2300	191.95	2.5	1.9	3.2	52.28	1.917
1986	9	10	2315	191.98	2.9	2.1	3.6	53.69	1.908
1986	9	10	2330	191.98	1.9	2.9	3.4	33.17	1.909
1986	9	10	2345	192.00	2.3	2.8	3.7	39.13	1.920
1986	9	11	0000	192.00	2.3	2.8	3.7	39.13	1.920
1986	9	11	0015	191.98	2.2	3.0	3.8	36.39	1.950
1986	9	11	0030	191.99	1.3	3.3	3.5	22.29	1.962
1986	9	11	0045	191.97	1.5	3.6	3.9	23.12	1.977
1986	9	11	0100	191.90	1.6	3.9	4.2	21.91	1.988
1986	9	11	0115	191.90	1.8	4.5	4.8	21.68	1.995
1986	9	11	0130	191.77	1.3	4.6	4.8	15.73	1.998
1986	9	11	0145	191.64	1.3	4.6	4.8	15.73	1.999
1986	9	11	0200	191.51	0.9	3.6	3.8	14.61	2.000
1986	9	11	0215	191.43	0.9	3.4	3.5	14.17	2.020
1986	9	11	0230	191.33	0.3	3.1	3.1	5.65	2.052
1986	9	11	0245	191.19	-0.0	2.2	2.2	359.23	2.057
1986	9	11	0300	191.03	-0.2	3.5	3.5	356.50	2.057
1986	9	11	0315	190.95	0.1	2.9	2.9	1.56	2.061
1986	9	11	0330	190.89	0.5	2.7	2.7	11.03	2.065
1986	9	11	0345	190.74	0.8	2.0	2.2	21.85	2.070
1986	9	11	0400	190.69	0.8	2.0	2.2	21.85	2.070
1986	9	11	0415	190.58	1.5	0.7	1.6	65.00	2.099

1986	9	11	0430	190.47	0.5	0.5	0.7	49.05	2.131
1986	9	11	0445	190.40	0.6	-0.2	0.6	103.66	2.164
1986	9	11	0500	190.31	1.5	-0.5	1.6	110.00	2.195
1986	9	11	0515	190.23	2.0	-0.7	2.1	110.00	2.227
1986	9	11	0530	190.21	1.7	-1.4	2.2	130.77	2.254
1986	9	11	0545	190.22	2.3	-1.8	2.9	128.43	2.272
1986	9	11	0600	190.17	2.0	-2.7	3.4	143.02	2.280
1986	9	11	0615	190.12	2.1	-2.9	3.6	143.69	2.298
1986	9	11	0630	190.17	2.9	-4.5	5.3	147.48	2.313
1986	9	11	0645	190.23	2.7	-4.6	5.3	149.61	2.293
1986	9	11	0700	190.27	1.8	-5.0	5.3	160.39	2.269
1986	9	11	0715	190.38	1.8	-5.0	5.3	160.39	2.248
1986	9	11	0730	190.51	2.0	-3.9	4.4	152.40	2.234
1986	9	11	0745	190.68	2.1	-4.4	4.9	155.00	2.226
1986	9	11	0800	190.86	2.1	-4.4	4.9	155.00	2.226
1986	9	11	0815	191.01	1.8	-4.3	4.7	157.44	2.208
1986	9	11	0830	191.10	-0.9	-5.5	5.5	188.98	2.196
1986	9	11	0845	191.22	-3.2	-6.9	7.6	204.81	2.185
1986	9	11	0900	191.30	-4.1	-4.1	5.8	224.44	2.196
1986	9	11	0915	191.53	-1.7	-3.8	4.1	203.95	2.273
1986	9	11	0930	191.69	3.6	0.9	3.7	76.00	2.310
1986	9	11	0945	191.85	0.4	-0.8	0.9	155.00	2.262
1986	9	11	1000	192.00	5.4	4.3	6.9	51.57	2.213
1986	9	11	1015	192.18	4.5	4.5	6.4	44.86	2.197
1986	9	11	1030	192.33	3.9	7.2	8.2	28.41	2.199
1986	9	11	1045	192.48	6.8	7.4	10.0	42.77	2.200
1986	9	11	1100	192.58	6.1	6.7	9.1	42.38	2.196
1986	9	11	1115	192.76	7.4	6.6	9.9	48.02	2.200
1986	9	11	1130	192.85	6.5	6.0	8.8	47.18	2.215
1986	9	11	1145	192.95	4.9	6.3	8.0	38.11	2.239
1986	9	11	1200	193.05	4.9	6.3	8.0	38.11	2.239
1986	9	11	1215	193.11	4.1	5.9	7.2	34.86	2.312
1986	9	11	1230	193.20	2.3	5.9	6.4	21.27	2.363
1986	9	11	1245	193.24	2.8	6.9	7.5	22.16	2.427
1986	9	11	1300	193.28	2.2	7.3	7.6	16.82	2.482
1986	9	11	1315	193.29	2.5	7.6	8.0	18.48	2.531
1986	9	11	1330	193.30	1.7	7.2	7.4	13.42	2.579
1986	9	11	1345	193.34	1.9	7.5	7.7	14.24	2.631
1986	9	11	1400	193.37	2.6	7.0	7.5	20.00	2.685
1986	9	11	1415	193.38	2.2	7.4	7.7	16.33	2.769
1986	9	11	1430	193.29	2.7	8.3	8.8	18.15	2.861
1986	9	11	1445	193.24	2.4	7.5	7.9	17.42	2.903
1986	9	11	1500	193.13	3.5	8.5	9.1	22.22	2.950
1986	9	11	1515	193.06	3.6	7.5	8.3	25.37	3.017
1986	9	11	1530	192.98	3.9	6.9	7.9	29.29	3.100
1986	9	11	1545	192.91	3.6	6.5	7.4	28.75	3.165
1986	9	11	1600	192.79	3.6	6.5	7.4	28.75	3.165
1986	9	11	1615	192.71	5.4	5.7	7.9	43.33	3.252
1986	9	11	1630	192.62	5.4	6.7	8.6	38.73	3.283
1986	9	11	1645	192.54	4.9	5.9	7.6	39.44	3.315
1986	9	11	1700	192.44	5.0	7.0	8.6	35.75	3.308
1986	9	11	1715	192.39	5.0	6.2	7.9	38.76	3.300
1986	9	11	1730	192.30	5.5	6.7	8.7	39.03	3.298
1986	9	11	1745	192.21	4.6	5.3	7.0	40.62	3.291
1986	9	11	1800	192.08	4.8	5.6	7.4	40.17	3.253
1986	9	11	1815	191.97	4.5	6.0	7.5	37.06	3.253
1986	9	11	1830	191.91	5.0	5.5	7.5	42.20	3.280
1986	9	11	1845	191.86	8.8	4.9	10.0	61.00	3.257
1986	9	11	1900	191.80	9.3	4.8	10.4	62.80	3.235
1986	9	11	1915	191.85	8.7	4.6	9.8	62.08	3.225
1986	9	11	1930	191.87	7.3	5.1	8.9	55.33	3.223
1986	9	11	1945	192.00	7.7	6.8	10.2	48.52	3.235
1986	9	11	2000	192.14	7.7	6.8	10.2	48.52	3.235
1986	9	11	2015	192.25	6.6	6.7	9.4	44.44	3.260
1986	9	11	2030	192.31	6.3	5.9	8.6	46.77	3.268
1986	9	11	2045	192.41	6.8	3.7	7.7	61.28	3.277
1986	9	11	2100	192.43	7.5	5.5	9.3	53.81	3.294
1986	9	11	2115	192.44	8.2	4.8	9.5	59.59	3.308
1986	9	11	2130	192.42	4.6	6.0	7.6	37.42	3.320
1986	9	11	2145	192.46	5.9	7.2	9.3	39.54	3.328
1986	9	11	2200	192.57	6.6	7.5	9.9	41.27	3.323
1986	9	11	2215	192.50	5.4	10.8	12.1	26.71	3.339
1986	9	11	2230	192.63	6.7	9.7	11.8	34.53	3.363
1986	9	11	2245	192.65	9.5	8.4	12.7	48.56	3.358
1986	9	11	2300	192.64	6.1	7.3	9.5	40.06	3.354
1986	9	11	2315	192.65	4.7	8.2	9.5	29.46	3.359
1986	9	11	2330	192.65	0.6	8.8	8.8	3.61	3.362
1986	9	11	2345	192.63	3.8	11.3	11.9	18.64	3.357
1986	9	12	0000	192.64	3.8	11.3	11.9	18.64	3.357
1986	9	12	0015	192.63	5.6	13.1	14.2	23.13	3.354

1986	9	12	0030	192.57	5.9	12.8	14.1	24.88	3.365
1986	9	12	0045	192.46	5.8	13.8	14.9	22.98	3.379
1986	9	12	0100	192.40	6.9	14.9	16.5	24.93	3.399
1986	9	12	0115	192.31	6.6	14.1	15.6	25.19	3.420
1986	9	12	0130	192.21	7.3	13.7	15.5	28.13	3.453
1986	9	12	0145	192.14	6.3	12.7	14.2	26.59	3.490
1986	9	12	0200	192.05	7.6	12.0	14.3	32.31	3.529
1986	9	12	0215	192.02	9.3	9.9	13.6	42.96	3.588
1986	9	12	0230	191.91	9.3	9.5	13.3	44.24	3.662
1986	9	12	0245	191.85	8.9	9.3	12.9	43.61	3.716
1986	9	12	0300	191.85	11.2	10.4	15.3	47.16	3.777
1986	9	12	0315	191.69	8.5	9.8	12.9	40.81	3.841
1986	9	12	0330	191.65	8.6	8.7	12.2	44.94	3.898
1986	9	12	0345	191.56	9.3	7.8	12.1	50.16	3.956
1986	9	12	0400	191.48	9.3	7.8	12.1	50.16	3.956
1986	9	12	0415	191.36	7.5	8.6	11.4	41.14	4.060
1986	9	12	0430	191.30	9.6	8.3	12.7	48.99	4.104
1986	9	12	0445	191.22	7.5	7.5	10.6	45.20	4.145
1986	9	12	0500	191.15	10.0	7.9	12.7	51.84	4.182
1986	9	12	0515	191.10	9.8	6.6	11.8	56.25	4.214
1986	9	12	0530	191.03	10.0	6.3	11.8	57.69	4.241
1986	9	12	0545	191.02	9.5	6.4	11.4	55.95	4.264
1986	9	12	0600	190.98	11.1	6.4	12.8	60.09	4.281
1986	9	12	0615	190.92	10.6	4.4	11.5	67.49	4.312
1986	9	12	0630	190.94	11.1	3.5	11.6	72.43	4.345
1986	9	12	0645	191.00	11.8	5.0	12.8	67.24	4.352
1986	9	12	0700	191.03	11.6	2.4	11.8	78.21	4.356
1986	9	12	0715	191.02	7.8	0.0	7.8	89.93	4.365
1986	9	12	0730	191.04	7.5	0.3	7.5	87.80	4.375
1986	9	12	0745	191.11	9.3	1.7	9.4	79.77	4.382
1986	9	12	0800	191.17	9.3	1.7	9.4	79.77	4.382
1986	9	12	0815	191.27	8.5	-0.5	8.5	93.07	4.397
1986	9	12	0830	191.33	6.6	0.1	6.6	89.23	4.403
1986	9	12	0845	191.43	9.2	2.8	9.6	72.79	4.408
1986	9	12	0900	191.61	9.2	5.7	10.9	58.14	4.412
1986	9	12	0915	191.66	10.1	6.3	11.9	57.76	4.415
1986	9	12	0930	191.69	9.8	6.6	11.8	56.25	4.419
1986	9	12	0945	191.75	8.3	8.9	12.2	42.85	4.427
1986	9	12	1000	191.89	8.9	10.2	13.6	41.08	4.440
1986	9	12	1015	191.89	6.7	8.5	10.9	38.20	4.477
1986	9	12	1030	191.97	7.2	8.2	10.9	41.25	4.523
1986	9	12	1045	192.03	8.1	9.0	12.1	42.05	4.554
1986	9	12	1100	192.17	7.7	8.6	11.6	41.54	4.586
1986	9	12	1115	192.29	8.3	7.7	11.4	47.04	4.623
1986	9	12	1130	192.38	9.3	7.8	12.1	50.16	4.662
1986	9	12	1145	192.49	9.8	6.6	11.8	56.25	4.703
1986	9	12	1200	192.62	9.8	6.6	11.8	56.25	4.703
1986	9	12	1215	192.74	8.9	7.1	11.4	51.33	4.786
1986	9	12	1230	192.75	8.9	6.8	11.2	52.58	4.829
1986	9	12	1245	192.79	8.5	7.6	11.4	48.16	4.877
1986	9	12	1300	192.82	7.3	8.6	11.2	40.26	4.935
1986	9	12	1315	192.80	6.1	10.2	11.9	30.64	5.000
1986	9	12	1330	192.87	8.7	9.1	12.6	43.54	5.078
1986	9	12	1345	192.90	8.9	6.6	11.1	53.59	5.165
1986	9	12	1400	192.93	9.9	6.6	11.9	56.33	5.249
1986	9	12	1415	193.04	10.8	6.7	12.7	58.21	5.348
1986	9	12	1430	192.87	7.8	10.5	13.1	36.67	5.445
1986	9	12	1445	192.72	6.1	11.5	13.0	28.13	5.520
1986	9	12	1500	192.81	9.0	11.6	14.7	37.91	5.610
1986	9	12	1515	192.72	10.2	11.8	15.6	40.74	5.721
1986	9	12	1530	192.66	9.5	10.3	13.9	42.66	5.838
1986	9	12	1545	192.59	9.0	10.0	13.5	41.86	5.938
1986	9	12	1600	192.64	9.0	10.0	13.5	41.86	5.938
1986	9	12	1615	192.61	11.8	7.9	14.2	56.07	6.102
1986	9	12	1630	192.62	15.2	7.9	17.1	62.66	6.175
1986	9	12	1645	192.55	15.5	7.0	17.0	65.67	6.246
1986	9	12	1700	192.57	14.6	6.4	15.9	66.44	6.309
1986	9	12	1715	192.57	14.0	5.7	15.1	67.65	6.363
1986	9	12	1730	192.48	13.5	5.1	14.4	69.37	6.409
1986	9	12	1745	192.39	13.8	4.0	14.4	73.81	6.453
1986	9	12	1800	192.37	11.9	2.1	12.1	79.84	6.493
1986	9	12	1815	192.36	10.4	1.9	10.6	79.83	6.542
1986	9	12	1830	192.35	8.2	0.9	8.2	83.43	6.587
1986	9	12	1845	192.33	10.0	1.7	10.2	80.40	6.602
1986	9	12	1900	192.37	10.2	1.3	10.3	82.55	6.614
1986	9	12	1915	192.46	9.2	-0.3	9.2	92.12	6.624
1986	9	12	1930	192.52	12.8	-1.9	12.9	98.32	6.633
1986	9	12	1945	192.36	9.1	-0.6	9.1	93.81	6.636
1986	9	12	2000	192.32	9.1	-0.6	9.1	93.81	6.636
1986	9	12	2015	192.29	10.4	-3.0	10.8	105.89	6.638

1986	9	12	2030	192.28	11.4	-4.2	12.2	110.00	6.633
1986	9	12	2045	192.24	6.3	-11.8	13.3	151.99	6.620
1986	9	12	2100	192.31	6.4	-13.3	14.8	154.23	6.565
1986	9	12	2115	192.30	4.1	-12.2	12.9	161.68	6.459
1986	9	12	2130	192.39	5.1	-12.5	13.5	157.97	6.328
1986	9	12	2145	192.49	4.8	-12.0	12.9	158.11	6.208
1986	9	12	2200	192.40	2.1	-8.8	9.1	166.43	6.100
1986	9	12	2215	192.31	-1.0	-4.1	4.2	193.23	6.024
1986	9	12	2230	192.30	-0.7	-1.5	1.7	204.76	5.981
1986	9	12	2245	192.30	-3.0	-0.9	3.1	254.16	5.917
1986	9	12	2300	192.25	-3.1	1.0	3.3	287.51	5.860
1986	9	12	2315	192.21	-2.9	3.1	4.2	317.00	5.819
1986	9	12	2330	192.22	-2.1	4.4	4.9	335.00	5.798
1986	9	12	2345	192.20	-2.6	6.8	7.3	338.92	5.803
1986	9	13	0000	192.20	-2.6	6.8	7.3	338.92	5.803
1986	9	13	0015	192.18	-2.0	8.1	8.4	346.04	5.852
1986	9	13	0030	192.21	-2.3	7.0	7.4	342.03	5.912
1986	9	13	0045	192.20	-2.7	8.8	9.2	343.13	5.957
1986	9	13	0100	192.22	-2.2	6.3	6.6	341.05	5.999
1986	9	13	0115	192.23	-1.4	7.2	7.3	349.23	6.048
1986	9	13	0130	192.29	-0.9	4.6	4.7	348.45	6.150
1986	9	13	0145	192.34	0.5	3.7	3.7	7.83	6.270
1986	9	13	0200	192.42	0.3	2.8	2.8	7.01	6.367
1986	9	13	0215	192.52	1.1	3.4	3.5	17.71	6.450
1986	9	13	0230	192.56	0.3	1.9	1.9	9.51	6.537
1986	9	13	0245	192.58	0.2	2.5	2.6	5.58	6.582
1986	9	13	0300	192.64	-0.0	1.7	1.7	358.63	6.605
1986	9	13	0315	192.60	0.3	1.9	1.9	9.51	6.634
1986	9	13	0330	192.49	-0.3	2.3	2.3	352.65	6.665
1986	9	13	0345	192.53	0.5	0.7	0.8	35.26	6.686
1986	9	13	0400	192.63	0.5	0.7	0.8	35.26	6.686
1986	9	13	0415	192.69	0.1	1.0	1.0	4.05	6.704
1986	9	13	0430	192.71	-0.4	0.4	0.5	313.20	6.711
1986	9	13	0445	192.78	-0.9	-0.6	1.1	234.70	6.712
1986	9	13	0500	192.84	-0.9	-1.6	1.9	208.75	6.717
1986	9	13	0515	192.81	-1.6	-1.3	2.1	230.96	6.722
1986	9	13	0530	192.78	-1.3	-2.4	2.7	208.97	6.728
1986	9	13	0545	192.79	-2.1	-7.1	7.4	196.70	6.704
1986	9	13	0600	192.71	-3.5	-8.3	9.0	203.15	6.563
1986	9	13	0615	192.61	-5.3	-9.1	10.5	210.10	6.415
1986	9	13	0630	192.46	-4.0	-8.2	9.1	206.24	6.304
1986	9	13	0645	192.35	-2.9	-7.4	8.0	201.52	6.189
1986	9	13	0700	192.30	-6.0	-6.0	8.5	225.07	6.077
1986	9	13	0715	192.15	-4.5	-6.0	7.5	217.06	6.001
1986	9	13	0730	192.15	-6.9	-6.2	9.3	228.12	5.961
1986	9	13	0745	192.05	-4.8	-5.5	7.3	221.60	5.954
1986	9	13	0800	192.05	-4.8	-5.5	7.3	221.60	5.954
1986	9	13	0815	192.05	-2.7	-5.4	6.0	206.04	5.982
1986	9	13	0830	192.15	-2.9	-5.0	5.7	209.93	5.994
1986	9	13	0845	192.08	-5.9	-5.6	8.1	226.34	6.014
1986	9	13	0900	192.14	-7.3	-6.3	9.7	229.38	6.056
1986	9	13	0915	192.28	-7.2	-6.0	9.4	230.23	6.099
1986	9	13	0930	192.38	-2.6	-3.9	4.7	214.04	6.123
1986	9	13	0945	192.55	-1.3	-4.6	4.8	195.73	6.107
1986	9	13	1000	192.61	-2.3	-4.9	5.5	205.19	6.054
1986	9	13	1015	192.73	-3.1	-4.3	5.3	215.52	6.053
1986	9	13	1030	192.79	0.7	-1.5	1.6	155.00	6.081
1986	9	13	1045	192.91	-0.2	-0.1	0.2	245.00	6.063
1986	9	13	1100	193.07	-1.3	1.8	2.2	324.70	6.069
1986	9	13	1115	193.08	9.9	-9.5	13.7	134.05	6.152
1986	9	13	1130	193.23	4.1	-7.8	8.8	152.40	6.186
1986	9	13	1145	193.37	3.1	-7.2	7.8	156.47	6.109
1986	9	13	1200	193.52	3.1	-7.2	7.8	156.47	6.109
1986	9	13	1215	193.69	4.2	-4.7	6.3	138.30	5.776
1986	9	13	1230	193.78	4.8	-4.2	6.4	130.85	5.693
1986	9	13	1245	193.87	4.1	-4.9	6.4	140.53	5.651
1986	9	13	1300	194.09	2.3	-6.5	6.9	160.79	5.698
1986	9	13	1315	194.13	1.2	-3.4	3.6	161.34	5.779
1986	9	13	1330	194.26	2.9	-5.3	6.0	151.19	5.862
1986	9	13	1345	194.42	5.1	-6.1	8.0	140.44	5.943
1986	9	13	1400	194.51	5.0	-7.7	9.2	146.87	5.992
1986	9	13	1415	194.63	3.7	-9.0	9.7	157.36	6.035
1986	9	13	1430	194.74	3.9	-8.0	8.9	153.71	6.070
1986	9	13	1445	194.74	3.3	-6.5	7.3	153.43	6.072
1986	9	13	1500	194.74	-0.1	-4.5	4.5	181.57	6.067
1986	9.	13	1515	194.79	-1.1	-2.9	3.1	200.00	6.061
1986	9	13	1530	194.79	-1.2	-3.2	3.4	200.00	6.056
1986	9	13	1545	194.88	-0.6	-2.5	2.6	193.66	6.053
1986	9	13	1600	194.90	-0.6	-2.5	2.6	193.66	6.053
1986	9	13	1615	194.93	-0.8	-1.8	2.0	204.09	6.050

1986	9	13	1630	194.91	0.9	-0.8	1.2	130.56	6.050
1986	9	13	1645	194.89	0.0	-1.2	1.2	179.44	6.048
1986	9	13	1700	194.93	-0.1	0.2	0.2	335.00	6.046
1986	9	13	1715	194.89	0.1	-1.9	1.9	176.25	6.043
1986	9	13	1730	194.85	0.7	-0.4	0.9	119.46	6.041
1986	9	13	1745	194.86	1.2	0.0	1.2	89.44	6.037
1986	9	13	1800	194.76	0.6	0.8	1.0	35.95	6.031
1986	9	13	1815	194.72	-0.3	-0.4	0.4	218.43	6.040
1986	9	13	1830	194.61	0.2	0.8	0.9	10.54	6.058
1986	9	13	1845	194.59	0.6	-0.2	0.6	103.66	6.050
1986	9	13	1900	194.55	0.8	0.9	1.2	40.56	6.039
1986	9	13	1915	194.41	1.6	0.8	1.8	65.00	6.031
1986	9	13	1930	194.36	0.4	-0.0	0.4	91.56	6.026
1986	9	13	1945	194.37	-0.9	1.4	1.6	327.87	6.021
1986	9	13	2000	194.33	-0.9	1.4	1.6	327.87	6.021
1986	9	13	2015	194.30	2.7	0.7	2.7	75.49	6.017
1986	9	13	2030	194.25	1.9	-0.9	2.1	115.91	6.014
1986	9	13	2045	194.23	4.7	-0.7	4.8	98.02	6.005
1986	9	13	2100	194.18	6.8	-1.5	6.9	102.37	5.992
1986	9	13	2115	194.17	6.8	-1.5	6.9	102.37	5.982
1986	9	13	2130	194.16	2.5	-1.7	3.1	123.39	5.978
1986	9	13	2145	194.16	1.3	-3.3	3.6	158.18	5.981
1986	9	13	2200	194.17	0.8	-1.3	1.5	147.41	5.983
1986	9	13	2215	194.20	1.5	-2.2	2.6	146.25	5.998
1986	9	13	2230	194.18	2.5	-1.5	2.9	121.31	6.016
1986	9	13	2245	194.12	2.9	-0.1	2.9	91.56	6.009
1986	9	13	2300	194.12	3.5	-1.0	3.6	106.63	5.996
1986	9	13	2315	194.07	1.7	-3.2	3.6	151.82	5.988
1986	9	13	2330	194.03	2.5	-0.1	2.5	91.56	5.981
1986	9	13	2345	194.01	1.4	-2.0	2.4	145.54	5.975
1986	9	14	0000	193.97	1.4	-2.0	2.4	145.54	5.975
1986	9	14	0015	193.97	0.4	-1.8	1.8	167.53	5.967
1986	9	14	0030	193.93	2.2	-1.0	2.4	113.37	5.964
1986	9	14	0045	193.87	0.0	-1.2	1.2	179.44	5.961
1986	9	14	0100	193.88	-1.3	-1.8	2.3	216.19	5.958
1986	9	14	0115	193.81	-3.9	-1.6	4.2	247.73	5.954
1986	9	14	0130	193.75	-2.4	-0.6	2.5	256.77	5.956
1986	9	14	0145	193.82	-1.5	-1.5	2.1	225.71	5.956
1986	9	14	0200	193.84	-3.5	-1.4	3.8	248.01	5.953
1986	9	14	0215	193.79	-2.2	-1.0	2.4	245.00	5.962
1986	9	14	0230	193.77	-1.6	-1.2	2.0	233.69	5.976
1986	9	14	0245	193.79	-2.2	-4.2	4.8	207.65	5.961
1986	9	14	0300	193.81	-2.1	-3.2	3.9	213.78	5.931
1986	9	14	0315	193.79	-1.8	-3.0	3.5	210.41	5.914
1986	9	14	0330	193.78	-2.0	-3.1	3.7	212.17	5.884
1986	9	14	0345	193.81	-2.6	-3.9	4.7	214.04	5.839
1986	9	14	0400	193.81	-2.6	-3.9	4.7	214.04	5.839
1986	9	14	0415	193.81	-3.0	-5.2	6.0	209.46	5.747
1986	9	14	0430	193.83	-3.4	-4.8	5.9	215.38	5.712
1986	9	14	0445	193.76	-3.4	-3.8	5.1	221.95	5.686
1986	9	14	0500	193.80	-4.0	-4.5	6.0	221.43	5.663
1986	9	14	0515	193.83	-2.0	-4.1	4.6	206.15	5.642
1986	9	14	0530	193.83	-2.8	-4.0	4.8	215.26	5.644
1986	9	14	0545	193.77	-3.3	-4.0	5.2	219.92	5.610
1986	9	14	0600	193.78	-1.4	-3.9	4.1	200.00	5.565
1986	9	14	0615	193.82	-1.6	0.3	1.6	279.70	5.612
1986	9	14	0630	193.74	-1.6	-2.2	2.7	216.56	5.613
1986	9	14	0645	193.70	-0.5	-0.5	0.7	229.05	5.548
1986	9	14	0700	193.72	-0.1	-2.0	2.0	181.57	5.499
1986	9	14	0715	193.63	0.0	-0.5	0.5	176.80	5.476
1986	9	14	0730	193.57	-0.6	-0.8	1.0	215.95	5.452
1986	9	14	0745	193.44	-0.2	-0.5	0.6	200.00	5.430
1986	9	14	0800	193.43	-0.2	-0.5	0.6	200.00	5.430
1986	9	14	0815	193.37	-0.3	-1.9	1.9	189.51	5.359
1986	9	14	0830	193.34	-0.3	-3.0	3.0	184.98	5.323
1986	9	14	0845	193.27	-0.6	-3.9	4.0	188.69	5.286
1986	9	14	0900	193.31	-1.1	-5.4	5.5	191.87	5.235
1986	9	14	0915	193.27	-1.4	-5.5	5.7	194.29	5.181
1986	9	14	0930	193.23	-1.0	-3.9	4.0	194.99	5.125
1986	9	14	0945	193.14	-1.1	-2.5	2.7	203.01	5.092
1986	9	14	1000	193.09	-1.2	-2.6	2.8	205.71	5.090
1986	9	14	1015	193.03	-2.4	-3.1	3.9	217.78	5.101
1986	9	14	1030	193.02	-2.9	-3.1	4.3	223.20	5.119
1986	9	14	1045	193.00	-1.8	-5.2	5.5	198.53	5.113
1986	9	14	1100	192.97	-1.3	-5.5	5.6	193.50	5.059
1986	9	14	1115	193.09	-2.0	-6.1	6.4	198.11	4.995
1986	9	14	1130	193.05	-2.0	-6.0	6.4	198.73	4.942
1986	9	14	1145	192.94	-2.4	-4.8	5.3	206.84	4.888
1986	9	14	1200	192.92	-2.4	-4.8	5.3	206.84	4.888
1986	9	14	1215	192.88	-2.5	-3.2	4.0	218.43	4.859

1986	9	14	1230	192.85	-2.2	-3.7	4.3	211.31	4.868
1986	9	14	1245	192.97	-1.1	-4.4	4.5	194.64	4.870
1986	9	14	1300	193.07	-0.8	-5.6	5.6	188.41	4.856
1986	9	14	1315	193.07	-1.5	-5.8	6.0	194.56	4.826
1986	9	14	1330	193.22	-0.5	-5.8	5.9	184.62	4.790
1986	9	14	1345	193.29	-0.2	-6.4	6.4	181.97	4.746
1986	9	14	1400	193.21	-1.1	-6.1	6.2	190.22	4.692
1986	9	14	1415	193.17	-2.5	-6.2	6.7	201.81	4.658
1986	9	14	1430	193.20	-1.7	-6.8	7.0	193.66	4.648
1986	9	14	1445	193.12	-7.4	-13.5	15.4	208.73	4.647
1986	9	14	1500	193.06	-5.2	-1.4	5.4	254.64	4.752
1986	9	14	1515	193.05	-11.4	-4.5	12.2	248.28	4.827
1986	9	14	1530	193.17	-0.1	2.9	2.9	357.17	4.749
1986	9	14	1545	193.27	-3.0	2.8	4.1	313.46	4.641
1986	9	14	1600	193.41	-3.0	2.8	4.1	313.46	4.641
1986	9	14	1615	193.36	-13.1	-5.5	14.2	247.02	4.500
1986	9	14	1630	193.50	-3.8	1.9	4.2	296.77	4.488
1986	9	14	1645	193.61	6.9	1.6	7.1	77.26	4.467
1986	9	14	1700	193.60	-7.8	-1.7	8.0	257.99	4.439
1986	9	14	1715	193.54	0.7	1.1	1.3	32.53	4.446
1986	9	14	1730	193.59	-4.3	0.9	4.4	281.61	4.475
1986	9	14	1745	193.67	3.8	0.1	3.8	88.20	4.486
1986	9	14	1800	193.63	2.7	-0.2	2.7	93.44	4.477
1986	9	14	1815	193.60	4.0	0.4	4.0	83.89	4.524
1986	9	14	1830	193.63	-1.6	0.3	1.6	279.70	4.570
1986	9	14	1845	193.48	-1.8	-0.8	2.0	245.00	4.588
1986	9	14	1900	193.46	3.1	2.9	4.2	47.00	4.586
1986	9	14	1915	193.43	2.9	-1.1	3.1	110.00	4.601
1986	9	14	1930	193.30	-7.7	-1.8	7.9	256.74	4.585
1986	9	14	1945	193.26	2.5	-1.5	2.9	121.31	4.665
1986	9	14	2000	193.23	2.5	-1.5	2.9	121.31	4.665
1986	9	14	2015	193.16	2.0	-0.8	2.2	111.85	4.676
1986	9	14	2030	193.17	1.4	-2.0	2.4	145.54	4.627
1986	9	14	2045	193.16	2.8	-2.3	3.7	129.13	4.605
1986	9	14	2100	193.12	0.0	-3.6	3.6	179.44	4.580
1986	9	14	2115	193.10	4.9	-2.1	5.3	113.81	4.553
1986	9	14	2130	193.08	-1.3	-3.5	3.7	200.00	4.528
1986	9	14	2145	193.01	3.1	-2.0	3.7	122.17	4.519
1986	9	14	2200	193.02	-2.1	-3.8	4.4	208.39	4.530
1986	9	14	2215	192.89	1.4	-3.0	3.3	155.00	4.549
1986	9	14	2230	192.73	0.6	-0.9	1.1	144.70	4.559
1986	9	14	2245	192.61	-1.8	-1.4	2.3	232.20	4.553
1986	9	14	2300	192.55	2.2	0.5	2.3	77.80	4.556
1986	9	14	2315	192.50	1.6	-0.9	1.9	118.75	4.553
1986	9	14	2330	192.39	-1.8	-0.3	1.9	260.52	4.552
1986	9	14	2345	192.32	-3.1	-0.7	3.2	257.72	4.549
1986	9	15	0000	192.25	-3.1	-0.7	3.2	257.72	4.549
1986	9	15	0015	192.26	1.9	1.6	2.5	48.74	4.560
1986	9	15	0030	192.20	-0.2	2.1	2.1	354.29	4.567
1986	9	15	0045	192.17	0.9	2.8	3.0	17.27	4.572
1986	9	15	0100	192.08	-2.4	2.5	3.5	316.56	4.575
1986	9	15	0115	192.10	1.0	4.1	4.2	13.23	4.607
1986	9	15	0130	192.04	-2.0	4.7	5.1	337.25	4.629
1986	9	15	0145	191.97	0.0	4.2	4.2	0.35	4.634
1986	9	15	0200	191.98	-4.4	3.3	5.5	307.05	4.644
1986	9	15	0215	192.00	-1.7	4.6	4.9	339.67	4.720
1986	9	15	0230	191.97	1.6	5.1	5.4	16.99	4.771
1986	9	15	0245	191.97	-2.7	4.1	4.9	326.87	4.779
1986	9	15	0300	191.97	1.5	5.8	6.0	14.56	4.824
1986	9	15	0315	191.93	-2.9	5.0	5.8	330.07	4.846
1986	9	15	0330	191.90	1.6	5.1	5.4	16.99	4.886
1986	9	15	0345	191.83	-0.9	5.7	5.7	351.22	4.927
1986	9	15	0400	191.83	-0.9	5.7	5.7	351.22	4.927
1986	9	15	0415	191.83	0.2	3.8	3.8	3.61	5.047
1986	9	15	0430	191.76	-1.4	2.5	2.9	331.05	5.097
1986	9	15	0445	191.75	-2.5	2.7	3.7	317.55	5.169
1986	9	15	0500	191.80	-4.8	3.4	5.9	305.38	5.256
1986	9	15	0515	191.79	-1.7	2.6	3.1	327.65	5.313
1986	9	15	0530	191.79	0.4	2.9	2.9	8.69	5.304
1986	9	15	0545	191.84	0.0	1.7	1.7	0.02	5.222
1986	9	15	0600	191.81	-1.9	4.2	4.6	335.00	5.157
1986	9	15	0615	191.74	-3.5	3.2	4.8	312.75	5.142
1986	9	15	0630	191.71	-4.8	3.4	5.9	305.38	5.145
1986	9	15	0645	191.69	-4.6	3.5	5.8	307.10	5.149
1986	9	15	0700	191.63	-0.9	0.8	1.2	310.56	5.145
1986	9	15	0715	191.51	-0.0	1.2	1.2	359.44	5.117
1986	9	15	0730	191.42	-1.1	2.9	3.1	338.69	5.066
1986	9	15	0745	191.39	-1.1	1.1	1.6	316.56	5.052
1986	9	15	0800	191.26	-1.1	1.1	1.6	316.56	5.052
1986	9	15	0815	191.21	-2.4	0.9	2.5	290.00	5.095

1986	9	15	0830	191.13	-1.5	0.7	1.7	294.76	5.120
1986	9	15	0845	191.15	0.5	1.5	1.6	20.00	5.143
1986	9	15	0900	191.11	0.9	1.2	1.5	36.70	5.160
1986	9	15	0915	191.13	1.5	-1.5	2.1	135.71	5.179
1986	9	15	0930	191.02	1.4	-0.8	1.6	120.30	5.196
1986	9	15	0945	191.03	2.5	-0.2	2.6	95.58	5.210
1986	9	15	1000	190.98	1.5	-0.1	1.5	93.30	5.219
1986	9	15	1015	190.94	2.5	-2.7	3.7	137.55	5.237
1986	9	15	1030	190.87	1.1	-2.4	2.7	155.00	5.239
1986	9	15	1045	190.88	1.9	-2.5	3.2	142.28	5.230
1986	9	15	1100	190.87	2.1	-3.4	4.0	147.87	5.225
1986	9	15	1115	190.81	1.2	-3.7	3.8	162.50	5.220
1986	9	15	1130	190.81	0.1	-3.8	3.8	178.20	5.219
1986	9	15	1145	190.82	-0.5	-3.7	3.7	187.83	5.225
1986	9	15	1200	190.87	-0.5	-3.7	3.7	187.83	5.225
1986	9	15	1215	190.82	-2.0	-2.6	3.3	217.65	5.281
1986	9	15	1230	190.73	-3.4	-1.8	3.8	241.99	5.332
1986	9	15	1245	190.69	-4.5	0.1	4.5	271.57	5.388
1986	9	15	1300	190.75	-6.0	2.0	6.4	288.73	5.432
1986	9	15	1315	190.68	-6.2	2.2	6.6	289.38	5.468
1986	9	15	1330	190.67	-14.7	3.8	15.2	284.66	5.480
1986	9	15	1345	190.75	-6.3	-0.3	6.3	267.48	5.512
1986	9	15	1400	190.80	2.3	-2.9	3.7	140.96	5.488
1986	9	15	1415	190.82	1.3	-1.6	2.1	140.96	5.442
1986	9	15	1430	190.87	1.2	-2.6	2.9	155.00	5.439
1986	9	15	1445	190.90	-7.1	-0.4	7.1	266.50	5.445
1986	9	15	1500	190.97	-7.5	1.4	7.6	280.36	5.484
1986	9	15	1515	191.05	1.4	-0.8	1.6	120.30	5.516
1986	9	15	1530	191.19	4.4	-4.2	6.1	133.90	5.497
1986	9	15	1545	191.14	3.5	-3.8	5.2	136.92	5.411
1986	9	15	1600	191.11	3.5	-3.8	5.2	136.92	5.411
1986	9	15	1615	191.28	-6.6	0.4	6.6	273.12	5.359
1986	9	15	1630	191.37	-0.4	-1.4	1.4	194.29	5.419
1986	9	15	1645	191.38	-0.7	-2.3	2.4	196.63	5.417
1986	9	15	1700	191.47	1.7	-5.3	5.5	162.25	5.398
1986	9	15	1715	191.59	2.7	-4.6	5.3	149.61	5.323
1986	9	15	1730	191.62	-2.2	-4.2	4.8	207.65	5.259
1986	9	15	1745	191.63	-2.7	-2.5	3.7	227.55	5.259
1986	9	15	1800	191.68	0.3	-2.8	2.8	173.43	5.276
1986	9	15	1815	191.81	5.1	-5.7	7.6	138.23	5.281
1986	9	15	1830	191.83	3.9	-5.8	7.0	145.94	5.258
1986	9	15	1845	191.73	1.7	-7.5	7.7	167.04	5.215
1986	9	15	1900	191.79	0.2	-8.2	8.2	178.75	5.225
1986	9	15	1915	191.74	-0.8	-7.7	7.7	186.22	5.251
1986	9	15	1930	191.76	-3.3	-6.4	7.2	207.33	5.290
1986	9	15	1945	191.77	-5.9	-8.8	10.6	213.85	5.333
1986	9	15	2000	191.74	-5.9	-8.8	10.6	213.85	5.333
1986	9	15	2015	191.71	-6.0	-3.4	6.9	240.86	5.376
1986	9	15	2030	191.70	-6.3	-3.7	7.3	239.52	5.379
1986	9	15	2045	191.68	-8.5	-2.5	8.9	253.40	5.387
1986	9	15	2100	191.73	-9.6	-3.5	10.2	250.04	5.416
1986	9	15	2115	191.61	-2.9	-4.6	5.4	212.77	5.431
1986	9	15	2130	191.57	0.5	-3.7	3.8	171.99	5.403
1986	9	15	2145	191.49	-1.4	-5.3	5.5	194.81	5.323
1986	9	15	2200	191.46	-1.7	-4.8	5.1	200.00	5.246
1986	9	15	2215	191.29	-0.7	-2.0	2.1	200.00	5.243
1986	9	15	2230	191.24	0.4	-0.4	0.5	133.20	5.260
1986	9	15	2245	191.17	-0.1	0.2	0.2	335.00	5.219
1986	9	15	2300	191.13	-0.9	0.8	1.2	310.56	5.184
1986	9	15	2315	191.11	-2.3	0.6	2.3	284.81	5.190
1986	9	15	2330	190.99	-2.3	1.9	3.0	309.29	5.219
1986	9	15	2345	190.84	-1.6	5.1	5.3	342.52	5.253
1986	9	16	0000	190.82	-1.6	5.1	5.3	342.52	5.253
1986	9	16	0015	190.71	0.9	4.9	4.9	10.94	5.261
1986	9	16	0030	190.59	4.0	4.5	6.0	41.43	5.229
1986	9	16	0045	190.56	2.9	2.3	3.7	50.96	5.213
1986	9	16	0100	190.60	5.1	1.2	5.2	77.17	5.206
1986	9	16	0115	190.56	3.4	-0.4	3.4	96.83	5.169
1986	9	16	0130	190.59	2.7	0.5	2.8	79.53	5.118
1986	9	16	0145	190.61	3.4	1.8	3.8	61.99	5.060
1986	9	16	0200	190.56	3.2	3.1	4.5	45.35	5.016
1986	9	16	0215	190.59	2.6	0.6	2.6	75.89	5.042
1986	9	16	0230	190.69	2.0	-0.1	2.0	91.56	5.140
1986	9	16	0245	190.69	1.3	-1.6	2.1	140.96	5.213
1986	9	16	0300	190.59	0.0	-1.0	1.0	178.96	5.272
1986	9	16	0315	190.63	-0.0	0.5	0.5	356.80	5.313
1986	9	16	0330	190.72	-0.0	0.5	0.5	356.80	5.338
1986	9	16	0345	190.75	0.7	-0.4	0.9	119.46	5.321
1986	9	16	0400	190.74	0.7	-0.4	0.9	119.46	5.321
1986	9	16	0415	190.79	-0.5	3.2	3.2	351.19	5.171

1986	9	16	0430	190.94	-1.0	3.2	3.3	341.91	5.104
1986	9	16	0445	191.01	-0.9	4.0	4.1	347.68	5.065
1986	9	16	0500	191.03	0.4	3.8	3.9	6.22	5.054
1986	9	16	0515	191.19	1.7	1.6	2.3	47.35	5.061
1986	9	16	0530	191.27	1.1	0.7	1.3	56.25	5.067
1986	9	16	0545	191.31	2.3	0.7	2.4	74.46	5.070
1986	9	16	0600	191.34	0.6	-0.3	0.6	116.34	5.070
1986	9	16	0615	191.51	0.3	-1.1	1.1	165.30	5.108
1986	9	16	0630	191.48	0.4	-0.3	0.4	128.43	5.157
1986	9	16	0645	191.60	-1.3	-0.2	1.4	262.10	5.174
1986	9	16	0700	191.55	-3.3	-1.3	3.6	248.18	5.196
1986	9	16	0715	191.53	-2.7	0.2	2.7	273.44	5.236
1986	9	16	0730	191.49	-3.7	-0.3	3.7	265.38	5.250
1986	9	16	0745	191.50	-4.5	0.1	4.5	271.57	5.229
1986	9	16	0800	191.44	-4.5	0.1	4.5	271.57	5.229
1986	9	16	0815	191.39	-0.2	-0.1	0.2	245.00	5.141
1986	9	16	0830	191.31	-1.7	2.1	2.7	319.93	5.148
1986	9	16	0845	191.28	0.9	-1.5	1.8	148.66	5.214
1986	9	16	0900	191.24	1.1	-2.9	3.1	158.69	5.205
1986	9	16	0915	191.18	-2.4	-3.1	3.9	217.78	5.140
1986	9	16	0930	191.12	-5.0	-2.9	5.8	240.07	5.147
1986	9	16	0945	190.95	-8.9	-2.4	9.2	254.97	5.214
1986	9	16	1000	190.86	-12.1	-1.7	12.2	262.10	5.276
1986	9	16	1015	190.79	-7.8	1.2	7.9	278.69	5.326
1986	9	16	1030	190.74	-7.1	-0.7	7.1	264.71	5.330
1986	9	16	1045	190.73	-6.3	-8.0	10.2	218.18	5.279
1986	9	16	1100	190.80	-7.6	-4.0	8.6	242.34	5.178
1986	9	16	1115	190.66	-3.1	-4.4	5.4	215.12	5.148
1986	9	16	1130	190.64	-1.3	-0.4	1.3	253.75	5.124
1986	9	16	1145	190.53	-2.7	1.0	2.8	290.00	5.085
1986	9	16	1200	190.43	-2.7	1.0	2.8	290.00	5.085
1986	9	16	1215	190.35	-0.7	-2.3	2.4	196.63	5.002
1986	9	16	1230	190.26	0.1	-3.8	3.8	178.20	4.954
1986	9	16	1245	190.17	-0.8	-4.4	4.4	190.84	4.881
1986	9	16	1300	190.14	-4.8	-2.8	5.5	239.81	4.838
1986	9	16	1315	190.11	-6.9	2.2	7.2	287.75	4.839
1986	9	16	1330	190.27	0.7	-0.6	1.0	131.04	4.875
1986	9	16	1345	190.22	2.2	-3.1	3.9	144.56	4.860
1986	9	16	1400	190.25	0.6	-1.4	1.5	155.00	4.795
1986	9	16	1415	190.21	-1.2	0.4	1.3	290.00	4.767
1986	9	16	1430	190.28	0.3	0.4	0.4	38.43	4.792
1986	9	16	1445	190.31	-0.8	0.8	1.2	315.02	4.812
1986	9	16	1500	190.39	-1.8	1.2	2.1	303.57	4.813
1986	9	16	1515	190.45	-2.1	1.4	2.6	304.42	4.818
1986	9	16	1530	190.53	-3.4	2.1	4.0	301.31	4.827
1986	9	16	1545	190.63	-2.8	1.3	3.1	295.19	4.857
1986	9	16	1600	190.81	-2.8	1.3	3.1	295.19	4.857
1986	9	16	1615	190.87	-2.3	1.4	2.7	300.71	4.842
1986	9	16	1630	190.94	-5.4	3.1	6.2	299.78	4.851
1986	9	16	1645	191.04	-8.8	6.4	10.9	305.84	4.888
1986	9	16	1700	191.19	-0.7	0.4	0.9	299.46	4.937
1986	9	16	1715	191.20	0.4	-1.3	1.3	163.75	4.903
1986	9	16	1730	191.30	-1.1	1.2	1.7	317.65	4.861
1986	9	16	1745	191.38	-0.7	-1.1	1.3	212.53	4.838
1986	9	16	1800	191.54	1.2	-3.8	4.0	162.13	4.796
1986	9	16	1815	191.58	-1.3	-3.5	3.7	200.00	4.752
1986	9	16	1830	191.75	-2.8	-4.3	5.2	213.47	4.740
1986	9	16	1845	191.82	-2.9	-3.3	4.4	220.77	4.733
1986	9	16	1900	191.93	-2.0	-2.9	3.6	214.86	4.729
1986	9	16	1915	192.01	-3.1	-2.2	3.9	234.56	4.731
1986	9	16	1930	192.06	-3.6	-1.2	3.8	251.01	4.772
1986	9	16	1945	192.11	-2.1	-0.7	2.2	250.19	4.827
1986	9	16	2000	192.13	-2.1	-0.7	2.2	250.19	4.827
1986	9	16	2015	192.13	-2.2	-0.0	2.2	269.23	4.903
1986	9	16	2030	192.08	-4.7	-0.4	4.7	264.98	4.902
1986	9	16	2045	192.14	-7.2	1.8	7.5	284.02	4.887
1986	9	16	2100	192.11	-7.6	4.3	8.7	299.31	4.857
1986	9	16	2115	192.04	-5.2	3.9	6.5	306.46	4.839
1986	9	16	2130	192.02	-3.0	3.0	4.3	314.44	4.843
1986	9	16	2145	191.94	1.2	0.1	1.2	84.98	4.847
1986	9	16	2200	191.95	0.8	0.4	0.9	65.00	4.828
1986	9	16	2215	191.87	0.3	0.6	0.6	26.34	4.832
1986	9	16	2230	191.73	0.2	0.5	0.6	20.00	4.865
1986	9	16	2245	191.74	-0.0	1.0	1.0	358.96	4.886
1986	9	16	2300	191.66	0.8	0.4	0.9	65.00	4.906
1986	9	16	2315	191.46	1.0	-1.0	1.4	133.96	4.924
1986	9	16	2330	191.43	0.5	0.2	0.5	65.00	4.941
1986	9	16	2345	191.37	0.7	3.7	3.8	10.36	4.957
1986	9	17	0000	191.25	0.7	3.7	3.8	10.36	4.957
1986	9	17	0015	191.07	1.4	7.5	7.6	10.36	5.025

1986	9	17	0030	190.95	2.7	7.3	7.8	20.00	5.023
1986	9	17	0045	190.97	5.6	4.4	7.1	51.94	4.988
1986	9	17	0100	190.84	0.9	6.3	6.4	8.44	4.964
1986	9	17	0115	190.77	6.6	4.7	8.1	54.38	4.945
1986	9	17	0130	190.74	4.6	9.5	10.6	25.75	4.947
1986	9	17	0145	190.90	5.6	7.8	9.6	35.77	4.964
1986	9	17	0200	190.82	7.2	5.6	9.1	52.33	4.981
1986	9	17	0215	190.75	8.2	6.0	10.2	53.69	5.002
1986	9	17	0230	190.90	6.6	7.3	9.9	42.34	5.020
1986	9	17	0245	190.91	5.4	7.9	9.6	34.14	5.018
1986	9	17	0300	190.94	5.2	9.8	11.1	28.03	5.013
1986	9	17	0315	190.95	4.0	9.9	10.7	21.90	5.010
1986	9	17	0330	191.07	6.1	9.9	11.6	31.58	4.999
1986	9	17	0345	191.19	6.3	10.6	12.3	30.92	4.980
1986	9	17	0400	191.23	6.3	10.6	12.3	30.92	4.980
1986	9	17	0415	191.34	8.6	7.9	11.6	47.50	4.977
1986	9	17	0430	191.43	8.8	5.8	10.5	56.79	4.988
1986	9	17	0445	191.53	8.7	4.6	9.8	62.08	4.996
1986	9	17	0500	191.73	9.4	3.6	10.0	69.00	5.003
1986	9	17	0515	191.86	7.5	2.9	8.0	68.58	5.010
1986	9	17	0530	191.87	8.2	3.3	8.8	68.25	5.016
1986	9	17	0545	191.90	6.3	2.7	6.9	66.66	5.023
1986	9	17	0600	192.00	5.1	3.2	6.0	58.35	5.029
1986	9	17	0615	192.11	4.4	3.7	5.7	49.74	5.056
1986	9	17	0630	192.08	3.5	3.6	5.0	44.04	5.088
1986	9	17	0645	192.19	1.6	2.7	3.2	30.30	5.098
1986	9	17	0700	192.22	-0.1	4.4	4.4	359.23	5.106
1986	9	17	0715	192.40	-0.3	5.5	5.5	356.41	5.120
1986	9	17	0730	192.49	-0.3	5.3	5.3	357.20	5.135
1986	9	17	0745	192.62	-1.1	6.1	6.2	349.93	5.148
1986	9	17	0800	192.69	-1.1	6.1	6.2	349.93	5.148
1986	9	17	0815	192.75	-1.6	7.7	7.9	348.16	5.176
1986	9	17	0830	192.85	-1.6	7.1	7.3	347.70	5.188
1986	9	17	0845	192.85	-0.3	6.7	6.7	357.75	5.196
1986	9	17	0900	192.76	-1.1	8.1	8.2	352.10	5.203
1986	9	17	0915	192.72	0.8	7.7	7.7	6.22	5.217
1986	9	17	0930	192.62	-1.0	7.8	7.9	352.74	5.236
1986	9	17	0945	192.56	-1.3	6.7	6.8	348.63	5.256
1986	9	17	1000	192.41	-1.1	6.1	6.2	349.93	5.273
1986	9	17	1015	192.29	-0.6	5.6	5.6	353.76	5.302
1986	9	17	1030	192.19	0.3	6.2	6.2	2.80	5.334
1986	9	17	1045	192.06	0.4	6.5	6.5	3.54	5.341
1986	9	17	1100	191.99	1.6	5.1	5.4	16.99	5.344
1986	9	17	1115	191.91	2.7	5.9	6.5	24.40	5.349
1986	9	17	1130	191.75	3.9	5.4	6.7	35.36	5.357
1986	9	17	1145	191.63	2.9	0.1	2.9	87.17	5.366
1986	9	17	1200	191.46	2.9	0.1	2.9	87.17	5.366
1986	9	17	1215	191.34	1.4	-1.3	1.9	133.75	5.371
1986	9	17	1230	191.17	1.4	-1.0	1.7	124.04	5.374
1986	9	17	1245	191.15	1.8	-0.8	2.0	114.09	5.376
1986	9	17	1300	191.07	2.7	0.3	2.8	84.09	5.379
1986	9	17	1315	190.96	3.5	0.8	3.6	76.31	5.385
1986	9	17	1330	190.92	4.0	0.4	4.0	83.89	5.395
1986	9	17	1345	190.92	5.3	2.5	5.8	65.00	5.405
1986	9	17	1400	190.98	5.3	2.9	6.0	61.19	5.408
1986	9	17	1415	190.94	5.4	3.1	6.2	60.39	5.419
1986	9	17	1430	191.00	5.8	3.9	7.0	55.94	5.432
1986	9	17	1445	191.12	5.7	3.4	6.6	58.95	5.422
1986	9	17	1500	191.16	5.3	3.3	6.2	58.56	5.409
1986	9	17	1515	191.26	4.6	3.9	6.0	49.58	5.396
1986	9	17	1530	191.27	4.4	3.1	5.4	55.36	5.390
1986	9	17	1545	191.33	3.1	2.4	3.9	51.68	5.393
1986	9	17	1600	191.40	3.1	2.4	3.9	51.68	5.393
1986	9	17	1615	191.38	3.0	2.6	4.0	48.86	5.429
1986	9	17	1630	191.44	3.7	2.9	4.7	51.55	5.442
1986	9	17	1645	191.46	3.0	1.8	3.5	58.48	5.450
1986	9	17	1700	191.53	3.2	1.0	3.3	71.91	5.457
1986	9	17	1715	191.55	2.0	0.5	2.0	76.31	5.466
1986	9	17	1730	191.64	1.4	-0.4	1.4	104.29	5.469
1986	9	17	1745	191.76	1.7	-1.0	1.9	120.49	5.467
1986	9	17	1800	191.86	0.0	-1.0	1.0	178.96	5.461
1986	9	17	1815	191.94	-1.1	-1.5	1.8	215.64	5.469
1986	9	17	1830	192.03	-2.0	-2.1	2.9	222.83	5.479
1986	9	17	1845	192.18	-3.4	-2.1	4.0	237.88	5.467
1986	9	17	1900	192.34	-3.7	-3.7	5.2	224.83	5.450
1986	9	17	1915	192.37	-5.3	-4.1	6.8	232.20	5.432
1986	9	17	1930	192.47	-6.3	-2.7	6.9	246.66	5.416
1986	9	17	1945	192.55	-7.5	-2.9	8.0	248.58	5.399
1986	9	17	2000	192.59	-7.5	-2.9	8.0	248.58	5.399
1986	9	17	2015	192.64	-8.2	-3.8	9.1	245.00	5.372

1986	9	17	2030	192.58	-7.6	-4.5	8.8	239.16	5.361
1986	9	17	2045	192.58	-7.5	-3.3	8.2	246.40	5.351
1986	9	17	2100	192.56	-8.1	-3.4	8.8	247.60	5.341
1986	9	17	2115	192.62	-2.4	-7.8	8.1	197.51	5.330
1986	9	17	2130	192.45	-5.1	-9.8	11.1	207.72	5.307
1986	9	17	2145	192.40	-5.1	-7.5	9.1	214.47	5.273
1986	9	17	2200	192.36	-8.0	-4.7	9.3	239.47	5.235
1986	9	17	2215	192.42	-7.2	-6.0	9.4	230.23	5.215
1986	9	17	2230	192.30	-8.7	-5.8	10.5	236.25	5.213
1986	9	17	2245	192.28	-7.5	-7.1	10.3	226.39	5.192
1986	9	17	2300	192.18	-6.6	-7.5	9.9	221.27	5.163
1986	9	17	2315	192.04	-7.2	-7.0	10.1	225.84	5.136
1986	9	17	2330	191.93	-6.5	-6.9	9.5	223.31	5.116
1986	9	17	2345	191.84	-5.2	-6.1	8.0	220.67	5.105
1986	9	18	0000	191.62	-5.2	-6.1	8.0	220.67	5.105
1986	9	18	0015	191.46	-5.5	-6.6	8.6	220.22	5.083
1986	9	18	0030	191.33	-3.7	-6.2	7.2	211.31	5.071
1986	9	18	0045	191.23	-3.1	-6.3	7.0	206.34	5.059
1986	9	18	0100	191.08	-3.7	-6.8	7.7	208.43	5.046
1986	9	18	0115	190.99	-3.6	-6.1	7.0	210.41	5.034
1986	9	18	0130	190.93	-1.4	-5.3	5.5	194.81	5.024
1986	9	18	0145	190.80	-0.2	-4.7	4.7	182.65	5.013
1986	9	18	0200	190.75	-1.2	-6.4	6.5	190.64	4.997
1986	9	18	0215	190.78	-0.1	-5.9	5.9	181.13	4.995
1986	9	18	0230	190.77	-1.0	-6.1	6.2	189.46	5.003
1986	9	18	0245	190.71	-0.6	-6.1	6.1	185.32	4.987
1986	9	18	0300	190.72	-1.0	-6.3	6.4	189.19	4.961
1986	9	18	0315	190.85	-0.9	-6.5	6.6	188.21	4.934
1986	9	18	0330	190.95	-0.2	-5.9	5.9	182.00	4.912
1986	9	18	0345	191.06	-0.1	-4.9	4.9	181.57	4.893
1986	9	18	0400	191.14	-0.1	-4.9	4.9	181.57	4.893
1986	9	18	0415	191.25	-1.2	-5.7	5.9	191.67	4.862
1986	9	18	0430	191.37	-2.0	-6.6	6.9	197.05	4.851
1986	9	18	0445	191.44	-0.7	-5.4	5.4	187.23	4.840
1986	9	18	0500	191.55	0.5	-4.6	4.6	173.82	4.825
1986	9	18	0515	191.67	0.3	-6.3	6.3	177.48	4.805
1986	9	18	0530	191.85	-0.3	-5.0	5.0	183.61	4.778
1986	9	18	0545	192.01	-0.6	-6.1	6.1	185.32	4.745
1986	9	18	0600	192.21	0.2	-6.2	6.2	177.83	4.708
1986	9	18	0615	192.33	0.3	-5.3	5.3	177.20	4.695
1986	9	18	0630	192.43	-0.9	-5.8	5.9	188.96	4.695
1986	9	18	0645	192.57	-1.1	-5.4	5.5	191.87	4.689
1986	9	18	0700	192.70	0.6	-5.6	5.6	173.76	4.680
1986	9	18	0715	192.77	-0.5	-6.7	6.7	184.64	4.664
1986	9	18	0730	192.89	-1.3	-8.2	8.3	189.26	4.637
1986	9	18	0745	193.00	-2.0	-8.2	8.5	193.77	4.589
1986	9	18	0800	193.10	-2.0	-8.2	8.5	193.77	4.589
1986	9	18	0815	193.16	-0.9	-6.5	6.6	188.21	4.490
1986	9	18	0830	193.18	-1.4	-6.9	7.1	191.38	4.465
1986	9	18	0845	193.25	-1.1	-8.1	8.2	187.52	4.440
1986	9	18	0900	193.24	-1.2	-8.4	8.5	187.94	4.389
1986	9	18	0915	193.22	-3.3	-8.0	8.6	202.82	4.333
1986	9	18	0930	193.13	-4.3	-9.1	10.0	205.27	4.277
1986	9	18	0945	193.10	-4.2	-8.3	9.3	206.53	4.229
1986	9	18	1000	193.04	-4.0	-8.2	9.1	206.24	4.201
1986	9	18	1015	192.95	-3.7	-7.8	8.7	205.62	4.198
1986	9	18	1030	192.80	-3.7	-8.0	8.8	204.61	4.200
1986	9	18	1045	192.69	-3.7	-7.6	8.5	206.23	4.184
1986	9	18	1100	192.56	-2.7	-7.9	8.3	199.03	4.177
1986	9	18	1115	192.37	-3.1	-7.5	8.1	202.49	4.166
1986	9	18	1130	192.23	-2.7	-8.3	8.8	198.15	4.172
1986	9	18	1145	192.11	-2.3	-9.7	10.0	193.48	4.180
1986	9	18	1200	191.90	-2.3	-9.7	10.0	193.48	4.180
1986	9	18	1215	191.68	-1.7	-9.8	10.0	189.80	4.169
1986	9	18	1230	191.52	-2.5	-9.8	10.1	194.37	4.160
1986	9	18	1245	191.43	-2.9	-10.6	11.0	195.21	4.148
1986	9	18	1300	191.22	-3.5	-11.9	12.4	196.40	4.144
1986	9	18	1315	191.10	-1.7	-9.4	9.5	190.19	4.153
1986	9	18	1330	191.02	-1.7	-9.3	9.5	190.54	4.153
1986	9	18	1345	190.90	-2.2	-10.1	10.3	192.09	4.138
1986	9	18	1400	190.78	-3.0	-7.7	8.3	201.47	4.144
1986	9	18	1415	190.71	-2.8	-9.8	10.2	196.03	4.170
1986	9	18	1430	190.64	-2.8	-9.1	9.6	197.03	4.206
1986	9	18	1445	190.64	-3.3	-9.2	9.8	200.00	4.217
1986	9	18	1500	190.66	-1.4	-9.1	9.2	188.52	4.228
1986	9	18	1515	190.69	-0.7	-7.4	7.4	185.70	4.215
1986	9	18	1530	190.73	-1.2	-8.6	8.7	187.77	4.179
1986	9	18	1545	190.80	-1.1	-7.6	7.7	188.27	4.136
1986	9	18	1600	190.84	-1.1	-7.6	7.7	188.27	4.136
1986	9	18	1615	190.93	-1.0	-7.8	7.8	187.47	4.074

1986	9	18	1630	191.02	0.2	-6.2	6.2	177.83	4.022
1986	9	18	1645	191.09	-1.0	-7.3	7.4	187.83	3.979
1986	9	18	1700	191.20	-0.6	-8.1	8.1	184.40	3.959
1986	9	18	1715	191.35	-1.2	-7.9	8.0	188.29	3.928
1986	9	18	1730	191.53	-0.7	-7.4	7.4	185.70	3.894
1986	9	18	1745	191.62	-1.9	-8.0	8.2	193.55	3.854
1986	9	18	1800	191.76	-1.8	-8.7	8.9	191.74	3.795
1986	9	18	1815	191.87	-0.8	-7.2	7.3	186.50	3.748
1986	9	18	1830	191.98	-1.3	-7.7	7.8	189.51	3.722
1986	9	18	1845	192.08	-1.3	-6.7	6.8	191.03	3.682
1986	9	18	1900	192.28	-1.2	-9.4	9.5	187.52	3.642
1986	9	18	1915	192.41	-1.4	-9.1	9.2	188.52	3.612
1986	9	18	1930	192.48	-1.1	-8.8	8.9	187.07	3.585
1986	9	18	1945	192.61	-2.9	-7.4	8.0	201.52	3.575
1986	9	18	2000	192.70	-2.9	-7.4	8.0	201.52	3.575
1986	9	18	2015	192.71	-3.0	-7.8	8.3	200.97	3.519
1986	9	18	2030	192.75	-4.1	-9.3	10.2	203.97	3.497
1986	9	18	2045	192.76	-3.8	-9.6	10.3	201.57	3.484
1986	9	18	2100	192.80	-4.0	-8.3	9.2	205.75	3.459
1986	9	18	2115	192.79	-3.6	-9.0	9.7	202.09	3.422
1986	9	18	2130	192.81	-4.0	-9.7	10.5	202.32	3.378
1986	9	18	2145	192.82	-4.7	-11.0	12.0	203.05	3.327
1986	9	18	2200	192.77	-2.4	-10.8	11.1	192.28	3.274
1986	9	18	2215	192.76	-4.2	-11.2	12.0	200.67	3.238
1986	9	18	2230	192.71	-2.9	-9.4	9.8	197.12	3.208
1986	9	18	2245	192.65	-1.9	-8.0	8.2	193.55	3.157
1986	9	18	2300	192.58	-1.2	-7.8	7.9	188.69	3.104
1986	9	18	2315	192.52	-0.6	-8.1	8.1	184.40	3.056
1986	9	18	2330	192.40	-1.9	-9.7	9.9	190.94	3.012
1986	9	18	2345	192.18	-0.4	-7.6	7.6	183.25	2.970
1986	9	19	0000	192.03	-0.4	-7.6	7.6	183.25	2.970
1986	9	19	0015	191.93	-0.3	-7.2	7.2	182.28	2.896
1986	9	19	0030	191.76	-1.5	-7.1	7.3	192.18	2.863
1986	9	19	0045	191.63	-1.3	-6.7	6.8	191.03	2.834
1986	9	19	0100	191.51	-0.1	-5.9	5.9	181.13	2.810
1986	9	19	0115	191.39	-0.4	-5.3	5.3	184.48	2.789
1986	9	19	0130	191.31	0.1	-5.0	5.0	178.50	2.768
1986	9	19	0145	191.20	0.6	-3.4	3.4	170.26	2.747
1986	9	19	0200	191.10	0.0	-2.6	2.6	179.62	2.729
1986	9	19	0215	191.05	0.1	-2.4	2.4	177.25	2.729
1986	9	19	0230	191.01	1.1	-3.3	3.5	161.52	2.736
1986	9	19	0245	190.98	2.0	-3.9	4.4	152.40	2.719
1986	9	19	0300	190.94	0.5	-3.7	3.8	171.99	2.693
1986	9	19	0315	190.98	0.9	-3.0	3.1	164.16	2.669
1986	9	19	0330	191.01	0.8	-2.8	2.9	164.78	2.648
1986	9	19	0345	191.11	0.8	-1.8	2.0	155.00	2.630
1986	9	19	0400	191.20	0.8	-1.8	2.0	155.00	2.630
1986	9	19	0415	191.29	0.6	-0.9	1.1	144.70	2.607
1986	9	19	0430	191.41	1.0	-0.5	1.1	117.13	2.600
1986	9	19	0445	191.51	1.2	0.0	1.2	89.44	2.595
1986	9	19	0500	191.60	1.8	-0.4	1.9	101.25	2.595
1986	9	19	0515	191.73	2.5	-0.2	2.6	95.58	2.591
1986	9	19	0530	191.90	3.2	-1.7	3.6	117.82	2.584
1986	9	19	0545	192.02	4.2	-2.9	5.1	124.42	2.575
1986	9	19	0600	192.15	3.3	-3.5	4.8	136.94	2.560
1986	9	19	0615	192.33	3.1	-4.4	5.4	145.36	2.559
1986	9	19	0630	192.48	2.6	-4.6	5.3	150.68	2.564
1986	9	19	0645	192.61	2.5	-4.5	5.1	150.52	2.546
1986	9	19	0700	192.80	2.0	-3.9	4.4	152.40	2.527
1986	9	19	0715	192.93	1.0	-2.7	2.9	158.95	2.519
1986	9	19	0730	193.09	0.2	-1.3	1.4	172.10	2.514
1986	9	19	0745	193.27	1.3	-3.3	3.5	158.27	2.512
1986	9	19	0800	193.39	1.3	-3.3	3.5	158.27	2.512
1986	9	19	0815	193.47	-0.8	-4.0	4.1	191.03	2.512
1986	9	19	0830	193.55	0.5	-7.2	7.2	176.21	2.515
1986	9	19	0845	193.65	-2.4	-5.8	6.2	202.60	2.519
1986	9	19	0900	193.73	-7.7	2.8	8.2	290.00	2.508
1986	9	19	0915	193.73	-6.2	3.9	7.4	302.17	2.488
1986	9	19	0930	193.74	-4.4	4.3	6.2	314.23	2.473
1986	9	19	0945	193.66	-3.3	3.3	4.7	315.02	2.470
1986	9	19	1000	193.59	-3.1	2.9	4.3	313.20	2.473
1986	9	19	1015	193.50	-2.3	1.9	3.0	309.29	2.494
1986	9	19	1030	193.40	-2.1	1.4	2.6	304.42	2.523
1986	9	19	1045	193.28	-2.9	0.6	3.0	281.87	2.534
1986	9	19	1100	193.18	-3.0	0.3	3.0	274.98	2.536
1986	9	19	1115	193.06	-2.9	-1.1	3.1	248.69	2.531
1986	9	19	1130	192.92	-3.0	-0.9	3.1	252.35	2.525
1986	9	19	1145	192.81	-2.0	-1.5	2.5	233.23	2.536
1986	9	19	1200	192.65	-2.0	-1.5	2.5	233.23	2.536
1986	9	19	1215	192.48	-1.8	-0.8	2.0	245.00	2.590

1986	9	19	1230	192.36	-2.0	-1.9	2.8	225.91	2.617
1986	9	19	1245	192.17	-1.1	-2.3	2.6	206.34	2.628
1986	9	19	1300	192.03	-1.4	-2.1	2.6	214.42	2.639
1986	9	19	1315	191.87	-3.8	-2.2	4.4	239.81	2.662
1986	9	19	1330	191.69	-2.2	-3.9	4.4	209.16	2.689
1986	9	19	1345	191.50	-0.2	-3.3	3.3	183.89	2.674
1986	9	19	1400	191.39	0.8	-3.3	3.4	166.98	2.649
1986	9	19	1415	191.23	0.9	-3.6	3.7	166.00	2.642
1986	9	19	1430	191.11	0.9	-3.0	3.1	162.35	2.643
1986	9	19	1445	191.06	1.2	-3.7	3.8	162.50	2.630
1986	9	19	1500	190.99	1.6	-4.3	4.6	159.97	2.620
1986	9	19	1515	190.94	1.6	-4.3	4.6	159.97	2.595
1986	9	19	1530	190.93	1.4	-3.5	3.8	158.01	2.568
1986	9	19	1545	190.98	1.2	-3.8	4.0	162.13	2.552
1986	9	19	1600	191.03	1.2	-3.8	4.0	162.13	2.552
1986	9	19	1615	191.06	0.6	-0.9	1.1	144.70	2.539
1986	9	19	1630	191.15	0.3	-1.5	1.6	169.93	2.533
1986	9	19	1645	191.18	0.2	-0.5	0.5	155.00	2.524
1986	9	19	1700	191.26	0.5	0.7	0.8	35.26	2.522
1986	9	19	1715	191.30	-0.0	1.2	1.2	359.44	2.524
1986	9	19	1730	191.40	0.3	0.9	1.0	20.00	2.521
1986	9	19	1745	191.45	1.0	2.1	2.3	25.19	2.521
1986	9	19	1800	191.50	0.4	1.4	1.4	14.29	2.527
1986	9	19	1815	191.60	0.6	0.8	1.0	35.95	2.556
1986	9	19	1830	191.68	0.3	0.6	0.6	26.34	2.595
1986	9	19	1845	191.81	1.1	-1.2	1.7	137.65	2.612
1986	9	19	1900	192.00	2.2	-3.1	3.9	144.56	2.608
1986	9	19	1915	192.10	1.8	-4.3	4.7	157.44	2.598
1986	9	19	1930	192.23	0.7	-3.6	3.7	169.04	2.591
1986	9	19	1945	192.39	-0.5	-4.1	4.1	187.15	2.587
1986	9	19	2000	192.45	-0.5	-4.1	4.1	187.15	2.587
1986	9	19	2015	192.52	-1.0	-5.1	5.2	191.43	2.530
1986	9	19	2030	192.64	-2.2	-3.9	4.4	209.16	2.487
1986	9	19	2045	192.66	-4.3	-1.8	4.6	247.49	2.451
1986	9	19	2100	192.70	-5.2	-0.4	5.2	265.17	2.424
1986	9	19	2115	192.73	-4.6	1.3	4.8	285.73	2.414
1986	9	19	2130	192.75	-5.9	-0.8	6.0	262.53	2.415
1986	9	19	2145	192.72	-5.3	-0.3	5.3	267.20	2.420
1986	9	19	2200	192.74	-4.8	-1.3	5.0	255.41	2.426
1986	9	19	2215	192.70	-4.4	-1.5	4.6	251.20	2.470
1986	9	19	2230	192.68	-3.7	-1.0	3.9	255.44	2.514
1986	9	19	2245	192.62	-3.5	-0.2	3.5	266.50	2.524
1986	9	19	2300	192.51	-3.4	-0.6	3.4	260.26	2.543
1986	9	19	2315	192.37	-2.5	0.1	2.5	271.57	2.577
1986	9	19	2330	192.22	-1.3	-0.4	1.3	253.75	2.615
1986	9	19	2345	192.04	-2.2	-0.5	2.3	257.80	2.634
1986	9	20	0000	191.89	-2.2	-0.5	2.3	257.80	2.634
1986	9	20	0015	191.76	-1.5	-1.5	2.1	225.71	2.672
1986	9	20	0030	191.58	-1.4	-2.3	2.7	210.71	2.694
1986	9	20	0045	191.40	-2.3	-1.3	2.6	240.60	2.711
1986	9	20	0100	191.30	-1.1	-1.5	1.8	215.64	2.728
1986	9	20	0115	191.18	-1.2	-1.1	1.7	227.65	2.746
1986	9	20	0130	190.99	-1.7	-0.6	1.8	251.34	2.777
1986	9	20	0145	190.87	-2.0	-0.5	2.0	256.31	2.822
1986	9	20	0200	190.71	0.0	-1.7	1.7	178.63	2.880
1986	9	20	0215	190.56	0.5	-1.0	1.1	155.00	2.964
1986	9	20	0230	190.47	1.4	-1.3	1.9	133.75	3.047
1986	9	20	0245	190.38	1.1	-1.1	1.6	136.56	3.076
1986	9	20	0300	190.33	1.5	-0.1	1.5	93.30	3.093
1986	9	20	0315	190.35	2.7	-3.2	4.1	139.62	3.086
1986	9	20	0330	190.33	3.0	-4.9	5.7	148.00	3.031
1986	9	20	0345	190.44	3.6	-4.6	5.8	142.15	2.947
1986	9	20	0400	190.48	3.6	-4.6	5.8	142.15	2.947
1986	9	20	0415	190.53	5.7	-4.4	7.2	127.72	2.768
1986	9	20	0430	190.53	5.6	-2.5	6.1	113.99	2.718
1986	9	20	0445	190.60	4.1	-0.5	4.1	97.15	2.675
1986	9	20	0500	190.72	4.4	2.6	5.1	59.40	2.693
1986	9	20	0515	190.84	4.4	2.6	5.1	59.40	2.732
1986	9	20	0530	190.96	5.6	2.2	6.0	68.81	2.780
1986	9	20	0545	191.14	5.3	2.5	5.8	65.00	2.820
1986	9	20	0600	191.35	4.0	2.4	4.6	58.80	2.858
1986	9	20	0615	191.53	3.1	2.4	3.9	51.68	2.897
1986	9	20	0630	191.74	2.7	2.5	3.7	47.55	2.916
1986	9	20	0645	191.96	2.2	2.7	3.4	39.18	2.912
1986	9	20	0700	192.13	1.3	3.5	3.7	21.08	2.924
1986	9	20	0715	192.28	1.0	3.5	3.6	16.63	2.937
1986	9	20	0730	192.51	-0.1	4.4	4.4	359.23	2.948
1986	9	20	0745	192.65	0.1	4.5	4.5	1.56	2.930
1986	9	20	0800	192.77	0.1	4.5	4.5	1.56	2.930
1986	9	20	0815	192.85	-2.0	5.4	5.7	340.01	2.918

1986	9	20	0830	193.05	-1.2	3.8	4.0	342.13	2.890
1986	9	20	0845	193.13	-1.2	2.6	2.9	335.00	2.868
1986	9	20	0900	193.19	-0.6	1.7	1.8	341.34	2.826
1986	9	20	0915	193.30	-1.4	3.0	3.3	335.00	2.780
1986	9	20	0930	193.43	-1.5	2.7	3.1	331.31	2.747
1986	9	20	0945	193.49	-1.2	3.8	4.0	342.13	2.737
1986	9	20	1000	193.50	-2.0	4.7	5.1	337.25	2.743
1986	9	20	1015	193.46	-0.8	6.5	6.5	352.88	2.772
1986	9	20	1030	193.42	-1.3	5.0	5.2	345.01	2.800
1986	9	20	1045	193.35	-0.3	5.5	5.5	356.41	2.792
1986	9	20	1100	193.26	-1.2	7.7	7.8	351.35	2.786
1986	9	20	1115	193.15	0.1	2.9	2.9	1.56	2.806
1986	9	20	1130	193.06	0.4	5.4	5.4	3.95	2.825
1986	9	20	1145	192.89	0.4	9.0	9.0	2.70	2.841
1986	9	20	1200	192.66	0.4	9.0	9.0	2.70	2.841
1986	9	20	1215	192.50	0.9	11.5	11.5	4.68	2.883
1986	9	20	1230	192.38	2.0	13.0	13.1	8.81	2.910
1986	9	20	1245	192.15	0.7	22.5	22.5	1.91	2.948
1986	9	20	1300	191.97	1.9	19.2	19.3	5.56	3.022
1986	9	20	1315	191.80	3.1	17.1	17.4	10.15	3.096
1986	9	20	1330	191.75	1.7	15.3	15.3	6.41	3.174
1986	9	20	1345	191.69	7.4	10.3	12.7	35.81	3.251
1986	9	20	1400	191.49	6.8	-0.5	6.8	93.81	3.310
1986	9	20	1415	191.33	6.6	-1.1	6.7	99.64	3.369
1986	9	20	1430	191.26	7.9	-2.4	8.3	106.58	3.422
1986	9	20	1445	191.10	6.4	-0.2	6.4	91.97	3.422
1986	9	20	1500	190.96	8.4	1.5	8.5	80.02	3.409
1986	9	20	1515	190.82	7.5	0.6	7.6	85.11	3.400
1986	9	20	1530	190.76	8.1	2.0	8.4	76.04	3.392
1986	9	20	1545	190.67	8.6	1.4	8.7	80.95	3.388
1986	9	20	1600	190.55	8.6	1.4	8.7	80.95	3.388
1986	9	20	1615	190.57	4.6	7.3	8.7	32.23	3.383
1986	9	20	1630	190.66	7.2	4.8	8.7	56.40	3.389
1986	9	20	1645	190.69	5.5	5.4	7.7	45.40	3.396
1986	9	20	1700	190.68	4.4	6.5	7.8	34.16	3.402
1986	9	20	1715	190.76	4.6	6.5	8.0	34.90	3.409
1986	9	20	1730	190.85	5.9	7.6	9.7	37.90	3.419
1986	9	20	1745	190.92	6.0	8.2	10.2	36.16	3.427
1986	9	20	1800	190.96	5.2	9.7	11.0	28.13	3.436
1986	9	20	1815	191.03	4.2	7.8	8.9	28.26	3.461
1986	9	20	1830	191.18	5.3	5.4	7.6	44.89	3.492
1986	9	20	1845	191.27	5.0	5.2	7.2	43.79	3.500
1986	9	20	1900	191.29	5.8	5.3	7.9	47.26	3.508
1986	9	20	1915	191.34	5.3	6.9	8.7	37.55	3.515
1986	9	20	1930	191.49	4.9	4.7	6.8	46.03	3.526
1986	9	20	1945	191.55	4.5	3.9	5.9	49.32	3.541
1986	9	20	2000	191.65	4.5	3.9	5.9	49.32	3.541
1986	9	20	2015	191.75	4.4	0.4	4.5	84.65	3.578
1986	9	20	2030	191.87	3.0	-0.4	3.1	96.61	3.596
1986	9	20	2045	192.00	1.8	-0.4	1.9	101.25	3.606
1986	9	20	2100	192.07	0.7	-2.7	2.7	165.49	3.606
1986	9	20	2115	192.14	0.8	-3.3	3.4	166.98	3.598
1986	9	20	2130	192.16	-1.9	-3.8	4.2	206.77	3.582
1986	9	20	2145	192.12	-3.3	-3.0	4.4	227.80	3.562
1986	9	20	2200	192.06	-4.9	-2.1	5.3	247.16	3.542
1986	9	20	2215	192.09	-5.7	-3.4	6.6	238.95	3.541
1986	9	20	2230	192.10	-5.9	-2.5	6.4	246.79	3.550
1986	9	20	2245	192.03	-6.2	-3.1	6.9	243.34	3.539
1986	9	20	2300	191.99	-7.4	-1.8	7.6	256.31	3.524
1986	9	20	2315	191.97	-7.7	-1.8	7.9	256.74	3.514
1986	9	20	2330	191.89	-6.5	-1.3	6.6	259.04	3.509
1986	9	20	2345	191.89	-5.5	-2.8	6.2	243.15	3.509
1986	9	21	0000	191.82	-5.5	-2.8	6.2	243.15	3.509
1986	9	21	0015	191.74	-4.9	-3.3	5.9	236.18	3.515
1986	9	21	0030	191.70	-4.4	-3.5	5.7	231.70	3.521
1986	9	21	0045	191.56	-4.3	-3.2	5.4	233.27	3.525
1986	9	21	0100	191.38	-4.5	-1.9	4.9	247.34	3.527
1986	9	21	0115	191.22	-4.8	-0.8	4.9	260.46	3.527
1986	9	21	0130	191.07	-4.7	0.2	4.7	272.65	3.527
1986	9	21	0145	190.90	-4.5	1.9	4.9	292.49	3.537
1986	9	21	0200	190.77	-4.4	1.6	4.7	290.00	3.557
1986	9	21	0215	190.61	-3.9	1.4	4.1	290.00	3.591
1986	9	21	0230	190.54	-3.1	1.5	3.5	295.83	3.623
1986	9	21	0245	190.60	-1.4	1.8	2.3	322.20	3.627
1986	9	21	0300	190.58	-0.8	1.8	2.0	335.00	3.624
1986	9	21	0315	190.54	-0.9	2.4	2.6	339.40	3.622
1986	9	21	0330	190.56	-0.4	1.8	1.8	347.53	3.624
1986	9	21	0345	190.34	0.1	3.3	3.3	2.35	3.626
1986	9	21	0400	190.34	0.1	3.3	3.3	2.35	3.626
1986	9	21	0415	190.39	-0.3	6.3	6.3	357.48	3.626

1986	9	21	0430	190.37	0.5	6.3	6.3	4.41	3.625
1986	9	21	0445	190.52	1.5	7.1	7.3	12.18	3.624
1986	9	21	0500	190.65	2.9	4.6	5.4	32.77	3.624
1986	9	21	0515	190.89	2.9	4.8	5.5	31.02	3.629
1986	9	21	0530	191.16	5.1	4.8	7.0	46.56	3.637
1986	9	21	0545	191.62	7.0	7.5	10.2	43.20	3.646
1986	9	21	0600	191.88	8.7	10.1	13.4	40.73	3.653
1986	9	21	0615	192.22	9.2	10.9	14.2	40.06	3.676
1986	9	21	0630	192.34	8.9	14.0	16.6	32.56	3.708
1986	9	21	0645	192.67	8.3	11.9	14.6	34.91	3.721
1986	9	21	0700	193.02	9.2	14.8	17.4	31.95	3.735
1986	9	21	0715	193.42	11.5	16.4	20.0	34.97	3.763
1986	9	21	0730	193.77	12.7	15.8	20.3	38.94	3.811
1986	9	21	0745	194.38	13.7	18.3	22.8	36.75	3.881
1986	9	21	0800	195.00	13.7	18.3	22.8	36.75	3.881
1986	9	21	0815	195.49	7.7	16.3	18.0	25.40	4.053
1986	9	21	0830	195.76	10.3	16.8	19.7	31.39	4.150
1986	9	21	0845	196.10	6.0	14.7	15.9	22.29	4.268
1986	9	21	0900	196.49	7.2	16.0	17.6	24.15	4.363
1986	9	21	0915	196.61	5.7	12.5	13.7	24.44	4.455
1986	9	21	0930	196.71	7.0	15.5	17.0	24.29	4.550
1986	9	21	0945	196.69	5.6	14.8	15.8	20.51	4.640
1986	9	21	1000	196.83	3.0	10.9	11.3	15.33	4.699
1986	9	21	1015	196.86	3.5	9.7	10.3	20.00	4.769
1986	9	21	1030	196.63	2.4	11.2	11.4	12.17	4.864
1986	9	21	1045	196.37	4.5	11.4	12.2	21.66	4.938
1986	9	21	1100	196.08	3.5	8.3	9.0	23.15	4.990
1986	9	21	1115	195.75	1.9	9.5	9.7	11.16	5.043
1986	9	21	1130	195.53	2.5	8.8	9.1	16.01	5.099
1986	9	21	1145	195.27	2.6	7.8	8.3	18.53	5.143
1986	9	21	1200	195.02	2.6	7.8	8.3	18.53	5.143
1986	9	21	1215	194.70	3.3	3.3	4.7	45.02	5.229
1986	9	21	1230	194.22	3.2	3.9	5.1	39.44	5.261
1986	9	21	1245	193.79	2.6	7.5	7.9	18.98	5.287
1986	9	21	1300	193.53	3.0	5.1	5.9	31.04	5.306
1986	9	21	1315	193.40	1.8	7.1	7.3	13.90	5.326
1986	9	21	1330	193.22	3.3	2.3	4.1	55.07	5.344
1986	9	21	1345	192.85	2.5	5.0	5.6	26.50	5.362
1986	9	21	1400	192.71	6.8	7.4	10.0	42.77	5.377
1986	9	21	1415	192.60	7.1	6.7	9.8	46.56	5.403
1986	9	21	1430	192.33	8.0	4.7	9.3	59.47	5.429
1986	9	21	1445	192.17	6.5	5.0	8.2	52.32	5.426
1986	9	21	1500	192.05	8.0	6.0	10.0	53.47	5.416
1986	9	21	1515	191.79	11.2	6.9	13.2	58.47	5.406
1986	9	21	1530	191.73	11.3	4.3	12.0	69.29	5.398
1986	9	21	1545	191.82	7.3	3.6	8.2	63.60	5.389
1986	9	21	1600	191.90	7.3	3.6	8.2	63.60	5.389
1986	9	21	1615	191.94	9.3	-1.7	9.5	100.54	5.372
1986	9	21	1630	192.03	9.6	4.0	10.4	67.20	5.363
1986	9	21	1645	192.08	11.2	3.8	11.8	71.34	5.355
1986	9	21	1700	192.07	11.6	5.4	12.8	65.00	5.349
1986	9	21	1715	192.13	10.0	4.2	10.9	67.10	5.344
1986	9	21	1730	192.28	7.0	2.7	7.5	68.81	5.339
1986	9	21	1745	192.28	8.6	4.6	9.7	62.05	5.334
1986	9	21	1800	192.46	8.7	4.5	9.8	62.66	5.329
1986	9	21	1815	192.65	8.2	4.8	9.5	59.59	5.337
1986	9	21	1830	192.72	8.2	3.4	8.9	67.57	5.348
1986	9	21	1845	192.85	7.7	0.4	7.7	87.22	5.333
1986	9	21	1900	193.00	5.8	3.2	6.6	60.67	5.315
1986	9	21	1915	193.08	4.6	2.6	5.3	60.68	5.299
1986	9	21	1930	193.16	1.7	4.8	5.1	20.00	5.280
1986	9	21	1945	193.21	6.7	-1.7	6.9	104.70	5.266
1986	9	21	2000	193.29	6.7	-1.7	6.9	104.70	5.266
1986	9	21	2015	193.38	3.3	-6.1	6.9	151.68	5.199
1986	9	21	2030	193.62	3.8	-3.4	5.1	131.95	5.111
1986	9	21	2045	193.71	1.8	-6.0	6.3	163.26	5.037
1986	9	21	2100	193.76	-4.8	-7.9	9.2	211.48	4.996
1986	9	21	2115	193.89	-3.5	-6.0	7.0	209.94	4.980
1986	9	21	2130	193.92	-5.4	-3.5	6.5	237.00	4.962
1986	9	21	2145	193.91	-6.3	-2.4	6.7	249.27	4.946
1986	9	21	2200	193.96	-0.9	-1.2	1.5	216.70	4.935
1986	9	21	2215	194.06	-1.0	1.0	1.4	313.96	4.930
1986	9	21	2230	194.13	1.4	2.1	2.6	34.42	4.923
1986	9	21	2245	194.16	2.4	0.9	2.6	69.40	4.910
1986	9	21	2300	194.27	1.5	0.9	1.8	58.66	4.899
1986	9	21	2315	194.31	2.0	0.5	2.0	76.31	4.888
1986	9	21	2330	194.30	1.1	2.7	3.0	22.73	4.886
1986	9	21	2345	194.42	2.3	3.3	4.0	35.26	4.881
1986	9	22	0000	194.39	2.3	3.3	4.0	35.26	4.881
1986	9	22	0015	194.38	16.4	5.0	17.2	73.04	4.864

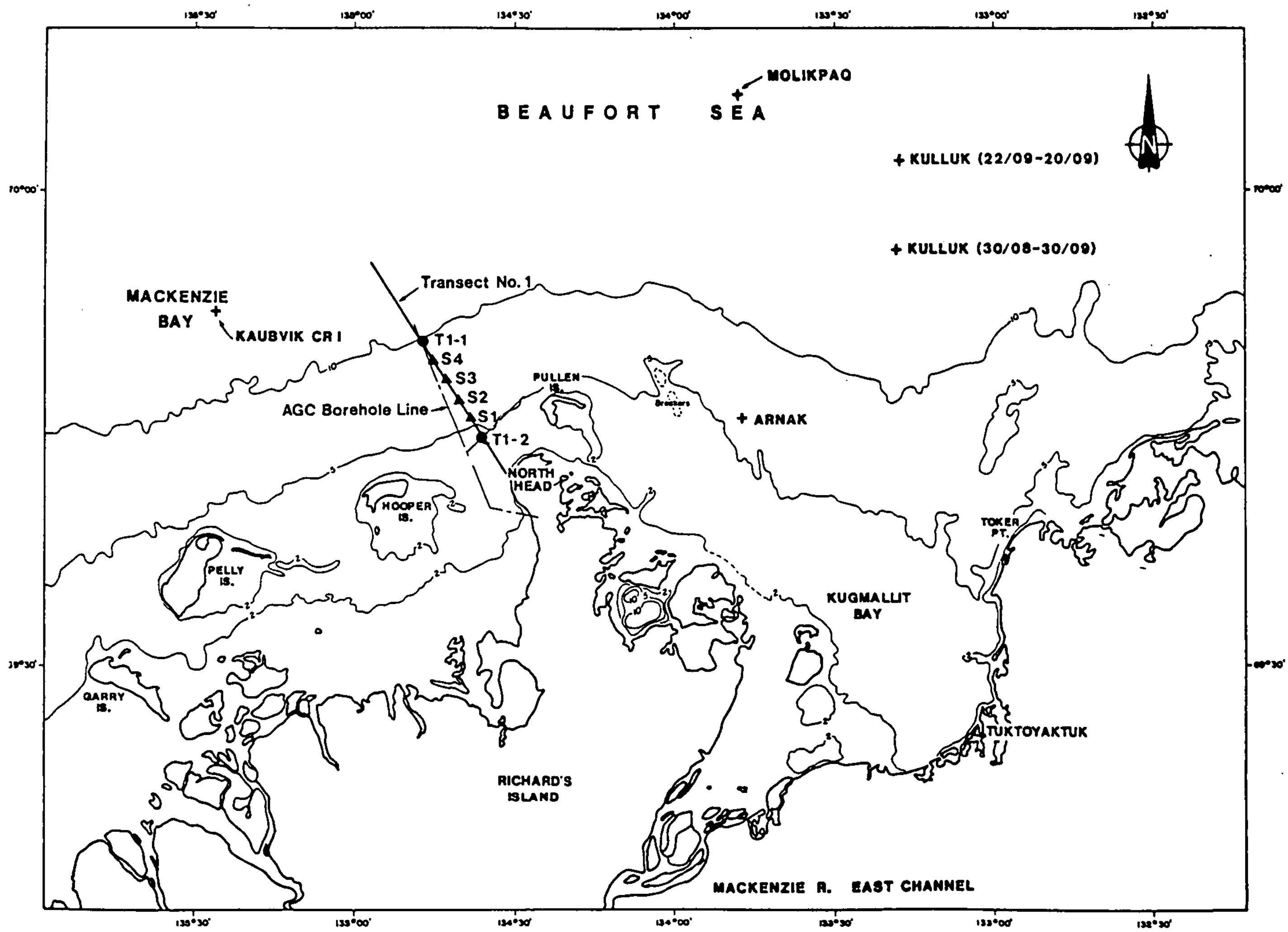
1986	9	22	0030	194.33	18.2	5.9	19.2	72.20	4.852
1986	9	22	0045	194.35	20.4	5.1	21.0	75.99	4.836
1986	9	22	0100	194.32	17.4	3.2	17.7	79.43	4.816
1986	9	22	0115	194.28	21.5	-9.5	23.5	113.79	4.793
1986	9	22	0130	194.23	16.9	-7.4	18.5	113.73	4.644
1986	9	22	0145	194.20	17.0	-4.0	17.4	103.25	4.396
1986	9	22	0200	194.10	18.4	-2.9	18.7	98.86	4.163
1986	9	22	0215	193.92	10.9	1.7	11.0	81.30	4.003
1986	9	22	0230	193.71	22.4	-1.0	22.5	92.59	3.906
1986	9	22	0245	193.59	18.0	0.8	18.0	87.57	3.809
1986	9	22	0300	193.43	17.0	1.9	17.1	83.75	3.732
1986	9	22	0315	193.29	16.7	0.9	16.7	86.80	3.679
1986	9	22	0330	193.16	12.8	1.3	12.9	84.00	3.641
1986	9	22	0345	192.99	11.8	1.3	11.9	83.59	3.610
1986	9	22	0400	192.97	11.8	1.3	11.9	83.59	3.610
1986	9	22	0415	192.88	10.4	4.1	11.1	68.61	3.560
1986	9	22	0430	192.68	12.2	3.2	12.6	75.06	3.546
1986	9	22	0445	192.62	11.7	4.2	12.4	70.07	3.530
1986	9	22	0500	192.61	10.2	3.3	10.7	71.99	3.510
1986	9	22	0515	192.53	9.2	3.3	9.7	70.30	3.491
1986	9	22	0530	192.47	9.6	1.8	9.8	79.18	3.476
1986	9	22	0545	192.48	10.4	2.8	10.8	74.64	3.470
1986	9	22	0600	192.51	7.2	5.0	8.7	55.11	3.467
1986	9	22	0615	192.57	10.4	6.5	12.3	57.99	3.485
1986	9	22	0630	192.67	10.5	6.3	12.3	58.92	3.514
1986	9	22	0645	192.89	10.9	5.9	12.4	61.77	3.521
1986	9	22	0700	193.07	8.5	0.1	8.5	89.17	3.521
1986	9	22	0715	193.30	10.1	-3.5	10.7	109.25	3.520
1986	9	22	0730	193.46	10.1	-2.2	10.3	102.09	3.516
1986	9	22	0745	193.70	5.6	0.2	5.6	88.33	3.509
1986	9	22	0800	193.86	5.6	0.2	5.6	88.33	3.509
1986	9	22	0815	194.16	5.7	-1.3	5.8	103.05	3.498
1986	9	22	0830	194.36	6.1	-1.6	6.3	104.23	3.494
1986	9	22	0845	194.63	5.3	-0.2	5.3	92.05	3.487
1986	9	22	0900	194.88	5.3	-0.2	5.3	92.05	3.478
1986	9	22	0915	195.12	6.3	-1.5	6.5	103.11	3.467
1986	9	22	0930	195.28	6.4	-2.1	6.7	108.19	3.457
1986	9	22	0945	195.46	6.3	-1.0	6.4	99.19	3.451
1986	9	22	1000	195.67	7.1	-0.6	7.1	94.45	3.451
1986	9	22	1015	195.88	8.9	2.4	9.2	74.97	3.464
1986	9	22	1030	195.98	9.6	5.7	11.2	59.34	3.476
1986	9	22	1045	196.05	10.2	6.5	12.1	57.41	3.449
1986	9	22	1100	196.13	9.1	6.7	11.3	53.79	3.400
1986	9	22	1115	196.18	9.8	3.1	10.3	72.26	3.355
1986	9	22	1130	196.18	9.3	3.1	9.9	71.40	3.335
1986	9	22	1145	196.13	9.1	3.0	9.6	71.60	3.337
1986	9	22	1200	196.09	9.1	3.0	9.6	71.60	3.337
1986	9	22	1215	196.03	8.2	4.4	9.3	61.92	3.357
1986	9	22	1230	195.96	7.9	4.2	8.9	61.78	3.372
1986	9	22	1245	195.85	6.3	7.3	9.7	40.56	3.384
1986	9	22	1300	195.72	5.0	6.2	7.9	38.76	3.389
1986	9	22	1315	195.57	4.4	7.4	8.6	30.39	3.388
1986	9	22	1330	195.36	3.9	7.5	8.4	27.72	3.382
1986	9	22	1345	195.14	4.5	7.2	8.5	32.06	3.374
1986	9	22	1400	195.01	3.9	4.7	6.1	39.70	3.372
1986	9	22	1415	194.82	5.8	3.2	6.6	60.67	3.393
1986	9	22	1430	194.61	3.3	0.3	3.3	84.54	3.422
1986	9	22	1445	194.51	3.5	-0.1	3.5	92.30	3.417
1986	9	22	1500	194.33	11.3	13.3	17.5	40.34	3.405
1986	9	22	1515	194.18	14.5	8.7	16.9	58.88	3.382
1986	9	22	1530	194.01	13.6	8.0	15.8	59.54	3.344
1986	9	22	1545	193.88	13.7	8.6	16.1	57.87	3.349
1986	9	22	1600	193.78	13.7	8.6	16.1	57.87	3.349
1986	9	22	1615	193.69	14.7	9.8	17.7	56.23	3.397
1986	9	22	1630	193.65	12.9	8.9	15.7	55.48	3.401
1986	9	22	1645	193.67	13.4	8.0	15.6	59.11	3.401
1986	9	22	1700	193.71	14.9	7.4	16.6	63.62	3.404
1986	9	22	1715	193.80	14.2	7.2	15.9	63.20	3.402
1986	9	22	1730	193.86	13.2	6.7	14.8	63.07	3.394
1986	9	22	1745	193.94	12.5	4.6	13.3	69.73	3.382
1986	9	22	1800	194.04	19.2	3.9	19.5	78.61	3.360
1986	9	22	1815	194.12	19.8	3.2	20.1	80.91	3.334
1986	9	22	1830	194.17	17.1	2.6	17.3	81.45	3.304
1986	9	22	1845	194.32	18.2	1.2	18.2	86.22	3.257
1986	9	22	1900	194.41	20.3	1.4	20.4	86.02	3.215
1986	9	22	1915	194.54	21.3	1.3	21.4	86.40	3.182
1986	9	22	1930	194.61	20.1	0.5	20.1	88.50	3.159
1986	9	22	1945	194.70	15.0	0.6	15.1	87.65	3.144
1986	9	22	2000	194.74	15.0	0.6	15.1	87.65	3.144
1986	9	22	2015	194.84	18.5	4.0	18.9	77.86	3.129

1986	9	22	2030	194.84	19.4	6.1	20.4	72.61	3.126
1986	9	22	2045	194.90	17.5	5.5	18.4	72.51	3.124
1986	9	22	2100	194.97	12.0	8.3	14.6	55.54	3.123
1986	9	22	2115	195.01	15.2	8.8	17.6	60.10	3.124
1986	9	22	2130	195.00	12.2	8.3	14.8	55.66	3.125
1986	9	22	2145	195.04	7.1	14.0	15.7	26.97	3.124
1986	9	22	2200	195.05	8.5	15.4	17.6	28.78	3.130
1986	9	22	2215	194.96	6.8	13.9	15.4	26.05	3.157
1986	9	22	2230	194.86	6.7	15.4	16.8	23.62	3.185
1986	9	22	2245	194.88	5.7	14.9	16.0	21.01	3.179
1986	9	22	2300	194.82	5.7	15.5	16.5	20.00	3.165
1986	9	22	2315	194.71	7.6	18.7	20.2	22.21	3.150
1986	9	22	2330	194.70	6.6	16.8	18.0	21.57	3.135
1986	9	22	2345	194.68	9.0	13.5	16.2	33.85	3.122
1986	9	23	0000	194.64	9.0	13.5	16.2	33.85	3.122
1986	9	23	0015	194.62	12.4	16.0	20.3	37.68	3.108
1986	9	23	0030	194.59	10.8	15.7	19.1	34.40	3.107
1986	9	23	0045	194.51	10.4	14.3	17.7	35.98	3.109
1986	9	23	0100	194.47	11.6	13.9	18.1	39.85	3.123
1986	9	23	0115	194.41	10.3	13.6	17.1	37.09	3.141
1986	9	23	0130	194.37	12.7	13.3	18.4	43.60	3.160
1986	9	23	0145	194.27	13.2	11.4	17.4	49.37	3.178
1986	9	23	0200	194.22	13.3	10.2	16.8	52.62	3.195
1986	9	23	0215	194.10	13.6	9.6	16.7	54.97	3.224
1986	9	23	0230	194.01	15.8	11.0	19.3	55.15	3.257
1986	9	23	0245	193.88	17.7	11.9	21.4	56.11	3.266
1986	9	23	0300	193.79	14.4	9.6	17.3	56.35	3.272
1986	9	23	0315	193.74	15.2	8.8	17.6	60.10	3.277
1986	9	23	0330	193.68	16.4	9.4	18.9	60.14	3.284
1986	9	23	0345	193.58	16.8	8.4	18.8	63.48	3.292
1986	9	23	0400	193.55	16.8	8.4	18.8	63.48	3.292
1986	9	23	0415	193.52	16.7	8.6	18.8	62.87	3.315
1986	9	23	0430	193.48	14.5	6.5	15.9	65.72	3.329
1986	9	23	0445	193.42	13.5	6.7	15.1	63.48	3.342
1986	9	23	0500	193.38	13.4	6.3	14.8	65.00	3.355
1986	9	23	0515	193.35	15.4	5.8	16.5	69.53	3.369
1986	9	23	0530	193.37	14.0	5.3	14.9	69.22	3.382
1986	9	23	0545	193.43	12.9	5.6	14.0	66.64	3.392
1986	9	23	0600	193.47	14.2	5.8	15.3	67.62	3.399
1986	9	23	0615	193.57	15.3	4.9	16.1	72.13	3.422
1986	9	23	0630	193.69	14.7	5.6	15.7	69.01	3.451
1986	9	23	0645	193.79	16.3	5.4	17.2	71.67	3.454
1986	9	23	0700	193.89	13.7	4.7	14.5	70.95	3.453
1986	9	23	0715	193.99	10.2	5.0	11.3	63.99	3.452
1986	9	23	0730	194.07	14.2	4.0	14.8	74.33	3.451
1986	9	23	0745	194.12	11.4	4.5	12.2	68.28	3.453
1986	9	23	0800	194.20	11.4	4.5	12.2	68.28	3.453
1986	9	23	0815	194.31	11.2	3.8	11.8	71.34	3.457
1986	9	23	0830	194.47	10.4	2.2	10.7	77.99	3.459
1986	9	23	0845	194.59	8.0	1.3	8.1	80.75	3.461
1986	9	23	0900	194.76	7.4	2.3	7.8	73.13	3.462
1986	9	23	0915	194.88	7.3	1.6	7.5	77.36	3.463
1986	9	23	0930	195.03	4.9	1.5	5.1	72.82	3.463
1986	9	23	0945	195.16	3.4	1.8	3.8	61.99	3.463
1986	9	23	1000	195.28	3.8	0.1	3.8	88.20	3.462
1986	9	23	1015	195.36	3.5	1.4	3.8	68.01	3.477
1986	9	23	1030	195.43	2.1	2.8	3.5	37.70	3.495
1986	9	23	1045	195.51	2.9	2.3	3.7	50.96	3.492
1986	9	23	1100	195.54	2.6	2.2	3.4	49.74	3.485
1986	9	23	1115	195.56	2.2	2.2	3.1	44.23	3.479
1986	9	23	1130	195.60	1.5	2.5	2.9	31.31	3.475
1986	9	23	1145	195.62	0.3	1.9	1.9	9.51	3.472
1986	9	23	1200	195.64	0.3	1.9	1.9	9.51	3.472
1986	9	23	1215	195.64	-0.4	3.5	3.5	353.43	3.471
1986	9	23	1230	195.60	-1.1	4.9	5.0	347.65	3.472
1986	9	23	1245	195.58	-0.4	4.4	4.5	354.65	3.474
1986	9	23	1300	195.56	0.8	4.4	4.4	10.84	3.475
1986	9	23	1315	195.50	1.1	4.1	4.3	14.29	3.477
1986	9	23	1330	195.40	2.2	3.9	4.4	29.16	3.478
1986	9	23	1345	195.36	2.8	4.3	5.2	33.47	3.479
1986	9	23	1400	195.28	3.1	3.7	4.8	40.56	3.478
1986	9	23	1415	195.13	3.0	3.4	4.6	41.80	3.491
1986	9	23	1430	195.04	3.5	4.1	5.4	40.82	3.509
1986	9	23	1445	194.90	3.8	3.5	5.2	46.92	3.504
1986	9	23	1500	194.77	3.6	3.1	4.8	49.22	3.495
1986	9	23	1515	194.63	4.1	2.7	4.9	56.87	3.487
1986	9	23	1530	194.44	4.4	2.6	5.1	59.40	3.481
1986	9	23	1545	194.34	4.8	2.7	5.5	60.84	3.477
1986	9	23	1600	194.20	4.8	2.7	5.5	60.84	3.477
1986	9	23	1615	194.08	4.9	3.3	5.9	56.18	3.471

1986	9	23	1630	194.02	5.2	3.6	6.3	54.94	3.470
1986	9	23	1645	193.99	5.3	3.3	6.2	58.56	3.468
1986	9	23	1700	193.98	6.1	3.6	7.1	59.37	3.467
1986	9	23	1715	193.96	6.0	4.4	7.5	53.39	3.465
1986	9	23	1730	193.98	7.5	5.5	9.3	53.81	3.462
1986	9	23	1745	194.03	9.1	5.7	10.7	58.01	3.460
1986	9	23	1800	194.07	9.7	6.0	11.4	58.44	3.456
1986	9	23	1815	194.09	10.8	6.7	12.7	58.21	3.464
1986	9	23	1830	194.08	10.3	6.8	12.3	56.61	3.478
1986	9	23	1845	194.11	9.9	6.4	11.8	57.21	3.470
1986	9	23	1900	194.12	11.4	7.1	13.4	58.14	3.458
1986	9	23	1915	194.14	9.9	6.6	11.9	56.33	3.449
1986	9	23	1930	194.23	9.1	6.7	11.3	53.79	3.442
1986	9	23	1945	194.32	9.1	6.0	10.9	56.57	3.438
1986	9	23	2000	194.43	9.1	6.0	10.9	56.57	3.438
1986	9	23	2015	194.50	12.0	5.8	13.3	64.14	3.429
1986	9	23	2030	194.63	9.7	6.0	11.4	58.44	3.425
1986	9	23	2045	194.78	10.7	5.4	12.0	63.09	3.421
1986	9	23	2100	194.91	10.9	6.1	12.4	60.85	3.418
1986	9	23	2115	195.00	9.7	5.0	10.9	62.90	3.415
1986	9	23	2130	195.09	9.5	5.2	10.8	61.29	3.413
1986	9	23	2145	195.20	8.3	4.6	9.5	60.79	3.412
1986	9	23	2200	195.28	8.0	4.7	9.3	59.47	3.410
1986	9	23	2215	195.35	7.3	3.8	8.2	62.21	3.422
1986	9	23	2230	195.36	7.4	3.9	8.4	62.27	3.441
1986	9	23	2245	195.41	8.2	3.8	9.1	65.00	3.437
1986	9	23	2300	195.46	7.6	4.1	8.6	61.67	3.429
1986	9	23	2315	195.54	6.8	2.7	7.3	68.14	3.423
1986	9	23	2330	195.55	5.7	2.4	6.2	66.85	3.418
1986	9	23	2345	195.56	5.3	2.2	5.7	67.01	3.415
1986	9	24	0000	195.51	5.3	2.2	5.7	67.01	3.415
1986	9	24	0015	195.54	4.6	2.7	5.3	59.61	3.412
1986	9	24	0030	195.49	3.5	2.1	4.0	59.29	3.412
1986	9	24	0045	195.43	2.8	3.5	4.5	38.43	3.411
1986	9	24	0100	195.40	1.4	3.3	3.6	23.37	3.411
1986	9	24	0115	195.35	1.1	4.4	4.5	14.64	3.410
1986	9	24	0130	195.26	3.1	3.9	4.9	38.43	3.411
1986	9	24	0145	195.17	4.4	4.0	6.0	47.47	3.412
1986	9	24	0200	195.10	2.4	4.8	5.3	26.84	3.412
1986	9	24	0215	195.00	4.4	5.2	6.8	39.93	3.426
1986	9	24	0230	194.84	5.3	5.4	7.6	44.18	3.447
1986	9	24	0245	194.82	4.7	4.6	6.6	45.46	3.445
1986	9	24	0300	194.74	6.0	5.0	7.8	50.07	3.439
1986	9	24	0315	194.70	5.1	5.4	7.4	43.63	3.434
1986	9	24	0330	194.58	6.2	7.1	9.4	41.16	3.432
1986	9	24	0345	194.53	7.1	5.8	9.2	51.12	3.431
1986	9	24	0400	194.40	7.1	5.8	9.2	51.12	3.431
1986	9	24	0415	194.30	7.6	7.4	10.6	45.71	3.430
1986	9	24	0430	194.24	6.3	6.4	9.0	44.74	3.431
1986	9	24	0445	194.17	7.1	6.3	9.5	48.47	3.432
1986	9	24	0500	194.08	5.9	5.7	8.3	45.91	3.432
1986	9	24	0515	194.09	5.9	4.7	7.5	51.15	3.433
1986	9	24	0530	194.04	6.3	4.2	7.6	56.66	3.433
1986	9	24	0545	194.02	6.8	4.8	8.3	54.63	3.434
1986	9	24	0600	194.01	6.6	4.3	7.9	56.97	3.433
1986	9	24	0615	194.09	7.5	4.9	9.0	56.69	3.447
1986	9	24	0630	194.17	8.0	3.3	8.6	67.66	3.467
1986	9	24	0645	194.18	7.2	3.9	8.2	61.51	3.463
1986	9	24	0700	194.24	7.0	2.3	7.4	72.03	3.455
1986	9	24	0715	194.29	7.8	3.2	8.4	67.73	3.449
1986	9	24	0730	194.40	6.6	2.5	7.1	69.03	3.444
1986	9	24	0745	194.51	6.6	1.7	6.8	75.98	3.441
1986	9	24	0800	194.62	6.6	1.7	6.8	75.98	3.441
1986	9	24	0815	194.79	6.8	2.6	7.3	68.92	3.438
1986	9	24	0830	194.94	5.6	1.0	5.7	80.26	3.437
1986	9	24	0845	195.09	5.1	1.2	5.2	77.17	3.435
1986	9	24	0900	195.22	4.4	1.0	4.5	76.56	3.433
1986	9	24	0915	195.42	4.8	1.8	5.1	69.48	3.431
1986	9	24	0930	195.63	4.7	1.6	4.9	70.83	3.429
1986	9	24	0945	195.74	4.1	2.1	4.6	62.51	3.426
1986	9	24	1000	195.89	2.1	2.4	3.2	40.85	3.423
1986	9	24	1015	196.05	2.3	2.8	3.7	39.13	3.434
1986	9	24	1030	196.16	1.5	2.9	3.3	27.43	3.451
1986	9	24	1045	196.26	3.3	2.8	4.3	50.32	3.445
1986	9	24	1100	196.37	2.9	3.3	4.4	40.77	3.435
1986	9	24	1115	196.46	2.4	3.1	3.9	37.78	3.426
1986	9	24	1130	196.53	1.5	3.1	3.5	25.83	3.420
1986	9	24	1145	196.64	2.8	4.3	5.2	33.47	3.415
1986	9	24	1200	196.67	2.8	4.3	5.2	33.47	3.415
1986	9	24	1215	196.68	2.9	4.8	5.5	31.02	3.407

1986	9	24	1230	196.70	2.9	5.0	5.7	29.93	3.404
1986	9	24	1245	196.68	3.4	5.2	6.2	33.09	3.402
1986	9	24	1300	196.64	3.5	5.0	6.1	34.68	3.400
1986	9	24	1315	196.60	3.8	5.4	6.6	34.93	3.398
1986	9	24	1330	196.52	4.0	5.5	6.8	36.19	3.395
1986	9	24	1345	196.41	3.6	5.3	6.4	34.04	3.395
1986	9	24	1400	196.28	4.3	5.4	6.9	38.43	3.393
1986	9	24	1415	196.15	4.4	5.7	7.2	37.72	3.405
1986	9	24	1430	196.10	4.9	5.9	7.6	39.44	3.422
1986	9	24	1445	195.98	4.9	6.3	8.0	38.11	3.417
1986	9	24	1500	195.88	5.2	6.1	8.0	40.67	3.408
1986	9	24	1515	195.77	5.8	5.9	8.2	44.36	3.401
1986	9	24	1530	195.68	6.3	5.8	8.6	47.41	3.396
1986	9	24	1545	195.58	6.8	5.4	8.6	51.61	3.393
1986	9	24	1600	195.49	6.8	5.4	8.6	51.61	3.393
1986	9	24	1615	195.42	6.1	4.3	7.4	54.90	3.389
1986	9	24	1630	195.38	7.3	4.6	8.7	57.71	3.387
1986	9	24	1645	195.27	6.8	3.9	7.8	59.87	3.386
1986	9	24	1700	195.13	8.8	3.7	9.5	67.41	3.385
1986	9	24	1715	195.05	9.1	4.2	10.0	65.00	3.384
1986	9	24	1730	194.99	10.4	5.4	11.7	62.55	3.383
1986	9	24	1745	194.93	9.5	4.7	10.6	63.92	3.382
1986	9	24	1800	194.89	9.8	4.8	10.9	63.95	3.385
1986	9	24	1815	194.81	10.1	4.7	11.1	65.00	3.388
1986	9	24	1830	194.81	11.5	5.8	12.9	63.22	3.404
1986	9	24	1845	194.81	10.9	5.5	12.2	63.12	3.395

Chronological tabulation of derived wave properties at Site T1.1
Instrument 635-12 Bottom mounted pressure gauge



Notes:

Derived parameters are -

(i) Hm_o significant wave height defined as $4\sqrt{m_o}$ where m_o is the zeroeth spectral moment calculated from the variance spectrum

(ii) T_p peak wave period, f_m^{-1}

(iii) $H_{1/3}$ significant wave height defined by the average of the 1/3 highest zero up-crossing wave heights

(iv) $T_{1/3}$ significant wave period defined as the average of the periods associated with the 1/3 highest wave heights giving $H_{1/3}$

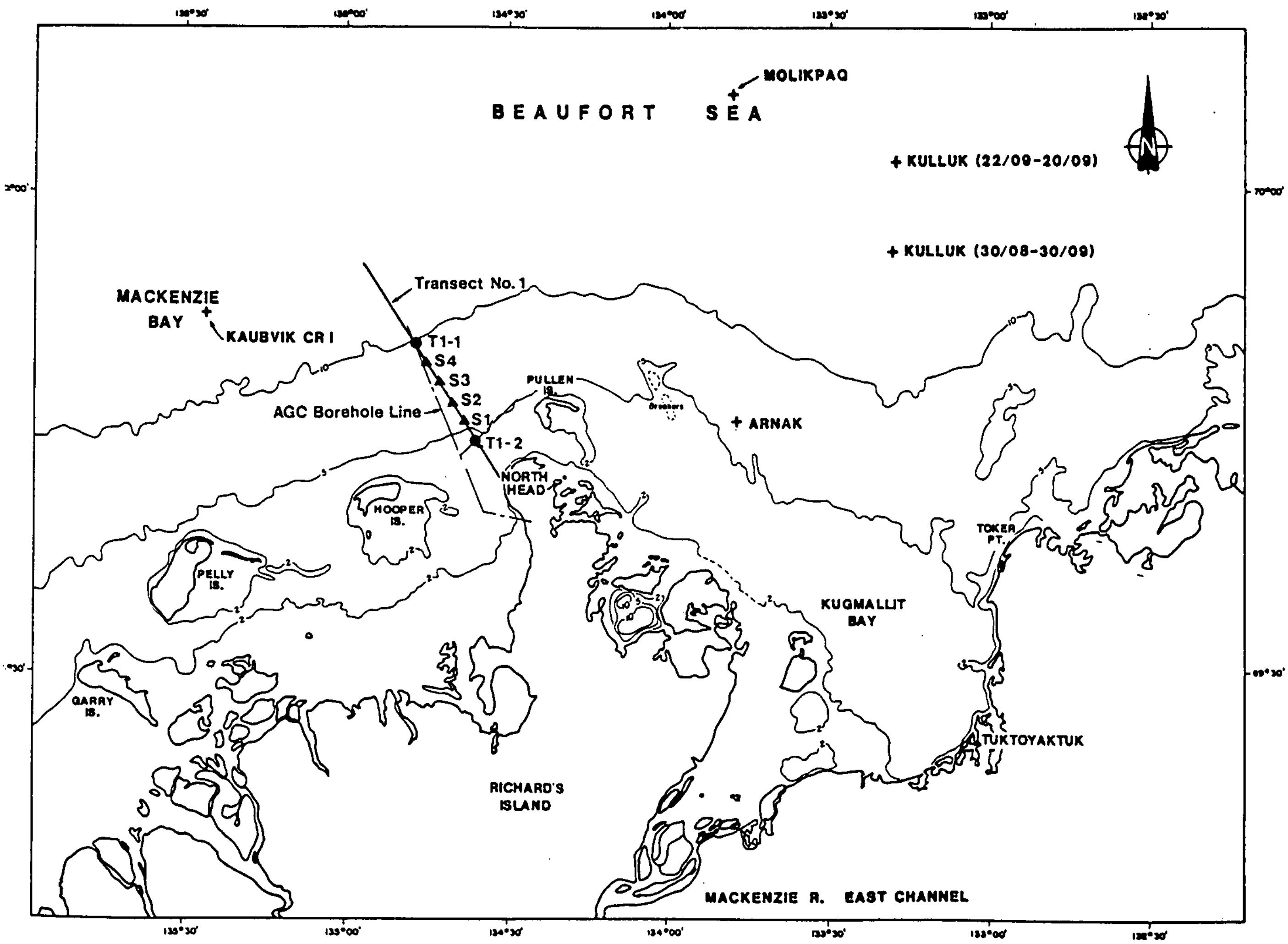
(v) H_c characteristic wave height defined as $4\sigma_\eta$ where σ_η is the standard deviation of the sea level displacement

GMT	DAY	MONTH	Hmo	Tp	H1/3	T1/3	Hc
---	---	-----	---	--	----	----	--
600	18	8	.96	5.33	.90	4.84	.96
1000	18	8	.98	5.57	.92	5.68	.98
1400	18	8	.74	5.57	.69	5.12	.74
1800	18	8	.48	5.33	.44	4.98	.49
2200	18	8	.36	5.12	.34	4.77	.36
200	19	8	.30	4.41	.28	4.67	.30
600	19	8	.14	0.00	.13	5.09	.14
1000	19	8	.11	0.00	.10	5.14	.11
1400	19	8	.15	0.00	.13	6.13	.15
1800	19	8	.32	3.37	.28	7.09	.33
2200	19	8	1.27	5.57	1.23	5.38	1.27
200	20	8	1.02	6.10	.95	5.69	1.02
600	20	8	1.04	6.10	.97	5.93	1.04
1000	20	8	1.18	6.74	1.08	5.91	1.18
1400	20	8	.99	6.10	.95	5.69	.99
1800	20	8	.84	5.82	.78	5.45	.84
2200	20	8	.67	5.12	.63	4.98	.67
200	21	8	.52	4.57	.48	5.04	.52
600	21	8	.28	4.57	.27	4.88	.28
1000	21	8	.22	4.13	.21	5.19	.22
1400	21	8	.21	3.56	.18	6.95	.21
1800	21	8	.13	0.00	.12	5.18	.13
2200	21	8	.65	3.76	.54	7.13	.65
200	22	8	2.00	6.40	1.89	6.13	2.01
600	22	8	1.72	9.14	1.64	7.70	1.72
1000	22	8	1.67	8.00	1.58	6.37	1.67
1400	22	8	1.90	6.74	1.76	7.06	1.91
1800	22	8	2.02	8.53	1.95	7.17	2.02
2200	22	8	1.08	9.14	1.02	8.25	1.08
200	23	8	1.90	5.57	1.76	6.06	1.90
600	23	8	2.42	7.53	2.27	7.20	2.42
1000	23	8	1.81	6.74	1.70	6.26	1.81
1400	23	8	1.37	6.10	1.28	5.89	1.37
1800	23	8	1.29	5.33	1.23	5.40	1.29
2200	23	8	1.01	4.92	.94	5.47	1.01
200	24	8	1.21	4.92	1.13	5.34	1.21
600	24	8	.89	4.92	.86	5.19	.89
1000	24	8	.80	4.74	.75	5.04	.80
1400	24	8	.64	4.57	.61	4.62	.65
1800	24	8	.83	4.57	.79	4.77	.84
2200	24	8	.85	4.57	.78	4.70	.86
200	25	8	.65	4.41	.61	4.87	.65
600	25	8	.70	4.92	.63	4.96	.70
1000	25	8	.49	4.41	.45	4.83	.49
1400	25	8	.39	4.00	.35	5.82	.39
1800	25	8	.35	4.13	.33	5.19	.35
2200	25	8	.20	0.00	.17	7.21	.20
200	26	8	.09	0.00	.08	7.22	.10
600	26	8	.06	0.00	.05	6.80	.06
1000	26	8	.04	0.00	.04	9.48	.05
1400	26	8	.15	0.00	.14	7.01	.15
1800	26	8	.30	3.46	.26	7.32	.30
2200	26	8	.20	0.00	.19	5.19	.20
200	27	8	.24	4.13	.22	5.37	.24
600	27	8	.16	0.00	.15	5.74	.16
1000	27	8	.18	0.00	.16	5.76	.18
1400	27	8	.44	3.66	.38	7.09	.44
1800	27	8	.59	4.57	.55	5.05	.59
2200	27	8	.85	4.92	.78	5.03	.85
200	28	8	1.18	5.57	1.11	5.66	1.18
600	28	8	.81	6.10	.77	5.44	.81
1000	28	8	.82	4.41	.76	5.30	.82
1400	28	8	.94	5.82	.88	5.37	.95
1800	28	8	1.03	5.57	1.00	5.47	1.04
2200	28	8	.96	6.10	.91	5.33	.96
200	29	8	.99	5.82	.93	5.38	.99
600	29	8	.88	5.57	.81	5.06	.88
1000	29	8	.63	5.57	.59	5.13	.63
1400	29	8	.51	5.12	.47	5.06	.51
1800	29	8	.42	4.57	.40	4.81	.42
2200	29	8	.44	4.27	.40	5.26	.44
200	30	8	.42	3.46	.36	5.47	.42
600	30	8	.65	3.56	.57	6.74	.65
1000	30	8	.71	3.46	.63	5.54	.71
1400	30	8	.60	4.57	.56	5.29	.61
1800	30	8	.51	4.27	.49	5.41	.51
2200	30	8	.34	4.13	.33	5.59	.34
200	31	8	.33	3.66	.30	5.79	.33

600	31	8	.27	4.41	.26	5.37	.27
1000	31	8	.22	4.41	.21	5.13	.22
1400	31	8	.15	0.00	.14	5.78	.15
1800	31	8	.10	0.00	.09	5.54	.10
2200	31	8	.07	0.00	.06	5.57	.07
200	1	9	.05	0.00	.05	5.61	.06
600	1	9	.06	0.00	.05	6.12	.06
1000	1	9	.09	0.00	.07	7.08	.09
1400	1	9	.12	0.00	.10	7.06	.12
1800	1	9	.20	0.00	.17	7.07	.20
2200	1	9	.57	3.88	.48	7.01	.58
200	2	9	.59	3.88	.53	6.36	.59
600	2	9	.92	4.41	.91	5.09	.93
1000	2	9	.84	4.41	.76	5.27	.84
1400	2	9	.72	4.57	.67	4.97	.72
1800	2	9	.79	4.57	.74	4.77	.79
2200	2	9	.91	5.12	.86	5.03	.91
200	3	9	.90	5.57	.84	5.03	.90
600	3	9	.78	5.57	.72	5.12	.78
1000	3	9	.67	6.10	.65	5.79	.67
1400	3	9	.50	6.10	.46	5.74	.50
1800	3	9	.85	3.66	.80	5.85	.85
2200	3	9	.93	3.88	.83	5.37	.93
200	4	9	.61	4.92	.56	5.25	.61
600	4	9	.44	4.57	.41	4.67	.44
1000	4	9	.27	4.00	.25	5.19	.27
1400	4	9	.15	0.00	.14	5.88	.15
1800	4	9	.12	0.00	.12	6.08	.13
2200	4	9	.47	4.13	.42	5.49	.47
200	5	9	.32	5.57	.30	5.46	.32
600	5	9	.14	0.00	.13	5.14	.14
1000	5	9	.20	0.00	.19	4.98	.20
1400	5	9	.11	0.00	.11	5.18	.11
1800	5	9	.08	0.00	.07	5.63	.09
2200	5	9	.08	0.00	.07	6.74	.09
200	6	9	.06	0.00	.05	6.26	.06
600	6	9	.04	0.00	.04	5.05	.05
1000	6	9	.04	0.00	.04	5.11	.04
1400	6	9	.03	0.00	.03	5.67	.04
1800	6	9	.02	0.00	.03	6.83	.03
2200	6	9	.23	3.37	.20	7.05	.23
200	7	9	.54	3.88	.48	5.94	.54
600	7	9	.79	5.12	.76	4.79	.79
1000	7	9	.79	5.33	.77	5.51	.79
1400	7	9	.58	5.82	.54	5.45	.58
1800	7	9	.53	5.33	.49	5.61	.53
2200	7	9	.54	5.82	.51	5.53	.54
200	8	9	.44	6.10	.41	5.50	.44
600	8	9	.42	5.57	.40	5.27	.42
1000	8	9	.39	5.82	.36	5.69	.39
1400	8	9	.54	6.74	.50	6.28	.54
1800	8	9	.75	5.57	.70	6.27	.75
2200	8	9	.75	3.37	.71	5.88	.75
200	9	9	.63	5.82	.59	6.09	.63
600	9	9	.76	7.53	.71	7.02	.76
1000	9	9	.92	7.53	.85	6.97	.92
1400	9	9	1.20	4.74	1.12	5.96	1.20
1800	9	9	1.25	5.33	1.15	5.57	1.25
2200	9	9	1.37	5.57	1.27	5.71	1.37
200	10	9	1.28	6.10	1.18	5.91	1.28
600	10	9	.96	5.12	.86	6.38	.96
1000	10	9	.68	9.85	.65	7.57	.68
1400	10	9	.64	9.85	.59	7.70	.64
1800	10	9	.45	9.14	.42	7.40	.45
2200	10	9	.28	9.14	.27	7.47	.28
200	11	9	.23	8.53	.21	6.35	.23
600	11	9	.30	3.46	.28	6.75	.31
1000	11	9	.36	3.46	.31	6.59	.36
1400	11	9	.50	3.56	.45	6.32	.50
1800	11	9	.60	3.46	.56	5.76	.60
2200	11	9	.65	3.37	.61	5.67	.65
200	12	9	.58	4.92	.55	5.45	.58
600	12	9	.52	5.57	.48	5.45	.52
1000	12	9	.85	3.56	.76	5.88	.85
1400	12	9	.34	4.92	.32	5.21	.34
1800	12	9	.23	4.92	.21	5.13	.23
2200	12	9	.61	3.88	.54	6.22	.61
200	13	9	1.09	4.92	1.02	4.81	1.09
600	13	9	.89	5.12	.84	5.27	.89
1000	13	9	1.06	5.57	.97	5.29	1.06

1400	13	9	1.12	4.41	1.08	5.16	1.12
1800	13	9	1.18	5.57	1.09	5.73	1.18
2200	13	9	1.04	5.57	.98	5.56	1.04
200	14	9	.81	5.57	.78	5.36	.81
600	14	9	.55	4.41	.52	5.27	.55
1000	14	9	.35	5.33	.33	5.21	.36
1400	14	9	.32	3.37	.28	6.71	.33
1800	14	9	.56	3.46	.47	7.12	.56
2200	14	9	.36	3.46	.31	6.83	.36
200	15	9	.22	4.13	.21	5.73	.22
600	15	9	.32	3.37	.27	6.47	.32
1000	15	9	.33	3.46	.28	6.76	.33
1400	15	9	.44	3.56	.38	6.90	.44
1800	15	9	.53	3.66	.47	6.84	.53
2200	15	9	.37	3.37	.33	5.78	.37
200	16	9	.22	4.13	.20	5.61	.22
600	16	9	.23	3.56	.22	6.12	.23
1000	16	9	.32	3.88	.29	5.58	.32
1400	16	9	.30	3.37	.27	5.56	.30
1800	16	9	.50	3.46	.42	6.67	.50
2200	16	9	.42	3.46	.36	6.56	.42
200	17	9	.29	3.46	.27	6.25	.30
600	17	9	.75	4.00	.68	6.25	.75
1000	17	9	.72	4.92	.66	5.17	.72
1400	17	9	.95	5.12	.88	5.00	.95
1800	17	9	.63	5.57	.59	5.22	.63
2200	17	9	.44	5.33	.42	5.23	.44
200	18	9	.41	5.12	.39	4.81	.41
600	18	9	.21	4.92	.19	4.91	.21
1000	18	9	.10	0.00	.09	5.07	.10
1400	18	9	.10	0.00	.09	5.87	.10
1800	18	9	.20	0.00	.17	6.86	.20
2200	18	9	.23	3.76	.19	6.81	.23
200	19	9	.14	0.00	.13	6.58	.15
600	19	9	.13	0.00	.11	7.17	.13
1000	19	9	.10	0.00	.08	6.87	.10
1400	19	9	.09	0.00	.09	5.61	.10
1800	19	9	.13	0.00	.11	6.70	.13
2200	19	9	.10	0.00	.09	6.35	.10
200	20	9	.11	0.00	.10	6.06	.11
600	20	9	.26	3.56	.23	6.65	.26
1000	20	9	.72	4.13	.64	6.01	.73
1400	20	9	.38	3.88	.33	6.82	.38
1800	20	9	.20	0.00	.17	6.59	.20
2200	20	9	.12	0.00	.12	5.13	.12
200	21	9	.17	0.00	.15	6.36	.18
600	21	9	1.60	4.27	1.46	4.85	1.60
1000	21	9	2.33	8.00	2.20	6.84	2.33
1400	21	9	2.08	8.00	1.96	7.32	2.09
1800	21	9	1.75	8.00	1.61	6.70	1.76
2200	21	9	1.54	8.00	1.48	7.04	1.54
200	22	9	1.13	8.00	1.10	6.77	1.14
600	22	9	.95	7.11	.89	6.96	.95
1000	22	9	.73	6.74	.68	6.38	.73
1400	22	9	.90	3.76	.79	6.17	.90
1800	22	9	.88	4.41	.85	5.77	.88
2200	22	9	.77	4.57	.70	5.58	.77
200	23	9	.35	3.88	.31	6.88	.35
600	23	9	.22	7.53	.21	6.67	.22
1000	23	9	.17	0.00	.16	6.93	.18
1400	23	9	.15	0.00	.14	6.40	.16
1800	23	9	.79	4.13	.71	5.37	.79
2200	23	9	.89	5.57	.86	5.30	.89
200	24	9	1.24	5.82	1.21	6.10	1.24
600	24	9	.99	6.10	.94	6.02	.99
1000	24	9	.90	6.40	.86	6.29	.90
1400	24	9	.75	5.33	.70	5.91	.75
1800	24	9	.84	4.74	.78	5.35	.84

Chronological tabulation of the 635-9 measurements at Site T1.2



Notes:

Derived parameters are -

- total pressure (kPa) 75 cm above seabed
- E-W current component (cm/s) positive to the East
- N-S current component (cm/s) positive to the North

currents measured 50 cm above seabed

All parameters are calculated as burst means (1024 samples)
The sampling interval was 4 hours

BURST AVERAGES

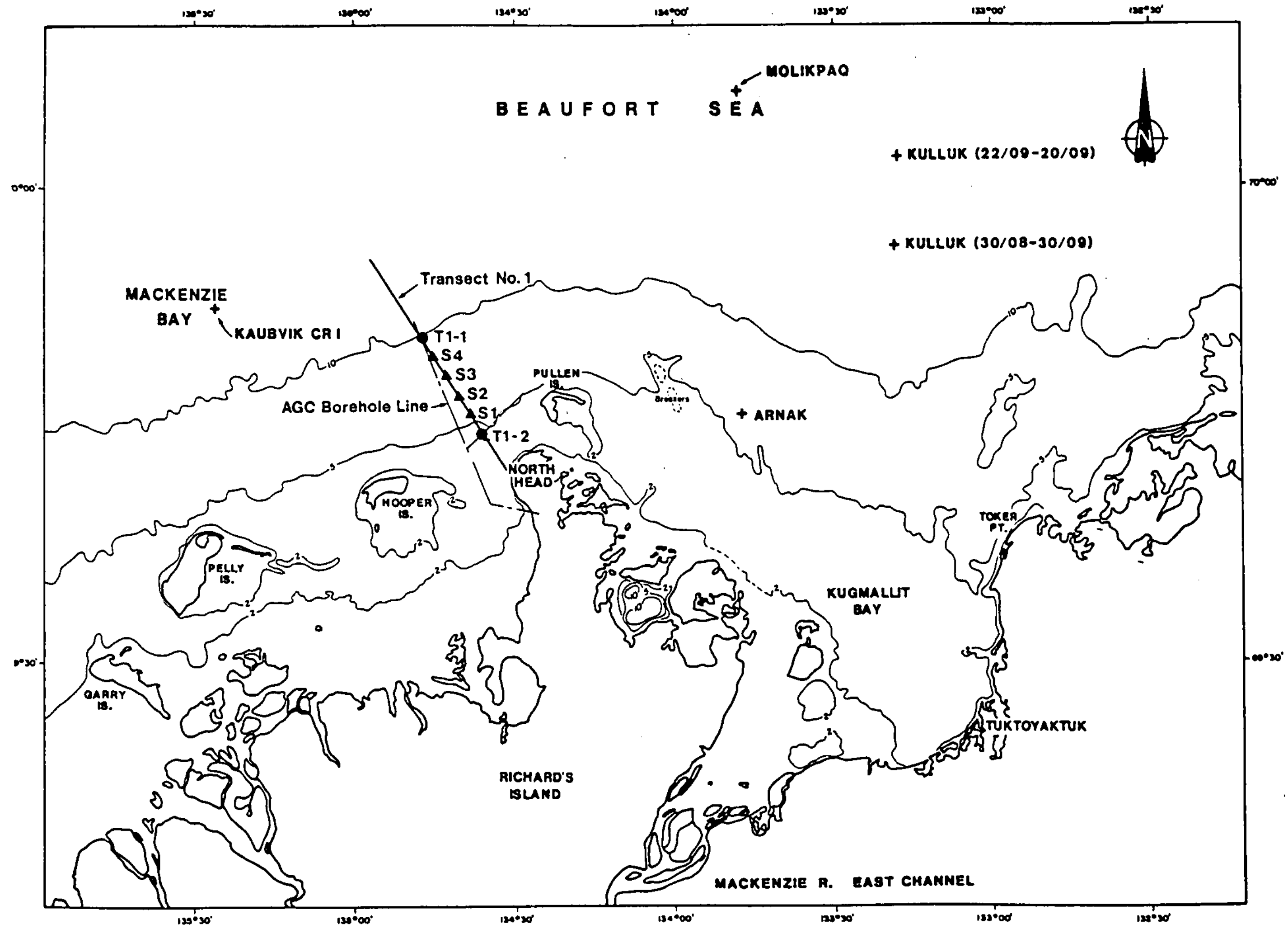
SITE: Beaufort T1.2
INSTRUMENT: Sea Data 635-9, S.N. 13
LATITUDE: 69 deg. 44.54' N LONGITUDE: 134 deg. 36.67' W
NOMINAL WATER DEPTH: 5.9 m
INSTRUMENT HEIGHT ABOVE BOTTOM: 0.5 m
PRESSURE SENSOR HEIGHT ABOVE BOTTOM: 0.75 m
RECORD INTERVAL: 4.0 h
START: 1400Z 18 Aug., 1986 STOP: 1400Z 24 Sept., 1986

YEAR	MONTH	DATE	TIME (GMT)	PRESSURE (kPa)	U (cm/s)	V (cm/s)	RATE (cm/s)	DIRECTION (deg. True)
1986	8	18	1400	144.95	10.8	13.9	17.6	37.74
1986	8	18	1800	147.03	1.7	-5.7	5.9	163.87
1986	8	18	2200	146.81	5.5	12.6	13.7	23.54
1986	8	19	0200	145.27	9.4	9.1	13.0	45.84
1986	8	19	0600	145.49	2.9	-2.1	3.6	126.29
1986	8	19	1000	145.13	-1.2	-8.9	9.0	187.87
1986	8	19	1400	144.67	9.6	5.1	10.9	62.13
1986	8	19	1800	146.23	-1.1	14.2	14.3	355.46
1986	8	19	2200	148.99	6.9	35.8	36.4	10.89
1986	8	20	0200	146.14	6.1	37.2	37.7	9.33
1986	8	20	0600	147.25	21.6	10.9	24.2	63.25
1986	8	20	1000	148.60	3.4	17.6	18.0	11.02
1986	8	20	1400	147.34	13.3	27.4	30.5	25.80
1986	8	20	1800	147.31	5.2	15.2	16.1	18.85
1986	8	20	2200	149.14	20.8	13.0	24.6	57.96
1986	8	21	0200	147.06	6.1	17.0	18.1	19.82
1986	8	21	0600	146.41	14.1	6.0	15.3	67.07
1986	8	21	1000	147.82	-1.2	-5.0	5.1	193.98
1986	8	21	1400	146.06	3.5	13.1	13.6	14.90
1986	8	21	1800	146.05	7.8	-0.4	7.8	92.99
1986	8	21	2200	148.52	1.2	1.2	1.7	44.21
1986	8	22	0200	150.12	14.8	28.3	32.0	27.65
1986	8	22	0600	146.35	-3.8	35.4	35.6	353.88
1986	8	22	1000	150.26	10.8	-5.0	11.9	115.07
1986	8	22	1400	149.40	32.5	46.5	56.8	34.99
1986	8	22	1800	151.12	44.6	60.6	75.2	36.34
1986	8	22	2200	151.17	10.4	29.5	31.3	19.36
1986	8	23	0200	151.58	25.7	39.2	46.9	33.23
1986	8	23	0600	149.87	31.5	41.4	52.1	37.25
1986	8	23	1000	150.80	44.1	19.3	48.2	66.32
1986	8	23	1400	151.19	45.0	36.5	58.0	50.96
1986	8	23	1800	148.73	30.9	46.9	56.2	33.36
1986	8	23	2200	150.60	44.2	29.4	53.1	56.38
1986	8	24	0200	149.18	36.9	19.7	41.9	61.90
1986	8	24	0600	147.25	35.6	14.9	38.6	67.25
1986	8	24	1000	148.92	24.2	6.7	25.2	74.45
1986	8	24	1400	148.33	11.7	28.4	30.7	22.39
1986	8	24	1800	147.17	9.8	27.9	29.6	19.40
1986	8	24	2200	148.05	20.2	17.4	26.7	49.28
1986	8	25	0200	147.44	7.5	27.0	28.0	15.59
1986	8	25	0600	146.15	25.0	19.0	31.4	52.76
1986	8	25	1000	147.70	8.3	13.0	15.4	32.49
1986	8	25	1400	147.75	-2.3	18.3	18.4	352.73
1986	8	25	1800	146.37	7.4	17.5	19.0	22.79
1986	8	25	2200	147.05	2.5	-10.9	11.2	166.88
1986	8	26	0200	146.47	-7.6	6.4	9.9	310.18
1986	8	26	0600	145.14	7.5	9.7	12.3	37.70
1986	8	26	1000	146.42	4.3	-14.0	14.7	162.90
1986	8	26	1400	146.33	-8.8	-15.8	18.1	209.07
1986	8	26	1800	144.80	1.1	-16.7	16.8	176.30
1986	8	26	2200	146.11	-4.2	-6.7	7.9	211.88
1986	8	27	0200	146.10	-1.0	14.1	14.1	355.88
1986	8	27	0600	144.78	2.7	6.7	7.2	21.63
1986	8	27	1000	145.96	-1.4	0.7	1.6	297.65
1986	8	27	1400	146.61	0.1	-2.3	2.3	178.60
1986	8	27	1800	145.41	-0.4	-13.1	13.1	181.79
1986	8	27	2200	144.98	2.1	-20.0	20.1	174.11
1986	8	28	0200	144.01	3.2	-30.5	30.6	173.96
1986	8	28	0600	143.06	-0.6	-23.8	23.8	181.52
1986	8	28	1000	143.76	-0.6	-26.0	26.0	181.40
1986	8	28	1400	144.86	0.3	-26.6	26.6	179.28
1986	8	28	1800	144.25	1.6	-22.2	22.2	175.98
1986	8	28	2200	143.98	1.6	-20.9	21.0	175.56
1986	8	29	0200	144.27	-0.7	-18.6	18.6	182.01
1986	8	29	0600	143.04	-2.0	-17.4	17.6	186.45

1986	8	29	1000	143.26	-0.6	-19.0	19.0	181.75
1986	8	29	1400	144.51	-2.3	-16.7	16.8	187.77
1986	8	29	1800	144.22	-0.4	-16.6	16.6	181.37
1986	8	29	2200	143.54	1.1	-13.1	13.2	175.26
1986	8	30	0200	143.44	-2.1	-16.2	16.3	187.48
1986	8	30	0600	142.35	1.5	-18.8	18.8	175.55
1986	8	30	1000	141.74	4.9	-20.6	21.2	166.67
1986	8	30	1400	143.46	5.6	-19.8	20.5	164.15
1986	8	30	1800	144.91	3.4	-11.2	11.7	163.12
1986	8	30	2200	145.49	6.6	6.0	8.9	47.74
1986	8	31	0200	145.51	3.8	13.0	13.5	16.42
1986	8	31	0600	145.11	0.9	9.7	9.7	5.46
1986	8	31	1000	144.89	0.8	0.4	0.9	66.75
1986	8	31	1400	145.27	5.1	-5.1	7.2	134.63
1986	8	31	1800	146.51	-1.3	-8.7	8.8	188.29
1986	8	31	2200	145.82	2.7	-5.7	6.3	155.17
1986	9	1	0200	145.35	3.8	-3.3	5.0	131.57
1986	9	1	0600	145.60	-0.1	-5.8	5.8	181.49
1986	9	1	1000	145.07	1.9	-12.7	12.8	171.58
1986	9	1	1400	144.56	-0.5	-14.3	14.3	181.81
1986	9	1	1800	145.61	-2.1	-16.9	17.1	187.08
1986	9	1	2200	144.72	0.3	-16.9	16.9	178.85
1986	9	2	0200	143.10	1.9	-16.1	16.2	173.31
1986	9	2	0600	143.23	2.8	-17.2	17.4	170.78
1986	9	2	1000	142.75	0.9	-17.3	17.3	177.17
1986	9	2	1400	142.05	5.8	-19.0	19.9	163.02
1986	9	2	1800	143.68	-1.8	-16.7	16.8	186.08
1986	9	2	2200	144.23	5.2	-18.0	18.8	163.81
1986	9	3	0200	143.32	2.4	-6.4	6.8	159.47
1986	9	3	0600	144.47	-5.7	-6.3	8.5	221.98
1986	9	3	1000	144.93	-5.4	7.1	8.9	322.93
1986	9	3	1400	144.35	21.1	13.3	24.9	57.67
1986	9	3	1800	147.41	21.4	11.6	24.3	61.55
1986	9	3	2200	148.67	16.4	24.1	29.2	34.17
1986	9	4	0200	146.32	4.3	21.9	22.4	11.03
1986	9	4	0600	145.72	4.0	13.7	14.3	16.31
1986	9	4	1000	146.88	8.8	7.2	11.4	50.70
1986	9	4	1400	144.45	9.5	7.6	12.2	51.40
1986	9	4	1800	145.63	5.2	7.2	8.9	35.78
1986	9	4	2200	146.99	-7.7	22.9	24.2	341.53
1986	9	5	0200	145.61	9.5	30.6	32.1	17.21
1986	9	5	0600	145.96	0.0	20.1	20.1	0.12
1986	9	5	1000	147.19	-1.4	17.6	17.6	355.29
1986	9	5	1400	145.62	0.4	23.8	23.8	0.85
1986	9	5	1800	145.30	1.1	12.5	12.5	5.02
1986	9	5	2200	146.71	1.6	9.2	9.3	10.09
1986	9	6	0200	144.70	2.0	11.3	11.5	9.93
1986	9	6	0600	145.22	-0.2	10.9	10.9	358.78
1986	9	6	1000	146.80	-2.3	4.7	5.3	334.04
1986	9	6	1400	144.74	-1.1	1.5	1.9	324.22
1986	9	6	1800	144.33	-4.1	-6.1	7.3	214.30
1986	9	6	2200	145.36	-3.7	-15.4	15.8	193.58
1986	9	7	0200	143.54	1.9	-16.9	17.0	173.50
1986	9	7	0600	143.19	2.0	-19.7	19.8	174.14
1986	9	7	1000	145.69	0.5	-22.7	22.7	178.61
1986	9	7	1400	145.27	0.4	-3.5	3.5	172.96
1986	9	7	1800	144.30	3.2	1.8	3.6	60.56
1986	9	7	2200	146.13	0.4	-3.3	3.3	173.11
1986	9	8	0200	144.84	-0.2	0.6	0.6	342.65
1986	9	8	0600	144.56	7.0	5.4	8.8	52.27
1986	9	8	1000	146.55	-1.8	-9.2	9.3	190.95
1986	9	8	1400	145.07	0.7	-13.1	13.1	177.06
1986	9	8	1800	143.90	2.7	-15.7	15.9	170.30
1986	9	8	2200	144.70	-4.0	-13.6	14.2	196.38
1986	9	9	0200	144.12	-0.6	-11.0	11.0	182.96
1986	9	9	0600	144.09	6.4	7.5	9.9	40.75
1986	9	9	1000	147.11	1.8	8.2	8.4	12.59
1986	9	9	1400	147.73	2.5	25.2	25.4	5.70
1986	9	9	1800	145.40	-4.0	31.7	32.0	352.79
1986	9	9	2200	146.69	-9.5	20.7	22.8	335.33
1986	9	10	0200	146.04	3.3	19.6	19.9	9.42
1986	9	10	0600	143.84	1.9	13.7	13.9	8.05
1986	9	10	1000	146.30	5.2	-0.2	5.2	92.19
1986	9	10	1400	146.62	-9.4	8.0	12.3	310.63
1986	9	10	1800	145.88	13.4	6.1	14.7	65.61
1986	9	10	2200	146.04	2.0	5.8	6.1	19.23
1986	9	11	0200	145.74	-6.2	3.4	7.1	299.10
1986	9	11	0600	144.11	-0.7	-16.5	16.5	182.34
1986	9	11	1000	146.25	-0.7	-9.1	9.2	184.34
1986	9	11	1400	147.71	3.3	2.8	4.3	48.90

1986	9	11	1800	146.73	12.0	10.5	16.0	48.83
1986	9	11	2200	147.35	19.2	21.9	29.1	41.33
1986	9	12	0200	147.08	1.8	16.5	16.6	6.05
1986	9	12	0600	145.91	10.5	20.0	22.6	27.65
1986	9	12	1000	146.76	17.9	14.6	23.1	50.75
1986	9	12	1400	148.09	3.9	19.9	20.3	11.01
1986	9	12	1800	147.46	-2.1	20.5	20.7	354.14
1986	9	12	2200	147.46	0.6	18.1	18.1	2.04
1986	9	13	0200	147.20	3.4	2.5	4.2	54.22
1986	9	13	0600	147.45	1.5	9.6	9.7	8.80
1986	9	13	1000	147.43	17.9	9.8	20.5	61.24
1986	9	13	1400	149.39	10.8	8.3	13.6	52.53
1986	9	13	1800	149.67	15.5	21.5	26.6	35.78
1986	9	13	2200	148.96	17.8	21.2	27.7	40.03
1986	9	14	0200	148.37	7.7	2.7	8.1	70.65
1986	9	14	0600	148.24	-5.0	-6.8	8.4	216.21
1986	9	14	1000	147.46	-12.4	-0.7	12.5	266.76
1986	9	14	1400	147.44	-6.8	-11.7	13.6	210.30
1986	9	14	1800	147.71	-7.8	-14.9	16.8	207.65
1986	9	14	2200	147.42	-4.4	-6.2	7.6	215.07
1986	9	15	0200	146.53	-4.8	6.7	8.2	324.22
1986	9	15	0600	146.10	-1.9	-1.8	2.6	227.64
1986	9	15	1000	145.12	1.6	-12.7	12.8	172.79
1986	9	15	1400	145.08	2.0	-9.8	10.0	168.47
1986	9	15	1800	145.92	-0.9	-15.0	15.1	183.29
1986	9	15	2200	145.67	-2.3	-8.7	8.9	194.66
1986	9	16	0200	145.22	0.5	3.4	3.5	8.05
1986	9	16	0600	145.83	4.3	-5.0	6.6	139.02
1986	9	16	1000	145.21	-2.2	-9.7	10.0	192.87
1986	9	16	1400	144.61	-7.1	-11.0	13.1	212.74
1986	9	16	1800	145.73	-10.3	-5.0	11.5	244.26
1986	9	16	2200	146.29	-1.2	-2.7	2.9	203.25
1986	9	17	0200	145.93	0.1	18.0	18.0	0.20
1986	9	17	0600	147.15	-1.1	17.9	18.0	356.49
1986	9	17	1000	147.28	-1.9	17.3	17.4	353.88
1986	9	17	1400	145.83	2.4	23.0	23.1	6.06
1986	9	17	1800	146.50	6.2	4.6	7.7	53.47
1986	9	17	2200	146.68	-6.3	-3.2	7.1	243.15
1986	9	18	0200	145.10	0.2	2.0	2.0	5.13
1986	9	18	0600	146.43	-16.4	-22.1	27.5	216.64
1986	9	18	1000	146.99	-4.2	-10.8	11.6	201.22
1986	9	18	1400	144.78	1.4	-14.1	14.2	174.21
1986	9	18	1800	145.71	-1.9	-15.0	15.1	187.08
1986	9	18	2200	146.67	-2.4	-13.6	13.8	190.10
1986	9	19	0200	145.30	1.0	-2.7	2.9	160.16
1986	9	19	0600	146.45	-3.2	-3.6	4.8	222.21
1986	9	19	1000	147.71	-5.6	-7.1	9.1	218.19
1986	9	19	1400	145.56	-1.4	-2.4	2.7	210.47
1986	9	19	1800	145.77	-2.0	-3.9	4.4	207.07
1986	9	19	2200	146.75	-3.8	-9.1	9.9	202.46
1986	9	20	0200	144.94	3.3	-0.3	3.3	95.57
1986	9	20	0600	145.87	4.7	4.6	6.6	45.47
1986	9	20	1000	148.13	-0.4	9.1	9.1	357.56
1986	9	20	1400	146.46	-1.1	23.7	23.8	357.37
1986	9	20	1800	145.56	5.8	18.8	19.7	17.06
1986	9	20	2200	146.37	-0.4	1.6	1.7	344.77
1986	9	21	0200	145.05	4.6	-5.9	7.5	141.93
1986	9	21	0600	147.16	34.5	11.1	36.3	72.20
1986	9	21	1000	153.11	17.8	21.3	27.8	39.83
1986	9	21	1400	147.32	-0.3	80.3	80.3	359.79
1986	9	21	1800	147.83	43.5	42.4	60.8	45.70
1986	9	21	2200	149.14	14.6	50.7	52.8	16.07
1986	9	22	0200	149.08	27.9	28.2	39.7	44.64
1986	9	22	0600	147.10	19.2	-16.5	25.3	130.73
1986	9	22	1000	150.54	14.7	-15.9	21.7	137.32
1986	9	22	1400	149.80	8.7	26.1	27.5	18.39
1986	9	22	1800	148.95	32.1	7.5	32.9	76.89
1986	9	22	2200	150.15	10.1	0.2	10.1	88.70
1986	9	23	0200	149.23	5.0	14.1	15.0	19.57
1986	9	23	0600	148.14	13.4	9.4	16.4	54.92
1986	9	23	1000	149.68	9.5	-11.6	15.0	140.79
1986	9	23	1400	149.60	4.8	-10.2	11.3	154.93
1986	9	23	1800	148.77	3.2	13.8	14.2	13.22
1986	9	23	2200	149.92	8.4	19.6	21.4	23.21
1986	9	24	0200	149.75	17.8	16.7	24.4	46.92
1986	9	24	0600	148.58	18.3	12.7	22.3	55.25
1986	9	24	1000	150.54	17.0	-0.7	17.0	92.30
1986	9	24	1400	150.76	19.5	11.6	22.7	59.28

Chronological tabulation of derived wave properties at Site T1.2
Instrument 635-9 Bottom mounted pressure gauge



Notes:

Derived parameters are -

(i) Hm_o significant wave height defined as $4\sqrt{m_o}$ where m_o is the zeroeth spectral moment calculated from the variance spectrum

(ii) T_p peak wave period, f_m^{-1}

(iii) $H_{1/3}$ significant wave height defined by the average of the 1/3 highest zero up-crossing wave heights

(iv) $T_{1/3}$ significant wave period defined as the average of the periods associated with the 1/3 highest wave heights giving $H_{1/3}$

(v) H_c characteristic wave height defined as $4\sigma_\eta$ where σ_η is the standard deviation of the sea level displacement

GMT	DAY	MONTH	Hmo	Tp	H1/3	T1/3	Hc
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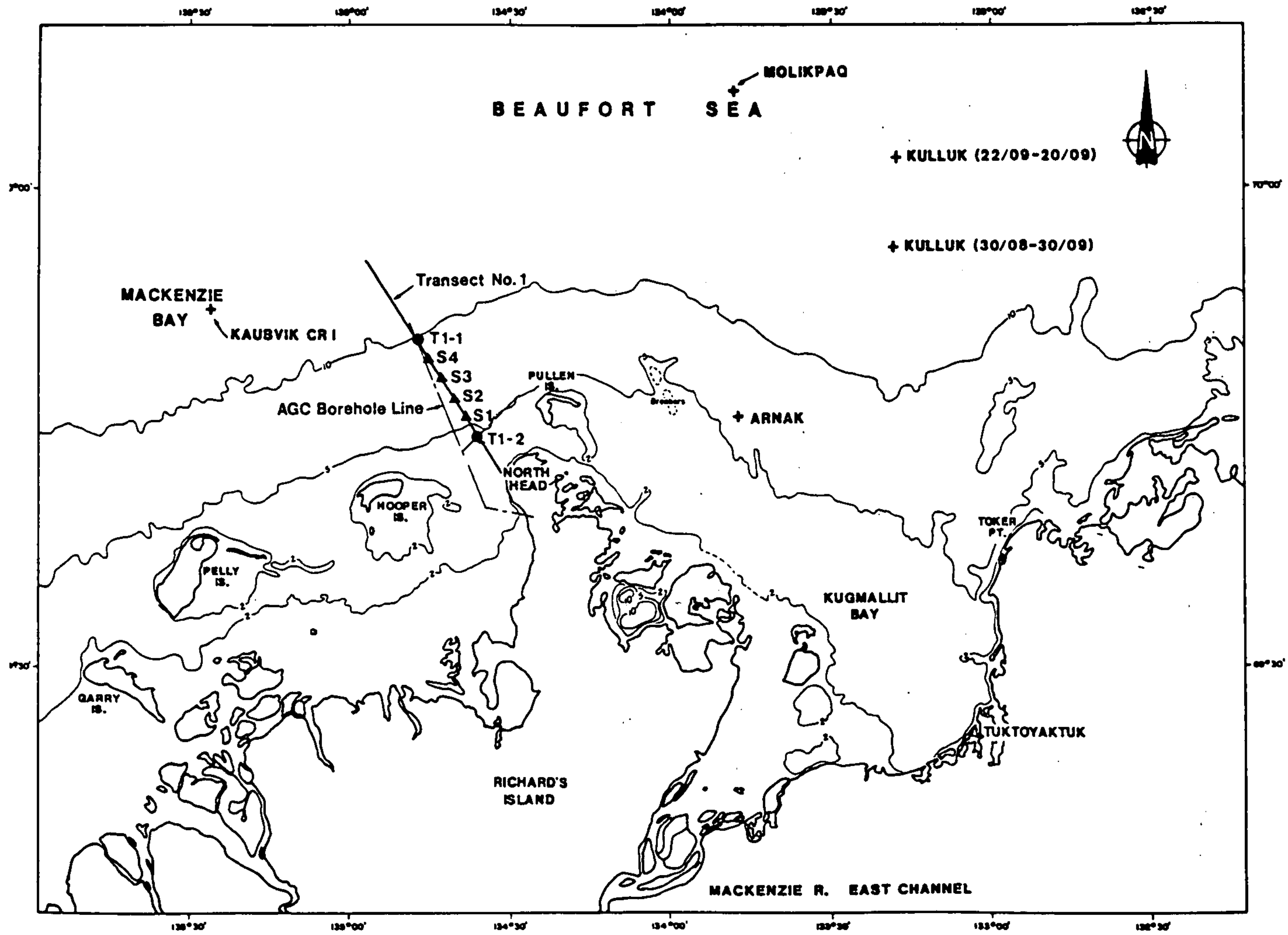
1400	18	8	.68	5.57	.64	5.44	.68
1800	18	8	.44	4.92	.40	5.51	.44
2200	18	8	.35	4.57	.31	5.25	.35
200	19	8	.13	0.00	.10	7.02	.13
600	19	8	.11	0.00	.08	5.97	.11
1000	19	8	.10	0.00	.08	5.71	.11
1400	19	8	.21	3.28	.16	6.19	.22
1800	19	8	.09	0.00	.08	15.79	.12
2200	19	8	1.09	5.57	1.03	5.51	1.09
200	20	8	.95	6.40	.90	5.93	.95
600	20	8	.76	6.74	.70	6.30	.76
1000	20	8	.90	6.74	.82	6.48	.90
1400	20	8	.85	6.40	.78	5.85	.85
1800	20	8	.56	6.10	.51	5.70	.56
2200	20	8	.48	5.33	.40	5.68	.48
200	21	8	.35	4.13	.30	5.44	.35
600	21	8	.18	0.00	.16	5.36	.19
1000	21	8	.16	0.00	.16	5.15	.17
1400	21	8	.17	0.00	.14	6.32	.17
1800	21	8	.21	2.56	.16	5.86	.21
2200	21	8	.60	3.05	.48	5.95	.60
200	22	8	1.39	5.57	1.29	5.94	1.39
600	22	8	1.36	9.14	1.25	7.74	1.37
1000	22	8	1.38	7.53	1.32	6.51	1.38
1400	22	8	1.42	8.00	1.35	7.17	1.42
1800	22	8	1.56	8.53	1.44	7.35	1.56
2200	22	8	.92	9.14	.89	8.51	.93
200	23	8	1.41	5.33	1.30	6.39	1.41
600	23	8	1.89	7.53	1.83	7.37	1.89
1000	23	8	1.32	6.74	1.27	6.29	1.32
1400	23	8	1.11	6.40	1.05	6.02	1.11
1800	23	8	1.02	5.82	.94	5.71	1.02
2200	23	8	.84	4.74	.74	5.54	.84
200	24	8	.90	4.92	.84	5.17	.90
600	24	8	.70	4.92	.64	5.13	.70
1000	24	8	.65	3.56	.52	5.93	.65
1400	24	8	.50	4.57	.45	5.30	.50
1800	24	8	.59	4.41	.48	5.91	.59
2200	24	8	.62	4.13	.50	5.79	.62
200	25	8	.56	4.57	.45	5.75	.56
600	25	8	.51	4.74	.42	5.71	.51
1000	25	8	.45	4.57	.36	5.90	.45
1400	25	8	.25	4.27	.20	6.50	.25
1800	25	8	.23	3.66	.19	6.12	.23
2200	25	8	.21	3.76	.17	6.58	.21
200	26	8	.13	0.00	.11	6.31	.13
600	26	8	.08	0.00	.07	6.00	.08
1000	26	8	.04	0.00	.03	6.19	.04
1400	26	8	.14	0.00	.11	5.28	.14
1800	26	8	.16	0.00	.13	5.62	.16
2200	26	8	.11	0.00	.08	6.10	.11
200	27	8	.13	0.00	.11	6.15	.13
600	27	8	.13	0.00	.11	5.92	.13
1000	27	8	.14	0.00	.12	6.06	.15
1400	27	8	.38	3.12	.30	6.16	.38
1800	27	8	.49	4.41	.38	6.31	.49
2200	27	8	.78	5.33	.65	5.96	.78
200	28	8	.89	6.10	.80	5.85	.89
600	28	8	.68	6.40	.63	5.70	.68
1000	28	8	.68	5.82	.61	5.62	.68
1400	28	8	.75	5.82	.66	5.61	.75
1800	28	8	.71	5.57	.64	5.73	.71
2200	28	8	.63	5.82	.57	5.71	.63
200	29	8	.60	5.82	.56	5.66	.60
600	29	8	.69	5.57	.62	5.26	.69
1000	29	8	.46	5.57	.41	5.55	.46
1400	29	8	.38	4.92	.32	5.42	.38
1800	29	8	.30	4.57	.25	5.71	.30
2200	29	8	.27	4.57	.22	5.79	.27
200	30	8	.24	4.57	.21	5.36	.24
600	30	8	.29	4.41	.23	5.95	.29
1000	30	8	.37	2.67	.30	5.54	.37
1400	30	8	.27	2.56	.21	5.84	.27
1800	30	8	.33	2.78	.25	5.79	.33
2200	30	8	.20	0.00	.18	6.01	.20
200	31	8	.46	3.37	.40	6.41	.46
600	31	8	.25	4.92	.22	5.44	.25
1000	31	8	.19	0.00	.18	5.45	.19

1400	31	8	.13	0.00	.12	5.60	.14
1800	31	8	.10	0.00	.09	5.83	.10
2200	31	8	.09	0.00	.07	5.74	.09
200	1	9	.08	0.00	.06	5.61	.08
600	1	9	.10	0.00	.08	5.66	.10
1000	1	9	.19	0.00	.15	5.59	.19
1400	1	9	.15	0.00	.13	5.92	.15
1800	1	9	.17	0.00	.14	5.94	.17
2200	1	9	.27	2.78	.22	6.12	.28
200	2	9	.48	4.13	.37	6.40	.48
600	2	9	.60	4.13	.50	5.30	.60
1000	2	9	.50	2.56	.40	5.84	.50
1400	2	9	.53	4.57	.43	5.57	.53
1800	2	9	.51	4.92	.43	5.79	.51
2200	2	9	.57	5.57	.51	5.47	.57
200	3	9	.53	4.57	.50	5.38	.53
600	3	9	.50	5.57	.46	5.23	.50
1000	3	9	.49	5.82	.47	5.67	.50
1400	3	9	.38	5.82	.35	5.80	.38
1800	3	9	.72	2.98	.62	5.98	.72
2200	3	9	.91	4.74	.79	5.93	.91
200	4	9	.57	4.27	.49	5.85	.57
600	4	9	.38	4.41	.34	5.31	.38
1000	4	9	.28	4.13	.24	5.78	.28
1400	4	9	.15	0.00	.12	5.94	.15
1800	4	9	.12	0.00	.11	6.22	.12
2200	4	9	.46	2.61	.37	6.12	.46
200	5	9	.46	2.56	.36	6.12	.46
600	5	9	.25	2.72	.20	5.86	.25
1000	5	9	.42	2.84	.33	5.84	.42
1400	5	9	.21	3.05	.17	6.04	.21
1800	5	9	.09	0.00	.07	6.34	.09
2200	5	9	.13	0.00	.11	5.68	.14
200	6	9	.07	0.00	.06	6.16	.08
600	6	9	.05	0.00	.05	6.78	.07
1000	6	9	.05	0.00	.04	6.59	.05
1400	6	9	.04	0.00	.03	8.57	.05
1800	6	9	.11	0.00	.08	5.35	.11
2200	6	9	.11	0.00	.09	5.54	.11
200	7	9	.37	2.61	.29	6.29	.37
600	7	9	.56	4.57	.48	5.63	.56
1000	7	9	.53	5.82	.49	5.42	.53
1400	7	9	.40	5.57	.38	5.44	.40
1800	7	9	.39	6.40	.36	5.95	.39
2200	7	9	.38	5.33	.36	5.68	.38
200	8	9	.28	5.33	.26	5.42	.28
600	8	9	.31	6.10	.30	5.63	.31
1000	8	9	.36	5.57	.32	5.84	.36
1400	8	9	.38	7.11	.35	6.28	.38
1800	8	9	.50	7.53	.44	6.74	.50
2200	8	9	.59	2.91	.50	6.73	.59
200	9	9	.40	5.33	.37	6.03	.41
600	9	9	.54	7.11	.50	7.06	.54
1000	9	9	.64	9.85	.59	7.34	.64
1400	9	9	1.11	9.14	1.00	8.35	1.12
1800	9	9	1.23	5.33	1.10	6.53	1.23
2200	9	9	1.26	5.82	1.18	6.11	1.26
200	10	9	1.18	6.10	1.10	6.10	1.19
600	10	9	.76	10.67	.71	7.15	.76
1000	10	9	.61	9.14	.56	7.96	.61
1400	10	9	.43	5.33	.40	6.99	.43
1800	10	9	.40	9.14	.36	7.05	.40
2200	10	9	.27	9.14	.26	7.64	.27
200	11	9	.17	0.00	.16	7.19	.17
600	11	9	.31	2.67	.24	5.47	.31
1000	11	9	.31	2.91	.25	6.10	.31
1400	11	9	.35	2.98	.28	5.97	.35
1800	11	9	.41	2.78	.34	5.92	.41
2200	11	9	.43	2.98	.36	5.86	.43
200	12	9	.39	2.72	.31	5.76	.39
600	12	9	.39	2.84	.32	5.63	.39
1000	12	9	.52	3.20	.42	6.15	.52
1400	12	9	.39	2.98	.31	6.03	.39
1800	12	9	.39	2.72	.32	5.54	.39
2200	12	9	.58	3.66	.48	6.50	.58
200	13	9	1.05	5.12	.99	4.90	1.05
600	13	9	.80	4.74	.70	5.48	.80
1000	13	9	.79	5.57	.71	5.64	.80
1400	13	9	.97	6.10	.90	5.62	.97
1800	13	9	.98	5.82	.90	5.61	.98

2200	13	9	.89	4.41	.82	5.59	.89
200	14	9	.69	5.57	.62	5.63	.69
600	14	9	.47	4.13	.43	5.68	.47
1000	14	9	.30	4.74	.28	4.96	.30
1400	14	9	.37	2.84	.29	5.79	.37
1800	14	9	.41	3.05	.34	6.13	.41
2200	14	9	.34	2.78	.28	5.69	.35
200	15	9	.23	2.56	.18	5.52	.23
600	15	9	.26	2.61	.21	5.44	.26
1000	15	9	.29	2.91	.23	5.73	.29
1400	15	9	.25	2.91	.20	5.85	.25
1800	15	9	.41	3.05	.33	6.06	.41
2200	15	9	.31	2.91	.26	5.98	.31
200	16	9	.12	0.00	.11	5.46	.12
600	16	9	.19	0.00	.17	5.81	.19
1000	16	9	.28	2.72	.22	5.77	.29
1400	16	9	.35	2.78	.27	5.64	.35
1800	16	9	.37	2.98	.29	5.99	.37
2200	16	9	.32	2.78	.25	5.87	.32
200	17	9	.46	2.98	.37	6.07	.47
600	17	9	.78	3.88	.66	6.35	.78
1000	17	9	.63	4.74	.54	5.83	.63
1400	17	9	.81	4.57	.73	5.10	.81
1800	17	9	.55	5.57	.52	5.15	.55
2200	17	9	.45	5.82	.43	5.37	.45
200	18	9	.38	5.12	.35	4.95	.38
600	18	9	.20	0.00	.18	5.54	.21
1000	18	9	.10	0.00	.09	5.83	.11
1400	18	9	.17	0.00	.14	5.64	.17
1800	18	9	.19	0.00	.16	5.93	.19
2200	18	9	.11	0.00	.08	6.20	.11
200	19	9	.10	0.00	.08	6.41	.10
600	19	9	.09	0.00	.07	6.24	.10
1000	19	9	.09	0.00	.07	6.28	.09
1400	19	9	.08	0.00	.07	6.70	.09
1800	19	9	.10	0.00	.09	6.84	.10
2200	19	9	.08	0.00	.06	6.43	.08
200	20	9	.09	0.00	.08	6.41	.10
600	20	9	.29	2.67	.23	5.65	.29
1000	20	9	.40	3.12	.32	6.14	.40
1400	20	9	.34	2.67	.26	5.99	.34
1800	20	9	.16	0.00	.13	5.61	.16
2200	20	9	.11	0.00	.09	5.17	.11
200	21	9	.21	2.56	.15	5.45	.21
600	21	9	1.15	3.88	.91	6.85	1.16
1000	21	9	1.77	7.11	1.73	6.83	1.77
1400	21	9	1.71	8.00	1.61	7.31	1.72
1800	21	9	1.26	8.00	1.18	6.93	1.26
2200	21	9	1.14	8.00	1.06	6.82	1.14
200	22	9	.82	7.53	.78	7.41	.83
600	22	9	.73	8.00	.69	7.17	.73
1000	22	9	.53	6.40	.51	6.24	.53
1400	22	9	.48	2.61	.40	6.27	.49
1800	22	9	.48	2.98	.41	7.03	.48
2200	22	9	.56	2.61	.44	6.17	.56
200	23	9	.39	2.67	.30	5.91	.39
600	23	9	.30	2.78	.25	6.22	.30
1000	23	9	.32	3.20	.26	6.47	.32
1400	23	9	.28	3.28	.22	6.15	.28
1800	23	9	.70	4.13	.57	6.43	.70
2200	23	9	.76	5.57	.72	5.62	.76
200	24	9	1.02	5.33	.98	5.76	1.02
600	24	9	.80	5.33	.78	6.25	.80
1000	24	9	.75	5.33	.68	6.14	.75
1400	24	9	.63	5.82	.60	6.09	.64

Chronological tabulation of measured sediment concentration and pore water pressures at Site T1.2



Notes:

Measured parameters are -

total pressure at -0.8 m below seabed (kPa) reduced for atmospheric pressure of 100.0 kPa

total pressure at -1.8 m below seabed (kPa) reduced for atmospheric pressure of 100.0 kPa

suspended sediment concentration (mg/L) 100 cm above seabed

BURST AVERAGES

SITE: Beaufort T1.2
INSTRUMENT: Sea Data 650B-7, S.N. 78
LATITUDE: 69 deg. 44.54' N LONGITUDE: 134 deg. 36.67' W
NOMINAL WATER DEPTH: 5.9 m
RECORD INTERVAL: 4.0 h
START: 1400Z 18 Aug., 1986 STOP: 1400Z 24 Sept., 1986

YEAR	MONTH	DATE	TIME (GMT)	PRESSURE -0.8 m	(kPa) -1.8 m	CONCENTRATION (mg/L)
1986	8	18	1400	28.69	0.00	227.4
1986	8	18	1800	30.98	0.00	169.2
1986	8	18	2200	30.84	0.00	161.4
1986	8	19	0200	29.38	0.00	162.7
1986	8	19	0600	29.48	0.00	234.0
1986	8	19	1000	29.34	144.97	52.0
1986	8	19	1400	28.46	116.07	0.0
1986	8	19	1800	30.68	103.62	0.0
1986	8	19	2200	33.07	115.97	54.1
1986	8	20	0200	30.63	96.96	313.7
1986	8	20	0600	31.62	89.76	126.3
1986	8	20	1000	32.24	89.75	28.3
1986	8	20	1400	31.20	86.88	38.3
1986	8	20	1800	30.62	81.88	125.9
1986	8	20	2200	31.65	84.65	218.8
1986	8	21	0200	31.87	81.27	33.4
1986	8	21	0600	0.00	87.08	11.8
1986	8	21	1000	33.06	81.99	19.5
1986	8	21	1400	30.82	74.53	12.0
1986	8	21	1800	30.59	74.20	10.7
1986	8	21	2200	0.00	80.24	10.3
1986	8	22	0200	0.00	84.25	137.3
1986	8	22	0600	48.04	77.57	539.6
1986	8	22	1000	0.00	81.77	786.5
1986	8	22	1400	35.10	82.21	1051.1
1986	8	22	1800	35.77	74.90	4048.5
1986	8	22	2200	0.00	80.96	2190.3
1986	8	23	0200	60.30	75.55	2572.4
1986	8	23	0600	99.91	72.32	1999.9
1986	8	23	1000	72.45	72.68	1704.2
1986	8	23	1400	68.11	74.28	1143.7
1986	8	23	1800	0.00	76.21	1362.1
1986	8	23	2200	0.00	93.49	1812.6
1986	8	24	0200	0.00	79.37	733.3
1986	8	24	0600	0.00	78.49	1972.2
1986	8	24	1000	0.00	77.77	1652.0
1986	8	24	1400	0.00	71.39	354.3
1986	8	24	1800	0.00	69.36	403.8
1986	8	24	2200	0.00	67.41	715.2
1986	8	25	0200	0.00	67.57	442.0
1986	8	25	0600	0.00	65.28	417.5
1986	8	25	1000	0.00	66.00	457.7
1986	8	25	1400	0.00	65.58	366.7
1986	8	25	1800	0.00	63.64	391.7
1986	8	25	2200	0.00	64.66	436.5
1986	8	26	0200	0.00	63.17	207.3
1986	8	26	0600	0.00	60.95	204.7
1986	8	26	1000	0.00	62.12	186.4
1986	8	26	1400	0.00	62.07	571.6
1986	8	26	1800	0.00	59.88	572.1
1986	8	26	2200	0.00	61.03	177.8
1986	8	27	0200	0.00	60.38	178.9
1986	8	27	0600	0.00	59.04	189.1
1986	8	27	1000	0.00	59.78	189.7
1986	8	27	1400	0.00	60.70	564.3
1986	8	27	1800	30.58	63.46	235.8
1986	8	27	2200	0.00	60.28	328.1
1986	8	28	0200	0.00	56.54	590.8
1986	8	28	0600	0.00	59.27	739.9
1986	8	28	1000	0.00	59.29	714.3
1986	8	28	1400	74.29	59.33	553.8
1986	8	28	1800	81.98	59.22	847.1
1986	8	28	2200	27.75	58.22	565.5
1986	8	29	0200	0.00	58.77	590.8
1986	8	29	0600	0.00	57.41	526.6
1986	8	29	1000	0.00	56.42	895.0
1986	8	29	1400	0.00	58.09	536.3

1986	8	29	1800	10.10	57.23	496.3
1986	8	29	2200	21.95	56.63	554.7
1986	8	30	0200	23.53	55.85	312.2
1986	8	30	0600	21.67	54.77	315.9
1986	8	30	1000	24.17	54.46	294.2
1986	8	30	1400	25.04	56.42	204.8
1986	8	30	1800	30.40	59.74	567.8
1986	8	30	2200	30.72	61.83	249.7
1986	8	31	0200	0.00	61.90	307.8
1986	8	31	0600	0.00	62.75	292.8
1986	8	31	1000	0.00	62.65	202.3
1986	8	31	1400	25.34	59.06	204.9
1986	8	31	1800	24.93	58.65	176.5
1986	8	31	2200	24.80	57.81	175.4
1986	9	1	0200	24.50	57.51	407.9
1986	9	1	0600	25.44	57.26	95.3
1986	9	1	1000	23.90	56.74	264.9
1986	9	1	1400	21.85	56.01	85.0
1986	9	1	1800	23.92	56.53	180.3
1986	9	1	2200	21.76	55.87	183.3
1986	9	2	0200	24.27	54.07	198.0
1986	9	2	0600	19.50	54.06	259.9
1986	9	2	1000	23.16	54.38	290.4
1986	9	2	1400	20.58	53.28	372.6
1986	9	2	1800	23.43	54.92	489.9
1986	9	2	2200	26.08	55.06	383.5
1986	9	3	0200	21.51	53.80	481.7
1986	9	3	0600	16.94	54.07	326.2
1986	9	3	1000	19.57	54.68	293.2
1986	9	3	1400	19.75	53.93	57.0
1986	9	3	1800	27.98	57.34	101.3
1986	9	3	2200	22.54	59.37	503.0
1986	9	4	0200	0.00	55.97	322.9
1986	9	4	0600	0.00	55.32	0.0
1986	9	4	1000	35.31	58.37	15.6
1986	9	4	1400	13.61	54.05	50.7
1986	9	4	1800	21.09	54.71	66.8
1986	9	4	2200	48.80	69.06	0.5
1986	9	5	0200	23.71	55.14	125.3
1986	9	5	0600	22.89	55.36	118.6
1986	9	5	1000	22.89	56.77	156.0
1986	9	5	1400	22.16	57.25	57.6
1986	9	5	1800	29.64	62.82	3.9
1986	9	5	2200	29.34	62.94	0.8
1986	9	6	0200	19.87	54.81	2.1
1986	9	6	0600	24.06	55.98	1.3
1986	9	6	1000	23.78	57.49	5.1
1986	9	6	1400	19.41	54.10	2.0
1986	9	6	1800	16.84	54.25	0.0
1986	9	6	2200	19.19	54.66	0.0
1986	9	7	0200	15.58	53.32	0.0
1986	9	7	0600	18.83	52.33	0.0
1986	9	7	1000	21.44	55.02	0.6
1986	9	7	1400	25.16	54.88	4.5
1986	9	7	1800	20.18	51.83	0.3
1986	9	7	2200	21.57	52.69	0.4
1986	9	8	0200	21.67	53.45	0.6
1986	9	8	0600	23.86	52.90	3.4
1986	9	8	1000	27.80	57.11	0.5
1986	9	8	1400	29.45	57.74	3.7
1986	9	8	1800	30.71	59.31	1.2
1986	9	8	2200	31.18	63.22	0.7
1986	9	9	0200	32.56	62.15	3.3
1986	9	9	0600	36.42	62.79	3.5
1986	9	9	1000	34.12	62.40	2.1
1986	9	9	1400	34.78	62.87	2.2
1986	9	9	1800	26.60	53.80	3.3
1986	9	9	2200	26.39	58.45	110.3
1986	9	10	0200	22.52	54.77	0.3
1986	9	10	0600	27.81	59.82	6.2
1986	9	10	1000	43.14	77.01	6.7
1986	9	10	1400	34.24	72.75	5.9
1986	9	10	1800	19.99	53.94	0.9
1986	9	10	2200	40.13	71.47	1.3
1986	9	11	0200	29.16	67.53	5.9
1986	9	11	0600	0.00	52.92	5.1
1986	9	11	1000	17.31	69.67	28.7
1986	9	11	1400	12.92	60.18	6.4
1986	9	11	1800	12.31	54.83	1.1
1986	9	11	2200	20.45	65.26	1.5

1986	9	12	0200	20.34	68.13	2.3
1986	9	12	0600	0.00	71.80	5.8
1986	9	12	1000	22.19	76.44	6.2
1986	9	12	1400	20.67	68.83	5.9
1986	9	12	1800	18.54	79.31	5.4
1986	9	12	2200	0.00	77.88	3.4
1986	9	13	0200	23.58	69.86	5.7
1986	9	13	0600	27.42	72.46	6.1
1986	9	13	1000	27.27	70.32	6.7
1986	9	13	1400	37.38	74.19	7.5
1986	9	13	1800	11.55	73.12	2.5
1986	9	13	2200	15.57	63.33	175.7
1986	9	14	0200	15.59	60.15	187.0
1986	9	14	0600	22.02	62.90	5.4
1986	9	14	1000	17.51	55.44	2.0
1986	9	14	1400	26.13	57.83	13.7
1986	9	14	1800	30.86	56.76	708.4
1986	9	14	2200	19.78	55.00	440.5
1986	9	15	0200	16.83	53.61	234.4
1986	9	15	0600	18.44	53.49	253.8
1986	9	15	1000	14.45	53.13	325.9
1986	9	15	1400	18.07	53.03	338.0
1986	9	15	1800	21.90	53.92	295.3
1986	9	15	2200	20.49	53.16	263.8
1986	9	16	0200	20.51	52.76	213.5
1986	9	16	0600	23.38	53.33	218.9
1986	9	16	1000	25.90	53.15	261.4
1986	9	16	1400	23.51	52.04	262.9
1986	9	16	1800	23.56	53.35	263.8
1986	9	16	2200	24.79	53.78	237.6
1986	9	17	0200	26.41	53.36	299.9
1986	9	17	0600	13.85	54.88	457.5
1986	9	17	1000	24.95	54.70	232.8
1986	9	17	1400	24.95	52.51	380.0
1986	9	17	1800	25.25	53.21	192.0
1986	9	17	2200	25.81	53.55	6.4
1986	9	18	0200	21.27	52.22	4.2
1986	9	18	0600	24.57	53.57	6.9
1986	9	18	1000	27.61	55.83	4.1
1986	9	18	1400	25.21	53.34	5.0
1986	9	18	1800	32.78	59.24	4.1
1986	9	18	2200	33.73	60.34	4.1
1986	9	19	0200	30.79	58.29	4.0
1986	9	19	0600	22.00	57.83	3.6
1986	9	19	1000	27.85	57.25	16.3
1986	9	19	1400	24.92	53.67	56.5
1986	9	19	1800	26.85	54.46	9.7
1986	9	19	2200	25.56	53.24	157.2
1986	9	20	0200	33.44	59.95	4.5
1986	9	20	0600	51.37	67.72	4.4
1986	9	20	1000	45.82	69.58	4.3
1986	9	20	1400	45.85	71.08	4.6
1986	9	20	1800	41.49	67.14	4.1
1986	9	20	2200	41.57	68.28	4.1
1986	9	21	0200	39.87	66.70	4.7
1986	9	21	0600	27.62	53.82	4.1
1986	9	21	1000	66.82	94.74	32.8
1986	9	21	1400	52.49	79.13	719.7
1986	9	21	1800	63.39	110.62	9.3
1986	9	21	2200	73.08	117.61	10.8
1986	9	22	0200	24.34	59.33	1333.3
1986	9	22	0600	36.15	70.70	6.2
1986	9	22	1000	26.94	59.12	52.5
1986	9	22	1400	26.72	58.62	42.2
1986	9	22	1800	57.11	84.86	223.3
1986	9	22	2200	30.78	59.72	76.4
1986	9	23	0200	44.12	71.68	7.1
1986	9	23	0600	31.35	58.05	464.9
1986	9	23	1000	93.21	0.00	17.5
1986	9	23	1400	43.93	0.00	212.5
1986	9	23	1800	40.80	69.12	7.7
1986	9	23	2200	54.62	80.02	150.2
1986	9	24	0200	32.17	58.55	379.0
1986	9	24	0600	29.68	56.98	296.7
1986	9	24	1000	31.65	59.14	79.6
1986	9	24	1400	45.33	72.40	6.1