

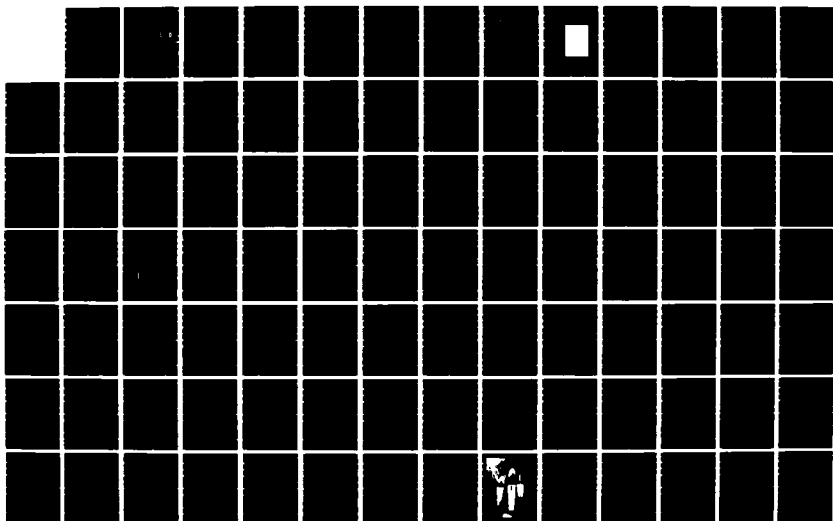
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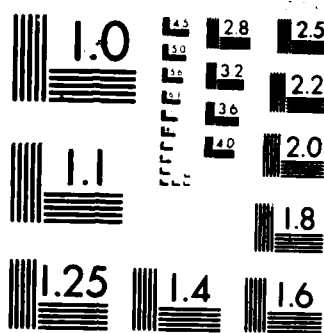
FASINEX (FRONTAL AIR-SEA INTERACTION EXPERIMENT)
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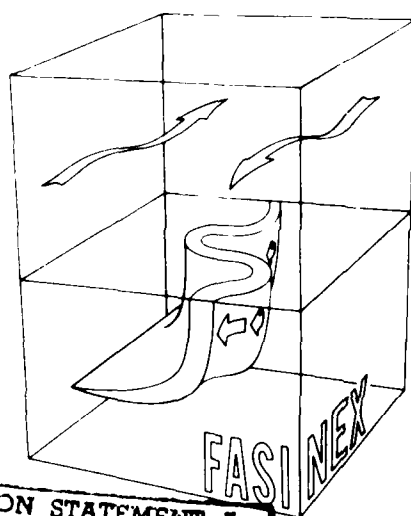




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FASINEX

(Frontal Air-Sea Interaction Experiment)



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Summaries for FASINEX Mooring Cruises

Phase One: R/V Knorr 119

Phase Three: R/V Knorr 123

Nancy J. Pennington
Robert A. Weller

October 1986

FASINEX Technical Report #13

WHOI-86-35

F A S I N E X
Frontal Air-Sea Interaction Experiment
(January - June 1986)

Summaries for FASINEX Mooring Cruises

Phase One: R/V KNORR Cruise 119

Phase Three: R/V KNORR Cruise 123

by

Nancy J. Pennington
Robert A. Weller

Woods Hole Oceanographic Institution
Woods Hole, Massachusetts 02543

October 1986

FASINEX Technical Report #13

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Approved for Distribution:

Robert C. Beardsley

Robert C. Beardsley, Chairman
Department of Physical Oceanography

Abstract

The Frontal Air-Sea Interaction Experiment (FASINEX) was a study of the response of the upper ocean to atmospheric forcing in the vicinity of an oceanic front in the subtropical convergence zone southwest of Bermuda, the response of the lower atmosphere in that vicinity to the oceanic front, and the associated two-way interaction between ocean and atmosphere. FASINEX began in the winter (January 1986), concluded in the early summer (June 1986) and included an intensive period in February and March. The experiment took place in the vicinity of 27°N, 70°W where sea-surface-temperature fronts are climatologically common.

Measurements were made from buoys, ships, aircraft, and spacecraft. This report summarizes the mooring deployment and recovery cruises. FASINEX Phase One, the deployment cruise, located a frontal feature, mapped it and set an array of surface and Profiling Current Meters moorings across the front. Phase Three, the recovery cruise returned to the FASINEX area to retrieve the instrumentation that had been on station for six months. Additional measurements were made in the frontal region during these cruises. The activities carried out and the underway data collected on these two cruises, details of the moored array and a preliminary statement of the data return from the array, and the data telemetered from the moored array via ARGOS are summarized in this report.



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I. Introduction

The Frontal Air-Sea Interaction Experiment (FASINEX) (see Stage and Weller, Bulletin of the American Met. Soc, Vol 66, No. 12, 1985 and Vol 67, No. 1, 1986 for further detail on the background, scientific objectives, and experimental plan of FASINEX) was planned to investigate local air-sea interaction processes at an oceanic front. North of about 25°N in the mid-Atlantic Ocean the prevailing westerly winds tend to carry the surface water to the south. South of about 25°N the trade winds carry surface water to the north. In the region southwest of Bermuda the cooler water from the north meets the warmer water from the south, and a series of oceanic fronts are formed. The fronts are marked at the surface by abrupt changes in sea surface temperature. The surface temperature may change by as much as 3°C in less than a kilometer. Associated with these fronts are surface currents with speeds of approximately 1.5 knots.

The FASINEX field experiment began on January 7, 1986 when R/V KNORR sailed on cruise 119. This was designated FASINEX Phase One, the mooring deployment cruise. Once a sea surface temperature front was located with satellite imagery and an extensive XBT survey, mooring instrumentation was set, and began recording and telemetering data. Meteorological and oceanographic logs were maintained. Phase Two immediately followed the one month deployment cruise. R/V OCEANUS and R/V ENDEAVOR returned to the FASINEX area to make oceanographic and meteorological measurements for approximately another month. During this time period, six aircraft including the NRL P3, NASA C-130, NCAR Electra, NASA P3, NOAA P3, and NASA Electra completed 41 flights measuring atmospheric and oceanic conditions. Phase Three, the mooring recovery cruise, KNORR 123, returned to the FASINEX area in early June 1986. The instrumentation that recorded data on station for the six month period was retrieved. Additional meteorological and oceanographic logs were again maintained. The field program ended on June 25 when the ship returned to Woods Hole. The two mooring cruises are summarized in this report. A summary of Phase Two is WHOI Report #86-36 (FASINEX Document #14). Figure 1 shows an artist's concept of the mooring array bracketing a frontal region and the joint work of the ships and aircraft during the one month of intensive scientific measurements.

The overall goals of the ship and aircraft scientists during FASINEX were:

1. To describe the horizontal and vertical structures of the oceanic and atmospheric boundary layers in the region in and around an oceanic front.
2. To investigate the relation between structures found on each side of the air-sea interface.
3. To study the physical processes associated with air-sea interaction in the vicinity of an oceanic front.

Phases One and Three involved the setting of the instrumentation which would obtain a long running view of the front from a small number of fixed locations. These instruments would observe a variety of environments (in the front, out of the front; under various meteorological conditions) as well as during the transition from winter, when SST jumps are large, to summer, when the SST signal associated with the front fades.

The specific goals of KNORR 119 were to first find a frontal feature in the target area ($25-30^{\circ}\text{N}$ $68-72^{\circ}\text{W}$), then set an array of nine moorings across the front and survey the area around the moorings. Meteorological data were gathered during the cruise, for comparison with oceanic front crossing data. During the first two days of transit, the frontal feature was identified by the ongoing AVHRR (Advanced Very High Resolution Radiometer) surveillance conducted by Peter Cornillon, Univ. of Rhode Island. The location of the front was confirmed by an XBT survey in the area before the moorings were set. The central array consisted of nine moorings, five surface moorings with 3 m diameter meteorologically instrumented discus buoys (designated F2, F4, F6, F8 and F10) and four near-surface Profiling Current Meter (PCM) moorings (designated F3, F5, F7 and F9). Two long term subsurface moorings (designated F1 and F12) set by Ken Brink, WHOI, in October 1984 completed the FASINEX mooring array. These two moorings were located 80 km north and 160 km south of the central array. After the moorings were set, task three, which consisted of a Vertical Current Meter (VCM) tracking experiment, was conducted in conjunction with a series of Real Time Profiler (RTP) and CTD profiles along lines perpendicular to the front in the vicinity of and north of the array, before returning to Bermuda to meet OCEANUS and ENDEAVOR for Phase 2 of the field program.

KNORR 123 was the final cruise of the FASINEX field program. The goals of this cruise were to recover all the FASINEX moorings and briefly survey the area to identify any frontal features still visible in temperature and/or salinity measurements. Once again, shipboard meteorological data was gathered for comparison with the oceanic conditions. The cruise was successful in locating and recovering one of the surface buoys that broke free and traveled approximately 215 n.m. in 27 days. All four other surface buoys were recovered on station. Three of the four PCM moorings and the two Brink moorings were recovered. The final PCM (F9) did not respond to interrogation of the acoustic release. A depth recorder survey looking for the 20m float showed nothing. Besides being a heavy traffic shipping area, long line fishing is prevalent. The final conclusion was that F9 might have been dragged from its anchor position by a long liner. The survey work consisted of several XBT lines run during the cruise, CTD stations taken by the PCM moorings, Brink moorings and in the central array area and a short dual VCM experiment.

This data report reviews the work done during both KNORR 119 and KNORR 123 including the deployment of the moorings and the preliminary survey work; the recovery of the moorings and final survey; summaries of the data that were telemetered from the moorings and utilized during the months while ashore; and presents preliminary analyses of the various data sets. One purpose of this report is also to describe and characterize the oceanic front that was initially chosen as the site of the moored array. This document summarizes all the data available from Phases One and Three.

The FASINEX area was designated to be a four by five degree box southwest of Bermuda. The coordinates are 25° to 30° North and 72° to 68° West. Two charts are used in this data report. FASINEX Total Area (Figure 2) includes the East Coast and Bermuda to identify the area of the western Atlantic. Area 1 (Figure 3) is an expanded scale of one section of the Total Area chosen to include all the oceanographic and meteorological sampling done by the ships involved in all three phases of FASINEX. A small solid square identifies the central mooring array location, at approximately 27°N , 70°W .

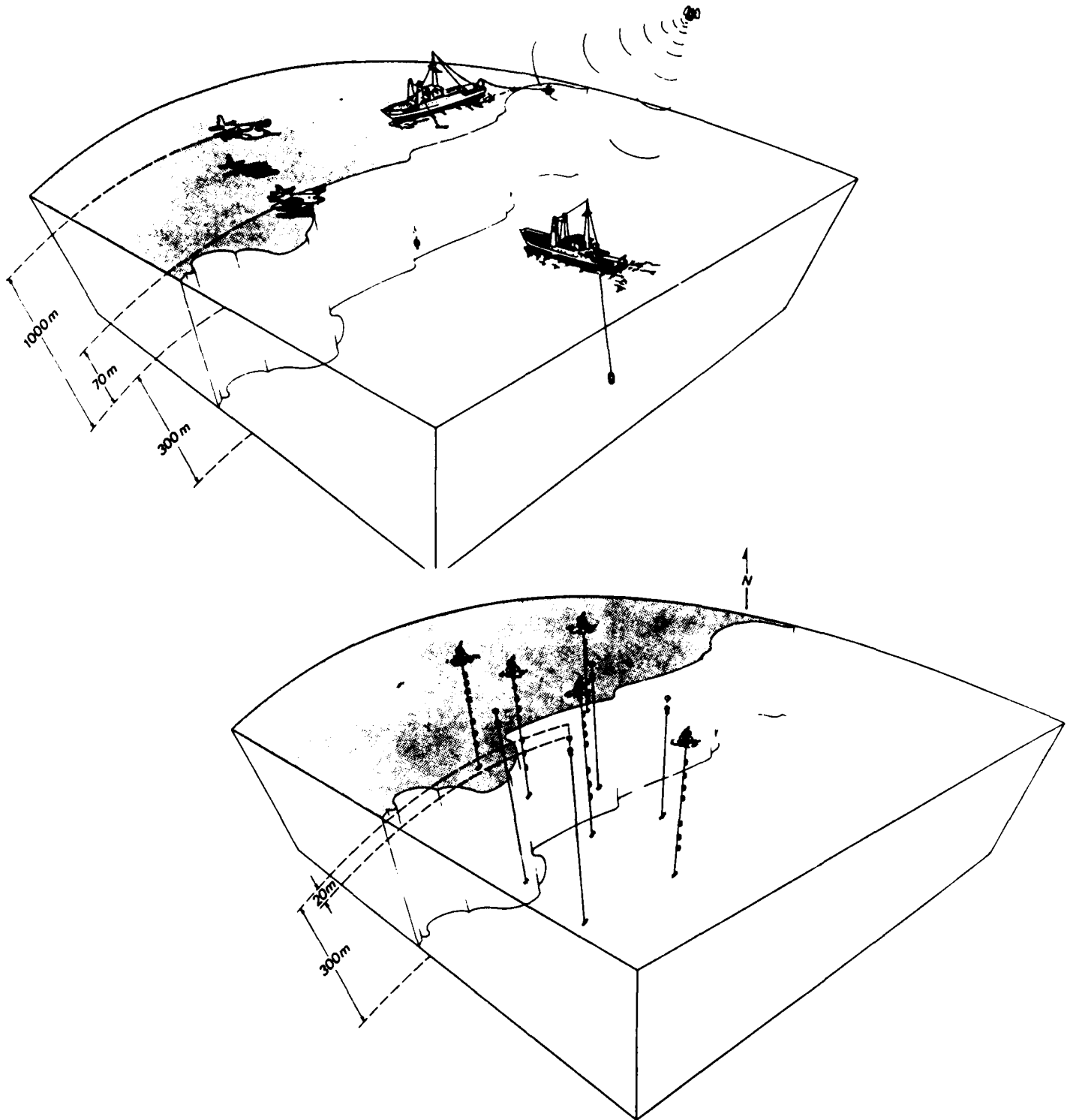


Figure 1. Artist's conception of frontal region during Phase One, the mooring work (lower), and Phase Two, the intensive scientific measurement period (upper).

FASINEX Total Area

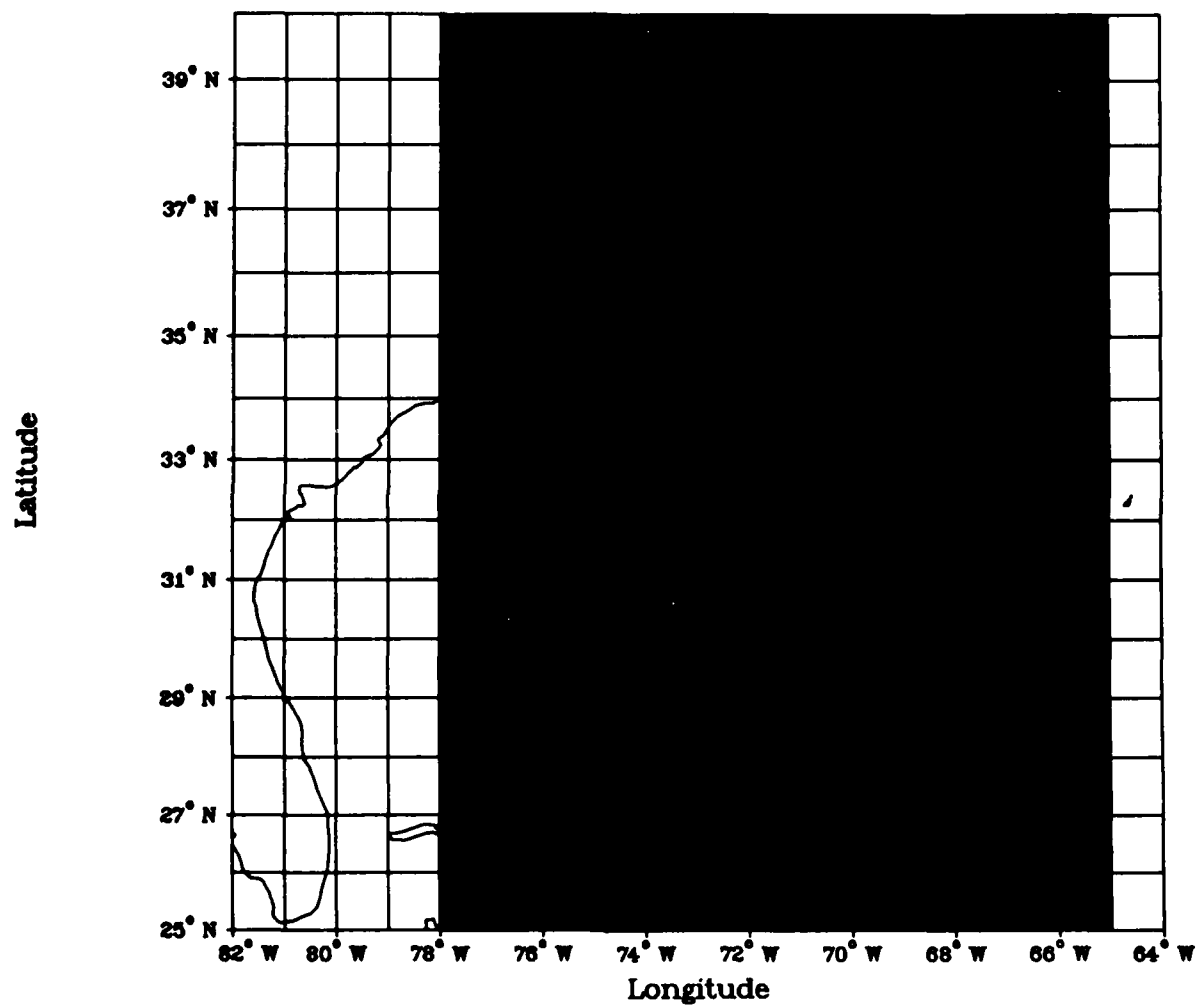


Figure 2

FASINEX Expanded Scale Area 1

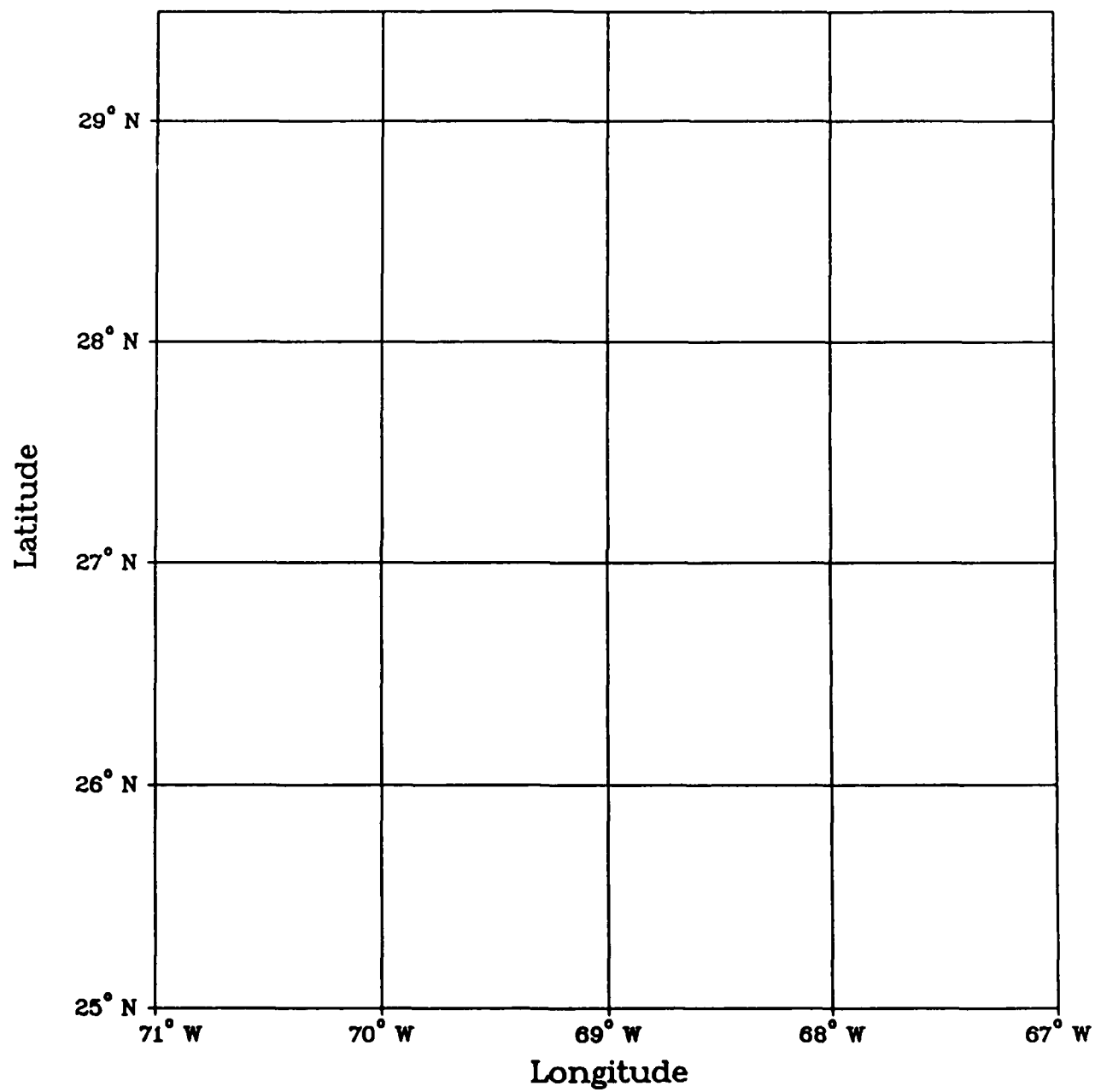


Figure 3

IIa. Cruise Narrative - KNORR 119

1. Summary - Mooring Deployment Cruise

The KNORR sailed on January 7, 1986 at 1600 UTC (all times are given in UTC throughout this report) from Woods Hole to begin the FASINEX field program. The mooring deployment cruise was designated Phase One. The ship carried all the gear required to set five (5) surface moorings and four (4) PCM moorings. Additional mooring gear was onboard to set a test mooring at Site D (east of New Jersey) at $39^{\circ}24.14N$ $70^{\circ}31.59W$. Other scientific equipment aboard were a Real Time Profiler (RTP), Vertical Current Meters (VCM) and a Neil Brown internally recording CTD. On board to process the AVHRR (satellite imagery) data transmitted from University of Rhode Island via the Applied Technology Satellite (ATS) system, was a NEARSS (Northeastern Area Remote Sensing System) computer system. One IBM AT was used to process and log the LORAN C position data received from an Internav 408 and another AT logged meteorological data from sensors located on a bow mast. Apple IIe computers were used to log underway towed fish and Precision Radiometric Thermistor (PRT) data, to process Serial ASCII Interface Loop (SAIL) underway data and to interact with the ATS system for use in communicating with other FASINEX participants with telemail for Phase Two planning purposes. A HP85 was aboard to process XBT and CTD data.

The KNORR arrived at the test mooring site at 0800 January 8. An acoustic release was tested and the mooring was set in a snow squall. The mooring work was completed at 1500, at which time the KNORR continued underway heading toward $27^{\circ}N$ $70^{\circ}W$. At 1700 when the ship reached $70^{\circ}W$ and headed south, XBT's were taken every hour. Oceanographic data were logged every 15 minutes. This underway log included time, LORAN C latitude and longitude, bucket sea surface temperature (SST), SAIL SST, PRT SST, and a towed fish sensor SST, XBT surface temperature, XBT 40m temperature and depth of the XBT 20° isotherm. Meteorological data were recorded every hour in addition to the 1 minute logging of the meteorological sensors mounted on the mast on the bow to the IBM AT. The hourly meteorological log included wet and dry bulb, wind speed and direction, barometric pressure, wave height and direction, and cloud cover and type. Also during this day Peter Cornillon received the first AVHRR satellite image showing a strong frontal feature at $26^{\circ}50'N$ $70^{\circ}W$.

Beginning at $29^{\circ}N$, still heading south down $70^{\circ}W$, XBTs were taken every half hour. After 2200 XBTs were taken every 15 minutes to locate the northeast to southwest frontal feature seen in the AVHRR images. After crossing the front and continuing south to almost $25^{\circ}N$, a radiator pattern consisting of 450 15 minute XBTs confirmed the location of the front. This survey took 82 hours during which time the front was crossed 6 times along a 100 n.m. line running southwest to northeast. AVHRR images continued to be received during this time period reconfirming the position of the front.

The first surface mooring was set on January 15. This was planned as the northernmost outlying mooring, designated F2. This was set on the cold side of the front. During the deployment the ship was set to the southwest at about 1.5 kts. The weather was pleasant while setting the mooring, but a line of clouds appeared to be directly over the front to the southeast. Mooring F4 was set on

January 16. It was positioned at the front, approximately 7 n.m. slightly southeast of F2. This position would have been under a GEOSAT overpass on February 12, 1986. A meteorological comparison between the buoys and the ship sensors was conducted through the night of the 16th. On January 17, the first PCM mooring (F3) was set. RTP profiles were completed. AVHRR showed that the front persisted and continued off to the northeast along a straight line from the array toward Bermuda. Variability of the frontal location on scales of days or less was noted. Large vertical shears were measured near the front. Again, the ship was set during the F3 mooring deployment by a change in surface current observed when crossing surface temperature jumps. The second PCM mooring (F5) was set on January 18. Both PCM moorings were set on the warm side of the front, F3 ten miles to the east of F4 and F5 ten miles south of F4. RTP profiling in the area showed surface water on the warm side moving ENE at $50-70 \text{ cm s}^{-1}$ relative to the water below the seasonal thermocline. CTD stations were taken at both of the PCM moorings before departing for Bermuda to allow for repositioning of mooring equipment on the deck of the KNORR. Outside the mooring array, an XBT survey was carried on from $27^{\circ}10'N$ $69^{\circ}30'W$ towards Bermuda.

The KNORR tied up in St. Georges, Bermuda at 1300 on January 21. While in port the three remaining surface buoys and mooring hardware were repositioned on deck. Charlie Eriksen finalized plans with the Bermuda Biological Station and Naval Air Station for the upcoming Phase 2, the intensive aircraft and shipboard measurement phase of FASINEX. A meeting was held on board the KNORR with Cmdr. Frank Bub, the Air Station Meteorological Officer who supplied the weather forecasts for Phase 2 for the ships and aircraft. Bill Cross, the ONR program manager, attended the meeting and was informed of the work completed on Leg 1 and the plans for Leg 2.

Leg 2 of KNORR 119 left Bermuda enroute to the FASINEX area on January 23 at 1500. The underway meteorological and oceanographic watch began at 1200 on January 24. Acoustic releases for the five remaining moorings were tested outside the central array area on January 25. AVHRR images from January 21-23 showed that a large linear front extending from the the northeast to the southwest still existed but had moved northwest of the original position. A decision was made to continue with the array design in the area around $27^{\circ}N$ $70^{\circ}W$.

Four of the remaining five moorings were set, one a day for the next four days, F6-Surface (Jan 26), F8-Surface (Jan 27), F7-PCM (Jan 28), and F9-PCM (Jan 29). During these nights, CTD stations by F7, F3 and F9 were completed. A meteorological sensor comparison was done by surface moorings F6 and F8. An 11 hour RTP was taken while drifting through a frontal feature. A GPS survey was completed to pinpoint anchor positions. With eight moorings inside a box bounded by $26^{\circ}50'$ to $27^{\circ}20'N$ and $70^{\circ}10'$ to $69^{\circ}50'W$, the telemetered sea temperature over the 30 mile spread showed a difference of $1.5^{\circ}C$. A survey to relocate the front and help decide the position of the final surface mooring began on January 30 and continued through 0400 February 1. On January 31, a sharp front was crossed, marked by large rafts of Sargassum and a temperature jump of $2^{\circ}C$ from 23.8° to 21.8° .

Vertical Current Meter work was started on the January 26. A VCM was deployed and tracked until contact was lost abruptly. A search pattern was run for six hours until it was considered lost. On January 30-31, two VCMs were deployed for tests, while the frontal survey continued.

The final surface mooring F10 was set on February 1 positioned as north as the northernmost mooring F2 and as east as the southernmost mooring F8 to form a right triangle. This location provided a greater variety of spatial lags and more of a view of along-front variability than positioning F10 as a southern outlier as originally planned (that is until it broke free about May 14). Following the deployment a meteorological sensor comparison was begun.

For the remaining five days, RTP, VCM and CTD survey work was done. Two VCMs were deployed to 150m and 175m on February 2. They were tracked until February 5. On February 5, with low winds the front contained sargassum and captured computer cards thrown over as surface drifters. A CTD survey (stations to 1000m) was completed running from the northeast to the southwest perpendicular to the existing front in the area. At the middle of the section, at the front, a RTP profile was taken. The ship returned to locate the VCMs and then 6 more RTPs were taken in and around the front. The final task was a CTD survey that ran south to north, during which time the VCMs were picked up. At 0400 on January 6, the KNORR headed to Bermuda. A ship report was received that a drifting red circular buoy was spotted at $26^{\circ}02.0N$ $67^{\circ}48.5W$. Contact with ARGOS was established which verified that it was not one of the FASINEX surface buoys. The KNORR tied up in St. Georges, Bermuda at 1748 on February 7.

2. Ship Schedule Overview and Science Party

Leg 1

January 7, 1986	Depart Woods Hole
January 10-15	Survey site
January 15-18	Set moorings
January 19	Depart for Bermuda
January 21-22	Bermuda

Leg 2

January 23	Depart Bermuda
January 25	Survey site
January 26-Feb 1	Set remaining moorings
February 2-5	VCM tracking; RTP, CTD profiles
February 6	Depart for Bermuda
February 7-10	Bermuda
February 10	Depart for Woods Hole
February 13	Arrive Woods Hole

1. Weller, Robert, Co-chief Scientist, WHOI
2. Eriksen, Charles, Co-chief Scientist, MIT
3. Trask, Richard, Buoy Group, Research Associate, WHOI
4. Dean, Jerome, Research Specialist, WHOI
5. Pennington, Nancy, Sr. Research Assistant, WHOI
6. Light, Christina, Research Assistant, WHOI
7. Payne, Richard, Research Associate, WHOI
8. Pomer, John, Research Assistant, WHOI
9. Marquette, Craig, Buoy Group, Research Assistant, WHOI
10. Simoneau, R. David, Buoy Group, Sr. Research Assistant, WHOI
11. Ostrom, William, Buoy Group, Research Assistant, WHOI
12. WorriLOW, Scott, Buoy Group, Research Assistant, WHOI
13. Poirier, Joseph, Buoy Group, Sr. Research Assistant, WHOI
14. Reese, John, Buoy Group, Research Assistant, WHOI
15. Littlefield, Brian, Buoy Group, Research Assistant, WHOI
16. Bouchard, Paul, Buoy Group, Research Assistant, WHOI
17. Reid, Robert, Draper Lab, MIT
18. Donnelly, Peter, Draper Lab, MIT
19. Cornillon, Peter, Satellite imagery, URI

Leg 1

20. Fucile, Paul, WHOI

Leg 2

20. Trizna, Dennis, NRL

21. Olsen, Egil, OCEANOR

WHOI	Woods Hole Oceanographic Institution
MIT	Massachusetts Institute of Technology
URI	University of Rhode Island
NRL	Naval Research Laboratory
OCEANOR	Oceanographic Company of Norway

3. Chronological Log for KNORR 119

Jan 7 Depart Woods Hole for FASINEX area

8 Deploy VMCM Test Mooring #833 (39.5N 70.5W)/ continue to FASINEX area

Begin underway oceanographic and meteorological watches

9

10 Begin 15 minute XBT pattern to locate front

11

12

13

14 Acoustic Release Tests
RTP #1

15 Deploy F2
VCM Tests
Met. Comparison at F2

16 RTP #2
Deploy F4
Met. Comparison at F4

17 Deploy F3
RTP #3-#4
CTD #1

18 Deploy F5
RTP #5-#6
CTD #2-#3

19 RTP #7
Head to Bermuda

20

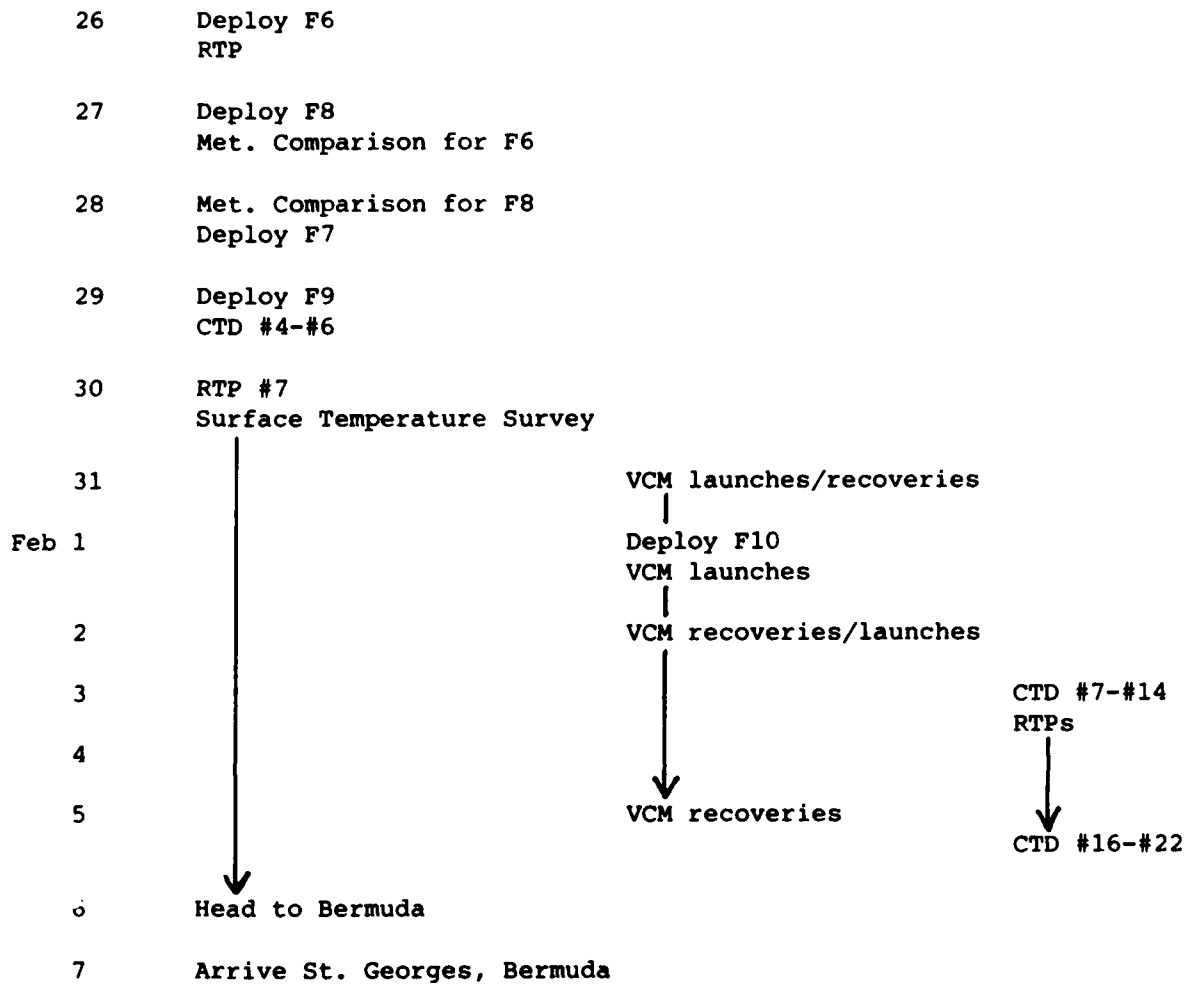
21 St. Georges, Bermuda
Reposition mooring gear on fantail

22

23 Depart St. Georges for FASINEX area

24

25 Acoustic Release Tests
VCM Deployment



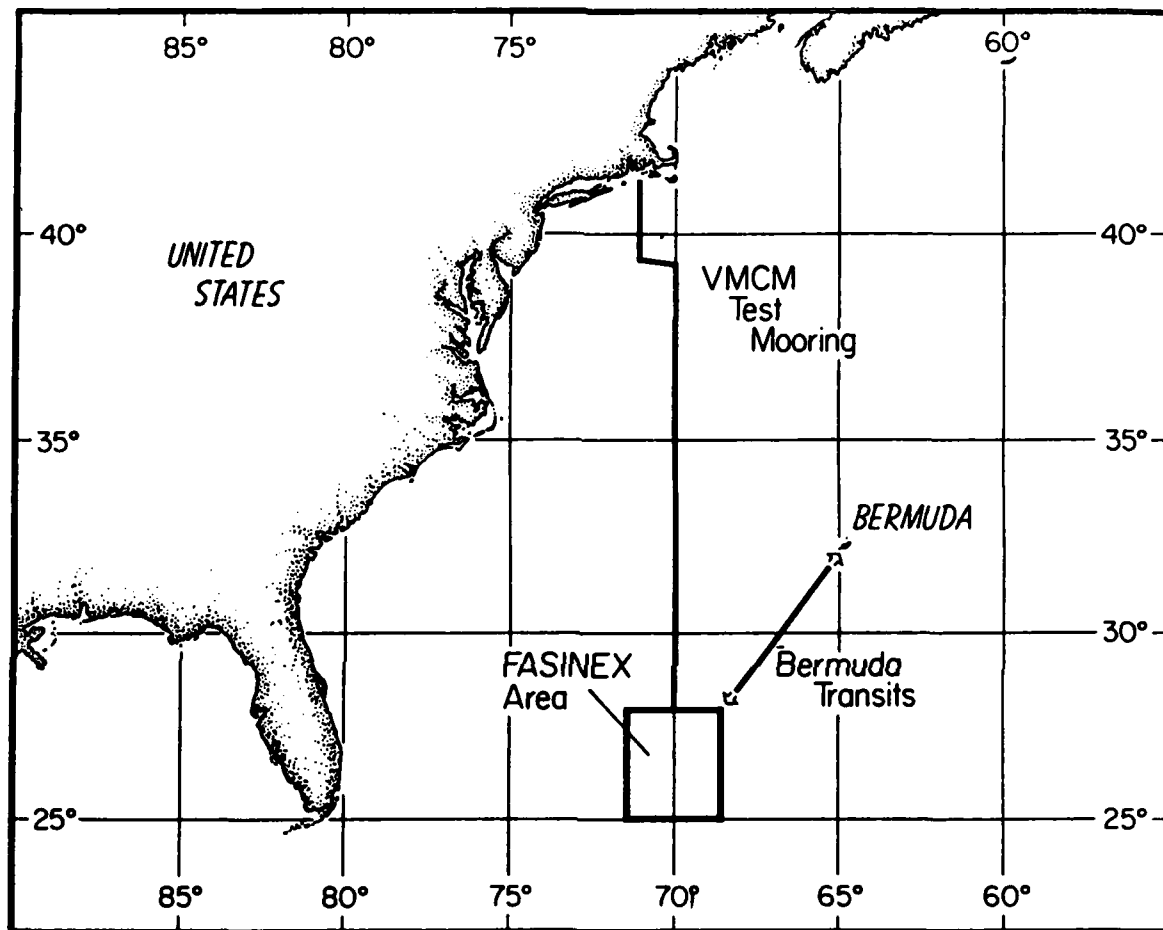
Knorr 119 Cruise Track

Figure II-1

IIb. Cruise Narrative - KNORR 123

1. Summary - Mooring Recovery Cruise

The KNORR sailed at 1500 UTC on June 5, 1986 to begin FASINEX Phase Three, the final cruise of the field program. The first task was to locate and recover one of the surface buoys that had broken free around May 14. All the buoys had ARGOS telemetering systems on board to transmit not only position but meteorological parameters. The positions and sea surface temperature were closely monitored during the six month mooring duration. With this system, the buoy was tracked from the day it moved off station until June 10 when it was recovered. The position of the buoy at the departure time of the KNORR was approximately 25°N 73°W, which was slightly more than 4 days transit time from Woods Hole. Every day the buoy's position was updated so the ship continued to head directly for the buoy.

A science meeting was held the first day to discuss the purpose and activities of the cruise. Scientific equipment on board were the RTP, VCMs and a CTD. One IBM AT was used to process and log the LORAN C position data received from an Internav 408 and the other logged meteorological data from sensors mounted on a bow mast. Apple IIe computers were used to log underway towed fish data, to process SAIL data and to interface with the ATS system. An HP 85 was on board to process XBT and CTD data. An underway meteorological and oceanographic watch was started on June 6 at 2200. The hourly meteorological log contained time, LORAN C latitude and longitude, wind speed and direction, sea temperature, barometric pressure, cloud cover and type, wave height, wave direction and swell height. The 15 minute oceanographic log contained time, LORAN C latitude and longitude and three measurements of sea temperature. On June 6, a survey began with XBTs being taken every 2 hours.

On June 10, 0000 the drifting buoy was located. The onboard ARGOS receiver picked up a transmission at 14 miles and the light was seen at 9 miles. A check was made to see if the acoustic release was attached, there was no response. If the release was attached, it would have meant the whole mooring was connected under the buoy. The buoy was hooked and brought aboard at 0545. The majority of the mooring instrumentation, consisting of the 8 current meters (6 VCMs and 2 VACMs) and all the wire rope, was recovered. The bitter end of the mooring showed that the 13/16" nylon had rubbed the cotter pin on the shackle at the bottom of the last shot of wire rope. During the four months the mooring remained on station, the nylon was slowly worn through.

The ship then began heading east to the next mooring site, but a medical emergency sent the ship to Nassau drop off the radio operator and pick up a replacement. The travel time required was approximately 70 hours.

The ship arrived on site to pick up the southern Brink subsurface mooring at 1315 on June 12. The mooring was successfully recovered. A 5000m CTD station was taken at that location.

The ship headed north back to the central array to begin the mooring recoveries. F2's release would not respond. The decision was made after firing it to haul the mooring, figuring the Pengo rehaul winch was capable of handling the tension of recovery of a still anchored mooring. All the instrumentation to at least 700m could have been recovered before the tension became too great. Once the recovery began, the backup recovery system was sighted on the surface. The whole mooring was successfully recovered. The ship moved to F9 for a shallow CTD station. The interrogation of the acoustic release resulted in no response. The release was fired. The ship stayed on station for three hours watching for the mooring. It was not sighted. The ship then moved to F6 and successfully recovered that surface mooring. A meteorological comparison was conducted at 2300 at F8 for three hours. The ship moved back to F4 and another meteorological comparison was conducted. On June 15, F8 was recovered in the morning and F4 recovered later that day.

With all the surface moorings aboard, the recovery of the PCM moorings began. Two shallow CTD stations were taken near F3. The acoustic release could not be heard to confirm release. The release was fired and floats were sighted and the mooring was recovered on June 16. Two CTD stations were then taken by F5. The acoustic release was interrogated and again the release did not respond. The release was fired. The surface floats were sighted and recovery began. The recovery was complicated because the guideline was wuzzled with the lower syntactic foam float and the wire rope beneath the lower float. As the winch continued to pull the mooring line in, the weight of the PCM snapped the guideline. The PCM dropped back into the water and disappeared. A watch began immediately to locate the PCM when it came to the surface. Approximately 40 minutes later Larry Costello, the KNORR Day Man spotted the blue float just below the surface 1000m from the ship. The Bosun, Jerry Cotter, launched a zodiac to retrieve the instrument. (The instrument is negatively buoyant during 3 hours of its 4 hour cycle. At a specific time, it changes its buoyancy to profile. The fear was it would go into its descend cycle while totally free of the guideline.) Within 19 minutes of the sighting, the zodiac was moved from an upper deck, prepped, and deployed with Scott Worrilow, Buoy Group and Roger Hunt, KNORR A.B., and, even with outboard motor troubles, reached the PCM, which was grabbed and secured and returned to the KNORR to be swung aboard in a cargo net. The rest of the mooring was then recovered. After that excitement, the easy task of recovering the backup recovery system of F10 was scheduled. The remainder of that mooring, including all the nylon, backup floatation system and acoustic release was recovered, verifying the fact that the nylon had been chafed by shackle cotter pin.

The final task that remained in the central array was to attempt to locate and recover F9. A Depth Recorder survey was carried on throughout the night with the hopes of seeing the 20m float on the Raytheon strip chart. Nothing was sighted. A decision was made to made to pick up Brink's northern mooring. On June 18, the subsurface mooring was recovered. It was fouled with long lines, which damaged two of the current meters. A deep 5000m CTD station was completed in the area.

Upon arrival back in the central array area, a deep CTD station was taken. A dual VCM experiment was begun. Alternating with tracking the floats, a spatial pattern of acoustic interrogations was made to listen for F9, in case it had moved from its original anchor position. A brief RTP and CTD intercomparison

was done to 200m on June 19. The two VCMs were recovered on June 20, completing a data set of approximately 30 hours.

Two drags for F9 were completed on June 21. All hands stood watch for the PCM or the floats in case the mooring line was cut by the trawl wire and the mooring surfaced. After two attempts there was nothing sighted and no noticeable increase in tension had been recorded on the trawl wire during the drags suggesting that nothing had been grabbed or encountered. At 1716, KNORR headed to Woods Hole. The ship arrived at 0851 on June 25 completing the final phase of FASINEX.

2. Ship Schedule Overview and Science Party

June 5, 1986	Depart Woods Hole
June 10	Start Mooring recoveries
June 21	Begin Transit to Woods Hole
June 25	Arrive Woods Hole

1. Weller, Robert, Chief Scientist, WHOI
2. Trask, Richard, Buoy Group, Research Associate, WHOI
3. Dean, Jerome, Research Specialist, WHOI
4. Pennington, Nancy, Sr. Research Assistant, WHOI
5. Light, Christina, Research Assistant, WHOI
6. Payne, Richard, Research Associate, WHOI
7. Ostrom, William, Buoy Group, Research Assistant, WHOI
8. Worrilow, Scott, Buoy Group, Research Assistant, WHOI
9. Poirier, Joseph, Buoy Group, Sr. Research Assistant, WHOI
10. Bouchard, Paul, Buoy Group, Research Assistant, WHOI
11. Marquette, Craig, Buoy Group, Research Assistant, WHOI
12. Reid, Robert, Draper Labs, MIT
13. Donnelly, Peter, Draper Labs, MIT
14. Schudlich, Rebecca, Joint Program Student, WHOI
15. Pierce, Stephen, Joint Program Student, WHOI
16. Gnanadesikan, Anand, Summer Student, WHOI
17. Howell, James, Summer Student, WHOI

WHOI	Woods Hole Oceanographic Institution
MIT	Massachusetts Institute of Technology

3. Chronological Log for KNORR 123

Jun 5 Depart Woods Hole heading toward drifting buoy D

6

7

8

9

10 Located and retrieved Buoy D
Medical emergency heading to Nassau

11 Nassau/ heading back to FASINEX area

12

13 Recover Mooring 830
CTD #1 to 5000m

14 Recover F2 (845)
Search for F9 (PCM)
Recover F6 (847)
Met. Comparison at F8

15 Met. Comparison at F4
Recover F8
Recover F4

16 CTD #4
CTD #5
Recover F3
CTD #6
CTD #7
Recover F5

17 CTD #8
CTD #9
Recover F7
Recover F10 backup recovery system
Start survey for F9

18 End F9 survey
Head to northern Brink Mooring
Recover Mooring 829
CTD #10 5000m

19 CTD #11 FASINEX Central Array Area 5000m
VCM #2 and #4 launched
Search for F9
CTD and RTP intercomparison
Tracking VCMs and watch for F9

↓
20 Recover VCMs 2200

21 Two drags for F9
Transit to Woods Hole

↓
22
23
24
↓
25 Arrive Woods Hole

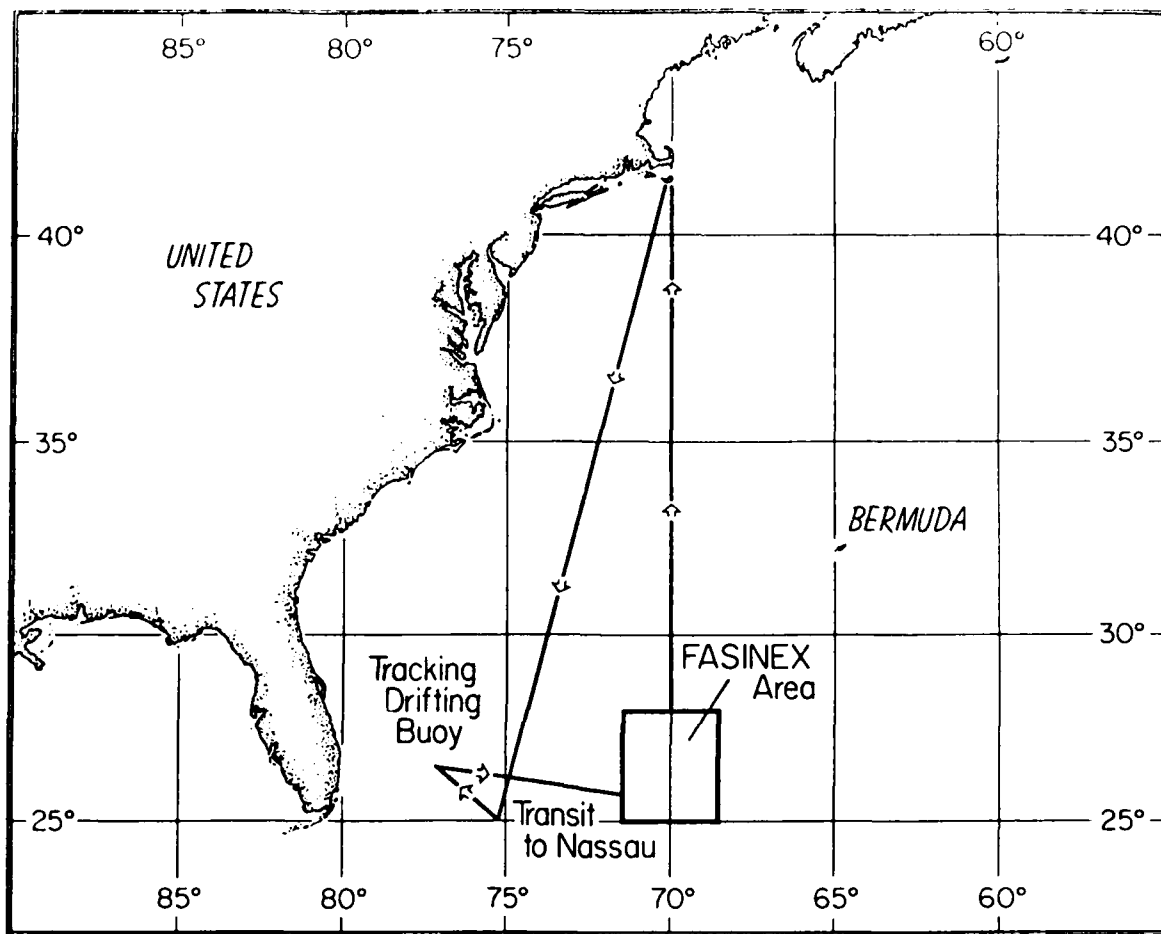
Knorr 123 Cruise Track

Figure II-2

III. FASINEX Moored Array

The 6-month array was composed of surface moorings and PCM moorings. The longer duration moorings set by Brink in October 1984 were subsurface moorings.

The oceanic front is a three-dimensional feature with temporal as well as spatial variability. In contrast to the aircraft and ship operations, which provided high resolution views over a limited time, the moored array used self-contained surface and subsurface instruments to obtain a longer running view from a small number of fixed locations. Over the 6-month period the fronts moved through the center of the moored array so that moored instruments returned observations from a variety of environments (in the front, out of the front; under various meteorological conditions) as well as during the transition from winter, when the SST jump is large, to summer, when the SST signal associated with the front fades.

Telemetered mooring data using the ARGOS system are presented in Section X of this document.

The data from the moored array will be presented in a later data report.

Figure III-1	Meteorologically Instrumented FASINEX Surface Buoy
Figure III-2	FASINEX Mooring Schematics
Figure III-3	Anchor Positions of Moorings
Table III-1	GPS/LORAN C Positions of Anchors
Table III-2	Buoy Meteorological Sensor Types and Descriptions
Table III-3	Meteorological Sensor Heights on Buoys
Table III-4	Mooring Deployment, Recovery and Duration Times
Table III-5	FASINEX Data Return

FASINEX Surface Buoy

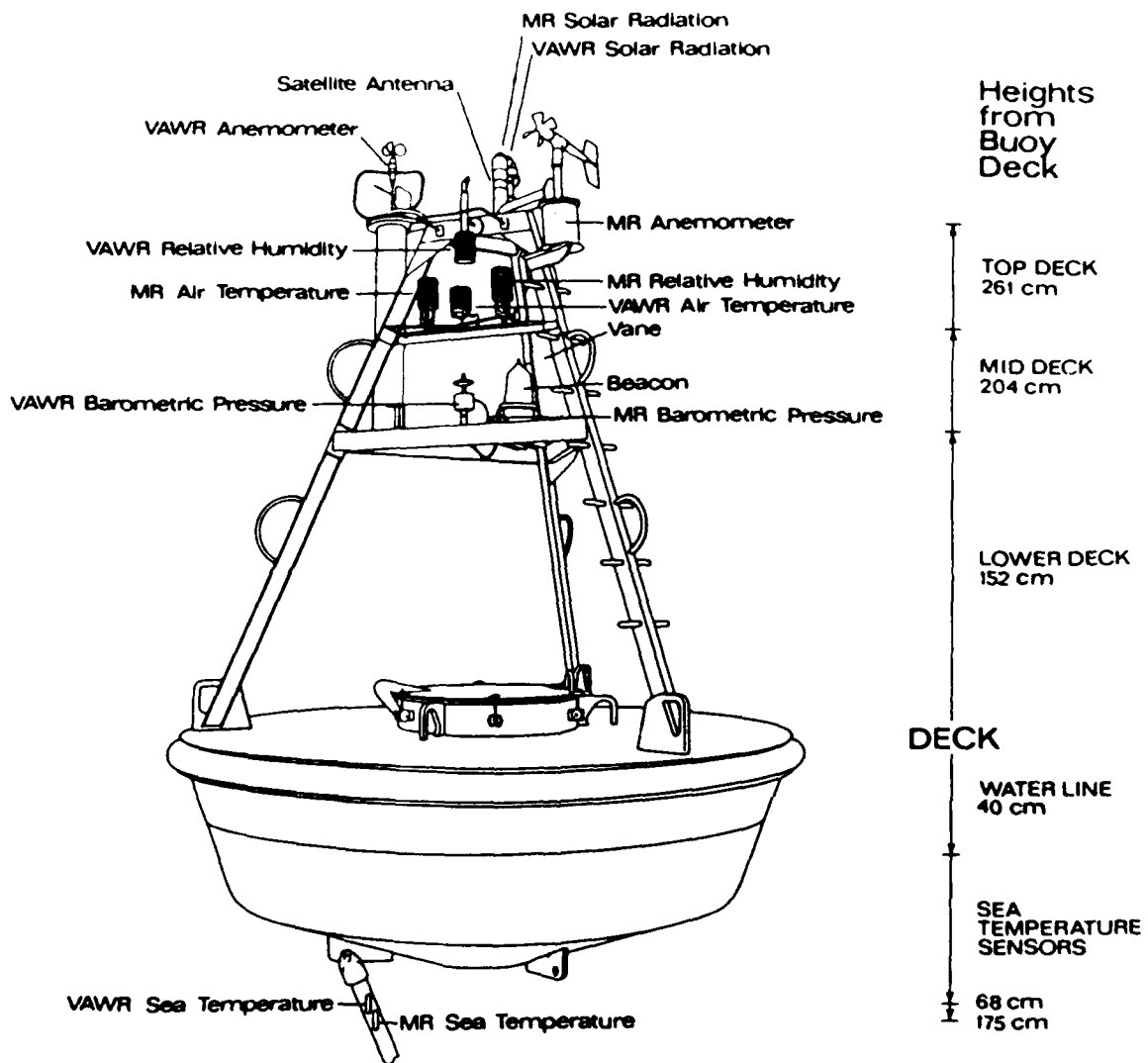


Figure III-1. Meteorologically Instrumented FASINEX Surface Buoy

FASINEX

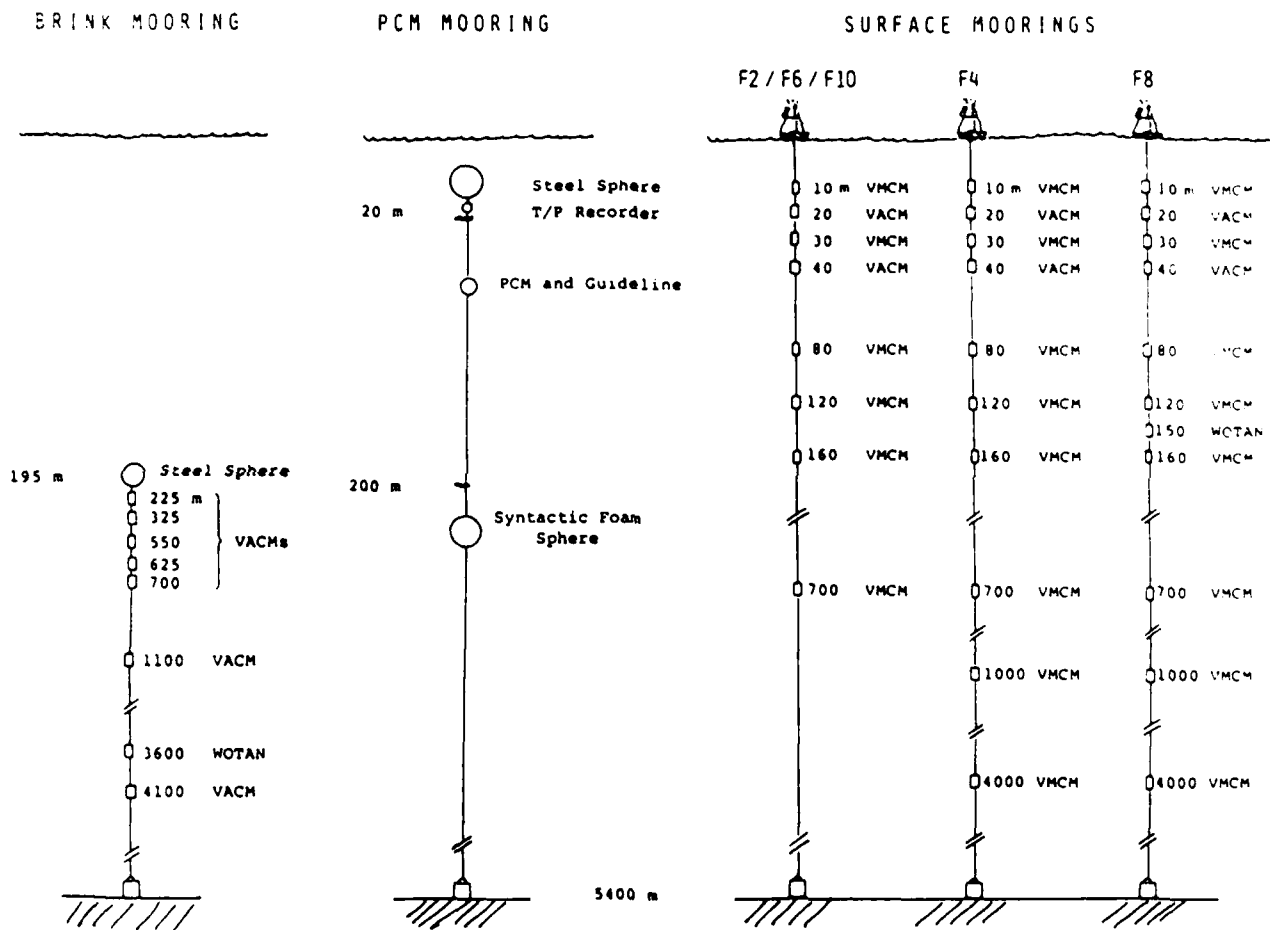


Figure III-2. FASINEX Mooring Schematics

FASINEX Mooring Anchor Positions

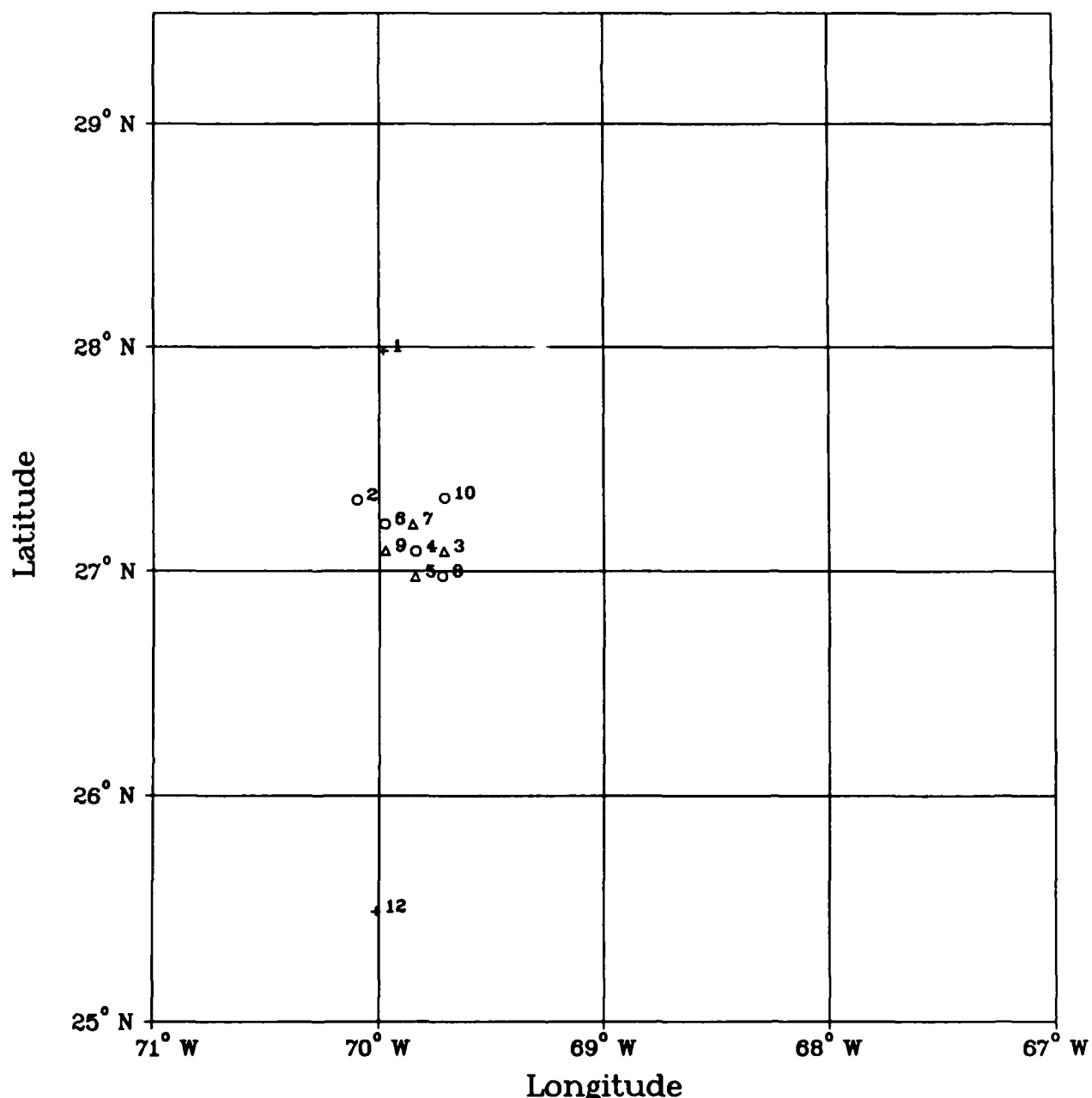


Figure III-3

Table III-1: GPS/LORAN C Positions of Anchors

FASINEX Designation	Visible Identifier	Lat/Lon	WHOI Mooring #
F2	A	27°18.95'N 70°05.86'W	845
F3		27°05.34'N 69°42.75'W	PCM-1
F4	C	27°05.35'N 69°50.30'W	846
F5		26°58.58'N 69°50.40'W	PCM-2
F6	B	27°12.59'N 69°58.48'W	847
F7		27°12.53'N 69°51.03'W	PCM-3
F8	E	26°58.66'N 69°43.19'W	848
F9		27°05.45'N 69°58.33'W	PCM-4
F10	D	27°19.63'N 69°42.52'W	849

Ken Brink's two year subsurface moorings (LORAN C positions)

F1	27°58.90'N 69°58.80'W	829
F12	25°29.10'N 70°00.70'W	830

Table III-2: Buoy Meteorological Sensor Types and Descriptions

VAWR (Vector Averaging Wind Recorder) (450 second recording rate)

<u>Parameter</u>	<u>Sensor</u>	<u>Range</u>	<u>Accuracy</u>	<u>Height (cm)</u>	<u>Comments</u>
Wind Speed	Gill 3-cup Anemometer R. M. Young Model 6301	0-60 m s ⁻¹	0.1 m s ⁻¹ above threshold of 0.5 m s ⁻¹	356	Vector- averaging
Wind	Integral vane w/ vane follower WHOI / EG&G	0-360°	<5.6° (2 bits)	327	Vector- averaging
Insolation	Pyranometer Eppley Model 8-48	00-1500 watts m ⁻²	3% sensor 5% (off level)	352	Average system
Relative Humidity	Variable Dielectric Conductor Vaisala Humicap 1518HM	0-100%	5% RH	294	3.5 sec sample
Barometric Pressure	Quartz crystal Digiquartz Parascientific Model 215	0-1034 mb	0.1 sensor 0.5 mb system	218	2.6 sec sample Note 1.
Temperature Sea	Thermistor Thermometrics 4 K @ 25°C	±30° C	.005° C	-100	1/2 time average Note 2.
Temperature Air	Thermistor Yellow Springs #44034	±35° C	±.1° sensor ±.4° system	259	1/2 time average Note 3.

Notes:

1. Burst samples are taken at halfway point of averaging (recording) interval.
2. Sea temperature is measured during first half of recording interval.
3. Air temperature is measured during the second half of the recording interval.

MR (Meteorological Recorder) (450 second recording rate)

<u>Parameter</u>	<u>Sensor</u>	<u>Range</u>	<u>Accuracy</u>	<u>Height (cm)</u>	<u>Comments</u>
Wind Speed	Propellor/vane Anemometer R. M. Young Model 5103	0-42.2 m s ⁻¹	+0.2 m s ⁻¹ above threshold of 0.5 m s ⁻¹	333	Vector Average
Wind Direction	"	0-360°	+2°	333	"
Solar Irradiance	Pyranometer Eppley 8-48	0-1500 watts m ⁻²	5%	354	Average of 64 samples per 450 sec
Relative Humidity	Vaisala Humicap in R. M. Young radiation shield	0-100% RH	5% RH	264	"
Barometric Pressure	Digital barometer AIR DB	800-1050 mb	.5 mb	200	average of 100 samples in 105 once per record int
Water Temperature	Thermistor YSI44032	-10° to 50° deg C	±.01°	-100	average of 64 samples per 450 sec
Air Temperature	Thermistor YSI44032 in R. M. Young multiplate radiation shield	-10° to 50°	±.3°	264	"

Table III-3

FASINEX METEOROLOGICAL SENSOR HEIGHTS ABOVE BUOY WATERLINE

	F2 Mooring 845 Buoy A	F6 Mooring 847 Buoy B	F4 Mooring 846 Buoy C	F10 Mooring 849 Buoy D	F8 Mooring 848 Buoy E
VAWR AIR T ⁺	2.56	2.57	2.56	2.56	2.58
VAWR RH ⁺	2.91	2.93	2.91	2.86	2.96
VAWR BP	2.17	2.15	2.13	2.15	2.16
VAWR SOLAR	3.56	3.56	3.55	3.51	3.60
VAWR WIND*	3.55	3.55	3.54	3.50	3.59
MR AIR T ⁺	2.66	2.64	2.63	2.65	2.67
MR RH ⁺	2.66	2.64	2.64	2.65	2.66
MR BP	2.00	2.02	2.00	2.01	2.02
MR SOLAR	3.56	3.56	3.55	3.51	3.60
MR WIND	3.39	3.39	3.39	3.34	3.44

* Measurement to centerline of cups.

+ Measurement to Mid-shield.

Units = Meters above waterline.

Waterline location per Peter Clay (41 cm below deck).

Table III-4: Mooring Deployment, Recovery and Duration Times

Mooring I.D.	Deployment Time (UTC)		Recovery Time (UTC)		Duration (days)
F2	15 January '86	2020	14 June '86	0950	150
F4	16 January	1947	15 June	2133	150
F6	26 January	1715	14 June	2151	139
F8	27 January	1748	15 June	1333	139
F10	1 February	1801	10 June	0545	103 on station 129 total
F3	17 January	1811	16 June	1352	150
F5	18 January	1840	16 June	2011	149
F7	28 January	1852	17 June	1108	140
F9	29 January	1806	Lost		
F1	28 October '84	2238	18 June '86	1721	598
F12	29 October '84	1724	13 June '86	1957	592

PASINEX Preliminary Data Return Table (September 1986)

Number of Days of Good Data

Weller Surface Moorings					Eriksen PCM Moorings					
	F2	F4	F6	F8	F10		F3	F5	F7	F9
Wet Data										
Wind	148		138	136	126		150	149	140	0
Sea Temp	148	148	?	136						
Air Temp	148	148	138	136	126					
Baropres	148	148	138	136	126					
Rel Hum.	?	148	138	136	0					
Insolation	148	148	138	136	126					
Brink Subsurface Moorings										
						Depths	F1	F12		
							225			
							597	591	]	
							597	591		
							325	2	]	
							597	57		
							550	591	]	
							597	591		
							597	591		
							625	591	]	
							597	591		
							700	591	]	
							142	591		
							597	591		
							1100	591	]	
							597	591		
							551	591		
							4100	266	]	
							597	266		
							597			

IV. FASINEX XBT Data

Phase One - KNORR 119

Expendable bathythermographs (XBTs) were used to verify the location of a front seen in AVHRR imagery during KNORR 119 before mooring deployment began in the FASINEX area. Several surveys using Sippican T7 XBTs (depth range 0-760m) were made during Phase One of FASINEX. The first survey was run south down 70°W starting every hour. When 30°N was crossed, XBTs were taken every 30 minutes. In order to close in on the satellite image location of the front, XBTs were taken every 15 minutes starting at 29°N . The survey continued south to 25°N . The front was crossed at $26^{\circ}50'\text{N } 70^{\circ}\text{W}$. To identify the orientation of the front, a radiator pattern was completed, this being considered Section 2. The sampling rate for this pattern was 15 minutes which at 10 kts was approximately a 2.5 mile separation between profiles. 450 XBTs made up the survey. During the remainder of Leg 1 and Leg 2 several small scale sections were completed.

The data were plotted on a strip chart recorder and stored to a Bathysystem Recorder cassette. The strip chart data were digitized in real time and sections were hand drawn throughout the survey.

Contour plots IV-11 and IV-12 were drawn based on the initial radiator pattern (Section 2) and served to locate the moored array relative to the front.

Figure IV-1	Total Pattern of XBTs taken during KN119
Figure IV-2	XBT Section 1 WHOI south to 28° , Station Locations
Figure IV-3	XBT Section 2 15 minute Radiator, Station Locations
Figure IV-4-9	XBT Sections 3 to 8, Station Locations
Figure IV-10	Plot of XBT Section and Bucket Temperature by Section
Figure IV-11	Contours of 40m Temperatures Across Front
Figure IV-12	Contours of 20°C Isotherm
Table IV-1	XBT Time and Position

Phase Three - KNORR 123

During the FASINEX mooring recovery cruise, three XBT patterns were completed. The first survey was a northeast to south-southwest line ($36^{\circ}\text{N } 71^{\circ}\text{W}$, $25^{\circ}\text{N } 78^{\circ}\text{W}$) while tracking F10. The second survey ran west to east along approximately 26°N . The third survey ran south to north. The final survey was taken on the homeward transit along 70°W up to 30°N . Data were logged in the same manner as on KNORR 119.

Figure IV-13	Total XBT Pattern
Figure IV-14	XBT Section 1 Woods Hole to F10 Capture, Station Locations
Figure IV-15	XBT Section 2 West to East at 25°N , Station Locations
Figure IV-16	XBT Section 3 North up 70°W , Station Locations
Figure IV-17	XBT Section 4 Heading back to Woods Hole
Figure IV-18	Plot of XBT Section and Bucket Temperatures by Section
Table IV-2	XBT Time and Position

FASINEX Knorr 119 XBT Total Pattern

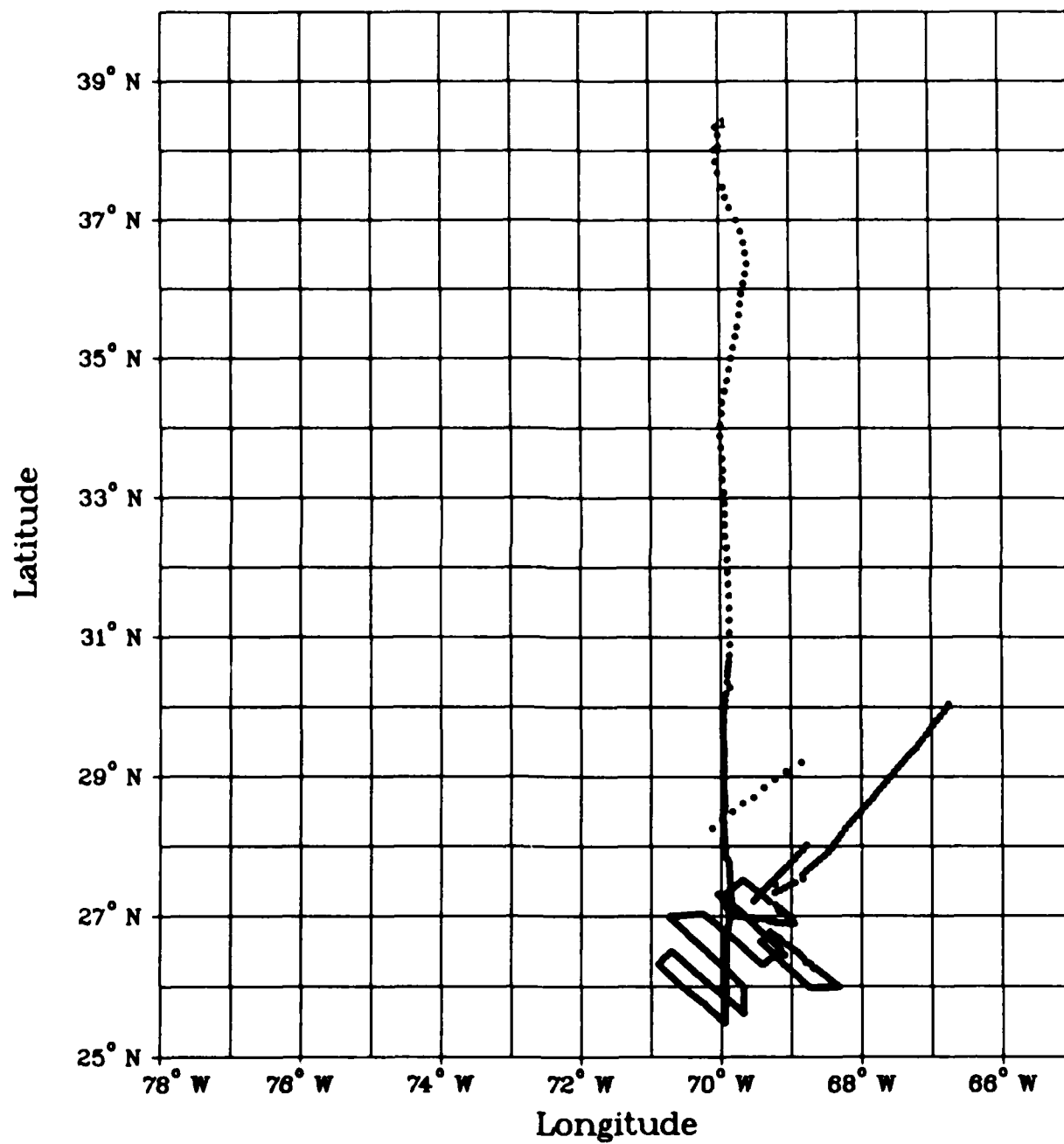


Figure IV-1

FASINEX Knorr 119 XBT Section 1

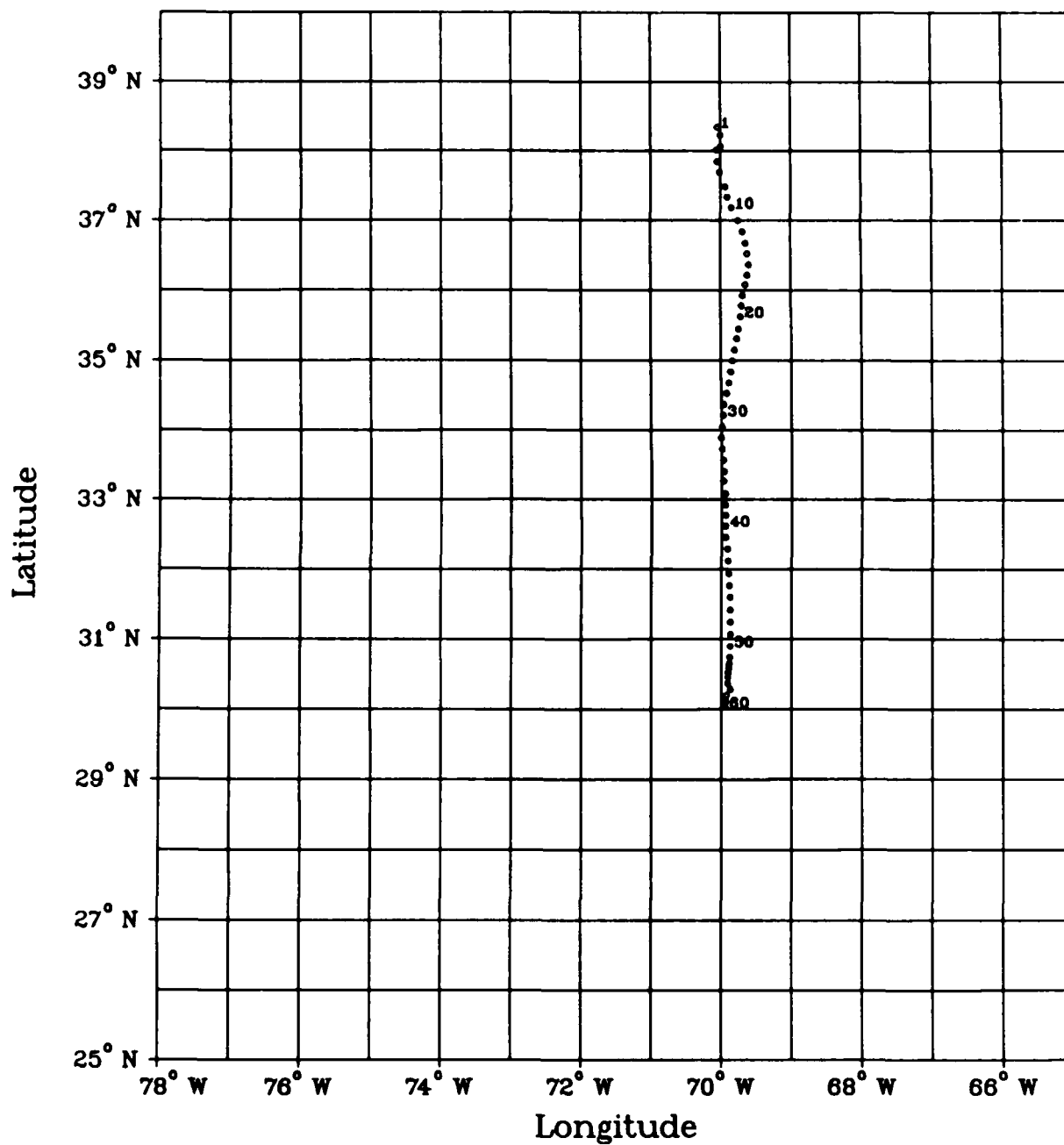


Figure IV-2

FASINEX Knorr 119 XBT Section 2

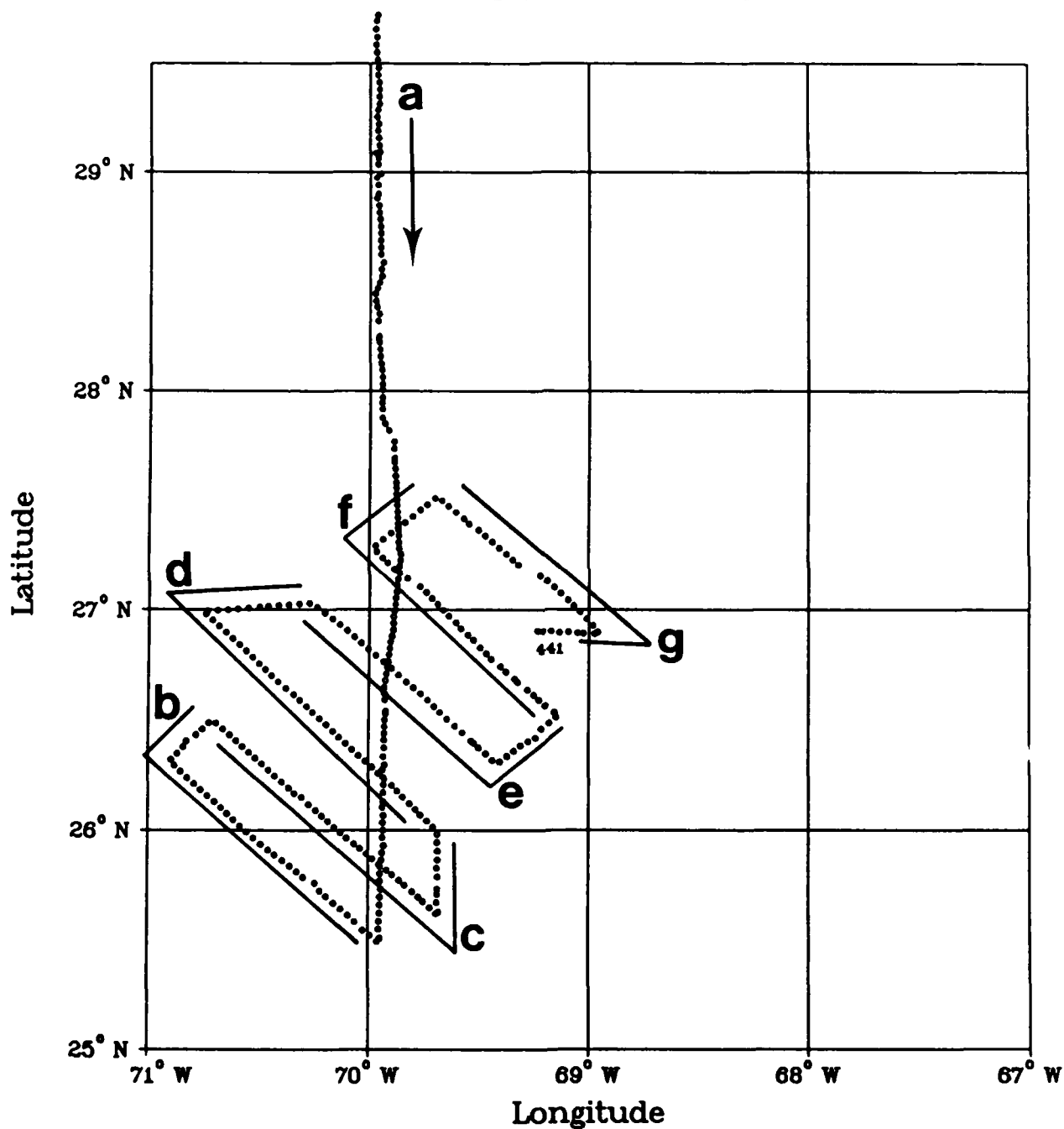


Figure IV-3

FASINEX Knorr 119 XBT Section 3

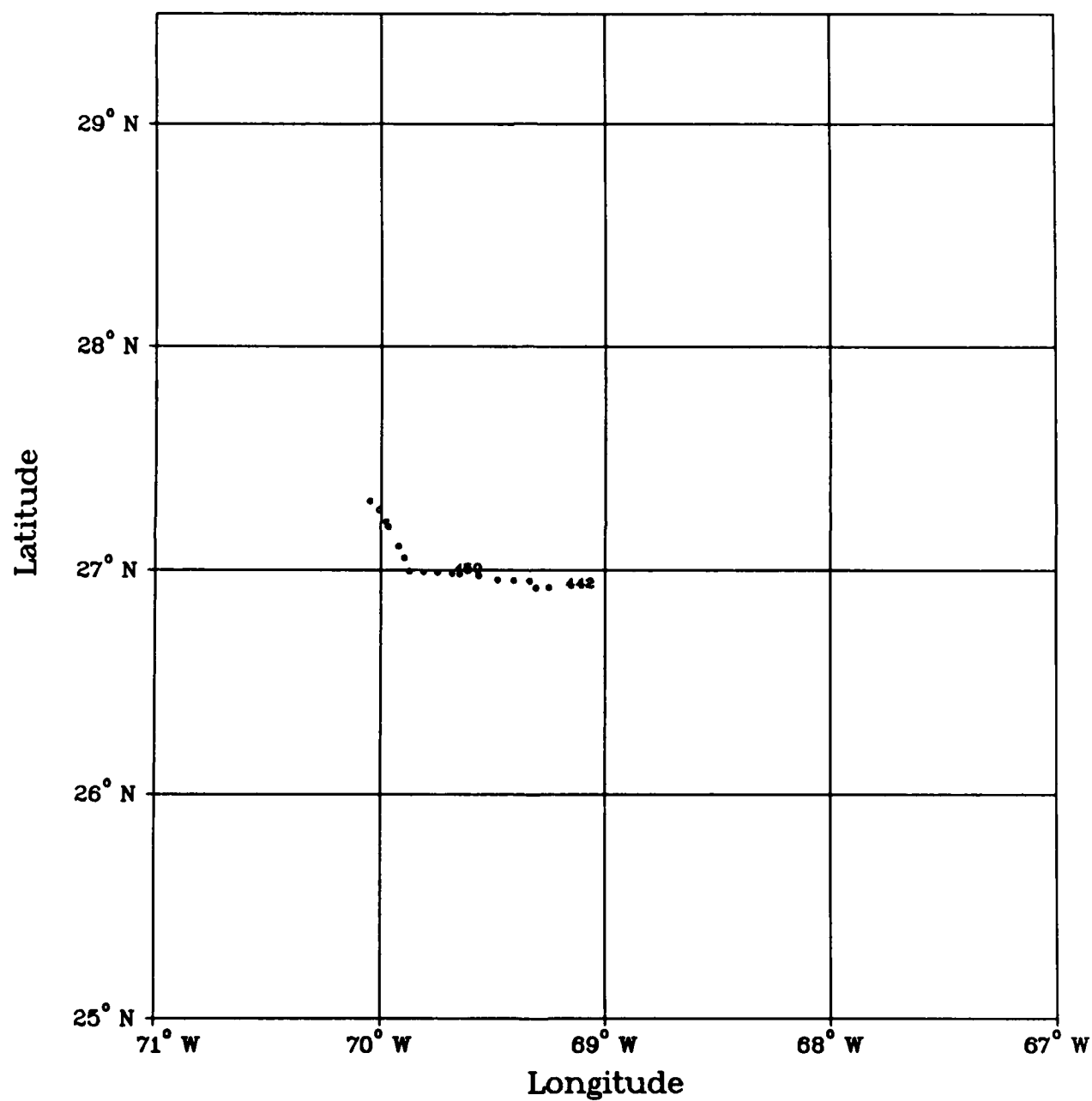


Figure IV-4

FASINEX Knorr 119 XBT Section 4

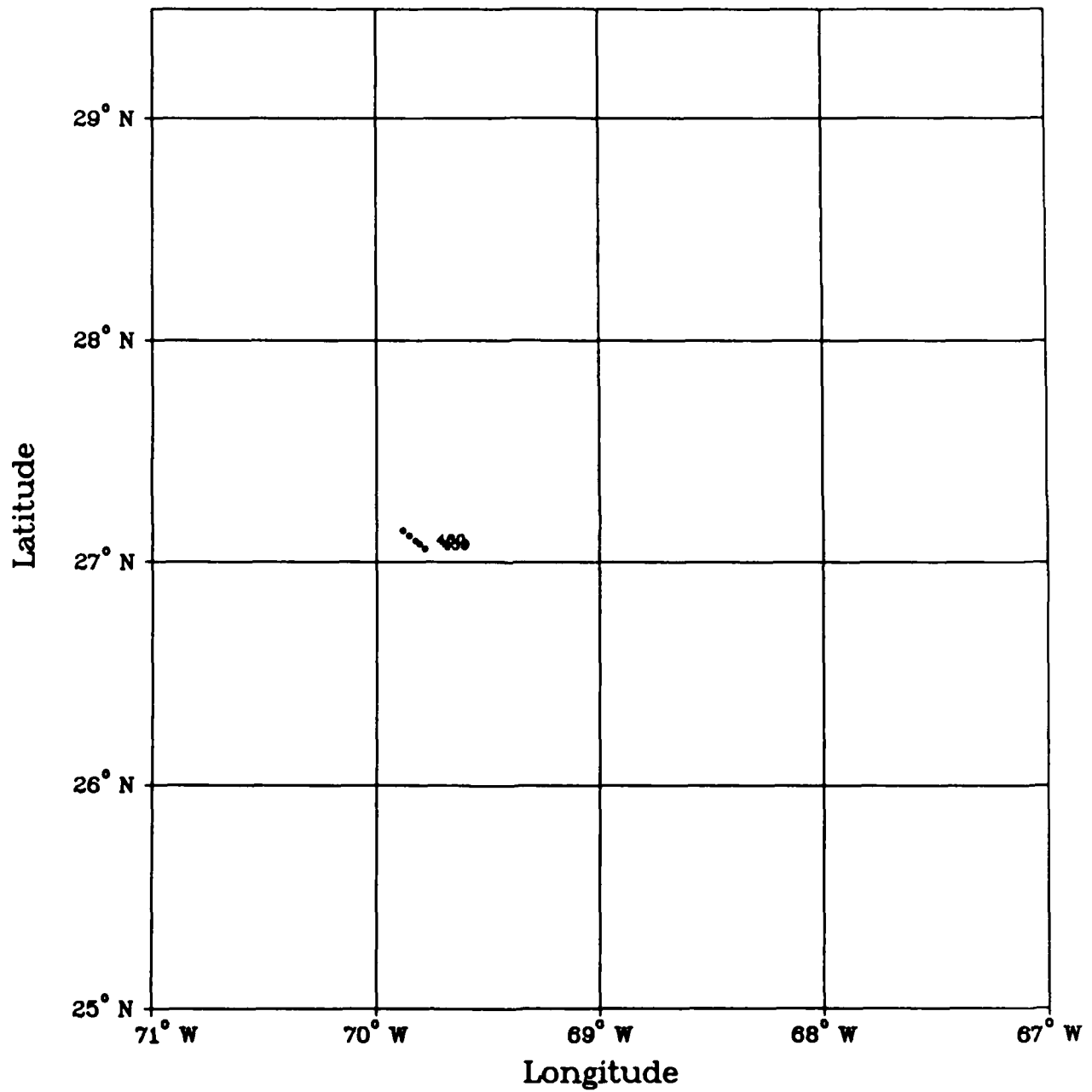


Figure IV-5

FASINEX Knorr 119 XBT Section 5

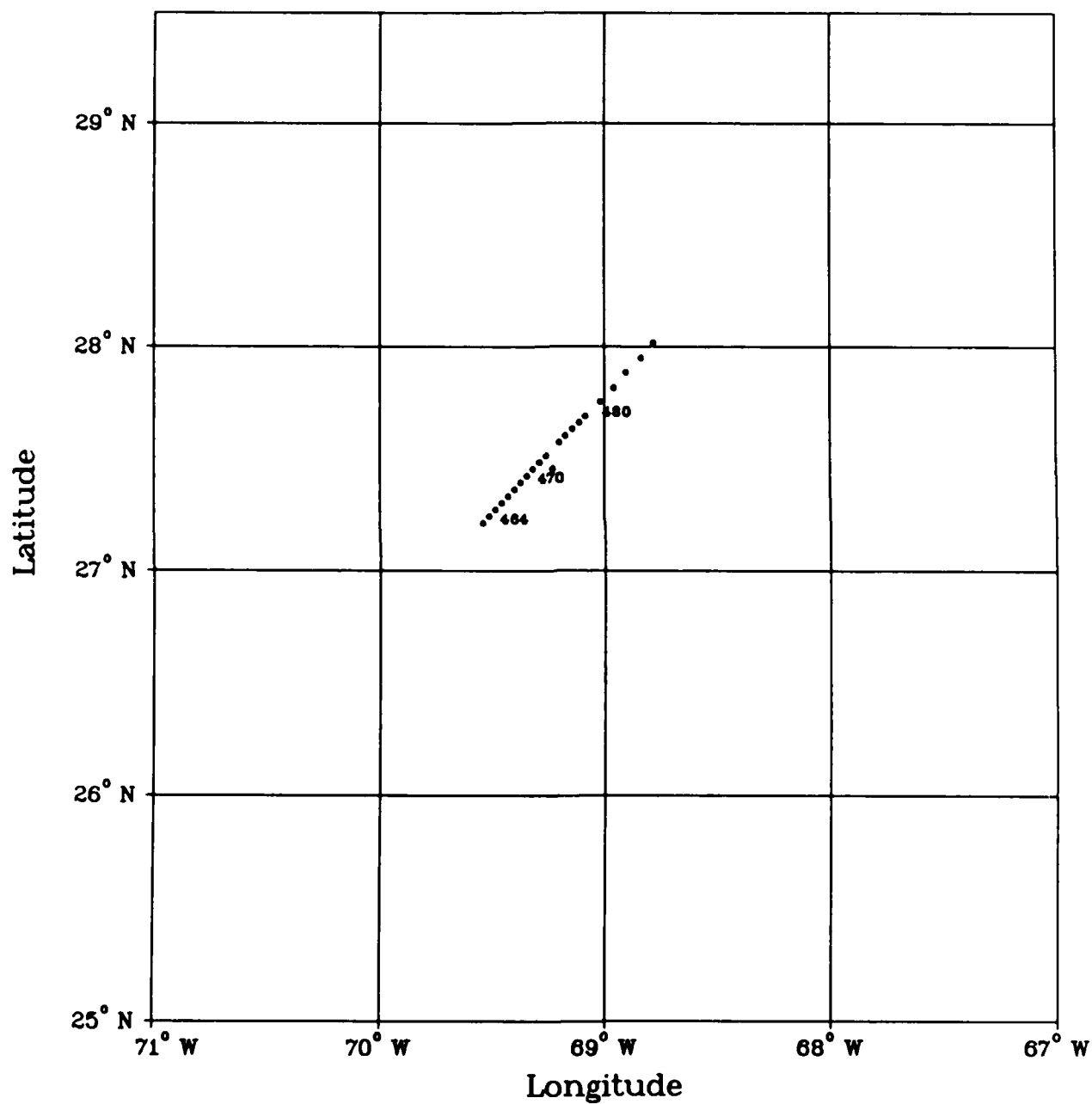


Figure IV-6

FASINEX Knorr 119 XBT Section 6

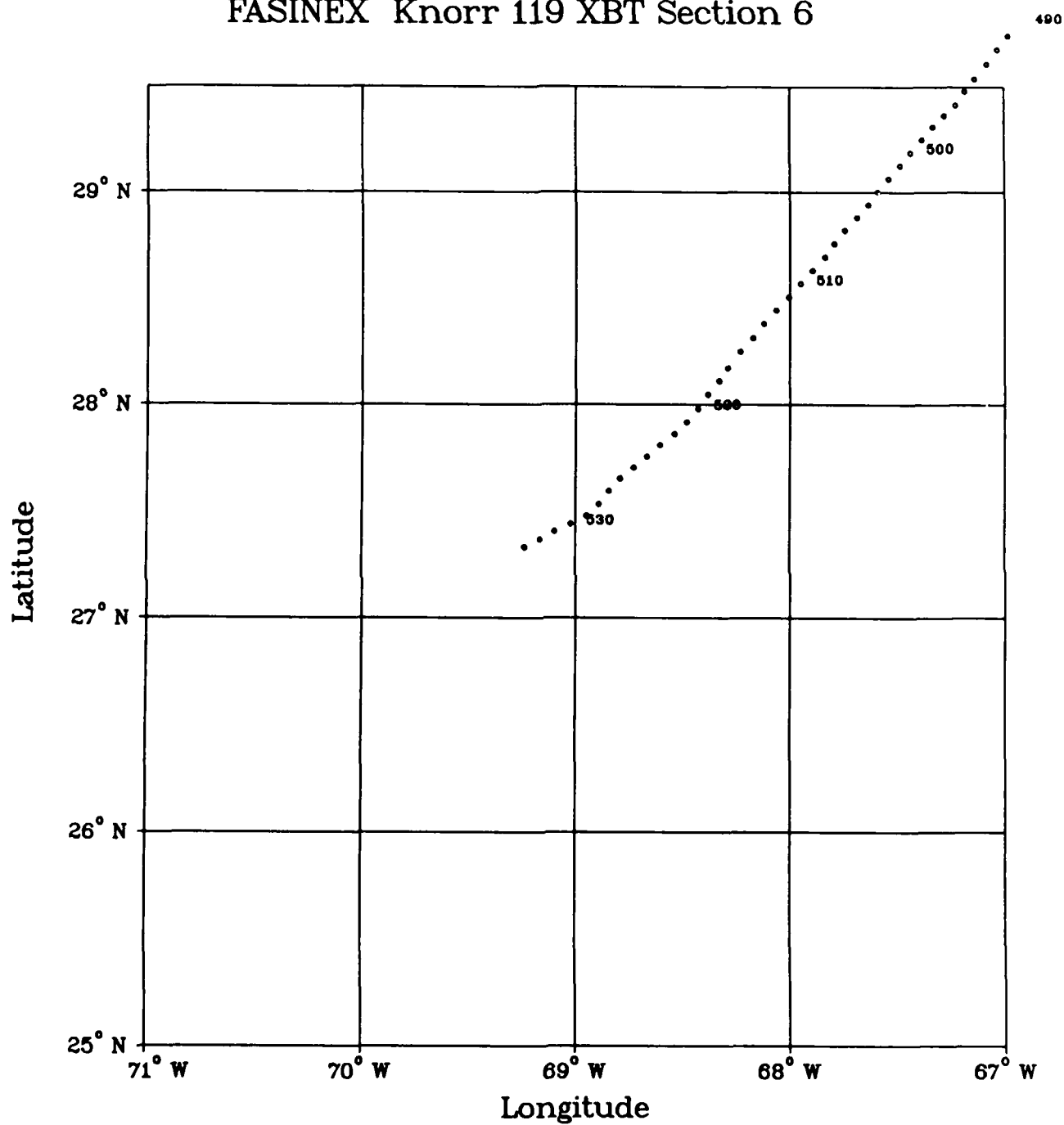


Figure IV-7

FASINEX Knorr 119 XBT Section 7

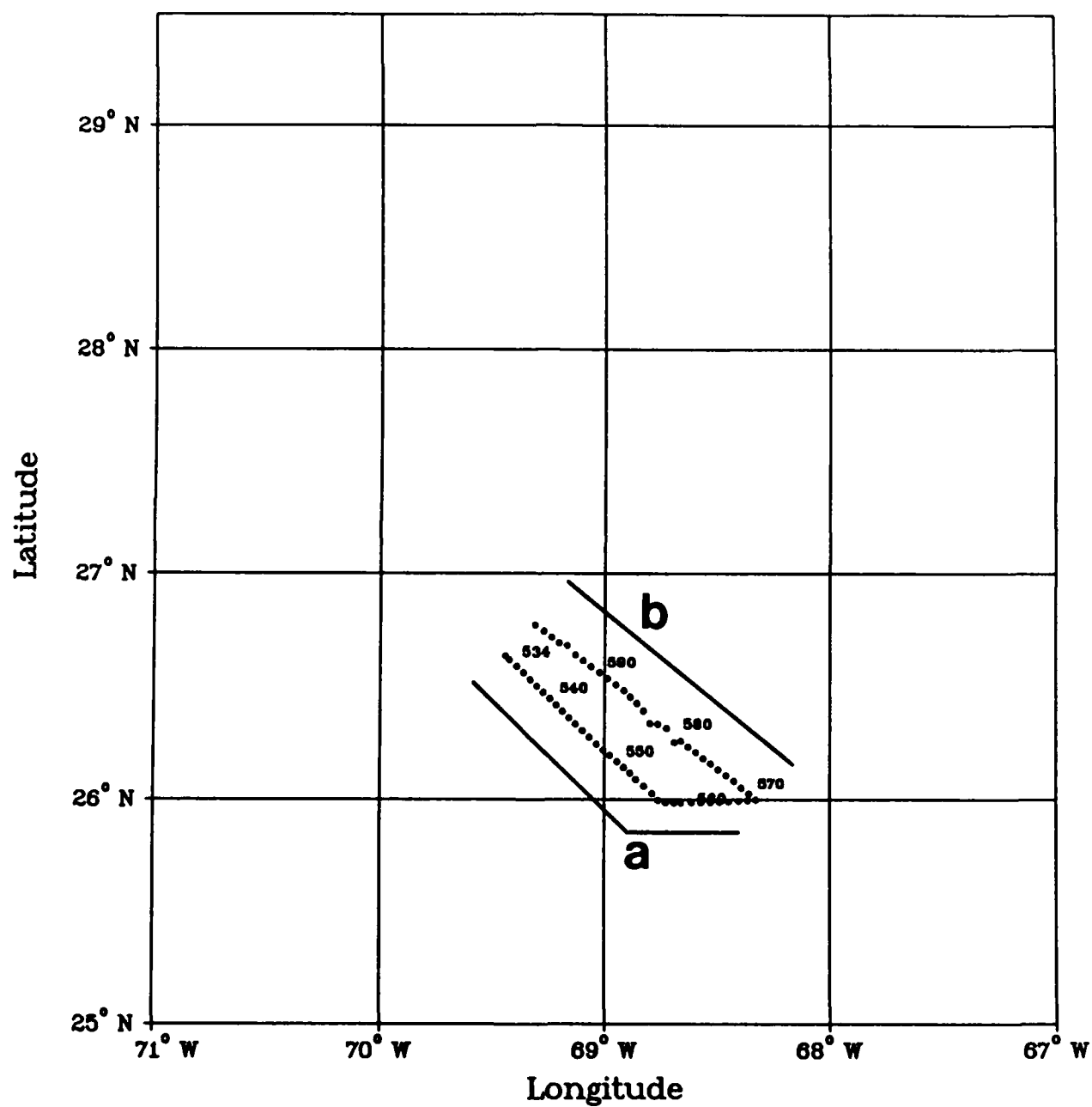


Figure IV-8

FASINEX Knorr 119 XBT Section 8

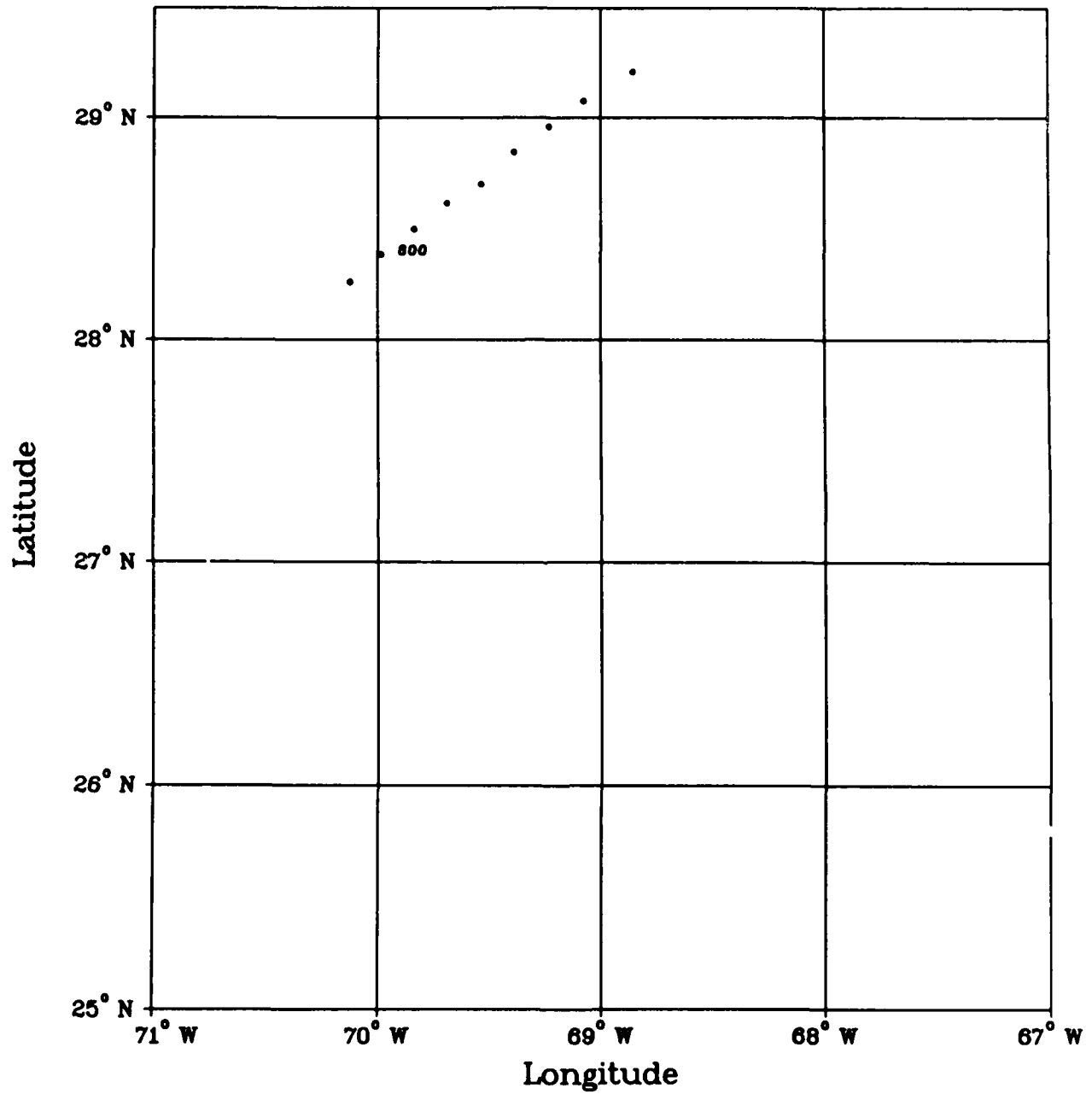


Figure IV-9

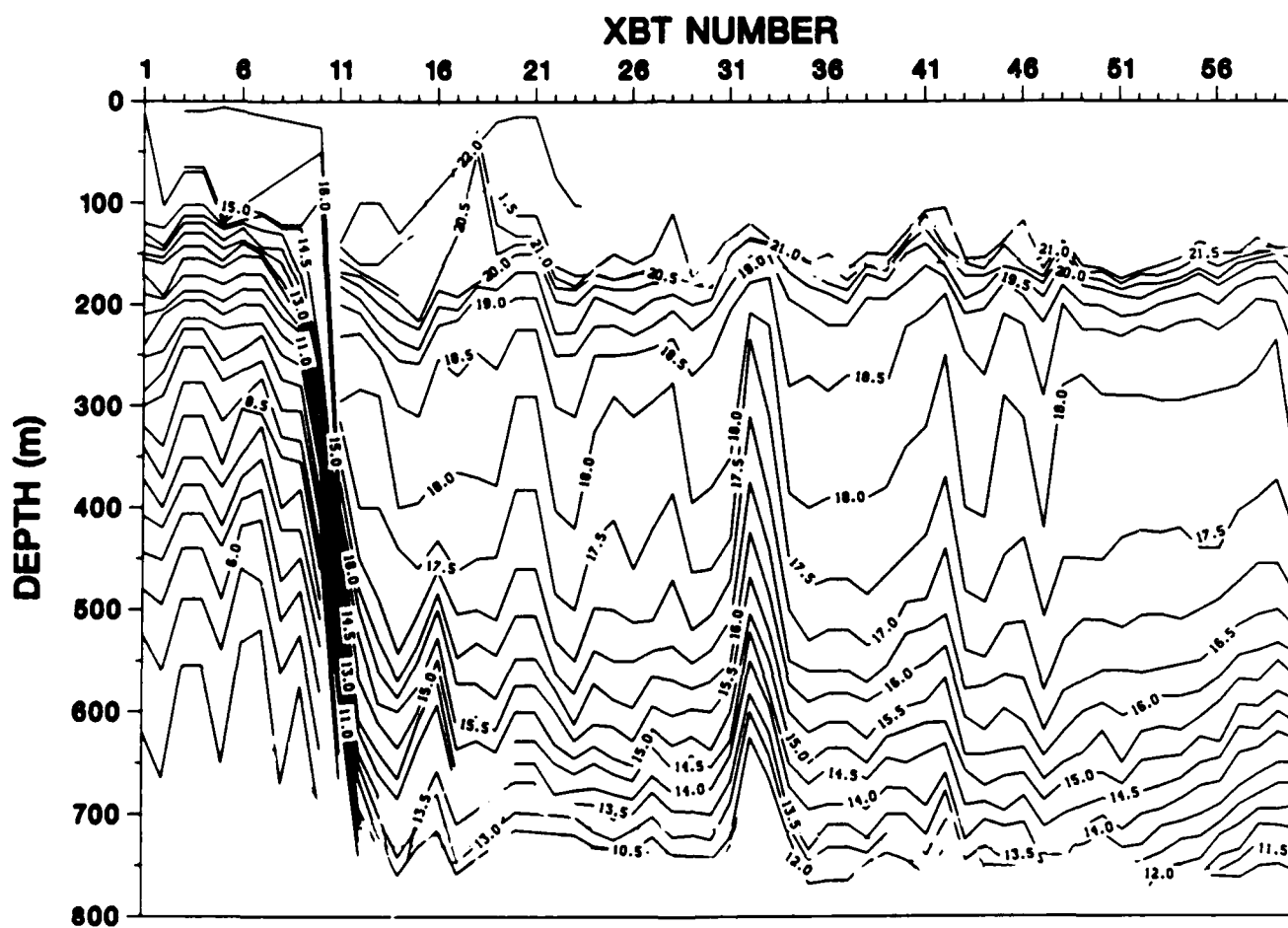


Figure IV-10a. XBT Section 1.
(KNORR 119)

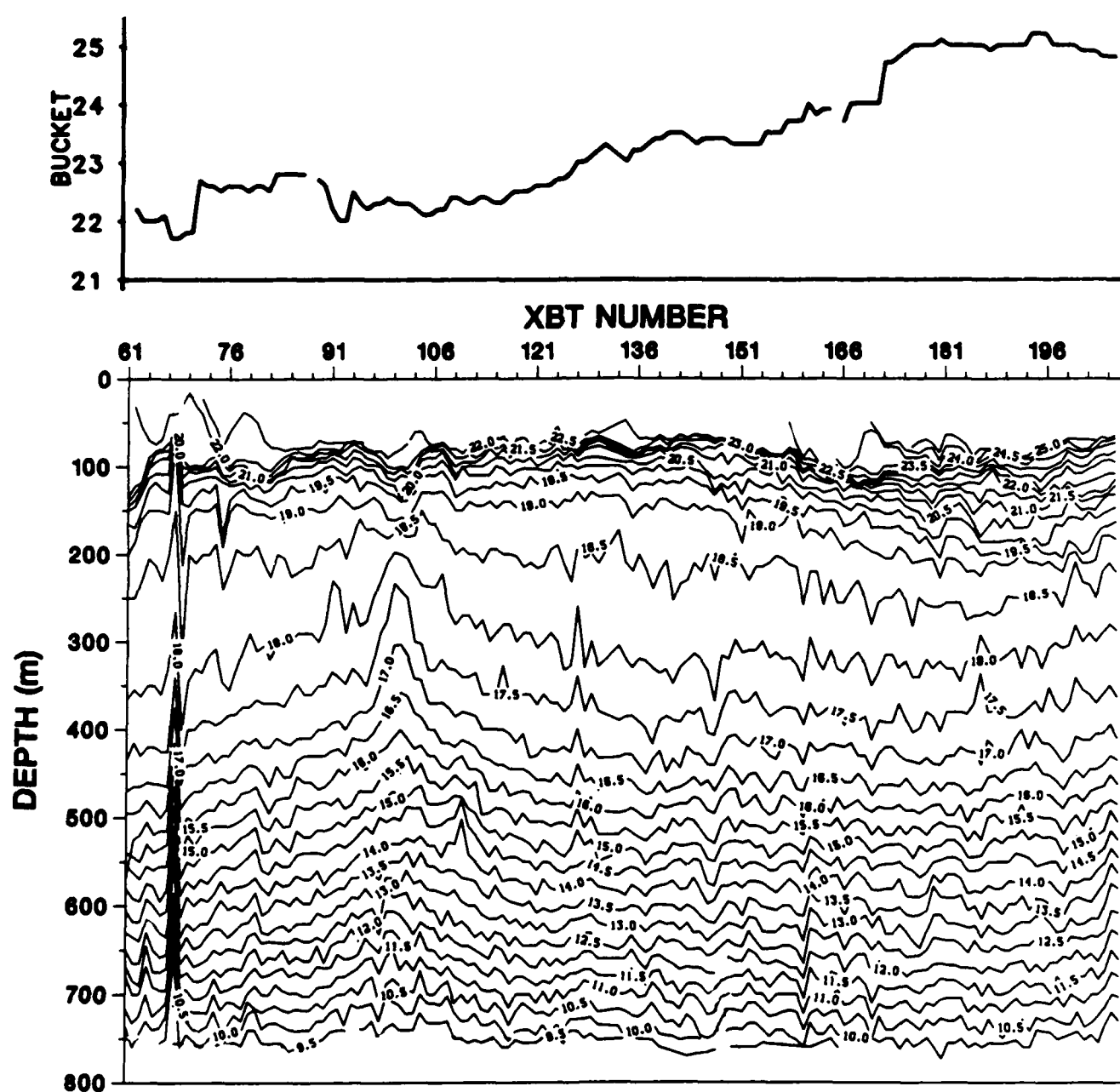


Figure IV-10b. XBT Section 2a (refer to Fig. IV-3).
(KNORR 119)

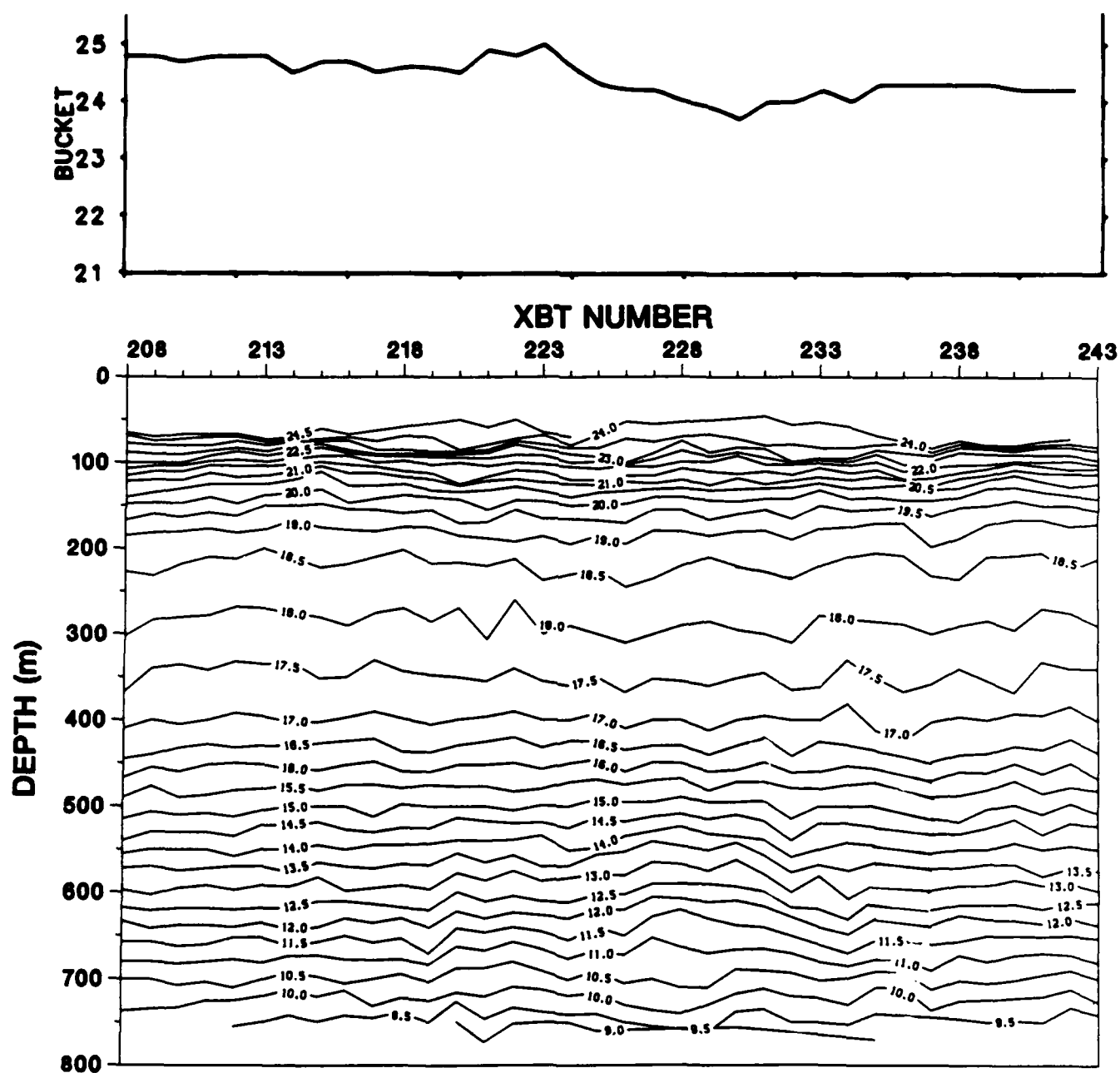


Figure IV-10c. XBT Section 2b (refer to Fig. IV-3).
(KNORR 119)

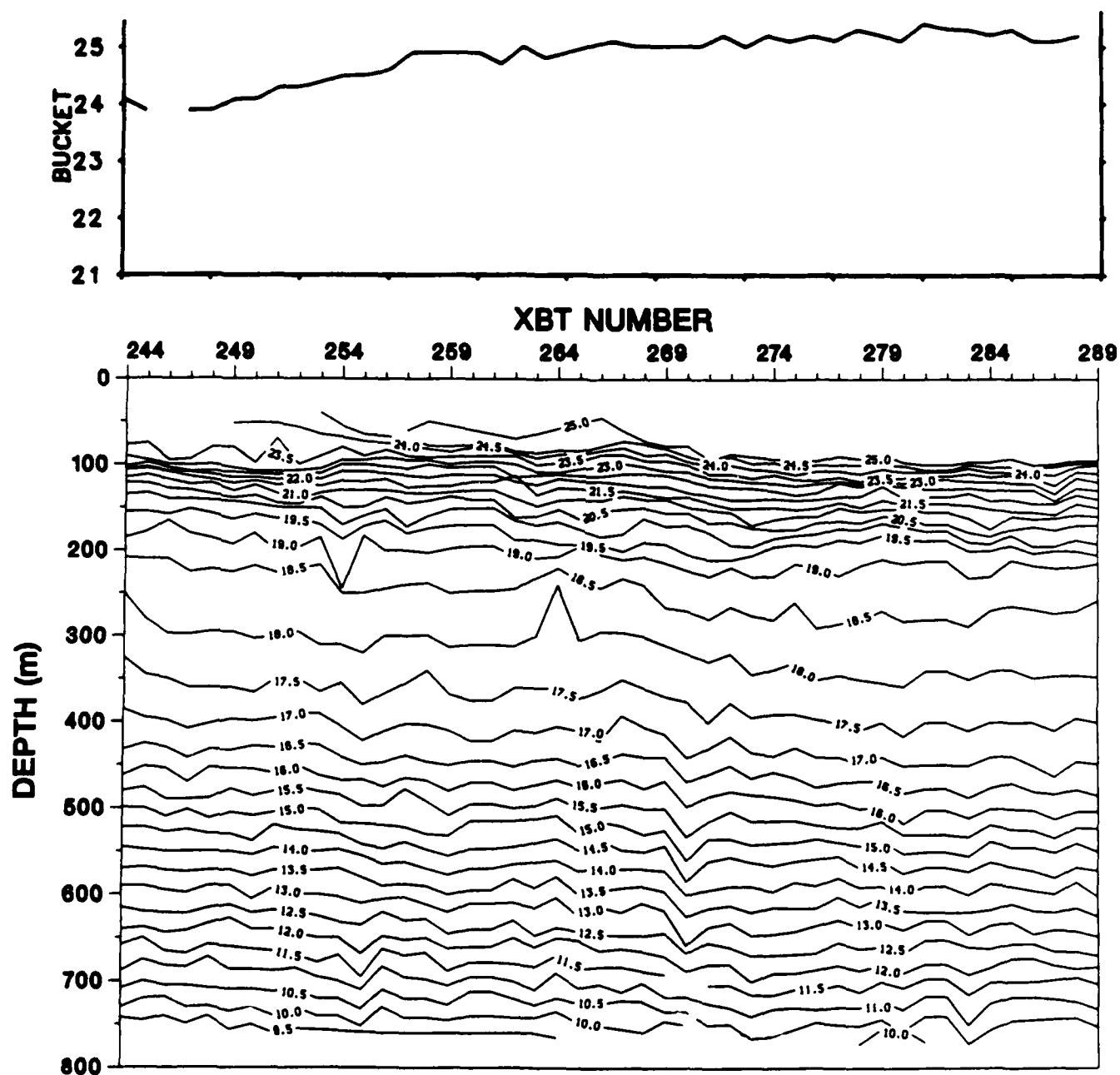


Figure IV-10d. XBT Section 2c (refer to Fig. IV-3).
(KNORR 119)

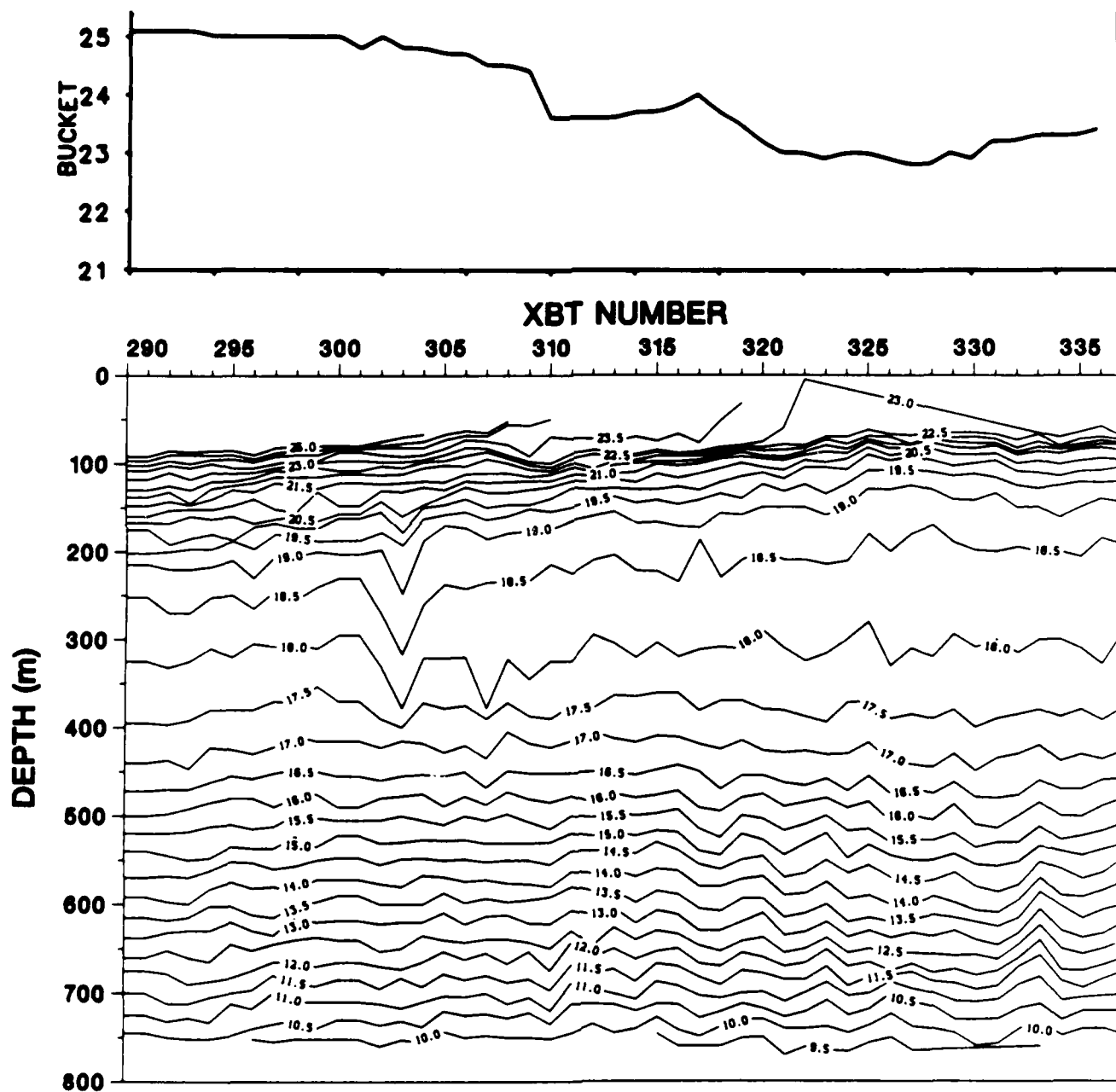


Figure IV-10e. XBT Section 2d (refer to Fig. IV-3).
(KNORR 119)

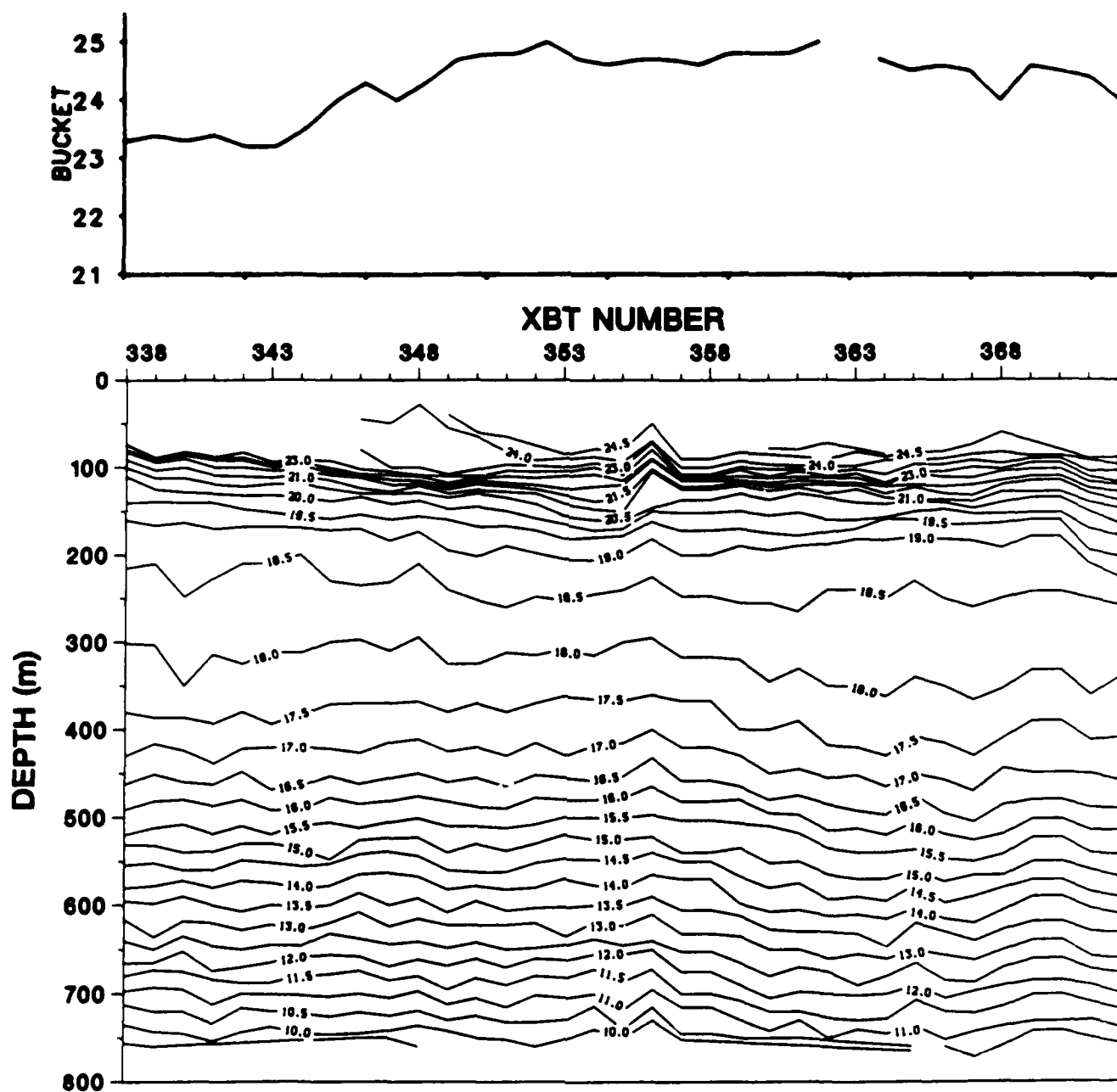


Figure IV-10f. XBT Section 2e (refer to Fig. IV-3).
(KNORR 119)

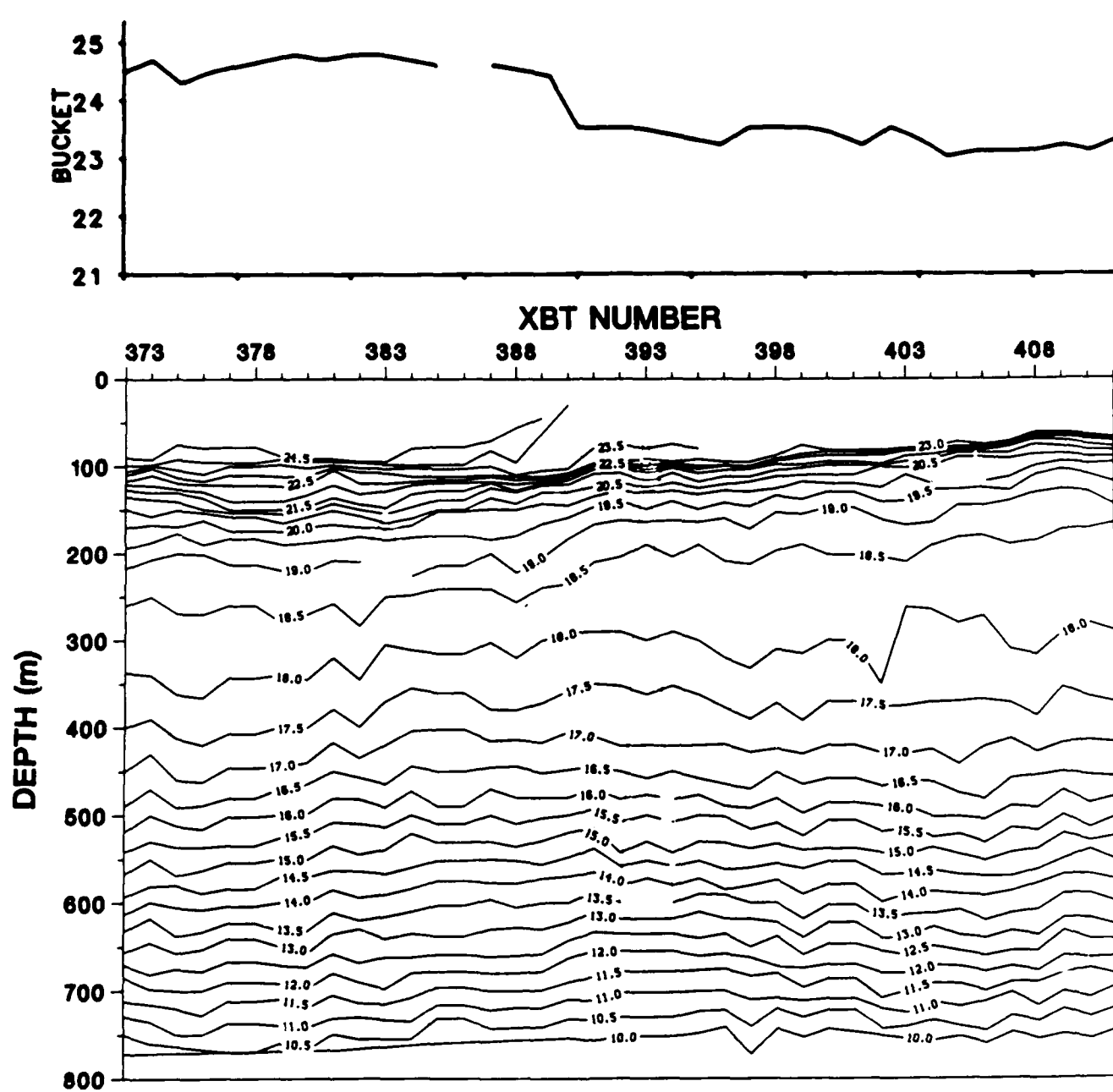


Figure IV-10g. XBT Section 2f (refer to Fig. IV-3).
(KNORR 119)

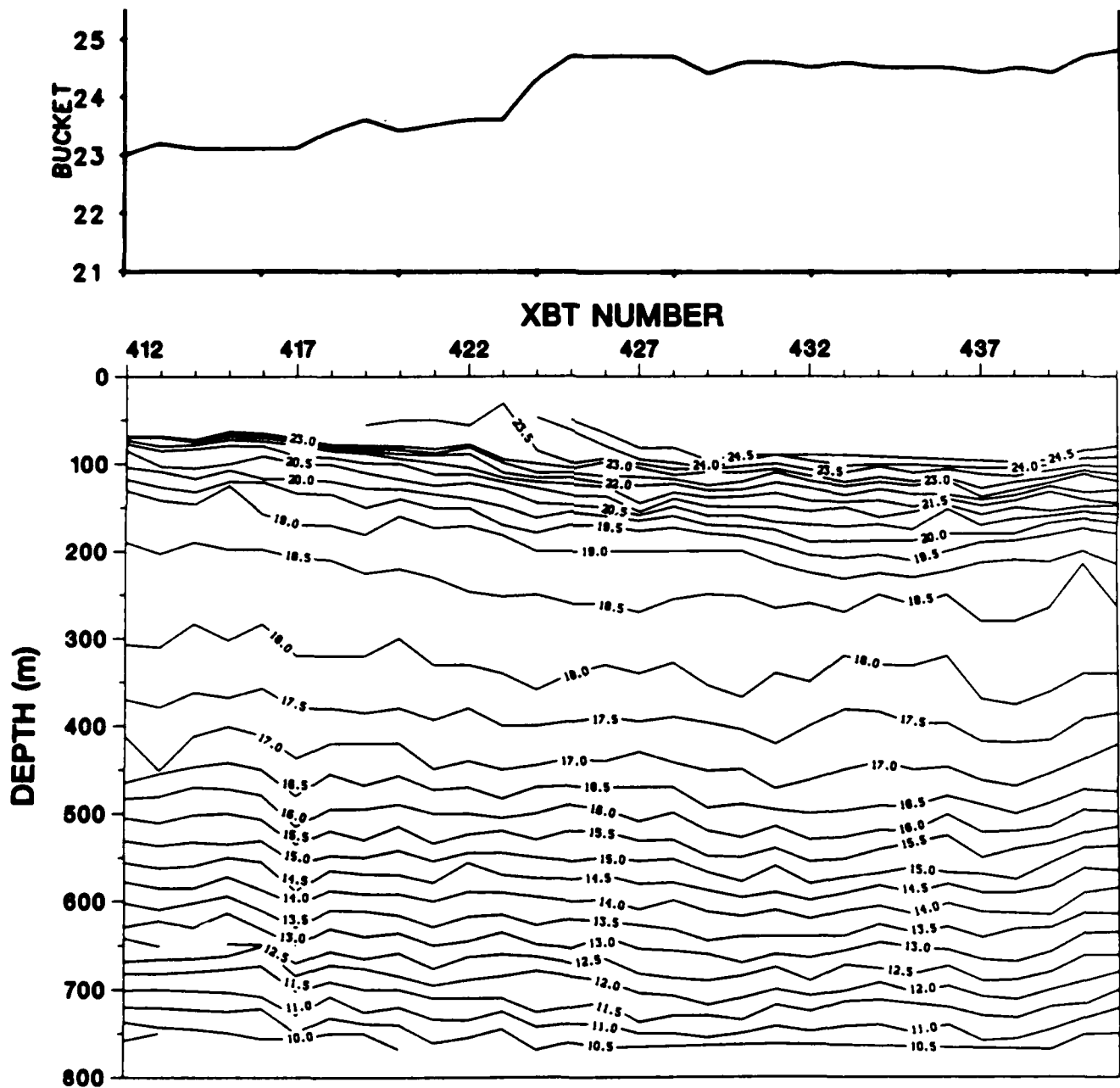


Figure IV-10h. XBT Section 2g (refer to Fig. IV-3).
(KNORR 119)

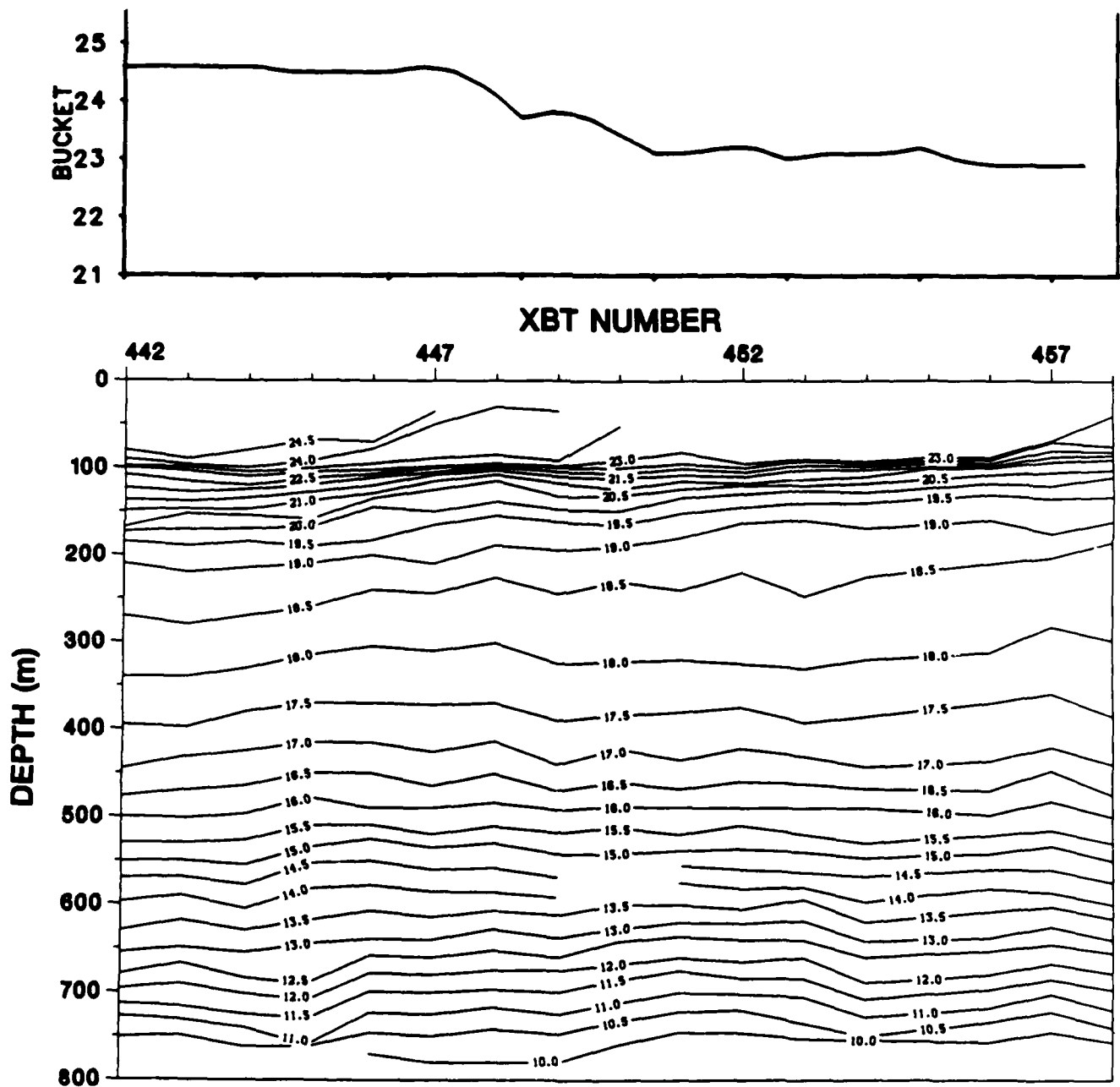


Figure IV-10i. XBT Section 3.
(KNORR 119)

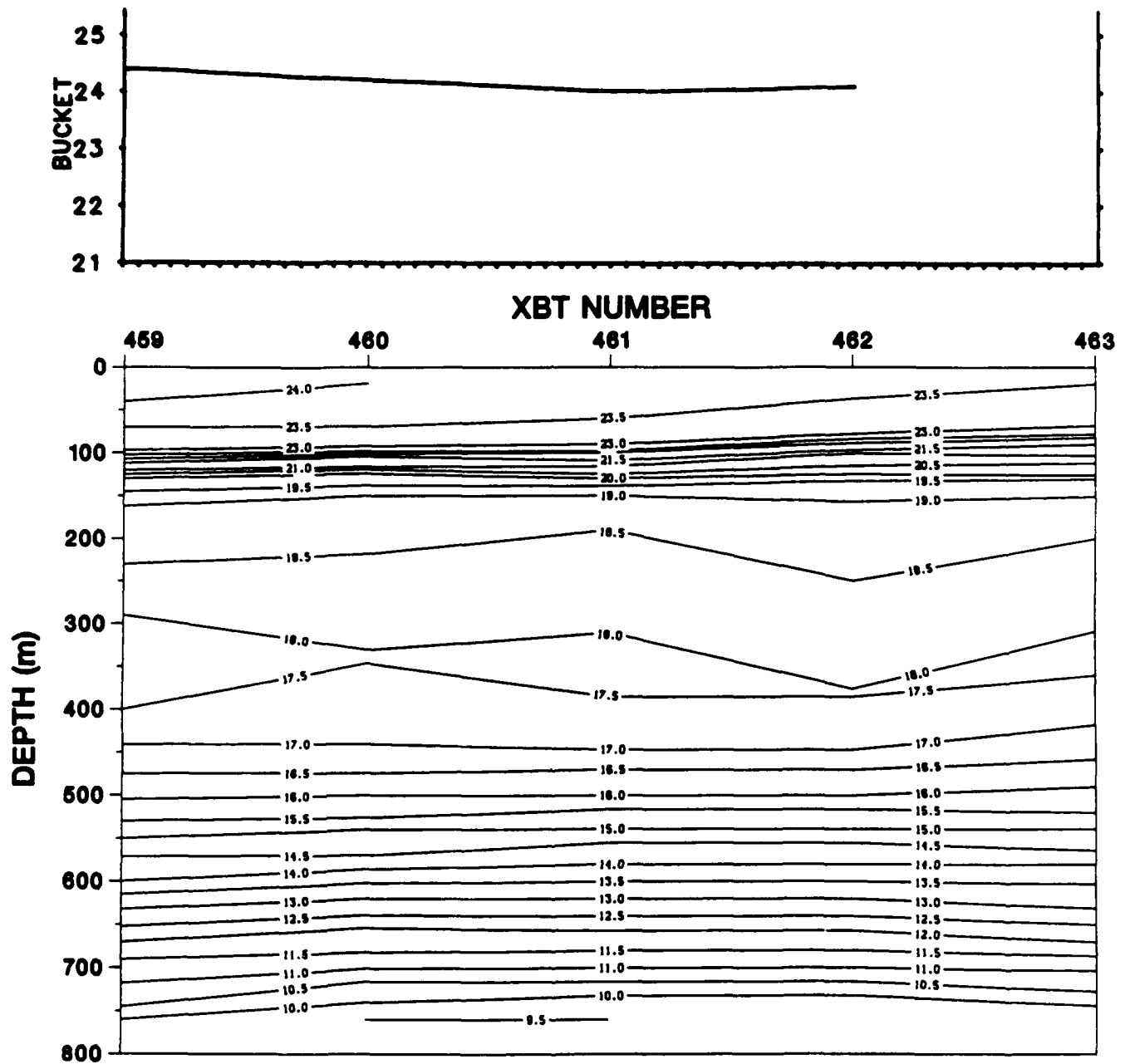


Figure IV-10j. XBT Section 4.
(KNORR 119)

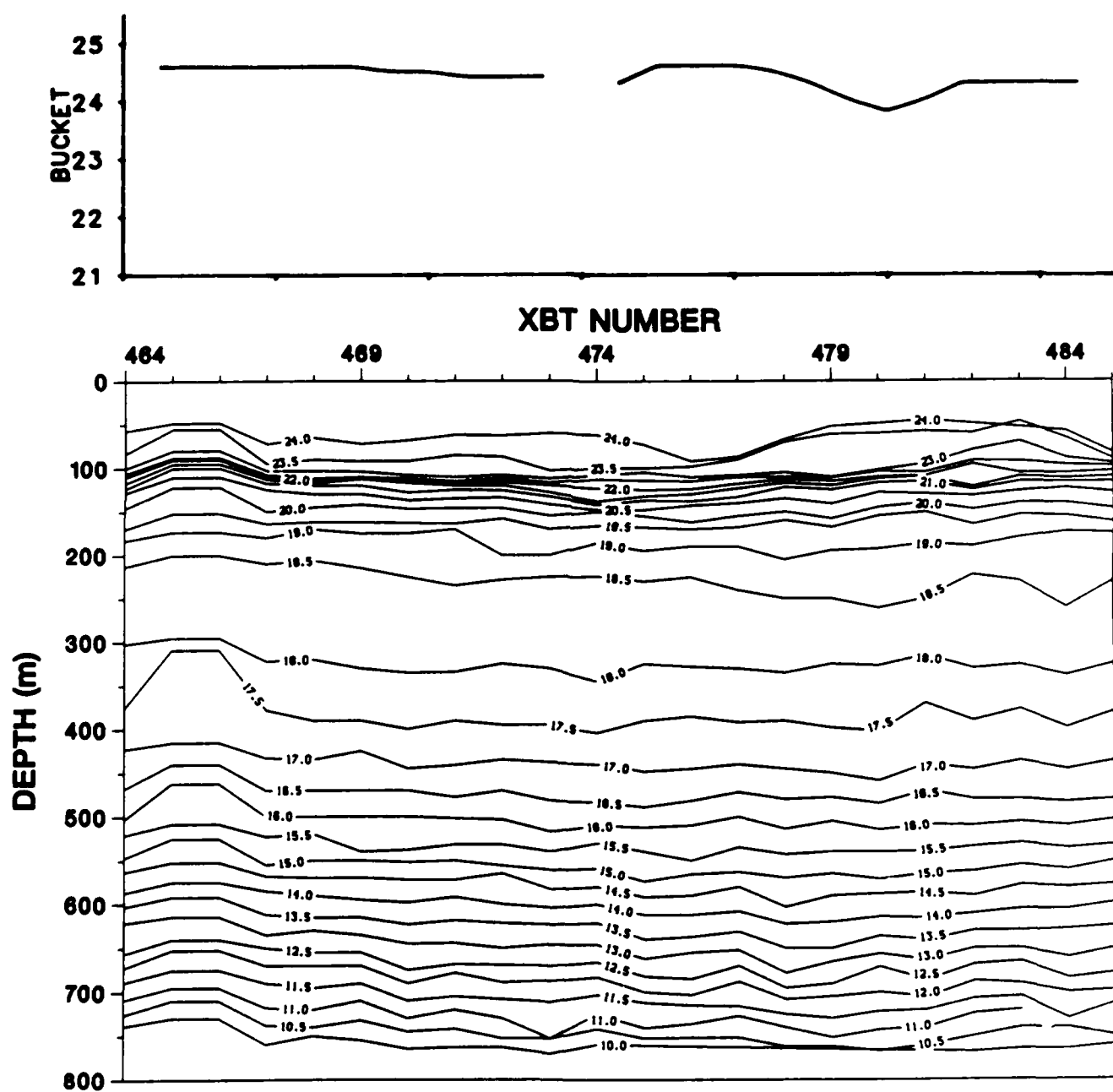


Figure IV-10k. XBT Section 5.
(KNORR 119)

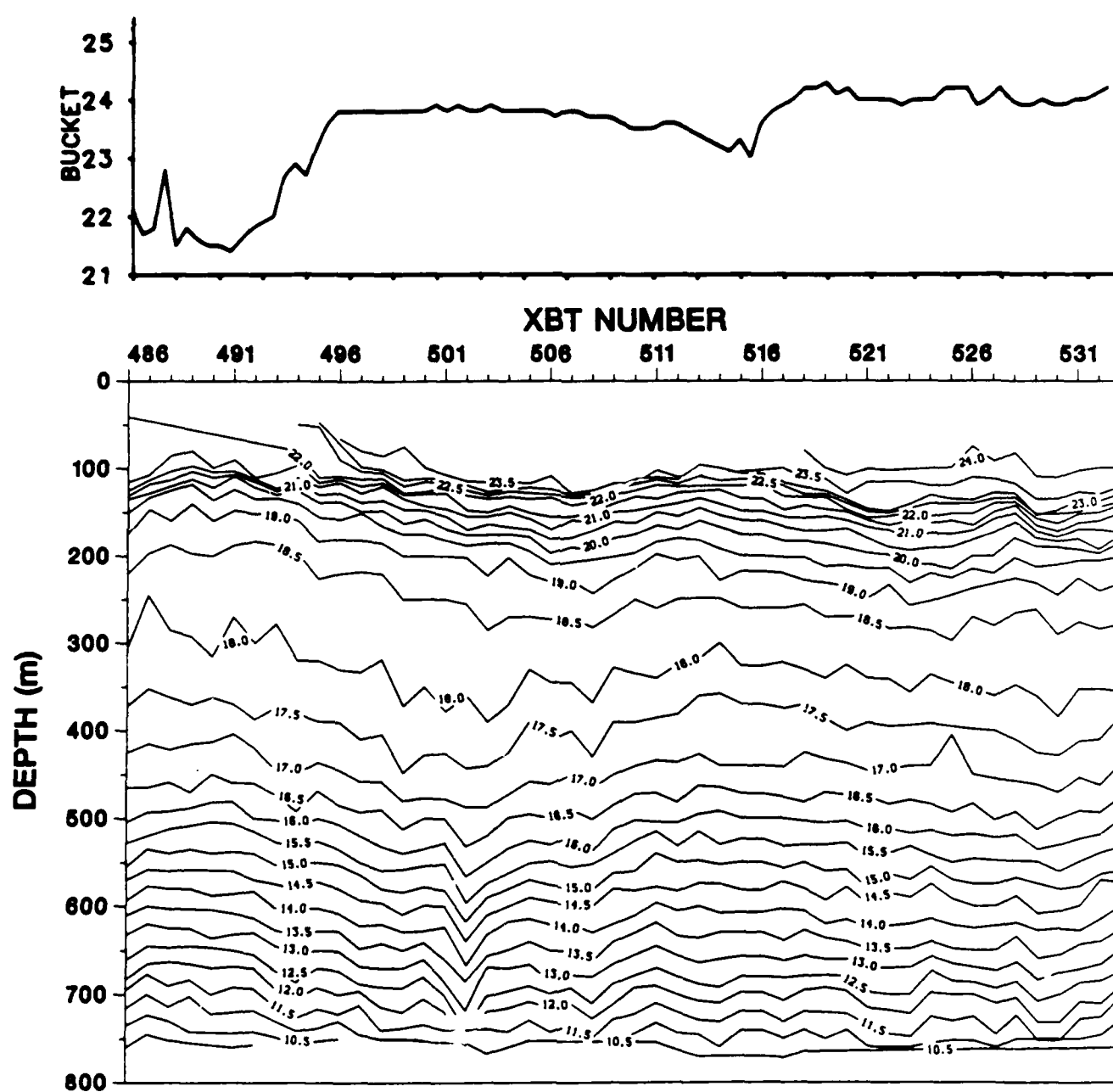


Figure IV-100. XBT Section 5.
(KNORR 119)

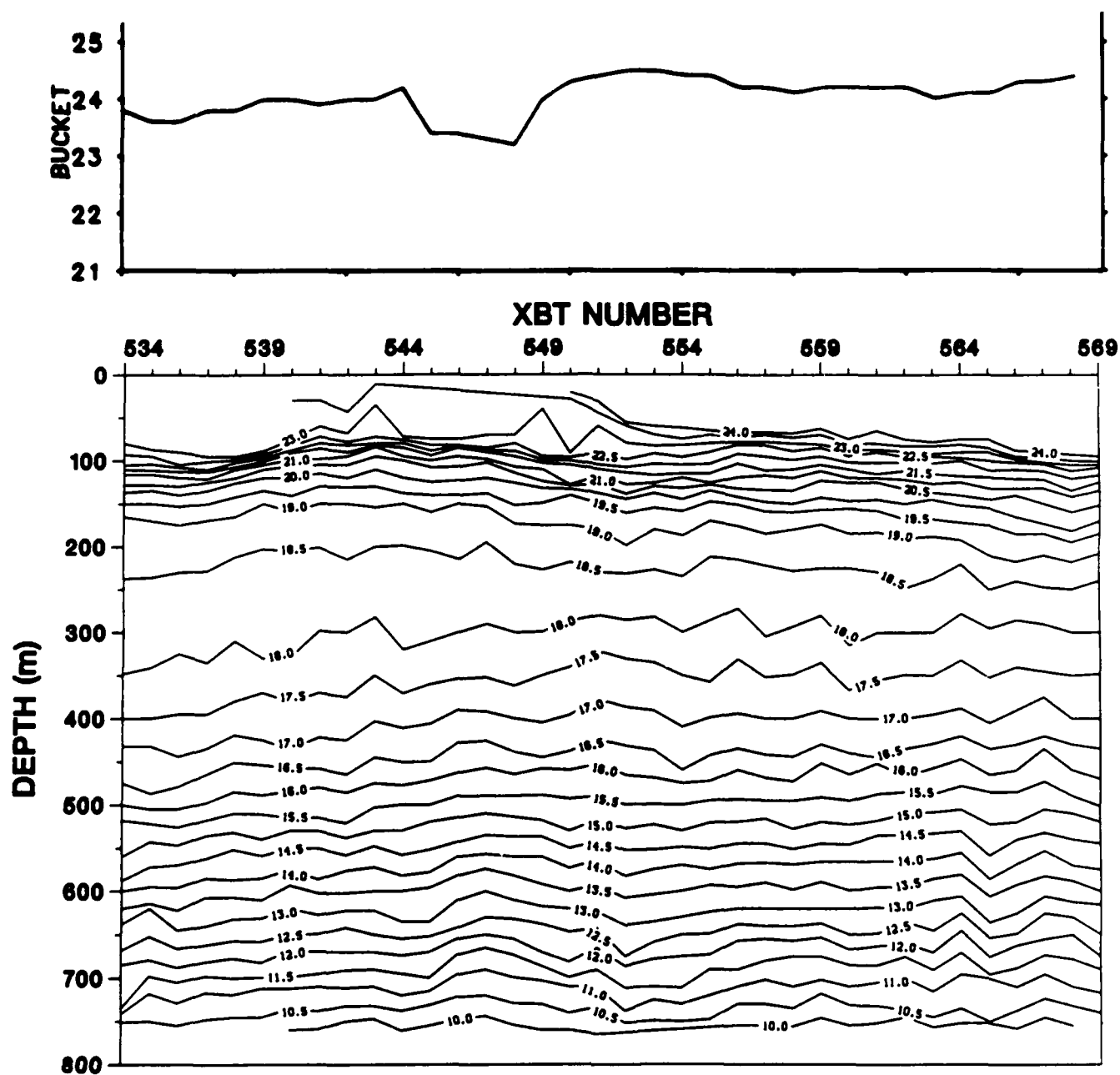


Figure IV-10m. XBT Section 7a (refer to Fig. IV-8).
(KNORR 119)

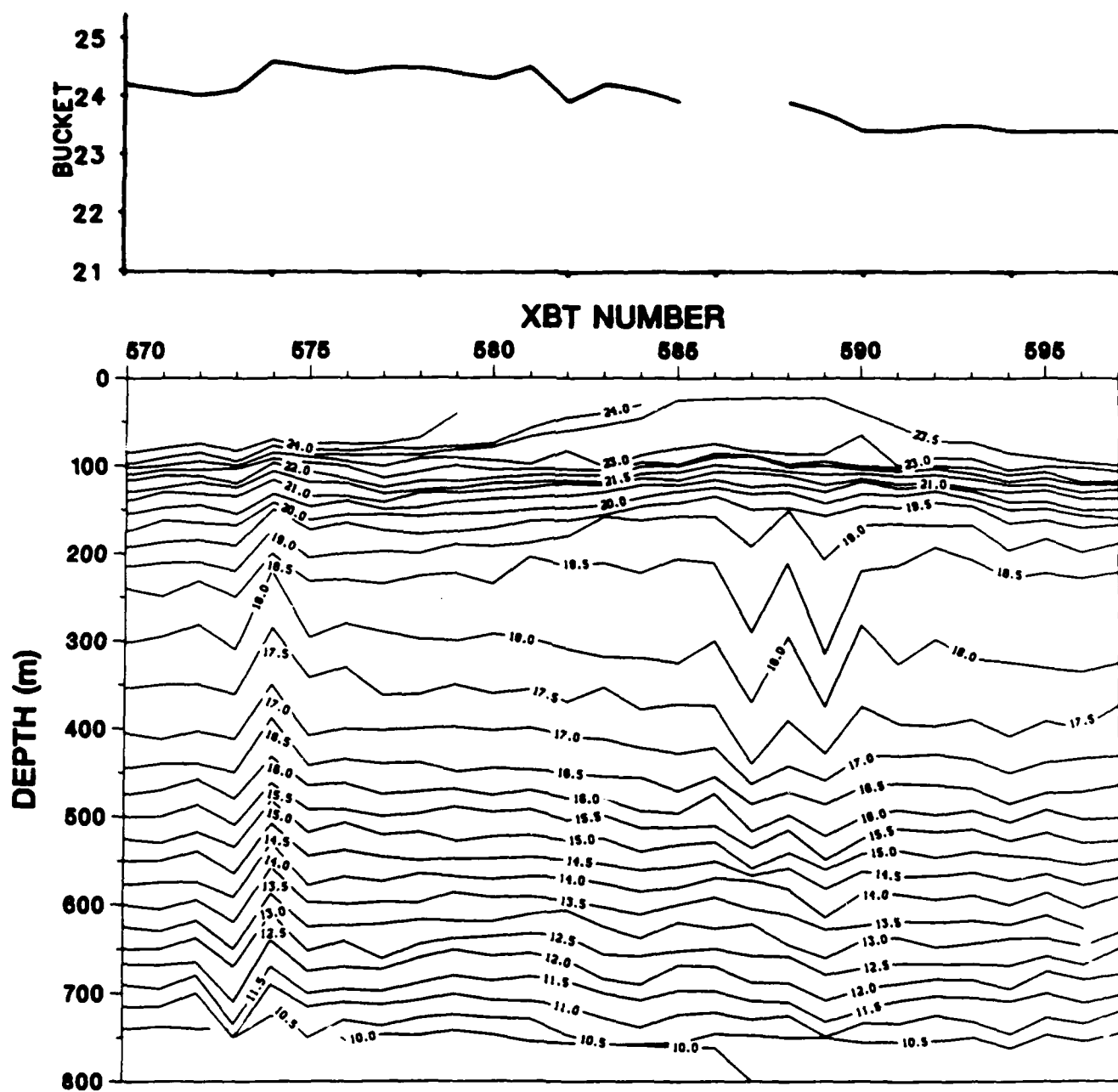


Figure IV-10n. XBT Section 7b (refer to Fig. IV-8).
(KNORR 119)

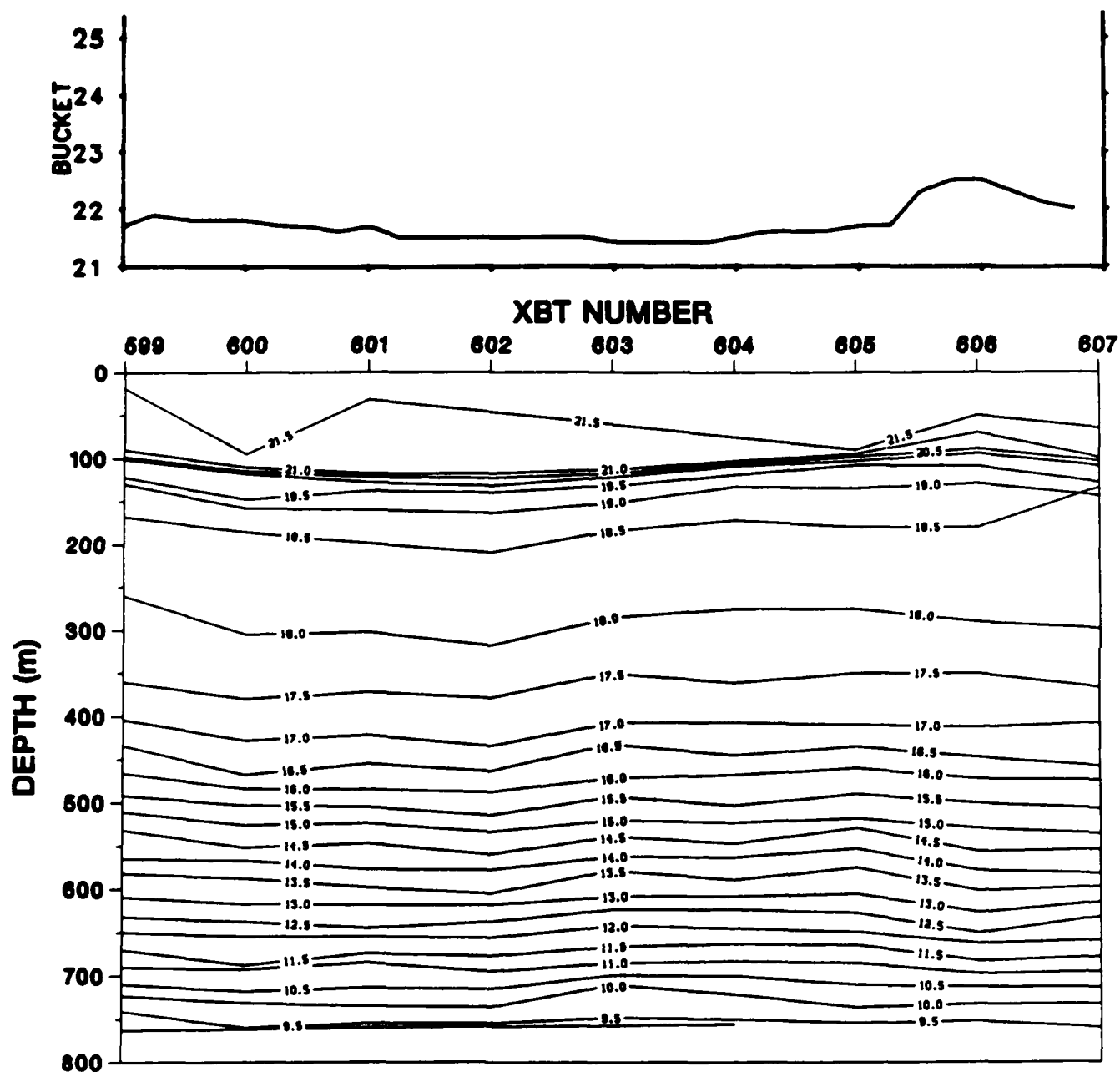


Figure IV-10o. XBT Section 8.
(KNORR 119)

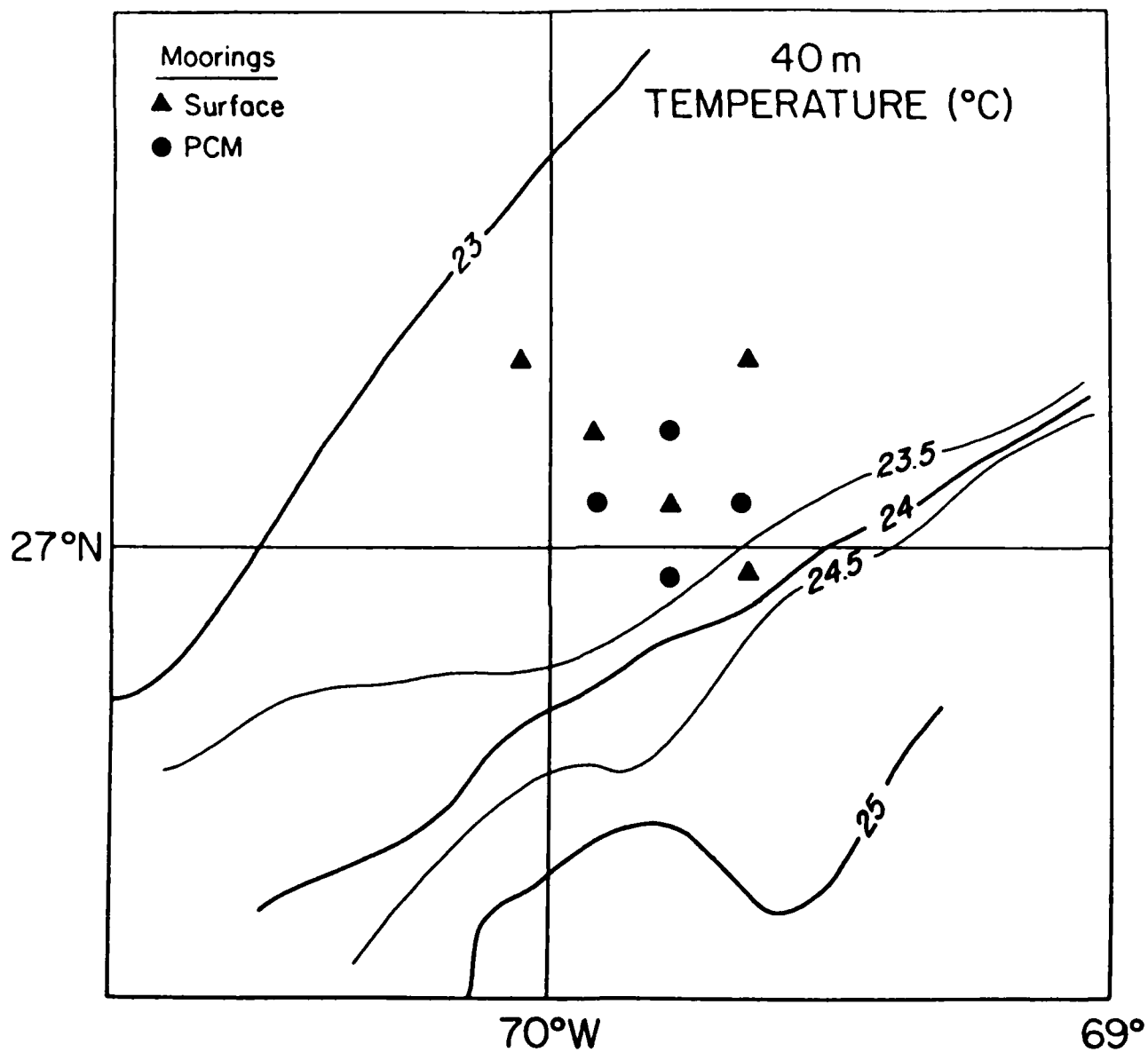


Figure IV-11

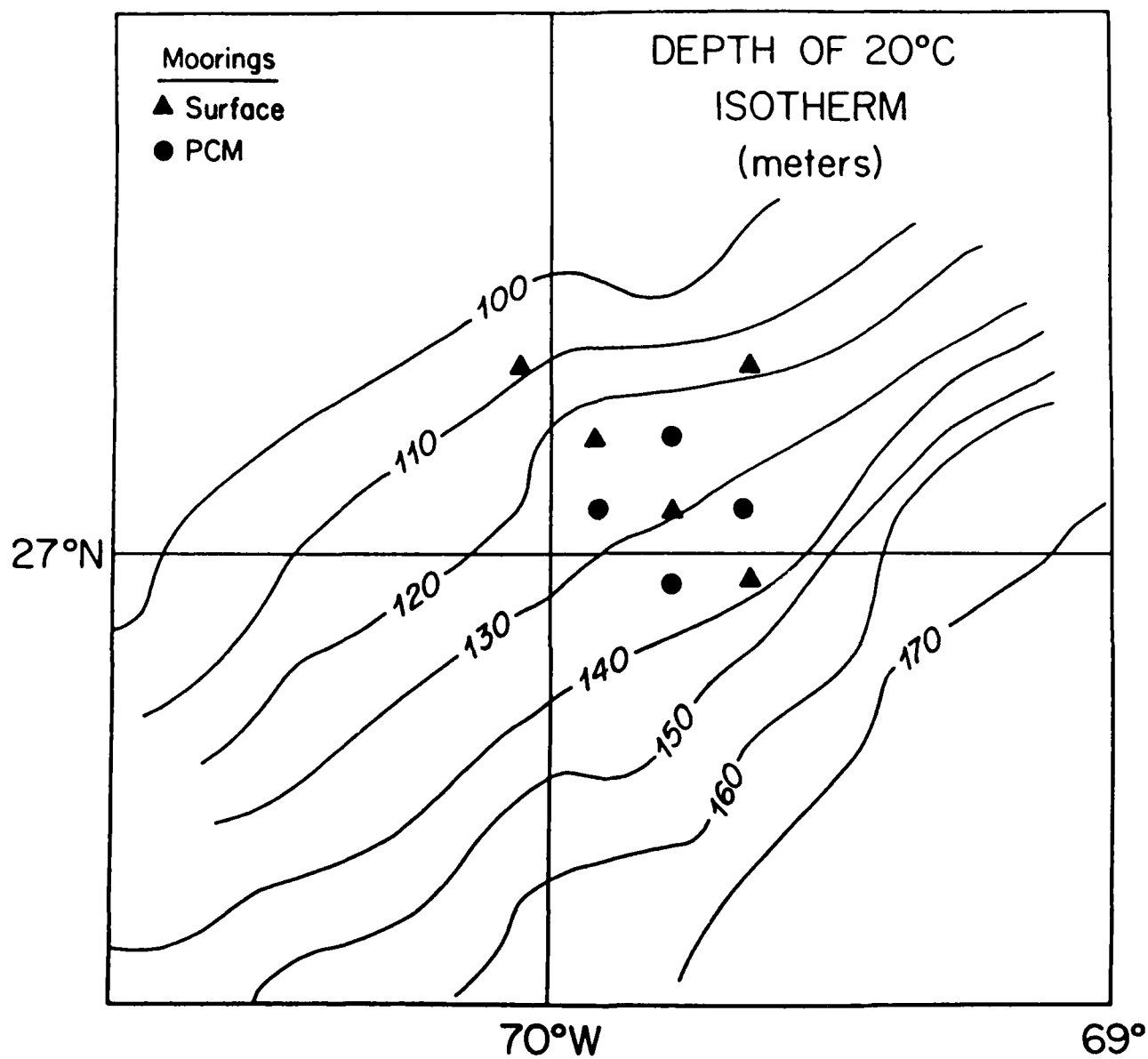


Figure IV-12

Table IV-1: KNORR CRUISE 119 XBT LOG

XBT#	TIME (GMT)	DAY/MONTH	LATITUDE	LONGITUDE
1	1705	8 Jan	38°20.56	70°02.53
2	1800	8 Jan	38°13.74	70°00.16
3	Bad Probe			
4	1900	8 Jan	38°03.99	70°00.00
5	2000	8 Jan	38°00.67	70°03.66
6	2100	8 Jan	37°50.62	70°03.02
7	2200	8 Jan	37°41.38	70°00.90
8	2300	8 Jan	37°28.77	69°56.25
9	0000	9 Jan	37°19.91	69°54.47
10	0100	9 Jan	37°10.79	69°50.84
11	0200	9 Jan	36°59.78	69°45.18
12	0300	9 Jan	36°50.13	69°41.16
13	0400	9 Jan	36°40.37	69°38.75
14	0500	9 Jan	36°31.36	69°37.19
15	0600	9 Jan	36°22.03	69°36.00
16	0700	9 Jan	36°13.01	69°37.24
17	0800	9 Jan	36°04.75	69°39.00
18	0900	9 Jan	35°55.69	69°41.34
19	1000	9 Jan	35°46.84	69°42.39
20	1100	9 Jan	35°37.44	69°43.19
21	Bad Probe			
22	1209	9 Jan	35°26.87	69°44.90
23	1300	9 Jan	35°18.75	69°46.45
24	1400	9 Jan	35°09.18	69°48.40
25	1500	9 Jan	34°59.96	69°50.31
26	1600	9 Jan	34°50.41	69°51.87
27	1700	9 Jan	34°41.00	69°53.62
28	1800	9 Jan	34°31.94	69°55.57
29	1900	9 Jan	34°22.34	69°58.06
30	2000	9 Jan	34°13.00	69°58.46
31	2100	9 Jan	34°02.95	69°59.44
32	2200	9 Jan	33°53.50	70°00.28
33	2300	9 Jan	33°43.55	69°59.54
34	0000	10 Jan	33°34.10	69°58.46
35	0100	10 Jan	33°24.08	69°57.76
36	0200	10 Jan	33°15.92	69°58.45
37	0300	10 Jan	33°04.84	69°56.95
38	0400	10 Jan	32°55.34	69°56.98
39	0500	10 Jan	32°46.39	69°56.71
40	0600	10 Jan	32°37.15	69°56.83
41	0700	10 Jan	32°27.24	69°56.70
42	0800	10 Jan	32°17.34	69°55.05
43	0900	10 Jan	32°07.00	69°54.14
44	1000	10 Jan	31°56.10	69°53.62
45	1100	10 Jan	31°45.82	69°53.16
46	1200	10 Jan	31°35.75	69°52.60
47	1300	10 Jan	31°24.91	69°52.28
48	1400	10 Jan	31°14.62	69°52.38
49	1500	10 Jan	31°04.07	69°52.19
50	1600	10 Jan	30°53.61	69°52.52

Table IV-1 (continued)

XBT#	TIME	DAY/MONTH	LATITUDE	LONGITUDE
51	1700	10 Jan	30°44.44	69°52.98
52	1730	10 Jan	30°39.16	69°53.33
53	1800	10 Jan	30°35.10	69°53.68
54	1830	10 Jan	30°31.21	69°54.26
55	1900	10 Jan	30°27.21	69°54.42
56	1930	10 Jan	30°21.68	69°54.64
57	2000	10 Jan	30°16.90	69°52.25
58	2030	10 Jan	30°11.74	69°55.73
59	2100	10 Jan	30°06.30	69°56.24
60	2130	10 Jan	30°01.50	69°56.70
61	2200	10 Jan	29°56.50	69°57.42
62	2215	10 Jan	29°54.10	69°57.85
63	2230	10 Jan	29°51.50	69°58.20
64	2245	10 Jan	29°49.88	69°57.35
65	2300	10 Jan	29°48.53	69°57.53
66	2315	10 Jan	29°45.38	69°57.68
67	2330	10 Jan	29°43.34	69°57.93
68	2345	10 Jan	29°41.66	69°58.26
69	0000	10 Jan	29°39.40	69°58.48
70	0015	11 Jan	29°37.18	69°58.15
71	0030	11 Jan	29°35.06	69°58.38
72	0045	11 Jan	29°33.00	69°58.23
73	0100	11 Jan	29°30.94	69°58.00
74	0115	11 Jan	29°28.71	69°57.77
75	0130	11 Jan	29°26.73	69°57.87
76	0145	11 Jan	29°24.76	69°57.54
77	0200	11 Jan	29°22.80	69°57.41
78	0215	11 Jan	29°20.85	69°57.49
79	0230	11 Jan	29°18.87	69°57.44
80	0245	11 Jan	29°17.15	69°57.85
81	0300	11 Jan	29°15.21	69°58.11
82	0315	11 Jan	29°13.30	69°57.62
83	0330	11 Jan	29°11.47	69°57.84
84	0345	11 Jan	29°09.43	69°57.62
85	0400	11 Jan	29°07.42	69°57.45
86	0415	11 Jan	29°05.63	69°57.35
87	0430	11 Jan	29°05.28	69°58.49
88	0504	11 Jan	29°03.87	69°57.87
89	0508	11 Jan	29°02.09	69°57.98
90	0515	11 Jan	29°02.24	69°57.93
91	0530	11 Jan	28°59.62	69°57.10
92	0547	11 Jan	28°58.49	69°58.26
93	0600	11 Jan	28°56.52	69°57.89
94	0614	11 Jan	28°54.12	69°57.85
95	0630	11 Jan	28°52.91	69°58.21
96	0645	11 Jan	28°50.92	69°57.67
97	0700	11 Jan	28°49.02	69°57.57
98	0715	11 Jan	28°47.16	69°57.34
99	0730	11 Jan	28°45.22	69°57.16
100	0745	11 Jan	28°43.36	69°57.14

Table IV-1 (continued)

XBT#	TIME	DAY/MONTH	LATITUDE	LONGITUDE
101	0800	11 Jan	28°41.43	69°57.16
102	0815	11 Jan	28°39.42	69°57.09
103	0830	11 Jan	28°37.55	69°57.12
104	0845	11 Jan	28°35.33	69°56.40
105	0900	11 Jan	28°33.49	69°56.96
106	0915	11 Jan	28°31.55	69°56.80
107	0930	11 Jan	28°29.87	69°57.40
108	0945	11 Jan	28°28.30	69°57.99
109	1000	11 Jan	28°26.73	69°58.59
110	1015	11 Jan	28°24.74	69°58.34
111	1030	11 Jan	28°23.04	69°58.12
112	1045	11 Jan	28°21.16	69°57.92
113	1100	11 Jan	28°19.19	69°57.79
114	1115	11 Jan	28°14.23	69°57.67
115	1130	11 Jan	28°15.00	69°57.51
116	1145	11 Jan	28°13.34	69°57.46
117	1200	11 Jan	28°11.45	69°57.28
118	1215	11 Jan	28°09.51	69°57.19
119	1230	11 Jan	28°07.52	69°57.03
120	1245	11 Jan	28°05.84	69°56.85
121	1300	11 Jan	28°03.79	69°56.69
122	1315	11 Jan	28°01.92	69°56.67
123	1330	11 Jan	28°00.30	69°56.67
124	1345	11 Jan	27°58.20	69°56.69
125	1400	11 Jan	27°56.73	69°56.76
126	1415	11 Jan	27°55.02	69°56.70
127	1430	11 Jan	27°52.63	69°56.69
128	1445	11 Jan	27°50.99	69°55.98
129	1500	11 Jan	27°49.15	69°54.89
130	1515	11 Jan	27°46.05	69°53.43
131	1530	11 Jan	27°44.15	69°53.46
132	Bad Probe			
133	1545	11 Jan	27°41.64	69°53.32
134	1600	11 Jan	27°40.46	69°53.33
135	1615	11 Jan	27°38.62	69°53.07
136	1630	11 Jan	27°36.68	69°52.96
137	1645	11 Jan	27°34.79	69°52.81
138	1700	11 Jan	27°33.34	69°52.74
139	1715	11 Jan	27°31.74	69°52.71
140	1730	11 Jan	27°30.18	69°52.56
141	1745	11 Jan	27°28.55	69°52.45
142	1800	11 Jan	27°26.84	69°52.34
143	1815	11 Jan	27°25.16	69°52.28
144	1830	11 Jan	27°23.48	69°52.14
145	1845	11 Jan	27°21.75	69°52.03
146	1900	11 Jan	27°20.21	69°51.96
147	1915	11 Jan	27°18.43	69°51.98
148	1930	11 Jan	27°16.75	69°51.78
149	1945	11 Jan	27°15.18	69°51.33
150	2000	11 Jan	27°13.52	69°51.39

Table IV-1 (continued)

XBT#	TIME	DAY/MONTH	LATITUDE	LONGITUDE
151	2015	11 Jan	27°11.91	69°51.63
152	2030	11 Jan	27°10.14	69°51.85
153	2045	11 Jan	27°08.43	69°52.21
154	2100	11 Jan	27°06.72	69°52.51
155	2115	11 Jan	27°04.95	69°52.58
156	2130	11 Jan	27°03.18	69°52.79
157	2145	11 Jan	27°01.46	69°52.92
158	2200	11 Jan	26°59.75	69°53.14
159	2215	11 Jan	26°58.12	69°53.40
160	2230	11 Jan	26°56.34	69°53.39
161	2245	11 Jan	26°54.52	69°53.44
162	2300	11 Jan	26°52.80	69°53.82
163	2315	11 Jan	26°51.19	69°54.18
164	2330	11 Jan	26°49.48	69°54.37
165	2345	11 Jan	26°47.77	69°54.59
166	0000	12 Jan	26°45.85	69°54.80
167	0015	12 Jan	26°44.29	69°55.03
168	0030	12 Jan	26°42.60	69°55.26
169	0045	12 Jan	26°40.79	69°55.54
170	0100	12 Jan	26°38.90	69°55.84
171	0115	12 Jan	26°37.28	69°55.77
172	0130	12 Jan	26°35.51	69°55.67
173	Bad Probe			
174	0150	12 Jan	26°32.50	69°55.43
175	0200	12 Jan	26°31.81	69°55.40
176	0215	12 Jan	26°30.04	69°55.67
177	0230	12 Jan	26°28.17	69°55.71
178	0245	12 Jan	26°26.37	69°55.76
179	0300	12 Jan	26°24.60	69°55.80
180	0315	12 Jan	26°22.47	69°55.76
181	0330	12 Jan	26°20.00	69°56.00
182	Bad Probe			
183	0349	12 Jan	26°17.76	69°55.63
184	0400	12 Jan	26°16.49	69°56.11
185	0415	12 Jan	26°14.38	69°55.95
186	0430	12 Jan	26°12.42	69°55.98
187	0445	12 Jan	26°10.22	69°56.02
188	0500	12 Jan	26°07.71	69°55.97
189	0515	12 Jan	26°06.16	69°56.29
190	0530	12 Jan	26°04.02	69°55.95
191	0545	12 Jan	26°02.03	69°56.10
192	0600	12 Jan	25°59.92	69°55.98
193	0615	12 Jan	25°57.96	69°56.17
194	0630	12 Jan	25°55.71	69°55.81
195	0645	12 Jan	25°53.79	69°56.22
196	0700	12 Jan	25°51.82	69°56.39
197	0715	12 Jan	25°50.05	69°56.77
198	0730	12 Jan	25°48.05	69°56.74
199	0745	12 Jan	25°46.04	69°56.84
200	0800	12 Jan	25°43.76	69°56.55

Table IV-1 (continued)

XBT#	TIME	DAY/MONTH	LATITUDE	LONGITUDE
201	0815	12 Jan	25°41.65	69°56.77
202	0830	12 Jan	25°39.43	69°56.85
203	0845	12 Jan	25°37.23	69°56.89
204	0900	12 Jan	25°34.99	69°57.03
205	0915	12 Jan	25°32.85	69°57.19
206	0930	12 Jan	25°30.38	69°56.82
207	0945	12 Jan	25°29.47	69°57.58
208	1000	12 Jan	25°31.14	69°59.48
209	1015	12 Jan	25°32.54	70°01.47
210	1020	12 Jan	25°34.88	70°03.66
211	1045	12 Jan	25°36.63	70°05.49
212	1100	12 Jan	25°38.36	70°07.50
213	1115	12 Jan	25°40.03	70°09.46
214	1130	12 Jan	25°41.82	70°11.47
215	1145	12 Jan	25°43.35	70°13.18
216	1200	12 Jan	25°45.50	70°14.50
217	1215	12 Jan	25°47.10	70°17.75
218	1230	12 Jan	25°48.67	70°19.55
219	1245	12 Jan	25°50.17	70°21.41
220	1300	12 Jan	25°51.68	70°23.41
221	1315	12 Jan	25°53.24	70°25.60
222	1330	12 Jan	25°54.57	70°27.33
223	1345	12 Jan	25°56.16	70°29.38
224	1400	12 Jan	25°57.83	70°31.40
225	1415	12 Jan	25°59.50	70°33.28
226	1430	12 Jan	26°01.12	70°35.08
227	1445	12 Jan	26°02.82	70°36.89
228	1500	12 Jan	26°04.54	70°38.62
229	1515	12 Jan	26°06.15	70°40.30
230	1530	12 Jan	26°07.75	70°42.08
231	1545	12 Jan	26°09.38	70°43.97
232	1600	12 Jan	26°11.01	70°45.82
233	1615	12 Jan	26°12.62	70°47.61
234	1630	12 Jan	26°14.25	70°49.37
235	1645	12 Jan	26°15.97	70°51.18
236	1700	12 Jan	26°17.60	70°52.87
237	1715	12 Jan	26°19.25	70°53.78
238	1730	12 Jan	26°20.89	70°52.11
239	1745	12 Jan	26°22.67	70°50.48
240	1800	12 Jan	26°24.31	70°49.67
241	1815	12 Jan	26°25.97	70°47.01
242	1830	12 Jan	26°27.58	70°45.30
243	1845	12 Jan	26°29.24	70°43.60
244	1900	12 Jan	26°29.15	70°41.69
245	1915	12 Jan	26°27.57	70°39.82
246	1930	12 Jan	26°25.98	70°37.97
247	1945	12 Jan	26°24.39	70°36.19
248	2000	12 Jan	26°22.80	70°34.43
249	2015	12 Jan	26°21.21	70°32.68
250	2030	12 Jan	26°19.66	70°30.94

Table IV-1 (continued)

XBT#	TIME	DAY/MONTH	LATITUDE	LONGITUDE
251	2045	12 Jan	26°18.02	70°29.13
252	2100	12 Jan	26°16.39	70°27.32
253	2115	12 Jan	26°14.77	70°25.54
254	2130	12 Jan	26°13.15	70°23.76
255	2145	12 Jan	26°11.53	70°21.87
256	2200	12 Jan	26°10.01	70°20.33
257	2215	12 Jan	26°08.95	70°18.33
258	2230	12 Jan	26°06.98	70°16.40
259	2245	12 Jan	26°05.36	70°14.42
260	2300	12 Jan	26°03.85	70°12.73
261	2315	12 Jan	26°02.36	70°11.07
262	2330	12 Jan	26°00.82	70°09.30
263	2345	12 Jan	25°59.25	70°07.59
264	0000	13 Jan	25°57.79	70°05.93
265	0015	13 Jan	25°56.21	70°03.87
266	0030	13 Jan	25°54.95	70°02.23
267	0045	13 Jan	25°53.46	70°00.48
268	0100	13 Jan	25°52.09	69°58.91
269	0115	13 Jan	25°50.60	69°57.04
270	0130	13 Jan	25°49.03	69°55.01
271	0145	13 Jan	25°47.76	69°53.52
272	0200	13 Jan	25°46.22	69°51.57
273	0215	13 Jan	25°44.88	69°50.16
274	0230	13 Jan	25°43.14	69°47.99
275	0245	13 Jan	25°41.70	69°46.37
276	0300	13 Jan	25°40.41	69°45.13
277	0315	13 Jan	25°38.76	69°43.27
278	0330	13 Jan	25°37.12	69°41.59
279	0345	13 Jan	25°37.59	69°40.88
280	0400	13 Jan	25°40.16	69°41.38
281	0415	13 Jan	25°42.44	69°41.22
282	Bad Probe			
283	0435	13 Jan	25°43.87	69°41.20
284	0445	13 Jan	25°47.21	69°41.17
285	0500	13 Jan	25°49.62	69°41.36
286	0515	13 Jan	25°51.88	69°41.14
287	0530	13 Jan	25°54.30	69°41.12
288	0545	13 Jan	25°56.65	69°41.25
289	0600	13 Jan	25°58.91	69°41.23
290	0615	13 Jan	26°00.91	69°42.42
291	0630	13 Jan	26°02.52	69°44.08
292	0645	13 Jan	26°04.15	69°45.91
293	0700	13 Jan	26°05.61	69°47.24
294	0715	13 Jan	26°07.23	69°48.89
295	0730	13 Jan	26°09.00	69°50.72
296	0745	13 Jan	26°10.65	69°52.25
297	0800	13 Jan	26°12.17	69°53.75
298	0815	13 Jan	26°13.98	69°55.77
299	0830	13 Jan	26°15.51	69°57.30
300	0845	13 Jan	26°17.24	69°59.02

Table IV-1 (continued)

XBT#	TIME	DAY/MONTH	LATITUDE	LONGITUDE
301	0900	13 Jan	26°18.81	70°00.92
302	0915	13 Jan	26°20.39	70°02.71
303	0930	13 Jan	26°22.02	70°04.51
304	0945	13 Jan	26°23.64	70°06.26
305	1000	13 Jan	26°25.35	70°08.07
306	1015	13 Jan	26°27.03	70°09.73
307	1030	13 Jan	26°28.78	70°11.58
308	1045	13 Jan	26°30.45	70°13.41
309	1100	13 Jan	26°32.13	70°15.35
310	1115	13 Jan	26°33.70	70°16.97
311	1130	13 Jan	26°35.42	70°18.91
312	1145	13 Jan	26°36.94	70°20.58
313	1200	13 Jan	26°38.65	70°22.67
314	1215	13 Jan	26°40.43	70°24.80
315	1230	13 Jan	26°42.09	70°26.61
316	1245	13 Jan	26°43.72	70°28.31
317	1300	13 Jan	26°45.36	70°30.03
318	1315	13 Jan	26°47.08	70°31.82
319	1330	13 Jan	26°48.80	70°33.58
320	1345	13 Jan	26°50.48	70°35.44
321	1400	13 Jan	26°52.18	70°37.29
322	1415	13 Jan	26°53.88	70°39.13
323	1430	13 Jan	26°55.55	70°41.00
324	1445	13 Jan	26°57.18	70°42.78
325	1500	13 Jan	26°58.81	70°44.58
326	1515	13 Jan	26°59.72	70°44.17
327	1530	13 Jan	26°59.85	70°41.49
328	1545	13 Jan	26°59.99	70°38.73
329	1600	13 Jan	27°00.21	70°35.94
330	1615	13 Jan	27°00.50	70°33.03
331	1633	13 Jan	27°00.81	70°30.00
332	1645	13 Jan	27°00.97	70°27.64
333	1700	13 Jan	27°01.17	70°24.86
334	1715	13 Jan	27°01.36	70°22.07
335	1730	13 Jan	27°01.61	70°19.26
336	1745	13 Jan	27°01.76	70°16.42
337	1800	13 Jan	27°00.66	70°14.22
338	1815	13 Jan	26°59.12	70°12.17
339	1830	13 Jan	26°57.52	70°10.04
340	1845	13 Jan	26°55.90	70°07.98
341	1900	13 Jan	26°54.32	70°05.96
342	1915	13 Jan	26°52.61	70°04.01
343	1930	13 Jan	26°50.92	70°02.17
344	1945	13 Jan	26°49.24	70°00.21
345	2000	13 Jan	26°47.59	69°58.14
346	2015	13 Jan	26°45.83	69°56.01
347	2030	13 Jan	26°44.04	69°53.93
348	2045	13 Jan	26°42.24	69°51.97
349	2100	13 Jan	26°40.36	69°49.80
350	2115	13 Jan	26°38.84	69°47.90

Table IV-1 (continued)

XBT#	TIME	DAY/MONTH	LATITUDE	LONGITUDE
351	2130	13 Jan	26°37.21	69°45.96
352	2145	13 Jan	26°35.47	69°44.03
353	2200	13 Jan	26°33.74	69°42.24
354	2215	13 Jan	26°32.12	69°40.61
355	2230	13 Jan	26°30.32	69°38.69
356	2245	13 Jan	26°28.39	69°36.53
357	2300	13 Jan	26°26.62	69°34.43
358	Bad Probe			
359	2322	13 Jan	26°24.41	69°32.07
360	2330	13 Jan	26°23.78	69°31.30
361	2345	13 Jan	26°22.48	69°30.00
362	0000	14 Jan	26°20.90	69°28.00
363	0015	14 Jan	26°19.12	69°26.19
364	0030	14 Jan	26°18.71	69°24.16
365	0045	14 Jan	26°20.20	69°22.18
366	0100	14 Jan	26°21.66	69°20.44
367	0115	14 Jan	26°23.09	69°18.54
368	0130	14 Jan	26°24.23	69°16.50
369	0145	14 Jan	26°25.20	69°14.50
370	0200	14 Jan	26°27.72	69°12.94
371	0215	14 Jan	26°29.18	69°10.85
372	0230	14 Jan	26°30.76	69°08.99
373	0245	14 Jan	26°32.10	69°09.41
374	0300	14 Jan	26°34.03	69°11.95
375	0315	14 Jan	26°35.55	69°13.64
376	0330	14 Jan	26°36.88	69°15.04
377	0345	14 Jan	26°38.30	69°16.73
378	Bad Probe			
379	0405	14 Jan	26°40.40	69°19.46
380	0415	14 Jan	26°41.25	69°20.23
381	0430	14 Jan	26°43.17	69°22.65
382	0445	14 Jan	26°44.65	69°24.12
383	0500	14 Jan	26°46.56	69°26.65
384	0515	14 Jan	26°48.11	69°28.02
385	0530	14 Jan	26°49.73	69°29.72
386	Bad Probe			
387	0550	14 Jan	26°51.80	69°31.58
388	0600	14 Jan	26°53.14	69°33.14
389	0615	14 Jan	26°54.89	69°35.02
390	0630	14 Jan	26°56.53	69°36.34
391	0645	14 Jan	26°58.32	69°38.33
392	0700	14 Jan	26°59.93	69°39.85
393	0715	14 Jan	27°01.54	69°41.36
394	0730	14 Jan	27°03.11	69°42.94
395	0745	14 Jan	27°04.74	69°44.51
396	0800	14 Jan	27°06.35	69°46.27
397	0815	14 Jan	27°08.62	69°49.67
398	0830	14 Jan	27°10.99	69°53.06
399	0845	14 Jan	27°12.76	69°54.86
400	0900	14 Jan	27°14.14	69°56.22

Table IV-1 (continued)

XBT#	TIME	DAY/MONTH	LATITUDE	LONGITUDE
401	Bad Probe			
402	0920	14 Jan	27°15.82	69°57.87
403	0930	14 Jan	27°17.48	69°58.22
404	0945	14 Jan	27°19.23	69°56.19
405	1000	14 Jan	27°20.93	69°54.06
406	1015	14 Jan	27°22.39	69°52.13
407	1030	14 Jan	27°23.81	69°50.27
408	1045	14 Jan	27°25.56	69°48.17
409	1100	14 Jan	27°27.28	69°46.10
410	1115	14 Jan	27°28.76	69°44.26
411	1130	14 Jan	27°30.52	69°42.13
412	1145	14 Jan	27°29.83	69°40.23
413	1200	14 Jan	27°28.34	69°38.42
414	1215	14 Jan	27°26.70	69°36.36
415	1230	14 Jan	27°24.96	69°34.15
416	1245	14 Jan	27°23.50	69°32.78
417	1300	14 Jan	27°21.83	69°30.18
418	1315	14 Jan	27°20.24	69°28.30
419	1330	14 Jan	27°18.60	69°26.37
420	1345	14 Jan	27°16.92	69°24.43
421	1400	14 Jan	27°15.28	69°22.44
422	1415	14 Jan	27°13.72	69°20.69
423	1430	14 Jan	27°12.30	69°19.10
424	1445	14 Jan	27°09.40	69°13.41
425	1500	14 Jan	27°07.84	69°11.50
426	1515	14 Jan	27°06.19	69°09.59
427	1530	14 Jan	27°04.52	69°07.80
428	1545	14 Jan	27°02.66	69°05.83
429	1600	14 Jan	27°01.13	69°04.26
430	1615	14 Jan	26°59.38	69°02.56
431	1630	14 Jan	26°57.50	69°00.66
432	1645	14 Jan	26°55.74	68°58.99
433	1700	14 Jan	26°53.90	68°57.66
434	1715	14 Jan	26°53.43	68°58.50
435	1730	14 Jan	26°53.55	69°01.56
436	1745	14 Jan	26°53.69	69°03.21
437	1800	14 Jan	26°53.82	69°05.74
438	1815	14 Jan	26°53.96	69°08.16
439	1830	14 Jan	26°54.13	69°10.41
440	1845	14 Jan	26°54.18	69°12.60
441	1900	14 Jan	26°54.27	69°14.09
442	0415	15 Jan	26°55.33	69°15.12
443	0445	15 Jan	26°55.21	69°18.56
444	0515	15 Jan	26°57.11	69°20.30
445	0545	15 Jan	26°57.23	69°24.53
446	0615	15 Jan	26°57.39	69°28.82
447	0645	15 Jan	26°58.51	69°33.90
448	0700	15 Jan	26°59.03	69°38.99
449	0715	15 Jan	26°59.07	69°41.06
450	0745	15 Jan	26°59.37	69°44.96

Table IV-1 (continued)

XBT#	TIME	DAY/MONTH	LATITUDE	LONGITUDE
451	0815	15 Jan	26°59.48	69°48.69
452	0845	15 Jan	26°59.73	69°52.47
453	0915	15 Jan	27°03.32	69°53.80
454	0945	15 Jan	27°06.53	69°55.40
455	1015	15 Jan	27°11.64	69°57.94
456	1045	15 Jan	27°13.03	69°58.66
457	1115	15 Jan	27°16.17	70°00.58
458	1145	15 Jan	27°18.54	70°03.06
459	1250	16 Jan	27°03.59	69°47.01
460	1307	16 Jan	27°04.96	69°48.48
461	1315	16 Jan	27°05.80	69°49.54
462	1330	16 Jan	27°07.14	69°51.25
463	1345	16 Jan	27°08.54	69°52.97
464	1700	19 Jan	27°12.70	69°32.45
465	1715	19 Jan	27°14.56	69°30.83
466	1730	19 Jan	27°16.30	69°29.17
467	1745	19 Jan	27°18.08	69°27.51
468	1800	19 Jan	27°19.87	69°25.81
469	1815	19 Jan	27°21.68	69°24.11
470	1830	19 Jan	27°23.58	69°22.46
471	1845	19 Jan	27°25.34	69°20.79
472	1900	19 Jan	27°27.18	69°19.19
473	1915	19 Jan	27°28.97	69°17.42
474	1930	19 Jan	27°30.75	69°15.67
475	1945	19 Jan	27°27.18	69°13.93
476	2000	19 Jan	27°34.27	69°12.14
477	2015	19 Jan	27°36.05	69°10.54
478	2030	19 Jan	27°37.87	69°08.65
479	2045	19 Jan	27°39.64	69°06.81
480	2100	19 Jan	27°41.33	69°05.19
481	2130	19 Jan	27°45.17	69°01.17
482	2200	19 Jan	27°48.91	68°57.59
483	2230	19 Jan	27°53.09	68°54.33
484	2300	19 Jan	27°56.91	68°50.24
485	2330	19 Jan	28°01.04	68°46.93
486	1220	24 Jan	30°02.49	66°45.26
487	1245	24 Jan	29°59.90	66°46.62
488	1315	24 Jan	29°56.34	66°49.16
489	1345	24 Jan	29°52.50	66°52.47
490	1415	24 Jan	29°48.40	66°55.69
491	1445	24 Jan	29°44.48	66°58.88
492	1515	24 Jan	29°40.56	67°01.90
493	1545	24 Jan	29°36.49	67°04.87
494	1615	24 Jan	29°32.24	67°08.25
495	1645	24 Jan	29°28.71	67°10.99
496	1715	24 Jan	29°24.82	67°13.55
497	1745	24 Jan	29°21.88	67°16.74
498	1815	24 Jan	29°18.56	67°19.96
499	1845	24 Jan	29°14.96	67°22.96
500	1915	24 Jan	29°11.29	67°26.12

Table IV-1 (continued)

XBT#	TIME	DAY/MONTH	LATITUDE	LONGITUDE
501	1945	24 Jan	29°07.60	67°29.17
502	2015	24 Jan	29°03.92	67°32.34
503	2045	24 Jan	29°00.22	67°35.41
504	2115	24 Jan	28°56.54	67°38.18
505	2145	24 Jan	28°52.87	67°41.25
506	2215	24 Jan	28°49.26	67°44.71
507	2245	24 Jan	28°45.54	67°47.58
508	2315	24 Jan	28°41.67	67°50.19
509	2345	24 Jan	28°37.89	67°53.68
510	0015	25 Jan	28°34.18	67°56.99
511	0045	25 Jan	28°30.40	68°00.27
512	0115	25 Jan	28°26.66	68°03.76
513	0145	25 Jan	28°22.84	68°07.27
514	0215	25 Jan	28°18.83	68°10.28
515	0245	25 Jan	28°14.97	68°13.83
516	Bad Probe			
517	0320	25 Jan	28°10.30	68°17.30
518	0345	25 Jan	28°06.71	68°19.74
519	0415	25 Jan	28°02.84	68°22.97
520	0445	25 Jan	27°58.79	68°25.75
521	0515	25 Jan	27°55.03	68°28.86
522	0545	25 Jan	27°51.68	68°32.33
523	0615	25 Jan	27°48.55	68°36.39
524	0645	25 Jan	27°45.29	68°40.03
525	0715	25 Jan	27°42.19	68°43.76
526	0745	25 Jan	27°39.03	68°47.58
527	0815	25 Jan	27°35.60	68°50.70
528	0845	25 Jan	27°31.81	68°53.51
529	0915	25 Jan	27°28.57	68°56.96
530	0945	25 Jan	27°26.32	69°01.42
531	1015	25 Jan	27°24.22	69°05.95
532	1045	25 Jan	27°22.04	69°10.02
533	1115	25 Jan	27°19.83	69°14.35
534	1720	30 Jan	26°38.11	69°26.64
535	1730	30 Jan	26°37.07	69°25.63
536	1745	30 Jan	26°35.33	69°23.64
537	1800	30 Jan	26°33.59	69°21.79
538	1815	30 Jan	26°31.85	69°20.01
539	1830	30 Jan	26°30.19	69°18.22
540	1845	30 Jan	26°28.52	69°16.49
541	1900	30 Jan	26°26.84	69°14.74
542	1915	30 Jan	26°25.15	69°13.04
543	1930	30 Jan	26°23.44	69°11.37
544	1945	30 Jan	26°21.69	69°09.61
545	2000	30 Jan	26°20.08	69°07.90
546	2015	30 Jan	26°18.30	69°06.03
547	2030	30 Jan	26°16.56	69°04.13
548	2045	30 Jan	26°14.72	69°02.26
549	2100	30 Jan	26°13.11	69°00.41
550	2115	30 Jan	26°11.71	68°58.66

Table IV-1 (continued)

XBT#	TIME	DAY/MONTH	LATITUDE	LONGITUDE
551	2130	30 Jan	26°10.07	68°56.65
552	2145	30 Jan	26°08.51	68°54.88
553	2200	30 Jan	26°07.02	68°53.23
554	2215	30 Jan	26°05.35	68°51.62
555	2230	30 Jan	26°03.60	68°49.48
556	2245	30 Jan	26°01.62	68°47.33
557	2300	30 Jan	25°59.78	68°45.68
558	2315	30 Jan	25°59.14	68°43.70
559	2330	30 Jan	25°59.07	68°41.50
560	2345	30 Jan	25°59.07	68°39.66
561	0000	31 Jan	25°59.14	68°36.86
562	0015	31 Jan	25°59.09	68°34.25
563	0030	31 Jan	25°59.17	68°31.78
564	0045	31 Jan	25°59.33	68°29.38
565	0100	31 Jan	25°59.38	68°26.89
566	0115	31 Jan	25°59.55	68°24.27
567	0130	31 Jan	25°59.69	68°21.89
568	0145	31 Jan	25°59.92	68°19.75
569	0200	31 Jan	26°01.55	68°21.59
570	0215	31 Jan	26°03.14	68°23.61
571	0230	31 Jan	26°04.91	68°25.56
572	0245	31 Jan	26°06.41	68°27.62
573	0300	31 Jan	26°07.97	68°29.74
574	0315	31 Jan	26°09.55	68°31.78
575	0330	31 Jan	26°10.94	68°33.73
576	0345	31 Jan	26°12.55	68°35.74
577	0400	31 Jan	26°14.00	68°37.77
578	0415	31 Jan	26°15.58	68°39.69
579	0430	31 Jan	26°15.19	68°41.41
580	0447	31 Jan	26°18.94	68°43.52
581	0502	31 Jan	26°20.03	68°45.84
582	0517	31 Jan	26°20.21	68°47.91
583	0531	31 Jan	26°23.56	68°49.62
584	0548	31 Jan	26°25.55	68°51.37
585	0601	31 Jan	26°27.27	68°53.14
586	0616	31 Jan	26°28.98	68°54.86
587	0631	31 Jan	26°30.46	68°57.04
588	0649	31 Jan	26°32.10	68°59.24
589	0659	31 Jan	26°33.72	69°01.43
590	0713	31 Jan	26°35.29	69°03.78
591	0731	31 Jan	26°36.87	69°05.86
592	0746	31 Jan	26°38.42	69°07.91
593	0759	31 Jan	26°40.90	69°10.14
594	0814	31 Jan	26°41.61	69°12.31
595	0829	31 Jan	26°43.11	69°14.27
596	0846	31 Jan	26°44.73	69°16.35
597	0859	31 Jan	26°46.37	69°18.65
598	Bad Probe			
599	0430	6 Feb	28°15.62	70°07.40
600	0530	6 Feb	28°22.98	69°59.04

Table IV-1 (continued)

XBT#	TIME	DAY/MONTH	LATITUDE	LONGITUDE
601	0629	6 Feb	28°29.81	69°50.30
602	0730	6 Feb	28°36.86	69°41.46
603	0830	6 Feb	28°42.02	69°32.20
604	0930	6 Feb	28°50.63	69°23.41
605	1030	6 Feb	28°57.63	69°13.99
606	1130	6 Feb	29°04.68	69°04.62
607	1230	6 Feb	29°12.62	68°51.39

FASINEX Knorr 123 XBT Total Pattern

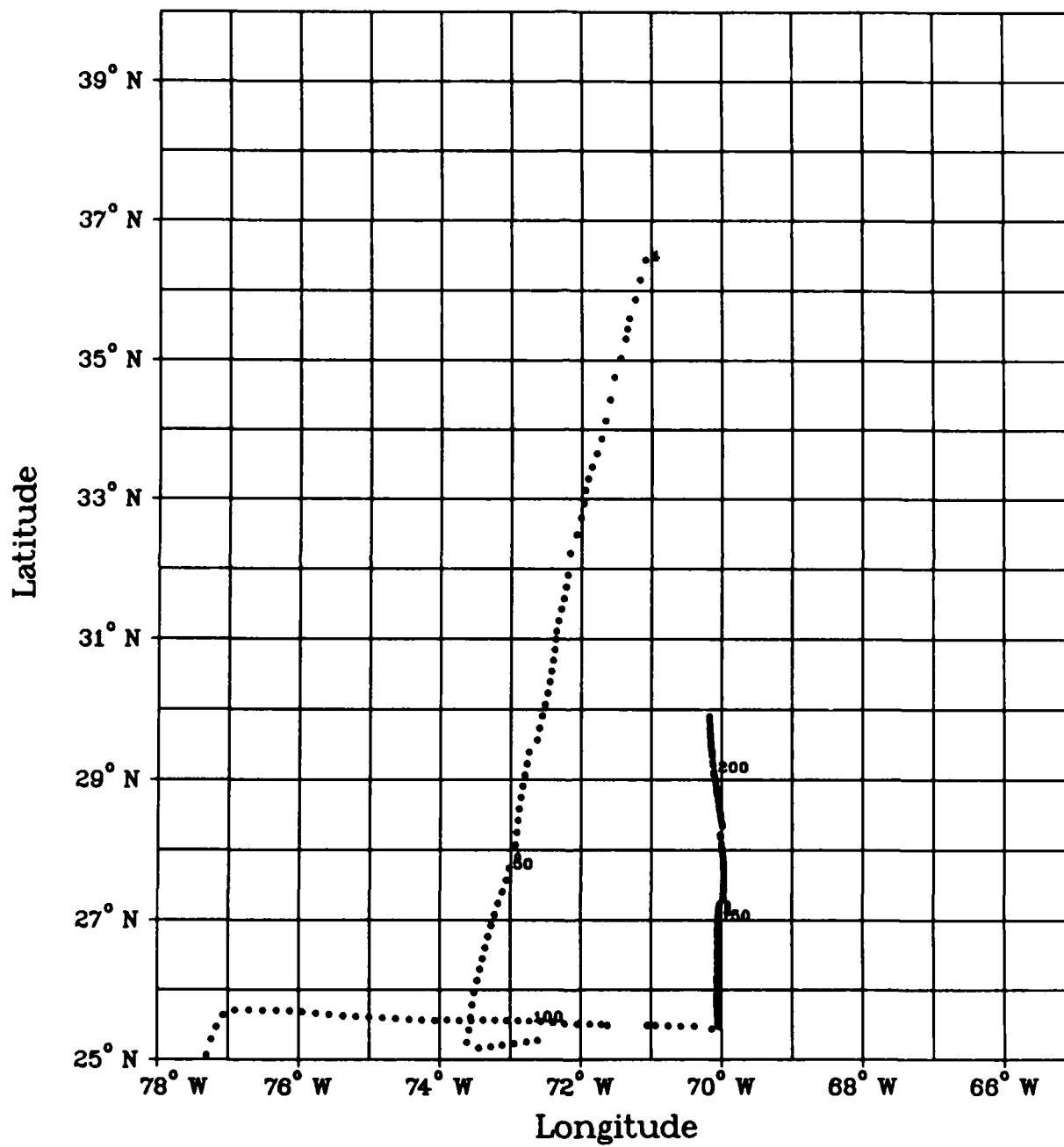


Figure IV-13

FASINEX Knorr 123 XBT Section 1

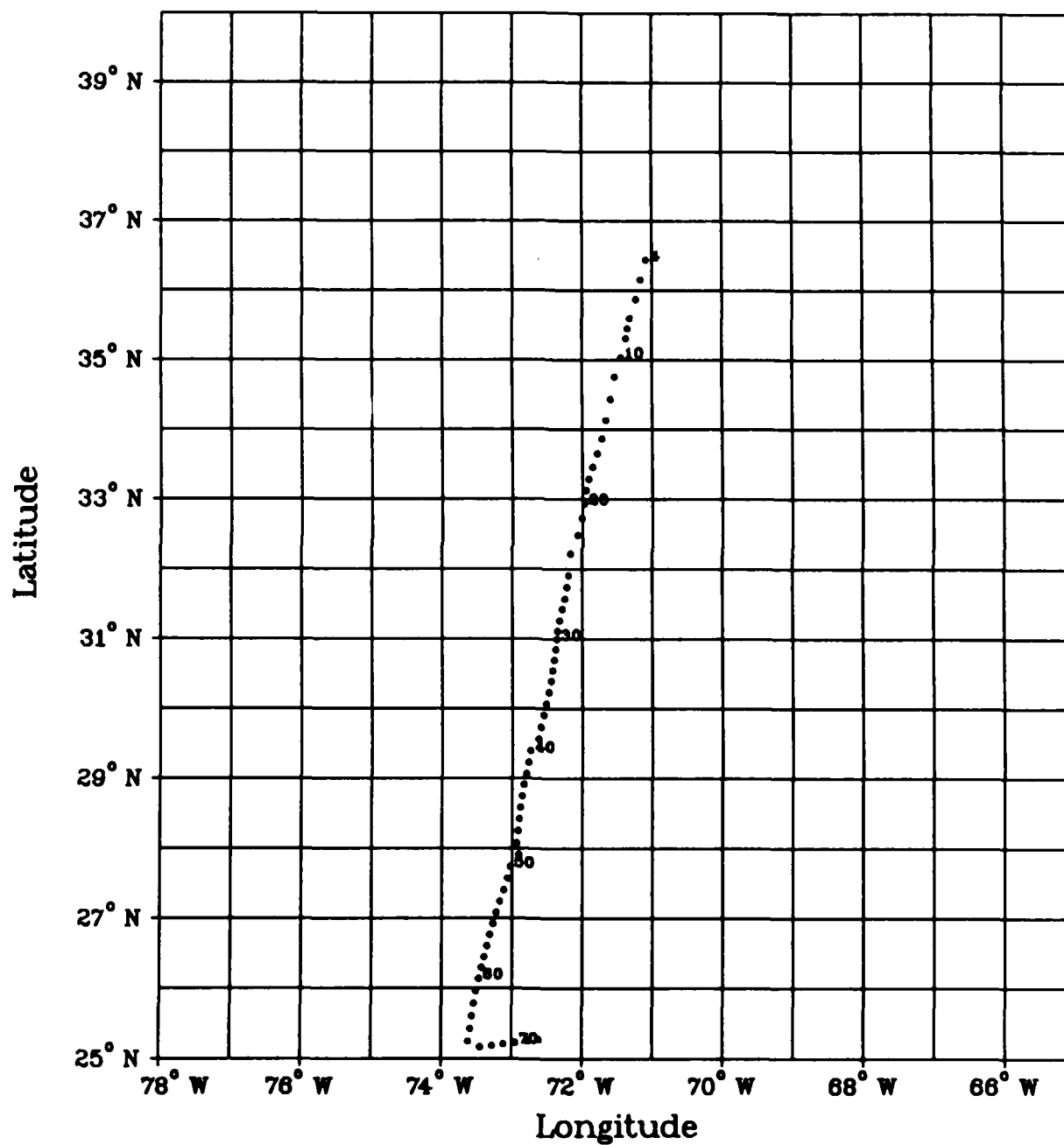


Figure IV-14

FASINEX Knorr 123 XBT Section 2

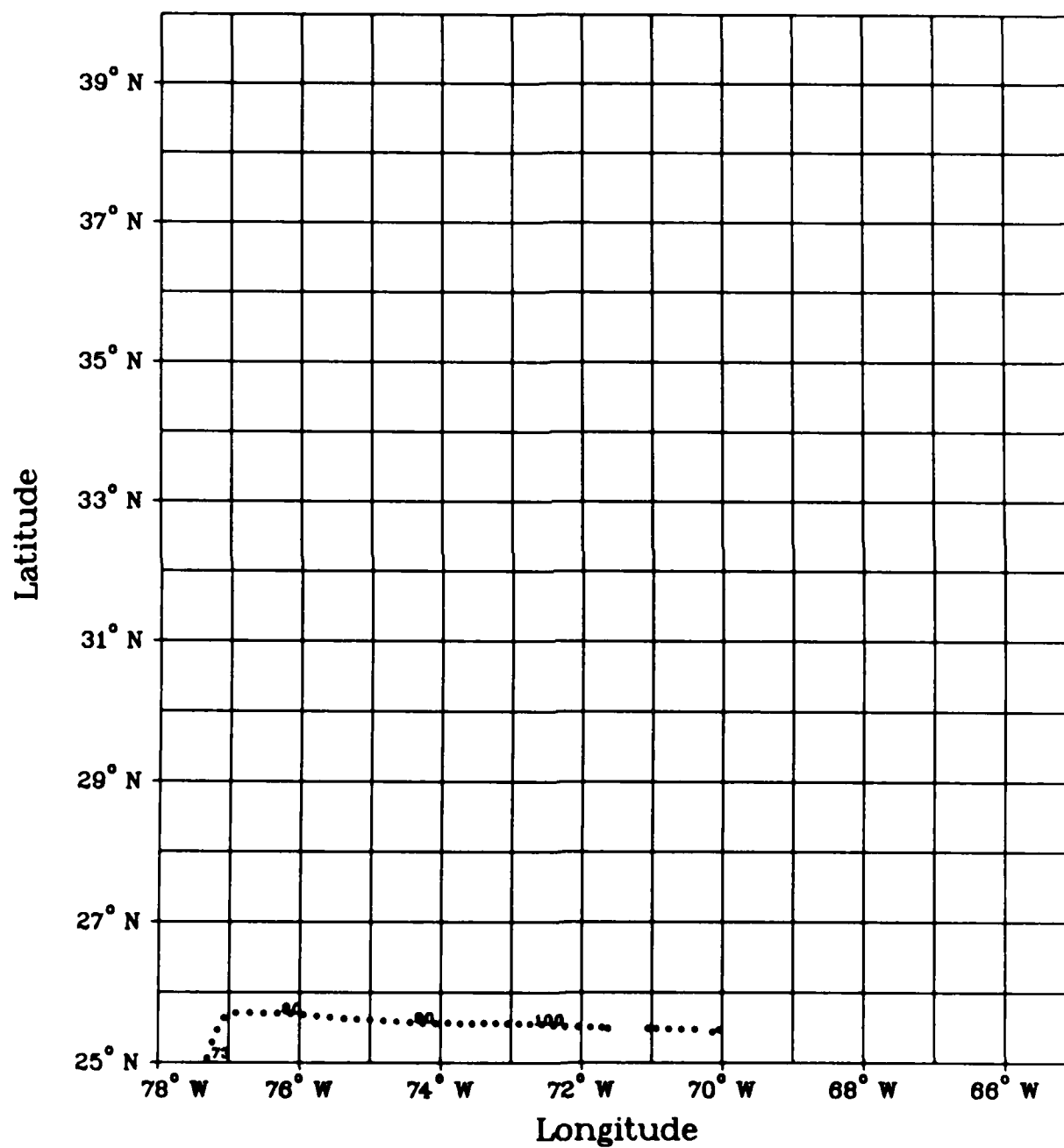


Figure IV-15

FASINEX Knorr 123 XBT Section 3

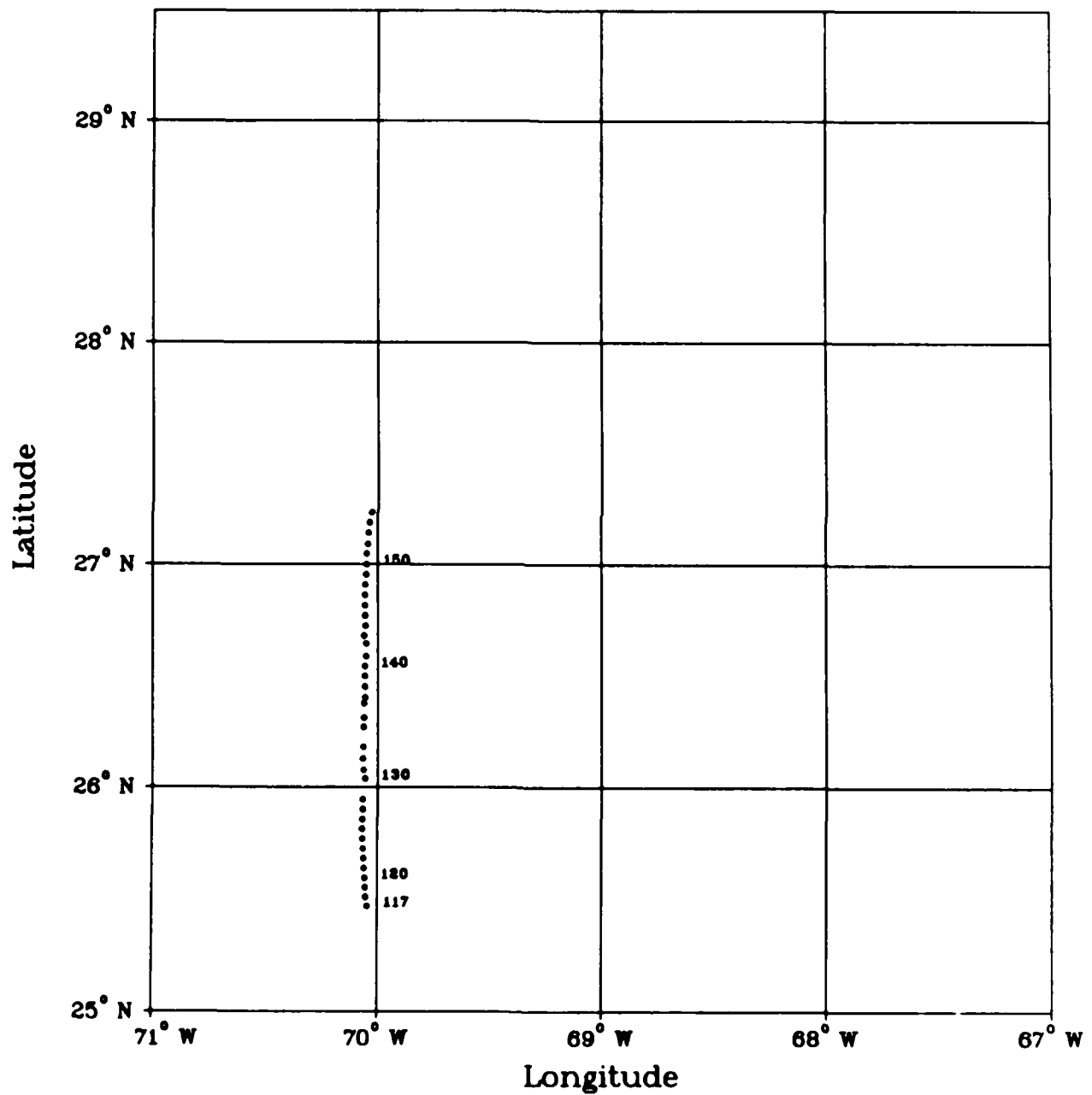


Figure IV-16

FASINEX Knorr 123 XBT Section 4

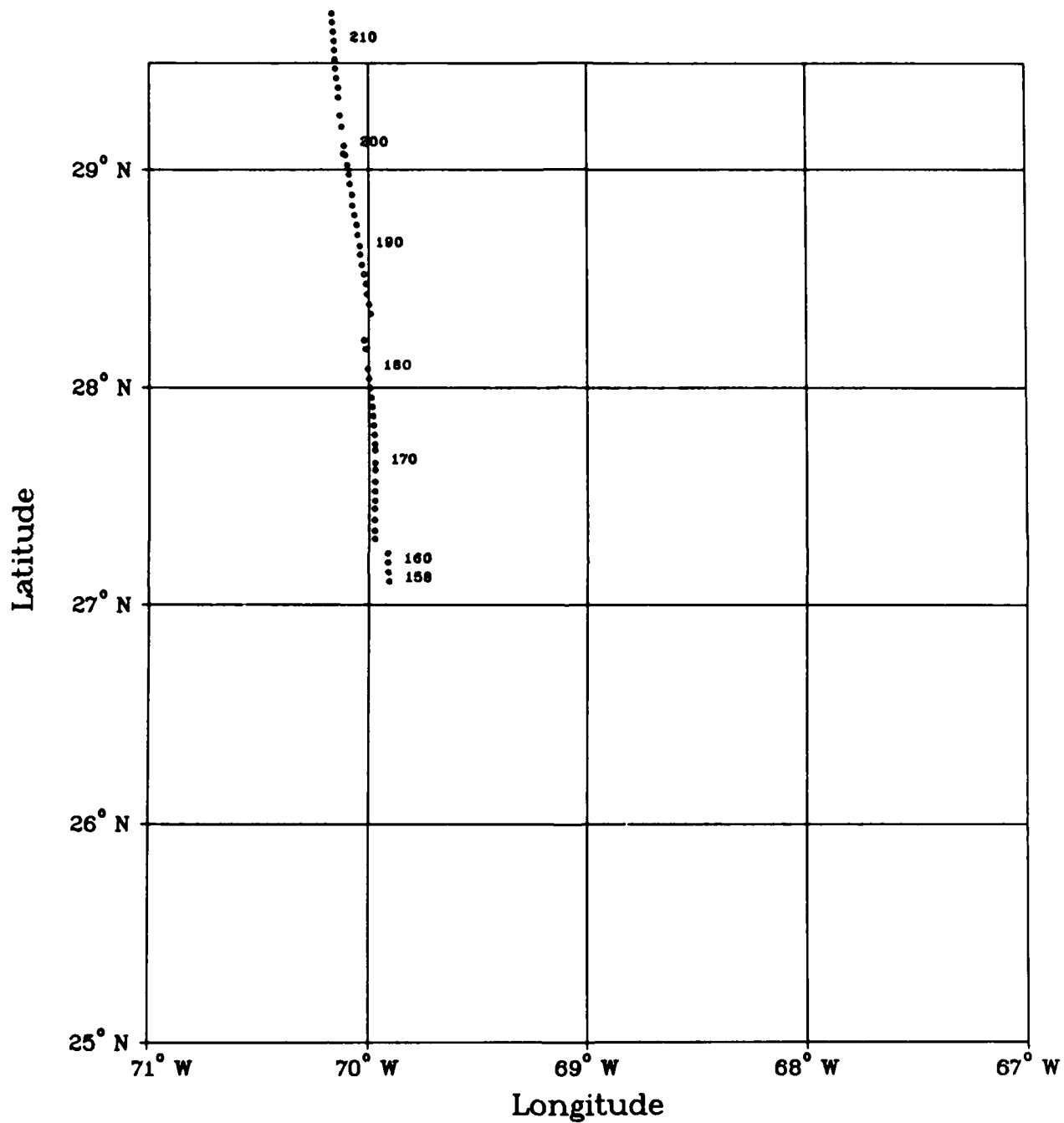


Figure IV-17

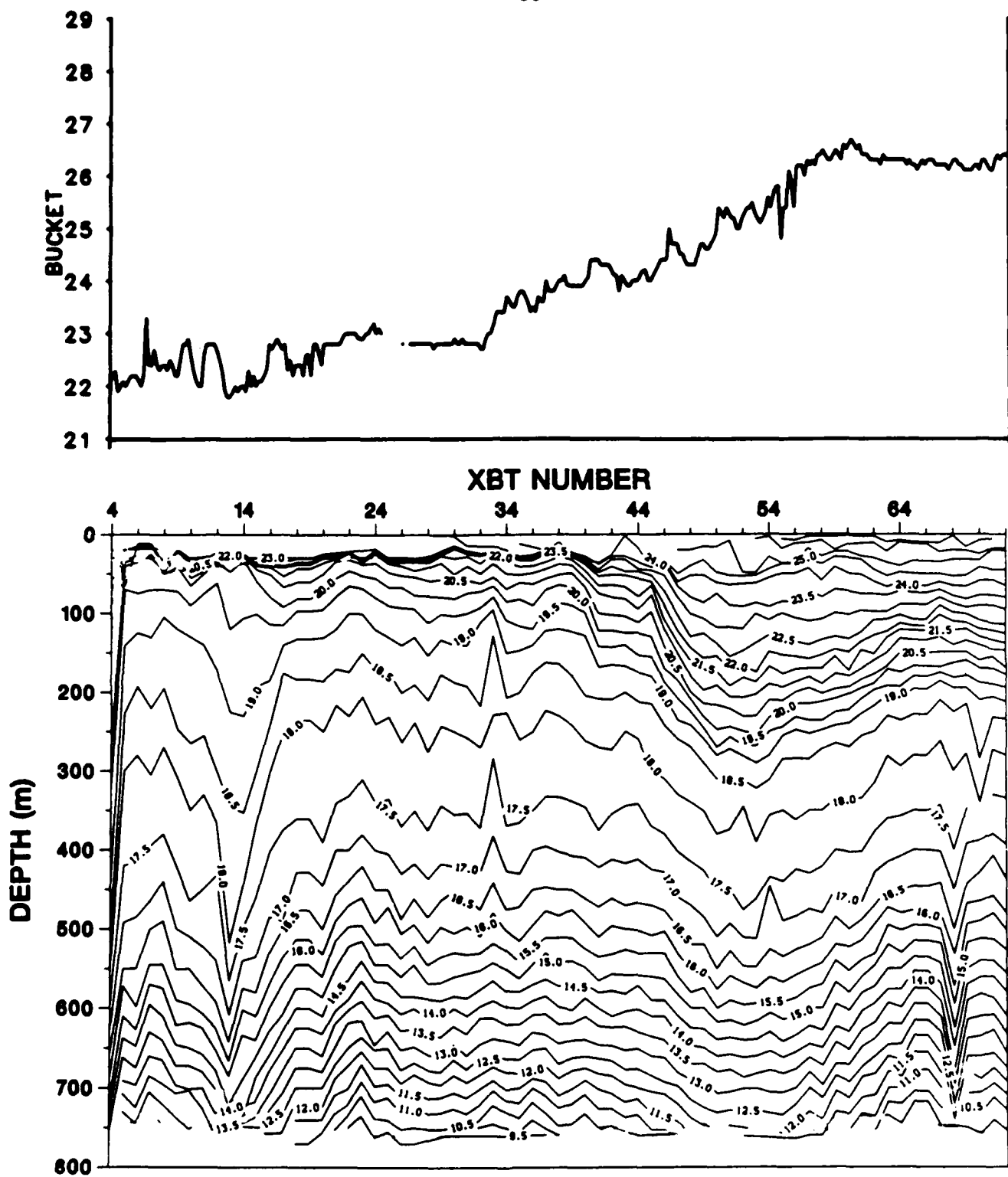


Figure IV-18a. XBT Section 1.
(KNORR 123)

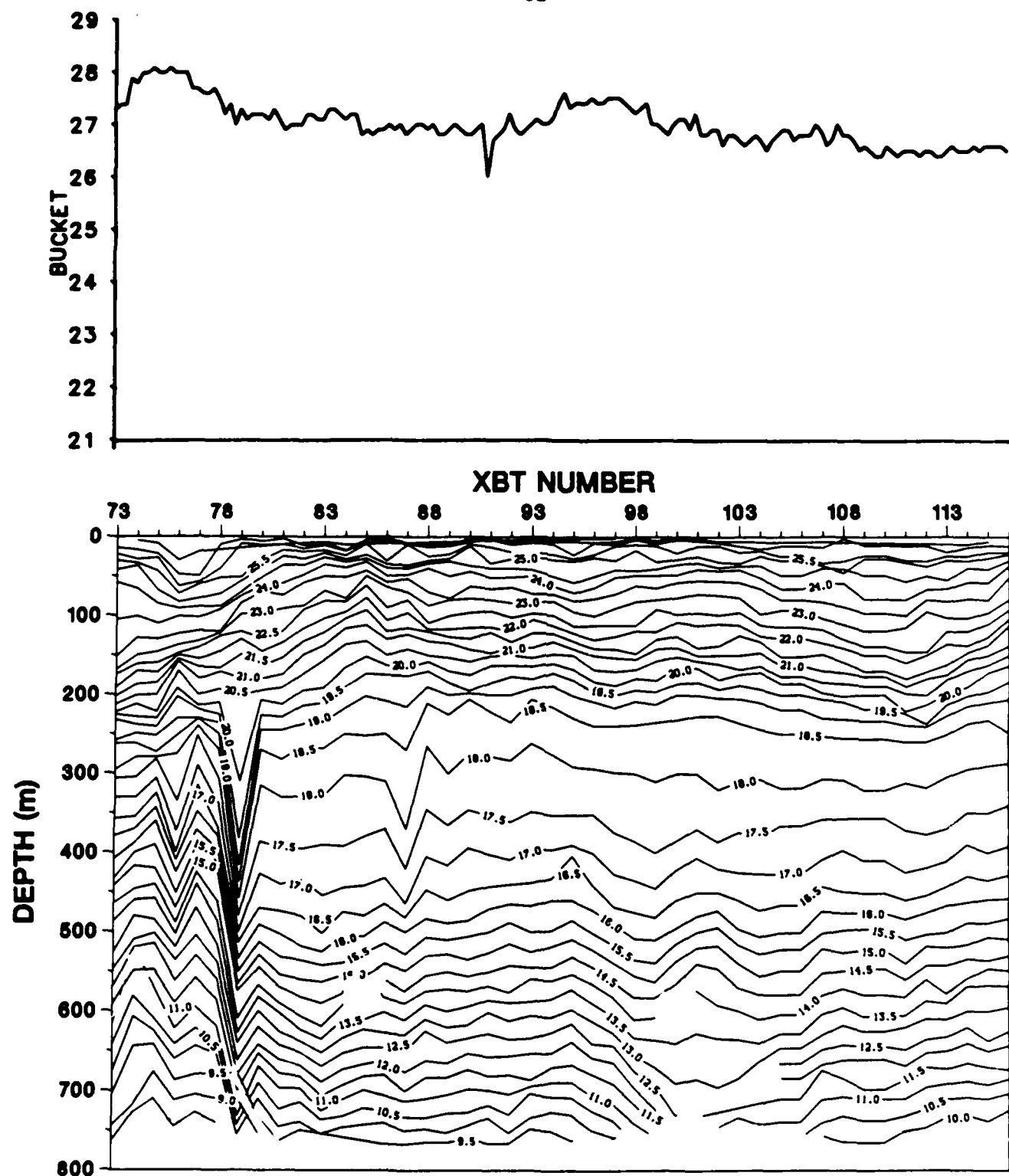


Figure IV-18b. XBT Section 2.
(KNORR 123)

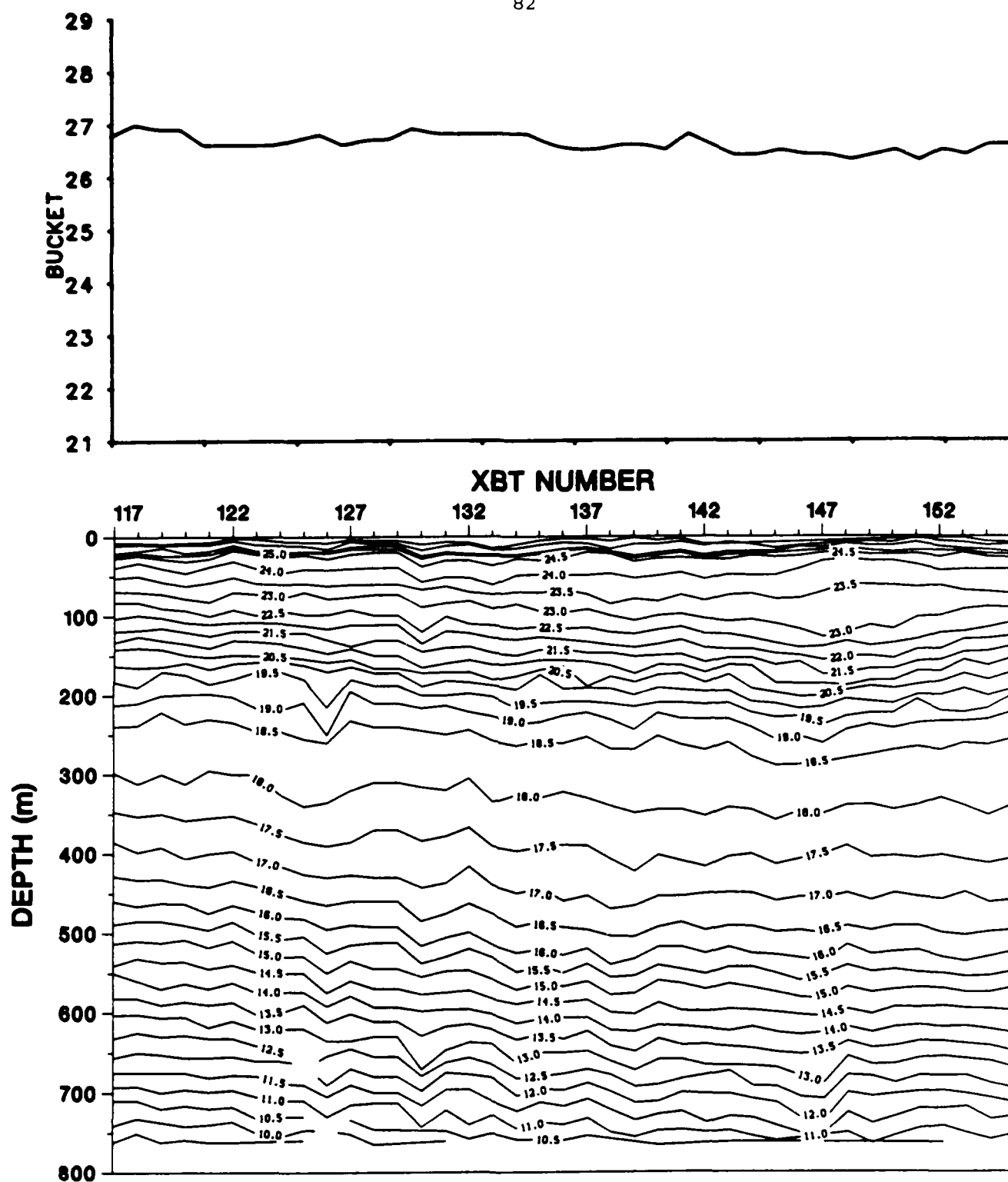


Figure IV-18c. XBT Section 3.
(KNORR 123)

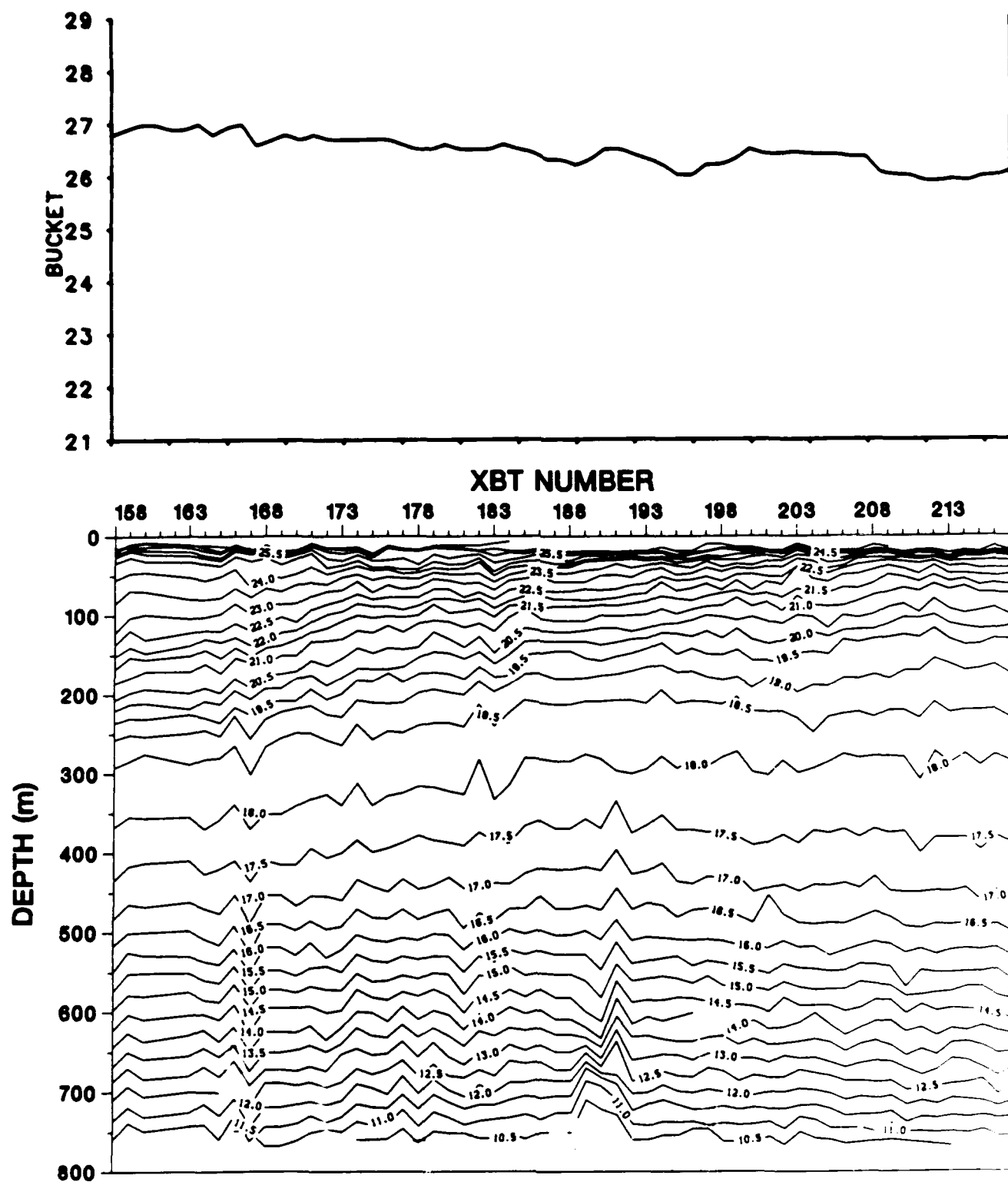


Figure IV-18d. XBT Section 4.
(KNORR 123)

Table IV-2: KNORR CRUISE 123 XBT LOG

XBT #	TIME (GMT)	DAY/MONTH	LATITUDE	LONGITUDE
4	2330	6 Jun	36°26.29	71°05.17
5	0130	7 Jun	36°09.27	71°10.04
6	0330	7 Jun	35°52.38	71°14.15
7	0530	7 Jun	35°36.04	71°19.27
8	0630	7 Jun	35°27.16	71°20.96
9	0730	7 Jun	35°18.54	71°22.49
10	0930	7 Jun	35°02.26	71°26.71
11	1130	7 Jun	34°45.33	71°32.27
12	1330	7 Jun	34°26.03	71°35.91
13	1530	7 Jun	34°07.79	71°39.73
14	1730	7 Jun	33°52.01	71°43.41
15	1930	7 Jun	33°39.09	71°47.38
16	2130	Bad Probe		
17	2133	7 Jun	33°27.43	71°51.42
18	2330	7 Jun	33°17.12	71°54.61
19	0130	8 Jun	33°07.39	71°56.81
20	0330	8 Jun	32°55.98	71°58.26
21	0530	8 Jun	32°43.59	72°00.66
22	0730	8 Jun	32°29.02	72°04.33
23	0930	8 Jun	32°12.98	72°09.84
24	1130	8 Jun	31°54.48	72°11.61
25	1230	8 Jun	31°44.31	72°13.22
26	1330	8 Jun	31°34.49	72°15.05
27	1430	8 Jun	31°25.53	72°17.13
28	1530	8 Jun	31°15.76	72°19.56
29	1630	8 Jun	31°06.65	72°21.39
30	1730	8 Jun	30°59.70	72°22.03
31	1830	8 Jun	30°51.08	72°23.05
32	1930	8 Jun	30°41.92	72°24.18
33	2030	8 Jun	30°32.74	72°25.51
34	2130	8 Jun	30°23.59	72°26.94
35	2230	8 Jun	30°14.02	72°28.80
36	2330	8 Jun	30°04.27	72°31.02
37	0030	9 Jun	29°54.43	72°33.32
38	0130	9 Jun	29°43.97	72°35.77
39	0230	9 Jun	29°33.74	72°37.62
40	0330	9 Jun	29°23.51	72°44.71
41	0430	9 Jun	29°13.46	72°46.35
42	0530	9 Jun	29°03.95	72°48.11
43	0630	9 Jun	28°54.41	72°49.94
44	0730	9 Jun	28°44.80	72°51.55
45	0830	9 Jun	28°35.01	72°52.97
46	0930	9 Jun	28°25.26	72°53.99
47	1030	9 Jun	28°15.05	72°54.93
48	1130	9 Jun	28°04.46	72°56.26
49	1230	9 Jun	27°54.62	72°54.32
50	1330	9 Jun	27°44.21	73°01.55

Table IV-2 (continued)

XBT #	TIME (GMT)	DAY/MONTH	LATITUDE	LONGITUDE
51	1430	9 Jun	27°34.21	73°04.16
52	1530	9 Jun	27°24.25	73°07.14
53	1630	9 Jun	27°14.38	73°10.60
54	1730	9 Jun	27°04.71	73°13.71
55	1830	9 Jun	26°55.27	73°16.55
56	1930	9 Jun	26°45.78	73°19.20
57	2030	9 Jun	26°36.10	73°21.56
58	2130	9 Jun	26°26.69	73°23.90
59	2230	9 Jun	26°17.54	73°26.11
60	2330	9 Jun	26°08.02	73°28.42
61	0030	10 Jun	25°57.52	73°30.96
62	0130	10 Jun	25°47.01	73°32.68
63	0230	Bad Probe		
64	0230	10 Jun	25°36.20	73°33.99
65	0330	10 Jun	25°25.39	73°35.40
66	0430	10 Jun	25°14.72	73°37.14
67	0830	10 Jun	25°09.93	73°27.03
68	0930	10 Jun	25°11.00	73°16.78
69	1030	10 Jun	25°12.31	73°07.01
70	1130	10 Jun	25°13.59	72°56.86
71	1230	10 Jun	25°15.05	72°46.29
72	1330	10 Jun	25°16.36	72°36.94
73	1930	11 Jun	25°03.94	77°18.43
74	2030	11 Jun	25°17.33	77°14.35
75	2130	11 Jun	25°28.00	77°09.95
76	2230	11 Jun	25°38.12	77°04.35
77	2330	11 Jun	25°42.44	76°54.21
78	0030	12 Jun	25°42.55	76°42.38
79	0130	12 Jun	25°42.07	76°30.54
80	0230	12 Jun	25°42.10	76°19.06
81	0330	12 Jun	25°41.70	76°07.75
82	0430	12 Jun	25°40.97	75°56.94
83	0530	12 Jun	25°39.76	75°45.62
84	0630	12 Jun	25°38.72	75°34.25
85	0730	12 Jun	35°37.54	75°22.54
86	0830	12 Jun	25°36.98	75°11.55
87	0930	12 Jun	25°36.48	75°00.23
88	1030	12 Jun	25°35.81	74°48.97
89	1130	12 Jun	25°35.13	74°37.76
90	1230	12 Jun	25°34.41	74°26.27
91	1330	12 Jun	25°33.89	74°15.57
92	1430	12 Jun	25°33.57	74°04.40
93	1530	12 Jun	25°33.98	73°53.95
94	1630	12 Jun	25°33.28	73°43.49
95	1730	12 Jun	25°33.38	73°33.39
96	1830	12 Jun	25°33.84	73°23.29
97	1930	12 Jun	25°33.63	73°13.23
98	2030	12 Jun	25°33.37	73°03.35
99	2130	12 Jun	25°33.23	72°53.46
	2230	12 Jun	25°33.11	72°43.88

Table IV-1 (continued)

XBT #	TIME (GMT)	DAY/MONTH	LATITUDE	LONGITUDE
101	2330	12 Jun	25°32.76	70°04.06
102	0030	13 Jun	25°31.80	70°03.77
103	0130	13 Jun	25°31.08	70°04.00
104	0230	13 Jun	25°30.65	70°03.77
105	0330	13 Jun	25°30.27	70°03.74
106	0430	Bad Probe		
107	0435	13 Jun	25°30.11	70°03.88
108	0530	13 Jun	25°29.31	70°03.96
109	0630	13 Jun		
110	0730	Bad Probe		
111	0736	13 Jun	25°29.23	70°03.43
112	0830	13 Jun	25°29.15	70°06.37
113	0930	13 Jun	25°28.81	70°05.69
114	1030	13 Jun	25°28.56	70°04.71
115	1130	13 Jun	25°28.58	70°03.74
116	1235	13 Jun	25°26.29	70°08.46
117	2100	13 Jun	25°28.12	70°02.74
118	2115	13 Jun	25°30.54	70°03.15
119	2130	13 Jun	25°33.08	70°03.28
120	2145	13 Jun	25°35.60	70°03.36
121	2200	13 Jun	25°38.22	70°03.51
122	2215	13 Jun	25°40.87	70°03.71
123	2230	13 Jun	25°43.46	70°03.78
124	2245	13 Jun	25°46.11	70°03.94
125	2300	13 Jun	25°48.78	70°04.02
126	2315	13 Jun	25°51.32	70°03.93
127	2330	13 Jun	25°53.98	70°03.94
128	2345	13 Jun	25°56.67	70°04.03
129	0000	Bad Probe		
130	0015	14 Jun	26°02.24	70°03.37
131	0030	14 Jun	26°04.62	70°03.77
132	0045	14 Jun	26°07.71	70°04.00
133	0100	14 Jun	26°10.84	70°03.90
134	0130	14 Jun	26°16.23	70°03.76
135	0145	14 Jun	26°18.81	70°03.71
136	0200	14 Jun	26°22.67	70°03.68
137	0215	14 Jun	26°24.26	70°03.34
138	0230	14 Jun	26°27.25	70°03.45
139	0245	14 Jun	26°30.11	70°03.48
140	0300	14 Jun	26°32.71	70°03.48
141	0315	14 Jun	26°35.36	70°03.11
142	0330	14 Jun	26°38.79	70°03.11
143	0345	14 Jun	26°40.91	70°03.71
144	0400	14 Jun	26°43.53	70°03.31
145	0415	14 Jun	26°46.29	70°03.39
146	0430	14 Jun	26°49.01	70°03.49
147	0445	14 Jun	26°51.80	70°03.49
148	0500	14 Jun	26°54.54	70°03.34
149	0515	14 Jun	26°57.26	70°03.13
150	0530	14 Jun	27°00.01	70°02.97

Table IV-2 (continued)

XBT #	TIME (GMT)	DAY/MONTH	LATITUDE	LONGITUDE	
151	0545	14 Jun	27°02.85	70°02.95	
152	0600	14 Jun	27°05.43	70°02.64	
153	0615	14 Jun	27°08.47	70°02.43	
154	0630	14 Jun	27°11.27	70°02.08	
155	0645	14 Jun	27°13.98	70°01.59	
156	1346	15 Jun	26°56.72	69°40.03	
157	1730	15 Jun	27°03.68	69°39.02	
158	2118	21 Jun	27°06.50	69°54.44	
159	2130	21 Jun	27°08.96	69°54.58	
160	2145	21 Jun	27°11.70	69°54.63	
161	2200	21 Jun	27°14.17	69°54.74	
163	2215	21 Jun	27°18.16	69°58.39	GPS
164	2230	21 Jun	27°20.40	69°58.42	GPS
165	2245	21 Jun	27°23.40	69°58.43	GPS
166	2300	21 Jun	27°26.51	69°58.42	GPS
167	2315	21 Jun	27°28.69	69°58.40	GPS
168	2330	21 Jun	27°31.31	69°58.36	GPS
169	2345	21 Jun	27°33.90	69°58.33	GPS
170	0000	22 Jun	27°37.20	69°58.28	GPS
171	0015	22 Jun	27°39.12	69°58.29	GPS
171A	0030	22 Jun	27°42.73	69°58.32	GPS
172	0045	22 Jun	27°44.36	69°58.34	GPS
173	0100	22 Jun	27°46.94	69°58.45	GPS
174	0120	22 Jun	27°49.53	69°58.63	GPS
175	0130	22 Jun	27°52.14	69°58.81	GPS
176	0145	22 Jun	27°54.70	69°59.00	GPS
177	0200	22 Jun	27°57.26	69°59.27	GPS
178	0220	22 Jun	27°59.87	69°59.60	GPS
179	0230	22 Jun	28°02.49	69°59.92	GPS
180	0245	22 Jun	28°05.12	70°00.25	GPS
181	0315	22 Jun	28°10.57	70°00.95	GPS
182	0330	22 Jun	28°13.02	70°01.29	GPS
183	0415	22 Jun	28°20.31	69°59.45	
184	0430	22 Jun	28°22.87	69°59.90	
185	0445	22 Jun	28°25.72	70°00.51	
186	0500	22 Jun	28°28.56	70°00.79	
187	0515	22 Jun	28°31.20	70°01.28	
188	0530	Bad Probe			
189	0545	22 Jun	28°36.64	70°02.32	
190	0600	22 Jun	28°38.93	70°02.37	
191	0615	22 Jun	28°42.00	70°03.06	
192	0630	22 Jun	28°44.77	70°03.26	
193	0645	22 Jun	28°47.48	70°03.87	
194	0700	22 Jun	28°50.04	70°04.46	
195	0715	22 Jun	28°53.06	70°04.51	
196	0730	22 Jun	28°56.06	70°05.12	
197	0745	22 Jun	28°58.67	70°05.37	
198	0800	22 Jun	29°01.34	70°05.76	
199	0815	22 Jun	29°04.12	70°06.29	

Table IV-2 (continued)

XBT #	TIME (GMT)	DAY/MONTH	LATITUDE	LONGITUDE
201	0830	22 Jun	29°06.79	70°06.69
202	0845	22 Jun	29°04.48	70°06.92
203	0900	22 Jun	29°12.17	70°07.31
204	0915	22 Jun	29°15.33	70°07.80
205	0945	22 Jun	29°20.39	70°08.21
206	1000	22 Jun	29°23.09	70°08.19
207	1015	22 Jun	29°25.81	70°08.71
208	1030	22 Jun	29°28.43	70°09.00
209	1045	22 Jun	29°31.02	70°09.14
210	1100	22 Jun	29°33.55	70°09.26
211	1115	22 Jun	29°36.09	70°09.41
212	1130	22 Jun	29°38.67	70°09.61
213	1145	22 Jun	29°41.27	70°09.86
214	1200	22 Jun	29°43.71	70°10.02
215	1215	22 Jun	29°46.47	70°10.15
216	1230	22 Jun	29°49.18	70°10.18
217	1245	22 Jun	29°51.59	70°10.48

V. FASINEX Underway Sampling

a. Oceanographic Log

Phase One - KNORR 119

An oceanographic log was recorded at 15 minute intervals on KNORR 119 from 10-20 January for Leg 1 and 24 January-6 February 1986 for Leg 2. The variables logged were time, LORAN C latitude and longitude, sea surface temperature from buckets, SAIL, PRT, towed fish sensor, when available, XBT surface temperature, XBT 40m temperature and depth of XBT 20°C isotherm. The LORAN C data were stored to an IBM AT using floppy disks. The SAIL, PRT, and towed fish data were stored every minute on an Apple IIe using floppy disks. Two different underway towed sensors were used. Both sensors were modified XBT probes. See Figure Va-5. One sensor plotted directly to a strip chart. The other was logged to one of the Apple IIes in the main lab. The XBT data was displayed on a strip chart and stored to Bathysystem cassette.

Bucket temperatures taken every 15 minutes during the XBT radiator pattern (Section 2) were used for Figure Va-1 contours. Water samples were taken hourly during Section 2. The salinity contours are shown in Figure Va-2.

During the intensive XBT survey, whole and half degree isotherms were read from the strip chart and hand plotted.

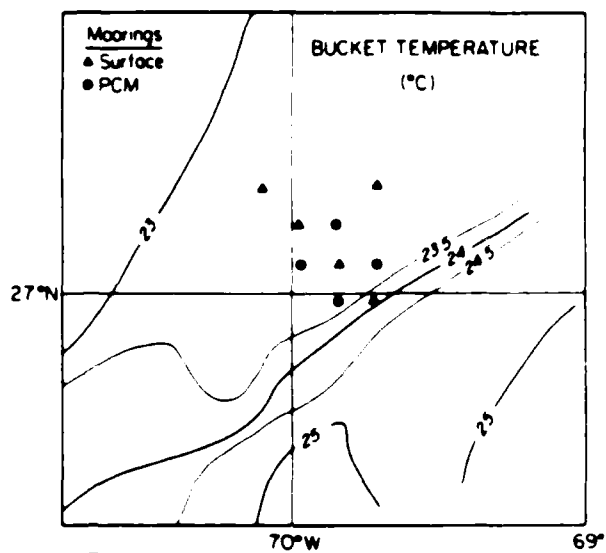
Figure Va-1	Contoured Bucket Temperatures Across the Front
Figure Va-2	Contoured Salinity Across the Front
Figure Va-3	Bucket Temperatures by Time
Figure Va-4	Towed Fish Sensor Photograph
Figure Va-5	Towed Fish Data
Table Va-1	Example of 15 Minute Oceanographic Log

Phase Three - KNORR 123

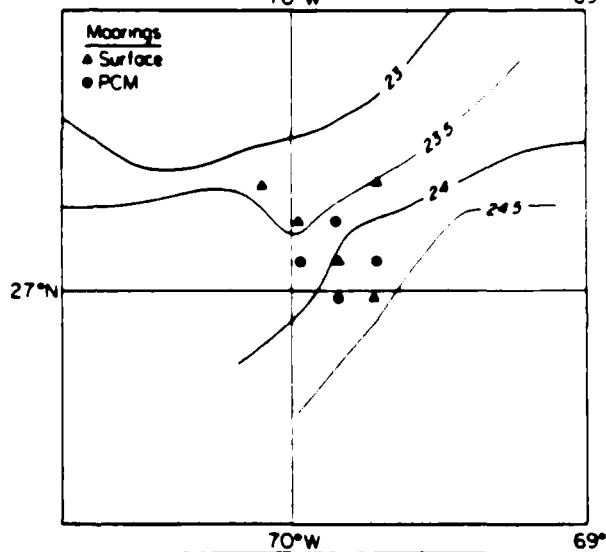
An underway oceanographic log was maintained during KNORR 123. It contains the same information as the KNORR 119 log, except that there was no PRT and a brief salinity survey was run while logging the SAIL salinity.

Figure Va-6	Bucket Temperatures
Table Va-2	Example of 15 Minute Oceanographic Log

KN 119 LEG 1
12-14 JAN 86



KN 119 LEG 2
24 JAN 86



KN 119 LEG 2
31 JAN 86

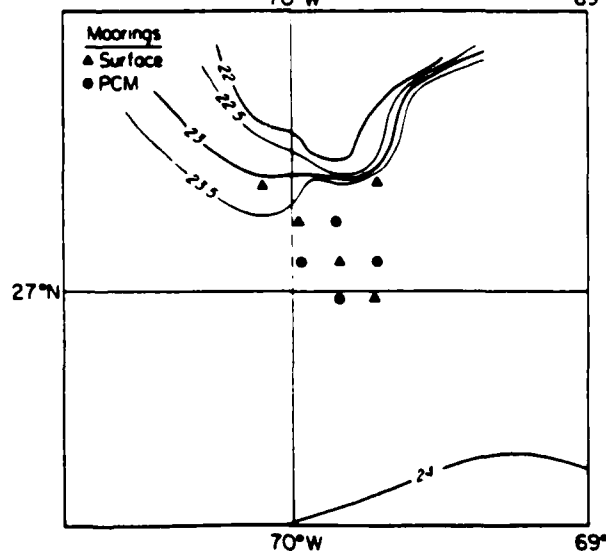


Figure Va-1. Contoured Bucket Temperatures Across the Front.
(KNORR 119)

KN 119 LEG 1
12-14 JAN 86

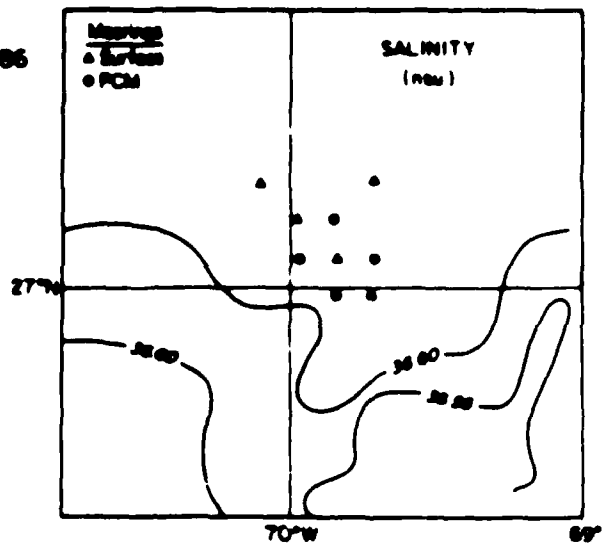


Figure Va-2. Contoured Salinity Across the Front.
(KNORR 119)

KNORR 119

Leg 1

Leg 2

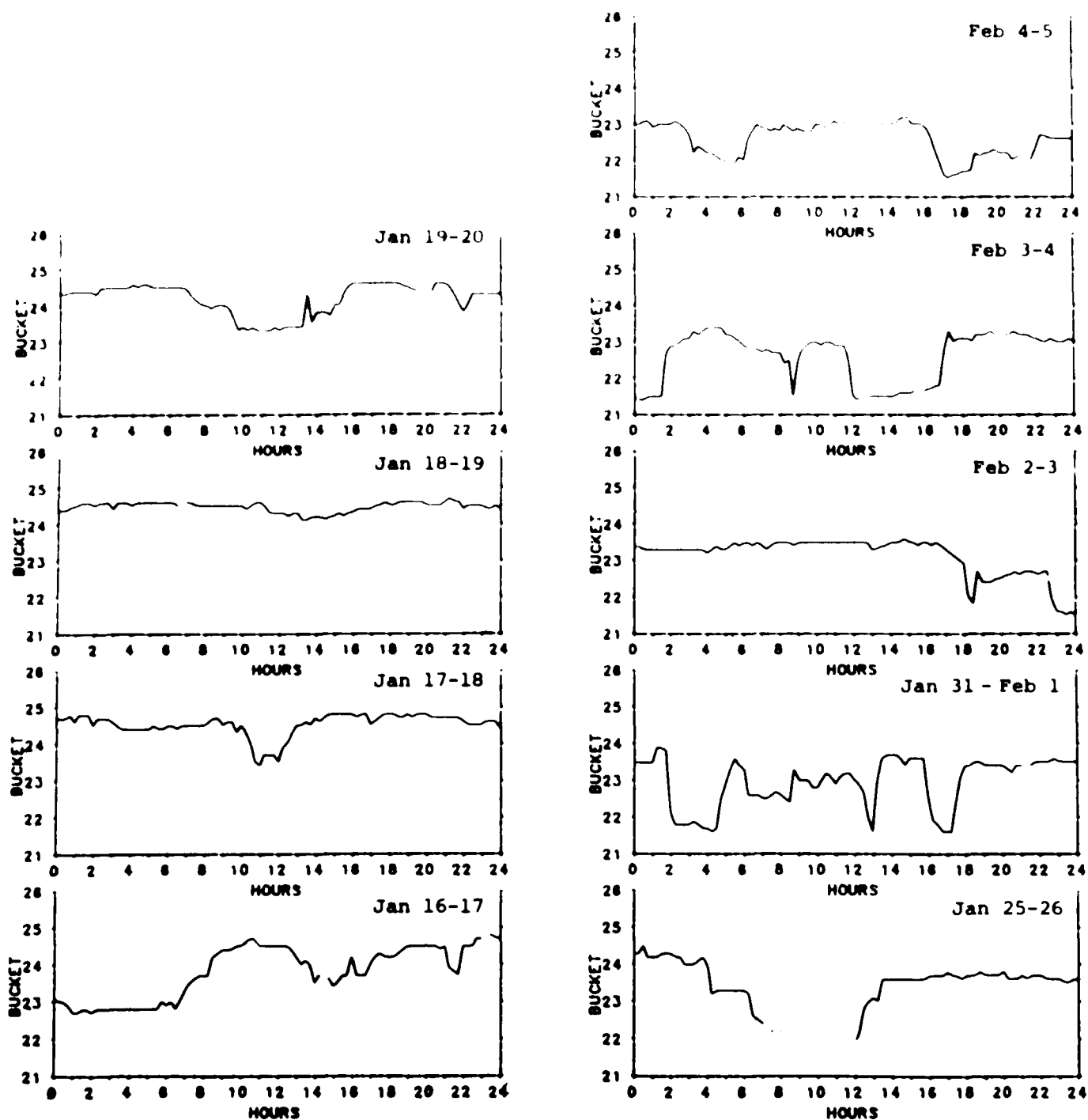


Figure Va-3. Bucket Temperatures from KNORR 119 Underway Oceanographic Log.



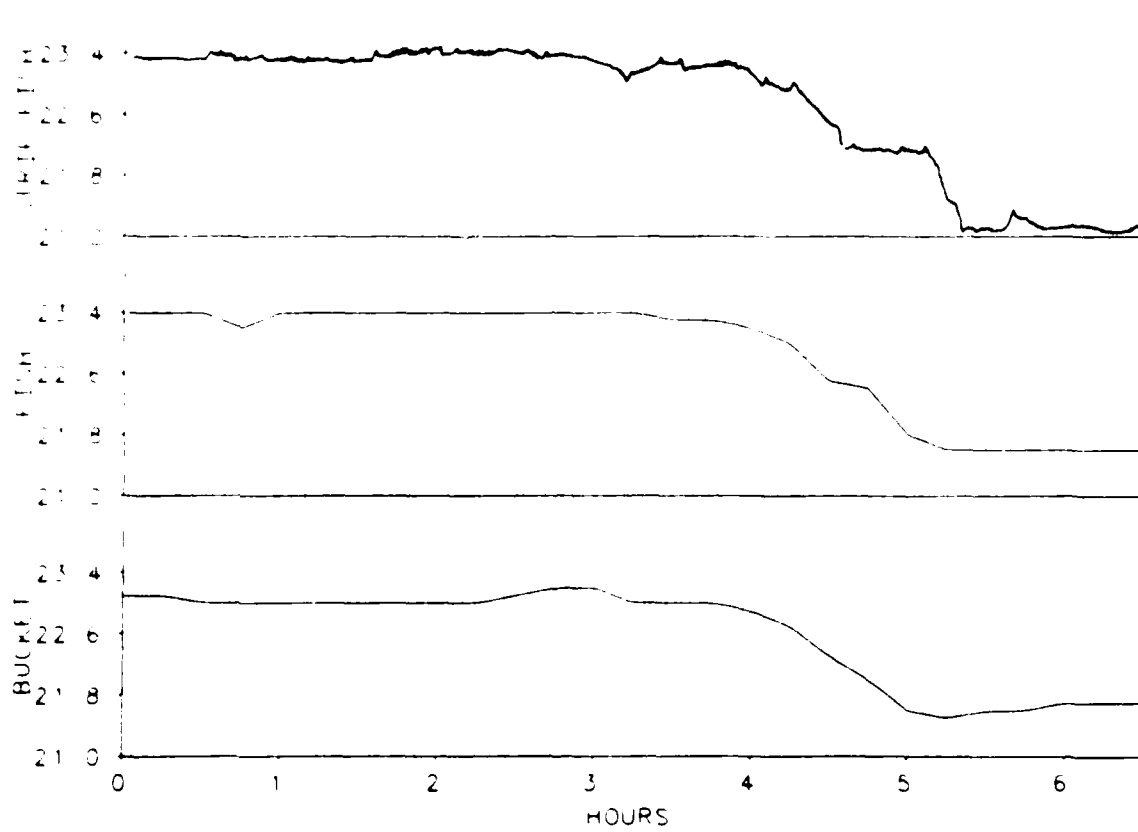


Figure Va-5. Bucket and Towed Fish Data

Table Va-1: Example of KNORR 119 Underway (15 minute) Oceanographic Log

Month				Towed					Mixed	20°
Day	Time	Latitude	Longitude	Fish SST	Bucket SST	SAIL SST	SAIL Salinity	40 m Temp	Layer Depth	Isotherm Depth
0110	2230	29°53.03	69°56.76	23.0	22.2					130
0110	2245	29°50.57	69°56.51	23.0	22.0			22.2	33	113
0110	2300	29°48.53	69°57.53	22.8	22.0			22.2	75	108
0110	2315	29°46.11	69°57.91	22.7	22.0			22.2	68	108
0110	2330	29°43.87	69°57.93	22.7	22.1	22.14		22.0	70	108
0110	2345	29°41.66	69°58.26	22.8	21.7			22.1		
0110	2400	29°39.40	69°58.48	22.6	21.7	21.98		21.8	90	
0111	0015	29°37.18	69°58.37	22.5	21.8	22.0		21.8	90	117
0111	0030	29°35.06	69°58.38	22.5	21.8	22.0		21.8	100	115
0111	0045	29°33.00	69°58.23		22.7	22.8	36.44	22.0	100	113
0111	0100	29°30.94	69°58.00		22.6	22.9	36.46	22.6	39	111
0111	0115	29°28.71	69°57.77		22.6	22.9	36.31	22.7	54	112
0111	0130	29°26.73	69°57.87		22.5	22.8	36.41	22.7	78	118
0111	0145	29°24.76	69°57.54		22.6	22.7	36.15	22.6	94	121
0111	0200	29°22.80	69°57.41		22.6	22.8	36.33	22.1	90	120
0111	0215	29°20.85	69°57.49	23.1	22.6	22.8	36.52	22.4	90	118
0111	0230	29°18.87	69°57.44	23.1	22.5	22.8	35.21	22.5	100	125
0112	0100	26°38.90	69°55.84	25.0	24.0	24.4	35.55	24.2	50	145
0112	0115	26°37.28	69°55.77	25.4	24.7	24.9	35.79	24.6	50	150
0112	0130	26°35.51	69°55.67	25.7	24.7	25.1	35.86	24.9	60	150
0112	0145	26°33.73	69°55.56	25.7	24.8	25.2	35.84	24.9	72	154
0112	0154	26°32.50	69°55.43							
0112	0200	26°31.81	69°55.44	25.8	24.9	25.3	35.82	25.0	66	150
0112	0215	26°30.04	69°55.67	25.9	25.0	25.3	35.05	25.0	74	158
0112	0230	26°28.17	69°55.71	25.9	25.0	25.4	35.56	25.1	70	157
0112	0245	26°26.37	69°55.76	26.0	25.0	25.4	35.31	25.1	70	170
0112	0300	26°24.60	69°55.80	26.0	25.0	25.4	33.43	25.0	60	172
0112	0315	26°22.47	69°55.76	26.0	25.1	25.5	35.66	25.2	72	182
0112	0330	26°20.00	69°56.00	26.0	25.0	25.4	35.95	25.1	80	180
0112	0345	26°18.59	69°55.77	25.9	25.0	25.3	35.99	25.1	60	160
0112	0400	26°16.49	69°56.11	26.0	25.0	25.4	36.10	25.1	68	160
0112	0415	26°14.38	69°55.95	25.9	25.0	25.4	36.13	25.1	71	165
0112	0430	26°12.42	69°55.98	26.0	25.0	25.4	36.13	25.1	88	172
0112	0445	26°10.22	69°56.02	26.0	25.0	25.4	36.19	25.1	88	186
0112	0500	26°07.71	69°55.97	25.9	24.9	25.3	36.20	25.0	86	186

KNORR 123

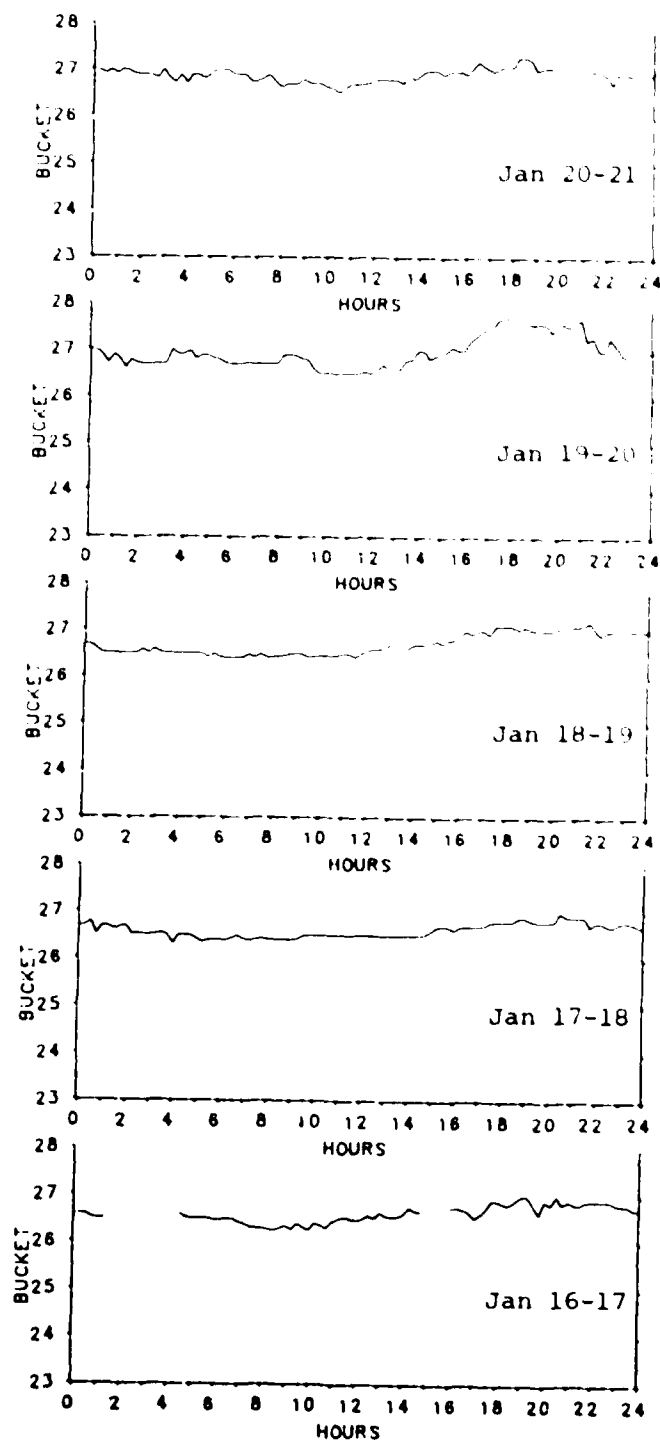


Figure Va-6. Bucket Temperatures from KNORR 123 Underway Oceanographic Log.

Table 14-1. Example of EN 85-1.3 Underway 1 minute observations.

Date	Time	Latitude	Longitude	Bucket SST	SAIL SST	Fish SST	SAIL Salinity	GRB Position
14 Jun	2135			26.8	26.63			
	2140			26.8	26.63			
	2145	27 11.66	69 53.72	26.8	26.63			
	2150			26.8	26.66			
	2155	27 11.64	69 53.66	26.7	26.60			
	2200	27 11.61	69 53.61	26.6	26.63			
	2205	27 11.64	69 53.59	26.7	26.66			
	2210	27 11.73	69 53.69	26.7	26.66			
	2215	27 11.88	69 53.69	26.7	26.66			
	2220	27 12.03	69 53.80	26.7	26.66			
	2225	27 12.18	69 53.87	26.7	26.60			
	2230	27 12.31	69 53.73	26.7	26.57			
	2235	27 12.48	69 53.70	26.7	26.63			
	2245	27 12.56	69 53.65	26.7	26.57			
15 Jun	0000	27 12.63	69 53.67	26.7	26.54			
	0015	27 12.65	69 53.41	26.7	26.54			
	0030	27 12.74	69 53.38	26.7	26.57			
	0045	27 13.00	69 53.56	26.7	26.50			
	0100	27 13.03	69 53.43	26.7	26.50			
	0115	27 12.83	69 53.06	26.7	26.47			
	0130	27 12.69	69 52.73		26.47			
	0145	27 12.35	69 52.53	26.6	26.44	26.7		
	0200	27 10.86	69 51.21	26.5	26.44	26.7		
	0215	27 09.10	69 50.12	26.6	26.47	26.8		
	0230	27 06.83	69 48.68	26.6	26.47	26.8		
	0245	27 04.71	69 47.43	26.5	26.38	26.7		
	0300	27 02.28	69 45.87	26.5	26.34	26.7		
	0315	27 00.48	69 44.11	26.4	26.25	26.6		
	0330	26 58.59	69 42.37	26.5	26.41	26.7		
	0345	26 56.87	69 40.98	26.7	26.47	26.8		
	0400	26 56.43	69 40.10	26.6	26.44	26.8		
	0415	26 56.35	69 40.03	26.5	26.47	26.7		
	0420	26 56.35	69 39.88	26.55	26.44	26.8		
	0425	26 56.30	69 39.77	26.5	26.44			
	0430	26 56.34	69 39.85	26.55	26.41	26.8		
	0435	26 56.38	69 39.99	26.55	26.31	26.8		
	0440	26 56.36	69 39.91	26.6	26.44	26.8		
	0445	26 56.31	69 39.79	26.6	26.44	26.8		
	0450	26 56.33	69 39.84	26.5	26.41	26.8		
	0455	26 56.26	69 39.62	26.6	26.44	26.8		
	0500	26 56.28	69 39.69	26.6	26.47	26.8		
	0505	26 56.34	69 39.87	26.6	26.47	26.8		
	0510	26 56.36	69 39.91	26.6	26.38	26.8		
	0515	26 56.38	69 39.95	26.6	26.44	26.8		
	0520	26 56.44	69 39.83	26.55	26.44	26.8		
	0525	26 56.29	69 39.77	26.6	26.41	26.8		
	0530	26 56.37	69 39.96	26.3	26.44	26.8		
	0545	26 56.32	69 39.80	26.55	26.47	26.8		

V. FASINEX Underway Sampling

1. Meteorological Log

Phase One - KNORR 119

A brief summary by Dick Payne states that during KNORR 119, wind speed varied between nearly calm and 15 ms^{-1} while wind direction tended to rotate clockwise, consistent with the movement of major weather systems. Passing 30°N , headed south for the first time, the air temperature and humidity increased markedly and barometric pressure decreased, just as markedly. No such marked changes were apparent on later crossings.

The crossing of the fronts appeared as abrupt $1\text{-}2^{\circ}\text{C}$ changes in bucket temperature on the plots. (We were curious as to whether effects of the front would appear in any of the meteorological parameters recorded.) During the first day of mooring work there was a cloud pattern which persisted all day. To the south of the front the sky was overcast with fairly low clouds while to the north it was clear. The edge of the clouds seemed to follow the front. The clouds started to break up toward the end of the day with the edge taking on a lacy appearance by sunset. This event was not repeated. From January 12-16, there appears to be a negative correlation between change in bucket temperature and wind speed. Leg 2 had few front crossings.

An hourly meteorological log was recorded on KNORR 119 from January 10-11 for Leg 1 and January 24-February 6, 1986 for Leg 2. The variables logged were: time, LORAN C latitude and longitude, wind speed and direction, wet and dry bulb temperatures, barometric pressure, wave height and direction, cloud cover and type.

Meteorological sensors mounted on a mast at the bow transmitted data to an IBM AT for display and storage. The anemometer was at 13.5m, air and sea surface sensors were at 12.5m and the barometric pressure sensor was at 7.5m. The variables output every minute included time, LORAN C latitude and longitude, wind speed and direction, air temperature, relative humidity, and sea surface temperature and speed.

- | | |
|-------------|---|
| Figure Vb-1 | Payne's Meteorological Plot for KNORR 119 |
| Figure Vb-2 | Davidson 3-Day Expanded Meteorological Plot
from Payne's Data to Match OCEANUS Data
(see WHOI report 86-36 or FASINEX report 86-36) |
| Table Vb-1 | Hourly Meteorological Log |

Phase Three - KNORR 123

An hourly meteorological log was also recorded on KNORR 123. This log contained the same variables as the KNORR 119 log.

Bow mounted sensors were again used for data collection. This data was displayed and stored on an IBM AT.

- | | |
|-------------|---|
| Figure Vb-3 | Payne's Meteorological Plot for KNORR 123 |
| Figure Vb-4 | Davidson 3-Day Expanded Meteorological Plot
from Payne's Data to Match OCEANUS Data
(see WHOI report 86-36 or FASINEX report 86-36) |
| Table Vb-2 | Hourly Meteorological Log |

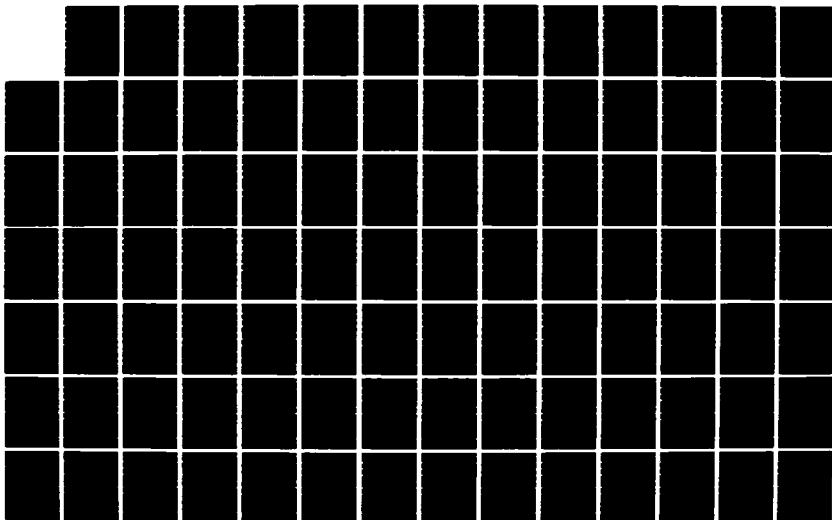
NO-A177 835

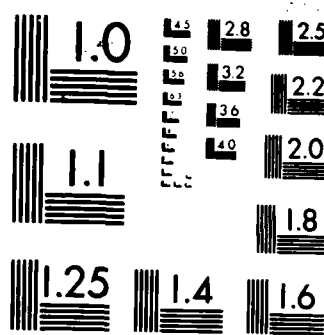
FASINEX (FRONTAL AIR-SEA INTERACTION EXPERIMENT)
JANUARY-JUNE 1986 SUMMAR. (U) WOODS HOLE OCEANOGRAPHIC
INSTITUTION MA N J PENNINGTON ET AL OCT 86 WHOI-86-35
N00014-84-C-0134 F/G 8/10

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MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963-A

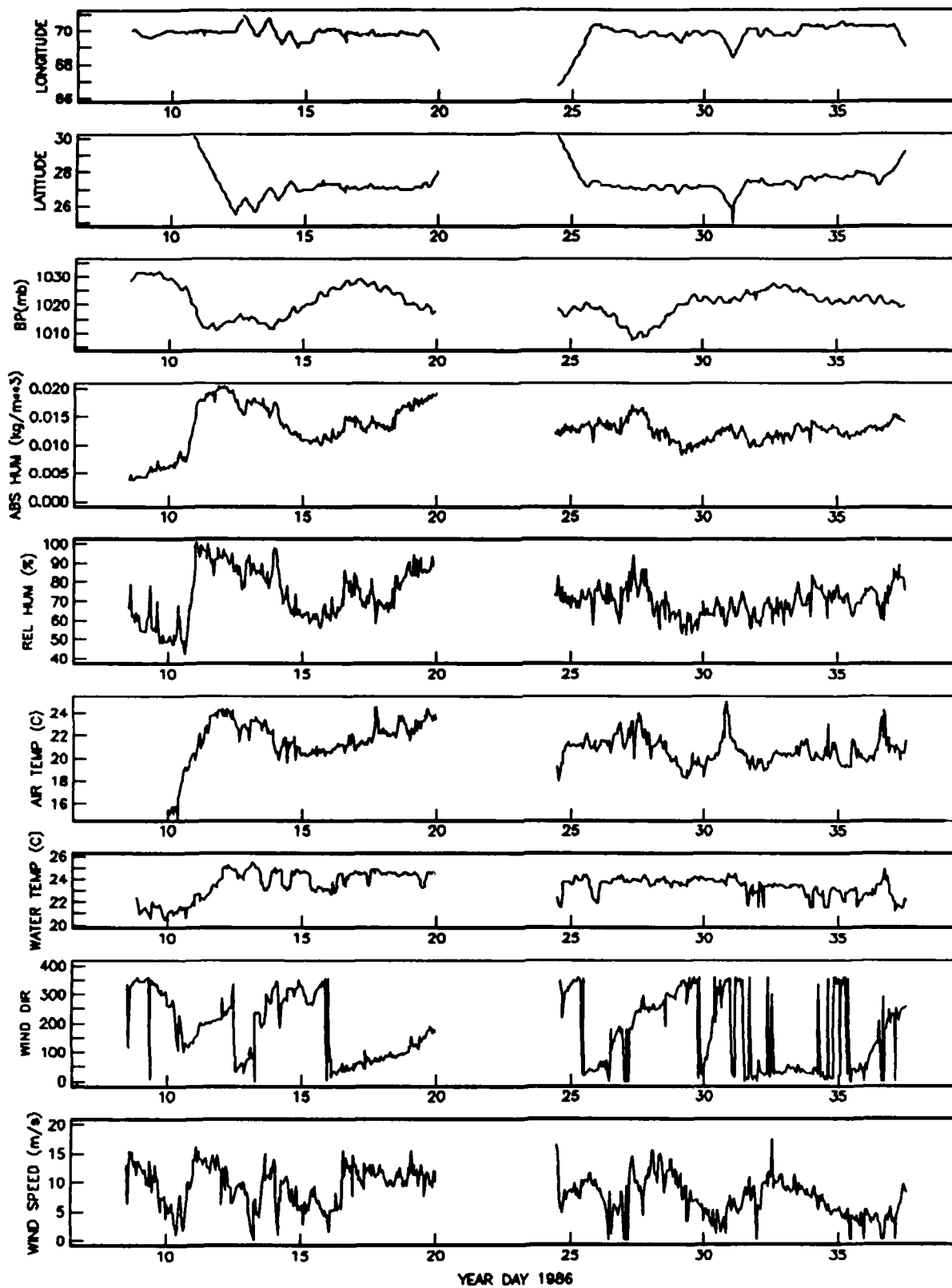


Figure Vb-1. KNORR 119 Underway Meteorological Log Plot

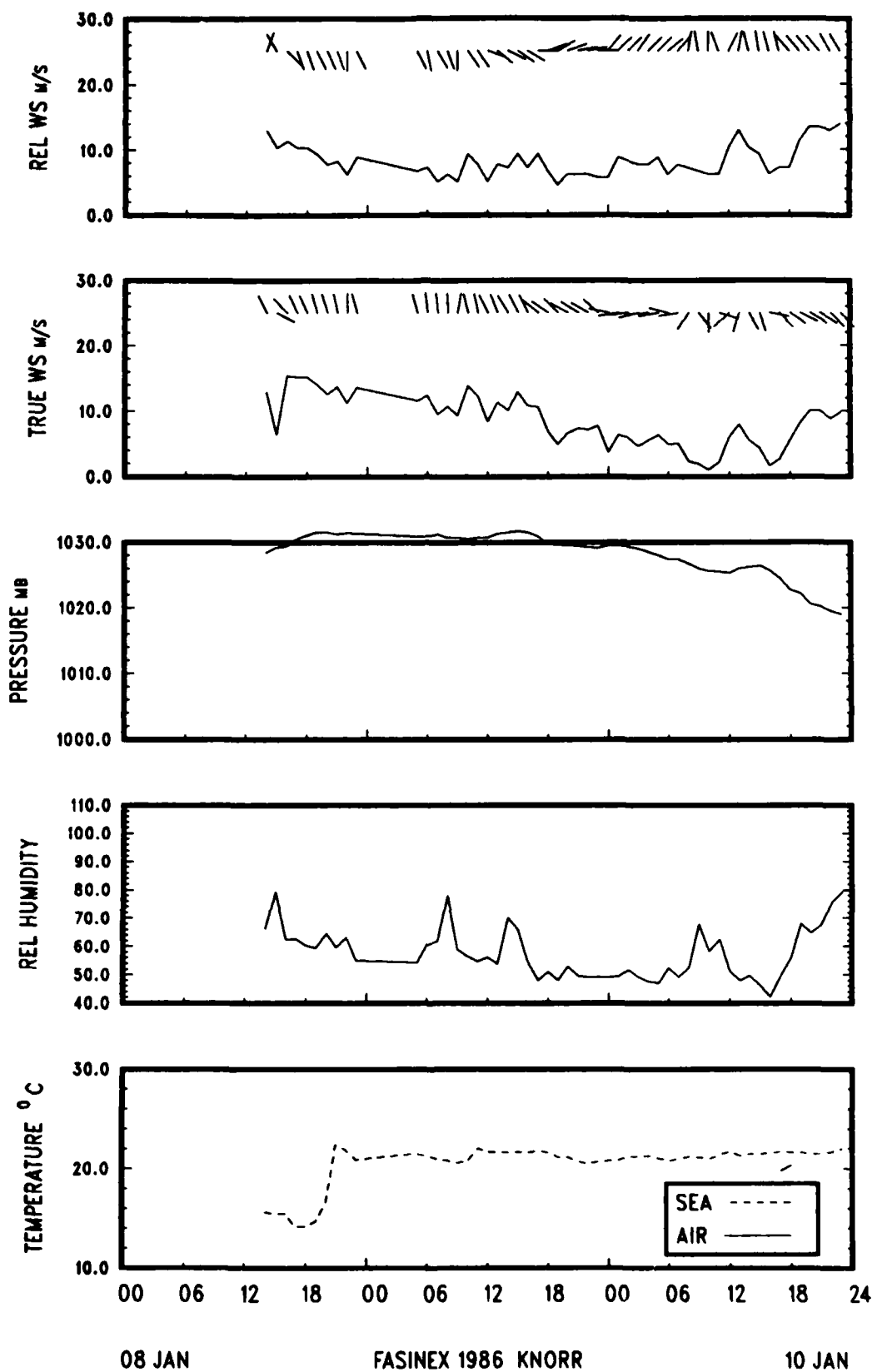


Figure Vb-2. KNORR 119 Expanded Scale Meteorological Plots.

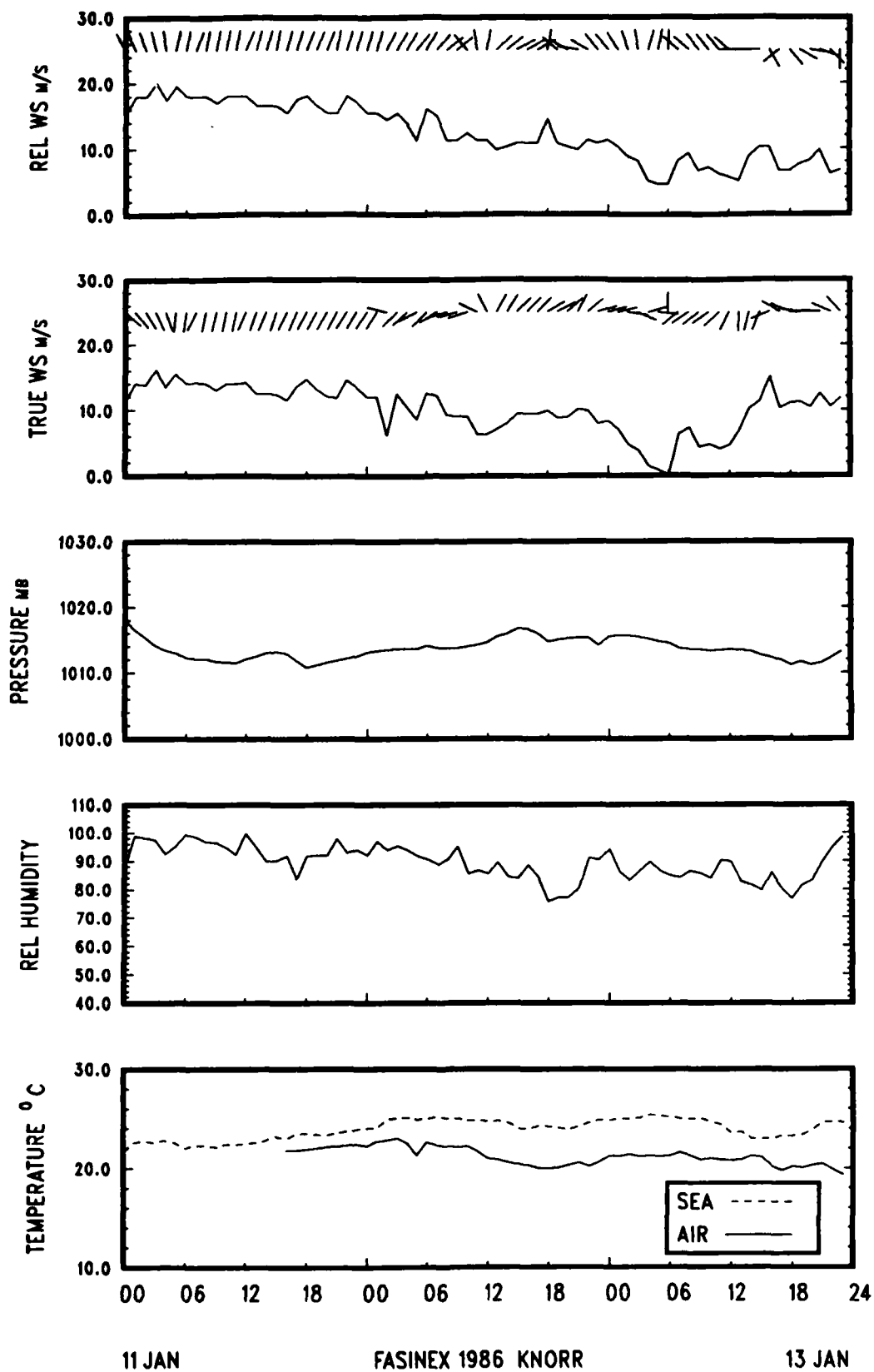


Figure Vb-2 (continued)

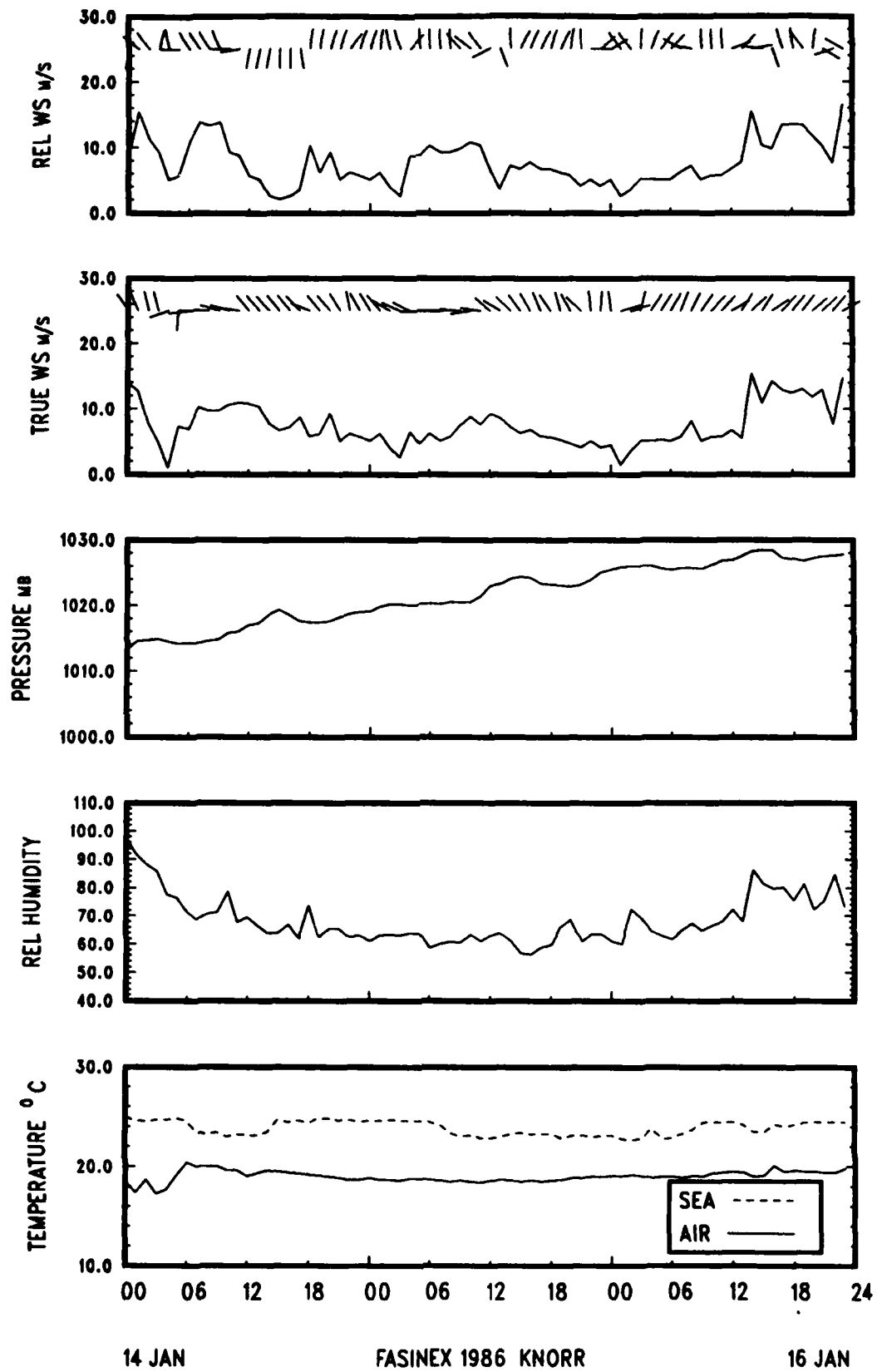


Figure Vb-2 (continued)

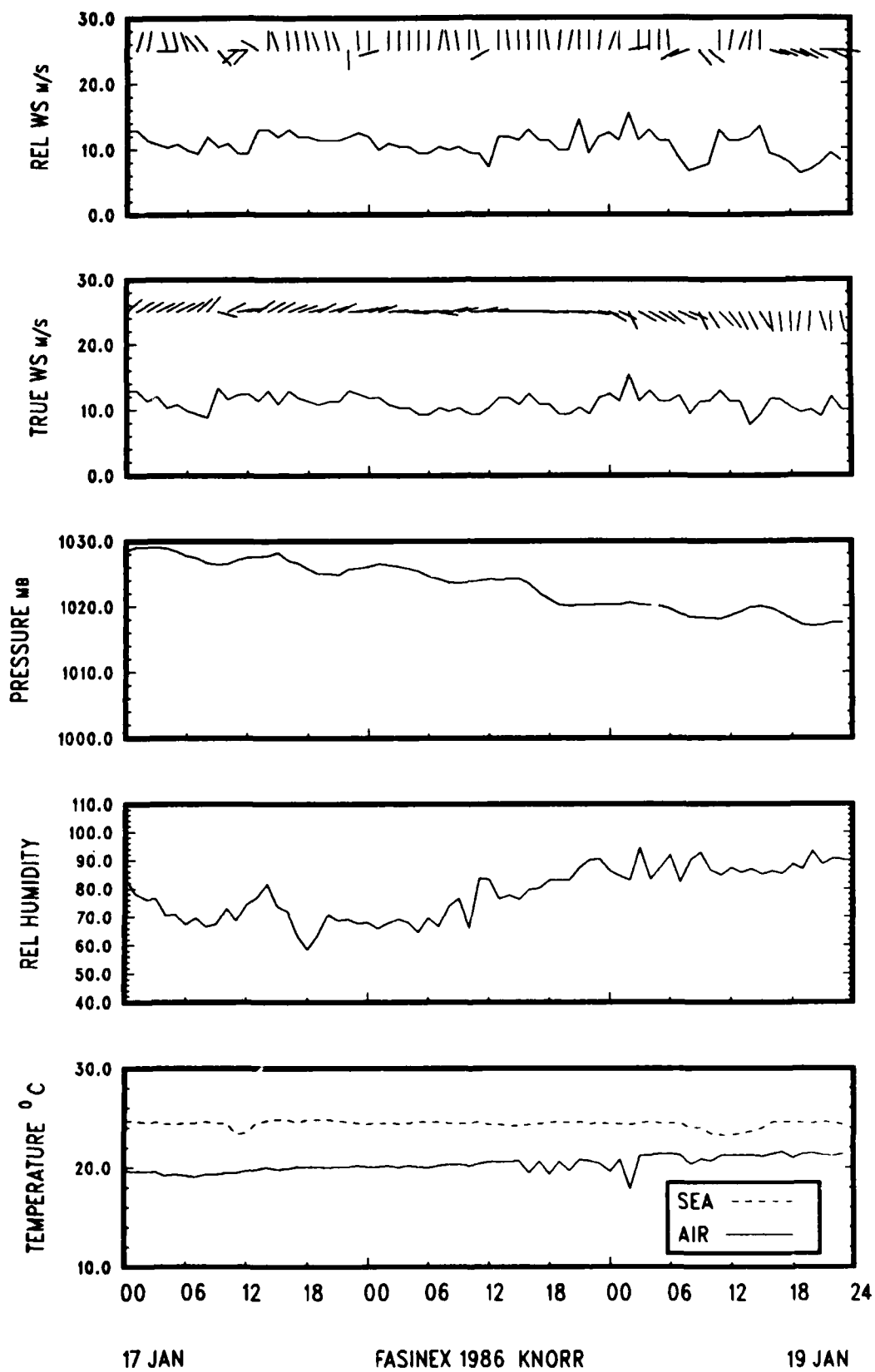


Figure Vb-2 (continued)

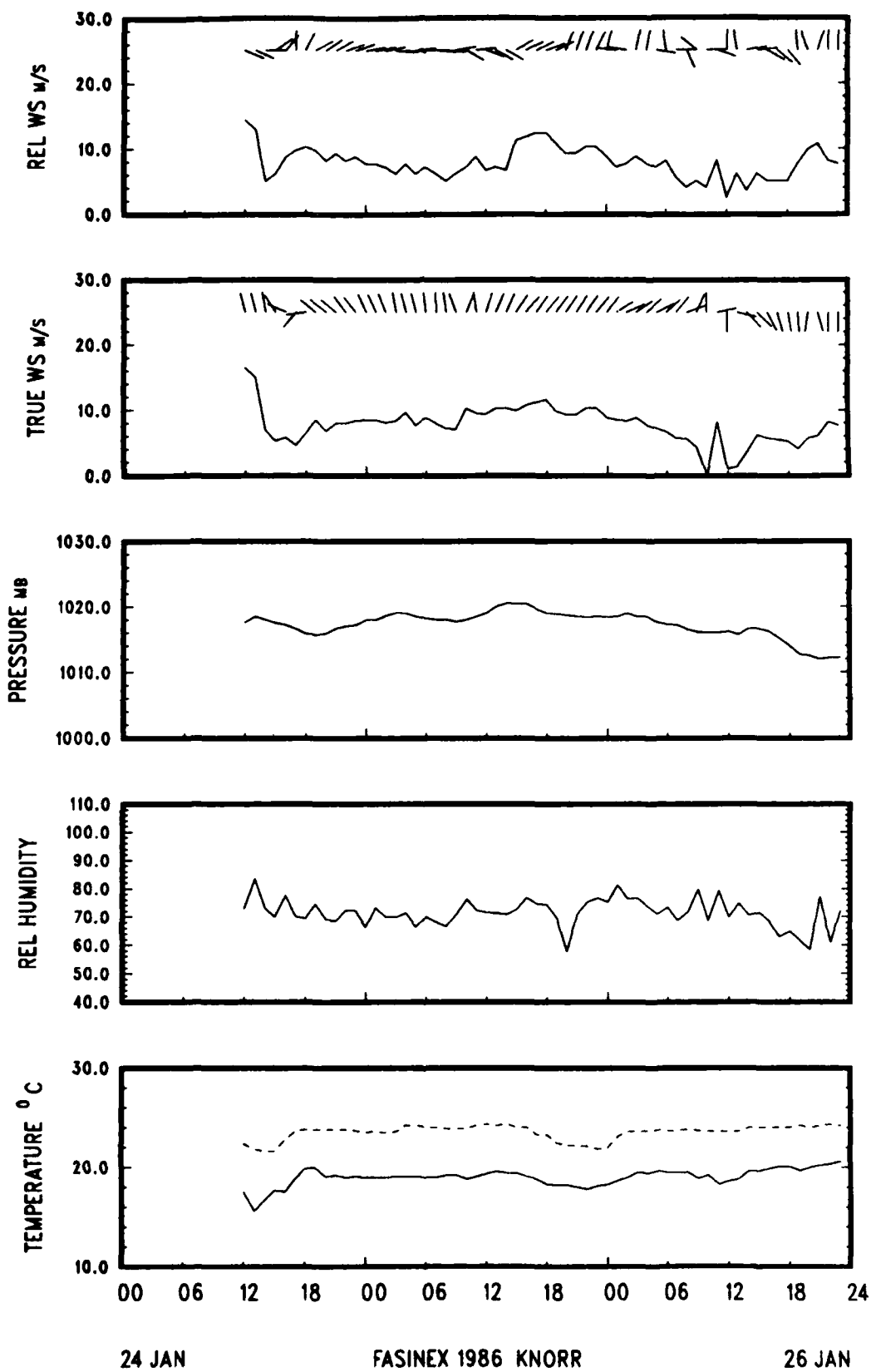


Figure Vb-2 (continued)

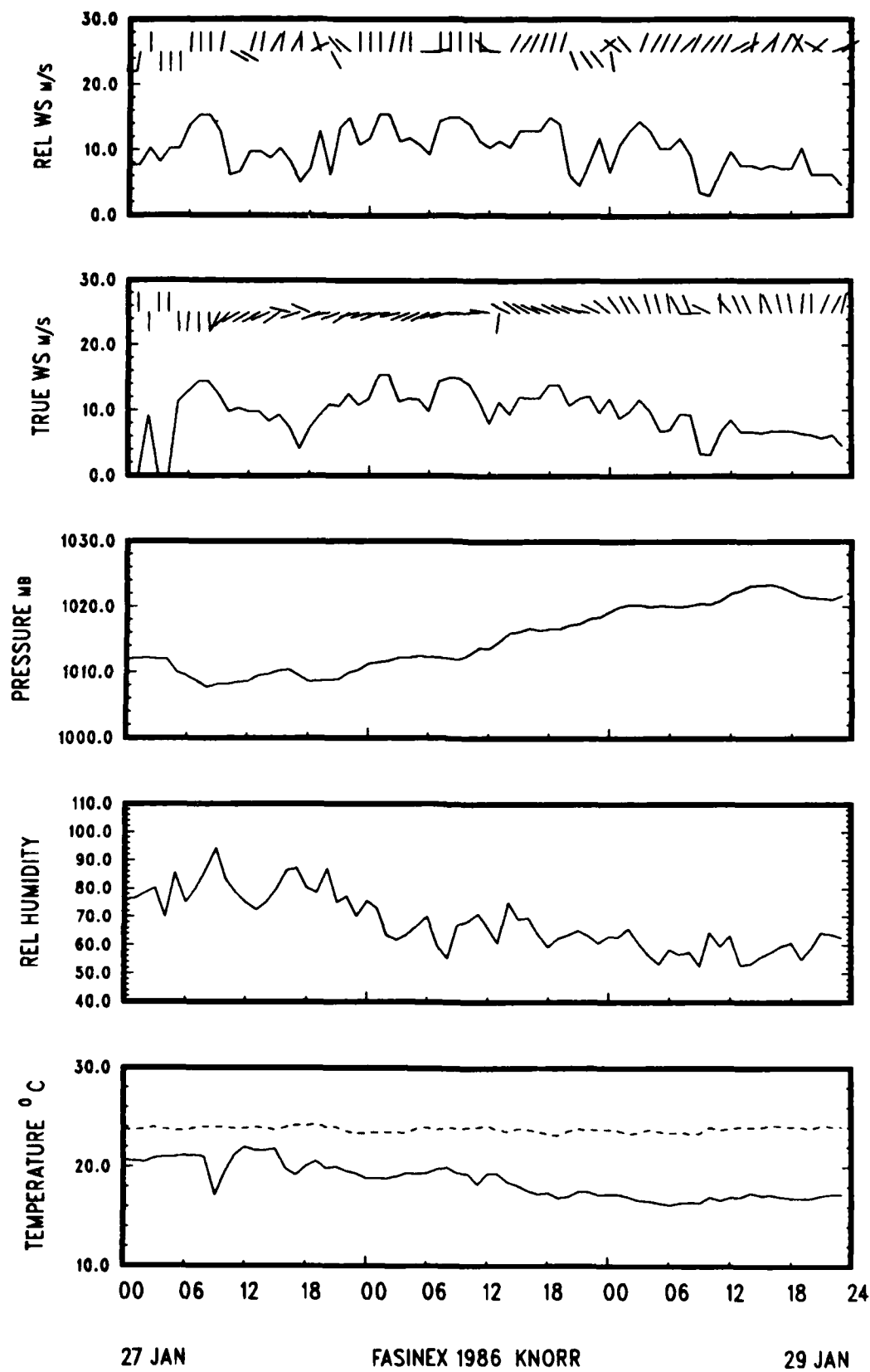


Figure Vb-2 (continued)

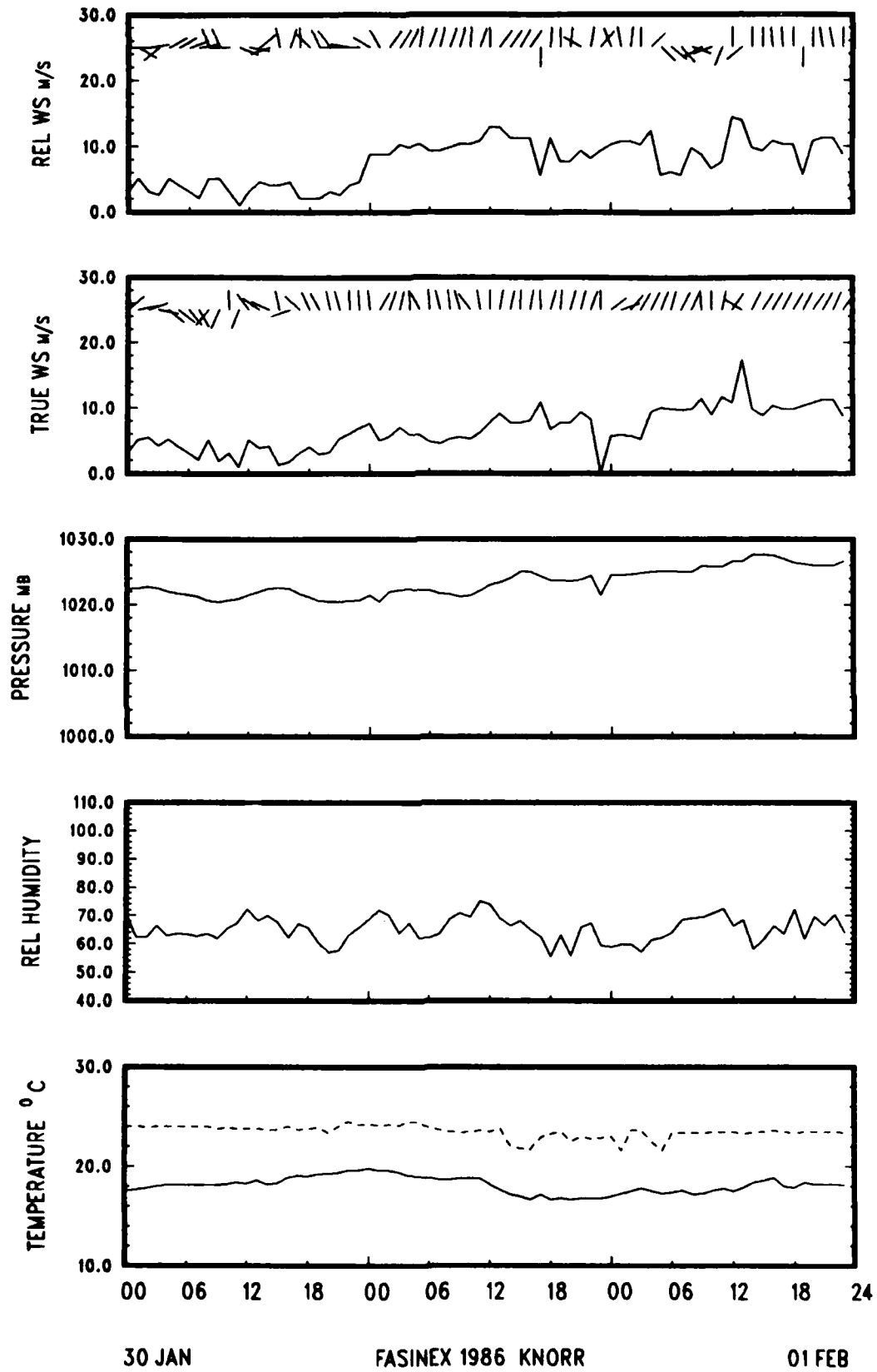


Figure Vb-2 (continued)

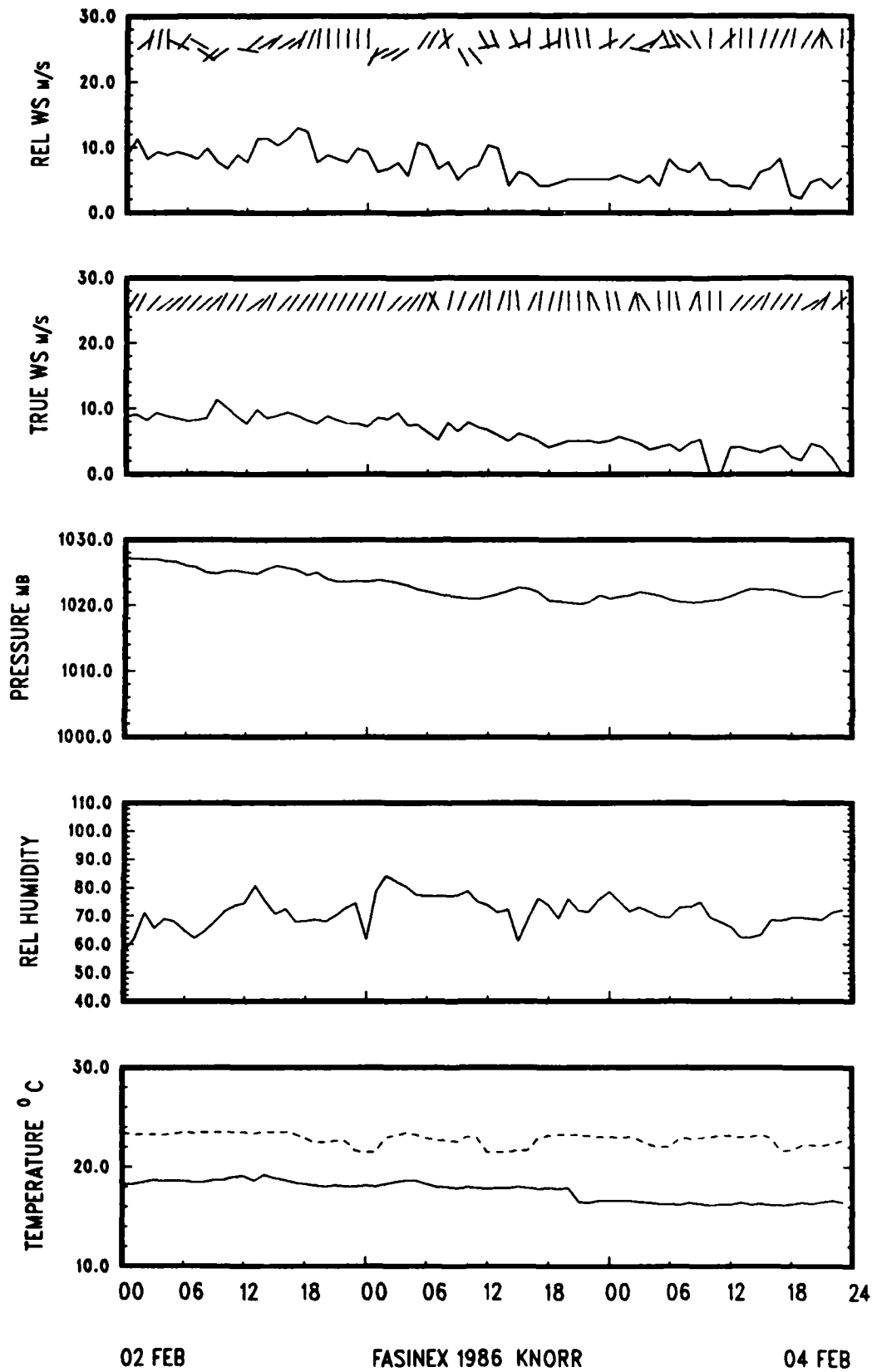


Figure Vb-2 (continued)

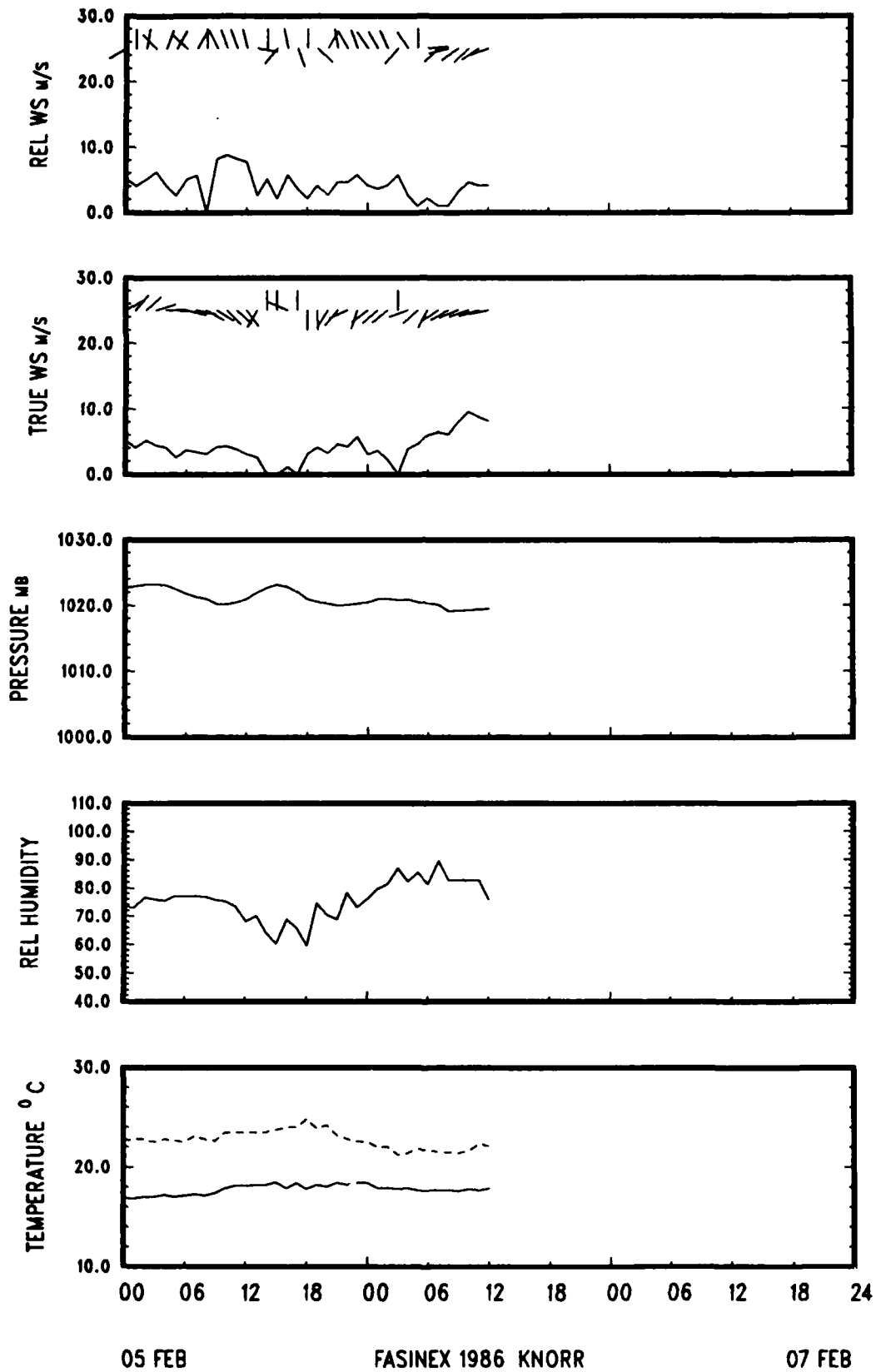


Figure Vb-2 (continued)

Table Vb-1: KNORR 119, Leg 1, Manual Hourly Meteorological Observations

BEGIN 1400 JAN 8, 1986
END 0000 JAN 21, 1986

NOTES ON PARAMETERS:

1. Date - Month/day
2. Time - UTC, hrmin
3. LAT, LONG - Positions are from Internav LORAN receiver.
4. WS,WD - True wind speed and direction derived from apparent windspeed and direction and ship course and speed. Direction is direction from which, meteorological convention.
5. ATL - Dry bulb air temperature from Assman psychrometer, thermometer divisions are 0.2 C.
6. AT@ - Air temperature from EG&G Model 220 on jack staff.
7. RH - Relative humidity computed from wet and dry bulb temperature from Assman by equations and constants in Smithsonian Meteorological Tables.
8. ABS HUM - Absolute humidity in kg/m³.
9. SST - Sea surface temperature from bucket.
10. BP - Barometric pressure (mb) from bridge barometer.
11. CLOUD - Cloud observations. The four digits are: total octants covered, cloud type for low, medium, and high clouds.
12. WAVES - The four two digit numbers are: sea wave period and height, predominant swell direction and height. Heights are in half meters, directions in 10s of degrees.
13. SC, SS - Ship's course and speed (knts) from gyro and ship's speed log.
14. AD,AS - Apparent wind direction and speed from bridge readout of ship's anemometer. Speed in knots, direction in 10s of degrees. Logged by bridge.
15. TW - Wet bulb temperature (C).

FORMAT (I3,I1,I2,I5,I3,F6.2,I4,F6.2,F6.1,I4,F5.1,I10.3,F5.1,F7.1,I1,X,A4,A12,2*I4,I3),F5.1)

DATE	TIME	LAT	LONG	WS	WD	ATL	AT2	RH	ABS HUM	SST	BP	CLOUD	WAVES	SC	SS	AWD	AWS	TW				
1/ 8	1400	38	3.49	70	2.02	12.9	334	2.8	0.0	66.2	0.389E-02	15.6	1028.4	7	2	34	4	315	0	20	25	0.6
1/ 8	1500	38	0.67	70	3.66	6.4	116	3.2	0.0	79.2	0.478E-02	15.5	1029.2	7	2	32	3	170	10	330	20	1.8
1/ 8	1600	37	50.62	70	3.02	15.4	318	3.2	0.0	62.3	0.376E-02	15.5	1029.4	7	1	32	2	170	10	135	22	0.7
1/ 8	1700	37	44.38	70	0.90	15.2	336	3.4	0.0	62.6	0.383E-02	14.2	1030.5	7	3	32	5	170	10	160	20	0.9
1/ 8	1800	37	28.77	69	56.25	15.2	336	4.5	0.0	60.2	0.396E-02	14.2	1031.0	7	3	32	5	170	10	160	20	1.7
1/ 8	1900	37	19.91	69	54.47	14.1	343	4.8	0.0	59.3	0.398E-02	14.7	1031.5	7	2	32	4	180	10	155	18	1.9
1/ 8	2000	37	10.79	69	50.84	12.6	344	5.4	0.0	64.5	0.450E-02	16.6	1031.5	7	2	32	4	180	10	155	15	2.8
1/ 8	2100	36	59.78	69	45.18	13.7	348	5.8	0.0	59.7	0.428E-02	22.4	1031.2	7	2	32	4	180	11	160	16	2.8
1/ 8	2200	36	50.13	69	41.16	11.3	359	6.2	0.0	63.0	0.463E-02	21.9	1031.4	7	2	34	3	180	10	180	12	3.4
1/ 8	2300	36	40.37	69	38.75	13.6	344	7.4	0.0	54.9	0.436E-02	20.9	1031.3	7	2	33	3	180	10	155	17	3.8
1/ 9	000	36	29.70	69	37.14	11.6	345	7.7	0.0	54.2	0.439E-02	21.5	1030.9	7	2	33	3	180	10	155	13	4.0
1/ 9	000	36	22.03	69	36.00	12.3	354	7.8	0.0	60.5	0.493E-02	21.3	1030.9	7	2	34	2	180	10	170	14	4.6
1/ 9	000	36	13.10	69	37.24	9.5	354	8.6	0.0	61.8	0.530E-02	21.0	1031.2	7	2	34	3	190	9	150	10	5.4
1/ 9	000	36	4.75	69	39.00	10.7	358	7.6	0.0	77.9	0.627E-02	20.8	1030.7	7	2	34	2	190	9	160	12	5.8
1/ 9	000	35	55.61	69	41.34	9.3	9	9.8	0.0	59.0	0.546E-02	20.6	1030.7	7	2	34		190	8	180	10	6.2
1/ 9	000	35	46.84	69	42.39	13.8	347	10.2	0.0	56.3	0.535E-02	20.7	1030.5	7				190	10	145	18	6.3
1/ 9	000	35	37.44	69	43.19	12.3	348	11.1	0.0	54.6	0.548E-02	22.0	1030.7	5				190	10	145	15	6.9
1/ 9	000	35	26.87	69	44.90	8.4	334	11.3	0.0	56.0	0.569E-02	21.7	1030.7	5	2	34	2	190	10	110	10	7.2
1/ 9	000	35	18.75	69	46.45	11.3	338	11.8	0.0	53.7	0.563E-02	21.7	1031.3	5	2	32	2	190	9	130	15	7.4
1/ 9	000	35	9.18	69	48.40	10.1	329	11.4	0.0	70.1	0.717E-02	21.6	1031.5	8	2	34	2	190	9	115	14	8.6
1/ 9	000	34	59.96	69	50.31	12.9	334	11.6	0.0	66.0	0.683E-02	21.7	1031.7	8	2	35	2	190	10	125	18	8.4
1/ 9	000	34	50.41	69	51.81	10.8	334	13.4	0.0	54.4	0.628E-02	21.6	1031.5	5	2	35	2	190	10	120	14	8.8
1/ 9	000	34	41.00	69	53.62	10.6	309	13.0	0.0	47.9	0.540E-02	21.8	1030.9	5	2	31	2	190	10	90	18	7.8
1/ 9	000	34	31.94	69	55.57	6.9	304	13.6	0.0	50.9	0.595E-02	21.6	1029.7	6	1	32	2	190	10	70	13	8.6
1/ 9	000	34	22.34	69	58.06	4.9	315	14.0	0.0	47.9	0.573E-02	21.1	1029.6	6	1	31	2	190	10	60	9	8.6
1/ 9	000	34	13.00	69	58.46	6.6	297	13.6	0.0	52.8	0.618E-02	21.1	1029.5	5	1	32	2	180	10	70	12	8.8
1/ 9	000	34	2.96	69	59.44	7.3	303	13.8	0.0	49.4	0.584E-02	20.7	1029.4	5	1	32	2	180	10	80	12	8.6
1/ 9	000	33	53.50	70	0.28	7.1	300	14.1	0.0	49.0	0.590E-02	20.5	1029.2	5	1	32	2	180	9	80	12	8.8
1/ 9	000	33	43.55	69	59.54	7.7	312	14.1	0.0	49.0	0.590E-02	20.7	1029.1	5	1	32	2	180	10	90	11	8.8
1/10	000	33	34.10	69	58.46	3.7	282	14.2	0.0	49.1	0.596E-02	20.8	1029.5	5	1	31	1	180	10	40	11	8.9
1/10	000	33	24.08	69	57.76	6.3	260	14.8	0.0	49.3	0.619E-02	20.9	1029.5	5	1	31	1	180	10	45	17	9.4
1/10	000	33	15.92	69	58.45	5.9	263	15.1	0.0	51.6	0.660E-02	21.2	1029.3	5	1	31	1	180	10	45	16	9.9
1/10	000	33	4.84	69	56.95	4.6	255	15.3	0.0	49.2	0.638E-02	21.2	1029.0	5	1	31	1	180	10	35	15	9.8
1/10	000	32	55.34	69	56.98	5.5	266	15.8	0.0	47.5	0.634E-02	21.3	1028.5	5	1	31	1	180	10	45	15	10.0
1/10	000	32	46.39	69	56.71	6.3	260	15.1	0.0	47.1	0.603E-02	21.0	1028.0	5	1	32	1	180	10	45	17	9.4
1/10	000	32	37.15	69	56.83	4.9	283	15.6	0.0	52.4	0.691E-02	20.8	1027.4	5	1			180	10	50	12	10.4
1/10	000	32	27.47	69	56.70	5.0	261	15.8	0.0	49.2	0.657E-02	21.0	1027.4	5	1			180	10	40	15	10.2
1/10	000	32	17.34	69	55.05	2.3	212	15.8	0.0	52.7	0.704E-02	21.2	1026.7	5	1			180	10	10	14	10.6
1/10	000	32	7.00	69	54.14	1.9	141	14.5	0.0	67.7	0.836E-02	21.1	1026.0	5	1			180	10	350	13	11.1
1/10	000	31	56.10	69	53.62	1.0	179	16.4	0.0	58.1	0.803E-02	21.0	1025.6	5	1			180	10	0	12	11.7
1/10	000	31	45.82	69	53.16	2.2	107	16.9	0.0	62.3	0.887E-02	21.4	1025.5	5	1			180	10	340	12	12.6
1/10	000	31	35.75	69	52.60	6.0	226	17.6	0.0	51.3	0.762E-02	21.7	1025.3	5	1	35	1	180	10	25	20	11.9
1/10	000	31	24.91	69	52.28	7.9	196	18.0	0.0	47.9	0.727E-02	21.3	1026.0	5	1	35		180	10	10	25	11.8
1/10	000	31	14.62	69	52.38	5.5	152	19.0	0.0	49.5	0.796E-02	21.5	1026.2	5	1	08		182	10	345	20	12.8
1/10	000	31	4.07	69	52.19	4.3	159	18.8	0.0	46.0	0.732E-02	21.5	1026.4	5	1			182	10	350	18	12.2
1/10	000	30	53.61	69	52.52	1.6	102	19.2	0.0	42.1	0.686E-02	21.6	1025.7	5	1	05	1	182	11	345	12	12.0
1/10	000	30	39.16	69	53.33	2.6	136	18.9	19.8	49.3	0.789E-02	21.7	1024.5	7	1	05	1	182	10	345	14	12.7
1/10	000	30	35.10	69	53.68	5.5	124	19.0	20.3	55.9	0.899E-02	21.6	1022.7	7	1	03	1	182	5	320	14	13.6
1/10	000	30	27.21	69	54.42	8.1	117	19.4	0.0	67.9	0.112E-01	21.6	1022.2	7	1	03	1	182	10	320	22	15.4
1/10	000	30	16.90	69	52.25	10.0	122	19.6	0.0	64.8	0.108E-01	21.5	1020.6	8	1	14	2	182	10	320	26	15.2
1/10	000	30	1.50	69	56.70	10.0	122	19.9	0.0	67.6	0.115E-01	21.5	1020.2	8	1	13	2	182	10	320	26	15.8
1/10	000	29	56.50	69	57.42	8.8	134	20.3	0.0	75.6	0.131E-01	21.7	1019.5	8	1	13	2	182	10	330	25	17.1
1/10	000	29	49.08	69	51.35	9.8	136	20.4	0.0	79.1	0.138E-01	22.0	1019.0	7	1	13	2	182	10	330	27	17.6

Table VB-1 (Leg 1, continued)

DATE	TIME	LAT	LONG	WS	WD	AT1	AT2	KH	ABS HUM	SST	BP	CLOUD	WAVES	SC	SS	AWD	AW5	TW	
1/11	0	29 39.40	69 58.48	11.3	131	20.2	0.0	87.8	0.151E-01	21.7	1018.0		2 13 2	175	10	330	30	18.4	
1/11	100	29 30.94	69 58.00	14.0	141	19.8	0.0	98.8	0.166E-01	22.6	1016.5		2		175	9	335	35	19.2
1/11	200	29 22.80	69 57.41	13.8	148	20.4	0.0	100.9	0.176E-01	22.7	1015.3		2	2	175	9	340	35	20.0
1/11	300	29 15.21	69 58.11	16.1	156	21.2	0.0	97.5	0.178E-01	22.6	1014.1		2	2	175	8	345	39	20.4
1/11	400	29 7.42	69 57.45	13.5	161	22.2	0.0	92.6	0.179E-01	22.8	1013.4		2	2	175	8	350	34	20.8
1/11	500	29 2.24	69 39.93	15.5	187	21.6	0.0	95.0	0.177E-01	22.6	1013.0		2 18 3	175	8	10	38	20.5	
1/11	600	28 56.52	69 57.89	14.0	187	20.8	0.0	99.2	0.177E-01	22.0	1012.3		2 19 3	175	8	10	35	20.2	
1/11	700	28 49.02	69 57.57	14.2	205	21.2	0.0	98.5	0.180E-01	22.3	1012.1		2 19 3	180	8	20	35	20.5	
1/11	800	28 41.43	69 57.16	14.0	192	21.4	0.0	96.7	0.178E-01	22.3	1012.1		3 19 4	180	8	10	35	20.5	
1/11	900	28 33.49	69 56.96	13.0	193	22.6	0.0	96.4	0.190E-01	22.1	1011.7		2 19 4	180	8	10	33	21.6	
1/11	1000	28 26.73	69 58.59	14.0	192	22.8	0.0	94.8	0.189E-01	22.4	1011.6		2 18 3	180	8	10	35	21.6	
1/11	1100	28 19.09	69 57.79	14.0	192	22.9	0.0	92.2	0.185E-01	22.4	1011.5	8	2 35	180	8	10	35	21.4	
1/11	1200	28 11.45	69 57.28	14.2	205	22.2	0.0	99.8	0.193E-01	22.5	1012.1		3 19 4	180	8	20	35	21.6	
1/11	1300	28 3.79	69 56.69	12.5	199	23.0	0.0	94.9	0.191E-01	22.6	1012.5	5	3 19 4	180	8	15	32	21.8	
1/11	1400	27 53.73	69 56.76	12.5	203	23.6	0.0	90.0	0.188E-01	22.8	1013.0	5	3 19 4	184	8	15	32	21.8	
1/11	1500	27 49.15	69 56.89	12.4	197	23.8	0.0	90.2	0.190E-01	23.2	1013.2	5	3 19 4	184	8	10	32	22.0	
1/11	1600	27 40.46	69 53.13	11.5	204	23.8	21.8	91.9	0.194E-01	23.0	1012.9	5	6 19 4	184	8	15	30	22.2	
1/11	1700	27 33.34	69 52.74	13.6	203	23.8	21.8	83.6	0.176E-01	23.4	1011.8	5	3 19 4	184	8	15	34	21.2	
1/11	1800	27 26.84	69 52.34	14.7	208	23.8	21.9	91.9	0.194E-01	23.5	1010.8	4	2 19 4	184	7	20	35	22.2	
1/11	1900	27 20.21	69 51.96	13.2	209	24.0	22.0	92.0	0.196E-01	23.4	1011.2	4	3 19 4	184	7	20	32	22.4	
1/11	2000	27 13.52	69 51.39	12.1	209	24.0	22.1	92.0	0.196E-01	23.3	1011.6	7	3 19 4	184	7	20	30	22.4	
1/11	2100	27 6.72	69 52.51	11.9	208	23.5	22.2	97.8	0.203E-01	23.5	1011.9	7	3 18 4	195	7	10	30	22.6	
1/11	2200	26 59.75	69 53.14	14.6	212	24.2	22.3	93.0	0.200E-01	23.7	1012.2	7	3 19 4	194	7	15	35	22.7	
1/11	2300	26 52.80	69 53.82	13.5	212	24.2	22.4	93.8	0.202E-01	23.9	1012.5		3 19 4	194	7	15	33	22.8	
1/12	0	26 45.85	69 54.80	12.0	213	24.2	22.2	92.1	0.199E-01	24.0	1013.1		3 19 4	194	7	15	30	22.6	
1/12	100	26 38.90	69 55.84	12.0	213	23.8	22.7	97.0	0.205E-01	24.0	1013.3		3 19 4	194	7	15	30	22.8	
1/12	200	26 31.81	69 55.44	6.2	284	24.4	22.8	93.9	0.205E-01	24.9	1013.5		3 19 4	187	27	25	28	23.0	
1/12	300	26 24.60	69 55.80	12.5	225	23.6	23.0	95.2	0.199E-01	25.0	1013.6		3 19 4	187	7	30	30	22.4	
1/12	400	26 16.94	69 56.11	10.5	228	24.2	22.5	93.8	0.202E-01	25.1	1013.6		3 19 4	187	8	30	27	22.8	
1/12	500	26 7.71	69 55.97	8.6	244	23.6	21.3	91.7	0.191E-01	24.9	1013.6		2	4	187	8	40	22	22.0
1/12	600	25 59.92	69 55.98	12.6	226	24.4	22.6	90.6	0.197E-01	25.0	1014.1		2	3	187	8	30	31	22.6
1/12	700	25 51.82	69 56.39	12.1	239	24.2	22.3	88.8	0.191E-01	25.2	1013.7		2		187	8	40	29	22.2
1/12	800	25 43.76	69 56.55	9.2	253	24.0	22.2	90.3	0.193E-01	25.0	1013.7		2		184	8	50	22	22.2
1/12	900	25 34.99	69 57.03	9.1	255	23.4	22.1	95.1	0.196E-01	25.0	1013.7		1		182	9	50	22	22.2
1/12	1000	25 31.14	69 59.48	9.0	253	24.2	22.2	85.5	0.184E-01	24.8	1014.0		1		315	10	320	24	21.8
1/12	1100	25 38.36	70 7.50	6.3	296	23.6	21.7	86.7	0.181E-01	24.8	1014.2	7	1	2	315	10	350	22	21.4
1/12	1200	25 46.50	70 14.50	6.3	333	23.2	21.0	85.6	0.175E-01	24.7	1014.6	5	2	2	315	10	10	22	20.9
1/12	1300	25 57.68	70 23.41	7.1	30	22.8	20.9	89.5	0.179E-01	24.8	1015.5	5	2	2	315	10	45	19	21.0
1/12	1400	25 57.83	70 31.40	8.0	34	22.6	20.6	84.3	0.166E-01	24.6	1015.9	5	2	2	315	10	50	20	20.2
1/12	1500	26 4.54	70 38.62	9.4	45	22.0	20.4	83.8	0.160E-01	24.0	1016.7	5	2	2	317	10	60	21	19.6
1/12	1600	26 11.01	70 46.82	9.4	45	21.4	20.3	88.6	0.163E-01	24.0	1016.6	7	2	2	320	9	60	21	19.6
1/12	1700	26 17.60	70 52.87	9.4	45	22.2	20.0	84.0	0.162E-01	24.3	1015.9	7	2 35	4	320	9	60	21	19.8
1/12	1800	26 24.31	70 48.67	9.9	59	22.9	20.0	75.6	0.152E-01	24.2	1014.7	7	2 35 3	3	45	9	10	28	19.4
1/12	1900	26 29.15	70 41.69	8.8	63	22.8	20.1	77.1	0.154E-01	24.1	1015.0	6	1 35 3	135	8	310	21	19.5	
1/12	2000	26 22.80	70 34.43	8.9	48	23.0	20.3	77.2	0.156E-01	23.9	1015.2	8	1 00 3	135	9	300	20	19.7	
1/12	2100	26 16.39	70 27.32	10.1	28	22.9	20.6	80.4	0.161E-01	24.3	1015.3		1 01 3	135	9	280	19	20.0	
1/12	2200	26 10.01	70 20.13	9.9	50	22.5	20.2	91.1	0.179E-01	24.6	1015.3		2 34 3	135	9	300	22	20.9	
1/12	2300	26 3.85	70 12.73	7.9	72	22.6	20.6	90.3	0.178E-01	24.9	1014.1		2 34 3	135	9	320	21	20.9	
1/13	0	25 57.79	70 5.93	8.3	74	21.6	21.3	94.1	0.176E-01	24.9	1015.5		2		135	9	320	22	20.4
1/13	100	25 52.09	69 58.91	7.0	77	23.0	21.2	86.3	0.174E-01	25.0	1015.6		2		135	9	325	20	20.8
1/13	200	25 46.22	69 51.57	4.7	97	23.2	21.4	83.1	0.169E-01	25.0	1015.6		1		137	9	340	17	20.6
1/13	300	25 40.41	69 45.13	3.8	114	23.4	21.2	86.5	0.179E-01	25.1	1015.4		1		137	9	350	16	21.2
1/13	400	25 40.16	69 41.38	1.4	75	23.2	21.3	89.8	0.183E-01	25.4	1015.1		1		0	9	15	10	21.4
1/13	500	25 49.62	69 41.36	0.8	95	23.2	21.2	86.4	0.176E-01	25.3	1014.7		1		0	9	10	9	21.0
1/13	600	25 58.91	69 41.23	0.0	0	23.4	21.3	84.9	0.175E-01	25.2	1014.5		1 33 2	0	0	0	9	21.0	
1/13	700	26 9.00	69 50.72	6.3	230	23.6	21.6	84.2	0.176E-01	25.0	1013.7		1 34 2	315	9	310	16	21.1	
1/13	800	26 12.17	69 53.75	7.2	235	23.2	21.3	86.4	0.176E-01	25.0	1013.5		1 34 2	315	9	310	18	21.0	
1/13	900	26 18.81	70 0.92	4.3	231	23.1	20.9	85.5	0.173E-01	25.0	1013.5		1 34 3	315	9	320	13	20.8	
1/13	1000	26 25.35	70 8.07	4.7	235	23.1	21.0	83.8	0.170E-01	24.7	1013.3		1		315	9	320	14	20.6
1/13	1100	26 32.13	70 15.35	4.0	226	22.4	20.9	90.1	0.176E-01	24.4	1013.4	8	1 00 3	315	9	320	12	20.7	
1/13	1200	26 38.65	70 22.67	4.6	205	23.0	20.8	89.7	0.181E-01	23.6	1013.5	8	1 00 3	315	10	310	11	21.2	
1/13	1300	26 45.36	70 30.03	6.9	183	22.8	20.9	82.8	0.165E-01	23.7	1013.4	8	1 10 3	315	9	270	10	20.2	
1/13	1400	26 52.18	70 37.29	10.2	194	23.4	21.3	81.6	0.168E-01	23.0	1013.3	4869	1 02 3	315	10	270	17	20.6	
1/13	1500	26 58.81	70 44.58	11.3	200	23.0	21.1	79.7	0.161E-01	23.0	1012.7	779	2 00 3	315	9	270	20	20.0	
1/13	1600	27 0.21	70 35.94	15.0	249	22.2	20.2	85.7	0.165E-01	23.0	1012.3	627	2	2	90	10	150	20	20.0
1/13	1700	27 1.17	70 24.86	10.3	299	22.7	19.8	80.3	0.159E-01	23.3	1012.0	527	2	2	90	9	230	13	19.8
1/13	1800	27 0.66	70 14.22	11.1	292	22.3	20.2	76.7	0.149E-01	23.3	1011.2	85	2 26 2	135	10	140	13	19.0	
1/13	1900	26 54.32	70 5.96	11.2	278	22.1	20.1	81.4	0.156E-01	23.4	1011.7	86	2 22 2	135	10	120	15		

Table Vb-1 (Leg 1, continued)

DATE	TIME	LAT	LONG	WS	WD	AT1	AT2	RH	ABS	HUM	SST	BP	CLOUD	WAVES	SC	SS	AWD	AW5	TW
1/14	1000	27 20.93	69 54.06	10.6	285	19.6	19.6	78.5	0.131E-01	23.0	1015.8			2		45	10	270	18 16.8
1/14	1100	27 27.28	69 46.10	10.9	277	21.4	19.6	67.7	0.125E-01	23.2	1016.0		3169	2 31 3		45	10	260	17 17.1
1/14	1200	27 28.34	69 38.42	10.8	320	20.8	19.0	69.5	0.124E-01	23.2	1017.0		6259	2 31 3		135	10	190	11 16.8
1/14	1300	27 21.83	69 30.18	10.3	319	21.0	19.3	66.4	0.120E-01	23.1	1017.3		5259	3 31 3		135	10	190	10 16.6
1/14	1400	27 15.28	69 22.44	7.7	318	21.4	19.6	63.7	0.118E-01	23.5	1018.6		6259	3 31 3		135	10	190	5 16.6
1/14	1500	27 7.84	69 11.50	6.7	321	21.4	19.5	63.7	0.118E-01	24.7	1019.3		6279	3 31 3		142	9	180	4 16.6
1/14	1600	27 1.13	69 4.26	7.2	321	21.4	0.0	66.9	0.123E-01	24.4	1018.5		6274	3 31 3		142	9	180	5 17.0
1/14	1700	26 53.90	68 57.16	8.7	317	21.9	0.0	62.0	0.118E-01	24.6	1017.6		6814	3 31 3		142	10	170	7 16.8
1/14	1800	26 53.82	69 5.74	5.8	292	19.8	0.0	73.5	0.124E-01	24.4	1017.4		7854	2 31 4		275	9	10	20 16.4
1/14	1900	26 54.27	69 14.09	6.2	319	21.0	0.0	62.5	0.113E-01	24.8	1017.4		785	2 31 3		310	0	10	12 16.1
1/14	2000	26 55.04	69 14.90	9.3	319	20.9	0.0	65.5	0.118E-01	24.8	1017.6		7844	2 31 3		300	0	20	18 16.4
1/14	2100	26 55.15	69 15.01	5.1	329	20.9	18.9	65.5	0.118E-01	24.6	1018.2		76	1 31 3		310	0	20	10 16.4
1/14	2200	26 55.74	69 15.36	6.2	349	20.4	18.7	62.5	0.109E-01	24.7	1018.7		86	1 31 3		310	0	40	12 15.6
1/14	2300	26 56.08	69 15.19	5.7	329	20.2	18.7	63.1	0.109E-01	24.5	1019.0			1 31 3		310	0	20	11 15.5
1/15	0	26 56.79	69 15.53	5.1	329	20.4	18.9	61.0	0.106E-01	24.6	1019.1		8	1 31 3		310	0	20	10 15.4
1/15	100	26 57.32	69 14.97	6.2	319	20.3	18.7	63.2	0.110E-01	24.6	1019.8		7	1 31 3		310	0	10	12 15.6
1/15	200	26 57.62	69 15.03	4.1	299	20.4	18.7	63.3	0.110E-01	24.7	1020.2			1 31 2		310	0	350	8 15.7
1/15	300	26 57.90	69 14.89	2.6	294	20.2	18.6	63.1	0.109E-01	24.6	1020.2		0	1 31 2		310	0	345	5 15.5
1/15	400	26 57.75	69 15.12	6.5	296	20.2	18.8	63.9	0.110E-01	24.6	1020.0		0	1 31 2		225	8	45	17 15.6
1/15	500	26 56.37	69 19.41	4.6	269	20.2	18.8	63.9	0.110E-01	24.6	1020.2			1 31 2		270	8	0	17 15.6
1/15	600	26 57.19	69 26.51	6.2	269	20.4	18.7	58.6	0.102E-01	24.5	1020.3			1 31 2		270	8	0	20 15.1
1/15	700	26 59.03	69 38.99	5.1	269	20.4	18.6	60.1	0.105E-01	24.2	1020.2			1 31 2		270	8	0	18 15.3
1/15	800	26 59.43	69 46.96	5.7	269	20.3	18.5	60.8	0.105E-01	23.4	1020.5			1 31 2		270	7	0	18 15.3
1/15	900	27 3.32	69 53.80	7.4	273	20.8	18.6	60.6	0.108E-01	23.0	1020.5			1 31 2		332	7	320	19 15.7
1/15	1000	27 8.20	69 56.19	8.8	260	20.4	18.5	63.3	0.110E-01	23.1	1020.5			1		332	8	310	21 15.7
1/15	1100	27 14.36	69 59.45	7.6	278	20.4	18.4	60.9	0.106E-01	22.9	1021.4		637	1 31 3		329	7	325	20 15.4
1/15	1200	27 18.54	70 3.06	9.2	311	21.0	18.6	63.2	0.114E-01	22.9	1023.0		635	1 31 3		90	8	245	13 16.2
1/15	1300	27 14.60	69 58.00	8.6	302	20.2	18.7	63.8	0.110E-01	23.0	1023.3			1 31 3		131	10	160	7 15.6
1/15	1400	27 11.44	69 52.65	7.2	314	20.4	18.6	60.9	0.106E-01	23.2	1024.1		4	1 32 2		315	0	0	14 15.4
1/15	1500	27 12.22	69 53.31	6.3	322	20.8	18.5	56.7	0.101E-01	23.4	1024.4		317	1 32 2		290	1	30	13 15.2
1/15	1600	27 33.33	69 54.70	6.8	329	20.5	18.6	56.3	0.988E-02	23.2	1024.2		21	1 32 2		301	2	25	15 14.9
1/15	1700	27 14.42	69 56.43	5.8	337	20.8	18.5	59.0	0.105E-01	23.3	1023.3		21	1 32 2		302	2	30	13 15.5
1/15	1800	27 15.28	69 58.05	5.7	325	20.8	18.6	59.8	0.107E-01	23.3	1023.2		21	1 32 2		302	2	20	13 15.6
1/15	1900	27 16.21	70 0.15	5.3	345	20.8	18.7	66.1	0.118E-01	22.9	1023.1		21	1 32 2		310	2	30	12 16.4
1/15	2000	27 17.48	70 2.33	4.7	332	20.2	18.9	68.7	0.119E-01	23.1	1022.9		31	1 32 2		320	2	10	11 16.2
1/15	2100	27 17.85	70 3.15	4.1	314	20.6	18.9	61.1	0.108E-01	23.1	1023.2		21	1 32 2		315	0	0	8 15.6
1/15	2200	27 17.11	70 1.49	5.1	354	20.6	19.0	63.5	0.112E-01	23.0	1024.0		31	1 32 2		265	0	90	10 15.9
1/15	2300	27 17.10	70 1.60	4.1	4	20.6	19.0	63.5	0.112E-01	23.1	1025.1			1 32 2		315	0	50	8 15.9
1/16	0	27 19.52	70 4.08	4.5	353	20.6	19.1	61.1	0.108E-01	23.1	1025.5		0	1 32 2		270	4	60	10 15.6
1/16	100	27 16.27	70 3.02	1.5	72	20.4	19.1	60.0	0.105E-01	22.8	1025.9			1 32 2		180	5	325	5 15.3
1/16	200	27 16.08	70 2.72	3.6	74	20.6	19.2	72.4	0.128E-01	22.7	1026.0			1 32 2		110	0	325	7 17.0
1/16	300	27 17.48	70 1.63	5.1	12	20.8	19.1	69.3	0.124E-01	22.8	1026.0			1 32 2		8	0	5	10 16.8
1/16	400	27 17.71	70 1.84	5.1	32	20.8	18.9	64.5	0.115E-01	23.8	1026.0		0	1 32 2		8	0	25	10 16.2
1/16	500	27 17.83	70 1.64	5.2	32	20.8	19.0	62.9	0.112E-01	22.8	1025.6			1 31 1		353	0	40	10 16.0
1/16	600	27 17.97	70 1.54	5.1	30	21.0	19.0	61.6	0.111E-01	22.9	1025.4			1 31 1		346	0	45	10 16.0
1/16	700	27 15.48	70 0.26	5.7	21	21.0	18.9	64.7	0.117E-01	23.3	1025.7					133	10	300	12 16.4
1/16	800	27 9.40	69 52.19	8.1	26	21.3	19.1	67.4	0.124E-01	23.7	1025.7					145	10	280	14 17.0
1/16	900	27 3.83	69 46.37	5.1	34	21.0	19.0	64.7	0.117E-01	24.4	1025.6					35	0	0	10 16.4
1/16	1000	27 0.10	69 40.66	5.7	44	21.2	19.3	66.5	0.121E-01	24.5	1026.2					45	0	0	11 16.8
1/16	1100	26 59.79	69 39.74	5.7	44	21.2	19.4	68.1	0.124E-01	24.5	1026.8		4	1 31 2		45	0	0	11 17.0
1/16	1200	26 48.37	69 16.28	6.7	60	21.2	19.5	72.2	0.132E-01	24.5	1026.9		6	1 31 2		310	9	70	13 17.5
1/16	1300	27 4.29	69 47.68	5.5	31	21.2	19.4	68.1	0.124E-01	24.2	1027.5		7	1 31 2		310	9	45	15 17.0
1/16	1400	27 9.84	69 54.62	15.3	45	20.4	19.0	86.1	0.150E-01	23.5	1028.3		8	2 35 2		310	8	80	30 18.4
1/16	1500	27 7.13	69 54.22	10.9	33	21.2	19.1	81.4	0.149E-01	23.4	1028.4		8	2 02 2		144	9	275	20 18.6
1/16	1600	27 0.68	69 50.35	14.2	56	21.1	20.1	79.6	0.144E-01	24.2	1028.4		8	2 02 2		250	9	160	19 18.3
1/16	1700	27 1.05	69 50.42	12.9	44	21.8	19.5	80.2	0.151E-01	24.0	1027.2		8	2 03 2		60	1	345	26 19.0
1/16	1800	27 2.27	69 49.05	12.4	39	22.0	19.6	75.4	0.144E-01	24.2	1027.1		8	2 02 2		45	2	355	26 18.6
1/16	1900	27 3.54	69 48.11	13.0	38	21.2	19.5	81.4	0.149E-01	24.4	1026.8		7	2 02 2		75	1	325	26 18.6
1/16	2000	27 4.41	69 46.56	11.8	49	22.2	19.5	72.3	0.140E-01	24.5	1027.2		8	2 02 2		40	0	10	23 18.4
1/16	2100	27 5.04	69 46.89	12.9	46	21.8	19.4	75.2	0.142E-01	24.5	1027.5		7	2 02 2		270	8	120	20 18.4
1/16	2200	27 4.59	69 51.77	7.7	39	20.8	19.4	84.6	0.151E-01	24.5	1027.6		7	2 02 2		150	0	250	15 18.6
1/16	2300	27 0.57	69 43.75	14.7	59	20.7	19.8	73.3	0.130E-01	24.5	1027.8			3 04 3		135	9	300	32 17.2
1/17	0	26 56.20	69 39.02	12.9	49	20.7	19.7	83.6	0.148E-01	24.7	1028.5			3 04 3		45	0	5	25 18.4
1/17	100	26 56.90	69 39.31	12.9	59	21.2	19.6	78.0	0.142E-01	24.6	1029.0			3 04 3		45	0	15	25 18.2
1/17	200	26 57.34	69 39.44	11.3	59	21.0	19.6	76.1	0.137E-01	24.5	1029.0			3 04 3		50	0	10	22 17.8
1/17	300	27 2.23	69 45.54	12.0	65	21.4	19.6	76.5	0.141E-01	24.6	1029.0			3 04 3		310	10	90	21 18.2
1/17	400	27 4.45	69 47.35	10.3	59	21.2	19.2	70.5	0.129E-01	24.4	1028.9			3 0					

Table Vb-1 (Leg 1, continued)

DATE	TIME	LAT	LONG	WS	WD	AT1	AT2	RH	ABS	HUM	SST	BP	CLOUD	WAVES	SC	SS	AWD	AWS	TV
1/18	0 27	4.88	69 40.94	11.8	74	22.7	20.1	68.1	0.135E-01	24.4	1026.1			3 08	3	75	0	0 23	18.3
1/18	100 27	0.69	69 42.99	11.9	71	22.1	20.1	65.9	0.127E-01	24.5	1026.5			3 08	3	199	9	255	19 17.5
1/18	200 26	59.69	69 43.50	10.8	84	22.4	20.2	67.8	0.132E-01	24.5	1026.3			3 09	3	85	0	0 21	18.0
1/18	300 27	0.16	69 43.61	10.3	87	22.2	20.0	69.2	0.134E-01	24.4	1026.1			3 09	3	88	0	0 20	18.0
1/18	400 27	0.77	69 43.57	10.3	93	21.9	20.2	68.1	0.129E-01	24.5	1025.8			2 09	3	94	0	0 20	17.6
1/18	500 27	1.49	69 43.16	9.3	87	22.1	20.1	64.4	0.124E-01	24.6	1025.4			2 09	3	88	0	0 18	17.3
1/18	600 27	2.30	69 43.14	9.3	87	21.9	20.0	69.7	0.132E-01	24.6	1024.6			1 08	2	88	0	0 18	17.8
1/18	700 27	3.03	69 43.17	10.3	99	22.0	20.2	66.6	0.127E-01	24.6	1024.2			1 07	2	90	0	10 20	17.5
1/18	800 27	3.62	69 42.82	9.8	79	22.1	20.3	73.9	0.142E-01	24.5	1023.7			1 07	2	90	0	350	19 18.5
1/18	900 27	4.32	69 42.59	10.3	79	22.3	20.3	76.5	0.149E-01	24.5	1023.6			1 08	2	90	0	350	20 19.0
1/18	1000 27	4.99	69 42.16	9.3	89	22.2	20.2	66.1	0.128E-01	24.5	1023.8			1 08	2	90	0	0 18	17.6
1/18	1100 27	5.43	69 41.64	9.3	79	21.8	20.4	83.6	0.158E-01	24.6	1024.0			1 04	2	90	0	350	18 19.4
1/18	1200 27	2.08	69 47.83	10.3	82	22.4	20.6	83.2	0.162E-01	24.3	1024.2			2 08	2	225	9	240	14 19.9
1/18	1300 26	57.00	69 34.14	11.8	89	23.2	20.6	76.5	0.156E-01	24.3	1024.1			2 08	2	90	0	0 23	19.8
1/18	1400 26	57.18	69 55.82	11.8	89	23.4	20.6	77.5	0.160E-01	24.2	1024.2			2 08	2	95	0	355	23 20.1
1/18	1500 26	57.05	69 53.80	10.8	89	23.7	20.7	76.1	0.160E-01	24.2	1024.2			1 08	2	92	1	358	22 20.2
1/18	1600 26	57.01	69 51.79	12.4	89	23.2	19.5	79.7	0.168E-01	24.3	1023.5		67	2 08	2	92	1	358	25 20.2
1/18	1700 26	57.00	69 49.71	10.8	94	23.8	20.6	80.2	0.169E-01	24.4	1022.0		77	2 08	2	95	1	0 22	20.8
1/18	1800 26	57.04	69 47.92	10.8	94	23.0	19.3	82.9	0.167E-01	24.5	1021.1		725	2 08		105	1	350	22 20.4
1/18	1900 26	57.13	69 46.55	9.3	90	23.0	20.6	82.9	0.167E-01	24.6	1020.2		625	2 08	3	85	1	5 19	20.4
1/18	2000 26	57.99	69 48.06	9.3	95	23.0	19.7	82.9	0.167E-01	24.5	1020.1		625	2 08	2	85	1	10 19	20.4
1/18	2100 26	56.21	69 46.33	10.3	94	22.1	20.8	87.3	0.168E-01	24.6	1020.2		323	2 09	3	95	8	0 28	20.1
1/18	2200 26	57.61	69 46.78	9.3	99	22.4	20.7	90.1	0.176E-01	24.4	1020.2		62	2 09	3	100	0	0 18	20.7
1/18	2300 26	58.14	69 46.61	11.8	99	21.7	20.4	90.5	0.170E-01	24.5	1020.3			2 09	3	95	0	5 23	20.1
1/19	0 26	58.87	69 46.52	12.4	119	21.6	19.6	86.1	0.161E-01	24.4	1020.3			3 09	3	100	0	20 24	19.5
1/19	100 26	59.70	69 46.47	11.3	114	22.7	20.8	84.3	0.167E-01	24.4	1020.3			3 09	3	115	0	0 22	20.3
1/19	200 27	0.77	69 45.72	15.3	155	22.1	17.9	83.0	0.159E-01	24.3	1020.6			2 10	3	58	9	80 30	19.6
1/19	300 27	5.12	69 39.24	11.3	119	22.1	21.2	94.3	0.181E-01	24.5	1020.3			3 10	3	120	0	0 22	20.9
1/19	400 27	4.96	69 39.21	12.9	119	23.4	21.3	83.2	0.172E-01	24.6	1020.2			3 10	3	120	0	0 25	20.8
1/19	500 27	5.83	69 39.20	11.3	119	23.3	21.4	87.3	0.179E-01	24.5	1020.1			3 10	3	120	0	0 22	21.2
1/19	600 27	6.34	69 38.77	11.3	129	22.4	21.4	91.8	0.179E-01	24.5	1019.7			2 11	3	135	0	355	22 20.9
1/19	700 27	5.68	69 43.58	12.2	113	23.2	21.3	82.2	0.168E-01	24.4	1018.9			1 11	3	255	10	240	17 20.5
1/19	800 27	3.30	69 52.61	9.4	112	22.6	20.3	90.2	0.178E-01	24.0	1018.4			2 11	3	250	9	250	13 20.9
1/19	900 27	6.15	69 58.03	11.2	155	22.6	20.9	92.8	0.183E-01	24.0	1018.3			3 11	3	0	9	140	14 21.2
1/19	1000 27	16.23	69 57.91	11.3	148	23.2	20.7	86.4	0.176E-01	23.4	1018.2			3 11	3	0	9	130	15 21.0
1/19	1100 27	19.39	69 57.26	12.9	134	23.2	21.3	84.7	0.173E-01	23.3	1018.1		34	3 13	3	135	0	0 25	20.8
1/19	1200 27	20.05	69 56.85	11.3	144	23.3	21.3	87.3	0.179E-01	23.3	1018.6		151	3 12	3	135	0	10 22	21.2
1/19	1300 27	20.47	69 55.74	11.3	154	23.5	21.3	85.7	0.178E-01	23.4	1019.2		3251	3 12	3	135	0	20 22	21.2
1/19	1400 27	15.96	69 50.37	7.7	156	23.8	21.3	86.8	0.183E-01	23.7	1019.9		4321	3 12	3	149	8	5 23	21.6
1/19	1500 27	9.56	69 44.52	9.3	148	23.6	21.1	85.0	0.177E-01	24.0	1020.0		4321	3 13	3	149	8	0 26	21.2
1/19	1600 27	5.16	69 39.04	11.7	170	24.3	21.4	86.3	0.187E-01	24.6	1019.7		4264	3 13	3	40	10	105	18 22.0
1/19	1700 27	12.76	69 32.45	11.6	174	24.0	21.6	85.3	0.182E-01	24.6	1019.0		4264	3 13	3	40	10	110	17 21.6
1/19	1800 27	19.87	69 25.81	10.3	178	23.8	21.0	88.5	0.187E-01	24.6	1018.0		526	3 13	3	43	9	110	15 21.8
1/19	1900 27	27.18	69 19.19	9.6	187	23.8	21.4	86.8	0.183E-01	24.5	1017.2		426	2 12	2	43	10	115	12 21.6
1/19	2000 27	34.27	69 12.14	10.0	185	23.2	21.5	93.2	0.190E-01	24.5	1017.0		4275	2 13	2	43	10	115	13 21.8
1/19	2100 27	41.33	69 5.19	9.0	163	23.8	21.3	88.5	0.187E-01	24.6	1017.1		4275	2 13	2	43	9	90	15 21.8
1/19	2200 27	48.91	68 57.59	12.0	178	23.4	21.2	90.7	0.187E-01	24.5	1017.5		4279	2 13	2	43	9	115	18 21.7
1/19	2300 27	56.91	68 50.24	10.1	168	23.7	21.4	90.1	0.189E-01	24.3	1017.5			2 13	2	43	10	95	16 21.9
1/20	0 28	5.04	68 43.22	11.7	173	23.9	21.5	90.2	0.191E-01	24.3	1017.7			2 13	2	43	10	105	18 22.1

Table Vb-1 (cont.): KNORR 119, Leg 2, Manual Hourly Meteorological Observations

BEGIN 1200 JAN 24, 1986
END 1200 FEB 6, 1986

DATE	TIME	LAT	LONG	WS	WD	AT1	AT2	RH	ABS HUM	SST	BP	CLOUD	WAVES	SC	SS	AWD	ANS	TW
1/24	1200	30 4.85	66 43.03	16.5	346	19.2	17.5	72.9	0.119E-01	22.4	1017.6	86	1 27	2	220	8	113	28 15.8
1/24	1300	29 58.08	66 47.77	15.0	347	18.0	15.6	83.5	0.127E-01	21.8	1018.5	86	1 27	2	220	8	113	25 15.9
1/24	1400	29 50.27	66 54.21	6.9	351	18.6	16.7	73.2	0.115E-01	21.6	1018.0	76	1 27	1	220	9	90	10 15.3
1/24	1500	29 42.38	67 0.48	5.3	327	19.6	17.7	69.9	0.116E-01	21.6	1017.5	76	0 26	1	220	10	55	12 15.8
1/24	1600	29 34.44	67 6.46	5.8	294	19.5	17.5	77.5	0.128E-01	22.7	1017.2	76	0 26	1	220	10	40	17 16.6
1/24	1700	29 26.72	67 12.21	4.6	219	20.6	18.8	70.1	0.124E-01	23.6	1016.6	67	0 10	1	220	10	0	19 16.7
1/24	1800	29 20.33	67 18.46	6.4	262	20.6	19.9	69.3	0.122E-01	23.8	1015.9	67	1 10	1	220	9	25	20 16.6
1/24	1900	29 13.09	67 24.44	8.5	308	21.0	20.0	74.6	0.135E-01	23.8	1015.7	67	1 10	1	220	9	60	19 17.6
1/24	2000	29 5.76	67 30.62	6.8	309	21.2	19.1	69.1	0.126E-01	23.8	1015.9	58	1 10	1	220	9	55	16 17.1
1/24	2100	28 58.32	67 36.00	8.0	309	21.4	19.2	68.5	0.126E-01	23.8	1016.7	12	1 10	1	220	9	60	18 17.2
1/24	2200	28 51.05	67 42.88	8.0	323	21.2	19.0	72.3	0.132E-01	23.8	1017.0	38	1 30	1	220	9	70	16 17.5
1/24	2300	28 43.41	67 48.67	8.4	321	21.1	19.1	72.2	0.131E-01	23.7	1017.2	38	1 30	1	220	9	70	17 17.4
1/25	0	28 36.07	67 53.30	8.5	336	21.0	19.0	66.4	0.120E-01	23.5	1018.0	28	1 30	1	220	10	80	15 16.6
1/25	100	28 28.58	68 2.23	8.5	336	21.2	19.0	73.1	0.133E-01	23.6	1018.0	21	1 30	1	220	10	80	15 17.6
1/25	200	28 20.84	68 8.81	8.1	338	21.2	19.0	69.9	0.127E-01	23.5	1018.6	11	1 30	1	220	10	80	14 17.2
1/25	300	28 12.89	68 15.17	8.4	352	21.2	19.1	69.8	0.127E-01	23.6	1019.1	21	1 32	1	220	10	95	12 17.2
1/25	400	28 4.81	68 21.52	9.7	347	21.0	19.1	71.3	0.129E-01	24.2	1019.0	21	1 32	1	220	10	95	15 17.2
1/25	500	27 56.86	68 27.16	7.7	346	21.0	19.1	66.4	0.120E-01	24.2	1018.5	21	1 33	1	220	10	85	12 16.6
1/25	600	27 50.01	68 34.08	8.9	353	21.2	19.0	69.9	0.127E-01	24.0	1018.2	11	1 33	1	228	10	90	14 17.2
1/25	700	27 43.68	68 42.10	8.0	358	21.0	19.0	68.0	0.123E-01	24.0	1018.0	11	1 33	1	228	9	95	12 16.8
1/25	800	27 37.22	68 48.75	7.2	353	21.2	19.2	66.7	0.122E-01	23.9	1018.0	21	1 33	1	219	9	95	10 16.8
1/25	900	27 30.17	68 55.23	7.1	339	21.3	19.2	70.8	0.130E-01	23.9	1017.7	32	1 33	1	219	9	80	12 17.4
1/25	1000	27 25.20	69 3.55	10.3	22	20.8	18.8	76.1	0.136E-01	23.9	1018.0	52	1 34	1	240	9	120	14 17.6
1/25	1100	27 20.98	69 12.35	9.5	353	21.2	19.1	72.3	0.132E-01	24.2	1018.5	32	1 34	1	240	9	85	17 17.5
1/25	1200	27 17.84	69 25.18	9.4	17	21.2	19.3	71.5	0.130E-01	24.3	1019.0	32	1 35	1	240	9	110	13 17.4
1/25	1300	27 12.33	69 30.08	10.3	22	21.8	19.6	71.2	0.134E-01	24.2	1020.0	31	1 35	1	240	9	120	14 17.9
1/25	1400	27 7.60	69 39.40	10.3	25	22.1	19.4	70.7	0.136E-01	24.3	1020.5	21	1 35	1	240	10	120	13 18.1
1/25	1500	27 5.22	69 44.24	9.9	34	21.6	19.4	72.7	0.136E-01	24.0	1020.4	42	1 35	2	310	9	60	22 17.9
1/25	1600	27 13.51	69 55.84	10.7	40	21.4	19.1	76.6	0.141E-01	24.0	1020.4	42	1 35	2	310	10	65	23 18.2
1/25	1700	27 18.76	70 3.03	11.2	36	21.0	18.8	74.6	0.135E-01	23.3	1019.6	22	2 35	2	310	9	65	24 17.6
1/25	1800	27 23.51	70 9.81	11.6	39	20.8	18.3	74.4	0.133E-01	23.3	1019.0	22	2 02	3	310	8	70	24 17.4
1/25	1900	27 28.44	70 16.91	9.8	37	21.0	18.2	69.6	0.126E-01	22.4	1018.9	12	2 01	3	310	8	65	21 17.0
1/25	2000	27 29.10	70 17.65	9.3	34	20.9	18.2	57.7	0.104E-01	22.2	1018.7	11	2 02	3	15	0	20	18 15.4
1/25	2100	27 29.08	70 18.03	9.3	34	21.5	18.0	71.0	0.132E-01	22.2	1018.5	11	2 02	3	15	0	20	18 17.6
1/25	2200	27 29.06	70 18.32	10.3	34	20.8	17.8	75.2	0.134E-01	22.1	1018.4	11	2 02	4	15	0	20	17 17.5
1/25	2300	27 29.10	70 18.46	10.3	39	20.6	18.1	76.7	0.135E-01	21.9	1018.5	11	2 02	4	15	0	25	20 17.5
1/26	0	27 29.19	70 19.12	8.8	39	20.8	18.3	75.2	0.134E-01	21.9	1018.4	0	2 02	4	25	0	15	17 17.5
1/26	100	27 21.00	70 19.00	8.5	57	21.0	18.7	81.3	0.147E-01	23.1	1018.5	0	2 02	3	180	10	275	14 18.4
1/26	200	27 11.86	70 18.90	8.3	66	21.2	19.0	76.4	0.139E-01	23.6	1019.0	21	2 02	3	180	9	280	15 18.0
1/26	300	27 10.99	70 9.46	8.8	54	21.5	19.5	76.7	0.142E-01	23.6	1018.5	51	1 04	2	45	0	10	17 18.3
1/26	400	27 11.28	70 8.17	7.7	49	21.6	19.4	73.5	0.137E-01	23.7	1018.5	31	1 04	2	40	0	10	15 18.0
1/26	500	27 10.92	70 9.38	7.2	64	21.6	19.7	71.1	0.133E-01	23.8	1017.6	21	1 03	2	325	0	100	14 17.7
1/26	600	27 11.07	70 8.38	6.7	47	21.4	19.5	73.3	0.135E-01	23.7	1017.3	41	1 03	2	60	3	350	16 17.8
1/26	700	27 10.97	70 7.84	5.7	39	21.6	19.5	68.7	0.128E-01	23.7	1017.2	21	1 03	2	310	0	90	11 17.4
1/26	800	27 11.91	70 8.38	5.6	71	21.4	19.5	71.7	0.132E-01	23.8	1016.5	21	1 03	2	270	3	155	8 17.6
1/26	900	27 9.91	70 8.79	4.3	24	21.0	18.9	79.7	0.144E-01	23.7	1016.1	21	1 03	2	90	3	310	10 18.2
1/26	1000	27 10.98	70 6.88	0.0	0	21.5	19.2	68.6	0.127E-01	23.6	1016.0	42	1 03	2	0	0	90	8 17.3
1/26	1100	27 10.94	70 6.81	8.2	79	20.4	18.3	79.2	0.138E-01	23.6	1016.0	52	1 03	2	330	0	110	16 17.6
1/26	1200	27 8.91	70 6.94	1.0	179	21.1	18.6	69.8	0.127E-01	23.6	1016.2	59	1 03	2	180	3	0	5 17.1
1/26	1300	27 6.86	69 58.65	1.4	104	21.1	18.8	74.7	0.136E-01	23.6	1015.7	22	0 03	2	153	10	350	12 17.7
1/26	1400	27 6.73	69 57.67	3.6	136	21.8	19.6	70.5	0.133E-01	24.0	1016.6	22	0 03	2	40	2	80	7 17.8
1/26	1500	27 8.05	69 56.44	6.2	134	22.1	19.6	71.6	0.137E-01	24.0	1016.6	32	1 03	2	40	2	85	12 18.2
1/26	1600	27 9.53	69 55.39	5.7	153	22.2	19.9	68.5	0.132E-01	24.0	1016.2	62	1 03	2	25	2	120	10 17.9
1/26	1700	27 10.89	69 54.84	5.5	166	22.2	20.1	63.2	0.122E-01	24.0	1015.2	52	1 03	2	32	1	130	10 17.2
1/26	1800	27 12.72	69 55.81	5.2	169	22.4	20.1	64.9	0.127E-01	24.0	1014.0	32	1 03	2	30	0	140	10 17.6
1/26	1900	27 11.11	69 54.09	4.1	175	22.9	19.7	61.8	0.124E-01	24.2	1012.7	22	1 03	2	185	7	355	15 17.6
1/26	2000	27 7.79	69 56.65	5.7	188	23.1	20.0	58.4	0.118E-01	24.0	1012.5	22	1 03	2	225	9	340	19 17.3
1/26	2100	27 1.38	70 1.78	6.1	166	22.0	20.2	77.2	0.147E-01	24.2	1012.0	22	1 04	2	135	10	17	21 18.8
1/26	2200	27 0.63	70 0.58	8.2	179	22.3	20.3	61.1	0.118E-01	24.3	1012.2	22	1 04	2	180	0	0	16 17.0
1/26	2300	27 0.49	69 59.80	7.7	179	21.0	20.6	72.2	0.130E-01	24.2	1012.2	22	1 01	3	180	0	0	15 17.3
1/27	0	27 2.17	69 59.31	0.0	0	20.8	20.7	76.1	0.136E-01	23.8	1012.0	41	1 01	2	0	0	190	15 17.6
1/27	100	27 3.86	69 59.04	0.0	0	21.2	20.6	76.5	0.140E-01	23.7	1012.1	61	1 01	2	0	0	190	15 18.0
1/27	200	27 2.66	69 58.83	9.3	179	21.6	20.3	78.5	0.146E-01	23.8	1012.2	41	1 01	2	180	2	0	20 18.6
1/27	300	27 1.75	69 59.24	0.0	0	21.6	20.9	80.2	0.150E-01	24.0	1012.0	51	1 01	2	0	0	180	16 18.8
1/27	400	27 3.93	69 57.67	0.0	0	22.6	21.0	69.8	0.138E-01	23.8	1012.0	65	1 01	2	0	0	180	20 18.4
1/27	500	27 6.11	69 52.60	11.3	179	21.8	21.0	85.5	0.161E-01	23.7	1010.0	65	1 01	2	0	2	180	20 19.6
1/27	600	27 5.91	69 57.00	12.9	185	23.2	21.1	75.1	0.153E-01	23.7	1009.4	65	1 01	2	180	2	5	27 19.6
1/27	700	27 4.19	69 56.															

Table Vb-1 (Leg 2, continued)

DATE TIME	LAT	LONG	WS	WD	AT1	AT2	RH	ABS HUM	SST	BP	CLOUD	WAVES	SC	SS	AWD	AW5	TW
1/27 1900	26 56.63	69 41.74	9.1	248	22.5	20.6	78.5	0.154E-01	24.3	1008.7	87	2 23	3	277	8	340	25 19.4
1/27 2000	26 58.98	69 40.10	10.9	258	21.2	19.9	86.8	0.158E-01	24.0	1008.8	87	2 25	2	95	10	150	12 19.2
1/27 2100	27 3.27	69 46.61	10.6	249	22.3	20.0	75.1	0.146E-01	24.0	1008.9	87	2 25	2	304	8	320	26 18.8
1/27 2200	27 7.93	69 54.41	12.5	237	21.9	19.6	77.1	0.146E-01	23.6	1009.9	87	2 30	3	304	9	310	29 18.7
1/27 2300	27 11.38	69 55.64	10.8	259	21.4	19.3	70.2	0.129E-01	23.4	1010.3	87	2 30	3	260	0	0	21 17.4
1/28 0 27	12.14	69 55.27	11.8	254	20.0	18.9	75.4	0.129E-01	23.4	1011.3	41	2 30	3	255	0	0	23 16.8
1/28 100	27 12.06	69 55.35	15.4	249	21.0	18.9	73.0	0.132E-01	23.5	1011.5	51	2 30	3	250	0	0	30 17.4
1/28 200	27 12.13	69 55.46	15.4	266	21.0	18.8	63.4	0.114E-01	23.5	1011.7	41	2 32	3	257	0	10	30 16.2
1/28 300	27 12.19	69 55.55	11.3	259	21.0	19.1	61.8	0.111E-01	23.5	1012.2	62	2 31	3	250	0	10	22 16.0
1/28 400	27 12.23	69 55.53	11.8	249	21.2	19.4	63.6	0.116E-01	23.5	1012.2	31	2 25	3	250	0	0	23 16.4
1/28 500	27 7.34	69 48.80	11.6	246	21.2	19.3	66.7	0.122E-01	23.9	1012.4	31	2 25	3	136	8	90	21 16.8
1/28 600	27 1.38	69 42.57	9.8	247	21.4	19.4	70.1	0.129E-01	24.0	1012.3	61	2 25	3	138	8	85	18 17.4
1/28 700	26 57.71	69 39.04	14.4	254	21.7	19.8	59.6	0.112E-01	23.8	1012.2	72	3 25	3	255	0	0	28 16.3
1/28 800	26 57.84	69 39.80	14.9	254	22.0	20.0	55.5	0.106E-01	24.0	1012.0	31	3 26	3	255	0	0	29 16.0
1/28 900	26 57.81	69 39.86	14.9	264	21.4	19.4	67.0	0.124E-01	23.9	1012.0	51	3 26	3	265	0	0	29 17.0
1/28 1000	26 57.90	69 39.79	13.9	264	21.4	19.3	68.5	0.126E-01	24.0	1012.7	31	3 26	3	265	0	0	27 17.2
1/28 1100	26 57.83	69 39.80	11.3	269	20.8	18.3	71.1	0.127E-01	24.0	1013.7	65	3 26	3	270	0	0	22 17.0
1/28 1200	27 3.74	69 39.18	8.0	280	21.5	19.3	66.3	0.123E-01	24.2	1013.6	75	3 27	4	0	10	310	20 17.0
1/28 1300	27 11.04	69 37.28	11.3	189	21.4	19.3	60.7	0.112E-01	23.8	1014.6	32	3 28	4	275	0	275	22 16.2
1/28 1400	27 11.46	69 40.37	9.4	297	20.6	18.5	75.1	0.132E-01	23.6	1016.0	87	3 28	4	264	2	30	20 17.3
1/28 1500	27 11.49	69 41.76	12.0	307	20.4	18.1	69.1	0.120E-01	23.9	1016.2	87	3 30	4	270	2	35	25 16.4
1/28 1600	27 11.43	69 43.63	11.9	301	20.2	17.6	69.7	0.120E-01	23.8	1016.7	77	3 30	4	274	2	25	25 16.3
1/28 1700	27 11.30	69 45.36	11.9	295	20.2	17.3	63.9	0.110E-01	23.6	1016.4	65	3 30	4	274	2	20	25 15.6
1/28 1800	27 11.31	69 47.38	13.9	291	19.8	17.4	59.4	0.100E-01	23.4	1016.6	58	3 30	4	275	2	15	29 14.7
1/28 1900	27 11.48	69 49.41	13.9	297	19.7	16.9	62.5	0.105E-01	23.2	1016.6	21	3 30	4	280	0	18	27 15.0
1/28 2000	27 10.09	69 46.85	10.7	293	19.9	17.0	63.6	0.108E-01	23.6	1017.2	31	3 30	4	125	9	160	12 15.3
1/28 2100	27 4.97	69 38.06	11.8	292	19.8	17.5	65.1	0.110E-01	23.9	1017.4	31	3 30	4	125	15	145	9 15.4
1/28 2200	26 59.89	69 29.36	12.2	279	19.8	17.5	63.4	0.107E-01	23.8	1018.2	31	3 30	4	125	9	140	16 15.2
1/28 2300	26 54.46	69 23.79	9.6	296	20.2	17.2	60.7	0.105E-01	23.8	1018.4	31	3 31	4	225	9	50	23 15.2
1/29 0 26	48.57	69 28.83	11.8	309	19.4	17.3	63.0	0.104E-01	23.8	1019.3	31	3 31	3	135	10	170	13 14.8
1/29 100	26 44.04	69 21.55	8.8	327	19.4	17.3	62.9	0.104E-01	23.7	1020.0	31	3 31	4	45	9	307	21 14.8
1/29 200	26 51.44	69 16.72	9.8	332	19.2	17.0	66.0	0.107E-01	23.4	1020.3	31	2 32	3	30	9	320	25 15.0
1/29 300	26 57.28	69 15.80	11.6	328	19.0	16.7	60.8	0.978E-02	23.5	1020.3	31	2 32	3	303	6	20	28 14.2
1/29 400	27 0.00	69 24.00	9.9	345	18.7	16.6	56.3	0.891E-02	23.8	1020.0	81	2 32	3	305	7	30	25 13.4
1/29 500	27 6.00	69 30.00	6.8	347	18.4	16.4	53.4	0.831E-02	23.6	1020.2	81	2 31	3	308	8	25	20 12.8
1/29 600	27 12.00	69 36.00	7.0	352	18.4	16.2	58.4	0.907E-02	23.5	1020.1	81	2 31	3	305	8	30	20 13.4
1/29 700	27 11.43	69 45.75	9.4	331	18.4	16.4	56.7	0.882E-02	23.5	1020.0	81	2 31	3	268	8	45	23 13.2
1/29 800	27 12.00	69 54.00	9.3	339	18.3	16.5	57.4	0.887E-02	23.4	1020.2	81	2 31	3	310	0	30	18 13.2
1/29 900	27 11.70	69 48.90	3.3	268	19.0	16.4	52.7	0.848E-02	23.4	1020.5	81	2 31	3	133	10	40	7 13.2
1/29 1000	27 5.48	69 41.11	3.2	295	18.5	17.0	64.4	0.101E-01	24.0	1020.4	81	1 31	2	150	10	35	6 14.2
1/29 1100	27 4.04	69 38.91	6.7	359	18.7	16.7	59.6	0.942E-02	23.8	1021.0	88	1 30	3	330	0	30	13 13.8
1/29 1200	27 3.89	69 43.37	8.5	322	19.1	17.0	63.4	0.103E-01	23.9	1022.0	88	1 30	3	234	9	60	19 14.6
1/29 1300	26 59.32	69 50.91	6.7	336	20.4	17.0	53.1	0.927E-02	24.1	1022.5	85	1 30	3	240	9	60	15 14.4
1/29 1400	26 59.07	69 52.88	6.7	336	19.4	17.4	53.2	0.877E-02	24.0	1023.2	75	1 32	3	319	2	15	15 13.6
1/29 1500	27 0.36	69 53.92	6.5	359	19.6	17.1	55.9	0.931E-02	24.0	1023.3	78	1 32	3	308	2	45	14 14.1
1/29 1600	27 1.60	69 54.91	6.8	337	19.7	17.2	57.6	0.965E-02	24.2	1023.4	78	1 32	3	315	2	20	15 14.4
1/29 1700	27 3.16	69 55.87	6.8	348	19.4	17.0	59.6	0.982E-02	24.1	1023.0	68	1 32	3	316	1	30	14 14.4
1/29 1800	27 4.48	69 56.81	6.8	352	19.7	16.9	60.8	0.102E-01	24.1	1022.3	15	1 32	3	320	1	30	14 14.8
1/29 1900	27 5.57	69 56.29	6.4	6	20.1	16.9	55.0	0.944E-02	24.0	1021.6	11	1 31	3	49	9	335	20 14.4
1/29 2000	27 10.95	69 49.47	6.2	359	19.5	16.9	59.0	0.977E-02	23.9	1021.4	11	1 31	3	310	0	50	12 14.4
1/29 2100	27 9.08	69 46.40	5.7	23	19.2	17.1	64.3	0.105E-01	24.2	1021.3	21	1 31	3	135	10	300	12 14.8
1/29 2200	27 5.04	69 42.21	6.2	29	19.4	17.3	63.7	0.105E-01	24.1	1021.1	31	1 31	3	320	0	70	12 14.9
1/29 2300	27 5.23	69 42.44	4.6	14	19.2	17.3	62.7	0.102E-01	24.1	1021.7	31	1 31	3	320	0	55	9 14.6
1/30 0 27	5.39	69 42.77	3.1	49	18.4	17.5	70.3	0.109E-01	24.0	1022.4	31	1 31	2	320	0	90	6 14.8
1/30 100	27 5.09	69 42.77	5.1	79	19.0	17.7	62.4	0.100E-01	24.0	1022.5	31	1 33	2	320	0	120	10 14.4
1/30 200	27 5.53	69 45.14	5.5	71	19.7	17.8	62.4	0.105E-01	23.9	1022.7	31	1 33	2	285	10	80	6 15.0
1/30 300	27 5.20	69 53.23	4.2	102	20.2	18.0	66.3	0.114E-01	24.0	1022.5	31	1 33	2	255	4	230	5 15.9
1/30 400	27 5.13	69 55.43	5.2	129	20.0	18.1	62.8	0.107E-01	24.0	1022.0	31	0 33	2	70	0	60	10 15.3
1/30 500	27 5.54	69 54.85	4.1	129	20.0	18.1	63.6	0.108E-01	24.0	1021.7	31	0 33	2	70	0	60	8 15.4
1/30 600	27 5.93	69 54.25	3.1	139	19.8	18.1	63.4	0.107E-01	24.0	1021.5	31	0 34	1	70	0	70	6 15.2
1/30 700	27 6.29	69 53.50	2.1	149	19.8	18.1	62.6	0.105E-01	24.0	1021.2	31	0 35	1	70	0	80	4 15.1
1/30 800	27 5.46	69 54.73	5.1	221	20.0	18.1	63.6	0.108E-01	24.0	1020.6	31	0 35	1	242	0	340	10 15.4
1/30 900	27 6.06	69 56.34	1.9	202	20.0	18.1	62.0	0.106E-01	23.8	1020.4	31	0 35	1	270	8	340	10 15.2
1/30 1000	27 3.63	69 56.72	3.1	359	20.2	18.2	65.5	0.113E-01	23.9	1020.7	7	0 35	1	90	0	270	6 15.8
1/30 1100	27 4.40	69 49.68	1.0	201	20.4	18.4	67.4	0.117E-01	23.8	1020.9	41	0	1	90	0	112	2 16.2
1/30 1200	27 4.23	69 48.55	5.1	323	20.2	18.3	72.1	0.124E-01	23.8	1021.5	41	0	1	180	7	100	6 16.6
1/30 1300	26 58.21	69 49.07	3.9	305	20.4	18.6	68.2	0.119E-01	23.8	1022.0	41	0	1	191	9	50	9 16.3
1/30 1400	26 56.66	69 49.18	4.1	294	20.5	18.2	69.9	0.123E-01	23.7	1022.5	51	0	1	45	0	250	8 16.6
1/30 1500	26 54.38	69 44.61	1.3	348	21.4	18.3	67.6	0.125E-01	23.7	1022.6	41	0	1	135	10	350	8 17.1
1/30 1600	26																

Table Vb-1 (Leg 2, continued)

DATE	TIME	LAT	LONG	WS	WD	AT1	AT2	RH	ABS HUM	SST	BP	CLOUD	WAVES	SC	SS	AWD	AW5	TW
1/31	1000	26 52.92	69 26.89	5.2	324	20.7	18.8	69.3	0.123E-01	23.5	1021.4		1 34	1	315	10	5 20	16.7
1/31	1100	26 59.59	69 35.04	6.2	351	20.7	18.8	75.1	0.133E-01	23.6	1022.1	68	1 34	2	315	10	20 21	17.4
1/31	1200	27 6.87	69 41.73	7.7	0	20.2	18.2	73.8	0.127E-01	23.5	1023.0	68	1 34	2	0	10	0 25	16.8
1/31	1300	27 14.83	69 44.05	9.1	8	20.4	17.7	69.0	0.120E-01	23.8	1023.4	31	1 34	2	315	10	35 25	16.4
1/31	1400	27 24.87	69 51.02	7.7	12	20.2	17.2	66.3	0.114E-01	22.1	1024.0	31	1 34	2	315	10	35 22	15.9
1/31	1500	27 27.81	69 57.67	7.7	2	19.6	17.0	68.1	0.113E-01	21.8	1025.0	11	1 34	2	315	9	30 22	15.6
1/31	1600	27 33.85	70 4.53	8.0	9	19.8	16.7	65.0	0.109E-01	21.7	1025.0	31	1 34	2	315	9	35 22	15.4
1/31	1700	27 25.08	70 4.32	10.8	359	19.0	17.2	62.4	0.100E-01	22.9	1024.3	31	1 34	2	180	10	180 11	14.4
1/31	1800	27 23.08	70 4.98	6.7	16	20.0	16.7	55.6	0.948E-02	23.3	1023.7	11	1 35	2	8	9	5 22	14.4
1/31	1900	27 24.53	70 4.23	7.7	4	19.6	16.8	63.1	0.105E-01	23.5	1023.7	11	1 34	2	5	0	0 15	15.0
1/31	2000	27 25.16	70 3.35	7.7	14	20.2	16.7	55.9	0.964E-02	22.5	1023.6	11	1 34	2	10	0	5 15	14.6
1/31	2100	27 24.60	70 3.55	9.3	14	19.2	16.8	66.0	0.107E-01	23.0	1023.8	11	1 34	2	75	0	300 18	15.0
1/31	2200	27 24.85	70 2.85	8.2	19	19.0	16.8	67.4	0.109E-01	22.8	1024.4	11	2 34	3	10	0	10 16	15.0
1/31	2300	27 24.80	70 3.09	0.0	0	19.2	16.8	59.4	0.967E-02	22.9	1021.5	11	2 34	3	0	0	40 18	14.2
2/ 1	0	27 25.00	69 57.15	5.7	52	20.0	17.0	58.8	0.100E-01	23.0	1024.5		2 34	3	90	10	340 20	14.8
2/ 1	100	27 26.89	69 45.91	5.8	71	19.6	17.3	59.9	0.997E-02	21.6	1024.5		1 34	2	90	10	350 21	14.6
2/ 1	200	27 21.58	69 40.78	5.7	39	19.6	17.5	59.9	0.997E-02	23.7	1024.6		1 34	2	30	10	5 21	14.6
2/ 1	300	27 30.51	69 35.52	5.2	29	20.0	17.8	57.2	0.975E-02	23.6	1024.8		1 34	2	30	10	0 20	14.6
2/ 1	400	27 38.48	69 40.14	9.4	27	19.6	17.5	61.5	0.102E-01	22.5	1025.0		1 34	2	320	10	45 24	14.8
2/ 1	500	27 33.37	69 47.31	10.0	21	18.9	17.3	62.2	0.996E-02	21.6	1025.1		1 34	2	225	10	135 11	14.3
2/ 1	600	27 26.69	69 54.10	9.8	16	19.0	17.4	64.0	0.103E-01	23.4	1025.1		1 34	2	225	9	130 12	14.6
2/ 1	700	27 20.62	70 0.80	9.7	27	19.1	17.6	68.4	0.111E-01	23.4	1025.0		1 34	2	230	9	140 11	15.2
2/ 1	800	27 19.07	70 4.30	9.8	24	19.0	17.2	69.1	0.111E-01	23.4	1025.0		1 35	2	275	0	110 19	15.2
2/ 1	900	27 17.36	70 4.58	11.4	356	19.2	17.3	69.3	0.113E-01	23.4	1025.9		2 35	2	135	8	240 17	15.4
2/ 1	1000	27 12.94	69 59.25	9.0	359	19.7	17.6	70.7	0.118E-01	23.5	1025.8		2 35	2	135	8	250 13	16.0
2/ 1	1100	27 11.12	69 55.38	11.7	13	19.7	17.8	72.4	0.121E-01	23.5	1025.8	68	2 35	2	180	8	200 15	16.2
2/ 1	1200	27 12.26	69 57.22	10.8	34	19.6	17.5	66.4	0.111E-01	23.5	1026.6	41	2 00	2	35	7	0 28	15.4
2/ 1	1300	27 12.89	69 50.86	17.3	303	20.0	17.9	68.5	0.117E-01	23.3	1026.6	74	2 00	2	85	9	230 27	16.0
2/ 1	1400	27 13.68	69 43.02	9.8	24	20.3	18.4	58.3	0.101E-01	23.4	1027.6	31	2 02	2	25	0	0 19	15.0
2/ 1	1500	27 14.91	69 42.48	8.8	34	20.4	18.6	61.6	0.107E-01	23.5	1027.6	52	1 02	2	35	1	0 18	15.5
2/ 1	1600	27 15.84	69 41.88	10.3	31	20.4	18.9	66.4	0.116E-01	23.6	1027.5	52	1 02	2	37	1	355 21	16.1
2/ 1	1700	27 17.18	69 41.25	9.8	28	20.7	18.0	63.6	0.113E-01	23.5	1027.0	52	1 03	2	34	1	355 20	16.0
2/ 1	1800	27 18.55	69 40.53	9.8	32	20.4	17.9	72.2	0.126E-01	23.4	1026.4	42	1 03	2	33	1	0 20	16.8
2/ 1	1900	27 19.27	69 40.56	10.3	29	20.5	18.4	61.8	0.108E-01	23.5	1026.2	74	2 02	2	210	9	180 11	15.6
2/ 1	2000	27 17.85	69 41.10	10.8	34	20.3	18.2	69.6	0.121E-01	23.5	1026.0	74	2 02	2	35	0	0 21	16.4
2/ 1	2100	27 18.09	69 41.29	11.3	29	20.5	18.2	66.6	0.117E-01	23.5	1026.0	74	2 02	2	40	0	350 22	16.2
2/ 1	2200	27 18.34	69 41.32	11.3	24	20.2	18.2	70.4	0.121E-01	23.5	1026.0	64	2 02	2	35	0	350 22	16.4
2/ 1	2300	27 18.39	69 41.18	8.8	34	20.4	18.1	64.0	0.112E-01	23.4	1026.6		2 02	2	35	0	0 17	15.8
2/ 2	0	27 18.56	69 41.22	8.8	34	20.4	18.3	57.7	0.101E-01	23.4	1027.2		2 03	2	35	0	0 17	15.0
2/ 2	100	27 23.82	69 47.36	9.1	28	20.4	18.3	61.6	0.107E-01	23.3	1027.1		2 03	2	315	9	50 22	15.5
2/ 2	200	27 24.82	69 47.96	8.2	44	20.1	18.5	71.1	0.122E-01	23.3	1027.0		2 03	2	30	0	15 16	16.4
2/ 2	300	27 25.41	69 47.70	9.3	54	20.5	18.7	65.7	0.115E-01	23.3	1027.0		2 03	2	45	0	10 18	16.1
2/ 2	400	27 25.35	69 47.67	8.8	49	20.5	18.6	69.0	0.121E-01	23.2	1026.7		2 03	2	50	0	0 17	16.5
2/ 2	500	27 25.77	69 47.87	8.5	44	20.4	18.6	68.1	0.119E-01	23.3	1026.6		2 03	2	0	2	40 18	16.3
2/ 2	600	27 25.03	69 46.51	8.1	44	20.3	18.6	64.7	0.112E-01	23.5	1026.0		2 03	2	145	10	295 17	15.8
2/ 2	700	27 19.84	69 42.08	8.2	49	20.2	18.5	62.2	0.107E-01	23.4	1025.8		2 03	2	285	0	125 16	15.4
2/ 2	800	27 18.32	69 39.01	8.5	46	20.2	18.5	64.6	0.111E-01	23.5	1025.0	61	2 03	2	135	9	300 19	15.7
2/ 2	900	27 15.27	69 42.07	11.3	31	20.4	18.7	68.1	0.119E-01	23.5	1024.8	61	2 03	2	180	9	230 15	16.3
2/ 2	1000	27 6.32	69 41.87	10.1	32	20.4	18.7	71.4	0.125E-01	23.5	1025.2		2 03	2	180	9	235 13	16.7
2/ 2	1100	26 58.65	69 42.33	8.8	29	21.0	19.0	73.7	0.133E-01	23.5	1025.3	77	1 03	2	290	0	100 17	17.5
2/ 2	1200	26 58.19	69 44.28	7.7	54	21.0	19.1	74.5	0.134E-01	23.5	1025.0	78	1 04	2	5	0	50 15	17.6
2/ 2	1300	27 3.03	69 54.54	9.8	41	20.2	18.6	80.6	0.139E-01	23.3	1024.8	82	1 04	2	315	10	60 22	17.6
2/ 2	1400	27 9.31	70 2.25	8.5	25	20.9	19.2	75.2	0.135E-01	23.5	1025.5	72	1 04	2	315	10	45 22	17.6
2/ 2	1500	27 15.34	70 10.00	8.9	44	21.5	18.9	70.9	0.132E-01	23.5	1026.0	72	1 04	2	315	10	60 20	17.6
2/ 2	1600	27 21.99	70 13.90	9.4	36	21.4	18.7	72.4	0.134E-01	23.5	1025.7	72	1 04	2	315	10	55 22	17.7
2/ 2	1700	27 31.29	70 21.39	8.9	37	21.2	18.4	68.1	0.124E-01	23.3	1025.4	68	1 04	2	0	9	25 25	17.0
2/ 2	1800	27 38.26	70 21.15	8.2	31	21.2	18.3	68.2	0.124E-01	22.9	1024.6	24	1 04	2	0	9	20 24	17.0
2/ 2	1900	27 40.17	70 20.17	7.7	29	21.7	18.1	68.7	0.129E-01	22.4	1025.0	14	1 04	2	25	0	5 15	17.5
2/ 2	2000	27 40.22	70 19.87	8.8	29	21.7	18.0	67.9	0.127E-01	22.5	1024.0	11	1 04	2	30	0	0 17	17.4
2/ 2	2100	27 40.32	70 19.53	8.2	29	21.6	18.1	70.2	0.131E-01	22.6	1023.6	11	1 04	2	30	0	0 16	17.6
2/ 2	2200	27 40.49	70 19.11	7.7	29	20.8	18.0	72.7	0.130E-01	22.6	1023.6	11	1 04	2	30	0	0 15	17.2
2/ 2	2300	27 42.04	70 17.68	7.7	29	20.2	18.0	74.6	0.129E-01	21.6	1023.7	31	1 04	2	30	4	0 19	16.9
2/ 3	0	27 45.31	70 15.17	7.2	29	19.8	18.1	61.7	0.104E-01	21.5	1023.6	11	1 04	2	30	4	0 18	15.0
2/ 3	100	27 42.48	70 13.69	8.5	21	20.0	18.0	78.7	0.134E-01	21.5	1023.8		1 04	2	180	5	210 12	17.2
2/ 3	200	27 37.85	70 13.04	8.3	44	20.0	18.3	84.0	0.143E-01	22.9	1023.7		1 04	2	180	5	240 13	17.8
2/ 3	300	27 37.97	70 12.80	9.3	46	19.8	18.5	82.1	0.138E-01	23.1	1023.4		1 04	2	180	5	240 15	17.4
2/ 3	400	27 28.09	70 12.36	7.4	38	20.6	18.6	80.1	0.141E-01	23.4	1023.0	1	1 03	2	180	5	235 11	17.9
2/ 3	500	27 30.73	70 14.52	7.5	25	20.4	18.6	77.4	0.135E-01	23.2	1022.4	1	1 03	2	330	9	35 21	17.4
2/ 3	600	27 38.12	70 18.95	6														

Table Vb-1 (Leg 2, continued)

DATE	TIME	LAT	LONG	WS	WD	AT1	AT2	RH	ABS HUM	SST	BP	CLOUD	WAVES	SC	SS	AMD	AWS	TV	
2/ 4	0 27	39.74	70 19.24	5.1	354	19.8	16.6	78.6	0.132E-01	23.0	1021.0		1 06 2	355	0	0	10	17.0	
2/ 4	100 27	38.90	70 19.23	5.7	349	19.6	16.6	74.9	0.125E-01	22.9	1021.3		1 06 2	305	0	45	11	16.4	
2/ 4	200 27	37.60	70 22.70	5.2	19	19.6	16.6	71.5	0.119E-01	23.0	1021.5		1 06 2	280	0	100	10	16.0	
2/ 4	300 27	36.05	70 25.49	4.7	349	19.4	16.5	73.0	0.120E-01	22.7	1022.0		1 06 2	232	8	65	9	16.0	
2/ 4	400 27	35.07	70 26.84	3.7	329	19.4	16.4	71.3	0.117E-01	22.2	1021.7		1 06 2	235	9	40	11	15.8	
2/ 4	500 27	33.67	70 28.90	4.1	359	19.4	16.3	69.6	0.115E-01	22.0	1021.4		1 06 2	280	0	80	8	15.6	
2/ 4	600 27	36.72	70 26.41	4.5	359	19.2	16.3	69.4	0.113E-01	22.0	1020.8		1 06 2	50	9	335	16	15.4	
2/ 4	700 27	41.21	70 18.96	3.5	349	19.4	16.2	73.0	0.120E-01	22.9	1020.5		1 06 2	60	9	330	13	16.0	
2/ 4	800 27	43.59	70 16.81	4.7	22	19.5	16.4	73.1	0.121E-01	22.8	1020.4		1 07 2	90	5	315	12	16.1	
2/ 4	900 27	45.49	70 15.49	5.3	357	19.4	16.3	74.8	0.123E-01	22.9	1020.5		1 07 2	45	6	330	15	16.2	
2/ 4	1000 27	41.85	70 19.13	0.0	0	19.2	16.1	69.4	0.113E-01	23.0	1020.7	21	1 07 2	0	0	0	10	15.4	
2/ 4	1100 27	40.39	70 18.80	0.0	0	19.2	16.2	67.7	0.110E-01	23.1	1020.9	31	1 07 2	0	0	45	10	15.2	
2/ 4	1200 27	41.54	70 18.21	4.1	39	20.1	16.2	66.2	0.113E-01	23.1	1021.4	31	0 08 1	40	0	0	8	15.8	
2/ 4	1300 27	42.11	70 17.69	4.1	44	21.7	16.4	62.5	0.117E-01	23.0	1022.0	31	0 08 1	45	0	0	8	16.7	
2/ 4	1400 27	42.67	70 17.55	3.6	44	21.6	16.2	62.3	0.116E-01	23.0	1022.5	41	0 08 1	45	0	0	7	16.6	
2/ 4	1500 27	44.24	70 14.93	3.3	29	21.2	16.3	63.4	0.116E-01	23.2	1022.4	31	0 09 1	0	6	15	12	16.4	
2/ 4	1600 27	50.54	70 14.28	3.9	35	20.0	16.1	68.5	0.117E-01	22.9	1022.4	31	0 08 1	0	6	20	13	16.0	
2/ 4	1700 27	58.96	70 13.79	4.2	37	20.4	16.1	68.2	0.119E-01	21.6	1022.1	31	0 08 1	355	9	20	16	16.3	
2/ 4	1800 27	59.17	70 13.41	2.6	34	20.8	16.2	69.4	0.124E-01	21.7	1021.7	31	0 09 1	25	0	10	5	16.8	
2/ 4	1900 27	56.48	70 13.72	2.1	59	20.1	16.4	69.5	0.119E-01	22.1	1021.3	31	0 09 1	30	0	30	4	16.2	
2/ 4	2000 27	56.70	70 12.90	4.6	49	20.4	16.3	69.0	0.120E-01	22.2	1021.3	31	0 09 1	20	0	30	9	16.4	
2/ 4	2100 27	56.87	70 12.24	4.1	25	20.0	16.5	68.6	0.117E-01	22.1	1021.3	31	0 09 1	26	2	0	10	16.0	
2/ 4	2200 27	56.05	70 13.89	2.4	49	20.1	16.6	71.2	0.122E-01	22.3	1021.9	31	0 09 1	180	9	330	7	16.4	
2/ 4	2300 27	53.75	70 13.68	0.0	0	20.0	16.4	71.9	0.123E-01	22.6	1022.2	31	0 09 1	0	0	0	10	16.4	
2/ 5	0 27	54.02	70 13.46	5.1	59	19.8	16.9	73.4	0.124E-01	22.6	1022.6		0 08 1	180	0	240	10	16.4	
2/ 5	100 27	51.27	70 13.56	4.1	39	19.6	16.9	73.2	0.122E-01	22.8	1023.0		0 08 1	40	0	0	8	16.2	
2/ 5	200 27	51.42	70 13.38	5.2	49	19.7	17.0	76.7	0.129E-01	22.8	1023.2		0 08 1	40	0	10	10	16.7	
2/ 5	300 27	50.76	70 15.45	4.4	73	19.7	17.0	75.9	0.127E-01	22.5	1023.2		0 08 1	160	8	315	12	16.6	
2/ 5	400 27	49.19	70 13.19	4.1	89	20.2	17.2	75.5	0.130E-01	22.8	1023.1		0 08 1	70	0	20	8	17.0	
2/ 5	500 27	49.58	70 13.05	2.6	94	20.0	17.0	77.0	0.131E-01	22.7	1022.5		0 08 1	65	0	30	5	17.0	
2/ 5	600 27	45.18	70 13.44	3.7	103	20.2	17.1	77.2	0.133E-01	22.5	1021.8		0 08 1	185	6	315	10	17.2	
2/ 5	700 27	43.07	70 11.83	3.4	102	20.2	17.3	77.2	0.133E-01	23.1	1021.3		0 08 1	45	6	30	11	17.2	
2/ 5	800 27	48.76	70 12.23	3.1	119	19.7	17.1	76.8	0.129E-01	22.8	1021.0		0 08 1	300	6	0	0	16.7	
2/ 5	900 27	44.13	70 15.51	4.2	123	20.4	17.4	75.7	0.132E-01	22.6	1020.2		0 08 1	180	10	335	16	17.2	
2/ 5	1000 27	35.93	70 14.65	4.3	135	20.8	17.9	75.2	0.134E-01	23.5	1020.2	21	1 08 1	180	10	340	17	17.5	
2/ 5	1100 27	27.19	70 13.64	3.8	132	20.7	18.1	73.4	0.130E-01	23.5	1020.5	21	1 08 1	180	10	340	16	17.2	
2/ 5	1200 27	18.45	70 13.45	3.1	144	21.2	18.1	68.2	0.124E-01	23.5	1021.0	21	1 08 1	185	10	345	15	17.0	
2/ 5	1300 27	11.76	70 13.52	2.6	209	21.4	18.2	70.0	0.129E-01	23.5	1022.0	31	0 08 1	110	0	100	5	17.4	
2/ 5	1400 27	13.37	70 13.50	0.0	0	23.0	18.2	64.0	0.129E-01	23.5	1022.7	21	0 08 1	0	10	0	10	18.0	
2/ 5	1500 27	21.95	70 13.64	0.0	0	23.6	18.5	60.2	0.126E-01	23.7	1023.2	21	0 09 1	0	0	220	4	18.0	
2/ 5	1600 27	25.03	70 13.52	1.1	293	22.0	17.9	69.0	0.132E-01	24.0	1022.8		0 08 1	0	10	350	11	17.8	
2/ 5	1700 27	32.09	70 13.21	0.0	0	21.8	18.4	65.7	0.124E-01	24.0	1022.1		0 08 1	0	0	160	7	17.2	
2/ 5	1800 27	39.70	70 12.83	3.1	180	24.2	17.8	59.6	0.128E-01	24.8	1021.0	11	0 08 1	0	10	0	4	18.4	
2/ 5	1900 27	41.96	70 12.87	4.1	179	21.0	18.2	74.6	0.134E-01	23.9	1020.6		0 06 1	45	0	135	8	17.6	
2/ 5	2000 27	45.49	70 8.01	3.2	211	21.8	18.0	70.4	0.133E-01	24.2	1020.3	11	0 07 1	55	10	30	5	17.8	
2/ 5	2100 27	49.79	70 8.82	4.6	219	21.8	18.4	68.9	0.130E-01	23.2	1020.0	21	0 07 1	230	0	350	9	17.6	
2/ 5	2200 27	50.68	70 9.68	4.2	246	20.5	18.2	78.3	0.137E-01	22.8	1020.1	11	0 07 1	280	1	330	9	17.6	
2/ 5	2300 27	51.38	70 13.26	5.7	199	21.2	18.4	73.1	0.133E-01	22.6	1020.3	11	0 06 1	220	0	340	11	17.6	
2/ 6	0 27	54.38	70 13.20	3.0	233	21.0	18.4	76.2	0.138E-01	22.5	1020.5		0 06 1	0	10	325	8	17.8	
2/ 6	100 28	1.49	70 12.72	3.6	229	21.0	17.9	79.6	0.144E-01	22.0	1021.0		0 06 1	260	0	330	7	18.2	
2/ 6	200 28	2.43	70 12.45	2.2	230	20.8	17.9	81.2	0.145E-01	22.0	1021.0		0 06 1	0	10	335	8	18.2	
2/ 6	300 28	11.57	70 17.15	0.0	0	20.4	17.8	87.0	0.152E-01	21.2	1020.8		0 06 1	0	0	220	11	18.5	
2/ 6	400 28	12.34	70 12.00	3.9	251	21.2	17.9	82.3	0.150E-01	21.4	1020.9		0 06 1	49	11	325	5	18.7	
2/ 6	500 28	19.43	70 3.16	4.6	228	20.8	17.7	85.5	0.153E-01	21.8	1020.5		0 06 1	49	11	0	2	18.7	
2/ 6	600 28	26.36	69 54.70	5.9	209	20.8	17.7	81.2	0.145E-01	21.7	1020.3	0	0 06 1	50	11	85	4	18.2	
2/ 6	700 28	33.48	69 45.89	6.4	236	19.8	17.7	89.4	0.151E-01	21.5	1020.1	0	0 06 1	50	11	225	2	18.2	
2/ 6	800 28	40.29	69 36.87	6.0	239	20.6	17.7	82.8	0.146E-01	21.5	1019.1		0 06 1	50	11	255	2	18.2	
2/ 6	900 28	47.27	69 27.56	7.9	248	20.6	17.6	82.8	0.146E-01	21.4	1019.2		0 06 1	50	11	235	6	18.2	
2/ 6	1000 28	54.20	69 18.44	9.5	250	20.4	17.8	82.6	0.144E-01	21.6	1019.3		0 06 1	50	11	225	9	18.0	
2/ 6	1100 29	1.52	69 8.77	8.7	252	20.4	17.7	82.6	0.144E-01	22.3	1019.4	211	1	1	50	11	235	8	18.0
2/ 6	1200 29	8.58	68 59.44	8.1	258	21.5	17.9	75.9	0.141E-01	22.1	1019.5	72	1	1	50	11	250	8	18.2

KNORR 123 MET OBS - FASINEX

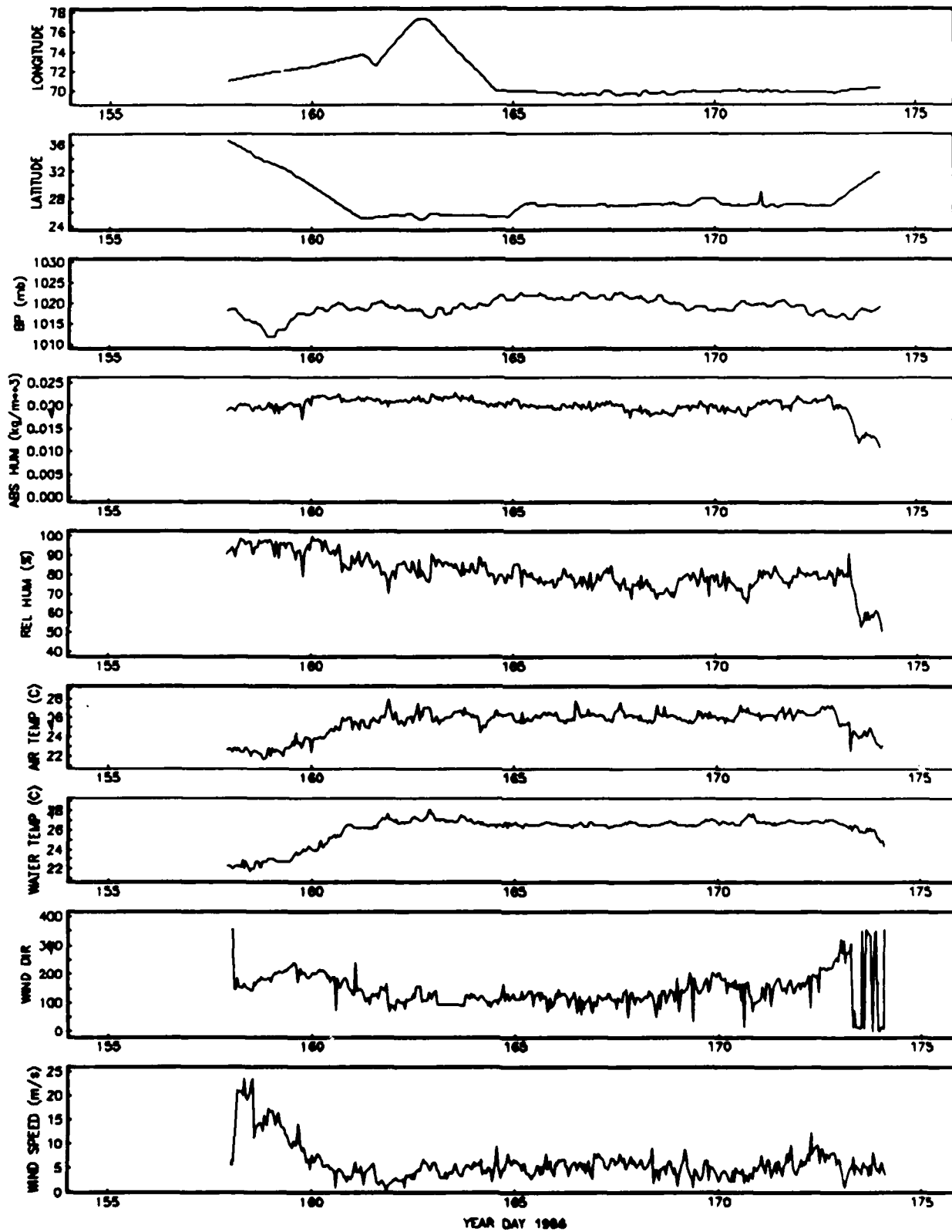


Figure Vb-3. KNORR 123 Underway Meteorological Log Plot

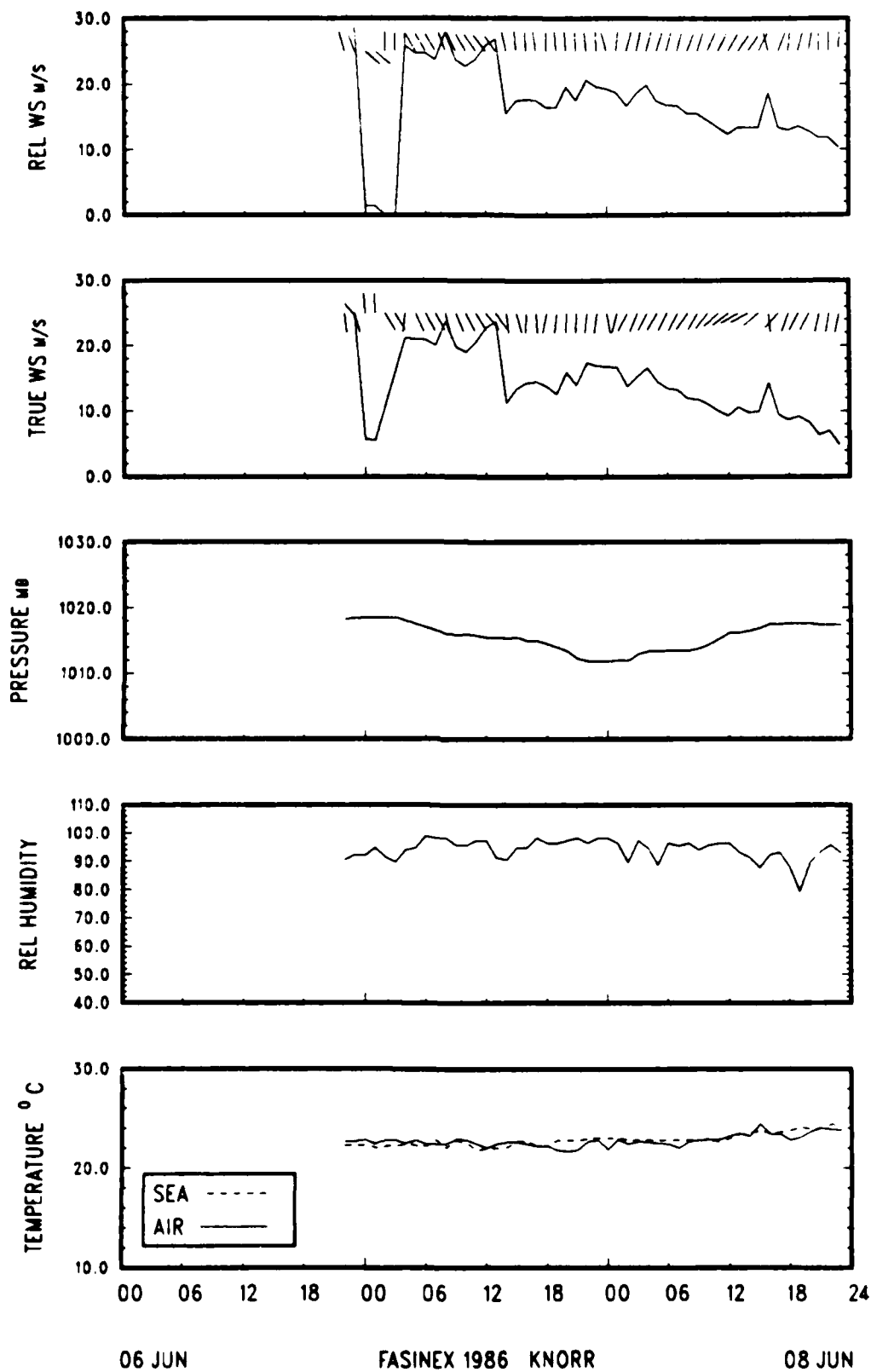


Figure Vb-4. KNORR 123 Expanded Scale Meteorological Plots.

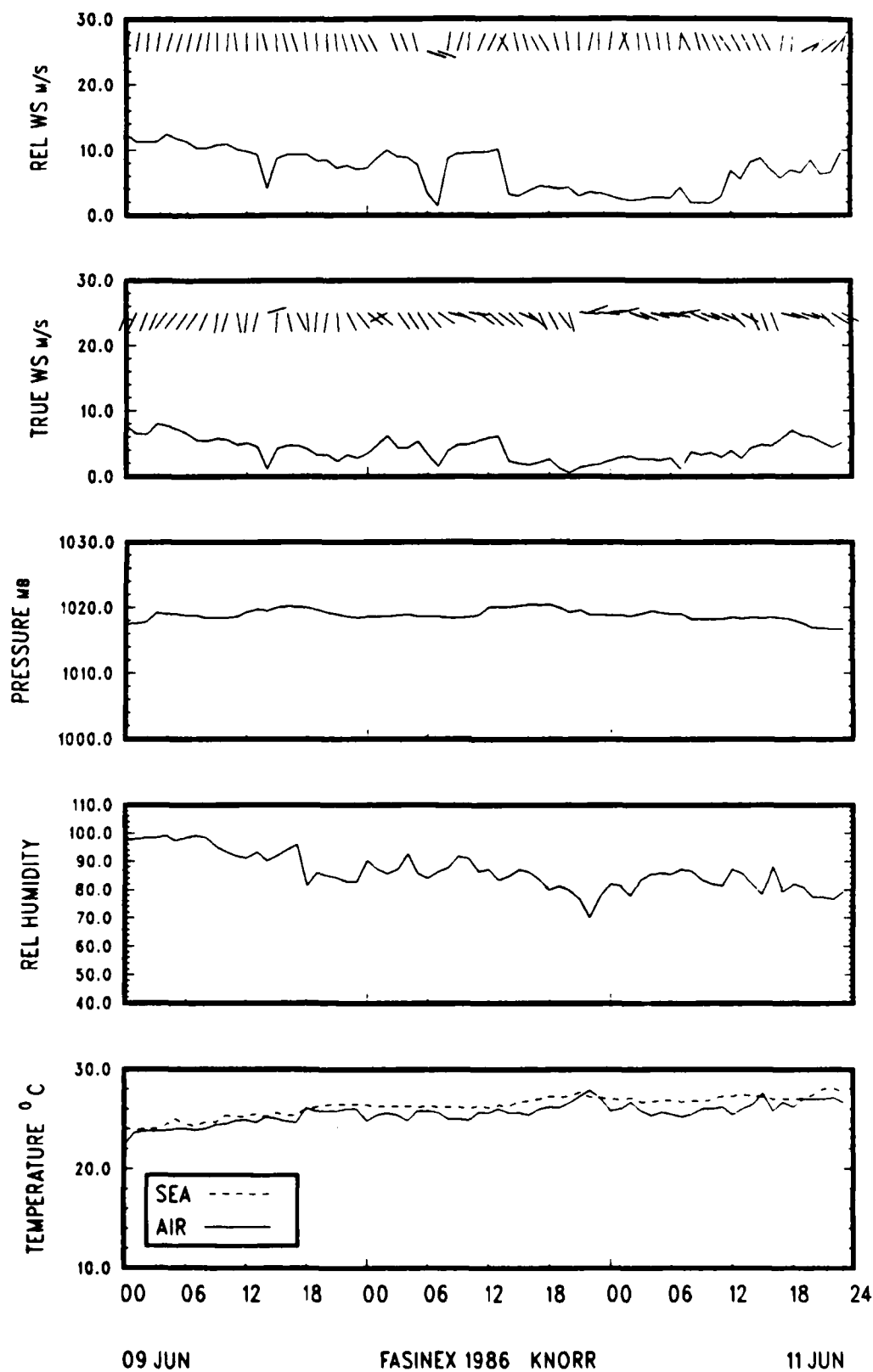


Figure Vb-4 (continued)

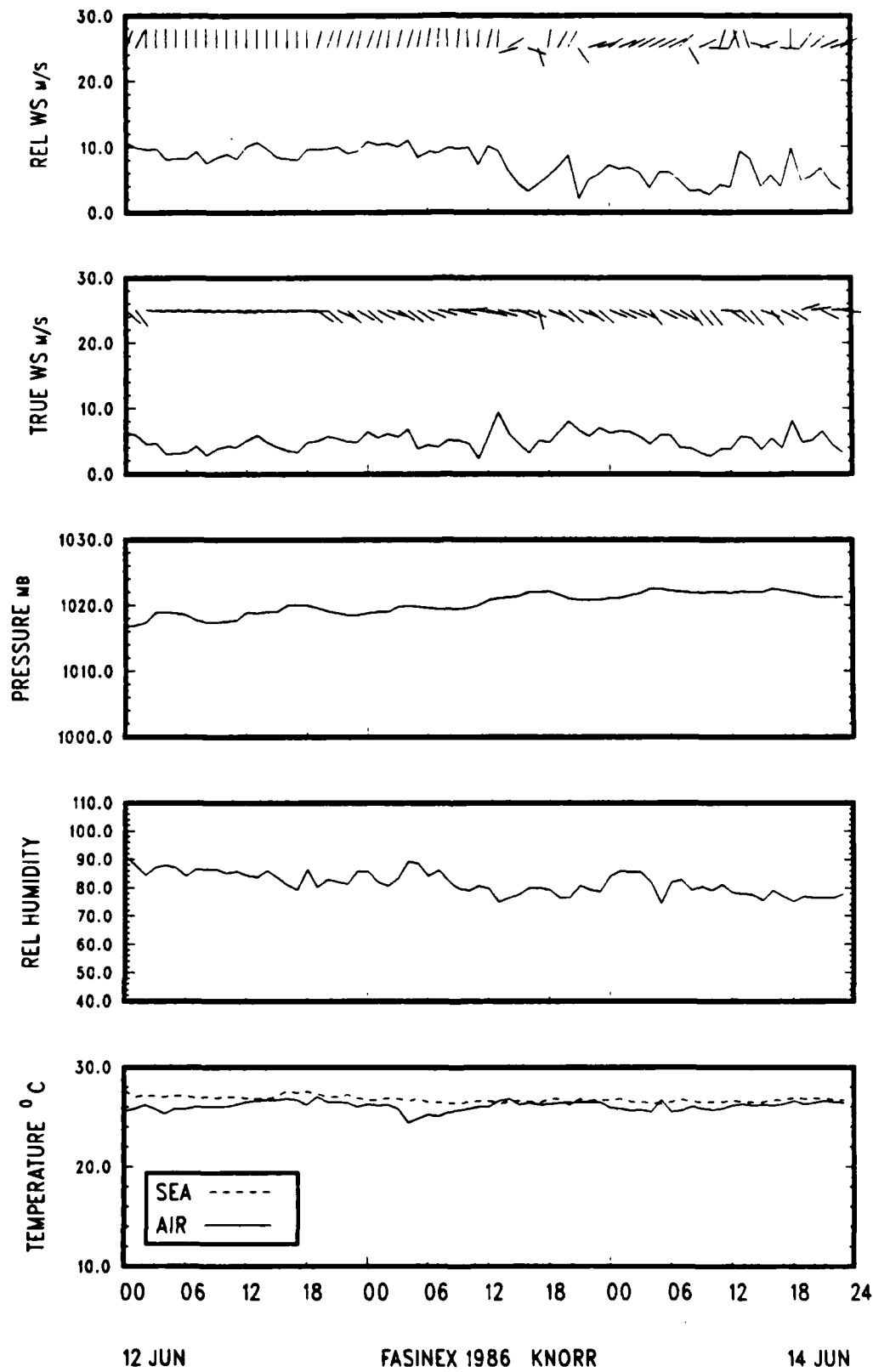


Figure Vb-4 (continued)

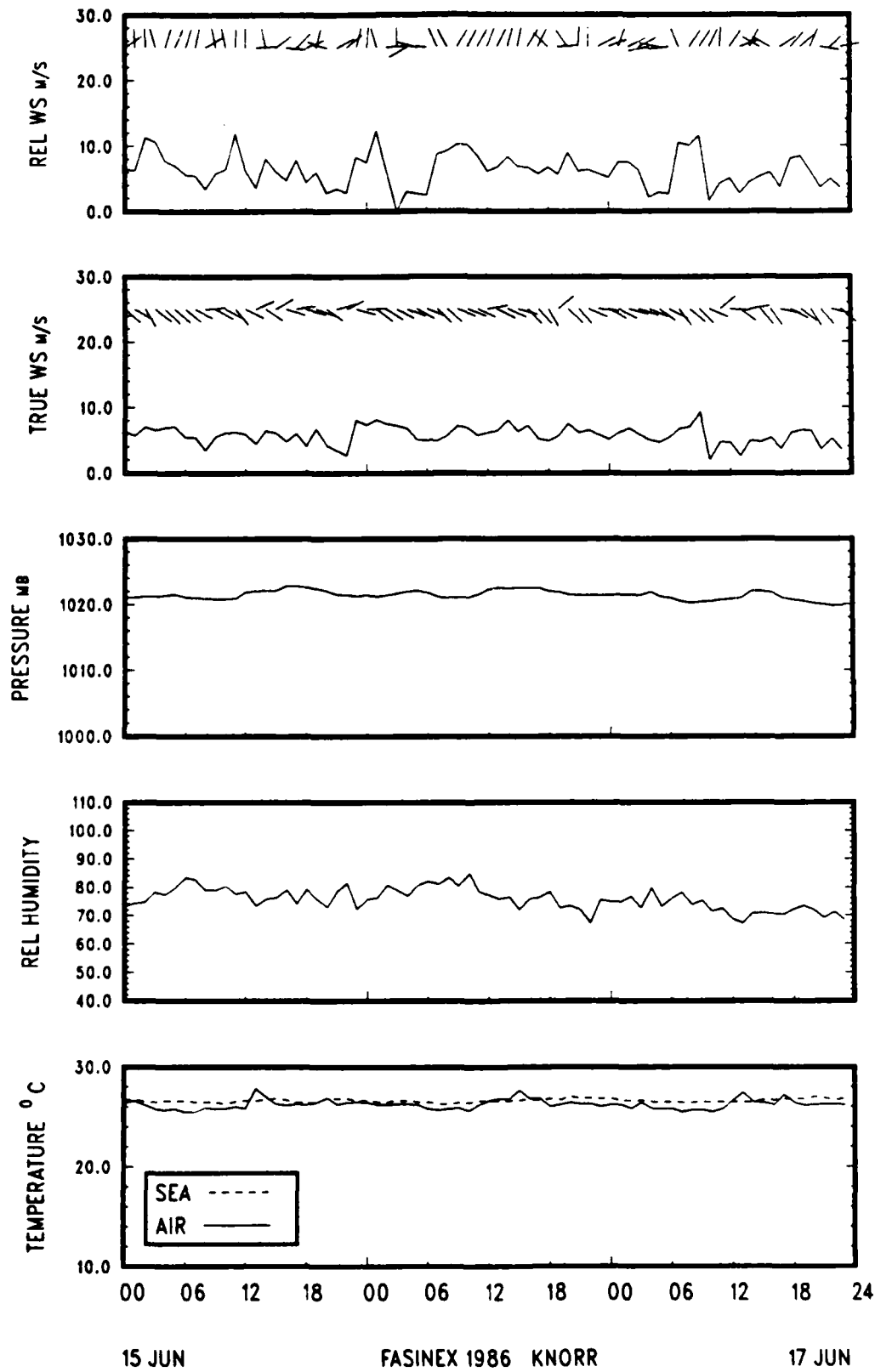


Figure Vb-4 (continued)

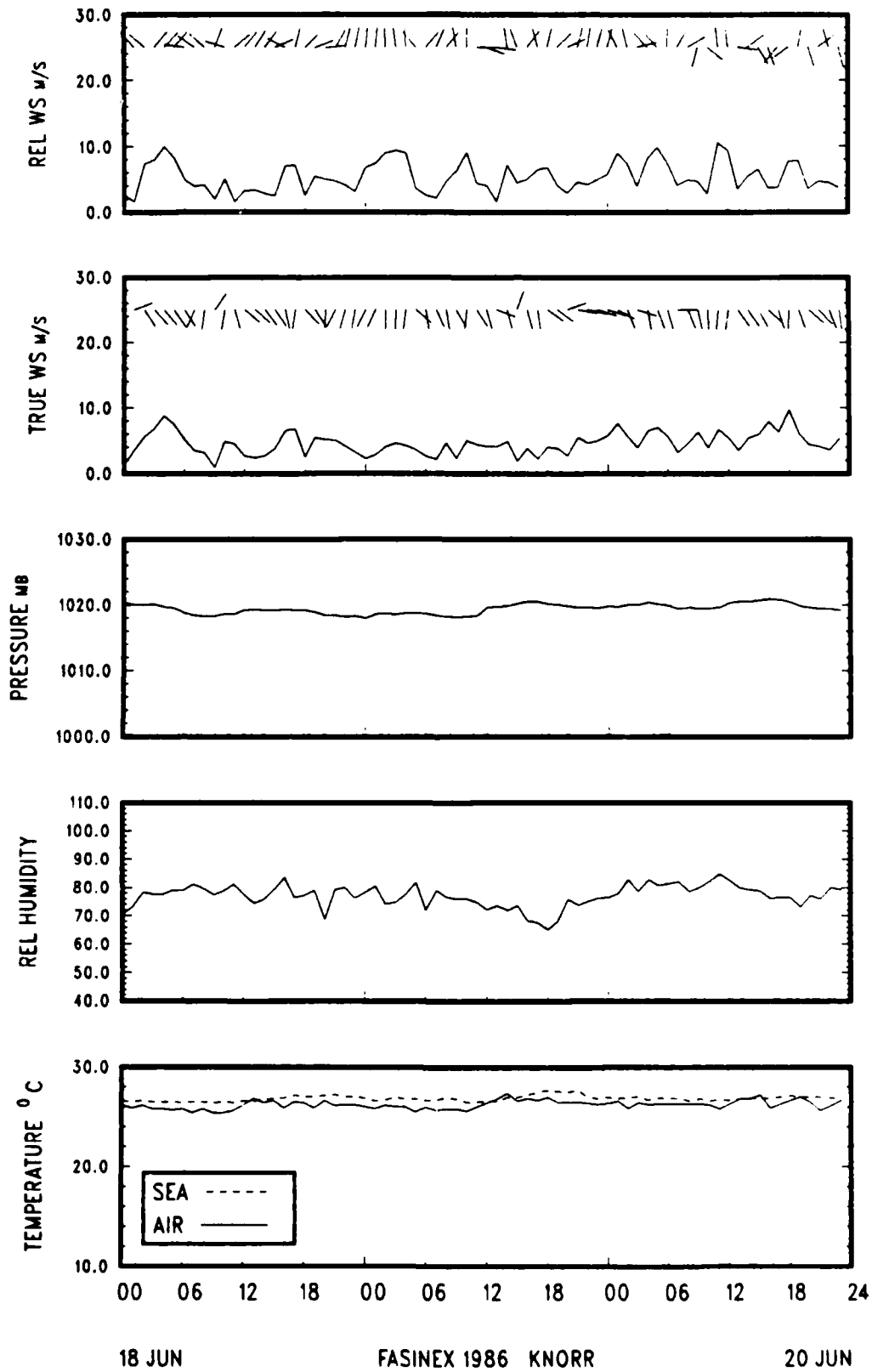


Figure Vb-4 (continued)

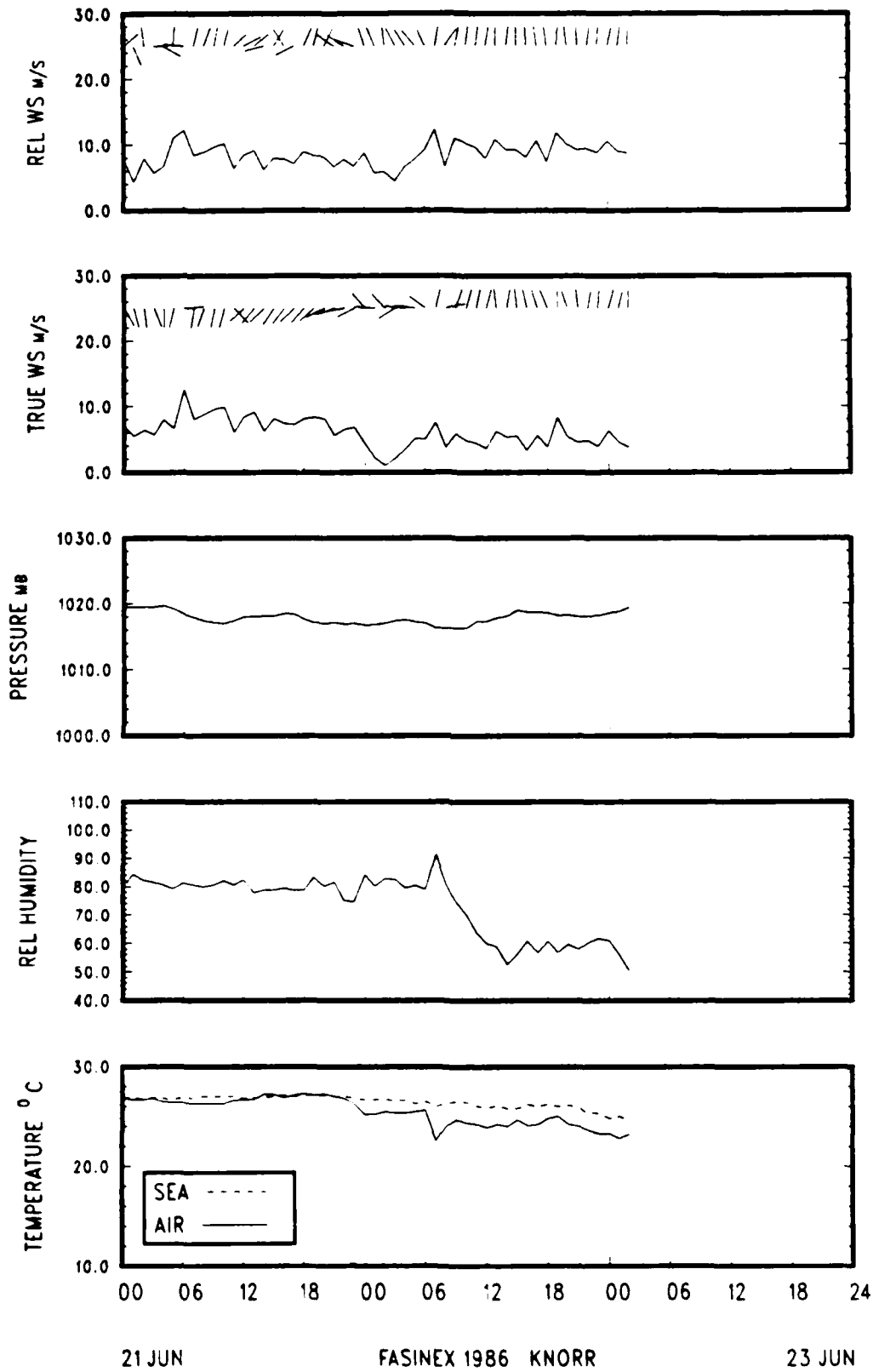


Figure Vb-4 (continued)

Table Vb-2: KNORR 123 Manual Hourly Meteorological Observations

START 2200Z JUNE 6,1986
END 0200 JUNE 23,1986

NOTES ON PARAMETERS:

1. Date - Month/day
2. Time - UTC, hr:min
3. Lat and Long - Positions are from Internav LORAN receiver.
4. WS,WD - True wind speed and direction derived from apparent wind speed and direction and ship speed (ship's speed log) and direction (gyro). Direction is from which, meteorological convention.
5. AT - Dry bulb air temperature from Asman psychrometer, thermometer divisions are 0.2C. After 1200Z June 20, psychrometer was switched to Bendix.
6. RH - Relative humidity computed from wet and dry bulb temperatures from Asman (Bendix) by equations and constants in Smithsonian Meteorological Tables by subroutine RHPSYCH.FOR.
7. AH - Absolute humidity (kg/m³) (RHPSYCH.FOR).
8. SST - Sea surface temperature from bucket (C).
9. BP - Barometric pressure (mb) from bridge barometer.
10. TC - Total cloud amount in octas.
11. CLOUD - Cloud observations. The four digits are: total octants of low clouds, cloud type for low, medium, high clouds.
12. WAVES - The three two digit numbers are: sea wave height (1/2 m), and direction (10's of degrees) and height (1/2 m) of predominant swell.
13. SC,SS - Ship's course and speed (kts) from ship's gyrocompass and speed log.
14. AWD,AWS - Apparent wind direction and speed (m/s) from SAIL system anemometer.
15. TWET - Wet bulb temperature (C) from Asman (Bendix).

FORMAT (13,'/' ,I2,I5,I3,F6.2,I4,F6.2,I6.1,I4,2F5.1,E10.3,F5.1,F7.1,1X,A1,1X,A4,A9,2(I4,F5.1),F5.1)

MO	DA	TIME	LAT	LONG	TWS	TWD	AT	RH	AH	SST	BP	TC	CLD	WAVES	SC	SS	AWD	AWS	TWET
6/	6	2200	36 35.96	71 2.98	26.5	175	22.7	90.5	0.190E-01	22.3	1018.3	8	8600	4 16	4 193	8.8	345	60.0	21.6
6/	6	2300	36 30.51	71 5.07	24.6	166	22.7	92.2	0.193E-01	22.3	1018.4	8	8600	4 16	4 190	8.9	340	56.0	21.8
6/	7	0 36	21.99	71 6.29	5.7	357	22.8	92.3	0.194E-01	22.3	1018.5	7	7730	2 18	4 189	9.0	130	2.8	21.9
6/	7	100	36 13.38	71 8.73	5.6	359	22.4	94.8	0.195E-01	22.0	1018.5			2 18	3 190	9.0	130	2.7	21.8
6/	7	200	36 4.66	71 11.22	10.8	150	22.8	91.4	0.193E-01	22.2	1018.5			4 18	2 0	0.0	0	0.0	21.8
6/	7	300	35 56.60	71 13.09	15.9	150	22.8	89.7	0.189E-01	22.3	1018.5			1 18	2 0	0.0	0	0.0	21.6
6/	7	400	35 48.43	71 15.48	21.1	186	22.5	93.9	0.194E-01	22.4	1018.0			2 18	4 187	9.0	0	50.0	21.8
6/	7	500	35 40.12	71 18.10	21.0	156	22.8	94.8	0.200E-01	22.3	1017.5			2 18	4 192	8.5	330	48.0	22.2
6/	7	600	35 31.52	71 20.74	20.9	151	22.4	99.1	0.204E-01	22.2	1017.0			2 18	4 188	8.8	330	48.0	22.3
6/	7	700	35 23.16	71 21.55	20.0	153	22.4	98.2	0.202E-01	22.9	1016.5			2 18	4 190	8.5	330	46.0	22.2
6/	7	800	35 14.63	71 23.29	23.6	167	22.4	98.2	0.202E-01	22.0	1016.0			2 18	4 191	8.7	340	54.0	22.2
6/	7	900	35 6.28	71 25.43	19.8	158	22.9	95.7	0.203E-01	22.8	1015.9	8	87	2 18	4 191	8.6	333	46.0	22.4
6/	7	1000	34 58.20	71 28.23	19.0	154	22.8	95.7	0.201E-01	22.5	1016.0	8	87	3 18	5 191	8.5	330	44.0	22.3
6/	7	1100	34 49.79	71 31.12	20.5	149	22.4	97.4	0.200E-01	21.8	1015.8	8	87	3 18	5 191	7.8	325	46.0	22.1
6/	7	1200	34 40.62	71 32.85	22.7	142	22.0	97.3	0.196E-01	22.0	1015.5	8	87	3 18	5 187	7.9	322	50.0	21.7
6/	7	1300	34 28.54	71 35.46	23.6	145	22.4	91.3	0.188E-01	22.0	1015.5	7	77	3 18	5 189	8.1	323	52.0	21.4
6/	7	1400	34 21.65	71 36.78	11.3	173	22.6	90.5	0.188E-01	22.1	1015.4	8	87	3 18	5 190	8.3	348	30.0	21.5
6/	7	1500	34 12.39	71 38.75	13.4	164	22.6	94.8	0.197E-01	22.7	1015.5	7	77	3 18	6 188	7.8	357	33.8	22.0
6/	7	1600	34 3.29	71 40.66	14.3	183	22.4	94.8	0.195E-01	22.7	1015.0	8	86	3 18	6 187	6.3	357	34.0	21.8
6/	7	1700	33 55.47	71 42.32	14.5	176	22.2	98.2	0.200E-01	22.2	1015.0	8	86	3 18	6 187	6.0	351	34.0	22.0
6/	7	1800	33 48.81	71 44.54	13.8	191	22.2	96.5	0.196E-01	22.2	1014.5	8	86	3 18	6 190	5.3	1	32.0	21.8
6/	7	1900	33 42.25	71 46.54	12.6	185	21.8	96.4	0.191E-01	22.8	1014.0	8	86	3 18	7 191	7.5	356	32.0	21.4
6/	7	2000	33 36.01	71 48.38	15.9	183	21.7	97.3	0.192E-01	22.8	1013.4	8	87	3 18	8 188	7.1	356	38.0	21.4
6/	7	2100	33 30.22	71 50.47	14.0	183	21.8	98.2	0.195E-01	22.8	1012.3	8	87	3 18	8 186	6.8	358	34.0	21.6
6/	7	2200	33 24.80	71 52.19	17.4	185	22.7	96.5	0.202E-01	23.0	1011.9	8	87	4 18	8 190	6.2	356	40.0	22.3
6/	7	2300	33 19.70	71 53.79	16.9	187	22.8	98.3	0.207E-01	23.0	1011.9	8	87	4 18	10 190	5.2	358	38.0	22.6
6/	8	0 33	14.51	71 55.41	16.8	171	21.9	98.2	0.196E-01	23.0	1011.9	8	87	4 18	10 188	4.9	345	37.4	21.7
6/	8	100	33 9.77	71 56.40	16.7	194	22.9	96.5	0.205E-01	23.0	1012.0			4 18	10 188	3.8	6	36.2	22.5
6/	8	200	33 4.95	71 57.16	13.8	206	22.4	89.7	0.184E-01	22.9	1012.0			3 18	8 188	5.9	15	32.4	21.2
6/	8	300	32 59.15	71 57.84	15.3	201	22.7	97.4	0.204E-01	22.8	1013.0			3 18	8 187	6.4	12	36.0	22.4
6/	8	400	32 53.30	71 58.74	16.6	207	22.6	94.8	0.197E-01	22.8	1013.4			3 18	8 192	6.4	13	38.4	22.0
6/	8	500	32 46.80	71 59.93	14.5	211	22.5	88.8	0.184E-01	22.8	1013.4			3 19	8 191	5.9	17	33.8	21.2
6/	8	600	32 40.97	71 1.53	13.5	207	22.4	96.5	0.199E-01	22.8	1013.5			3 19	8 192	6.6	12	32.6	22.0
6/	8	700	32 32.89	72 3.45	13.2	208	22.0	95.6	0.192E-01	22.8	1013.5			3 19	8 189	7.1	15	32.4	21.5
6/	8	800	32 25.08	72 5.38	11.9	215	22.7	96.5	0.202E-01	22.8	1013.5			3 19	8 189	7.4	20	30.0	22.3
6/	8	900	32 16.56	72 8.69	11.8	211	22.8	94.0	0.198E-01	22.8	1013.8			3 19	7 189	7.6	17	30.0	22.1
6/	8	1000	32 8.63	72 9.57	11.1	217	22.9	95.7	0.203E-01	22.8	1014.4	8	87	3 19	6 187	7.1	23	28.0	22.4
6/	8	1100	31 59.32	72 10.88	10.0	226	22.9	96.5	0.205E-01	22.7	1015.3	8	87	3 19	6 189	7.8	27	26.0	22.5
6/	8	1200	31 49.43	72 12.43	9.3	232	23.2	96.5	0.208E-01	23.0	1016.2	8	87	3 19	4 191	7.4	30	24.0	22.8
6/	8	1300	31 40.05	72 13.99	10.6	239	23.5	93.2	0.205E-01	23.4	1016.2	8	87	2 19	4 193	7.2	35	26.0	22.7
6/	8	1400	31 30.34	72 16.08	9.8	241	23.2	91.5	0.197E-01	23.5	1016.5	8	86	2 19	3 192	9.2	34	26.0	22.2
6/	8	1500	31 20.87	72 18.31	9.9	230	24.4	87.7	0.203E-01	23.8	1016.9	8	86	2 19	3 191	8.0	28	26.0	22.9
6/	8	1600	31 11.30	72 20.50	14.3	173	23.4	92.3	0.201E-01	23.5	1017.5	6	26	2 20	3 190	8.5	347	36.0	22.5
6/	8	1700	31 4.31	72 21.27	9.4	222	23.4	93.2	0.203E-01	23.6	1017.5	2	26	1 20	2 192	8.5	21	26.0	22.6
6/	8	1800	30 55.59	72 22.59	8.7	200	22.8	88.1	0.186E-01	23.8	1017.6	2	26	1 19	2 192	8.4	6	25.2	21.4
6/	8	1900	30 46.85	72 23.42	9.2	208	23.1	79.3	0.170E-01	24.1	1017.6	7	663	1 18	2 189	8.8	13	26.4	20.6
6/	8	2000	30 37.39	72 24.80	8.3	208	23.7	89.9	0.200E-01	23.9	1017.6	7	7631	1 18	2 191	9.2	11	25.0	22.5
6/	8	2100	30 28.15	72 26.17	6.4	191	24.0	93.3	0.211E-01	24.0	1017.4	8	8631	1 17	2 190	10.5	1	23.0	23.2
6/	8	2200	30 18.83	72 27.88	7.0	189	23.9	95.8	0.215E-01	24.4	1017.4	7	7631	1 17	2 190	9.5	0	23.0	23.4
6/	8	2300	30 9.13	72 29.86	4.9	192	23.8	93.2	0.208E-01	24.3	1017.4	6	6631	1 17	2 190	10.5	1	20.0	23.0

Table Vb-2 (continued)

MO	DA	TIME	LAT	LONG	TWS	TWD	AT	RH	AH	SST	BP	TC	CLD	WAVES	SC	SS	AWD	AW5	TWET	
6/9	9	0 29	59.20	72 32.22	7.6	201	22.4	97.4	0.200E-01	24.1	1017.5	6	6631	1 17	2 190	9.4	7	24.0	22.1	
6/9	100	29 49.77	72 35.04	6.5	207	23.6	100.0	0.221E-01	23.9	1017.6	5	5		2 17	2 190	9.7	10	22.0	23.6	
6/9	200	29 39.17	72 36.63	6.4	200	23.8	98.3	0.220E-01	24.0	1017.8				1 17	2 190	9.7	6	22.0	23.6	
6/9	300	29 28.44	72 43.93	8.0	204	23.8	98.3	0.220E-01	24.0	1019.2				1 17	2 190	6.7	10	22.0	23.6	
6/9	400	29 18.45	72 45.49	7.7	218	23.8	99.1	0.221E-01	24.3	1019.0	4			1 17	2 191	9.7	17	24.0	23.7	
6/9	500	29 8.63	72 47.22	7.2	218	24.0	97.4	0.220E-01	25.0	1019.0	4			1 17	2 190	9.7	17	23.0	23.7	
6/9	600	28 59.26	72 48.96	6.5	213	24.0	98.3	0.222E-01	24.5	1018.8	0			1 17	2 189	9.8	14	22.0	23.8	
6/9	700	28 49.50	72 50.79	5.5	214	23.9	99.1	0.223E-01	24.3	1018.8	0			1 17	2 190	9.8	13	20.0	23.8	
6/9	800	28 39.90	72 52.15	5.4	205	24.0	98.3	0.222E-01	24.7	1018.4	0			1 17	2 190	9.7	8	20.0	23.8	
6/9	900	28 30.22	72 53.67	5.8	189	24.4	95.0	0.220E-01	24.7	1018.4	1	1831		1 17	2 188	9.8	1	21.0	23.8	
6/9	1000	28 20.19	72 54.34	5.6	198	24.5	93.3	0.217E-01	25.3	1018.4	4	4831		1 17	2 189	10.5	5	21.2	23.7	
6/9	1100	28 9.89	72 54.34	4.8	171	24.8	91.7	0.217E-01	25.2	1018.6	6	6831		1 15	2 189	10.5	352	19.6	23.8	
6/9	1200	27 59.71	72 56.94	5.1	189	24.9	91.0	0.217E-01	25.2	1019.3	5	5831		1 15	2 190	9.1	0	19.0	23.8	
6/9	1300	27 49.55	73 0.24	4.5	192	24.6	93.3	0.218E-01	25.5	1019.7	7	75		1 15	2 193	9.3	0	18.0	23.8	
6/9	1400	27 39.47	76 2.76	1.1	75	25.2	90.2	0.219E-01	25.2	1019.5	8	85		1 15	2 195	8.8	347	8.0	24.0	
6/9	1500	27 29.12	73 5.55	4.2	185	25.0	91.8	0.220E-01	25.6	1020.0	7	78		1 15	2 194	8.6	356	16.8	24.0	
6/9	1600	27 19.38	73 8.97	4.7	168	24.8	94.2	0.223E-01	25.4	1020.2	4	2890		1 15	2 192	9.2	348	18.0	24.1	
6/9	1700	27 9.54	73 12.22	4.7	154	24.7	95.8	0.226E-01	25.4	1020.1	3	1870		1 15	2 192	9.9	342	18.0	24.2	
6/9	1800	27 0.15	73 15.12	4.2	176	26.1	81.3	0.207E-01	26.0	1020.0	2	2260		1 15	2 194	10.0	352	18.0	23.7	
6/9	1900	26 50.53	73 17.92	3.2	187	25.8	85.7	0.215E-01	26.2	1019.6	2	2260		1 15	2 195	10.0	357	16.2	24.0	
6/9	2000	26 40.88	73 20.36	3.3	189	25.8	84.9	0.213E-01	26.4	1019.2	2	283		1 15	2 192	10.0	359	16.4	23.9	
6/9	2100	26 31.42	73 22.78	2.3	176	25.8	84.2	0.211E-01	26.5	1018.9	3	38 2		1 15	2 193	9.7	355	14.0	23.8	
6/9	2200	26 22.15	73 26.60	3.3	153	26.0	82.7	0.210E-01	26.5	1018.6	2	28		1 15	2 194	9.4	344	14.8	23.8	
6/9	2300	26 12.78	73 27.17	2.8	142	26.0	82.7	0.210E-01	26.5	1018.4	1	18		1 15	2 192	9.4	342	13.6	23.8	
6/10	0	26 2.90	73 29.77	3.5	128	24.8	90.1	0.213E-01	26.4	1018.6	6	63		1 15	2 194	9.8	334	14.0	23.6	
6/10	100	25 52.26	73 32.04	4.8	129	25.4	87.1	0.214E-01	26.3	1018.6	3	3		1 15	2 184	9.6	333	16.8	23.8	
6/10	200	25 41.77	73 33.20	6.2	242	25.6	85.6	0.212E-01	26.3	1018.6	2	2		1 15	2 185	9.7	392	19.2	23.8	
6/10	300	25 30.86	73 30.86	4.3	145	25.4	87.1	0.214E-01	26.3	1018.8	2	2		1 15	2 185	9.8	342	17.2	23.8	
6/10	400	25 19.89	73 36.47	4.3	147	24.8	92.6	0.219E-01	26.3	1018.9	2			1 15	2 192	10.1	340	17.0	23.9	
6/10	500	25 9.41	73 36.91	5.3	149	25.8	85.7	0.215E-01	26.2	1018.6	0	0		0 15	1 170	5.0	346	15.0	24.0	
6/10	600	25 8.20	73 37.22	3.3	139	25.8	84.2	0.211E-01	26.3	1018.6	0	0		0 15	1 28	0.3	109	6.4	23.8	
6/10	700	25 8.49	73 37.76	1.5	124	25.7	86.4	0.216E-01	26.2	1018.6	0	0		0 15	1 12	0.2	109	2.8	24.0	
6/10	800	25 9.37	73 32.56	3.9	104	25.0	87.8	0.210E-01	26.2	1018.4	0	0		15	1 82	9.5	10	16.8	23.5	
6/10	900	25 10.42	73 22.08	4.8	117	25.0	91.8	0.220E-01	26.2	1018.4	1	18		15	1 83	9.8	17	18.2	24.0	
6/10	1000	25 11.50	73 11.83	4.8	95	24.9	91.0	0.217E-01	26.1	1018.5	1	18		15	1 82	9.2	7	18.4	23.8	
6/10	1100	25 12.90	73 1.89	5.4	126	25.7	86.4	0.216E-01	26.3	1018.8	2	28		15	1 83	9.5	23	18.6	24.0	
6/10	1200	25 14.24	72 51.91	5.8	131	25.6	87.2	0.216E-01	26.1	1020.0	2	28				84	9.3	26	18.8	24.0
6/10	1300	25 15.66	72 41.83	6.1	126	26.0	83.5	0.212E-01	26.4	1020.0	2	28		1 11	2 84	9.1	24	19.6	23.9	
6/10	1400	25 16.98	72 36.15	2.3	134	25.6	84.9	0.211E-01	26.3	1020.0	1	196		1 11	2 273	8.8	331	6.2	23.7	
6/10	1500	25 17.71	72 49.37	1.9	113	25.6	87.2	0.216E-01	26.7	1020.2	2	286		1 11	2 275	9.0	348	5.6	24.0	
6/10	1600	25 18.77	73 1.91	1.7	132	25.4	86.3	0.212E-01	26.8	1020.4	2	1206		1 11	2 276	9.6	344	7.2	23.7	
6/10	1700	25 20.18	73 14.61	2.1	156	26.0	83.5	0.212E-01	27.0	1020.4	3	1206		1 11	2 275	9.8	335	8.6	23.9	
6/10	1800	25 21.41	73 27.55	2.6	151	26.2	79.8	0.205E-01	27.3	1020.5	3	1206		1 11	2 274	9.9	330	8.4	23.6	
6/10	1900	25 22.63	73 39.53	1.2	143	26.1	81.3	0.207E-01	27.2	1020.0				1 14	1 276	9.2	347	7.8	23.7	
6/10	2000	25 24.04	73 51.39	0.5	166	26.6	80.0	0.210E-01	27.3	1019.3	2	2164		1 14	2 276	8.5	353	8.2	24.0	
6/10	2100	25 25.59	74 3.08	1.3	94	27.3	76.7	0.210E-01	27.7	1019.6	2	2164		0 11	2 275	8.0	0	5.4	24.2	
6/10	2200	25 27.28	74 14.64	1.6	70	27.9	70.1	0.199E-01	27.2	1018.9	1	1164		0 11	2 276	9.3	12	6.6	23.8	
6/10	2300	25 29.07	74 26.18	1.8	95	27.1	77.3	0.209E-01	27.1	1018.9	1	1164		0 11	2 276	9.9	0	6.4	24.1	
6/11	0	25 30.85	74 38.00	2.4	84	25.8	81.9	0.206E-01	27.0	1018.8	2	22		0 11	1 275	10.2	9	5.6	23.5	
6/11	100	25 32.19	74 50.45	2.9	76	26.0	81.2	0.206E-01	26.9	1018.8	1	12		0	0 275	9.5	23	4.6	23.6	
6/11	200	25 33.40	75 1.16	3.1	110	26.7	77.9	0.206E-01	27.1	1018.7	1	1		0	0 277	9.8	340	4.2	23.8	
6/11	300	25 34.90	75 14.22	2.6	113	25.8	83.4	0.209E-01	26.7	1019.0	1	1		0	0 290	9.4	356	4.4	23.7	
6/11	400	25 36.12	75 23.83	2.6	105	25.3	85.5	0.209E-01	26.7	1019.5	1	1		1	0 274	10.0	349	5.2	23.5	
6/11	500	25 36.20	75 36.08	2.5	101	25.7	85.7	0.214E-01	26.8	1019.2	1	1		1	0 274	10.0	353	5.2	23.9	
6/11	600	25 36.52	75 48.49	2.8	102	25.5	85.6	0.211E-01	26.9	1019.0	1	1		1	0 277	10.3	354	5.0	23.7	
6/11	700	25 38.19	76 0.51	1.1	81	25.2	87.1	0.211E-01	26.7	1019.0	1	1		1	0 281	10.2	5	8.2	23.6	
6/11	800	25 39.95	76 12.37	3.7	114	25.5	86.4	0.213E-01	26.8	1018.2	1	111		0	0 282	10.3	335	3.6	23.8	
6/11	900	25 42.48	76 23.66	3.3	109	26.0	83.5	0.212E-01	26.8	1018.2	1	1		0	0 282	9.9	347	3.6	23.9	
6/11	1000	25 44.96	76 35.95	3.6	113	26.0	82.0	0.208E-01	26.9	1018.2	3	3100		0	0 282	9.9	336	3.4	23.7	
6/11	1100	25 45.73	76 47.33	2.9	114	26.2	81.3	0.209E-01	27.3	1018.2	2	2101		0	0 271	10.1	336	5.4	23.8	
6/11	1200	25 43.72	76 56.30	3.9	134	25.4	87.1	0.214E-01	27.3	1018.5	2	2130		1	0 219	10.1	325	13.2	23.8	
6/11	1300	25 35.16	77 2.67	2.7	118	26.0	85.7	0.218E-01	27.4	1018.3	2	2130		1	0 219	10.2	331	10.6	24.2	
6/11	1400	25 26.01	77 9.92	4.3	156	26.4	82.1	0.213E-01	27.3	1018.5	5	5130		1	0 215	9.7	333	15.8	24.1	
6/11	1500	25 15.43	77 15.77	4.8	160	27.5	78.2	0.216E-01	27.2	1018.4	3	3170		1	0 203	8.6	338	16.8	24.6	
6/11	1600	25 4.02	77 18.95	4.6	159	25.8	88.0	0.221E-01	27.0	1018.5	2	1260		1	0 203	5.6	333	13.6	24.3	
6/11	1700	24 55.27	77 17.54	5.7	104	26.7	79.3	0.210E-01	27.0	1018.4	2	1260		1	0 96	0.0	9	11.0	24.0	
6/11																				

Table Vb-2 (continued)

MO	DA	TIME	LAT	LONG	TWS	TWD	AT	RH	AH	SST	BP	TC	CLD	WAVES	SC	SS	AWD	AW5	TWET
6/12	1000	25	36.03	74 54.43	4.2	95	26.0	85.0	0.216E-01	27.0	1017.5	2	211	1 13	2	96	9.1	0 17.2	24.1
6/12	1100	25	35.46	74 43.33	4.1	95	26.2	85.8	0.220E-01	27.0	1017.7	3	311	1 13	2	96	8.1	0 16.0	24.4
6/12	1200	25	34.74	74 34.04	5.1	93	26.5	84.4	0.220E-01	26.9	1018.9	4	413	1 13	2	94	9.7	0 19.6	24.5
6/12	1300	25	34.19	74 21.12	5.9	93	26.6	83.7	0.220E-01	26.8	1018.8	3	313	1 13	2	94	9.3	0 20.8	24.5
6/12	1400	25	33.72	74 9.88	4.8	93	26.7	85.9	0.227E-01	26.8	1019.0	4	413	1 13	2	94	9.5	0 18.8	24.9
6/12	1500	25	33.36	73 59.04	4.1	93	26.7	83.7	0.221E-01	27.0	1019.0	2	213	1 13	2	94	8.4	0 16.4	24.6
6/12	1600	25	33.33	73 48.77	3.5	91	26.8	80.8	0.215E-01	27.6	1020.0	3	226	1 14	2	92	9.2	0 16.0	24.3
6/12	1700	25	33.43	73 38.43	3.3	93	26.7	79.3	0.210E-01	27.4	1020.0	3	223	1 14	2	94	9.1	0 15.6	24.0
6/12	1800	25	33.82	73 28.32	4.8	91	26.2	86.5	0.222E-01	27.5	1020.0	2	2200	1 14	2	92	9.2	0 16.6	24.5
6/12	1900	25	33.88	73 18.21	5.0	124	27.0	80.1	0.215E-01	27.3	1019.6	2	2200	1 14	2	95	9.6	15 16.6	24.4
6/12	2000	25	33.44	73 8.20	5.7	130	26.5	82.9	0.217E-01	27.0	1019.1	2	2200	1 14	2	95	8.6	20 18.8	24.3
6/12	2100	25	33.31	72 58.41	5.4	114	26.5	82.1	0.215E-01	27.0	1018.8	1	1200	1 14	2	94	9.3	11 19.4	24.2
6/12	2200	25	33.11	72 48.58	4.9	133	26.4	81.4	0.211E-01	27.2	1018.5	2	2260	1 14	2	95	8.9	20 17.4	24.0
6/12	2300	25	32.99	72 39.01	4.8	120	26.0	85.7	0.218E-01	26.9	1018.5	2	2260	1 14	2	95	9.1	13 16.0	24.2
6/13	0	25	32.32	72 28.93	6.4	130	26.3	85.8	0.222E-01	26.7	1018.8	3	39	1 13	2	95	9.5	20 21.0	24.5
6/13	100	25	31.39	72 18.81	5.5	118	26.1	82.0	0.209E-01	26.7	1019.0	3	39	1 13	2	94	9.8	13 20.0	23.8
6/13	200	25	30.87	72 8.58	6.1	108	26.2	80.6	0.207E-01	26.9	1019.0			1 13	2	95	8.7	8 20.4	23.7
6/13	300	25	30.56	71 58.26	5.6	121	25.8	83.4	0.209E-01	26.8	1019.8			1 13	2	94	9.1	15 19.4	23.7
6/13	400	25	30.35	71 47.66	6.8	126	24.4	89.3	0.206E-01	26.6	1019.9	2		1 12	2	96	8.9	18 21.4	23.1
6/13	500	25	29.92	71 37.36	3.8	123	24.8	88.5	0.210E-01	26.8	1019.8	2		1 12	2	96	9.5	12 16.4	23.4
6/13	600	25	31.53	71 32.26	4.4	113	25.2	84.0	0.204E-01	26.5	1019.6	2		1 12	2	94	9.5	9 17.8	23.2
6/13	700	25	29.67	71 10.97	4.1	103	25.1	86.3	0.208E-01	26.5	1019.5	2		1 12	2	95	9.6	4 17.6	23.4
6/13	800	25	29.19	71 1.23	5.1	89	25.5	82.5	0.204E-01	26.4	1019.4	2	2	1 12	2	93	9.2	358 19.0	23.3
6/13	900	25	28.65	70 51.03	5.1	103	25.7	79.6	0.199E-01	26.4	1019.4	1	1	1 12	2	94	8.9	5 18.8	23.1
6/13	1000	25	28.79	70 39.83	4.6	85	25.8	78.9	0.198E-01	26.5	1019.6	1	1190	1 12	2	90	10.2	358 19.2	23.1
6/13	1100	25	28.57	70 29.14	2.3	100	26.0	80.5	0.204E-01	26.6	1020.0	1	1190	1 16	1	88	9.8	4 14.2	23.5
6/13	1200	25	26.20	70 13.85	5.8	107	26.0	79.7	0.202E-01	26.6	1020.8	4	4371	1 16	1	84	8.8	13 19.6	23.4
6/13	1300	25	27.28	69 59.62	9.4	107	26.6	75.0	0.197E-01	26.3	1021.1	5	4371	1 16	1	105	0.0	3 18.2	23.3
6/13	1400	25	26.60	69 57.53	6.1	95	26.8	76.5	0.203E-01	26.5	1021.2	2	186	1 14	1	33	0.9	59 12.2	23.7
6/13	1500	25	27.23	69 57.20	4.6	113	26.2	77.6	0.199E-01	26.6	1021.4	2	186	1 14	1	227	1.2	254 8.6	23.3
6/13	1600	25	27.09	69 58.52	3.2	112	26.4	79.9	0.208E-01	26.5	1022.0	3	186	1 12	1	2	0.2	109 6.2	23.8
6/13	1700	25	27.14	69 59.23	5.1	165	26.2	79.8	0.205E-01	26.4	1022.0	2	068	1 12	1	2	1.3	161 8.6	23.6
6/13	1800	25	27.03	69 59.76	4.8	110	26.3	79.1	0.204E-01	26.8	1022.1	3	316	1 12	1	99	1.5	10 10.8	23.6
6/13	1900	25	27.12	69 59.98	6.4	127	26.4	76.3	0.198E-01	26.8	1021.6	2	226	1	0	96	1.3	29 13.6	23.3
6/13	2000	25	27.15	69 59.94	8.0	131	26.4	76.3	0.198E-01	26.2	1021.0	2	126	1	0	100	1.5	29 16.8	23.3
6/13	2100	25	28.12	70 2.74	6.6	110	26.5	80.7	0.211E-01	26.8	1020.8	1	126	2 14	2	301	9.3	144 4.0	24.0
6/13	2200	25	38.22	70 3.51	5.7	126	26.5	79.2	0.207E-01	26.6	1020.8	1	126	2 14	2	5	8.7	73 9.8	23.8
6/13	2300	25	48.78	70 4.02	7.0	131	26.5	78.5	0.205E-01	26.7	1020.8	1	11 4	2 14	2	4	11.4	74 11.2	23.7
6/14	0	25	59.53	70 3.99	6.2	112	25.9	84.2	0.212E-01	26.7	1021.1	2	21 3	2 13	2	12	9.6	58 14.0	23.9
6/14	100	26	10.84	70 3.90	6.5	116	25.8	85.7	0.215E-01	26.8	1021.1	2		2 13	2	6	9.3	68 12.8	24.0
6/14	200	26	21.58	70 3.62	6.4	113	25.6	85.6	0.212E-01	26.5	1021.5	2		1 15	2	6	9.7	63 13.2	23.8
6/14	300	26	32.71	70 3.48	5.7	116	25.7	85.6	0.214E-01	26.5	1021.8	2		1 15	2	6	9.6	61 11.8	23.9
6/14	400	26	43.53	70 3.32	4.5	141	25.5	81.8	0.202E-01	26.4	1022.5	2	2200	1 15	2	8	9.4	62 7.2	23.2
6/14	500	26	54.54	70 3.34	5.9	116	26.7	74.3	0.196E-01	26.3	1022.5	1	1200	1 15	2	5	9.2	65 11.8	23.3
6/14	600	27	5.43	70 2.64	5.9	117	25.5	81.8	0.202E-01	26.5	1022.2	1	1200	1 15	2	6	9.3	65 11.8	23.2
6/14	700	27	16.80	70 1.45	4.0	122	25.6	82.6	0.205E-01	26.7	1022.1	1	1200	1 15	2	6	9.8	48 9.4	23.4
6/14	800	27	18.72	70 1.39	3.9	141	26.0	79.0	0.201E-01	26.5	1021.9	1	12	1 15	1	345	1.6	150 6.2	23.3
6/14	900	27	18.63	70 1.26	3.2	139	25.8	80.4	0.202E-01	26.5	1021.9	2	12	0 15	1	71	0.4	65 6.4	23.3
6/14	1000	27	18.73	70 1.37	2.7	141	25.7	78.9	0.197E-01	26.5	1022.0	2	22 1	0 17	1	47	0.3	91 5.2	23.0
6/14	1100	27	19.18	70 1.02	3.8	91	25.8	81.1	0.204E-01	26.5	1022.0	2	22	0 14	1	70	0.9	19 8.2	23.4
6/14	1200	27	19.62	70 0.56	3.8	125	26.1	78.3	0.200E-01	26.6	1021.9	3	32 1	0 16	1	101	0.1	24 7.4	23.3
6/14	1300	27	18.77	69 59.69	5.7	135	26.3	77.7	0.201E-01	26.5	1022.1	4	42 1	1 16	1	164	7.4	343 18.0	23.4
6/14	1400	27	9.63	69 56.47	5.5	140	26.1	77.6	0.198E-01	26.5	1022.0	2	22 1	1 16	1	169	5.5	341 15.8	23.2
6/14	1500	27	5.28	69 54.74	3.7	109	26.2	75.5	0.194E-01	26.5	1022.0	2	11 1	1 16	1	29	1.3	71 7.6	23.0
6/14	1600	27	6.18	69 54.47	5.4	140	26.1	79.0	0.202E-01	26.7	1022.5	2	1101	1 16	1	221	1.3	286 10.8	23.4
6/14	1700	27	4.64	69 56.72	3.9	118	26.3	76.9	0.199E-01	26.7	1022.3	2	1101	1 13	1	25	0.0	94 7.6	23.3
6/14	1800	27	4.89	69 54.89	8.1	123	26.6	74.9	0.197E-01	26.9	1022.0	3	1101	1 13	1	122	3.1	1 18.8	23.3
6/14	1900	27	4.89	69 54.71	4.8	72	26.3	76.9	0.199E-01	26.8	1021.8	3	1104	1 13	1	35	0.0	38 9.4	23.3
6/14	2000	27	4.45	69 54.92	5.1	82	26.4	76.3	0.198E-01	26.9	1021.4	3	2104	1 13	2	30	0.7	49 10.4	23.3
6/14	2100	27	10.81	69 53.51	6.5	117	26.6	76.4	0.201E-01	26.8	1021.2	4	3101	1 13	2	7	9.7	66 13.0	23.5
6/14	2200	27	11.59	69 53.68	4.4	86	26.5	76.3	0.199E-01	26.7	1021.2	3	2101	1 13	3	15	0.0	72 8.6	23.4
6/14	2300	27	12.18	69 53.87	3.3	98	26.4	77.7	0.202E-01	26.7	1021.2	2	1101	1 13	3	36	0.5	59 6.8	23.5
6/15	0	27	12.63	69 53.67	6.3	131	26.4	73.4	0.191E-01	26.7	1021.1	1	12	1 13	3	75	0.2	56 12.4	22.9
6/15	100	27	13.03	69 53.43	5.7	121	26.6	74.2	0.195E-01	26.7	1021.1	2	12	1 13	3	124	1.2	358 12.2	23.2
6/15	200	27	10.86	69 51.21	7.0	149	26.2	74.8	0.192E-01	26.5	1021.2	2	12	1 12	2	151	8.5	359 22.8	22.9
6/15	300	27	2.28	69 45.87	6.5	126	25.8	78.2	0.196E-01	26.5	1021.2	2	12	1 12	2	152	8.5	345 20.6	23.0

Table Vb-2 (continued)

MO	DA	TIME	LAT	LONG	TWS	TWD	AT	RH	AH	SST	BP	TC	CLD	WAVES	SC	SS	AWD	AW5	TWET
6/16	0	27	4.56	69 45.74	7.3	88	26.4	75.6	0.196E-01	26.6	1021.4	2	2103	1 13	2	82	0.3	6 14.4	23.2
6/16	100	27	2.77	69 43.48	8.1	127	26.2	76.2	0.196E-01	26.5	1021.2	1		2 10	2	150	8.3	345 23.6	23.1
6/16	200	27	1.10	69 39.03	7.5	123	26.2	80.5	0.207E-01	26.5	1021.4	1		2 10	2	0	8.6	87 12.2	23.7
6/16	300	27	9.47	69 39.74	7.2	117	26.3	78.7	0.203E-01	26.6	1021.7			2 10	2	0	0.0	0 0.0	0.0
6/16	400	27	17.83	69 39.71	6.8	111	26.3	76.9	0.199E-01	26.6	1022.0	2	2100	2 10	2	270	9.5	239 5.6	23.3
6/16	500	27	18.05	69 50.53	5.1	119	26.2	80.5	0.207E-01	26.5	1022.1	2	2100	2 10	2	270	10.0	285 5.0	23.7
6/16	600	27	18.10	70 1.30	5.0	112	25.8	81.9	0.205E-01	26.5	1021.8	2	2100	2 10	2	264	8.8	273 4.6	23.5
6/16	700	27	10.02	70 3.05	4.9	135	25.7	81.1	0.202E-01	26.3	1021.2	2	2100	2 10	2	179	8.5	337 16.8	23.3
6/16	800	27	1.10	70 3.42	5.7	133	25.8	83.4	0.209E-01	26.3	1021.0	1		2 10	2	180	8.3	333 17.8	23.7
6/16	900	26	52.20	70 4.12	7.1	112	25.9	80.4	0.203E-01	26.4	1021.0	3	32	1 16	1	63	7.8	32 19.8	23.4
6/16	1000	26	56.36	69 55.30	6.8	111	25.6	84.9	0.210E-01	26.4	1021.0	2	22	1 14	1	65	8.0	29 19.6	23.7
6/16	1100	27	0.21	69 46.47	5.7	113	26.2	78.4	0.201E-01	26.6	1021.5	2	22	1 14	1	64	7.2	30 16.6	23.4
6/16	1200	27	3.51	69 40.13	6.1	80	26.6	77.1	0.203E-01	26.5	1022.2	2	22	1 14	1	60	0.0	21 11.8	23.6
6/16	1300	27	4.52	69 38.26	6.4	118	26.8	75.7	0.201E-01	26.6	1022.5	5	5200	1 14	1	91	0.7	26 13.0	23.6
6/16	1400	27	3.84	69 39.56	8.0	114	26.8	76.4	0.203E-01	26.6	1022.4	3	3200	1 14	2	98	0.7	16 16.2	23.7
6/16	1500	27	3.81	69 38.48	6.3	106	27.6	72.0	0.200E-01	26.6	1022.5	1	1200	1 14	1	95	0.9	11 13.2	23.8
6/16	1600	27	4.14	69 38.30	7.2	136	26.8	75.7	0.201E-01	26.7	1022.5	1	12	1 11	1	108	-1.1	31 13.0	23.6
6/16	1700	27	4.27	69 38.14	5.2	136	26.8	76.4	0.203E-01	26.7	1022.5	1	1200	1 11	1	107	1.0	27 11.0	23.7
6/16	1800	26	59.47	69 43.44	4.9	150	26.0	78.3	0.199E-01	26.8	1022.0	1	1200	1 11	1	225	6.6	315 13.0	23.2
6/16	1900	26	57.46	69 46.15	5.6	50	26.2	72.6	0.187E-01	26.7	1021.9	1	1200	1 11	1	325	0.0	86 10.8	22.6
6/16	2000	26	57.85	69 47.55	7.5	134	26.4	73.4	0.191E-01	27.0	1021.5	2	22	1 11	1	177	3.4	325 17.2	22.9
6/16	2100	26	57.11	69 47.16	6.1	137	26.3	72.0	0.186E-01	26.8	1021.4	1	12	1 14	2	134	0.0	4 11.8	22.6
6/16	2200	26	57.08	69 47.38	6.5	113	26.3	67.2	0.174E-01	26.9	1021.4	1	12	1 12	2	113	-0.4	1 12.2	21.9
6/16	2300	26	57.37	69 47.70	5.8	96	26.0	75.4	0.191E-01	26.8	1021.4	1	12	1 12	2	37	-0.7	63 11.0	22.8
6/17	0	26	58.14	69 48.05	5.1	118	26.2	74.8	0.192E-01	26.8	1021.4			1 12	2	50	0.0	69 10.0	22.9
6/17	100	26	58.69	69 47.73	6.1	117	26.2	74.8	0.192E-01	26.6	1021.5	2	2200	1 12	2	93	2.7	20 14.4	22.9
6/17	200	26	59.55	69 38.55	6.8	103	25.8	76.7	0.193E-01	26.6	1021.5	2	2100	1 12	2	4	8.8	63 14.6	22.8
6/17	300	27	9.07	69 30.79	5.9	107	26.4	72.7	0.189E-01	26.6	1021.4			1 09	2	0	8.9	63 12.2	22.8
6/17	400	27	18.05	69 39.20	5.0	112	25.8	79.7	0.200E-01	26.5	1021.9	1	1100	1 09	2	269	8.2	259 4.0	23.2
6/17	500	27	17.62	69 50.15	4.7	125	25.8	73.1	0.184E-01	26.5	1021.2	1	1100	1 09	2	270	8.5	282 5.4	22.3
6/17	600	27	17.50	70 0.48	5.4	118	25.8	76.0	0.191E-01	26.5	1021.0	1	1100	1 09	2	270	8.9	265 5.0	22.7
6/17	700	27	11.01	70 2.88	6.7	144	25.5	78.1	0.193E-01	26.4	1020.5	1	1100	1 09	2	180	8.2	338 20.2	22.7
6/17	800	27	9.12	69 56.47	7.0	130	25.7	73.8	0.184E-01	26.4	1020.2	0	0000	1 11	2	78	7.8	34 19.4	22.3
6/17	900	27	11.14	69 46.25	9.2	135	25.7	75.2	0.188E-01	26.5	1020.4	2	22	1 11	2	91	5.8	34 22.4	22.5
6/17	1000	27	11.48	69 44.96	2.0	114	25.5	71.6	0.176E-01	26.5	1020.5	2	22	1 12	2	315	6.6	26 3.2	21.8
6/17	1100	27	11.95	69 47.16	4.7	50	25.8	72.4	0.182E-01	26.5	1020.7	1	12	1 12	2	46	-0.9	5 8.2	22.2
6/17	1200	27	11.28	69 47.22	4.6	93	26.7	68.8	0.182E-01	26.5	1020.8	1	1200	1 12	2	54	1.2	35 9.8	22.5
6/17	1300	27	11.80	69 47.37	2.6	128	27.4	67.2	0.185E-01	26.5	1021.0	1	1100	1 12	2	51	0.7	70 5.2	22.9
6/17	1400	27	12.12	69 47.23	4.9	80	26.5	70.7	0.185E-01	26.5	1022.0	1	1100	1 12	2	56	-1.0	27 8.6	22.6
6/17	1500	27	11.46	69 48.35	4.7	141	26.4	70.7	0.184E-01	26.7	1022.0	1	1100	1 12	2	215	2.5	300 10.2	22.5
6/17	1600	27	8.15	69 51.65	5.3	144	26.2	70.5	0.181E-01	26.7	1021.8	2	2100	1 12	2	215	2.5	301 11.4	22.3
6/17	1700	27	4.18	69 53.80	3.7	101	27.2	70.4	0.192E-01	26.8	1021.0	2	2100	1 13	2	45	0.0	57 7.2	23.2
6/17	1800	27	15.19	69 56.01	6.1	117	26.4	72.1	0.187E-01	26.8	1020.7	2	2100	1 13	2	52	6.3	44 15.6	22.7
6/17	1900	27	10.58	69 47.69	6.5	126	26.1	73.3	0.187E-01	26.8	1020.5	3	2268	1 13	2	40	9.8	50 16.4	22.6
6/17	2000	27	18.53	69 38.77	6.4	147	26.2	71.9	0.185E-01	27.0	1020.2	7	1208	1 13	2	125	-0.6	24 11.8	22.5
6/17	2100	27	19.22	69 39.01	3.6	140	26.3	69.2	0.179E-01	26.9	1020.0	7	1208	1 13	2	55	-1.7	100 7.0	22.2
6/17	2200	27	18.37	69 38.43	5.2	104	26.3	71.3	0.184E-01	26.7	1019.8	8	2208	1 13	2	60	-0.6	47 9.6	22.5
6/17	2300	27	18.76	69 38.23	3.6	131	26.2	68.5	0.176E-01	26.8	1019.8	7	1208	1 13	2	56	-0.5	80 6.8	22.0
6/18	0	27	19.10	69 37.62	1.3	185	26.2	70.6	0.181E-01	26.6	1020.4	2	1208	1 13	2	180	2.5	3 5.0	22.3
6/18	100	27	13.43	69 43.99	3.5	68	25.9	73.2	0.185E-01	26.5	1020.0	1	1100	1 13	2	230	8.8	318 3.2	22.4
6/18	200	27	7.43	69 52.01	5.6	146	26.1	78.3	0.200E-01	26.6	1020.0	2	2100	1 14	2	230	8.3	311 14.4	23.3
6/18	300	27	5.97	69 54.59	6.8	138	25.8	77.5	0.194E-01	26.5	1020.1	2	2108	1 14	2	90	3.1	40 15.4	22.9
6/18	400	27	3.54	69 54.39	8.8	140	25.8	77.5	0.194E-01	26.5	1019.7	2	2170	1 14	2	91	3.0	43 19.2	22.9
6/18	500	27	3.82	69 54.77	7.5	146	25.7	78.9	0.197E-01	26.5	1019.5	2	2170	1 14	2	100	2.1	41 16.0	23.0
6/18	600	27	4.17	69 53.06	5.2	146	25.8	78.9	0.198E-01	26.4	1018.8	1	1100	1 14	2	255	4.4	277 9.6	23.1
6/18	700	27	4.05	69 55.10	3.5	204	25.4	81.0	0.199E-01	26.5	1018.4	1	1100	1 14	2	269	1.4	305 7.6	23.0
6/18	800	27	3.73	69 54.49	3.2	189	25.8	79.7	0.200E-01	26.5	1018.3			1 14	2	265	3.7	311 8.0	23.2
6/18	900	27	5.47	69 53.71	0.9	36	25.4	77.3	0.190E-01	26.4	1018.3	7	72	0 10	1	266	4.5	23 3.6	22.5
6/18	1000	27	3.42	69 53.96	4.9	189	25.4	78.8	0.193E-01	26.5	1018.6	5	52	0 13	1	290	4.6	287 9.8	22.7
6/18	1100	27	12.73	69 57.92	4.5	164	25.6	81.1	0.201E-01	26.4	1018.6	3	32	0 14	1	0	10.4	50 3.0	23.2
6/18	1200	27	21.98	69 58.19	2.7	132	26.1	77.6	0.198E-01	26.6	1019.2	3	3260	1 15	2	0	8.4	39 6.2	23.2
6/18	1300	27	32.77	69 54.72	2.4	132	26.8	74.4	0.198E-01	26.5	1019.3	3	3208	1 15	2	2	8.6	34 6.4	23.4
6/18	1400	27	43.39	69 54.29	2.7	143	26.4	75.6	0.196E-01	26.7	1019.2	4	4201	1 15	2	0	8.4	36 5.4	23.2
6/18	1500	27	54.50	69 54.32	3.8	147	26.6	79.2	0.208E-01	26.8	1019.2	2	2202	2 15	2	2	7.9	67 4.6	23.9
6/18	1600	27	57.78	69 53.46	6.5	168	25.9	83.4	0.211E-01	26.9	1019.3	2	2202	2 15	2	245	3.1	296 13.6	23.8
6/18	1700	27	57.18	69 54.06	6.7	188	26.5	76.3	0.199E-01	27.1	1019.2	2	2170	2					

Table Vb-2 (continued)

MO	DA	TIME	LAT	LONG	TWS	TWD	AT	RH	AH	SST	BP	TC	CLD	WAVES	SC	SS	AWD	AW5	TWET	
6/19	1500	27	3.88	70 6.03	1.9	19	26.6	73.6	0.193E-01	27.0	1020.2	3	2101	1 15	1 75	6.2	340	8.8	23.1	
6/19	1600	27	5.52	70 0.05	3.8	165	26.9	68.2	0.182E-01	27.2	1020.5	2	1101	1 15	1 110	3.6	38	9.8	22.6	
6/19	1700	27	4.50	70 0.18	2.2	171	26.7	67.4	0.178E-01	27.5	1020.5	3	1101	0 15	1 213	9.1	347	12.6	22.3	
6/19	1800	26	58.71	70 4.41	4.0	125	27.0	65.0	0.175E-01	27.7	1020.1	2	1101	0 15	1 103	5.7	13	13.2	22.2	
6/19	1900	26	57.64	69 56.62	3.8	126	26.5	68.0	0.178E-01	27.6	1020.0	3	3101	0 15	1 76	0.8	46	8.0	22.2	
6/19	2000	27	6.19	69 56.56	2.7	70	26.5	75.6	0.198E-01	27.5	1019.8	6	5208	0 15	1 357	0.8	66	5.6	23.3	
6/19	2100	27	8.30	69 58.65	5.5	100	26.5	73.5	0.192E-01	27.7	1019.6	3	32	0 13	1 87	-1.8	16	9.0	23.0	
6/19	2200	27	9.19	69 58.56	4.6	102	26.4	74.9	0.195E-01	27.0	1019.6	2	1208	0 14	2 93	-0.7	10	8.2	23.1	
6/19	2300	27	9.98	69 58.00	5.0	108	26.3	76.2	0.197E-01	26.9	1019.5	3	1206	0 15	2 93	0.0	16	9.8	23.2	
6/20	0	27	10.64	69 57.59	5.8	107	26.4	76.3	0.198E-01	27.0	1019.8	2	2106	1 15	2 93	0.0	15	11.2	23.3	
6/20	100	27	11.28	69 57.10	7.6	118	26.6	77.8	0.205E-01	26.9	1019.7	2	21	1 15	2 151	3.1	333	17.4	23.7	
6/20	200	27	7.65	69 55.44	5.6	159	25.8	82.6	0.207E-01	26.9	1020.0	3	2208	1 15	2 178	3.6	346	14.4	23.6	
6/20	300	29	8.11	69 59.03	3.9	107	26.4	78.4	0.204E-01	27.0	1020.0	3	1201	1 15	2 5	3.3	77	7.5	23.6	
6/20	400	27	9.72	69 56.68	6.5	170	26.2	82.8	0.213E-01	26.7	1020.4	2	2101	0 16	1 233	5.7	316	16.0	24.0	
6/20	500	27	3.66	70 3.60	7.0	161	26.3	80.6	0.208E-01	26.9	1020.1	4	42	0 16	1 230	9.2	318	19.0	23.8	
6/20	600	27	0.62	70 0.51	5.6	165	26.3	81.3	0.210E-01	26.9	1019.9	2	22	1 16	1 164	3.7	1	14.6	23.9	
6/20	700	26	53.93	70 10.29	3.2	90	26.3	82.1	0.212E-01	26.8	1019.4	3	32	1 16	1 53	2.2	28	8.0	24.0	
6/20	800	27	0.98	70 3.89	4.7	158	26.3	78.4	0.203E-01	26.6	1019.6	2	22	0 15	1 45	8.5	60	9.6	23.5	
6/20	900	27	6.69	69 56.23	6.3	168	26.3	79.9	0.206E-01	26.8	1019.4	3	32	0 15	1 339	3.0	193	9.2	23.7	
6/20	1000	27	9.45	69 57.94	3.9	179	26.2	82.0	0.211E-01	26.6	1019.5	2	22	0 15	1 33	3.0	129	5.4	23.9	
6/20	1100	27	7.67	69 58.19	6.7	185	25.8	84.9	0.213E-01	26.7	1019.6	2	22	0 15	1 193	7.4	355	20.4	23.9	
6/20	1200	26	59.26	70 0.67	5.4	188	26.3	82.5	0.213E-01	26.7	1020.3	2	2200	0 15	1 199	7.7	354	18.2	0.0	
6/20	1300	26	51.93	70 3.19	3.5	145	26.8	80.0	0.213E-01	26.8	1020.5	2	2200	0 15	1 65	-2.1	98	6.8	24.2	
6/20	1400	26	51.67	69 56.34	5.4	146	26.8	79.3	0.211E-01	26.9	1020.5	3	3200	0 15	1 93	0.0	54	10.4	24.1	
6/20	1500	26	54.62	69 50.76	6.0	152	27.2	78.8	0.214E-01	26.9	1020.7	3	3200	2 15	2 10	-1.2	146	12.6	24.4	
6/20	1600	27	1.20	69 50.99	7.9	134	25.9	76.1	0.192E-01	26.9	1020.9	5	426	2 15	2 325	8.4	158	7.2	22.8	
6/20	1700	27	8.44	69 56.38	6.3	164	26.3	76.3	0.197E-01	27.0	1020.8	3	32	2 15	2 323	5.7	219	7.2	0.0	
6/20	1800	27	13.18	69 59.64	9.7	181	26.7	76.4	0.202E-01	27.1	1020.4	3	226	2 15	2 322	5.4	233	15.0	23.6	
6/20	1900	27	10.86	69 59.95	6.0	160	27.0	73.1	0.197E-01	27.0	1019.8	2	1201	2 15	2 149	3.7	9	15.2	23.4	
6/20	2000	27	10.01	69 55.05	4.4	131	26.5	77.0	0.201E-01	27.0	1019.6	8	83	1 15	2 325	1.9	163	6.8	23.5	
6/20	2100	27	13.55	69 55.79	4.1	136	25.7	76.0	0.190E-01	27.0	1019.4	8	83	1 15	2 74	1.9	52	9.0	22.6	
6/20	2200	27	15.59	69 53.13	3.6	157	26.1	79.8	0.204E-01	26.9	1019.4	7	73	1 16	2 176	1.8	345	8.8	23.5	
6/20	2300	27	14.08	69 53.43	5.3	172	26.7	79.3	0.210E-01	26.9	1019.2	3	233	1 16	1 2	3.1	167	7.2	24.0	
6/21	0	27	16.18	69 52.54	7.0	150	26.9	79.4	0.212E-01	26.9	1019.5	3	3201	1 15	2 90	2.9	51	15.2	24.2	
6/21	100	27	13.87	69 53.47	5.5	168	26.7	84.4	0.223E-01	26.8	1019.5	3	3300	1 15	2 6	2.5	157	8.4	24.7	
6/21	200	27	16.07	69 51.95	6.4	174	26.7	82.2	0.217E-01	26.7	1019.5	3	3300	1 15	2 179	2.9	356	15.4	24.4	
6/21	300	27	14.29	69 54.90	5.7	158	26.8	81.5	0.217E-01	26.9	1019.5	2	2340	1 15	2 73	-0.1	86	11.0	24.4	
6/21	400	27	15.82	69 52.20	8.0	180	26.5	80.7	0.211E-01	26.8	1019.7	2	224	1 15	2 46	4.1	121	13.0	24.0	
6/21	500	27	13.32	69 51.84	6.6	195	26.4	79.2	0.206E-01	26.7	1019.2	3	224	1 15	2 190	8.6	3	21.4	23.7	
6/21	600	27	5.16	69 54.34	12.5	84	26.4	81.4	0.211E-01	26.9	1018.4	2	21	1 15	2 190	8.8	276	23.6	24.0	
6/21	700	27	5.46	69 54.41	8.0	190	26.3	80.6	0.208E-01	26.8	1017.9	3	32	1 15	2 176	0.8	14	16.4	23.8	
6/21	800	27	5.09	69 54.32	8.8	199	26.3	79.9	0.206E-01	27.0	1017.4	1	12	1 15	1 177	0.1	22	17.2	23.7	
6/21	900	27	4.61	69 54.34	9.6	191	26.3	80.6	0.208E-01	27.0	1017.1	2	21	1 15	1 179	0.1	12	18.8	23.8	
6/21	1000	27	3.70	69 53.91	9.9	195	26.3	82.1	0.212E-01	27.0	1017.0	2	22	2 15	1 180	0.5	15	19.8	24.0	
6/21	1100	27	4.11	69 55.27	6.1	136	26.6	80.7	0.212E-01	27.0	1017.4	3	32	2 15	1 85	0.9	48	12.4	24.1	
6/21	1200	27	4.11	69 53.57	8.4	227	26.7	82.2	0.217E-01	26.8	1018.0	3	3360	2 15	2 164	0.3	63	16.4	24.4	
6/21	1300	27	3.68	69 53.38	9.1	221	26.7	77.9	0.206E-01	26.9	1018.0	4	426	2 15	2 170	-0.1	52	17.6	23.8	
6/21	1400	27	4.00	69 54.29	6.2	226	27.2	78.8	0.214E-01	26.9	1018.1	5	330	2 15	2 332	0.5	257	12.0	24.4	
6/21	1500	27	4.27	69 54.24	8.1	214	27.2	78.8	0.214E-01	27.0	1018.1	4	3241	2 15	2 183	-0.3	32	15.4	24.4	
6/21	1600	27	3.58	69 54.32	7.4	218	26.9	79.4	0.212E-01	27.1	1018.5	4	3241	2 15	2 252	1.0	329	15.2	24.2	
6/21	1700	27	3.98	69 55.42	7.2	226	27.1	78.7	0.213E-01	27.0	1018.4	4	3241	2 15	2 343	0.3	245	13.8	24.3	
6/21	1800	27	4.15	69 53.79	8.1	223	27.3	78.8	0.216E-01	27.1	1017.6	3	2261	2 15	2 197	1.6	24	17.2	24.5	
6/21	1900	27	4.00	69 54.20	8.3	228	27.1	83.1	0.225E-01	27.1	1017.1	3	3260	2 15	2 217	0.0	12	16.2	24.9	
6/21	2000	27	3.38	69 54.45	8.1	243	27.3	80.2	0.220E-01	27.1	1017.0	6	633	2	0 217	0.0	27	15.8	24.7	
6/21	2100	27	4.48	69 54.15	5.6	250	27.0	81.6	0.219E-01	27.0	1017.1	7	633	2	0 355	10.0	305	12.8	24.6	
6/21	2200	27	14.17	69 54.74	6.5	260	26.8	75.1	0.200E-01	27.0	1016.9	8	83	2	0 358	10.0	304	15.0	23.5	
6/21	2300	27	17.81	69 42.63	6.8	244	26.3	74.8	0.193E-01	26.8	1017.0	7	633	2	0 358	9.7	290	13.0	23.0	
6/22	0	27	35.99	69 54.84	4.3	321	25.2	84.0	0.204E-01	26.7	1016.7	8	8360	1 24	2 355	9.1	344	16.8	23.2	
6/22	100	27	45.81	69 55.07	2.1	274	25.2	80.2	0.194E-01	26.7	1016.8	6	636	1 24	2 356	9.7	339	11.0	22.7	
6/22	200	27	56.25	69 56.08	1.0	318	25.5	82.6	0.204E-01	26.7	1017.0	5	526	1 24	2 356	9.6	354	11.2	23.3	
6/22	300	28	6.74	69 57.30	2.1	238	25.3	82.5	0.201E-01	26.6	1017.4	5	546	1 24	2 356	9.7	335	8.6	23.1	
6/22	400	28	17.39	69 58.91	3.5	275	25.3	79.5	0.194E-01	26.6	1017.5	5	446	1 24	2 355	9.7	329	12.8	22.7	
6/22	500	28	28.56	70 0.79	5.1	277	25.5	80.3	0.198E-01	26.3	1017.2	5	446	1 24	2 356	9.6	320	15.0	23.0	
6/22	600	28	38.93	70 2.37	5.0	307	25.6	78.9	0.196E-01	26.5	1017.0	5	446	1 24	2 357	9.7	335	17.6	22.9	
6/22	700	28	50.04	70 4.46	7.5	15	22.5	91.4	0.189E-01	26.0	1016.3	5		1		357	9.4	11	23.6	21.5
6/22	800	29	1.34	70 5.76	3.7	76	24.0	80.5	0.182E-01	26.3	1									

VI. FASINEX CTD Data

Phase One - KNORR 119

A Neil Brown internally recording CTD was used for 22 stations on KNORR 119. 18 stations supplied good data. The data were processed on an HP85 system while at sea, providing preliminary plots of temperature, salinity and t/s. Listing of temperature, conductivity, and salinity were generated. Two sections were taken perpendicular to the front to 1000m. Five stations were taken near PCM moorings.

Salinity samples were taken at the bottom of each cast. The bottles were run on a Guildline Salinometer. The conductivity ratio was calculated using programs written for the Long Term Upper Ocean Study (LOTUS) on an Hewlett-Packard 85. The data were averaged to two decibars. The plots and the lists were averaged to arbitrary standard depths.

Figure VI-1	Positions of CTD Stations
Table VI-1	CTD Station Times and Positions
Figure VI-2	Preliminary plots showing Warm vs. Cold side of the Front.
Figure VI-3	Temperature, Salinity and Sigma Theta vs Depth Plots
Table VI-2	CTD Station Derived Variable Lists
Figure VI-4	CTD Section One Plot
Figure VI-5	CTD Section Two Plot

Phase Two - KNORR 123

12 CTD stations were taken on KNORR 123. Except for two, all stations were taken adjacent to a PCM or a Brink mooring. One station was taken in the central array area. One station was taken for intercomparison between the CTD and RTP.

Figure VI-6	Positions of CTD Stations
Table VI-3	CTD Stations Times and Positions
Figure VI-7	Temperature, Salinity and Sigma Theta vs Depth Plots
Table VI-4	CTD Station Derived Variable Lists

FASINEX Knorr 119 CTD Stations

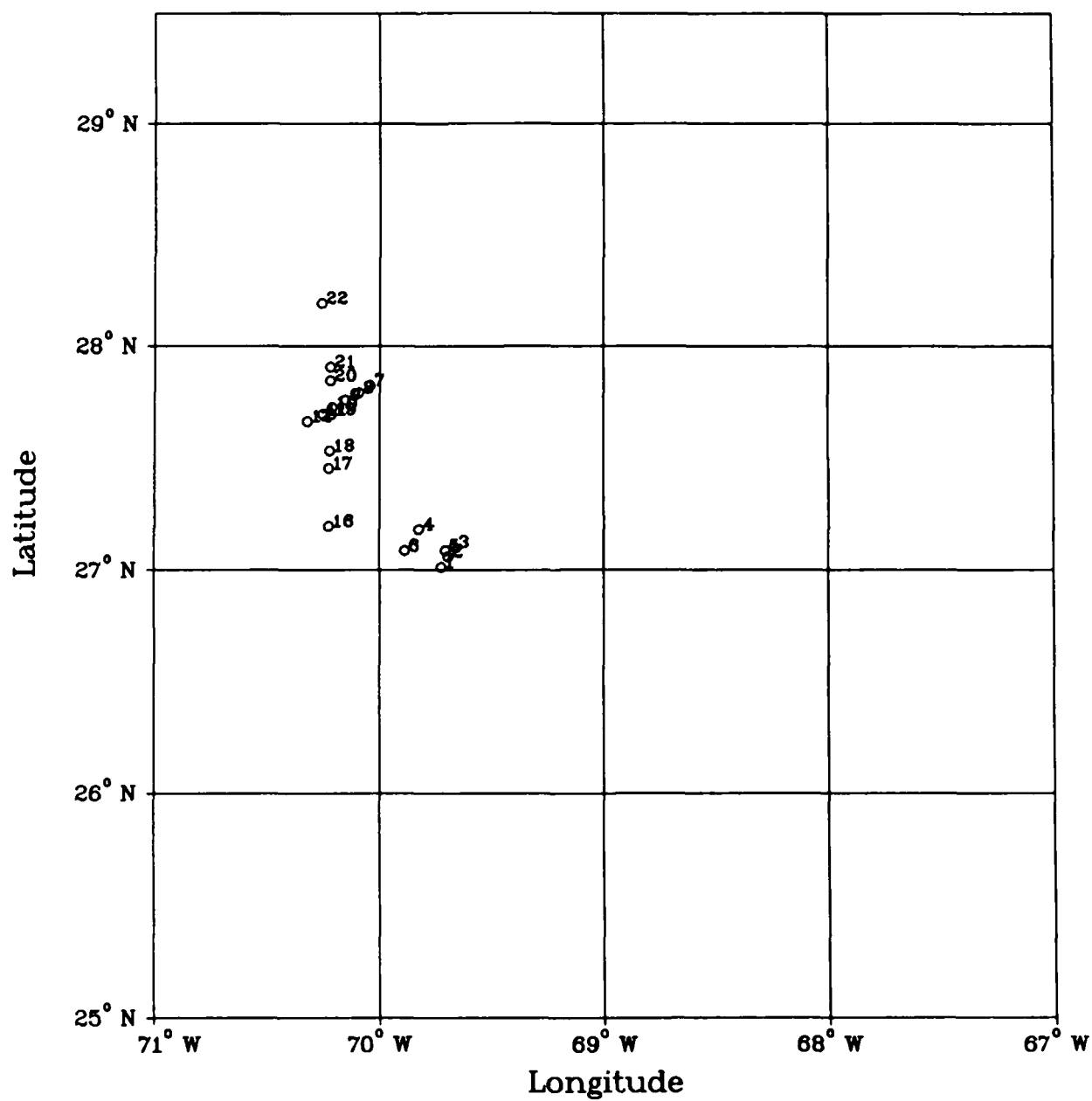


Figure VI-1

Table VI-1: KNORR 119 CTD Station Times and Positions

Station	(GMT) Time	1986	INTERNAV Positions		Comments
			Latitude	Longitude	
2	2342-0016	18 Jan	27°03.57'	69°41.74'	2 yoyos to 200 m F3
3	0344-0419	19 Jan	27°06.18'	69°39.87'	3 yoyos to 200 m F5
4	1957-2021	29 Jan	27°10.95'	69°49.47'	200 m by F7
5	2227-0130	29 Jan	27°05.24'	69°42.37'	5000 m by F3
6	0349-0419	30 Jan	27°05.20'	69°53.23'	200 m by F9
7	1313-1355	3 Feb	27°49.46'	70°02.63'	1000 m
8	1434-1515	3 Feb	27°47.44'	70°05.90'	1000 m
9	1554-1643	3 Feb	27°45.47'	70°09.10'	1000 m
10	1717-1802	3 Feb	27°43.49'	70°12.61'	1000 m
11	1847-1931	3 Feb	27°41.68'	70°15.19'	1000 m
12	0007-0056	4 Feb	27°39.74'	70°19.24'	1000 m
16	0551-0645	5 Feb	27°11.75'	70°13.60'	1000 m
17	1458-1540	5 Feb	27°27.19'	70°13.64'	1000 m
18	1645-1734	5 Feb	27°31.90'	70°13.34'	1000 m
19	1847-1930	5 Feb	27°41.67'	70°12.92'	1000 m
20	2301-2353	5 Feb	27°50.68'	70°13.26'	1000 m
21	0109-0151	6 Feb	27°54.38'	70°13.20'	1000 m
22	0305-0355	6 Feb	28°11.57'	70°15.50'	1000 m

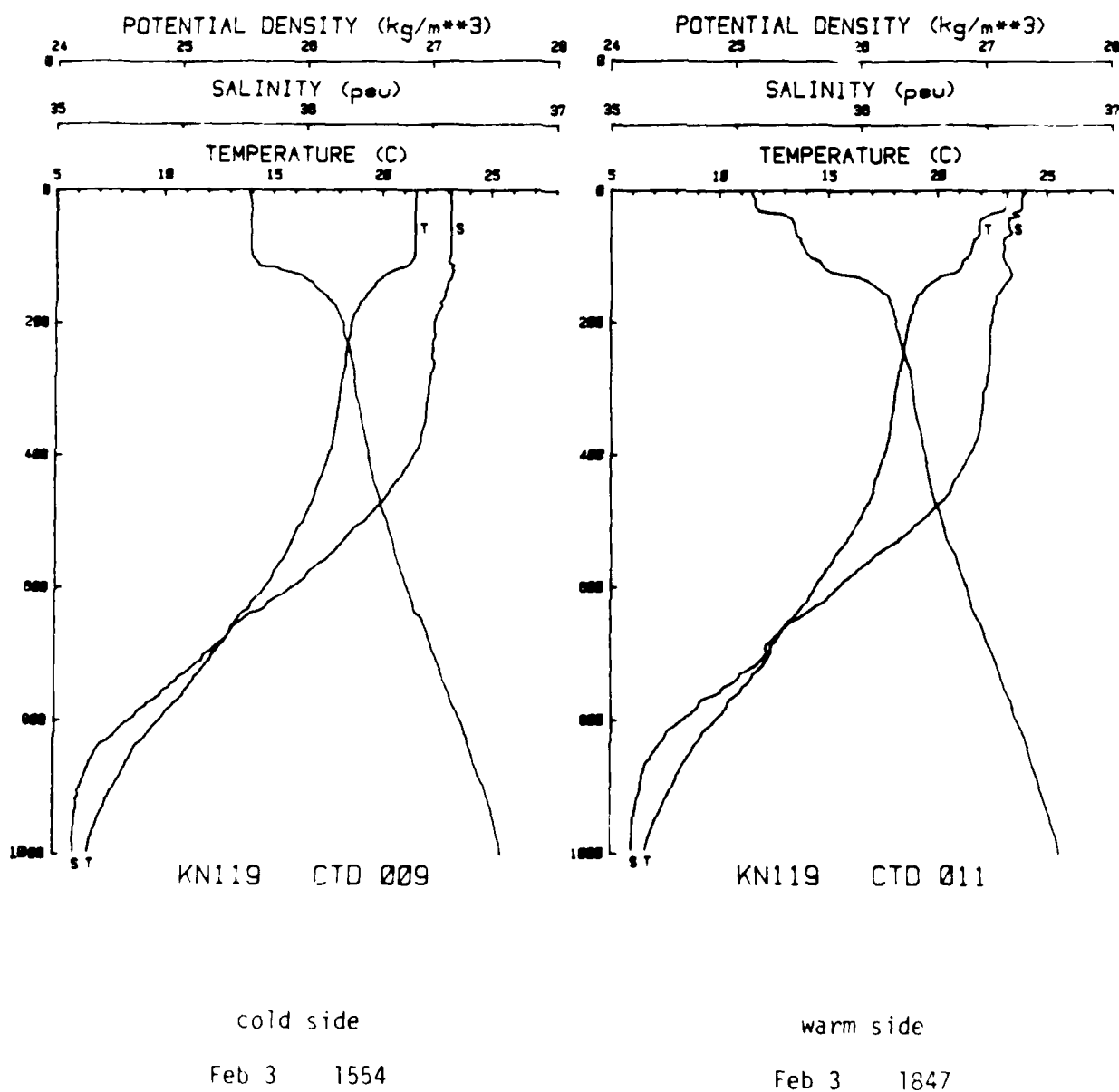


Figure VI-2. Preliminary Plots Showing Warm vs. Cold Side of the Front.

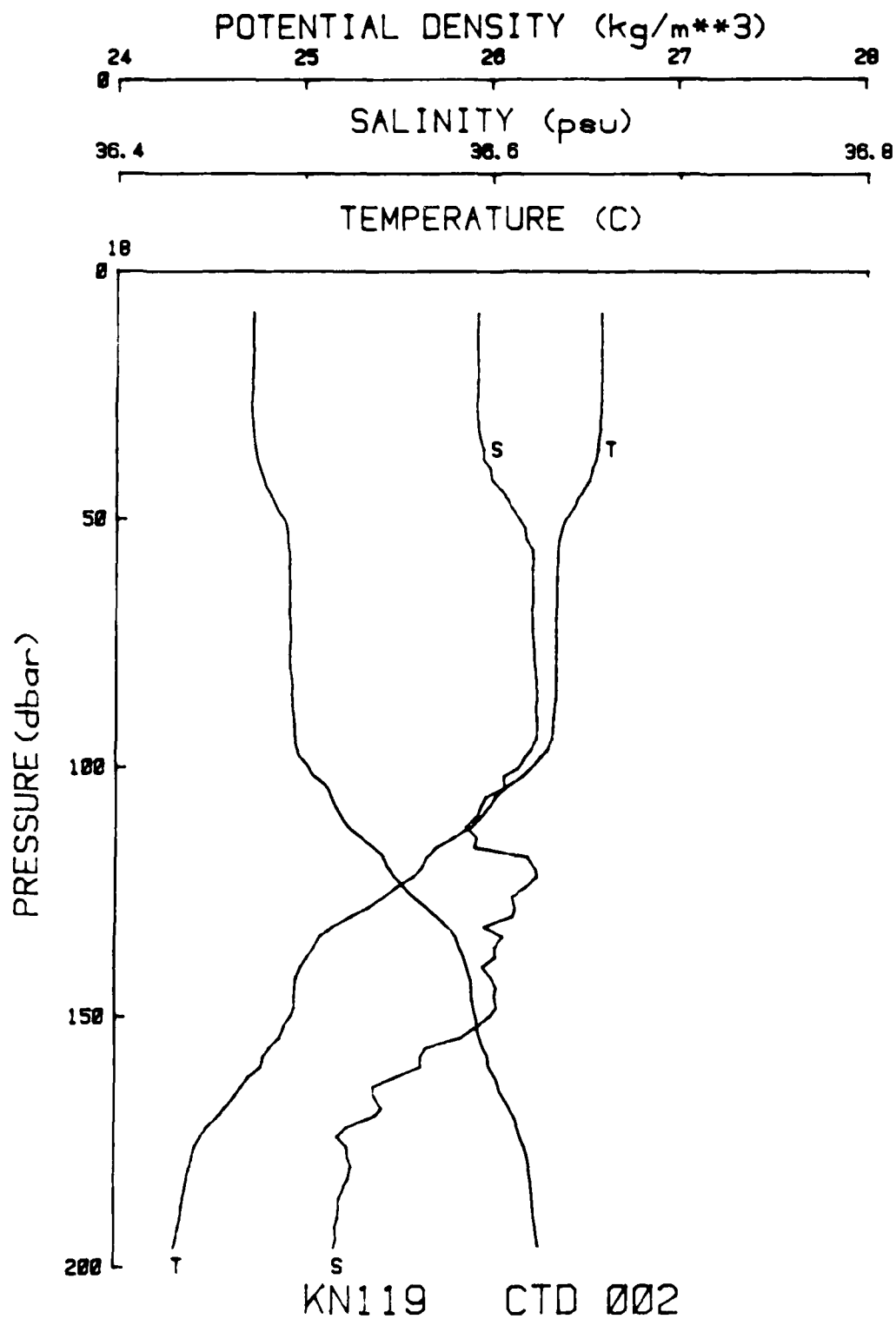


Figure VI-3a. CTD Station 2: Plot.
(KNORR 119)

KN119 CTD 002 1986 018 2342Z 27 03.57N 69 41.74W corrD: 5400m									
PRESS dbar	TEMP °C	SALIN psu	SIGMA-t kg/m ³	POTEMP °C	POTDEN kg/m ³	BR-V cph	DYNHGT dyn m	POTGRD m°C/db	SSPEED m/s
8.	24.447	36.592	24.732	24.446	24.715	0.00	0.0000	0.00	1534.9
12.	24.455	36.592	24.729	24.452	24.713	-1.99	.0111	-3.22	1535.0
16.	24.445	36.592	24.732	24.441	24.716	2.06	.0238	4.32	1535.0
22.	24.448	36.592	24.732	24.443	24.716	-.32	.0442	-.20	1535.1
26.	24.451	36.592	24.731	24.445	24.715	-1.13	.0569	-.99	1535.2
32.	24.438	36.593	24.735	24.431	24.720	-.68	.0754	-.78	1535.3
36.	24.399	36.595	24.749	24.392	24.734	2.85	.0885	6.46	1535.3
42.	24.289	36.600	24.785	24.280	24.771	4.05	.1084	16.39	1535.1
46.	24.128	36.608	24.840	24.118	24.826	6.49	.1209	39.60	1534.8
52.	23.929	36.617	24.906	23.919	24.892	5.42	.1384	27.01	1534.4
56.	23.870	36.621	24.927	23.858	24.913	3.93	.1514	12.21	1534.3
62.	23.862	36.622	24.929	23.849	24.916	1.18	.1688	1.38	1534.4
66.	23.857	36.622	24.931	23.843	24.918	1.00	.1812	1.01	1534.5
72.	23.850	36.622	24.933	23.835	24.920	.98	.2007	.99	1534.5
76.	23.847	36.622	24.934	23.831	24.922	1.29	.2131	1.25	1534.6
82.	23.846	36.623	24.935	23.828	24.924	1.27	.2311	1.02	1534.7
86.	23.840	36.624	24.937	23.822	24.926	1.65	.2432	2.62	1534.8
92.	23.800	36.624	24.949	23.781	24.938	2.15	.2606	4.77	1534.8
96.	23.738	36.621	24.965	23.718	24.955	4.39	.2747	23.58	1534.7
102.	23.395	36.606	25.055	23.374	25.045	7.29	.2911	68.69	1533.9
106.	23.041	36.596	25.151	23.019	25.141	6.67	.3030	63.57	1533.1
112.	22.715	36.586	25.238	22.692	25.228	7.01	.3201	60.48	1532.3
116.	22.252	36.590	25.373	22.228	25.364	10.32	.3312	119.03	1531.2
126.	21.561	36.610	25.583	21.536	25.574	8.40	.3564	89.63	1529.6
136.	20.635	36.601	25.830	20.609	25.822	5.01	.3803	33.68	1527.3
146.	20.369	36.601	25.902	20.342	25.894	1.98	.4014	5.87	1526.7
156.	20.046	36.565	25.960	20.017	25.953	5.86	.4235	66.91	1525.9
166.	19.596	36.537	26.058	19.566	26.051	6.34	.4432	47.22	1524.8
176.	19.064	36.523	26.186	19.032	26.179	6.24	.4631	40.06	1523.5
186.	18.909	36.519	26.222	18.876	26.216	2.73	.4827	12.46	1523.2
196.	18.789	36.516	26.251	18.754	26.245	3.43	.5006	16.58	1523.0

Table VI-2a. CTD Station 2: 119.
(KNORR 119)

DATA UNAVAILABLE
(OCTOBER 1986)

DATA UNAVAILABLE
(OCTOBER 1986)

Table VI-2b. CTD Station 3: List.
(KNORR 119)

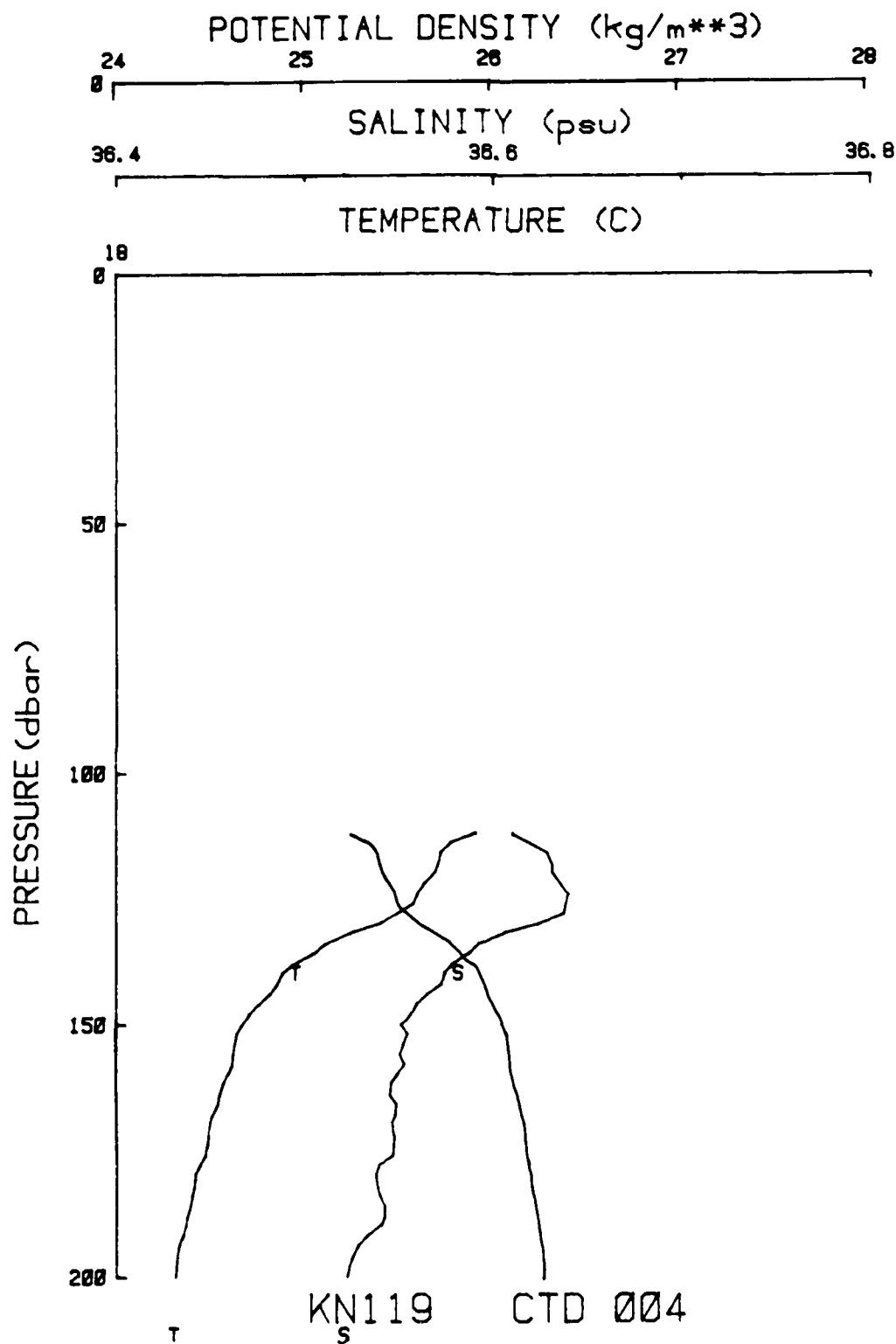


Figure VI-3c. CTD Station 4: Plot.
(KNORR 119)

KN119 CTD 004 1986 029 1957Z 27 10.95N 69 49.47W corrD: 5400m									
PRESS	TEMP	SALIN	SIGMA-t	POTEMP	POTDEN	BR-V	DYNHGT	POTGRD	SSPEED
dbar	°C	psu	kg/m**3	°C	kg/m**3	cph	dyn m	m°C/db	m/s
112.	22.730	36.609	25.250	22.707	25.241	0.00	0.0000	0.00	1532.4
116.	22.275	36.627	25.395	22.251	25.385	8.54	.0100	67.95	1531.3
120.	22.196	36.630	25.419	22.172	25.410	4.67	.0204	23.86	1531.2
126.	21.907	36.637	25.506	21.882	25.497	4.80	.0364	27.77	1530.5
130.	21.465	36.623	25.619	21.440	25.610	9.16	.0462	111.62	1529.4
136.	20.598	36.586	25.828	20.572	25.820	7.88	.0597	79.64	1527.1
140.	20.178	36.573	25.931	20.152	25.923	8.05	.0683	82.82	1526.0
146.	19.867	36.558	26.003	19.840	25.994	7.49	.0813	74.46	1525.3
150.	19.652	36.550	26.053	19.624	26.045	5.47	.0898	42.07	1524.7
156.	19.534	36.549	26.083	19.505	26.076	2.62	.1014	11.15	1524.5
160.	19.464	36.548	26.101	19.434	26.093	4.54	.1091	30.03	1524.4
166.	19.331	36.547	26.135	19.301	26.128	3.55	.1207	9.15	1524.1
170.	19.225	36.545	26.161	19.194	26.153	3.97	.1280	22.32	1523.9
176.	19.168	36.545	26.176	19.136	26.169	3.14	.1403	12.56	1523.8
180.	19.037	36.536	26.203	19.005	26.196	4.86	.1474	31.44	1523.5
186.	18.974	36.541	26.222	18.940	26.216	3.45	.1590	10.95	1523.4
190.	18.914	36.539	26.237	18.879	26.230	2.16	.1661	8.65	1523.3
196.	18.798	36.524	26.255	18.763	26.248	2.12	.1781	9.28	1523.1
200.	18.772	36.521	26.259	18.736	26.253	2.22	.1847	7.79	1523.1
206.	18.707	36.518	26.273	18.670	26.267	1.95	.1956	4.48	1523.0

Table VI-2c. CTD Station 4: List.
(KNORR 119)

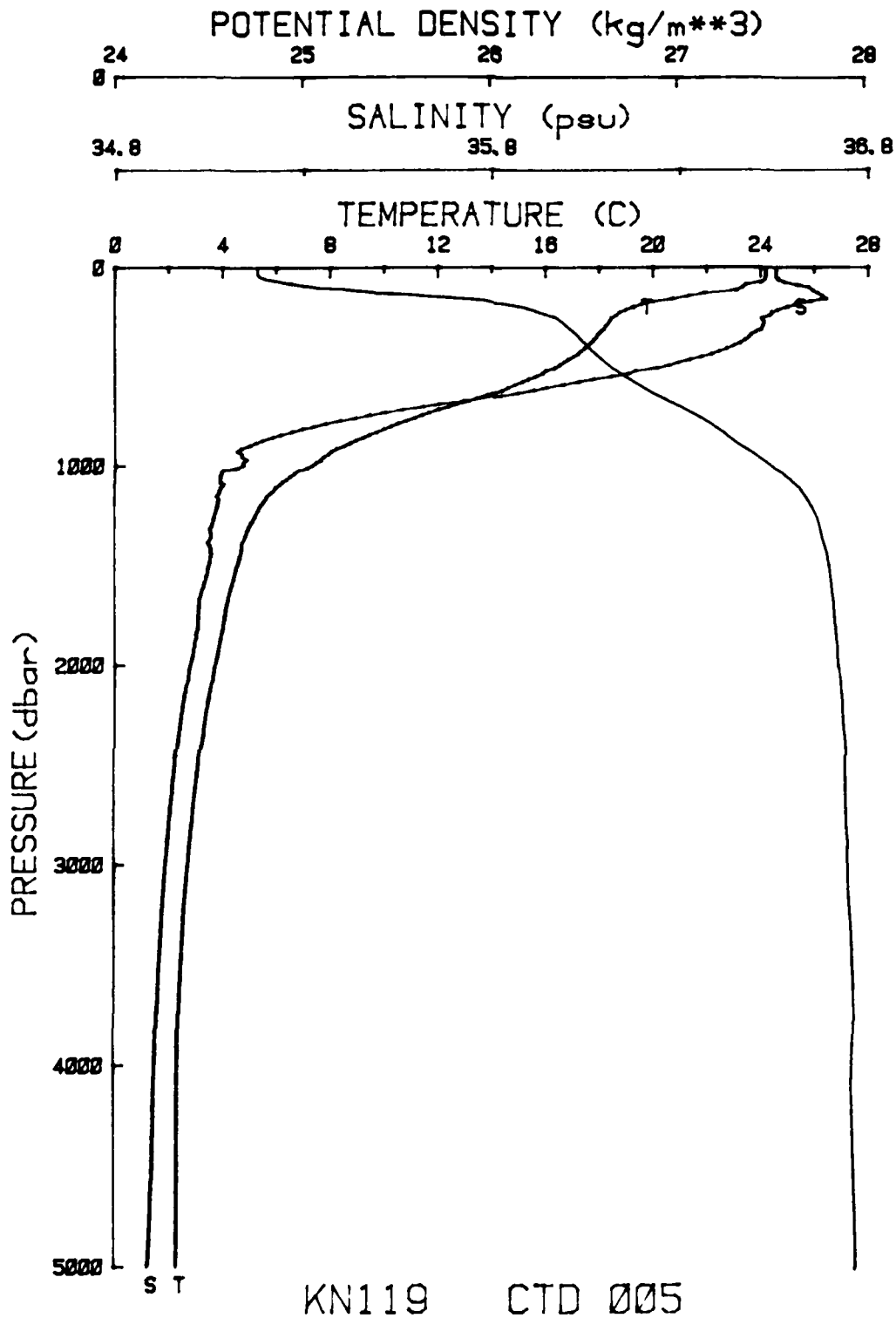


Figure VI-3d. CTD Station 5: Plot.
(KNORR 119)

KN119 CTD 005 1986 029 2227Z 27 05.24N 69 42.37W corrD: 5400m									
PRESS	TEMP	SALIN	SIGMA-t	POTEMP	POTDEN	BR-V	DYNHGT	POTGRD	SSPEED
dbar	°C	psu	kg/m**3	°C	kg/m**3	cph	dyn m	m°C/db	m/s
2.	24.184	36.556	24.784	24.184	24.767	0.00	0.0000	0.00	1534.1
6.	24.197	36.555	24.779	24.196	24.762	-1.20	.0128	-.89	1534.2
10.	24.195	36.556	24.780	24.193	24.764	-.86	.0253	-1.07	1534.3
16.	24.198	36.555	24.779	24.194	24.763	.91	.0443	.36	1534.4
20.	24.200	36.555	24.778	24.196	24.763	-1.56	.0571	-2.13	1534.5
26.	24.193	36.556	24.781	24.188	24.765	.95	.0764	.57	1534.5
30.	24.200	36.555	24.778	24.194	24.763	-.85	.0886	-.22	1534.6
36.	24.197	36.555	24.779	24.189	24.764	.58	.1090	.60	1534.7
50.	24.183	36.556	24.784	24.172	24.770	1.75	.1523	2.27	1534.9
66.	24.110	36.569	24.816	24.096	24.803	2.24	.2033	3.36	1535.0
76.	23.966	36.586	24.871	23.950	24.859	5.76	.2346	26.41	1534.9
100.	23.323	36.644	25.105	23.302	25.095	3.03	.3066	8.10	1533.7
126.	22.077	36.657	25.473	22.052	25.464	10.40	.3782	121.24	1531.0
150.	20.851	36.657	25.814	20.823	25.806	3.92	.4372	29.04	1528.1
200.	19.235	36.584	26.188	19.199	26.183	3.71	.5390	18.52	1524.4
250.	18.470	36.517	26.333	18.426	26.329	2.93	.6305	15.22	1523.0
300.	18.191	36.516	26.402	18.138	26.400	2.70	.7179	8.50	1523.0
350.	17.882	36.482	26.453	17.822	26.453	1.70	.8041	4.77	1522.9
400.	17.516	36.438	26.509	17.447	26.511	1.81	.8877	6.06	1522.6
450.	17.018	36.356	26.567	16.943	26.570	1.37	.9695	4.24	1521.9
500.	16.397	36.250	26.634	16.315	26.637	3.19	1.0492	20.88	1520.7
550.	15.616	36.115	26.710	15.528	26.714	.76	1.1263	5.56	1519.0
600.	14.718	35.970	26.799	14.626	26.803	2.25	1.1995	20.84	1516.8
650.	13.704	35.811	26.893	13.609	26.897	3.28	1.2691	29.92	1514.2
700.	12.434	35.624	27.007	12.339	27.009	2.41	1.3338	15.70	1510.6
750.	11.245	35.456	27.104	11.149	27.104	3.02	1.3931	26.74	1507.2
800.	10.237	35.329	27.186	10.140	27.185	2.17	1.4484	16.53	1504.3
900.	8.445	35.153	27.345	8.347	27.341	3.57	1.5472	29.96	1499.2
1000.	7.303	35.139	27.506	7.201	27.500	1.61	1.6295	6.10	1496.5
1100.	6.011	35.082	27.637	5.909	27.630	.90	1.6979	3.92	1493.0
1200.	5.407	35.072	27.705	5.300	27.697	1.63	1.7561	5.26	1492.3
1300.	4.996	35.056	27.741	4.884	27.733	1.09	1.8094	3.89	1492.2
1400.	4.705	35.049	27.770	4.586	27.762	1.12	1.8598	.56	1492.7
1500.	4.528	35.049	27.790	4.402	27.782	1.16	1.9085	5.41	1493.6
1600.	4.329	35.036	27.801	4.196	27.794	.71	1.9560	1.60	1494.5
1800.	4.017	35.020	27.822	3.868	27.816	1.12	2.0489	1.95	1496.5
2000.	3.699	34.999	27.838	3.536	27.833	1.44	2.1397	4.01	1498.5
2200.	3.414	34.979	27.850	3.236	27.846	1.03	2.2283	1.66	1500.6
2400.	3.196	34.965	27.860	3.002	27.857	-.11	2.3151	.38	1503.1
2500.	3.082	34.959	27.866	2.881	27.863	.70	2.3581	1.89	1504.3
2600.	2.998	34.954	27.870	2.788	27.868	.81	2.4006	.88	1505.6
2800.	2.841	34.943	27.876	2.614	27.875	-.47	2.4852	.73	1508.3
3000.	2.696	34.934	27.881	2.452	27.881	-.64	2.5691	.17	1511.1
3200.	2.573	34.926	27.886	2.311	27.887	.70	2.6525	.81	1514.0
3400.	2.483	34.920	27.889	2.202	27.891	.22	2.7357	.18	1517.0
3600.	2.405	34.914	27.891	2.104	27.895	.21	2.8192	.43	1520.1
3800.	2.353	34.910	27.892	2.032	27.897	.78	2.9033	1.36	1523.3
4000.	2.328	34.906	27.891	1.985	27.898	.45	2.9886	.09	1526.6
4200.	2.313	34.903	27.890	1.947	27.899	-.63	3.0752	.21	1530.0
4400.	2.305	34.901	27.889	1.916	27.899	.68	3.1638	.16	1533.4
4600.	2.302	34.897	27.886	1.888	27.898	.86	3.2543	.22	1536.9
4800.	2.294	34.893	27.884	*1.857	27.898	.27	3.3469	.31	1540.3
5000.	2.276	34.888	27.881	1.814	27.896	.42	3.4413	.16	1543.7

Table VI-2d. CTD Station 5: List.
(KNORR 119)

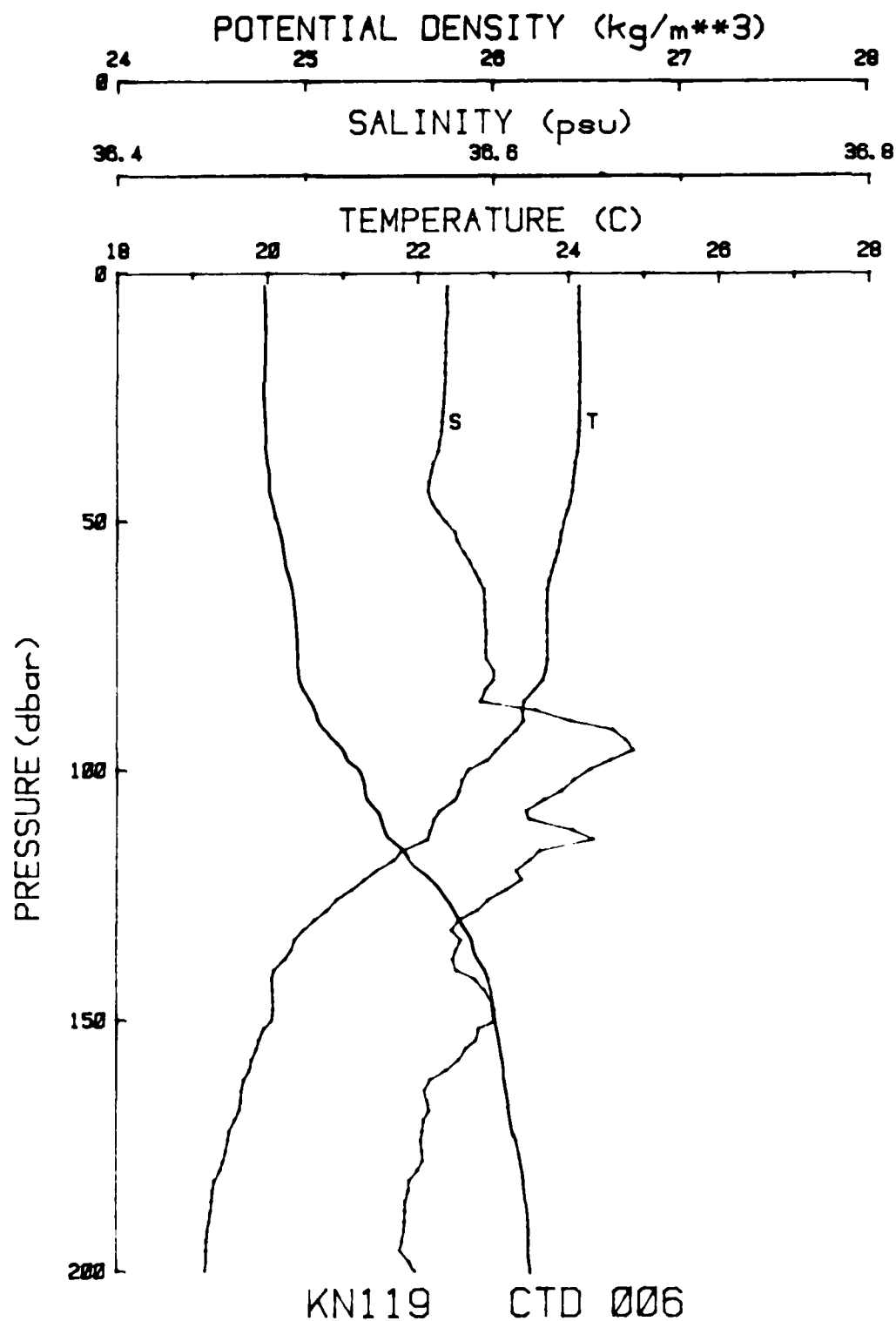


Figure VI-3e. CTD Station 6: Plot.
(KNORR 119)

KN119	CTD 006	1986 030 0349Z	27 05.20N	69 53.23W	corrD: 5400m				
PRESS	TEMP	SALIN	SIGMA-t	POTEMP	POTDEN	BR-V	DYNHGT	POTGRD	SSPEED
dbar	°C	psu	kg/m ³	°C	kg/m ³	cph	dyn m	m°C/db	m/s
3.	24.135	36.575	24.813	24.135	24.796	0.00	0.0000	0.00	1534.0
6.	24.136	36.575	24.813	24.134	24.796	.78	.0105	.13	1534.1
10.	24.132	36.575	24.814	24.130	24.797	-.16	.0232	.57	1534.2
16.	24.143	36.574	24.810	24.140	24.794	-.64	.0419	-.40	1534.3
20.	24.145	36.574	24.809	24.140	24.793	-.62	.0544	-.47	1534.3
26.	24.144	36.574	24.809	24.139	24.794	.57	.0738	.84	1534.4
30.	24.140	36.573	24.810	24.133	24.794	-.87	.0862	-.38	1534.5
36.	24.116	36.571	24.815	24.108	24.800	1.43	.1047	3.08	1534.5
40.	24.070	36.567	24.826	24.061	24.812	2.37	.1174	7.30	1534.5
46.	24.009	36.567	24.844	23.999	24.830	3.83	.1378	13.19	1534.4
50.	23.929	36.574	24.874	23.918	24.860	4.91	.1494	20.66	1534.3
56.	23.844	36.584	24.906	23.832	24.893	4.17	.1683	14.43	1534.2
60.	23.771	36.590	24.932	23.758	24.919	4.40	.1802	16.95	1534.1
66.	23.704	36.595	24.956	23.690	24.943	1.75	.1989	2.98	1534.1
70.	23.704	36.595	24.956	23.689	24.944	-.16	.2101	-.01	1534.1
76.	23.702	36.596	24.957	23.686	24.945	.27	.2288	.24	1534.2
80.	23.681	36.600	24.966	23.664	24.954	3.52	.2407	8.89	1534.2
86.	23.389	36.592	25.047	23.371	25.035	7.35	.2594	61.17	1533.6
90.	23.382	36.640	25.084	23.363	25.073	3.92	.2707	-5.19	1533.7
96.	23.017	36.674	25.217	22.997	25.206	7.89	.2878	62.33	1532.9
100.	22.651	36.651	25.305	22.631	25.295	10.61	.2982	138.59	1532.0
106.	22.480	36.626	25.336	22.458	25.325	3.65	.3145	28.52	1531.7
110.	22.197	36.618	25.410	22.175	25.400	6.64	.3248	46.92	1531.0
120.	21.432	36.611	25.619	21.408	25.610	9.33	.3510	107.87	1529.1
130.	20.610	36.581	25.821	20.586	25.812	7.87	.3737	86.28	1527.1
140.	20.076	36.579	25.963	20.050	25.955	7.78	.3955	68.71	1525.8
150.	20.043	36.600	25.988	20.015	25.980	3.04	.4166	10.26	1525.9
160.	19.750	36.574	26.046	19.721	26.038	2.14	.4367	14.44	1525.2
170.	19.566	36.562	26.085	19.535	26.078	4.59	.4566	30.06	1524.8
180.	19.370	36.559	26.134	19.337	26.127	3.56	.4763	19.35	1524.5
190.	19.221	36.552	26.167	19.186	26.161	2.86	.4959	10.20	1524.2
200.	19.163	36.55	26.186	19.127	26.180	3.57	.5146	11.20	1524.2

Table VI-2e. CTD Station 6: List.
(KNORR 119)

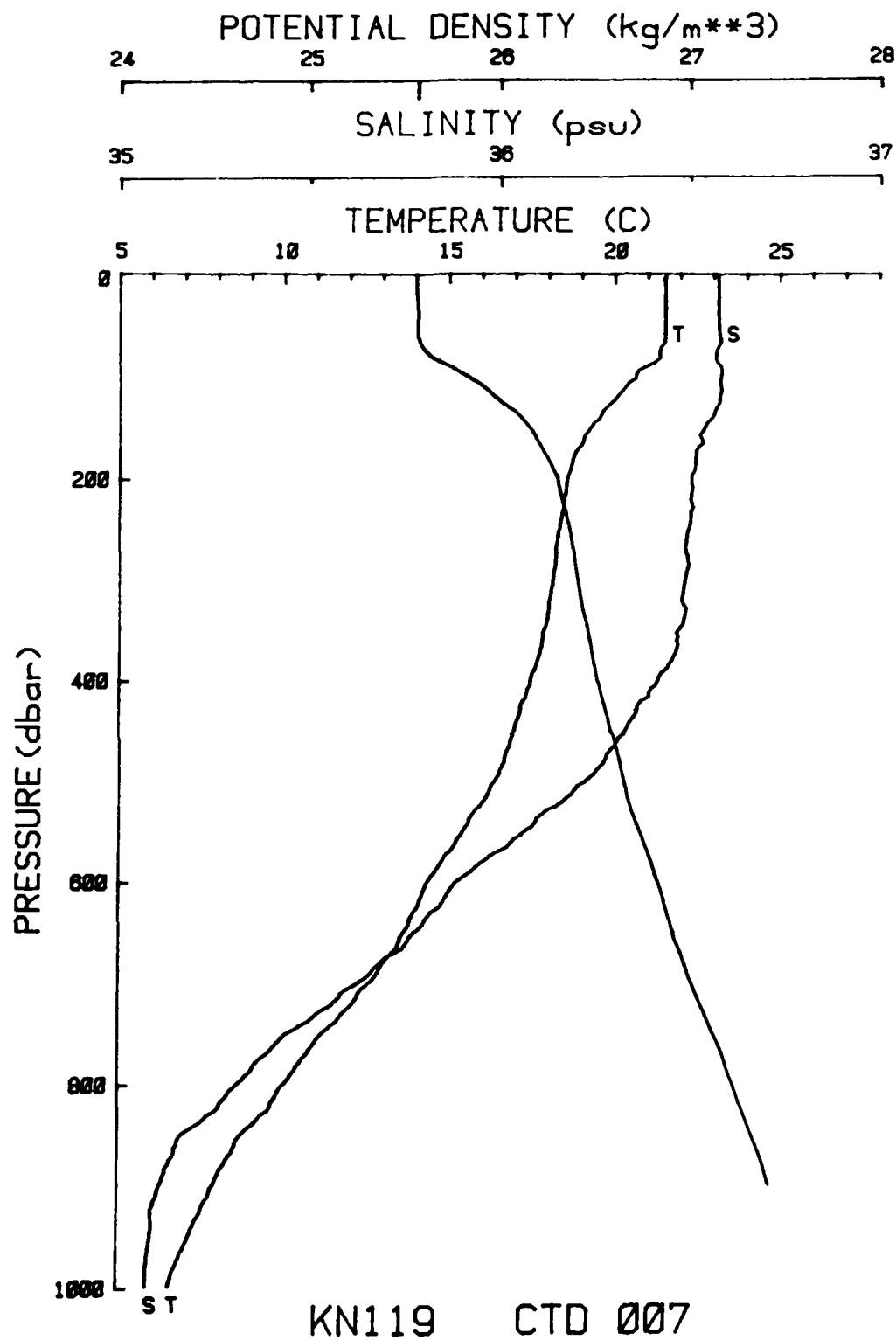


Figure VI-3f. CTD Station 7: Plot.
(KNORR 119)

KN119 CTD 007 1986 084 1313Z 27 49.46N 70 02.63W corrD: 5400m									
PRESS	TEMP	SALIN	SIGMA-t	POTEMP	POTDEN	BR-V	DYNHGT	POTGRD	SSPEED
dbar	°C	psu	kg/m ³	°C	kg/m ³	cph	dyn m	m ² /db	m/s
2.	21.459	36.572	25.581	21.459	25.566	0.00	0.0000	0.00	1527.2
6.	21.462	36.571	25.580	21.461	25.565	.23	.0088	-.06	1527.3
10.	21.461	36.571	25.581	21.459	25.565	.24	.0182	.06	1527.3
16.	21.462	36.572	25.581	21.459	25.566	.42	.0330	-.14	1527.4
20.	21.463	36.572	25.581	21.459	25.566	-.32	.0426	-.08	1527.5
26.	21.465	36.572	25.580	21.459	25.566	-.35	.0572	-.05	1527.6
30.	21.464	36.571	25.580	21.458	25.565	-.75	.0667	.43	1527.7
36.	21.465	36.572	25.580	21.458	25.566	.70	.0816	-.09	1527.8
40.	21.464	36.572	25.581	21.456	25.567	.78	.0912	.30	1527.8
46.	21.464	36.573	25.581	21.455	25.567	1.06	.1058	.35	1527.9
50.	21.465	36.573	25.581	21.456	25.568	.70	.1156	-.19	1528.0
56.	21.458	36.575	25.584	21.447	25.571	1.90	.1298	2.54	1528.1
60.	21.455	36.576	25.586	21.443	25.573	1.37	.1397	.69	1528.2
66.	21.430	36.578	25.594	21.417	25.582	3.07	.1541	10.39	1528.2
70.	21.345	36.572	25.613	21.332	25.601	3.90	.1636	22.82	1528.0
76.	21.290	36.565	25.623	21.276	25.611	-.98	.1782	2.35	1528.0
80.	21.285	36.566	25.625	21.269	25.614	.40	.1882	.18	1528.0
86.	21.127	36.569	25.671	21.110	25.660	6.14	.2024	41.42	1527.7
90.	20.840	36.577	25.756	20.823	25.745	9.38	.2115	90.03	1527.0
96.	20.588	36.578	25.825	20.570	25.815	3.61	.2248	16.55	1526.4
100.	20.545	36.578	25.837	20.526	25.826	2.38	.2336	6.21	1526.4
106.	20.335	36.574	25.891	20.315	25.880	8.18	.2466	73.55	1525.9
110.	20.237	36.578	25.919	20.216	25.909	5.01	.2552	26.92	1525.7
120.	19.962	36.576	25.991	19.939	25.982	4.49	.2763	22.84	1525.1
130.	19.664	36.567	26.063	19.640	26.054	4.76	.2969	30.45	1524.5
140.	19.479	36.556	26.104	19.453	26.095	2.38	.3161	11.18	1524.1
150.	19.198	36.536	26.161	19.171	26.153	3.60	.3356	18.23	1523.4
160.	18.992	36.523	26.204	18.964	26.196	3.00	.3549	8.75	1523.0
170.	18.841	36.518	26.239	18.811	26.232	2.75	.3734	18.70	1522.7
180.	18.674	36.511	26.276	18.642	26.269	2.02	.3917	6.10	1522.4
190.	18.595	36.509	26.295	18.561	26.289	2.40	.4094	7.32	1522.4
200.	18.495	36.500	26.314	18.459	26.307	2.19	.4274	5.96	1522.2
220.	18.405	36.498	26.334	18.366	26.329	1.57	.4628	5.08	1522.3
240.	18.313	36.498	26.358	18.271	26.353	2.06	.4985	4.45	1522.4
260.	18.208	36.488	26.376	18.163	26.373	1.23	.5333	2.29	1522.4
280.	18.131	36.488	26.396	18.082	26.393	1.61	.5680	3.97	1522.5
300.	18.065	36.484	26.409	18.013	26.407	.94	.6026	1.92	1522.6
320.	17.955	36.475	26.429	17.900	26.428	1.65	.6367	4.67	1522.6
340.	17.887	36.480	26.450	17.828	26.450	1.43	.6710	4.23	1522.8
360.	17.733	36.461	26.474	17.671	26.474	1.95	.7049	8.39	1522.6
380.	17.606	36.447	26.496	17.541	26.497	1.75	.7380	8.76	1522.6
400.	17.374	36.409	26.522	17.306	26.524	1.62	.7716	8.49	1522.2
450.	16.895	36.326	26.574	16.820	26.577	1.64	.8530	7.75	1521.5
500.	16.293	36.221	26.635	16.212	26.639	1.81	.9327	14.88	1520.4
550.	15.328	36.061	26.734	15.242	26.737	2.71	1.0088	26.53	1518.0
600.	14.289	35.886	26.827	14.199	26.831	1.56	1.0802	12.77	1515.4
650.	13.530	35.770	26.898	13.436	26.901	3.36	1.1496	28.04	1513.6
700.	12.509	35.623	26.991	12.413	26.993	3.41	1.2145	32.43	1510.9
750.	11.092	35.436	27.116	10.996	27.116	2.42	1.2739	28.40	1506.6
800.	9.940	35.306	27.220	9.844	27.218	3.14	1.3277	31.47	1503.2
850.	8.633	35.161	27.322	8.539	27.318	1.18	1.3767	12.77	1499.0
900.	7.794	35.108	27.410	7.700	27.404	3.85	1.4209	33.15	1496.7
950.	7.120	35.086	27.490	7.025	27.483	2.09	1.4607	9.06	1494.9

Table VI-1. CTD Station 7: List.
(ENORP 110)

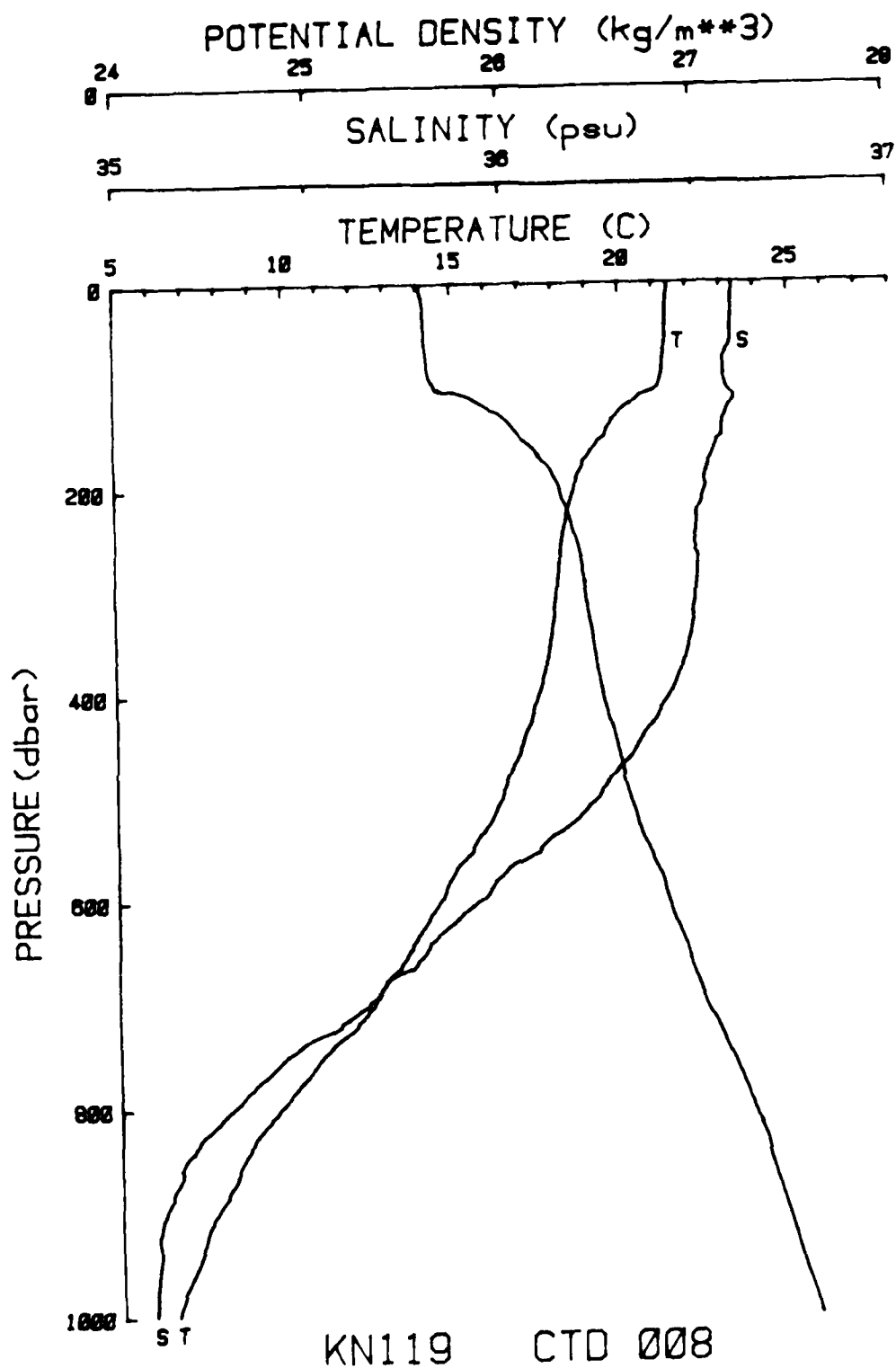


Figure VI-3g. CTD Station 8: Plot.
(KNORR 119)

KN119	CTD 008	1986 034 1434Z				27 47.44N 70 05.90W		corrD: 5400m	
PRESS dbar	TEMP °C	SALIN psu	SIGMA-t kg/m³	POTEMP °C	POTDEN kg/m³	BR-V cph	DYNHGT dyn m	POTGRD m°C/db	SSPEED m/s
3.	21.443	36.597	25.605	21.443	25.590	0.00	0.0000	0.00	1527.2
6.	21.446	36.597	25.604	21.445	25.589	-.56	.0076	-.83	1527.3
10.	21.432	36.596	25.607	21.430	25.592	2.60	.0169	9.37	1527.3
16.	21.403	36.595	25.615	21.400	25.600	1.50	.0315	2.63	1527.3
20.	21.400	36.595	25.616	21.396	25.601	1.00	.0409	1.07	1527.4
26.	21.389	36.595	25.619	21.383	25.604	.96	.0556	.93	1527.4
30.	21.383	36.594	25.620	21.377	25.606	1.17	.0650	1.87	1527.5
36.	21.379	36.593	25.620	21.372	25.606	.55	.0793	.67	1527.6
40.	21.372	36.592	25.621	21.365	25.607	.79	.0889	2.31	1527.6
46.	21.370	36.592	25.621	21.361	25.608	.35	.1031	.24	1527.7
50.	21.370	36.592	25.621	21.360	25.608	.69	.1130	.51	1527.8
56.	21.370	36.592	25.621	21.359	25.608	.34	.1272	.20	1527.9
60.	21.370	36.592	25.622	21.358	25.609	.68	.1361	.36	1527.9
66.	21.324	36.582	25.627	21.311	25.614	1.28	.1511	4.91	1527.9
70.	21.311	36.577	25.626	21.298	25.614	.49	.1603	5.03	1527.9
76.	21.277	36.573	25.633	21.262	25.621	2.78	.1743	4.77	1527.9
80.	21.267	36.572	25.635	21.252	25.623	1.31	.1847	2.05	1528.0
86.	21.257	36.573	25.638	21.240	25.627	2.02	.1991	3.79	1528.1
90.	21.242	36.572	25.642	21.224	25.631	1.72	.2080	3.78	1528.1
96.	21.185	36.575	25.660	21.166	25.649	3.19	.2230	9.47	1528.0
100.	21.150	36.579	25.672	21.131	25.662	3.72	.2319	12.28	1528.0
106.	20.987	36.585	25.721	20.967	25.711	7.04	.2456	52.77	1527.7
110.	20.580	36.599	25.843	20.559	25.833	9.20	.2552	93.81	1526.7
120.	20.205	36.589	25.937	20.182	25.927	5.75	.2770	42.13	1525.8
130.	19.895	36.576	26.009	19.871	26.000	4.55	.2976	27.46	1525.1
140.	19.655	36.567	26.065	19.630	26.057	4.19	.3177	21.55	1524.6
150.	19.520	36.566	26.100	19.493	26.092	3.91	.3378	17.56	1524.4
160.	19.218	36.548	26.165	19.189	26.157	3.87	.3572	22.21	1523.7
170.	19.013	36.539	26.211	18.983	26.204	4.13	.3761	26.42	1523.3
180.	18.844	36.530	26.248	18.811	26.241	3.22	.3946	15.34	1522.9
190.	18.677	36.519	26.282	18.643	26.275	2.41	.4125	7.25	1522.6
200.	18.611	36.521	26.300	18.575	26.294	1.43	.4304	3.97	1522.6
220.	18.401	36.501	26.338	18.362	26.333	2.41	.4664	15.57	1522.3
240.	18.279	36.496	26.365	18.237	26.360	2.59	.5014	7.55	1522.3
260.	18.168	36.494	26.391	18.123	26.387	1.52	.5361	1.62	1522.3
280.	18.117	36.498	26.407	18.068	26.404	.85	.5703	1.14	1522.5
300.	18.051	36.493	26.420	17.999	26.418	1.04	.6050	1.86	1522.6
320.	17.981	36.487	26.433	17.925	26.432	1.25	.6392	2.13	1522.7
340.	17.893	36.480	26.449	17.834	26.449	1.27	.6735	3.32	1522.8
360.	17.791	36.467	26.465	17.728	26.465	1.73	.7071	6.64	1522.8
380.	17.644	36.448	26.486	17.579	26.487	1.96	.7408	8.61	1522.7
400.	17.478	36.424	26.508	17.410	26.509	2.67	.7743	15.15	1522.5
450.	16.940	36.336	26.571	16.865	26.574	2.05	.8561	10.81	1521.6
500.	16.368	36.238	26.631	16.286	26.635	1.37	.9358	5.22	1520.6
550.	15.460	36.083	26.721	15.373	26.725	3.38	1.0122	25.68	1518.5
600.	14.505	35.931	26.815	14.414	26.819	3.24	1.0847	31.79	1516.1
650.	13.515	35.784	26.912	13.421	26.915	3.68	1.1534	27.73	1513.6
700.	12.477	35.636	27.008	12.380	27.010	2.56	1.2174	14.97	1510.8
750.	10.941	35.425	27.136	10.846	27.135	4.66	1.2763	55.40	1506.1
800.	9.690	35.283	27.245	9.596	27.242	3.22	1.3293	32.02	1502.3
850.	8.571	35.161	27.332	8.477	27.327	2.31	1.3767	19.75	1498.8
900.	7.785	35.110	27.412	7.692	27.406	2.15	1.4204	11.68	1496.6
950.	7.169	35.091	27.487	7.074	27.480	1.43	1.4602	7.50	1495.1

Table VI-2g. CTD Station 8: List.
(FNORR 119)

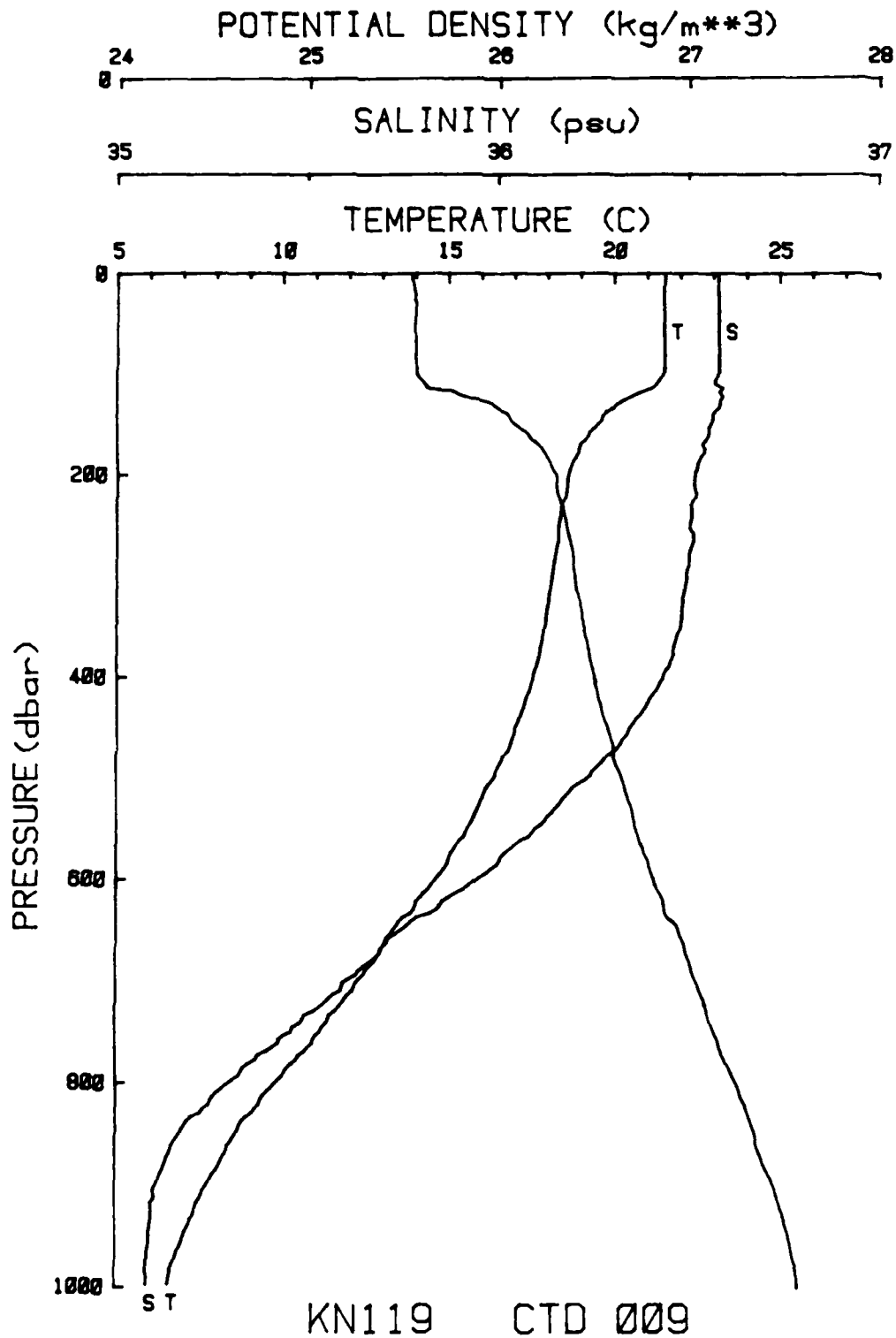


Figure VI-3h. CTD Station 9: Plot.
(KNORR 119)

KN119 CTD 009 1986 034 1554Z 27 45.47N 70 09.10W corrD: 5400m									
PRESS	TEMP	SALIN	SIGMA-t	POTEMP	POTDEN	BR-V	DYNHGT	POTGRD	SSPEED
dbar	°C	psu	kg/m**3	°C	kg/m**3	cph	dyn m	m°C/db	m/s
2.	21.521	36.576	25.567	21.521	25.552	0.00	0.0000	0.00	1527.4
6.	21.529	36.577	25.566	21.528	25.551	-1.64	.0090	-3.25	1527.5
10.	21.518	36.576	25.568	21.516	25.553	1.36	.0190	4.13	1527.5
16.	21.484	36.577	25.578	21.481	25.563	1.37	.0328	1.45	1527.5
20.	21.483	36.577	25.578	21.479	25.564	.73	.0430	.35	1527.6
26.	21.483	36.577	25.579	21.478	25.564	.63	.0571	.20	1527.7
30.	21.483	36.577	25.579	21.477	25.564	.91	.0675	.43	1527.7
36.	21.484	36.577	25.579	21.477	25.565	.55	.0817	.16	1527.8
40.	21.483	36.577	25.579	21.475	25.565	-.31	.0910	-.08	1527.9
46.	21.483	36.577	25.579	21.474	25.565	-.08	.1059	.26	1528.0
50.	21.484	36.577	25.578	21.474	25.565	-.57	.1151	-.55	1528.1
56.	21.483	36.577	25.578	21.472	25.566	-.17	.1300	.31	1528.2
60.	21.483	36.577	25.579	21.472	25.566	.71	.1404	.25	1528.2
66.	21.485	36.577	25.578	21.472	25.566	.58	.1548	-.03	1528.3
70.	21.485	36.577	25.578	21.472	25.566	-.44	.1643	-.09	1528.4
76.	21.485	36.577	25.578	21.470	25.567	.73	.1793	.32	1528.5
80.	21.485	36.577	25.578	21.469	25.567	-.33	.1885	.21	1528.6
86.	21.482	36.576	25.579	21.465	25.568	1.01	.2034	1.62	1528.7
90.	21.476	36.576	25.580	21.459	25.569	1.23	.2130	1.79	1528.7
96.	21.472	36.576	25.581	21.453	25.570	.61	.2281	.26	1528.8
100.	21.459	36.574	25.584	21.439	25.573	1.98	.2373	5.45	1528.8
106.	21.334	36.568	25.614	21.313	25.604	3.56	.2525	17.78	1528.6
110.	21.259	36.568	25.634	21.238	25.624	3.33	.2617	12.50	1528.5
120.	20.671	36.578	25.802	20.649	25.793	5.98	.2851	43.38	1527.1
130.	20.034	36.579	25.974	20.010	25.965	6.16	.3067	42.90	1525.5
140.	19.665	36.561	26.058	19.639	26.050	4.51	.3271	27.07	1524.6
150.	19.497	36.556	26.098	19.469	26.090	4.35	.3469	25.32	1524.3
160.	19.196	36.550	26.172	19.167	26.164	3.28	.3666	14.64	1523.6
170.	18.953	36.533	26.221	18.923	26.214	4.74	.3850	32.24	1523.1
180.	18.836	36.532	26.251	18.804	26.244	3.51	.4038	22.97	1522.9
190.	18.681	36.520	26.281	18.647	26.275	3.03	.4218	12.08	1522.6
200.	18.584	36.513	26.300	18.549	26.294	1.89	.4392	6.48	1522.5
220.	18.504	36.515	26.323	18.465	26.318	2.19	.4758	6.60	1522.6
240.	18.359	36.505	26.351	18.317	26.347	1.39	.5111	2.64	1522.5
260.	18.292	36.509	26.371	18.247	26.368	1.25	.5462	2.06	1522.7
280.	18.192	36.499	26.389	18.143	26.386	1.54	.5809	-.26	1522.7
300.	18.094	36.491	26.408	18.042	26.406	2.27	.6156	4.01	1522.7
320.	17.994	36.481	26.424	17.939	26.423	2.05	.6500	8.66	1522.8
340.	17.911	36.478	26.443	17.852	26.442	1.49	.6844	3.05	1522.8
360.	17.805	36.464	26.459	17.742	26.459	1.63	.7184	6.07	1522.9
380.	17.696	36.455	26.478	17.631	26.479	1.07	.7520	2.66	1522.9
400.	17.518	36.428	26.502	17.449	26.503	1.56	.7856	6.43	1522.6
450.	16.956	36.339	26.569	16.881	26.572	1.70	.8688	10.11	1521.7
500.	16.356	36.234	26.631	16.274	26.635	1.66	.9476	11.73	1520.6
550.	15.528	36.092	26.712	15.441	26.716	2.72	1.0244	25.20	1518.7
600.	14.575	35.938	26.806	14.484	26.809	2.35	1.0978	19.98	1516.4
650.	13.286	35.743	26.927	13.193	26.930	3.18	1.1661	24.08	1512.8
700.	12.209	35.597	27.030	12.115	27.031	3.14	1.2296	34.01	1509.8
751.	11.118	35.456	27.128	11.022	27.128	1.44	1.2883	7.07	1506.7
800.	9.793	35.297	27.238	9.698	27.236	3.21	1.3409	28.82	1502.6
850.	8.580	35.166	27.334	8.487	27.330	2.88	1.3887	18.22	1498.9
899.	7.749	35.106	27.414	7.655	27.408	2.35	1.4319	19.50	1496.5
950.	7.026	35.087	27.504	6.931	27.497	2.77	1.4716	15.48	1494.5
1000.	6.553	35.079	27.563	6.457	27.556	2.04	1.5072	10.85	1493.5

Table VI-2h. CTD Station 9: List.
(KNORR 119)

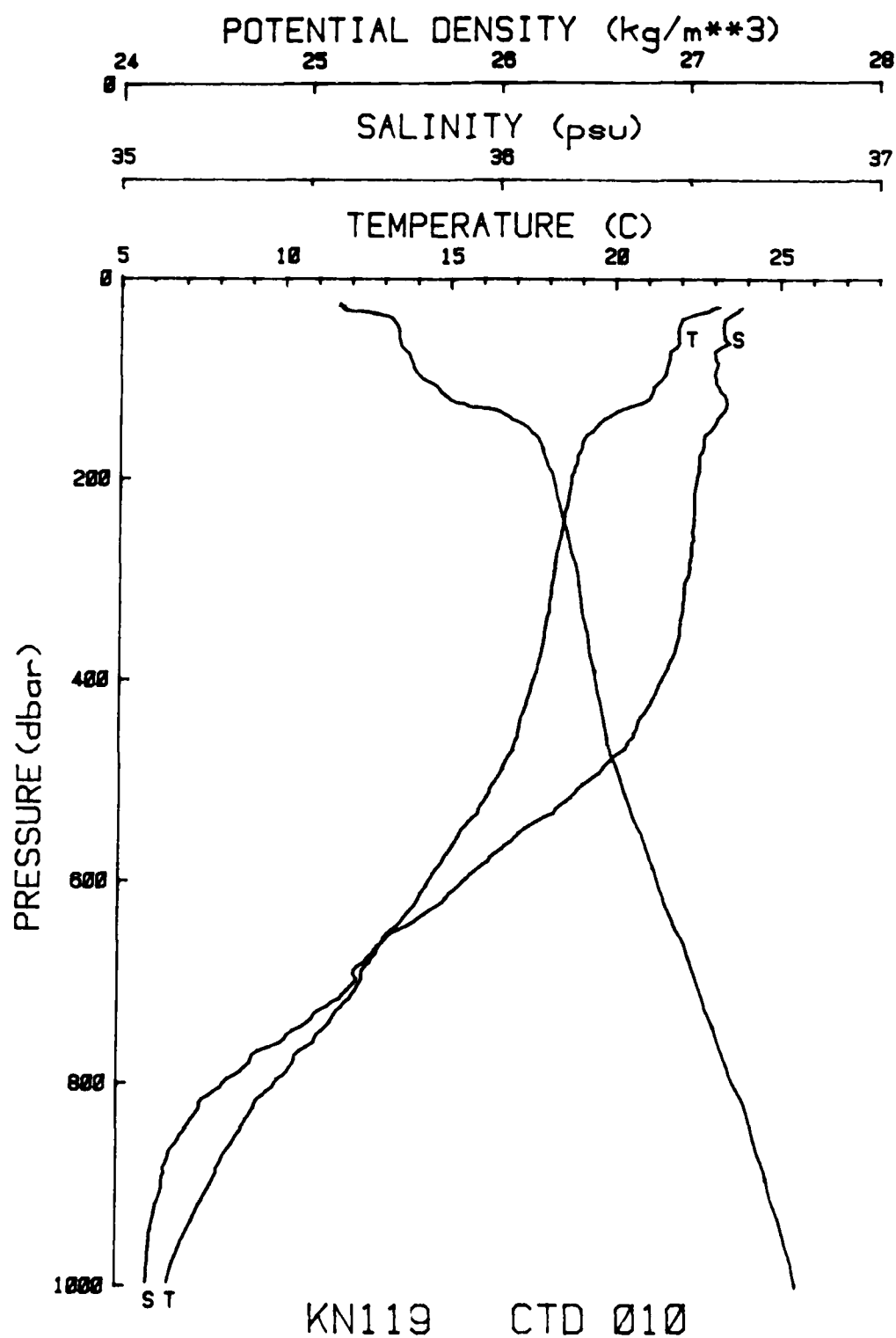


Figure VI-3i. CTD Station 10: Plot.
(KNORR 119)

KN119	CTD 010	1986 034 1717Z	27 43.49N 70 12.61W	corrD: 5400m					
PRESS	TEMP	SALIN	SIGMA-t	POTEMP	POTDEN	BR-V	DYNHGT	POTGRD	SSPEED
dbar	°C	psu	kg/m**3	°C	kg/m**3	cph	dyn m	m°C/db	m/s
28.	23.070	36.637	25.173	23.065	25.159	2.10	.4034	6.54	1531.9
32.	22.789	36.625	25.246	22.782	25.231	9.23	.4151	103.92	1531.2
38.	22.240	36.632	25.408	22.232	25.394	8.49	.4309	53.64	1529.9
42.	21.977	36.588	25.449	21.969	25.435	3.00	.4412	14.78	1529.2
48.	21.902	36.588	25.470	21.892	25.457	3.49	.4563	13.21	1529.1
52.	21.893	36.588	25.473	21.883	25.459	1.09	.4669	1.06	1529.2
58.	21.896	36.590	25.473	21.885	25.460	-.60	.4817	-.42	1529.3
62.	21.908	36.600	25.477	21.896	25.465	2.09	.4921	-5.45	1529.4
68.	21.837	36.583	25.484	21.824	25.472	3.27	.5070	27.74	1529.3
72.	21.652	36.565	25.523	21.638	25.511	6.83	.5178	62.59	1528.9
78.	21.633	36.566	25.529	21.618	25.517	.82	.5319	.61	1528.9
82.	21.601	36.571	25.542	21.585	25.530	3.94	.5417	11.76	1528.9
88.	21.557	36.571	25.554	21.540	25.543	1.54	.5571	4.96	1528.9
92.	21.522	36.567	25.560	21.504	25.549	2.23	.5670	8.30	1528.9
98.	21.409	36.566	25.591	21.390	25.580	5.58	.5815	31.71	1528.7
102.	21.337	36.566	25.611	21.317	25.601	3.86	.5913	19.12	1528.5
108.	21.123	36.574	25.676	21.103	25.666	3.42	.6054	11.53	1528.1
112.	21.109	36.578	25.683	21.088	25.673	2.88	.6149	4.99	1528.1
122.	20.897	36.594	25.753	20.874	25.744	5.88	.6383	40.17	1527.7
132.	20.038	36.588	25.981	20.013	25.972	3.93	.6603	27.55	1525.5
142.	19.573	36.568	26.088	19.547	26.079	4.90	.6802	32.88	1524.4
152.	19.304	36.552	26.146	19.276	26.138	2.27	.6994	8.98	1523.8
162.	19.001	36.535	26.211	18.972	26.203	2.82	.7184	10.03	1523.1
172.	18.918	36.531	26.230	18.887	26.223	3.45	.7374	19.03	1523.0
182.	18.823	36.523	26.247	18.791	26.241	1.08	.7558	1.43	1522.9
192.	18.727	36.523	26.272	18.693	26.266	2.45	.7739	6.82	1522.8
202.	18.649	36.517	26.287	18.613	26.281	1.25	.7920	2.76	1522.7
222.	18.559	36.512	26.306	18.520	26.301	1.44	.8278	2.01	1522.8
242.	18.432	36.511	26.338	18.389	26.333	1.72	.8643	4.08	1522.8
262.	18.313	36.508	26.365	18.267	26.362	-.57	.8996	2.44	1522.8
282.	18.173	36.500	26.394	18.124	26.391	2.13	.9336	8.46	1522.7
302.	18.079	36.487	26.408	18.026	26.406	1.90	.9683	9.07	1522.7
322.	17.993	36.482	26.425	17.937	26.424	2.01	1.0031	6.29	1522.8
342.	17.892	36.474	26.444	17.833	26.444	1.62	1.0373	4.16	1522.8
362.	17.799	36.466	26.462	17.736	26.462	2.04	1.0713	8.00	1522.9
382.	17.666	36.446	26.479	17.601	26.480	1.49	1.1054	7.57	1522.8
402.	17.490	36.421	26.503	17.421	26.505	1.48	1.1385	6.46	1522.6
452.	17.049	36.354	26.559	16.973	26.562	2.05	1.2211	8.46	1522.0
502.	16.316	36.226	26.634	16.234	26.638	2.55	1.3012	17.68	1520.5
552.	15.274	36.050	26.737	15.188	26.741	1.50	1.3777	10.81	1517.9
602.	14.305	35.896	26.832	14.215	26.835	2.62	1.4492	19.39	1515.5
652.	13.116	35.715	26.941	13.023	26.943	2.48	1.5169	26.38	1512.2
702.	12.231	35.613	27.038	12.136	27.040	3.01	1.5795	25.59	1509.9
752.	11.001	35.444	27.139	10.905	27.139	2.90	1.6376	25.76	1506.3
802.	9.701	35.273	27.235	9.607	27.233	2.88	1.6906	25.45	1502.3
852.	8.581	35.165	27.333	8.487	27.329	3.61	1.7384	33.30	1498.9
902.	7.797	35.118	27.417	7.703	27.411	2.50	1.7817	12.96	1496.7
952.	7.035	35.089	27.504	6.941	27.497	1.32	1.8208	4.54	1494.6

Table VI-2i. CTD Station 10: List.
(KNORR 119)

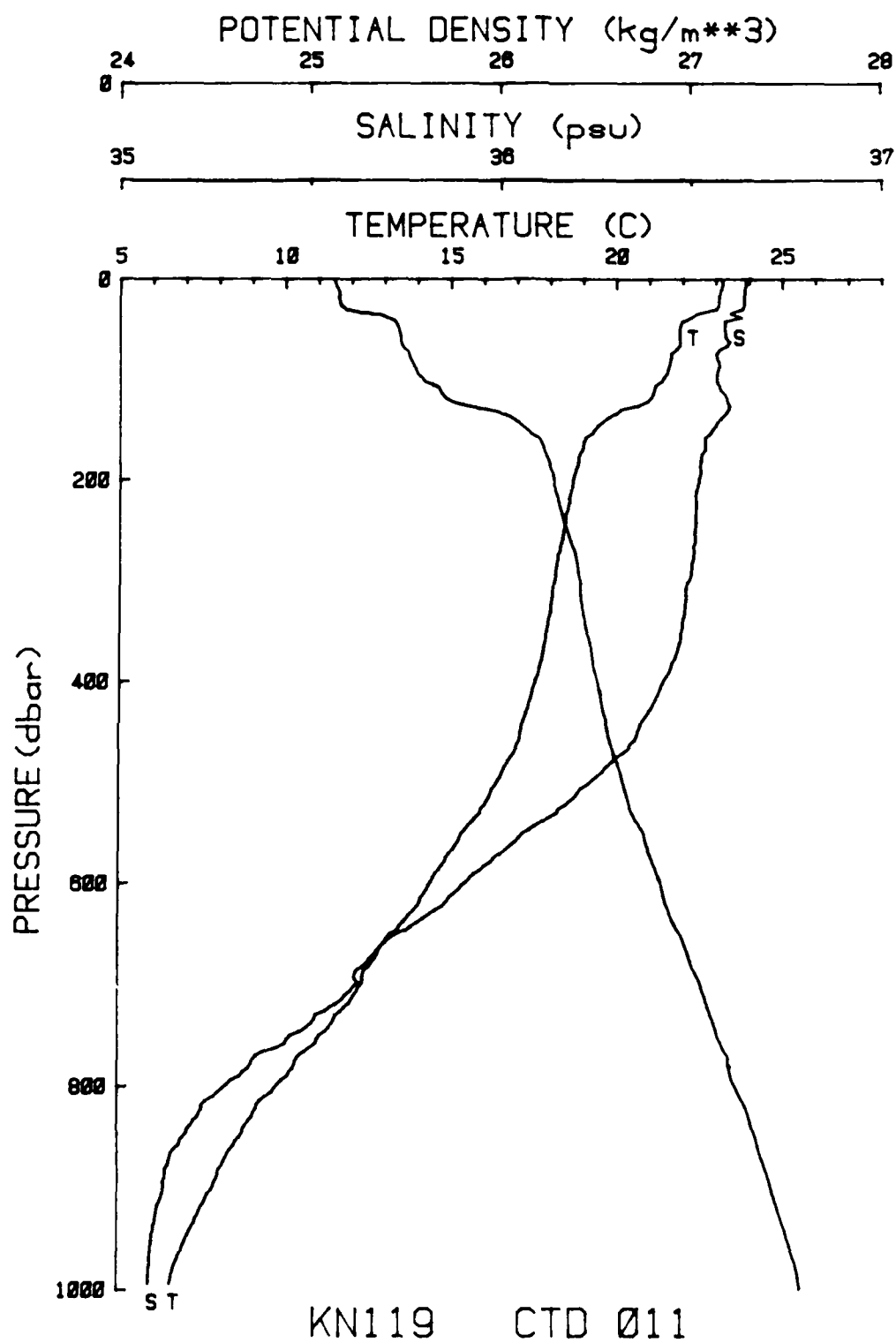


Figure V1-3j. CTD Station 11: Plot.
(KNORR 119)

FN119 CTD 011 1986 034 1847Z 27 41.68N 70 15.19W corrD: 5400m									
PRESS	TEMP	SALIN	SIGMA-t	POTEMP	POTDEN	BR-V	DYNHGT	POTGRD	SSPEED
dbar	°C	psu	kg/m**3	°C	kg/m**3	cph	dvn m	m°C/db	m/s
2.	23.187	36.643	25.144	23.186	25.128	0.00	0.0000	0.00	1531.7
6.	23.187	36.643	25.144	23.186	25.127	.81	.0095	2.20	1531.8
10.	23.152	36.640	25.152	23.150	25.136	2.53	.0210	10.05	1531.8
16.	23.102	36.640	25.166	23.099	25.151	1.42	.0381	1.64	1531.8
20.	23.092	36.639	25.168	23.088	25.153	1.25	.0496	2.10	1531.8
26.	23.083	36.639	25.171	23.077	25.156	1.56	.0656	2.63	1531.9
30.	23.011	36.634	25.189	23.005	25.174	4.83	.0772	29.20	1531.8
36.	22.362	36.610	25.356	22.355	25.342	7.17	.0930	46.63	1530.2
40.	22.005	36.591	25.444	21.997	25.430	7.33	.1043	112.22	1529.3
46.	21.930	36.588	25.462	21.921	25.448	3.66	.1188	17.43	1529.2
50.	21.895	36.588	25.472	21.885	25.459	1.76	.1295	3.63	1529.2
56.	21.895	36.590	25.474	21.884	25.461	.68	.1445	-.31	1529.3
60.	21.896	36.592	25.475	21.884	25.462	1.40	.1547	.23	1529.3
66.	21.893	36.595	25.478	21.880	25.466	.95	.1699	11.80	1529.4
70.	21.795	36.574	25.490	21.782	25.477	2.80	.1801	21.05	1529.2
76.	21.634	36.567	25.529	21.619	25.517	2.29	.1949	4.65	1528.9
80.	21.621	36.568	25.533	21.606	25.522	2.50	.2054	5.70	1528.9
86.	21.567	36.573	25.553	21.550	25.541	3.04	.2202	10.40	1528.9
90.	21.539	36.569	25.557	21.521	25.546	2.41	.2299	9.89	1528.9
96.	21.473	36.563	25.571	21.455	25.561	3.37	.2446	17.50	1528.8
100.	21.374	36.568	25.602	21.355	25.592	4.16	.2545	17.28	1528.6
106.	21.146	36.573	25.669	21.125	25.659	7.37	.2688	52.90	1528.1
110.	21.119	36.576	25.678	21.098	25.668	1.86	.2782	2.47	1528.1
120.	20.985	36.595	25.730	20.962	25.720	4.65	.3013	20.60	1527.9
130.	20.098	36.596	25.970	20.074	25.961	11.07	.3238	141.09	1525.7
140.	19.640	36.571	26.073	19.614	26.064	5.78	.3442	50.27	1524.6
150.	19.319	36.554	26.144	19.291	26.136	4.53	.3642	32.46	1523.8
160.	19.020	36.535	26.206	18.992	26.198	3.27	.3828	12.45	1523.1
170.	18.958	36.535	26.222	18.927	26.215	2.40	.4015	6.83	1523.1
180.	18.826	36.523	26.247	18.794	26.240	1.46	.4202	3.36	1522.9
190.	18.740	36.523	26.269	18.706	26.262	2.22	.4382	6.58	1522.8
200.	18.654	36.518	26.287	18.618	26.281	2.07	.4566	6.79	1522.7
220.	18.563	36.512	26.305	18.524	26.300	1.26	.4927	2.05	1522.8
240.	18.440	36.511	26.336	18.398	26.331	1.55	.5284	2.37	1522.8
260.	18.318	36.510	26.366	18.272	26.362	3.37	.5639	12.65	1522.7
280.	18.187	36.502	26.392	18.138	26.389	1.79	.5989	6.56	1522.7
300.	18.096	36.490	26.406	18.044	26.404	1.99	.6330	9.97	1522.7
320.	18.007	36.483	26.423	17.951	26.422	1.94	.6673	6.86	1522.8
340.	17.901	36.475	26.443	17.842	26.443	1.84	.7018	5.59	1522.8
360.	17.815	36.469	26.459	17.753	26.460	1.58	.7357	6.07	1522.9
380.	17.682	36.450	26.478	17.616	26.479	2.25	.7699	10.57	1522.8
400.	17.500	36.424	26.502	17.432	26.504	1.61	.8036	6.26	1522.6
450.	17.067	36.357	26.556	16.991	26.559	1.30	.8856	8.27	1522.0
500.	16.349	36.232	26.631	16.267	26.634	2.34	.9662	16.65	1520.6
550.	15.297	36.055	26.736	15.211	26.740	1.43	1.0425	16.81	1517.9
600.	14.343	35.902	26.828	14.253	26.831	2.64	1.1144	24.74	1515.6
650.	13.167	35.725	26.938	13.075	26.940	3.93	1.1823	44.18	1512.3
700.	12.284	35.620	27.033	12.189	27.035	2.39	1.2449	19.68	1510.1
750.	11.052	35.451	27.135	10.956	27.135	4.34	1.3032	48.01	1506.5
800.	9.753	35.279	27.231	9.658	27.229	2.45	1.3564	25.63	1502.5
850.	8.654	35.170	27.326	8.560	27.322	2.00	1.4042	17.14	1499.1
900.	7.822	35.119	27.414	7.728	27.408	3.47	1.4479	22.98	1496.8
950.	7.044	35.089	27.503	6.950	27.497	3.18	1.4872	18.40	1494.6

Table VI-2j. CTD Station 11: List.
(KNORR 119)

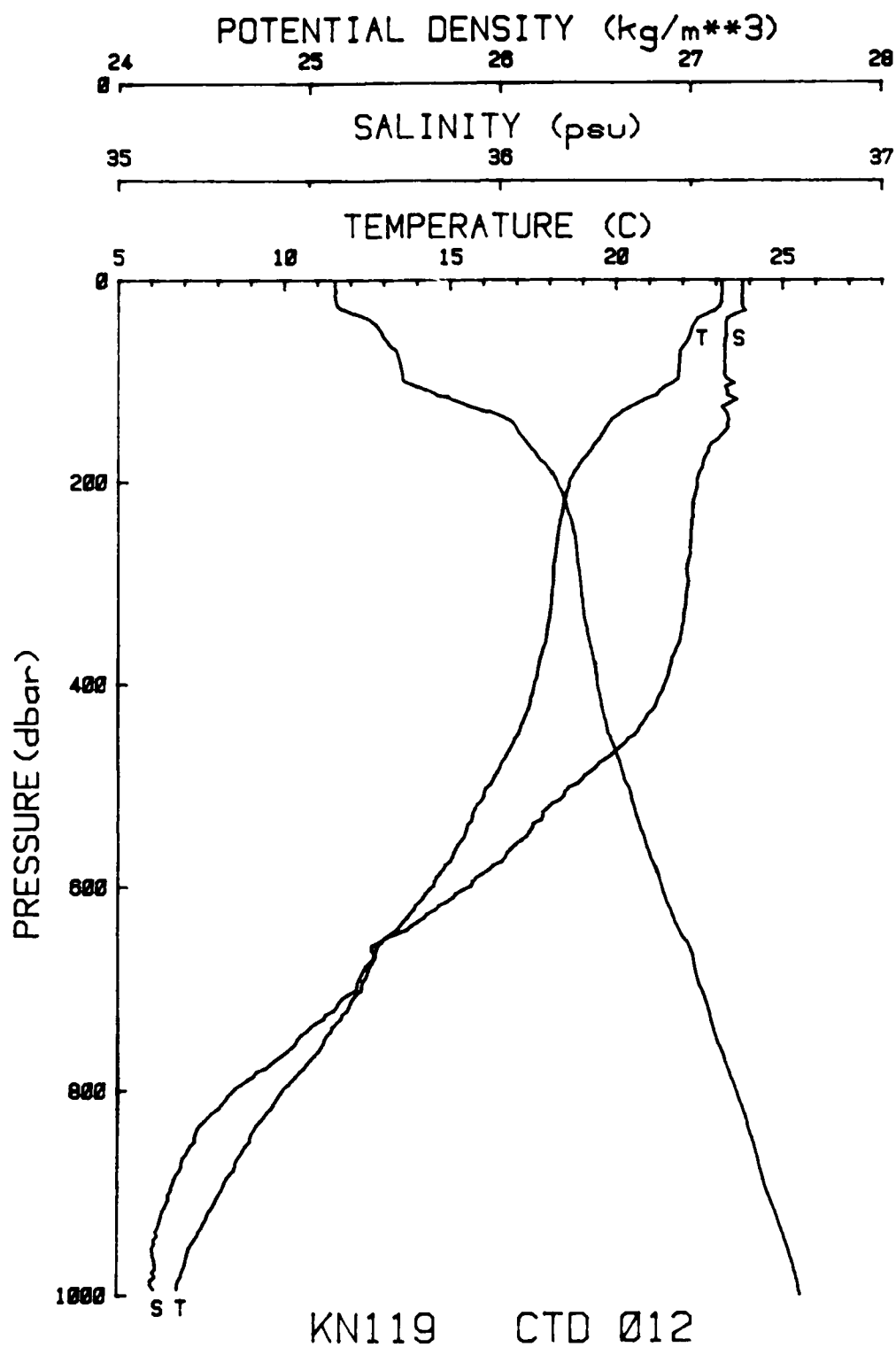


Figure VI-3k. CTD Station 12: Plot.
(KNORR 119)

KN119	CTD 012	1986 035 0007Z	27 39.74N	70 19.24W	corrD: 5400m				
PRESS dbar	TEMP °C	SALIN psu	SIGMA-t kg/m**3	POTEMP °C	POTDEN kg/m**3	BR-V cph	DYNHGT dyn m	POTGRD m°C/db	SSPEED m/s
2.	23.161	36.634	25.145	23.160	25.128	0.00	0.0000	0.00	1531.7
6.	23.175	36.633	25.140	23.173	25.124	-1.67	.0108	-3.24	1531.8
10.	23.172	36.634	25.141	23.170	25.126	.30	.0217	-1.73	1531.8
16.	23.160	36.633	25.144	23.156	25.128	2.16	.0389	5.63	1531.9
20.	23.157	36.633	25.145	23.153	25.130	-.71	.0500	.08	1532.0
26.	23.094	36.633	25.164	23.089	25.149	5.16	.0666	23.30	1531.9
30.	22.941	36.641	25.214	22.935	25.199	7.11	.0789	47.58	1531.6
36.	22.512	36.591	25.300	22.505	25.285	8.09	.0945	102.77	1530.5
40.	22.397	36.595	25.335	22.389	25.321	4.45	.1060	20.88	1530.3
46.	22.281	36.590	25.365	22.272	25.351	4.20	.1216	21.11	1530.1
50.	22.241	36.590	25.376	22.231	25.362	2.83	.1321	10.36	1530.1
56.	22.191	36.591	25.391	22.179	25.378	2.14	.1480	6.19	1530.0
60.	22.124	36.587	25.407	22.112	25.394	3.80	.1575	18.47	1529.9
66.	22.005	36.586	25.440	21.991	25.428	5.48	.1724	30.19	1529.7
70.	21.915	36.587	25.466	21.901	25.454	2.57	.1839	9.96	1529.5
76.	21.896	36.587	25.472	21.881	25.460	1.68	.1985	2.86	1529.6
80.	21.884	36.586	25.473	21.868	25.462	1.18	.2098	3.15	1529.6
86.	21.871	36.587	25.478	21.854	25.467	1.60	.2244	1.43	1529.7
90.	21.866	36.587	25.480	21.849	25.469	1.31	.2340	2.82	1529.8
96.	21.847	36.588	25.485	21.828	25.475	2.47	.2501	4.30	1529.8
100.	21.842	36.598	25.495	21.823	25.484	2.66	.2599	.36	1529.9
106.	21.439	36.589	25.600	21.419	25.590	7.15	.2740	64.16	1528.9
110.	21.275	36.594	25.649	21.254	25.640	5.95	.2844	35.38	1528.5
120.	20.754	36.601	25.797	20.731	25.788	5.44	.3072	63.42	1527.3
130.	20.177	36.589	25.944	20.153	25.935	6.65	.3295	49.81	1525.9
140.	19.794	36.601	26.055	19.768	26.046	5.30	.3500	27.99	1525.0
150.	19.622	36.587	26.089	19.594	26.081	2.07	.3701	11.65	1524.7
160.	19.420	36.564	26.124	19.391	26.117	3.85	.3893	25.33	1524.3
170.	19.186	36.543	26.169	19.155	26.162	3.40	.4090	14.60	1523.8
180.	18.919	36.530	26.228	18.887	26.221	4.48	.4278	26.82	1523.2
190.	18.726	36.521	26.270	18.692	26.264	4.61	.4459	26.08	1522.8
200.	18.566	36.514	26.306	18.530	26.300	2.89	.4644	9.72	1522.5
220.	18.400	36.503	26.340	18.361	26.334	3.01	.5000	11.88	1522.3
240.	18.285	36.501	26.367	18.243	26.363	2.08	.5351	3.33	1522.3
260.	18.189	36.496	26.388	18.143	26.384	2.56	.5699	7.95	1522.3
280.	18.103	36.488	26.403	18.055	26.400	2.00	.6045	7.09	1522.4
300.	18.087	36.491	26.409	18.035	26.407	1.23	.6387	1.62	1522.7
320.	18.026	36.483	26.418	17.970	26.417	.51	.6735	.66	1522.9
340.	17.931	36.477	26.437	17.872	26.436	2.12	.7077	6.79	1522.9
360.	17.823	36.465	26.454	17.761	26.455	2.34	.7420	10.90	1522.9
380.	17.643	36.443	26.483	17.578	26.484	1.96	.7754	7.22	1522.7
400.	17.512	36.425	26.501	17.444	26.503	.81	.8090	8.10	1522.6
450.	17.023	36.348	26.560	16.948	26.563	2.22	.8914	13.84	1521.9
500.	16.107	36.186	26.652	16.026	26.655	2.89	.9708	30.50	1519.8
550.	15.371	36.066	26.728	15.285	26.731	1.82	1.0467	10.04	1518.2
600.	14.434	35.916	26.819	14.344	26.823	1.99	1.1189	12.27	1515.9
650.	13.007	35.698	26.950	12.916	26.952	3.89	1.1862	33.21	1511.8
700.	12.302	35.622	27.031	12.207	27.033	.88	1.2486	2.25	1510.2
750.	11.198	35.469	27.122	11.102	27.122	1.90	1.3072	12.90	1507.0
800.	9.929	35.299	27.217	9.833	27.215	2.54	1.3613	25.97	1503.1
850.	8.965	35.202	27.301	8.869	27.298	1.06	1.4107	1.95	1500.3
900.	8.082	35.137	27.389	7.986	27.384	1.90	1.4557	9.69	1497.8
950.	7.223	35.097	27.484	7.128	27.478	2.55	1.4961	10.25	1495.3

Table VI-2k. CTD Station 12: List.
(KNORR 110)

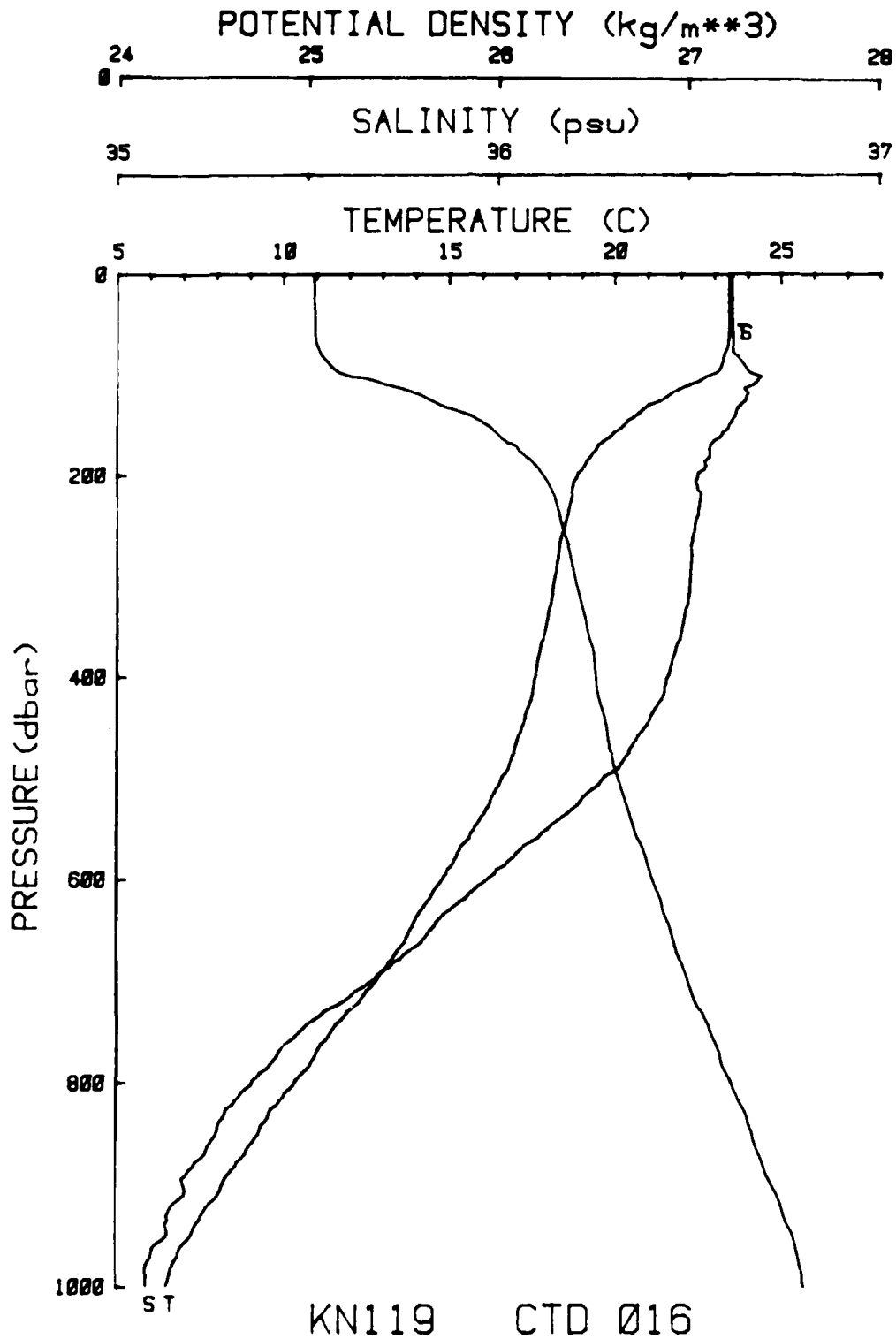


Figure VI-30. CTD Station 16: Plot.
(KNORR 119)

KN119	CTD 016	1986 036 0551Z	27 11.75N 70 13.60W	corrD: 5400m					
PRESS dbar	TEMP °C	SALIN psu	SIGMA-t kg/m**3	POTEMP °C	POTDEN kg/m**3	BR-V cph	DYNHGT dyn m	POTGRD m°C/db	SSPEED m/s
5.	23.424	36.610	25.050	23.423	25.033	0.00	0.0000	0.00	1532.3
6.	23.424	36.610	25.050	23.423	25.033	.72	.0099	.22	1532.4
10.	23.424	36.610	25.050	23.422	25.034	.52	.0212	.07	1532.4
16.	23.424	36.610	25.050	23.421	25.034	-.70	.0392	-.40	1532.5
20.	23.425	36.610	25.050	23.421	25.034	-.69	.0511	-.09	1532.6
26.	23.426	36.611	25.050	23.421	25.035	.58	.0682	.21	1532.7
30.	23.427	36.611	25.049	23.421	25.034	-.77	.0798	-.31	1532.8
36.	23.428	36.611	25.049	23.420	25.035	1.05	.0974	.33	1532.9
40.	23.428	36.611	25.049	23.419	25.035	-.26	.1092	-.17	1532.9
46.	23.427	36.611	25.050	23.418	25.036	1.01	.1269	.70	1533.0
50.	23.428	36.611	25.049	23.417	25.036	-.64	.1387	-.22	1533.1
56.	23.428	36.611	25.050	23.416	25.036	.91	.1558	.79	1533.2
60.	23.422	36.612	25.052	23.409	25.039	1.62	.1679	2.24	1533.3
66.	23.395	36.613	25.060	23.381	25.048	2.37	.1854	6.21	1533.3
70.	23.386	36.612	25.063	23.371	25.050	1.27	.1973	1.52	1533.3
76.	23.327	36.610	25.078	23.312	25.066	3.61	.2147	14.57	1533.3
80.	23.260	36.616	25.102	23.243	25.090	4.87	.2264	19.75	1533.2
86.	23.226	36.633	25.125	23.208	25.114	4.16	.2439	14.46	1533.2
90.	23.193	36.641	25.141	23.174	25.130	3.69	.2555	7.50	1533.2
96.	23.118	36.651	25.170	23.098	25.159	4.01	.2719	12.93	1533.1
100.	22.783	36.675	25.285	22.763	25.275	12.04	.2840	133.69	1532.4
106.	22.529	36.675	25.358	22.508	25.348	5.72	.2997	44.59	1531.8
110.	22.222	36.667	25.439	22.200	25.430	6.97	.3100	45.95	1531.1
120.	21.620	36.648	25.595	21.596	25.585	5.13	.3353	33.78	1529.7
130.	20.991	36.631	25.755	20.966	25.747	9.42	.3592	106.83	1528.2
140.	20.593	36.619	25.855	20.567	25.846	6.76	.3816	53.23	1527.2
150.	20.238	36.602	25.937	20.210	25.929	4.87	.4036	34.96	1526.4
160.	19.871	36.580	26.019	19.841	26.011	4.79	.4242	33.05	1525.5
170.	19.480	36.553	26.100	19.449	26.093	5.68	.4443	45.34	1524.6
180.	19.245	36.549	26.158	19.213	26.152	4.98	.4641	33.39	1524.1
190.	19.070	36.542	26.199	19.035	26.193	4.04	.4831	20.55	1523.8
200.	18.845	36.522	26.241	18.809	26.235	3.54	.5017	12.51	1523.3
220.	18.678	36.527	26.287	18.639	26.282	2.44	.5382	7.26	1523.1
240.	18.538	36.517	26.316	18.495	26.311	2.52	.5744	12.53	1523.0
260.	18.364	36.505	26.351	18.318	26.347	2.43	.6102	9.71	1522.9
280.	18.266	36.503	26.374	18.217	26.371	.68	.6452	.83	1522.9
300.	18.159	36.498	26.396	18.107	26.395	2.11	.6801	6.97	1522.9
320.	18.074	36.495	26.415	18.018	26.414	1.24	.7149	1.91	1523.0
340.	17.938	36.483	26.440	17.879	26.439	1.86	.7492	5.00	1522.9
360.	17.820	36.473	26.461	17.757	26.462	1.60	.7833	3.27	1522.9
380.	17.651	36.453	26.488	17.586	26.489	1.55	.8171	5.43	1522.7
400.	17.538	36.436	26.503	17.470	26.505	2.99	.8501	17.40	1522.7
450.	17.148	36.376	26.552	17.072	26.555	1.94	.9332	9.30	1522.3
500.	16.551	36.271	26.613	16.469	26.617	1.41	1.0136	6.83	1521.2
550.	15.704	36.122	26.696	15.616	26.700	2.07	1.0916	15.17	1519.3
600.	14.768	35.967	26.785	14.676	26.790	1.30	1.1654	9.95	1517.0
650.	13.784	35.817	26.881	13.689	26.885	3.21	1.2354	24.66	1514.5
700.	12.806	35.670	26.969	12.708	26.971	1.40	1.3013	8.95	1511.9
750.	11.416	35.475	27.087	11.318	27.088	2.65	1.3624	24.98	1507.8
800.	10.325	35.353	27.189	10.227	27.188	3.15	1.4180	21.62	1504.6
850.	9.260	35.260	27.299	9.162	27.296	2.24	1.4682	12.24	1501.5
900.	8.163	35.173	27.405	8.067	27.400	3.26	1.5132	20.20	1498.1
950.	7.239	35.131	27.509	7.143	27.502	1.18	1.5528	12.64	1495.4

Table VI-27 CTD Station 16: List.
(KNORR 119)

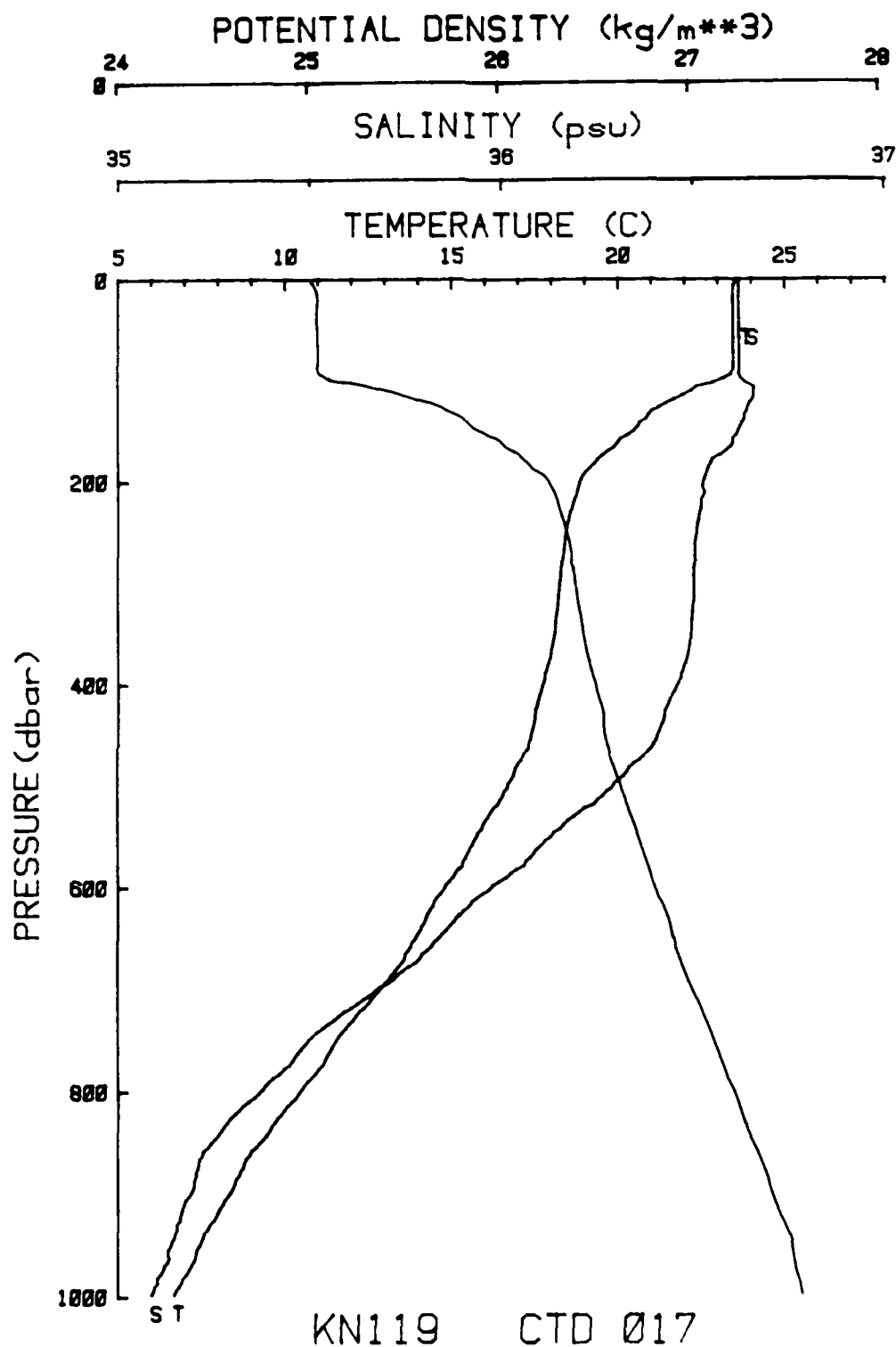


Figure VI-3m. CTD Station 17: Plot.
(KNORR 119)

EN119 CTD 017 1986 036 1458Z 27 27.19N 70 13.64W corrD: 5400m									
PRESS	TEMP	SALIN	SIGMA-t	POTEMP	POTDEN	BR-V	DYNHGT	POTGRD	SSPEED
dbar	°C	psu	kg/m ³	°C	kg/m ³	cph	dm m	m°C/db	m/s
2.	23.517	36.619	25.029	23.517	25.012	0.00	0.0000	0.00	1532.5
6.	23.459	36.619	25.047	23.457	25.030	2.81	.0121	8.97	1532.5
10.	23.449	36.619	25.050	23.446	25.034	1.57	.0234	2.39	1532.5
16.	23.442	36.619	25.051	23.438	25.036	.45	.0407	.80	1532.6
20.	23.441	36.619	25.052	23.437	25.036	.93	.0527	.36	1532.7
26.	23.441	36.619	25.052	23.436	25.036	.44	.0707	.40	1532.8
30.	23.440	36.619	25.052	23.434	25.037	.18	.0816	.51	1532.8
36.	23.439	36.619	25.053	23.431	25.038	.82	.0994	.50	1532.9
40.	23.441	36.619	25.052	23.433	25.038	-.92	.1112	-.74	1533.0
46.	23.440	36.619	25.052	23.431	25.038	.53	.1294	.35	1533.1
50.	23.440	36.619	25.052	23.429	25.039	.78	.1406	.95	1533.2
56.	23.439	36.619	25.052	23.428	25.039	.70	.1585	.19	1533.3
60.	23.440	36.619	25.052	23.427	25.039	-.58	.1701	.09	1533.3
66.	23.440	36.619	25.052	23.426	25.039	.60	.1881	.04	1533.4
70.	23.440	36.619	25.052	23.425	25.040	-.48	.1991	-.12	1533.5
76.	23.440	36.619	25.052	23.424	25.040	.21	.2171	.28	1533.6
80.	23.440	36.619	25.052	23.423	25.040	.42	.2288	.14	1533.7
86.	23.436	36.619	25.053	23.418	25.042	1.15	.2465	1.29	1533.7
90.	23.428	36.619	25.055	23.409	25.044	1.60	.2583	2.60	1533.8
96.	23.279	36.620	25.099	23.259	25.089	7.08	.2759	54.09	1533.5
100.	22.981	36.635	25.198	22.961	25.188	10.47	.2867	103.69	1532.8
106.	22.330	36.658	25.402	22.309	25.392	12.61	.3039	155.08	1531.3
110.	22.188	36.657	25.442	22.166	25.432	6.21	.3141	40.28	1531.0
120.	21.552	36.649	25.614	21.528	25.605	7.32	.3391	68.77	1529.5
130.	21.004	36.638	25.758	20.979	25.749	8.06	.3629	74.83	1528.2
140.	20.725	36.628	25.826	20.698	25.818	5.79	.3856	43.64	1527.6
150.	20.459	36.616	25.889	20.431	25.881	4.83	.4070	33.19	1527.0
160.	20.016	36.603	25.998	19.986	25.990	3.66	.4286	13.61	1526.0
170.	19.674	36.583	26.073	19.643	26.066	4.38	.4489	31.87	1525.2
180.	19.324	36.542	26.133	19.291	26.127	3.48	.4688	22.05	1524.3
190.	19.022	36.534	26.205	18.987	26.199	4.40	.4877	23.96	1523.6
200.	18.826	36.525	26.249	18.790	26.243	3.62	.5064	17.51	1523.2
220.	18.631	36.519	26.293	18.592	26.288	3.39	.5430	14.10	1523.0
240.	18.466	36.509	26.328	18.423	26.323	2.21	.5786	8.24	1522.8
260.	18.365	36.502	26.348	18.320	26.344	1.34	.6143	2.72	1522.9
280.	18.297	36.501	26.364	18.248	26.362	.50	.6496	1.75	1523.0
300.	18.218	36.499	26.382	18.166	26.381	1.91	.6849	5.67	1523.1
320.	18.156	36.496	26.396	18.100	26.395	1.07	.7199	3.66	1523.3
340.	18.082	36.492	26.411	18.022	26.411	1.82	.7545	4.13	1523.4
360.	17.985	36.487	26.431	17.922	26.432	2.34	.7895	8.01	1523.4
380.	17.857	36.474	26.453	17.791	26.454	2.10	.8235	8.72	1523.4
400.	17.693	36.455	26.479	17.625	26.481	2.68	.8576	13.28	1523.2
450.	17.323	36.400	26.528	17.247	26.531	1.72	.9414	6.47	1522.9
500.	16.646	36.287	26.603	16.564	26.608	1.27	1.0229	5.02	1521.5
550.	15.692	36.124	26.700	15.605	26.704	2.01	1.1008	8.78	1519.3
600.	14.751	35.968	26.790	14.660	26.794	.98	1.1749	8.26	1516.9
650.	13.865	35.831	26.875	13.769	26.879	1.65	1.2445	13.61	1514.8
700.	12.787	35.672	26.974	12.690	26.976	3.25	1.3110	30.16	1511.8
750.	11.495	35.493	27.086	11.397	27.087	3.20	1.3719	28.60	1508.1
800.	10.417	35.370	27.187	10.319	27.186	2.84	1.4280	23.19	1505.0
850.	9.221	35.242	27.291	9.123	27.288	2.43	1.4787	24.20	1501.3
900.	8.300	35.186	27.394	8.203	27.389	3.28	1.5239	30.00	1498.7
950.	7.433	35.137	27.485	7.336	27.479	2.13	1.5643	12.42	1496.1
1000.	6.647	35.087	27.556	6.550	27.549	2.12	1.6010	11.44	1493.9

Table VI-2m. CTD Station 17: List.
(KNORR 119)

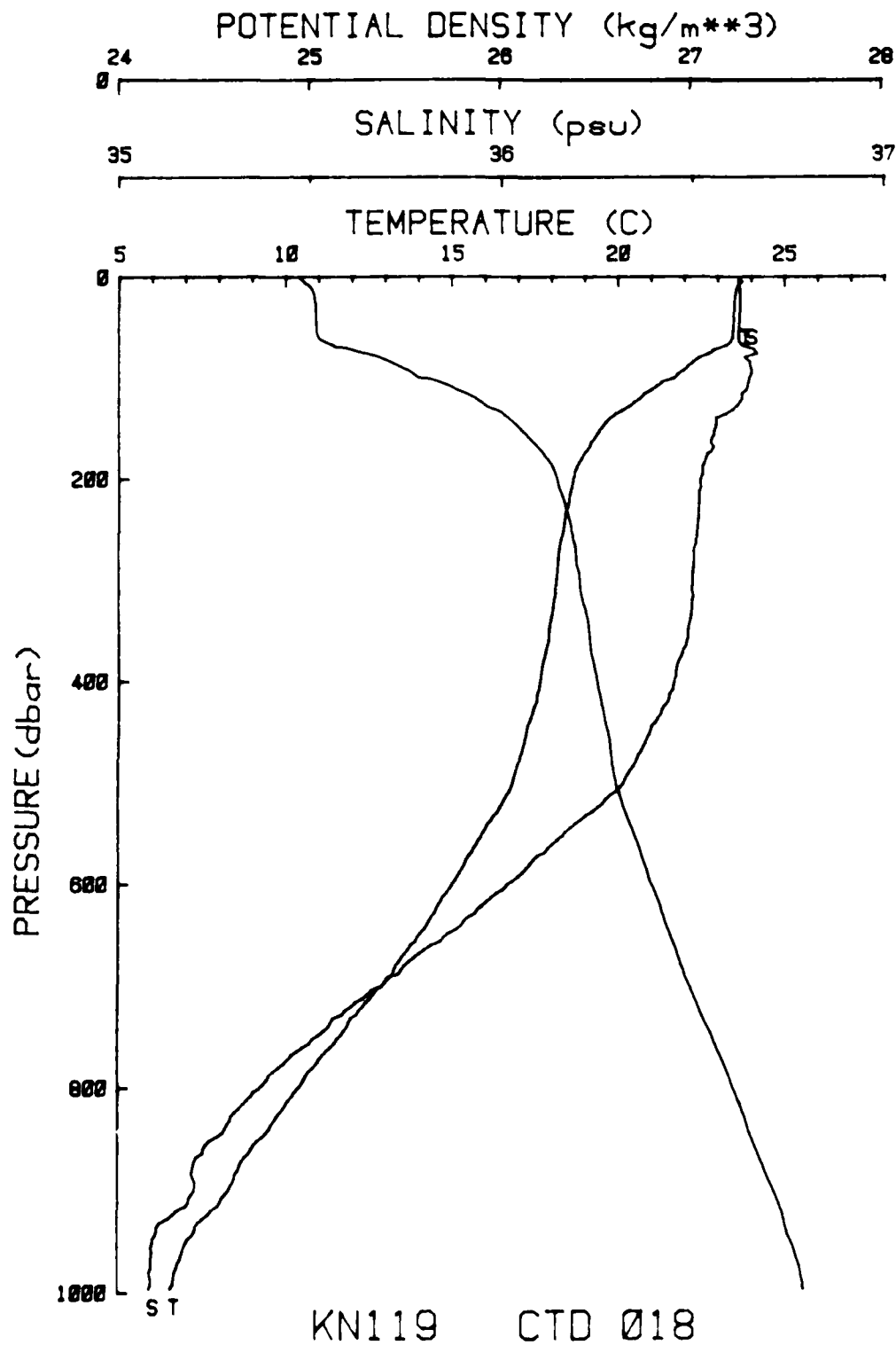


Figure VI-3n. CTD Station 18: Plot.
(KNORR 119)

FN119	CTD 018	1986 036 1645Z	27 31.90N	70 13.34W	corrD: 5400m				
PRESS	TEMP	SALIN	SIGMA-t	POTEMP	POTLEN	BR-V	DYNHGT	POTGRD	SSPEED
dbar	°C	psu	kg/m ³	°C	kg/m ³	cph	dvn m	m°C/db	m/s
5.	23.704	36.616	24.972	23.703	24.956	0.00	0.0000	0.00	1533.0
8.	23.615	36.620	25.001	23.613	24.985	4.31	.0096	18.56	1532.9
12.	23.542	36.622	25.024	23.539	25.008	4.15	.0221	17.27	1532.8
18.	23.511	36.623	25.034	23.507	25.018	2.16	.0399	4.92	1532.8
22.	23.498	36.622	25.037	23.493	25.022	1.35	.0514	2.22	1532.8
28.	23.480	36.622	25.042	23.474	25.027	1.40	.0688	1.70	1532.9
32.	23.478	36.622	25.043	23.471	25.028	.95	.0806	.60	1532.9
38.	23.476	36.622	25.044	23.468	25.029	.32	.0982	.31	1533.0
42.	23.473	36.621	25.044	23.464	25.030	1.00	.1098	1.16	1533.1
48.	23.464	36.620	25.046	23.454	25.032	.89	.1278	.94	1533.2
52.	23.459	36.620	25.047	23.449	25.033	.68	.1391	.59	1533.2
58.	23.433	36.619	25.054	23.421	25.040	1.54	.1566	2.29	1533.3
62.	23.412	36.618	25.060	23.399	25.047	2.94	.1689	9.34	1533.3
68.	23.252	36.628	25.114	23.238	25.101	6.67	.1862	40.61	1533.0
72.	22.869	36.660	25.249	22.855	25.237	9.86	.1978	88.49	1532.1
78.	22.533	36.643	25.333	22.517	25.321	7.50	.2141	90.55	1531.3
82.	22.306	36.637	25.394	22.289	25.382	7.28	.2244	54.59	1530.8
88.	22.114	36.649	25.457	22.096	25.445	5.86	.2402	31.52	1530.4
92.	21.968	36.652	25.500	21.949	25.489	6.03	.2509	37.90	1530.1
98.	21.737	36.649	25.563	21.718	25.552	4.46	.2653	24.19	1529.6
102.	21.556	36.643	25.609	21.535	25.599	7.43	.2749	65.30	1529.2
108.	21.158	36.642	25.718	21.137	25.708	5.40	.2892	35.66	1528.2
112.	20.981	36.638	25.764	20.959	25.754	6.26	.2982	44.11	1527.8
122.	20.609	36.623	25.853	20.586	25.844	3.63	.3205	22.30	1527.0
132.	20.126	36.603	25.968	20.101	25.959	7.44	.3421	73.79	1525.8
142.	19.676	36.558	26.053	19.650	26.044	4.96	.3624	30.12	1524.7
152.	19.420	36.553	26.116	19.392	26.108	3.24	.3822	12.92	1524.1
162.	19.198	36.545	26.168	19.168	26.160	5.49	.4015	39.80	1523.7
172.	19.042	36.546	26.209	19.011	26.202	3.84	.4207	19.66	1523.4
182.	18.823	36.528	26.251	18.791	26.244	4.72	.4391	32.18	1522.9
192.	18.691	36.523	26.281	18.657	26.275	3.38	.4575	14.73	1522.7
202.	18.620	36.516	26.294	18.584	26.288	2.00	.4756	5.38	1522.6
222.	18.495	36.514	26.324	18.455	26.319	1.83	.5112	4.06	1522.6
242.	18.356	36.510	26.356	18.314	26.351	1.71	.5466	4.38	1522.5
262.	18.250	36.505	26.379	18.204	26.376	2.63	.5816	8.73	1522.6
282.	18.168	36.499	26.395	18.119	26.392	.88	.6165	1.68	1522.7
302.	18.124	36.498	26.405	18.071	26.403	.75	.6512	-1.55	1522.9
322.	18.036	36.494	26.424	17.980	26.423	1.36	.6855	1.72	1522.9
342.	17.926	36.488	26.447	17.867	26.446	2.36	.7199	8.64	1522.9
362.	17.850	36.479	26.459	17.787	26.459	2.27	.7537	8.32	1523.0
382.	17.703	36.457	26.478	17.637	26.479	1.64	.7876	5.61	1522.9
402.	17.600	36.445	26.494	17.531	26.496	1.69	.8214	5.79	1522.9
452.	17.187	36.380	26.545	17.111	26.548	1.28	.9041	5.23	1522.5
502.	16.782	36.311	26.589	16.698	26.594	1.05	.9855	9.47	1522.0
552.	15.857	36.156	26.686	15.769	26.691	2.19	1.0644	14.13	1519.8
602.	14.944	36.007	26.777	14.851	26.782	2.83	1.1388	16.61	1517.6
652.	13.933	35.845	26.871	13.837	26.875	3.41	1.2093	23.38	1515.0
702.	12.769	35.668	26.974	12.671	26.977	4.20	1.2756	36.08	1511.8
752.	11.535	35.504	27.087	11.437	27.088	1.81	1.3364	15.96	1508.3
802.	10.319	35.360	27.197	10.221	27.196	2.65	1.3917	24.20	1504.6
852.	9.136	35.237	27.301	9.038	27.298	3.28	1.4421	39.02	1501.0
902.	8.257	35.194	27.407	8.160	27.402	1.66	1.4870	13.51	1498.6
952.	7.012	35.090	27.508	6.918	27.502	2.68	1.5264	9.69	1494.5

Table VI-2n. CTD Station 18: List.
(KNORR 119)

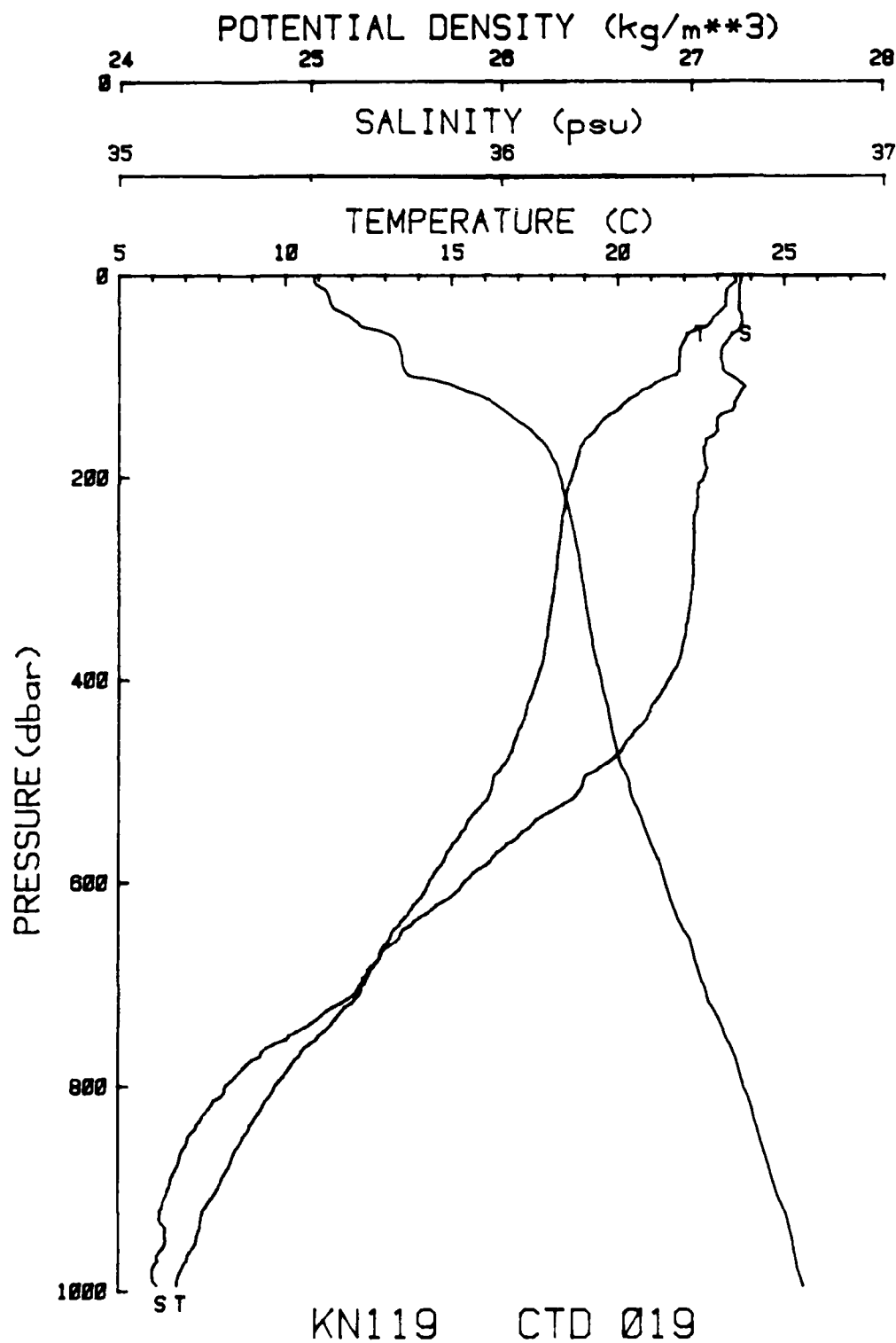


Figure VI-30. CTD Station 19: Plot.
(KNORR 119)

KN119 CTD 019 1986 036 1847Z 27 41.67N 70 12.92W corrD: 5400m									
PRESS	TEMP	SALIN	SIGMA-t	POTEMP	POTDEN	BR-V	DYNHGT	POTGRD	SSPEED
dbar	°C	psu	kg/m ³	°C	kg/m ³	cph	dyn m	m ² /db	m/s
2.	23.518	36.626	25.034	23.518	25.018	0.00	0.0000	0.00	1532.6
6.	23.549	36.626	25.025	23.548	25.009	-1.16	.0105	.56	1532.7
10.	23.400	36.622	25.066	23.398	25.050	7.06	.0224	64.04	1532.4
16.	23.256	36.622	25.108	23.252	25.092	2.87	.0398	9.78	1532.1
20.	23.245	36.621	25.111	23.241	25.095	1.70	.0507	2.75	1532.2
26.	23.236	36.622	25.114	23.230	25.099	1.34	.0682	1.47	1532.2
30.	23.210	36.620	25.120	23.204	25.105	2.86	.0797	11.42	1532.2
36.	22.989	36.624	25.187	22.982	25.173	7.77	.0964	58.76	1531.8
40.	22.930	36.626	25.205	22.922	25.191	4.68	.1082	24.28	1531.7
46.	22.772	36.628	25.253	22.762	25.239	3.54	.1243	12.32	1531.4
50.	22.657	36.623	25.282	22.647	25.269	5.98	.1353	43.15	1531.2
56.	22.171	36.618	25.417	22.160	25.404	7.19	.1510	60.29	1530.0
60.	22.015	36.595	25.444	22.003	25.431	2.87	.1620	15.81	1529.7
66.	21.944	36.587	25.457	21.931	25.445	3.45	.1773	20.79	1529.6
70.	21.878	36.578	25.469	21.864	25.457	2.42	.1873	8.38	1529.4
76.	21.838	36.574	25.477	21.823	25.465	1.51	.2023	.96	1529.4
80.	21.822	36.570	25.479	21.806	25.468	1.61	.2128	5.62	1529.5
86.	21.815	36.575	25.484	21.798	25.473	2.27	.2279	1.48	1529.5
90.	21.812	36.577	25.487	21.794	25.476	1.12	.2379	.98	1529.6
96.	21.805	36.580	25.491	21.786	25.480	2.40	.2528	3.63	1529.7
100.	21.650	36.586	25.539	21.630	25.529	5.84	.2630	44.70	1529.3
106.	21.103	36.622	25.718	21.082	25.708	5.80	.2775	35.66	1528.0
110.	20.963	36.635	25.766	20.942	25.756	4.08	.2865	17.65	1527.7
120.	20.450	36.616	25.891	20.427	25.882	6.40	.3085	54.17	1526.5
130.	20.052	36.607	25.991	20.027	25.982	5.09	.3299	30.80	1525.6
140.	19.594	36.559	26.075	19.568	26.067	5.37	.3504	51.34	1524.4
150.	19.349	36.560	26.140	19.322	26.132	4.69	.3696	26.09	1523.9
160.	19.056	36.541	26.202	19.027	26.194	4.76	.3885	45.65	1523.2
170.	18.852	36.526	26.242	18.821	26.235	2.73	.4070	11.31	1522.8
180.	18.747	36.528	26.271	18.714	26.264	3.97	.4253	17.92	1522.7
190.	18.692	36.534	26.289	18.658	26.283	2.39	.4435	5.46	1522.7
200.	18.578	36.526	26.312	18.542	26.306	2.25	.4614	8.39	1522.5
220.	18.426	36.511	26.339	18.387	26.334	1.61	.4968	4.15	1522.4
240.	18.306	36.501	26.362	18.263	26.358	1.86	.5324	4.80	1522.4
260.	18.224	36.501	26.382	18.179	26.378	2.29	.5670	4.89	1522.5
280.	18.140	36.497	26.400	18.091	26.398	1.33	.6017	1.64	1522.5
300.	18.080	36.497	26.415	18.027	26.413	1.65	.6362	3.77	1522.7
320.	17.993	36.491	26.433	17.937	26.432	1.60	.6708	3.45	1522.8
340.	17.894	36.483	26.451	17.835	26.451	2.04	.7045	6.46	1522.8
360.	17.817	36.474	26.463	17.755	26.463	1.18	.7389	3.74	1522.9
380.	17.710	36.460	26.479	17.645	26.480	1.58	.7722	6.48	1522.9
400.	17.524	36.433	26.503	17.455	26.505	1.96	.8058	10.36	1522.7
450.	16.962	36.343	26.571	16.887	26.574	2.41	.8879	15.58	1521.7
500.	16.201	36.209	26.648	16.120	26.651	.70	.9673	2.15	1520.1
550.	15.248	36.050	26.743	15.162	26.746	3.13	1.0435	27.42	1517.8
600.	14.262	35.896	26.841	14.172	26.844	2.50	1.1147	17.44	1515.3
650.	13.162	35.734	26.946	13.070	26.948	3.29	1.1823	22.21	1512.3
700.	12.301	35.627	27.035	12.206	27.037	2.90	1.2450	25.76	1510.2
750.	10.976	35.443	27.143	10.881	27.143	3.65	1.3031	41.85	1506.2
800.	9.683	35.278	27.242	9.589	27.239	1.90	1.3553	13.86	1502.2
850.	8.710	35.181	27.326	8.615	27.322	1.21	1.4033	8.26	1499.4
900.	7.977	35.132	27.401	7.882	27.395	1.13	1.4473	5.29	1497.4
950.	7.321	35.122	27.490	7.225	27.483	2.02	1.4873	3.10	1495.7

Table VI-20. CTD Station 19: List.
(KNORR 119)

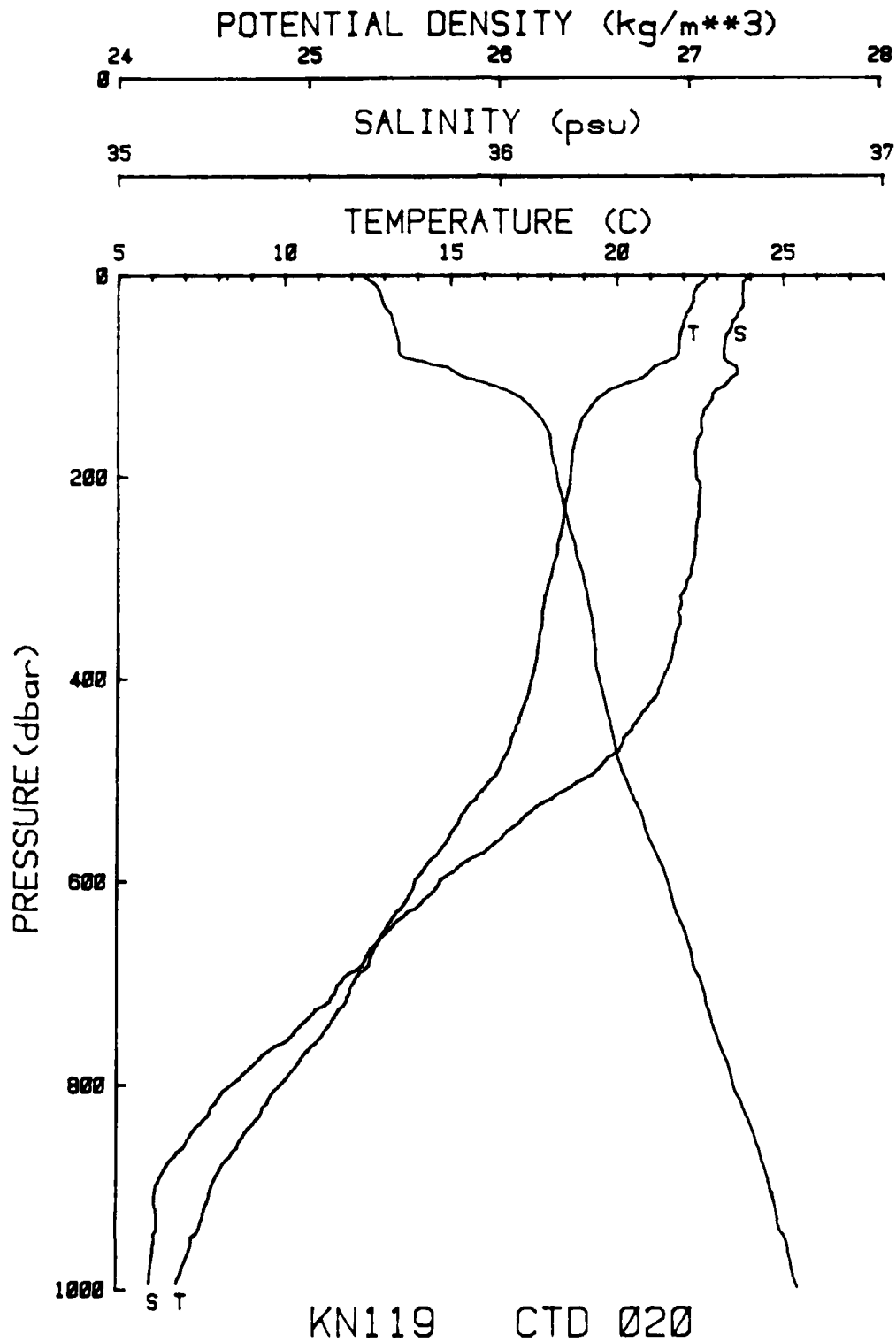


Figure VI-3p. CTD Station 20: Plot.
(KNORR 119)

KN119	CTD 020	1986 036 2301Z			27 50.68N 70 13.26W			corrD: 5400m	
PRESS dbar	TEMP °C	SALIN psu	SIGMA-t kg/m**3	POTEMP °C	POTDEN kg/m**3	BR-V cph	DYNHGT dyn m	POTGRD m°C/db	SSPEED m/s
2.	22.661	36.643	25.296	22.661	25.280	0.00	0.0000	0.00	1530.4
6.	22.611	36.634	25.304	22.610	25.288	3.69	.0103	25.16	1530.3
10.	22.404	36.634	25.363	22.402	25.347	4.04	.0211	14.59	1529.9
16.	22.326	36.633	25.384	22.323	25.369	3.84	.0361	18.11	1529.8
20.	22.303	36.634	25.392	22.299	25.377	2.16	.0465	4.16	1529.8
26.	22.290	36.636	25.397	22.285	25.382	1.67	.0626	2.30	1529.8
30.	22.251	36.634	25.407	22.245	25.392	2.88	.0731	10.34	1529.8
36.	22.144	36.621	25.427	22.137	25.413	3.00	.0882	17.87	1529.6
40.	22.068	36.618	25.446	22.060	25.432	2.80	.0989	11.51	1529.5
46.	22.010	36.606	25.453	22.001	25.440	2.41	.1138	16.10	1529.4
50.	21.983	36.605	25.460	21.973	25.447	2.43	.1238	3.26	1529.4
56.	21.917	36.595	25.471	21.906	25.458	2.25	.1391	14.30	1529.3
60.	21.886	36.589	25.475	21.874	25.463	1.56	.1494	6.28	1529.3
66.	21.865	36.586	25.479	21.852	25.467	1.81	.1647	5.21	1529.3
70.	21.857	36.585	25.481	21.843	25.468	.86	.1748	1.95	1529.4
76.	21.843	36.584	25.484	21.828	25.472	1.24	.1896	1.68	1529.5
80.	21.824	36.583	25.489	21.808	25.477	1.96	.2003	5.76	1529.5
86.	21.455	36.594	25.600	21.438	25.589	6.88	.2149	53.09	1528.6
90.	21.129	36.616	25.706	21.111	25.695	8.36	.2246	53.21	1527.8
96.	20.949	36.612	25.753	20.930	25.742	4.47	.2378	35.36	1527.4
100.	20.877	36.615	25.775	20.857	25.764	2.92	.2474	13.44	1527.3
106.	20.357	36.593	25.899	20.337	25.889	8.75	.2607	93.22	1526.0
110.	20.057	36.583	25.972	20.036	25.962	6.26	.2690	57.06	1525.2
120.	19.535	36.553	26.086	19.513	26.077	4.52	.2888	25.88	1523.9
130.	19.210	36.539	26.160	19.186	26.151	3.70	.3086	24.86	1523.2
140.	18.987	36.525	26.207	18.961	26.198	4.25	.3273	29.02	1522.7
150.	18.879	36.524	26.234	18.852	26.226	2.67	.3458	8.47	1522.5
160.	18.774	36.521	26.258	18.746	26.251	1.54	.3638	5.62	1522.4
170.	18.693	36.512	26.272	18.663	26.265	2.56	.3823	8.69	1522.3
180.	18.643	36.509	26.283	18.611	26.276	1.09	.4000	1.30	1522.3
190.	18.614	36.510	26.290	18.580	26.284	2.22	.4184	4.63	1522.4
200.	18.592	36.511	26.298	18.556	26.291	1.85	.4365	3.33	1522.5
220.	18.480	36.518	26.331	18.441	26.326	1.84	.4720	5.54	1522.5
240.	18.399	36.516	26.350	18.356	26.346	1.31	.5075	2.37	1522.6
260.	18.280	36.510	26.375	18.234	26.372	1.94	.5426	4.60	1522.6
280.	18.150	36.504	26.403	18.102	26.400	2.87	.5770	13.30	1522.6
300.	17.990	36.491	26.433	17.938	26.431	2.30	.6116	11.77	1522.4
320.	17.821	36.472	26.461	17.766	26.460	2.19	.6452	.07	1522.2
340.	17.743	36.468	26.477	17.685	26.476	1.41	.6787	3.06	1522.3
360.	17.650	36.456	26.490	17.588	26.491	1.32	.7123	1.76	1522.4
380.	17.570	36.444	26.501	17.505	26.502	.88	.7456	3.13	1522.5
400.	17.420	36.422	26.520	17.352	26.522	2.05	.7787	8.53	1522.3
450.	16.937	36.342	26.576	16.862	26.579	1.51	.8599	4.75	1521.6
500.	16.158	36.202	26.652	16.077	26.656	3.50	.9394	41.91	1519.9
550.	15.030	36.016	26.766	14.945	26.769	2.49	1.0140	16.05	1517.1
600.	13.912	35.840	26.872	13.824	26.875	2.01	1.0844	9.11	1514.1
650.	12.983	35.702	26.958	12.891	26.960	2.54	1.1503	15.23	1511.7
700.	12.066	35.580	27.045	11.972	27.046	2.13	1.2125	16.42	1509.3
750.	11.168	35.460	27.121	11.072	27.121	2.52	1.2707	15.61	1506.9
800.	9.867	35.295	27.224	9.772	27.222	3.15	1.3246	36.43	1502.9
850.	8.784	35.191	27.321	8.689	27.317	1.17	1.3733	10.77	1499.6
900.	7.819	35.102	27.401	7.725	27.395	2.20	1.4173	12.96	1496.7
950.	7.244	35.098	27.482	7.149	27.476	2.30	1.4578	11.05	1495.4

Table VI-2r. CTD Station 20: List.
(KNORR 119)

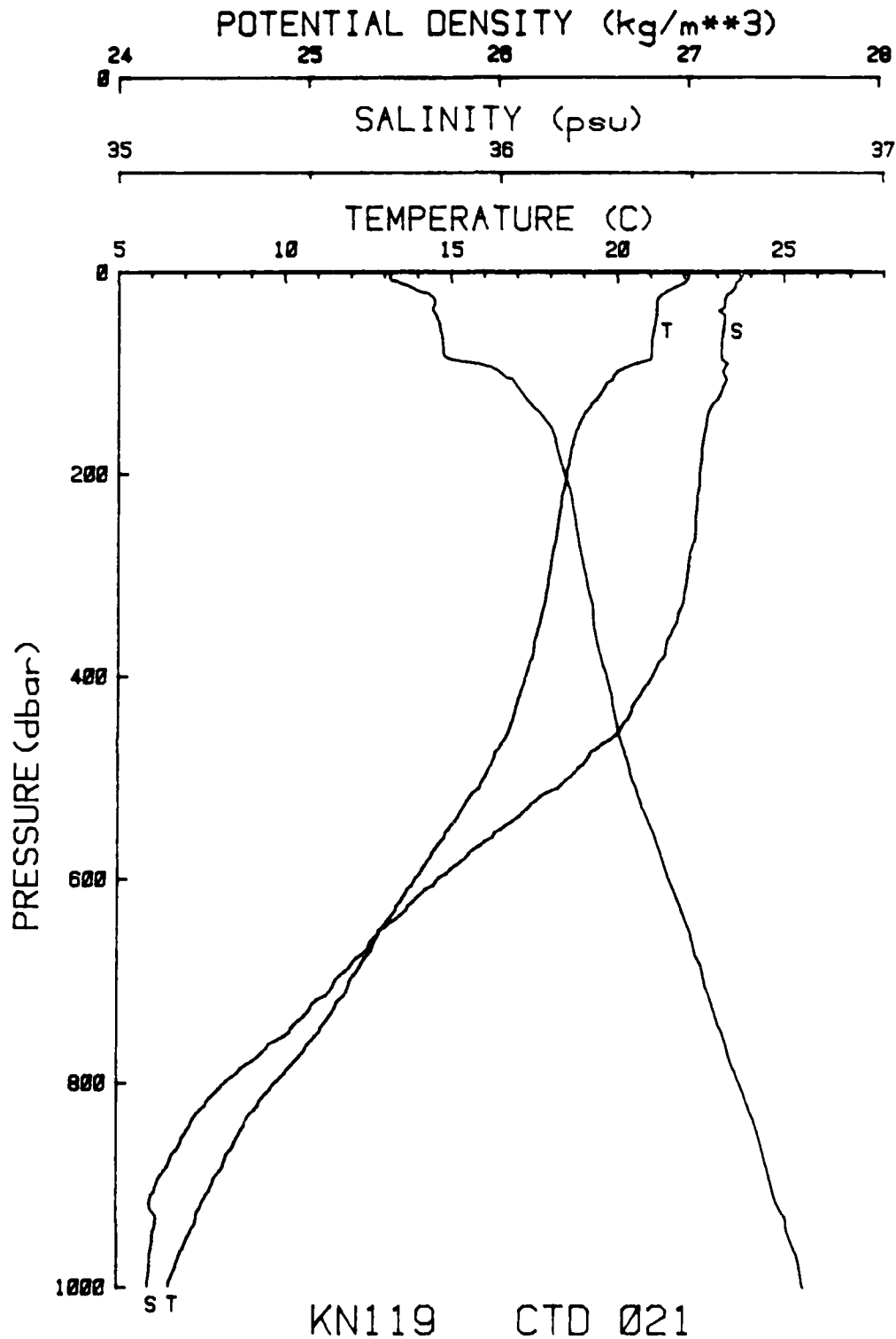


Figure VI-3q. CTD Station 21: Plot.
(KNORR 119)

FN119	CTD 021	1986 037 0109Z	27 54.38N	70 13.20W	corrD: 5400m				
PRESS dbar	TEMP °C	SALIN psu	SIGMA-t kg/m ³	POTEMP °C	POTDEN kg/m ³	BR-V cph	DYNHGT dyn m	POTGRD m°C/db	SSPEED m/s
2.	22.116	36.627	25.439	22.115	25.423	0.00	0.0000	0.00	1529.0
6.	22.122	36.625	25.437	22.120	25.421	.03	.0096	.73	1529.1
10.	22.006	36.614	25.460	22.004	25.445	5.60	.0195	44.55	1528.8
16.	21.621	36.609	25.565	21.618	25.550	7.50	.0348	67.03	1527.9
20.	21.431	36.598	25.610	21.427	25.595	5.19	.0444	37.95	1527.5
26.	21.195	36.584	25.664	21.190	25.649	2.86	.0585	12.31	1526.9
30.	21.175	36.584	25.669	21.169	25.655	2.56	.0680	6.96	1526.9
36.	21.167	36.584	25.672	21.160	25.658	-4.42	.0817	.06	1527.0
40.	21.167	36.584	25.672	21.159	25.658	4.21	.0914	.41	1527.1
46.	21.137	36.584	25.680	21.128	25.666	1.55	.1053	3.17	1527.1
50.	21.126	36.583	25.682	21.116	25.669	1.36	.1146	3.27	1527.1
56.	21.082	36.580	25.692	21.071	25.679	2.28	.1285	7.99	1527.1
60.	21.050	36.579	25.700	21.038	25.687	2.71	.1379	8.90	1527.1
66.	21.027	36.576	25.704	21.014	25.692	1.43	.1516	4.24	1527.1
70.	21.018	36.575	25.706	21.005	25.694	1.28	.1617	2.41	1527.2
76.	21.014	36.575	25.707	20.999	25.695	.84	.1750	.91	1527.2
80.	21.009	36.575	25.708	20.994	25.696	1.37	.1843	2.16	1527.3
86.	20.984	36.575	25.715	20.967	25.704	2.70	.1979	8.69	1527.3
90.	20.565	36.590	25.841	20.548	25.830	12.86	.2074	165.88	1526.3
96.	20.081	36.588	25.969	20.063	25.958	8.38	.2198	77.19	1525.1
100.	19.906	36.580	26.009	19.888	25.999	5.89	.2284	38.83	1524.6
106.	19.827	36.589	26.037	19.807	26.026	3.78	.2404	18.17	1524.5
110.	19.657	36.583	26.077	19.637	26.067	6.63	.2482	57.41	1524.1
120.	19.493	36.572	26.112	19.471	26.103	3.01	.2681	13.91	1523.8
130.	19.205	36.552	26.172	19.182	26.163	4.61	.2874	35.54	1523.2
140.	18.978	36.538	26.220	18.952	26.211	4.55	.3062	28.61	1522.7
150.	18.839	36.535	26.252	18.812	26.244	3.12	.3244	12.62	1522.4
160.	18.716	36.529	26.279	18.687	26.271	2.06	.3427	9.01	1522.2
170.	18.640	36.525	26.296	18.610	26.289	1.57	.3607	4.56	1522.2
180.	18.576	36.523	26.310	18.544	26.303	1.87	.3782	4.22	1522.2
190.	18.521	36.520	26.322	18.488	26.316	1.31	.3958	2.74	1522.2
200.	18.454	36.517	26.337	18.419	26.331	1.79	.4139	4.17	1522.1
220.	18.316	36.512	26.368	18.277	26.362	2.43	.4488	9.18	1522.1
240.	18.236	36.507	26.384	18.194	26.379	1.75	.4836	5.41	1522.2
260.	18.147	36.505	26.405	18.102	26.401	1.79	.5180	4.14	1522.2
280.	18.017	36.491	26.426	17.969	26.423	1.56	.5521	3.81	1522.2
300.	17.923	36.484	26.445	17.871	26.443	1.99	.5860	6.36	1522.2
320.	17.824	36.476	26.463	17.769	26.461	1.69	.6199	4.64	1522.3
340.	17.678	36.460	26.486	17.620	26.486	2.48	.6534	9.17	1522.1
360.	17.533	36.439	26.506	17.472	26.506	1.79	.6865	8.28	1522.0
380.	17.423	36.423	26.521	17.358	26.522	2.06	.7194	9.83	1522.0
400.	17.204	36.391	26.550	17.136	26.551	2.73	.7522	14.22	1521.7
450.	16.734	36.311	26.601	16.659	26.604	1.50	.8321	6.43	1521.0
500.	15.962	36.173	26.676	15.882	26.679	2.26	.9101	17.56	1519.3
550.	14.910	35.998	26.778	14.826	26.781	2.78	.9844	23.19	1516.7
600.	13.891	35.833	26.871	13.803	26.874	2.46	1.0539	16.21	1514.0
650.	12.826	35.680	26.973	12.735	26.974	3.63	1.1196	30.20	1511.2
700.	11.946	35.564	27.056	11.853	27.057	2.26	1.1810	15.35	1508.9
750.	11.044	35.449	27.136	10.949	27.135	1.86	1.2385	10.05	1506.4
800.	9.725	35.278	27.235	9.630	27.233	2.82	1.2917	27.27	1502.4
850.	8.658	35.177	27.331	8.565	27.326	1.95	1.3396	12.66	1499.2
900.	7.842	35.103	27.399	7.748	27.393	2.41	1.3834	15.94	1496.8
950.	7.127	35.092	27.494	7.032	27.487	2.42	1.4235	13.57	1494.9

Table VI-24. CTD Station 21: List.
(KNORP 119)

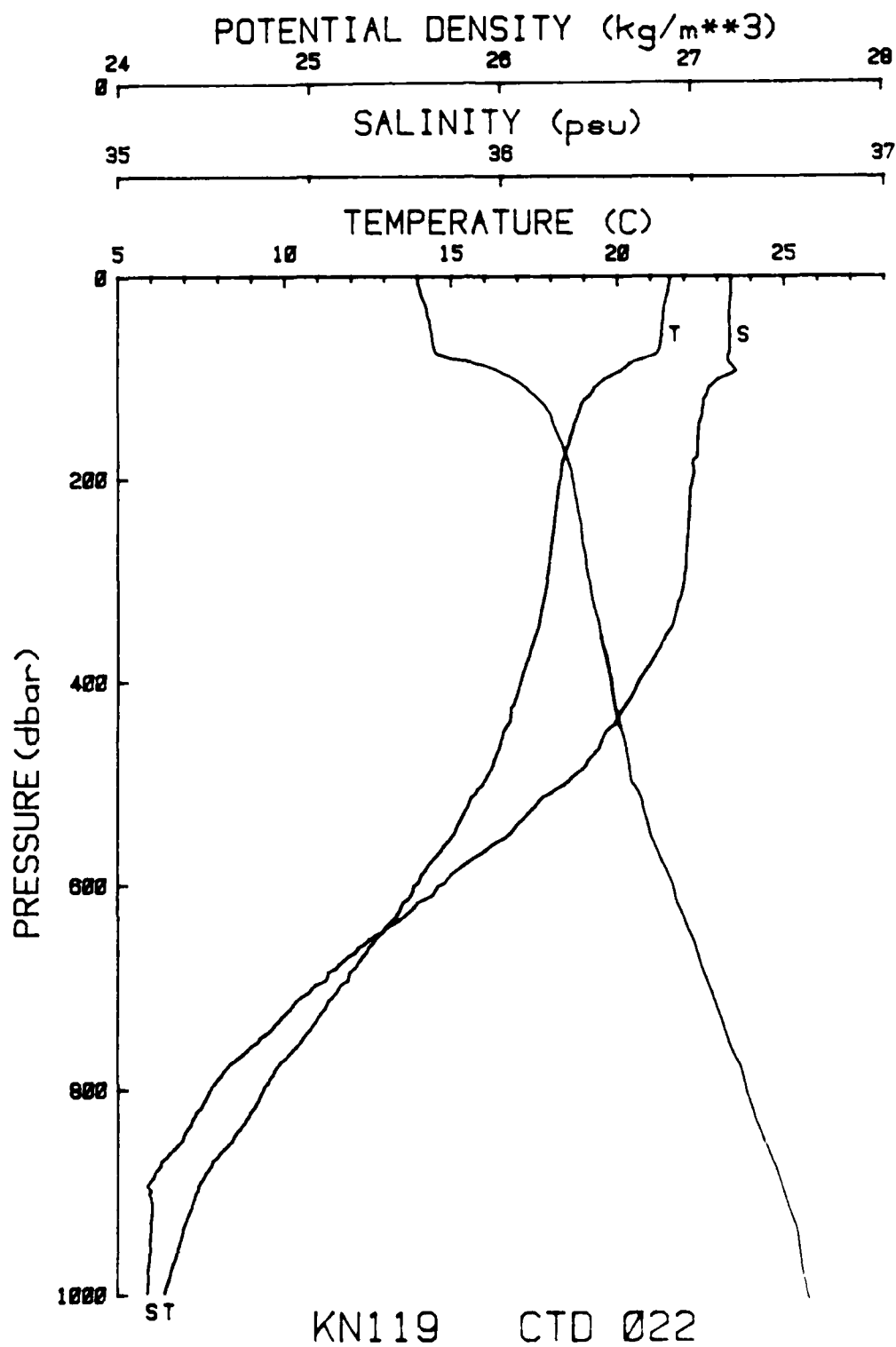
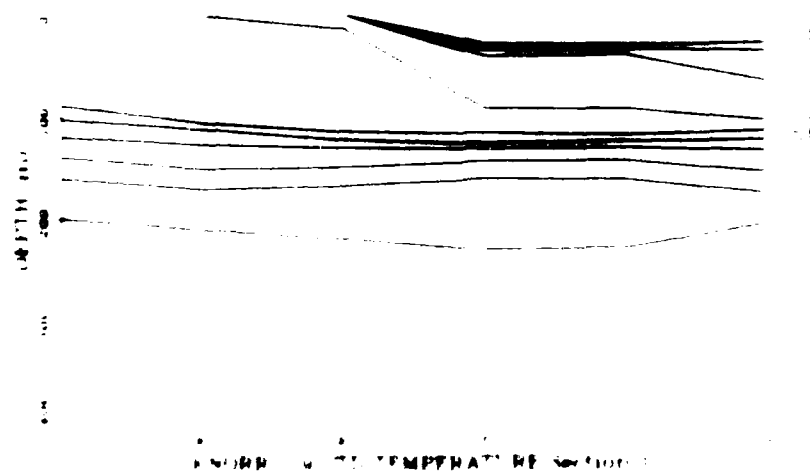
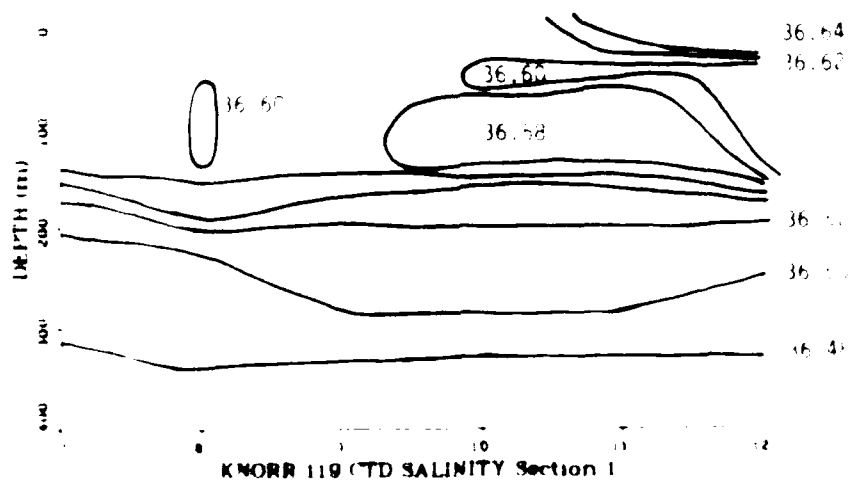
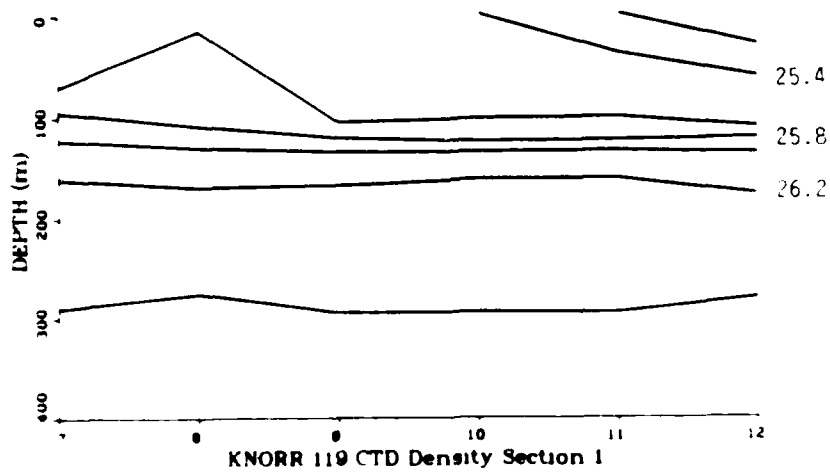


Figure VI-3r. CTD Station 22: 11.1.
(KNORR 119)

PN119	CTD #22	1986	037	1505Z	28	11.57N	79	15.50W	CorrD: 5400m
PRESS	TEMP	SALIN	SIGMA-T	POTEMP	POTDEN	BR-V	DYNHGT	POTGRD	SSPEED
dbar	°C	psu	kg m ⁻³	°C	kg/m ³	cpk	dyn m	m°C/db	m/s
2.	21.562	36.599	25.574	21.562	25.558	0.00	0.0000	9.00	1527.5
5.	21.563	36.599	25.573	21.562	25.558	-1.80	0.0090	7.79	1527.6
10.	21.528	36.601	25.585	21.526	25.570	4.05	0.0192	14.80	1527.5
15.	21.504	36.601	25.591	21.501	25.576	1.83	0.0328	4.17	1527.6
20.	21.488	36.600	25.595	21.484	25.580	1.71	0.0431	4.49	1527.6
25.	21.420	36.597	25.612	21.415	25.598	2.49	0.0569	6.94	1527.5
30.	21.397	36.597	25.618	21.391	25.604	2.29	0.0670	5.69	1527.5
35.	21.373	36.596	25.624	21.366	25.610	1.51	0.0809	2.86	1527.6
40.	21.362	36.596	25.627	21.355	25.617	1.76	0.0906	3.29	1527.6
45.	21.346	36.596	25.631	21.337	25.618	1.86	0.1048	3.97	1527.7
50.	21.335	36.597	25.635	21.325	25.622	1.98	0.1146	3.68	1527.7
55.	21.319	36.597	25.639	21.309	25.627	1.60	0.1286	1.87	1527.8
60.	21.305	36.597	25.644	21.293	25.631	2.04	0.1379	4.77	1527.8
65.	21.282	36.597	25.649	21.269	25.637	1.57	0.1525	2.94	1527.8
70.	21.260	36.597	25.656	21.247	25.644	2.84	0.1624	8.52	1527.8
75.	21.195	36.596	25.673	21.180	25.662	3.75	0.1765	17.54	1527.8
80.	20.877	36.594	25.758	20.862	25.747	9.83	0.1855	109.21	1527.8
85.	20.762	36.597	25.901	20.745	25.890	8.72	0.1986	77.15	1525.7
90.	20.227	36.598	25.945	20.210	25.934	5.40	0.2074	31.71	1525.4
95.	19.948	36.606	26.018	19.930	26.007	6.31	0.2197	58.77	1524.7
100.	19.704	36.578	26.161	19.685	26.151	5.23	0.2274	52.86	1524.7
105.	19.444	36.555	26.311	19.424	26.301	4.65	0.2391	26.41	1527.4
110.	19.290	36.542	26.142	19.270	26.172	4.77	0.2471	12.98	1527.7
115.	19.094	36.531	26.184	19.073	26.174	4.17	0.2664	26.70	1527.7
120.	18.976	36.526	26.276	18.953	26.227	2.50	0.2847	9.72	1527.7
125.	18.768	36.521	26.260	18.743	26.251	1.65	0.3029	5.26	1527.7
130.	18.647	36.514	26.285	18.621	26.277	2.43	0.3208	7.77	1527.9
135.	18.557	36.512	26.200	18.524	26.300	2.24	0.3386	7.74	1527.8
140.	18.450	36.510	26.133	18.426	26.325	1.57	0.3567	7.67	1527.7
145.	18.377	36.508	26.350	18.341	26.347	2.15	0.3749	10.75	1527.6
150.	18.297	36.502	26.366	18.267	26.369	1.67	0.3914	7.75	1527.5
155.	18.258	36.499	26.371	18.223	26.365	1.51	0.4084	4.65	1527.5
160.	18.165	36.491	26.388	18.126	26.383	1.41	0.4258	4.66	1527.6
165.	18.102	36.488	26.406	18.059	26.401	1.26	0.4426	4.70	1527.7
170.	18.076	36.484	26.421	17.971	26.417	1.55	0.4599	7.48	1527.8
175.	17.979	36.481	26.438	17.890	26.435	1.42	0.4751	7.79	1527.9
180.	17.955	36.474	26.454	17.907	26.452	1.64	0.4886	6.77	1527.7
185.	17.951	36.462	26.470	17.896	26.469	1.31	0.5117	7.97	1527.7
190.	17.916	36.447	26.492	17.850	26.491	0.99	0.5355	6.56	1527.7
195.	17.842	36.421	26.517	17.788	26.517	1.23	0.5595	7.79	1527.4
200.	17.779	36.388	26.538	17.725	26.539	1.29	0.5814	4.49	1527.4
205.	17.757	36.359	26.561	17.697	26.561	1.15	0.6024	5.76	1527.4
210.	17.577	36.368	26.615	17.499	26.618	1.76	0.6235	7.79	1527.4
215.	17.979	36.364	26.674	17.998	26.677	1.71	0.6449	7.79	1527.4
220.	17.977	36.359	26.707	17.994	26.707	1.78	0.6657	7.79	1527.4
225.	17.977	36.359	26.707	17.994	26.707	1.78	0.6867	7.79	1527.4
230.	17.977	36.359	26.707	17.994	26.707	1.78	0.7077	7.79	1527.4
235.	17.977	36.359	26.707	17.994	26.707	1.78	0.7287	7.79	1527.4
240.	17.977	36.359	26.707	17.994	26.707	1.78	0.7497	7.79	1527.4
245.	17.977	36.359	26.707	17.994	26.707	1.78	0.7707	7.79	1527.4
250.	17.977	36.359	26.707	17.994	26.707	1.78	0.7917	7.79	1527.4
255.	17.977	36.359	26.707	17.994	26.707	1.78	0.8127	7.79	1527.4
260.	17.977	36.359	26.707	17.994	26.707	1.78	0.8337	7.79	1527.4
265.	17.977	36.359	26.707	17.994	26.707	1.78	0.8547	7.79	1527.4
270.	17.977	36.359	26.707	17.994	26.707	1.78	0.8757	7.79	1527.4
275.	17.977	36.359	26.707	17.994	26.707	1.78	0.8967	7.79	1527.4
280.	17.977	36.359	26.707	17.994	26.707	1.78	0.9177	7.79	1527.4
285.	17.977	36.359	26.707	17.994	26.707	1.78	0.9387	7.79	1527.4
290.	17.977	36.359	26.707	17.994	26.707	1.78	0.9597	7.79	1527.4
295.	17.977	36.359	26.707	17.994	26.707	1.78	0.9807	7.79	1527.4
300.	17.977	36.359	26.707	17.994	26.707	1.78	1.0017	7.79	1527.4



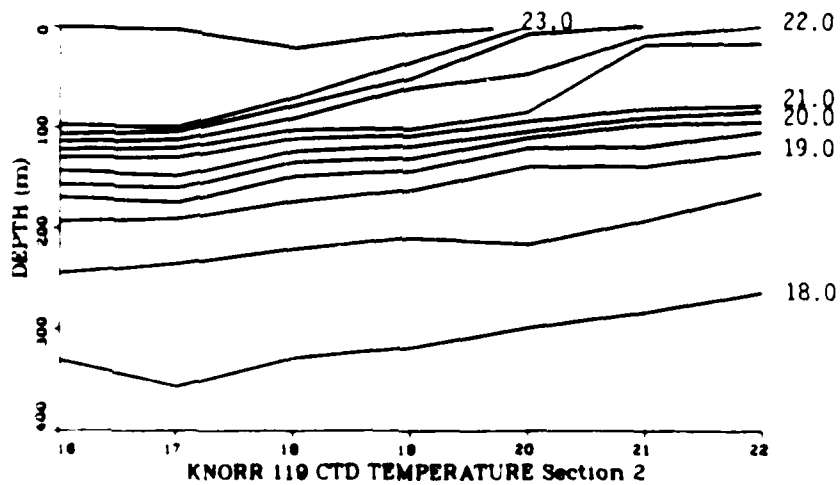
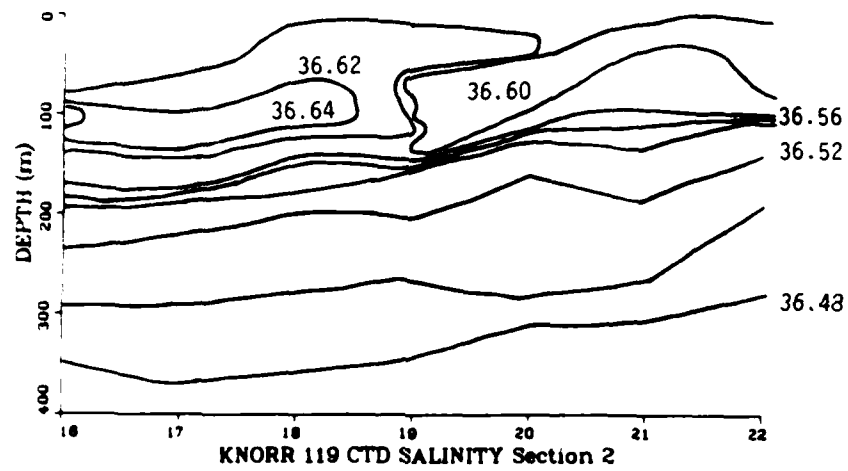
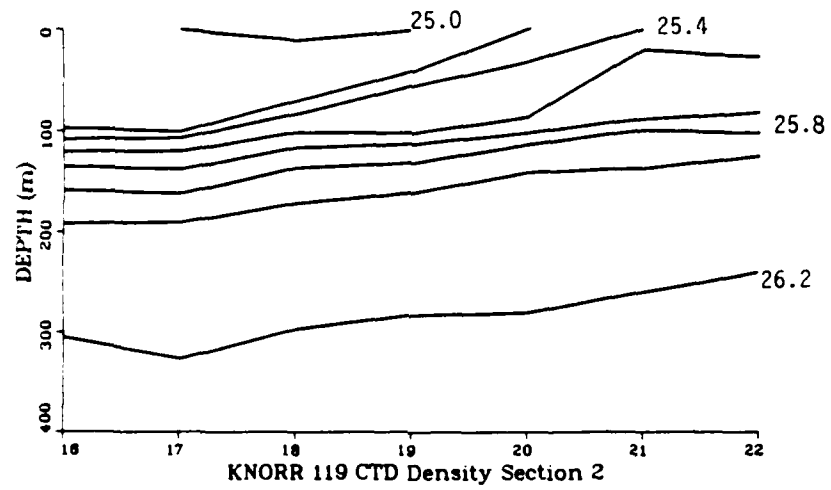


Figure VI-1. CTD Section Two Plot
(KNORR 119)

FASINEX Knorr 123 CTD Stations

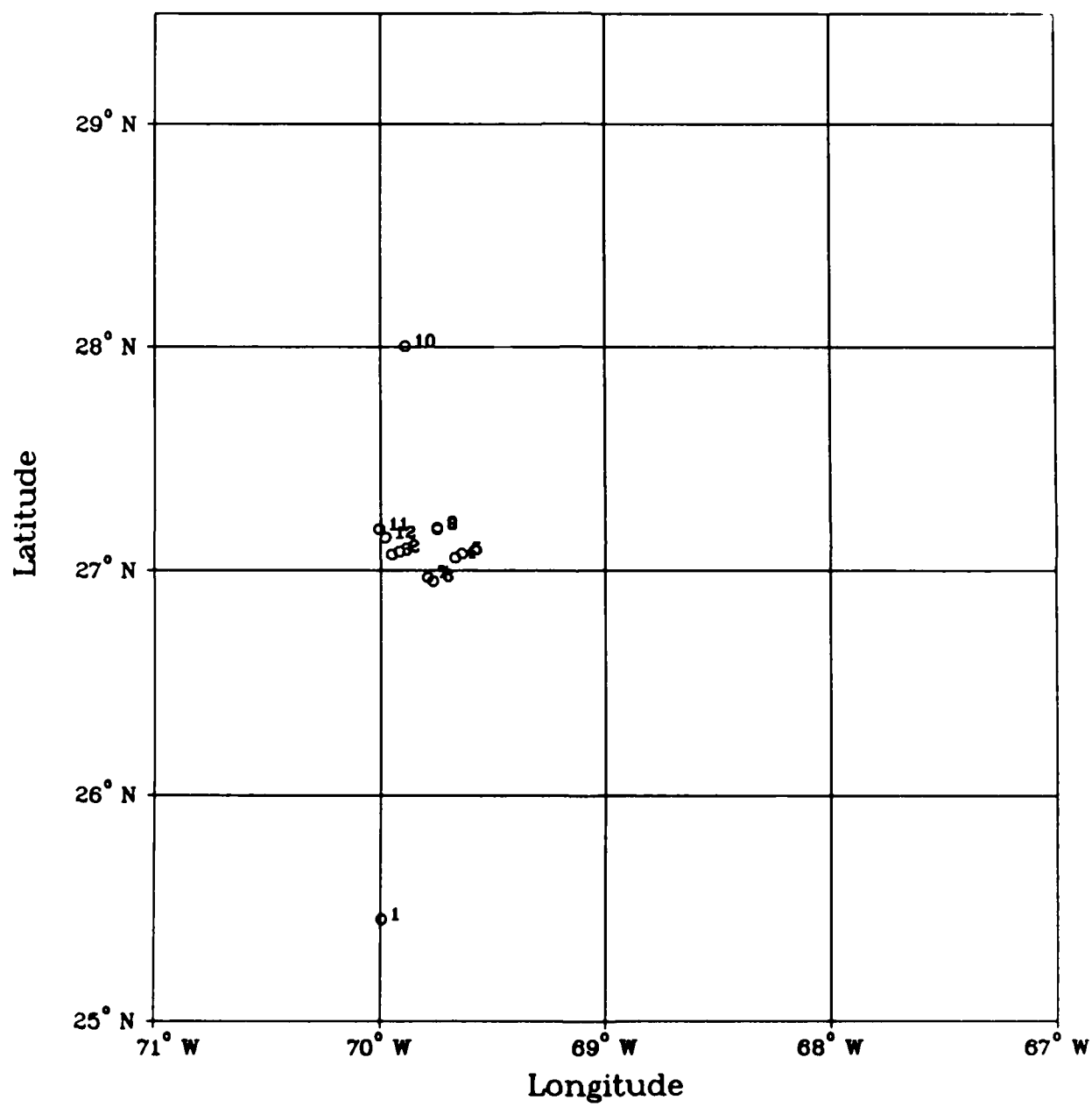
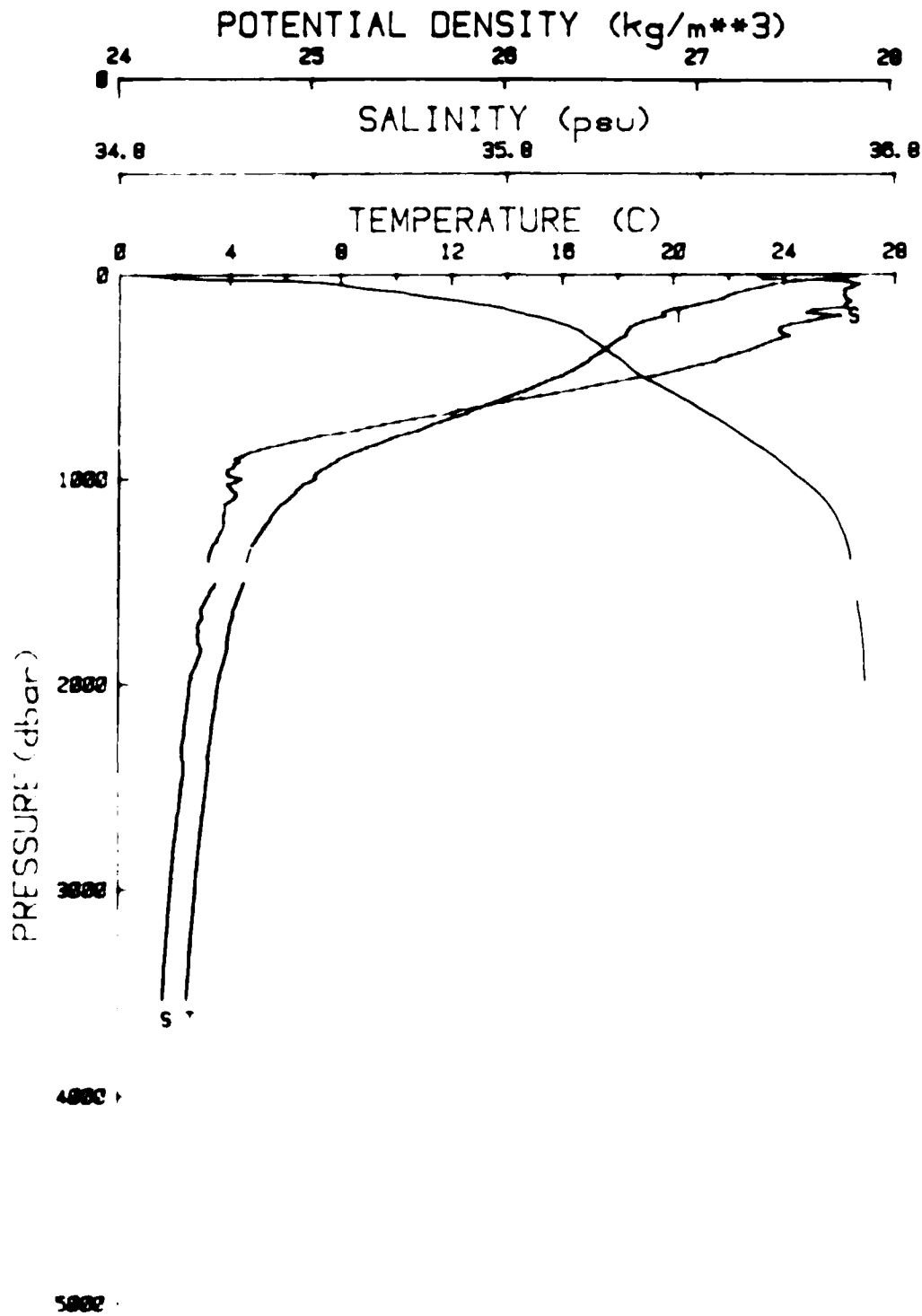


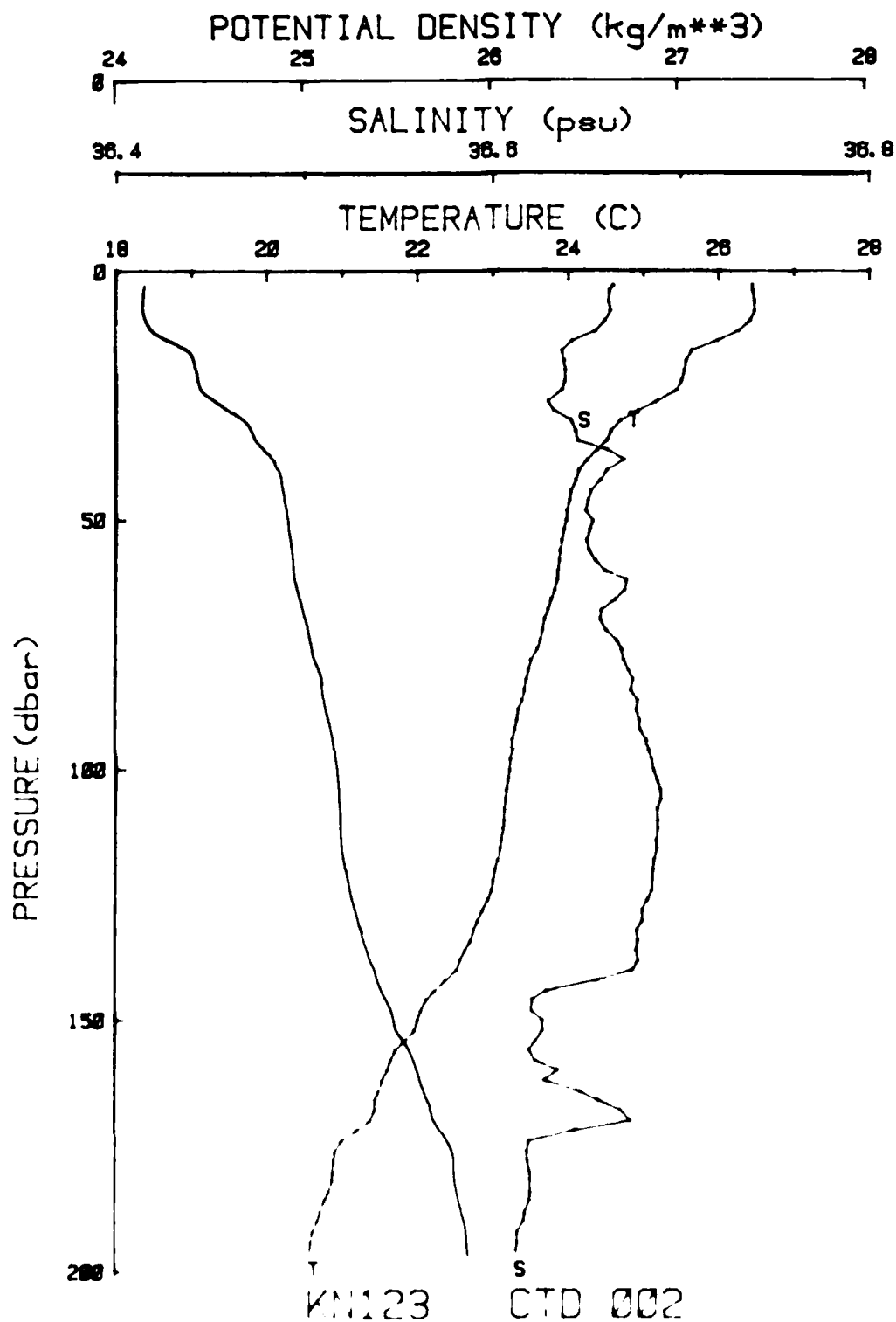
Figure VI-6

Table VI-2: KNORR 123 CTD Station Times and Positions

Station	(GMT) Time	1986	INTERNAV Positions		Comments
			Latitude	Longitude	
1	1800-2040	13 June	25°27.03'N	69°59.76'W	5000 m F12
2	1438-1502	14 June	27°05.10'N	69°54.90'W	2000 m P9
3	1626-1652	14 June	27°04.31'N	69°56.95'W	200 m P9
4	1200-1228	16 June	27°03.51'N	69°40.13'W	200 m P3
5	1257-1317	16 June	27°04.57'N	69°38.26'W	200 m P3
6	1826-1846	16 June	26°57.20'N	69°46.03'W	200 m P5
7	1915-1939	16 June	26°58.20'N	69°47.44'W	200 m P5
8	0921-0943	17 June	27°11.14'N	69°44.95'W	200 m P7
9	1016-1038	17 June	27°11.48'N	69°44.96'W	200 m P7
10	2056-2341	18 June	28°00.21'N	69°53.39'W	5000 m P1
11	0505-0750	19 June	27°11.11'N	70°00.38'W	5000 m Central Array Area
12	2138-0040	19 June	°08.79'N	69°58.69'W	200 m Intercompari- son with RTP



FN123 CTD 001 1986 164 1800Z 25 27.03N 69 59.76W corrD: 5400m									
PRESS	TEMP	SALIN	SIGMA-t	POTEMP	POTDEN	BR-V	DYNHGT	POTGRD	SSPEED
dbar	°C	psu	kg/m ³	°C	kg/m ³	cph	dyn m	m°C/db	m/s
4.	26.638	36.449	27.945	26.637	23.927	0.00	0.0000	0.00	1539.9
8.	26.480	36.440	23.989	26.478	23.972	7.81	.0160	63.99	1539.6
12.	26.205	36.457	24.089	26.202	24.071	6.36	.0321	26.24	1539.0
16.	25.715	36.461	24.245	25.711	24.228	8.59	.0544	68.10	1538.0
20.	25.667	36.461	24.260	25.662	24.244	3.83	.0684	14.72	1537.9
24.	25.124	36.538	24.485	25.118	24.469	14.15	.0903	148.02	1536.8
28.	24.345	36.675	24.826	24.338	24.811	16.79	.1036	203.86	1535.2
32.	23.868	36.711	24.995	23.860	24.981	7.99	.1225	62.82	1534.1
36.	23.772	36.712	25.024	23.763	25.010	4.43	.1338	21.03	1533.9
40.	23.497	36.706	25.101	23.487	25.087	7.06	.1516	56.41	1533.4
44.	23.383	36.701	25.131	23.372	25.117	4.83	.1629	27.75	1533.1
48.	23.229	36.694	25.171	23.217	25.158	4.48	.1802	24.62	1532.8
52.	23.146	36.691	25.192	23.133	25.179	5.17	.1912	29.90	1532.7
56.	22.804	36.674	25.278	22.790	25.266	6.97	.2083	58.53	1531.9
60.	22.686	36.669	25.309	22.672	25.297	2.74	.2188	9.37	1531.7
64.	22.470	36.669	25.371	22.455	25.359	7.64	.2352	61.78	1531.2
68.	22.376	36.670	25.398	22.359	25.387	5.71	.2457	33.28	1531.0
72.	22.251	36.671	25.434	22.233	25.423	3.71	.2613	14.42	1530.8
76.	22.229	36.671	25.441	22.211	25.430	2.72	.2713	7.90	1530.8
80.	22.181	36.668	25.481	22.061	25.470	6.25	.2869	46.05	1530.5
84.	21.983	36.669	25.509	21.962	25.498	3.73	.2972	18.13	1530.4
88.	21.958	36.670	25.516	21.937	25.506	.97	.3118	1.12	1530.4
92.	21.937	36.669	25.522	21.915	25.512	2.61	.3219	8.10	1530.4
96.	21.505	36.678	25.650	21.481	25.640	6.75	.3465	50.21	1529.4
100.	21.341	36.687	25.702	21.315	25.693	3.36	.3703	10.74	1529.2
104.	21.052	36.691	25.784	21.024	25.776	5.18	.3931	33.19	1528.6
108.	20.715	36.690	25.876	20.686	25.868	6.02	.4157	-33.50	1527.8
112.	20.267	36.643	25.961	20.236	25.954	4.27	.4366	45.92	1526.7
116.	19.872	36.588	26.024	19.840	26.018	4.28	.4576	31.29	1525.8
120.	19.690	36.578	26.065	19.656	26.058	3.28	.4783	14.82	1525.4
124.	19.601	36.592	26.099	19.565	26.093	2.48	.4983	3.54	1525.1
128.	19.657	36.659	26.135	19.620	26.129	4.04	.5177	19.76	1525.7
132.	18.981	36.563	26.238	18.941	26.233	3.88	.5561	18.79	1524.1
136.	18.636	36.529	26.300	18.593	26.296	2.09	.5927	6.44	1523.4
140.	18.365	36.499	26.345	18.319	26.342	1.64	.6286	3.71	1522.9
144.	18.289	36.500	26.366	18.240	26.363	2.57	.6640	11.00	1523.0
148.	18.240	36.533	26.403	18.187	26.401	3.47	.6989	4.35	1523.2
152.	17.939	36.488	26.444	17.884	26.443	2.26	.7332	14.27	1522.6
156.	17.743	36.461	26.471	17.684	26.471	2.22	.7668	8.28	1522.4
160.	17.553	36.435	26.498	17.491	26.498	1.71	.8000	6.87	1522.1
164.	17.325	36.397	26.525	17.261	26.526	2.20	.8332	13.97	1521.7
168.	17.056	36.355	26.558	16.988	26.559	2.52	.8657	16.92	1521.2
172.	16.544	36.269	26.613	16.469	26.616	.27	.9455	7.22	1520.4
176.	15.185	36.144	26.694	15.105	26.697	2.80	1.0227	30.05	1518.8
180.	14.986	35.998	26.783	14.801	26.786	1.89	1.0958	14.71	1516.6
184.	14.905	35.949	26.881	13.817	26.883	2.35	1.1653	14.51	1514.1
188.	14.901	35.700	26.972	12.809	26.974	3.06	1.2305	31.17	1511.5
192.	14.946	35.565	27.056	11.852	27.057	3.11	1.2919	31.94	1508.9
196.	14.963	35.436	27.140	10.868	27.140	2.70	1.3492	17.69	1506.2
200.	14.985	35.287	27.232	9.890	27.230	2.26	1.4022	16.27	1502.6
204.	14.761	35.167	27.307	8.866	27.303	2.26	1.4512	14.54	1499.6
208.	14.703	35.096	27.384	7.808	27.378	1.82	1.4961	8.64	1497.1
212.	14.783	35.092	27.457	6.804	27.451	1.50	1.5374	22.37	1495.2
216.	14.772	35.096	27.522	5.803	27.516	1.35	1.5752	22.76	1495.7



KN123 CTD 002

FN123	CTD 002	1986 165 1438Z		27 05.10N 69 54.90W		corrD: 5400m			
PRESS dbar	TEMP °C	SALIN psu	SIGMA-t kg/m**3	POTEMP °C	POTDEN kg/m**3	SR-V cph	DYNHGT dyn m	POTGRD m°C/db	SSPEED m/s
3.	26.442	36.664	24.170	26.442	24.152	0.00	0.0000	0.00	1539.6
6.	26.471	36.661	24.159	26.470	24.141	-3.13	.0119	-9.27	1539.7
10.	26.413	36.659	24.175	26.410	24.158	5.01	.0271	28.76	1539.7
16.	25.634	36.637	24.402	25.631	24.386	12.97	.0489	177.30	1537.9
20.	25.530	36.638	24.436	25.526	24.420	4.23	.0629	17.75	1537.8
26.	25.173	36.629	24.539	25.167	24.523	10.28	.0846	116.66	1537.0
30.	24.688	36.641	24.696	24.682	24.681	11.24	.0973	119.51	1535.9
36.	24.379	36.660	24.804	24.371	24.789	9.19	.1164	67.03	1535.3
40.	24.131	36.660	24.878	24.122	24.864	6.46	.1292	55.00	1534.7
46.	24.008	36.650	24.908	23.998	24.894	3.06	.1475	11.84	1534.5
50.	23.963	36.653	24.923	23.953	24.909	3.08	.1603	5.42	1534.5
56.	23.886	36.650	24.944	23.874	24.931	3.18	.1783	9.47	1534.4
60.	23.850	36.659	24.961	23.837	24.948	3.89	.1909	9.79	1534.4
66.	23.763	36.664	24.991	23.749	24.978	4.18	.2082	25.36	1534.3
70.	23.675	36.656	25.011	23.660	24.999	4.44	.2201	21.89	1534.1
76.	23.575	36.668	25.049	23.559	25.037	5.29	.2377	25.94	1534.0
80.	23.460	36.671	25.086	23.443	25.074	4.40	.2498	17.56	1533.8
86.	23.375	36.676	25.114	23.358	25.103	4.24	.2674	14.39	1533.7
90.	23.306	36.677	25.135	23.287	25.124	3.13	.2790	8.58	1533.5
96.	23.234	36.681	25.159	23.214	25.149	2.28	.2959	4.68	1533.5
100.	23.196	36.684	25.173	23.175	25.162	2.49	.3078	5.32	1533.4
106.	23.146	36.688	25.190	23.124	25.180	2.45	.3240	6.13	1533.4
110.	23.120	36.686	25.196	23.097	25.187	1.89	.3363	3.46	1533.4
120.	23.006	36.684	25.227	22.981	25.218	4.03	.3634	18.38	1533.3
130.	22.769	36.678	25.292	22.742	25.283	5.34	.3920	30.81	1532.9
140.	22.495	36.673	25.367	22.466	25.358	3.94	.4186	20.73	1532.3
150.	21.978	36.625	25.477	21.948	25.469	5.52	.4444	25.13	1531.1
160.	21.583	36.633	25.594	21.552	25.587	6.09	.4696	23.73	1530.2
170.	21.355	36.672	25.686	21.322	25.680	5.48	.4941	27.27	1529.8
180.	20.856	36.618	25.783	20.822	25.777	2.51	.5178	5.72	1528.6
190.	20.661	36.615	25.833	20.625	25.828	4.06	.5393	19.75	1528.2

Table VI-4b. CTD Station 2: List.
(KNORR 123)

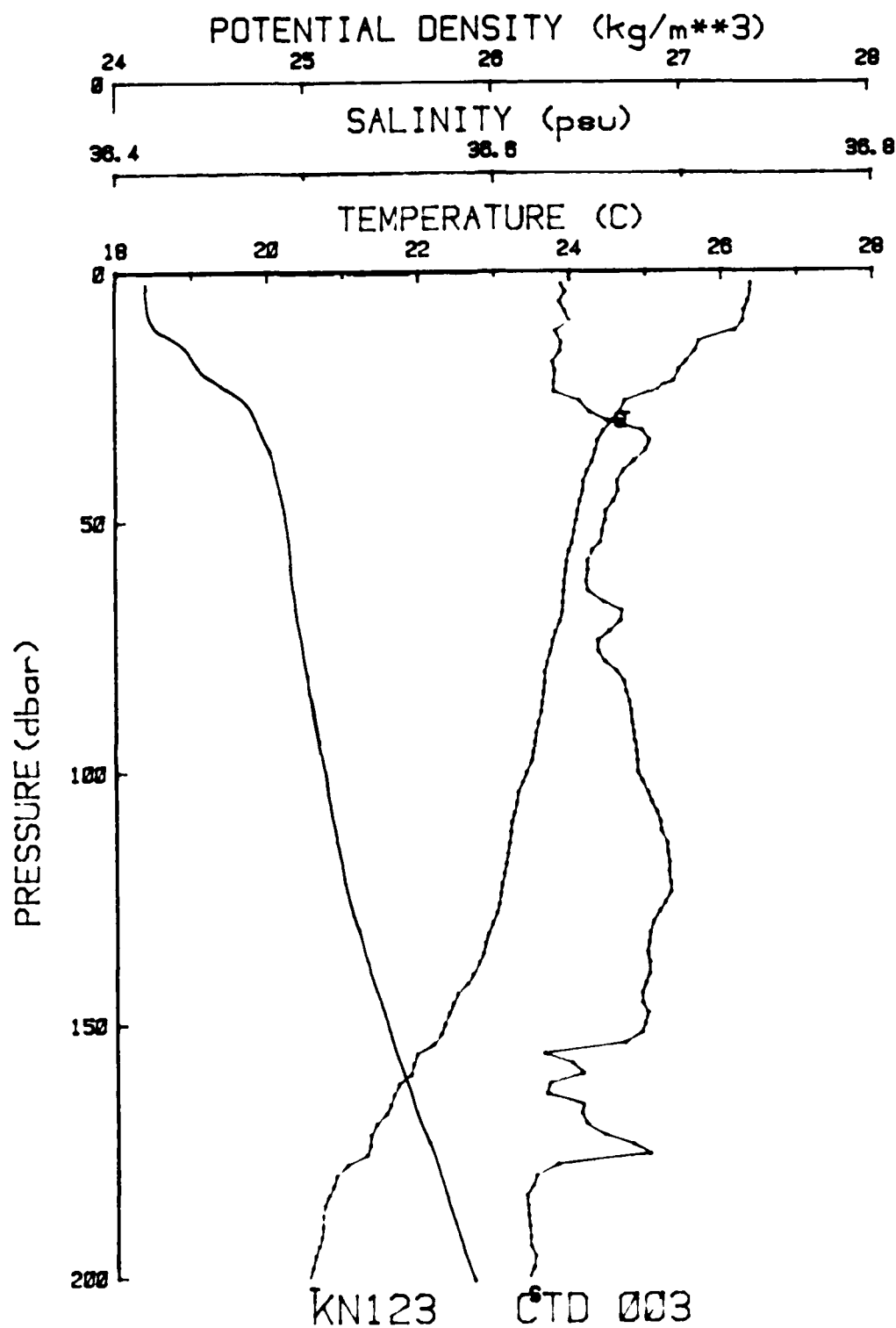
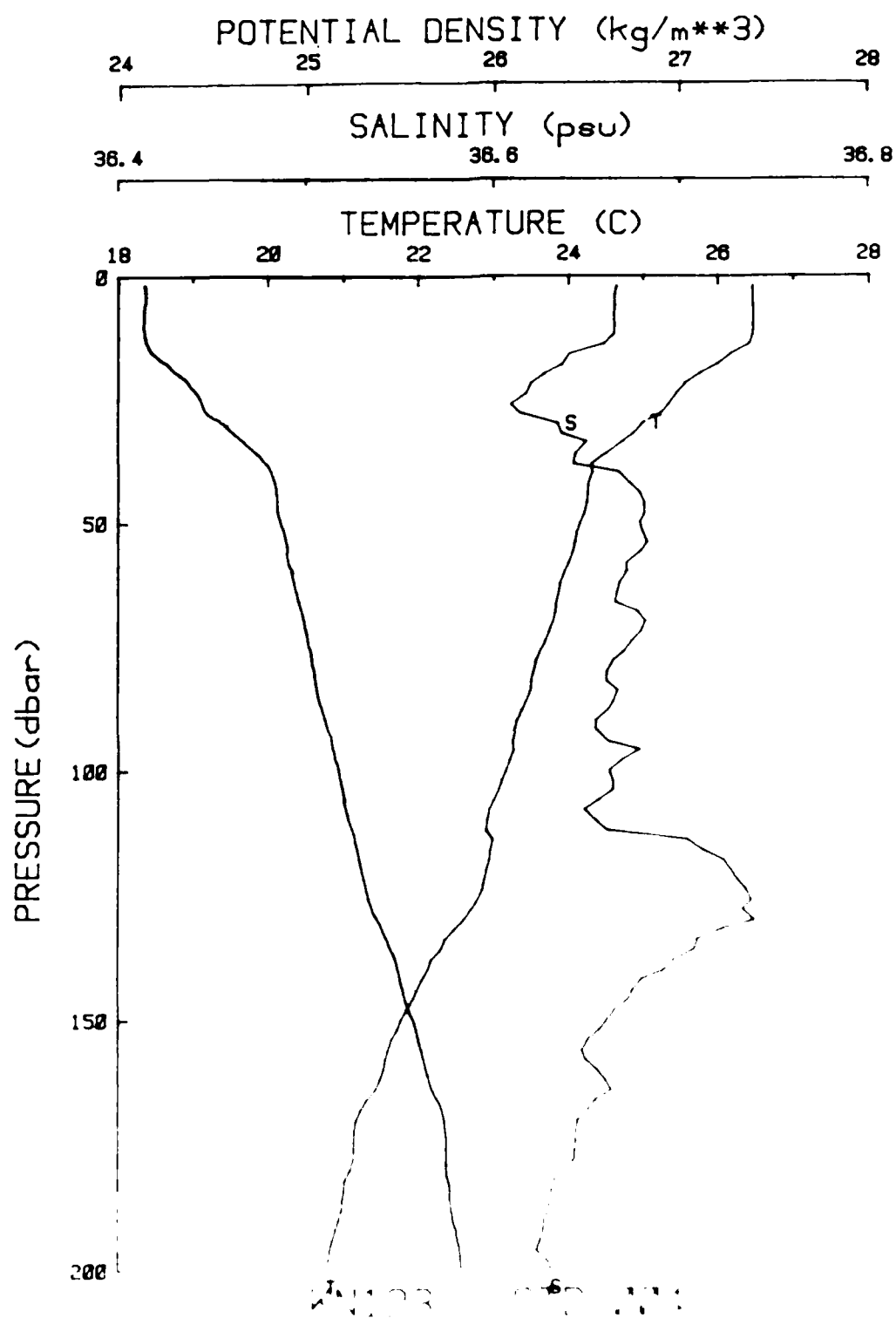


Figure VI-7c. CTD Station 3: Plot.
(KNORR 123)

KN123	CTD 003	1986 165 1626Z		27 04.31N 69 56.95W		corrD: 5400m			
PRESS	TEMP	SALIN	SIGMA-t	POTEMP	POTDEN	BR-V	DYNHGT	POTGRD	SSPEED
dbar	°C	psu	kg/m**3	°C	kg/m**3	cph	dyn m	m°C/db	m/s
2.	26.386	36.635	24.166	26.385	24.148	0.00	0.0000	0.00	1539.5
6.	26.360	36.635	24.173	26.359	24.156	2.75	.0132	10.98	1539.5
10.	26.290	36.640	24.200	26.287	24.183	3.38	.0281	8.90	1539.4
16.	25.656	36.635	24.394	25.653	24.378	4.94	.0498	25.59	1538.0
20.	25.439	36.632	24.459	25.435	24.443	7.59	.0634	57.38	1537.5
26.	24.716	36.645	24.690	24.711	24.675	13.89	.0846	182.95	1535.9
30.	24.551	36.659	24.751	24.545	24.736	8.10	.0974	55.46	1535.6
36.	24.321	36.679	24.836	24.313	24.821	3.58	.1161	16.26	1535.2
40.	24.210	36.668	24.860	24.201	24.846	5.13	.1290	35.30	1534.9
46.	24.113	36.662	24.886	24.103	24.872	4.00	.1473	19.69	1534.8
50.	24.061	36.658	24.897	24.050	24.884	2.57	.1595	7.49	1534.7
56.	23.968	36.651	24.920	23.956	24.907	4.22	.1780	25.37	1534.6
60.	23.922	36.649	24.932	23.910	24.919	2.77	.1899	7.94	1534.5
66.	23.880	36.657	24.950	23.866	24.938	3.77	.2093	5.66	1534.6
70.	23.840	36.666	24.969	23.825	24.957	3.79	.2209	16.07	1534.5
76.	23.708	36.654	24.999	23.692	24.987	3.86	.2390	15.86	1534.3
80.	23.635	36.663	25.028	23.618	25.016	4.90	.2509	17.43	1534.2
86.	23.593	36.670	25.045	23.575	25.034	3.60	.2689	11.74	1534.2
90.	23.546	36.671	25.060	23.528	25.049	4.08	.2809	17.19	1534.1
96.	23.472	36.673	25.084	23.452	25.073	3.70	.2981	13.30	1534.1
100.	23.385	36.674	25.110	23.364	25.099	5.23	.3102	29.12	1533.9
106.	23.254	36.681	25.153	23.232	25.143	3.30	.3271	9.23	1533.7
110.	23.184	36.686	25.177	23.161	25.167	4.62	.3384	20.57	1533.6
120.	23.086	36.690	25.209	23.061	25.200	3.32	.3664	12.15	1533.5
130.	22.929	36.682	25.248	22.902	25.240	4.57	.3944	26.92	1533.3
140.	22.671	36.679	25.321	22.643	25.313	5.33	.4227	30.92	1532.8
150.	22.295	36.677	25.427	22.265	25.419	4.72	.4488	26.64	1532.0
160.	21.844	36.644	25.529	21.812	25.522	4.77	.4745	18.02	1530.9
170.	21.386	36.645	25.658	21.353	25.651	7.84	.4987	66.42	1529.9
180.	20.852	36.619	25.785	20.817	25.779	6.99	.5228	70.55	1528.6
190.	20.675	36.616	25.830	20.638	25.824	1.98	.5452	3.87	1528.3
200.	20.507	36.615	25.875	20.469	25.870	3.72	.5675	19.34	1528.0

Table VI-4c. CTD Station 3: List.
(KNORP 123)



KN123	CTD 004	1986 167 1200Z	27 03.51N 69 40.13W	corrD: 5400m					
PRESS dbar	TEMP °C	SALIN psu	SIGMA-t kg/m ³	POTEMP °C	POTDEN kg/m ³	BR-V cph	DYNHGT dyn m	POTGRD m°C/db	SSPEED m/s
2.	26.459	36.666	24.166	26.458	24.148	0.00	0.0000	0.00	1539.6
5.	26.465	36.665	24.163	26.464	24.146	-.58	.0144	-.39	1539.7
10.	26.463	36.664	24.164	26.460	24.146	.93	.0292	.77	1539.8
16.	26.164	36.640	24.239	26.160	24.223	9.90	.0521	120.36	1539.2
20.	25.752	36.627	24.358	25.748	24.342	10.52	.0665	124.22	1538.3
26.	25.342	36.609	24.472	25.336	24.456	6.17	.0881	47.94	1537.4
30.	24.990	36.634	24.599	24.983	24.584	11.74	.1014	118.75	1536.6
36.	24.503	36.644	24.754	24.495	24.739	9.10	.1214	92.53	1535.6
40.	24.311	36.666	24.829	24.302	24.815	5.30	.1334	-5.98	1535.2
46.	24.236	36.680	24.862	24.226	24.848	2.79	.1521	5.02	1535.1
50.	24.145	36.678	24.888	24.134	24.874	4.92	.1650	28.94	1535.0
56.	24.047	36.678	24.917	24.035	24.904	3.18	.1831	15.45	1534.8
60.	23.936	36.671	24.945	23.923	24.931	5.51	.1950	32.03	1534.6
66.	23.821	36.664	24.974	23.807	24.961	3.64	.2140	15.59	1534.4
70.	23.778	36.680	24.999	23.763	24.986	4.46	.2256	15.80	1534.4
76.	23.596	36.669	25.044	23.580	25.032	5.25	.2442	34.60	1534.0
80.	23.508	36.660	25.063	23.492	25.051	3.66	.2558	18.15	1533.9
86.	23.410	36.663	25.094	23.392	25.083	4.72	.2738	26.52	1533.7
90.	23.292	36.654	25.122	23.273	25.111	4.72	.2846	31.87	1533.5
96.	23.235	36.677	25.156	23.215	25.145	4.13	.3014	-8.20	1533.5
100.	23.132	36.660	25.173	23.111	25.163	3.79	.3133	24.20	1533.3
106.	22.971	36.655	25.216	22.949	25.206	4.45	.3299	31.14	1532.9
110.	22.878	36.653	25.241	22.855	25.232	4.38	.3415	13.75	1532.8
120.	22.865	36.725	25.300	22.840	25.290	4.79	.3689	19.94	1533.0
130.	22.560	36.737	25.397	22.534	25.388	6.91	.3960	44.72	1532.4
140.	22.089	36.689	25.494	22.061	25.486	3.76	.4218	22.38	1531.3
150.	21.731	36.659	25.572	21.701	25.564	5.48	.4467	39.31	1530.5
160.	21.497	36.653	25.633	21.465	25.626	4.37	.4713	13.51	1530.0
170.	21.136	36.643	25.725	21.103	25.718	4.43	.4951	29.49	1529.2
180.	21.060	36.635	25.740	21.025	25.734	3.22	.5183	19.60	1529.2
190.	20.907	36.624	25.774	20.870	25.768	3.67	.5414	18.95	1528.9
200.	20.747	36.628	25.820	20.708	25.815	3.79	.5636	13.19	1528.7

Table VI-41. CTD Station 4: List.
(EN RF 123)

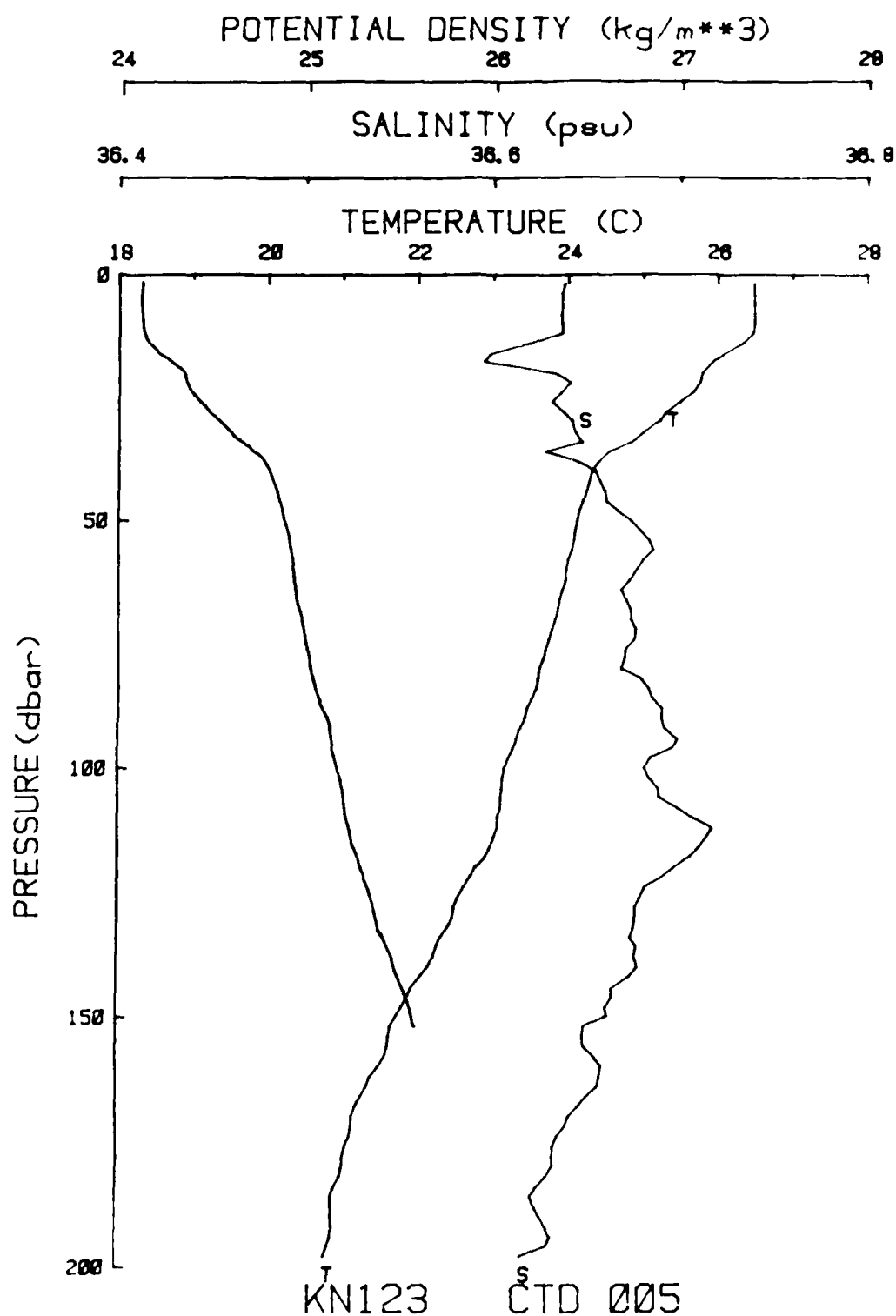


Figure VI-7e. CTD Station 5: Plot.
(KNORR 123)

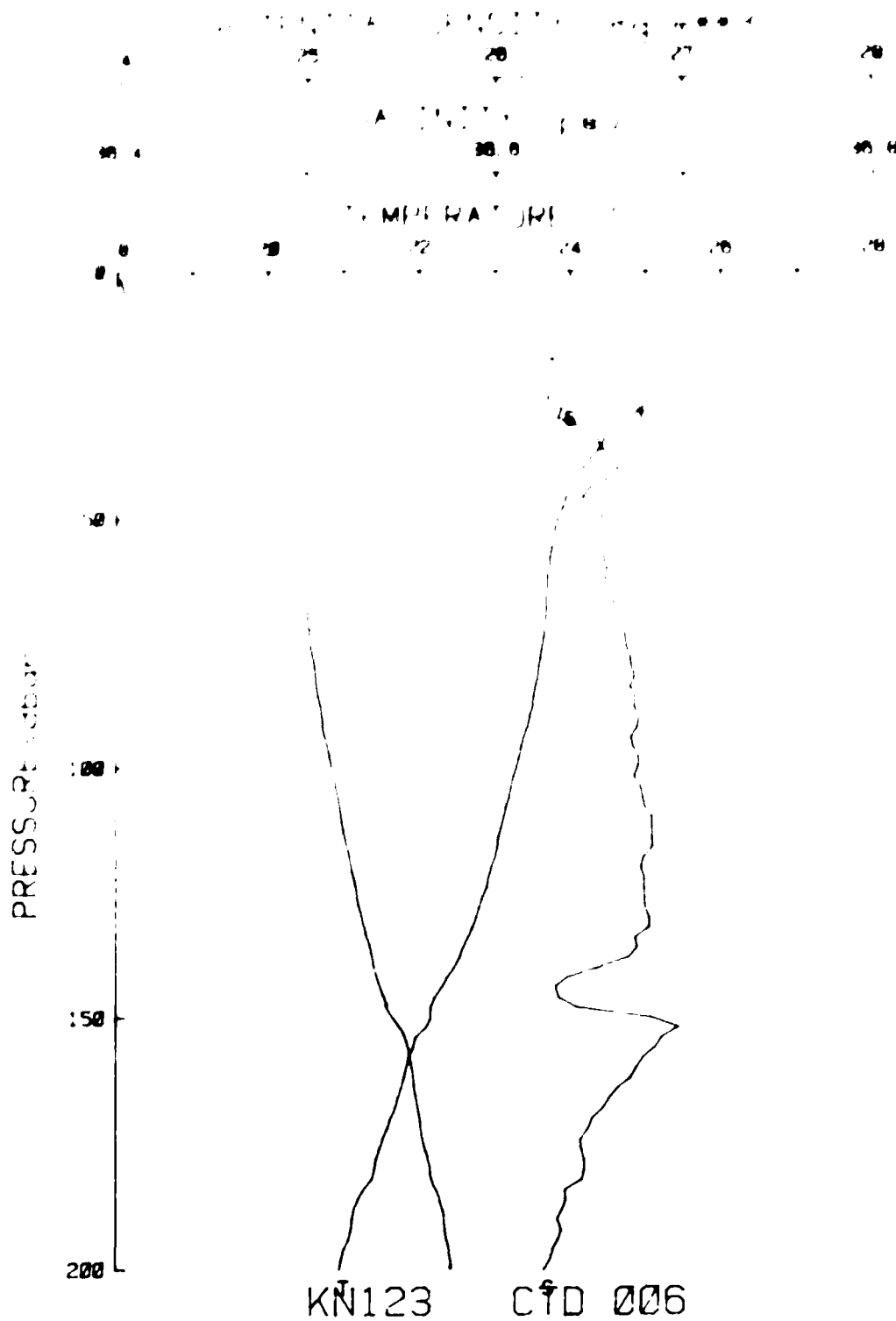


Figure VI-7f. CTD Station 6: Plot.
(KNORR 123)

1986 181 1826Z		16 57.20N 69 46.03W		corrD: 5400m					
PRESS	TEMP	SALIN	SIGMA-T	POTEMP	POTDEN	BR-V	DYNHGT	POTGRD	SSPEED
dbar	°C	psu	kg/m ³	°C	kg/m ³	cph	dyn m	m°C/db	m/s
26.799	16.637	24.037	26.798	24.015	0.00	0.0000	0.00	1540.4	
26.796	16.632	24.064	26.699	24.046	4.77	.0147	27.21	1540.2	
26.447	16.657	24.163	26.444	24.146	10.37	.0296	79.40	1539.7	
26.764	16.655	24.188	26.360	24.171	2.12	.0524	15.83	1539.7	
25.629	16.636	24.403	25.624	24.387	9.48	.0673	83.35	1538.0	
25.148	16.627	24.545	25.142	24.530	7.61	.0882	62.73	1536.9	
24.762	16.633	24.667	24.756	24.652	8.53	.1016	78.80	1536.1	
24.398	16.656	24.795	24.391	24.780	5.09	.1205	24.45	1535.3	
24.176	16.665	24.869	24.167	24.854	6.85	.1329	47.24	1534.9	
23.936	16.646	24.926	23.926	24.912	6.45	.1514	50.00	1534.2	
23.830	16.657	24.965	23.820	24.952	5.84	.1637	32.60	1534.2	
23.746	16.657	24.991	23.734	24.977	2.89	.1820	14.47	1534.1	
23.706	16.659	25.004	23.694	24.991	3.11	.1938	8.65	1534.0	
23.674	16.662	25.015	23.660	25.003	2.37	.2118	2.79	1534.1	
23.661	16.666	25.023	23.646	25.010	2.70	.2232	4.20	1534.1	
23.608	16.669	25.040	23.592	25.028	3.56	.2411	12.95	1534.1	
23.565	16.672	25.055	23.548	25.044	3.32	.2528	11.08	1534.0	
23.492	16.673	25.078	23.474	25.066	3.81	.2710	12.52	1533.9	
23.434	16.675	25.096	23.416	25.085	4.65	.2823	20.17	1533.9	
23.328	16.672	25.125	23.308	25.114	4.21	.2998	17.68	1533.7	
23.267	16.675	25.145	23.246	25.135	3.97	.3113	17.30	1533.6	
23.169	16.678	25.175	23.147	25.165	3.40	.3286	11.15	1533.5	
23.097	16.682	25.200	23.074	25.190	4.25	.3394	14.61	1533.4	
22.931	16.676	25.244	22.907	25.234	4.47	.3677	23.61	1533.1	
22.734	16.681	25.304	22.707	25.295	4.52	.3950	19.61	1532.8	
22.447	16.654	25.366	22.418	25.358	3.31	.4222	32.30	1532.2	
22.135	16.682	25.476	22.105	25.468	6.72	.4487	.43	1531.6	
21.810	16.673	25.561	21.778	25.554	3.38	.4737	17.54	1530.9	
21.602	16.650	25.601	21.569	25.595	4.54	.4984	30.77	1530.5	
21.392	16.646	25.656	21.357	25.650	3.09	.5224	10.59	1530.1	
21.097	16.631	25.727	21.061	25.721	2.60	.5461	11.39	1529.4	
20.932	16.624	25.767	20.893	25.762	2.80	.5697	13.64	1529.2	

Table VI-4f. CTD Station 6: List.
(KNORR 123)

185

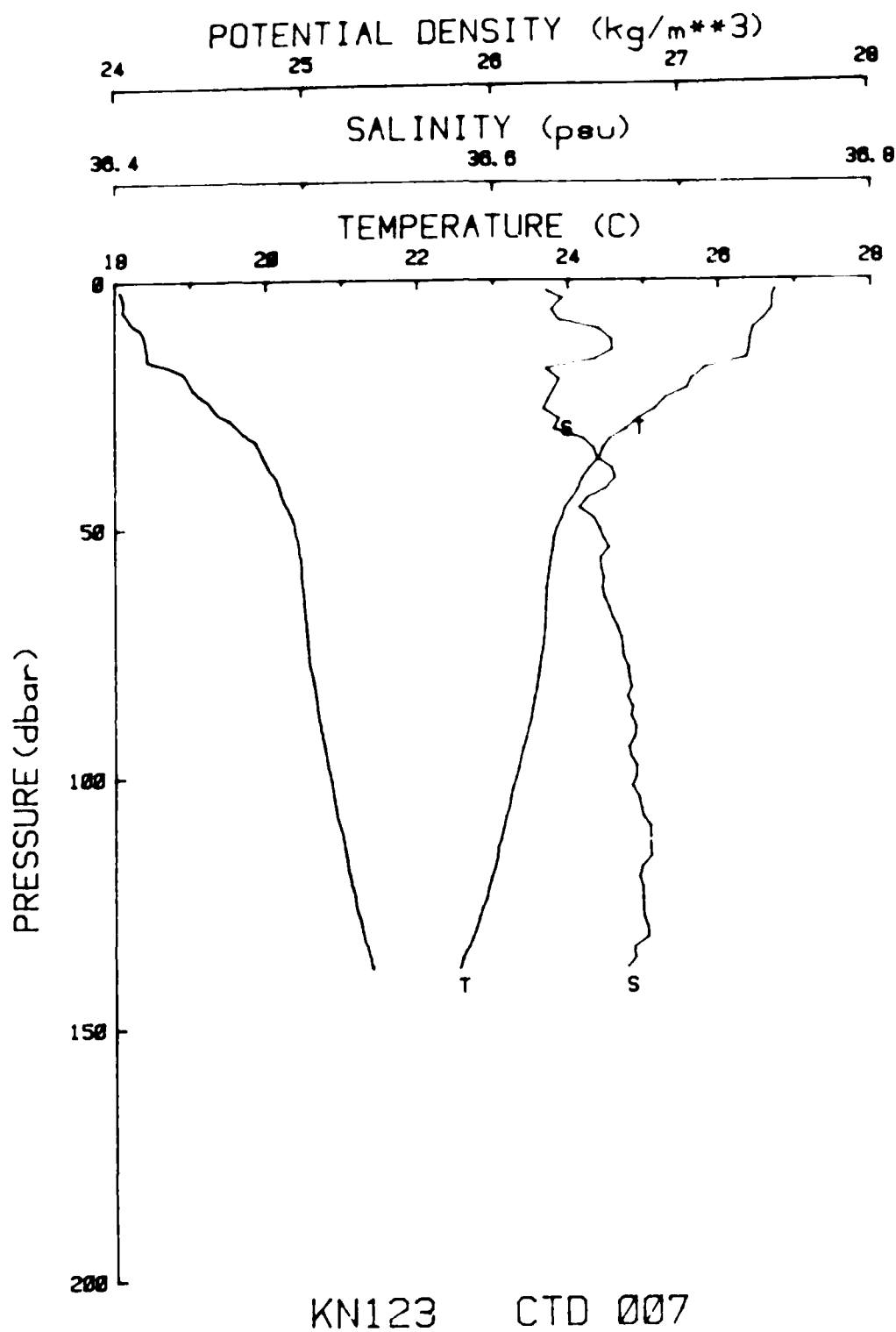


Figure VI-7g. CTD Station 7: Plot.
(KNORR 123)

Table VI-4g. CTD Station 7: List.
(KNORR 123)

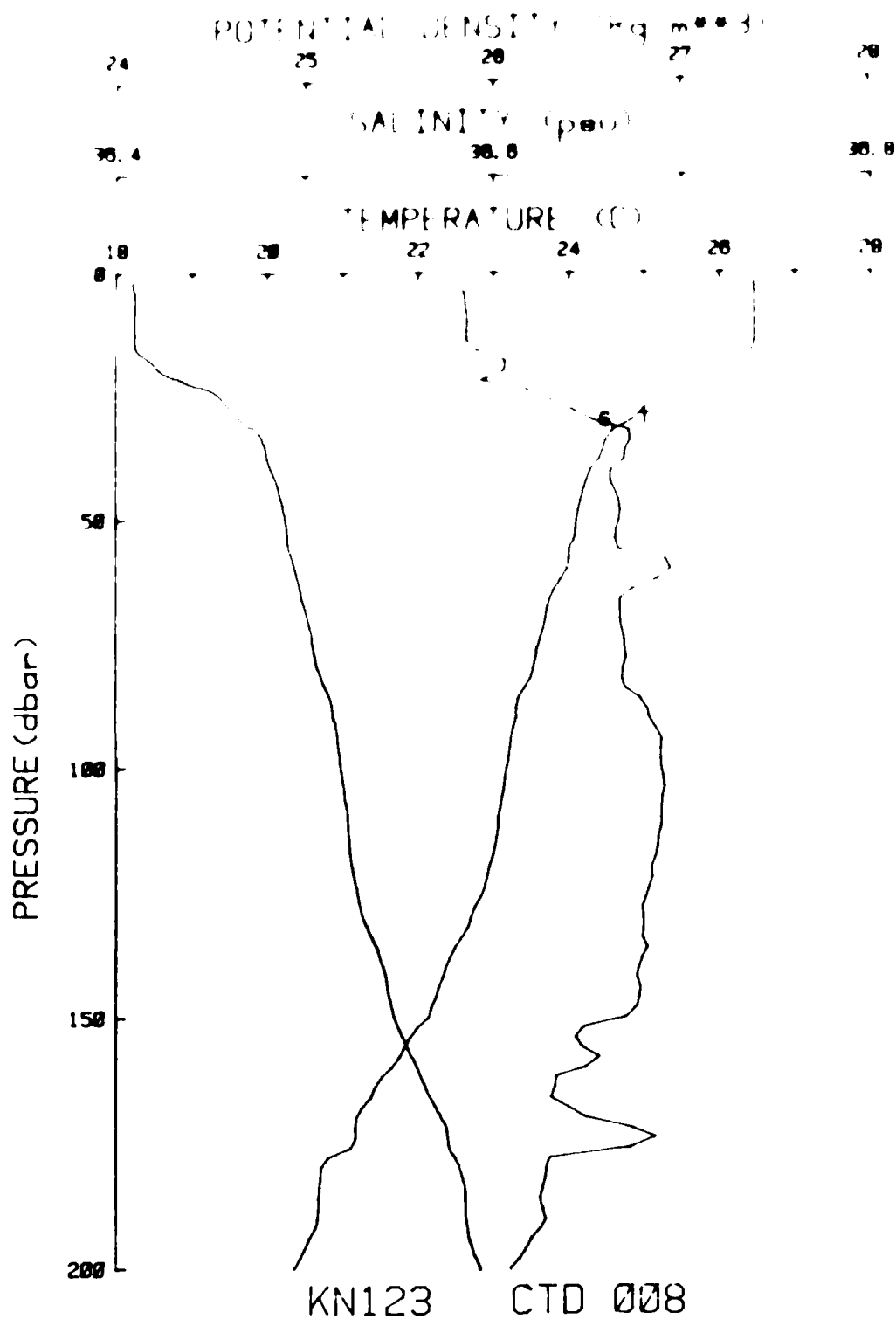


Figure VI-7h. CTD Station 8: Plot.
(KNORR 123)

DEPTH	TIME	WIND	WAVE	TEMP	TEMP	HR	WAVE	TEMP	TEMP
(M)	(H:M)	(K)	(M)	(C)	(F)	(H)	(M)	(C)	(F)
0	00:00	16.566	24.121	26.451	24.121	0.00	16.566	26.451	24.121
10	00:01	16.566	24.121	26.451	24.121	0.00	16.566	26.451	24.121
20	00:02	16.566	24.121	26.451	24.121	0.00	16.566	26.451	24.121
30	00:03	16.566	24.121	26.451	24.121	0.00	16.566	26.451	24.121
40	00:04	16.566	24.121	26.451	24.121	0.00	16.566	26.451	24.121
50	00:05	16.566	24.121	26.451	24.121	0.00	16.566	26.451	24.121
60	00:06	16.566	24.121	26.451	24.121	0.00	16.566	26.451	24.121
70	00:07	16.566	24.121	26.451	24.121	0.00	16.566	26.451	24.121
80	00:08	16.566	24.121	26.451	24.121	0.00	16.566	26.451	24.121
90	00:09	16.566	24.121	26.451	24.121	0.00	16.566	26.451	24.121
100	00:10	16.566	24.121	26.451	24.121	0.00	16.566	26.451	24.121
110	00:11	16.566	24.121	26.451	24.121	0.00	16.566	26.451	24.121
120	00:12	16.566	24.121	26.451	24.121	0.00	16.566	26.451	24.121
130	00:13	16.566	24.121	26.451	24.121	0.00	16.566	26.451	24.121
140	00:14	16.566	24.121	26.451	24.121	0.00	16.566	26.451	24.121
150	00:15	16.566	24.121	26.451	24.121	0.00	16.566	26.451	24.121
160	00:16	16.566	24.121	26.451	24.121	0.00	16.566	26.451	24.121
170	00:17	16.566	24.121	26.451	24.121	0.00	16.566	26.451	24.121
180	00:18	16.566	24.121	26.451	24.121	0.00	16.566	26.451	24.121
190	00:19	16.566	24.121	26.451	24.121	0.00	16.566	26.451	24.121
200	00:20	16.566	24.121	26.451	24.121	0.00	16.566	26.451	24.121

Table VI-4h. CTD Station 8: List.
(KNORR 123)

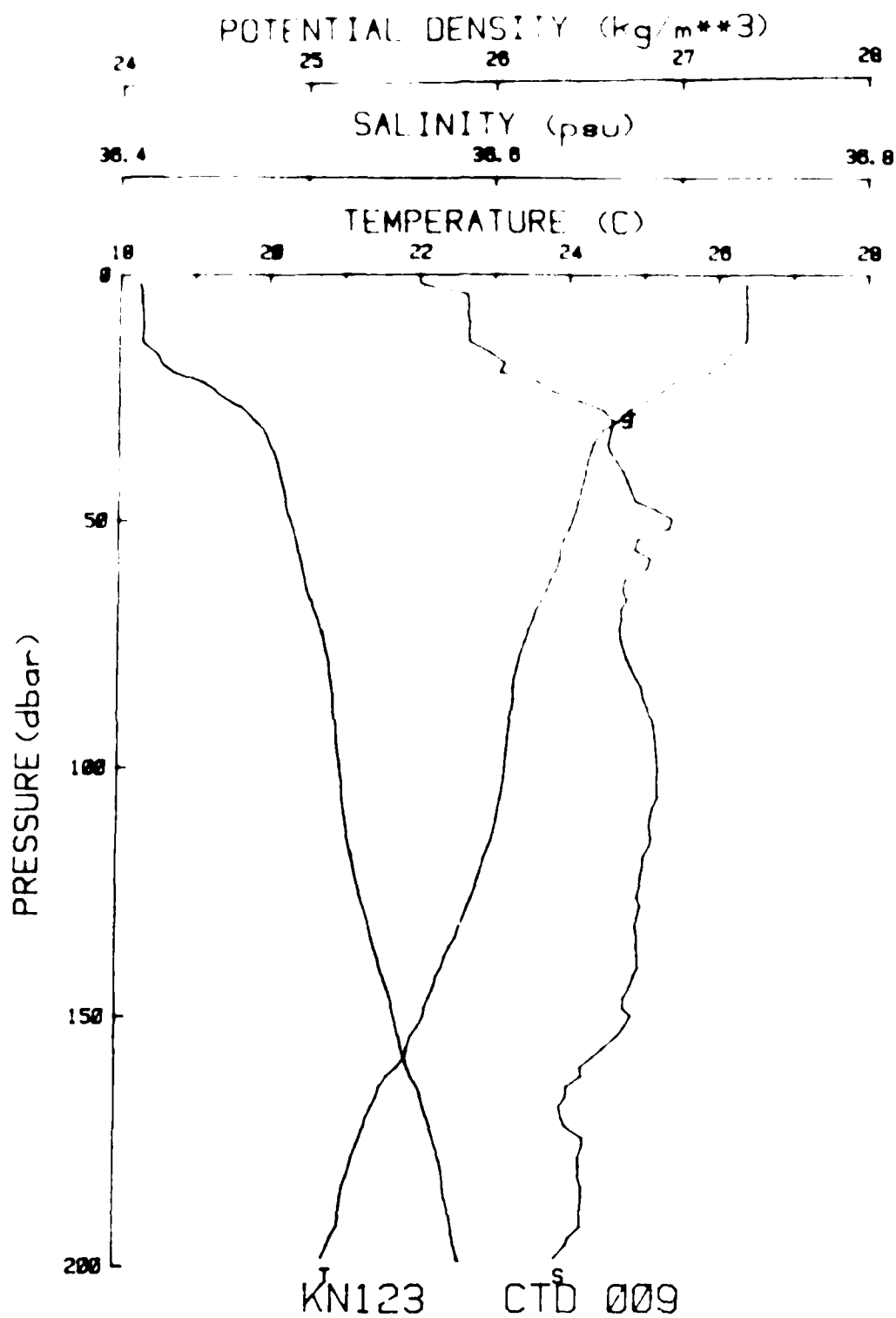


Figure VI-7i. CTD Station 9: Plot.
(KNORR 123)

KN123 CTD 009 1986 168 1016Z 27 11.48N 69 44.96W corrD: 5400m									
PRESS	TEMP	SALIN	SIGMA-t	POTEMP	POTDEN	BR-V	DYNHGT	POTGRD	SSPEED
dbar	°C	psu	kg/m ³	°C	kg/m ³	cph	dyn m	m°C db	m/s
2.	26.365	36.562	24.117	26.365	24.099	0.00	0.0000	0.00	1539.7
5.	26.378	36.586	24.131	26.377	24.114	.67	.0152	-1.24	1539.4
10.	26.380	36.587	24.131	26.377	24.114	2.21	.0294	3.48	1539.5
15.	26.166	36.598	24.207	26.163	24.190	10.17	.0529	91.96	1539.1
20.	25.885	36.603	24.299	25.880	24.283	10.07	.0675	106.17	1538.5
25.	25.037	36.645	24.593	25.032	24.577	11.20	.0880	111.22	1536.7
30.	24.653	36.663	24.724	24.646	24.709	8.56	.1014	70.52	1535.9
35.	24.290	36.661	24.832	24.282	24.817	5.11	.1202	26.84	1535.1
40.	24.218	36.669	24.859	24.209	24.844	3.77	.1337	10.86	1535.0
45.	24.122	36.675	24.893	24.112	24.879	4.15	.1525	15.21	1534.8
50.	24.050	36.695	24.929	24.040	24.915	5.90	.1637	25.44	1534.7
55.	23.891	36.675	24.961	23.879	24.948	4.20	.1825	20.51	1534.4
60.	23.833	36.681	24.983	23.821	24.970	4.23	.1941	21.08	1534.4
65.	23.637	36.671	25.033	23.623	25.020	5.82	.2126	33.38	1534.0
70.	23.530	36.668	25.063	23.515	25.050	4.55	.2239	21.55	1533.8
75.	23.374	36.669	25.109	23.358	25.098	5.16	.2422	26.78	1533.5
80.	23.312	36.673	25.130	23.295	25.119	4.15	.2526	15.80	1533.4
85.	23.265	36.680	25.149	23.247	25.138	1.57	.2706	1.50	1533.4
90.	23.218	36.684	25.166	23.199	25.155	4.17	.2819	15.94	1533.3
95.	23.173	36.686	25.181	23.153	25.170	2.54	.2987	6.30	1533.3
100.	23.149	36.687	25.188	23.129	25.178	2.18	.3104	4.68	1533.3
105.	23.093	36.687	25.205	23.071	25.195	3.24	.3269	10.94	1533.3
110.	23.039	36.683	25.218	23.016	25.208	2.89	.3385	10.69	1533.2
120.	22.848	36.679	25.270	22.824	25.261	4.07	.3664	18.33	1532.9
130.	22.612	36.676	25.336	22.586	25.327	4.45	.3934	23.41	1532.5
140.	22.332	36.677	25.416	22.303	25.408	4.27	.4202	20.01	1531.9
150.	22.092	36.673	25.481	22.062	25.474	3.95	.4452	10.34	1531.4
160.	21.749	36.647	25.558	21.717	25.551	6.10	.4709	50.22	1530.7
170.	21.330	36.637	25.667	21.297	25.660	5.55	.4959	33.76	1529.7
180.	21.132	36.646	25.729	21.097	25.723	3.63	.5183	14.24	1529.4
190.	20.983	36.647	25.770	20.947	25.764	2.38	.5420	6.88	1529.1

Table VI-4i. CTD Station 9: List.
(KNORR 123)

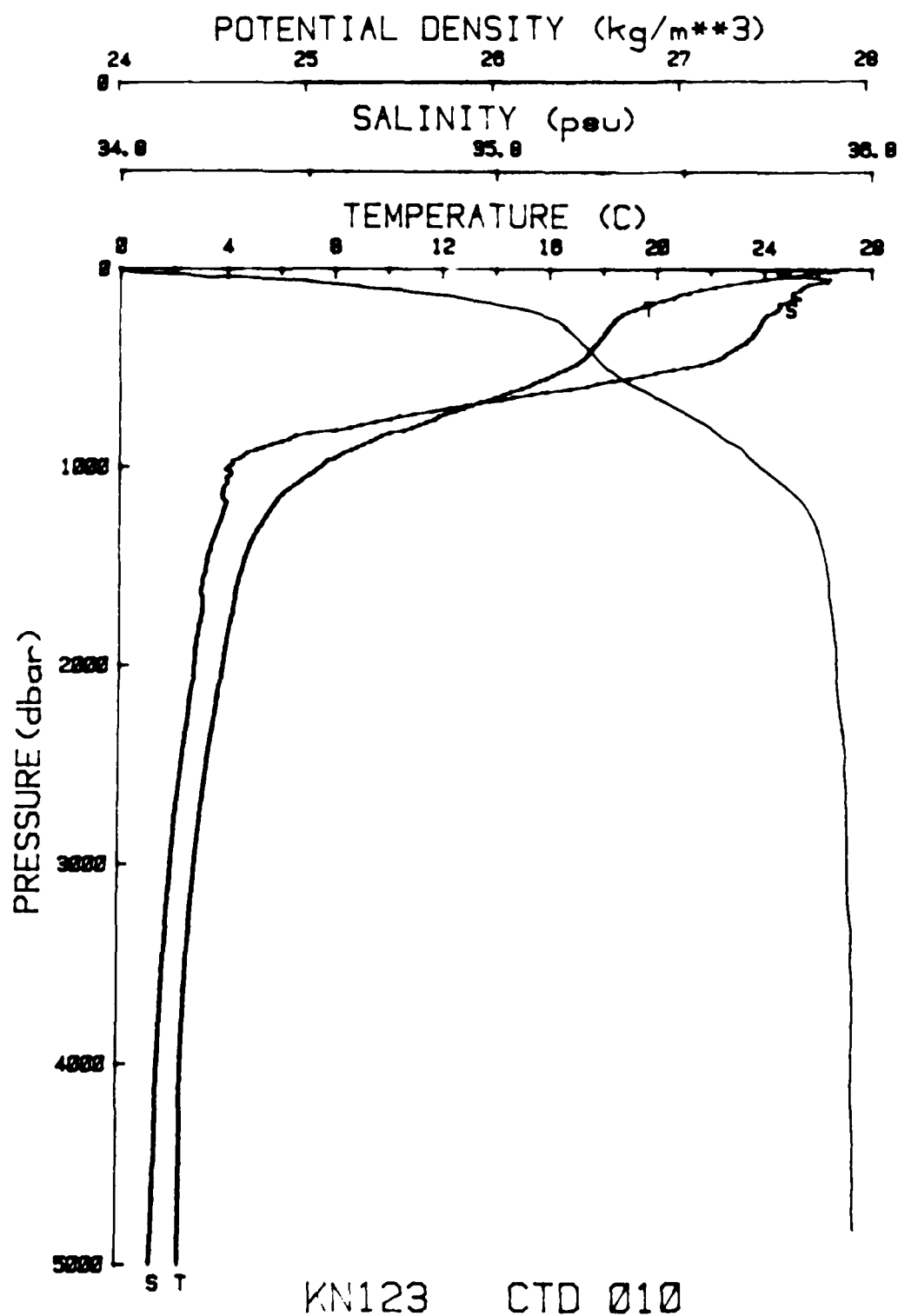


Figure VI-7j. CTD Station 10: Plot.
(KNORR 123)

KN123	CTD 010	1986 169 20567	28 00.21N 69 53.39W	Corr Di 5400m					
PRESS	TEMP	SALIN	SIGMA-t	POTEMP	POTDEN	BR-V	DYNHGT	POTGRD	SSPEED
dbar	°C	psu	kg/m ³	°C	kg/m ³	cph	dyn m	m ² /s ²	m/s
4.	26.687	36.583	24.031	26.686	24.014	0.00	0.0000		1540.1
8.	26.490	36.582	24.093	26.488	24.076	10.45	.0155	104.64	1539.7
12.	25.990	36.562	24.235	25.987	24.218	12.14	.0309	156.69	1538.6
16.	25.638	36.551	24.337	25.634	24.320	6.24	.0530	18.82	1537.9
20.	25.528	36.546	24.367	25.523	24.351	5.12	.0674	23.84	1537.7
24.	25.402	36.562	24.418	25.396	24.402	5.72	.0887	18.90	1537.7
28.	25.225	36.579	24.485	25.218	24.470	8.41	.1026	57.81	1537.2
32.	24.509	36.647	24.755	24.501	24.740	7.66	.1228	46.05	1535.6
36.	24.278	36.673	24.844	24.269	24.830	9.40	.1354	77.05	1535.2
40.	23.892	36.694	24.975	23.882	24.961	8.78	.1538	76.36	1534.3
44.	23.765	36.690	25.010	23.754	24.997	4.75	.1661	28.73	1534.1
48.	23.581	36.685	25.060	23.569	25.047	5.50	.1838	37.46	1533.7
52.	23.298	36.667	25.130	23.285	25.117	8.02	.1948	88.76	1533.0
56.	23.037	36.664	25.204	23.023	25.191	7.30	.2124	61.31	1532.5
60.	22.868	36.645	25.238	22.853	25.226	4.38	.2238	35.97	1532.1
64.	22.516	36.619	25.319	22.500	25.308	5.56	.2396	44.66	1531.7
68.	22.367	36.604	25.351	22.351	25.339	6.06	.2500	44.08	1530.9
72.	22.171	36.617	25.416	22.153	25.405	6.09	.2659	43.35	1530.5
76.	21.958	36.596	25.461	21.940	25.450	5.59	.2763	53.38	1530.0
80.	21.737	36.592	25.520	21.718	25.509	4.69	.2917	22.60	1529.6
84.	21.608	36.609	25.569	21.588	25.558	6.47	.3015	37.86	1529.3
88.	21.396	36.596	25.617	21.375	25.607	6.10	.3159	61.03	1528.8
92.	21.295	36.590	25.641	21.273	25.631	3.77	.3256	20.14	1528.6
96.	21.066	36.605	25.715	21.042	25.706	5.52	.3492	18.11	1528.2
100.	20.780	36.589	25.781	20.754	25.773	3.77	.3723	14.14	1527.6
104.	20.647	36.596	25.823	20.620	25.814	4.61	.3947	19.81	1527.4
108.	20.375	36.589	25.891	20.347	25.883	4.56	.4169	38.49	1526.8
112.	20.082	36.579	25.961	20.051	25.954	5.38	.4386	44.63	1526.2
116.	19.809	36.553	26.014	19.777	26.007	4.55	.4592	32.11	1525.5
120.	19.631	36.547	26.057	19.597	26.050	3.96	.4797	14.51	1525.2
124.	19.393	36.557	26.127	19.358	26.121	2.80	.4993	13.52	1524.7
128.	19.151	36.547	26.181	19.115	26.176	4.43	.5186	29.82	1524.2
132.	18.799	36.533	26.261	18.759	26.256	3.29	.5562	17.00	1523.5
136.	18.559	36.515	26.309	18.516	26.305	2.30	.5926	7.27	1523.1
140.	18.410	36.507	26.340	18.364	26.337	1.23	.6280	2.55	1523.0
144.	18.281	36.501	26.368	18.231	26.366	1.81	.6640	4.75	1523.0
148.	18.179	36.497	26.390	18.126	26.389	1.50	.6989	4.64	1523.0
152.	18.073	36.488	26.410	18.016	26.409	2.81	.7336	12.00	1523.0
156.	17.978	36.481	26.429	17.919	26.428	1.90	.7679	6.36	1523.1
160.	17.851	36.468	26.450	17.788	26.451	1.83	.8026	6.58	1523.0
164.	17.715	36.452	26.471	17.650	26.472	2.08	.8364	9.96	1522.9
168.	17.586	36.434	26.489	17.517	26.491	1.69	.8700	5.56	1522.9
172.	17.269	36.394	26.536	17.192	26.539	1.71	.9537	6.76	1522.7
176.	16.655	36.286	26.600	16.572	26.605	3.08	1.0351	25.10	1521.6
180.	15.858	36.149	26.681	15.769	26.686	1.55	1.1134	9.89	1519.8
184.	14.982	36.008	26.770	14.889	26.775	3.14	1.1884	21.50	1517.8
188.	13.897	35.837	26.873	13.801	26.877	2.00	1.2589	14.36	1514.9
192.	12.852	35.683	26.970	12.754	26.973	1.59	1.3248	9.64	1512.1
196.	11.789	35.532	27.061	11.689	27.063	1.90	1.3863	11.71	1509.2
200.	10.874	35.413	27.138	10.772	27.139	3.11	1.4442	25.28	1506.7
204.	9.615	35.260	27.239	9.515	27.237	2.28	1.4974	14.90	1502.8
208.	8.777	35.175	27.310	8.676	27.307	2.71	1.5465	24.78	1500.5
212.	8.021	35.123	27.387	7.920	27.383	1.95	1.5915	7.68	1498.4
216.	7.411	35.082	27.445	7.309	27.440	1.65	1.6336	12.99	1496.9
220.	2.340	34.904	27.888	1.973	27.897	.82	3.1360	.23	1530.1
224.	2.328	34.901	27.887	1.938	27.897	-.62	3.2254	.16	1533.5
228.	2.324	34.897	27.885	1.909	27.897	.57	3.3167	.07	1537.0
232.	2.317	34.894	27.882	1.879	27.897	.60	3.4101	.34	1540.4

Table VI-4j. CTD Station 10: List.
(KNORR 123)

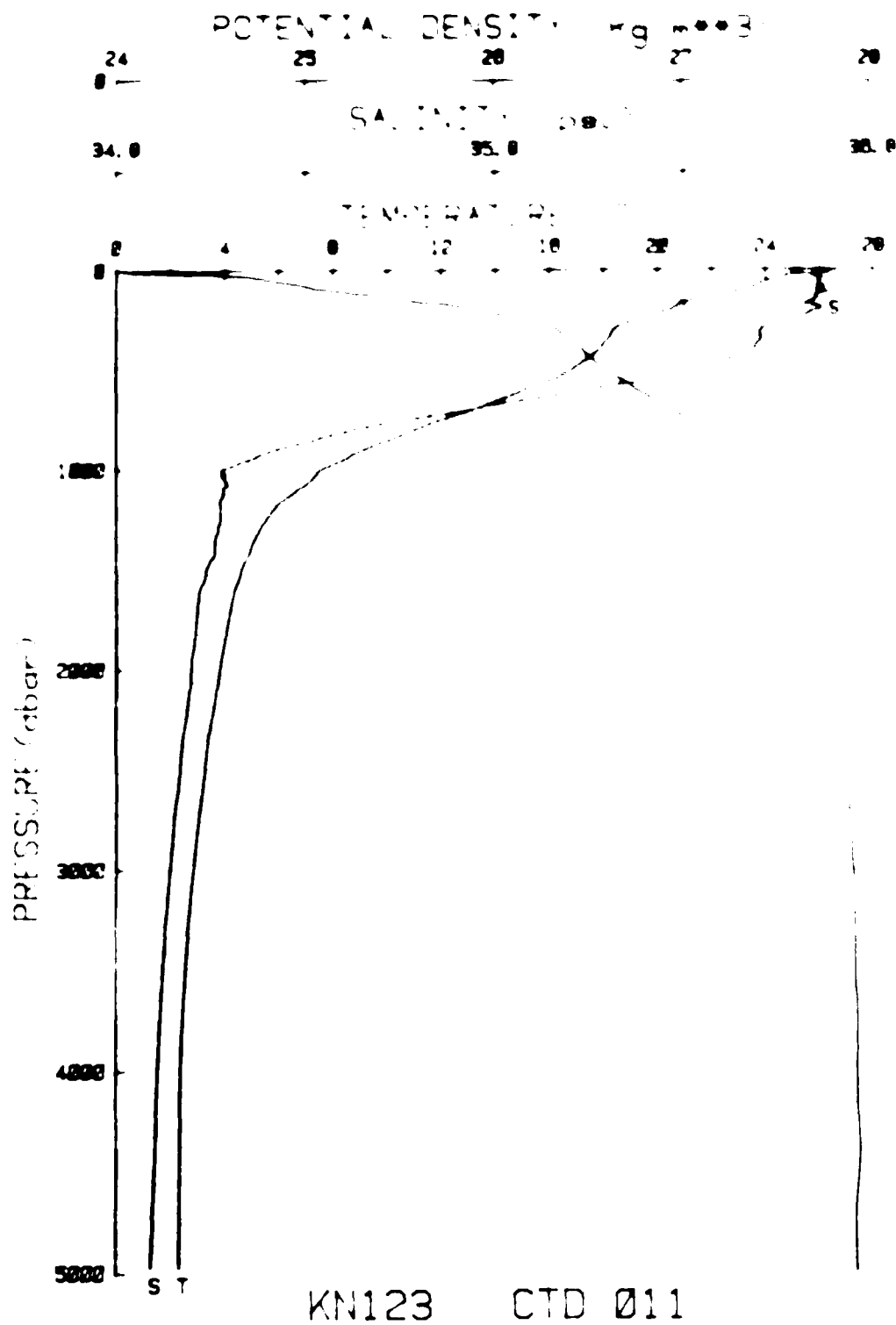


Figure VI-7k. CTD Station 11: Plot.
(KNORR 123)

1986 170 0505Z 27 11.11N 70 00.38W corrD: 5400m									
DEPTH	TEMP	SALIN	SIGMA-t	POTEMP	POTDEN	BR-V	DYNHGT	POTGRD	SSPEED
mbar	°C	psu	kg/m ³	°C	kg/m ³	cph	dm m	m ² /db	m/s
0	26.577	36.611	24.056	26.672	24.038	0.00	0.0000	0.00	1540.1
1	26.569	36.614	24.060	26.668	24.042	-3.70	.0147	-15.35	1540.1
2	26.558	36.612	24.062	26.655	24.044	3.67	.0297	12.05	1540.2
3	26.288	36.588	24.162	26.284	24.145	8.66	.0532	101.11	1539.4
4	25.218	36.573	24.483	25.214	24.467	17.36	.0678	271.91	1536.9
5	24.912	36.631	24.621	24.906	24.605	8.85	.0884	72.25	1536.4
6	24.190	36.643	24.669	24.774	24.654	5.45	.1017	22.72	1536.1
7	24.474	36.640	24.760	24.466	24.745	3.10	.1211	9.98	1535.5
8	24.229	36.644	24.837	24.218	24.823	3.94	.1657	34.44	1535.1
9	23.951	36.671	24.940	23.937	24.928	4.01	.2147	3.46	1534.7
10	23.760	36.666	24.993	23.744	24.981	4.40	.2451	21.06	1534.4
11	23.168	36.650	25.155	23.147	25.145	4.62	.3156	34.42	1533.3
12	22.516	36.646	25.340	22.490	25.331	6.05	.3877	47.04	1532.1
13	21.414	36.616	25.630	21.375	25.623	7.71	.4498	69.78	1529.6
14	20.481	36.651	25.909	20.443	25.904	2.57	.5635	23.30	1528.0
15	19.237	36.580	26.184	19.191	26.181	2.44	.6659	8.57	1525.3
16	18.445	36.503	26.338	18.352	26.337	2.71	.7586	9.68	1523.6
17	18.195	36.505	26.392	18.134	26.393	1.62	.8471	2.69	1523.9
18	17.862	36.480	26.457	17.793	26.459	2.02	.9339	8.22	1523.7
19	17.428	36.421	26.518	17.351	26.522	1.86	1.0185	9.12	1523.2
20	16.871	36.334	26.586	16.787	26.590	1.66	1.1004	5.88	1522.3
21	16.215	36.223	26.655	16.126	26.660	3.64	1.1802	37.46	1521.0
22	15.182	36.047	26.756	15.088	26.761	3.53	1.2563	32.88	1518.4
23	14.275	35.903	26.844	14.177	26.848	2.50	1.3281	20.01	1516.2
24	13.170	35.733	26.944	13.070	26.948	1.72	1.3955	10.11	1513.2
25	12.099	35.576	27.035	11.998	27.037	2.53	1.4584	22.58	1510.2
26	11.048	35.429	27.119	10.946	27.120	1.65	1.5171	9.31	1507.3
27	9.119	35.217	27.288	9.016	27.286	3.47	1.6231	35.40	1501.7
28	7.519	35.074	27.424	7.416	27.419	3.24	1.7137	25.47	1497.2
29	6.690	35.083	27.548	6.582	27.542	.93	1.7915	-1.15	1495.7
30	5.801	35.075	27.658	5.691	27.651	2.02	1.8570	7.05	1493.8
31	5.292	35.067	27.715	5.177	27.708	1.29	1.9144	5.11	1493.4
32	4.942	35.058	27.749	4.820	27.742	1.02	1.9678	4.63	1493.7
33	4.626	35.037	27.769	4.498	27.762	.47	2.0187	2.34	1494.0
34	4.363	35.019	27.784	4.229	27.777	.28	2.0682	1.38	1494.6
35	4.070	35.008	27.807	3.920	27.801	-1.44	2.1644	.69	1496.7
36	3.809	34.997	27.825	3.644	27.820	.82	2.2583	.60	1499.7
37	3.583	34.987	27.840	3.402	27.836	.75	2.3502	1.12	1501.4
38	3.343	34.973	27.852	3.147	27.850	.13	2.4403	.88	1507.7
39	3.236	34.966	27.857	3.031	27.855	.80	2.4849	1.11	1504.5
40	3.158	34.961	27.861	2.945	27.859	.92	2.5292	.71	1506.7
41	2.971	34.948	27.868	2.741	27.867	-1.68	2.6170	.56	1508.9
42	2.822	34.940	27.875	2.575	27.876	.78	2.7037	.63	1511.4
43	2.687	34.932	27.881	2.422	27.882	.94	2.7898	1.10	1514.4
44	2.565	34.924	27.885	2.282	27.888	.31	2.8753	.45	1517.7
45	2.471	34.918	27.888	2.168	27.892	.54	2.9606	.46	1521.5
46	2.401	34.912	27.890	2.078	27.895	.83	3.0460	.47	1525.5
47	2.356	34.908	27.890	2.012	27.897	.74	3.1321	.51	1529.5
48	2.330	34.904	27.890	1.964	27.898	.22	3.2195	.29	1533.5
49	2.322	34.902	27.888	1.932	27.899	.31	3.3086	.51	1537.5
50	2.315	34.897	27.885	1.901	27.897	.52	3.3995	.51	1541.5
51	2.310	34.894	27.883	1.872	27.897	.68	3.4925	.54	1545.5

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FASINEX (FRONTAL AIR-SEA INTERACTION EXPERIMENT)

1/3

JANUARY-JUNE 1986 SUMMAR (U) WOODS HOLE OCEANOGRAPHIC

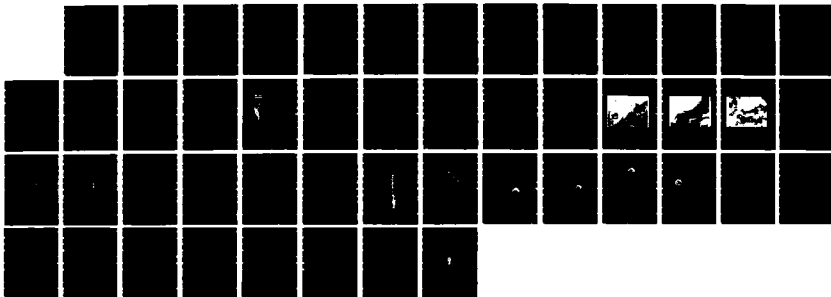
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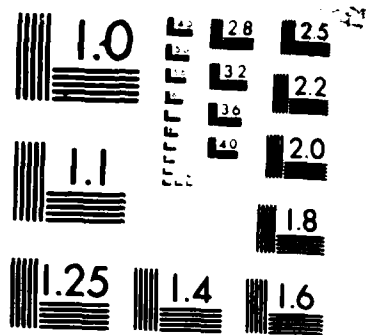
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MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963-A

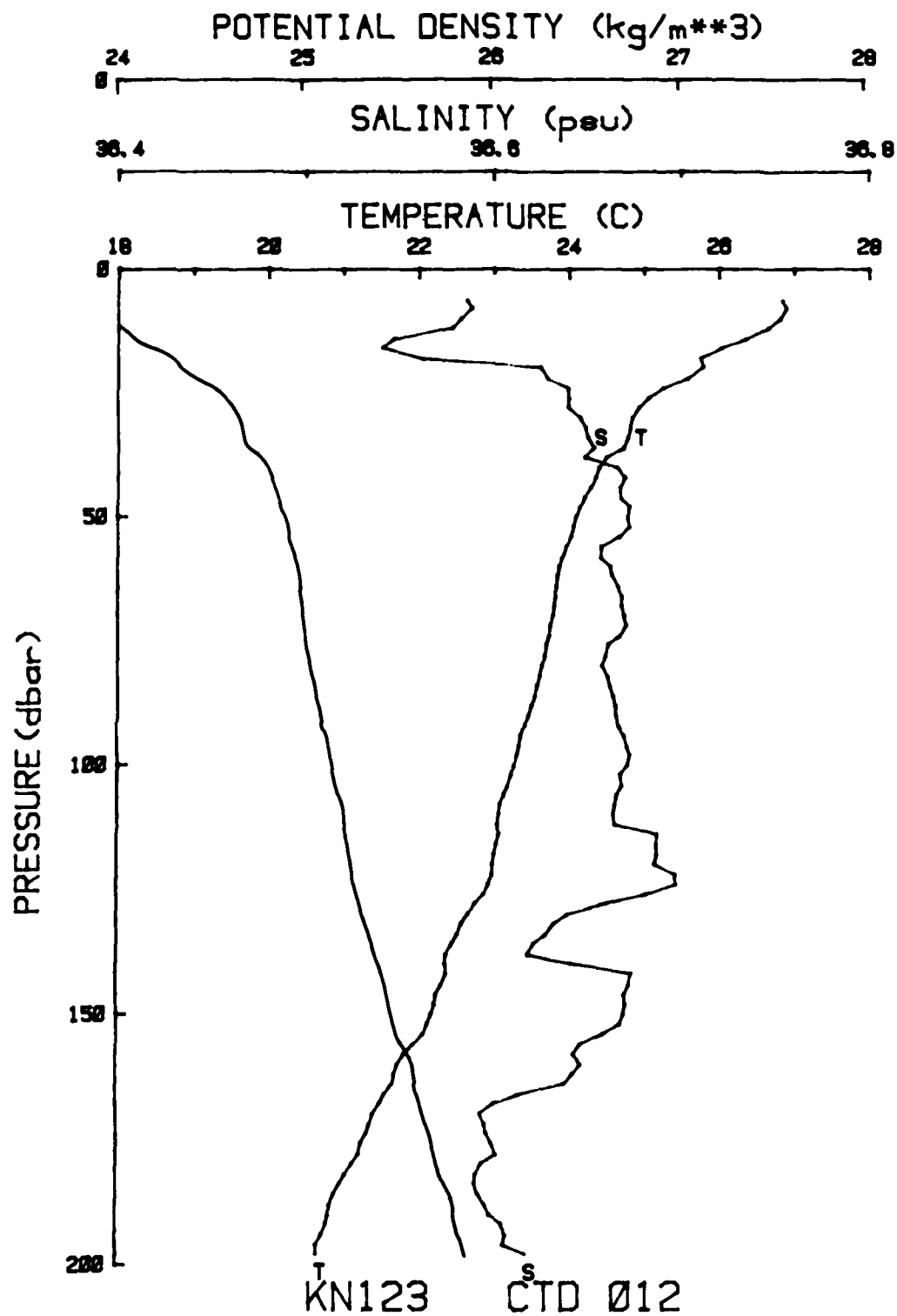


Figure VI-7l. CTD Station 12: Plot.
(KNORR 123)

KN123	CTD 012	1986 170 2138Z			27 08.79N 69 58.69W			corrD: 5400m	
PRESS dbar	TEMP °C	SALIN psu	SIGMA-t kg/m ³	POTEMP °C	POTDEN kg/m ³	BR-V cph	DYNHGT dyn m	POTGRD m ² C/db	SSPEED m/s
6.	26.848	36.586	23.982	26.846	23.964	0.00	0.0000	0.00	1540.5
10.	26.822	36.582	23.987	26.819	23.970	5.59	.0142	37.44	1540.5
14.	26.357	36.546	24.108	26.354	24.091	9.85	.0305	129.08	1539.5
20.	25.784	36.625	24.347	25.780	24.331	8.33	.0513	-19.48	1538.3
24.	25.246	36.639	24.525	25.240	24.509	13.72	.0660	178.39	1537.1
30.	24.842	36.646	24.653	24.836	24.638	7.11	.0862	45.15	1536.3
34.	24.777	36.650	24.676	24.770	24.661	4.21	.0994	16.90	1536.2
40.	24.394	36.666	24.804	24.386	24.789	8.02	.1193	46.93	1535.4
44.	24.289	36.667	24.836	24.280	24.822	5.20	.1314	31.49	1535.2
50.	24.096	36.671	24.897	24.085	24.884	4.99	.1502	27.60	1534.8
54.	24.032	36.667	24.913	24.020	24.900	2.63	.1620	14.02	1534.7
60.	23.871	36.662	24.957	23.858	24.944	5.32	.1805	22.62	1534.4
64.	23.825	36.666	24.974	23.812	24.961	3.43	.1928	9.10	1534.4
70.	23.784	36.669	24.988	23.770	24.976	2.87	.2101	7.29	1534.4
74.	23.729	36.667	25.003	23.713	24.991	2.54	.2227	10.93	1534.3
80.	23.636	36.657	25.023	23.619	25.012	3.98	.2404	19.05	1534.2
84.	23.571	36.661	25.045	23.553	25.034	4.31	.2523	18.30	1534.1
90.	23.446	36.664	25.084	23.428	25.073	4.58	.2702	22.45	1533.9
94.	23.361	36.669	25.113	23.342	25.102	4.89	.2817	21.36	1533.7
100.	23.263	36.671	25.143	23.242	25.132	4.03	.2991	19.14	1533.6
104.	23.177	36.668	25.166	23.156	25.155	4.59	.3108	22.14	1533.5
110.	23.052	36.663	25.198	23.030	25.189	3.14	.3270	11.86	1533.2
114.	23.057	36.686	25.215	23.033	25.205	4.19	.3383	-10.88	1533.3
124.	22.925	36.696	25.261	22.900	25.252	4.54	.3666	21.75	1533.2
134.	22.505	36.627	25.329	22.478	25.320	4.59	.3940	28.55	1532.2
144.	22.306	36.672	25.420	22.277	25.412	4.91	.4208	28.02	1531.9
154.	22.060	36.658	25.479	22.030	25.471	3.87	.4463	28.24	1531.4
164.	21.656	36.637	25.577	21.623	25.570	2.24	.4713	11.81	1530.5
174.	21.305	36.596	25.642	21.271	25.636	4.74	.4956	24.31	1529.7
184.	20.949	36.590	25.736	20.913	25.730	5.96	.5197	41.51	1528.9
194.	20.731	36.606	25.808	20.694	25.802	4.52	.5427	20.52	1528.5

Table VI-41. CTD Station 12: List.
(KNORR 123)

VII. Vertical Current Meter (VCM) Data

VCMs are neutrally buoyant, free-floating instruments which are ballasted to sink to a predetermined depth. While floating at that depth the instrument makes measurements of the vertical velocity relative to itself, of pressure, and of temperature.

Relative vertical current is sensed by an array of vanes mounted axially around the float. Because the float compressibility is less than that of water, vertical motions in the water generate relative vertical flow past the vanes causing the entire float to rotate. This rotation is sensed relative to an internal compass. The sum of the pressure change (float vertical motion) and the rotation of the float (flow relative to the float) is a measure of total vertical water displacement, with a resolution of about 2 cm.

The VCM includes an AMF acoustic release receiver and a release of WHOI design. On command from the ship, or on preset command from an internal timer, the float drops a 900 gm weight and returns to the surface for recovery. A flashing light turns on at release time, and the "ping" rate doubles to confirm release.

Phase One - KNORR 119

A Dual VCM comparison data set was gathered on KNORR 119. The floats were ballasted to 145 and 175m. They were deployed within 30 minutes of each other. The floats were placed in a front and moved along the front staying on the cold side. The floats were tracked for three days before being recovered. Some preliminary data are presented.

Figure VII-1	Schematic of VCM
Figure VII-2	Area 1 Drift Tracks
Figure VII-3	Expanded Scale Drift Tracks of VCM 2 and 4
Table VII-1	VCM Drift Information
Figure VII-4	Displacement Plots from VCM 2 and 4

Phase Three - KNORR 123

During KNORR 123, another pair of VCMs were deployed. Their time series runs for approximately 30 hours. They were ballasted for 190 and 165m. Preliminary data is presented.

Figure VII-5	Area 1 Drift Tracks
Figure VII-6	Expanded Scale Drift Tracks of VCM 2 and 4
Table VII-2	VCM Drift Information
Figure VII-7	Displacement Plots from VCM 2 and 4

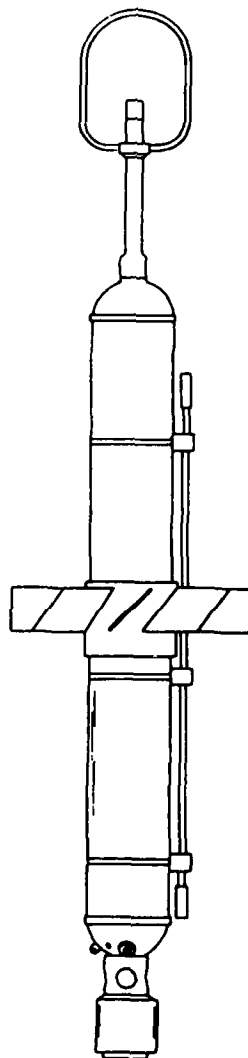


Figure VII-1. Schematic Drawing of Vertical Current Meter.

FASINEX Knorr 119 VCM Drift Tracks

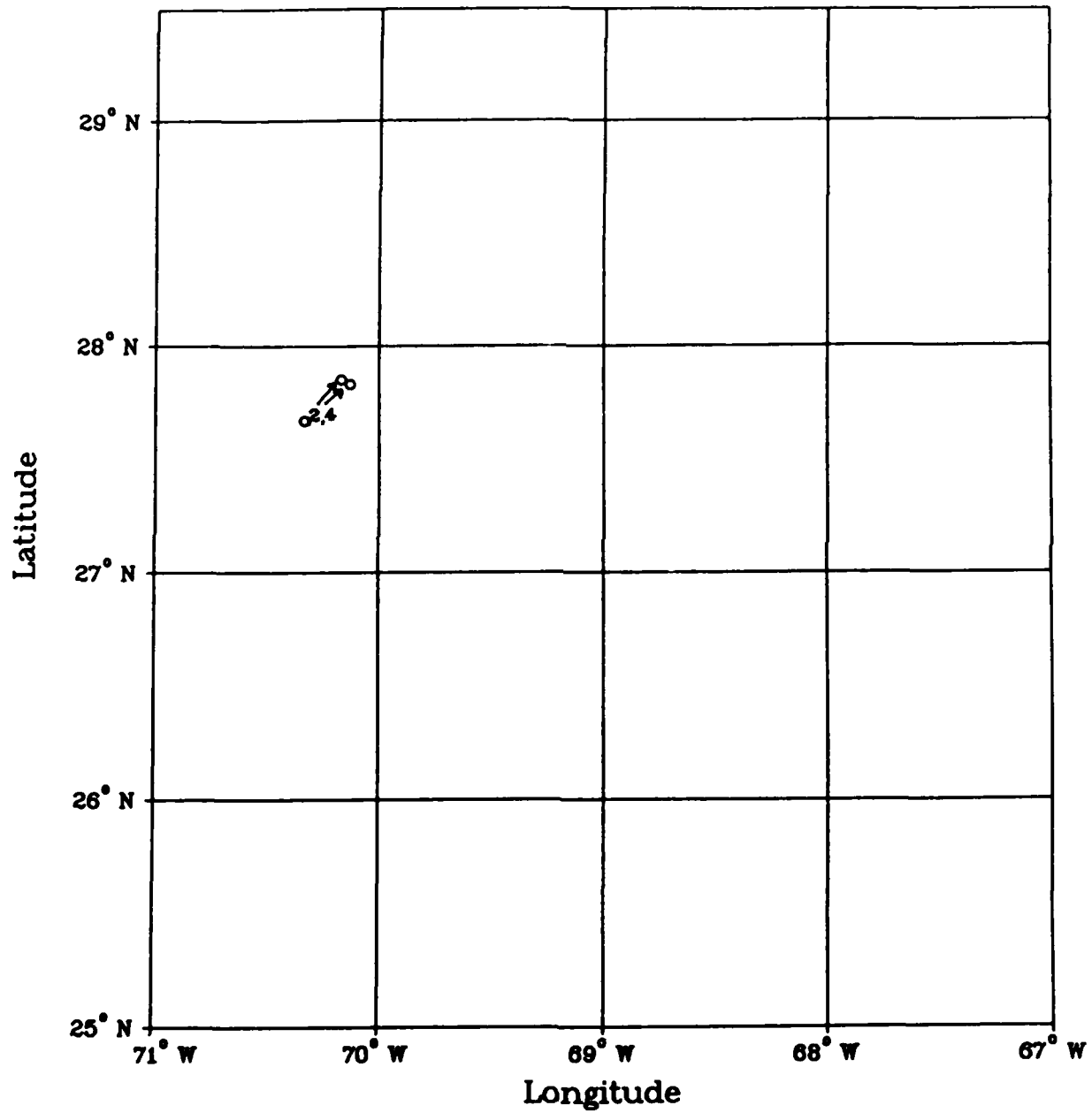


Figure VII-2

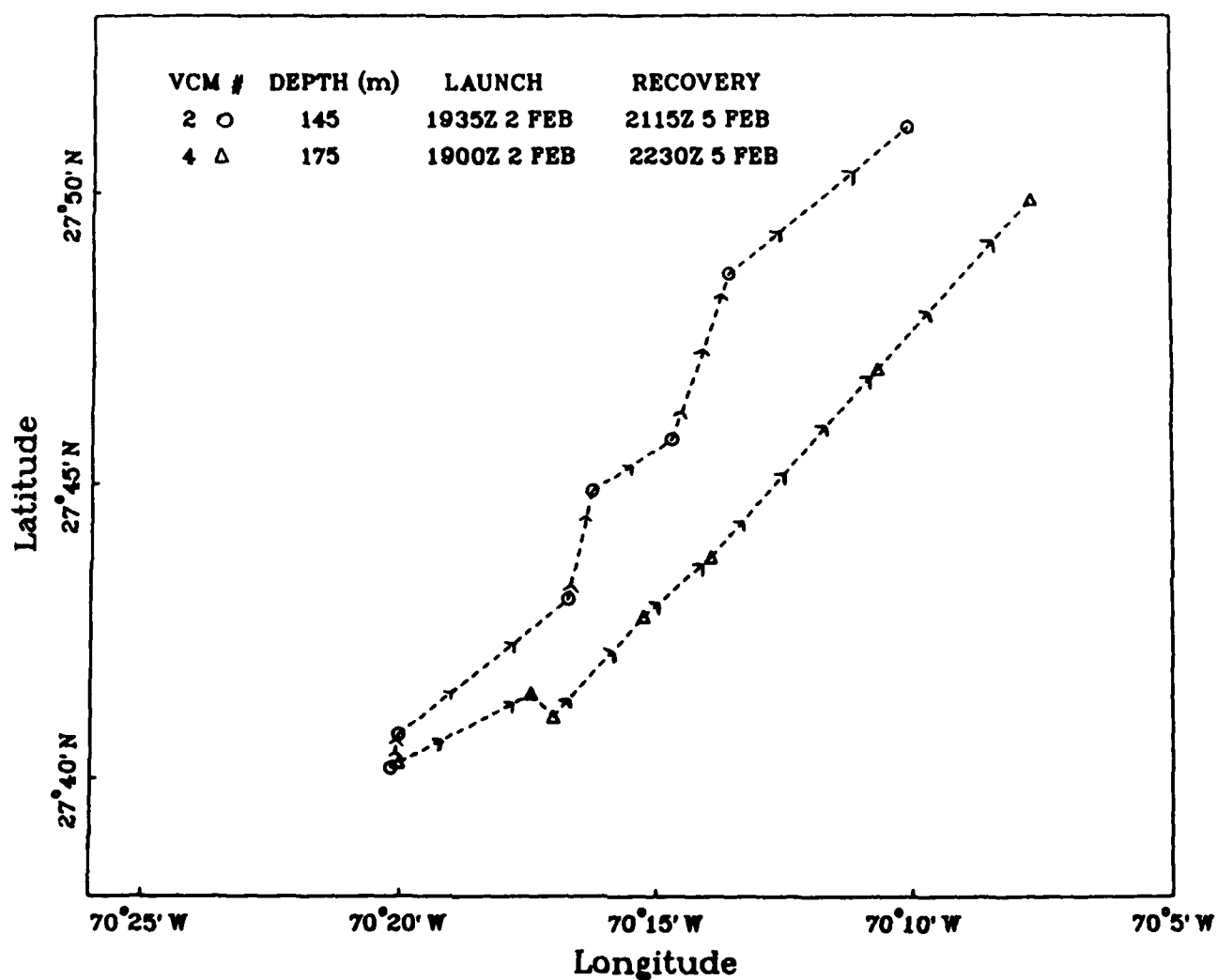


Figure VII-3. Expanded Scale Drift Tracks of VCM 2 and 4.
(KNORR 119)

(Drift tracks annotated with arrow
every six hours.)

Table VII-1: Vertical Current Meter Drift Information
(KNORR 119)

KN119

VCM Drop #	Nominal Depth	Data Hours	Start Time (Z)	End Time (Z)	Comment	Deployment Position Latitude	Deployment Position Longitude	Retrieval Position Latitude	Retrieval Position Longitude
1	145 m	75.42	2 Feb 86 1900	5 Feb 86 2225	VCM #4	27°40.17'	70°20.17'	27°51.10'	70°10.12'
2	175 m	73.7	2 Feb 86 1935	5 Feb 86 2115	VCM #2	27°40.27'	70°20.02'	27°49.87'	70°07.72'

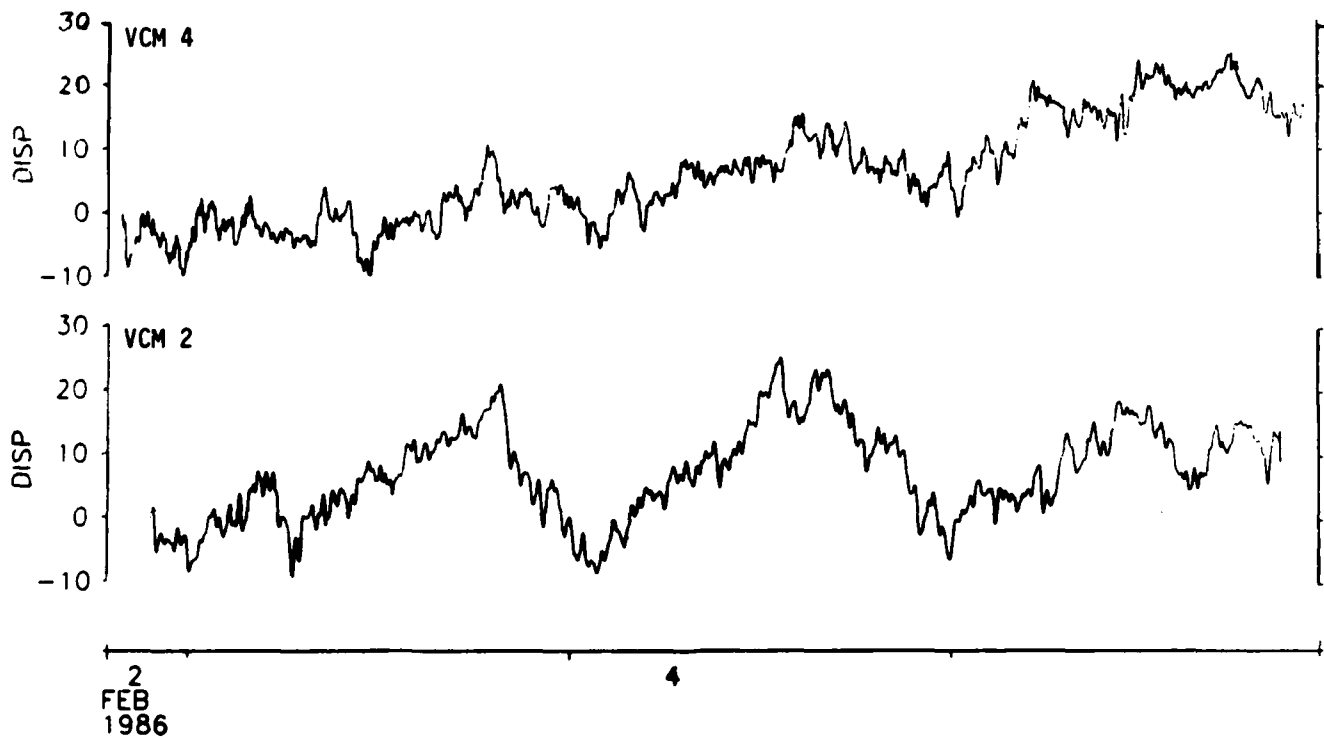


Figure VII-4. Displacement Plots from VCM 2 and 4.

FASINEX Knorr 123 VCM Drift Tracks

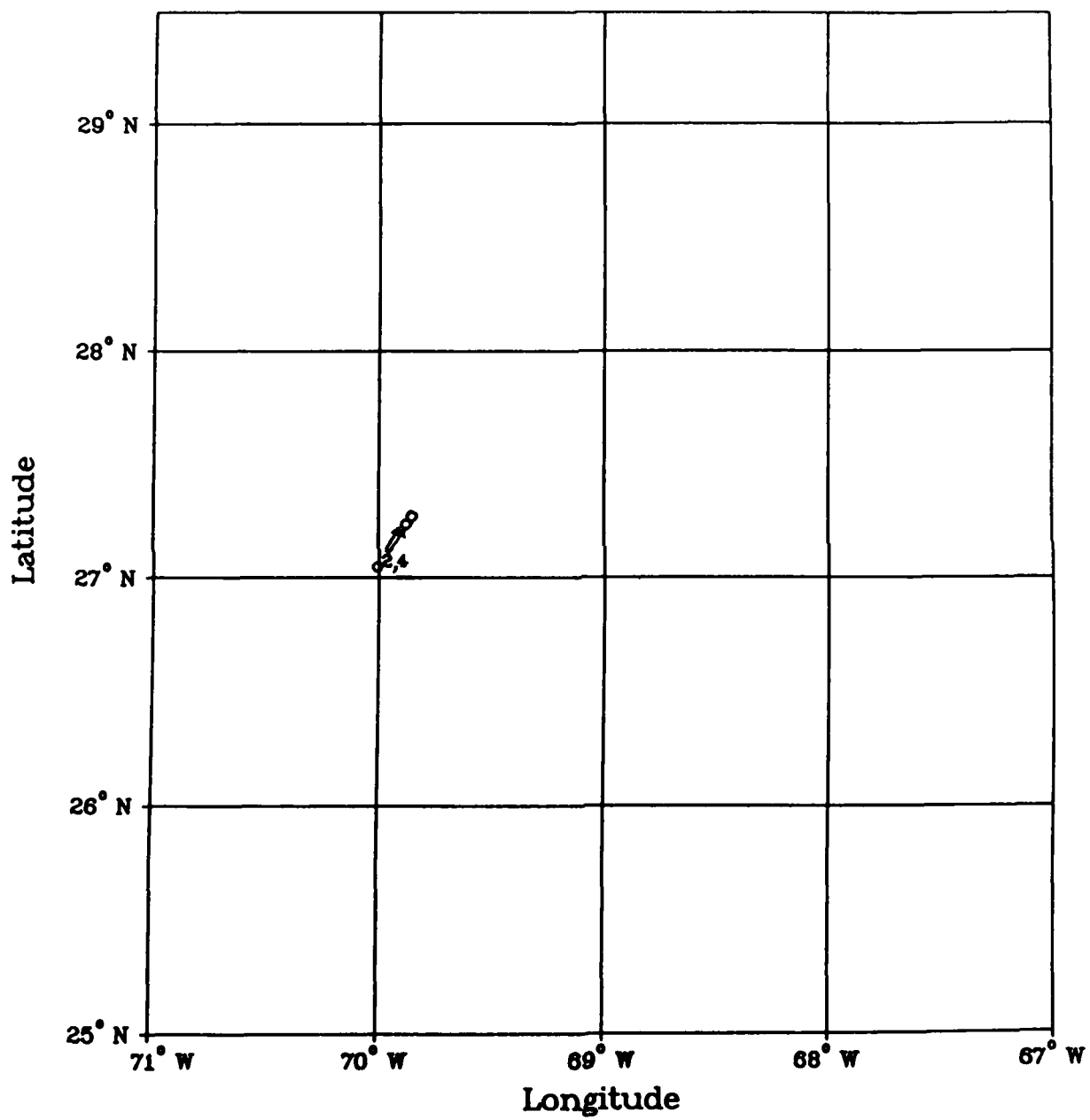


Figure VII-5

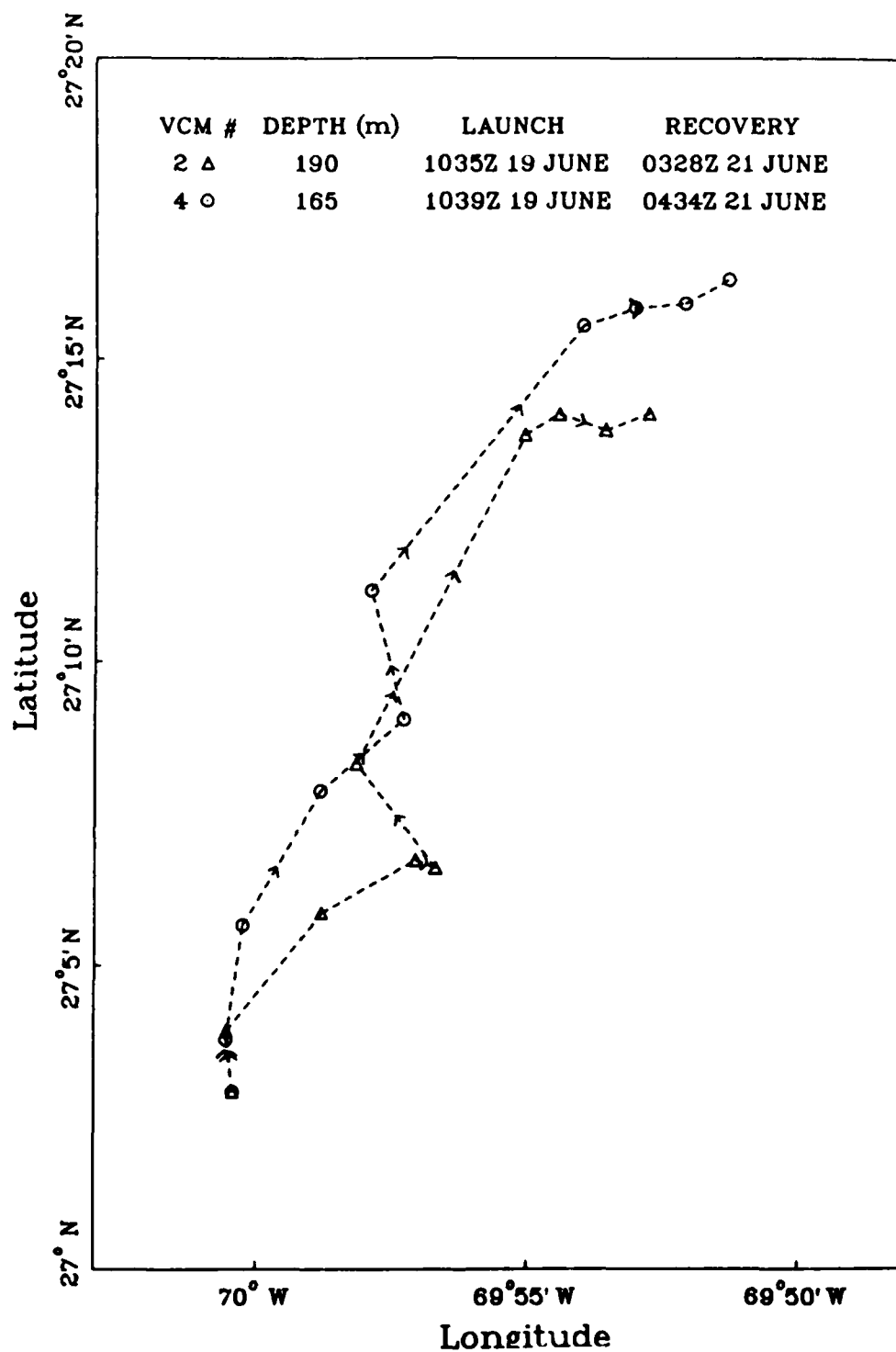


Figure VII-6. Expanded Scale Drift Tracks of VMC 2 and 4.
(KNOPR 123)

(Drift tracks annotated with arrow
every six hours.)

Table VII-2: Vertical Current Meter Drift Information
(KNORR 123)

KN123

VCM Drop #	Nominal Depth	Data Hours	Start Time (Z)	End Time (Z)	Comment	Deployment Position Latitude Longitude	Retrieval Position Latitude Longitude
1	190 m	41.05	19 June 86 1035	21 June 86 0328	VCM #2	27°02.92' 70°00.43'	27°14.11' 69°52.71'
2	165 m	42.22	19 June 86 1039	21 June 86 0434	VCM #4	27°02.92' 70°00.43'	27°16.31' 69°51.21'

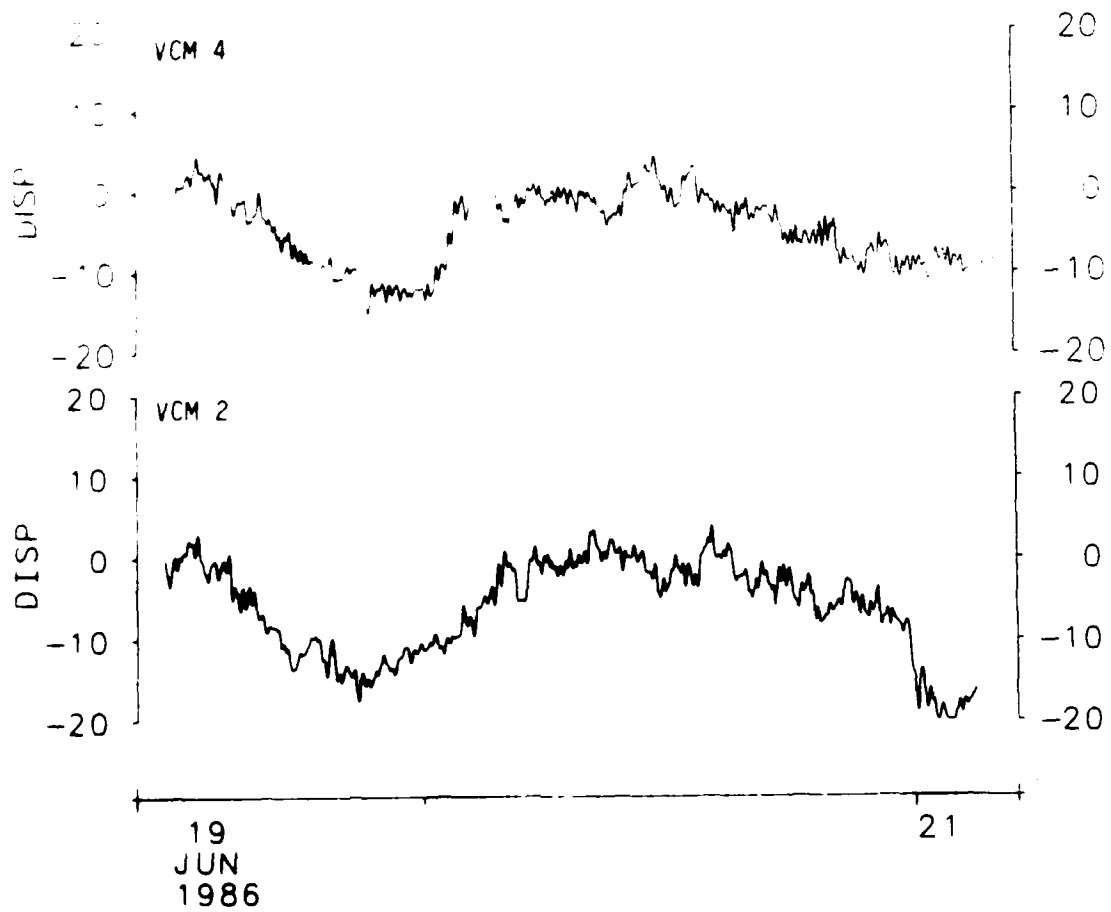


Figure VII-7. Displacement Plots from VCM 2 and 4.

VIII. Real Time Profiler Data

The RTP directly measures vertical velocities as well as horizontal velocities, temperature, and conductivity. Two velocity sensors, consisting of two cosine-response propeller assemblies are mounted at right angles on the RTP with the axis of rotation of one propeller assembly on each sensor oriented vertically. A fin attached to the pressure case that houses the electronics orients the instrument with respect to the mean flow so that the velocity sensors are upstream of the pressure housing. Two vertically oriented propeller assemblies produce redundant vertical velocity measurements. The two horizontally oriented propeller assemblies measure orthogonal components of velocity, which, together with the heading from the compass in the instrument, can be transformed into the east and north components of horizontal velocity. In addition, the instrument is fitted with an external temperature sensor, a conductivity sensor, a pressure sensor, and two accelerometers that sensed tilt. All other data from the RTP are both recorded internally and transmitted in digital format up the cable every 14 seconds.

Phase One - KNORR 119

RTP stations were taken on both Legs of KNORR 119. Most of the stations consisted of a down and up profile to approximately 300m. On Leg 1, the RTP measured surface water on the warm side of the front moving ENE at $50-70\text{m s}^{-1}$ relative to the water below the seasonal thermocline. Figure VIII-3 shows the real time plot of that event.

Figure VIII-1	Schematic of RTP
Figure VIII-2	RTP Station Positions
Table VIII-1	RTP Station Information
Figure VIII-3	RTP Vertical 3-D sticks of Relative Flow January 17, 1986

Phase Three - KNORR 123

An RTP/CTD intercomparison was completed on KNORR 123. The RTP profiled to 300m, while the CTD remained at 15m. The CTD then profiled to 200m while the RTP remained fixed at 15m. A second profile was made with the RTP and a final profile with the CTD.

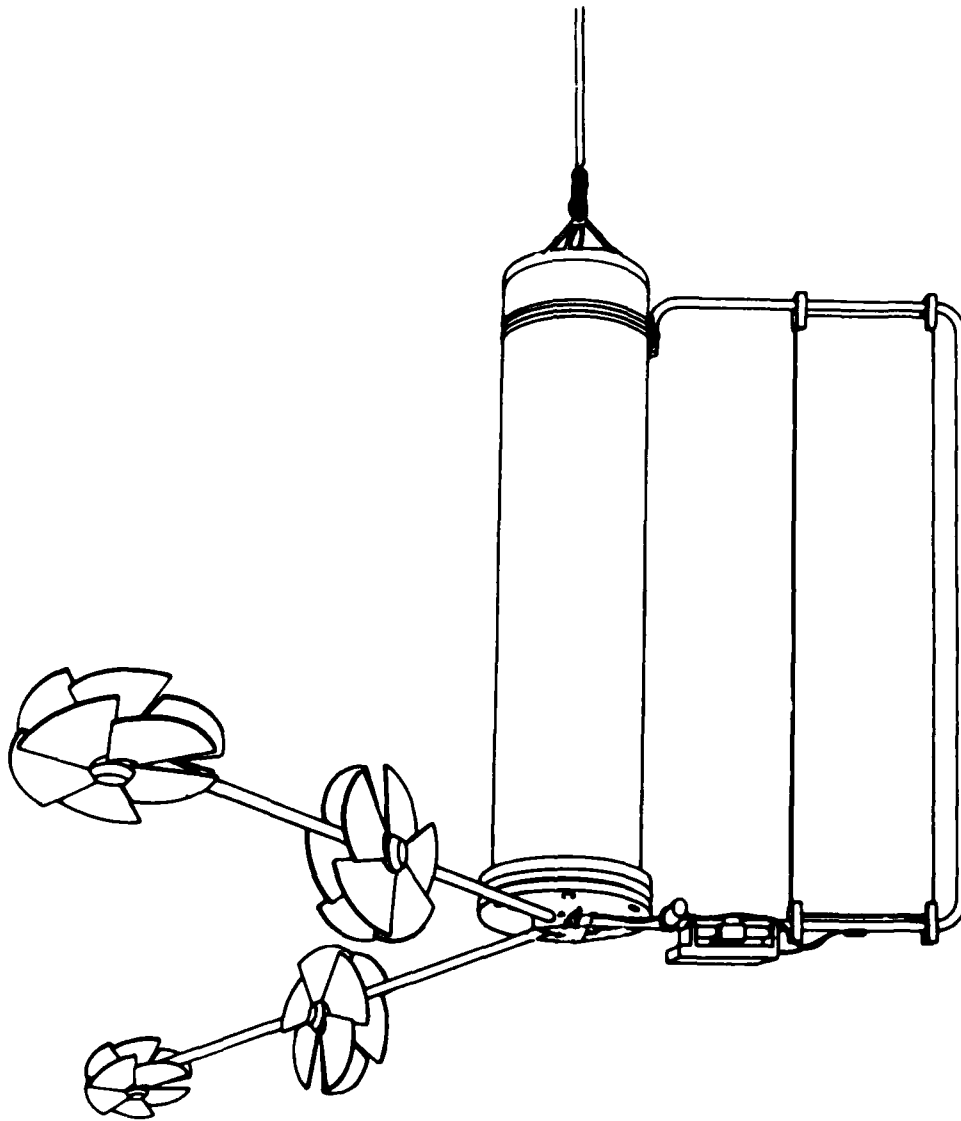


Figure VIII-1. Schematic Drawing of Real Time Profiler

FASINEX Knorr 119 RTP Profiles

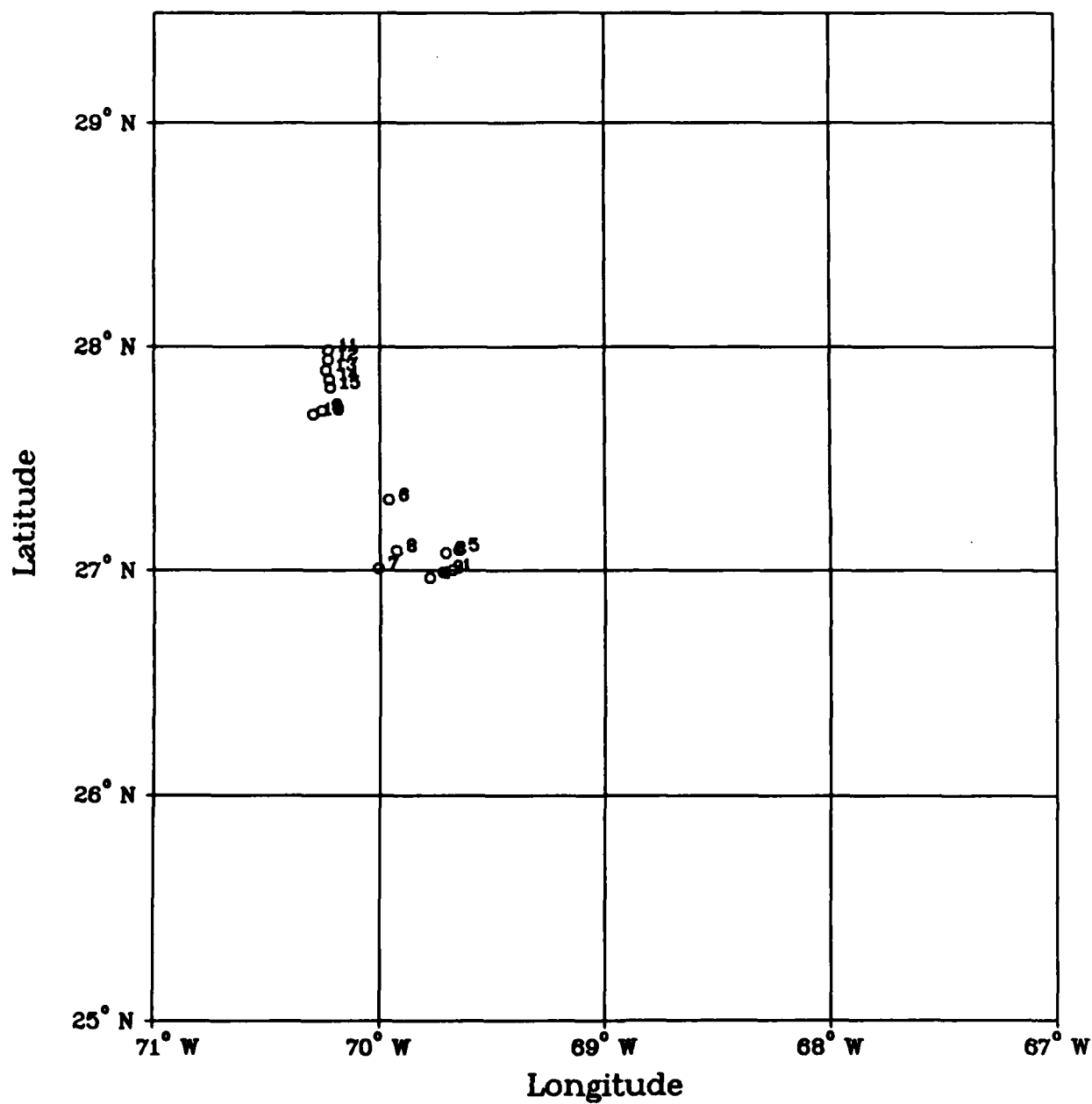


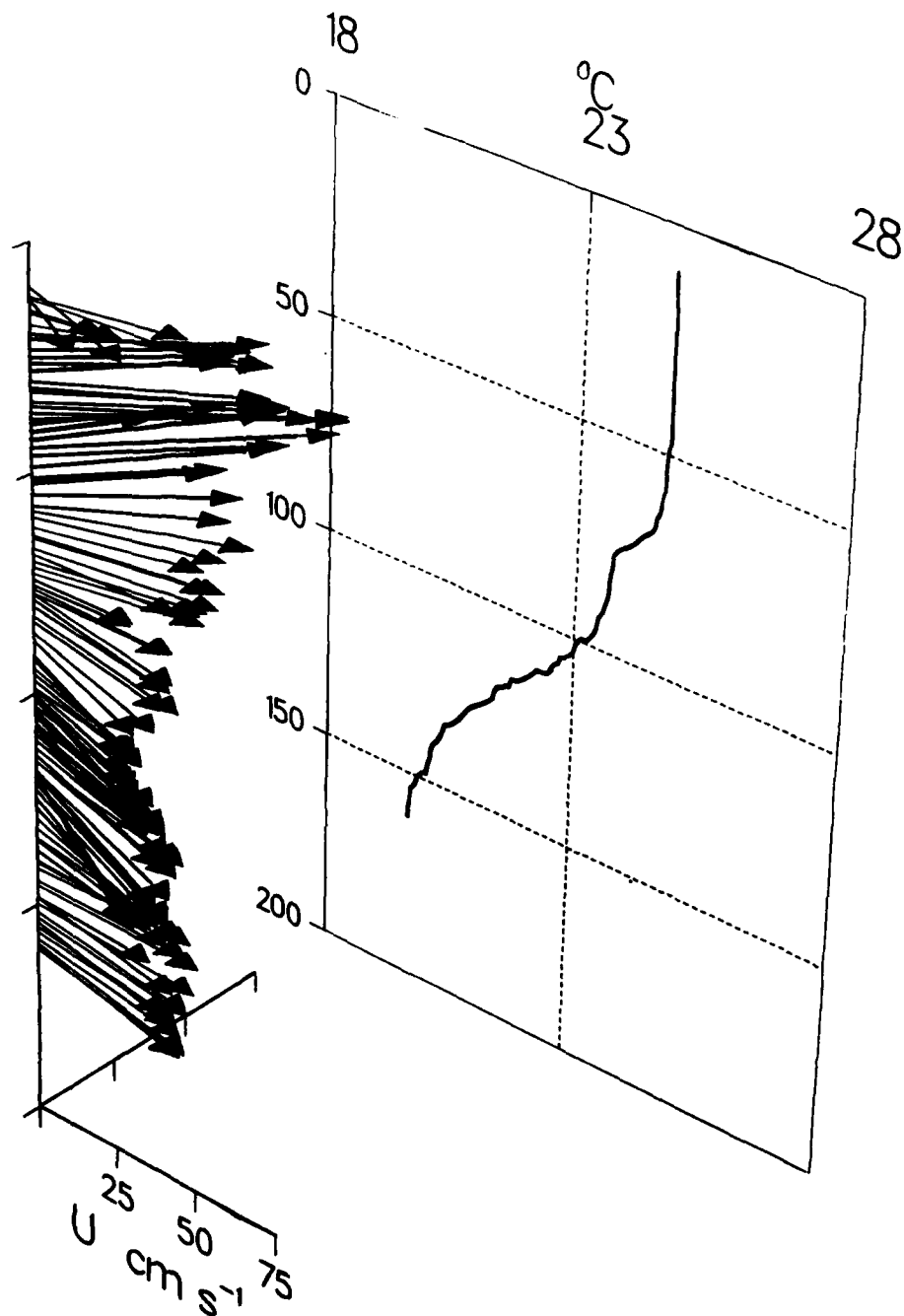
Figure VIII-2. RTP Station Positions

Table VIII-1: Real Time Profiler Station Information
(KNORR 119)

KNORR 119 RTP

Station No.	Start Time (Z)	End Time (Z)	Deployment Latitude	Position Longitude	Retrieval Latitude	Position Longitude	Drop Nos.	Max Depth (m)
1	0954 16 Jan	1139 16 Jan	27°00.09' Magnavox	69°40.76' M	26°59.44'	69°39.12' SAIL LORAN	1	300
2	2117 17 Jan	2330 17 Jan	27°04.69'	69°42.51'	27°05.91'	69°44.61'	1 2	270 230
3	0116 18 Jan	1055 18 Jan	26°59.50'	69°43.28'	27°05.43'	69°41.64'	1 2 3 4 5 6	300 300 300 300 300 264
4	2250 18 Jan	0145 19 Jan	26°58.05'	69°46.82'	27°00.00'	69°46.44'	1 2	243 300
5	0436 19 Jan	0620 19 Jan	27°05.42'	69°39.06'	27°06.44'	69°38.72'	1	300
6	1020 19 Jan	1257 19 Jan	27°18.95'	69°57.66'	27°20.37'	69°56.03'	1 2 3	305 315 47
7	2215 26 Jan	0900 27 Jan	27°00.57'	70°00.52'	27°01.98'	69°56.05'	drifted across front	
8	0416 30 Jan	0728 30 Jan	27°05.29'	69°55.55'	27°06.50'	69°53.49'	1 2	300 300
9	2040 3 Feb	2223 3 Feb	27°42.84'	70°15.45'	27°43.84'	70°15.10'	1	300
10	1237 4 Feb	1410 4 Feb	27°41.86'	70°17.76'	27°42.79'	70°17.49'	1	300
11	1707 4 Feb	1832 4 Feb	27°59.10'	70°13.68'	27°59.15'	70°13.23'	1	300
12	1904 4 Feb	2043 4 Feb	27°56.48'	70°13.72'	27°56.67'	70°12.43'	1	300
13	2220 4 Feb		27°53.73'	70°13.97'			1	300
14	0027 5 Feb	0158 5 Feb	27°51.20'	70°13.43'	27°51.41'	70°13.52'	1	300
15	0327 5 Feb	0510 5 Feb	27°48.98'	70°13.21'	27°49.71'	70°13.18'	1	300

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DAY 17 2117
JANUARY 17 1986

Figure VIII-3. RTP Vertical Three-Dimensional Sticks of Relative Flow.
(January 17, 1986)
(KNORR 119)

IX. AVHRR Data

Peter Cornillon, URI, utilizing the ATS Data channel received processed satellite imagery during KNORR 119. The NEARSS computer with floppy disk storage held the transmitted data and allowed for advanced processing, including the combination of different images. The system included a hard copy unit, allowing for gray scale display of the sea surface temperature field.

Images were received throughout the two legs of the cruise. The first was received before the ship reached the FASINEX area and showed a frontal region that later was measured with a concentrated XBT survey. Once the front was located with the XBTs, the movement of the front was monitored with the satellite data.

The following is an explanation and a description from Peter Cornillon of the computer system used and the data received on the KNORR.

During KNORR 119, the University of Rhode Island in conjunction with the University of Miami collected all available AVHRR data. The clearest of these images were processed and sent to R/V KNORR for display on the S-100 based NEARSS terminal. The data sent to KNORR are summarized in Table IX-1 and graphically in Figure IX-1. The straight line in the figure corresponds to data received on R/V KNORR the same day that the satellite passed over the area. The distance of the X's above the line corresponds to the delay. After the University of Miami receiving station came on line and after we gained experience in the operation, the delay was in general less than one day. Large X's covering two days correspond to two day composites.

The complete list of AVHRR passes in the University of Miami/URI archive covering the FASINEX area during KNORR 119 is presented in Table IX-2. The NOAA-9 data are preferred for this period as all sensors were operating properly. This is not true of the other TIROS-N series satellites in the listing.

The three images included are from 2-3 January, which pinpointed the front for the extensive XBT survey. The second is from 21-22 January showing the planned positions of 8 of the 9 moorings in and near the central array. At this time, only the first 4 moorings were already set. The third image is from 3 March. During Phase 2, 11 February - 12 March, the major part of the frontal work was done between 28-29°N since the original front had moved to the northwest.

Table IX-1	Imagery Acquired in Miami and sent to KNORR
Table IX-2	Archived KNORR 119 AVHRR Data
Figure IX-1	Day Imagery Availability versus Collection Date.
Figure IX-2	AVHRR Composite Image from 2-3 January 1986
Figure IX-3	AVHRR Composite Image from 21-22 January 1986
Figure IX-4	AVHRR Image from 3 March 1986

Table IX-1: Imagery Acquired in Miami or NESDIS, Processed at URI and
Sent to KNORR for Near Real-Time Use

<u>Year Day of Image</u>	<u>Date Available on board Knorr</u>	<u>Acquired From</u>	<u>Quality of Data at 27°N, 70°W</u>
036CO ^a	2/5	U. Miami	Very clear
035CO	2/5	"	Partly clear
034CO	2/5	"	Mostly clear
033CO	2/2	"	Partly clear
032CO	2/2	"	-
03118 ^b	2/1	"	Partly clear
03018	1/30	"	Mostly clear
02919	1/29	"	Mostly cloudy
02608	1/29	"	Mostly cloudy
02418	1/24	"	Partly clear
022A023 ^c	1/23	"	Mostly clear
022CO	1/23	"	-
021A022	1/23	"	Very clear
02118	1/22	"	Partly clear
018CO	1/20	"	Mostly cloudy
017CO	1/19	"	Mostly cloudy
016CO	1/19	"	Partly clear
015CO	1/18	"	Mostly cloudy
00719	1/14	NESDIS	Mostly cloudy
00706	1/11	"	Mostly clear
004A005	1/9	"	Mostly clear
002A003	1/7	"	Very clear

^a CO means composited from 2 or more images on the given day.

^b Two digits following the year day are the hour.

^c A means composited from 2 or more images on the 2 days shown.

Table IX-2: AVHRR Data in the University of Miami / University of Rhode Island

Archive for KNORR 119

NOAA-9

DAY	HH:MM:SS	DAY	HH:MM:SS	DAY	HH:MM:SS	DAY	HH:MM:SS	DAY	HH:MM:SS
007	06:36:30	007	17:59:58	007	19:41:45	008	08:05:12	008	17:49:52
008	19:31:19	009	07:53:55	009	17:39:48	009	19:20:26	010	07:42:38
010	17:29:47	010	19:08:53	011	07:31:55	011	18:57:33	012	18:47:09
013	07:11:16	014	18:24:43	015	06:49:10	015	08:31:54	015	18:14:25
015	19:55:58	016	06:39:07	016	08:21:05	016	18:04:09	016	19:45:53
017	06:28:21	017	08:09:40	017	17:54:10	017	19:35:37	018	07:57:59
018	17:44:02	018	19:24:37	019	07:46:33	019	17:33:43	019	19:13:32
020	07:35:53	020	19:01:33	021	07:25:59	021	18:50:10	022	07:14:38
022	18:39:38	023	07:05:50	023	18:29:40	024	06:53:35	024	18:18:42
024	20:00:13	025	06:43:28	025	18:08:37	025	19:50:18	026	06:33:00
026	08:14:36	026	17:58:27	026	19:40:03	027	08:03:05	027	17:48:19
027	19:29:10	028	07:51:45	028	17:38:08	028	19:18:37	029	07:40:21
029	17:27:59	029	19:06:29	030	07:29:51	030	18:54:31	031	07:19:00
031	18:44:05	032	07:08:52	032	18:33:29	033	06:57:55	033	18:23:01
034	06:47:27	034	18:12:45	034	19:54:23	035	06:37:00	035	08:18:58
035	18:02:30	035	19:44:09	036	06:26:59	036	08:07:30	036	17:52:19
036	19:33:48	037	07:55:51	037	17:42:15	037	19:22:56	038	07:44:45
038	17:32:07	038	19:11:24	039	07:34:25	039	17:22:10	039	18:59:45
040	07:23:26	040	18:48:26	041	07:12:50	041	18:38:20	042	07:02:17
042	18:27:22	043	06:51:47	043	18:17:15	043	19:58:35	044	06:41:17
044	08:24:00	044	18:06:44	044	19:48:25				

Table IX-2 (continued)

NOAA-7

DAY	HH:MM:SS	DAY	HH:MM:SS	DAY	HH:MM:SS	DAY	HH:MM:SS	DAY	HH:MM:SS
010	10:10:06	011	09:56:52	012	09:44:20	012	21:09:15	013	09:32:20
013	20:57:03	018	10:10:38	019	09:57:19	020	09:44:50	021	09:33:21
026	10:12:06	028	21:10:50	033	10:26:03	034	10:12:22	035	09:59:10
036	09:46:37	041	10:26:55	043	10:00:12	044	09:47:27		

NOAA-6

DAY	HH:MM:SS	DAY	HH:MM:SS	DAY	HH:MM:SS	DAY	HH:MM:SS	DAY	HH:MM:SS
007	11:21:00	008	10:57:21	009	10:34:13	009	12:14:10	009	23:33:33
010	11:48:32	010	23:09:19	011	11:25:13	012	11:01:05	013	00:00:34
013	10:37:38	013	12:18:09	013	23:37:11	014	11:52:16	014	23:11:53
016	11:04:18	017	00:06:16	017	10:40:43	017	12:21:44	017	23:40:25
018	11:55:50	018	23:15:30	019	11:31:33	020	11:07:59	021	00:07:15
021	10:44:47	021	12:26:03	021	23:44:17	022	11:59:46	022	23:20:09
024	11:11:26	025	10:48:04	025	12:29:41	025	23:48:09	026	12:04:04
026	23:24:07	027	11:39:47	028	11:15:45	029	10:51:26	029	12:32:43
029	23:51:22	030	12:07:55	030	23:27:24	031	11:42:32	031	23:01:19
032	11:18:42	033	10:54:58	033	23:54:56	034	12:11:52	034	23:31:17
035	11:46:08	035	23:04:52	036	11:22:15	037	10:58:30	037	23:58:23
038	10:35:08	038	12:15:41	038	23:34:53	039	11:49:49	039	23:09:30
040	11:25:50	041	11:02:12	042	00:01:45	042	10:39:32	042	12:19:33
042	23:38:22	043	11:53:38	043	23:13:25	044	11:29:24		

YEAR DAY IMAGE AVAILABLE ON KNORR

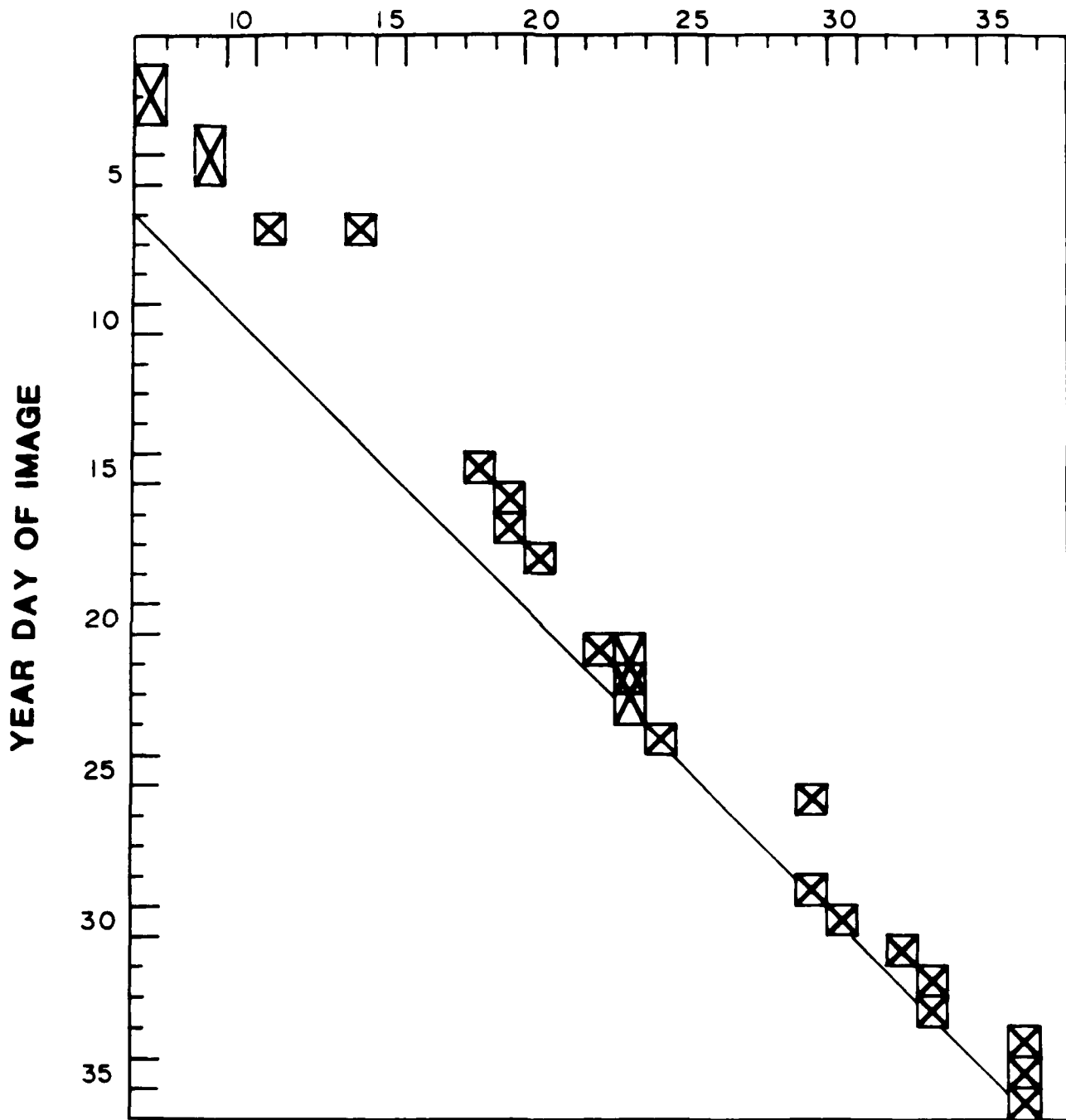


Figure IX-1. Day imagery available on KNORR versus day imagery collected by satellite. Diagonal line corresponds to data being available on the day it was acquired. Large X's correspond to composites of images from both days.

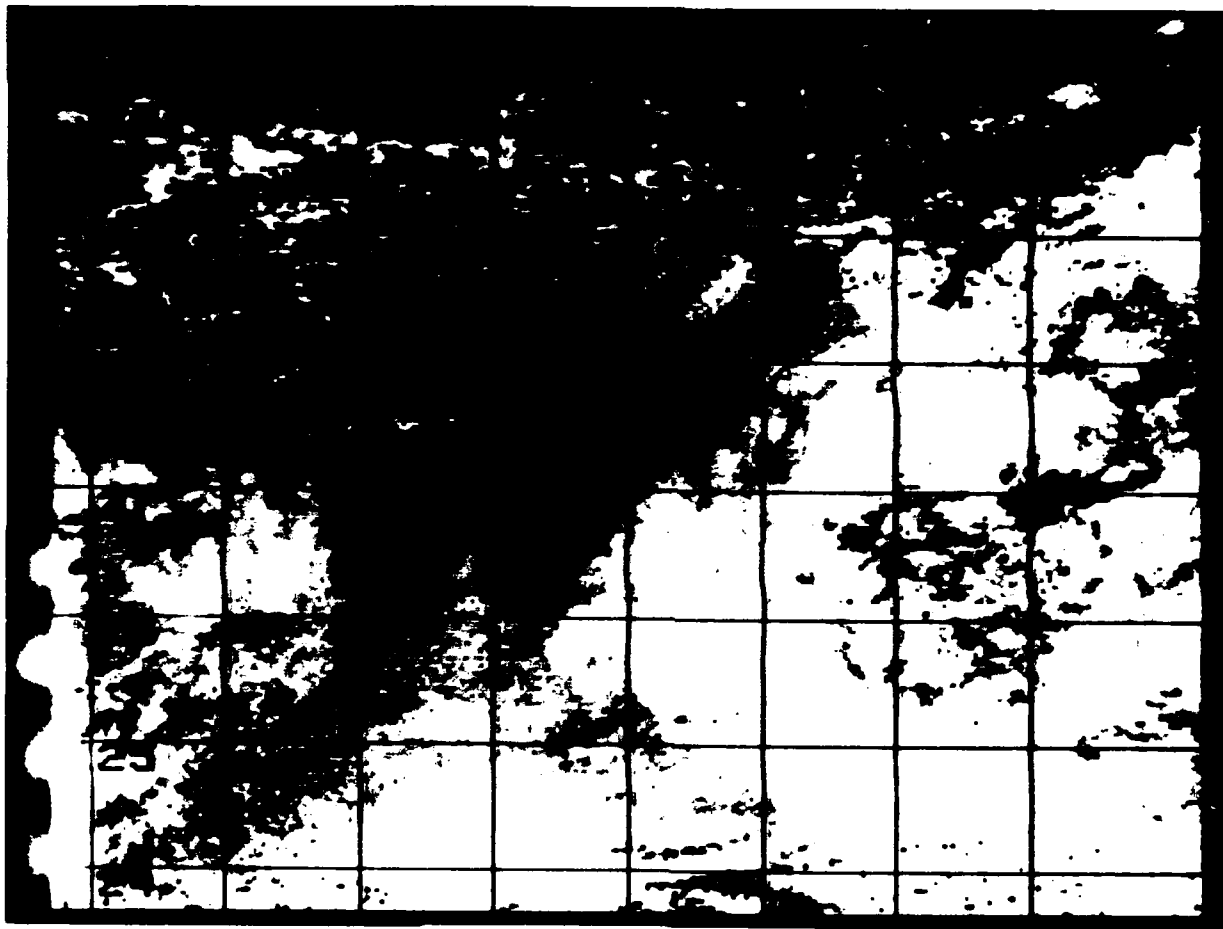


Figure IX-2. AVHRR Composite Image from 2-3 January 1986.



Figure IX-3. AVHRR Composite Image from 21-22 January 1986.

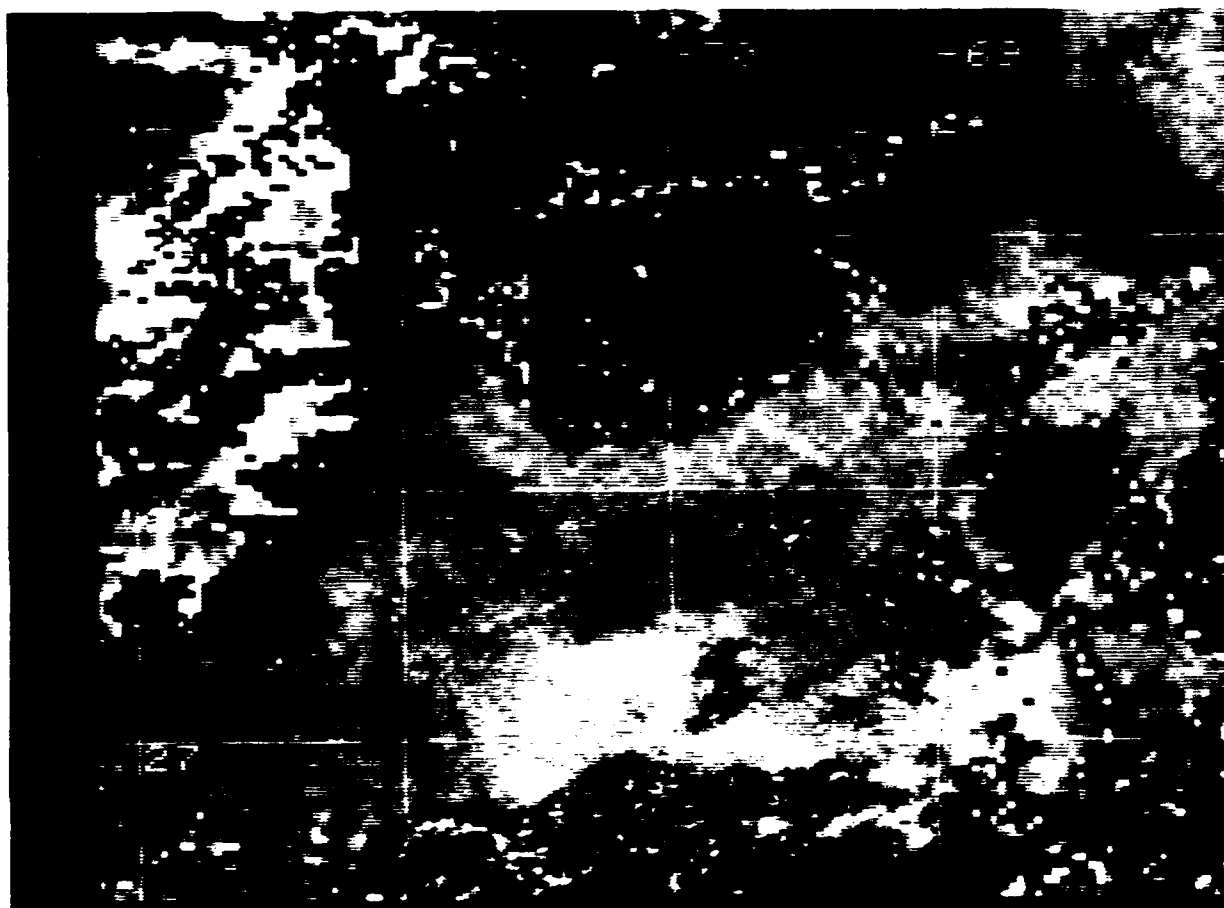


Figure IX-1. Aerial view from 3 March 1966.

X. ARGOS Data

The MRS (Meteorological Recorder) on the five FASINEX surface buoys telemetered data using ARGOS, a system consisting of two TIROS satellites in orbit, equipped with data collection systems and several ground data processing centers. Each buoy transmitted data to the satellites, which was then transmitted to a telemetry station. The data were processed and available on line or stored for monthly transmittal. The following plots are from the 9 track tapes. The information from these buoys was monitored daily to check that they remained on station and to review the variability of certain meteorological parameters in the area of the array.

The time series runs from 20 January to 16 June 1986. This time base begins when correctly calibrated data is logged to tape. The data have been edited and averaged to 1 point per pass. The time base is in real Julian days. Each of the variables is plotted separately. The overplots show the variation between the buoys. Buoy motion plots are also displayed. Even with some spike removal and the averaging, questionable positions still remain in the data set. Since this is just an overview of the motion of the buoys, further editing is unlikely. (GPS anchor position is marked by a solid dot on the watch circle plots.)

The transmitter on buoy F10 worked only marginally. A secondary transmitter was mounted on the buoy which transmitted only position and was not archived to tape.

Figure X-1	Sea Temperature Overplots from the Buoys
Figure X-2	Air Temperature Overplots from the Buoys
Figure X-3	Barometric Pressure Overplots from the Buoys
Figure X-4	Relative Humidity Overplots from the Buoys
Figure X-5	Wind Speed Overplots from the Buoys
Figure X-6	Wind Direction Overplots from the Buoys
Figure X-7	Tension Overplots from the Buoys
Figure X-8	Surface Buoys Movement with Drifting F10
Figure X-9	F2 Watch Circle
Figure X-10	F4 Watch Circle
Figure X-11	F6 Watch Circle
Figure X-12	F8 Watch Circle
Figure X-13	F10 Watch Circle

FASINEX Surface Buoys

—	F2
- - -	F4
—	F6
- - -	F8
· · ·	F10

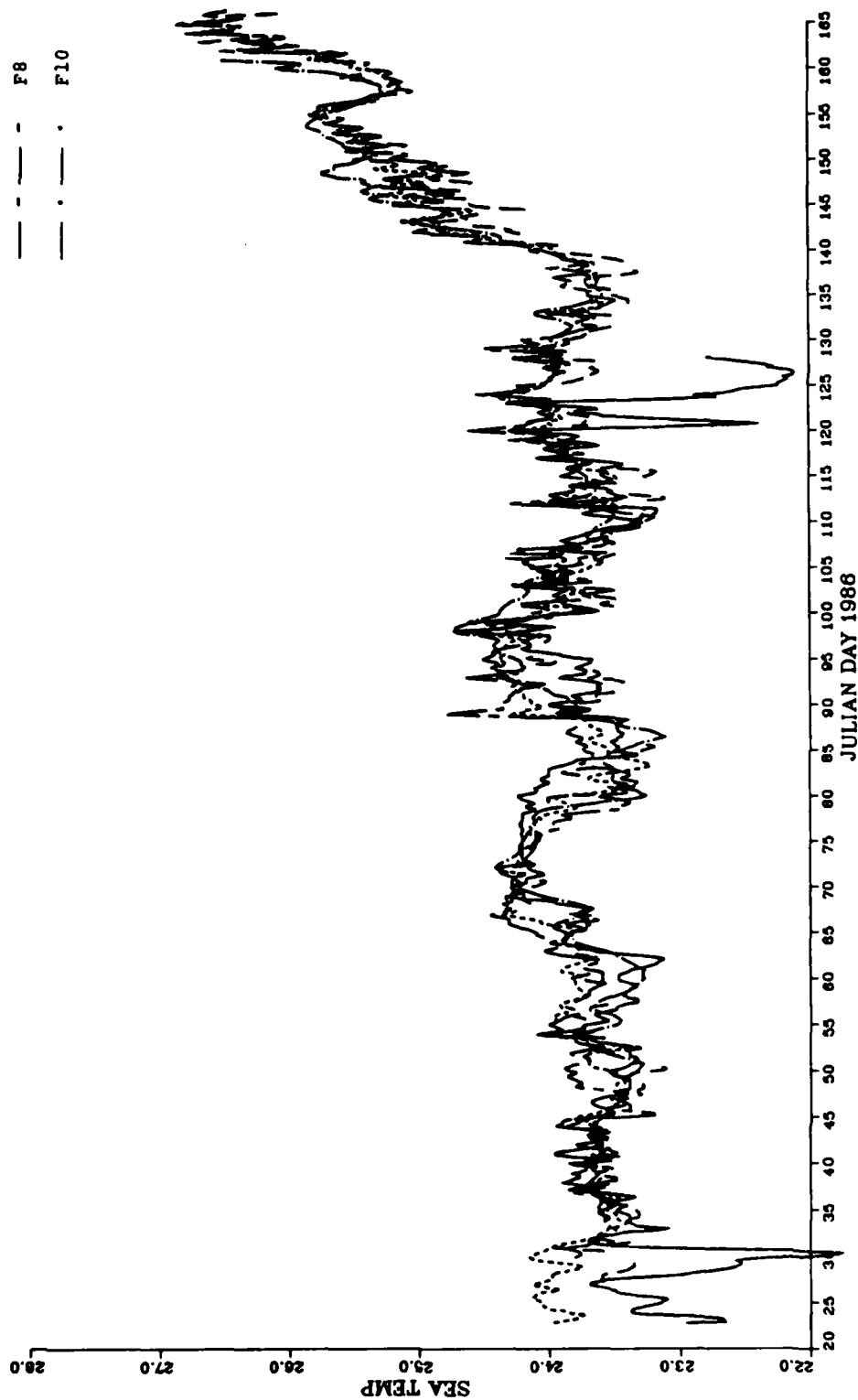


Figure X-1. Sea Temperature Overplots from the Buoys.

FASINEX Surface Buoys

—	F2
- - -	F4
—	F6
- - -	F8
— . — .	F10

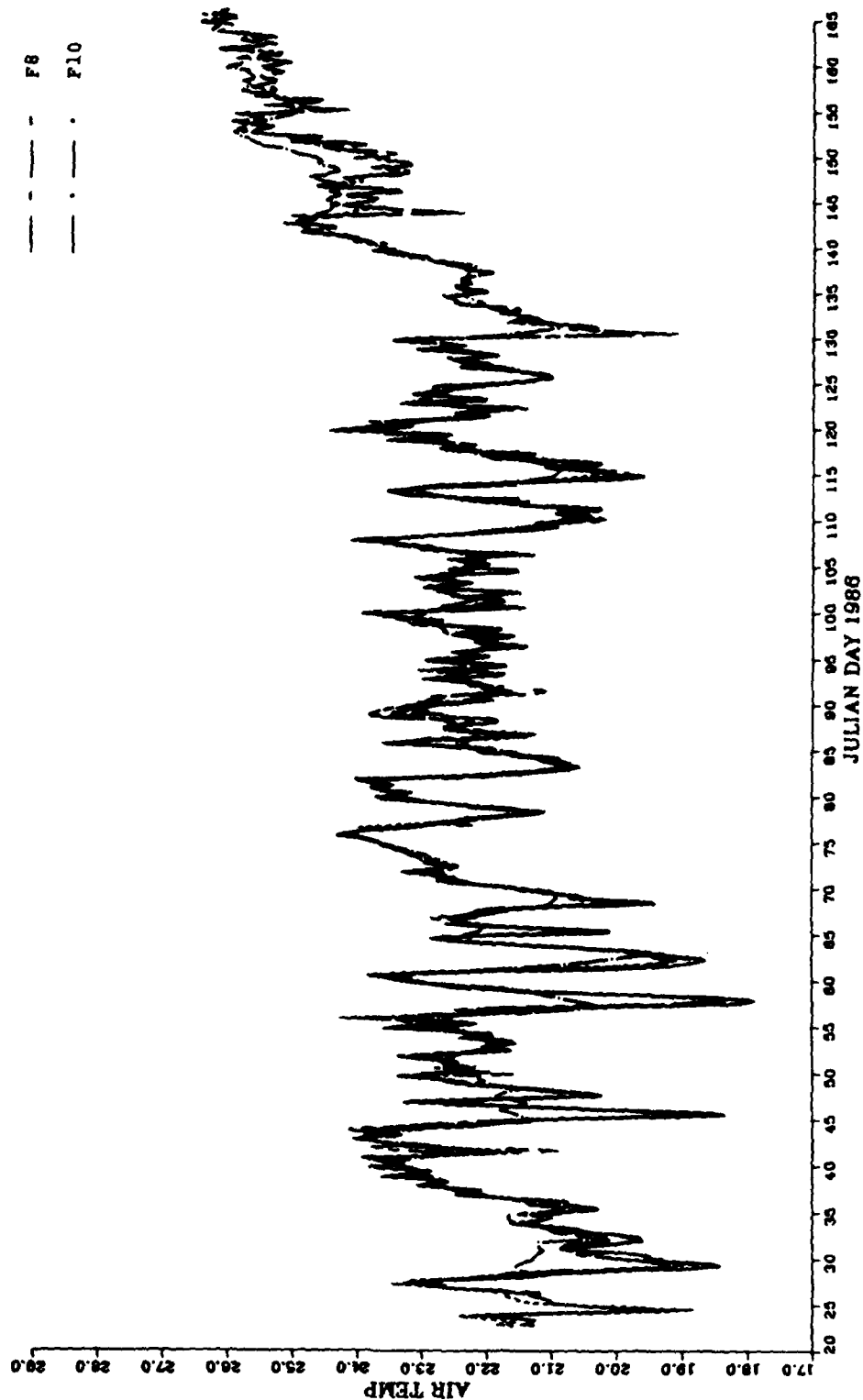


Figure X-2. Air Temperature Overplots from the Buoys.

FASINEX Surface Buoys

— F2
--- F4
— F6
- - F8
- . - . F10

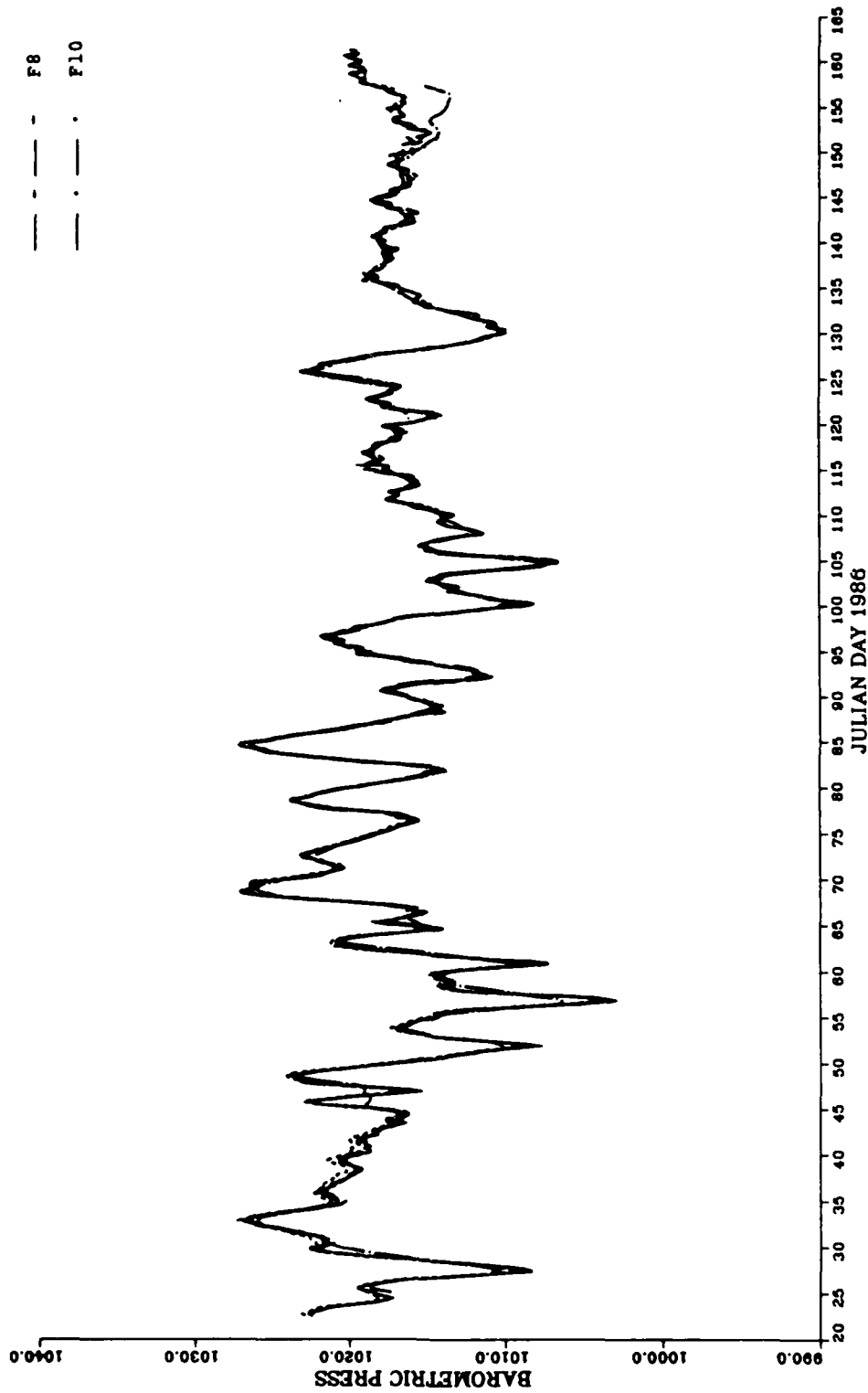


Figure X-3. Barometric Pressure Overplots from the Buoys

FASINEX Surface Buoys

— F2
 - - - F4
 — F6
 - - - F8
 . . . F10

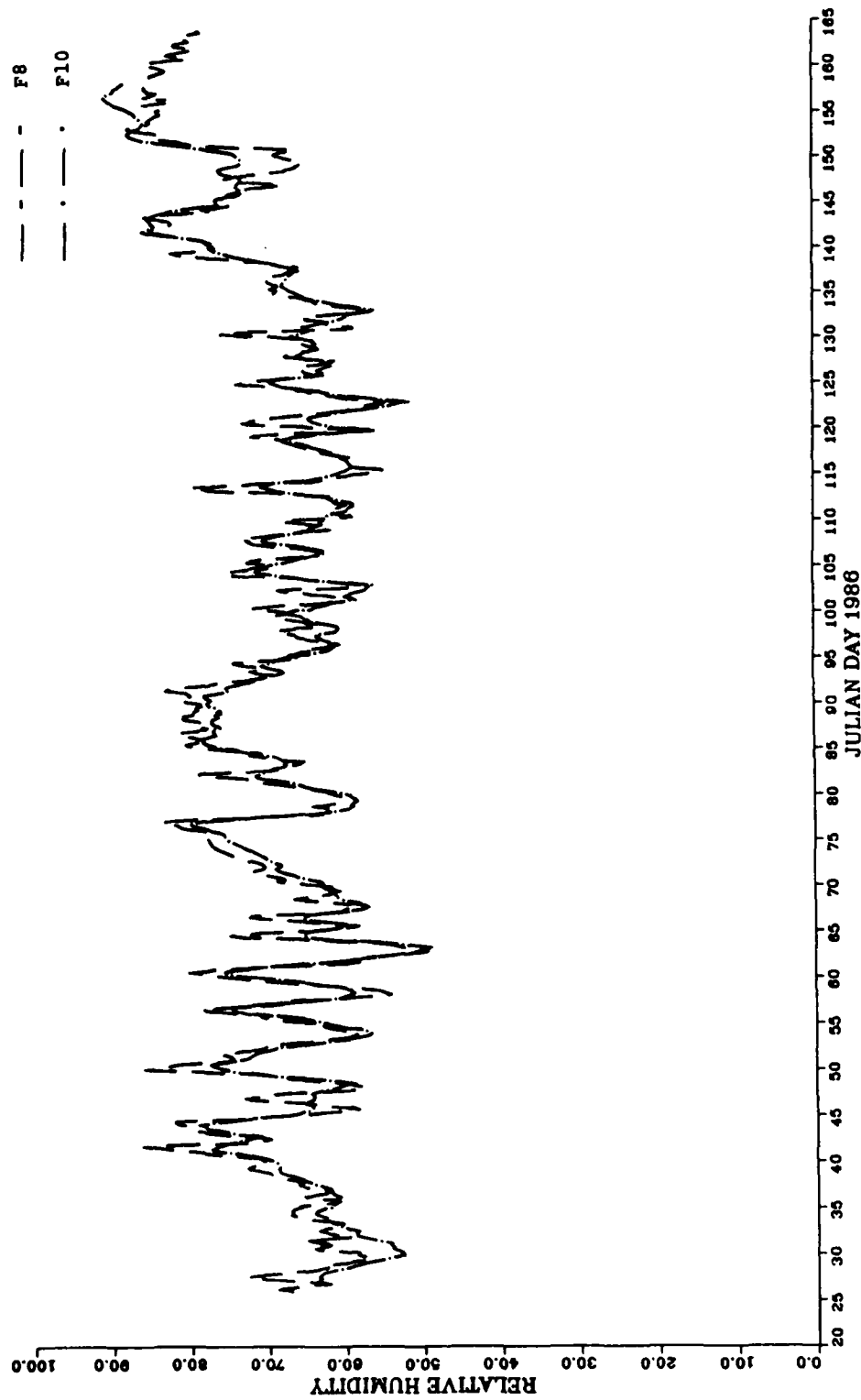


Figure X-4. Relative Humidity Overplots from the Buoys.

FASINEX Surface Buoys

—	F2
- - -	F4
—	F6
- - -	F8
— . — .	F10

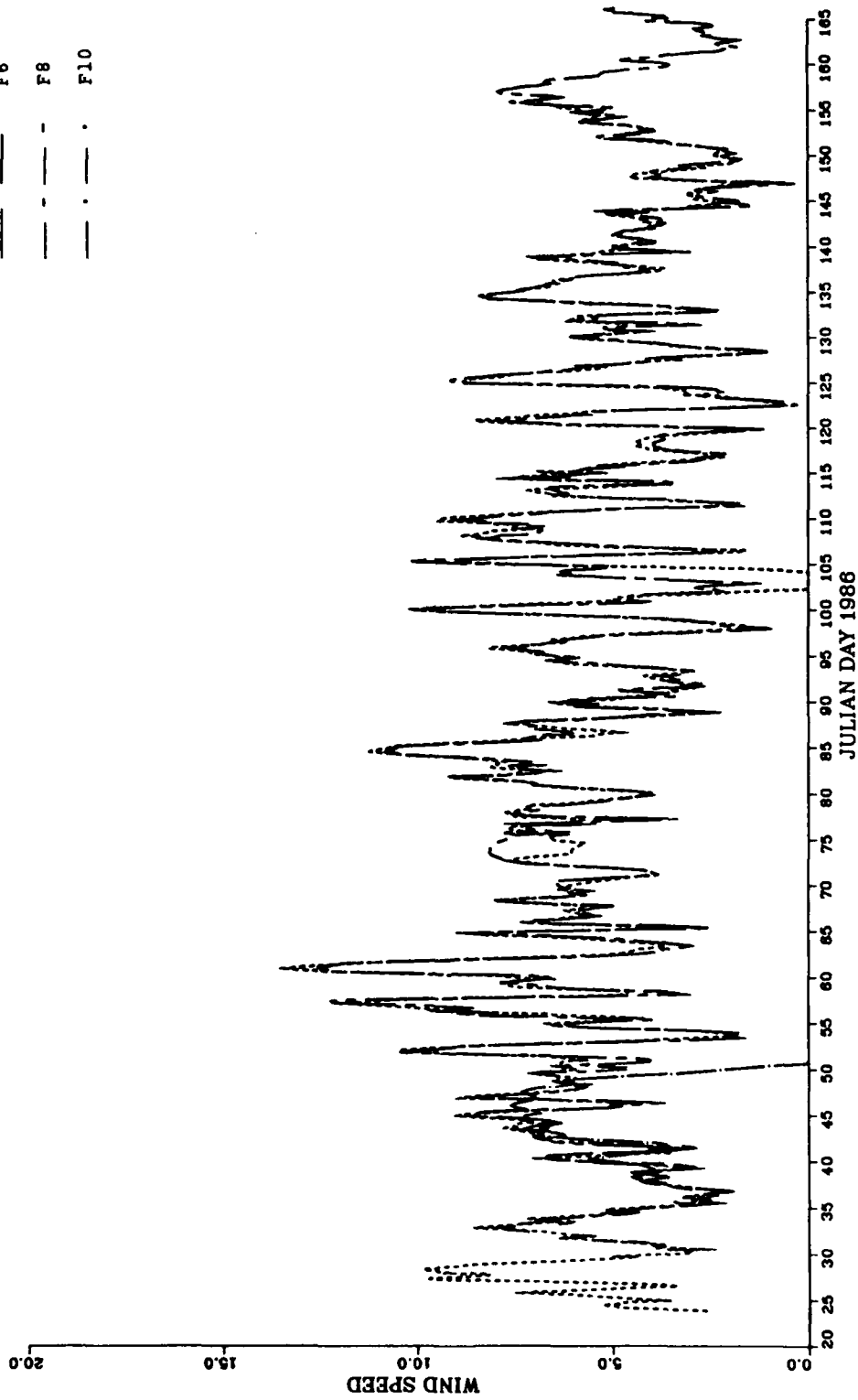


Figure X-5. Wind Speed Overplots from the Buoys

FASINEX Surface Buoys

F2
 F4
 F6
 F8
 F10

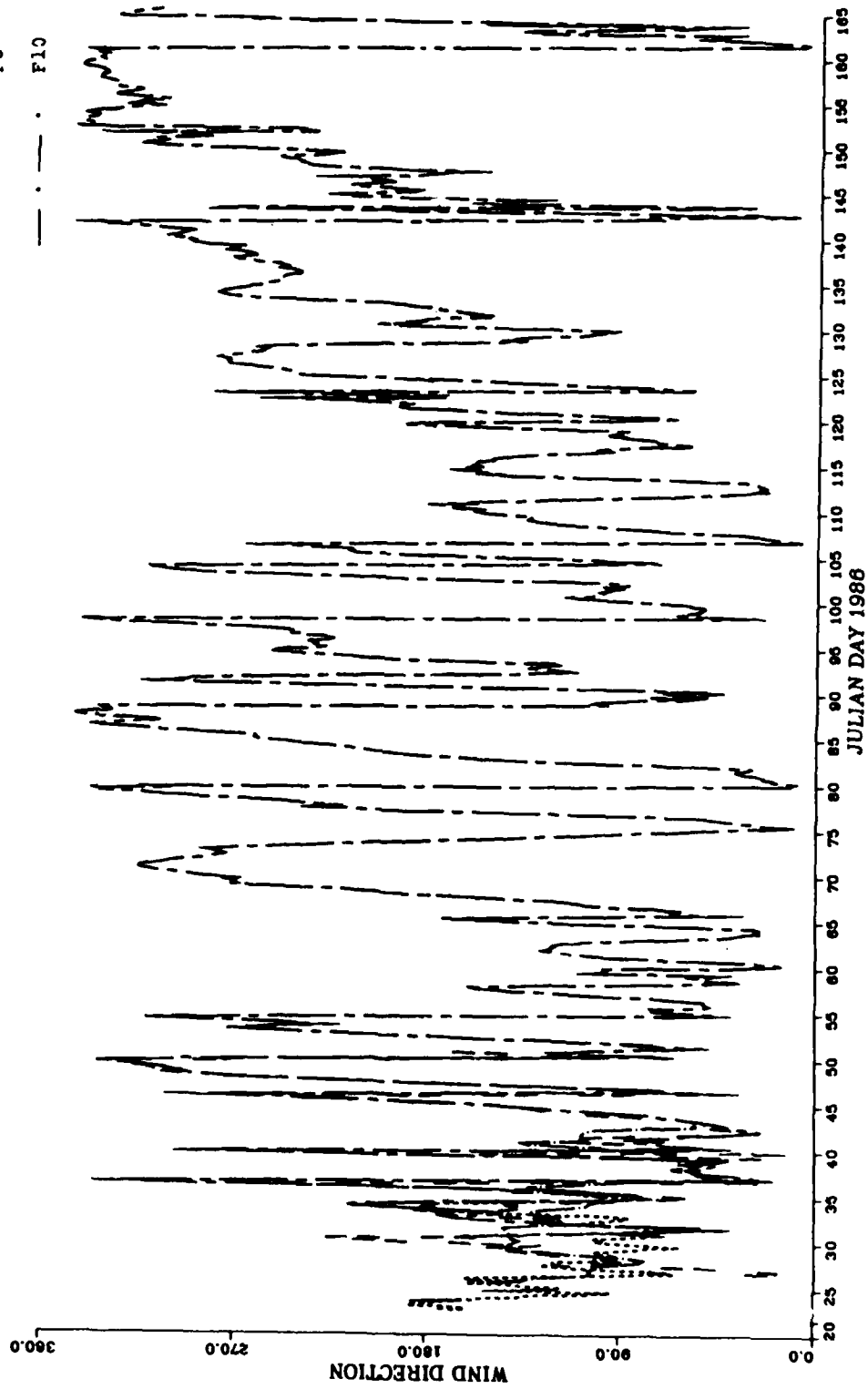


Figure X-6. Wind Direction Overplots from the Buoys.

FASINEX Surface Buoys

—	F2
- - -	F4
—	F6
- - -	F8
. . .	F10

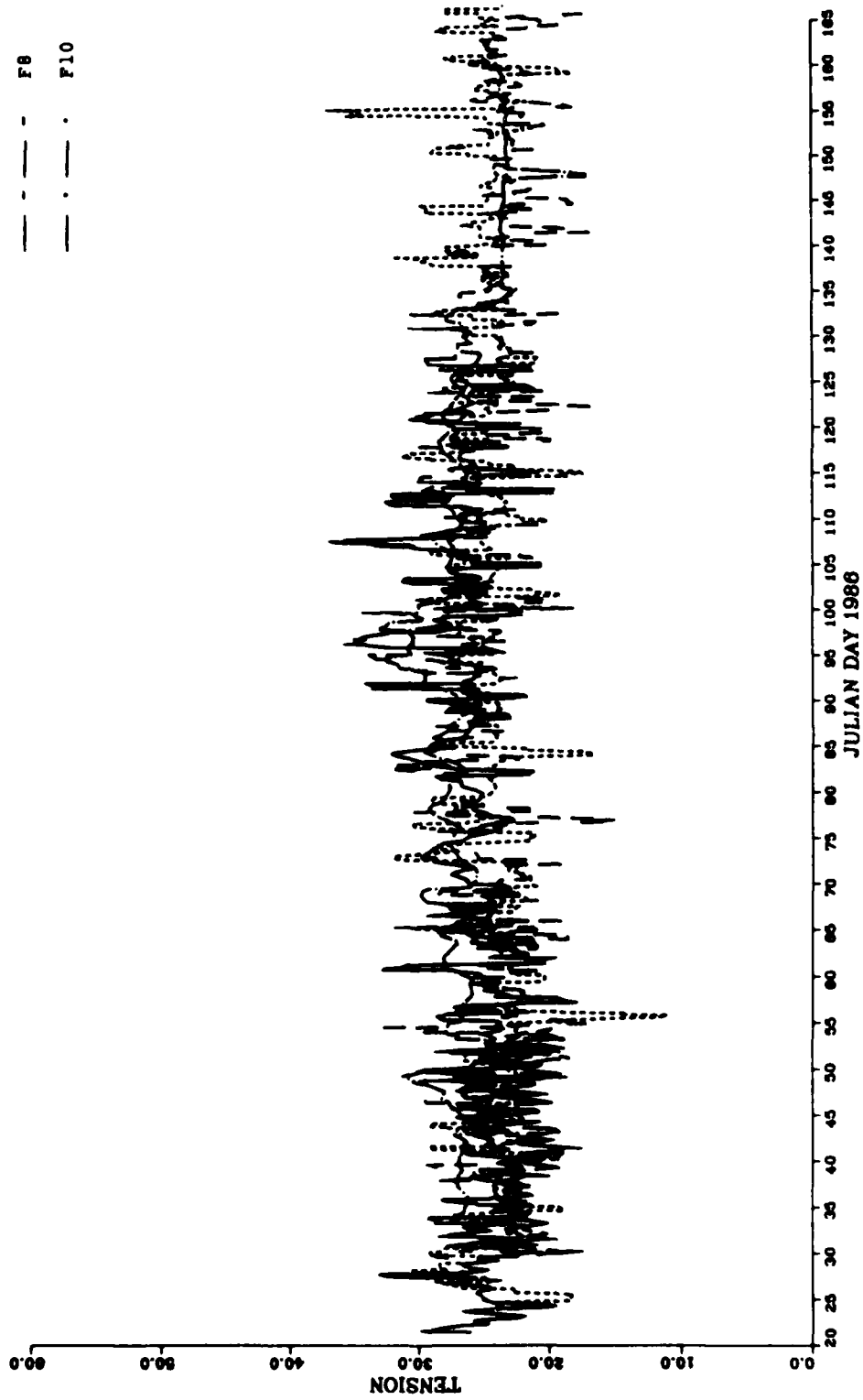


Figure X-7. Tension Overplots from the Buoys.

FASINEX Surface Moorings with Drifting F10

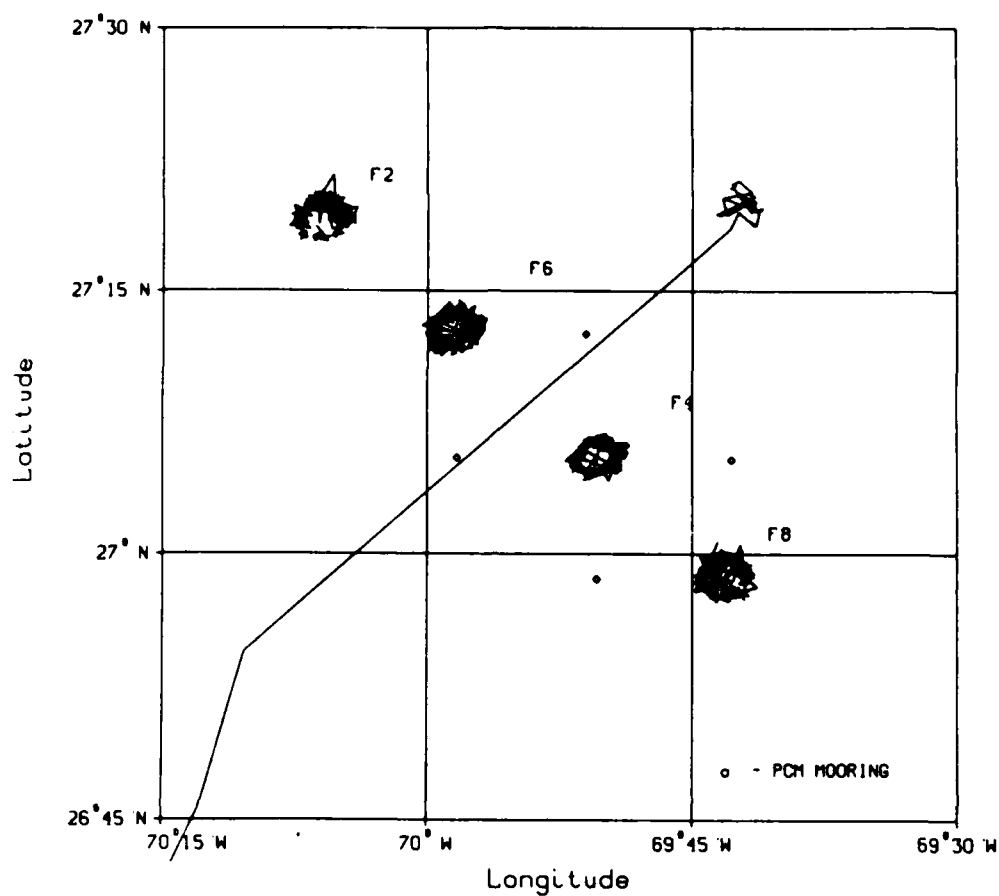


Figure X-8. Surface Buoys Movement with Drifting F10.

FASINEX Buoy F2 Watch Circle

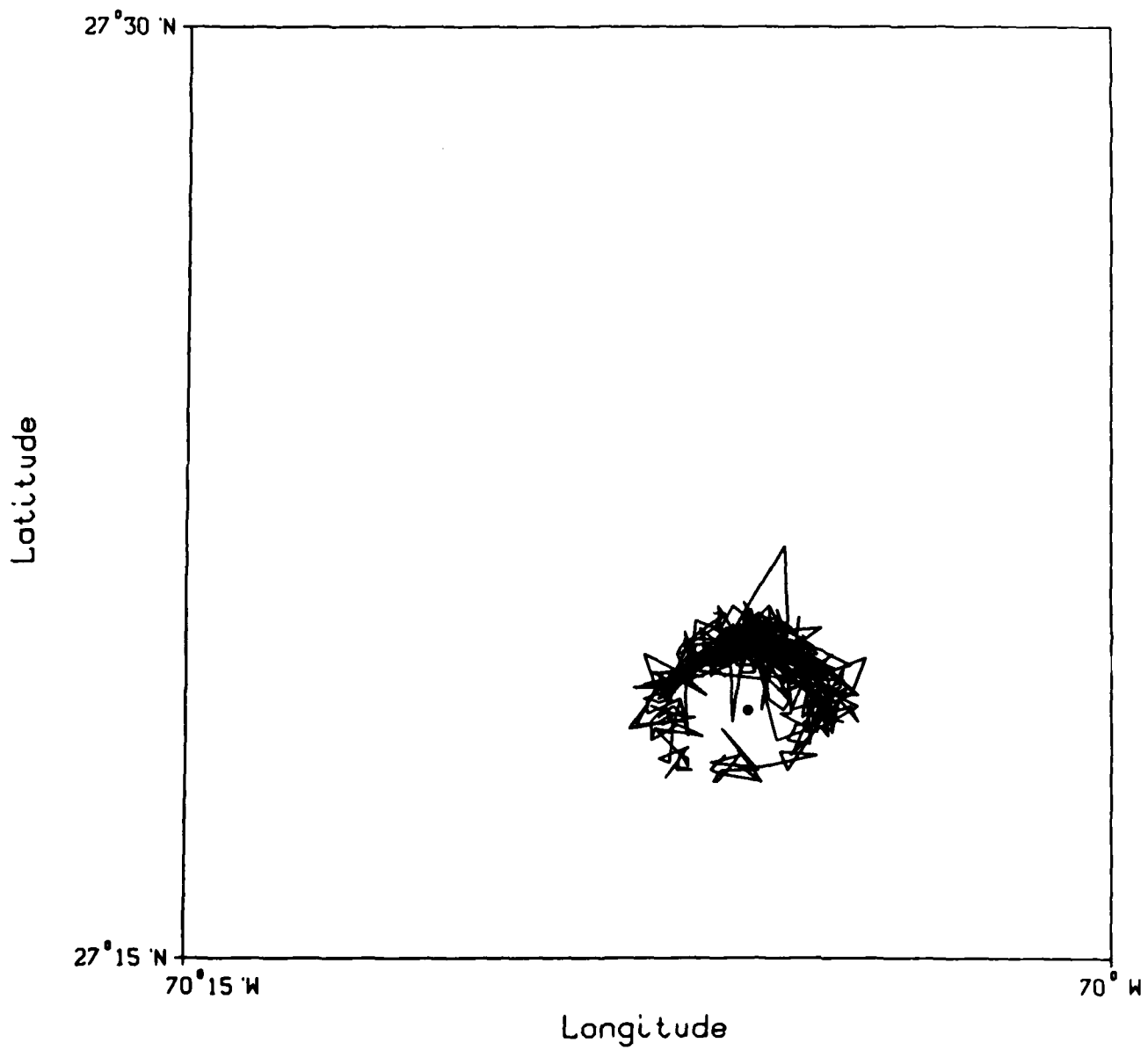


Figure X-9

FASINEX Buoy F4 Watch Circle

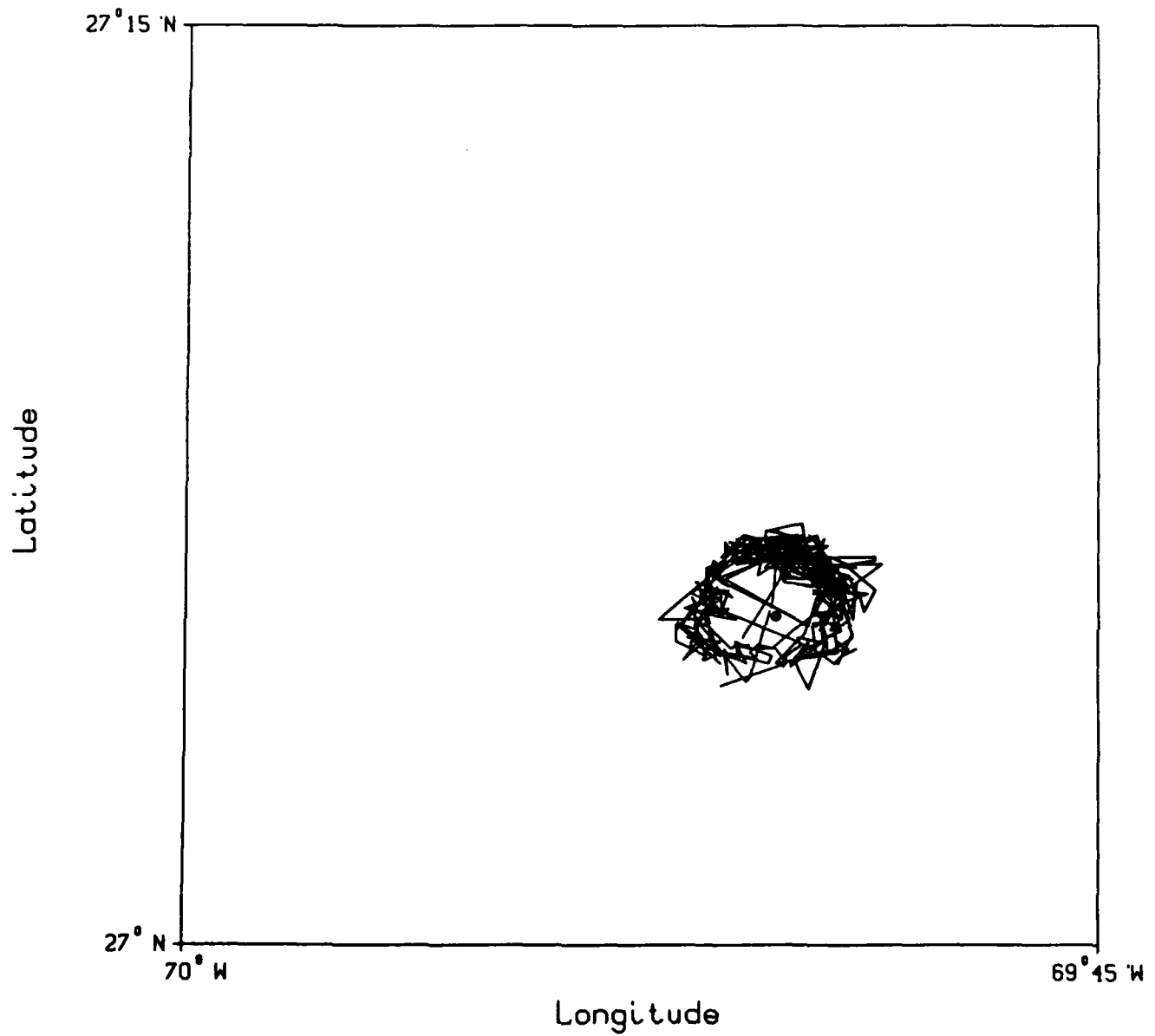


Figure X-10

FASINEX Buoy F6 Watch Circle

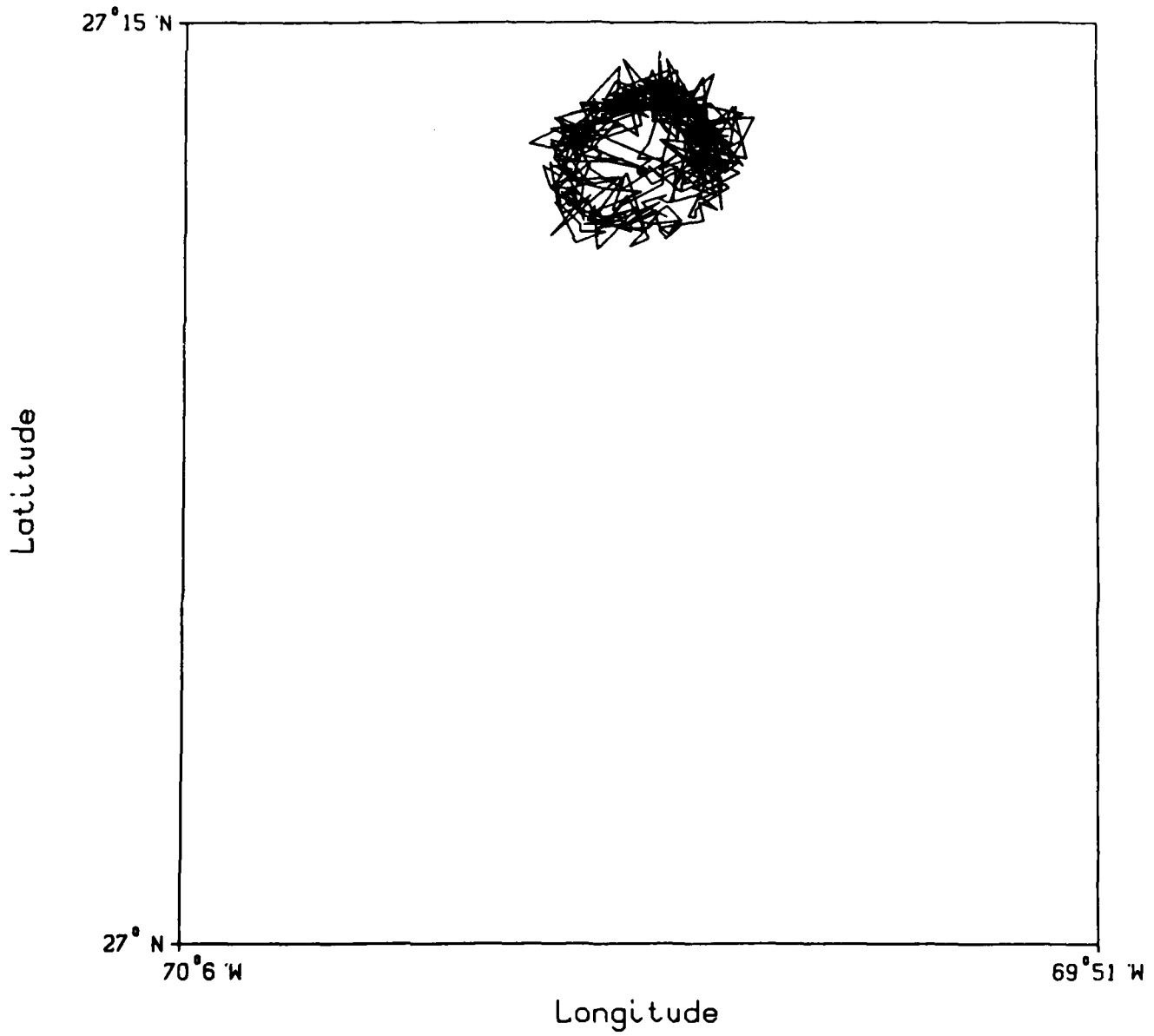


Figure X-11

FASINEX Buoy F8 Watch Circle

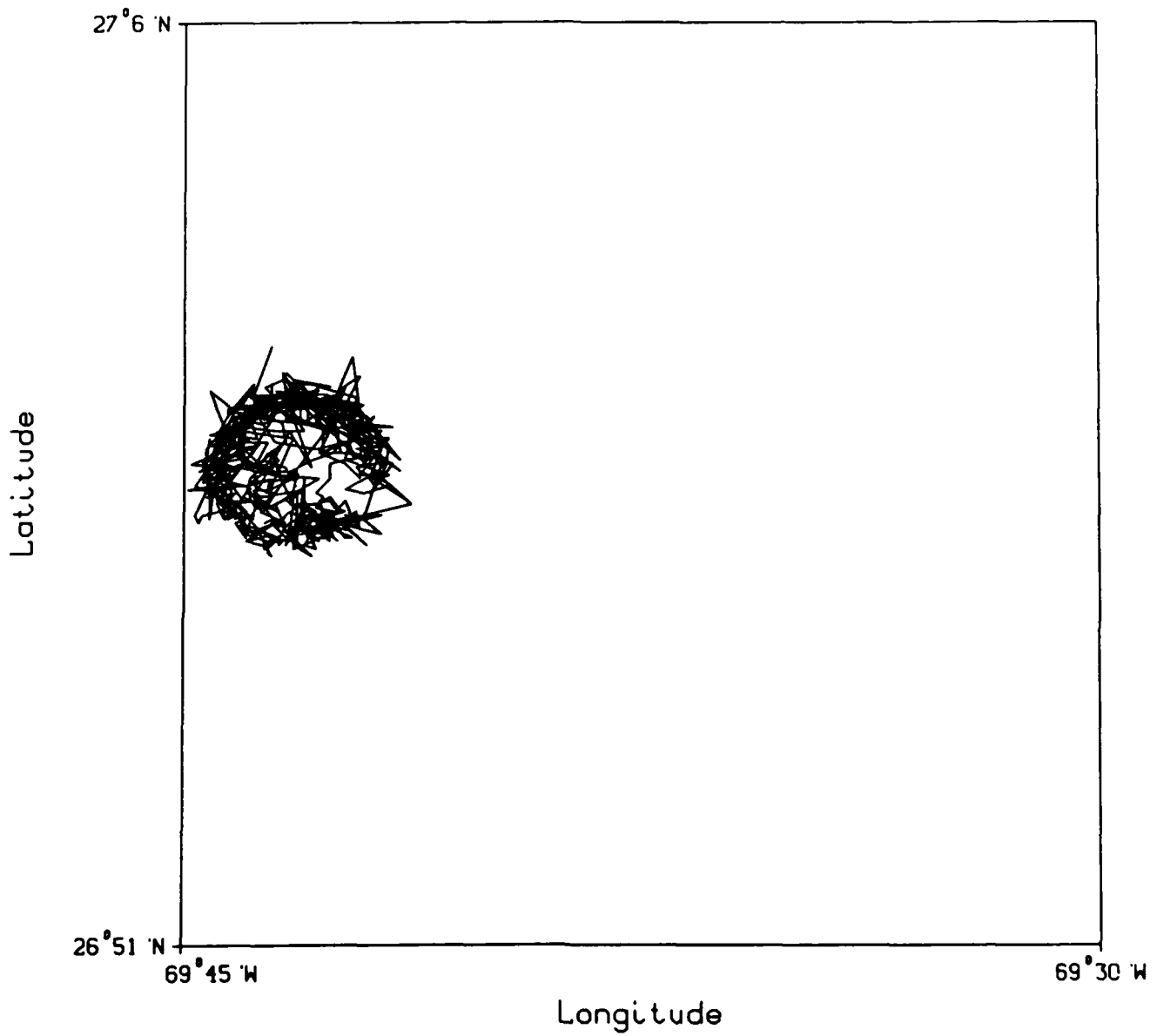


Figure X-12

FASINEX Buoy F10 Watch Circle

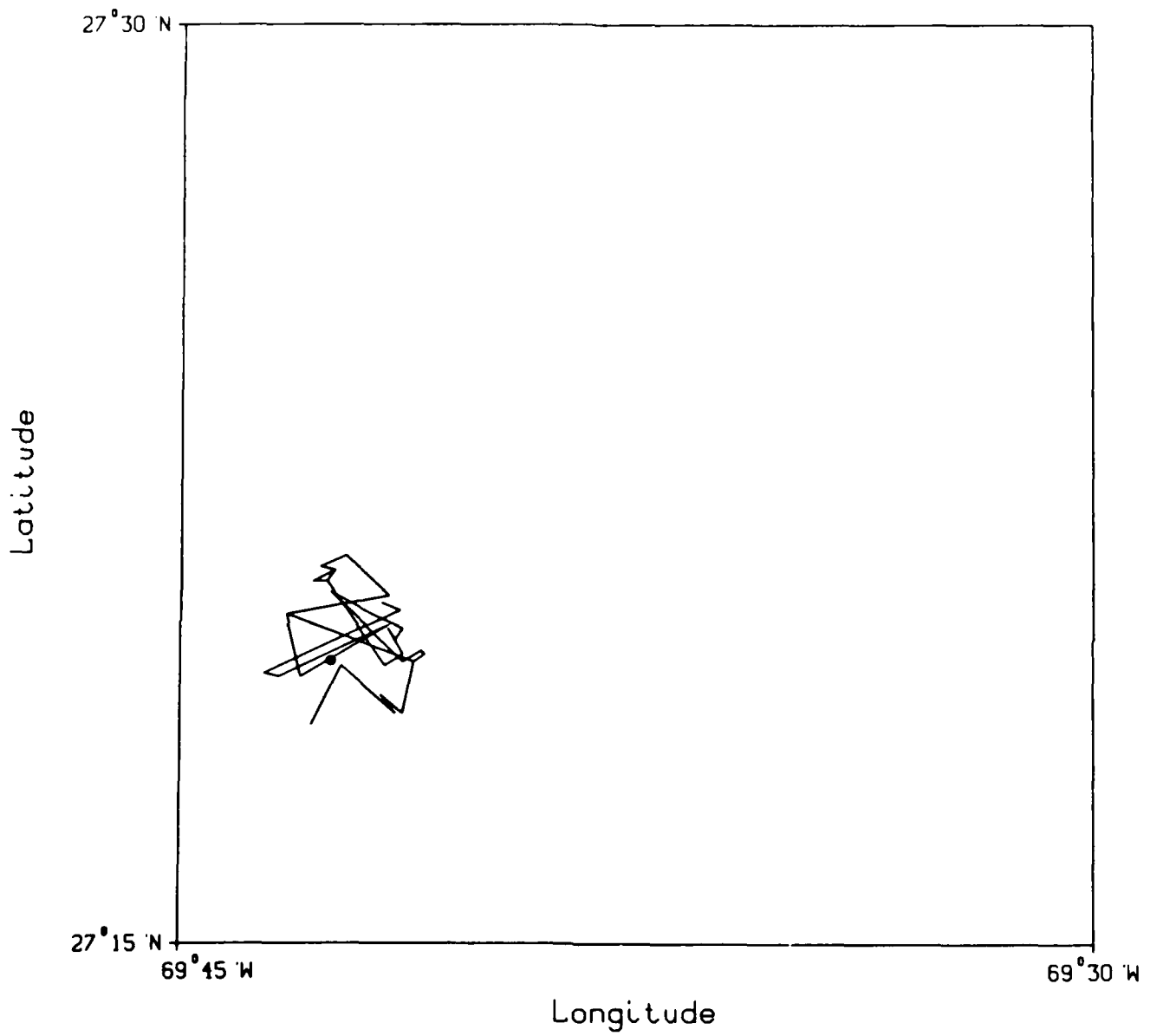


Figure X-13

Acknowledgements

The work done on these cruises was successful, in part, due to the cooperation and skill of the crew of R/V KNORR. Funding for the work summarized here was provided by the Office of Naval Research, Contract N00014-84-C-0134 (R. Weller), Contract N00014-86-K-0325 (C. Eriksen), and Contract N00014-81-C-0062 (P. Cornillon).

The people in the WHOI Buoy Group, especially Rick Trask, and Ocean Engineering Department have contributed significantly to this project. We thank them for their time and their commitment in making the field program a success.

We thank Paul Eden who assisted us throughout the cruises with the Applied Technology Satellite (ATS) system. His help and input, almost daily, allowed for a successful communication link for KNORR during the Phases One and Three mooring cruises and between the ships and the Bermuda Biological Station office, where the aircraft scientists were able to pass their flight schedules and observations to the ships during Phase Two.

Our thanks to Mary Ann Lucas for her assistance with many tedious aspects of the typing, editing and data processing of the data sets for all the field work included in this document. We also thank Barbara Gaffron for her help with the final preparation of this document.

Appendix A: FASINEX Julian Day Conversion Table

The FASINEX field program began in January 1986 and concluded late in June 1986. Several of the data sets have a Julian Day time base. This table is a conversion table from calendar days to Julian Days.

Jan 1 - 001	Feb 1 - 032	Mar 1 - 060	Apr 1 - 091	May 1 - 121	Jun 1 - 152
2 - 002	2 - 033	2 - 061	2 - 092	2 - 122	2 - 153
3 - 003	3 - 034	3 - 062	3 - 093	3 - 123	3 - 154
4 - 004	4 - 035	4 - 063	4 - 094	4 - 124	4 - 155
5 - 005	5 - 036	5 - 064	5 - 095	5 - 125	5 - 156
6 - 006	6 - 037	6 - 065	6 - 096	6 - 126	6 - 157
7 - 007	7 - 038	7 - 066	7 - 097	7 - 127	7 - 158
8 - 008	8 - 039	8 - 067	8 - 098	8 - 128	8 - 159
9 - 009	9 - 040	9 - 068	9 - 099	9 - 129	9 - 160
10 - 010	10 - 041	10 - 069	10 - 100	10 - 130	10 - 161
11 - 011	11 - 042	11 - 070	11 - 101	11 - 131	11 - 162
12 - 012	12 - 043	12 - 071	12 - 102	12 - 132	12 - 163
13 - 013	13 - 044	13 - 072	13 - 103	13 - 133	13 - 164
14 - 014	14 - 045	14 - 073	14 - 104	14 - 134	14 - 165
15 - 015	15 - 046	15 - 074	15 - 105	15 - 135	15 - 166
16 - 016	16 - 047	16 - 075	16 - 106	16 - 136	16 - 167
17 - 017	17 - 048	17 - 076	17 - 107	17 - 137	17 - 168
18 - 018	18 - 049	18 - 077	18 - 108	18 - 138	18 - 169
19 - 019	19 - 050	19 - 078	19 - 109	19 - 139	19 - 170
20 - 020	20 - 051	20 - 079	20 - 110	20 - 140	20 - 171
21 - 021	21 - 052	21 - 080	21 - 111	21 - 141	21 - 172
22 - 022	22 - 053	22 - 081	22 - 112	22 - 142	22 - 173
23 - 023	23 - 054	23 - 082	23 - 113	23 - 143	23 - 174
24 - 024	24 - 055	24 - 083	24 - 114	24 - 144	24 - 175
25 - 025	25 - 056	25 - 084	25 - 115	25 - 145	25 - 176
26 - 026	26 - 057	26 - 085	26 - 116	26 - 146	26 - 177
27 - 027	27 - 058	27 - 086	27 - 117	27 - 147	27 - 178
28 - 028	28 - 059	28 - 087	28 - 118	28 - 148	28 - 179
29 - 029		29 - 088	29 - 119	29 - 149	29 - 180
30 - 030		30 - 089	30 - 120	30 - 150	30 - 181
31 - 031		31 - 090		31 - 151	

Appendix B: Mooring Designations

The FASINEX moorings have several different designations. FASINEX identified each mooring with a letter and number. There was a WHOI Buoy Group designation. There was a buoy identifier. And there was an ARGOS transmitter number. Of the eleven moorings, there were three different types of mooring. The following table summarizes the above-mentioned information:

DESIGNATION											
FASINEX	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F12
WHOI Mooring	829	845	-	846	-	847	-	848	-	849	830
BUOY Identifier		A	PCH-1	C	PCH-2	B	PCH-3	E	PCH-4	D	
ARGOS #		6430		6432		6431		6434		6433	
Mooring Type	subsurface	surface	near-surface	surface	near-surface	surface	near-surface	surface	near-surface	surface	subsurface
Latitude	27°58.90	27°18.95	27°05.34	27°05.35	26°58.58	27°12.59	27°12.53	26°58.66	27°05.45	27°19.63	25°29.10
Longitude	69°58.80	70°05.86	69°42.75	69°50.30	69°50.40	69°58.48	69°51.03	69°43.19	69°58.33	69°42.52	70°00.70
Deployment	28 Oct 84 2238	15 Jan 86 2020	17 Jan 86 1811	16 Jan 86 1947	18 Jan 86 1840	26 Jan 86 1715	28 Jan 86 1852	27 Jan 86 1748	29 Jan 86 1806	1 Feb 86 1801	29 Oct 84 1724
Recovery	18 Jun 86 1721	14 Jun 86 0950	16 Jun 86 1352	15 Jun 86 2133	16 Jun 86 2011	14 Jun 86 2151	17 Jun 86 1108	15 Jun 86 1333	Lost	10 Jun 86 0545	13 Jun 86 1957
Data Days	598	150	150	150	149	139	139	139	0	103	592
Instrument Depth		met 10 20 30 40 80 120 160	20 ↓ 200	met 10 20 30 40 80 120 160	20 ↓ 200	met 10 20 30 40 80 120 160	20 ↓ 200	met 10 20 30 40 80 120 160	20 ↓ 200	met 10 20 30 40 80 120 160	225 325 550 625 700 1100 4100

All times are UTC.

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16. Abstract (Limit: 200 words) The Frontal Air-Sea Interaction Experiment (FASINEX) was a study of the response of the upper ocean to atmospheric forcing in the vicinity of an oceanic front in the subtropical convergence zone southwest of Bermuda, the response of the lower atmosphere in that vicinity to the oceanic front, and the associated two-way interaction between ocean and atmosphere. FASINEX began in the winter (January 1986), concluded in the early summer (June 1986) and included an intensive period in February and March. The experiment took place in the vicinity of 27°N, 70°W where sea-surface-temperature fronts are climatologically common. Measurements were made from buoys, ships, aircraft and spacecraft. This report summarizes the mooring deployment and recovery cruises. FASINEX Phase One, the deployment cruise, located a frontal feature, mapped it and set an array of surface and Profiling Current Meters moorings across the front. Phase Three, the recovery cruise returned to the FASINEX area to retrieve the instrumentation that had been on station for six months. Additional measurements were made in the frontal region during these cruises. The activities carried out and the underway data collected on these two cruises, details of the moored array and a preliminary statement of the data return from the array, and the data telemetered from the moored array via Argos are summarized in this report.			
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