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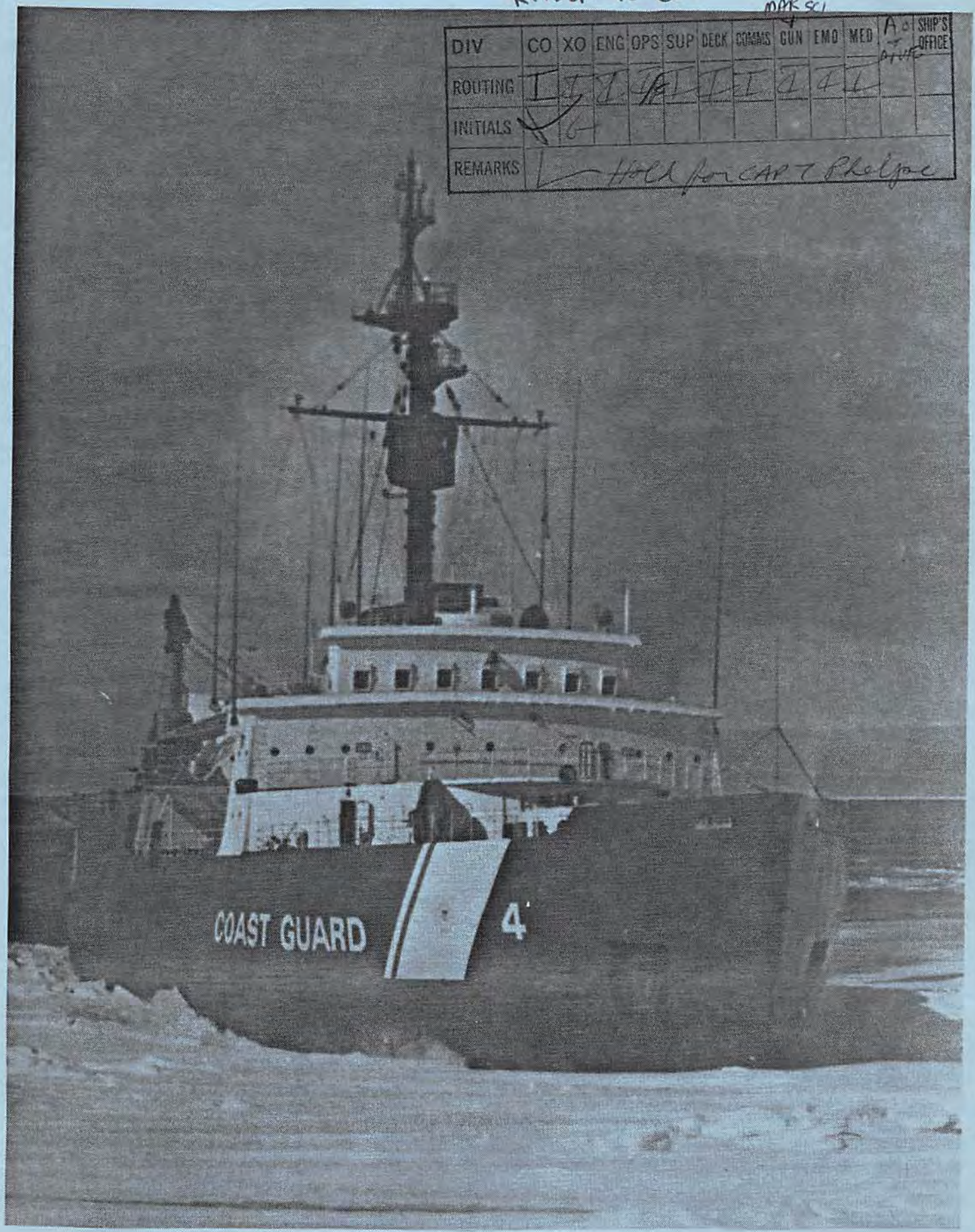

USCGC GLACIER (WAGB-4)
CRUISE REPORT
FOR
OPERATION DEEP FREEZE 1982

DEPARTMENT OF TRANSPORTATION
UNITED STATES COAST GUARD

Commanding Officer
USCGC GLACIER (WAGB-4)
FPO
San Francisco, Ca 96666

3132

From: Commanding Officer, USCGC GLACIER (WAGB-4)
To: Commanding Officer, Naval Support Force Antarctica

Subj: Operation DEEP FREEZE 1982; Cruise Report

Ref: (a) CNSFA OPORD No. 1-82
(b) COMPACAREA COGARD OPORD No. 1-82
(c) COMDT COGARD INST. 3132.13A

1. The report of GLACIER's Operation Deep Freeze'82 is hereby submitted. This covers the period from departure Long Beach, 17 October 1981, to return, on 21 April 1982.

2. Aside from a task to breakout Winter Quarters Bay, GLACIER was used solely to support scientific efforts. Phase I, Wellington to McMurdo, featured bird watching, rookery visits and seal studies. Phase II, in the vicinity of McMurdo in the Ross Sea, concentrated on water sampling, STD casts and current data. Phase III was a multidiscipline mission in the vicinity of the Antarctic Peninsula. A group was placed ashore on Seymour Island for fossil studies, coring operations were conducted throughout the Bransfield Strait area and, at the same time, a seal study and survey was carried out. All facets of these various missions were completed beyond the expectations of embarked scientists. This season was dramatic proof of the flexibility and continuing value of GLACIER to the United States' effort in Antarctica.

3. Refresher Training was accomplished at the outset. In spite of the difficulty in preparing an old ship for REFTRA and the added deployment time, the operational improvements were well worth any inconvenience. All evolutions, from lowering the ship's boats to manuevering in restricted waters, were accomplished with professionalism and efficiency; a marked improvement over previous deployments.

4. GLACIER completed her 25TH Antarctic deployment with Deep Freeze'82. Major engineering problems are aggrevated with each successive year. Steam, fuel, lube oil and fresh water piping are the source of continuous maintenance efforts. In spite of dedicated, hard work by all personnel assigned there is less capability and reliability of the main systems each season. Hopefully, a badly needed Major Maintenance availability is in sight. The ship has earned an R and R (rest and repair) break.

J. W. COSTE, JR.

Copy to: CNSFA (2 copies)
Commandant (G-OMI) (2 copies)
COMPACAREA
CCGD11
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USCGC NORTHWIND
AVTRACEN
USCGA
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Center for Polar and Scientific Archives
National Archives of the United States
Icebreaker Support Facility

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CHRONOLOGICAL LIST OF MAJOR EVENTS

17 OCT 1981 - 0959 - Underway for Interim Refresher Training at Pearl Harbor, HI. CHOP to COMPACAREA.

25 OCT 1981 - 1020 - Moored COGARD Base Sand Island, Honolulu, HI.

14 OCT 1981 - 1056 - Underway enroute Noumea, New Caledonia.

21 NOV 1981 - 1344 - Crossed equator at the International Dateline (0° North, 180° East). Boarded by Davy Jones and party.

27 NOV 1981 - 1045 - Arrived Noumea, New Caledonia. Moored starboard side to FED Berth.

01 DEC 1981 - 0957 - Underway enroute Brisbane, Australia.

04 DEC 1981 - 1108 - Arrived Brisbane, Australia. Moored port side to Hamilton Cold Stores Wharf.

08 DEC 1981 - 0707 - Underway enroute Sydney, Australia.

10 DEC 1918 - 1014 - Arrived Sydney, Australia. Moored starboard side to Garden Island Oil Wharf. Received a total of 355,221 gallons DFM on 11 and 12 December from oil barge.

18 DEC 1981 - 1000 - Underway enroute Wellington, New Zealand.

23 DEC 1981 - 0900 - CHOP to CNSFA.
1003 - Arrived Wellington, New Zealand. Moored starboard side to Glasgow Wharf.

31 DEC 1981 - 1453 - Underway enroute Campbell Island.

03 JAN 1982 - 0837 - Anchored in Perseverance Harbor, Campbell Island. Ferried cargo and personnel by helicopter.
1201 - Underway enroute Cape Adare.

06 JAN 1982 - 0351 - Encountered first ice.

07 JAN 1982 - 0351 - Crossed the Antarctic Circle in position 66°33.0'S 179°48.0'E.
0935 - Science parties ferried to Scott Island by helo.
1200 - Science party returned. Underway enroute Cape Adare.

16 JAN 1982 - 1221 - Nested alongside POLAR SEA to fast ice edge.
1500 - Commander, Pacific Area and President, Navy League aboard.
2118 - Underway from POLAR SEA. Commenced Phase II.

17 JAN 1982 - 1325 - Commander, Pacific Area ferried to POLAR SEA.

24 JAN 1982 - 2037 - Commenced channel tending at McMurdo.

25 JAN 1982 - 0720 - Entered Winter Quarters Bay to commence tending.

27 JAN 1982 - 1153 - Moored to ice wharf to transfer cargo.

28 JAN 1982 - 1435 - Underway to tend channel.
2207 - Moored portside to starboard side USNS YUKON to fuel.

29 JAN 1982 - 0624 - Completed refueling, received 240,340 gallons DFM.
0823 - Underway enroute Palmer Station.

08 FEB 1982 - 0742 - Anchored Arthur Harbor, Palmer Station. Ferried retrograde cargo by helicopter and personnel by LCVP.

09 FEB 1982 - 0604 - Underway enroute Punta Arenas, Chile.

12 FEB 1982 - 1630 - Moored cargo pier Punta Arenas, Chile to exchange science parties. End Phase II and start Phase III science.

13 FEB 1982 - 1003 - Underway enroute Seymour Island for Phase III science.

17 FEB 1982 - 0837 - Ferry science party to Seymour Island by helicopter. CO calls on Argentinian station at Marambio, Seymour Island. Divers inspect underwater body. Four Argentinian officers visit GLACIER.
2004 - Underway to start coring ops and seal study in Weddell Sea.

21 FEB 1982 - - Entered Bransfield Strait.

01 MAR 1982 - - Entered Gerlache Strait.

05 MAR 1982 - 0819 - Anchored Arthur Harbor, Palmer Station. CO, GLACIER and HMS ENDURANCE exchanged calls. Lord and Lady BUXTON accompany CO, ENDURANCE. Helicopters from ENDURANCE VERTREP Palmer retrograde cargo.
1449 - Underway enroute Seymour Island.

07 MAR 1982 - 1000 - Helicopters launched to recover Seymour cargo. Ops completed at 2000.

08 MAR 1982 - 1000 - Helicopters launched to recover Seymour shore party.

11 MAR 1982 - 2342 - Crossed 60°00.0'S 58°29.0'. CHOP to COMPACAREA.

14 MAR 1982 - 1705 - Anchored Punta Arenas, Chile. Disembarked science party.
2130 - Underway enroute Valparaiso, Chile via the Straits of Magellan and Inland Passage.

20 MAR 1982 - 1000 - Moored, Valparaiso, Chile.

24 MAR 1982 - 1015 - Underway, enroute Callao, Peru.

29 MAR 1982 - 2040 - Moored Callao, Peru.

03 APR 1982 - 1014 - Underway enroute Puerto Vallarta, Mexico.

06 APR 1982 - 1257 - Crossed equator at 88°20'W.

09 APR 1982 - 0910 - Crossed Dll Boundary at 10°03'N, 69°31.5'W.

CHAPTER II

AIR OPERATIONS

1. PRE-DEPLOYMENT PREPARATIONS

a. Aviation Detachment 88 (AVDET 88) was formed on 8 September 1981. The Detachment consisted of four pilots and ten enlisted men. Two aircraft, CG 1370 and CG 1406, were assigned to the Detachment. Necessary aircraft maintenance and crew training were conducted in accordance with the Polar Operations Handbook.

b. The Aviation Engineering Officer and the Senior Enlisted Man visited GLACIER during September for a pre-deployment inspection of the ship's Aviation spaces and support facilities. A list of the inspection items was left with the ship describing the items in need of replacement or repair.

c. The Helicopter Support Kit (HSK) was shipped from Mobile, AL on 9 October 1981.

d. On 10 October 1981, the aircraft departed ATC Mobile. On board CG 1370 were LT WHITEHOUSE, LT SHIRK, and ADC IRELAND; in CG 1406 were CDR WENDT (Chief Polar OPS Division), LT HESSEL and AE1 TOOSON. CDR WENDT replaced LCDR WILLIAMS (Senior Aviator) on the cross-country flight. LCDR WILLIAMS was expected to join the ship and ADVET in Wellington, New Zealand on or about 23 December 1981. Also, AT1 ZUBER and AE3 KELLY departed for GLACIER to onload the HSK.

e. The HSK arrived at GLACIER on 13 October 1981. Also the remainder of the AVDET arrived at GLACIER.

f. The aircraft arrived at CGAS Los Angeles on 14 October 1981 after a one day delay for maintenance in San Antonio, TX. (Electrical problems.)

g. On 15 October 1981 the aircraft were flown aboard GLACIER and AVDET 88 CHOPPED to the ship effective 1538 (local).

2. SUMMARY OF OPERATIONS:

a. On 17 OCT 81, CGC GLACIER departed Long Beach enroute Antarctica for Deep Freeze'82. The same day the AVDET flew Commander, Eleventh Coast Guard District and his party ashore.

b. Enroute to Honolulu, HI walk through drills and training were conducted for HCO's, LSO's, tiedown crews, fire parties, and phonetalkers in prepartion for their REFTRA visit at Pearl Harbor.

c. At 0830 on 25 OCT 1981, both helicopters departed the ship at Diamond Head and proceeded to CGAS Barbers Point, arriving 0937. While based out of Barbers Point the AVDET conducted training, familiarization and support flights for the Air Station and GLACIER.

d. At 1200 on 14 NOV 81, both helicopters departed CGAS Barbers Point for GLACIER, arriving 1230.

e. Only one test and training flight was conducted after leaving Hawaii until our arrival in Wellington, N.Z. While in New Zealand, two test flights were conducted to prepare the helicopters for the upcoming operations.

f. LCDR WILLIAMS joined the ship on 24 DEC 81 as Senior Aviator.

g. On 03 JAN 82, the aircraft were used to transport 3 personnel and approximately 2800 pounds of cargo to Campbell Island. An aerial survey of two island sites was also conducted.

h. Ice reconnaissance flights and an aerial survey of Scott Island were conducted on 07 and 08 JAN 82.

i. On 09 JAN 82, two bird scientists were dropped off on a nearby island and the helicopters were then used to transfer 3 personnel and approximately 1700 pounds of equipment to set up a New Zealand scientific camp at Cape Adare.

j. From 10-14 JAN 82, air operations were in support of ice observations, penguin/skua surveys, seal surveys and geology.

k. On 14 JAN 82, the AVDET flew to McMurdo to deliver four medical patients and to receive the area operations brief.

l. From 15-24 JAN 82, operations were conducted to support bird, seal and geology projects. Several flights were also conducted to McMurdo for Medevac, mail, and VIP activity. The helos were also used to change scientific parties.

m. From 24-29 JAN 82, the helos were based out of McMurdo providing support to seal and geological surveys including the Dry Valleys. The helos were returned to CGC GLACIER on 29 JAN 82.

n. On 08 FEB 82, a scientist was picked up from the British base at Faraday Island and the helos were then used to transfer cargo between the ship and Palmer Station. Approximately 56,000 pounds were sling loaded in 24 round trips involving approximately 3 flight hours.

o. After departing Punta Arenas with a new complement of scientists, we entered our third phase of operations. The major thrust of this portion of the cruise involved flying approximately 11,000 pounds of equipment and food to Seymour Island to set up a temporary camp for 9 individuals. This expedition was made up of geologists who would be working on this and the two surrounding islands.

p. After the camp was set up on 17 FEB 82, we attempted to support the remaining scientists on board. The weather did not cooperate for most of the next three weeks and close to half the scheduled flights were cancelled due to poor visibility and icing as winter approached.

q. The pull out of the Seymour Island party was started on 8 MAR and continued through 10 MAR with limited flying due to weather. A highlight of their research was the discovery of a fossilized land mammal, the first to be found on the continent.

Plate 5. Using HH-52's to stage cargo for Seymour Island

Plate 6. "WASP" from HMS ENDURANCE VERTREP Palmer Station retrograde cargo

r. We remained in the area for a few more days providing support flights for those scientists embarked.

3. Flight Statistics:

a. Summary of flights from 23 DEC 81 to 11 MAR 82

CAT/ PROJ.	MSNS	RESOURCE HOURS	CARGO	POL	PAX	SORTIES	EMPLOYMENT HOURS	
N-3	12	3.8	0	258	0	12	3.8	
N-13	1	1.0	0	67	0	1	1.0	
N-14	2	2.7	150	101	6	3	3.3	
N-16	13	22.9	0	1538	29	25	41.8	
N-17	11	18.1	4068	1215	47	27	23.6	
N-18	11	27.1	62802	1827	19	26	28.3	
S-004	20	49.5	700	3371	27	40	62.6	
S-005	1	5.0	100	335	2	14	5.4	
S-013	10	5.7	850	383	13	15	9.6	
S-016	5	1.8	900	190	12	8	4.5	
S-018	3	1.0	400	08	5	5	2.5	
S-019	3	0.6	250	41	3	4	2.5	
S-021	5	6.1	100	410	5	5	9.2	
S-022	12	35.6	750	2401	12	21	41.0	
S-060	6	22.0	14350	1062	35	27	27.7	
S-062	8	9.7	550	654	8	12	16.2	
S-080	2	2.1	500	141	7	5	2.1	
S-097	4	3.7	2900	250	8	7	4.1	
S-207	9	21.3	550	1432	16	16	24.2	
K-13	7	5.9	200	383	11	11	13.5	
K-22	3	8.3	1700	557	6	10	10.9	
K-27	5	1.8	0	121	3	4	3.2	
K-	4	14.8	1550	993	18	19	17.2	
23	157	270.7	99370	17878*	297	317	358.2	TOTALS

* FUEL INCLUDES THAT RECEIVED IN MCMURDO.

b. Summary of flights outside the above period.

PERIOD	MSNS	RES. HRS.	SORTIES	EMPLOY. HRS.
15 OCT-22 DEC	17	27.0	25	29.5
12 MAR-20 APR	8	11.0	11	15.8

4. AVN Maintenance

a. During preparation for a flight on 29 OCT, CGNR 1370 experienced an electrical failure. The problem was corrected by replacing the #2 Supervisory Panel.

b. While operating out of Barbers Point, we received a message on 30 OCT 81 that grounded all H52's due to an accident at ATC Mobile. TCTO 1H-52A-557 was received three days later requiring replacement of all main rotor head pitch change rods. New rods were received 8 NOV 81 and installed on CGNR 1406 the same day and on CGNR 1370 the following day.

c. On 23 NOV 81, CGNR 1370 was grounded awaiting parts due to TCTO 1H-52A-555, which required an inspection of all tail rotor drive shaft male splined couplings. Three new couplings were received 8 DEC 81 with repairs and test flight completed the following day.

d. CGNR 1370 was again grounded awaiting parts following the test flight on 9 DEC due to a loose pylon support bracket bearing. Parts were received 28 DEC and repairs were completed same day.

e. During a seal survey flight on 14 JAN, the cargo door departed from CGNR 1406 and sank in McMurdo Sound. Daily flights were continued without a door, despite extreme Antarctic weather, until a replacement door was received on 29 JAN 82.

f. On 23 JAN, during compliance with TCTO 1H-52A-502, the main rotor head rotating sissors was found to be faulty on CGNR 1406. The sissors were replaced the same day and test flown the next day.

g. While flying a scientific flight in the vicinity of Anvers Island on 04MAR, CGNR 1406 had a fuel boost pump failure. The aircraft was safely returned to the ship and the #1 boost pump replaced.

h. In addition to the major maintenance items listed above, we were constantly plagued by minor routine maintenance due to the age of the aircraft and extreme operating conditions. We also experienced an increased amount of CMS due to the high flight time compiled on this deployment.

i. Maintenance of the ship's JP5 pump room and refueling system has been a continuing problem throughout the deployment, requiring numerous repairs and excessive man hours.

5. Recommendations

1. There were more flight ops conducted on the cruise than on any other in recent memory, over 350 flight hours were flown. The long days and missions completed were made possible due to the indepth planning that occured each evening for the next day's flights. The rapport extablished between the ship's Operation Officer, the Senior Aviator, and the Senior Scientist were instrumental in attaining these results. The Senior Scientist was charged with determining which group used the available helo hours for what purpose. This worked quite well and minimized disagreements between the ship and embarked scientists. This should be standard procedure.

CHAPTER III

NAVIGATION

1. PRE-DEPLOYMENT PREPARATION

a. The long inport period provided a good opportunity to prepare for Deep Freeze'82. OOD's who had not previously attended were sent to Rules of the Road/Safe shiphandling school. Many OOD's and quartermasters were also sent to Rapid Radar Plotting, taught by the Maritime Administraction in San Francisco, and Piloting/Celestial Navigation, offered by the Navy in San Diego.

b. Much of the bridge optical gear was overhauled including two sextants, three pairs of binoculars, two alidades, and one azimuth circle.

GLACIER sailed for Deep Freeze'82 with three new DWO's and two new quartermasters.

2. NAVIGATION BY TRANSIT SECTION

SECTION	METHOD
Long Beach to Honolulu: 2248 nm	Celestial, Radar, LORAN, NAVSAT

REMARKS - The 9940 GRI (West Coast) rate provided excellent coverage up to about 800 miles off shore. The 4990 GRI (Central Pacific) rate provided unusable coverage since TD's were up to 60 micro-seconds off, unless we were within 5-6 miles of Honolulu. NAVSAT provided excellent coverage throughout the transit. Due to reliability problems the radar was not used as effectively as possible, especially on the approach to Honolulu. The entrances to both Pearl Harbor and Honolulu are easily identified visually by ranges as well as numerous landmarks.

Honolulu to Noumea: 3422 nm	Celestial, Radar, NAVSAT

Remarks - Excellent weather allowed the OOD's ample opportunity to shoot morning and evening stars, as well as continuous sun lines. NAVSAT was our only source of electronic navigation. The eastern approach to Noumea through the Canal de la Havannah is well marked and easy to navigate. GLACIER continued through Canal Woodin, but departed the dragged channel to follow a more direct route through the reefs to the mouth of the harbor at Petit Passage.

Noumea to Brisbane: 824 nm	Celestial, Radar, NAVSAT

Remarks - Excellent weather continued to allow the OOD's to use celestial navigation, with excellent NAVSAT coverage being the primary means of navigation. The northern entrance to Moreton Bay is well marked, as well as all the various channels and hazards in the bay. The Brisbane river is particularly well marked and easy to navigate. A pilot was embarked at the entrance to Moreton Bay.

Brisbane to Sydney: Radar, NAVSAT, Visual
545 nm

Remarks - The transit from Brisbane is a simple coastal transit. Numerous nav-aids are available, and radar-visual navigation is possible for almost the entire transit. The harbor and its entrance are well marked.

Sydney to Wellington, N.Z.: Radar, NAVSAT, Visual
1262 nm

Remarks - NAVSAT was the primary means of navigation, except when transitting Cook's Strait, when radar and visual were used. The harbor and its entrance are well marked.

Wellington to Campbell Island: Celestial, NAVSAT, Radar
718 nm

Remarks - NAVSAT was the primary means of navigation used in the open water for this transit. A few celestial observations were made when weather permitted.

There are several daymarkers for navigation into Perseverence Harbor, but many are obscured by the lay of the land. The range marking the approach to anchorage is clear and accurate.

Campbell Island to McMurdo Area via Scott Island and Cape Adare Celestial, NAVSAT, Radar
2052 nm

Remarks - NAVSAT was again the primary means of navigation to Scott Island. Cloudy weather precluded all celestial observations. The weather cleared on the Scott Island - Cape Adare leg allowing gyro erro and sunline observations.

Radar was used extensively near Cape Adare and McMurdo. GLACIER faces and mapping errors affected some ranges, but most features provided good fixes.

At latitudes above 65° the gyro correction for latitude became uncertain, but many of last year's problems were not present. Frequent azimuths of the sun showed a consistent 1°W error. On occasions the error was from 2°W to 1°E, but only for short periods of time. This fairly constant gyro error has improve the quality of visual fixes.

McMurdo to Palmer Station NAVSAT, Radar
3020 nm

Remarks - We departed the Ross Sea heading generally N.E. to follow the ice edge in the Amundsen Sea. We headed easterly along 68°30'S latitude. Weather and ice conditions allowed us to stay in generally open water and make good speed.

Palmer Station to Punta Arenas — NAVSAT, Radar
via Straits of Magellean
946 nm

Remarks - The same tracklines used for entering Palmer Station were used for departing. We generally followed 65°W longitude to the south Atlantic Ocean, but heavy beam seas in Drake's Passage made it necessary to tack into the seas. NAVSAT was again used exclusively in the open water.

Clear weather and a good radar picture made for an easy transit through the Straits of Magellean. Currents of up to five knots increased SOA to nearly seventeen knots along sections of the straits.

Punta Arenas to Seymour Island — NAVSAT, Radar
via Bransfield Straits
929 nm

Remarks - The same currents that sped our passage to Punta Arenas inpeded our passage out.

Upon entering the Pacific Ocean we headed S.E. to the Bransfield Straits passing east of King George Island. NAVSAT was used in the open water while radar provided quick and accurate fixes near land. We proceeded to Seymour Island via Antarctic Sound noting that the rocks charted north of Rosemell Island and Cube Rock were not visible in clear weather and calm seas. This was the case in all transits through this area.

Seymour Island to Palmer Station — NAVSAT, Radar, Visual
via Bransfield Straits and Gerlache Straits

Remarks - Radar was the primary means of navigation, using NAVSAT only in the wider portion of both straits. Most land features were correctly charted and provided excellent radar fixes. Visual fixes were frequently used with tangents and promiment peaks. Much of the navigation was in restricted waters in the close quarters of bays and fjords for science stations. The steep shorelines and large glaciers appear much closer to the eye than they actually are, making radar that much more useful. Because of the glacial formation of these bays and fjords there is deep water close to shore and very little wind which allowed us to approach the shoreline within a few hundred yards for science stations while experiencing little set.

Palmer Station to OUTCHOP — NAVSAT, Radar
via Seymour Island

Remarks - Upon departing Palmer Station we headed west through Nuemayer Channel and Gerlache Strait, using primarly radar due to the close proximety of land and the lack of good visual aids.

OUTCHOP (60°S) to Valparaiso, Chile via Punta Arenas, Chile
1873 nm — NAVSAT, Radar, Visual

Remarks - Our passage from the Straits de le Maire to Bahia Posession and then the Straits of Magellan was routine, the route now somewhat familiar to OOD's. Transit of the Inland Passage was also routine. The English Narrows and Canal Chacao were the most difficult navigation and handled most skillfully by our pilot. We transited the English Narrows at slack water during daylight and Canal Chacao during the mid watch and flood tide.

Valparaiso, Chile to Callao, Peru
1305 nm — Celestial, NAVSAT, Radar, Visual

Remarks: Uneventful. Radar used when within range of the Coast, NAVSAT when not.

Callao, Peru to Puerto Vallarta, Mexico
2626 nm — Celestial, NAVSAT, Radar, OMEGA, Visual

Remarks - With the installation of a new TRACOR II automatic OMEGA set in Callao, we began using OMEGA to navigate using stations D, C, and F. The results were outstanding. Fixes tracked within 1nm of NAVSAT during the day, falling to 2 or 3 nm during the night. Occassionally propagation fell and fixes were off as much as 8nm but the set would go to DR tracking automatically until the stations became usable again.

Puerto Vallarta, Mexico to Long Beach, CA
1144 nm — OMEGA, LORAN C, Celestial, NAVSAT, Radar

Remarks - OMEGA continued to track well and proved to be an asset during the sometimes long periods between NAVSAT fixes.

3. FOREIGN PORT VISITS

a. Noumea, New Caledonia

(1) A pilot was embarked at the entrance to the Canal de la Havannah for the transit to Noumea. A pilot was also embarked for our departure via Boulari Passage and disembarked outside the reef. A tug was employed for both arrival and departure.

(2) No navigational problems were encountered.

(3) Local time was -11 LIMA.

(4) At 1045, 26 November 1981, GLACIER moored starboard side to FED Berth, where she remained until departure.

b. Brisbane, Australia

(1) A pilot was embarked at the North entrance to Moreton Bay for the transit to Brisbane. A pilot was also used for departure and disembarked at the entrance to Moreton Bay. A tug was available, but not used for arrival.

(2) No navigational problems were encountered.

(3) Local time was -10 KILO.

(4) At 1108, 03 December 1981, GLACIER moored port side to Hamilton Cold Stores Wharf, where she remained until departure.

c. Sydney, Australia

(1) An Australian Navy pilot was embarked for both arrival and departure. A tug was used to moor, but not for departure. The pilot was strictly advisory. He did not handle the ship nor originate instruction to the tug.

(2) No navigational problems were encountered.

(3) Local time was -11 LIMA.

(4) Due to shallow water alongside, a large raft was used to hold the ship off. An extra-long gangway was provided. AT 1014, 10 December 1981, GLACIER moored starboard side to Garden Island Oil Wharf, where she remained until departure.

d. Wellington, New Zealand

(1) A pilot was embarked for both arrival and departure. No tugs were employed.

(2) No navigational problems were encountered.

(3) Local time was -13 due to daylight savings time.

(4) At 1003, 22 December 1981, GLACIER moored starboard side to Glasgow Wharf #2, where she remained until departure.

e. Campbell Island

(1) No navigational problems were encountered.

(2) Strong and variable winds within Perseverance Harbor can cause an unexpected set so seaman's eye becomes very important here.

(3) At 0916, 03 JAN 1982, GLACIER anchored in seventy-eight (78) feet of water over a sand bottom, where she remained until departing at 1201, the same day.

f. McMurdo Station

(1) No navigational problems were encountered.

(2) Local time was -12 MIKE.

(3) At 1153, 27 JAN 1982, GLACIER moored portside to USNS YUKON, where she remained until departing at 0832, 29 JAN 1982.

g. Palmer Station (Arthur Harbor)

(1) No navigational problems were encountered.

(2) Local time was +3 PAPA.

(3) At 0742, 08 FEB 1982, GLACIER anchored in Arthur harbor in seventeen fathoms of water with eight shots on deck, where she remained until departing at 0604, 09 FEB 1982.

h. Punta Arenas, Chile

(1) Pilots were required for transit through Straits of Magellan and mooring in Punta Arenas.

(2) No navigational problems were encountered.

(3) Local time was +3 PAPA.

(4) Moored port side to Punta Arenas Muelle Prat pier at 1630, 12 FEB 1982, where she remained until departing at 1003, 13 FEB 1982. Winds are very strong and sudden; storm cables are strongly advisable.

i. Palmer Station (Arthur Harbor)

(1) No navigational problems were encountered.

(2) Local time was +3 PAPA.

(3) At 0858, 05 MAR 1982, GLACIER anchored in Arthur Harbor in twelve fathoms of water with five shots on deck until departure at 1449 the same day.

j. Punta Arenas, Chile

(1) Due to a misunderstanding of our draft there was not a berth available for us, so we anchored a short distance offshore. We stayed only long enough to disembark scientists and their equipment in the LCVP in order to depart early enough to arrive at the English Narrows at slack water.

(2) Pilots were required within the harbor for entry and departure.

(3) No navigational problems were encountered.

(4) Local time was +4 QUEBEC, having just shifted from daylight savings time the previous day.

(5) At 1705 Q on 14 MAR 1982, GLACIER anchored in seventy feet of water on a sandy bottom and remained there until departure at 2130 Q that same day.

k. Valparaiso, Chile

(1) Pilots were required within the harbor for entry and departure.

(2) No navigational problems were encountered.

(3) Local time was +4 QUEBEC.

(4) At 1000 Q 20 MAR 1982, GLACIER moored starboard side to Mole de Abrigo, where she remained until departure at 1015 Q 24 MAR 1982.

l. Callao, Peru

(1) Pilots were required within the harbor for entry and departure.

(2) Callao is a busy and congested harbor. During this time of the year, there is usually fog conditions in the morning burning off at about noon. Particularly hazardous are the numerous small fishing ships which are undetectable on radar, nor visual until about 300 - 400 yards.

(3) Local time was +5 ROMEO.

(4) At 1040 29 MAR 1982, GLACIER moored port side to Terminal Maritimo berth 11C where she remained until departure at 1014 3 APR 1982.

m. Puerto Vallarta, Mexico

(1) Pilots were required within the harbor for entry and departure.

(2) Puerto Vallarta harbor is small and congested with small pleasure craft. The approach range blends into the background scenery and can be difficult to see.

(3) Local time was +6 SIERRA daylight savings.

(4) At 1114 13 APR 1982, GLACIER anchored in 42 meters of water over a sandy bottom. At 0938 15 APR 1982, GLACIER weighed anchor and moored at 1012 starboard side to the visiting ship's pier, Puerto Vallarta where she remained until departure at 1005 17 APR 1982.

LONG BEACH to HONOLULU, HAWAII

WAY POINTS

A 17 OCT 81
LAT 33° 42.5'N, LON 118° 11.3'W

B 17 OCT 81
LAT 33° 35.3'N, LON 118° 20'W

C 17 OCT 81
LAT 33° 31'N, LON 118° 40'W

D 18 OCT 81
LAT 33° 00'N, LON 119° 40'W

E 18 OCT 81
LAT 32° 28'N, LON 125° 00'W

F 19 OCT 81
LAT 31° 20'N, LON 130° 00'W

G 20 OCT 81
LAT 30° 00'N, LON 135° 00'W

H 21 OCT 81
LAT 28° 29'N, LON 140° 00'W

I 22 OCT 81
LAT 26° 05'N, LON 145° 00'W

J 23 OCT 81
LAT 24° 45'N, LON 150° 00'W

K 24 OCT 81
LAT 22° 35'N, LON 155° 00'W

L 24 OCT 81
LAT 21° 32'N, LON 157° 00'W

M 25 OCT 81
LAT 21° 12.3'N, LON 157° 40'W

N 25 OCT 81
LAT 21° 12.3'N, LON 157° 50'W

O 25 OCT 81
LAT 21° 15.7'N, LON 157° 53.6'W

COURSE AND DISTANCE MADE GOOD BETWEEN WAY POINTS

A to B
Course 227° T
Distance 10 NM

B to C
Course 256° T
Distance 17 NM

C to D
Course 239° T
Distance 59 NM

D to E
Course 265° T
Distance 214 NM

E to F
Course 255° T
Distance 265 NM

F to G
Course 254° T
Distance 268 NM

G to H
Course 250° T
Distance 274 NM

H to I
Course 249°
Distance 280 NM

I to J
Course 246° T
Distance 290 NM

J to K
Course 245° T
Distance 300 NM

K to L
Course 241° T
Distance 128 NM

L to M
Course 242°
Distance 42 NM

M to N
Course 270° T
Distance 9 NM

N to O
Course 313° T
Distance 5 NM

O to Base Sand Island M/V/C/S
Distance 6 NM

1020, 25 OCT 81 -------- 0836, 01 NOV 81

MOORED COAST GUARD BASE SAND ISLAND, OAHU, HAWAII

1049, 01 NOV 81 -------- 1056, 14 NOV 81

REFRESHER TRAINING - PEARL HARBOR, OAHU, HAWAII

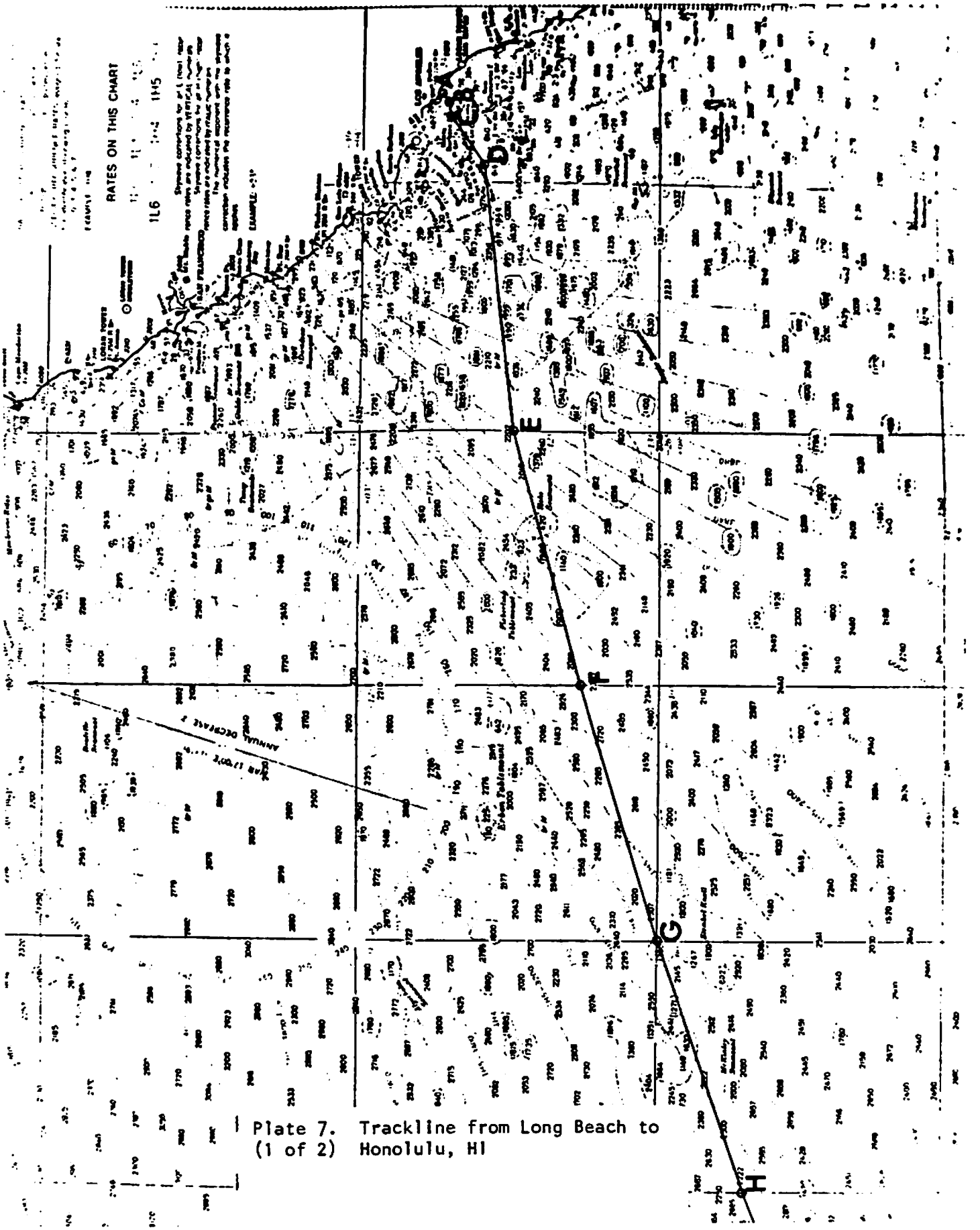


Plate 7. Trackline from Long Beach to Honolulu, HI
(1 of 2)

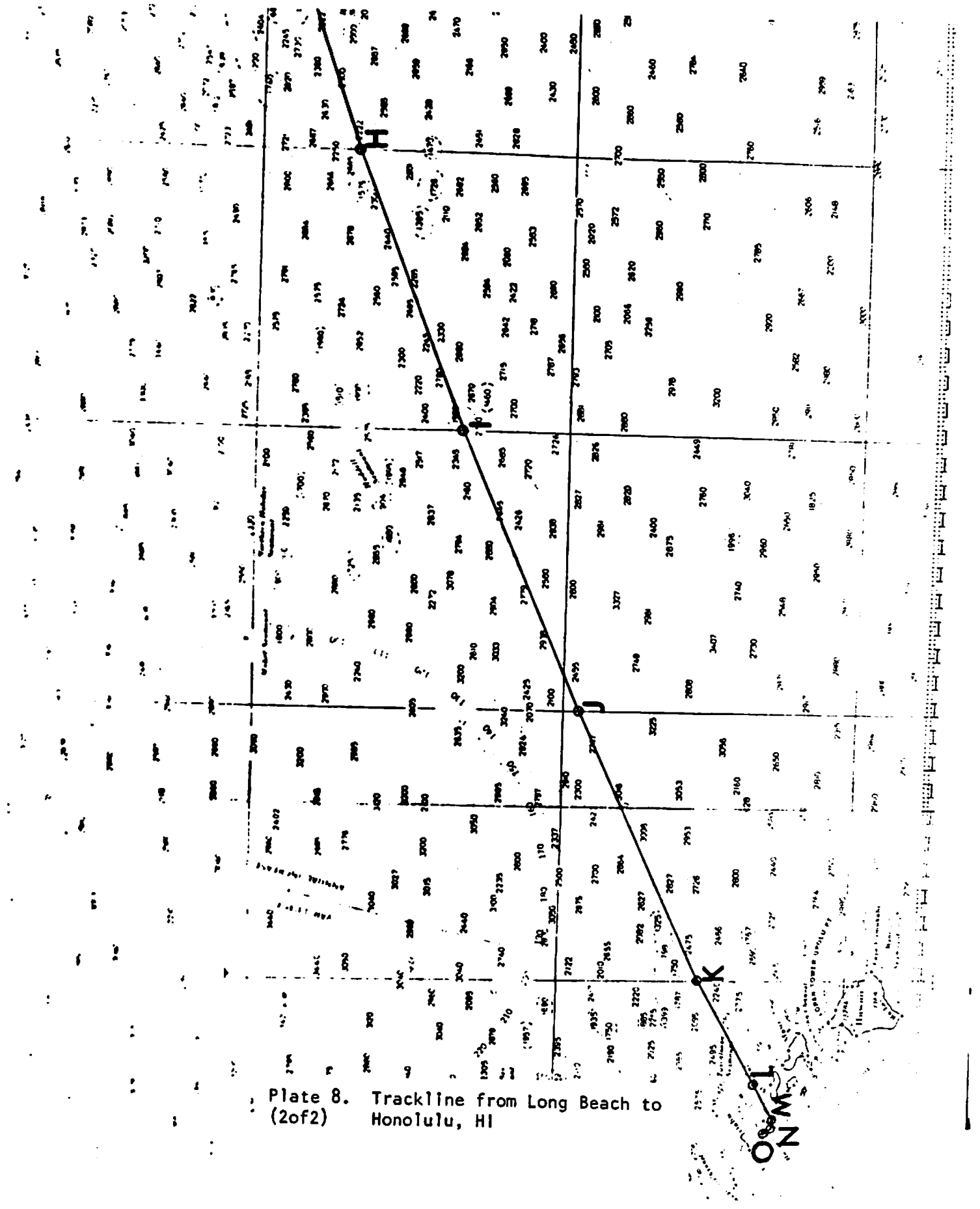


Plate 8. Trackline from Long Beach to Honolulu, HI (2of2)

HONOLULU, HAWAII to NOUMEA, NEW CALEDONIA

WAY POINTS

P 14 NOV 81
LAT 21° 17'N, LON 157° 53'W

Q 17 NOV 81
LAT 10° 10'N, LON 170° 00'W

R 21 NOV 81
LAT 00° 00' , LON 180° 00'

S 26 NOV 81
LAT 19° 18'S, LON 170° 00'E

T 26 NOV 81
LAT 22° 00'S, LON 168° 10'E

U 27 NOV 81
LAT 22° 19'S, LON 167° 10'E

M/V/C/S HAVANNA PASSAGE AND NOUMEA HARBOR
1100 27 NOV - 1000 01 DEC MOORED NOUMEA, NEW CALEDONIA

COURSE AND DISTANCE MADE GOOD BETWEEN WAY POINTS

P to Q
Course 227° T
Distance 990 NM

Q to R
Course 225° T
Distance 865 NM

R to S
Course 206.5° T
Distance 1230 NM

S to T
Course 213° T
Distance 191 NM

T to U
Course 250° T
Distance 60 NM

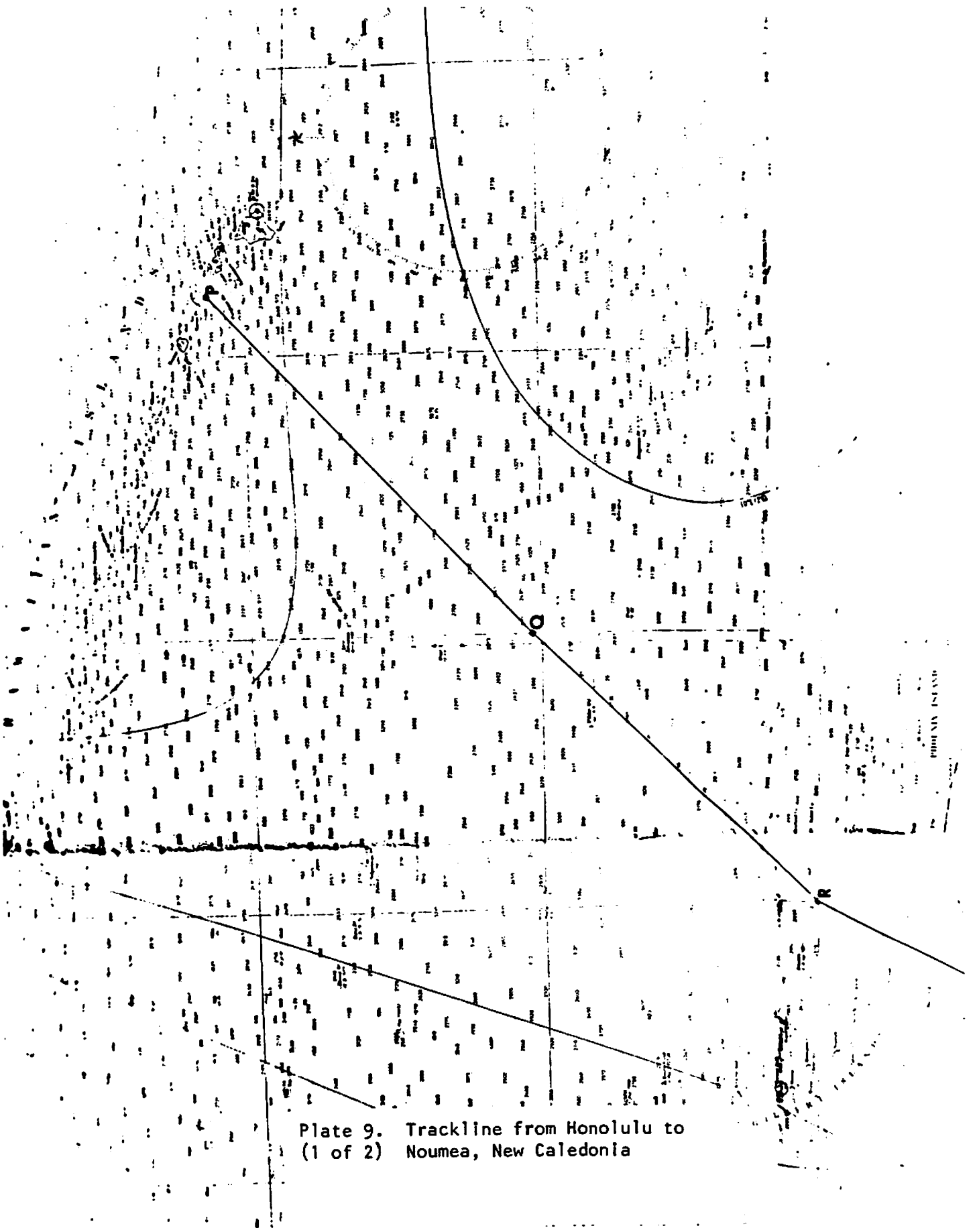


Plate 9. Trackline from Honolulu to
(1 of 2) Noumea, New Caledonia

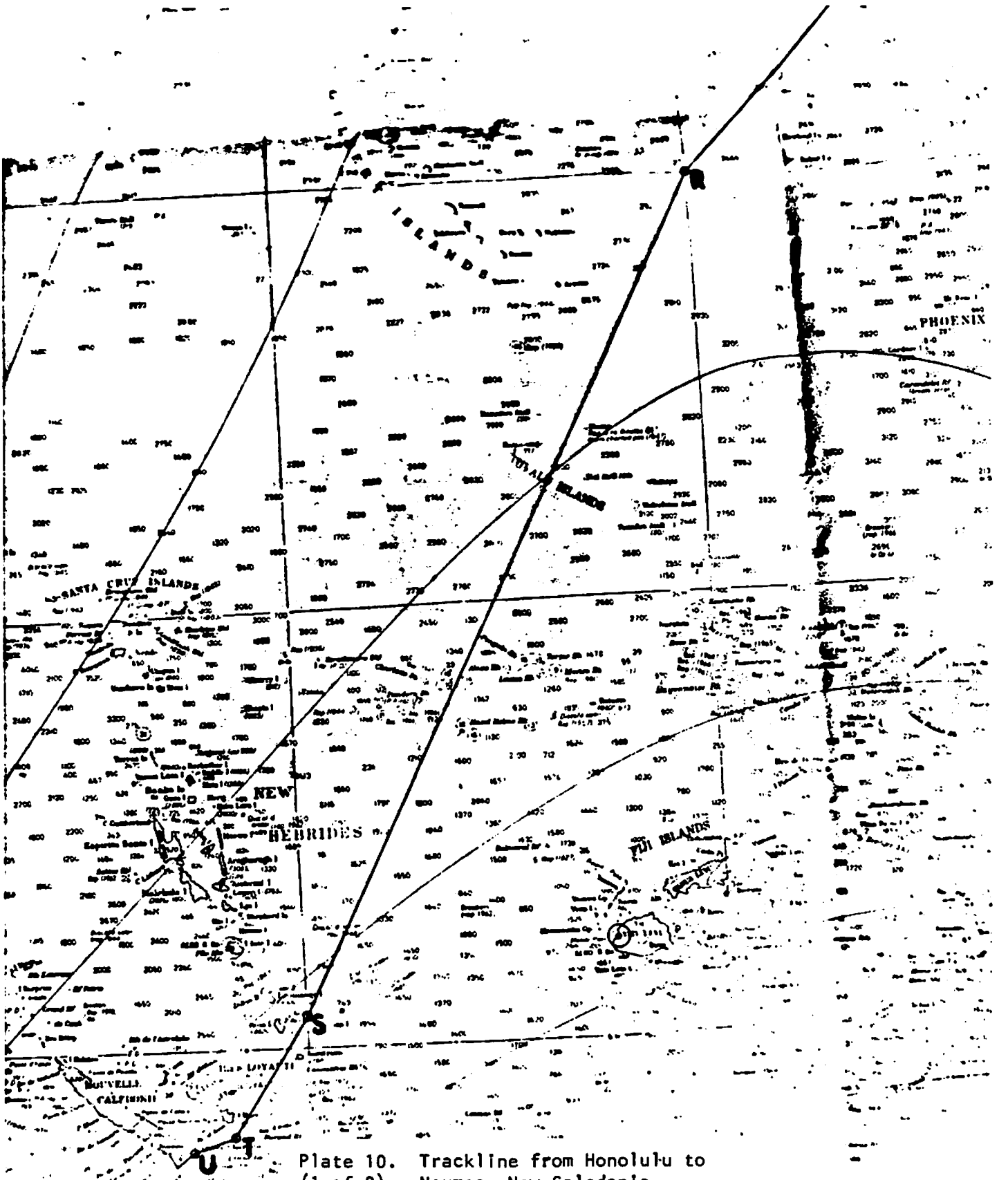


Plate 10. Trackline from Honolulu to Noumea, New Caledonia
(1 of 2)

NOUMEA, NEW CALEDONIA to BRISBANE, AUSTRALIA

WAY POINTS

V 01 DEC 81
LAT 22° 32'S, LON 166° 23'E

W 02 DEC 81
LAT 23° 09'S, LON 165° 00'E

X 02 DEC 81
LAT 24° 51'S, LON 160° 00'E

Y 03 DEC 81
LAT 26° 24'S,LON 155° 00'E

Z 04 DEC 81
LAT 26° 46'S, LON 153° 13'E

M/V/C/S THROUGH MORETON BAY AND BRISBANE RIVER
0700 04 DEC - 0707 08 DEC MOORED BRISBANE, AUSTRALIA

COURSE AND DISTANCE MADE GOOD BETWEEN WAY POINTS

V to W
Course 243° T
Distance 85 NM

W to X
Course 250° T
Distance 293 NM

X to Y
Course 252° T
Distance 285 NM

Y to Z
Course 258° T
Distance 100 NM

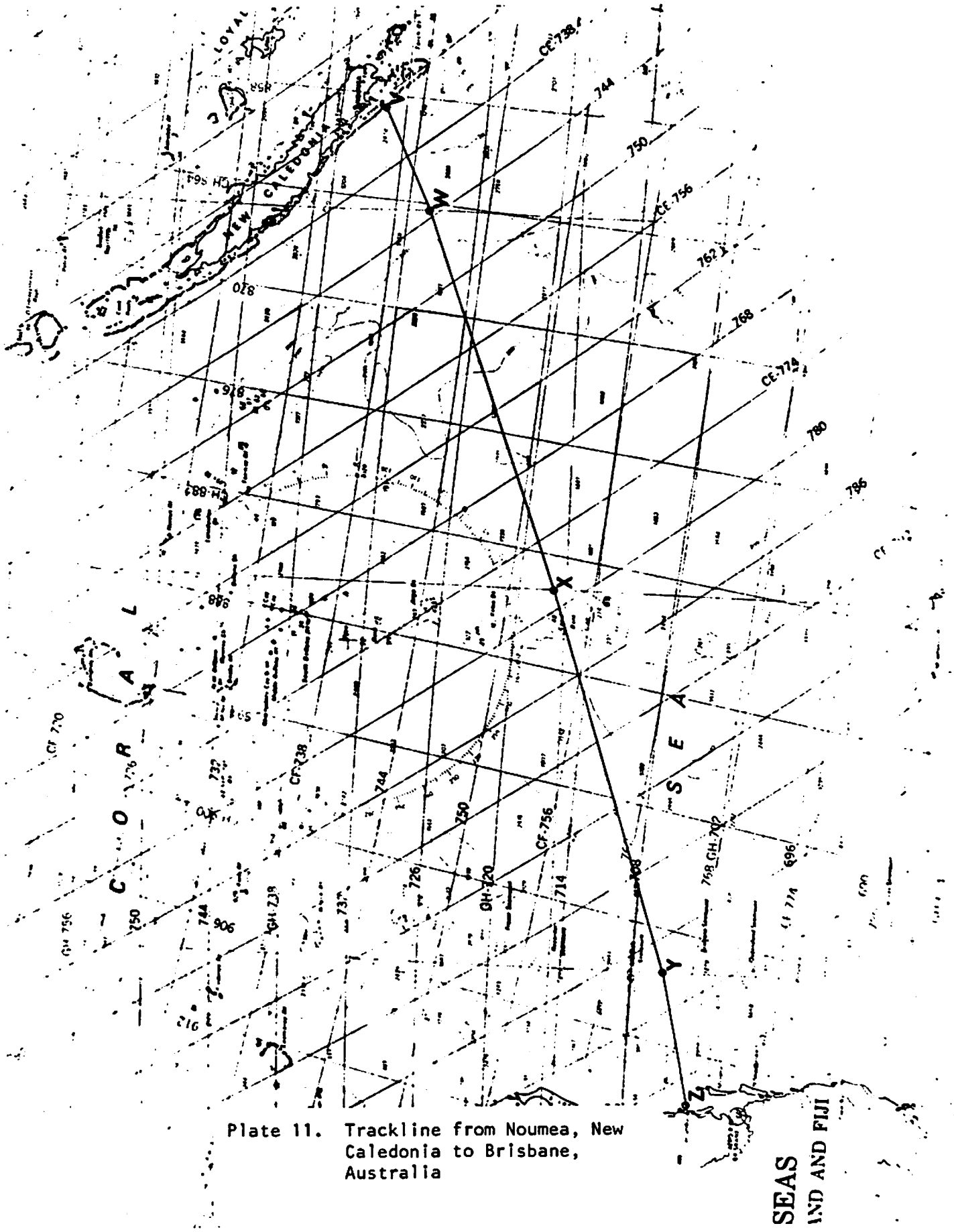


Plate 11. Trackline from Noumea, New Caledonia to Brisbane, Australia

BRISBANE, AUSTRALIA to SYDNEY, AUSTRALIA

WAY POINTS

A-1 08 DEC 81
LAT 26° 49.5'S, LON 153° 11'E

B-1 08 DEC 81
LAT 26° 49.5'S, LON 153° 30'E

C-1 08 DEC 81
LAT 27° 02'S, LON 153° 44.5'E

D-1 08 DEC 81
LAT 27° 26'S, LON 153° 49.4'E

E-1 09 DEC 81
LAT 28° 37.9'S, LON 153° 55'E

F-1 09 DEC 81
LAT 32° 26.2'S, LON 152° 59.6'E

G-1 10 DEC 81
LAT 33° 50'S, LON 151° 19'E

1000 10 DEC - 1000 18 DEC MOORED SYDNEY, AUSTRALIA

COURSE AND DISTANCE MADE GOOD BETWEEN WAY POINTS

A-1 to B-1
Course 091° T
Distance 17 NM

B-1 to C-1
Course 131° T
Distance 19 NM

C-1 to D-1
Course 170° T
Distance 24 NM

D-1 To E-1
Course 175° T
Distance 72 NM

E-1 to F-1
Course 192° T
Distance 232 NM

F-1 to G-1
Course 226° T
Distance 119 NM

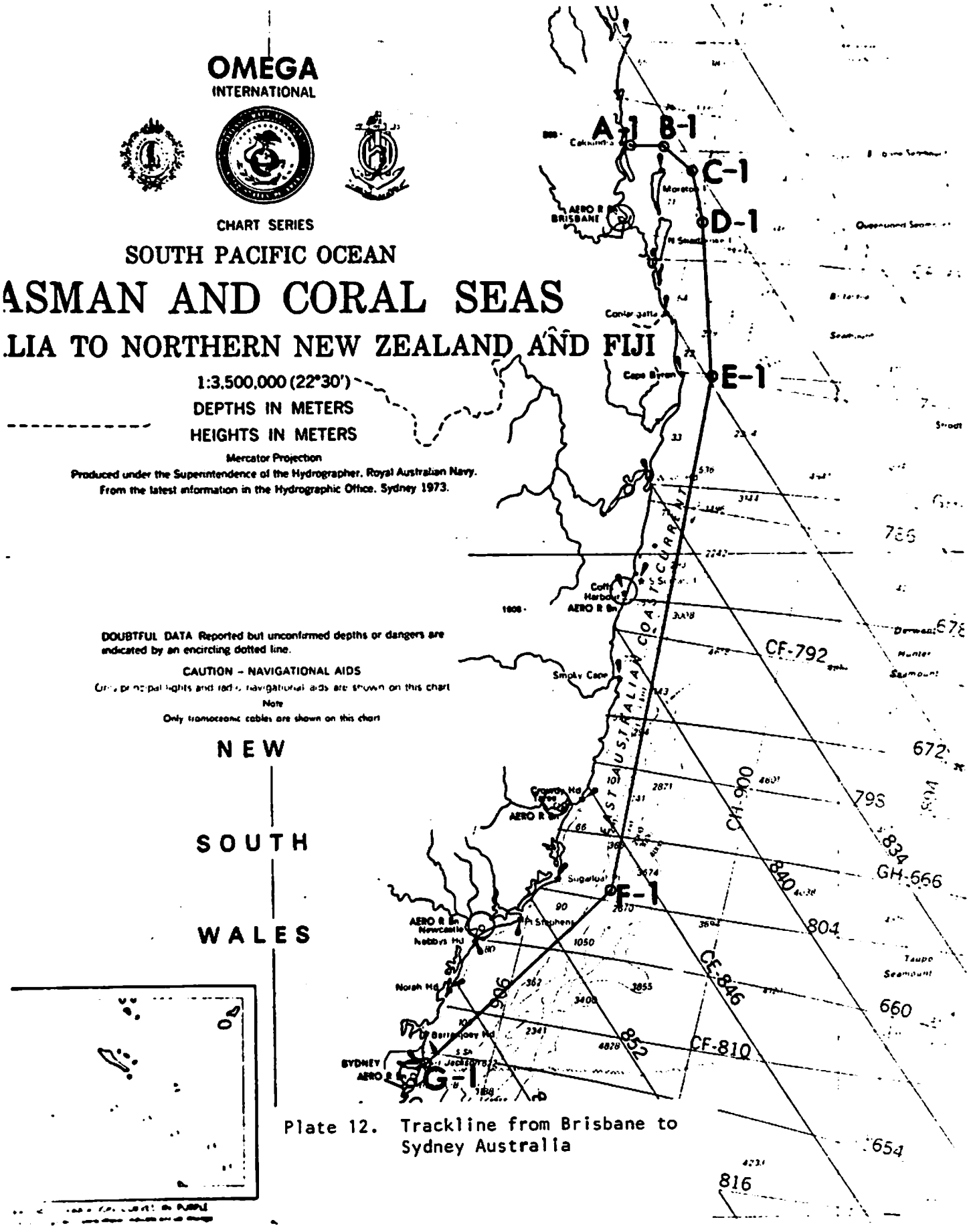


Plate 12. Trackline from Brisbane to Sydney Australia

SYDNEY, AUSTRALIA to WELLINGTON, NEW ZEALAND

WAY POINTS

G-1 18 DEC 81
LAT 33° 50'S, LON 151° 19'E

H-1 19 DEC 81
LAT 35° 17'S, LON 155° 00'E

I-1 20 DEC 81
LAT 37° 17'S, LON 160° 00'E

J-1 21 DEC 81
LAT 38° 35'S, LON 165# 00'E

K-1 22 DEC 81
LAT 39° 47'S, LON 170° 00'E

L-1 23 DEC 81
LAT 40° 35'S, LON 174° 03'E

M/V/C/S COOK STRAIT AND PORT NICHOLSON HARBOR
1000 23 DEC - 1400 31 DEC MOORED WELLINGTON, NEW ZEALAND

COURSE AND DISTANCE MADE GOOD BETWEEN WAY POINTS

G-1 to H-1
Course 114° T
Distance 203 NM

H-1 to I-1
Course 112° T
Distance 265 NM

I-1 to J-1
Course 111° T
Distance 252 NM

J-1 to K-1
Course 106° T
Distance 243 NM

K-1 to L-1
Course 105° T
Distance 192 NM

WELLINGTON, NEW ZEALAND TO CAPE ADARE

1200 POSITIONS

Chart #90

A 31 DEC 81
WELLINGTON, NEW ZEALAND

B 01 JAN 82
LAT 44° 49'S, LON 173° 17'E

C 02 JAN 82
LAT 48° 54'S, LON 171° 35'E

D 03 JAN 82
LAT 52° 35'S, LON 169° 21'E

E 04 JAN 82
LAT 56° 32.5'S, LON 172° 00'E

F 05 JAN 82
LAT 60° 30.3'S, LON 174° 00.5'E

G 06 JAN 82
LAT 63° 24.5'S, LON 177° 31'E

H 07 JAN 82
LAT 67° 20.3'S, LON 179° 57.8'E

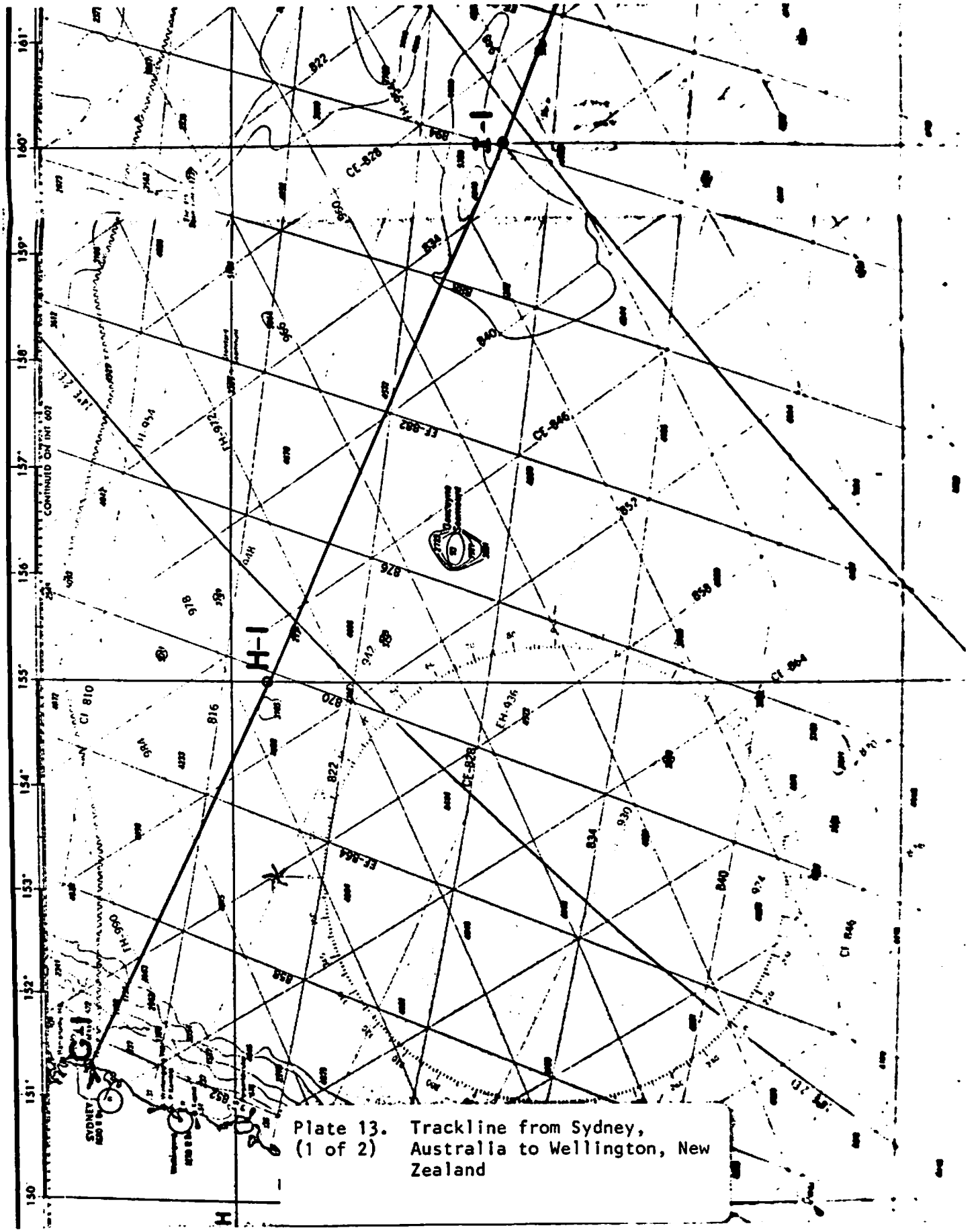


Plate 13. Trackline from Sydney, Australia to Wellington, New Zealand
(1 of 2)

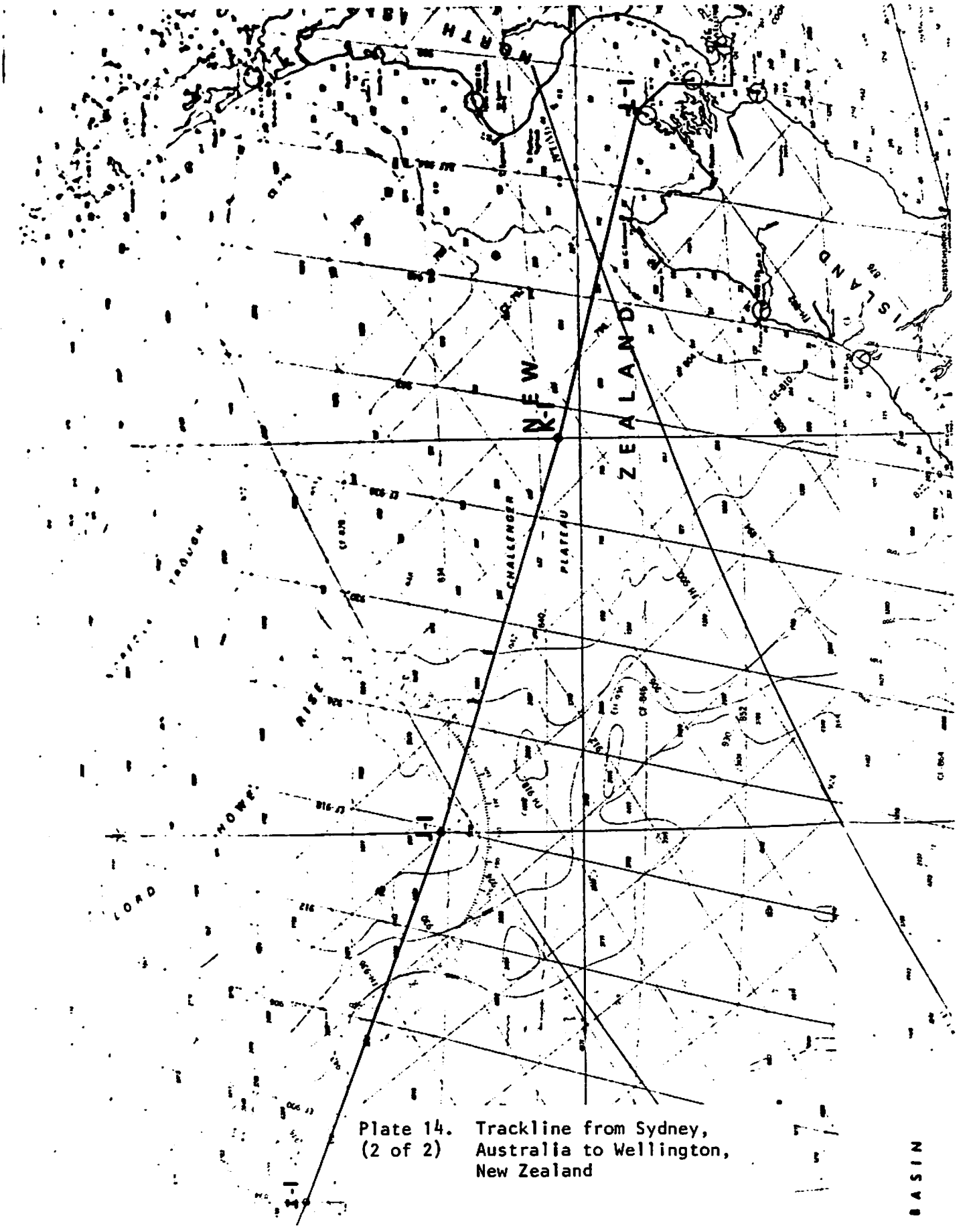


Plate 14. (2 of 2) Trackline from Sydney, Australia to Wellington, New Zealand

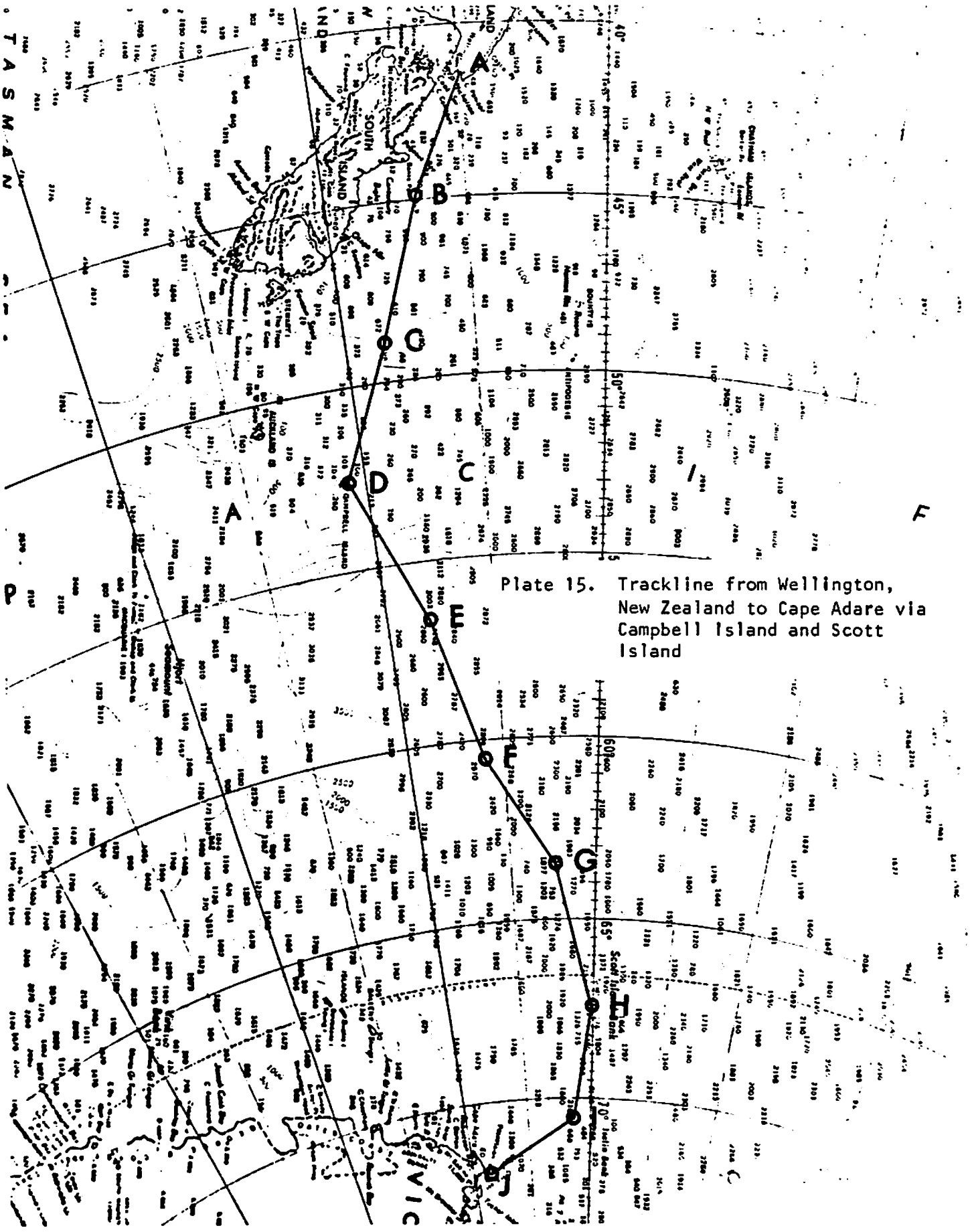


Plate 15. Trackline from Wellington, New Zealand to Cape Adare via Campbell Island and Scott Island

I 08 JAN 82 J 09 JAN 82

LAT 67° 20.3'S, LON 178° 47'E LAT 71° 55.6'S. LON 171° 39.8'E

COURSE AND DISTANCE MADE GOOD BETWEEN 1200 POINTS

A to B Course 203° T Distance 225 NM	B to C Course 200° T Distance 255 NM	C to D Course 203° T Distance 241 NM
D to E Course 158° T Distance 262 NM	E to F Course 165° T Distance 240 NM	F to G Course 150° T Distance 206 NM
G to H Course 165° T Distance 247 NM	H to I Course 188° T Distance 195 NM	I to J Course 240° T Distance 164 NM

CAPE ADARE TO MCMURDO STATION CHART #29012
1200 POSITIONS

j 09 JAN 82
LAT 71° 55.6'S, LON 171° 39.8'E

k 10 JAN 82
LAT 72° 02'S, LON 172° 05'E

l 11 JAN 82
LAT 73° 26'S, LON 172° 05'E

m 12 JAN 82
LAT 74° 48.1'S, LON 165° 208'E

n 13 JAN 82
LAT 74° 18'S, LON 165° 446'E

o 14 JAN 82
LAT 76° 10.4'S, LON 167° 17.4'E

p 15 JAN 82
LAT 77° 05'S, LON 166° 34.8'E

q 16 JAN 82
LAT 77° 34.4'S, LON 165° 35'E

r 17 JAN 82
LAT 77° 26'S, LON 172° 48'E

s 18 JAN 82
LAT 76° 50.7'S, LON 174° 53'E

t 19 JAN 82
LAT 77° 19'S, LON 174° 24'E

u 20 JAN 82
LAT 77° 06.9'S, LON 173° 208'E

v 21 JAN 82
LAT 76° 50.2'S, LON 170° 59.3°'E

w 22 JAN 82
LAT 77° 15.7'S, LON 169° 00'E

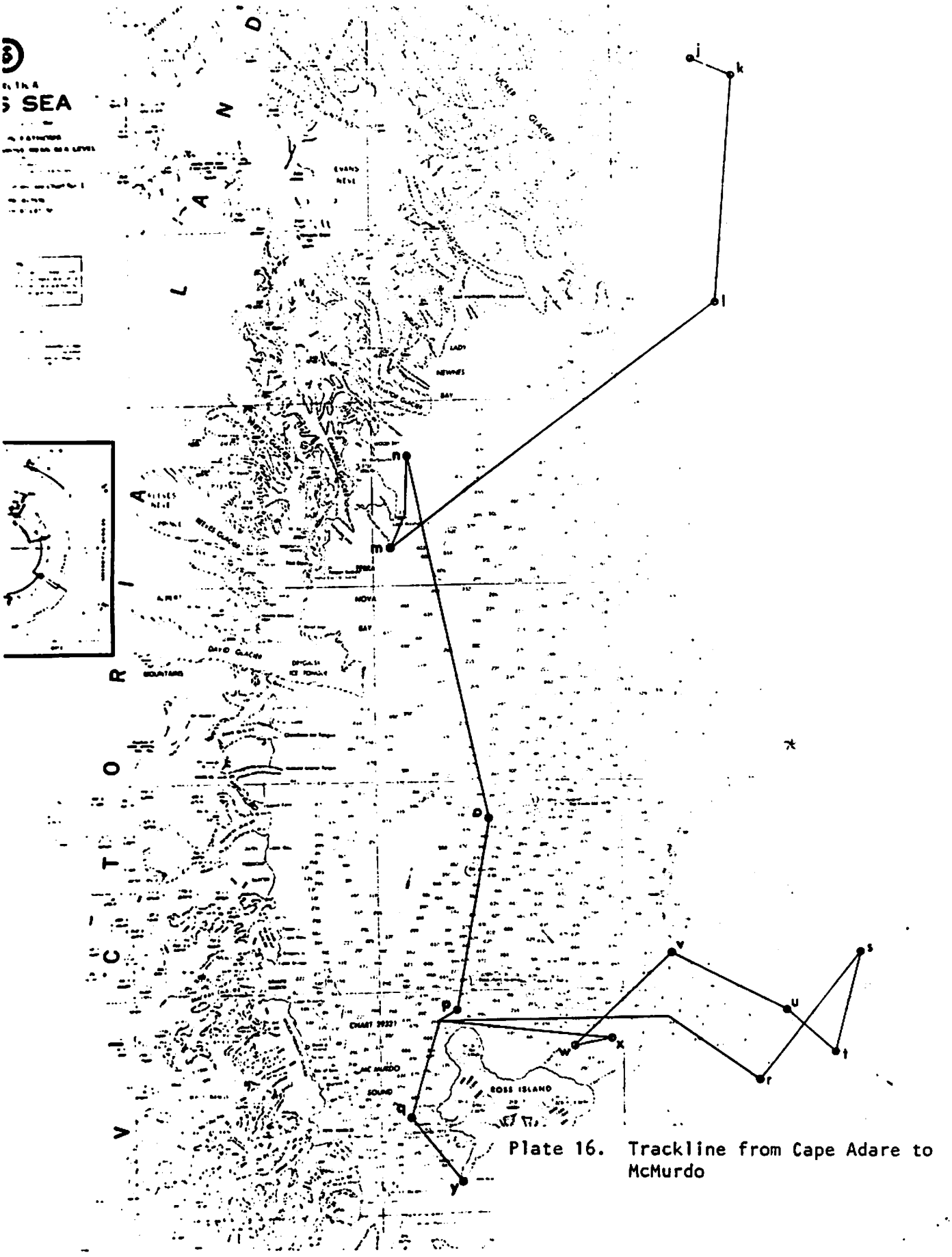


Plate 16. Trackline from Cape Adare to McMurdo

COURSE AND DISTANCE MADE GOOD BETWEEN 1200 POSITIONS

MCMURDO to b
Course 355° T
Distance 30 NM

b to c
Course 054° T
Distance 272 NM

c to d
Course 054° T
Distance 285 NM'

d to e
Course 049° T
Distance 210 NM

e to f
Course 082° T
Distance 317 NM

f to g
Course 085° T
Distance 307 NM

g to h
Course 089° T
Distance 285 NM

h to i
Course 86° T
Distance 276 NM

i to j
Course 086° T
Distance 290 NM

j to k
Course 077° T
Distance 303 NM

k to l
Course 071° T
Distance 300 NM

l to m
Course 068° T
Distance 145 NM

0742 08 FEB 82 --------- 0604 09 FEB 82
ANCHORED ARTHUR HARBOR, ANTARCTICA

PALMER STATION TO PUNTA ARENAS, CHILE

WAY POINTS CHART #90

m 09 FEB 82
LAT 64° 46.4'S, LON 64° 04.5'W

n 09 FEB 82
LAT 64° 16.5'S, LON 65° 00'W

o 11 FEB 82
LAT 55° 00'S, LON 65° 00'W

p 11 FEB 82
LAT 54° 25.8'S, LON 64° 48.8'W

q 12 FEB 82
LAT 52° 27'S, LON 68° 37'W

r 12 FEB 82
LAT 53° 09'S, LON 70° 54'W

COURSE AND DISTANCE MADE GOOD BETWEEN
WAY POINTS

m to n
Course 320° T
Distance 63 NM

n to o
Course 000° T
Distance 580 NM

o to p
Course 011° T
Distance 34 NM

p to q
Course 311° T
Distance 181 NM

q to r
Course Various
Distance 112 NM

1630 12 FEB 82 - 1003 13 FEB 82
MOORED PUNTA ARENAS, CHILE

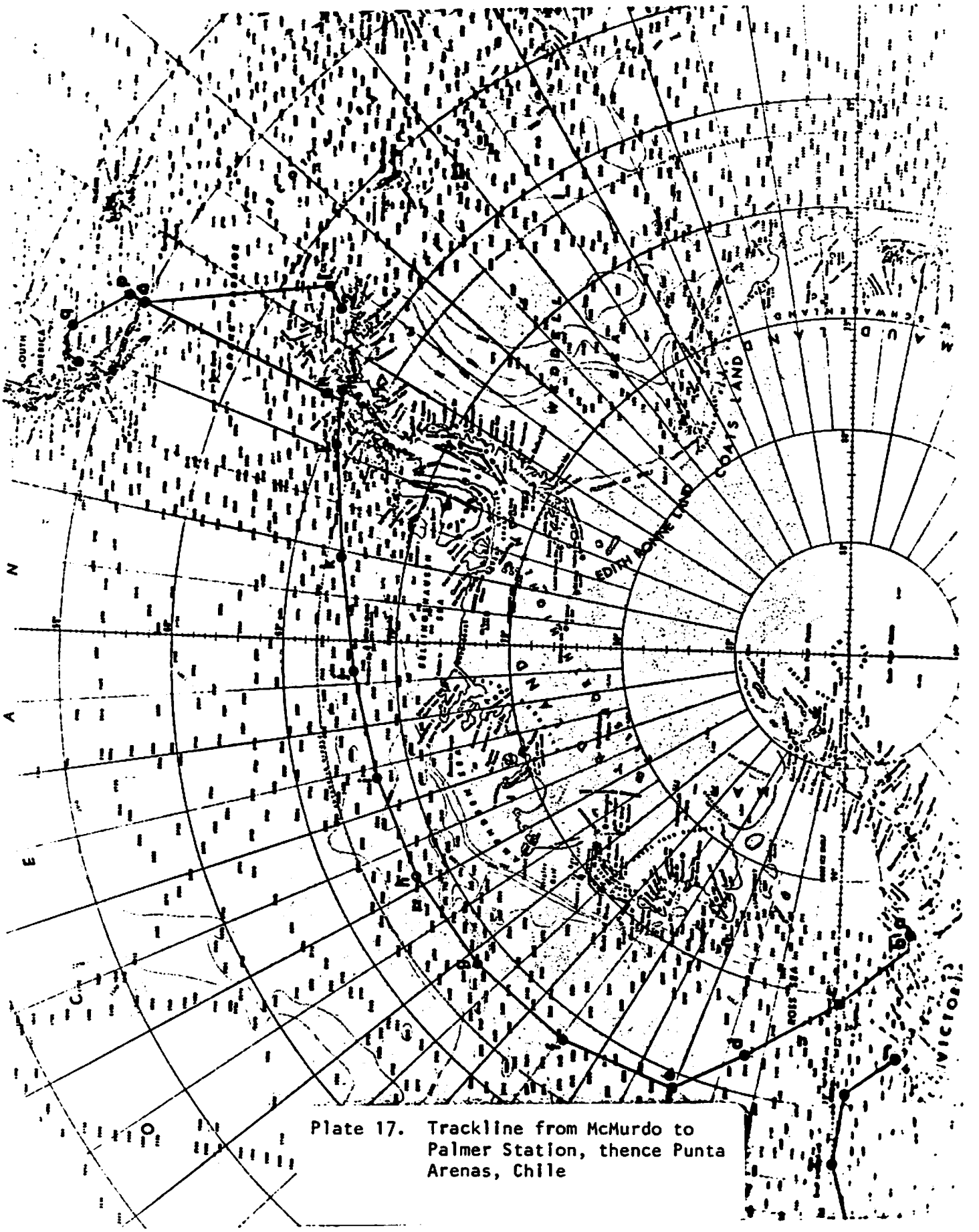


Plate 17. Trackline from McMurdo to Palmer Station, thence Punta Arenas, Chile

PUNTA ARENAS, CHILE TO BRANSFIELD STRAITS
WAY POINTS

CHART #90

r 13 FEB 82
LAT 53° 09'S, LON 70° 54'W

q 13 FEB 82
LAT 52° 27'S, LON 68° 37'W

p 14 FEB 82
LAT 54° 25.8'S, LON 64° 48.8'W

o 14 FEB 82
LAT 55° 00'S, LON 65° 00'W

#1 16 FEB 82
LAT 61° 55.8'S, LON 56° 55.5'W

#2 16 FEB 82
LAT 62° 54.5'S, LON 57° 31.8'W

COURSE AND DISTANCE BETWEEN WAY POINTS

r to q
Course Various
Distance 112 NM

q to p
Course 131° T
Distance 181 NM

p to o
Course 191° T
Distance 34 NM

o to #1
Course 149° T
Distance 486 NM

#1 to #2
Course 196° T
Distance 62 NM

BRANSFIELD STRAITS TO PALMER STATION
WAY POINTS AND 1200 POSITION

CHART #2900

#1 16 FEB 82
LAT 61° 55.8'S, LON 56° 55.5'W

#2 16 FEB 82
LAT 62° 54.5'S, LON 57° 31.8'W

#3 16 FEB 82
LAT 63° 23.6'S, LON 56° 43'W

#4 16 FEB 82
LAT 63° 38.2'S, LON 56° 15.4'W

#5 16 FEB 82
LAT 64° 01.1'S, LON 56° 15.4'W

A 17 FEB 82
LAT 64° 196'S, LON 56° 32.5'W

B 18 FEb 82
LAT 64° 46.4'S, LON 56° 51.7'W

C 19 FEB 82
LAT 65° 07.1'S, LON 55° 58.1'W

D 20 FEB 82
LAT 64° 12.3'S, LON 55° 35'W

E 21 FEB 82
LAT 63° 52.6'S, LON 53° 18.9'W

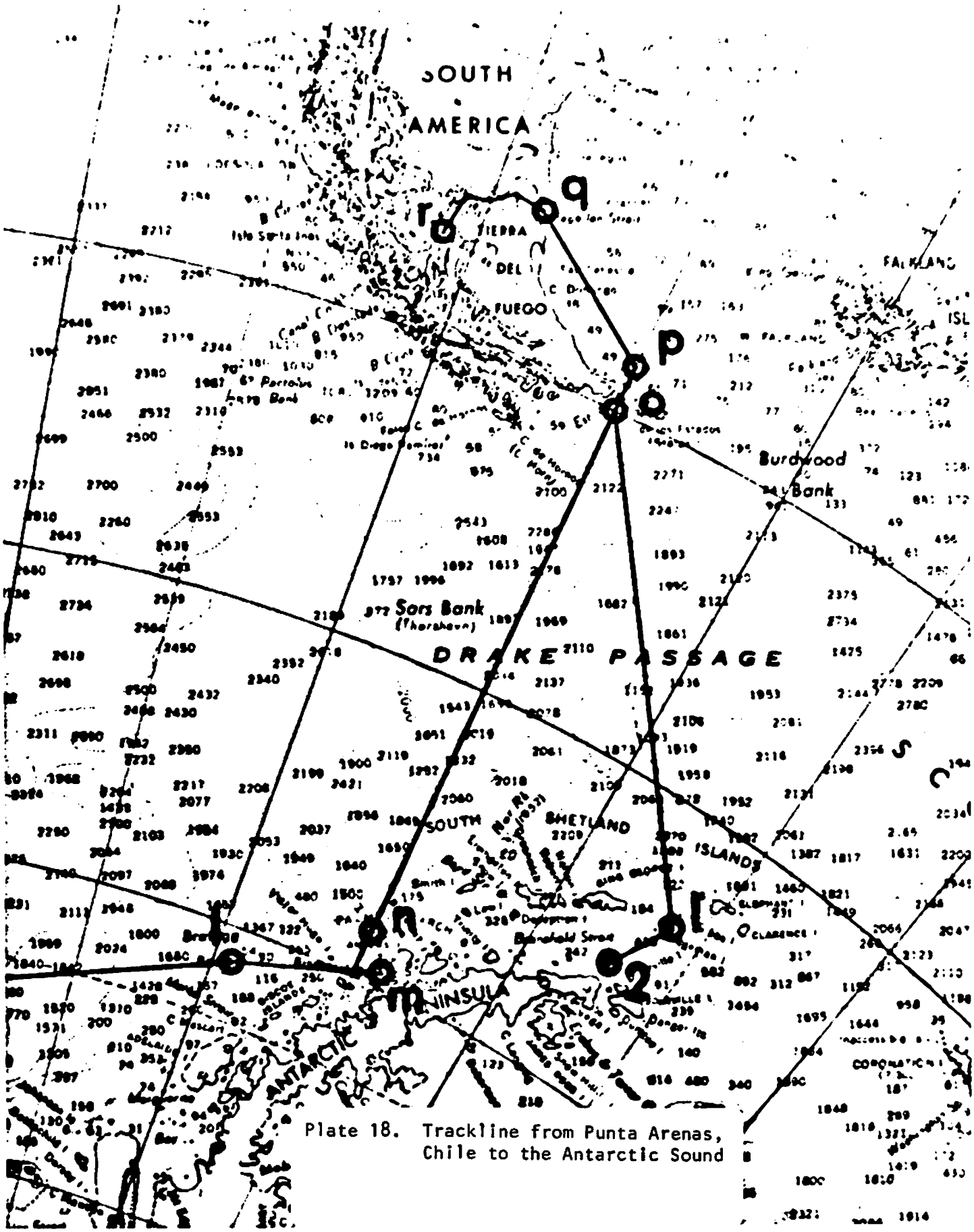


Plate 18. Trackline from Punta Arenas, Chile to the Antarctic Sound

F 22 FEB 82
LAT 61° 58'S, LON 56° 17'W

G 23 FEB 82
LAT 62° 59.4'S, LON 56° 52'W

H 24 FEB 82
LAT 62° 37.3'S, LON 58° 27.1'W

I 25 FEB 82
LAT 63° 29.3'S, LON 60# 25'W

J 26 FEB 82
LAT 62° 54'S, LON 59° 42.3'W

K 27 FEB 82
LAT 62° 51.5'S, LON 60° 22.5'W

L 28 FEB 82
LAT 63° 55.5'S. LON 61° 13.5'W

M 01 MAR 82
LAT 64° 36.2'S, LON 61° 31.2'W

N 02 MAR 82
LAT 64° 42.7'S, LON 62° 03.8'W

O 03 MAR 82
LAT 64° 49'S, LON 62° 38.5'W

P 04 MAR 82
LAT 64° 01'S, LON 63° 16.4'W

Q 05 MAR 82
LAT 64° 46.4'S, LON 64° 04.5'W

COURSE AND DISTANCES MADE GOOD BETWEEN
WAY POINTS AND 1200 POSITIONS

#1 to #2
Course 196° T
Distance 62 NM

#2 to #3
Course 142° T
Distance 36 NM

#3 to #4
Course 140° T
Distance 19 NM

#4 to #5
Course 180° T
Distance 21 NM

#5 to A
Course 205° T
Distance 20 NM

A to B
Course 196° T
Distance 30 NM

B to C
Course 131° T
Distance 32 NM

C to D
Course 010° T
Distance 56 NM

D to E
Course 072° T
Distance 64 NM

E to F
Course 335° T
Distance 127 NM

F to G
Course 216° T
Distance 75 NM

G to H
Course 292° T
Distance 48 NM

H to I
Course 226° T
Distance 74 NM

I to J
Course 030° T
Distance 42 NM

J to K
Course 278° T
Distance 20 NM

K to L
Course 200° T
Distance 65 NM

L to M
Course Various
Distance 52 NM

M to N
Course Various
Distance 29 NM

N to O

Course Various
Distance 37 NM

O to P

Course Various
Distance 30 NM

P to Q

Course Various
Distance 30 NM

0819 - 1449 05MAR82: ANCHORED ARTHUR HARBOR, ANVERS ISLAND, ANTARCTICA

a 05 MAR 82

LAT 64°46.4'S, LON 64°04.5'W

b 05 MAR 82

LAT 64°41.5'S, LONG 62°55'W

c 05 MAR 82

LAT 64°26'S, LONG 62°00'W

d 05 MAR 82

LAT 64°04.9'S, LON 61°49.5'W

e 06 MAR 82

LAT 63°41.2'S, LONG 61°19'W

f 06 MAR 82

LAT 62°59.5'S, LON 58°25'W

g 06 MAR 82

LAT 62°54.5'S, LON 57°31.8'W

h 07 MAR 82

LAT 63°23.6'S, LON 56°43'W

i 07 MAR 82

LAT 63°38.2'S, LON 56°15.4'W

j 07 MAR 82

LAT 64°01.1'S, LON 56°15.4'W

k 07 MAR 82

LAT 64°19.6'S, LON 56°32.5'W

l

LAT 61°55.8'S, LON 56°55.5'W

m

LAT 60°00'S, LON 59°22.5'W

ANTARCTIC SOUND TO OUTCHOP

i

LAT 63°38.2'S, LON 56°15.4'W

h

LAT 63°23.6'S, LON 56°43'W

g

LAT 62°54.5'S, LON 57°31.8'W

l to m

OUTCHOP

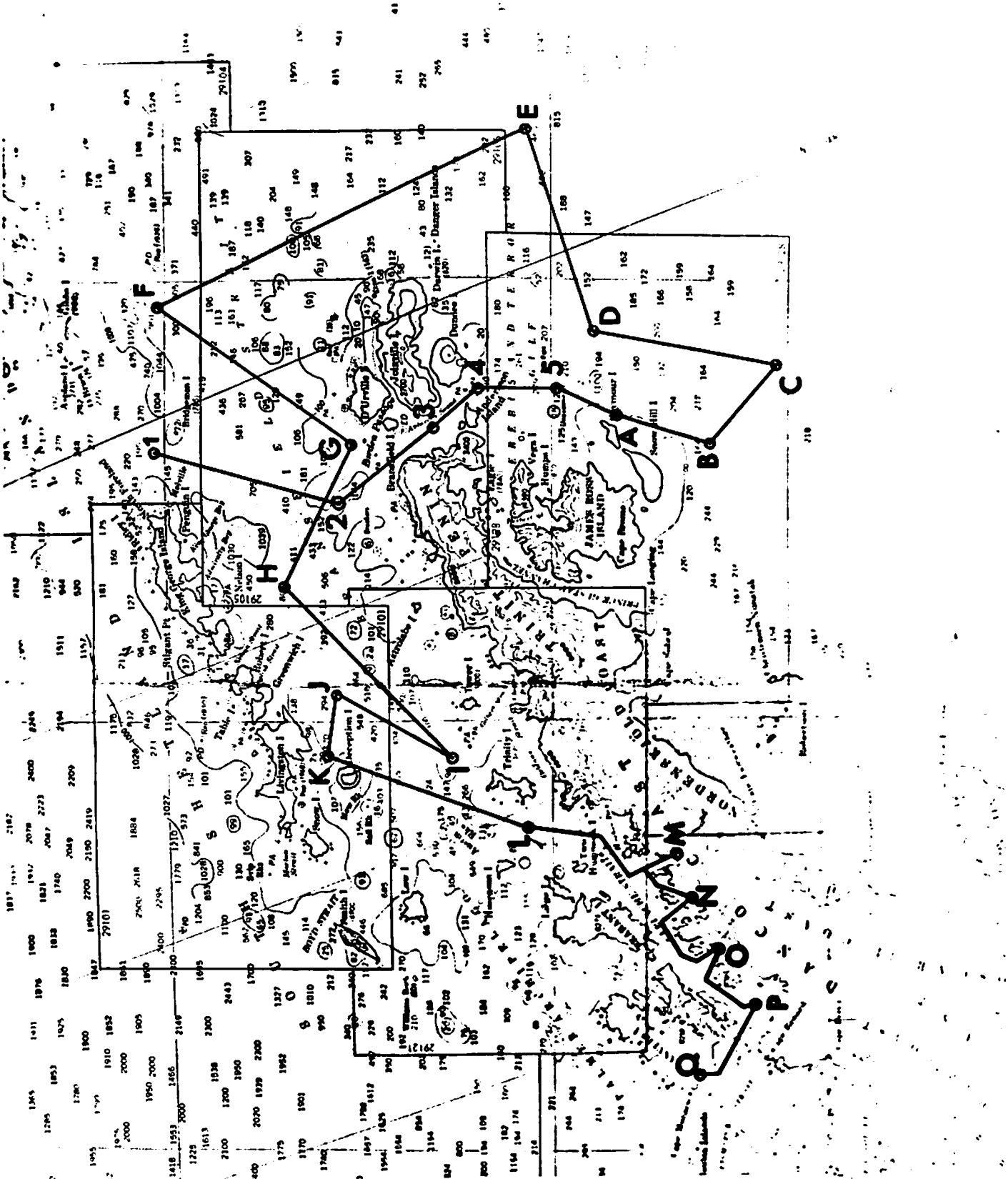


Plate 19. Trackline from the Antarctic Sound to Palmer Station via Seymour Island and the Gerlache Strait

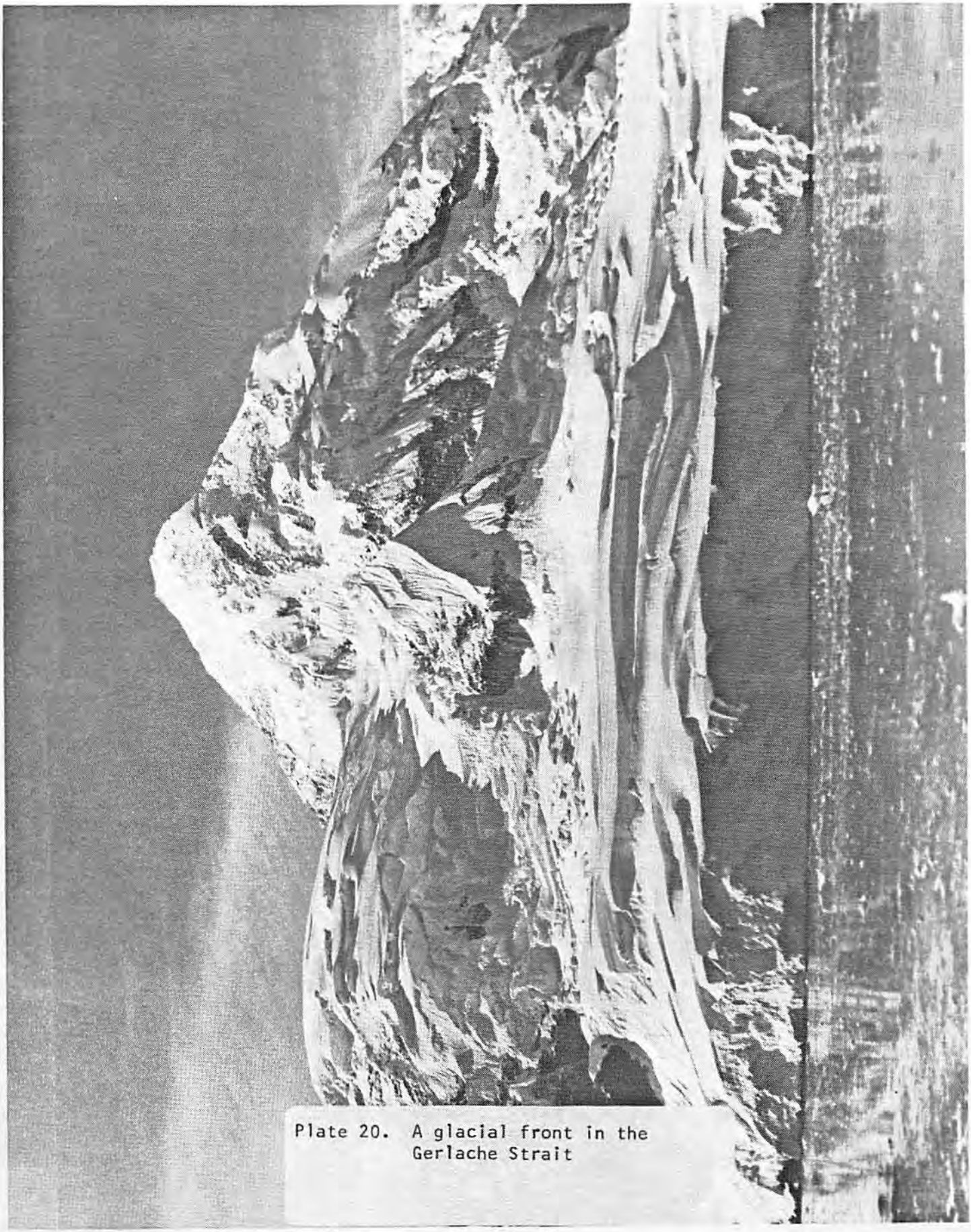


Plate 20. A glacial front in the Gerlache Strait

COURSES AND DISTANCES MADE GOOD BETWEEN WAY POINTS

a to b
Course Various
Distance 45 NM

b to c
Course 061° T
Distance 28 NM

c to d
Course 012° T
Distance 22 NM

d to e
Course 030° T
Distance 27 NM

e to f
Course 062° T
Distance 90 NM

f to g
Course 079° T
Distance 24 NM

g to h
Course 142° T
Distance 36 NM

h to i
Course 140° T
Distance 20 NM

i to j
Course 180° T
Distance 23 NM

j to K
Course 200° T
Distance 22 NM

SEYMOUR ISLAND TO OUTCHOP

k to j
Course 020° T
Distance 22 NM

j to i
Course 000° T
Distance 23 NM

i to h
Course 320° T
Distance 20 NM

h to g
Course 318° T
Distance 36 NM

g to l
Course 016° T
Distance 62 NM

l to m
Course 329° T
Distance 136 NM

PUNTA ARENAS TO VALPARAISO, CHILE

PUNTA ARENAS	- 1200	15 MAR	DIST	211 NM/M.V.C.S.
1200 15 MAR	- 1200	16 MAR	DIST	267 NM/M.V.C.S.
1200 16 MAR	- 1200	17 MAR	DIST	355 NM/M.V.C.S.
1200 17 MAR	- 1200	18 MAR	DIST	322 NM/M.V.C.S.
1200 18 MAR	- 1200	19 MAR	DIST	270 NM/M.V.C.S.
1200 19 MAR	- VALPARAISO		DIST	169 NM-C-022° T

VALPARAISO, CHILE TO CALLAO, PERU

Course 346°T
Distance 1269 NM

CALLAO, PERU TO PUERTO VALLARTA, MEXICO

a

LAT 11°30'S, LON 78°00'W

b

LAT 3°30'S, LON 85°00'W

c

LAT 8°20'N, LON 95°00'W

d

LAT 20°00'N, LON 105°45'W

e

LAT 20°24'N, LON 105°50'W

PUERTO VALLARTA, MEXICO

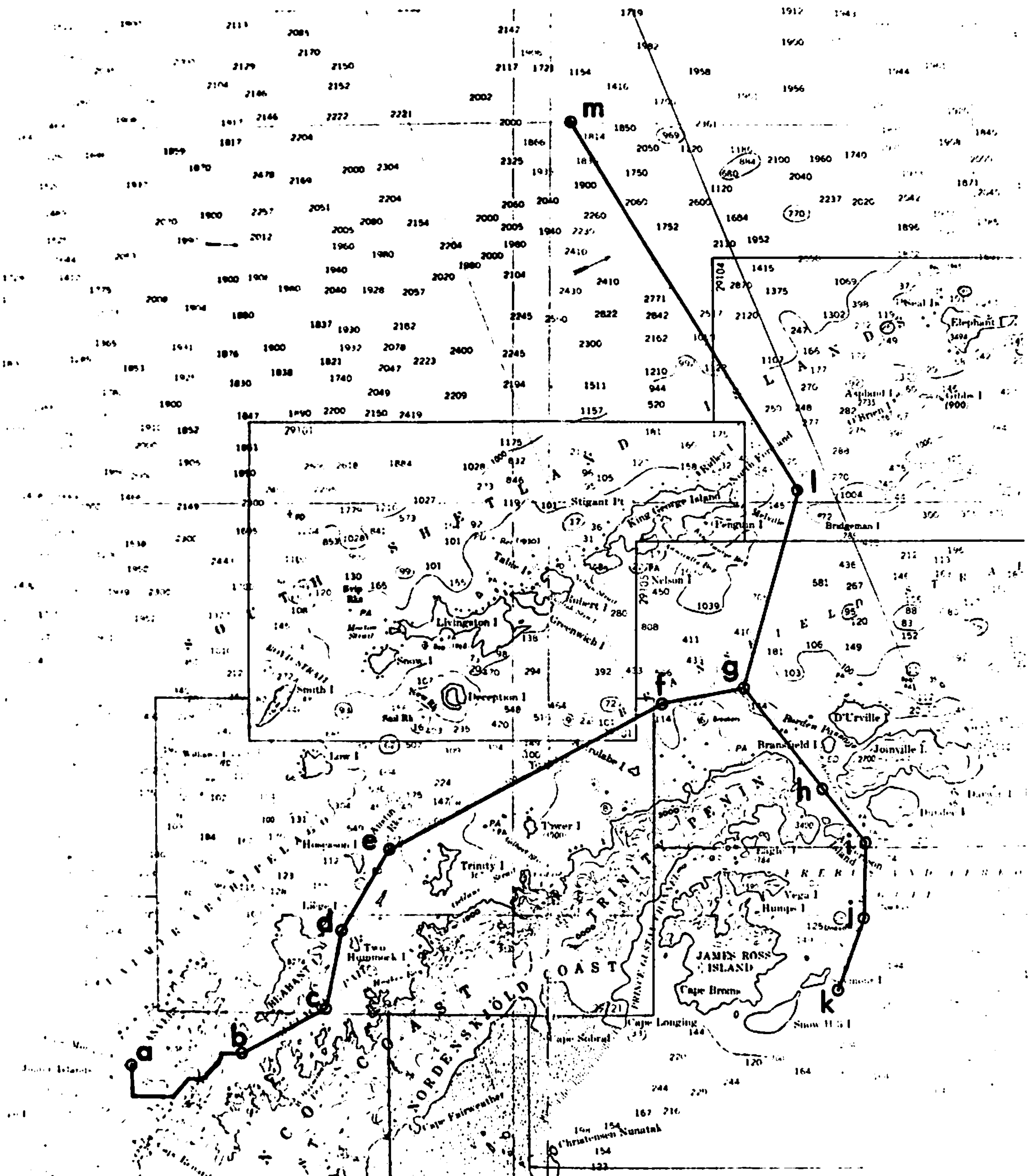


Plate 21. Palmer Station to Seymour Island, thence Punta Arenas

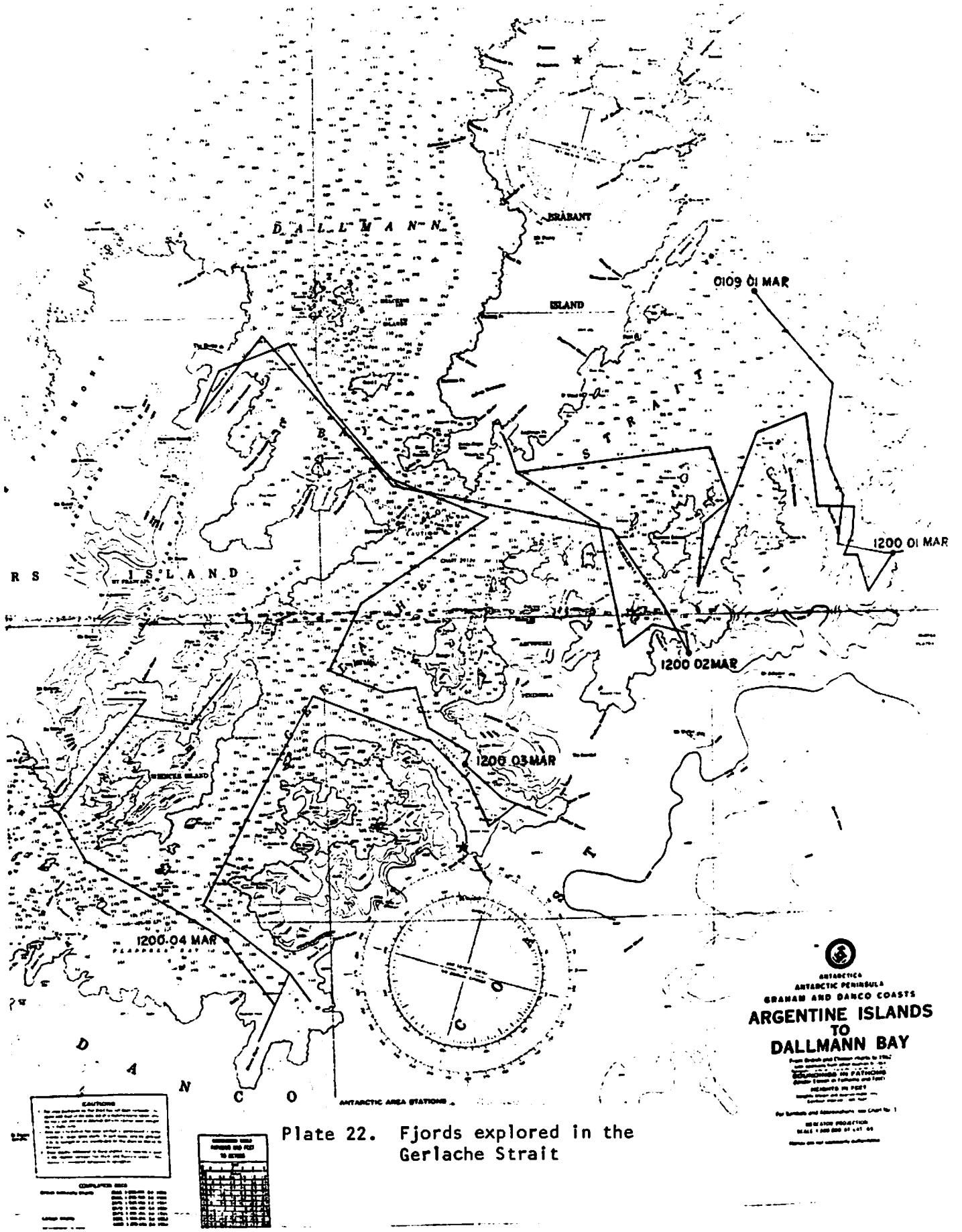
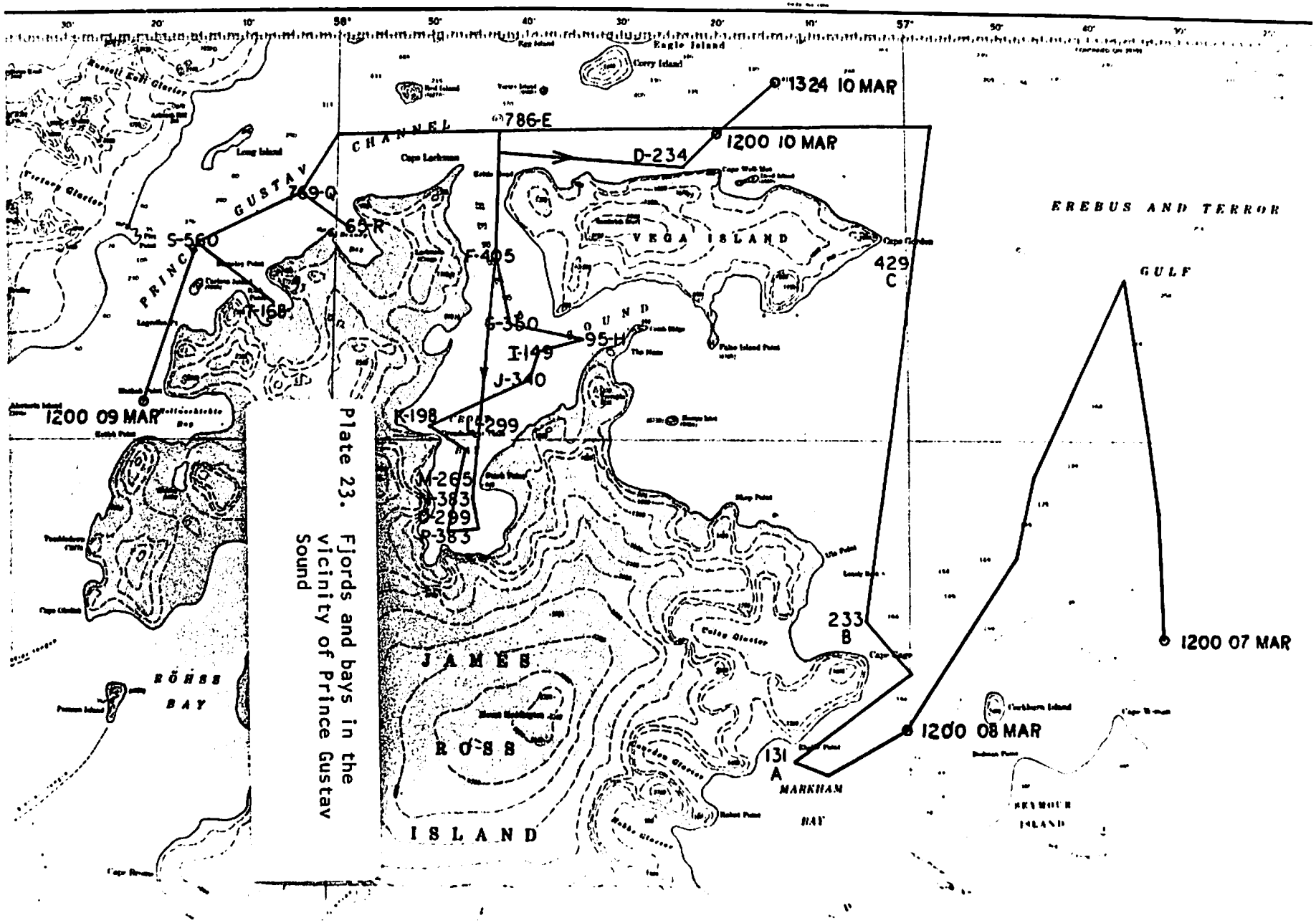


Plate 22. Fjords explored in the Gerlache Strait


1324 10 MAR
786-E
1200 10 MAR
D-234
CHANNEL
GUSTAV
PRINCE
769-Q
65-R
S-560
T-168
F-405
VEGA ISLAND
429
C
6-360
95-H
I-149
J-340
1200 09 MAR
K-198
L-299
M-265
N-383
O-299
P-383
Plate 23. Fjords and bays in the vicinity of Prince Gustav Sound
EREBUS AND TERROR
GULF
1200 07 MAR
233
B
1200 08 MAR
131
A
MARKHAM
BAY
JAMES
ROSS
ISLAND
RÖHSS
BAY

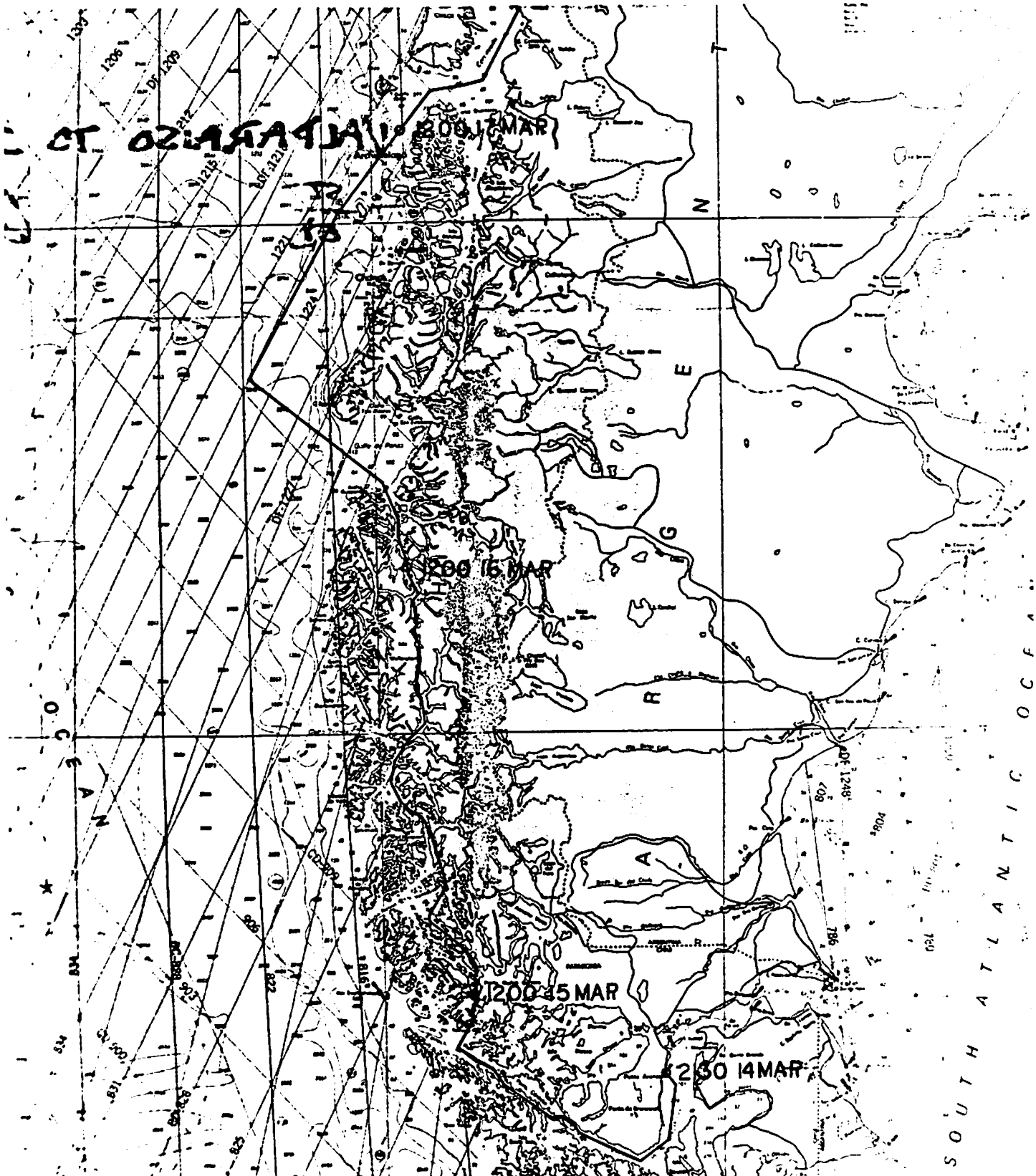


Plate 24. Trackline from Punta Arenas to Valparaiso, Chile
(1 of 2)

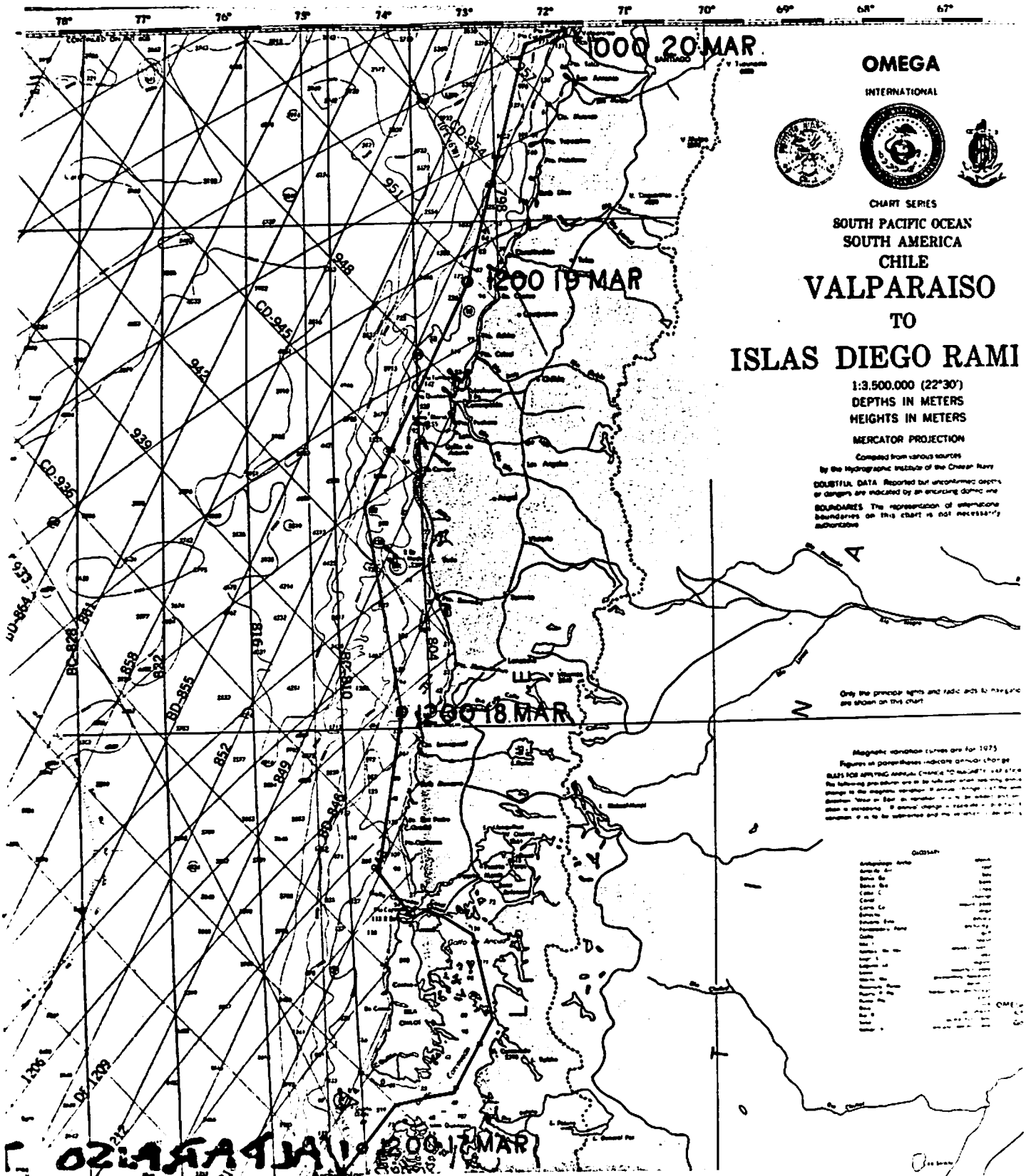


Plate 25. Trackline from Punta Arenas to Valparaiso, Chile (2 of 2)

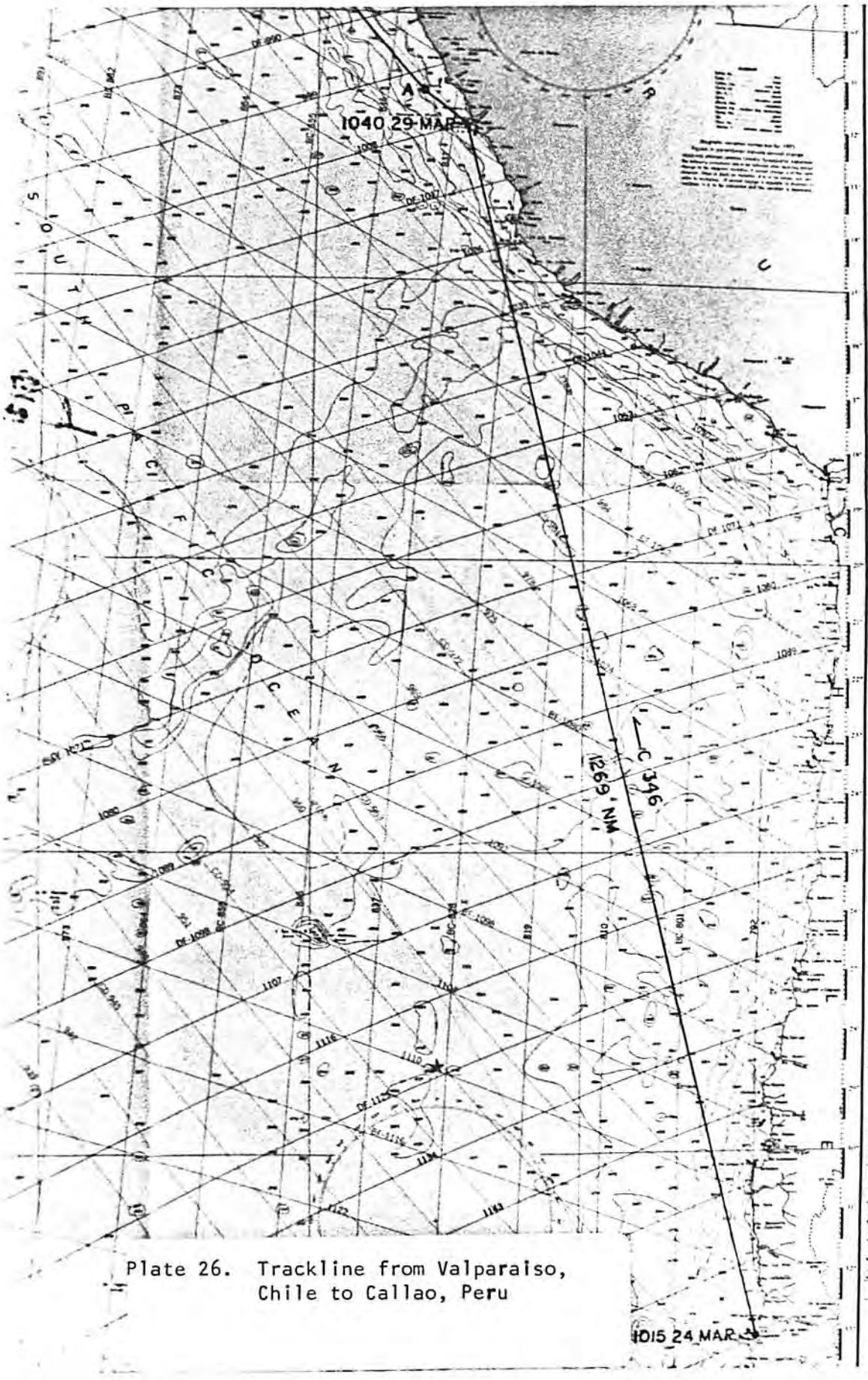


Plate 26. Trackline from Valparaiso, Chile to Callao, Peru

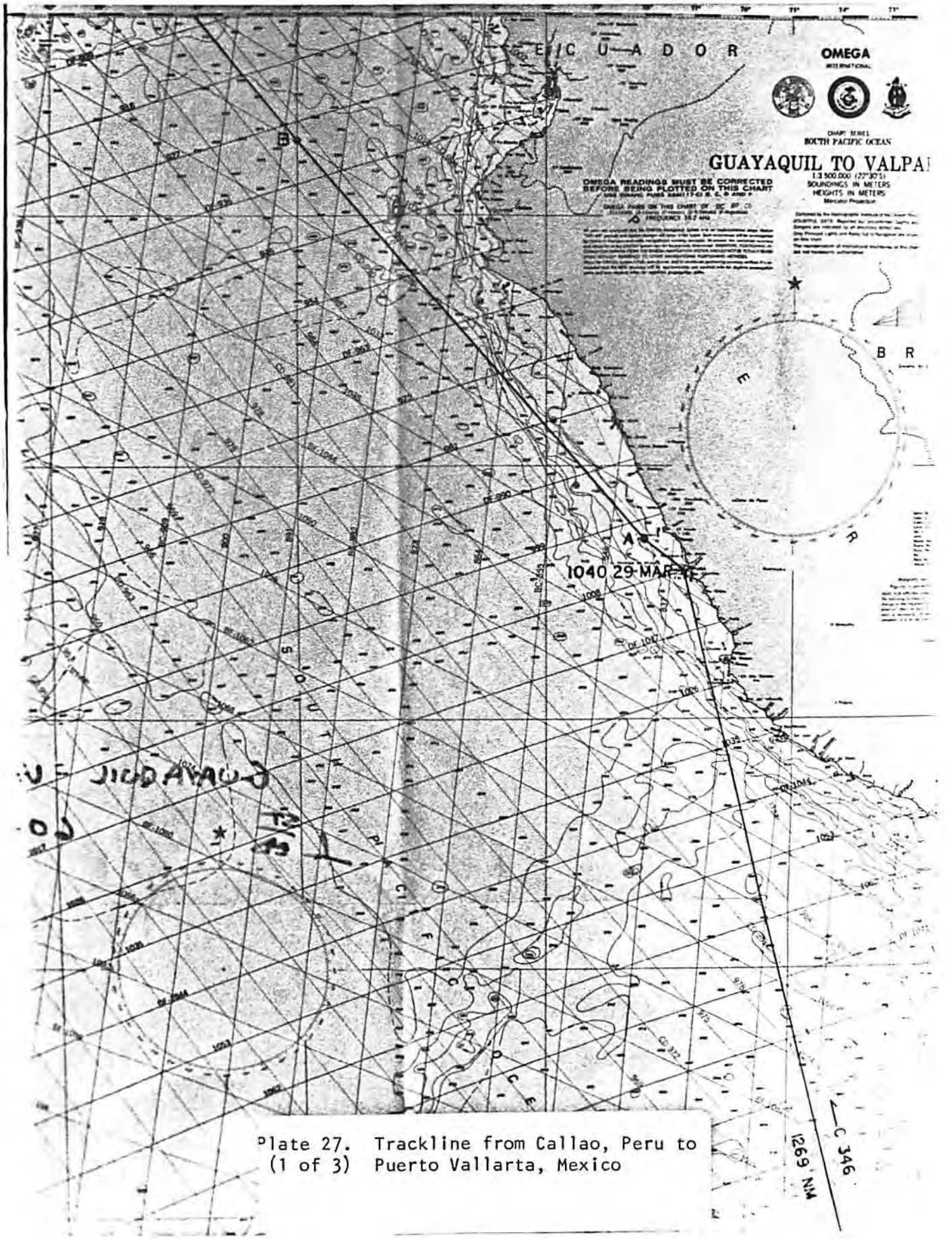


Plate 27. Trackline from Callao, Peru to Puerto Vallarta, Mexico
(1 of 3)

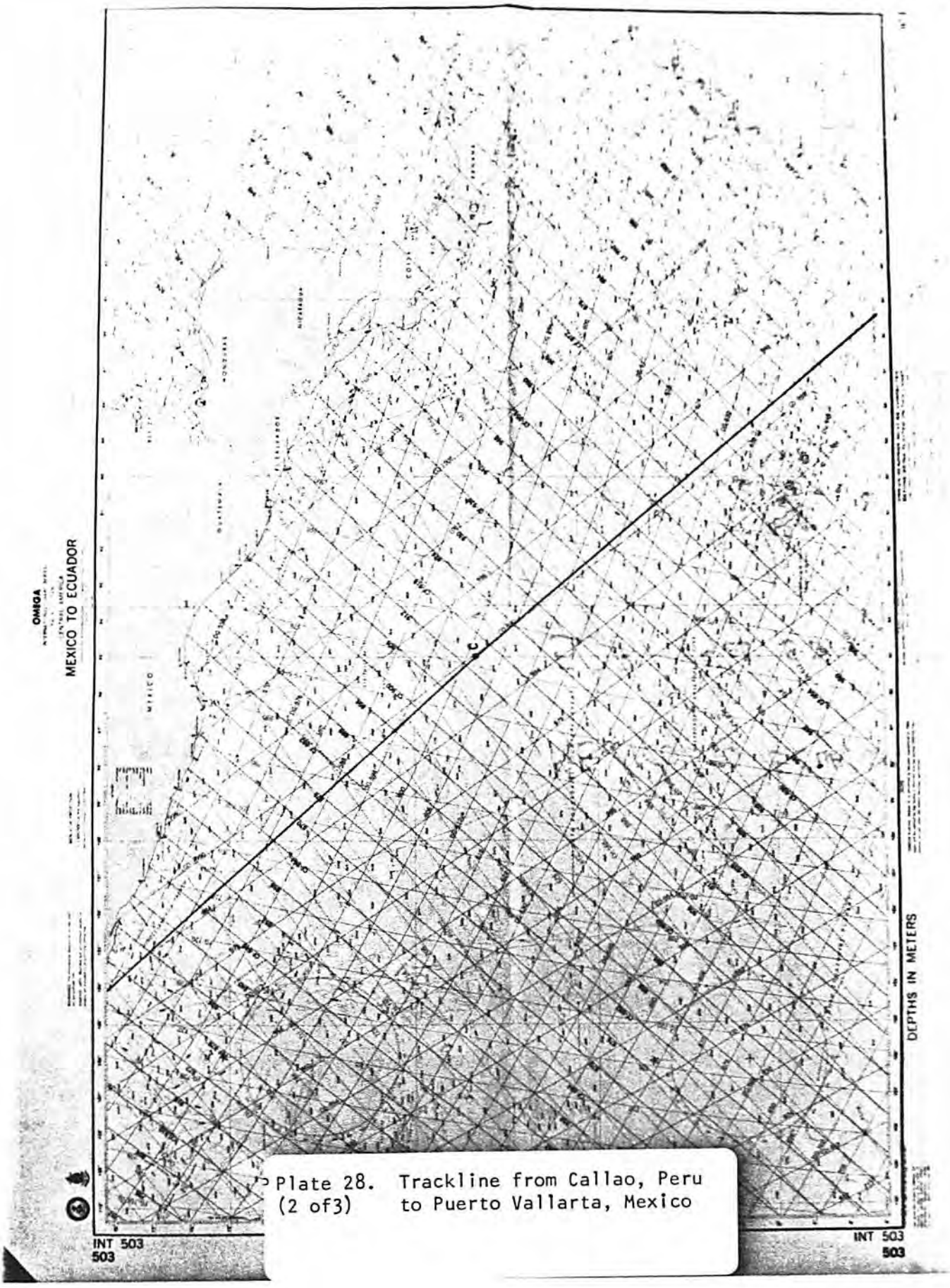


Plate 28. Trackline from Callao, Peru to Puerto Vallarta, Mexico (2 of3)

c. Training and Personnel

(1) Much greater emphasis was placed on training this year than last, particularly in light the ongoing requirements for training demonstrated during REFTRA. The ET's seem to have shown a greater interest in working on the equipment, as a result.

(2) GLACIER sailed on Deep Freeze '82 with one ETN1, one ETN2, two ET3's, one SNET and one TT3. Our ETCS joined the ship PCS in Honolulu, at the end of REFTRA.

d. Recommendations

(1) Install the SR-216 MF transmitters as soon as possible.

(2) Upgrade or replace the 21MC.

(3) Update and rewire the SB-2744 and SB-2727 patch panels.

(4) Complete all outstanding SHIPALTS, particularly those involving communications or navigation equipment.

(5) Install another UGR-196C-18 (PDR) Universal graphic recorder.

(6) Take necessary measures to ensure that the NC-7200 will operate correctly in the DF mode.

(7) Ensure that the Standard Measurement Test (SMT) personnel visit GLACIER prior to our training assist.

5. Postal Operations

a. INVENTORY:

(1) The U.S. Navy conducted a Postal Assist Visit and inspection during the summer period ('81). As a result of this visit, an extensive inventory was held; obsolete forms and pubs were destroyed. The following items were ordered for the upcoming Deep Freeze:

38 separate forms
Sack labels and flight tags
Kraft wrapping paper for crew's use
New and updated publications and zip code directories

(2) The Post Office began Deep Freeze'82 with:

$4647 in stamp stock
$347.35 in cash
200 stamped envelopes
605 money orders

(3) Due to little demand and postal rate changes, Series B stamp books, aerograms and post cards were discontinued prior to sailing.

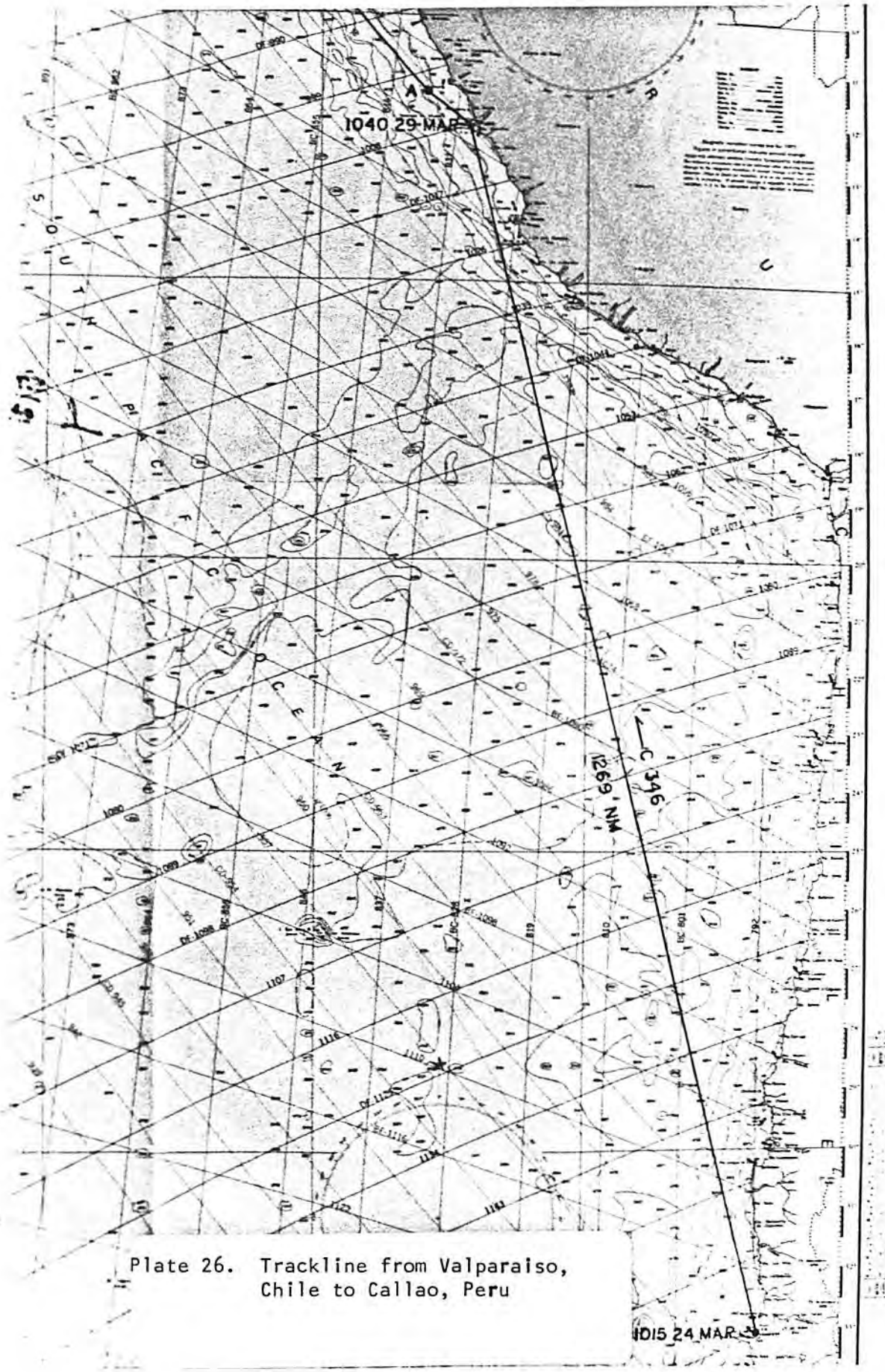


Plate 26. Trackline from Valparaiso, Chile to Callao, Peru

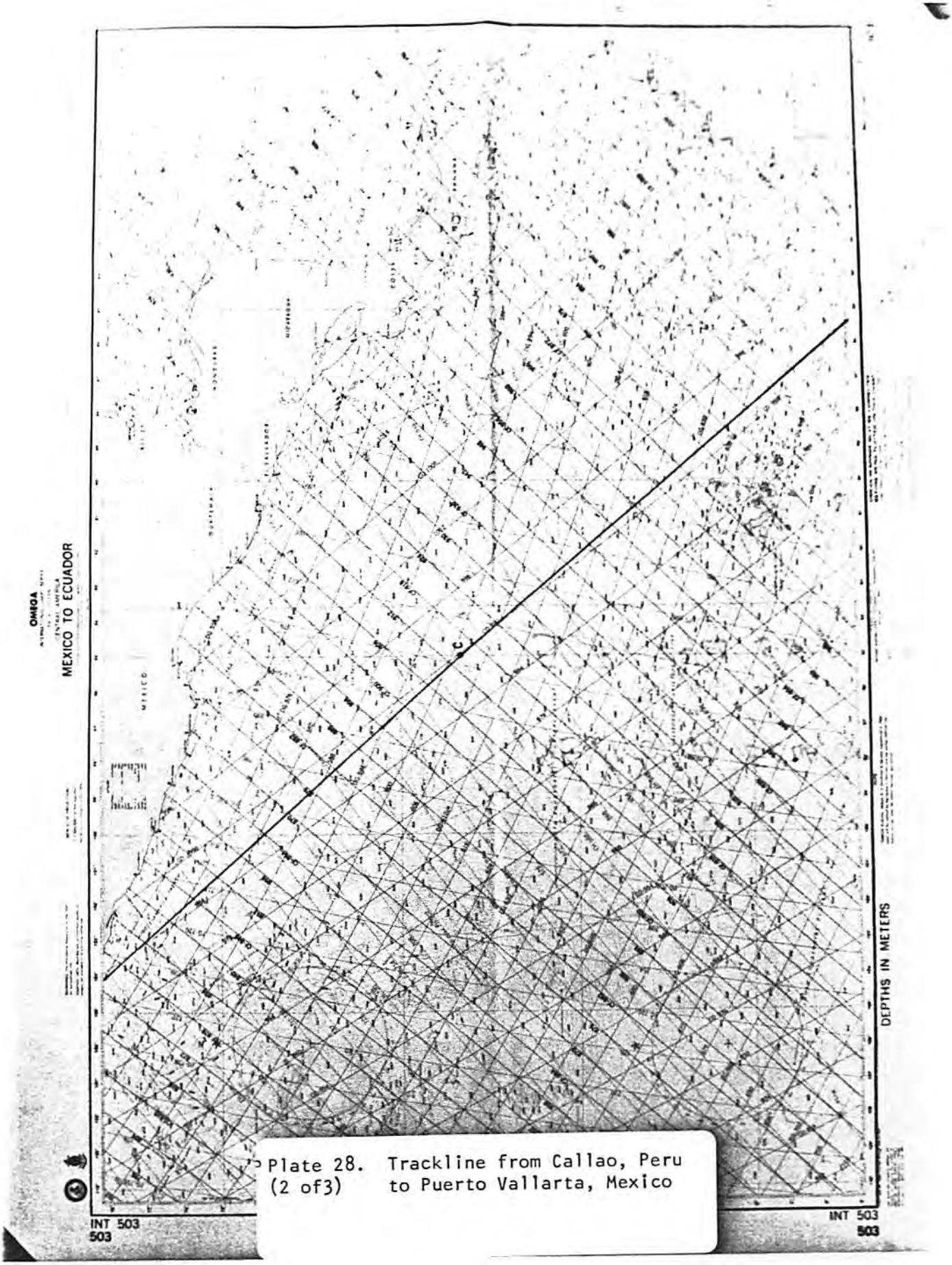


Plate 28. Trackline from Callao, Peru to Puerto Vallarta, Mexico (2 of3)

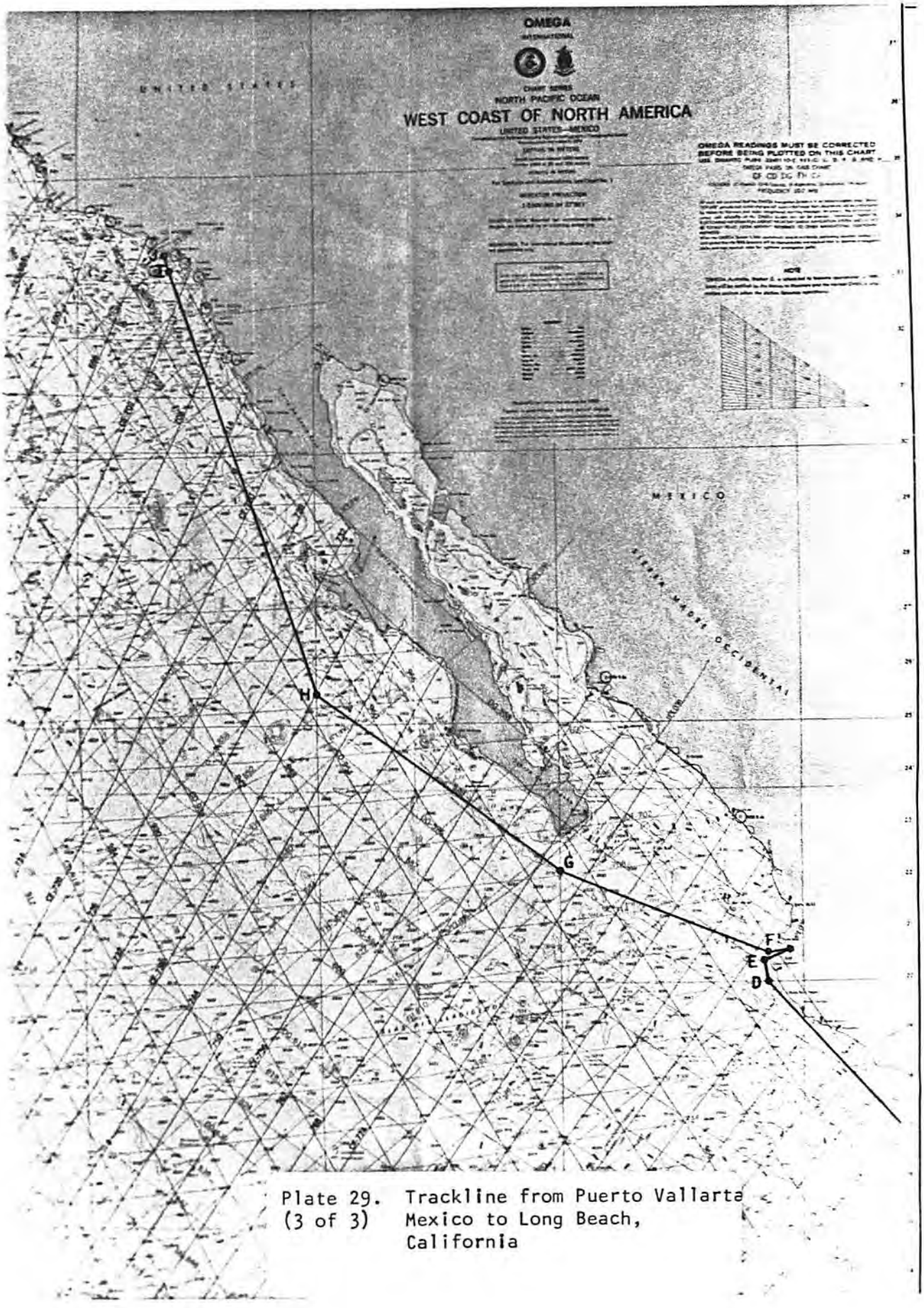


Plate 29. (3 of 3) Trackline from Puerto Vallarta Mexico to Long Beach, California

CALLAO, PERU TO PUERTO VALLARTA, MEXICO

A to B
Course 319°T
Distance 635 NM

B to C
Course 320°T
Distance 930 NM

C to D
Course 318°T
Distance 938 NM

D to E
Course 348°T
Distance 25 NM

E to F
Course 068°T
Distance 33 NM

TOTAL MILES - 2,623 NM

PUERTO VALLARTA - LONG BEACH

A

LAT 20°34'N, LON 105°45'W

B

LAT 33°21'N, LON 118°03'W

C

LAT 22°12'N, LON 110°00'W

D

LAT 33°37.7'N, LON 118°07.5'W

E

LAT 25°35'N, LON 115°00'W

F

LONG BEACH, CALIFORNIA

COURSE AND DISTANCE BETWEEN WAY POINTS

PUERTO VALLARTA to F
Course 261°T
Distance 25 NM

F to G
Course 292°T
Distance 248 NM

G to H
Course 306°.2°T
Distance 333 NM

H to I
Course 341°T
Distance 493 NM

I to J
Course 345°T
Distance 18.3 NM

J to LONG BEACH
Course 306°
Distance 8.0 NM

DEPTHS IN METERS, PRINCE GUSTAV CHANNEL

HERBERT SOUND

DESIGNATION	LAT	LONG	DEPTH IN METERS
"A"	64° 14.5'S	57° 13.2'W	131 METERS
"B"	64° 08.0'S	57° 04.4'W	233 METERS
"C"	63° 52.1'S	57° 00.0'W	429 METERS
"D"	63° 47.2'S	57° 23.5'W	234 METERS
"E"	63° 45.5'S	57° 43.0'W	786 METERS
"F"	63° 51.3'S	57° 42.8'W	405 METERS
"G"	63° 54.5'S	57° 41.6'W	350 METERS
"H"	63° 55.3'S	57° 34.1'W	95 METERS
"I"	63° 55.9'S	57° 38.6'W	149 METERS
"J"	63° 57.2'S	57° 39.7'W	340 METERS
"K"	63° 58.8'S	57° 50.3'W	198 METERS
"L"	64° 04.0'S	57° 49.0'W	299 METERS
"M"	64° 02.0'S	57° 47.0'W	265 METERS
"N"	64° 02.7'S	57° 45.5'W	383 METERS
"O"	64° 04.0'S	57° 49.0'W	299 METERS
"P"	64° 04.5'S	57° 45.0'W	383 METERS
"Q"	63° 48.4'S	58° 04.5'W	769 METERS
"R"	63° 50.0'S	57° 58.5'W	65 METERS
"S"	63° 50.2'S	58° 14.6'W	560 METERS
"T"	63° 53.6'S	58° 06.5'W	168 METERS

CHAPTER IV

COMMUNICATIONS AND ELECTRONICS

1. COMMUNICATIONS: PRE-DEPLOYMENT PREPARATIONS

a. General

(1) During the inport period prior to Deep Freeze'82, the electronic equipment in Radio Central underwent extensive maintenance. The URT-20 transmitters were repaired, all equipment was checked, including emergency radios, and GLACIER sailed with sound electronic communications.

(2) REFTRA required more extensive preparations than usual for Deep Freeze operations. The check off lists completed the organization and procedures of Radio Central and Visual Signalling which pointed out minor discrepancies that were corrected prior to arrival in Honolulu.

(3) As in previous years the three classified publications libraries were reviewed and updated. Publications that were not necessary for Deep Freeze or REFTRA were off-loaded to vault storage at NAVSTA Long Beach. Crypto equipment and related pubs for REFTRA were waived by COMPACAREA due to GLACIER's immediate departure on Deep Freeze'82 after REFTRA. Upon closing the vault, these publications were transferred to Coast Guard District Eleven for safekeeping. The remaining excess after REFTRA was sent to Coast Guard District Eleven via registered mail before departure from Honolulu.

2. NARRATIVE

a. General

(1) GLACIER departed Long Beach 17 October 1981 and established communications with COMMSTA Honolulu (NMO). Communications were excellent throughout GLACIER's transit to Honolulu, HI. Circuit A06.02 - WESTPAC radioteletype (RATT/0.28F1) was used as primary communications. All circuits were uncovered and all frequencies were selected from COMDTINST. M2400.1. Upon arrival at Coast Guard Base Sand Island, HI, GLACIER shifted guard to the base until completion of the training readiness evaluation and the shift to berths to Ford Island, HI, on 1 November 1981. GLACIER maintained radio guard with COMMSTA Honolulu for the duration of REFTRA utilizing traffic schedules when inport and full termination when underway. Prior to departure, a second off-load of classified material was made after REFTRA to minimize classified files carried on Deep Freeze'82.

(2) GLACIER departed Hawaii enroute Noumea, New Caledonia and resumed 24 hour communications with COMMSTA Honolulu. Comms continued to be excellent for the transit. While in Noumea GLACIER kept traffic schedules with COMMSTA Honolulu since there were no shore comms available.

(3) GLACIER resumed full termination with COMMSTA Honolulu for the transit to Brisbane, Australia. Traffic schedules were again used inport there in the absence of a convenient shore facility.

(4) Full schedule resumed with COMMSTA Honolulu for the 2 day transit to Sydney. Upon arrival GLACIER shifted guard to ASN COMMCEN, Australia fleet. HMAS PERTH conducted message runs for GLACIER.

(5) Full schedule resumed on 18 December 1982 for the transit to Wellington, N.Z. Communications were callenging for the first time due to rapidly changing frequency propagation. 29MHZ was used for the first time in the deployment. Propagation went to higher frequencies, however, and there was no loss of comms.

(6) Guard was shifted to the N.Z. defense comm center. Message runs were made at least twice daily using the ship's rental vehicle.

(7) GLACIER departed Wellington, N.Z. on 31 December 1981 and regained full termination uncovered communications with COMMSTA Honolulu. GLACIER shifted its guard to McMurdo Station, Antarctica (NGD). Voice comms were maintained via US17, Antarctic common. Traffic was received via US14, Antarctic broadcast, and transmitted via US16, Antarctic RATT working. A half-duplex uncovered circuit was utilized, and all outgoing traffic was prepared in accordance with ACP 127 format as per COMNAVSUPPFORANTARCTICA OP-ORDER 1-82 Appendix 1 to ANNEX DELTA.

(8) GLACIER, as on previous Deep Freezes, experienced a lot of circuit congestion on US17, while operating in close vicinity to McMurdo. 1153/7995 KHZ proved to be too high for voice communications and quite often South Pole, Siple Station, or other outlying stations were relied on heavily to relay to McMurdo Station. On 13 January 1982, McMurdo set up 5386 KHZ voice communications, for ice breaking operations only, which eliminated further voice relay problems. 5386 KHZ was not only utilized for communications coordination, but also proved to be quite useful for radio conference's between captains of the GLACIER, POLAR SEA and CDR TAYLOR, Ship's Operations Officer at McMurdo Station. See problems and recommendations.

(9) McMurdo Station continued to provide excellent service while conducting operations in the Ross Sea. GLACIER moored at McMurdo Station on 27 January 1982 and received over-the-counter message service until departure on 29 January 1982, where full termination with McMurdo Station was regained.

(10) On 31 January 1982, GLACIER experienced a communications black-out and was unable to regain comms with any Antarctic or U.S. Station due to high Geo-magnetic disturbances. After 32 hours, GLACIER established comms with COMMSTA San Francisco (NMC). Communications guard was immediately shifted to NMC and was maintained throughout the remainder of the Antarctic operations. Circuit A04.01 - EASTPAC radioteletype (RATT/0.28FI) was used as primary comms. All circuits were uncovered and all frequencies were selected from COMDTINST 2400.1B. Some propagation problems were experienced, see problems and recommendations.

(11) On 12 February 1982, GLACIER arrived Punta Arenas, Chile. Traffic schedules were continued with NMC while inport. On 13 February 1982, GLACIER departed Punta Arenas enroute Seymour Island, Antarctica.

(12) On 17 February 1982, a field party from GLACIER was dropped off at Seymour Island. Daily comms were scheduled for 0800 on 4067 KHZ. Schedules were uneventful for first 2 days, however, due to blown fuses, the field party was not heard from for 4 days. GLACIER attempted to communicate with the Argentine Station, Marambio, on 4490/8980 KHZ, which was also located on Seymour Island. Due to the language barrier, however, our efforts were futile. On 25 February 1982, comms were reestablished and daily comms were again maintained.

b. Air to Ground Communications

(1) Air to ground communications were maintained over one circuit, with the Bridge and CIC guarding the same primary and secondary frequencies.

(2) Between 17 October 1981 and 08 January 1982, the Primary air operations frequency was 381.8 MHZ (UHF), 126.2 MHZ (VHF-FM) Secondary, and 5695 KHZ Tertiary. On 8 January 1982, 126.2 MHZ (VHF-FM) was inoperative and the following communication plan was utilized: Primary 381.8 MHZ, Secondary 157.10 MHZ (VHF-FM/CH22), and 5696 Tertiary. This plan was used for the remainder of the deployment except for the period when working in McMurdo. Initially, for 5696 KHZ, CIC used a GSB-900 located in CIC. This unit operates dependably, but interferes with HF comms in Radio Central, as discussed later in the problems and recommendations. The pilots indicated they were not concerned with CIC having no 126.2 MHZ (VHF-AM) capability. Thereafter, 5696 KHZ was patched to CIC from Radio Central on RPU5. This did not interfere with Radio Central's HF comms and also allowed radio comms on 5696 KHZ to be recorded on the Sound Scriber. This is not possible when using the GSB-900.

(3) 157.10 MHZ (CH22/VHF-FM) was used for all operations and proved to be the most reliable. CIC maintained a continuous guard on 243.0 MHZ (UHF) aircraft distress frequency.

(4) When operating in the McMurdo area, US9 (12 January 1982 to 30 January 1982), air to ship was utilized. 250.6 MHZ (UHF) was the primary flight frequency and 3103.5 KHZ (3102/HF-SSB) Secondary.

(5) Radio beacon frequency was 522 KHZ throughout the deployment.

c. Traffic Breakdown

(1) Message traffic totals were as follows:

MONTH	RATT	VOICE	CW	OTHER	TOTAL
OCTOBER	130	0	3	40	173
NOVEMBER	312	0	0	0	312
DECEMBER	222	0	0	62	284
JANUARY	528	0	0	0	528
FEBRUARY	484	0	0	0	484
MARCH	425	0	1	0	426
APRIL	292	0	0	26	318
TOTALS	2393	0	4	128	2525

MONTH	RATT	VOICE	CW	OTHER	TOTAL
OCTOBER	76	0	0	73	149
NOVEMBER	260	0	0	0	360
DECEMBER	351	0	0	244	495
JANUARY	787	0	0	0	787
FEBRUARY	457	0	0	0	457
MARCH	529	0	0	0	529
APRIL	268	0	0	61	329
TOTALS	2728	0	0	378	3106

(2) CLASS "E" Total Sent:

OCTOBER	6
NOVEMBER	7
DECEMBER	13
JANUARY	15
FEBRUARY	35
MARCH	14
APRIL	5
TOTALS	95

d. MARS Operations

(1) The MARS program began as soon as GLACIER departed Long Beach, CA. Participation was slow, initially, as the crew was not fully aware of the program. Once they were briefed on how MARS worked the program quickly escalated.

(2) Communications with the MARS stations were good while enroute the Antarctic. Once in Antarctica, however, the MARS phone patches really exploded, with 304 patches made for the month of Feburary alone. NNPFQ (VISALIA, CALIF.) and NNNXJQ (STOCKTON, CALIF.) did an outstanding job putting phone patches through for the crew. MARSGRAMS were also sent via PFQ and XJQ.

(3) MARS Totals: MARSGRAMS - 130 MARS Phone Patches - 959

e. HAM Operations

(1) HAM operations started off well this year, however, was shut down as of 16 December 1981 due to radio frequency interference problems. This is later discussed in problems and recommendations.

(2) Up until shut-down, 148 phone patches were accomplished through Charlie and Phyllis Coryell (WA6JBT/WA6JBR) of Anaheim, CA.

3. PROBLEMS AND RECOMMENDATIONS

a. Myriad problems of radio frequency interference (RFI) were experienced throughout the ship. RFI is being caused by a number of different HF transmitters, including AN/URT-23's, GSB-900 tranceiver, and Kenwood TS830S transceiver (AMETEUR Radio equipment). Interference experienced on HF receivers,

AN/UQN-1 Fathometer, AN/SPS-64 radar, ship's entertainment system and various television sets on board. Assistance has been requested from the Coast Guard Electronics Engineering Center.

b. Recommend 5386 KHZ be made permanent as a ship's coordination net

c. GLACIER continues to experience teletype malfuncations beyond the unit's repair capability. As a solution, the authorized CTT-28-ASR allowance should be changed as follows:

EQUIPMENT	AUTH
PRINTER UNIT	6
KEYBOARD UNIT	6
TRANSMITTER-DISTRIBUTOR UNIT	6
REPERFORATOR	6
AUXILIARY REPERFORATOR UNIT	6

d. Coast Guard units involved in Deep Freeze HF communications have, for years, been in need of authorized voice frequencies above 22 MHZ. USCGC GLACIER msg 181135Z FEB 82 requested authorization to utilize a 25, 27, and 29 radioteletype frequency for voice. COMDT COGARD Washington, DC msg 250116Z FEB 82 granted authorization on a temporary, not-to-interfere basis to other units. Recommendation: ideally, additional frequencies in the 25, 27, and 29 MHZ range be dedicated to circuits A04.03 and A06.03, or temporary authorization granted by COMDT msg 250116Z FEB 82 be made permanent.

4. ELECTRONICS

a. General

(1) Pre-deployment

(a) During the inport period prior to departure for Deep Freeze'82 two new pieces of equipment were installed and one was replaced.

1 A Regency Polaris NC-72-- VHF/FM direction finder was installed in CIC.

2 A Sitex/Koden 511 was installed in the forward chart room as a direct replacement for the CZL-AFD-100 direction finder.

3 One URT-20 MF transmitter was replaced with a rebuilt unit from the Coast Guard yard.

(b) Base Terminal Island personnel aligned our AN/SIA-123 alarm and general announcing amplifier. Speakers were installed, adjusted or repaired, as required in all spaces to provide adequate coverage and a comfortable listening level.

(c) All ET's were sent to MOTU-5 in San Diego for URC-9 instruction. AMEX technicians were aboard for two days to provide additional technical assistance. All four RT-581's were operational upon sailing.

(d) All teletype equipment was aligned by our TT3.

(e) The AN/SPS-64 radar was aligned using the AN/USM-145 test set following the procedure outlined in ALDIST 355/80.

b. Equipment Performance

(1) An/SPS-64 - The radar was aligned using the COMDT (G-TEE) provided radar test set prior to the arrival of the AVDET. On their approach to LA AIRSTA we were unable to receive their transponder. The alignment was checked, and we again tried to receive the transponder when they flew aboard, with negative results. No further action was taken at that time.

(2) The engineers exercised the generators enroute Honolulu, with the resulting load shifts causing an extraordinary number of MTR power supply failures, i.e., three control PCB failures and numerous up-chop and inverter transistor casualties. Coast Guard District Fourteen (eee) personnel came to the rescue, mostly providing badly neeeded spare parts since we had exhausted our spares and Brooklyn was unable to supply replacements. We eventually ended up replacing, for both MTR's:

2 TR Limiters
1 Pulse driver PCB
1 Control PCB
1 HV PCB
1 IF PCB
1 Magnetron
1 Modulator tube

(3) The radars were re-aligned using our original procedure and the Coast Guard District Fourteen (eee) UPM-145 radar test. When checked against our test set, the results were substantially the same. Tracking the helo transponders was attempted again, this time with gratifying results +35 mile range at an altitude of 3-400 feet. No single fault was identified that could cause any acquisition of the transponder the first time in Long Beach. It appears that several small problems added up to one big problem.

(4) The synchro-to-step converter provided unreliable operation by losing its step output, causing the radars to operate only in the head-up mode. The problem was intermittent and efforts to isolate it proved futile.

(5) MX-1107 - Excellent performance. Extensive work on the gyros led to more reliable operation of the satellite navigator. Manual speed input is used since the doppler speed log input is unreliable.

(6) ML-320 LORAN C - Excellent operation on West Coast chain up to about 800 miles offshore. The mid-pacific (Hawaii) chain was unusable due to the 60 usec error.

(7) GSB-900 - Excellent performance.

(8) An/URC-80 - Excellent tranceiver performance.

(9) NC-7200 - Excellent tranceiver performance. Direction finding sensitivity is poor; ship's ET's are looking at possible solutions.

(10) AN/URC-9 - All ET's were trained on the URC-9 by MOTU-5 this past summer. Long hours of corrective and preventive maintenance, extensive wholesale replacemetn of faulty modules and additional technical assistance from AMEX Corp personnel led to greatly increased reliability this year.

(11) An/URT-23 - Many small problems occurred, but all were easily corrected. Several aggravating problems occurred in the associated AN/URA-38 antenna. Most of these involved mechanical parts - gears, couplings, shafts - and were easily corrected. The overall performance of the equipment was measurably better this year due in part, I believe, to an aggressive preventive maintenance program.

(12) AN/URT-20 - While the operation of these radios is not as trouble-free as it could be, it's a considerable improvement from last year. Broken wires, shorted cables, occurred frequently. A particularly aggravating problem, as yet unresolved, is that the B+ (high voltage) trips off intermittently when the URT-23's are shifted from standby to ON. That the URT-20 shares a common 115 VAC power panel with the URT-23's is suspected, but not proved. Reliable beacon operation is imperative for helicopter operations. Installation of the SR-216 is recommended at the earliest possible time.

(13) An/URT-32 - Excellent operation with only two minor casualties.

(14) UQN-1H - Both UQN-1H depth sounders were a maintenance nightmare. Numerous failures sabotaged operations from REFTRA through OUTCHOP. A few failures can be attributed to operator error, but most were mechanical or electrical failure. We have requested that the system be upgraded adding another UGR-196C-18 Graphic recorder (PDR) to supplement the one already installed. To increase system flexibility we have requested that either PDR be capable of being switched to operate from either UQN-1H.

(15) Model 28 Teletype - The teletype problems experienced last year were not as common this year due, in part, to a concerted effort prior to deployment to perform operational checks on all equipment and correct all problems as necessary. Time spent by our teletype technicians at Base Terminal Island working on our equipment under the tutelege of their technician was invaluable.

(16) 21MC - Intermittent operation and other numerous small problems plagued the system this year, just as in past years. An M&R has been submitted to either replace or upgrde the entire system.

(17) AN/SIA-123 - A major system overhaul during the past inport led to vastly improved operation of the general alarm and announcing system. Technicians from Base Terminal Island completely aligned the electronics unit and replaced, repaired or installed speakers where needed. Engineroom personnel are still unable to hear either alarms or annoumcements over the cacophony of background noise. A solution to this is still being sought.

(18) While moored at Callao the ship's ET's installed the TRACOR II OMEGA receiver. Operation is flawless during periods of reliable propagation, with fixes falling consistently within 1 NM of NAVSAT. During poor propagation it shifted to the "dead reckon" mode until reliable signals were available.

c. Training and Personnel

(1) Much greater emphasis was placed on training this year than last, particularly in light the ongoing requirements for training demonstrated during REFTRA. The ET's seem to have shown a greater interest in working on the equipment, as a result.

(2) GLACIER sailed on Deep Freeze '82 with one ETN1, one ETN2, two ET3's, one SNET and one TT3. Our ETCS joined the ship PCS in Honolulu, at the end of REFTRA.

d. Recommendations

(1) Install the SR-216 MF transmitters as soon as possible.

(2) Upgrade or replace the 21MC.

(3) Update and rewire the SB-2744 and SB-2727 patch panels.

(4) Complete all outstanding SHIPALTS, particularly those involving communications or navigation equipment.

(5) Install another UGR-196C-18 (PDR) Universal graphic recorder.

(6) Take necessary measures to ensure that the NC-7200 will operate correctly in the DF mode.

(7) Ensure that the Standard Measurement Test (SMT) personnel visit GLACIER prior to our training assist.

5. Postal Operations

a. INVENTORY:

(1) The U.S. Navy conducted a Postal Assist Visit and inspection during the summer period ('81). As a result of this visit, an extensive inventory was held; obsolete forms and pubs were destroyed. The following items were ordered for the upcoming Deep Freeze:

38 separate forms
Sack labels and flight tags
Kraft wrapping paper for crew's use
New and updated publications and zip code directories

(2) The Post Office began Deep Freeze'82 with:

$4647 in stamp stock
$347.35 in cash
200 stamped envelopes
605 money orders

(3) Due to little demand and postal rate changes, Series B stamp books, aerograms and post cards were discontinued prior to sailing.

(4) Accelerated sales made it necessary to purchase stamps and money orders once deployed on Deep Freeze'82.

Stamps: $443.00 (Sydney)
557.00 (McMurdo)
Money Orders: 200 (McMurdo)
300 (USCGC POLAR SEA)

(5) An additional 2000 money order forms have been requisitioned and should be sufficient for Deep Freeze '83.

(6) The Post Office orders treasury checks from the Disbursing Officer prior to deployment.

b. SERVICE:

(1) FPO San Francisco was the servicing FPO, dispatching mail through FMC Pearl Harbor, Hawaii.

(2) HAWAII - While in Hawaii, GLACIER was responsible for pick up and delivery of mail at the FMC, Honolulu Airport. GLACIER had incoming and outgoing mail on a daily basis (except for the two evenings we were underway overnight). Registered mail service was available.

(3) NEW CALEDONIA - Mail service for Noumea, New Caledonia was provided by the U.S. Air Force/U.S. Army Supply Depot in Sydney, Australia. The French navy provided vehicle and driver to deliver and pick up mail at the New Caledonia Postal Facility, where it had been flown by courier flights from Australia. Registered mail service was available.

(4) AUSTRALIA - Mail service in Brisbane was excellent. Mail was waiting on the pier for GLACIER's arrival. After that, the Australian Navy showed the location of the local post office, where GLACIER postal personnel were responsible for picking up and delivering all remaining mail.

In Sydney, a postal strike made it necessary to make other arrangments. The U.S. Air Force/U.S. Army Depot (Sydney) came through and scheduled transport runs to deliver our mail via military channels. Registered mail service was available in Australia.

(5) MCMURDO - The mail service in McMurdo was excellent. The Postal Clerks were more than helpful in answering questions and helping GLACIER to restock depleted stamp and money orders. Registered mail servie was available.

(6) Some delays were reported, but on the whole, mail dispatched from GLACIER was arriving to its addressee's in the States in under two weeks.

c. TRAINING:

(1) The U.S. Navy's Postal Assist. visit and inspection provided valuable training to be accountable postal clerk, who had no formal training in

postal affairs. It should be a priority item to insure that the accountable clerk and his assistant be sent to a Postal School prior to sailing. Also, at least two Postal Assist Visits should be scheduled prior to sailing: One in the summer to go over supplies, forms and procedures and second visit prior to sailing (to go over any last minute questions and uncertainties). The servicing Postal Assist unit is located at the U.S. Navy Base on 32nd Street in San Diego.

d. STATISTICS:

Incoming mail:	329 sacks/9084 pounds
Outgoing mail:	93 sacks/1629 pounds
Incoming registered:	29 sacks
Outgoing registered:	23 sacks
Stamps sold:	$4216.89
Money orders sold:	$130,634.21
Money order fees collected:	$168.00

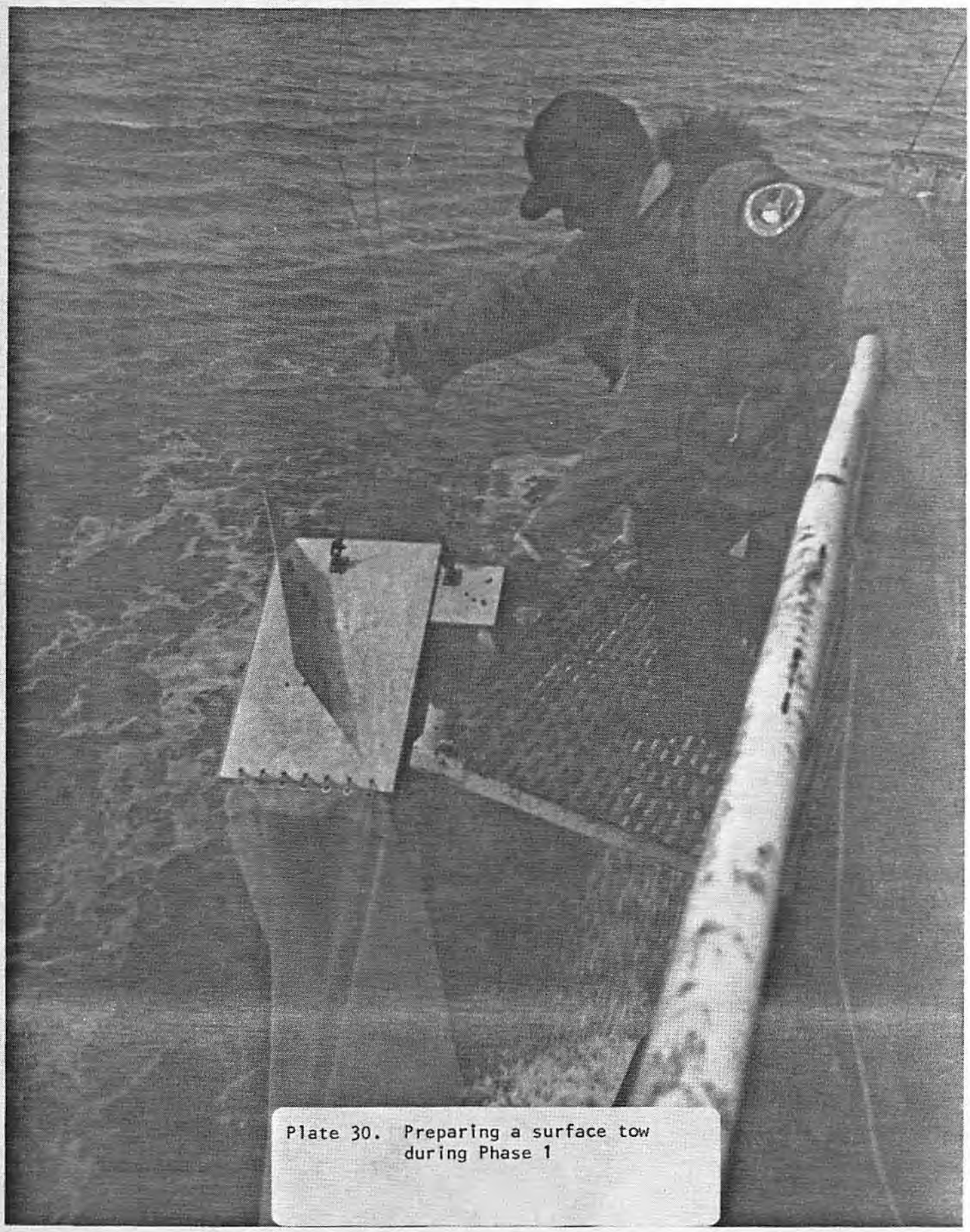


Plate 30. Preparing a surface tow during Phase 1

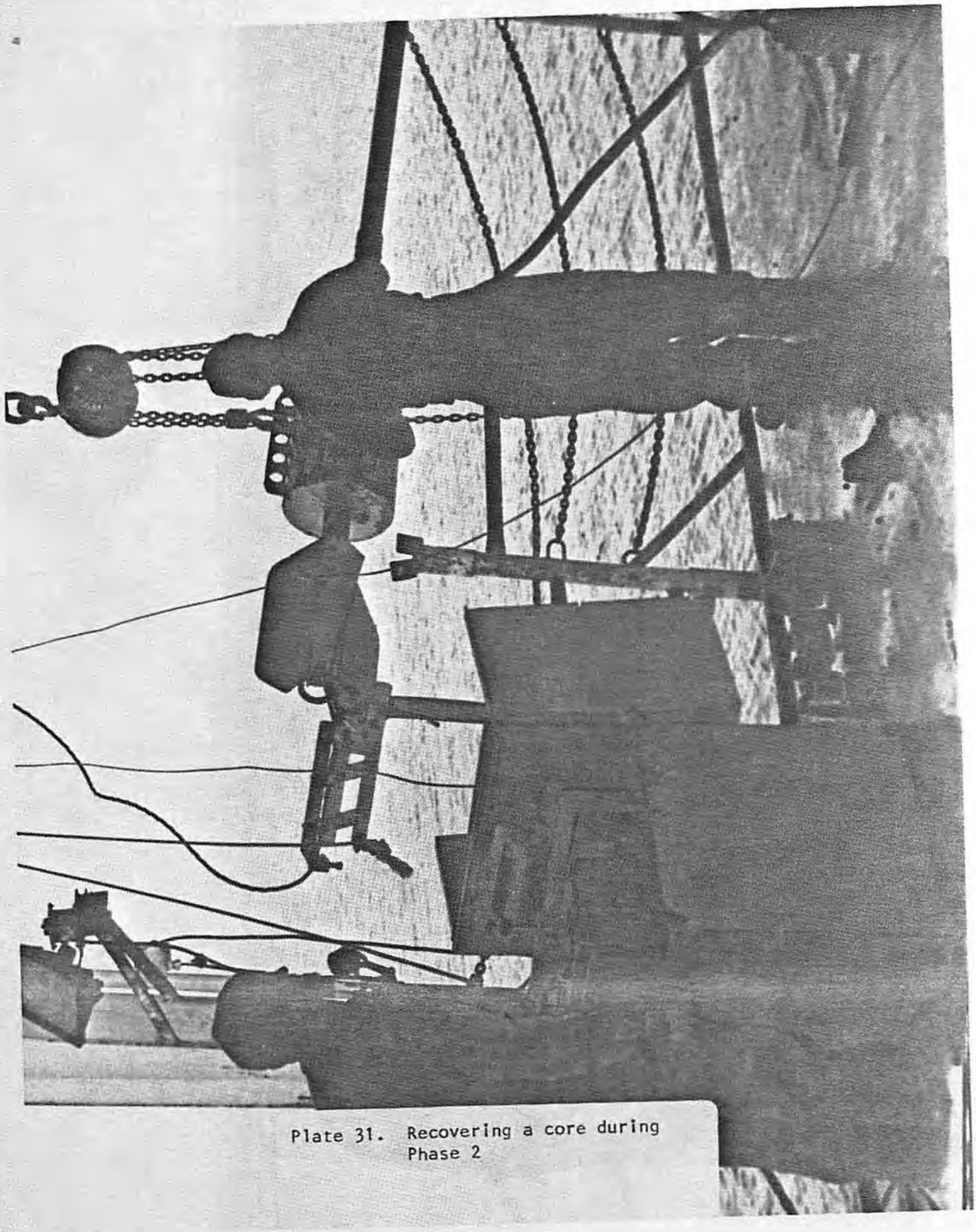


Plate 31. Recovering a core during Phase 2

CHAPTER V

MARINE SCIENCE

1. PRE-DEPLOYMENT PREPARATION

a. During the months prior to Deep Freeze '82, the Marine Science work group used the majority of it's time repairing, over-hauling and modifying the Oceanographic Heavy Equipment.

b. The three oceanographic winches on board had their out of date pnuematic control systems removed. New Electro-Servo control systems were installed by the ship's force and a Northern Line Company service representative. The new system allows for quicker actuation and better control at slower speed. Included in this Electro-Servo control system are lighter and more compact control consoles located on the fantail which are removable when equipment is not in use.

c. All winches and cranes were inspected by a Northern Line Company service representative. Mechanical and hydraulic discrepancies were repaired by the Marine Science Technicians with technical advice from Auxiliary Division.

d. The port level luffing crane was overhauled and tested under contract.

2. ENROUTE SCIENCE

a. From Honolulu, HI to Wellington, N.Z., GLACIER acted as a ship of opportunity for a four phase sampling program from Batelle Industries Richland, Washington. The objective of the shipboard program was to collect samples of atmospheric aerosols, sea water, plankton and rain out and fallout for subsequent radiochemical analysis of their Radionuclide content. Of particular interest to this research was the variation of disposition velocity as a function of latitude in the Southern Hemisphere. Upon arrival Wellington, Battelle labs was granted an extension on their project. The project was scheduled for completion by Wellington, however, was now to be completed upon GLACIER's arrival in the Northern Hemisphere. After the scientists departed in Wellington their work was carried on by GLACIER's Marine Science Technicians.

b. Wellington also saw the arrival of GLACIER's Phase I scientists. On 27 December 1981, we received 1215 pounds of gear for drop off at Campbell Island and 500 pounds of scientific gear for the enroute projects. On the 29th and 30th the scientists arrived.

c. While under CNSFA's OPCON the vast majority of time was spent in direct support of marine science. Three groups of scientists worked from GLACIER in succession.

d. The first group rode GLACIER from Wellington (31 December 1981) to the first arrival at the fast ice edge off McMurdo on 16 January 1982. The chief scientist was Dr. George Hunt (S-021) whose own project required bird count observations around the Antarctic shelf break east of Cape Adare. The remaining scientists were other bird observers or geologists.

e. Enroute Cape Adare, Scott Island was visited by all but one of the scientists. This was the first scientific visitation to the island since 1960, and was done entirely by helo, although several beaches could be approached by zodiac or small boat in low sea states.

f. Upon arrival at Cape Adare, four scientists were put ashore for New Zealand project K-22, to be picked up by POLAR SEA six weeks later.

g. Following that GLACIER worked south along the Antarctic Coast, finishing with Franklin and Beaufort Islands which were surveyed as potential sites for an automated weather reporting station to be installed on the next science phase of the cruise. As time permitted throughout the transit, K-13 conducted surface skimming tows for polluntants. Towing an aluminum sled from the BT cable at 4 knots proved optimal.

Analysis points out:

(1) The value and versatility of embarked helos in science support given some flexibility in planning and adequate weather.

(2) The absolute importance of reliable depth recording instruments. Temporary failure of the ship's only PDR prevented Dr. Hunt from achieving more than marginal success in his project. All other embarked scientists were completely satisfied and met all expected goals in data collection.

h. The second group of scientists rode GLACIER from the fast ice edge off McMurdo on 16 January 1982 until our return to the ice edge on 24 January. Seven projects embarked, and worked closely for the duration of their alloted time.

(1) Dr. Douglas C. Biggs was senior scientist and principle investigator. Their main objective was to determine whether the northward outflow of water from the Ross Ice Shelf influenced or regulated phytoplankton production in surface waters of the Southwest Ross Sea. GLACIER completed four transects of oceanographic stations seaward from the barrier edge of the Ross Ice Shelf. Each oceanographic transect consisted of five hydrocast stations. All equipment performed very well, with a minimum of down time for maintenance, a maximum amount of data was collected.

i. The final group of scientists were supported by GLACIER from 13 February until 14 March 1982.

(1) The chief scientist was Dr. John B. Anderson (S-207), whose own project involved bottom coring in the Bransfield Straits. 205 geologic stations were completed including 168 piston cores and 37 grab samples. The sampling effort included extensive coverage of eleven different fjords in the region. S-207 also completed a detailed mapping of the sea floor in the Bransfield Straits through use of the ship's PDR.

(2) Heavy use of embarked helos and the Zodiac boat allowed S-022 to collect 204 crabeater and 16 Leopard Seals from the Weddell Sea and Cerlache Straits. This collection will allow evaluation of past changes of reproductive parameters through dental material.

(3) S-060A and S-097 worked together on the James Ross Island Group project. Both groups plus gear were flown ashore to Seymour Island. During their three weeks ashore several major discoveries were made:

(a) First discovery of land mammals from the late eocene period.

(b) First discovery of a land reptile (lizard) from the cenozoic of Antarctica.

(c) Large number of fossil bones of the giant penguins (up to 6 feet in height).

Again the value of embarked helos is noteworthy. Transfer of personnel and cargo to and from Seymour Island would have been laborious and time consuming, if at all possible. Also, the seal survey would not have been as successful.

An improvement on the present PDR system and lack of back-up equipment if of prime importance. The location of coring stations and bathymetric mapping of the ocean's floor is impossible when the sole PDR is out of commission.

3. UNDERWAY MARINE SCIENCE OBSERVATIONS

a. The following observations were taken by ship's Marine Science Technicians during Deep Freeze '82:

(1) Long Beach enroute to Honolulu, Hawaii

(a) 61 surface observations were transmitted to the appropiate data centers.

(b) 15 expendable bathythermograph (XBT) soundings were transmitted to appropiate data centers.

(c) 8 official weather forecasts for shipboard use.

(d) One official marine mammal sighting.

(2) Honolulu, Hawaii to Wellington, New Zealand

(a) 176 surface weather observations.
(b) 86 XBT soundings.
(c) 21 daily weather forecasts.
(d) 3 official marine mammal sightings.

(3) Wellington, New Zealand to OUTCHOP

(a) 288 surface weather observations.
(b) 194 XBT soundings.
(c) 69 daily weather forecasts.
(d) 125 ice observations (seven aerial).

4. EQUIPMENT AND RECOMMENDATIONS

a. Equipment

(1) During the pre-deployment months the Coast Guard spent 160K dollars to overhaul the oceanographic winches and port luffing crane. Northern Line Company was contracted to provide a technical representative to supervise ship's force overhaul of the winches. Their service representative along with ship's Marine Science Technicians and electricians completed the change over from the outdated pnuematic control system to an Electro-Servo control system. The old control consoles were also replaced by new portable control boxes. The new control boxes are stowed inside when not in use. Paul Munroe Hydraulics over-

hauled the port crane ram and hydraulics system. The result was that, past-years, minimum time was needed for maintenance or repair during the deployment. This increased the amount of data collected by scientists using this gear.

(2) Also, three new refrigerators and one new freezer were installed in Marine Science spaces. All refrigerated specimens were stored in these appliances vice ship's reefers (with the exception of two large boxes and two 55 gallon drums).

b. Recommendations

(1) Our largest problem this year stemmed from the lack of redundancy in GLACIER's precision depth recorder (PDR). Full operation of this piece of gear is integral to two of the three science groups and to Dr. Hunt's project in the third group. At present the PDR is hard wired to the CIC fathometer. When this fathometer fails the PDR is inoperative. One solution to this problem might be to rewire the PDR in such a way that it could be switched to the Bridge fathometer when CIC's is down. Also, it would be beneficial to the ship to have an additional PDR should our's breakdown beyond repair. Many science projects will continue to depend on the PDR. This problem and suggested solutions are covered by separate letter and M&R submitted to Commander, Coast Guard District Eleven.

(2) This year GLACIER put several scientific parties ashore for day long studies of the immediate vicinity. These groups required either that helos remain in the party's immediate vicinity, or that the group be left without adequate survival gear. Should weather close down precluding helo recovery, the potential for loss of life exists. Since adequate survival gear was available only for one group this limited the other groups to about two hours in the field, unless weather conditions were ideal and forecast to remain so. I recommend that the National Science Foundation provide icebreakers with two or three survival equipment packages (tents, picks, food, etc.) sufficient for an unplanned 3-4 day stay ashore. This would greatly increase the flexibility of such operations.

DEEP FREEZE '82 SEDIMENT SAMPLING STATIONS

STATION	LATITUDE	LONGITUDE	DEPTH	BOTTOM GRAB OR LENGTH CORE	LENGTH CORE SAMPLE
001	63 57.2 S	056 21.6 W	430 M	BG/10' Pipe	82 cm core
002	64 13.8 S	056 24.1 W	190 M	10' Pipe	
003	64 22.3 S	056 26.7 W	280 M	2 BG/10' Pipe	
004	64 31.5 S	056 42.2 W	183 M	2 BG/10' Pipe	17.5 cm core
005	64 32.1 S	056 47.8 W		BG ONLY	
006	64 43.7 S	056 48 W		BG ONLY	
007	64 42.5 S	056 30.5 W	345 M	BG/10' Pipe	19 cm core
008	64 48.5 S	056 55.2 W	420 M	BG/10' Pipe	305 cm core
009	64 55 S	056 27 W	442 M	BG/10' Pipe	272 cm core
010	65 07 S	056 28.5 W	523 M	10' Pipe	271 cm core
011	65 14.6 S	056 14.2 W	525 M		148 & 174 cm core
012	65 05.1 S	055 55.5 W	513 M	20' Pipe	88, 81, 187, 18 cm
013	64 53 S	055 47 W	457 M	BG/10' Pipe	32 & 50 cm core
014	64 35.6 S	055 43.9 W	336 M	BG/10' Pipe	268 cm core
015	64 30.1 S	055 42.8 W	293 M	BG/10' Pipe	174.5 cm core
016	64 25 S	055 23 W	347 M	BG/10' Pipe	265 cm core
017	64 30.0 S	055 00.7 W	360 M	BG/ Pipe	75 & 159 cm core
018	64 19.5 S	055 01.5 W	314 M	10' Pipe	37 cm core
019	64 15.1 S	055 28 W	342 M	BG/10' Pipe	276 cm core
020	64 14.1 S	055 54.4 W	381 M	10' Pipe	292 cm core
021	64 05.5 S	054 14.0 W	415 M	BG/10' Pipe	no core
022	64 05.4 S	054 14.2 W	509 M	BG/10' Pipe	214 cm core
023	64 06.3 S	054 11.6 W	621 M	10' Pipe	267 cm core
024	64 06 S	054 05 W	851 M	BG/10' Pipe	110 cm core
025	64 08 S	053 56 W	1252 M	BG/10' Pipe	256 cm core
026	64 09.5 S	053 50 W	1520 M	BG/10' Pipe	267 cm core
027	30 1t. Niskin Bottle Hydrographic Cast				
028	63 53 S	053 19 W	703 M	BG/10' Pipe	210 cm core
029	63 38 S	052 49 W	729 M	BG/10' Pipe	bag sample core
030	63 17 S	052 50 W	448 M	BG/10' Pipe	no core
031				BG/10' Pipe	bag sample core
032	62 04 S	057 24 W	97 M	10' Pipe	no core
033	62 12.2 S	057 27.8 W	1934 M	BG/20' Pipe	no core
034	62 17.7 S	057 37.4 W	1979 M	BG/20' Pipe	315 & 280 cm
035	62 21.7 S	057 22 W	1484 M	BG/20' Pipe	277, 305

STATION	LATITUDE	LONGITUDE	DEPTH	BOTTOM GRAB OR LENGTH CORE	LENGTH CORE SAMPLE
036	62 27.9 S	057 10.3 W	1072 M	20' Pipe	282 & 299 cm
037	62 33.2 S	056 59.3 W	728 M	20' Pipe	48 cm
038	62 35.4 S	056 54 W	366 M	BG/10' Pipe	58 cm
039	62 45.8 S	056 44.1 W	190 M	BG	
040	62 57.7 S	056 48.4 W	91 M	BG	
041	63 06.5 S	057 12.7 W	521 M	10' Pipe	16 cm
042	63 04.3 S	057 06.3 W	336 M	10' Pipe	bag sample core
043	63 01.7 S	057 03.3 W	56 M	BG/10' Pipe	40 cm
044	63 01.5 S	057 31.1 W	116 M	BG	
045	63 02.9 S	058 11.8 W	149 M	BG	
046	63 03.9 S	058 20.9 W	765 M	10' Pipe	289 cm
047	62 55.3 S	058 23.7 W	723 M	BG/10' Pipe	297 cm
048	62 48.2 S	058 28.1 W	840 M	BG/10' Pipe	286 cm
049	62 42.5 S	058 29.7 W	1587 M	BG/20' Pipe	62 cm
050	62 37.1 S	058 28 W	1661 M	20' Pipe	301 & 273 cm
051	62 43.4 S	060 02.9 W	560 M	BG/10' Pipe	287 cm
052	63 40.9 S	060 19.6 W	224 M	BG/10' Pipe	no core
053	63 36.6 S	060 28 W	364 M	BG	
054	63 29.1 S	060 23.4 W	588 M	BG/10' Pipe	150, 15, 11 & 104 cm core
055	63 24 S	060 15 W	719 M	BG/10' Pipe	99 cm
056	63 25 S	060 13 W	425 M	BG/10' Pipe	bag sample core
057	63 24.8 S	060 09.5 W	230 M	BG	
058	63 25.5 S	059 56 W	140 M	BG	
059	63 23.4 S	059 36.8 W	125 M	BG	
060	63 23.4 S	059 34.2 W	673 M	BG/10' Pipe	
061	63 17 S	059 20.2 W	728 M	BG/10' Pipe	280 cm
062	63 14.8 S	058 58.9 W	122 M	BG	
063	63 11.6 S	058 57.9 W	145 M	BG	
064	63 09.1 S	059 07.4 W	280 M	BG/10' Pipe	50 cm
065	63 09.6 S	059 13.2 W	560 M	10' Pipe	56 cm
066	63 09 S	059 18.2 W	793 M	TG/20' Pipe	166, 244, 189 cm
067	63 08.7 S	059 43.4 W	466 M	10' Pipe	no core
068	63 06.6 S	059 41.9 W	405 M	10' Pipe	264 cm
069	62 59.9 S	059 38.1 W	916 M	10' Pipe/BG	275 cm
070	62 48.3 S	059 44.9 W	486 M	BG/10' Pipe	72 cm

STATION	LATITUDE	LONGITUDE	DEPTH	BOTTOM GRAB OR LENGTH CORE	LENGTH CORE SAMPLE
071	62 38.4 S	059 32 W	1350 M	BG/10' Pipe	305 cm
072	62 37.2 S	059 34.8 W	905 M	10' Pipe	25 cm
073	62 36.5 S	059 40.3 W	551 M	BG/10' Pipe	285 cm
074	62 35.8 S	059 41.8 W	521 M	BG/10' Pipe	283 cm
075	62 31.5 S	059 57 W	200 M	BG/10' Pipe	282 cm
076	62 39.8 S	059 54.6 W	93 M	BG	
077	62 40.9 S	059 54.1 W	186 M	BG	
078	62 44.3 S	059 52.9 W	278 M	BG	
079	62 41.2 S	059 51.3 W	448 M	BG/10' Pipe	bag sample core
080	62 40.9 S	059 50.1 W	522 M	10' Pipe	no core
081	62 47.8 S	060 19.8 W	106 M	BG	
082	62 48.9 S	060 16.2 W	205 M	BG	
083	62 46.2 S	060 16 W	308 M	BG	
084	62 49.5 S	060 11.4 W	840 M	BG/10' Pipe	253 cm
085	62 48.5 S	060 42.4 W	200 M	BG/10' Pipe	77 cm
086	62 42.5 S	060 39.9 W	150 M	BG	
087	62 42.1 S	060 33 W	265 M	BG/10' Pipe	14 & 274 cm core
088	62 49.5 S	060 26.7 W	455 M	10' Pipe	98 cm
089	62 57.3 S	060 13.0 W	990 M	BG/10' Pipe	132 cm
090	63 02.8 S	060 26.3 W	538 M	BG	
091	63 06.9 S	061 09.1 W	766 M	TG/20' Pipe	201 & 299 cm core
092	63 05.4 S	061 34.4 W	635 M	10' Pipe	39 & 44 cm core
093	64 04.1 S	061 19.6 W	690 M	BG/10' Pipe	295 cm
094	64 05.6 S	061 11.0 W	273 M	10' Pipe	bag sample core
095	64 06.5 S	061 00.7 W	215 M	BG	
096	64 07.7 S	060 58.0 W	304 M	BG	
097	64 08.8 S	060 54.5 W	334 M	BG/10' Pipe	22, 230, 20 cm core
098	64 08.2 S	060 56.0 W	284 M	10' Pipe	282 cm
099	64 07.0 S	060 59.5 W	289 M	10' Pipe	44 cm
100	64 09.5 S	061 16.8 W	526 M	BG/10' Pipe	13 & 281 cm
101	64 11.8 S	061 33.0 W	161 M	BG	
102	64 18.6 S	061 52.7 W	540 M	BG/10' Pipe	279 cm core
103	64 21.2 S	061 48.6 W	668 M	BG/10' Pipe	265 & 10 cm core
104	64 21.8 S	061 45.2 W	482 M	10' Pipe	162 cm core
105	64 25 S	061 45.5 W	170 M	BG/10' Pipe	17 cm

STATION	LATITUDE	LONGITUDE	DEPTH	BOTTOM GRAB OR LENGTH CORE	LENGTH CORE SAMPLE
106	64 30.7 S	061 40.2 W	482 M	BG	
107	64 33.7 S	061 37.0 W	298 M	BG/10' Pipe	219 cm
108	64 33.0 S	061 40.0 W	341 M	BG/10' Pipe	276 cm
109	64 36.2 S	061 34.0 W	439 M	BG/10' Pipe	286 cm
110	64 36.2 S	062 30.5 W	157 M	BG	
111	64 38.1 S	061 37.5 W	344 M	BG/20' Pipe	254, 250, 74 cm
112	64 36.5 S	061 38.0 W	564 M	BG/20' Pipe	295, 305 cm core
113	64 36.2 S	061 39.6 W	144 M	BG/20' Pipe	67, 305 cm core
114	Bottom Grab, no information				
115	64 31.8 S	061 36.7 W		BG	
116	64 33.0 S	061 40.9 W	162 M	BG	
117	64 33.2 S	061 57.7 W	340 M	BG/10' Pipe	250 cm
118	64 38.2 S	062 01.5 W	243 M	BG/10' Pipe	no core
119	64 33.8 S	062 58.0 W	345 M	10' Pipe	71 cm
120	64 30.5 S	062 29.7 W	299 M	10' Pipe	bag sample core
121	64 29.3 S	062 30.7 W	112 M	BG/10' Pipe	41 cm
122	64 28.0 S	062 31.5 W	130 M	10' Pipe	16 cm
123	64 28.4 S	062 31.8 W	233 M	BG/10' Pipe	307 cm
124	64 42.2 S	062 13.5 W	396 M	BG/10' Pipe	133 cm
125	64 41.5 S	062 03.9 W	314 M	BG/10' Pipe	260 cm
126	64 42.6 S	062 03.4 W	246 M	BG/10' Pipe	31 cm
127	64 39.5 S	062 07.4 W	443 M	BG/20' Pipe	120, 27, 17 cm core
128	64 26.3 S	063 19.6 W	317 M	10' Pipe	bag sample core
129	64 25.7 S	063 18.1 W	498 M	10' Pipe	20 cm
130	64 24.5 S	063 15.0 W	631 M	BG/10' Pipe	242 cm
131	64 23.5 S	063 14.8 W	345 M	BG/20' Pipe	300 & 265 cm
132	64 22.7 S	063 11.4 W	560 M	20' Pipe	299 & 260 cm core
133	64 26.1 S	062 57.2 W	644 M	20' Pipe	286 & 306 cm core
134	64 34.5 S	062 39.0 W	793 M	BG/20' Pipe	297 & 267 cm core
135	64 38.9 S	062 53.4 W	532 M	20' Pipe/TG	49 cm core
136	64 45.4 S	062 45.5 W	452 M	10' Pipe	277 cm
137	64 47.7 S	062 43.0 W	368 M	10' Pipe	18 & 251 cm core
138	64 49.2 S	062 37.2 W	112 M	BG	
139	64 51.4 S	062 39.0 W	85 M	BG	
140	64 49.6 S	062 37.8 W	392 M	BG/10' Pipe	280 cm

STATION	LATITUDE	LONGITUDE	DEPTH	BOTTOM GRAB OR LENGTH CORE	LENGTH CORE SAMPLE
141	64 52.0 S	062 32.7 W	306 M	BG/10' Pipe	113 cm
142	64 53.1 S	062 26.4 W	541 M	BG/10' Pipe	226 cm
143	64 52.4 S	062 30.1 W	411 M	BG/10' Pipe	250 & 25.5 cm
144	64 54.0 S	062 37.3 W	261 M	BG/10' Pipe	80 cm
145	64 54.9 S	062 35.5 W	261 M	BG	
146	64 53.5 S	062 37.7 W	158 M	BG	
147	64 53.2 S	062 36.1 W	317 M	BG/10' Pipe	134, 11, 22 cm
148	64 51.0 S	062 37.5 W	345 M	BG/10' Pipe	120 cm
149	64 48.5 S	062 42.5 W	332 M	BG/10' Pipe	252 cm
150	64 51.2 S	063 10.0 W	336 M	BG/10' Pipe	41 cm
151	64 58.0 S	063 20.1 W	360 M	10' Pipe	287 cm
152	65 05.3 S	063 10.1 W	485 M	BG/10' Pipe	212 cm
153	65 08.0 S	063 11.5 W	351 M	BG/10' Pipe	46 cm
154	65 05.3 S	063 10.0 W	689 M	BG/10' Pipe	232 cm
155	65 01.2 S	063 15.6 W	437 M	10' Pipe	281 cm
156	64 56.4 S	063 37.0 W	608 M	10' Pipe	273 cm
157	63 35.0 S	064 44.5 W	224 M	10' Pipe	172 & 36 cm core
158	64 44.8 S	061 33.0 W	136 M	BG/10' Pipe	disturbed
159	64 43.8 S	063 15.3 W	374 M	BG/10' Pipe	8 cm
160	64 46.0 S	063 19.5 W	374 M	BG/10' Pipe	61.5 cm
161	64 44.5 S	063 29.0 W	187 M	BG/10' Pipe	82 & 75 cm
162	64 47.0 S	063 31.5 W	317 M	BG/10' Pipe	5.5 cm
163	63 23.5 S	057 01.0 W	317 M	BG/10' Pipe	207 cm
164	63 23.2 S	056 59.8 W	299 M	10' Pipe	160 cm
165	63 22.9 S	056 59.0 W	243 M	10' Pipe	bag sample core
166	63 28.2 S	056 35.9 W	952 M	TC/20' Pipe	227 & 327 cm
167	63 52.5 S	056 36.6 W	448 M	BG/10' Pipe	285 cm core
168	63 52.1 S	057 00.0 W	429 M	BG/10' Pipe	266 cm
169	64 03.2 S	056 34.5 W	228 M	BG/10' Pipe	36 cm
170	64 00.0 S	056 50.0 W	177 M	BG/10' Pipe	25 cm
171	64 15.0 S	057 09.5 W	224 M	BG/10' Pipe	281 cm
172	64 14.5 S	057 13.2 W	131 M	10' Pipe	83 cm
173	64 08.0 S	057 04.4 W	233 M	BG	
174	64 10.0 S	056 48.5 W	288 M	BG/10' Pipe	294.5 cm
175	63 50.2 S	058 14.6 W	560 M	BG/10' Pipe	bag sample core

STATION	LATITUDE	LONGITUDE	DEPTH	BOTTOM GRAB OR LENGTH CORE	LENGTH CORE SAMPLE
176	63 53.6 S	058 06.5 W	168 M	BG/10' Pipe	110 & 35 cm
177	63 52.4 S	058 10.5 W	211 M	10' Pipe	bag sample core
178	63 48.3 S	058 01.0 W	689 M	BG/10' Pipe	43.5 cm
179	63 48.0 S	057 05.1 W	747 M	BG/10' Pipe	bag sample core
180	63 50.0 S	058 58.5 W	65 M	BG/10' Pipe	
181	63 48.4 S	057 04.5 W	769 M	10' Pipe	206 cm core
182	63 51.3 S	057 42.8 W	405 M	BG/10' Pipe	259 cm
183	63 59.4 S	057 43.5 W	299 M	BG/10' Pipe	290 cm
184	64 02.7 S	057 45.5 W	383 M	10' Pipe	304 cm
185	64 04.5 S	057 45.0 W	383 M	10' Pipe	268 cm
186	64 04.0 S	057 49.0 W	299 M	BG/10' Pipe	236 cm
187	64 02.0 S	057 47.0 W	265 M	BG/10' Pipe	70 & 206 cm
188	63 58.8 S	057 50.3 W	198 M	BG/10' Pipe	9 & 13 cm
189	63 57.2 S	057 39.7 W	340 M	10' Pipe	74 cm
190	63 55.9 S	057 38.6 W	149 M	BG/10' Pipe	41 cm
191	63 55.3 S	057 34.1 W	95 M	BG/10' Pipe	21 cm
192	63 54.5 S	057 41.6 W	350 M	TC/10' Pipe	278 & 255 cm core
193	63 45.5 S	057 43.0 W	786 M	10' Pipe	110 cm
194				BG	
195	63 47.2 S	057 23.5 W	234 M	BG	
196	63 45.5 S	057 20.0 W	696 M	BG/10' Pipe	122 cm
197	63 43.0 S	057 13.6 W	750 M	BG/10' Pipe	235 cm
198	62 26.3 S	057 20.3 W	629 M	BG/10' Pipe	96 cm
199	61 57.5 S	056 18.6 W	1980 M	20' Pipe	129 cm
200	61 17.2 S	056 32.0 W	560 M	10' Pipe	bag sample core
201	61 15.7 S	056 33.2 W	898 M	10' Pipe	bag sample core
202	61 13.4 S	056 36.0 W	452 M	10' Pipe	80 cm
203	61 11.2 S	056 37.5 W	1102 M	BG/10' Pipe	bag sample core
204	61 08.3 S	056 38.1 W	1367 M	TC/10' Pipe	27 & 74 cm core
205	61 07.1 S	056 37.0 W	1639 M	10' Pipe	bag sample core

TC = TRIGGER CORE BG = BOTTOM GRAB

CHAPTER VI

ENGINEERING

1. PRE-DEPLOYMENT PREPARATIONS

a. Preparations for Deep Freeze '82 started before Deep Freeze '81 was finished. The Assistant Engineer flew to Long Beach from Callao, Peru to assist the district naval engineering staff in preparing the work package for the inport period. I recommend that this practice continue.

b. On 14 April 1981, GLACIER was drydocked at Todd Shipyard, San Pedro, CA to accomplish much needed repairs for Deep Freeze '82 and to proceed north, if necessary, to assist the POLAR SEA.

c. Major work performed included:

(1) Sandblasting of the entire underwater body and application of the Inerta 160 coating system.

(2) Removal, repair, and testing of all sea valves.

(3) Inspection of the shaft tapers and keyway.

(4) Zinc renewal.

(5) Machining of the syntron seal housings and renewal of the syntron seal elements.

d. Undocking was delayed four days due to rain while sandblasting and a leaky syntron seal housing.

e. Due to an arcing problem on #2 main motor in Punta Arenas, Chile on Deep Freeze '81, a major reconditioning of both main motor commutators and brush rigging was accomplished by Westinghouse. Work during drydocking included disconnecting the intermediate shaft from the tail shaft, using a MG set to turn the main motor for grinding of the commutator, and recoupling of the shafts. Upon undocking the brush rigging was completely reconditioned and new brushes installed. Throughout the summer Westinghouse conducted a comprehensive survey of all main propulsion electrical equipment and of major electrical auxiliaries.

f. Major work accoplished by ship's force during the inport includes:

(1) Center section overhaul of MDE's 1A and 1C.

(2) Overhaul of the emergency diesel which had been OOC for over two years.

(3) RACOR F.O. filter installation on all MDE's and SSG's.

(4) Rewiring of both cargo cranes.

(5) Wiring of the new oceanographic winch and crane controls.

(6) Disassembly, chemical cleaning, and reassembly of both evaporators.

g. On 22 June 1981, GLACIER ENTERED Southwest Marine Shipyard, San Diego, CA for a four week dockside availability. Major work accomplished includes:

(1) Overhaul of the port oceanographic level luffing crane. Chapter V discusses in more detail the nature of the repairs.

(2) Overhaul or renewal of 29 water tight access fittings.

(3) Overhaul and repair of the motor surf boat davits.

(4) Inplace overhaul of 86 fuel oil valves.

(5) Renewal of 13 sections of rotten steam pipping.

(6) Renewal of 9 portlights and surrounding hull plating.

h. Over $100K worth of dockside work was accomplished in Long Beach between yard availabilities. Major projects include:

(1) Repair of the forward elevator.

(2) Partial repair of 35 remote valve operating mechanisms.

(3) Rehab of the Engineer's berthing area.

(4) Troubleshooting and repair of the S/S generator rototrols and voltage regulators to permit parallel operation of the generators.

i. The summer's extensive repair work ended with a $82K asbestos repair in San Diego, followed by cleaning of the underwater body shortly before departure on deep Freeze '82.

2. MAJOR OR UNIQUE ENGINEERING PROBLEMS

a. Machinery and Systems - While enroute from Long Beach to Honolulu the following major machinery casualties occured:

(1) #4 SSG - blower failure.

(2) MDE 2A - cracked or broken compression rings in many cylinders and one shattered piston insert.

(3) MDE 2D - excessive front end vibration.

b. After completing REFTRA, ship's force installed a new blower on #4 SSG and completed repairs to MDE 2A during the transit to Wellington. While in transit from Brisbane to Sydney, MDG 2E developed a serious arcing problem caused by opens in the armature equalizing connections. The generator set was placed OOC for the rest of the deployment.

c. The port visit to Sydney is worthy of comment due to the availability of all shore ties (including a 60HZ, 440v, 1000 amp electrical shore tie)

and due to the superb cooperation of Royal Australian Navy personnel from both the Garden Island Dockyard and HMAS STALWART. If repairs are desired from the Garden Island Dockyard, message traffic should be addressed to COMAUSFLT and info GMGID (General Manager Garden Island Dockyard). Labor rates were $21A/hr; technical services were free.

d. Leaky fuel and water tanks were a major problem throughout the cruise. The ship's DC's repaired the following:

(1) A cracked weld in the bulkhead separating a full fuel oil tank (2-121-6-F) and the M&E head (1-1464-L). The crack was peened over and welded.

(2) A large 12" cracked in the bulkhead beween 6-193-0-W and the JP-5 Cofferdam (6-174-0-V) was air-arced out and welded.

(3) One pinhole and one 5-1/2" cracked in the bulkhead separating the 1-161-0-W fresh water tank and the 6-146-2-F fuel tank.

(4) Another 4" crack in the bulkhead between 6-193-0-W and the JP-5 cofferdam (6-174-0-V).

e. Leaky water tanks, minor boiler and evaporator casualties, and a rotten steam and condensate system forced us to go on water hours for several days.

f. GLACIER's steam and condensate system continued to be a maintenance nightmare. Even with the vessel's heating system pressure limited to 10 vice 30 psig, the DC's repaired an average of three leaks per day and replaced over 100 feet of piping.

g. The following main diesel engine casualties were repaired by ship's force:

MDE 2 E - replaced over current trip relay with unit from 1 E
MDE 1 D - renewed #5 cylinder liner and numerous broken piston rings. near #5 cylinder liner again, this time after a loss of lube oil casualty.
MDE 1 A - repaired the upper crank vibration damper and overhauled the salt water pump.
MDE 2 A - repaired the upper crank vibration damper
MDE 2 D - rebuilt the entire front end including both vibration dampers and accessory drive gearbox.
MDE 2 B - re-rolled approximately 100 tubes in the lube oil cooler.

C. Fuel and Lubricating Oil Consumption

a. Fuel oil was bunkered in Sydney and McMurdo, however, the fuels were found to be incompatible upon discovering severe wax building in B-1 engine-room's starboard fuel oil day tank.

DFM bunkered	595,461	gallons
DFM expended	1,103,013	gallons
JP-5 bunkered	4,000	gallons
JP-5 expended	17,500	gallons
L/O bunkered	9,994	gallons
L/O expended	15,635	gallons (814 gallons to POLAR SEA)

4. RECOMMENDATIONS

a. A continued severe limited in OG-30 funding prevented effective and timely maintenance repairs from being accomplished.

(1) Strongly recommend that parts quotations be received as close to deployment date DF-83 as possible to permit rapid obligation of FY-83 quarter funds.

b. The purcurement of engineering consumables such as baled rags or refrigerant is extremely expensive in foreign, especially South American ports.

c. Shore service, especially electrical, should be very specific and established well in advance with the USDAO in each port.

d. Strongly recommend that GLACIER and Polar Class vessel tie up together at some time during the McMurdo operation to permit swapping of parts, consumable, JP-5, L/O, etc. GLACIER transferred 814 gals., L/O to and received 4000 gals. JP-5 from POLAR SEA during DF-82.

CHAPTER VII

ADMINISTRATION

1. Personnel General

a. Pre-deployment

GLACIER departed Long Beach on 17 October 1981 with a crew of 22 Officers, 185 Enlisted personnel and two Sea Cadets:

19	Permanently assigned Officers
3	TAD Officers AVDET #88
16	Permanently assigned CPO's
1	TAD MSTCM from Oceanographic Unit, Washington, D.C.
1	TAD CPO from AVDET #88
157	Permanently assigned E-6 and below
9	TAD E-6 and below AVDET #88
1	TAD YN3 from Eleventh Coast Guard District
2	Sea Cadets
209	TOTAL

b. Significant Personnel Actions While Deployed

(1) A total of nine enlisted and two officers reported on board in various foreign ports, also one Navy PH1 joined the ship while underway.

Coast Guard:	1	LCDR TAD - Wellington, NZ
	1	LTJG PCS - Punta Arenas, Chile
	1	CPO PCS - Hawaii
	1	SS2 PCS - Hawaii
	2	MK3's TAD - (1) Wellington, NZ and (1) Sydney, AS
	1	SNMST PCS - Wellington, NZ
	1	FAMK PCS - Hawaii
	1	FA TAD - Sydney, AS
	1	SN PCS - Hawaii
	1	FAMK TAD TERMINATED - Valpraiso, Chile
Navy:	1	PH1 TAD - Wellington, NZ
	12	TOTAL

(2) Thirteen personnel departed GLACIER early:

5	Emergency Leave (2 returned to ship)
3	Regular Leave (30 days) (All returned to ship)
5	TAD MED - CONUS (1 returned to ship)
1	TAD MED - OUTCONUS (returned to ship)
2	PCS
16	TOTAL

(3) During the deployment fifty-six scientists joined GLACIER to conduct scientific operations.

(4) Two officers from the Royal Australian Navy reported on board in Sydney to observe icebreaker/helo operations. On 27 January 1982, the Royal Australian Navy Officers departed the ship in McMurdo for POLAR SEA and were replaced by two Peruvian Navy Officers who had been aboard POLAR SEA.

They were primarily interested in Marine Science operations.

(5) During the deployment many of the ship's crew were advanced.

06 Officers (1 to LCDR, 4 to LTJG, 1 to CWO4)
00 E-5 to E-6
05 E-4 to E-5
05 E-3 to E-4
07 E-2 to E-3
23 TOTAL PROMOTIONS

(6) This was our second deployment with women on board. They are well integrated into crew activities and have presently no major disciplinary problems.

(7) No serious disciplinary problems were encounted on this deployment. A total of fourteen NJP's were awarded.

(8) In Noumea several crewman caused minor malicious damage to a hotel room. Restitution was made in full, upon receipt of a complaint from the manager, and no further action was taken. There were no cases of civil disorder in any port visited.

c. Recommendations

(1) The present system of issuing block TONO's for emergency leave and TEMADD worked well since it eliminates any unnecessary delays. Continuation of this program is highly recommended.

2. Morale

a. The library continued to be popular, operating one or two nights per week.

b. Crew members were able to keep in touch with friends and family by the MARS radio system. Most of the time, the connection was loud and clear.

c. Daily television programming was carried out by the ET's. In additon, music was played during working hours over the ship's entertainment system. Many NFL football games were watched, not to mention a few bowl games.

d. Hump Day was celebrated on 24 January 1981 with an ice party. Twenty cases of beer and six cases of soda were provided.

e. A Luau was held on Sand Island CG base the evening before our departure from Honolulu. The morale fund supplemented more than half the price for the Luau of traditional Hawaiian food, drink and entertainment. A fantail barbeque was held in Honolulu for engineering personnel who had put in extra hours preparing for REFTRA.

f. Skeet shoots were held periodically throughout the deployment on the flightdeck.

g. "Peguin Palace Casino" opened for one evening of Casino night on 18 January. "GLACIER bucks" were used at the gaming tables with winnings used to bid for prizes.

h. Pizza night continued to be a regular and popular Saturday night event. Participation in the galley came from all divisions and included scientists from all three phases.

i. One last BINGO night was held between our stops in Chile and Peru.

j. Three more swim calls were held between Callao and Puerta Vallarta. The last one was held on 10 April in conjunction with a Saturday afternoon fantail cookout. A crewmember band provided entertainment for this event.

k. Damage Control Second Class, Bruce TWEED was selected as "Sailor of the Cruise" on 9 April. The selection was made by departments choosing candidates and a committee of supervisors then picked the "Sailor of the Cruise" from those names.

l. RM1 WILKINSON and QMCM KALTENBACK were chosen as PO1 and CPO of the Cruise respectively. The PO1 of the Cruise was selected by the chief petty officers and the CPO of the Cruise was selected by the officers.

3. SWE/Institute Courses

a. The SWE's for March 1982 were received at Punta Arenas, Chile.

b. End-of-course tests for all active courses were kept on board, including duplicates from the Institute's library stock. EOCT's were given at least one a week and mailed out at every chance. Test results were reported to GLACIER by message in a timely manner.

CHAPTER VIII

SUPPLY/LOGISTICS

1. PRE-DEPLOYMENT PREPARATIONS

a. Agent Cashier Functions: $744,437 in moneys was obtained ($621,937.00 in cash and $122,500 in checks). Checks are to be used to exchanged for cash taken by the post office, ship's exchange, commissary, and small stores. Request for increase in maximum cash advance from $425,000.00 to $750,000.00 was approved by Commandant (G-FPS) effective 5 October 1981. The increase is necessary to enable handling of cash payrolls, (12 underway) and payment of cash sub-vouchers for settlement of supplies and services while deployed to Antarctic Deep Freeze '82.

b. Pay Records: A request to maintain pay records on board while on Deep Freeze'82 deployment was denied by Eleventh Coast Guard District. A pre-deployment conference between the district's Personnel Support Center and GLACIER's Supply Officer and chief storekeeper was held, dealing with pay issues and procedures.

c. Clothing and small stores: Clothing in the amount of $554.12 were received from the USCG TRACEN Alameda clothing locker. GLACIER departed Long Beach with an inventory of $11,911.00 worth of clothing items on hand.

d. General Supplies: Most supplies were ordered by routine requisitions and open market procurements.

e. General Mess: To cover the six month deployment, a total commissary provision inventory of $137,000.00 was loaded.

f. Fuel and Lube Oil Purchases: 667,657 gallons of marine diesel fuel, 19,447 gallons of lube oil, and 18,542 gallons of JP-5 fuel were purchased prior to departure. Lube oil and JP-5 were delivered by tank truck. The DFM was received from Navy YO's while moored at pier 9, NAVSTA Long Beach.

2. Deployment Operations

a. Agent Cashier Functions: The bi-monthly payroll averaged $52,000.00. This year, the district did not allow us to carry pay records although our trip was more than six months. A pre-deploment meeting dealing with pay issues and procedures was held between CCGD11 and GLACIER's storekeepers, still pay problems existed, such as: delay in payment of crewmembers extra pay when they got promoted; delay in making entries on pay records when they got demoted or fined which caused over payments; delay in processing allotments, travel claims, re-enlistments and extensions. All pay problems had to be sent by messages which created too much paperwork; messages were not answered completely, thus leaving the storekeepers in the dark. Review of pay record copies showed that some entries were done wrong, and some copies of the old pay records were closed wrong. Cash payment limitation of $500.00 was waived by the Chief Disbursing Officer, Treasury department, authorizing the agent Cashier to make cash disbursement of $30,000.00 per transaction to foreign vendors. Had the limitation not been waived, there would have been a problem in paying for the 9,994 gallons of 9250 lube oil that was procured in Wellington, N.Z. - Shell Oil N.Z. LTD required us to pay cash. During the deployment operations, some of the crew saved money in the books and got their money back on 30 March and 15 April '82. Payrolls on these last two paydays were $59,772.00 and $60,448.00, respectively, a significant increase over the average payroll during the deployment operations.

b. General supplies: Logistic support was very good. Various types of materials were ordered by messages thru CCGD11 (fcp-2). USCG Base Terminal Island sent material identification mesages every 15th and 30th of the month enabling us to identify the materials they received which were critical to our needs. All materials we asked USCG Base Terminal Island to ship were received in Sydney, Australia and Wellington, N.Z. However, there was one commercial air shipment that was not received due to communicatons breakdown. We did not receive a message from Base T.I. that a shipment was made - that shipment was received by NSFA DET Christchurch, NZ on 28 January 1982 and was shipped to McMurdo that same day. We departed McMurdo on the morning of 29 January but did not receive the message about shipment until four hours after our departure. Because we did not receive a message from Base T.I. and due to NSFA DET Christchurch message was received after we departed McMurdo, we did not anticipate receiving any material in McMurdo, exept those mailable materials. Parts and materials that were asked to be shipped/mailed from Coast Guard Base Terminal Island were received in Valparaiso, Chile. However, there were no materials received in Callao, Peru or Puerto Vallarta, Mexico.

c. Clothing and Small Stores: Total sales during deployment was $5,459.61

d. General Mess: Additional commissary provisions in the amount of $700.00 were received from Noumea, New Caledonia, $889.00 in Brisbane, AS, $19,886.36 in Sydney, AS, $9,064.06 in Wellington, NZ, and $1,158.06 in McMurdo Station. Pizzas were prepared and served every Saturday night by different divisions. Barbecue on the fantail were held on our final trek home. Additional commissary provisions, mostly produce in the amount of $6,475.00 were procured in Valparaiso, Chile; $2,826.0 in Callao, Peru, and $708.88 in Puerto Vallarta, Mexico. Most of the provisions, such as pasteurized milk, ice creams, and fruit juices were almost three times more expensive in these foreign ports than in the United States. The only item that was cheaper was grapes, which was only $.50 per kilogram.

3. Recommendations

a. For future Deep Freeze deployments of more than four months, it is recommended that pay records be carried on board. This will enable the storekeepers to solve pay problems easier. It will also help the storekeepers on board to have on-the-job training regarding pay and travel and will lessen the work load on the district pay office.

4. Non-Appropriated Fund Activity (NAFA)

a. Prior to getting underway, the NAFA had $75,000 in inventory. Approximately 75% of the inventory were Accounts Payable. Because of the length of Deep Freeze '82, additional items and larger quantities of items were purchased.

b. Two Coca-Cola machines were donated by Cola-Cola of Los Angeles. One replaced the old Pesi machine by the Log Office, while the other was hoped to be used on the crew's mess deck. It was too tall to put into the mess deck so for the trip, it was stored in the cargo hold. Parts were used to repair the two functional machines. In last year's cruise report it was noted that film ran out a month before the trip was over. This year slide and print film were purchsed. Also FOTOMAT along with Kodiak film was purchased.

c. Hawaii

(1) While in Hawaii, Stereo Cassette Tape Players were purchased, approximately $7,500.00 worth, from PANASONIC of Hawaii. The stereos proved very popular. By Wellington, they had all sold.

(2) Credit sales began while enroute to Hawaii. The limit was $200.00. All payment came due 01 March 1982.

(3) 500 cases of fruit punch were purchased in Hawaii. These fruit juices were very popular, especially in the tropical climates. They were a refreshing change from the carbonated sodas. The fruit juices were a bit more expensive 31 cent vice 20 cent, so the profit margin was not as big, but the crew enjoyed them.

d. Hawaii to Wellington

(1) Something new this year compared to last year was that the store was open while inport. There was constant business. Many of the crew members took advantage of it, and bought souvenirs for their new friends.

(2) Enroute from Hawaii to Brisbane, an inspection-audit of the NAFA was done. The discrepancies were noted and corrections were completed during the cruise.

(3) While in Sydney, Australia, vendors from the Wool Store, Center point Tower came on board and sold their goods. The NAFA Officer made the arrangements. During our eight day stay, the vendors were on board three times. Even though the NAFA did not make a profit from this, the crew was able to purchase souvenirs at a much reduced cost.

(4) In Wellington, New Zealand, three vendors from BoPeep Store, The Rock Shop and Lambswool Products were on board. The crew was given an additional $200.00 credit to purchase these goods (mostly sheepskin products). The NAFA paid for the goods at a reduced price, than resold the goods to the crew at a 15% mark-up. The crew had until 01 February 1982 to pay. Over-all about 50 members utilized this service, the NAFA made $500.00 profit from this. Many others purchased the goods from the vendors for cash. The vendors also gave a 10% discount to all GLACIER crewmembers who shopped their stores.

(5) The NAFA purchased $4,000.00 of Antarctic souvenirs from Max Hamilton of Christchurch, New Zealand, again this year. The popular items this year were Deep Freeze envelopes with the GLACIER logo on the back. Another favorite item was the 1982 Antarctic Calendar. Again this year as in past Deep Freezes, license plates, bumper stickers, and USARP T-shirts sold very well. One item that sold extremely well was Christmas cards. We ordered 750, and could have sold at least 1000.

e. McMurdo - POLAR SEA - Palmer Station

(1) The exchange in McMurdo was very low on souvenir goods. The only items purchased were necessity items such as soap.

(2) The USCGC POLAR SEA (WAGB-11) nested with us on 16 January 1982 at the fast ice edge: The two NAFA's were able to exchange goods. Besides souvenirs we were able to pick up some needed goods while in turn we sold POLAR SEA some items they were short of.

(3) The Palmer Station exchange operator asked that our store buy the Palmer Station souvenirs then resell them to the crew. During our two stops we purchased $3000.00 worth of souvenir T-shirts, patches, pins, and assorted staple goods.

f. Financial Conditions

(1) Two financial reports were done during the deployment, the statistics for retail and vending operations are as follows:

	As of 31 OCT 81	As of 31 JAN 82
Sales	$29,224	$49,712
Gross Profits	6,578	9,795
Operating Profits	6,014	9,160
Money to Morale	1,222	2,500
Profits retained	3,555	4,883
Accounts Receivable	12,812	23,223
Account Payable	53,548	44,874
Loans	23,500	22,000

g. Recommendations

(1) It would be helpful for the NAFA and the store in McMurdo to work out well before hand what types of souvenirs GLACIER would want so when GLACIER calls on McMurdo, there will be souvenir goods available. This ship's store could save some of its goods to sell to the McMurdo exchange in return.

5. Transactions in Foreign Countries

a. Noumea, New Calendonia: Pilot and tug boat services were required in entering and departing Noumea. Port services were free. The French Navy collected our trash and garbage for free. Four purchase orders were issued and paid in cash:: $868.00 for pilot services, $171.84 for tug boat services, $81.00 for potable water, and $700.00 for fresh milk.

b. Brisbane, Australia: Pilot and tug boat services were required in entering Brisbane. a total of eight purchase orders were issued with a total cost of $3,406.20. The following were paid by USDAO Canberra: $545.00 for pilot services, $441.00 for tug boat services, $935.00 for port charges, $245.00 for garbage incineration, and $98.00 for garbage collection. The following were paid in cash: $251.00 for car rental, $889.00 for commissary provisions, and $20.20 for emergency medication.

c. Sydney, Australia: Pilot and tug boat services were required in entering and departing Sydney. Pilot services and port services were provided free by the Royal Australian Navy. A total of nine purchase orders were issued with an aggregate cost of $440,486.92. The following were paid by USDAO Canberra: $419,094.44 for DFM, and $916.55 for tug boat services. The following were paid in cash: $169.04 for repair of Savin copier, three purchase orders for commissry provisions with total cost of $19,886.36, $273.00 for car rental, $125.00 for IBM Mag II ribbons, and $22.53 for gas for rented car.

d. Wellington, New Zealand: Pilot services were required in entering and departing the port of Wellington. Thirteen purchase orders were issued with a total cost of $66,193.88. The following were paid by USDAO Wellington: $9064.00 for commissary provisions, $490.00 for car rental, $200.00 for telephone charges, $400.00 for pilot charges, $1,282.00 for water and garbage and trash collection, and $400.00 for repair of an electric motor. The following were paid in cash: $405.25 for selica sand, $$22,311.68 and $9,252.95 for lube oil, $21.63 for compressed gas, $22.48 for gas for rented car, and $32.15 for Post Office lock. In all foreign ports, local bank employees met GLACIER for exchanging dollars to locl currency.

e. Punta Arenas, Chile: Pilot and tug services were required in entering and departing Punta Arenas.

Two purchase orders were issued, an arrangement was made with USDAO Santiago, Chile to pay for these purchase orders: $498.00 for tugboat services and $300.00 for civilian Pilot services. In transitting the inland waters from Punta Arenas to Valparaiso, Chile, a Chilean Navy pilot was provided gratis by the Chilean Navy.

f. Valparaiso, Chile: Pilot and tug services were required in entering and departing Valparaiso, Chile. Eight purchase orders were issued with a total cost of $8,519.62. All these purchase orders were paid in cash.

g. Callao, Peru: Pilot and tug services were required in entering Callao. A total of five purchase orders totalling $11,568.80 were issued. Port charges, tug boat, and pilot services were paid by the USDAO, Lima, Peru; the rest were paid in cash.

h. Puerto Vallarta, Mexico: Pilot and line handlers' services were required in entering Puerto Vallarta, Mexico. Six purchase orders totalling $1,191.95 were issued, and paid in cash.

6. Fuel and Lubrication Oil Replenishment

PORT	DFM	LUBE OIL	TOTAL COST
Sydney Australia	335,027 GAL.		$419,094.44
Wellington, New Zealand		9,993.58 GAL	$ 31,564.63
USNS YUKON	240,340 GAL.		$329,265.80

CHAPTER IX

MEDICAL

1. PRE-DEPLOYMENT PREPARATIONS

a. Prior to departure, medical supplies and equipment were inventoried and medical/dental records were reviewed. As is common, but contrary to regulations, many new crewmembers continue to report aboard without overses physicals, causing last minute confusion and work at getting these rectified, medically and administratively

b. The overall mental, physical and dental health of the crew was considered typical; no unusual problems.

c. Supplies continue to be a problem, both from a budgetary standpoint, as well as shipment times. As one example, medical department still has not received Aristocort cream that was ordered in September 1980. This is just one of many such standard items that are not getting shipped from the depot.

d. GLACIER also had the benefit of a thorough Environmental Preventive Medicine survey while in San Diego by the U.S. Navy's Environmental and Preventive Medicine Unit #5. The EPM team checked for pests and pest control measures, sanitation of berthing and eating areas, and potable water production stowage and treatment. They also reviewed the ship's laundry. The overall report was satisfactory. The most difficult to correct item was the "potentially dangerous" piping system of the ship due to age, where freshwater and contaminated water pipes cross. They felt this presented a health hazard potential from hepatitis viruses, etc.

e. Immediately prior to deployment GLACIER requested the expertise of CDR Jerry M. JOHNSON, the PACAREA Environmental Health Officer from CG Base Alameda, who did an industrial health hazard survey while GLAICER was underway on a one-day dependent-cruise. This survey included such environmental consideration as:

(1) Asbestos exposure
(2) General habitability hazards
(3) Heathing/cooling of working and berthing spaces
(4) Lighting, particuarly in work areas
(5) Industrial chemicals, vapors, gases and their safety in handling.

f. All areas need improvement, except GLACIER's asbestos hazard is well within acceptable margins now.

g. Again, as in years past, the Navy has been most cooperative in assisting with GLACIER's medical care, both at the Carson Naval Regional Medical Center, as well as at their Terminal Island Annex. Their dental department, too, has been most helpful.

2. BREAKDOWN OF MEDICAL/DENTAL PROBLEMS:

a.	Ophthalmological	14
b.	ENT/Respiratory	124
c.	Genital-urinary tract	16
d.	Gynecological	4
e.	Orthopedic	76
f.	Dermatological	97
g.	Trauma	156
h.	Dental	76
i.	Gastroentero	36
j	Neuro/Psych. (sea sickness, headachess, emotional, etc)	54
k.	Physical examination	9
l.	Immunizations	111
m.	Veneral Disease	3
n.	Etoh-related injuries	5
o.	Weight program visits	12

3. INTERESTING CASES

a. Hidradenitis Supprativa - One crewmember acquired a severe case of hydradenitis supprativa and had to be hospitalize in Sydney, Australia for full management. He later rejoined the ship in Wellington, New Zealand.

b. Fracture of distal-end of fibula - One crewmember missed a step and fell down a ladder enroute to Noumea, New Caledonia. Since the distal fragment was in the ankle joint the crewmember was MEDEVAC'd back to CONUS since it appeared that orthopedic-surgical fixation was indicated.

c. Hernia, direct, inguinal - One crewmember acquired a full, right, direct inguinal hernia while GLACIER was undergoing PRE-REFTRA evaluations in Hawaii. He was hospitalized in Tripler Army Medical Center and underwent a herniorrhapy. He was released and returned to GLACIER to convalesce.

d. Drug Reaction - During REFTRA in Hawaii one crewmember sustained a smash-injury to one of his fingers. Shortly after injection of (plain) Xylocaine at the base of the injured finger he had a syncopal, or shock-like reaction, however, vital signs all remained stable. He was evacuated to the USN dispensary at Pearl Harbor, whereupon all symptoms disappeared, (without treatment) after an hour. The condition was attributed to a probable idiosyncratic reaction to Xylocaine.

e. Septic Olecranon Bursitis - Another crewmember developed an a traumatic, spontaneous-evolving septic olecranon bursitis of his right elbow for which he was referred and hospitalized in Tripler Army Hospital while GLACIER was undergoing REFTRA in Hawaii.

f. Peptic Ulcer Disease - One person developed symptoms of Peptic Ulcer while undeway from Long Beach. By the time GLACIER arrived in Sydney, his symptoms were so frequent, constant and severe that he was sent to a civilian Gastroenterologist who performed a panendoscopy upon him and found evidence of active, as well as old, Peptic Ulcer Disease. The individual was MEDEVAC'd back to CONUS.

g. Fractured Jaw - While in Wellington, New Zealand, one crewmember acquired a fractured mandible during an altercation while on liberty. He was taken to the Wellington General Hospital where his jaw was wired-shut. The individual removed the wire sutures himself during a drinking session three

days later. He had a follow-up examination by the Naval dental officer in McMurdo and there appeared to be little displacement of the man's jaw.

h. Falling-hatch cover injury - While entering McMurdo Sound one female crewmember was hit across the shoulders by the edge of a falling hatch cover. She was treated as a possible spinal injury and was MEDEVAC'd to McMurdo dispensary where extensive neurological examination and X-rays failed to reveal any serious injury.

i. Disrupted Non-Union of old olecranon fracture - While GLACIER was entering Campbell Island one crewmember developed an abrupt tender swelling in his elbow. He said it had felt a little stiff and sore since he was surfing in Hawaii, but he denied any direct trauma to the area. He was placed in an arm sling almost daily until GLACIER arrived at McMurdo. He was referred to the dispensary where X-rays taken revealed a grossly disrupted non--union of an old fracture through the tip of the olecranon process. The crewman was MEDEVAC'd back to CONUS for orthopedic surgical evaluation and repair.

j. Amputation of distal half of index finger-tip - One crewmember had the distal half of his right index finger, (distal phalanz) severed while cleaning the motor-pully area beneath the ship's clothes dryer. The injury barely missed bone severance. A skin graft was taken from the ipsilateral hypothenar eminence since this was the only practical, available glabrous skin, as well as the only skin conforming to the original langer-line configurations. The graft is healing well at the time of this report.

k. MEDEVAC of an elusive disease case - One person had acquired a set of symptoms which evaded the dignostic skills of more than eight clinicians over the past year. He complained of episodic, progressively severe suprapubic pain which occasionally radiated to his perineal area. He was finally MEDEVAC'd from GLACIER's first stop at Punta Arenas, Chile.

4. RECOMMENDATIIONS

1. Same ones from all prior trips still apply, however, it is further recommended that a system be set up at Headquarters level whereby floating units receiving new personnel who have not undergone the prescribed overseas physical can contact by telephone or message informing a central contact point in Headquarters of the instance and the guilty releasing unit. Headquarters should keep track as to what units are to blame for the usual 10%-20% of individuals reporting to floating units without overseas physicals.

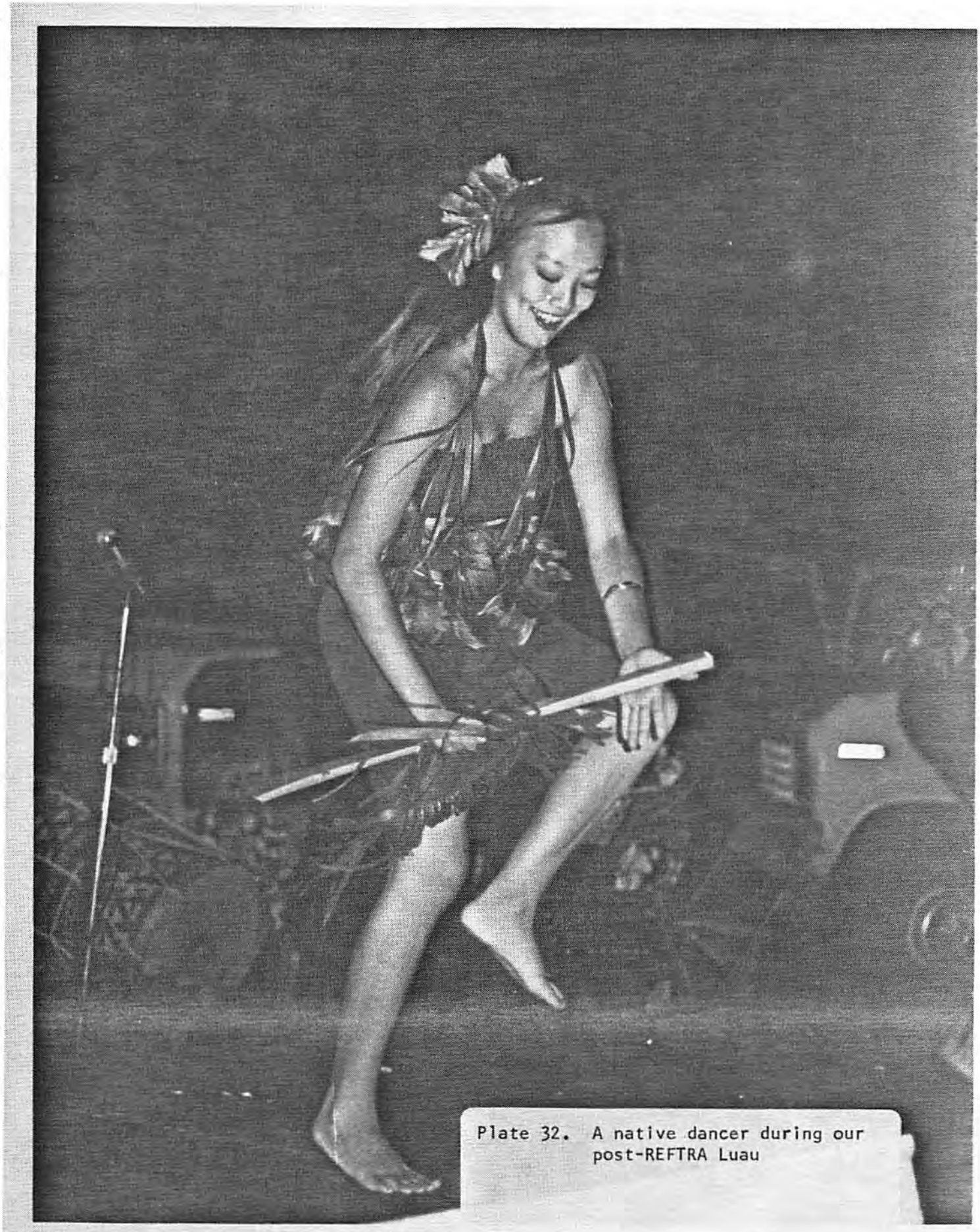


Plate 32. A native dancer during our post-REFTRA Luau

Plate 33. CAPT COSTE shows VADM STEWART and John RAU around GLACIER

Plate 34. Sea Cadets explain navigation to John RAU

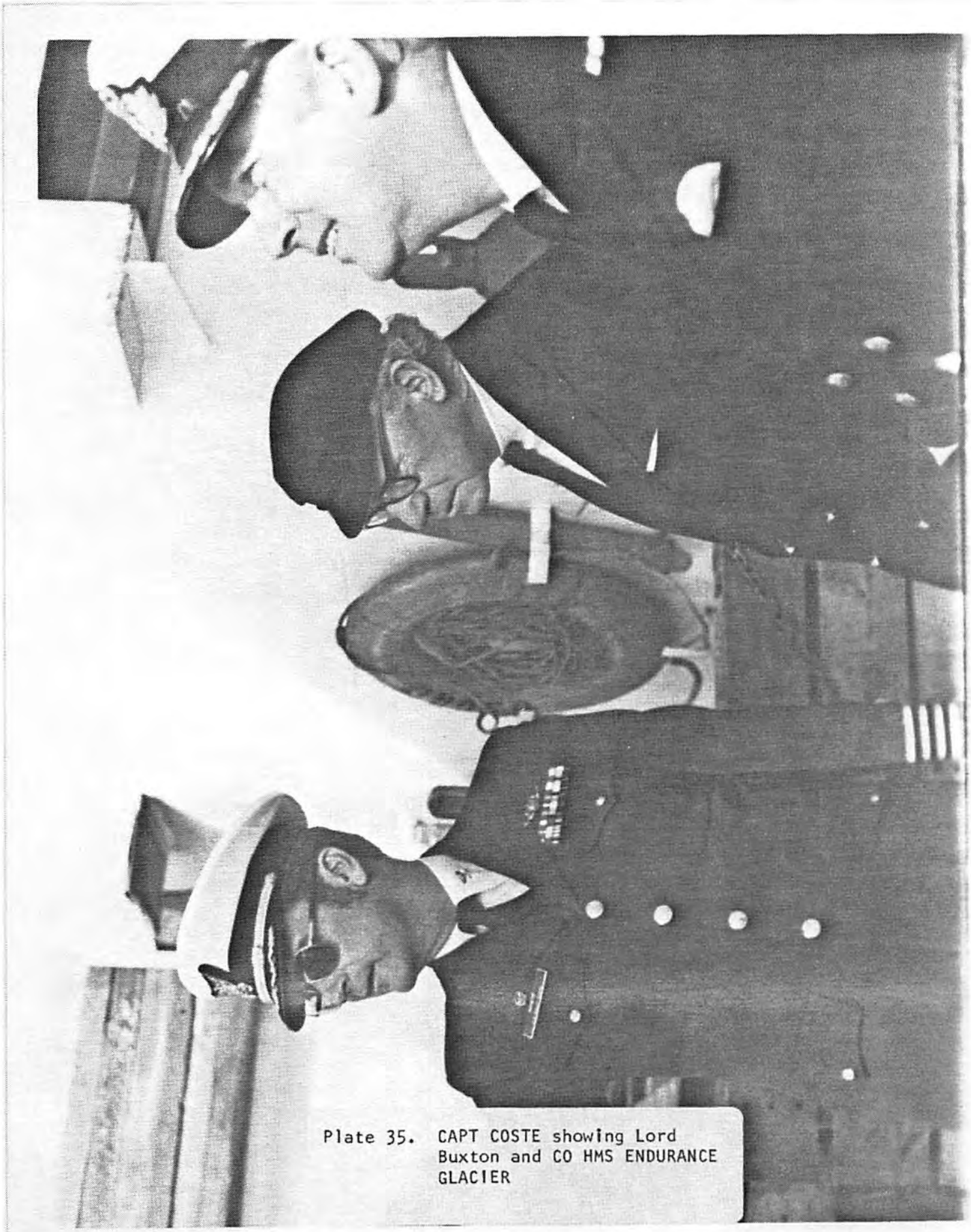


Plate 35. CAPT COSTE showing Lord Buxton and CO HMS ENDURANCE GLACIER

CHAPTER X

PUBLIC RELATIONS

1. PRE-DEPLOYMENT

a. Fleet Hometown News Releases were updated and forwarded before sailing and during our training period in Honolulu.

b. 8"X10" color and black and white prints of GLACIER were purchased for press kits and gifts to visitors and guest during Deep Freeze '82.

c. GLACIER GRAM I was published a few weeks before sailing. It proves to continue to be a popular way to let dependents and friends know our schedule and how to contact crewmembers.

2. OVERSEAS

a. We were received most favorably in all of our ports of call. Open house was held in each port. At each port news media personnel were given press kits and a tour of the ship. GLACIER received excellent press coverage with particular emphasis placed on the integration of women into the crew.

(1) Noumea, New Caledonia

During GLACIER's four days in Noumea over 500 people toured the ship. This was the first time in over five years that an icebreaker visited Noumea, so people were very curious. Each visitor was given a "WELCOME ABOARD" brochure during their tour. Press coverage was good even with a language barrier, the presence of women on the ship intrigued the media.

(2) Brisbane, Australia

This was GLACIER's first visit to Brisbane. Again, the ship was well received. During open house over 400 came on board for a tour. The Sea Cadets of Queensland Australia showed our two Naval Sea Cadets around the area and integrated them into the customs and ways of the Sea Cadets in Australia. A group of 50 Sea Cadets from the local area came on board for a tour of GLACIER.

(3) Sydney, Australia

It had been four years since GLACIER had visited Sydney. During our eight days in Sydney over 1000 people came on board GLACIER. Press coverage was good. The Public Affairs Officer held a Press Conference upon arrival. Again, the women on board sparked a lot of questions and media coverage. Most of the press wanted only to talk to the women exclusively. A T.V. station in Sydney video taped our arrival. A copy is retained on board. A copy will be made and forwarded to G-BHA to retain on file for future use.

(4) Wellington, New Zealand

Our eight days in Wellington were spent renewing friendships, enjoying Christmas dinner with New Zealand families who invited many of the ship's crew to spend the holidays with them. The Dial-A-Sailor line was very popular. As last year the media coverage was excellent. Articles and photos

about GLACIER and the crew were in the newspapers daily. Again this year the ship's crew raised money through a raffle, and donations for Home of Compassion Orphanage in Wellington. Each year the GLACIER has raised money for the orphanage, a tradition that began with USCGC EASTWIND. The orphans were away to foster homes during the holidays so the ship didn't host them this year, but the Public Affairs Officer visited the orphanage to present the sister-in-charge with a check for $700.00. The money that the Coast Guard donated through the years has gone toward building a library for the orphanage.

During GLAIER's week plus in Wellington, over 1000 people toured her.

(5) Valparaiso, Chile - Again this year because we were at the Naval Station, open house was not held. On our arrival though, one of the local television stations met us on the dock. They were given a tour of GLACIER and had the opportunity to interview some of the crew.

(6) Callao, Peru - On our arrival, a press conference was held. Over 30 media representatives were present. The Captain answered questions about our trip and all were given a tour of GLACIER. This year as last, the media mostly wanted to interview the women. Open house was held two days while in Callao.

(7) Special Notes

(a) Between Punta Arenas and Valparaiso we extended an invitation to the American Embassy in Santiago to have some embasy personnel ride GLACIER to Valparaiso. Twelve people from the Embassy came on board for the six day transit through the Inland Passage of South America.

(b) While in Valparaiso, a tour of Santiago was arranged. About twenty-five crew members went. While in Callao, a group of thirty-three crew members went to Machu Picchu (the lost city of the Incas). The same tour agency as last year was used, Sejour Tours. The price was $310.00 for the three day trip and $345.00 for the four day trip. The agency did very little to help with the tour. All in all the trip was well worth it, but for next year and for other Icebreakers that visit Callao, Sejour Agency is not recommended. It would almost have been better to coordinate the trip ourselves. For next year, we will look into staying overnight at the Hotel at Machu Picchu.

(c) While conducting science operations off of the ice edge near McMurdo, we were visited by VADM J.P. STEWART, COMPACAREA. Along with him was his aide and Mr. John Rau, President of the U. S. Navy Leaque. They arrived on board 16 January 1982. During their stay, they toured berthing areas, engineering spaces, talked to the crew and had a chance to conn the ship in afloat conn. They stayed the night and departed the next day via helicopter.

(d) Again this year two Naval Sea Cadets came on deep Freeze. They have been working with all the departments on board. This gives them an excellent opportunity to see how the whole ship runs. They have worked for Deck Department, the Quartermasters, the Marine Science Technicians, the Damage Controlman, Machinery Technicians, the Electricians, and the Radarmen.

CHAPTER XI

PERSONNEL EMBARKED

1. Permanently assigned Coast Guard personnel:

a. Officers:

CAPT JAMES W. COSTE, JR.
CDR GEORGE F. MARTIN
LCDR PHILLIP J. STAGER
LT DALE L. THOMPSON
LTJG MICHAEL R. SAFFORD
LTJG JORGE N. ARROYO
LTJG DEBORAH A. DOMBECK
LTJG GEORGE W. DUPREE
LTJG DAN LARSON
LTJG BRANDT R. WEAVER
LTJG GREGORY A. MITCHELL
LTJG JEFFREY T. NOBLET
ENS CARLA J. RIDNOUR
ENS WARREN E. SOLODUK
ENS PHILIP H. SULLIVAN
ENS JEANNE CIURCINA
CWO4 (PYA) RALPH D. LOOMAN
CWO3 (ENG) ARTHUR F. DICK JR.
CWO2 (F&S) WILFREDO S. TABOY
CWO2 (BOSN) KENNETH A. SIDERS

b. Enlisted:

SSC BENZON A. ABIVA
SS3 ROBERT A. ABRAMOVICH
SA GERARDO AGUIRRE
QM3 ANTHONY M. ALCOCER
SN RICHARD J. ALEMANY
DC3 JAMES A. AMMONS, JR.
QM1 WILLIAM F. ANDRES JR.
BM2 KATHLEEN I. AQUINO
SN EDWINA R. ARNEHO
FN MICHAEL A. AVALLONE
SA CHARLES D. AYMET
RM1 LAUREL B. BANG
BM3 GREGORY R. BARR
FA DOUGLAS D. BENNINGTON
MST2 BRIAN C. BENTZLEY
MK1 JOHN M. BINFORD
ET3 GARY L. BIVENS
ET3 DAVID J. BLACKWELL
SN EMMANUAL H. BOYD
MK2 JAMES M. BUMA
SA STAN D. BRANHAM
SN RHONDA J. BURR
MK3 KEVIN JR. BUZZARD
EM1 CARL S. CANTRELL
SA STEVEN M. CARROLL
DC2 DANIEL S. CASSIDY
SN MARK T. CASTRO

EM3 STEPHEN S. CHANDLER
SA PAUL C. CESSNA
MST2 RODNEY CORSON
MK3 JOHN J. COYLE
EM2 GLENN K. CREWS
QM2 KENNETH K. CULVER
SN PAT F. DAHSE
RM3 JONATHAN M. DAVIS
FN MARK E. DECOURSEY
FAMK GORDON R. DESPAIN
SNDC MICHAEL P. DOLINSKY
MST2 LINDA M. DOUGLASS
SA ANNE M. DUFFICY
FA ERNEST J. DYKES
FAEM WAYNE R. EASTMAN
MKC ROBERT EDWARDS
SSCS RUBEN J. ENRIQUEZ
SK3 MICHAEL B. ESKENSEN
SS3 EDDIE R. FAJAYAN
YN3 PHIL J. FIECK
SASS MARK D. FLANGAN
SN KENNETH Y. FONG
FA VOUGHN FRICKER
ET1 JAMES A. GARCIA
SR JOE M. GARNER
SS3 SCOTT A. GARRETT
MK1 VERN GEORGE
MK2 ALAN G. GIMBLETT
FADC JAMES M. GODDARD
DC1 MICHAEL K. GROSS
EM3 JAMES D. GUERINO
RM3 TIMOTHY L. HAGERMAN
MK3 RALPH C. HAGNER
FA ROSS M. HALLO
SR JERRY R. HEMPHILL
MK2 MICHAEL P. HAMILL
FN KEITH J. HEBIG
SK2 AUBREY E. HILL
SS3 MARTA M. HILTY
EM3 MARK M. HIPPAUF
GM2 THOMAS D. HOGGE
MKC BRADLEY A. HOKANSON
ETCS JAMES L. HOLMES
FN CLAYTON E. HULBERT
FA CHRISTOPHER M. HURBERT
SS3 ERIC M. JOHNSON
MK3 MICHAEL W. JONES
QM3 CAVIN J. JONES
BM1 VIRGINIA L. JONES
MK1 ALEX L. JULIEN
FA RUSSEL R. KING
FNEM ANTHONY C. KAESTNER
QMCM NELSON J. KALENBACH
SS3 KARL M. KANISS
RM3 DANIEL L. KEMP
QM2 RONALD C. KENT
FA KATHLEEN L. KINKEAD
SA MICHAEL L. KINNEY II

SN FRANK A. KRATOCHVILL
FA CARTER I. KRAUSE
SR CHRISTOPHER S. LAFAIVE
MK1 THOMAS M. LENTZ
SA THELA A. LEWIS
HMC WALTER M. LEWIS
FNEM MARCUS A. LIDY
MK1 GERALD M. LITTLE
MK3 TODD D. LOGAN
SN EDWARD J. LUARCA
TT3 THOMAS J. LUCIUS
DCC JOSE M. MAJAN
FA REX A. MCCAWLEY
FNMK RUSS W. MARTGAN
FA MICHAEL D. MCCARROLL
EMC ANTONIO M. MCMANUS
MK2 JOHN MCCULOUGH
SA CAREY T. MCDONALD
SNRD MICHAEL J. MCKNIGHT
SA CRAIG A. MCCURRY
RM3 ROY R. MELLINGER
EM3 JOHANNES G. METZENTHIN
FA GREORY A. MILLER
SA JAMES F. MILLER
MST3 RANDY D. MILLER
DC3 WILLIAM C. MITCHELL
FA MICHAEL W. MONTOYA
BMC EDWARD W. MORELAND
FA DAVID L. MORGAN
RMC RICHARD N. MURFF
EM1 SAMUEL E. NEIHARDT
FA GREGORY W. NELSON
EM3 PATRICK K. O'CONNOR
SA WILLIAM H. ODEN
FA GARY W. OWENS
FNMK NENNETTE I. PACHECO
YNC ROBERT L. PACHECO
MK1 JAMES C. PATRICK, JR.
MK3 DAVID P. PEARSON
FNMK ANN L. PEDERSEN
MKC EDWARD D. PENK
SA DAVID W. PILACHOWSKI
FA JAMES F. POPPE
SK2 MARVIN L. PUGH
FA DALE PRYOR
SN EDWARD D. RAGLAND
SN RICHARDO RAMIREZ
EM2 DARRYL E. REVELS
MK3 JOEL M. RENNISON
FN CHRIS A. RHODES
SA KIRK B. RIED
SN MARIA T. RODRIGUES
SS1 CONRADO O. ROXAS
MK2 JOSEPH L. RUIZ
MK2 RICHARD L. RUSAK
FA DARRYLE E. SANBORN
SS1 POTENCIANO H. SANDOVAL

SS3 LYLE C. SAYLES
YN2 DEBORAH M. SCHNEIDER
MST2 KIT A. SCHAFER
SN DAVID D. SCHOTT
RD3 TODD A. SCHWARTZ
RM3 DONALD J. SCHOLAND
FA JOSEPH A. SCROGGS
SA ROBERT B. SIMONIS
SA JOE N. SEKERAK
RDC JOHN C. SENN
EM3 NICHOLAS C. SMART
DC3 LAWRENCE J. SMENTOWSKI
FNEM RAYMOND SMITH
SNMST MARTIN L. SMITH
BM3 CRAIG C. SORBY
MK2 RONALD P. STANDRING
SA CONRAD V. STOUTAMIER
FNMK JOHN J. STURGES
MK2 MARK D. SULLIVAN
FN ROY A. SWARTZ
SS3 MICHAEL K. TABB
MK2 KATHLEEN TARANTINO
RD3 STEVEN JR. TERPENING
FA DAVID JR. THOMPSON
MST3 RICHARD W. TOBIAS
SKC GENEROSO V. TOLEDO
YN3 KATHLEEN G. TURNER
DC2 BRUCE M. TWEED
EM3 MICHAEL J. UNGARO
SN KEITH VALPREDA
EMCS JOSE R. VIRAY
SK3 GARY W. VOGHT
BM2 MARK S. VOYNOVICH
SA JAMES R. WAGNER
RD2 ROBERT WASHINGTON
SR BRIAN D. WESTERLING
SA LANCE A. WILBANKS
MST2 JAMES WILCOX
ET2 GARY P. WILHITE
RM1 JOSEPH B. WILKINSON
SN HERMAN WILLIAMS
FN DENNIS W. WINSLOW
SNET MICHAEL J. WINGLER
DC3 RAY W. WITT
SA YOLANDA L. YOUNG
EM3 JAMES R. ZIMMER

C. TAD Coast Guard Personnel:

LCDR JAMES WILLIAMS
LCDR JOHN W. WHITEHOUSE
LT CHARLES H. HESSEL
LT CHARLES M. SHIRK
MSTCM PETER R. SANJULE
AT1 ALAN M. PRIMM
AT1 RICHARD D. ZUBER
AD1 AMOS A. MITCHELL
AE1 RONALD E. TOOSON
AM1 STEVEN C. BURY
YN3 PHIL FEICK

ADC JEROME B. IRELAND
AD2 JAMES E. PARKINS
AE3 JOHN P. KELLY
AM3 KENNETH J. FAINT
AD3 EMMET R. MILLETT

d. Scientists

ANTHONY AMOS
JOHN ANDERSON
ROSEMARY ASKIN
JOHN BENGSTON
DOUGLASS BIGGS
ROBERT BIDIGARE
CHRIS BRAKE
RODNEY CHAMBERS
SANKAR CHATERJEE
ERICK CHIANG
PAUL CIESIELSKI
JAMES COX
BILL DAILY
RICHARD DEVEREAUX
TOM DEVRIES
GUIDO D. PRISCO
HAROLD FRETTO
JAMES FIELDS
PAM FISCO
FARLEY FLEMMING
ROBERT GEORGE
MURRAY GREGORY
J. DENNIS GUFFY
PETER HARPER
DAVID HARROWFIELD
AUDREY HASCHMEYER
COLIN HILTON
OSMOND HOLM-HANSON
CHRIS HEWES
BRIAN HUBER
GEORGE HUNT
HANS JANNASCH
MARK JOHNSON
ISAO KIOKI
BOB KIRK
STEVE LASORSA
MARK MABIN
CARLOS MACELARI
STEPHEN MORRELL
AMIR NEORI
PETER - NOEL WEBB
RON PEACOCK
STEVE PYNE
ROBIN ROSS-QUETIN
SHARON RAPPAPORT
RICHARD REICHLE
JILL SINGER
JUDY SHERBURNE
MARK SPEARS
J. WARD TESTA
PAUL TIRRELL

GRAHAM WILSON
JOHN WOOD
MIKE WOOBURNE
ROBIN WRIGHT
WILLIAM ZINSMEISTER

d. Other:

USNSCC CLIFFORD HEARNES
USNSCC JOHN WILSON
LT FERNANDO KEOCHLIN (PERUVIAN OFFICER)
LT LUIS AMAT Y LEON (PERUVIAN OFFICER)
MIDN LEIGH H. GODLONTON (RAN OFFICER)
SBLT GRAHAM PEDLEY (RAN OFFICER)
PH1 MICHAEL MULLEN (U.S. Navy)
ED MILBURN, CONSUL
ELENA MILBURN, D/WIFE ED MILBURN
BETTY WOODSEND - POLITICAL OFFICER
JANET NIXON - POLITICAL OFFICER
POLLY MANN - SECRETARY/ECONOMIC SECTION
BOB FOUCHS - AGRICULTURAL ATTACHE
BRUCE STOCK - CHIEF, DRUG ENFORCEMENT
KIM KAUFMAN - D/DAUGHTER ARMY ATTACHE
ELIZABETH ALMEIDA - D/DAUGHTER NASA REPRESENTATIVE
EARL BROOKS - PEACE CORPS REPRESENTATIVE
DENNIS ALMEIDA - D/SON NASA REPRESENTATIVE
LCDR BARRY CAPELLI - CCGD11 (ene)

CHAPTER XII

RECOMMENDATIONS

1. COMMANDER, NAVAL SUPPORT FORCE ANTARCTICA:

a. Ensure that size and weight of all cargo are clearly marked on the crate; particular attention should be paid to the accuracy of the data. (p. 1-13, para. 3.a.4.b)

b. Items requiring refrigeration or freezing should be packed in containers small enough so that they may be easily carried by one person. Provide sufficient notice to the ship so that all necessary preparations can be made to handle such cargo. (p. 1-13, para 3.a.4.c)

c. Oversize containers (greater than 6ft x 9ft) should be avoided since deck load is risky in heavy weather. (p. 1-14, para. 3.a.4.d)

d. Coordinate with NSF to provide an additional UGR-196C-18 universal graphic recorder. (p. 5-6, para. 4.b.1)

e. Coordinate with NSF to provide two or three survival equipment packages for science party use. (p. 5-6, para. 4.b.2)

f. Provide one-half day alongside the POLAR class icebreakers to allow exchange of supplies, fuel, oil, etc. (p. 6-4, para. 4.d)

2. COMMANDANT

a. Authorize 5386 KHZ as permanent ship's coordination net. (p. 4-2, para. 2.a.8)

b. Provide additional teletype equipment for spares support. (p. 4-5, para. 3.c)

c. Provide permanent authorization to use voice frequencies in 25, 27, and 29 MHZ ranges. (p. 4-5, para. 3.d)

d. Provide a block of TONO's for use by the ship for emergency leave. (p. 7-2, para. 1.c)

e. All personnel should receive an overseas physical prior to reporting aboard icebreakers. A method to provide feedback on units not complying should be instituted. (p. 9-3, para. 4.1)

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f. In response to separate correspondence locate or design a suitable replacement for the arctic survey boat. (p. 1-5, para. 1.c.8)

3. COMMANDER, ELEVENTH COAST GUARD DISTRICT:

a. Aid in determining the source of radio frequency interference. (p. 4-4, para. 3.a)

b. Install SR-216 transmitter (p. 4-7, para. 4.b.12)

c. Upgrade or replace 21 MC. (p. 4-7, para. 4.b.16)

d. Update and rewire the SB-2727 and SB-2744 patch panels. (p. 4-8, para. 4.d.3)

e. Ensure proper DF operation of the NC-7200 transceiver prior to REFTRA. (p. 4-7, para. 4.b.9)

f. Ensure that Standard Measurement Technique personnel visit GLACIER prior to REFTRA. (p. 4-8, para. 4.d.7)

g. Ensure that requests for quotation are forwarded to the ship in a timely manner so that funds may be obligated expeditiously. (p. 6-4, para. 4.a)

h. Allow GLACIER to carry pay records during DEEP FREEZE deployments. (p. 8-2, para. 3.a)