

UNIVERSITY - NATIONAL OCEANOGRAPHIC LABORATORY SYSTEM

SUMMARY REPORT

Ship-Use Forecasting Meeting
24 February, 1977, Washington, DC

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UNIVERSITY - NATIONAL OCEANOGRAPHIC LABORATORY SYSTEM

An association of Institutions
for the coordination and support
of university oceanographic facilities

UNOLS Office
Woods Hole Oceanographic Institution
Woods Hole, Massachusetts 02543

SUMMARY REPORT

Ship-Use Forecasting Meeting
0900, 24 February 1977, Room 642, NSF, Washington, DC

BACKGROUND & PURPOSE

UNOLS' Advisory Council last December suggested the holding of three "ship-use forecasting meetings." Two of these were regional in nature and were held as follows: East & Gulf Coasts, January 21, 1977, Baltimore-Washington motel and the Pacific NW, January 31, 1977, U. of Washington, Seattle.

The purpose of the third meeting, for "distant water operators" and Federal agencies' representatives, was to provide a forum for discussion of developing ship schedules for 1978 and beyond, as well as exchange of information relative to projected agency programs, particularly those requiring large blocks of ship time.

A list of attendees is attached as are the handouts prepared by various participants. Agencies preparing informal handouts, found at back of this report, are indicated by an *. Comments made by participants are probably not reported fully and no attempt has been made to edit this report, in the interest of getting basic information informally distributed quickly.

NOAA/FGGE* - Dr. R. Flemming gave a presentation on the First GARP Global Experiment. It was noted only two technicians were required to operate the equipment, but more important was the fact that although \$10 million was allocated for aircraft, no funds were provided for ship time. It is hoped this situation may be remedied.

ERDA* - Dr. A. Joseph's handout compared the agency's FY1976 usage with FY1977's including that which is pending. See p. 14.

USGS* - Dr. R. Rowland et al mentioned getting enough ship time on the East Coast continued to be a problem. For '78 some 268 days are necessary on East Coast: 130 days on ATLANTIS II-type vessel and 138 days on OCEANUS class vessel. West Coast is not as great a problem. One vessel used on West Coast is YAQUINA now one year into a 3-year charter.

EPA - A representative was not available.

ONR - Mr. R. Winokur made the welcome remark that he saw a 15% increase in the ship operations' budget (on a base of ~ \$3 million). They use BARTLETT & LYNCH on East Coast, DE STEIGUER on West, and have something of a problem in filling own vessels' time.

USCG - Cdr. M. Moynihan stated the CG would probably be totally absorbed in policing the 200 nm limit.

BLM* - Dr. D. Allen mentioned their requirements were in the neighborhood of 475 days all on East Coast, with some overlap with USGS. They prefer the OCEANUS class vessel, but could use larger if 177 footers were unavailable.

NOAA Fleet Operations - Mr. W. Ward foresaw no great increase in their sea-going requirements that couldn't be met by their own fleet.

NSF/OCE/IDOE - Dr. B. Malfait remarked 1980 marks the end of IDOE, but continuing programs are in the process of being planned. Programs under IDOE requiring ship time are as follows:

- (a) Living Resources - Spring of 1977 sees the end of CUEA field work, therefore no more ship time required.
- (b) Environmental Forecasting -
 - 1. The cooperative program with Navy, NORPAX, requires 14 mos. late '77, early '78; in the form of an equatorial shuttle, using MOANA WAVE.
 - 2. International Southern Ocean Study (ISOS) wants 60 days, Drake Passage, January 1979, on large vessel (MELVILLE or KNORR?).
 - 3. POLYMODE wants 3 R/Vs for 2 mos. each in May and June 1978, probably OCEANUS, ENDEAVOR, plus one.
- (c) Seabed Assessment - On manganese nodules, 1-2 mos. each year, equatorial Pacific through 1981.
- (d) Other ship-time requirements that may develop are the use of a large escort vessel for ALVIN if work is done on E. Pacific Rise in 1979 coupled possibly with pre-dive surveys in 1978. Additionally, geology and geophysics of S. E. Asia may require 2-3 mos. field work in 1978-1979.

NSF/DPP* - Dr. B. Lettau announced NSF approval of the Bering Sea study (PROBES). Div. of Polar Programs will be supporting work on T. G. THOMPSON, 90 days March-May 1978, with similar requirements for the next two years, 45 days/year additionally requested for ACONA. Two months per year (austral summer) are requested for 1980-81 in Weddell Sea.

NSF/DSDP - Dr. Peter Wilkniss stated 15 month extension of the drilling program has been approved. G. CHALLENGER will go to Pacific after March or April until fall of 1979, which would be the end of DSDP's drilling.

[Dr. Langseth, Site Survey Management, reported subsequently IPOD* requires 175 days in 1978 primarily on E. Pacific Sites in or off G. of

California, Galapagos, and Central America, but also some time in the NW Atlantic, depending on funding.]

NSF/OCE - Dr. F. Jennings said this Division's 1978 budget is divided roughly as follows: 1/3 IDOE (19.2 million, up 1.8 over '77), 1/3 Oceanography Section (19.4 million, up 1.8 over '77) and 1/3 ship operations (20.3 million up 2.0 over '77).

The following reviewed, on behalf of their institution, their schedules, pointing up possible areas of agency accommodation.

R. Sexton - U.R.I.	R. Fisher - SIO
F. Richards - U. of Wash.	F. Campbell - HIG
R. Barber - Duke	T. Treadwell - TAMU
G. Keller - OSU	J. Gibbons - RSMAS
R. Gerard - L-DGO	R. Dinsmore - W.H.O.I.

UNOLS ACTION

A potential problem may be the convergence of interest in the Mediterranean and Indian Ocean in 1978-79. To ensure proper cost effectiveness the following received assignments.

MEDITERRANEAN - It was noted W.H.O.I. and Duke were focussing on the Med and Dr. R. Barber (Duke) was detailed to see if projects could be combined.

INDIAN OCEAN - L-DGO, W.H.O.I., Scripps, and Miami are making plans to visit the Indian Ocean. Mr. R. Gerard (L-DGO) was designated coordinator.

PACIFIC - It was noted THOMPSON and KNORR were planning to operate in south Pacific. Dr. Keller (OSU) to coordinate.

EAST-COAST - Capt. R. Dinsmore (W.H.O.I.) was asked to examine ship time requirements of agencies and attempt to coordinate a fit with the approximately 250 possible days available from the UNOLS.

In a discussion at the end of the day it appeared UNOLS as a "system response" might make a commitment to the Agencies for ship time. The operators present felt that from amongst them, 250 days could be available from the East and Gulf Coasts and 150 days from the West Coast.

Additional important note: It was observed that there is no money presently earmarked for new construction.

We wish to thank all those who participated and especially those who came prepared with distributable schedules and plans.


T. Stetson, UNOLS

R. Dugdale, Advisory Council
Co-Chairman

ATTENDEES

Ship-Use Forecasting Meeting
24 February 1977

NSF, Washington, DC

<u>NAME</u>	<u>ADDRESS</u>	<u>TELEPHONE</u>
Frank Alexander	OFS/NSF	202-632-4102
David Allen	BLM-733	202-343-7744
Dick Barber	Duke	919-728-2111
Albert Betzel	Div. of Polar Programs	202-632-4168
J. Frisbee Campbell	Hawaii Inst. of Geophysics	808-948-7654
H. L. Clark	UNOLS	617-548-1400
F. P. Diemer	ONR-102-05	202-692-4518
R. P. Dinsmore	W.H.O.I.	617-548-1400
CDR. Joe Dropp	OCEANAV (N3D)	202-325-9225
R. B. Elder	NSF/OFS	202-632-4102
William Erb	D.O.S.	202-632-0650
Robert L. Fisher	S.I.O.	714-452-3597
Rex J. Fleming	NOAA Hq., EM-6, Rockville	301-443-8415
Dirk Frankenberg	U. of North Carolina	919-933-1252
R. D. Gerard	Lamont	914-359-2900
Jim Gibbons	U. of Miami	305-350-7223
Don Heinrichs	NSF/OS	202-632-4215
Feenan D. Jennings	NSF/IDOE	202-632-7356
M. K. Johrde	NSF/OFS	202-632-4202
Arnold Joseph	ERDA	301-353-3035
George Keller	Oregon State Univ.	503-754-4763
Bob Landis	NOAA-EM Rockville	301-443-8734
Bernhard Lettau	NSF/DPP	202-632-4163
Bruce Malfait	NSF/IDOE	202-632-4334
CDR. Marty Moynihan	USCG Ocean Operations	202-426-1881
F. A. Richards	Univ. of Washington	206-543-6487
Bob Rowland	USGS - Off. Mar. Geology	703-860-7241
R. K. Sexton	U.R.I.	401-792-6197
Thomas Stetson	UNOLS	617-548-1400
Sandra Toye	NSF/OFS	202-632-4102
T. K. Treadwell	Texas A&M	713-845-7211
Bob Wall	NSF/OJ	202-632-4227
Wheatley Ward	NOS/NOAA	301-443-8101
N. D. Watkins	NSF/Earth Science	202-632-4275
Ferris Webster	W.H.O.I.	617-548-1400
Peter Wilkniss	NSF/DSDP	202-632-4134
R. S. Winokur	NORDA	202-692-4951
Richard J. Wold	USGS- Woods Hole	617-548-8700
W. S. Wooster	Univ. of Washington	206-543-7004
R. C. Dugdale	Bigelow Lab. for Ocean Sci.	207-633-2173

SHIP PARTICIPATION IN THE FIRST GARP GLOBAL EXPERIMENT
(FGGE) AND ITS ASSOCIATED PROGRAMS

Presented to the
UNOLS Ship-use Forecasting Meeting
24 February 1977

Background

The Global Atmospheric Research Programme was launched nearly a decade ago as a joint venture of WMO and ICSU, stemming originally from a resolution of the United Nations. Its objectives were to improve the reliability of weather forecasting in the range from one day to several weeks, and to understand the nature of climate variations. From the very beginning of GARP it was recognized that there would have to be a period during which the entire atmosphere was observed over the whole earth. This period is now called the observational phase of the First GARP Global Experiment (FGGE).

The Operational Year of the FGGE is scheduled for the period 1 December 1978 to 30 November 1979. Also, during this period, there will be several other observation programs dealing with oceanography and regional meteorology which are associated with FGGE. The major programs associated with FGGE include NORPAX, MONEX, INDEX, POLEX, ISOS, CUEA, and others. Both FGGE and the associated programs will require the use of research vessels to meet observational needs. Interested Principal Investigators and program managers from major funding agencies (e.g., NSF, ONR, NOAA, etc.) have discussed the possibility of integrated observational programs on ships of the U.S. research fleet. In this respect, most agree that coordinated observational programs on U.S. research vessels are desirable and would be beneficial.

FGGE Ship Requirements

The ship requirements for FGGE include two different program areas. The first is the Tropical Wind Observing Ship (TWOS) program which requires observations from balloons launched from ships located in the equatorial area during two Special Observing Periods (SOP). These periods are January-February 1979 and May-June 1979. It is not essential that the ship keep station, run track lines, etc., only that it be in the equatorial belt 10S-10N and in an area where it would provide unique coverage of the horizontal resolution requirement for upper air soundings during FGGE. The equipment needed

is described in Annex 1 and is expected to be available for all U.S. ships qualified for the TWOS program. In addition to placing the equipment and expendables on board ship, one or two technicians will be needed to run the equipment. The U.S. FGGE project intends where needed to provide equipment, expendables and training for technicians should a ship be selected as a TWOS. The training will take place over a two week period in Helsinki, Finland.

The second major ship requirement for FGGE is for deployment of small drifting buoys in the Southern Hemisphere (20°-65°S). The specific deployment plan for the drifting buoys is being developed, but it is expected that deployments will be needed between December 1978 and May 1979.

Associated Program Ship Requirements

The ship requirements for the FGGE associated oceanographic and regional meteorological programs are still being developed. It is estimated, however, that two to three U.S. research ships will be needed in the Indian Ocean to support the INDEX and MONEX programs during FGGE. Four to six research ships will be needed to support NORPAX and other oceanographic experiments in the equatorial Pacific during FGGE. Two to four ships will be needed to support equatorial oceanographic studies in the Atlantic and one to four research vessels will be needed to support ISOS and POLEX in the high latitude studies during FGGE.

Action

In developing ship operation schedules for the 1978-1979 time frame, it would be greatly appreciated if the ship requirements for FGGE and its associated programs be considered. The FGGE Project Office is prepared to help in any way possible to insure adequate coordination of the U.S. oceanographic research fleet during the FGGE. Please do not hesitate to call the FGGE Project Office ((301) 443-8415) if you have any questions.

SHIPBOARD NAVAID EQUIPMENT FOR FGGE

The World Meteorological Organization has initiated purchase of a number of upper air systems for FGGE. It is expected that the U.S. will be allocated several of the sets to be placed on participating ships.

The equipment only records semi-processed data on magnetic tape cassettes for subsequent post-voyage processing to meteorological parameters. No real-time meteorological data will be produced. The data are of two types:

- (1) Pressure, temperature, humidity (PTH) derived from sensors in the radiosonde. The raw electrical signals will be digitized prior to being recorded,
- (2) Relative phase measurements of Omega NAVAID signals will be digitized and recorded. The NAVAID signals are received by the sonde and retransmitted to the base station along with the PTH data.

On board the ship, the signals from the sonde are received, the Omega and PTH are extracted, processed separately, and sent to the recorder. Two recording subsystems are operated in parallel for redundancy to prevent data loss due to recorder failure. There is no software control of the system aboard ships.

The base equipment is housed in an air conditioned cubicle approximately two meters in each dimension. The cubicle is equipped with batteries to power the equipment and a battery charger (50 or 60 cycles, 110 or 220 volts) which will operate from ship's power. That arrangement eliminates the need for any special regulation or filtering of ship's power. A balloon launcher and inflation device are also furnished as part of the equipment to eliminate need for an inflation shelter.

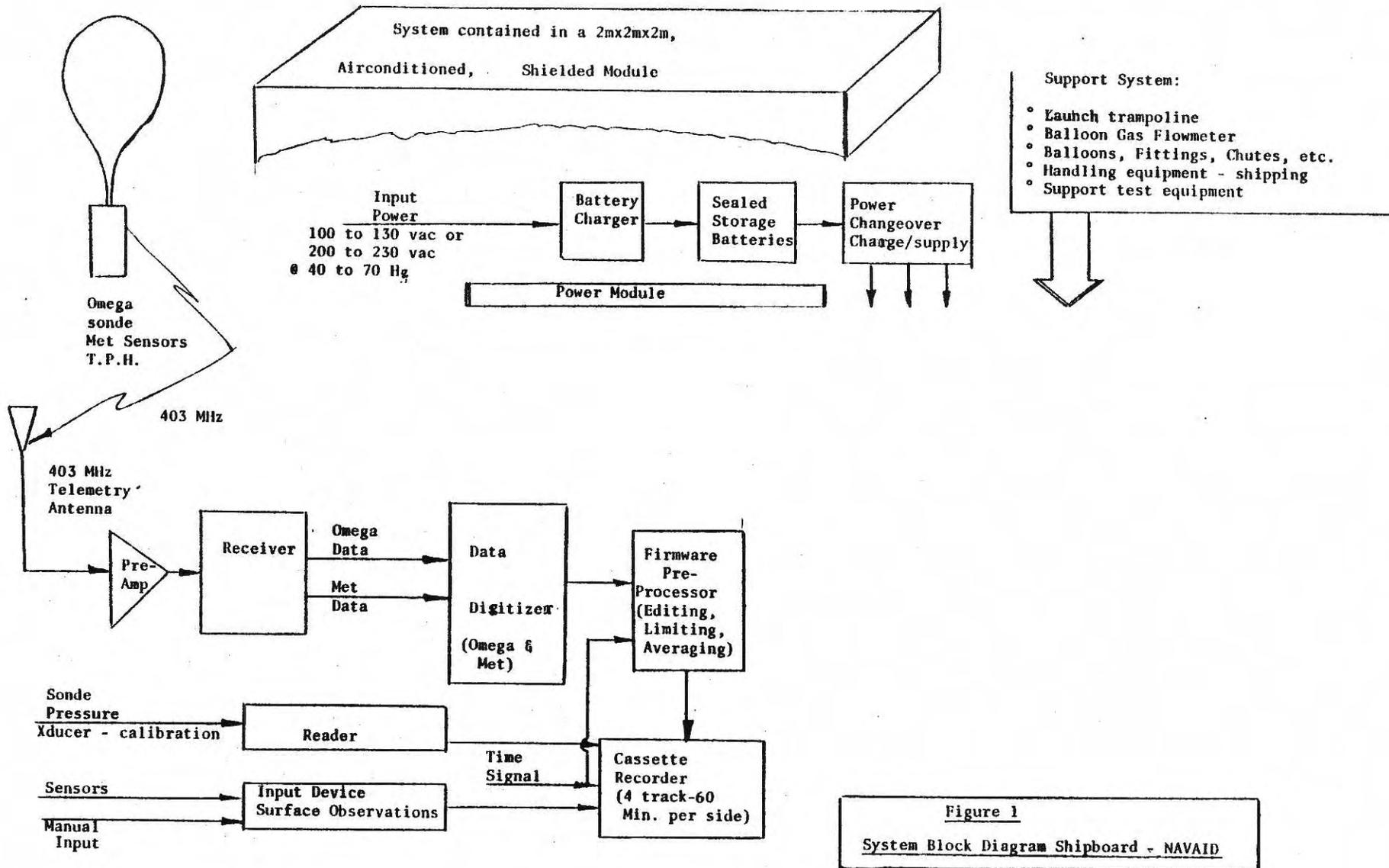
Ballons will be inflated with helium. Each helium cylinder (weight 120 pounds) will inflate two balloons (1 day of observations). A launch area of about 20 feet times 20 feet, clear overhead and open to one side of the ship, is required. The radiosonde telemetry antenna consists of five separate units: An overhead antenna on the equipment cubicle and four corner reflectors placed fore, aft, port, and starboard (a switch at the receiver selects the appropriate antenna for a given situation). Each antenna is light, weighing on the order of 10 kilograms. A local Omega whip antenna, 3 meters long, will be mounted on the shelter.

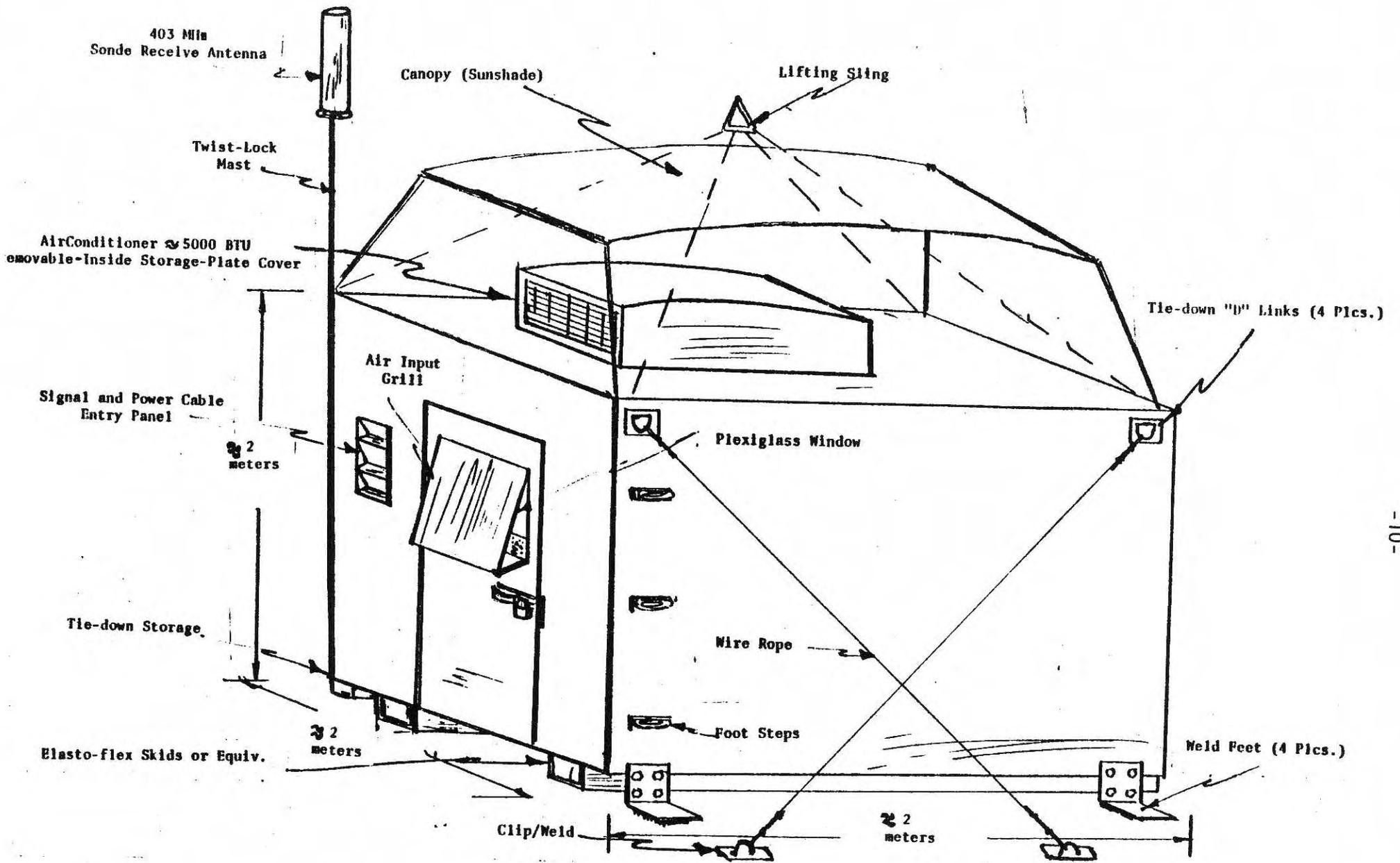
Operator actions associated with each flight:

- (1) Install new cassettes
- (2) Unpack the sonde, install the battery, check sonde for proper operation
- (3) Enter surface data (time, temperature, pressure, wind, ship, position, sonde identification)
- (4) Inflate balloon and attach radiosonde
- (5) Release balloon and monitor reception to ensure the system is operating

The radio sonde is Model RS-21 CN built by Vaisala Oy, Finland.
Significant characteristics:

Frequency:	403 MHZ, FM modulation
Weight:	660 grams
Sampling cycle:	6 seconds
Power:	400 milliwatts (selected)
Omega receiver:	13.6 KHZ
Size:	42 x 16 x 8 centimeters





Vibration Isolators (4 Pics.)

Open Frame

Module

Sealed Module Construction for Electronic Equipment

- Pre-Amp
- Omega Receiver
- Omega and Met Digitizer
- Manual Input Device

- Cassette Recorder
- Omega Processor
- Test Equipment

Spares Storage

Rubber Covered Interconnecting Cable(s)

Slide-out Work Table

Seat

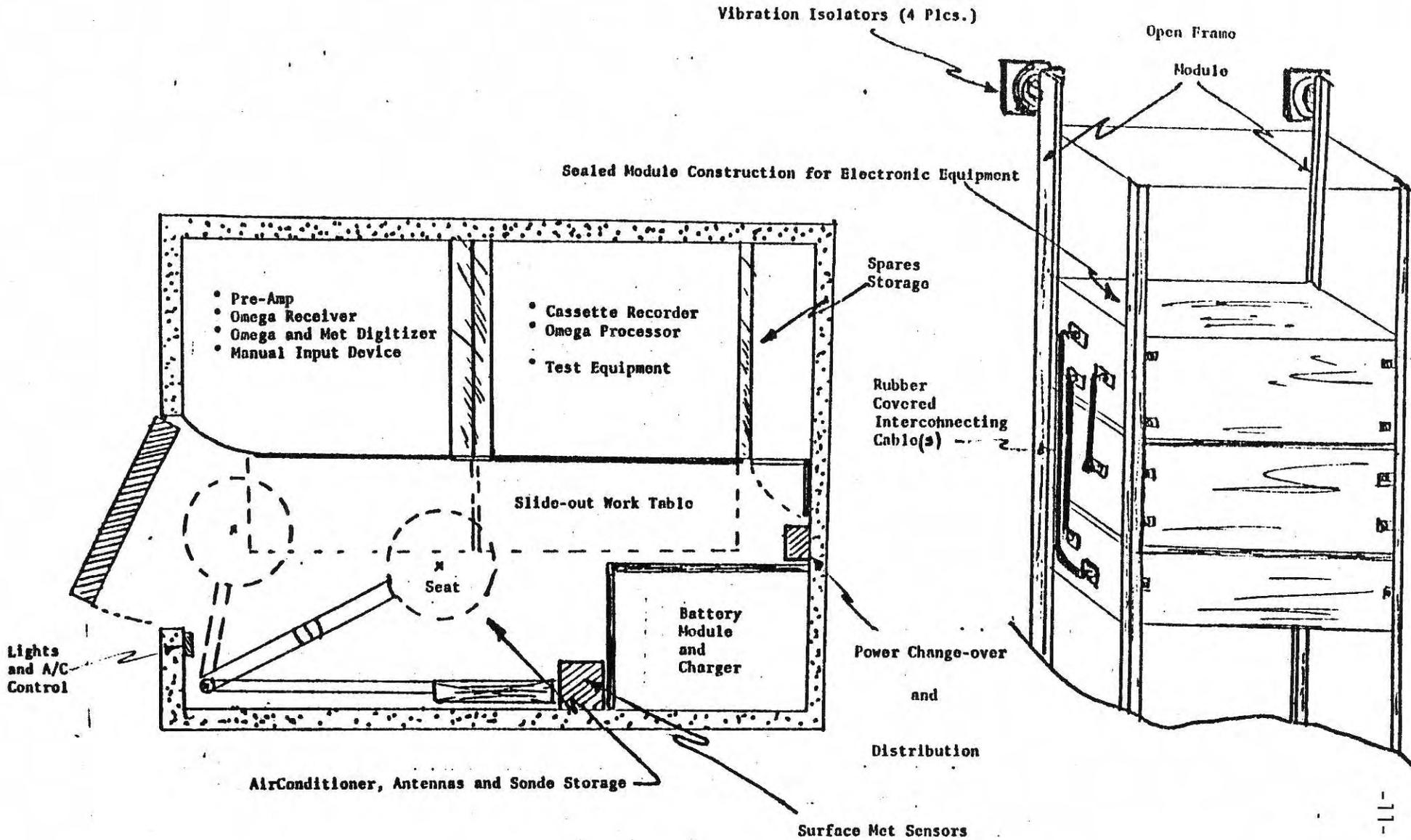
Battery Module and Charger

Power Change-over and Distribution

Lights and A/C Control

AirConditioner, Antennas and Sonde Storage

Surface Met Sensors



Ship Support in ERDA (BER)
Marine Program Including UNOLS*

<u>Institution</u>	<u>Investigator</u>	Ship Support - \$1,000	
		<u>FY 1976</u>	<u>FY 1977</u>
U. Alaska	Burrell	3.0*	0
Auburn U.	Pamatmat	0	P
UCSD - SIO	Mullin	71.6*	86.9*
Columbia U. LDGO	Broecker	56.3* 16.0	60.0*
D.O.C.	Olla	3.0	3.0
NMFS	Rice	13.0	23.0
U. Georgia	Pomeroy	40.0*	P*
		12.0	P
Johns Hopkins	Gross	1.2*	1.2*
	Seliger	34.5*	38.6*
	Taft	22.2*	25.2*
U. Maryland	Mihursky	18.6	P
U. Miami	Carpenter	2.0	1.8
	Lee	93.0*	31.0*
	Thorhaug	0.5	P
U. Michigan	Schelske	24.1	14.0
Oregon State U.	Beazley	0	P
	Holton	49.5*	25.0*
	Pak	0	P*
NYZS	Gold	3.0	3.0
N. Carolina State U.	Pietrafesa	37.5*	34.0*

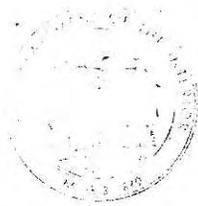
<u>Institution</u>	<u>Investigator</u>	Ship Support - \$1,000	
		<u>FY 1976</u>	<u>FY 1977</u>
Skidaway	Atkinson	44.7*	45.0*
	Menzel	180.0	305.0
U. Washington	Carpenter	15.0*	10.0*
	Carpenter	0	20.0*
	Anderson	30.0*	35.0*
	Schell	2.4*	0
	Smith	23.0*	39.0*
Westinghouse	Palmer	3.0	?
WHOI	Bowen	216.5*	P*
	Bowen (G.L.)	14.5*	5.0*
	Spencer	27.3*	25.6*
	Teal	0	P*
	Watson	4.0	P
Yale	Turekian	4.0	8.0
SUNY - S.B.	Okubo	0	P
ANL (Argonne)	(U Mich R/V)	50.0	50.0
BNL (Brookhaven)	(Misc WHOI R/Vs)	175.0*	150.0*
PNL (Pac. NW Labs)	(OSU's R/V Cayuse)	50.0*	75.0*
Kwajalein	(LCU charter)	340.0	350.0
Puerto Rico N.C.	(charter)	0	40.0

0 = Zero funds

P = Pending

Summary

	<u>FY 1976</u>	<u>FY 1977</u>	
		<u>To Date</u>	<u>Pending</u>
Support of UNOLS* Vessels	\$1,007.2	\$ 706.5	\$321.9
Support of Other Vessels	<u>673.2</u>	<u>797.8</u>	<u>67.9</u>
TOTAL	\$1,680.4	\$1,504.3	\$389.8
			\$1,894.10



United States Department of the Interior

GEOLOGICAL SURVEY

Office of Marine Geology
Woods Hole, MA 02543

22 February 1977

From: Robert Oldale
U.S. Geological Survey
Bldg. B, Quissett Campus
Woods Hole, MA 02543

A handwritten signature in cursive script that reads "Robert N. Oldale".

To: UNOLS Members

Subj: Estimated present and future ship needs of the U.S. Geological Survey Branch of Atlantic and Gulf of Mexico Marine Geology

The following is an estimate of our ship needs for your consideration. If UNOLS can meet any of these requirements, we would like to know at the earliest possible date so that we might plan which of our cruises might be met by UNOLS vessels and which cruises must be met with vessels of the commercial charter fleet.

Copy to: John C. Behrendt
Richard Wold
Arthur Green, Jr.
Robert Rowland
All Project Chiefs



USGS Branch Atlantic-Gulf of Mexico Geology Ship Needs 1977

All-type vessel:

20 days May 1 - Oct. 31, 77
Geophysical cruise
Atlantic shelf, slope, and rise south of Norfolk, Va.
W. Dillon

ATLANTIC TWIN-type vessel:

5 days May 1 - Sept. 30, 77
Vibrocure
Nantucket Sound
R. Oldale

OCEANUS-type vessel:

1. 12 days April 1-May 30, 77
Suspended matter sampling
Atlantic Shelf north of Norfolk, VA
D. Folger
2. 12 days May 1 - Sept. 30, 77
Vibrocure and side scan sonar
Mid-Atlantic Shelf
D. Folger
3. 5 days following a storm period March 1 - Nov. 30, 77
Suspended matter sampling
Atlantic Shelf north of Norfolk, VA
D. Folger

ASTERIAS-type vessel:

18 days May 1 - Oct. 31, 77
Bottom sampling & seismic profiling
Southeastern Massachusetts coastal waters
R. Miller - 5 days
R. Oldale - 8 days (already scheduled)
R. Sylwester - 5 days

USGS Branch Atlantic-Gulf of Mexico Geology Ship Needs 1978

ATLANTIS II-type vessel:

130 days May 1 - Oct 31, 1978
Geophysical cruises
U.S. Atlantic shelf, slope, and rise
W. Dillon
K. Klitgord
J. Schlee
J. Grow
R. Mattick

OCEANUS-type vessel:

1. 20 days Feb. 78
Deploy & recover bottom instrument packages
U.S. middle and northern continental shelf
B. Butman
2. 20 days June 78
Deploy and recover bottom instrument packages
U.S. middle and northern continental shelf
B. Butman
3. 20 days May 1 - Oct. 31, 78
Piston coring
Continental Slope north of Norfolk, VA
R. Miller
4. 30 days June 1 - Aug. 31, 78
Geologic Sampling (Coring)
Mississippi Delta
L. Garrison
5. 14 days June 1 - Aug. 31, 78
Vibracoring and seismic profiling
Atlantic Shelf north of Norfolk, VA
D. Folger
6. 14 days June 1 - Aug. 31, 78
Vibracoring and seismic profiling
Atlantic Shelf south of Norfolk, VA
D. Folger
7. 20 days Oct. 78
Deploy and recover bottom instrument packages
U.S. middle and northern Atlantic Shelf
B. Butman

Drill Ship:

1. 40 days May 1 - Aug. 31, 78
Core drilling
Atlantic slope and rise (US)
J. Hathaway
2. 10 days May 1 - Aug. 31, 78
Core drilling
North Atlantic Shelf
D. Folger

ATLANTIC TWIN-type vessel:

5 days June 1 - Sept. 30, 78
Vibracoring
Massachusetts coastal waters
R. Oldale

ASTERIAS-type vessel (VERRILL):

1. 10 days June 1 - Sept. 30, 78
Geologic sampling
New England coastal waters
M. Bothner
2. 10 days June 1 - Sept. 30, 78
Seismic profiling
Massachusetts coastal waters
R. Oldale

PROGRAM		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
NORTH ATLANTIC	BENCHMARK		<u>30</u>			<u>30</u>			<u>30</u>			<u>30</u>	
	GEOLOGY *		<u>10</u>				<u>10</u>	<u>20</u>			<u>10</u>		
MIDDLE ATLANTIC	BENCHMARK		<u>30</u>			<u>30</u>			<u>30</u>			<u>30</u>	
	GEOLOGY *		<u>10</u>				<u>10</u>	<u>14</u>			<u>10</u>		
SOUTH ATLANTIC	BENCHMARK		<u>39</u>			<u>18</u>			<u>45</u>			<u>21</u>	
	PHYSICAL	<u>5</u>		<u>5</u>		<u>5</u>		<u>5</u>		<u>5</u>		<u>5</u>	
	GEOLOGY *						<u>14</u>						
* 108 d total, USGS work for BLM													

BLM 1978

Expected Ship Requirements, Division of Polar Programs
NSF

UNOLS Ship-Use Forecasting Meeting
24 February 1977

1. PROBES

Approximately 90 days/year from 1978 through 1980 as follows:

March through May 1978
May through July 1979
mid-June through mid-Sept. 1980

The 1978 request is for R/V Thompson. Additionally approximately 45 days/year are requested for R/V Acona. The 1978 request is for 15 March through 30 April.

2. Weddell Gyre

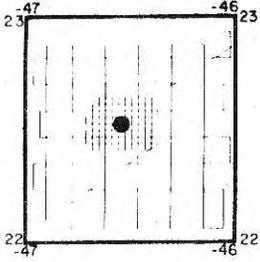
Approximately 2 months/year in the austral summers 1980 and 1981 for work in the northeastern portion of the Weddell Sea.

3. Circumantarctic Survey

The impact of the Circumantarctic Survey on the UNOLS fleet in the post-1980 era can not be stated at this time. At present 120 days/year on ARA Islas Orcadas are dedicated to this activity.

INTERNATIONAL PHASE OF OCEAN DRILLING SITE SURVEY MANAGEMENT

Lamont-Doherty Geological Observatory



Palisades, N.Y. 10964
Telephone: 914-359-8883

8 March 1977

Mr. Thomas Stetson
UNOLS Office
Woods Hole Oceanographic Institution
Woods Hole MASS 02543

Dear Mr. Stetson:

This is a very tentative schedule of site surveying planned for CY 1978. Brian Lewis, Site Survey Panel Chairman, and I put this together based on the new drilling schedule put out by the Planning Committee of JOIDES. This is to inform you of our present thinking about 1978 Site Survey needs.

Regards,

Mark

Mark Langseth
Project Manager

nm
att.

TABLE 1 - Tentative Plan of 1978 Site Survey Activities

AREA	TYPE OF SURVEY	EST. COST	EST. SHIPTIME REQUIRED
I. Eastern Pacific *			
a. Gulf of California Mouth of Gulf Guaymas Basin	Dredging, coring OBS, seismic reflection Heat flow, detail bathym.	180,000	45 days
b. Galapagos Spreading Center	Detailed heat flow, re- fraction OBS	100,000	30 days
c. Middle America Trench	Multichannel, single channel, heat flow detailed studies	75,000	25 days
II. Atlantic			
Hole # 417 Post drilling survey	Detailed seismics detailed basement morphology, heat flow	100,000	15 days
III. Atlantic **			
East Coast Margin Sites (Two areas in north or south Atlantic)	Detailed multichannel surveys, seismic re- fraction	230,000 area I 230,000 area II	30 days 30 days
[†] Analysis and proces- sing of previously acquired data	-----	85,000	
Total Cost		<u>\$1,000,000</u>	<u>175 days</u>
Shiptime at 3900		<u>682,500</u>	
Grand Total		<u>\$1,682,500</u>	

* These surveys in the Eastern Pacific will complete geophysical work in preparation for DSDP drilling through 1979 (the present approved phase of IPOD).

** Surveying at these sites is in advance drilling during a two year extension of drilling in the Atlantic assuming deeper penetration capability and a focus on passive margin problems.

[†] These costs will include funds to publish maps and folios on all survey sites.

Ship-Use Forecasting Meeting
24 February, 1977, Rm. 642, NSF, Washington, DC

SUMMARY TABLES

Outlook for FY1978

Agency budgets are currently being reviewed by Congress. The figures below are therefore subject to adjustment.

Total Est. Fleet Costs, 1978	\$ 24.5M
NSF	\$16.0 - 16.8M
ONR	3.0 - 3.5
ERDA	1.0 - 1.5
	<hr/>
TOTAL	\$20.0 - 21.8M
Required from other sources	\$ 4.5 - 2.7M

A hard look at the bottom line in the Table above indicates to us that at least some of the Agencies' ship time requirements shown below will be met with available time on UNOLS' vessels.

1978

JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
OCEANUS class or larger	BLM N. Atlantic Benchmark Geology (USGS)		---30---			---30---	---10---	20	---30---		---10---	---30---	
	Mid-Atlantic Benchmark Geology (USGS)		---30---			---30---	---10---	14	---30---		---10---	---30---	
	S. Atlantic Benchmark Physical Geology (USGS)	---5---	---39---		---5---	---18---	---5---	---14---	5	---45---	---5---	---21---	---5---
USGS	ATLANTIS II Type R/V E. Coast OCEANUS Class Drill Ship Atlantic Twin Size		---20 shelf---				---130 U. S. Atlantic shelf, slope, rise--- ---88 E. Coast plus 30 Miss. Delta--- ---50 Atlantic shelf, slope, rise--- ---5 Mass. coast---						
DPP	PROBES Bering Sea PROBES Bering Sea			---90 THOMPSON--- ---45 ACONA---									
ERDA	See pp. 12-14												
DSDP	IPOD Site Surveys See p. 22 Eastern Pacific 100 days Atlantic Hole 417 (25°N-68°W) 15 days Atlantic Margin 60 days												
IDOE	NORPAX Central Pacific POLYMODE Atlantic SEABED ASSESSMENT, Mn. Nodules 1-2 mo./yr through 1981, PACIFIC E. PACIFIC RISE Pre-Dive Surveys? S.E. ASIA 2-3 mos. geology/geophysics 1978-79?		MOANA WAVE →			60 or 3R/V OCEANUS cl.							
<u>1979</u>													
DPP	PROBES (45 days additional not shown on ACONA)						---90---						
IDOE	ISOS Drake Passage E. PACIFIC RISE, ALVIN escort?		---60---	KNORR or MELVILLE									
FGGE	Special Observing Periods 10°S-10°N, See p. 6 Drift Buoys 20°-65°S		---										
<u>1980</u>													
DPP	PROBES 45d additional not shown Weddell Gyre (Same for 1981)		---60 Large R/V---				---90---						

NOTES: Numbers shown in Table = days
* No. of days not specified