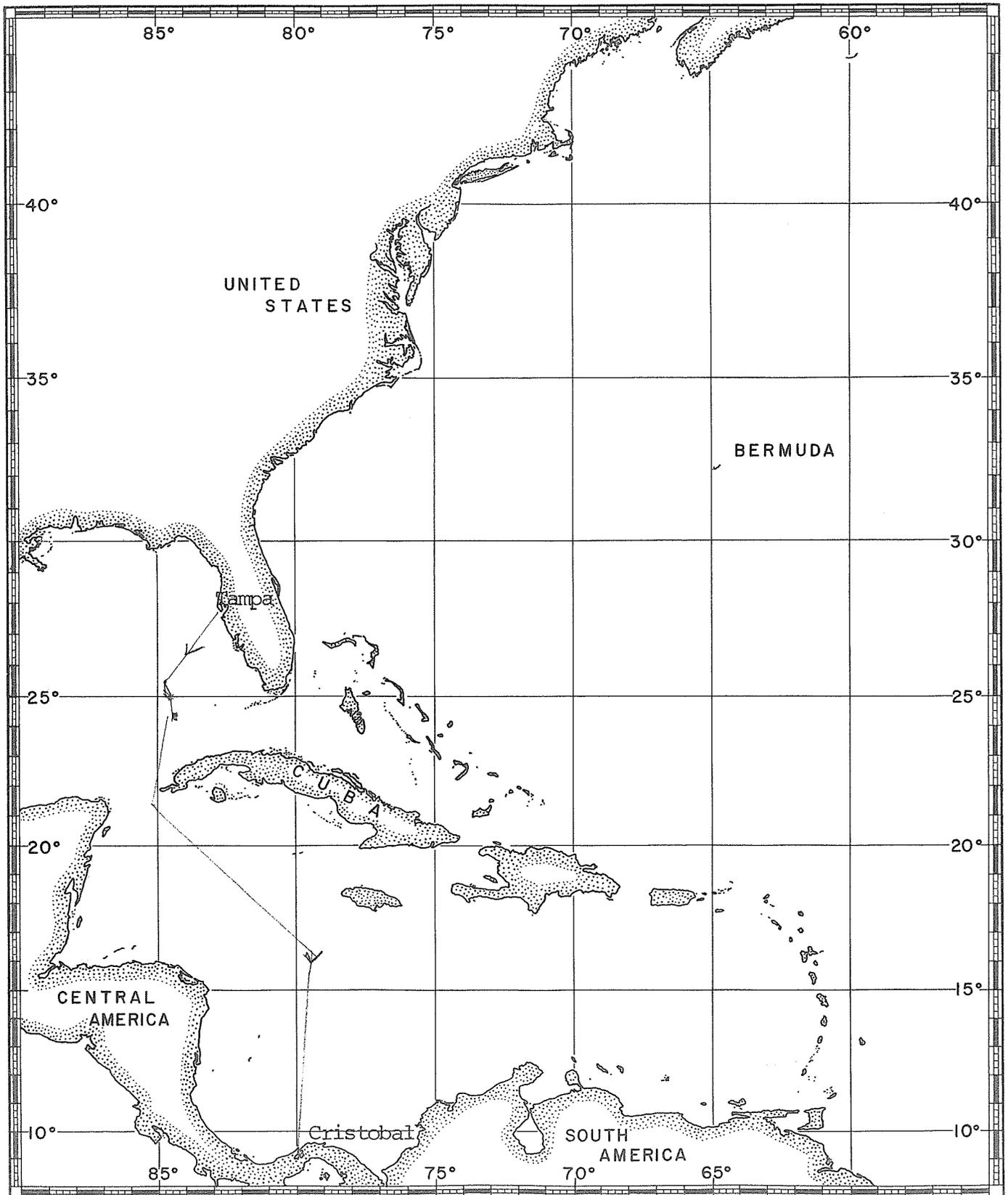


Atlantis 11 Cruise 112
Leg Four
6-14 March 1984

84030A2112-4



SHIP UTILIZATION DATA

SHIP NAME R/V ATLANTIS II		OPERATING INST. W. H. O. I.		PARTICIPATING PERSONNEL			
CRUISE (LEG) NO. 112, Leg IV		DATES 6 - 19 March 1984		CODE	NAME	TITLE	AFFILIATION
AREA OF OPERATIONS: Western Gulf of Mexico with transit to Panama		PORT CALLS:		1.	Mr. Charles K. Paull Chief Scientist	Graduate Student	Scripps Inst. Oceanography
		PLACE	DATES	2.	Dr. Conrad Neumann	Professor	U. No. Carolina
		Lv. Tampa, FL	3/6/84	3.	Dr. Raymond P. Freeman-Lynde	Postdoctoral Investigator	NORDA
		Ar. Cristobal, Panama	3/19/84	4.	Dr. Barbara Hecker	Assoc. Res. Scientist	L. D. G. O.
DAYS AT SEA 14 Days	DAYS IN PORT 5 Days						

(Cont. Pg. 2)

(4-5 Mar & 20-22 Mar)
WAS RESEARCH CONDUCTED IN FOREIGN WATERS? No COUNTRY: _____

PRIMARY PROJECTS (those which govern the principal operations, area and movements of the ship)

PROJECT TITLE AND PRINCIPAL INVESTIGATOR	SPONSORING ACTIVITY	GRANT OR CONTRACT NUMBER	PARTICIPATING PERSONNEL (AS CODED ABOVE)
Florida Diving on the West Florida Escarpment - Dr. Joseph R. Curray	NSF	OCE 82-08177	1, 4, 6
DISCIPLINE Geology & Geophysics			

ANCILLARY PROJECTS (which are accomplished on a not-to-interfere basis and contribute to the overall effectiveness of the cruise)

PROJECT TITLE AND PRINCIPAL INVESTIGATOR	SPONSORING ACTIVITY	GRANT OR CONTRACT NUMBER	PARTICIPATING PERSONNEL (AS CODED ABOVE)
Marine Sediments - Dr. Frank Manheim and Mr. Robert F. Commeau	Dept. of Interior	Unspec. U.S.G.S.	7

COST ALLOCATION DATA

SIGNATURE <u>Charles K. Paull</u> CHIEF SCIENTIST		DATE <u>Nov 2, 1984</u>	
TOTAL SCIENTISTS <u>5</u>	TOTAL TECHNICIANS <u>8</u>	DAYS CHARGED	AGENCY OR ACTIVITY CHARGED
TOTAL GRAD STUDENTS <u>4</u>	TOTAL STUDENTS/OBSERVERS _____	19 Days	National Science Foundation
ATTACH PAGE SIZE CRUISE TRACK		SIGNATURE <u>Paul B. Holden</u> Institution Official	GRANT OR CONTRACT NO. OCE 83-16601
		DATE <u>Nov 7 1984</u>	

CRUISE REPORT, (Continued)

R/V ATLANTIS IICruise No. 112, Leg IV

PARTICIPATING PERSONNEL (Cont.)

<u>CODE</u>	<u>NAME</u>	<u>TITLE</u>	<u>AFFILIATION</u>
5.	Dr. Stjepks Golubic	Professor	Boston University
6.	Mr. James E. Hook	Graduate Student	Boston University
7.	Mr. Robert F. Commeau	Geologist	U. S. Geological Survey
8.	Ms. Elisabeth L. Sikes	Graduate Student	University of North Carolina
9.	Mr. William P. Corso	Graduate Student	University of Texas
10.	Mr. Ralph M. Hollis	Chief Pilot, DSV ALVIN	Woods Hole Oceanographic Institution
11.	Mr. Don C. Collasius	DSV Pilot	Woods Hole Oceanographic Institution
12.	Mr. James E. Hardiman	DSV Pilot	Woods Hole Oceanographic Institution
13.	Mr. David M. Sanders	Research Assistant	Woods Hole Oceanographic Institution
14.	Mr. Denzel E. Gleason	Research Assistant	Woods Hole Oceanographic Institution
15.	Mr. Jonathan Borden	Research Assistant	Woods Hole Oceanographic Institution
16.	Mr. James F. Aguiar, Jr.	Research Assistant	Woods Hole Oceanographic Institution
17.	Mr. William J. Sellers	Research Assistant	Woods Hole Oceanographic Institution
18.			
19.			
20.			
21.			
22.			
23.			
24.			
25.			
26.			

R/V ATLANTIS II

CRUISE REPORT (Continued)

Cruise No. 112, Leg IV

PRIMARY PROJECTS

PROJECT TITLE and
PRINCIPAL INVESTIGATOR

SPONSORING
ACTIVITY

GRANT/CONTRACT
NUMBER

PARTICIPATING
PERSONNEL
(By Code)

Study-Surface Morphology of the
Escarpment and Collection Strati-
graphic and Lithologic Samples
from the West Florida Escarpment

NSF

P.O. #G 87878-7254
(Sub-contract to
Scripps)

2 and 8

- Dr. A. Conrad Neumann

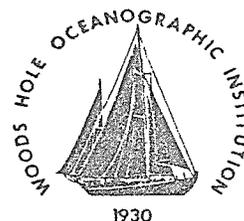
CRUISE REPORT (CONTINUED)

R/V ATLANTIS IICRUISE No. 112, Leg IV

ANCILLARY PROJECTS

<u>PROJECT TITLE and PRINCIPAL INVESTIGATOR</u>	<u>SPONSORING ACTIVITY</u>	<u>GRANT/CONTRACT NUMBER</u>	<u>PARTICIPATING PERSONNEL (By Code)</u>
Renewal of Geologic History of the Deep Gulf of Mexico Basin - Dr. Richard T. Buffler	NSF	OCE 82-09154	9
Fossil Endolithic Micro-organisms: Depth, Distribution, Paleoecology, and Evolution - Drs. Campbell and Golubic (Boston University)	NSF	EAR 83-06179	5 & 6
Development of West Florida Escarpment Dr. R. Freeman-Lynde	ONR	Unspec. NORDA via ONR	3

Woods Hole Oceanographic Institution
Woods Hole, MA 02543
Phone: (617) 548-1400
Telex: 951679



29 February 1984

Captain Reuben R. Baker, Jr.
Research Vessel ATLANTIS II
Tampa, Florida

Dear Captain Baker:

On or about 6 March 1984, your vessel being ready for sea and weather permitting, you will depart Tampa, Florida on Leg IV of Voyage #112. This leg which is for Scripps Institute of Oceanography, will carry the vessel to Cristobal, Panama. The vessel will transit the Panama Canal on arrival and dock at Rodman Naval Base on the Pacific side.

The purpose of this leg is to conduct a geological examination of rock outcrops on the West Florida Escarpment to determine if they are an original depositional steep slope or were steeped by subsequent erosion. Seven dives of DSRV ALVIN are planned for this leg. The dive sites are: 26-03N,84-54W; 25-00N,84-35W; 24-27N,84-09W. Rock and biological samples will be taken on each dive.

The scientific personnel on this leg, under the direction of Mr. Charles Paull, Scripps Institute of Oceanography, Chief Scientist, are:

Voyage #112
Leg IV
Tampa, Florida - Cristobal, Panama
6 March - 19 March

Mr. Charles Paull, Chief Scientist, Scripps Institute of Oceanography
Dr. A. Conrad Neumann, University of North Carolina
Ms. Elisabeth L. Sikes, " " " "
Dr. Barbara Hecker, Lamont-Doherty Geological Observatory
Dr. James Hooke, Florida State University
Dr. William Corso, University of Texas
Dr. Raymond Freeman-Lynde, N.O.R.D.A.
Mr. Robert Commeau, U.S. Geological Survey
Dr. Stjepko Golubic, Boston University

The DSRV ALVIN Support Group will be:

Mr. Ralph M. Hollis, Chief Pilot	Mr. Denzel E. Gleason
Mr. Don C. Collasius	Mr. Jonathan Borden
Mr. James E. Hardiman	Mr. James F. Aguiar, Jr.
Mr. David M. Sanders	Mr. William J. Sellers

Captain Reuben R. Baker, Jr.

-2-

29 February 1984

The ship's agent in Cristobal, Panama is:

Panama Agencies Company
P.O. Box 5097
Cristobal, Panama

Please advise the Port Office of all personnel changes prior to departure and maintain twice daily schedules with KXC713 or via satellite on assigned frequencies, and submit to the Port Office at radio contact on Mondays and Thursdays a situation report from Master and Chief Scientist.

Please advise the Controller's Office of all significant expenses incurred, particularly the quantity, price and source of fuel oil. Also, at each port stop, please advise the Controller's Office the gallons of fuel on board, stating the date the inventory was taken.

I wish you a pleasant and successful voyage.

Yours very truly,

A handwritten signature in cursive script that reads "John H. Steele". The signature is written in dark ink and is positioned above a horizontal line.

John H. Steele
Director

Cruise Data

Ship: ATLANTIS II

Cruise: 112-4

Departure Date: 3/6/1984

Departure Port: Tampa FL

Arrival Date: 3/19/1984

Arrival Port: Cristobal, Panama

Scientist 1: C. Paull

Affiliation: Scripps Institution of Oceanography

Scientist 2:

Affiliation:

Scientist 3:

Affiliation:

Sponsor: National Science Foundation/Department of the Interior

Major Subject: Geology

Subject 1:

Subject 2:

Notes:

Major Area: GMX/CAR

Area 1: West Florida Escarpment/Mexican Basin

Area 2:

Project:

ALVIN Dives# 1342-1348

1348 03/14/84 GULF OF MEXICO 24-27N 84-05W 3300 D. COLLASIOUS C. PAULL R. LYNDE
1347 03/13/84 GULF OF MEXICO 25-01N 84-36W 2805 J. HARDIMAN C. PAULL C. NEUMANN
1346 03/12/84 GULF OF MEXICO 26-03N 84-54W 3286 R. HOLLIS C. NEUMANN S. GOLUBIC
1345 03/11/84 GULF OF MEXICO 25-00N 84-35W 3338 D. COLLASIOUS D. GLEASON R. LYNDE
1344 03/10/84 GULF OF MEXICO 26-03N 84-56W 3270 J. HARDIMAN C. PAULL B. HECKER
1343 03/09/84 GULF OF MEXICO 26-03N 84-54W 3270 R. HOLLIS B. HECKER R. LYNDE
1342 03/07/84 GULF OF MEXICO 26-03N 84-54W 3280 D. COLLASIOUS C. PAULL C. NEUMANN

ALVIN Dive Information

Dive Number:	1342	Date:	03/07/84
Cruise:	112	Leg:	4
Chief Scientist:	C. PAULL	Operations Area:	GULF OF MEXICO
Latitude:	26-03N	Longitude:	84-54W
Pilot:	D. COLLASIUS	Observer 1:	C. PAULL
		Observer 2:	C. NEUMANN
Launch Time:	0856	Time Submerged:	9:04
Recovery Time:	1800	Bottom Time:	
Depth:	3280 meters	Purpose:	GEOLOGY/BIOLOGY
Sponsor:	NSF	Data:	
Still Images:	1 Reel(s) 35mm color film 1 reel 35mm B/W film	Moving Images:	2 VHS tape(s)
Observed:		Sampled:	
Remarks:			

ALVIN Dive Information

Dive Number:	1343	Date:	03/09/84
Cruise:	112	Leg:	4
Chief Scientist:	C. PAULL	Operations Area:	GULF OF MEXICO
Latitude:	26-03N	Longitude:	84-54W
Pilot:	R. HOLLIS	Observer 1:	B. HECKER
		Observer 2:	R. LYNDE
Launch Time:	0818	Time Submerged:	9:01
Recovery Time:	1719	Bottom Time:	
Depth:	3270 meters	Purpose:	GEOLOGY/BIOLOGY
Sponsor:	NSF	Data:	1 3.5" diskette(s)
Still Images:	2 Reel(s) 35mm color film	Moving Images:	2 VHS tape(s)
Observed:		Sampled:	
Remarks:			

ALVIN Dive Information

Dive Number:	1344	Date:	03/10/84
Cruise:	112	Leg:	4
Chief Scientist:	C. PAULL	Operations Area:	GULF OF MEXICO
Latitude:	26-03N	Longitude:	84-56W
Pilot:	J. HARDIMAN	Observer 1:	C. PAULL
		Observer 2:	B. HECKER
Launch Time:	0910	Time Submerged:	8:17
Recovery Time:	1727	Bottom Time:	
Depth:	3270 meters	Purpose:	GEOLOGY/BIOLOGY
Sponsor:	NSF	Data:	
Still Images:	2 Reel(s) 35mm color film	Moving Images:	1 VHS tape(s)
Observed:		Sampled:	
Remarks:			

ALVIN Dive Information

Dive Number:	1345	Date:	03/11/84
Cruise:	112	Leg:	4
Chief Scientist:	C. PAULL	Operations Area:	GULF OF MEXICO
Latitude:	25-00N	Longitude:	84-35W
Pilot:	D. COLLASIUS	Observer 1:	D. GLEASON
		Observer 2:	R. LYNDE
Launch Time:	0829	Time Submerged:	8:41
Recovery Time:	1710	Bottom Time:	
Depth:	3338 meters	Purpose:	GEOLOGY/BIOLOGY
Sponsor:	NSF	Data:	
Still Images:	2 Reel(s) 35mm color film	Moving Images:	
Observed:		Sampled:	
Remarks:			

ALVIN Dive Information

Dive Number:	1346	Date:	03/12/84
Cruise:	112	Leg:	4
Chief Scientist:	C. PAULL	Operations Area:	GULF OF MEXICO
Latitude:	26-03N	Longitude:	84-54W
Pilot:	R. HOLLIS	Observer 1:	C. NEUMANN
		Observer 2:	S. GOLUBIC
Launch Time:	0839	Time Submerged:	6:26
Recovery Time:	1505	Bottom Time:	
Depth:	3286 meters	Purpose:	GEOLOGY/BIOLOGY
Sponsor:	NSF	Data:	2 3.5" diskette(s)
Still Images:	2 Reel(s) 35mm color film	Moving Images:	1 VHS tape(s)
Observed:		Sampled:	
Remarks:			

ALVIN Dive Information

Dive Number:	1347	Date:	03/13/84
Cruise:	112	Leg:	4
Chief Scientist:	C. PAULL	Operations Area:	GULF OF MEXICO
Latitude:	25-01N	Longitude:	84-36W
Pilot:	J. HARDIMAN	Observer 1:	C. PAULL
		Observer 2:	C. NEUMANN
Launch Time:	0858	Time Submerged:	8:11
Recovery Time:	1709	Bottom Time:	
Depth:	2805 meters	Purpose:	GEOLOGY/BIOLOGY
Sponsor:	NSF	Data:	1 3.5" diskette(s)
Still Images:	2 Reel(s) 35mm color film	Moving Images:	1 VHS tape(s)
Observed:		Sampled:	
Remarks:			

ALVIN Dive Information

Dive Number:	1348	Date:	03/14/84
Cruise:	112	Leg:	4
Chief Scientist:	C. PAULL	Operations Area:	GULF OF MEXICO
Latitude:	24-27N	Longitude:	84-05W
Pilot:	D. COLLASIUS	Observer 1:	C. PAULL
		Observer 2:	R. LYNDE
Launch Time:	0821	Time Submerged:	8:41
Recovery Time:	1702	Bottom Time:	
Depth:	3300 meters	Purpose:	GEOLOGY/BIOLOGY
Sponsor:	NSF	Data:	1 3.5" diskette(s)
Still Images:	2 Reel(s) 35mm color film	Moving Images:	1 VHS tape(s)
Observed:		Sampled:	
Remarks:			



SCRIPPS INSTITUTION OF OCEANOGRAPHY

GEOLOGICAL RESEARCH DIVISION
LA JOLLA, CALIFORNIA 92093

Jan 4, 1984

Dear Bob and Candy,

You are probably better informed about the A 4's schedule than me. However, it is clear that the Feb 3-20 Tampa-Panama West Florida Escarpment Cruise dates are slowly slipping. As time grows nearer I hope we will be in touch about travel plans. Please try to arrive in Tampa one day before departure. You will need both passports and a visa for Panama. If you have any questions please contact me at 619-452-2172 (SIO) or at 619-223-0432 (home). 297-8702 MARY

Enclosed is a copy of the cruise plan requested by the Alvin Group*

Sincerely
Charlie Paul

WEST FLORIDA ALVIN DIVING PLANS

The West Florida Escarpment is the topographic feature which separates the deep Gulf of Mexico (~ 3400 meters) from the Florida Platform (> 1000 meters). The escarpment is made up of outcropping Mesozoic limestones and has an average slope of 20°-45°. A comparable topographic feature might be one wall of the Grand Canyon. The major scientific objectives of diving on the escarpment are to determine the stratigraphy and depositional origin of the strata presently exposed on the escarpment face, and to determine how and by what processes erosion has modified the present escarpment.

Diving Objectives

1. Sampling of Exposed Limestone Rocks

We want samples every 50 meters vertically from the base of the escarpment to its top (3400 meters to ~ 1000 meters). Samples have either to be broken off the outcrop or picked up from talus piles which appear to be locally derived.

2. Benthic Biological Sampling

Some samples of typical attached benthic organisms (e.g. sponges, crinoids, fungal mats) are desired, to assess the effects of these organisms on the substrate. Since both the organism and its substrate are required, this may best be accomplished by picking up already-colonized pieces of talus.

3. Surficial Sediment Sampling

We may want to take a few samples of the loose sediment, using the canvas scoop bags.

4. Observational and Photographic Objectives

We hope to observe and photographically document the following:

- (a) The nature of the contact between the pelagic deep Gulf sediments and the escarpment's base.
- (b) The vertical and horizontal variability along the escarpment's face. We intend to construct a stratigraphic section of the escarpment's face which will incorporate observations of the surficial morphology, bedding characteristics, surficial rock textures, and the distribution of organisms, etc. We hope to examine the horizontal continuity of units using the Alvin's sonar.

Dive Plans

We are planning for a seven-dive program, four directly awarded from NSF on a Tampa-to-Tampa cruise. An additional dive was negotiated by changing the port of destination from Tampa to Panama, which saves over a day of transit time and a port stop for the A-II. The sixth and seventh dives were acquired by Dr. Ray Freeman-Lynde, of NORDA, and merged with this program.

The dive areas (± 10 miles) are $26^{\circ}03'N$, $84^{\circ}54'W$ (3 dives); $25^{\circ}00'N$, $84^{\circ}35'W$ (3 dives); and $24^{\circ}27'N$, $84^{\circ}09'W$ (1 dive). If our objectives can be accomplished within two dives at either of the first two sites, then the sixth and seventh dives will be in the third area. We hope to arrive at each site a few hours before dawn and run a few survey lines across the area. The first dive area is an approximately 185-nautical mile run from Tampa. The survey lines will enable the sub to be launched so that it reaches the bottom ~ 500 meters away from the escarpment base. In the first dive, we expect to traverse to the escarpment's base, then travel along the escarpment's base for about 500-1000 meters before heading directly up the escarpment's face. A single transponder will be deployed during this first dive. On subsequent dives, the objective will be to return to where the previous dive ended and continue the transect. The maximum distance between subsequent dive areas is 65 nautical miles. We envision steaming between areas and surveying the new area in one night, between two dives.

Alvin Navigation

We anticipate that the Alvin will be navigated with respect to the A-II's loran C position. The slant ranges and loran C values will be recorded every five minutes, supplemented by depths recorded in the sub.

One transponder should be deployed in both multiple-dive areas. A single transponder will assist the sub in returning to the site (± 250 m) where the previous dive terminated and continuing the same vertical transect. By limiting to a single transponder, we understand that high navigational accuracy is lost, but no time is spent surveying transponder positions. We anticipate that the transponders will be launched while the initial dive is underway in each area.

Non-Diving Operations

At night we expect to conduct bathymetric surveys of the escarpment face around the dive sites. For this an operational 12 kHz system is critical, and a 3.5 kHz system would be desirable. Navigation will again be by loran C. The lines will be 10-20 miles long, both parallel and perpendicular to the escarpment.

Non-Standard or Essential Equipment Requirements

Loran C
Canvas Sediment Scoop Bags
Pry Bar
Rock Pincher
System to record image of Alvin's sonar record of depth as function of time
operational 3.5 kHz system

Personnel

We anticipate a maximum of ten persons in the scientific party:

Joe Curray - SIO
Charlie Paull - SIO

Conrad Neumann - UNC
Liz Sykes - UNC
Ken Rasmeuson - UNC
Ray Freeman-Lynde - NORDA
Barbara Hecker - LDGO
Bill Corso - U. Texas, Austin
Bob Commeau - U.S.G.S./Woods Hole
Candy Lane - U.S.G.S./Woods Hole

AREA II
CONTOURS IN
METERS x100

