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CRUISE REPORT
R/V GYRE 82-G-9
8 August - 21 August 1982

Dennis W. O'Leary
U.S. Geological Survey
Woods Hole, AM 02543

Vessel: R/V GYRE Captain: Donald Armand

Cruise number: 82-G-9

Parent project: Bureau of Land Management/U.S. Geological Survey
Environmental Studies: North Atlantic Continental Slope
Mapping (9840-51823)

Funding agency: Bureau of Land Management

Funding amount: \$193,563

Contract number: AA851-IA2-26

Contract start/end: October 1, 1981-September 30, 1982

Area of operations:

1. Continental Slope in the vicinity of Alvin and Atlantis Canyons, west to 70°50', from 600 m to 2,100 m depths.
2. Continental Slope between Gilbert and Lydonia Canyons from 1,150 m to 2,250 m depths.
3. Continental Slope east of Munson Canyon (66°40' to 66°50') from 1,800 m to 2,300 m depths.
4. Base of Bear Seamount (~67°30') from 2,100 m to 2,300 m depths.

Dates: Leave Woods Hole August 8, 1982 0830 EDT
Arrive Woods Hole August 21, 1982 1720 EDT

<u>Scientific party:</u>	Dennis O'Leary	USGS (Chief Scientist)
	John Aaron	USGS
	Kathryn Scanlon	USGS
	Charles O'Hara	USGS
	Carol Parmenter	USGS
	Robert Bowles	USGS
	James Dodd	USGS
	Gregory Miller	USGS
	Ronald Circe	USGS
	Earl Young	WHOI (Woods Hole Oceanographic Institution)
	John Porteus	WHOI
	George Meier	WHOI
	Robert Handy	WHOI
	Carol Collins	WHOI

Purpose of cruise:

To obtain color photographs of features interpreted from previously acquired data to represent sites of mass movement; to acquire single-channel high-resolution seismic profiles along the photo traverses; to acquire gravity core samples of the photographed bottom at selected sites.

Navigation technique:

Integrated Navigation/Gravity system. An H-P2112 minicomputer takes data from six sensors to determine ship position. Sensors include Loran-C Northstar 6000, bottom lock (pulsed) sonar, doppler (continuous) sonar, Sperry Mark 29 gyrocompass, and Magnavox 702A satellite receiver. Navigation parameters are recorded every 20 seconds on mag tape.

Scientific equipment:

1. ANGUS 3-camera vehicle with 3 battery-powered strobe lights; 6,000 m 5/8" wire; drum winch; photo processing van; Giffit recorder.
2. 3.5-kHz hull-mounted echosounder/subbottom profiler and ORE 140 transceiver.
3. 300-joule Teledyne minisparker.
4. 200-element hydrophone streamer; 600-element Teledyne streamer.
5. Hydroplastic gravity corer and 12-kHz portable pinger.
6. H-P analog 8-track tape recorder.
7. 9 EPC flat-bed paper recorders.

Tabulated information:

- a. Days at sea: 13
- b. Number of kilometers of each type of continuous data:
 1. ANGUS photography - 271 (147 nmi)
 2. 3.5-kHz - 32.4 (17.5 nmi)
 3. Minisparker - 241.4 (130.5 nmi)
- c. Number of stations occupied: 20
 1. Chain bag dredge - 2 km, from 1,950 m to 1,650 m, west flank of Atlantis Canyon. Recovered middle Eocene chalk from outcrops seen in ANGUS photos.
 2. 19 core sites - see attached coring report for data.

Comments:

Cruise 82-G-9 successfully accomplished its objectives: to obtain geological data at outcrop scale, on Continental Slope features inferred from mid-range sidescan-sonar data to have originated by mass movement. The ANGUS system operates 6 or 7 meters above the sea floor; the three synchronized cameras take overlapping photos (Ektachrome) that include an area as great as 450 m². Photos were taken at 20 second intervals and there was no overlap at nominal cruising speed of 0.75 knots. The Integrated Navigation System provided positional accuracy commensurate with the fine scale of the survey.

Indeed, the full value of a photo survey could not have been realized prior to development of the INS. Local bottom and surface currents made precise tracking difficult and even impossible in a few places. Six nmi of data were lost during the last day of the survey because heavy seas prevented safe launch of the camera vehicle.

During times when the camera vehicle batteries were being recharged we retraced the camera track with the minisparker in tow to obtain subbottom data along track. At selected sites along photo tracks the corer was deployed to obtain bottom samples. A dredge haul was made to identify a distinctive cliff-forming rock unit.

Coring Report

Cruise: Gyre 82-G-9
August 8-21, 1982

Chief Scientist: Dennis O'Leary

Coring Operation: Ronald Circe

During the recent cruise aboard the R/V Gyre 82-G-9, a total of 19.3 m gravity cores were attempted of which 16 returned samples > 10 cm. The gravity core used had a core head weight of ~145 kg and utilized a schedule 40 PVC barrel 3 m in length and 10 cm of inside diameter.

Following is a table presenting documentation data concerning station, recovery, latitude, longitude, and depth.

The original core log is on file in the marine geotechnical lab.

STATION	RECOVERY	LATITUDE	LONGITUDE	DEPTH (~m)
C-1	< 20 cm	39° 44.5'	70° 42.7'	2030
C-2	< 20 cm	39° 43.9'	70° 42.9'	2100
C-3	170 cm	39° 49.3'	70° 25.6'	1010
C-4	< 20 cm	?	?	1053
C-5	70 cm	39° 44.32'	70° 15.3'	2000
C-6	50 cm	40° 11.4'	67° 51.1'	2030
C-7	< 20 cm	40° 12.4'	67° 41.6'	1730
C-8	< 20 cm	40° 12.8'	67° 37.6'	1972
C-9	175 cm	40° 12.04'	67° 40.8'	1450
C-10	< 20 cm	40° 12.7'	67° 40.0'	1452
C-11	40 cm	40° 10.1'	67° 37.9'	1986
C-12	220 cm	40° 9.48'	67° 38.08'	2070
C-13	< 20 cm	40° 9.58'	67° 42.07'	2190
C-13A	---	40° 9.5'	67° 42.3'	2245
C-14	---	40° 10.0'	67° 42.6'	2043
C-15	< 20 cm	40° 28.8'	66° 42.7'	2270
C-16	< 20 cm	40° 27.21'	66° 45.67'	2250
C-17	---	39° 57.12'	67° 29.65'	2050
C-17A	110 cm	39° 57.12'	67° 29.16'	2032

? DID NOT RECORD ACCURATE LAT./LONG.