

I D A G R E E N C R U I S E R E P O R T

Cruise No. 12 Dates of Cruise 18 Sept. 1974 to 18 Oct. 1974

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Project: IDOF G. Putnam \*\* G. Barksdale

Reason (be specific): Multichannel seismic investigation of western Gulf of Mexico

REMARKS: (See attached)

\* Galveston - Vera Cruz leg only

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## CRUISE REPORT

During IG-12, we successfully completed all planned IDOE multi-channel seismic reflection lines, the objective of the cruise, and also accomplished a single channel seismic reflection survey of the IDA GREEN canyon. We recorded 12 and 3.5 kHz sounding data and magnetic data throughout the cruise. IDOE multichannel data comprised an estimated 1430 nautical miles including 100 nautical miles shot during IG-6.

The following is a summary of the multichannel data.

Line	Length N.Miles	Fold	Record Length(sec.)
1	180	12	10
2	450	24	12*
3	400	24	12
5	120	12	10
6	280	24	14**

\*Record length section from Sigsbee Scarp to northern terminus (about 50 miles) was 6 sec.

\*\*Portion shot during IG-6 (about 100 miles) was 12 fold, 16 second data.

Judging from the continuous single channel monitor and periodic 24 channel monitor records, overall data quality is excellent. The most exciting discovery obvious on the single channel monitor was the appearance of probable igneous basement immediately seaward of Hole 93 within easy reach of the Glomar Challenger drill. A hole here could provide much data about the age of the Gulf.

We made one deviation from the planned IDOE tracks. Arturo Carranza suggested that from the point of view of Mexican geology, the extension of Line 2 into the Bay of Campeche was more important than the eastern half of Line 5. On the basis of his suggestion we extended Line 2 and shortened Line 5.

On the whole the DFS functioned well. Several days were lost for repairs during the early part of the Galveston-Vera Cruz leg. The repairs were mainly to the tape recorder. We were lucky in that the streamer required few repairs. We repaired one leak - a previous patch had failed - as we entered Vera Cruz, and discovered an apparently fresh shark bite as we pulled the streamer in on 17 October.

Our main problems derived from the ship's engine and air compressors. We presently lack spare parts necessary for repairs at sea. We lost considerable time enroute to Vera Cruz because of inadequate compressor power. With one compressor out, we could maintain a firing rate of only 24 seconds. We consequently slowed to 4 kts to obtain 24 fold coverage. We returned from Vera Cruz with a defunct turbocharger on the starboard engine, an overheating port engine and a compressor clutch which was never disengaged.

The following are miscellaneous observations pertinent to future cruises.

(1) No real water or fuel problems occurred during the 16 day cruise. We could probably have stayed out another week or ten days. Fuel conservation <sup>was</sup> due in part to 4 and 5 kt speeds while doing multi-channel work helped.

(2) Avoid taking streamer in and out. This is time consuming and risks damage to streamer.

(3) The agent situation in Vera Cruz was terrible. We might be better off handling foreign agents directly.

(4) The streamer tends to float to the surface and become excessively noisy in a heavy following sea. Data collected going into heavy seas were noisy on some channels. Noise appears to propagate down the streamer. Extremely good data were collected in heavy seas while in the trough, however.

(5) Large patches on the streamer do not hold. It is best to slide a sleeve over the damaged portion and secure it with steel bands.

(6) There is considerable doubt as to the usefulness of Feinstein's degausser and the old NASA tapes. We suspect that problems on ~~the~~ 17 ~~of~~ October derived from inadequate degaussing of old audio tapes used in lieu of digital tapes.

(7) Spare parts for the engine and compressor are essential. We lost an estimated 5 days at sea and in Vera Cruz because we lacked the parts necessary to make relatively simple repairs at sea.

(8) The air conditioning went out on the way to Vera Cruz. Repairs in Vera Cruz failed a few hours beyond the breakwaters. In the middle of summer, this would have <sup>almost</sup> disabled the ship since there is no alternate means of forcing air, cool or otherwise, through the ship.

(9) Carl Savit once said it might be possible for us to use Western's world-wide single-sideband system. I think I will follow this up.

(10) Need an accurate fuel gauge.

(11) Need centrifuge to dewater fuel. We got water in fuel on two separate occasions. Each resulted in several hours of lost time.

(12) Need better auxiliary navigation system. It is virtually impossible to neatly connect ends of two multichannel lines because of drift, speed uncertainty, etc.

(13) Need clothes washer and dryer (after waste heat evaporator installed). Personnel get pretty odiferous after two weeks.

(14) We need a separate single channel system, at least to the extent of a good streamer. The DFS amplifiers and gain control are so efficient that I am reluctant to give them up without an equivalent system. Use of the large streamer for single channel work is hazardous to the streamer and difficult on personnel.

(15) The Bolt guns do not tow well at speeds greater than 6-8 kts. We tore the connector off the starboard gun during a "high-speed" run into Vera Cruz. Previous experience has also shown that these connectors are relatively fragile and prone to breaking. The air guns will limit the speed at which single channel work can be done. This is not too serious since streamer noise increases significantly at speeds above about 7 kts. This speed should be used for time estimates in future proposals.

(16) A perceptibly increased signal-to-noise ratio is obtained by going from one to two guns. We should proceed with plans to install a third gun.

(17) I believe the time has come to seriously consider addition of sonobouys to our repertoire. We have extra channels in the DFS to record sonobouy data, but need receivers, amplifiers, etc.

Finally, I would like to say that the crew performed extremely well. Ken Griffiths and Archie Roberts performed minor and major miracles during the first few days in the course of making the DFS function properly. Everyone else contributed fully and wholeheartedly.