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31 August 1978

M E M O R A N D U M

TO : Distribution List

FROM : Mark H. Houston, Jr.

SUBJECT : Cruise Report for R/V *Ida Green* 29-4 and 29-5

IG 29-4 (Panama City, Panama to Port Cortes, Honduras) and IG 29-5 (Port Cortes, Honduras, to Galveston, Texas) collected over 2,300 miles of 12-fold multichannel data for the Caribbean Tectonics Phase I program. The data appears to be of excellent quality, although, because of compressor problems, about 25 percent of the mileage was shot using only two air guns.

Lines shot in the Panama and Colombian margins show a thick sedimentary section that is tectonically deformed by lateral compression and vertical movements. The tectonic style is principally one of soft sediment deformation (similar to structures found within the northern Gulf of Mexico). In the Colombian Basin the sedimentary section is at least 2½ to 3 sec in thickness. South of the Cayman Islands near Pedro Bank a surprisingly thick section of about 2-sec thickness rests in a water depth of 2 sec. This area shows predominantly block faulting with some diapiric structures. There is little sediment within the Bartlett Trough itself, but in the Yucatan Basin to the north along the southern edge of Cuba 1 to 1½ sec of well stratified sediment show gentle undulations. The sediments of the Yucatan Basin are progressively more disturbed toward the Gulf of Honduras. Stratified pelagic sedimentation patterns thin, and terrigenous sediments from Mexico begin to dominate. Within the Gulf of Honduras on the southern side there is about 2 sec of sediments, while on the northern side of the fracture zone sediments appear to be thinner.

Lines shot along the eastern coast of Belize and Mexico show southwest/northeast trending basement features. Basins between these basement ridges have up to 1½ sec of sediment and show terrestrial sediments shed from local sources. Within these basins erosional features such as canyons and slumps are well represented. To the north approaching the Yucatan Straits, deep-water sediments of at least 2-sec thickness conspicuously onlap against the continental platform.

Despite some catastrophic failures in individual pieces of equipment, most of the equipment, thanks to the hard-working efforts of our shipboard technician Craig Van der Smissen, was operating on return to Galveston.

1) Satellite Navigator - The rented satellite navigator unit worked satisfactorily.

2) Magnetometer - The electronics worked satisfactorily throughout the legs.

3) DFS-4 - The tape recorder on the DFS-4 gave occasional problems and should be overhauled. The electronics of the DFS-4 worked o.k., although I think we need additional spares, particularly for critical components within the format, read/write, and tape control modules.

4) 48-Channel Streamer - At present we have four open channels within the streamer. Three of these channels appear to be problems of open wires between the aft end of the leader and the lab. (See attached table showing resistance and leakage.)

5) Sparker - Firing circuits of the sparker worked o.k. There is some objectionable noise frequency 60 to 100 cycles within the amplifier of the sparker system. At times this interference overwhelmed the incoming seismic signal. One difficulty with the sparker system is that the high-frequency pulse of the sparker seems to get into all of the electronics onboard. This is particularly objectionable for the DFS system. The sparker pulse also occasionally clobbers the cycle timer.

6) 3.5 kHz Profiler - No problems. One of the flatbed recorders should be repaired so as to give us two recorders able to operate in the trip mode. On these legs we had only one recorder operable in trip mode, so that when using Maxipulse, we could record either a sonobuoy or a DFS monitor but not both for analog output.

7) Air Gun Fire Control System - Channel No. 3 consistently failed to indicate a relative fire time. The fault lies definitely within the electronics and not the gun.

8) Bolt Air Guns - At the end of the cruise we had four operating guns. The most consistently firing guns were Nos. 2 and 3; these guns would fire very consistently between 360-370 psi. Gun No. 1 would fire up to about 380-390 psi, but would give a very inconsistent relative fire time. Gun No. 4 would fire at 360-370 psi, but had some leaks.

9) Tektronix 4051 - The Tektronix worked satisfactorily; the head for the magnetic tapes is apparently misaligned. Tapes created onboard the ship can be read by the shipboard Tektronix, but those same tapes cannot be read by Wulf Gose's machine. The hard copier for the Tektronix used onboard the ship needs to be repaired.

10) Omega Navigation System - The Omega worked satisfactorily.

11) Loran C Receiver - We did not try to use this system.

MHH:lab

Attachment 1

48-CHANNEL CABLE (MEASURED 8/12/78)

Patch Panel Trace No.	Resistance (Ω)	Leakage (kΩ)
1	No section in cable	
2	" " " "	
3	1409	100
4	Open*	∞
5	1384	∞
6	1371	∞
7	1356	200
8	1333	300
9	Open	∞
10	1315	∞
11	1293	∞
12	1290	22
13	1268	∞
14	1260	∞
15	1244	∞
16	1226	∞
17	1214	5
18	1201	∞
19	1185	∞
20	1169	∞
21	1155	200
22	1139	∞
23	1129	∞
24	1116	∞
25	1096	∞
26	1094	∞
27	1071	∞
28	1057	10
29	1053	14
30	1029	∞
31	1020	∞
32	1004	50
33	991	∞
34	976	∞
35	963	∞
36	952	1000
37	936	∞
38	925	1000
39	904	∞
40	Open*	∞
41	882	∞
42	868	∞
43	854	∞
44	Open*	∞
45	824	∞
46	808	∞
47	791	∞
48	783	∞
49	770	∞

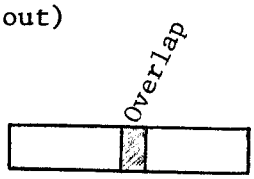
*Tested open with shorting plugs inserted at aft end of leader on 8/7/78.

From Craig Van der Smissen's Log

IG 29-

28 July 1978

Radar went out:
1. CRT blank (sometimes rings stay on, then go out)
2. Smell of burnt resistor
3. No fuses blown
4. No response on tuning eye.



Found: On Regulator Board 65251CT

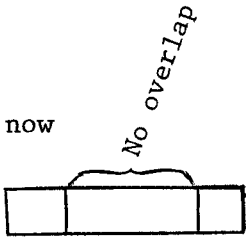
1. R211, R210 } Both Burnt
3. No -18 volts @ pin A1 (output)
4. No +16 volts @ pin A2 (input)
5. R101 .2Ω Resistor very hot
6. D102 shorted to case of C101 possibly shorting - 36 v to ground
7. -9.9 v @ pin A1 SB -18 v
8. D102 burned up.

On Inverter and FM Board 65149AR X 110

1. R251, R252, R253, R261 } All Burnt
5. Invert is humming.

On T101

1. All voltages about half their normal value.



Replaced R211, 210, 251, 252, 253, D102, TR101. The voltage @ pin A1 now up to -16 v and pin A2 up to 10 v - still no joy. Tuning eye still does not work.

Possible problem areas:

Boards
- 65251CT Input Regulator
- 65149AR X110 Inverter and FM
- 65149AP X103b A.F.C. and Tuning Ind.

Repairs Needed:

Depth Sensor #3 (in cable) shows open @ 180 ft.

Camera
1) needs optics aligned,
2) good cleaning,
3) new interconnect cable and bracket,
4) possible new bulb (required a long time to come on if accidentally turned off and is hot).

Patch Panel:

1) Hook up other traces
2) Cable input and output on d.t. and wk.

DFS:

1) Possibly dirty relay for low cut filters; sometimes work, sometimes do not.
2) Several boards in BGA 3 and 4 and Mux. need work to be used as spares.
3) Servo drive in transport. Sometimes closes arms for no apparent reason.
4) Roller needs to be replaced.
5) Read/write power breakers; need to be replaced.
*6) Sometimes one or both BGA's show no signal input from cable or test box and go to Final Gain. When this happens, the problem can be cured by interrupting the power to the Amp.
7) Find out what signal is on trace 31.
**8) Needs some kind of filter to stop the sparker from getting into the system and producing NTB.
9) Need new heavy duty E battery, something to handle 45 amps continuously.

Maxipulse (Spare):

1) Does a system start as soon as it gets a Maxipulse start?
2) Check out transducer power supplies. One or both bad.

Maxipulse (System Unit):

1) Good condition.

Sparker Amp:

1) Has a low level noise that gets into records even when it is shorted.

Cycle Timer:

1) To be used in conjunction with the sparker. It has to have a cap on the 1 pps line to filter any stray sparker pulses.

AirCon:

1) Check out Channel 3. It does not record a fire time.
   a) Coil board has been changed.
   b) Quad Counter board has been changed.
   c) Delay board has been changed.

Filters:

1) Need manual for Rockland 1000F.

AFT Flatbed:

1) Won't start/stop reliably.
2) Needs timing pulse overhauled so light through hole pulse works.

Middle Flatbed:

1) On 2-sec delay it does a double scan.

Forward Flatbed:

1) ¼, ½, 1/8-sec sweeps do not work.
2) Check alignment of gear drive to see if new gear is being chewed away.
*3) Need to order the following for flatbed spares:
   a) Clutch
   b) Styli
   c) Timing generator.
4) Sparker gets into flatbed timing also.

Speed Log:

1) Needs calibration.

Navy Sono Receiver:

1) Needs all frequencies checked. Channel 14 does not work on Rec. D.

FRG-7:

1) Battery acid leaks. Needs to be cleaned.
2) On/Off switch needs to be fixed.

Need to check ship's generator wiring and breaker panel for wrong or bad breakers.

Sat Nav:

1) Reader good.
2) Printer good.

Check spares for compatibility.

Interface Board (Slot 6): On pushing Load Button Restart Enable (1A32), pulses high but $\overline{\text{RUN}}$ (1A14) stayed low.

Changed CPU w/Spare
" 8K memory w/Spare.

Do not have a good set of prints for the Interface Board.

Stopped updating time after an Alert Printout.
No keyboard control.
No Power Fail Restart.
Will not load tape.

Tape Reader appears to be working.