ENGINEERING Exp 383 PUNTA ARENAS TO PUNTA ARENAS
20 May 2019 to 20 July 2019

Mike Meiring

OVERVIEW:

- Performed video mods to both SD Cameras and Telemetry pods.
- Installed new SD Camera into pressure vessel.
- Created proposal for Electronics/Datalogger design for Core Orientation Tool.

VIT:

No VIT deployments were performed.

TELEMETRY POD/SD-CAMERA MODIFICATIONS:

1. VIDEO WIRING CHANGES:
   - Wiring was changed in both SEARCH SD-cameras and Telem pods to route video via the coaxial component of the U/W cables and connectors.
   - Video from the SD-Search cam on Port 2 Are now routed to both 109 A & B multiplexer cards Vid1, for redundancy.
   - NTSC video wiring from the HD Cameras were disconnected in the pods as *SD-Search* camera will now provide that redundancy in a simpler way.
   - The above mods were done on both SD-Search cameras and both Telemetry pods
   - Relevant schematics were updated with these modifications.

2. POWER SUPPLY FAIL REDUNDANCY:
   - We have redundancy by having two 24V VIT P-supplies. However, we have no way to know if one failed. We will only know this when the whole system fails with the failure of the 2nd supply, rendering redundancy useless. The P-Supplies each has a "fail" contact. a RS-232 signal were looped through these contacts from Com4 on the VIT-PC in DP. A change in code of HD-VIT will monitor continuity of this cct and display a *POWER FAIL* alarm when either of the contacts go open on a failure.
   - Relevant schematics were updated with these modifications.

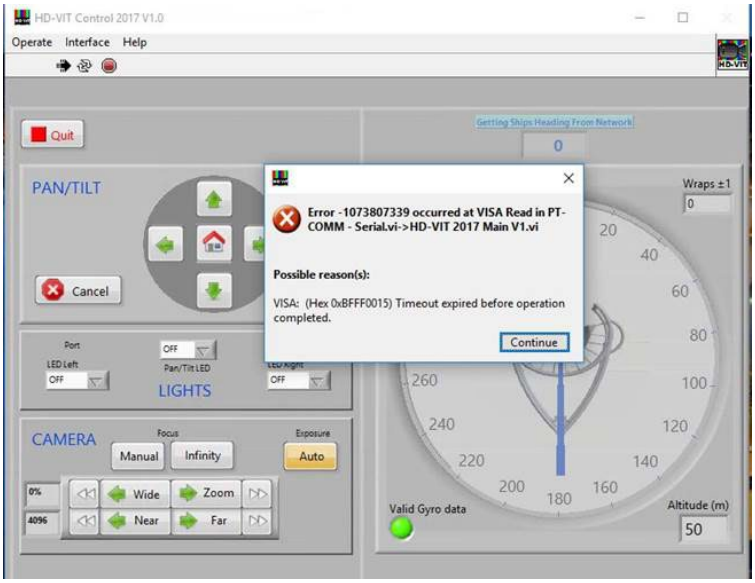
3. SPARE PORTS ON TELEMETRY POD NOW WIRED:
   - Spare Port 1 now wired to 24VDC and RS-232 on 109B/Serial 6
   - Spare Port 5 now wired to 24VDC and RS-232 on 109A/Serial 7
   - Spare Port 7 now wired to 24VDC and RS-485 on 109A/Serial 3
   - Relevant schematics were updated with these modifications.
   - These mods will allow connectivity to future potential applications.
   - Telemetry Pod S/N 1 is now on the frame with S/N 2 as spare.

SEARCH CAMERA SPARE:

- A second Panasonic camera WV-CW314L (PAL) S/N RHV 02188 was installed into Pressure housing S/N SD1
- The camera setup was done by manually adjusting the Zoom control to ~ 90deg FOV angle and then adjusting the focus for this Zoom position.
- Camera S/N SD1is now on the frame with S/N SD2 as spare.
- The Sony NTSC EX 20D camera it replaced became an extra spare.

PAN/TILT SIDUS:

After installing P/T device S/N 3524 it returned the error message below, following a command. It was recently returned from SIDUS following repair.



- The P/T unit shares RS 485 control with LED3. With LED 3 plugged into P/T cable, operation of LED is normal proofing the circuit.
- An older version of the HD-VIT software were launched with the same result, proofing the software.
- Pan/Tilt will become obsolete with new PTZ Survey cam.
- P/T S/N 3524 will be returned to CS end expedition 383.

MAIN HYBRID POD CONNECTOR ISSUE:

Opening Pod S/N 2, ~40ml of silicon oil was noticed in the bottom.
Further inspection confirmed that it found its way from the Frame j-box, via pigtail cable and main hybrid connector set. Currently there are no evidence that the system is adversely affected, yet. However, the open face pressure limit for pod connector must have been compromised for oil to pass through. Oil in the connector set can also contaminate optical connections. This condition requires urgent attention. E mail JvH 07092019

SUBCDVR ISSUE:

It was noted that the SUBCDVR CPU usage was pegged at 100%
Action taken:

- Restarted SUBCDVR PC. CPU usage >100%
- Restarted DOWCom on Kraketoa. (Source for Com5) CPU usage >100%
- Restarted Serial server from Kraketoa. (Com5 path) CPU usage >100%
- Restarted VIT PC and HD-VIT application. (Source for Com6) CPU usage >100%
- Removed serial overlays from all videos. CPU usage <20%
- Adding one serial overlay, from either Com5 or Com6, to each of the three videos. CPU usage >100%.
- The following day this issue cleared for no known reason and has not returned yet.
- Four serial overlays, from Com5&6, on each of the 3 videos simultaneously indicated CPU usage <25% when system running normally.

Exp-376 experienced a similar issue. They additional to actions above, changed out the SUBCDVR PC with spare with no change.

PRESSURE COMPENSATOR:

- Received 2 x new pressure compensators, but with wrong connector thread. Adaptors and valves on order. Valves will be used the simplify filling of the new compensator with oil.
- Operational Pressure Compensator piston rod still fully extended, obviously abnormal. No change noted during 4 x deployments to >4000m on Exp 379. Verified oil level and no water in j-box Suggest it is left alone until compensator replacement can be done Exp 378.

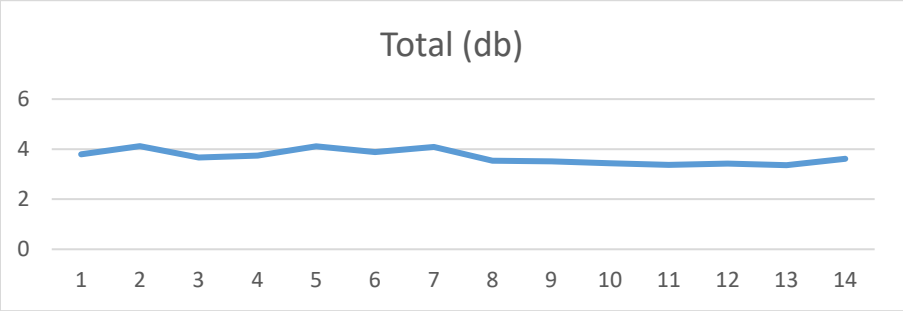
HD VIT SOFTWARE UPGRADE SUMMARY:

- The Earth-rate calculation issue was resolved, however, the software was now compensating in the wrong direction. Version VITOF2017_1.1.exe was forwarded from CS which resolved the direction issue, however, this version has no comms with the Re-Entry cam. Changed back to *VITOF 2017_1.0 NEW.exe.* E-mail DF 02132019
- HD VIT not seeing Nav data from Winfrog. Data comes from either one of two Winfrog E-mail DF 03112019
- Request from operators to remove both analog(blue pointer) and digital indication of "Ship heading" from display. E-mail DF 03112019
- It was suggested to alter the Earth rate correction code in HD-VIT to 2 X Earthrate. .e-mail DF 03112019
- Code to be added to monitor VIT Pod Power Supply failure. E-mail JvH DF 07052019

GENERAL MAINTENANCE:

- Flushed devices/connectors with fresh water and sprayed with silicon lubricant.
- Exercised Optical splicing instruments.
- Allowed updates on VIT and SUBCDVR PC's
- All schematics updated.
- Optical link integrity:
  OTDR measurements are periodically made on the spare Brown Fiber from DP to the VIT Frame J-Box. Compared against measurements from previous Expeditions, this could be an early indication of potential issues especially on the FORJ and Umbilical. OTDR measurements on the
  BRN reference fiber shows no evidence of optical link degradation.

EXPEDITION	SUBSEA J-BOX (db)	FORJ (db)	Total (db)	Length (m)
Exp 362T	1.26	1.3	3.8	7513
Exp 362T 700m	1.6	1.54	4.12	7513
Exp 366 Start	1.12	1.02	3.66	7512
Exp 366 3670m	1.16	1.1	3.74	7511
Exp 366 End	1.59	1.48	4.11	7511
Exp 368 Start	1.35	1.17	3.88	7512
Exp 368 2780m	1.52	1.42	4.09	7511
Exp 371 Start	0.35	0.95	3.54	7512
Exp 372 End	0.94	0.85	3.51	7511
Exp 375 Start	0.34	0.94	3.43	7510
Subic Dry dock	0.9	0.79	3.37	7467
Exp 368X	0.31	0.9	3.42	7467
Exp 379	0.31	0.94	3.36	7466
Exp 383	1.05	1.05	3.61	7466



- No spare U/W Camera cable OV0841 (on order)
- No spare U/W Y-LED cable OV0820 (on order)
- No spare Main hybrid connector/ pigtail (on order)
- No Pan/Tilt functionality. (PTZ camera in budget)
- Pressure Comp adaptors on order.
- VIT System serviceable and ready for deployment

PROJECTS:

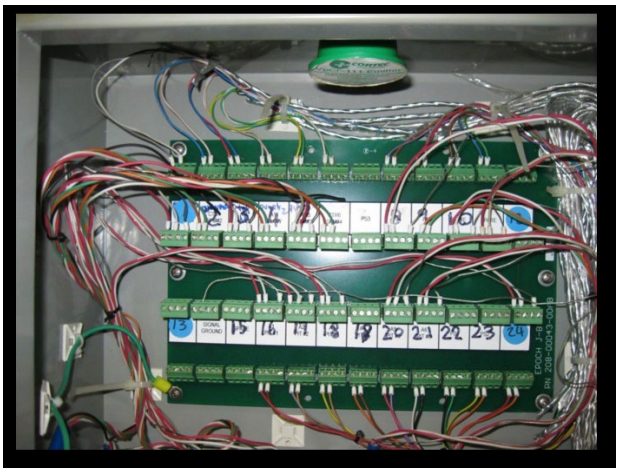
CORE ORIENTATION TOOL (GYRO):

- Worked with KevinG on first pass mechanical design.
- Created first pass on Datalogger/Electronics design and forwarded it to project members for comment.

RIS:

RIS J-BOX1:

- RIS J-Box1 is badly corroded and needs replacement. Multiple sensors on the Rig is routed through this box to the0 RIS System in SUBSEA. I suggest a project be created to do this task during a tie-up.



J-BOX to be S/S and be fitted with 12 compression glands to support cable diam of ~0.33” and 1 compression gland for ~0.8” cable.

DHML:

APCT3:

- TPFit did not function as a result of a failed MATLAB license. MCS installed new MATLAB version.
- TPFit version 1.1 is the latest application that includes code to also support the SET2.
- A cutting shoe was badly damaged after hitting a solid object. Shoe written off.

INVENTORY:

APCT3	S/N 002
APCT3	S/N 007
APCT3	S/N 031
APCT3	S/N 032
APCT3	S/N 035
SET2	S/N 539
SET2	S/N 449
MicroSmart 10k	S/N 40129
MicroSmart 10k	S/N 40121
MicroSmart 10k	S/N 40060
MicroSmart 10k	S/N 4986
MicroSmart 15k	S/N 4997
MicroSmart 15k	S/N 4981 could not be located?
ERS	S/N 1
ERS	S/N 2

SHIPPING RECEIVED:

- 1 x Panasonic WV-CW-314L CCTV camera OV 0100. S/N RHV 02188
- 2 x new Pressure Compensators. SA-HC-0406-MAS 270CC

SHIPPING RETURNED:

- P/Tilt device S/N 3524 OV0811

ORDERS/REQUESTS:

- Pressure Compensator parts. E-mail JvH 05312019
- HD-VIT code to monitor VIT Pod Power Supply failure. E-mail JvH DF 07052019

ORDERS/REQUESTS OUTSTANDING:

- Main hybrid Pod/Umbilical connector/pigtail. e-mail JvH 0222018
- 2 X U/W LED Y cable for LED lighting. OV0820. E-mail JvH 11242018
- 2 X U/W Cables for cameras. OV0841. e-mail JvH 11272018
- VIT-HPU Camera e-mail 03152019
- RIS Pipe counter reflectors McM# 1927N21: e-mail 03152019
- HD-VIT code change: Earth rate correction. e-mail DF 03282018
- HD-VIT code change: Remove Heading indication e-mail DF 03112019
- HD-VIT code change: Earthrate correction X 2 e-mail DF 03112019
- HD-VIT code change: HD VIT not seeing both Winfrog PCs. e-mail DF 03112019