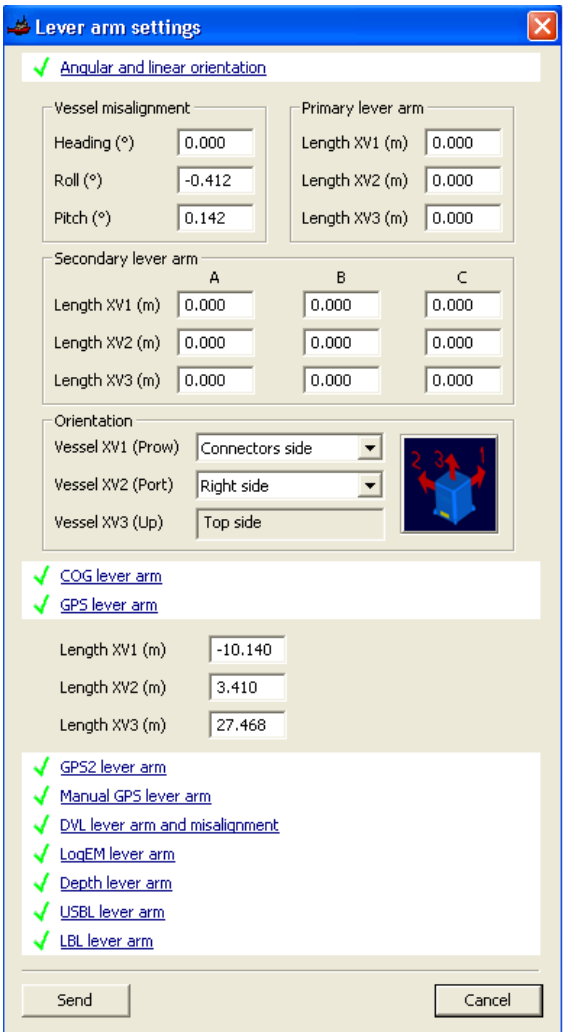
ATLANTIS EM122 CALIBRATION NOTES
Multibeam Advisory Committee (2017-03-21)

Initial calibration data collected 2017-03-19 during transit and processed on shore in Qimera
SIS motion sensor angles set to zero before data collection
PHINS configuration modified to correct the IMU pitch angle sign error identified in late 2016
PHINS IMU installation angles heading into calibration:

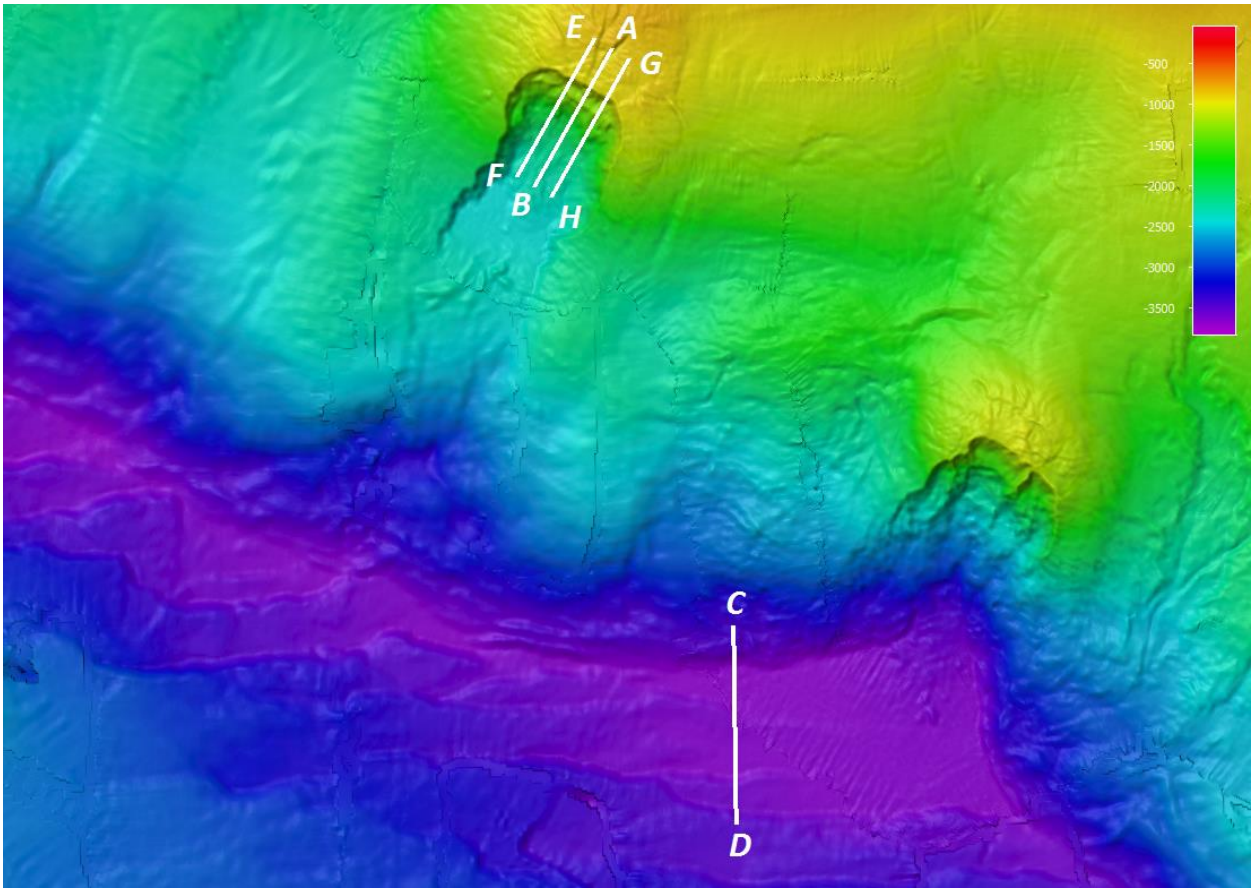


CALIBRATION DATA COLLECTION

Calibration lines were collected near a marine slump site offshore Puntarenas, CR
The lines were run in order of Pitch, Yaw, Roll in order to save transit time
No installation angle changes were made between lines

Pitch: A-B on opposite headings at 6 kts
Roll: C-D on opposite headings at 6 kts
Yaw: E-F and G-H on same heading at 6 kts

See Excel spreadsheet 'ATL_EM122_20170313_calibration_plan' for speeds and EM122 settings, etc.



Waypoints (Lat/Lon WGS84)

A	9.148201115	-84.814620473
B	9.085797163	-84.851375921
C	8.885191158	-84.764726772
D	8.794808725	-84.765271789
E	9.152767741	-84.822469579
F	9.090362802	-84.859224504
G	9.143634364	-84.806771593
H	9.081231401	-84.843527564

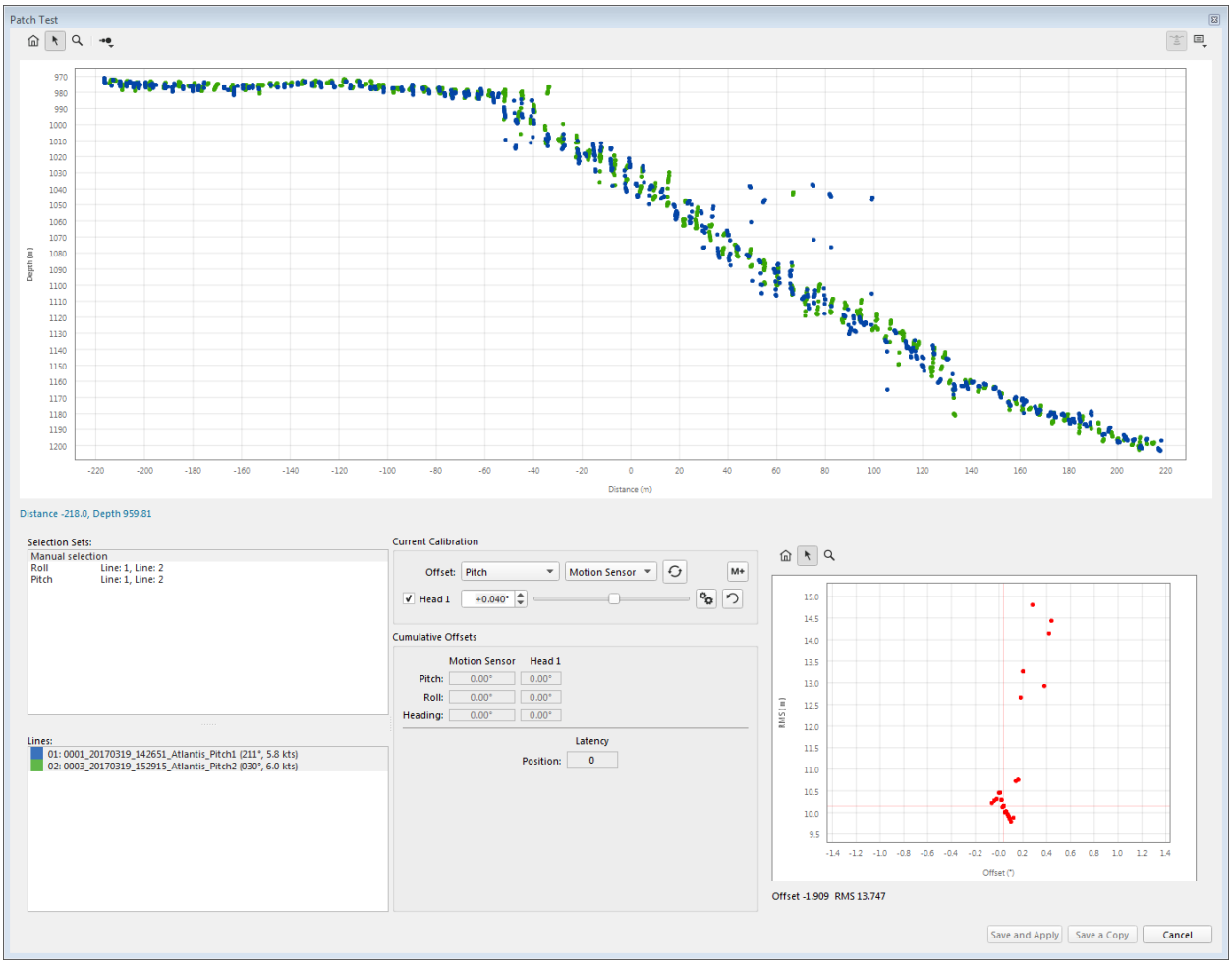
INITIAL CALIBRATION RESULTS

Verification not completed due to long-period bathymetry artifacts correlated with yaw of vessel.

The data were analyzed in the traditional order of pitch, roll, then yaw, with offsets applied in post-processing after each test. This is suitable for an initial calibration and will require verification after correction of the long-period artifact correlated with yaw.

Pitch (with zero yaw/roll applied in Qimera)
Files: 0001 and 0003

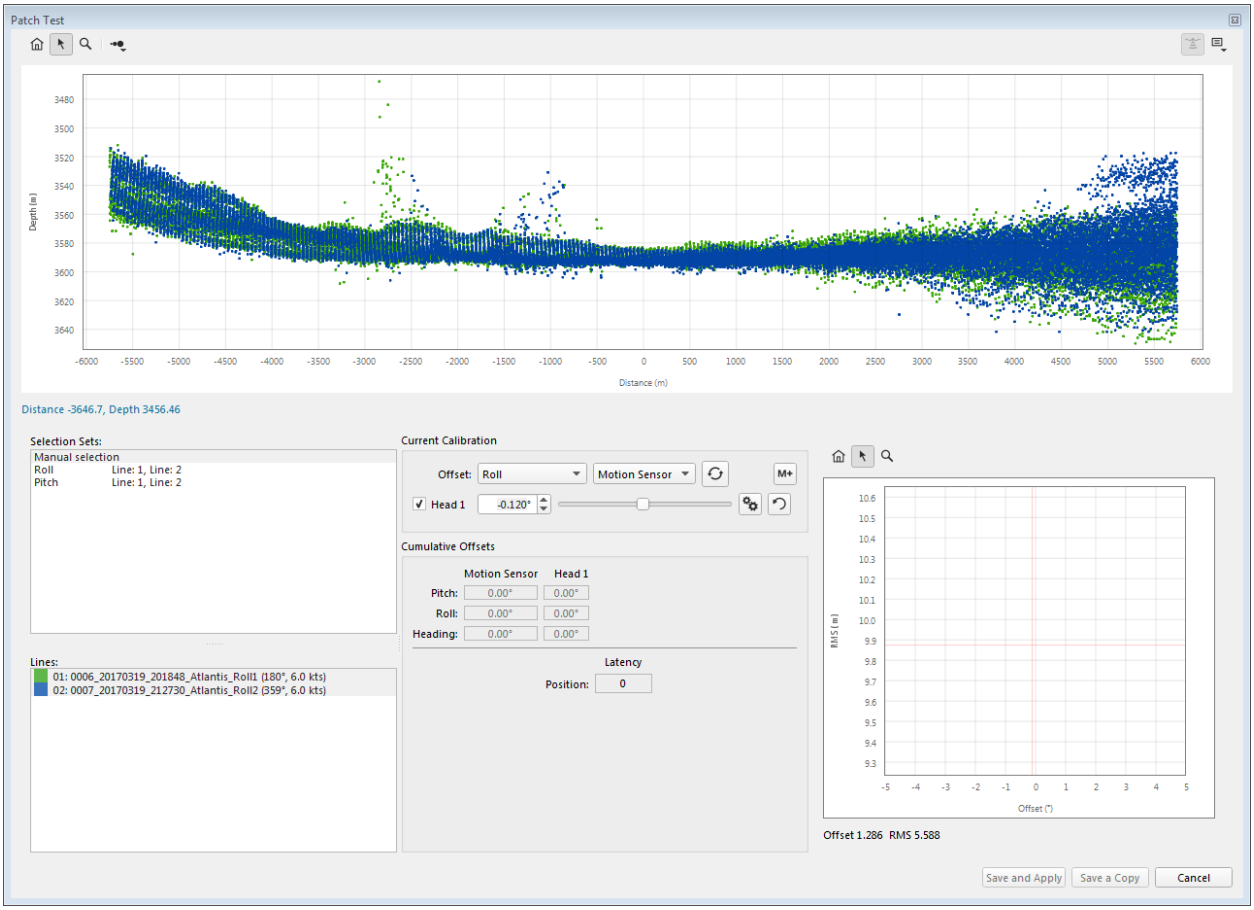
Initial result to enter in SIS Motion 1 Pitch: +0.04°



Roll (with +0.04 pitch applied in Qimera)
Files: 0006 and 0007

Initial result to enter in SIS Motion 1 Roll: -0.12°

Note: a very large sounding subset was required to 'average out' the bathymetry artifacts over many periods and estimate a mean roll offset; using a more traditional, narrow sounding subset makes the roll estimate much more vulnerable to the amplitude of the bathymetry artifact in that narrow subset.



Yaw (with +0.04 pitch and -0.12 roll applied in Qimera)
Files: 0004 and 0005

Initial result to enter in SIS Motion 1 Heading: -0.02°