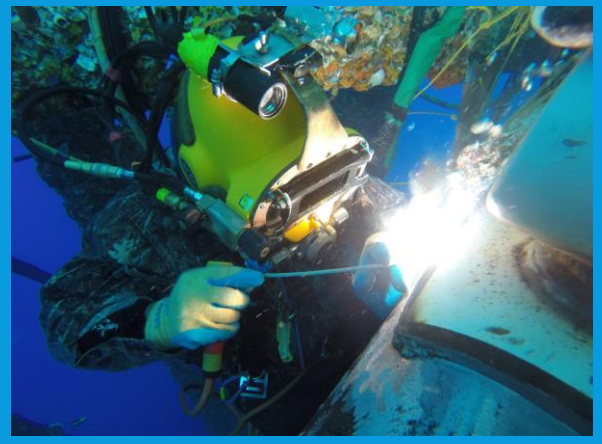
About Oceaneering

Oceaneering is a global oilfield provider of engineered services and products primarily to the offshore oil and gas industry, with a focus on deepwater applications. Through the use of its applied technology expertise, Oceaneering also serves the defense, entertainment, and aerospace industries. Oceaneering's business offerings include remotely operated vehicles, built-to-order specialty subsea hardware, deepwater intervention and manned diving services, non-destructive testing and inspection, and engineering and project management.



A DAY IN THE LIFE OF A MULTIBEAM SONAR INSTALLATION

Or rather Multibeam Installation for beginners☺

THE CUSTOMERS NEEDS

- To map the TNPA ports and harbours around the coast of SA
- Shallow water survey
- Quay wall investigation
- Construction Support
- Dredging pre and post surveys
- Currently using SBES which meets their needs

WHAT WAS INSTALLED

- Teledyne Marine T20P Multibeam Projector, Receiver and PSP
- Teledyne Marine DMS05 MRU
- Teledyne Marine SVP-70 Sound Velocity Profiler
- Teledyne Marine SVP-S Sound Velocity Probe
- C-Nav3050 Receiver (base and rover)
- Hemisphere VS330 Heading
- Pacific Crest ADL Vantage (base and rover)
- HYPACK


TELEDYNE RESON
Hemisphere

THE BOAT

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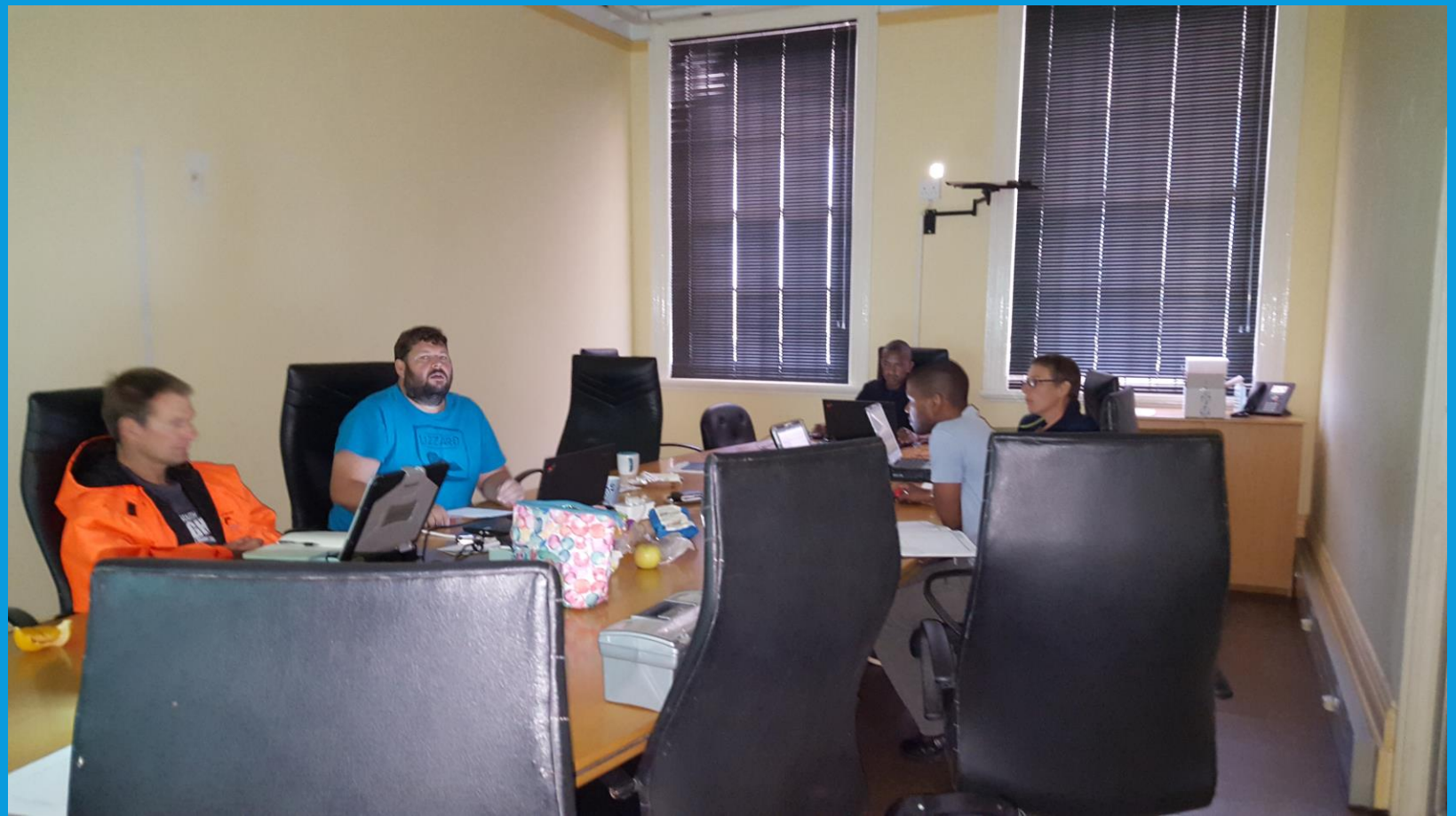
THE END USERS

- Transnet national Ports Authority Dredging Services Hydrographic Team



THE PLAN

- Gut the boat of any existing survey equipment (Except the CV200)
- Clean the boat out
- Lay the cables from the head to the PSP in a layflat and a hole in the cabin of the boat
- Try to resolve the power supply issues (at a minimal cost) – this is a general problem
- Remove the 12V 220V power sockets (VERY DANGEROUS)
- Modify the existing plate on the pole
- Modify the OTP plate (that was originally designed for an ES3)
- Ensure a sturdy – non vibrating environment for the transducer
- Block all existing holes on the boat creating water ingress

THE PLAN

- Create a circuit board where equipment can be plugged in and out of with ease
- Create a switch allowing to switch between RTK and NTRIP and for complete positional redundancy, satellite corrections
- To set up a permanent, sturdy installation
- To ensure a very good patch test and Multibeam setup to reduce the overall processing time

THE PLAN

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THE POLE

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THE ANTENNAS

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INSIDE THE CABIN

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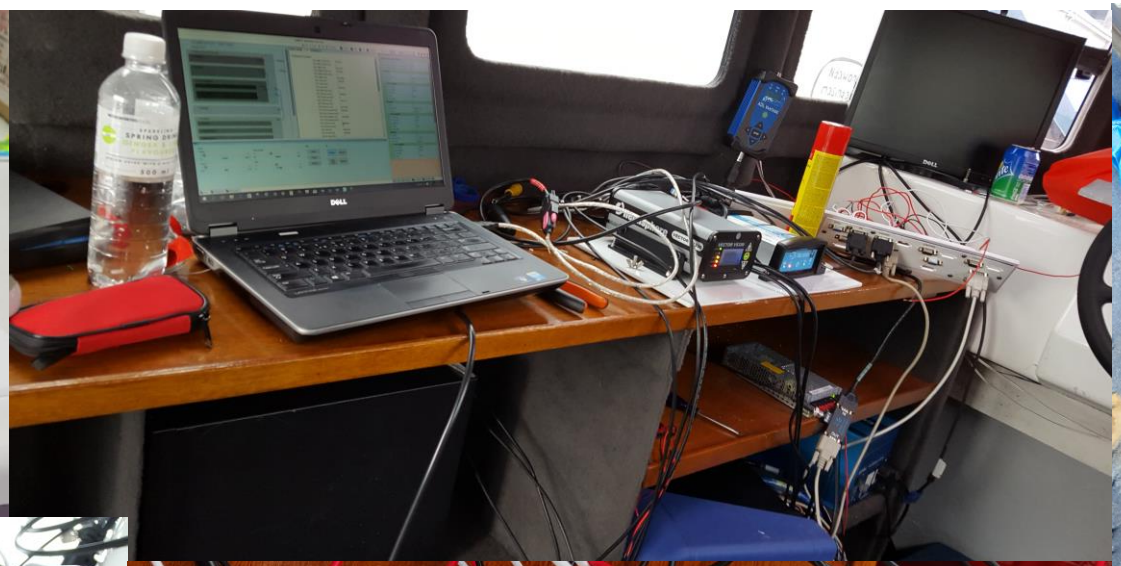

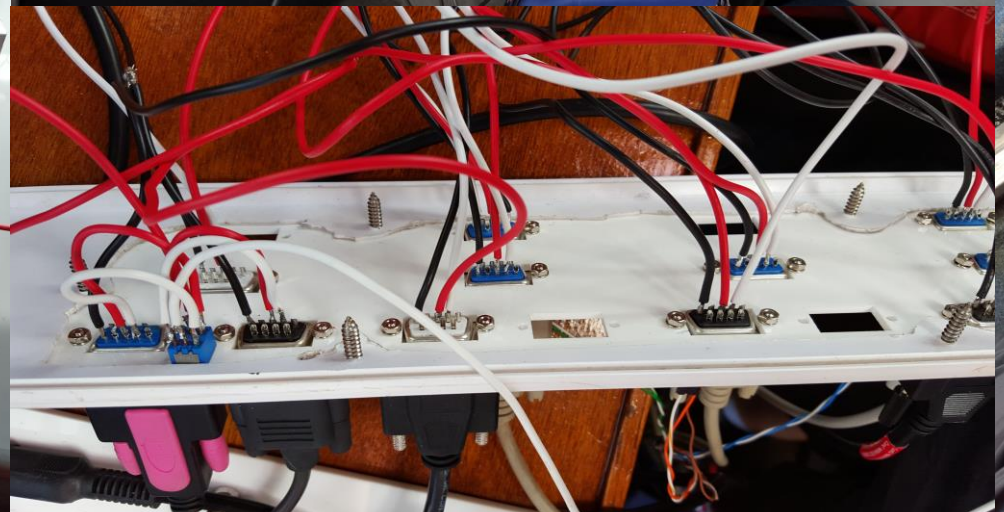

INSIDE THE CABIN

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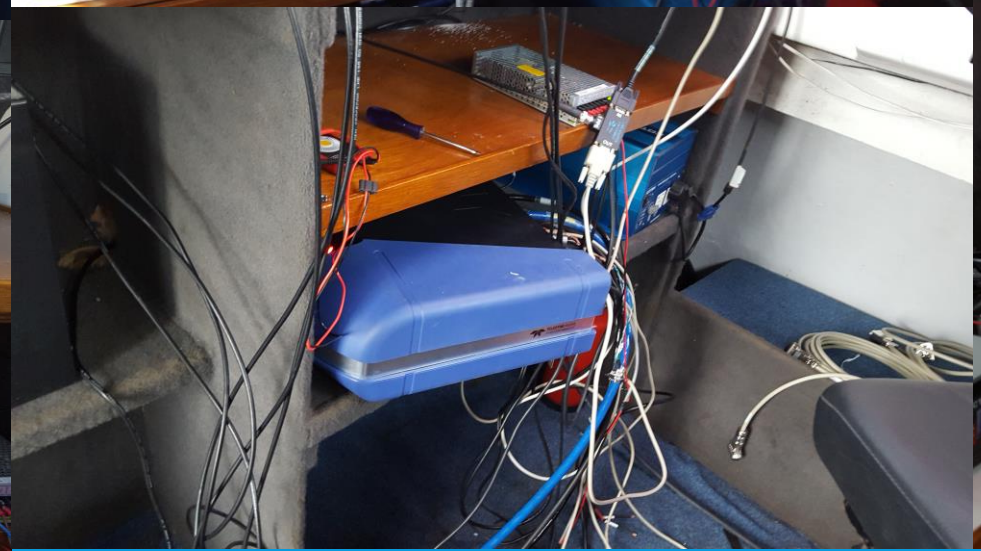

THE BASE

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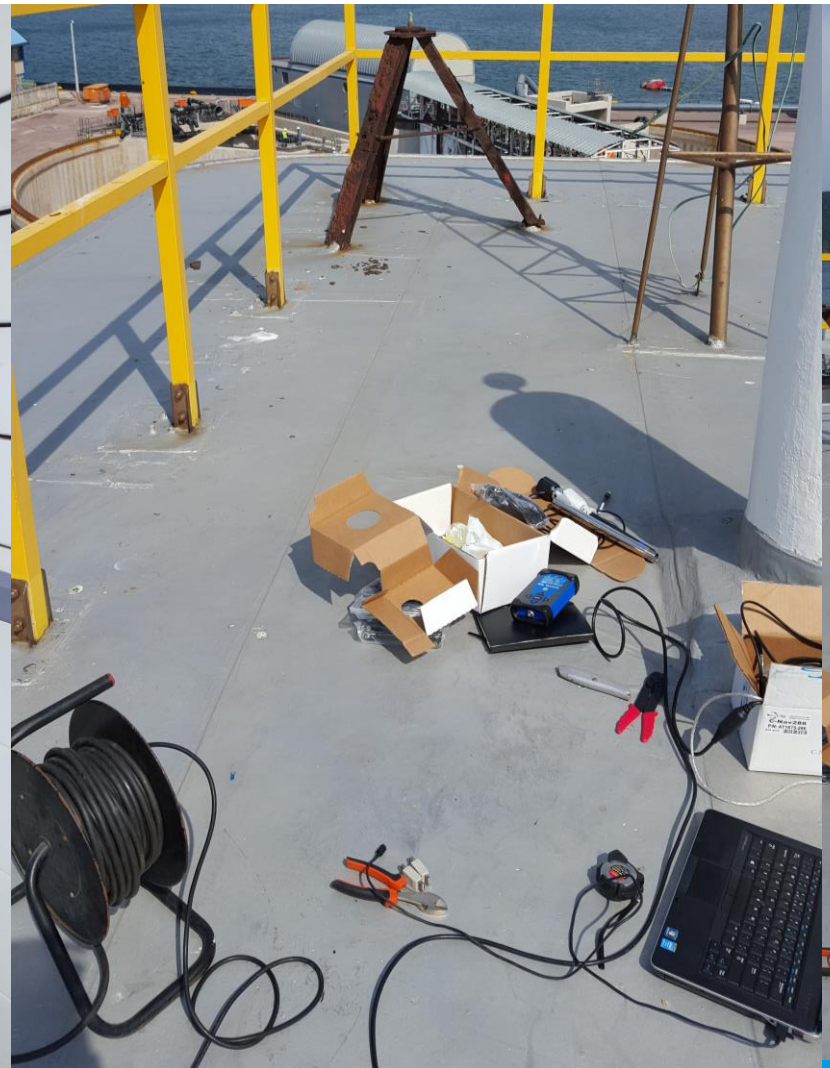

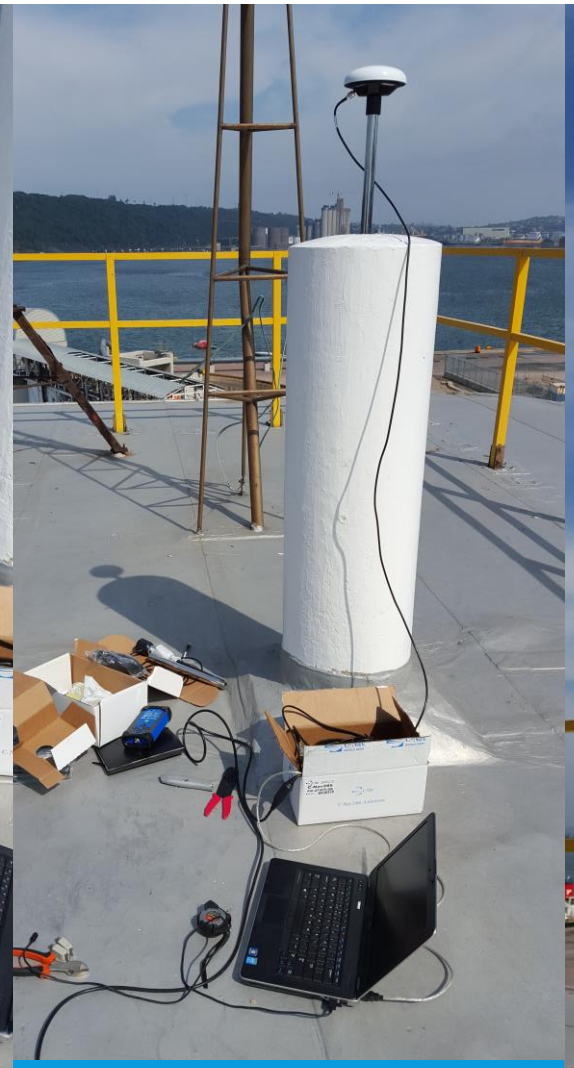

THE COMPLETE INSTALLATION

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THE PATCH TEST

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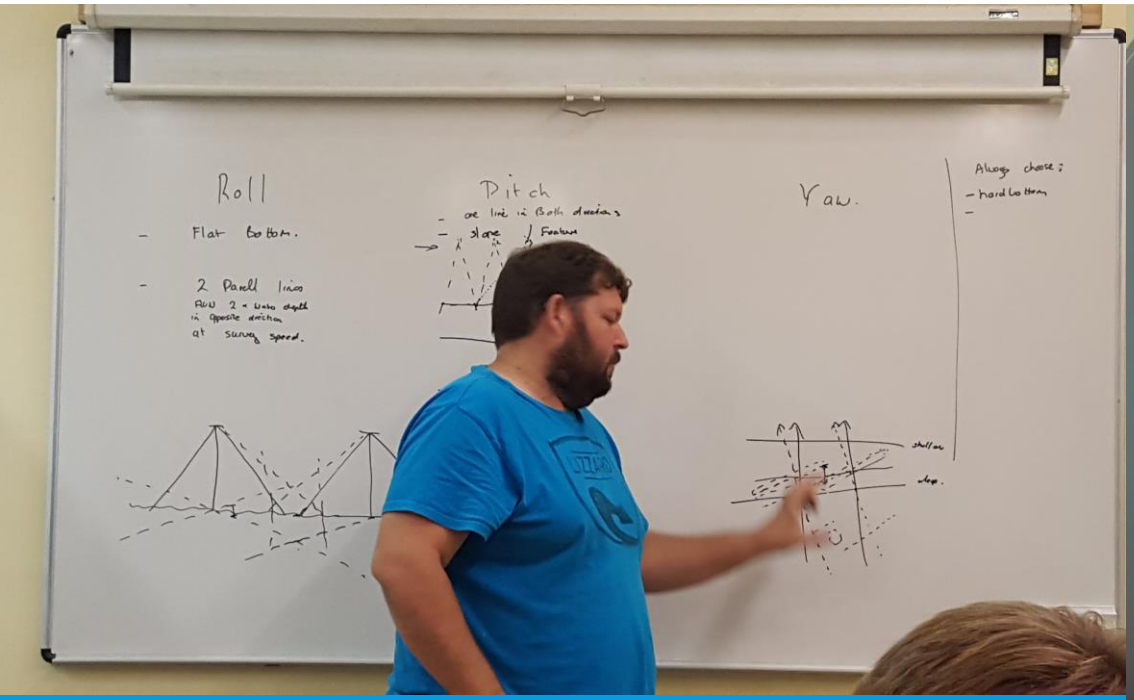

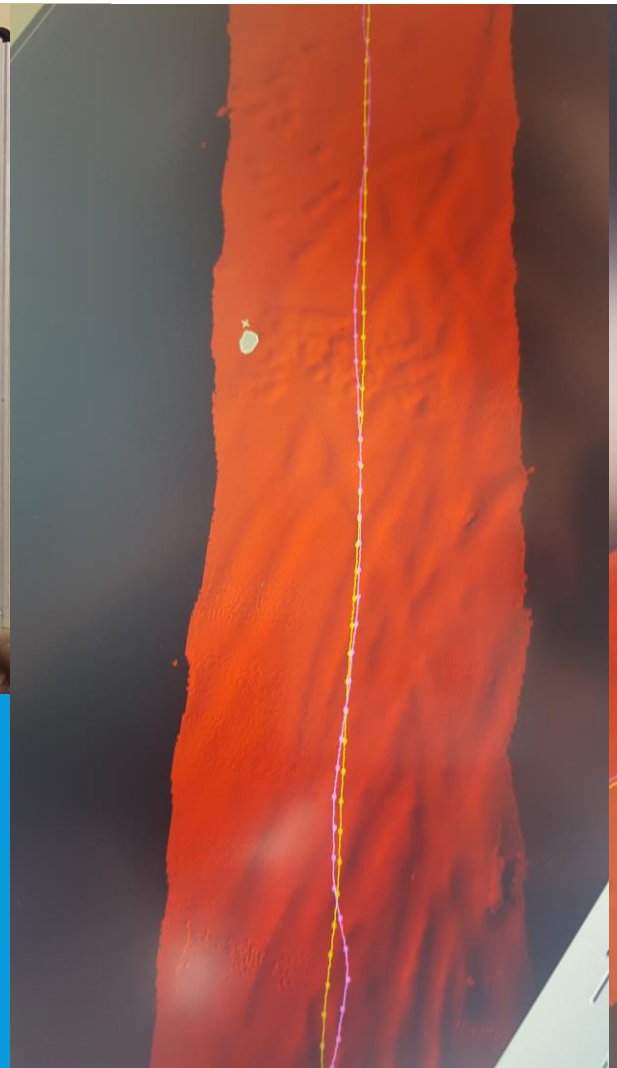

TRAINING

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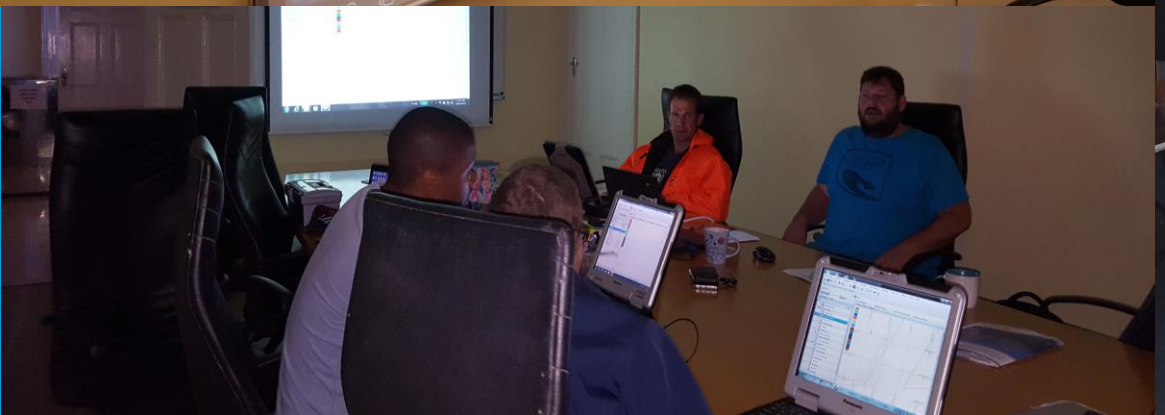
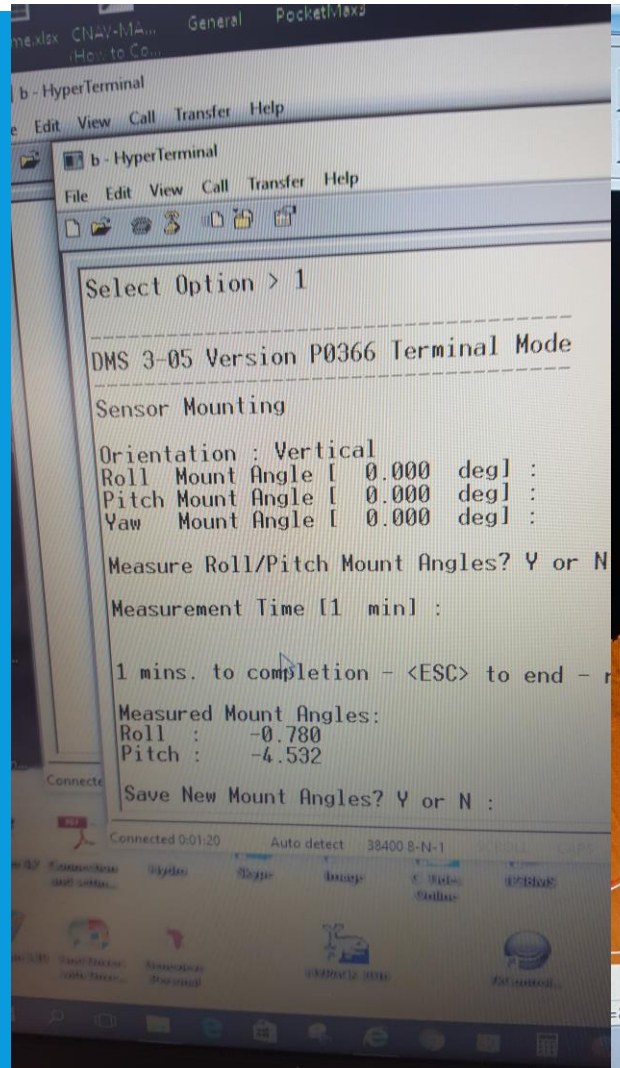
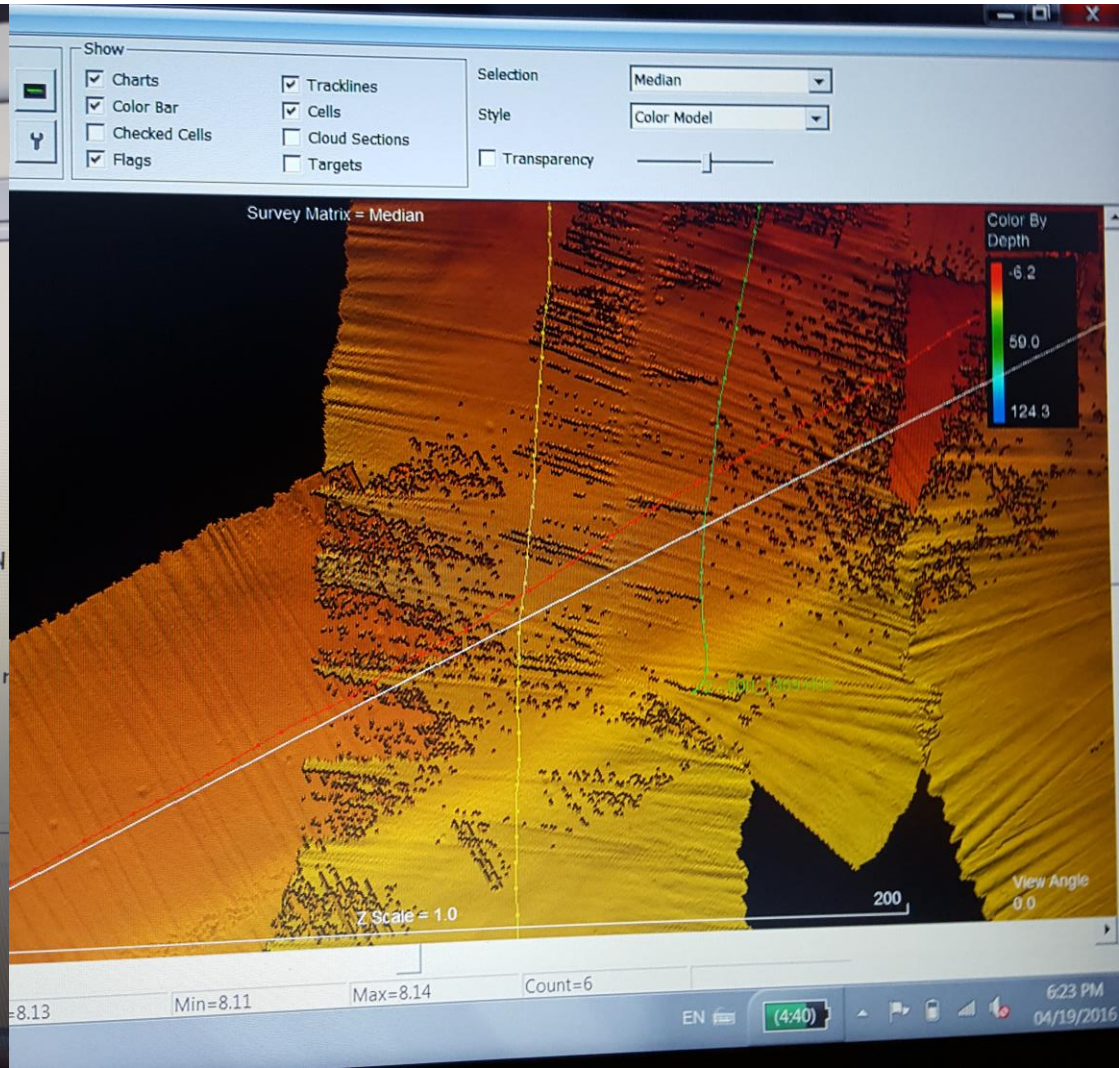


CHALLENGES

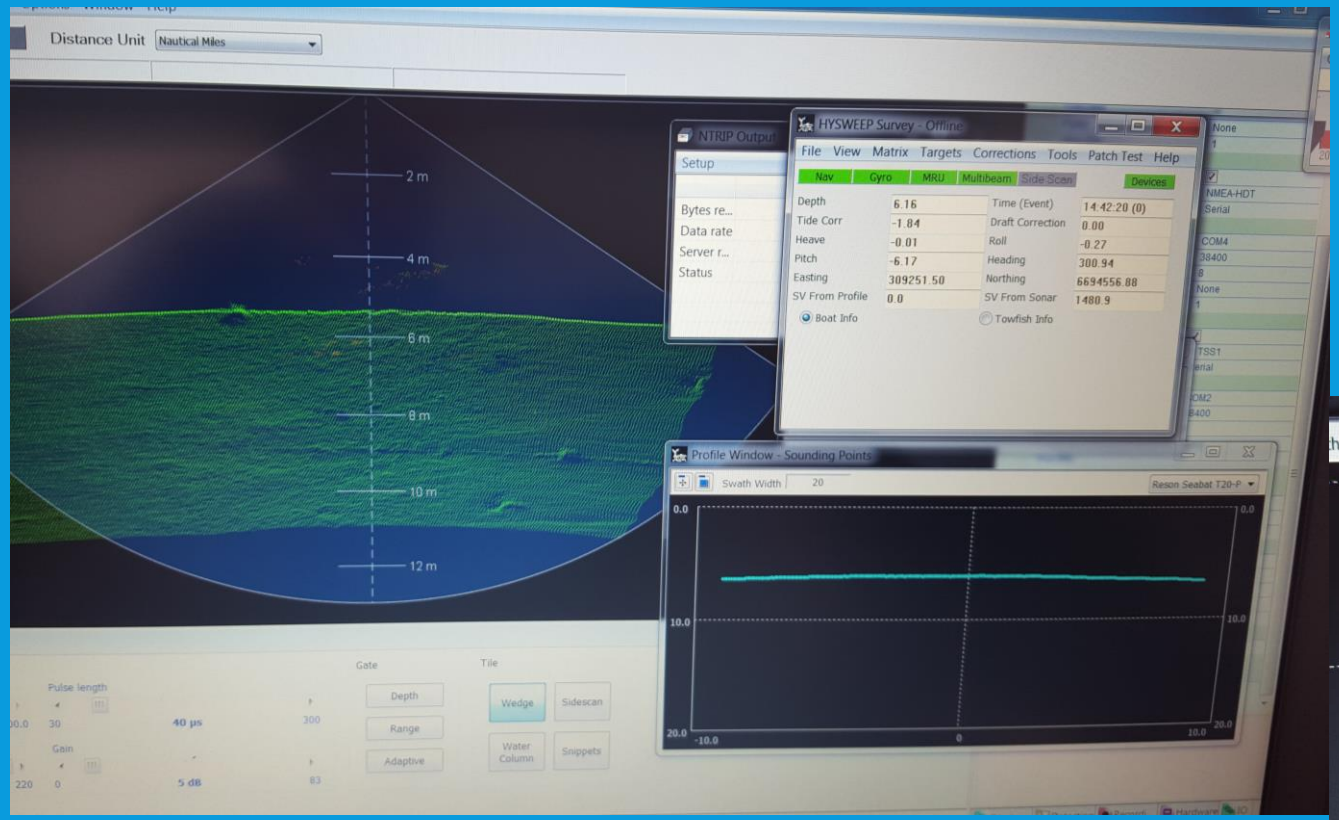
- MRU mounting incorrectly setup in software – settings were not retained after set up.
- The Heading device pre settings to be precise.

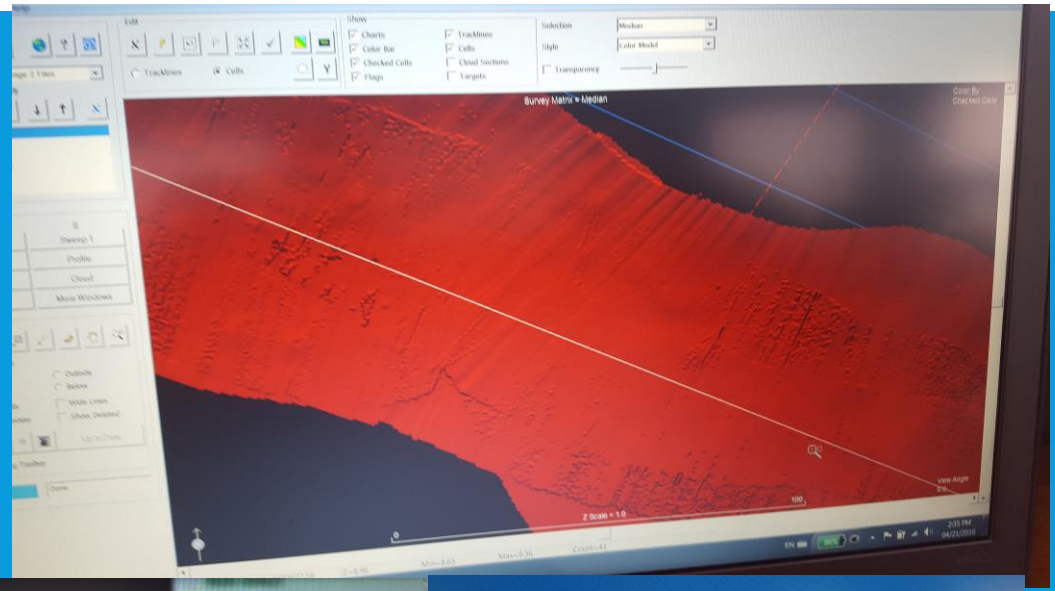


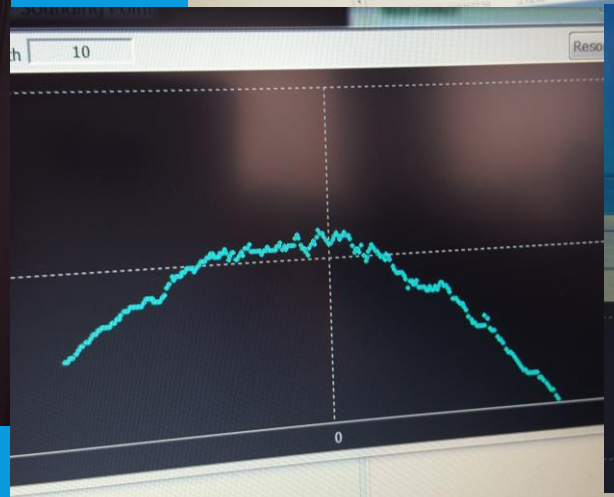


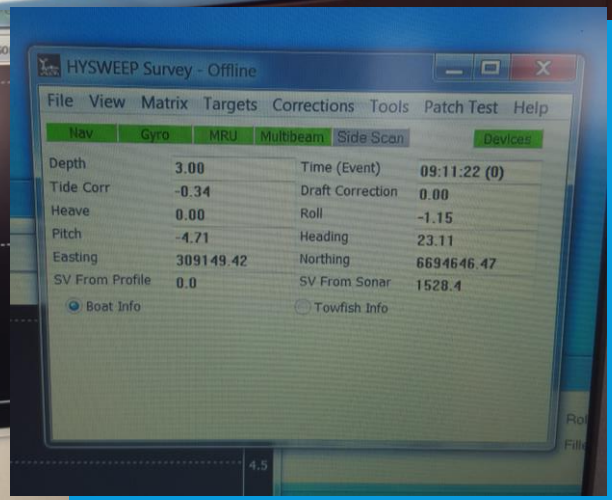
CHALLENGES

- Serious SV issues at the head – was using default value from Reson UI







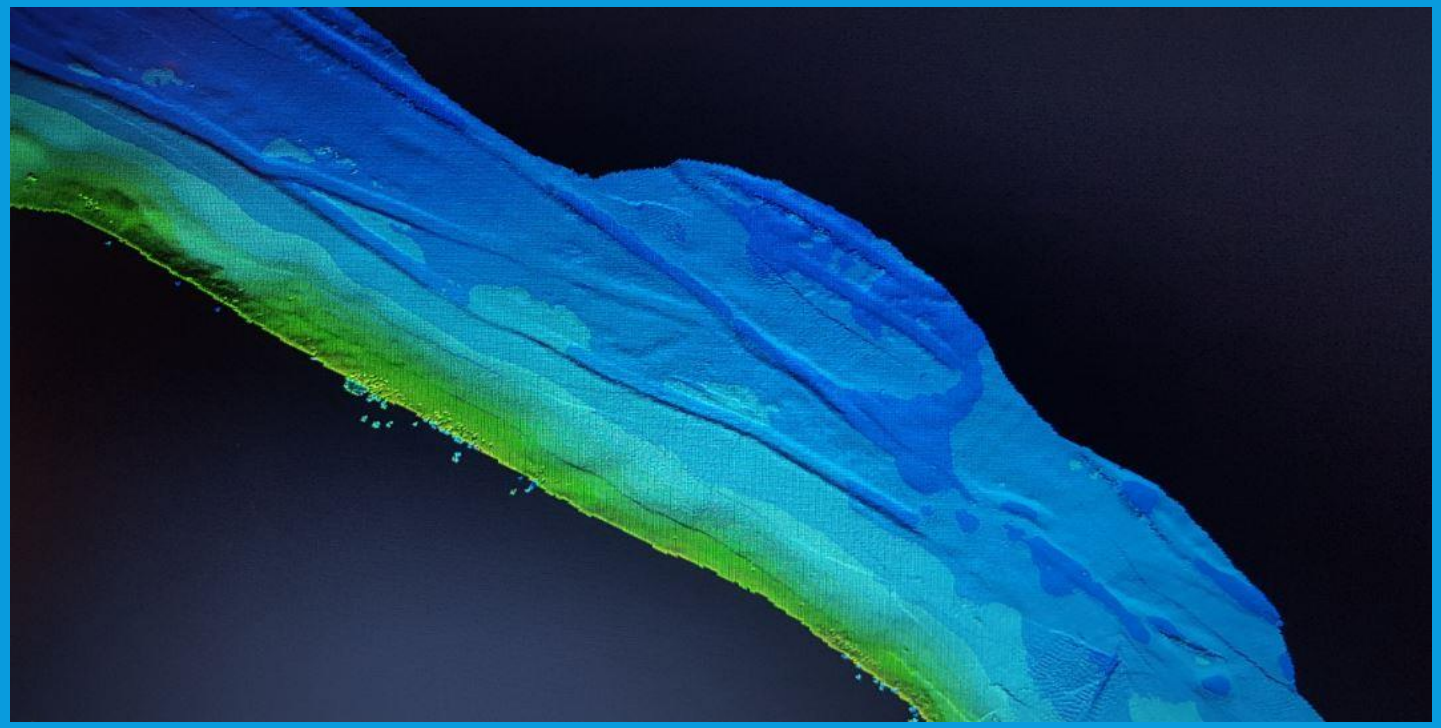


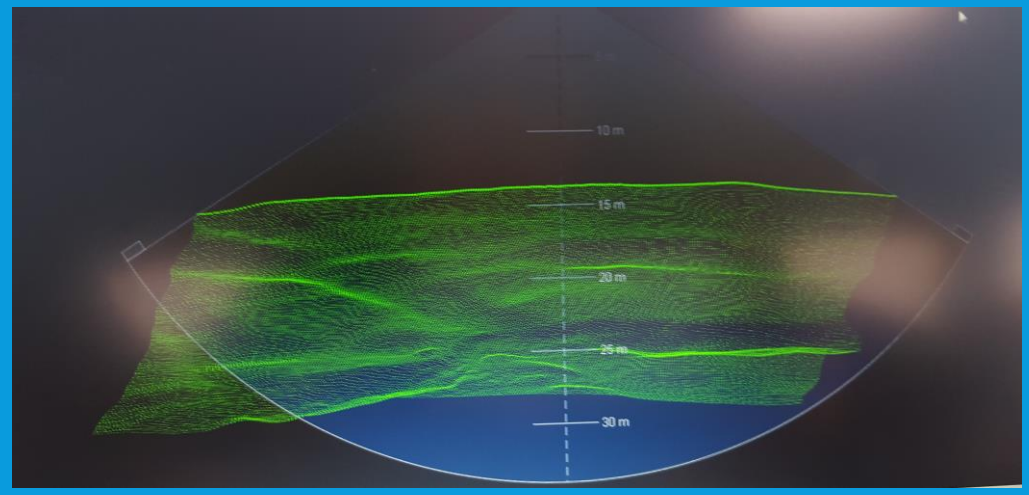
CHALLENGES

- IT issues
  - Updates
  - Insufficient USB ports
  - IP holding when using WiFi

THE DATA

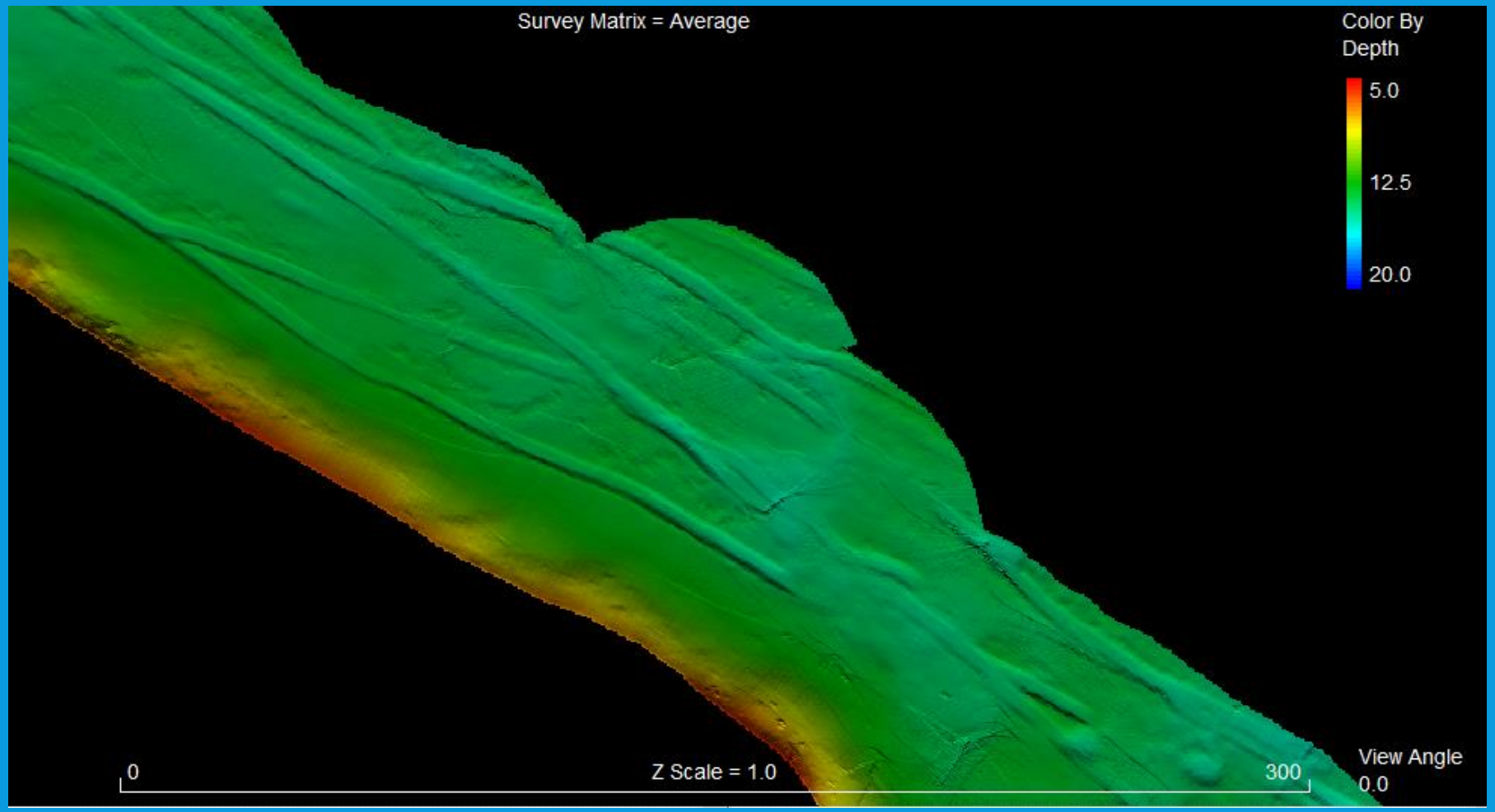
- Once the patch test values were entered into Hypack and the Seabat UI was set up satisfactorily the data was fantastic and required very little editing.





Flythrough of a section of data – East London

THE DATA


Survey Matrix = Average
Color By
Depth
5.0
12.5
20.0
0
Z Scale = 1.0
300
View Angle
0.0

PROOF

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THE NEXT FEW MONTHS

ASV unmanned marine systems

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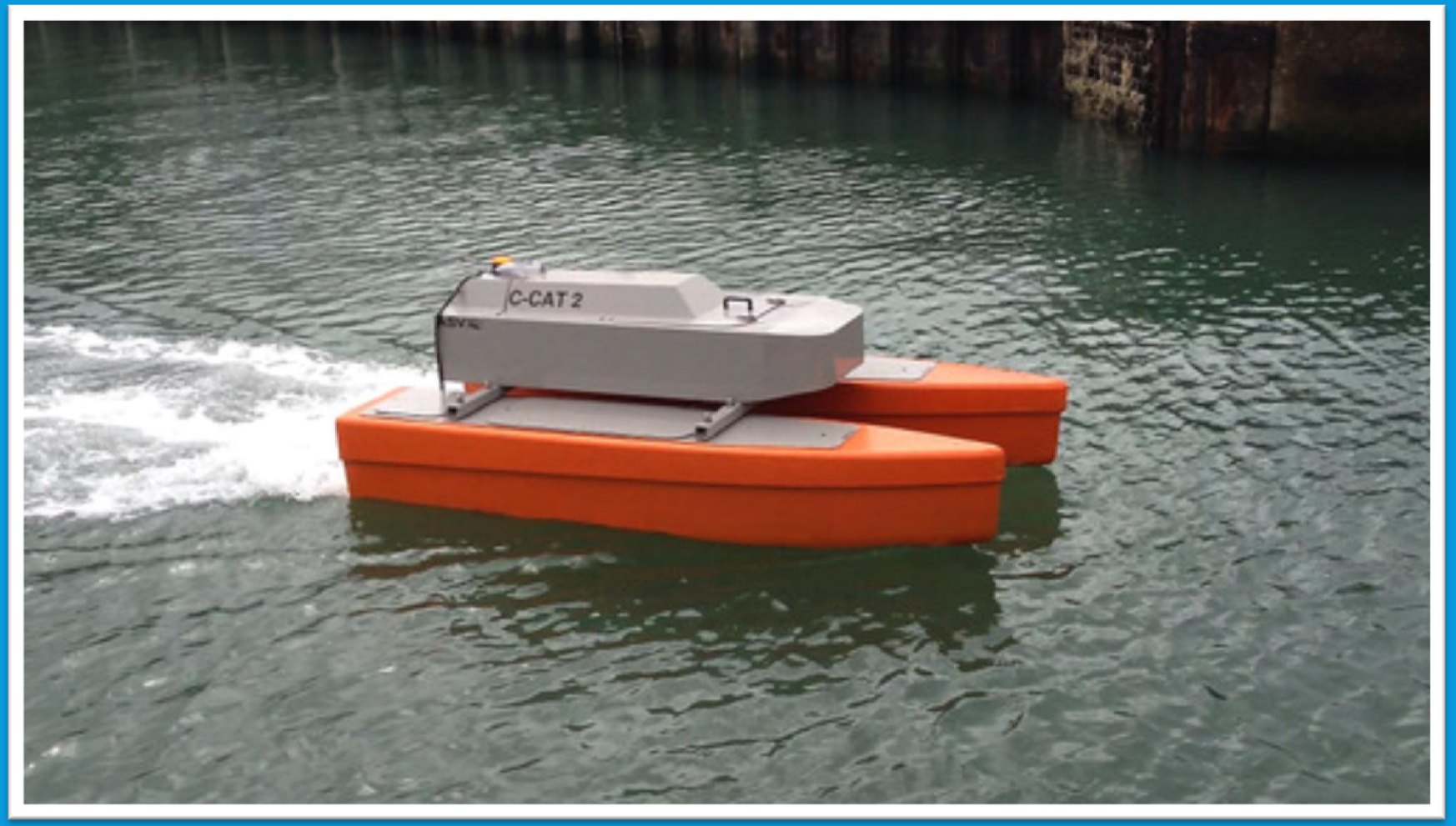

THANKS

- Doug Slogrove
- Kevin Stobart
- Transnet Team – particularly Eugene Martin

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QUESTIONS