

GSM – Geophysical Survey & Mapping

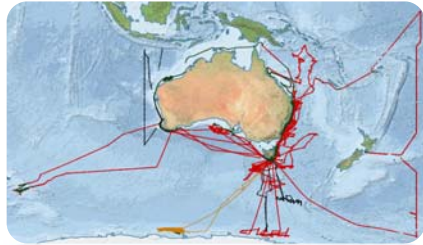
Presentation to the International Research Ship Operators (IRSO), Hobart

Phil Vandebossche | 9th October 2019

Australia's National Science Agency



RV Investigator



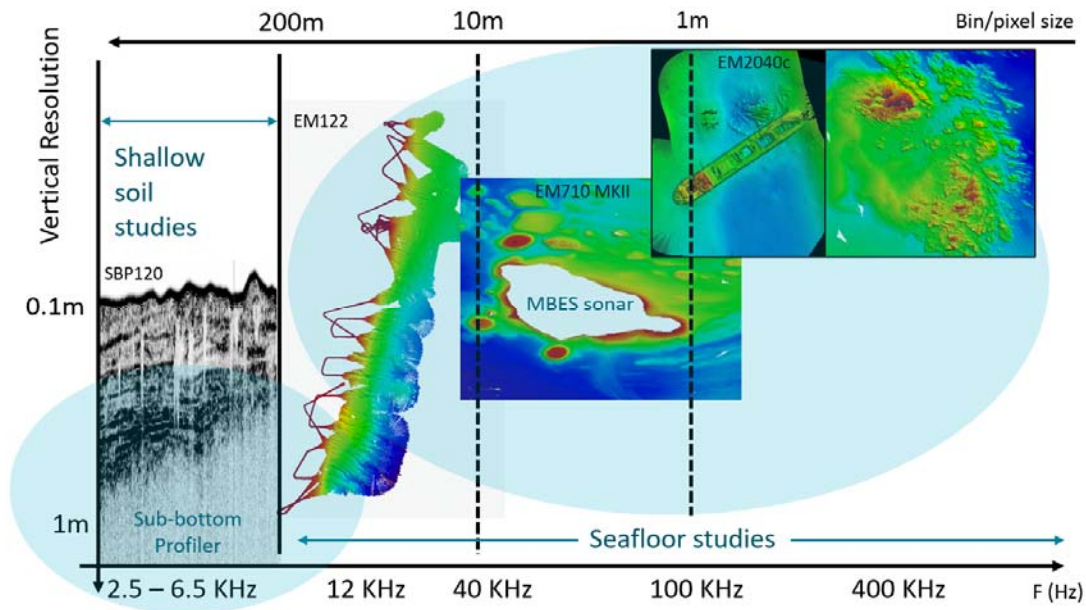
- Serves as a multidisciplinary science platform
 - Atmospheric
 - Biological
 - Geoscience
 - Maritime Heritage
 - Oceanography
- Full year operations
- Voyages often require real-time mapping decision support

GSM Operational Responsibility

- Positioning systems (POSMV & Seapath)
- Multibeam echo-sounders (EM122, EM710 & *EM2040c*)
- Sub-bottom Profiler (SBP120)
- Bioacoustics echo-sounders (EK60 & ME70)
- Marine gravity (Micro-G Lacoste)
- Marine magnetics (SeaSPY2)
- Ancillary systems:
 - SV Profilers (Teledyne & Valeport)
 - XBTs

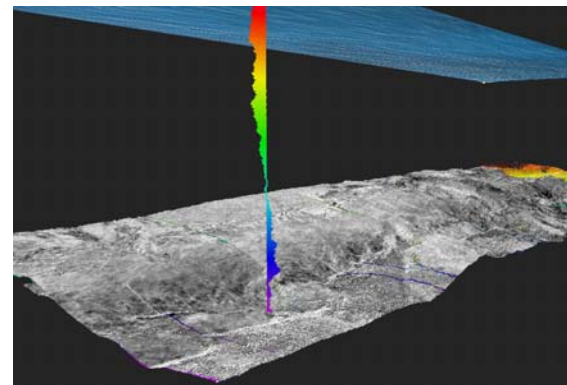
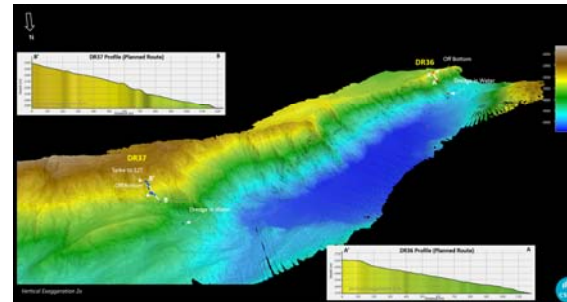
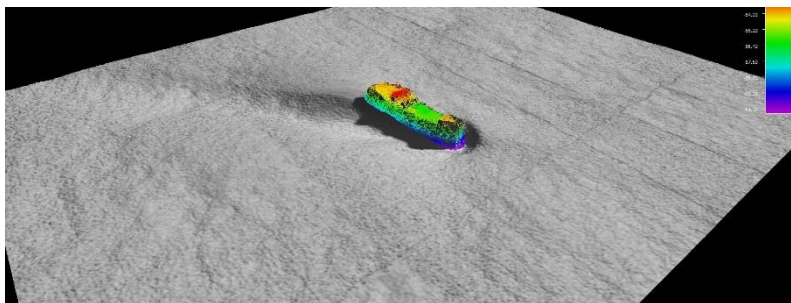


Sonar Systems

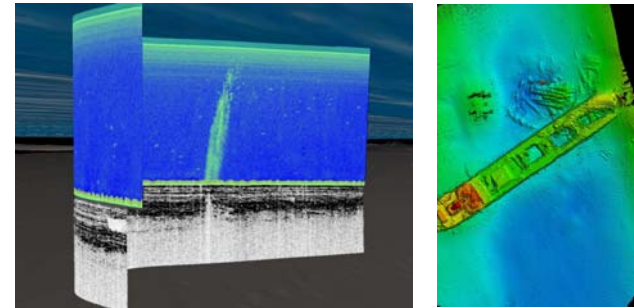
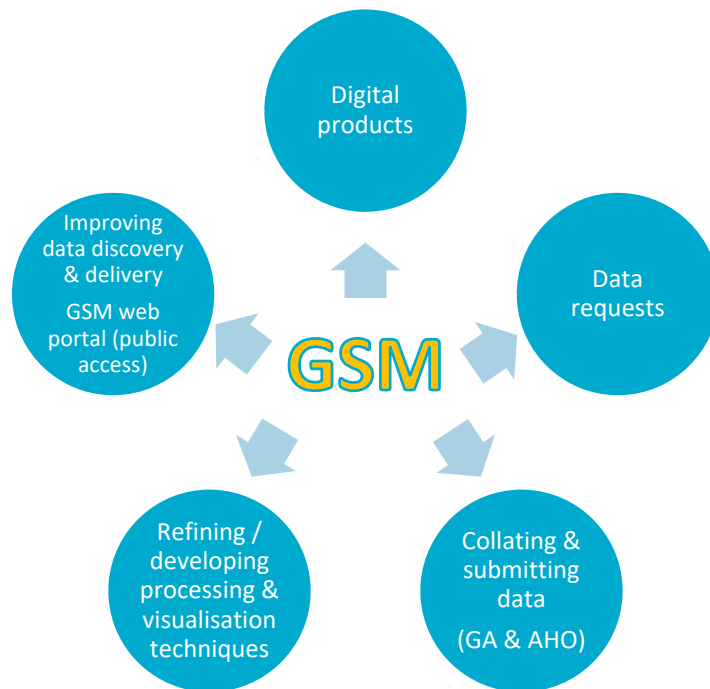


GSM at Sea

- Typically 2 personnel on board acquiring data 24/7 (on two shifts)
- Mission planning:
 - Assisting with scientific objective planning
 - Navigation data to helm
 - USBL tracking etc.
- Bathymetry data processing (near-real time)
- GIS mapping
- Data visualisation & integration
- Reporting



GSM Onshore



Oceans and Atmosphere Flagship
 Data Acquisition, Processing and Management
 Geophysical Survey and Mapping - Home page

The Geophysical Survey and Mapping (GSM) group undertakes hydrographic survey, geophysics, bathymetric mapping and visualisation. It provides geophysical and acoustic specialists who participate in voyages on the Marine National Facility's RV Investigator, and provides advice and assistance to the scientific community on bathymetric mapping. It manages the multibeam data collected on historic RV Franklin and RV Southern Surveyor voyages. The team also manages the Shallow Swath Facility, which contributes to coastal mapping initiatives.

Search the Multibeam repository

Search for data
by survey, region, depth, instrument.

List of all surveys with links to maps or data.

Can't find what you want? Send us a request via the Data request form.

About our group

Find details of the data processing and data products

Information on the equipment we use.

Gallery

View gallery of the swish stuff we do.

View overview maps of

- > AAS11 Gravity Meter coverage
- > EK60 12kHz Singlebeam echosounder coverage
- > EK60 38-120kHz Singlebeam echosounder coverage
- > EK600 Multibeam echosounder coverage
- > RESON101 Multibeam echosounder coverage
- > TOPAS Sub-bottom Profiler coverage

Find other voyage data

Use the CMAR Data Traveller tool to find and extract data from CTD, XBT, catch records, underway etc.

Within each survey are links to the download page for multibeam data.

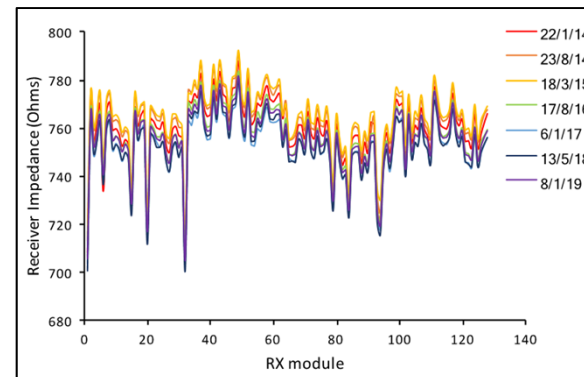
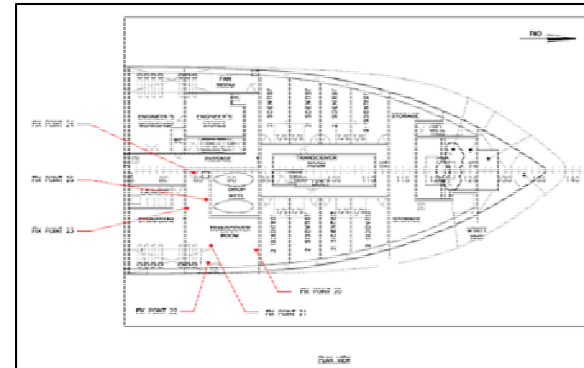
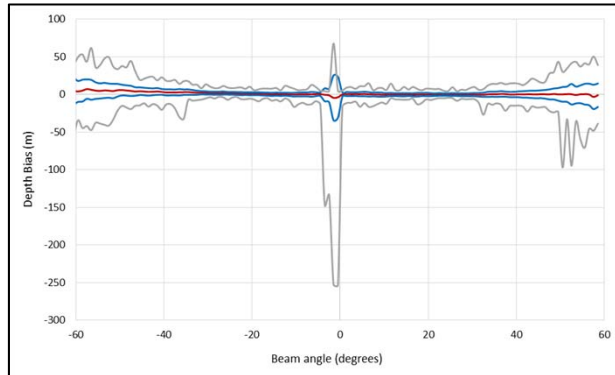
View Underway track for past voyages

<https://www.cmar.csiro.au/data/gsm/>



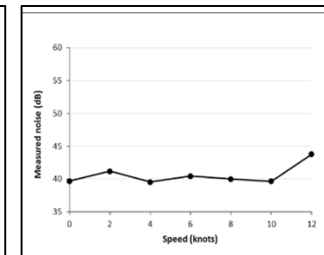
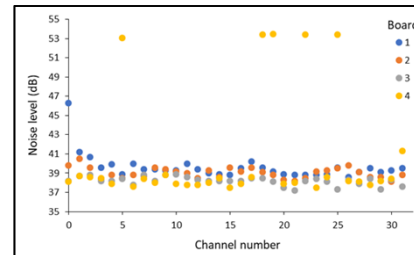
Assessing System Performance (1)

- System checks & calibrations:
 - Geometry
 - TX & RX impedance tests (BIST)
 - Data accuracy (e.g. patch tests, cross-line checks)

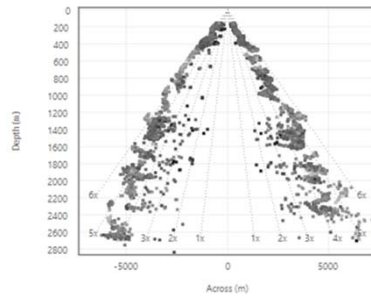


Assessing System Performance (2)

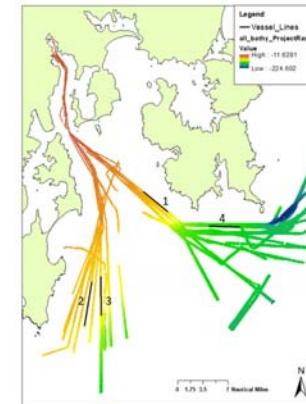
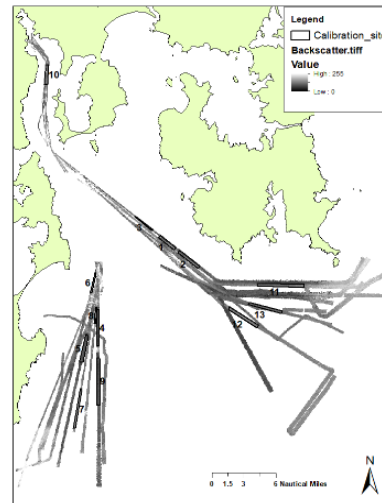
- Sonar noise assessments (ambient vessel, system, interference, speed etc.)



- Swath coverage limits



- Backscatter repeatability



Questions?

Thank you

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References

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- Cooke, F, Boyd, M. and Martin, T. 2018. *CSIRO Presentation*. '4D Multi-Sensor Visualisation – Revealing the True Value of Multibeam Data'.
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