Seabed2030
South and West Pacific Centre

Jenny Black, GNS Science

General Bathymetric Chart of the Oceans GEBCO

日本財団 THE NIPPON FOUNDATION For Social Innovation

United Nations Educational, Scientific and Cultural Organization

NIWA Taihoro Nukurangi

GNS SCIENCE TE PŪ AO

Land Information New Zealand Toitū te whenua

South and West Pacific Centre

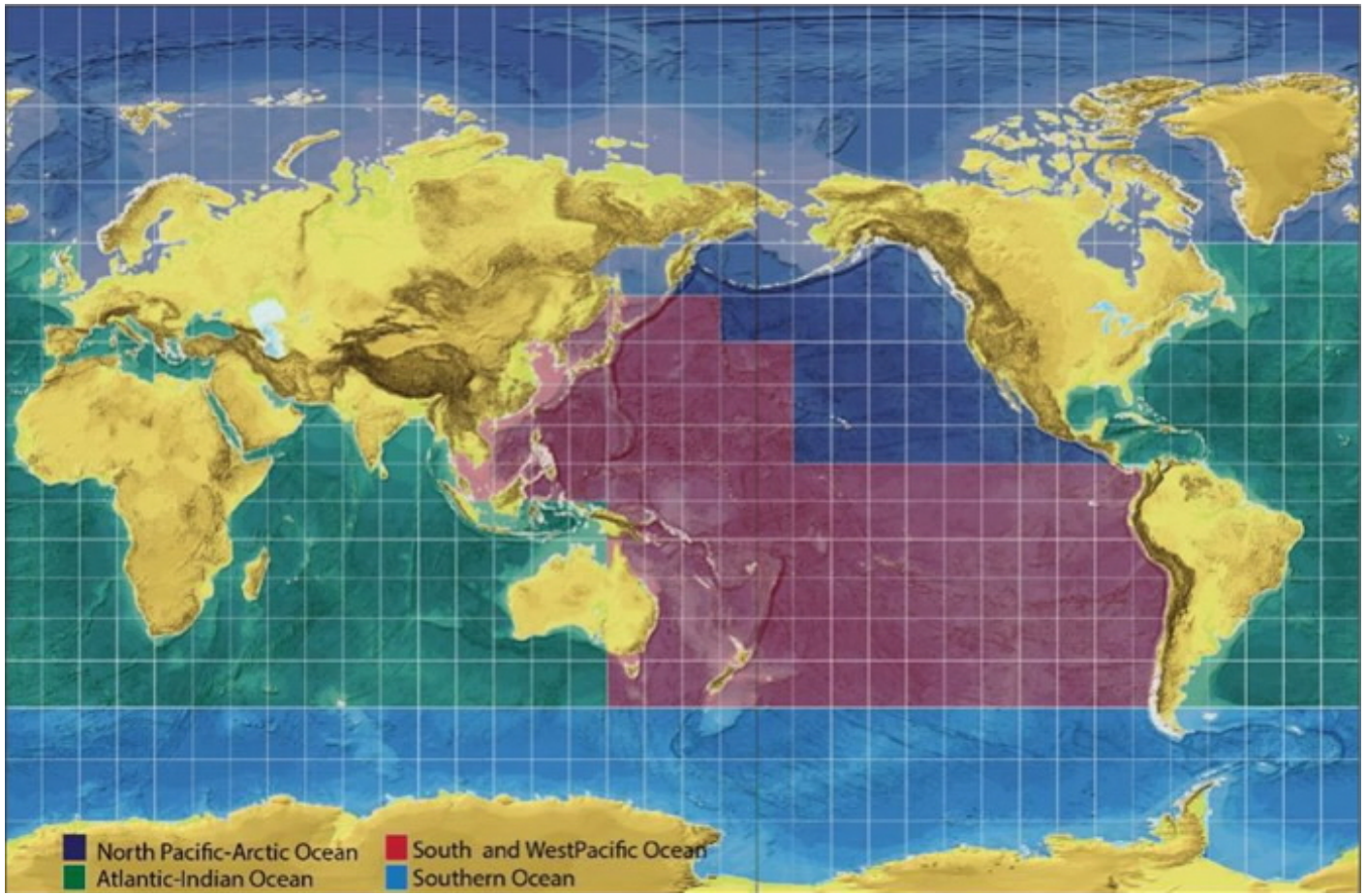
123,515,000 km^2 of ocean

67,000,000 km^2 outside national jurisdiction

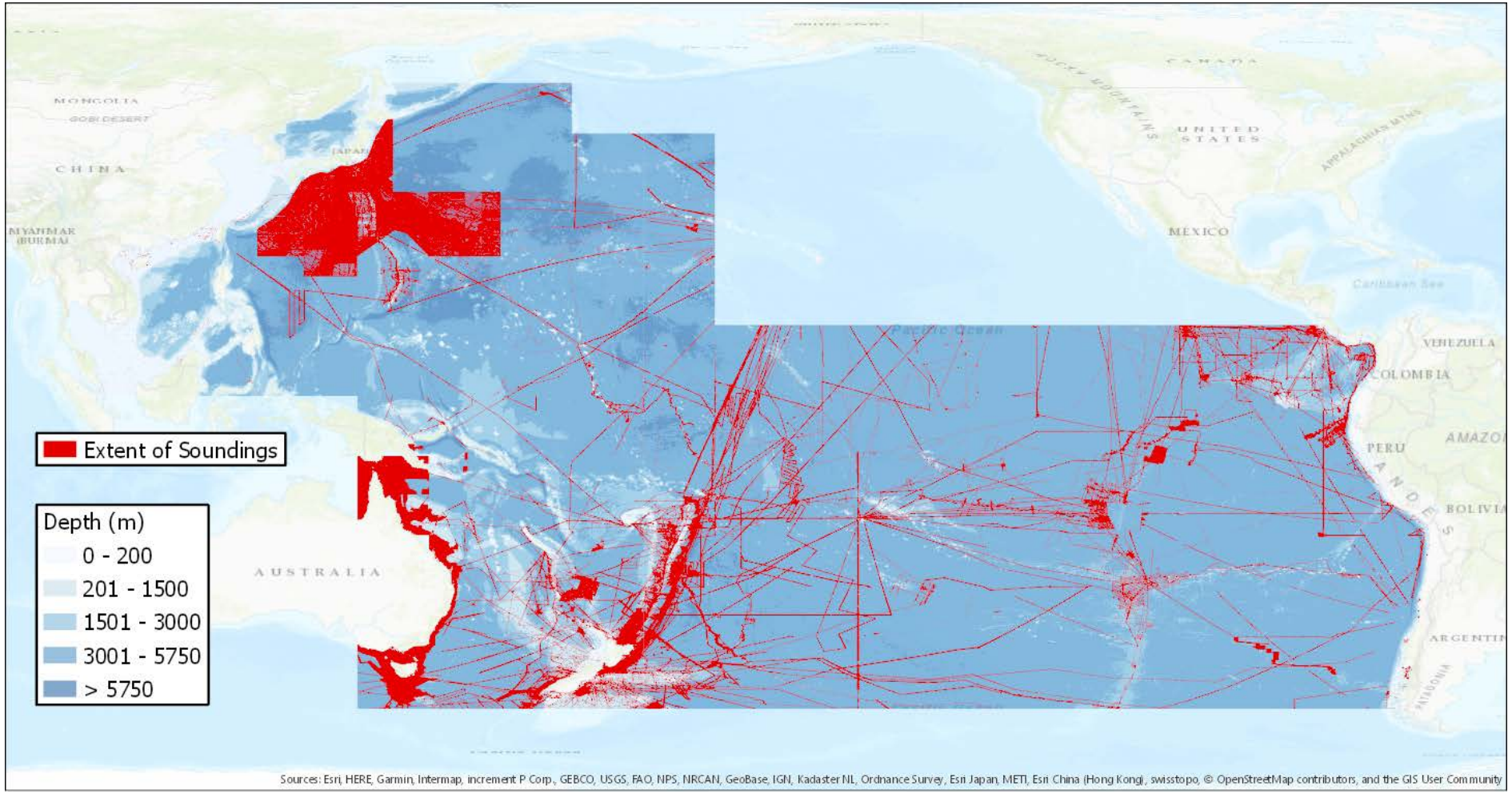
39 countries and territories

~80% deeper than 3000 m

Includes the two deepest ocean trenches:
Mariana Trench (10,994 m)
Kermadec Trench (10,047 m)



Data coverage



Data coverage

Freely available data (including GEBCO 2018)

SaWPaC mainly deep water ->

	Area (km^2)	% of area		Available Data (km^2)	Available Data (% of area)
0 - 200 m	4,989,826	4%		1,342,377	27%
200 - 1500 m	5,258,836	4%		2,156,631	41%
1500 - 3000 m	13,068,933	11%		4,600,667	35%
3000 - 5750 m	93,198,225	75%		19,692,187	21%
5750 - 11000 m	6,999,943	6%		2,919,090	42%
Total	**123,515,763**			**30,710,952**	**25%**

Data Assembly and Coordination Centre

Head

Dr Geoffroy Lamarche

Data Manager

Vacant!

GIS Data Analyst & Administrator

Mr Tilmann Steinmetz

Seabed2030 SaWPaC Data Technician

Mr Patrick Hayes

Technical Management Committee

Dr Helen Neil
Mr Kevin Mackay

Dr Vaughan Stagpoole
Dr Jenny Black

Mr Adam Greenland
Mr Glen Rowe

Regional Data Contributors

Regional Mapping Committee

Data Manager - Vacancy

Data Manager

Two years, full-time

Wellington, New Zealand

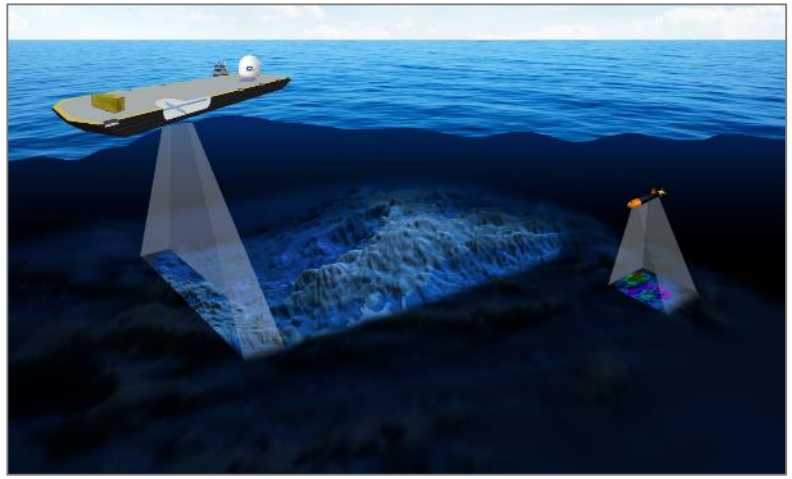
Applications close 4 November 2018 23:59 NZDT

https://careers.sciencenewzealand.org/niwa/niwa-jobs

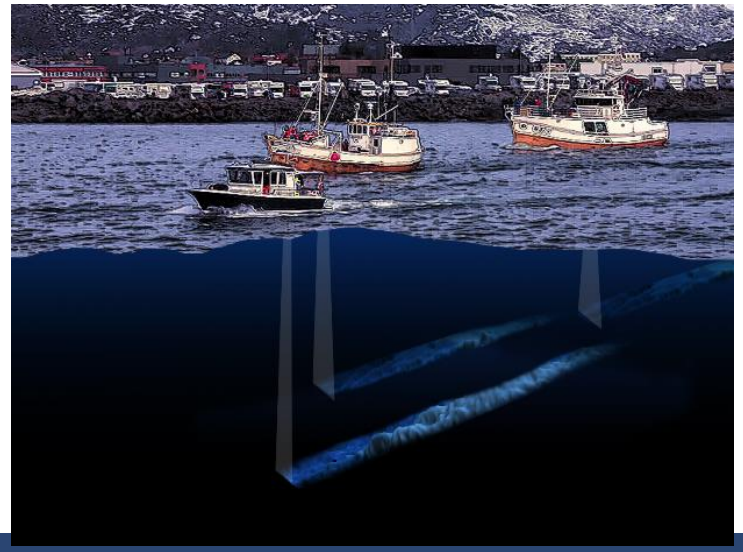
What will the center do?

Work with....

- Develop a gap analysis
- Produce annual updates of the bathymetry map
- Establish an efficient network for participation
- Implement new bathymetric data processing and assembly tools
- Encourage development of new mapping technology
- Coordinate and inspire mapping expeditions



- Academia
- Industry
- Governments
- Navy
- NGO



Meeting

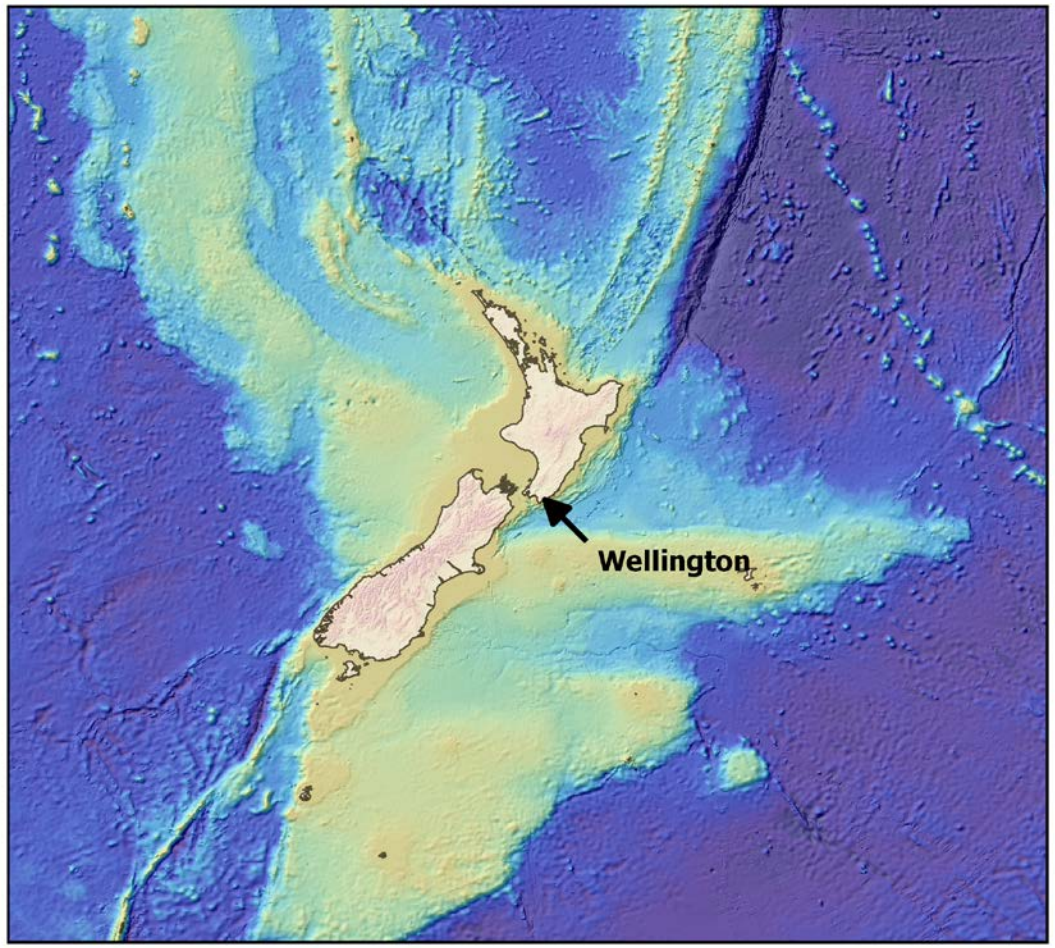
Inaugural Seabed 2030 South and West Pacific Meeting

Wellington, New Zealand

11th – 13th Feb 2019

All welcome! pacific@seabed2030.org

- Establish Regional Mapping Committee
- Identify sources of bathymetric data
- Methods for data sharing and management
- Identify upcoming voyages



Thank you!

pacific@seabed2030.org

Jenny Black
j.black@gns.cri.nz

Centre Head:
Geoffroy Lamarche
+64 21 1895 732
Geoffroy.lamarche@niwa.co.nz

Climate, Freshwater & Ocean Science

ROSETTA-ICE: Airborne Geophysics over the Ross Ice Shelf

Grant O'Brien, Fabio Caratori Tontini, **Jenny Black**

NSF AN: 1443534, and the Moore Foundation

Lamont Doherty Earth Observatory, Earth and Space Research, SCRIPPS Oceanographic Institute, Colorado College, **GNS Science**, NYANG 109th

LC-130

Objectives & Instruments

ROSETTA: large multi-disciplinary project, multiple goals, full ice shelf system

- The **Ice** – Radars (SIR, DICE), Photogrammetry, IR camera, & LIDAR
- The **Ocean** – Alamo floats
- The **underlying sea bed** – Gravity (**ZLS**, DGS, iMAR IMU*, DGU*) and Magnetics (and previously collected data e.g. RIGGS seismic)

* Emerging technology for gravity signals

Data Collection

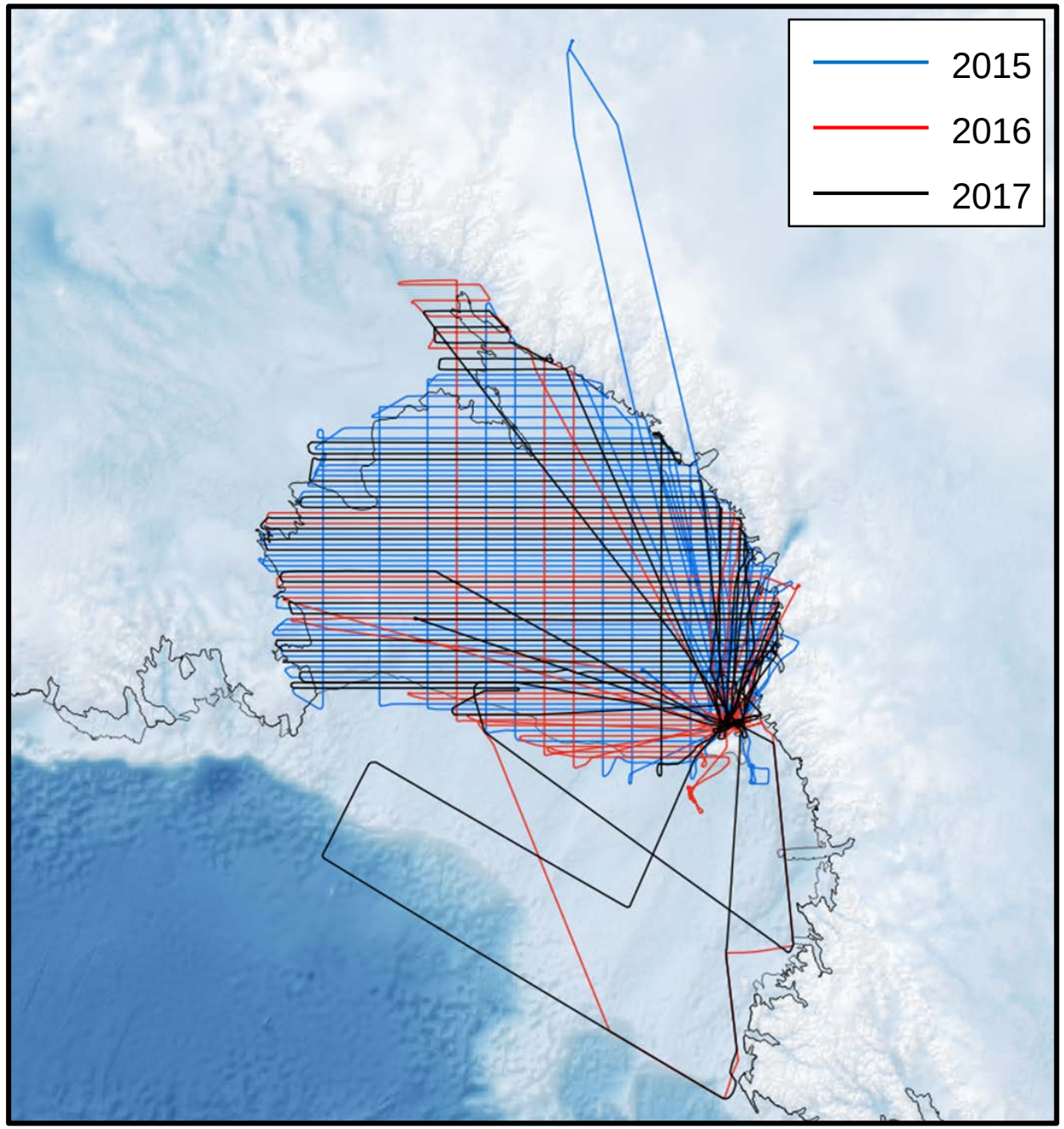
ICEPOD instrument suite

Gravity systems

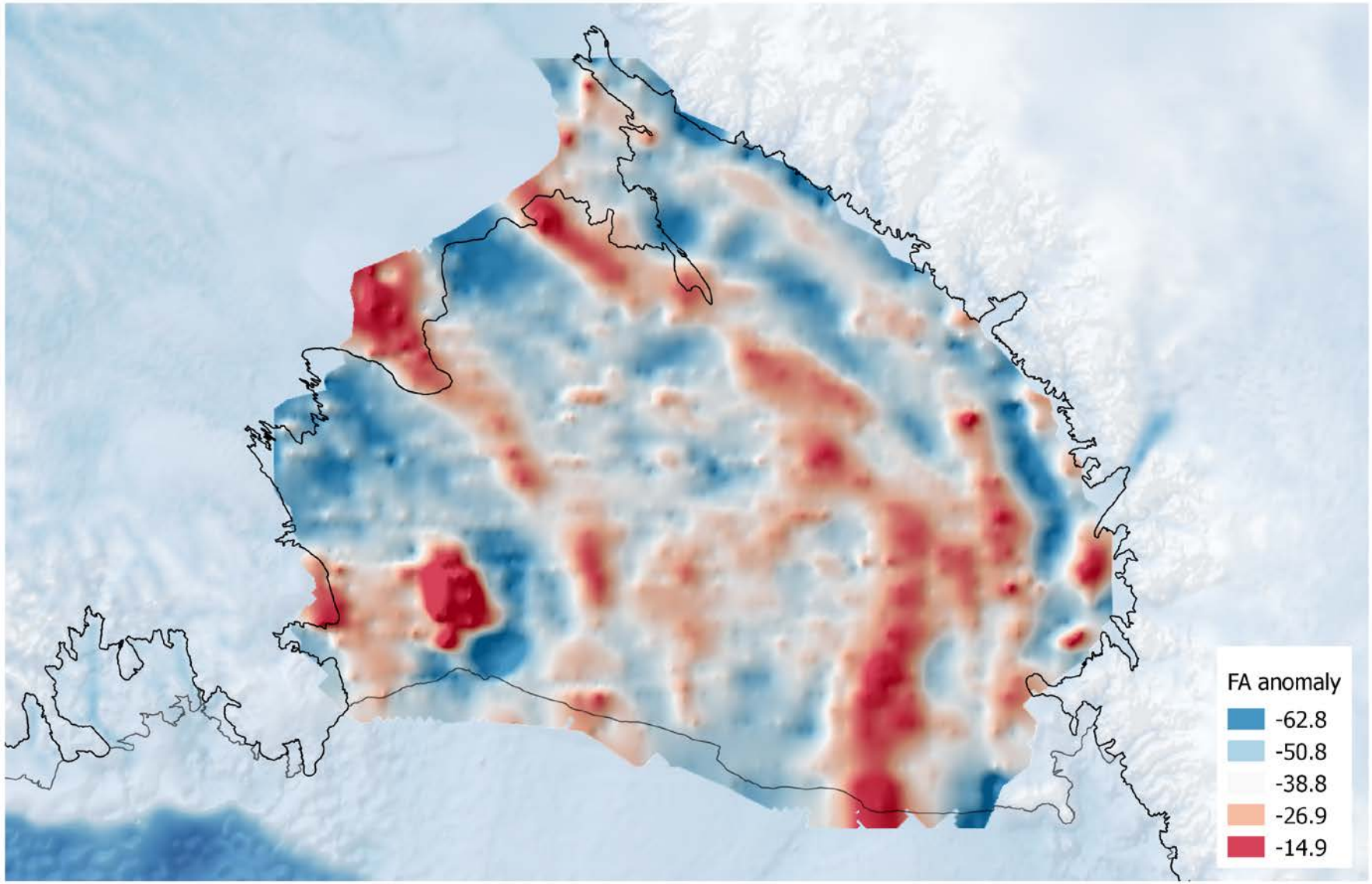
Free Air anomaly

- Three years of collection
- 37,000 km flown
- 120 hours flight time
- 350 TB data

- 10km x 55km (cross RIGGS points)
- 700 m altitude
- 330 km/hr



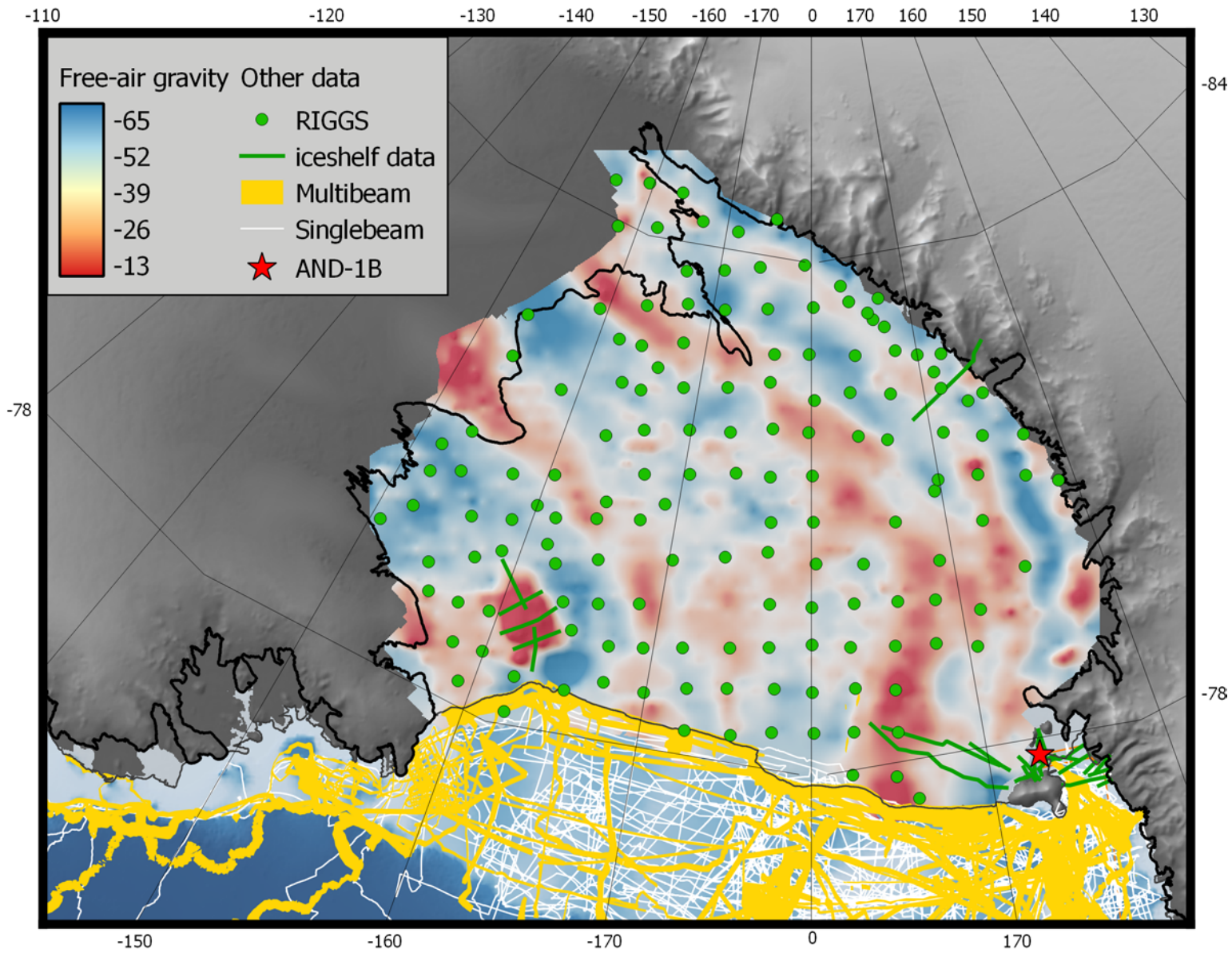
Data Sets: Free Air Anomaly



The Next Step: Creating a Bathymetry Model

- Critical dataset
- First pass model - LDEO
- Full gravity inversion - **GNS Science**
- Define a suitable geological model from all available data:
  - Control points for bathymetry
  - Depth to basement
  - Sediment layers
  - Magnetic data

Input Data



- RIGGS
- Seismic
- Drill hole data
- Single beam
- Multi beam

- Magnetic

Thank you!

Contact me if you have data to share: **j.black@gns.cri.nz**