

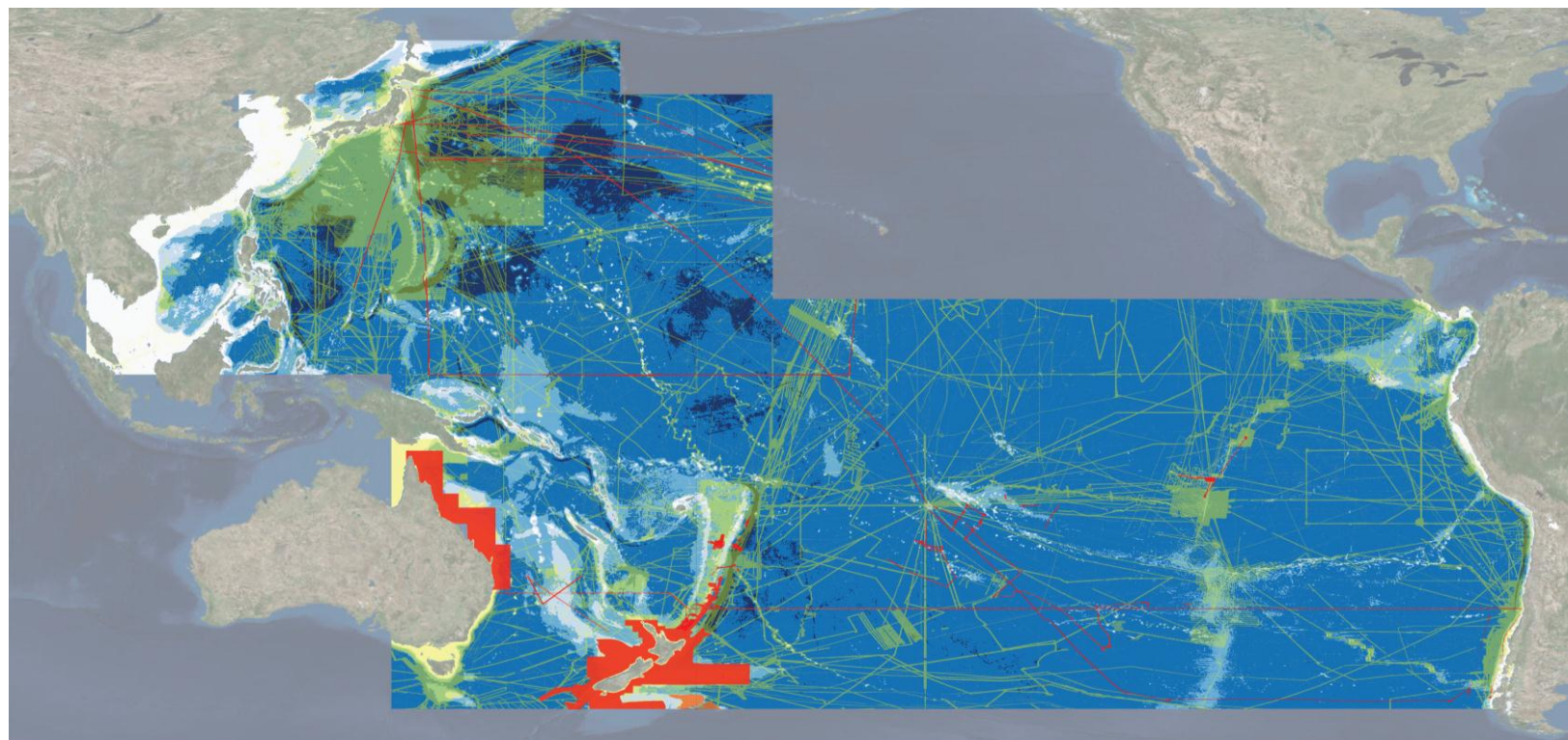
The Seabed 2030

South and West Pacific Centre

Geoffroy Lamarche

NIWA – University of Auckland

The South and West Pacific Centre



123,515,000 km² of ocean
67,000,000 km² in the AREA
39 countries and territories
~80% deeper than 3000 m

Countries in SaWPac



Country	EEZ
American Samoa	
Australia	6,664,107
Brunei Darussalam	5,614
Cambodia	
Chile	3,415,864
China	877,019
Colombia	706,134
Cook Island	
Ecuador	
Fiji	1,055,048
France	706,443
French Polynesia	4,553,115
Guam	
Japan	3,648,393
Kiribati	3,387,648
Malaysia	198,173
Marshall Isl	1,877,282
Nauru	
New Caledonia	1,347,964
Niue	

Country	EEZ
Korea, Dem People's Rep	72,755
Peru	
Philippines	293,808
Pitcairn	
PNG	1,613,759
Russia	6,255,799
Samoa	109,932
Solomon	1,377,128
Korea, Rep	202,585
Taiwan	
Thailand	176,540
Timor Leste	
Tokelau	319,031
Tonga	844,978
Tuvalu	
Vanuatu	530,162
Vietnam	237,800
Wallis & Futuna	
New Zealand	3,887,441
Micronesia, Fed States	2,906,416

The South and West Pacific Data Assembly and Coordination Centre



NIWA

Taihoru Nukurangi



lead

**Dr Geoffroy
Lamarche**

GIS Data Analyst & Administrator

Mr Tilmann Steinmetz

Seabed2030 SaWPac Data Manager

Vacant!



Technical Management Committee



NIWA

Taihoru Nukurangi



**Dr Helen Neil
Mr Kevin Mackay**

**Dr Vaughan Stagpoole
Dr Jenny Black**

**Mr Adam Greenland
Mr Glen Rowe**

Regional Data Contributors

Regional Mapping Committee





Stats	0-200 m	200-1500 m	1500-3000 m	3000-5750 m	5750-11000m	Total
Total area SaWPac						
Area (km2)	4,989,826	5,258,836	13,068,933	93,198,225	6,999,943	123,515,763
% of total area	4.04%	4.26%	10.58%	75.45%	5.67%	
Outside EEZ (km2)	5,328	471,027	2,878,777	58,625,104	5,018,859	66,999,095
% of total area	0.00%	0.38%	2.33%	47.46%	4.06%	54.24%
Data Available						
Grid data GEBCO 2014 (km2)	1,106,737	1,098,707	3,061,084	13,802,420	2,233,652	21,302,600
(% of area within depth band)	22.18%	20.89%	23.42%	14.81%	31.91%	17.25%
additional GEBCO (2017, not released)	243,718	958,853	1,208,110	4,625,368	617,995	7,654,044
(% of area within depth band)	4.88%	18.23%	9.24%	4.96%	8.83%	6.20%
SawPaC release Oct 2018 (not in GEBCO)	3,029	22,354	125,569	946,752	60,296	1,158,000
(% of area within depth band)	0.06%	0.43%	0.96%	1.02%	0.86%	0.94%

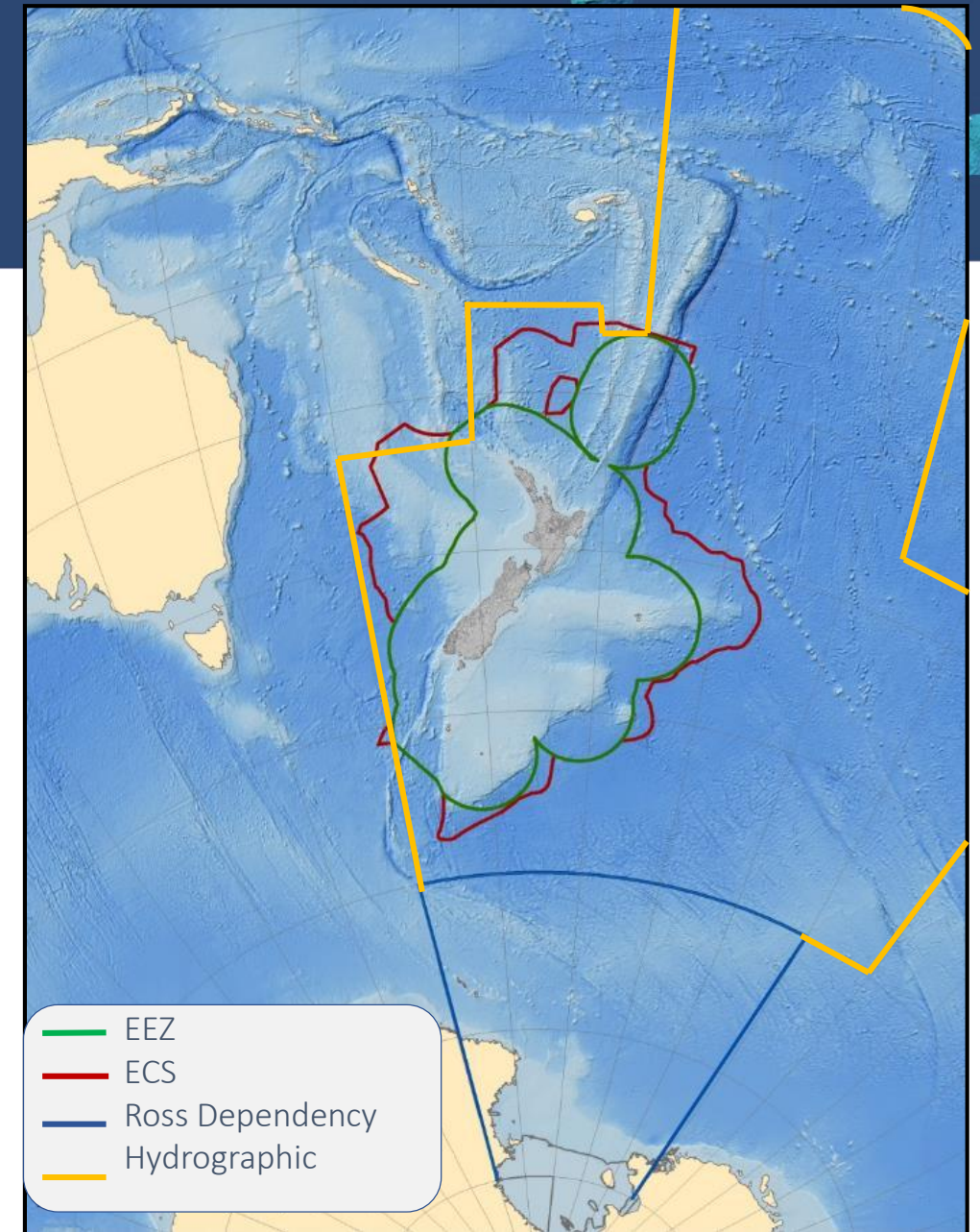
Total grid data available in SawPAC (km2)	1,353,484	2,079,914	4,394,763	19,374,540	2,911,943	30,114,644
% grid data available within depth band	27.12%	39.55%	33.63%	20.79%	41.60%	24.38%

NZ

Sovereignty & Responsibilities

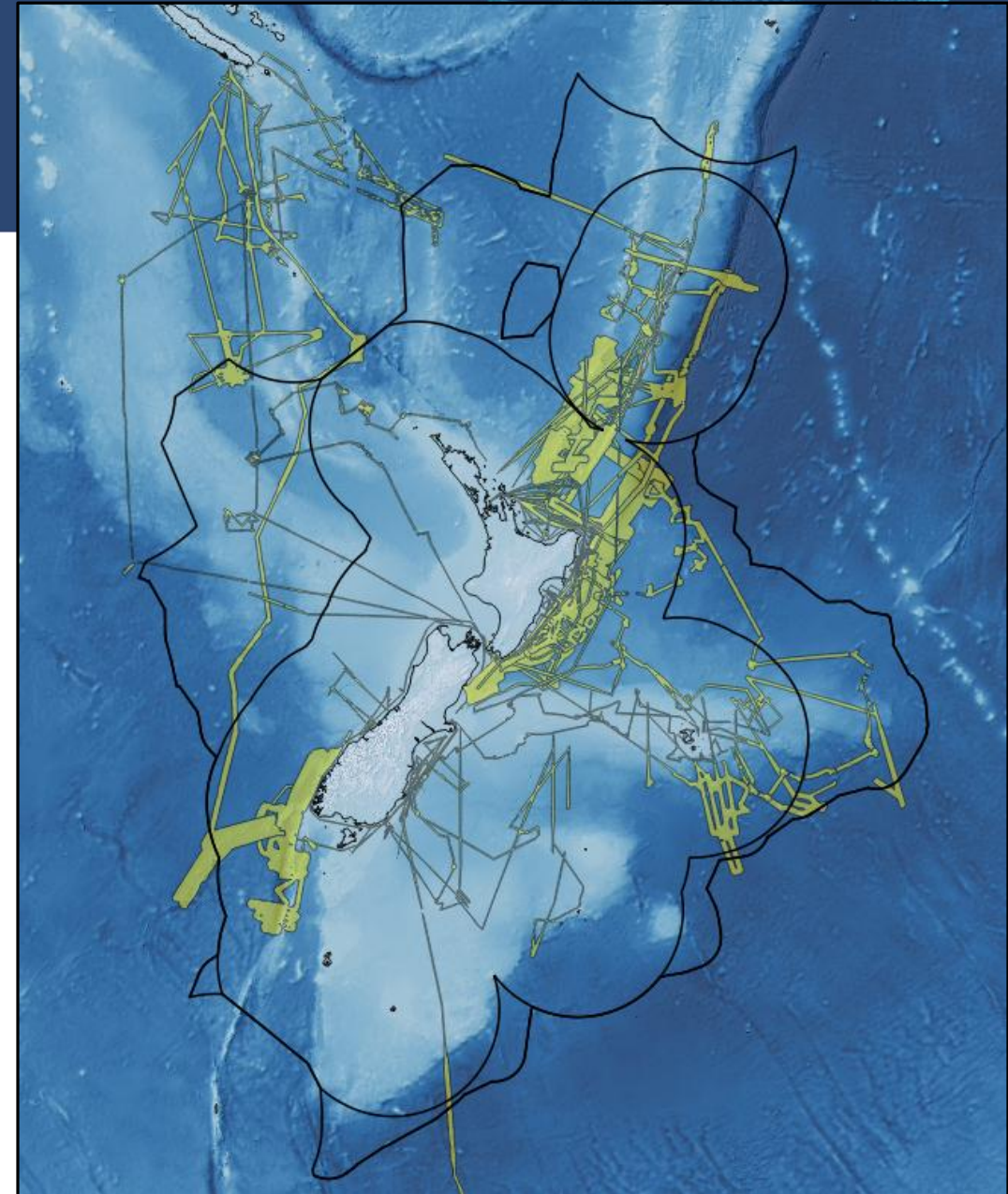
Bathy actors

- NIWA – The National Institute of Water and Atmospheric Research, a provider of all ocean-focus sciences
- GNS – the Institute of Geological and Nuclear Sciences is a provider of Earth, geoscience and isotope research. Its purpose is to understand natural Earth system processes and resources, and to translate these into economic, environmental and social benefits.
- LINZ – Land Information New Zealand; Is the host for the hydrographic office
- Navy



GNS + NIWA Science's contribution to SaWPaC

- Bathymetry data
- Global bathymetry network
- Compilation experience
- Data discovery tool



GNS Science – Data Discovery Tool



<https://data.gns.cri.nz/pbe>

Users can:

- Discover swath voyages
- View metadata
- Assess data quality

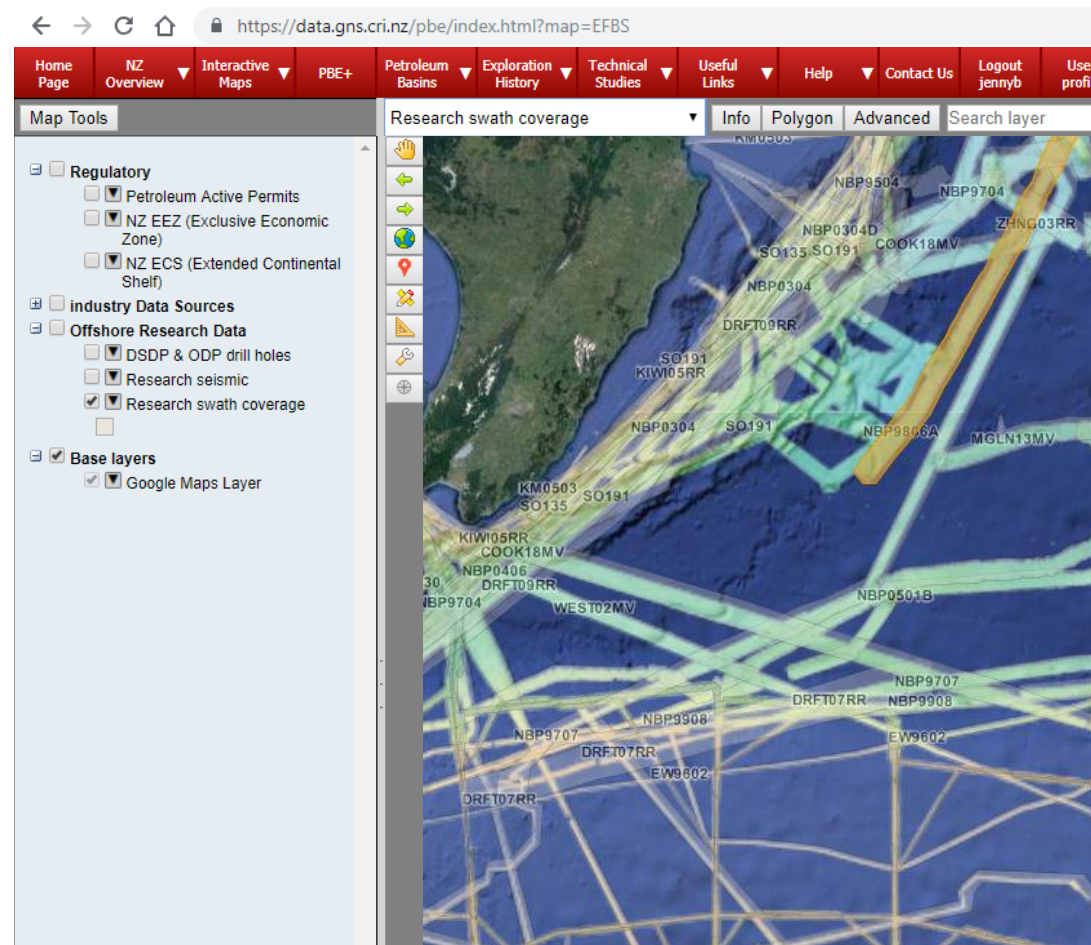


Table - Google Chrome

<https://data.gns.cri.nz/pbe/table.html>

Export to CSV Customise Zoom To

End Date:	1998-10-12T11:00:00.652Z
Alternative survey name:	NBP98-6A
Research program:	
Vessel:	Nathaniel B. Palmer
Principle scientist:	Dave Leger
Institution:	RPSC
Start Date:	1998-10-02T12:00:00.652Z
Survey:	NBP9806A
Bathymetry instrumentation:	SeaBeam 2112
Navigation instrumentation:	P-code GPS
Port start-end:	Honolulu Hawaii to Apia Western Samoa
URL Link:	http://www.marine-geo.org/tools/search/entry.php?id=NBP9806A
Report:	sp/prj/mb_data/NBP9806A/reports
Data Custodian:	GNS Science

New Zealand Hydrographic Authority



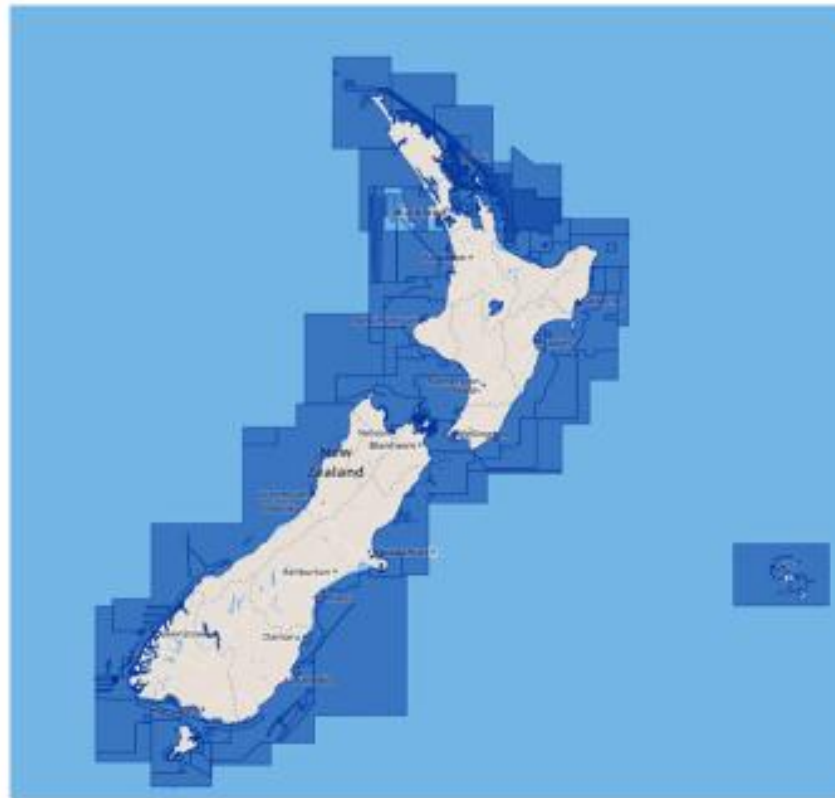
**Land Information
New Zealand**
Toitū te whenua

LINZ Data Service

Making bathymetry discoverable

www.data.linz.govt.nz

Gridded Bathymetry surfaces
Multibeam surveys since 1999



NIWA and NZOI have > 50 years of expertise in bathymetry data acquisition, processing and scientific use

NIWA hold the Bathymetry database for New Zealand and maintain www.bathymetry.co.nz





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NIWA Data exchange standards



NIWA is a producer and consumer of bathymetry data.

Data from NIWA:

- Standards driven by client e.g. LINZ Survey Specs,
- Most common format is depth-encoded GeoTIFF with attached xml metadata
- Most clients are ESRI users and request a ESRI compatible format

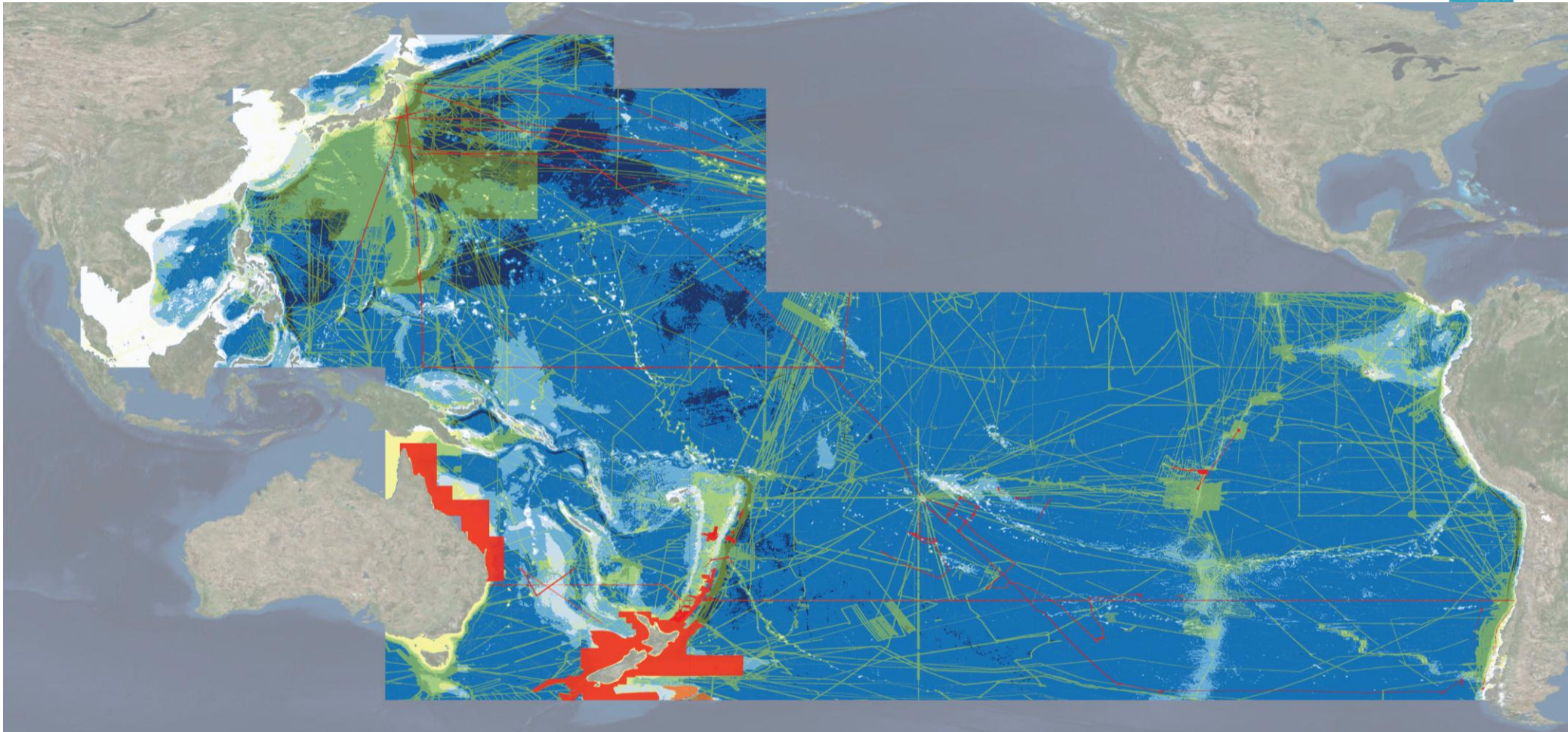
Data imported by NIWA:

- Our philosophy is “Whatever we can get”
- Worst-case is ASCII XYZ
- Usually no to little associated metadata
- Common formats for imported data include: NetCDF, BAG, CSAR, GSF

Always try to get raw data if possible (for backscatter and water column data).

Bathymetry is only part of the story

2018 Delivery



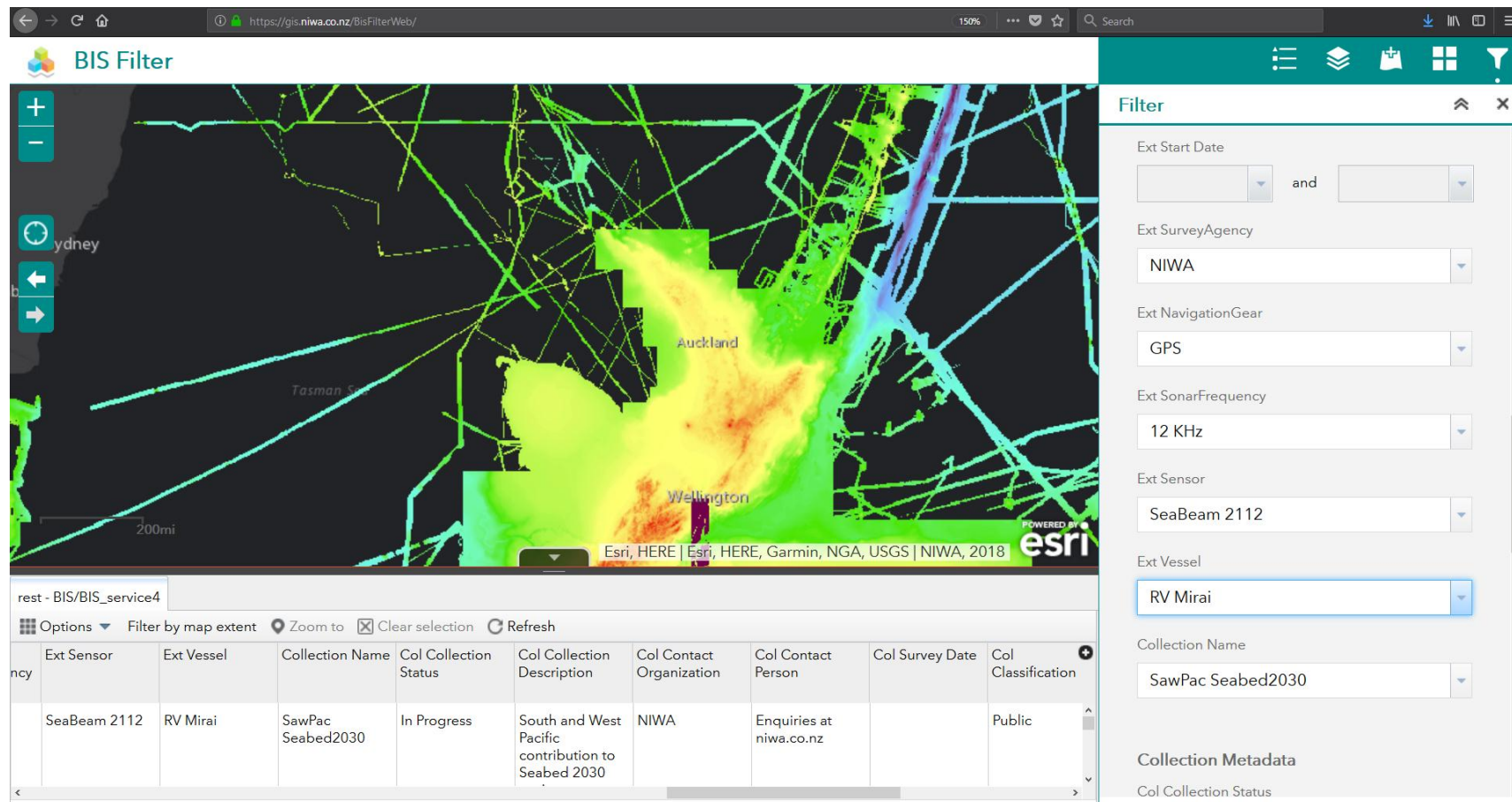
2018 Delivery



Unique Cruise/ Survey Identifier	Number of Rasters	StartDate	Distributor	DataType	Sensor	Vessel
MR00-K08	41	27/12/2000	JAMSTEC	Multibeam	SeaBeam 2112	RV Mirai
MR02-K01	37	7/01/2002	JAMSTEC	Multibeam	SeaBeam 2112	RV Mirai
MR02-K06_Leg 3	19	13/01/2003	JAMSTEC	Multibeam	SeaBeam 2112	RV Mirai
MR03-K04_Leg 2	4	9/09/2003	JAMSTEC	Multibeam	SeaBeam 2112	RV Mirai
MR03-K04_Leg 3	7	19/10/2003	JAMSTEC	Multibeam	SeaBeam 2112	RV Mirai
MR07-07_Leg 1	24	28/12/2007	JAMSTEC	Multibeam	SeaBeam 2112	RV Mirai
MR08-06_Leg 1	56	15/01/2009	JAMSTEC	Multibeam	SeaBeam 2112	RV Mirai
MR08-06_Leg 2	14	15/03/2009	JAMSTEC	Multibeam	SeaBeam 2112	RV Mirai
MR09-01_Leg 3	12	20/06/2009	JAMSTEC	Multibeam	SeaBeam 2112	RV Mirai
MR12-05_Leg 1	20	6/11/2012	JAMSTEC	Multibeam	SeaBeam 2112	RV Mirai
MR98-K02	14	24/12/1998	JAMSTEC	Multibeam	SeaBeam 2112	RV Mirai
MR99-K07	11	15/12/1999	JAMSTEC	Multibeam	SeaBeam 2112	RV Mirai
NZ 250m Regional Grid	1	1/01/1990	NIWA	Compilation		
GMRT v3.5	6	Unknown	LDGO	Compilation		
SO95	31	22/04/1994	AWI	Multibeam		RV Sonne
SO196	10	6/03/2008	AWI	Multibeam		RV Sonne
SO202	15	9/07/2009	AWI	Multibeam		RV Sonne
SO213	54	30/12/2010	AWI	Multibeam		RV Sonne
SO224	27	15/10/2012	AWI	Multibeam		RV Sonne
SO225	32	25/11/2012	AWI	Multibeam		RV Sonne

Unique Cruise/ Survey Identifier	Number of Rasters	StartDate	Distributor	DataType	Sensor	Vessel
YK04-07	17	13/07/2004	JAMSTEC	Multibeam	SeaBeam 2112	RV Yokosuka
YK04-08_Leg 1	18	12/08/2004	JAMSTEC	Multibeam	SeaBeam 2112	RV Yokosuka
YK04-08_Leg 2	7	11/09/2004	JAMSTEC	Multibeam	SeaBeam 2112	RV Yokosuka
YK04-09_Leg 1	22	25/09/2004	JAMSTEC	Multibeam	SeaBeam 2112	RV Yokosuka
YK04-09_Leg 2	9	26/10/2004	JAMSTEC	Multibeam	SeaBeam 2112	RV Yokosuka
YK06-14_Leg 1	8	8/10/2006	JAMSTEC	Multibeam	SeaBeam 2112	RV Yokosuka
YK06-14_Leg 2	8	20/10/2006	JAMSTEC	Multibeam	SeaBeam 2112	RV Yokosuka
YK13-05	27	20/06/2013	JAMSTEC	Multibeam	SeaBeam 2112	RV Yokosuka
YK13-10	13	7/10/2013	JAMSTEC	Multibeam	SeaBeam 2112	RV Yokosuka
YK13-11	7	24/10/2013	JAMSTEC	Multibeam	SeaBeam 2112	RV Yokosuka
NZ 250m Regional Grid	1	1/01/1990	NIWA	Compilation		
GMRT v3.5	6	Unknown	LDGO	Compilation		
SO95	31	22/04/1994	AWI	Multibeam		RV Sonne
SO196	10	6/03/2008	AWI	Multibeam		RV Sonne
SO202	15	9/07/2009	AWI	Multibeam		RV Sonne
SO213	54	30/12/2010	AWI	Multibeam		RV Sonne
SO224	27	15/10/2012	AWI	Multibeam		RV Sonne
SO225	32	25/11/2012	AWI	Multibeam		RV Sonne

Web Mapping Application for Public Information and Collaboration



Allows to visualise the contents of NIWA's bathymetry dataset holdings for the SawPAC.

Public facing.

“Explore Bathymetry” panel create a DYNAMIC mosaic of bathymetric rasters by filter

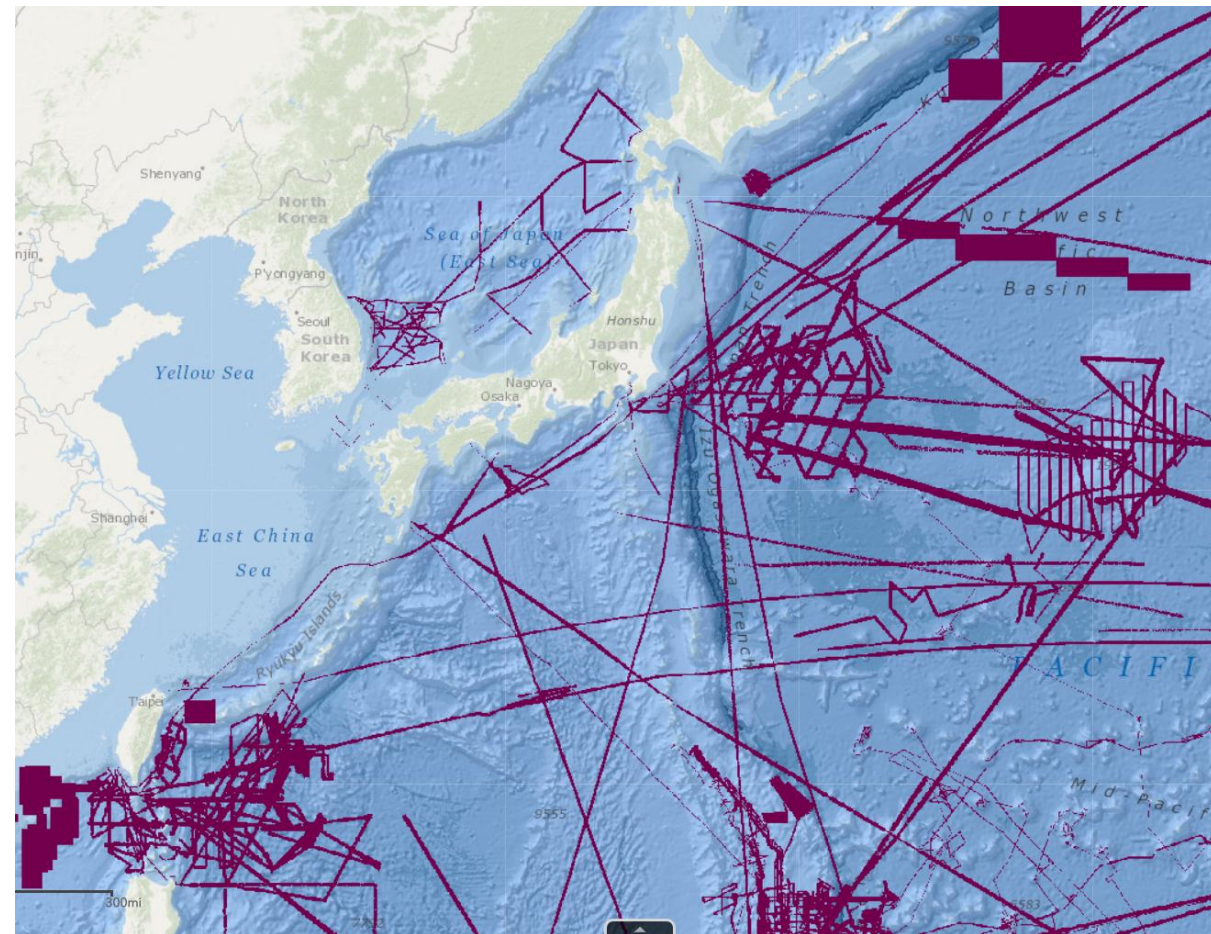
<https://gis.niwa.co.nz/BisFilterWeb/>

BIS vs GMRT

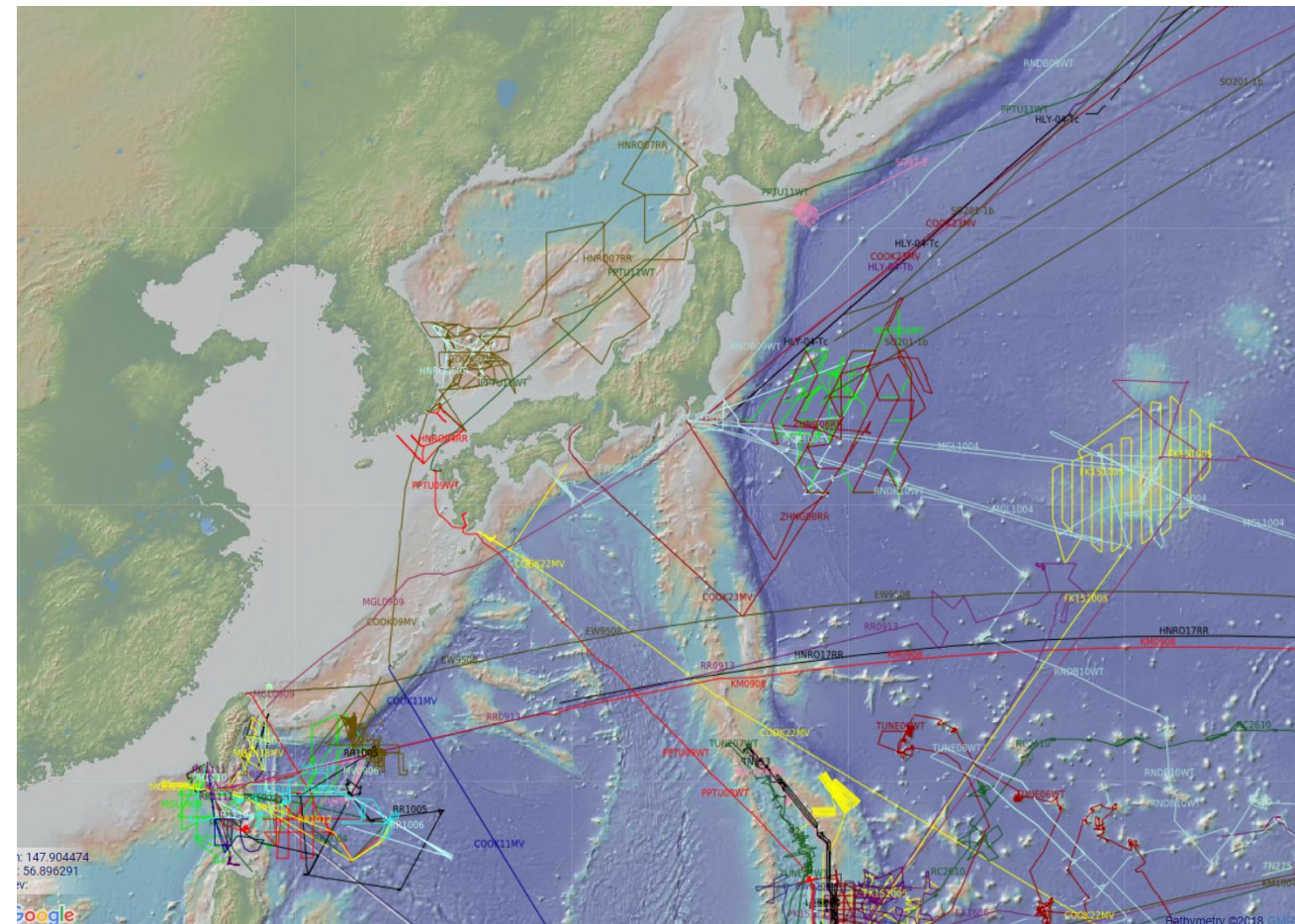


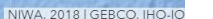
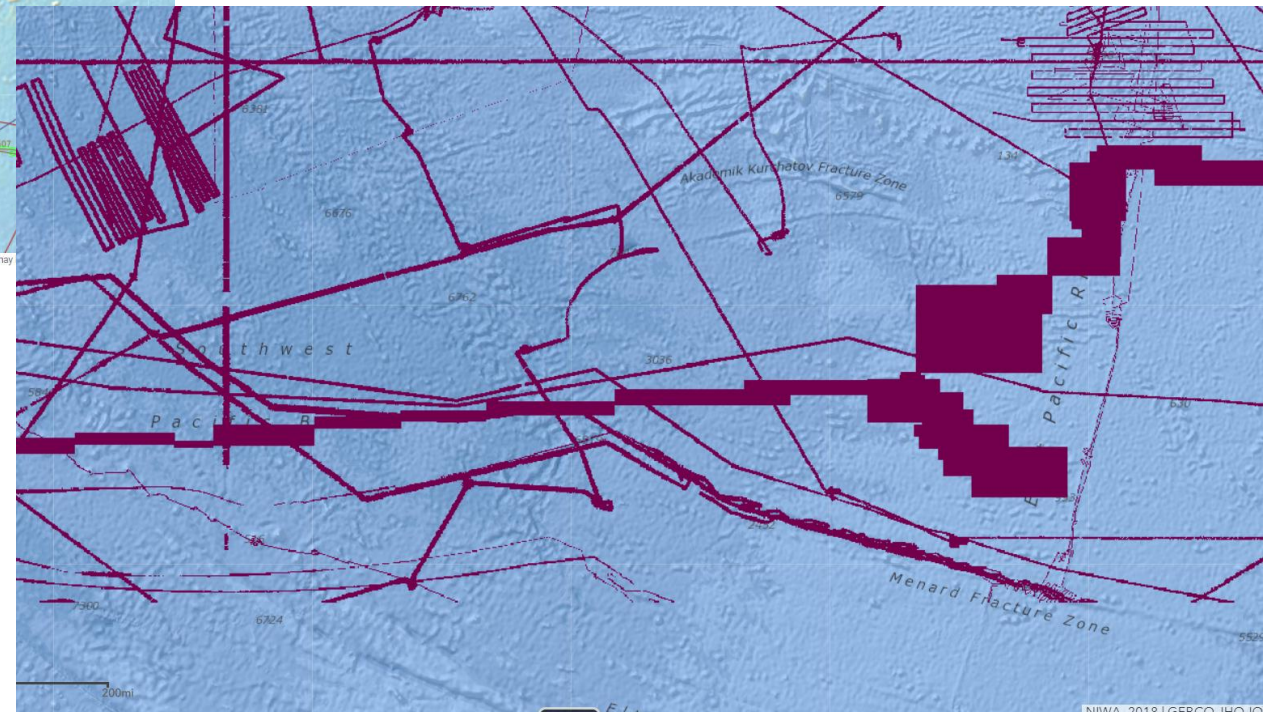
SaWPac uses **ArcGIS for Maritime** extension to manage postprocessed gridded and vector bathymetry data and metadata from the central Bathymetric Information System (**BIS**) geodatabase. The BIS allows to interact with and manage large volumes of raster and point data

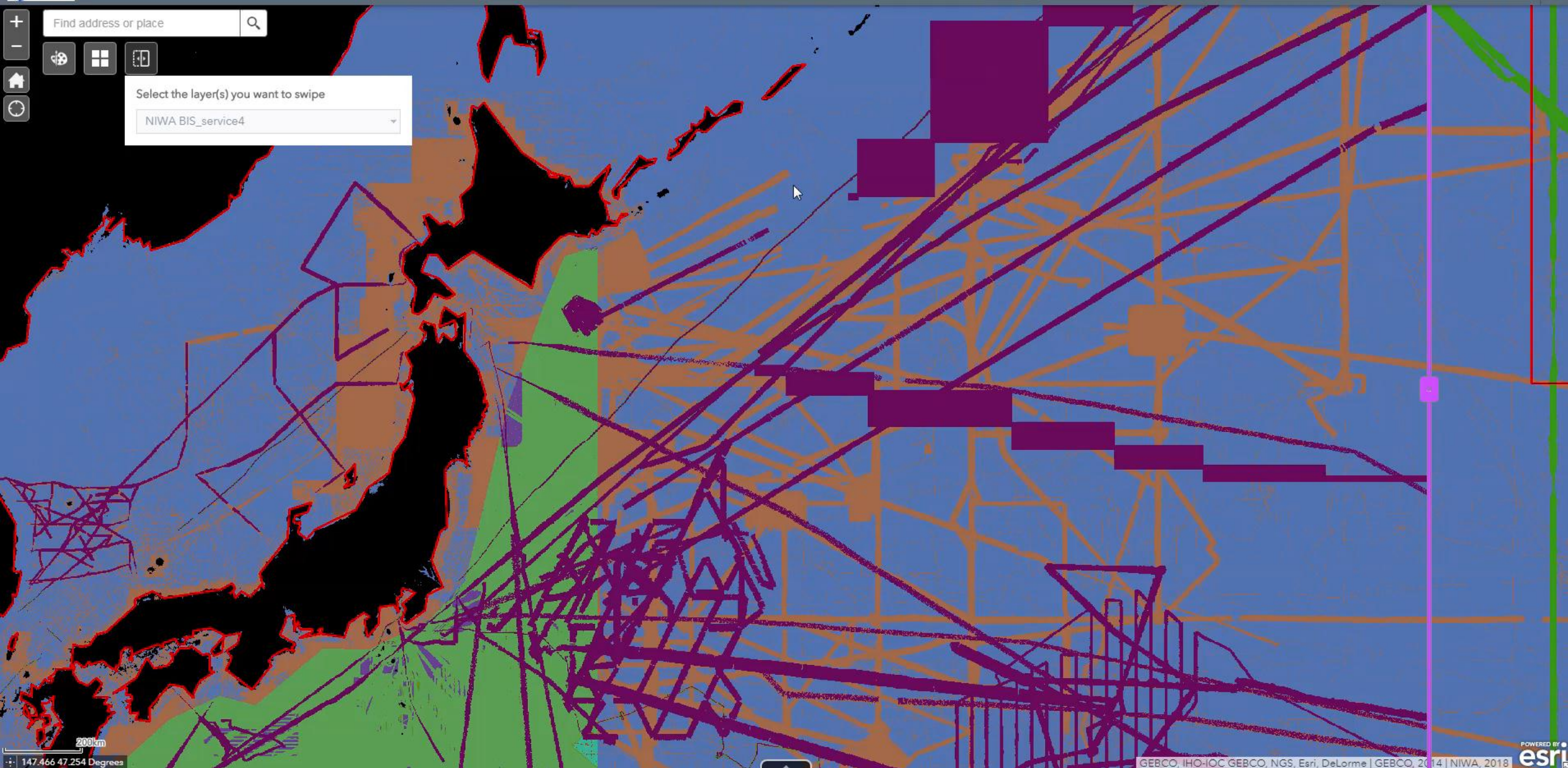
BIS Filter



GMRT







South and West Pacific Regional Center Mapping Committee Inaugural Workshop

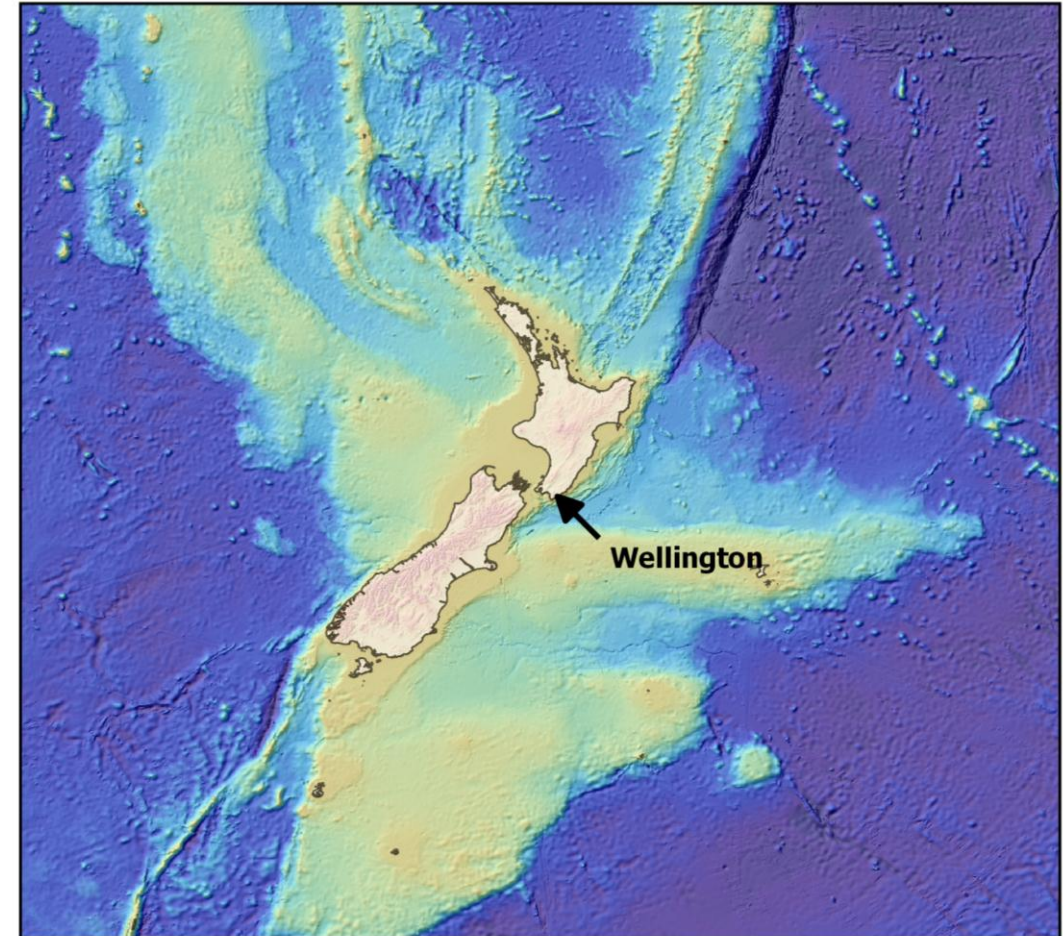
Inaugural Seabed 2030 South and West Pacific Meeting

11th – 13th Feb 2019 - Wellington, New Zealand

All welcome! pacific@seabed2030.org

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

Register on <https://seabed2030.gebco.net/pacific/>



Call to Action



- Support data availability at Seabed 2030 target resolution
- Facilitate legal availability at Seabed 2030 target resolution
- Engage with Regional Centers or Global Center
- Support & promote GEBCO activities & products

How can you help?

- Support and advertise the project
- Provide existing data that are not currently in the public domain
- Consider acquiring data during transit or on route
- Plan/fund expeditions and surveys to unmapped regions
- Participate in **crowdsourcing** initiatives
- Consider becoming a **Seabed 2030** project Partner !



Thank you!

pacific@seabed2030.org

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