



SouthPAN

ICG-17

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Madrid, Spain

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Presentation Outline

- SouthPAN Overview
- Year 1 Review
- Future Developments
- Geoscience Australia GNSS Activities

SouthPAN Overview



- Service delivered jointly by the governments of Australia and New Zealand
- Will improve and augment the accuracy, integrity and availability of GNSS in Australia and New Zealand
- Designed to deliver benefits across wider economy, including the transport, agriculture, construction, resource and utility sectors
- Benefit all users of satellite positioning, particularly in remote areas without mobile phone coverage

SouthPAN Early Open Services



L1 SBAS Open Service

- Delivered on L1 signal
- Augments GPS L1 C/A
- Better than 3m (H) and 4m (V)

DFMC SBAS Open Service

- Delivered on L5 signal
- Augments GPS L1 C/A + L5, and Galileo E1 + E5a
- Better than 1.5m (H) and 2.5m (V)

PPP via SouthPAN

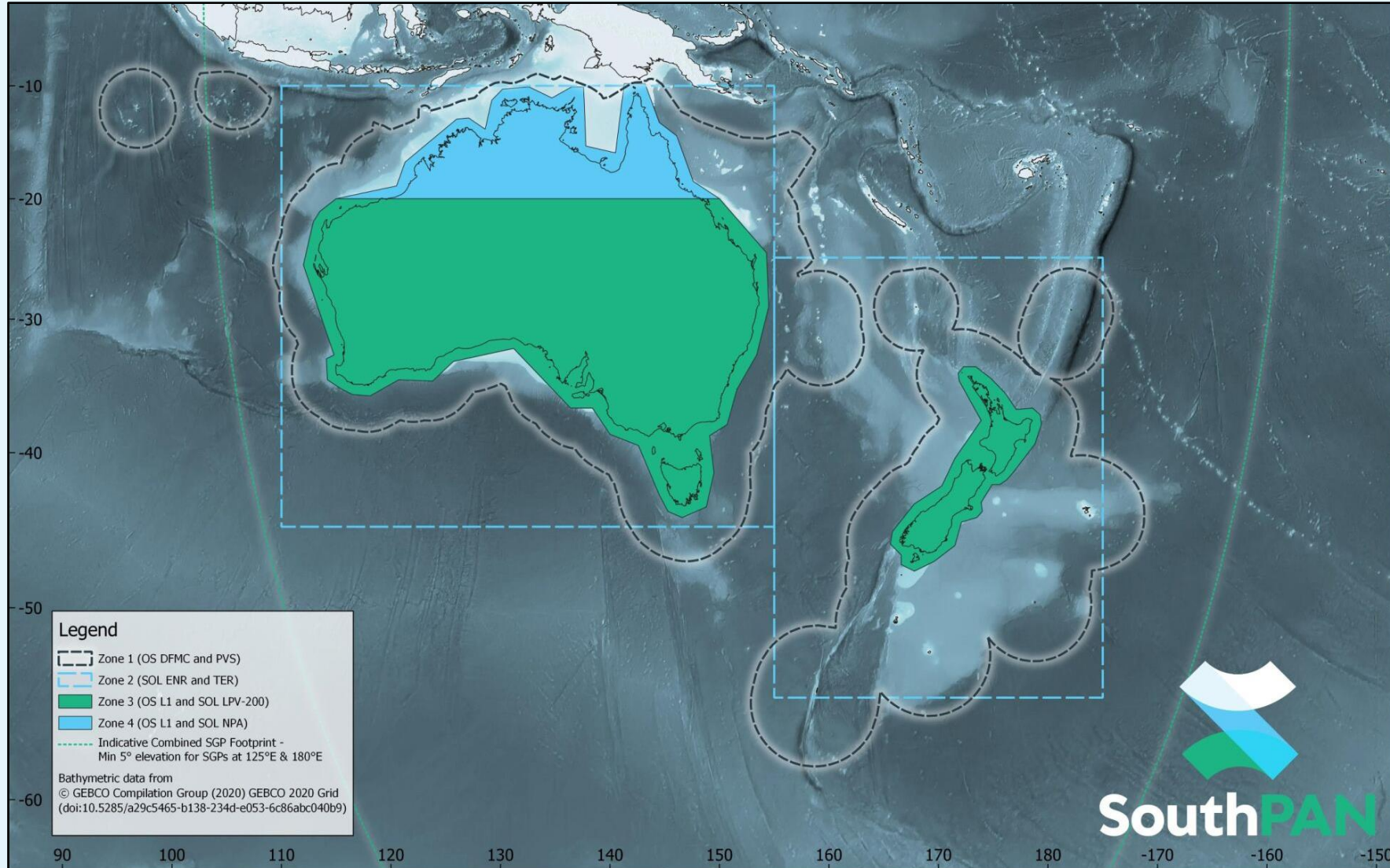
- Delivered on L5 signal
- Augments GPS L1 C/A + L5, and Galileo E1 + E5a
- Better than 0.38m (H) and 0.53m (V), with 80 min convergence

Early Open Services have been available since September 2022 and will improve as SouthPAN is deployed

Full Operating Capability, including Safety-of-Life services, is expected in 2028

More detail is available in the SouthPAN Service Definition Document for Open Services.

SouthPAN Early Open Services



Year 1 Review - Programme

- Early Open Services delivered (IOC-95)
- System PDR completed
- Contract awarded to Viasat+Inmarsat for first SouthPAN Geostationary Payload (SGP-01)
- RFT for second payload released



Year 1 Review - Infrastructure

- GNSS Reference Station surveys
- Land acquisition for reference stations
- Uplink Facility works in Uralla and Awarua



Year 1 Review – User Engagement



- OEM survey
- Developing SouthPAN Use Cases
- Update to websites

The screenshot shows the top of the Geoscience Australia website. The header includes the Australian Government logo and the text "Geoscience Australia". Navigation links include "About", "Scientific topics", "Education", "Data", "News & events", and a search icon. The main content area has a dark teal background with the title "Southern Positioning Augmentation Network (SouthPAN)" in white. Below the title, it says "Last updated: 18 August 2023". At the bottom, there is a paragraph of text describing SouthPAN as a joint initiative of the Australian and New Zealand Governments.

Australian Government
Geoscience Australia

About Scientific topics Education Data News & events Search

Southern Positioning Augmentation Network (SouthPAN)

Last updated: 18 August 2023

The Southern Positioning Augmentation Network (SouthPAN) is a joint initiative of the Australian and New Zealand Governments that provides Satellite-Based Augmentation System (SBAS) services for Australia and New Zealand. Geoscience Australia as the Australian Government lead agency, is working in collaboration with Toitū Te Whenua Land Information New Zealand on the development, deployment, and operation of SouthPAN, the first SBAS in the Southern Hemisphere.

SouthPAN is a Satellite-Based Augmentation System (SBAS) comprised of reference stations, telecommunications infrastructure, computing centres, signal generators, and satellites that provide improved positioning and navigation services in Australia, New Zealand, and its maritime region.

The screenshot shows the top of the Toitū Te Whenua Land Information New Zealand website. The header includes the organization's logo and name. Navigation links include "Mō mātou About us", "Kōrero whakapā Contact us", "Whakapāpātanga Consultations", "Rauemi Resources", and "Ara mahi Careers". There are also dropdown menus for "Ā mātou mahi Our work", "Ngā hua me ngā ratonga Products & services", "Kōrero ārahi Guidance", and "Karere News". A search bar is present. The main content area has a light teal background with the title "SouthPAN". Below the title, there is a paragraph of text describing SouthPAN as a partnership between LINZ and Geoscience Australia under the ANZSRICA agreement. On the right side, there is a "Kōrero whakapā | Contact" link and an email address "SouthPAN@linz.govt.nz".

Mō mātou About us Kōrero whakapā Contact us Whakapāpātanga Consultations Rauemi Resources Ara mahi Careers

Ā mātou mahi Our work Ngā hua me ngā ratonga Products & services Kōrero ārahi Guidance Karere News

Search our site

SouthPAN

Home > Products and services > Geodetic > SouthPAN

SouthPAN (Southern Positioning Augmentation Network) will improve the accuracy and reliability of satellite-based positioning systems in Australasia.

SouthPAN is a partnership between LINZ and Geoscience Australia under the [Australia New Zealand Science, Research and Innovation Cooperation Agreement \(ANZSRICA\)](#).

Kōrero whakapā | Contact

Have a question about SouthPAN?

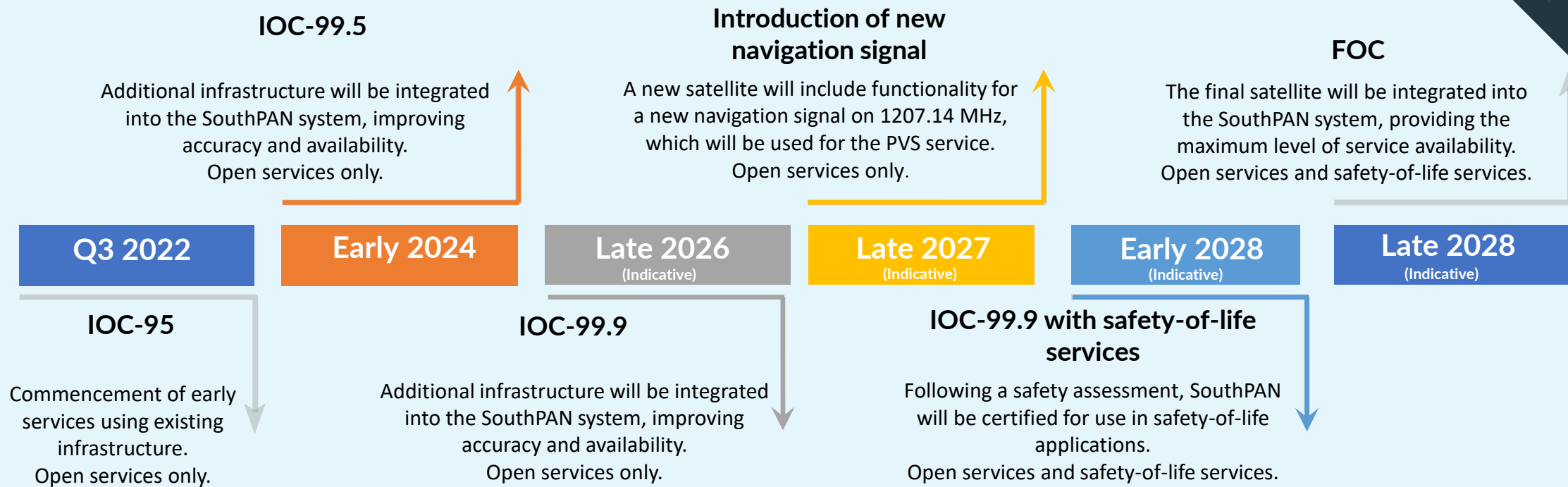
Email the team:
SouthPAN@linz.govt.nz

Year 1 Review – Service Performance



Service	Metric	Target	Actual
OS-L1-SIS	L1 navigation signal availability (%)	95.000	98.74
OS-L1-SIS	HPE (m) (worst) / VPE (m) (worst)	3.0 / 4.0	2.91 / 3.15
OS-L1-SIS	L1 SBAS open service availability (%)	90.000	98.01
OS-DFMC-SIS	L5 navigation signal availability (%)	95.000	98.75
OS-DFMC-SIS	HPE (m) (worst) / VPE (m) (worst)	1.5 / 2.5	1.36 / 1.95
OS-DFMC-SIS	DFMC SBAS open service availability (%)	90.000	98.04
OS-PVS-SIS	L5 navigation signal availability (%)	95.000	98.75
OS-PVS-SIS	HPE (m) (worst) / VPE (m) (worst)	0.375 / 0.525	0.195 / 0.285
OS-PVS-SIS	Convergence time (min)	80	59
OS-PVS-SIS	PVS open service availability (%)	90.000	97.90

Establishment Timeline



Future Developments (1)

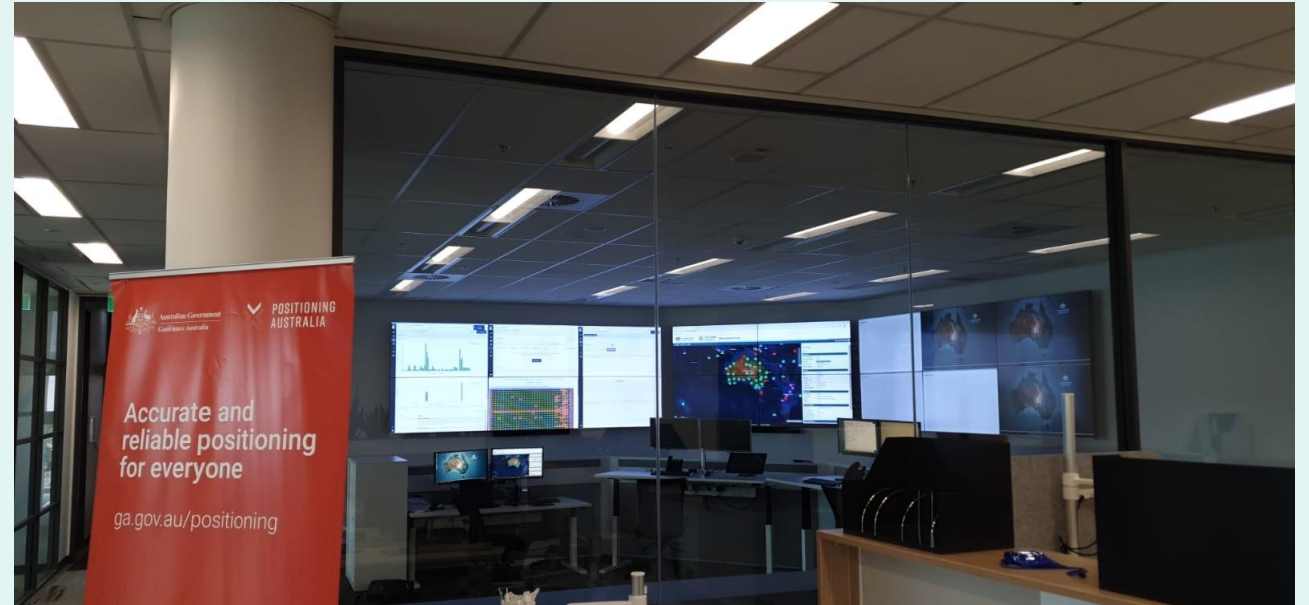
- SGP-01 PDR – Dec 2023
- SGP-02 tender close – Jan 2024
- Early Open Services improve to 99.5% – Feb 2024
- SGP-01 CDR – mid 2024
- SouthPAN CDR – mid 2024

Future Developments (2)

- SouthPAN Data Access Services – Internet delivery coming soon
- SouthPAN 3rd Navigation Channel (L5b)
- SGP-01 operational in 2027
- SGP-02 operational 2028 onwards
- SouthPAN use cases
- Service monitoring website

Geoscience Australia Update

- National Positioning Infrastructure Capability



- Ginan – MultiGNSS Analysis Centre Software



IGNSS 2024.



7 - 9 February 2024



Colombo Theatres,
UNSW Sydney

Further Information

- Contact details
 - clientservices@ga.gov.au
 - southpan@linz.govt.nz
- Websites
 - www.ga.gov.au/southpan
 - www.linz.govt.nz/southpan

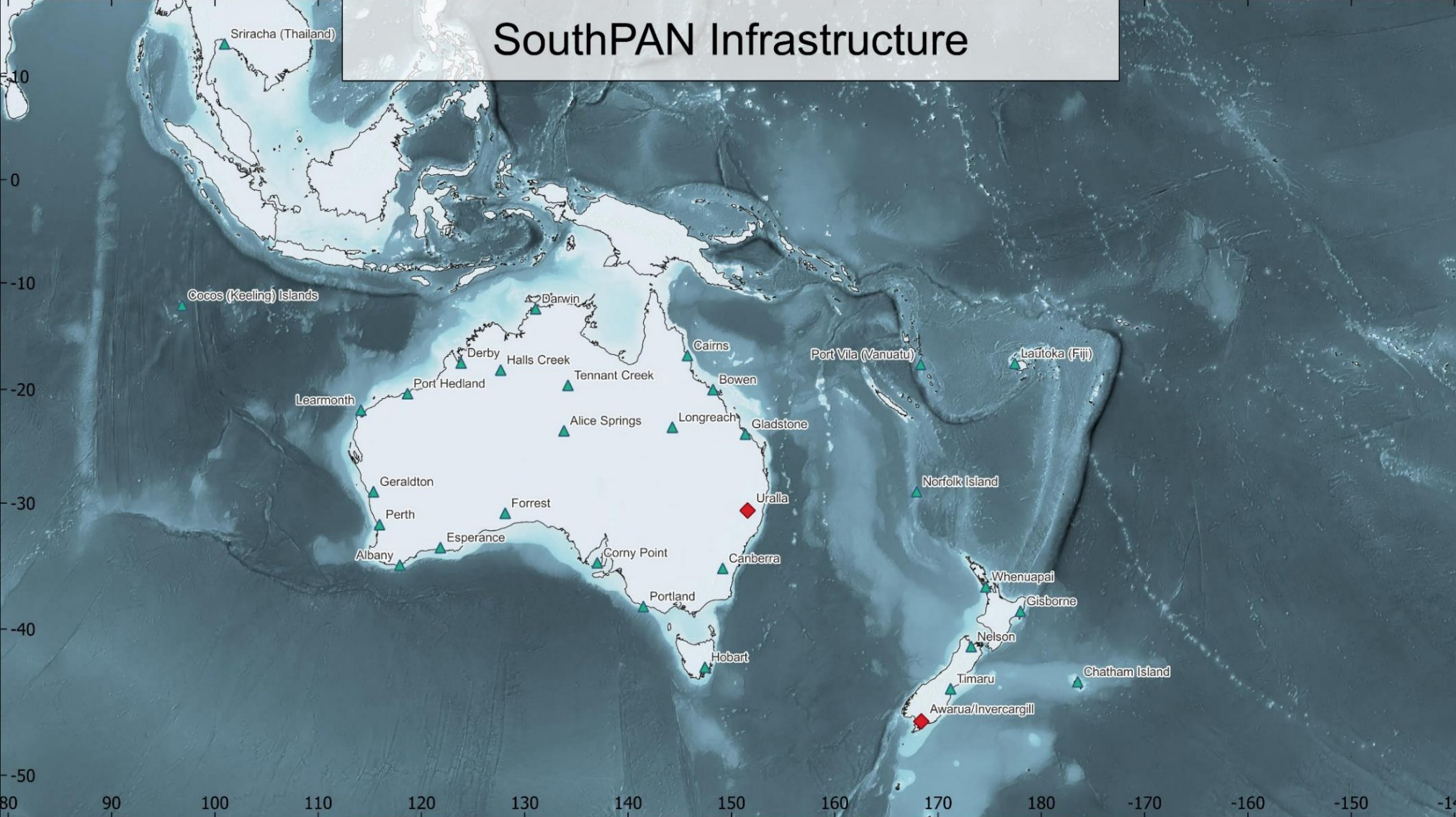
Service definition document available on above websites



SouthPAN

Backup slides

SouthPAN Infrastructure



Legend

- ◆ Uplink / Processing Centres
- ▲ GNSS Reference Stations (Customer and Contractor)

Bathymetric data from
© GEBCO Compilation Group (2020) GEBCO 2020 Grid
(doi:10.5285/a29c5465-b138-234d-e053-6c86abc040b9)

