



# SouthPAN

CGSIC-62

19 September 2022

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# Program objectives

- Improve and augment the accuracy, integrity and availability of basic GNSS signals in Australia and New Zealand.
- Positively contribute to the aviation, maritime, road, rail, agriculture, construction, resource and utility sectors.
- Positively impact all users of satellite positioning, particularly citizens in regional and remote areas without mobile phone coverage



# SouthPAN services



## L1 SBAS Open Service

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

## DFMC SBAS Open Service

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

## PPP via SouthPAN

- Augments GPS L1 C/A + L5, and Galileo E1 + E5a
- Better than 0.375m (H) and 0.525m (V), with 80 min convergence

1. Early Open Service performance will improve as SouthPAN is deployed
2. Safety-of-Life Services are in development, expected 2028

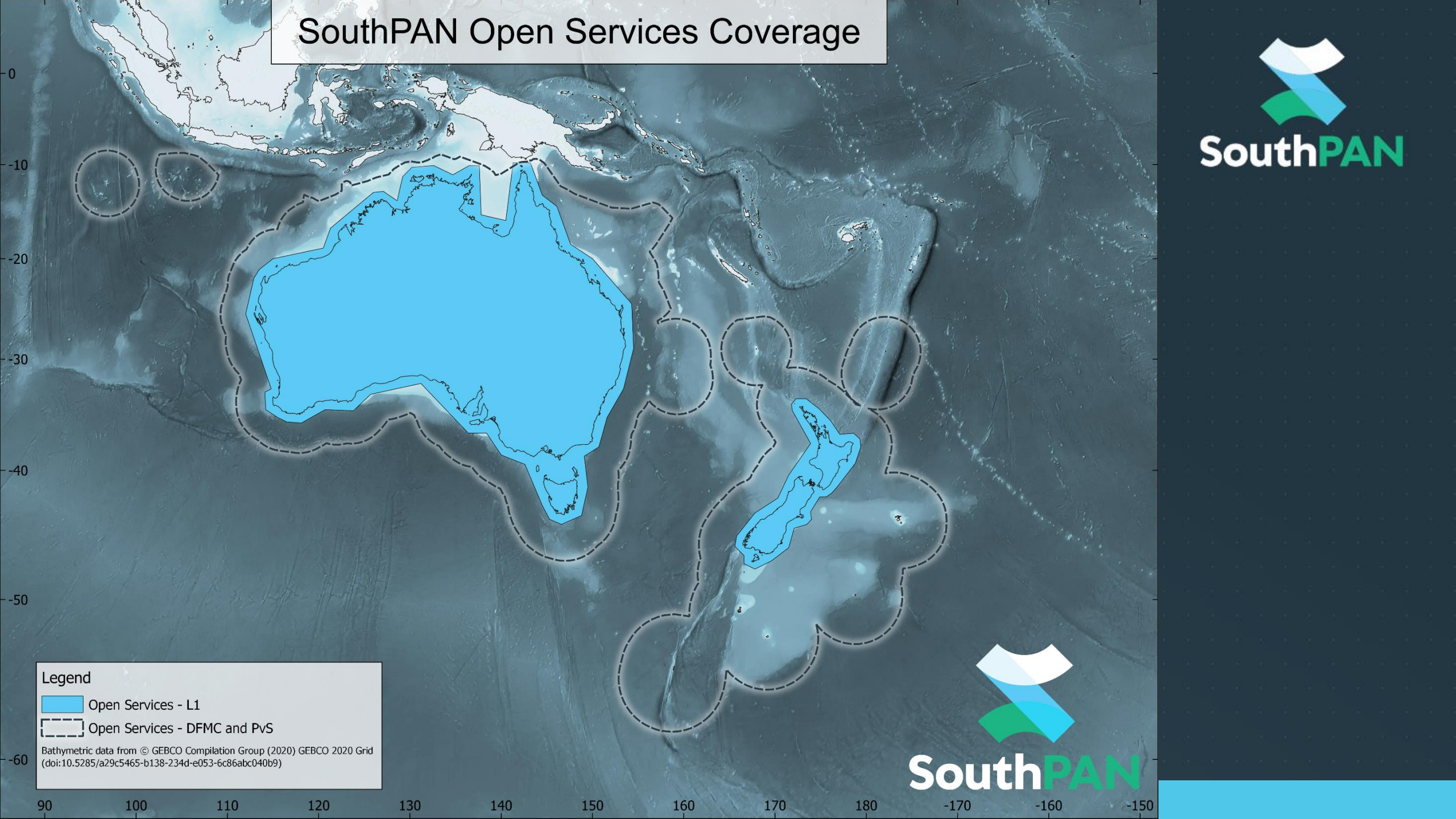
More detail is available in the SouthPAN Service Definition Document for Open Services:

- Geoscience Australia: [SDD-OS](#)
- Toitū Te Whenua Land Information New Zealand: [SDD-OS](#)





# SouthPAN Open Services Coverage



**Legend**

-  Open Services - L1
-  Open Services - DFMC and PvS

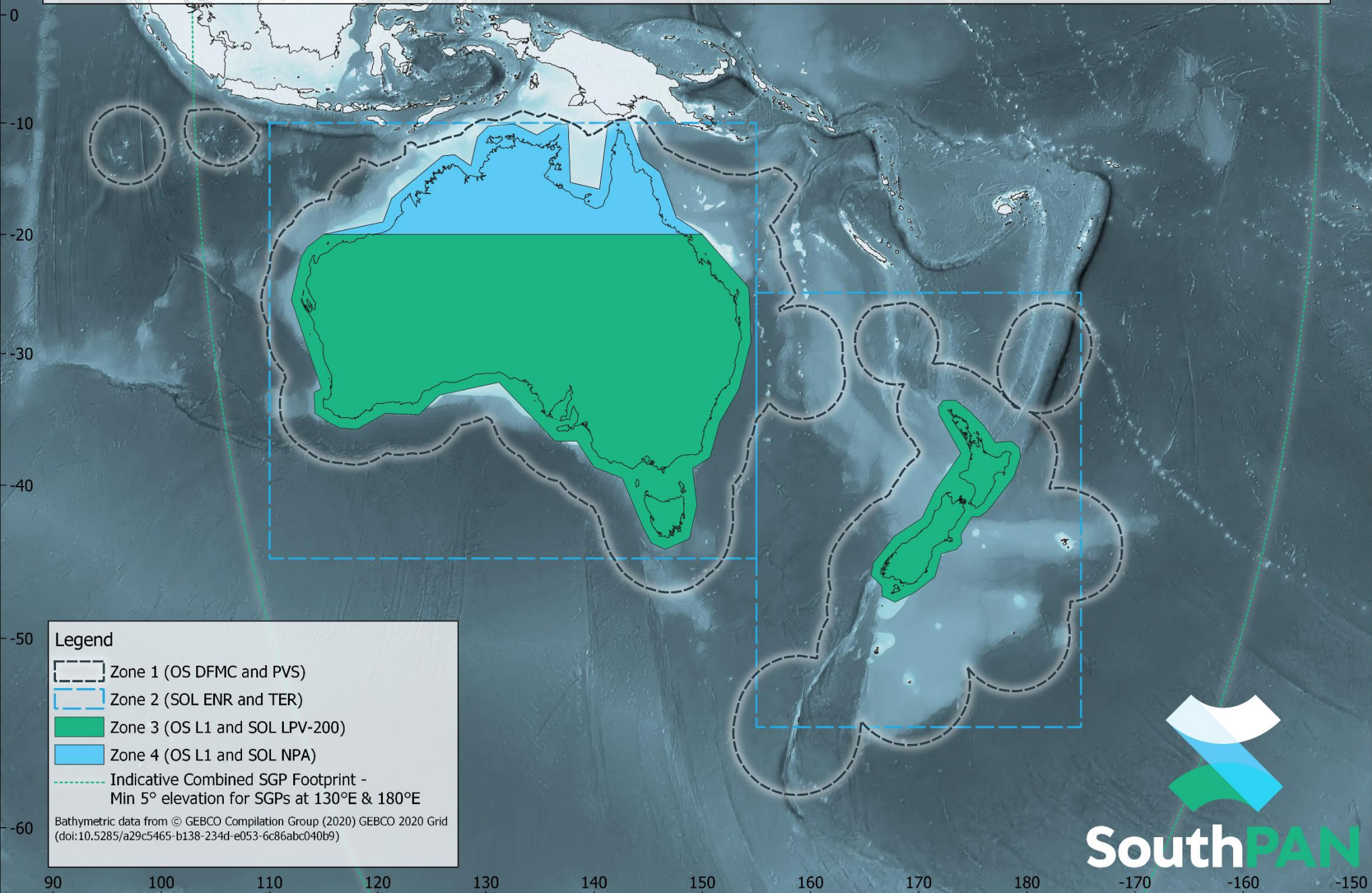
Bathymetric data from © GEBCO Compilation Group (2020) GEBCO 2020 Grid  
(doi:10.5285/a29c5465-b138-234d-e053-6c86abc040b9)



90 100 110 120 130 140 150 160 170 180 -170 -160 -150



# Southern Positioning Augmentation Network (SouthPAN) Coverage



**Legend**

- Zone 1 (OS DFMC and PVS)
- Zone 2 (SOL ENR and TER)
- Zone 3 (OS L1 and SOL LPV-200)
- Zone 4 (OS L1 and SOL NPA)
- Indicative Combined SGP Footprint -  
Min 5° elevation for SGPs at 130°E & 180°E

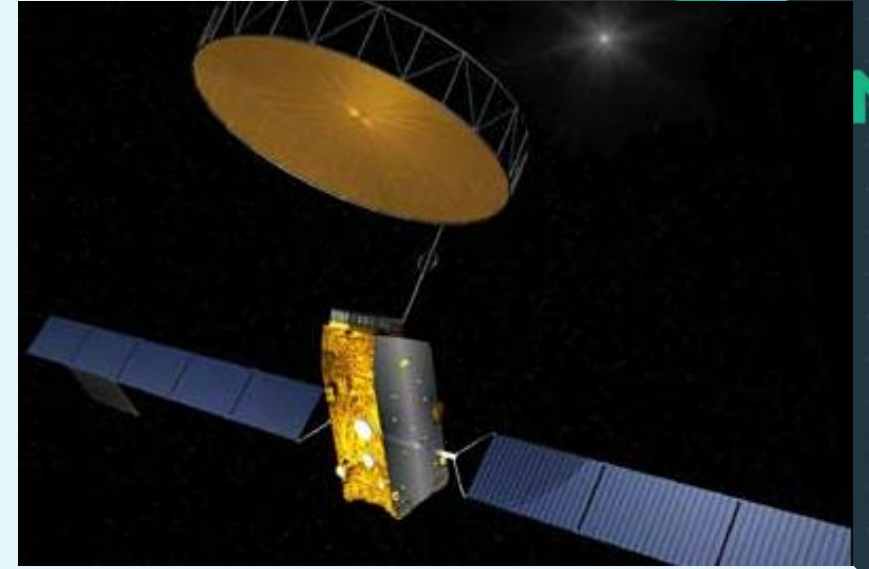
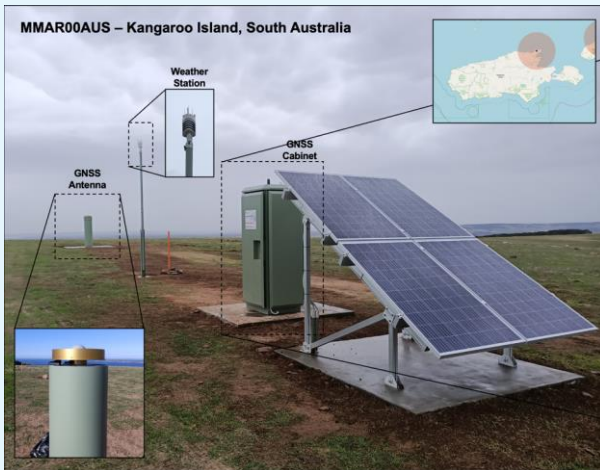
Bathymetric data from © GEBCO Compilation Group (2020) GEBCO 2020 Grid  
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# System configuration

- 'Build 0' SouthPAN configuration uses existing infrastructure to provide Open Services with a base level of performance.
- 62 of Aus/NZ ~600 Continuously Operating Reference Stations
- Prototype software and hardware for corrections processing and message generation
- Current-gen navigation signal generator for L1 and L5
- Single uplink centre in northern New South Wales, Australia



# Progress update

- Contract for ground system signed 13 September 2022 with Lockheed Martin Australia.
- LMA—along with GMV (Spain) and Zeta Associates (USA)—will establish and operate a network of GNSS reference stations and satellite uplink facilities.
- Initial Operating Capability with early Open Services have commenced (September 2022).







The Hon Madeleine King MP  
Minister for Resources and Minister for Northern Australia



## Australia and New Zealand advance satellite positioning

16 September 2022

Businesses, communities, farmers and first responders across Australia and New Zealand will reap the benefits from greater satellite positioning accuracy with the award of an AUD\$1.18 billion, 19-year contract to bring the Southern Positioning Augmentation Network (SouthPAN) to life.

The new service will improve positioning from current services, which provide accuracy of between 5 to 10 metres, to as little as 10 centimetres. This 50-fold increase in accuracy will boost economic productivity and be the Southern Hemisphere's first satellite navigation augmentation service.

Minister for Resources and Northern Australia Madeleine King said SouthPAN is a major commitment between the Australian and New Zealand governments to provide essential satellite positioning services across Australasia.

Read the full [Australian Government announcement](#)

16 SEPTEMBER 2022

## NZ/AU partnership to bring world-class satellite positioning services



HON DAMIEN O'CONNOR

Land Information

Land Information Minister Damien O'Connor today announced a joint Trans-Tasman partnership which will provide Australasia with world-leading satellite positioning services that are up to 50 times more accurate, boosting future economic productivity, sustainability and safety.

New Zealand and Australia have partnered to deliver the Southern Positioning Augmentation Network (SouthPAN), with the first services available in the next few weeks.

"The SouthPAN project will immediately improve the accuracy, reliability and availability of existing satellite positioning systems in Australasia," Damien O'Connor said.

Read the full [New Zealand Government announcement](#)

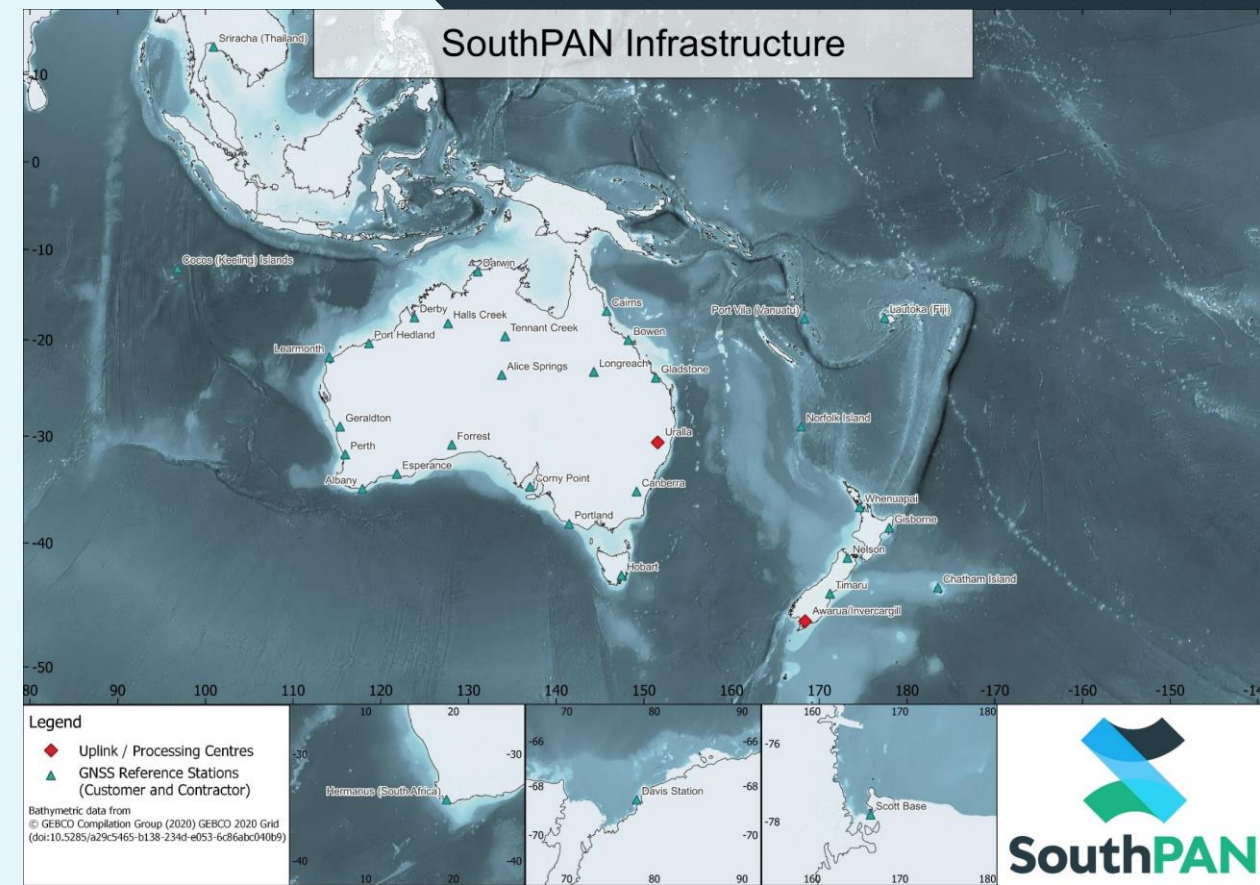


SouthPAN announcement on [Geoscience Australia website](#)

SouthPAN announcement on [Toitu Te Whenua Land Information New Zealand website](#)

# Future development (1)

- System design: Critical Design Review mid-2024
- 35 ground stations constructed
- 2 uplink centres
- 2 new SouthPAN GEO Payloads
- New navigation signal on 1,207.14 MHz



# Future development (2)



Milestone	Description	Comment
Initial Operating Capability-95	Commencement of early services using existing infrastructure. Open Services only.	Q3 2022
Initial Operating Capability-99.5	Additional infrastructure will be integrated into the SouthPAN system, improving accuracy and availability. Open Services only.	Late 2022 (indicative)
Initial Operating Capability-99.9	Additional infrastructure will be integrated into the SouthPAN system, improving accuracy and availability. Open Services only.	Late 2026 (indicative)

Milestone	Description	Comment
Introduction of new navigation signal	A new satellite will include functionality for a new navigation signal, which will be used for the PVS service. Open Services only.	Late 2027 (indicative)
Initial Operating Capability-99.9 with Safety-of-Life services	Following a safety assessment, SouthPAN services will be certified for use in Safety-of-Life applications. Open Services and Safety-of-Life Services.	Early2028 (indicative)
Full Operating Capability	The final satellite will be integrated into the SouthPAN system, providing the maximum level of service availability. Open Services and Safety-of-Life Services.	Late 2028 (indicative)



# Useful information and contact details

- Contact details:
  - [clientservices@ga.gov.au](mailto:clientservices@ga.gov.au)
  - [southpan@linz.govt.nz](mailto:southpan@linz.govt.nz)
- Informational websites:
  - [www.ga.gov.au/southpan](http://www.ga.gov.au/southpan)
  - [www.linz.govt.nz/southpan](http://www.linz.govt.nz/southpan)
- [SBAS Open Services factsheet for users](#)



