



South**PAN**

ICG-16

10 October 2022

Abu Dhabi, UAE

Matt Amos, New Zealand

Martine Woolf, Australia

Contents

- SouthPAN Overview
- Early Service Update
- Initial System Configuration
- SouthPAN Services
- Future development

SouthPAN Overview

- Joint service delivered by Geoscience Australia and Toitū Te Whenua Land Information New Zealand
- Improve and augment the accuracy, integrity and availability of GNSS in Australia and New Zealand
- Contribute across both economies, including the transport, agriculture, construction, resource and utility sectors
- Benefit all users of satellite positioning, particularly in remote areas without mobile phone coverage

Service Announcements



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.

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.

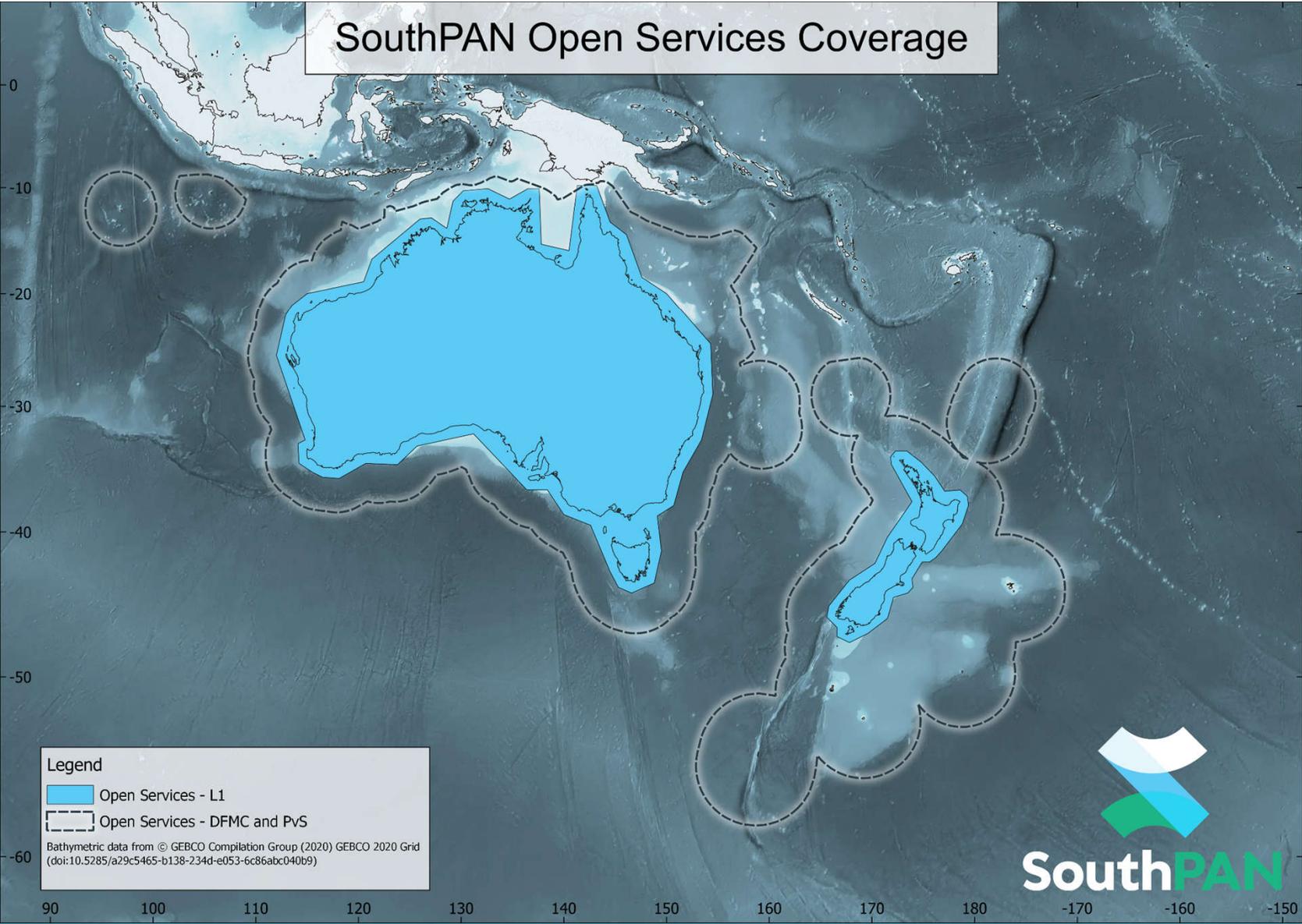
New Zealand and Australia have partnered to deliver the Southern Positioning Augmentation Network (SouthPAN), with the first services available in the next few weeks.

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

Early Service Update

- Contract for service signed 13 September 2022
- Lockheed Martin Australia, with GMV and Zeta Associates, will establish and operate SouthPAN
- Initial Operating Capability with early Open Services commenced 26 September 2022
 - L1 SBAS
 - L1/L5 DFMC SBAS
 - PVS on L5

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)



SouthPAN Initial System Configuration

- 'Build 0' configuration uses existing infrastructure to provide Open Services with a base level of performance.
- 62 existing AU/NZ continuously operating reference stations
- Prototype software and hardware for corrections processing and message generation
- Current-gen navigation signal generator for L1 and L5
- Single computation/uplink centre in Australia
- Single satellite broadcast

SouthPAN Early Open Services

L1 SBAS Open Service

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

DFMC SBAS Open Service

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

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

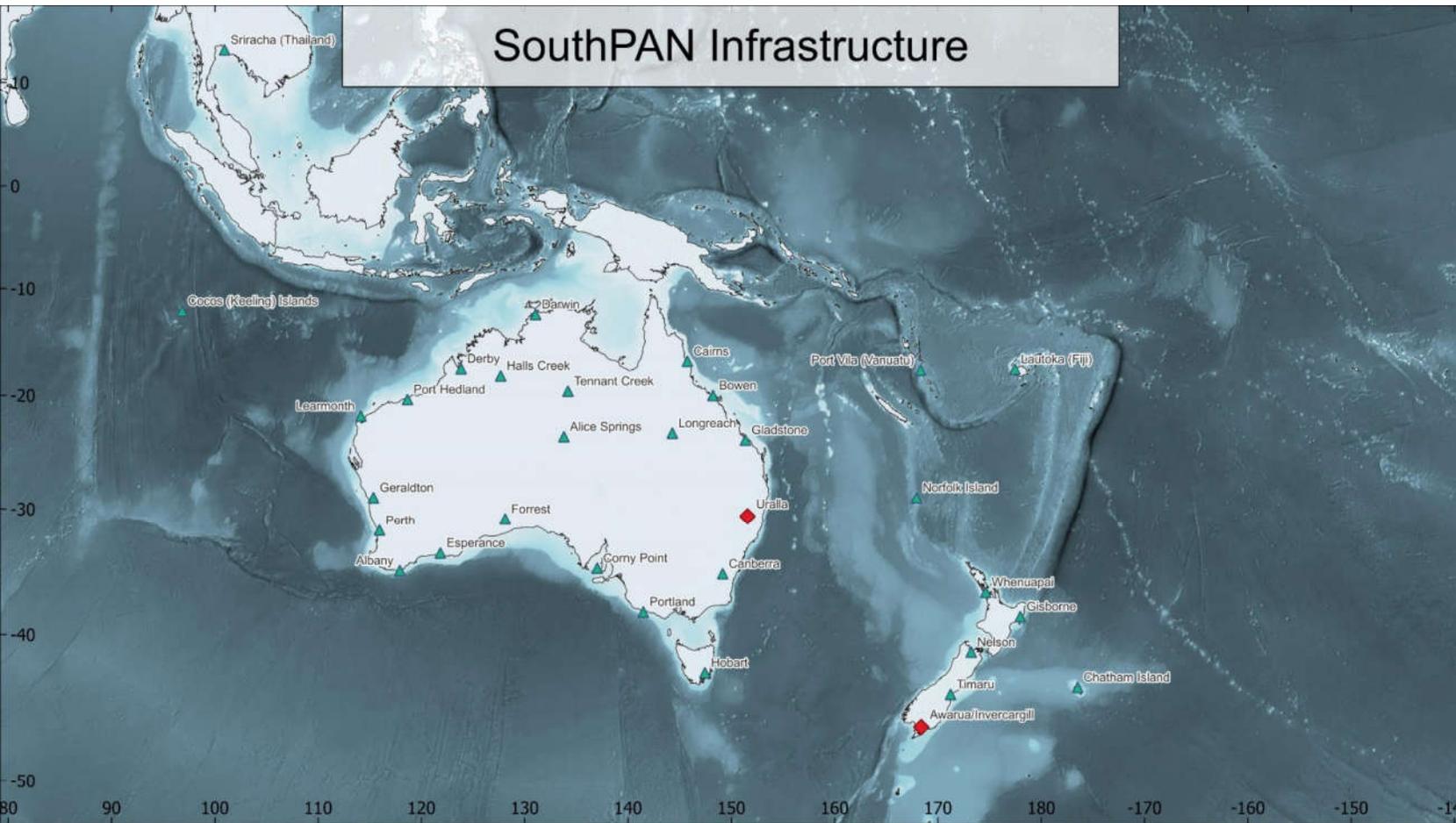
More detail is available in the SouthPAN Service Definition Document for Open Services



Future Development (1)

- System design: Critical Design Review mid-2024
- 35 new ground stations
- 2 computation and uplink centres located in Australia and New Zealand
- 2 new SouthPAN GEO Payloads
- New navigation signal on 1,207.14 MHz

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)



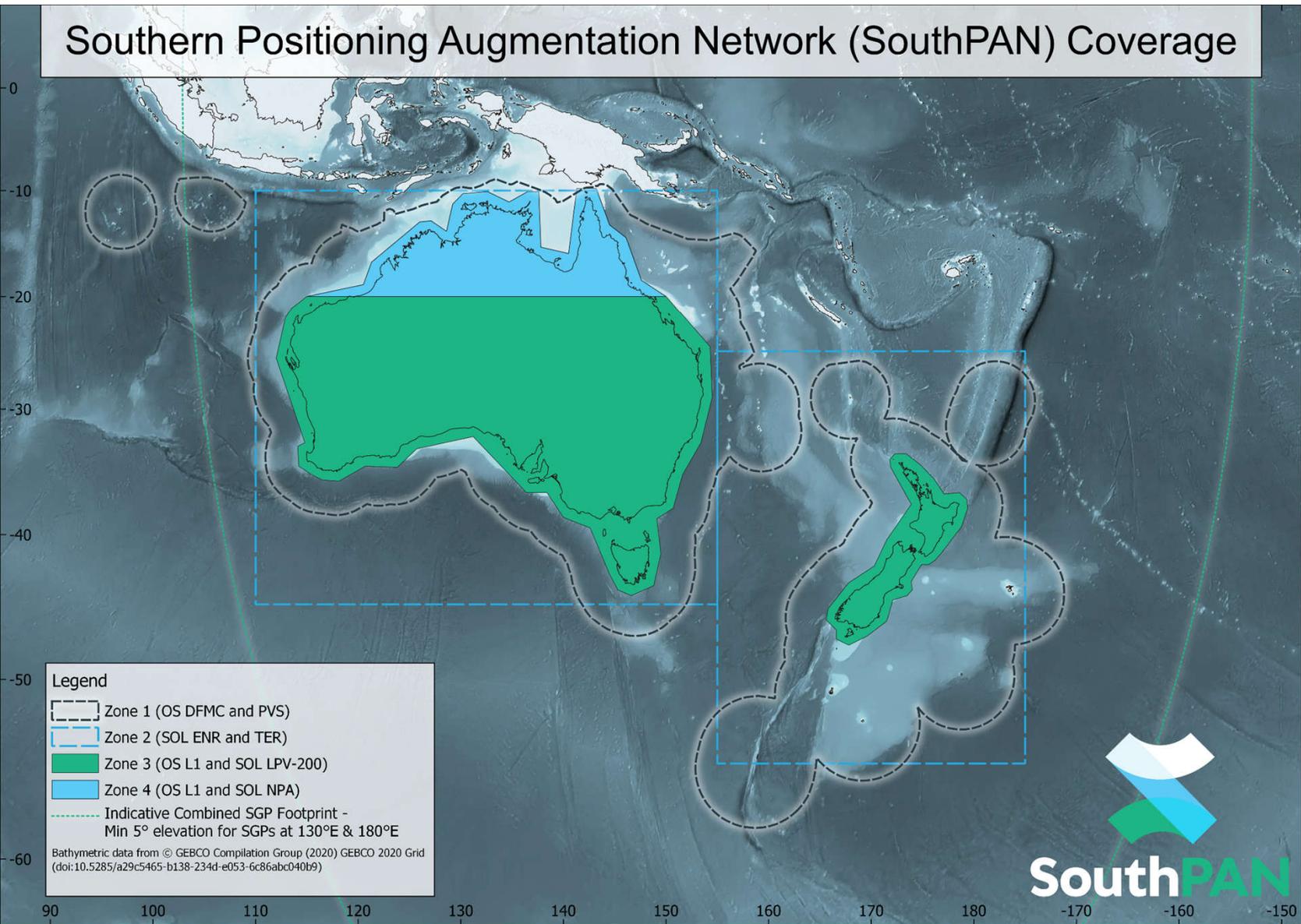
Future development (2)

Milestone	Description	Timing
Initial Operating Capability 95	Commencement of early services using existing infrastructure Open services only	September 2022
Initial Operating Capability 99.5	Additional infrastructure will be integrated into the SouthPAN system, improving accuracy and availability Open services only	Early 2024 <i>(indicative)</i>
Initial Operating Capability 99.9	Additional infrastructure will be integrated into the SouthPAN system, improving accuracy and availability Open services only	Late 2026 <i>(indicative)</i>

Future development (3)

Milestone	Description	Timing
Introduction of new navigation signal	A new satellite will include functionality for a new navigation signal on 1207.14 MHz, which will be used for the PVS service Open services only	Late 2027 <i>(indicative)</i>
Initial Operating Capability 99.9 with safety-of-life services	Following a safety assessment, SouthPAN will be certified for use in safety-of-life applications Open services and safety-of-life services	Early 2028 <i>(indicative)</i>
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 <i>(indicative)</i>

Southern Positioning Augmentation Network (SouthPAN) Coverage



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

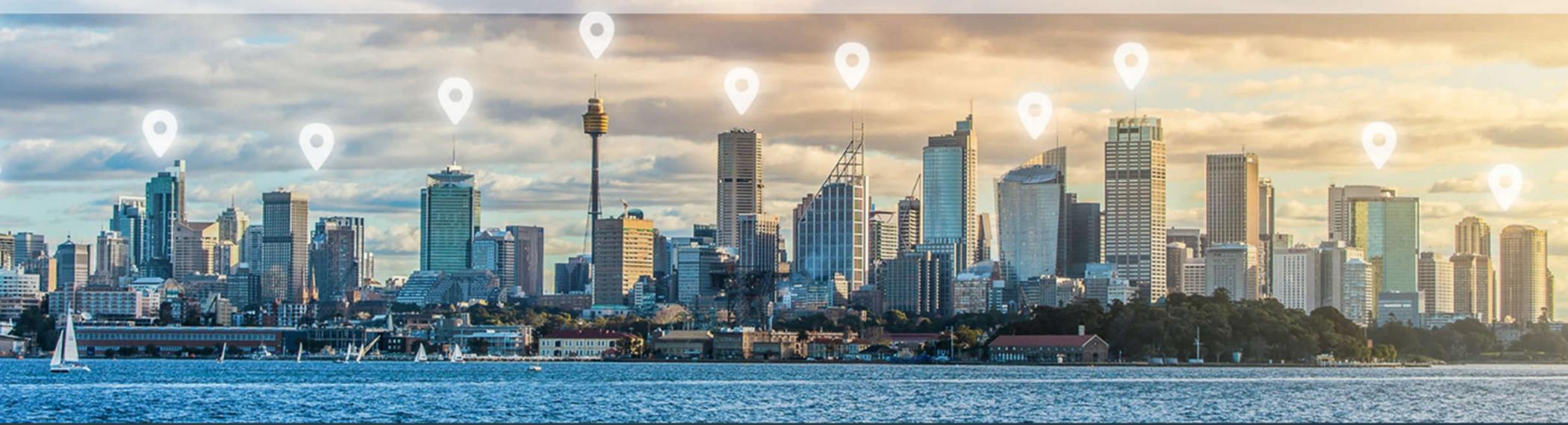


South**PAN**

IGNSS

IGNSS2022

7 - 9 December 2022 | UNSW Sydney



www.ignss.org.au/ignss2022