

NAVIGATION



Newsletter of the Australian Institute of Navigation Inc



From the Editor

To Fellows, Members and Friends of the AIN,



You will note some changes to the Navigation Newsletter – which previously was sent about two times a year with some email updates in between about upcoming events. We are trialling the move to a very regular cadence of monthly. While for most months it will only be a few pages, we plan to have more ‘newsy’ format (like this one) for the February/May/August/November editions. The Committee would be pleased to get any feedback on the newsletters or the idea!

Also, after 14 years I will be handing editorial duties to CAPT (Dr) Peter Martin, Vice-President of the AIN. I know that Peter would welcome any articles or input for upcoming editions of the Newsletter (and particularly the four larger editions), so please send them through!

As mentioned in the April Newsletter, the PNT 2026 international conference that the AIN hosted in Sydney in February was a great success. Following that, several of the AIN committee members have been supporting the development of a proposal for a PNT resilience (known as the Secure, Hardened, Integrity-enhanced, Location and timing Defence (SHIELD)) Cooperative Research Centre (CRC), and the bid is currently being submitted to the Government panel that selects CRCs for funding. There has been much support pledged for the CRC from across Government, Defence, Industry and Academia, and the team putting the CRC bid together are hopeful of a positive outcome. We'll keep you informed as the submission progresses through the assessment process.



The dramatic increase we are seeing in GNSS interference events in recent years and months – especially around eastern Europe and in the Middle East – further underscores the importance of the SHIELD CRC and the additional resilience it would provide to PNT in

Australia and the region.

The US Institute of Navigation recently held their Pacific PNT Conference in Honolulu, which our PROF Allison Kealy (Treasurer of the AIN) and I were able to attend. I spoke at the Conference about recent PNT related developments in Australia, and Allison and I were able to have several meetings with ION principals to discuss future areas of collaboration.

In the near future I will be attending the graduation of RAN navigators at HMAS Watson, where the AIN prize is awarded to the Dux of the Course. Also I will be attending the 80th anniversary event for the Air Force unit that has trained many air navigators and non-pilot aircrew for the various RAAF crewed aircraft over the decades.

Cheers Koz

***Kym Osley AM, CSC
Executive Secretary and Editor
Australian Institute of Navigation***

Message from the President



I am pleased to say that the rejuvenation of the AIN continues apace, with two key activities in recent weeks – the first being the submission of the Secure, Hardened, Integrity-enhanced, Location and timing Defence (SHIELD) Cooperative Research Centre submission to Government and the second being the inaugural AIN strategic planning activity which has resulted in the ‘ambitious’ 2026-28 AIN Business Plan. Details of both these milestone events appear in this newsletter and are well worth a read!

We are still anticipating that AIN membership (through both normal full financial membership and nil-cost associate membership) will expand significantly by mid-2026 (as the people who took up membership options as part of the PNT2026 conference become more active members of the AIN) to about 1000-1500. In the AIN’s 77th year, I continue to be delighted to see the AIN retaking its role as a thought leader in PNT and navigation, and gaining a whole new generation of new members who will take it towards its centenary. I thank you for your ongoing support!

Cheers, Gavin.

Captain Gavin Permain, FAIN
President - AIN
January 2026

AIN Business Plan 2026-28

Noting that 'best practice' for professional organisations like the AIN is to conduct regular strategic planning sessions and to have both target and stretch goals, the AIN Committee recently met in Sydney at the University of NSW for a half day strategic planning session. This is thought to be the first time in the 77 year history of the AIN that a Business Plan (aka Strategic Plan) had been formally developed, and hence represents a key milestone!

The outcomes from this activity have driven the development of the 2026-28 AIN Business Plan which includes ambitious objectives to guide the AIN, and its agenda, forward over the coming years. The key objectives of the AIN as listed in the Plan are:

- Contribute to and advocate for improved PNT
- Further education on the science and practice of PNT
- Provide valued benefits for members
- Leverage partnerships with Government, Defence, Industry, Academia and like-minded international organisations
- Establish a broad and diverse membership
- Provide appropriate governance for a national NFP professional organisation

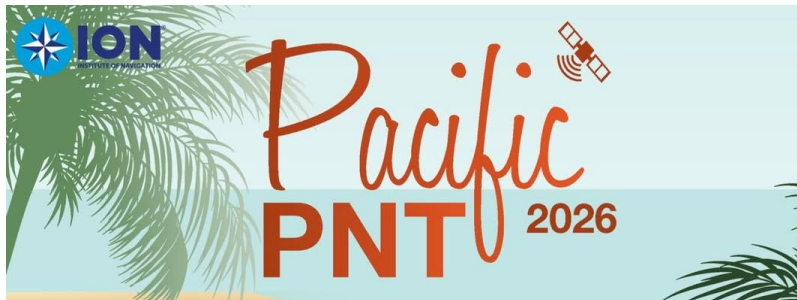
Some key actions from the Plan of relevance to general membership include:

- Support the SHIELD CRC application
- Promote leading edge research in Australia
- Engage closely with industry on PNT-related issues
- Provide white papers and input to Government to promote improved PNT
- Host a bi-annual international PNT Conference in Australia, with the next being PNT2028 in Sydney in early 2028 with a hoped-for attendance of about 350 participants or more (50% more than the very successful PNT2026!)
- Host regular workshops/seminars on PNT issues of interest
- Conduct events of interest to members
- Conduct a webinar program
- Provide regular newsletters and updates to members on PNT-related issues of interest
- Conduct a member survey in 2026/27
- Establish ex-officio membership relationships with Defence and Government agencies
- Maintain partnership relationships with the RIN, US ION, and selected other international institutes of navigation
- Establish an effective membership management system
- Promote age, gender and culturally diverse membership
- Develop a succession plan that promotes diversity
- Establish an independent Fellowship selection process

- Provide an annual Report to the Governor-General (as Patron)
- Commemorate our fallen
- Provide annual awards of excellence
- Provide recognition for exceptional graduates from Defence and Academic PNT-related courses
- Be worthy custodians of our history and that of Australian PNT, and recognise key milestones

The Committee will keep you informed of progress against these ambitious goals!

Pacific PNT Conference



The ION Pacific PNT conference was held in Honolulu, USA, 13-16 April 2026, and was attended by about 180 PNT experts from the US and countries across the Indo-Pacific. It brought together

international experts to discuss various GNSS/SBAS systems such as BeiDou, COSMIC/FORMOSAT, QZSS, and the Korea Positioning System (KPS), an upcoming regional satellite navigation system that will provide independent PNT services in the Korean peninsula and surrounding areas.

Presentations were also given on Triton, Taiwan's first autonomous meteorological satellite to sense ocean surface wind using GNSS-R measurements; and Yunyao, a commercial network of 80 Low Earth Orbit (LEO) nanosatellites designed to collect atmospheric and weather data through GNSS radio occultation (GNSS-RO) and reflectometry (GNSS-R) techniques.

The technical program for Pacific PNT also comprehensively covered the latest developments in quantum navigation and hybrid navigation systems. The quality of both the research and the presentations was excellent, with many very high quality papers being delivered by students or more junior members of the research teams.

The location and focus of the Conference serves to attract many participants from South Korea, Japan, Taiwan, China, Singapore and other Indo-Pacific nations. While the US ION does host several other conferences, they are held on the US mainland and cater for specific audiences (such as one that is focussed on the US military, and requires attendees to have a security clearance).


Some of the concepts discussed at the conference concerned the use of existing GNSS and PNT infrastructure in innovative ways, including different processing of GNSS signals to get greater accuracy and/or resilience to spoofing and jamming. An example of this was the use of the CORS (ground stations across the US that measure GPS position data against a known ground position to generate corrections for GPS

What more is needed?...A focus for AIN advocacy into the future!

Australian Institute of Navigation

Australia should seek:

1. An empowered national PNT organisation to drive PNT resilience policy and initiatives
2. A national PNT resilience strategy/plan
3. Increased public awareness of the PNT resilience risk
4. A PNT monitoring and warning system
5. A PNT resilience test range
6. Companies/Boards to consider the PNT resilience risk, just as they do cyber and other risks.
7. Some alternate PNT capabilities to allow for extended GNSS denial for days, weeks and potentially much longer.



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receivers) to also detect localised jamming/spoofing and generate an alert message. Noting that Australia also has CORS stations, this concept could be adapted in the future as a relatively low cost GNSS jamming/spoofing warning system.

The Secretary of the AIN presented an overview of developments in PNT and PNT resilience in Australia, which was well received by the attendees. While the Secretary did highlight that there was much to do from a PNT resilience perspective in Australia compared with many other nations, many attendees were impressed with the large number of Universities in Australia conducting GNSS/PNT/Quantum/Cyber research and development as well as the many initiatives gaining traction across Government and the Australian Department of Defence. He also highlighted the PNT resilience Cooperative Research Centre proposal that the AIN is supporting that, if approved in 2027, would progress several PNT initiatives such as a PNT interference warning system and research into alternate PNT capabilities for Australia.

Update on PNT Resilience 'SHIELD' Cooperative Research Centre

Professor Allison Kealy, the Treasurer of the AIN and member of the PNT Sub-Committee of the AIN, has been leading a team, including AVM Kym Osley, AIN Secretary and Defence Adviser to the CRC Team, that is seeking to initiate a Secure, Hardened, Integrity-enhanced, Location and timing Defence (SHIELD) CRC. They have engaged with many Government organisations, including Home Affairs, Defence, Geoscience Australia, CASA, Air Services, as well as many companies and Universities, and have attracted a ground swell of support for the CRC.

We are pleased to announce that the SHIELD CRC Round 27 Stage 1 application has been submitted. The application presents the SHIELD CRC as a national, industry-led collaboration to strengthen Australia's resilient Positioning, Navigation and Timing

capability across critical infrastructure, Defence and other PNT-dependent sectors. It sets out the industry problem, the three Research Programs, deployment pathways, the education and training program, and the national benefits of building sovereign PNT capability in Australia.

The submitted bid includes approximately \$57M in partner cash, approximately \$112M in partner in-kind contributions, and a CRC funding request of \$57M from the Australian Government. If funded, this would create a total resource pool of approximately \$226M over 10 years.

The next steps are:

- Stage 1 outcomes expected in July 2026.
- Stage 2 process expected to run from July 2026 to September 2026.

After a short break, the bid team will begin preparing for Stage 2 so that they are ready to progress quickly if invited to participate in Stage 2. This will include developing more detailed Research Programs, evaluating the CRC's economic impact, partner commitments, fast-start projects, and implementation arrangements so that the SHIELD CRC can rapidly commence its work if funded. We will keep the AIN membership updated as the process progresses!

Resilient Navigation and Timing Foundation

The Resilient Navigation and Timing (RNT) Foundation is a non-profit educational and scientific charity based in Alexandria, VA, USA, dedicated to protecting critical infrastructure by promoting resilient, multi-layered navigation and timing systems. It advocates for reducing reliance on vulnerable GPS/GNSS signals and encourages adopting, protecting, and strengthening alternative positioning, navigation, and timing (PNT) technologies against jamming and spoofing.



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AIN has recently partnered with the RNTF to gain access to their white papers, expert advice, and their library of PNT-related documents. The RNTF is also a supporter of the SHIELD CRC bid. The mission of the RNTF is to educate leaders and the public, promote better laws to prevent GNSS interference, and foster resilient navigation ecosystems. They advocate for the implementation of, and government contracting for, terrestrial-based backup systems to complement space-based PNT.

Key beliefs and positions held by the RNT Foundation include:

- **PNT Loss Would Be Catastrophic:** The loss of PNT services—essential for transportation, telecommunications, energy, and finance—would result in major economic, safety, and national security consequences.
- **GNSS Alone is Not Enough:** While GPS and other Global Navigation Satellite Systems are invaluable and should be protected, their signals are very weak and easily disrupted by (malicious or accidental) jamming, spoofing, or natural events (such as heightened solar activity).

- **The Need for a "Triad" Architecture:** They advocate for a resilient "triad" approach to PNT that includes:
 - Space-based signals (GNSS)
 - Terrestrial broadcast PNT (such as eLoran)
 - Fibre-based timing
- **Sovereign PNT Backup is Necessary:** Every nation should have a government-backed or controlled non-GNSS, terrestrial alternative PNT system to protect critical infrastructure.
- **Government Leadership is Essential:** Because there is no strong standalone commercial business case for a terrestrial "safety net," governments have a responsibility to lead in deploying and maintaining resilient PNT systems.
- **Illegal Interference Must Be Combated:** The RNT Foundation believes in enacting stronger laws and enforcement to prevent, and punish, GPS jamming and spoofing, noting that current penalties do not reflect the high risk of harm.
- **Receivers Should Be Toughened:** They promote the use of existing, readily available technology to make user equipment less susceptible to interference.

The AIN Executive Committee and the US ION Committee are considering using this statement of beliefs and positions as a starting point for an agreed list of areas we will work together in to progress in our nations and globally. We'll keep you informed as we develop the idea further.

Using Hybrid GNSS-Real-Time Kinematic (RTK) Network to Meet Future Accuracy and Resilience PNT Demands



In 2024 there were about 18.5B devices connected to the internet. By 2025 this had risen to 21.1B, and is estimated to reach 39B by 2030. The move to autonomous vehicles will drive even more demand for devices providing even greater positional accuracy. For example, an autonomous car needs accuracy of centimetres and exceedingly good reliability – something that GNSS will not be able to offer alone.

In its most basic mode GNSS alone can provide a worldwide PNT accuracy measured in many metres, albeit from a system that is vulnerable to interference. A RTK Network is essentially many ground stations that compares the GNSS signal to a known position and provide corrections that improve PNT accuracy (to centimetre accuracy) and resilience in real-time, and send data to users via digital wireless communications channels (such as cellular phone, satcoms, or other transmitters). A hybrid system that includes both GNSS and RTK could potentially meet the expected future demands for PNT for an ever-increasing number of internet-connected devices (collectively known as the Internet of Things), and greatly improve the reliability of the PNT solutions.

Of note, many nations, including the United Kingdom, France, South Korea, and China, have or are implementing core resilient PNT architectures based on hybrid GNSS-RTK – effectively integrating PNT signals from space, from terrestrial broadcast, and time over optical fibre links.

These hybrid systems are exceptionally difficult to disrupt. Furthermore they are relatively inexpensive to install and maintain — certainly when compared to the cost of a major GNSS disruption. Australia is ideally positioned to embrace this technology to both protect its own national and economic security and to expand its commercial sector.

India's PNT Satellite Constellation



The Indian Space Research Organisation (ISRO) has launched 11 satellites since 2013 to form the NavIC Constellation. In 2025, the government stated that only four of the 11 satellites deployed for the NavIC system were fully operational for PNT services, while the remaining spacecraft were being utilised in a limited or sub-optimal capacity. However, only three are still working as of April 2026 with the recent failure of a satellite after 10 years due to an atomic clock failure. The remaining three satellites will still provide a space-based augmentation system (SBAS) to improve the resilience and accuracy of GPS and other

GNSS constellations. However, the reduction in number from four to three is expected to degrade SBAS services.

Of note, the Indian satellites have experienced somewhat premature failures in six of the satellites due to a combination of atomic clock failures and some orbital complications.

Austrian military launches a satellite-based national GNSS interference warning system



Austria is planning to field its first military satellite in the form of 'BeaconSat'. It is the largest satellite ever developed in Austria and is planned for launch in February 2027 aboard a SpaceX Falcon 9 rocket. The project is being led by Austrian start-up GATE Space, based in Schwechat. BeaconSat is designed to detect and analyse jamming and spoofing attacks on GNSS, and is a positive step by Austria to provide a GNSS interference warning system.

It is telling that as of 2026, Australia has a significantly larger population, economy, and defence budget compared to Austria. Australia's population is roughly three times larger its GDP is over three times higher, and its defence budget is roughly six to ten times larger!

GNSS-reflectometry data unlocks new insights into Arctic sea ice

Changes in the navigation signals from GPS and Galileo as they bounce off Earth's surface (GNSS reflectometry or GNSS-R) can provide information on sea ice. New research using data from Spire Global has enabled the generation of Arctic-wide sea ice maps, marking a major step forward for the emerging technique. Spire Global is a space-to-cloud data and analytics company that collects data from space—including maritime, aviation, and weather data—to provide insights for tracking, monitoring, and predicting global events. Operating a large proprietary constellation of nanosatellites, Spire serves over 800 customers worldwide with near real-time data to support decision-making.



The research — enabled by the Third Party Missions (TPM) programme of the European Space Agency (ESA) — suggests that harnessing reflected navigation signals could become an important complement to established ice-monitoring altimetry missions.

The study leveraged Spire's GNSS-R data to map sea ice across an entire winter season.

Advanced Navigation provides navigation for underground mines following 2025 demo

Advanced Navigation has released a product for navigating underground mines, based on its technology demonstration in October 2025.

Chimera Land is a 3D laser velocity sensor (LVS) designed to solve the primary challenge for underground mining: maintaining precise vehicle positioning in deep, dark, and unmapped environments where GPS cannot reach.

When fused with an Advanced Navigation inertial navigation system (INS), Chimera Land allows underground vehicles to maintain stable navigation over extended



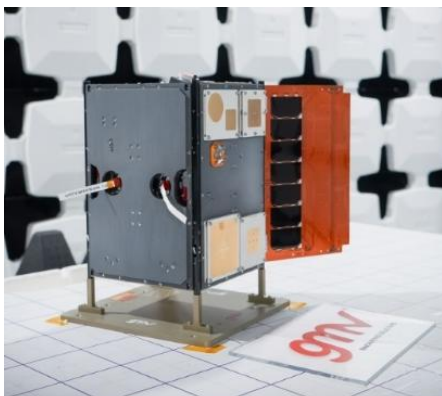
distances and time. Instead of needing to “ask” an external beacon or satellite for its location, the sensor uses specialised lasers to measure a vehicle’s ground-relative 3D velocity with high accuracy. By feeding this precise data into the vehicle’s INS, the sensor eliminates the drift that

typically comes with standalone INS.

This integration uses AdNav Intelligence, the company’s proprietary software. Drawing on adaptive algorithms, the fusion engine dynamically weights the input from each sensor, adjusting reliance in real time based on their reliability scores, environmental conditions, and operational context.

ESA launches Celeste LEO-PNT

The European Space Agency (ESA) has launched the start of the Celeste LEO-PNT in-orbit demonstration mission, with the first two satellites lifting off recently aboard Rocket Lab’s Electron rocket from the company’s Māhia Launch Complex in New Zealand.



Celeste will play a pioneering role in elevating the future of Europe’s satellite navigation capabilities. As Europe’s first initiative for satellite navigation in Low Earth Orbit (LEO), the mission will be testing next-generation technologies and add new frequency bands for satellite navigation.

Celeste will demonstrate how a complementary layer flying closer to Earth can enhance Europe’s current Galileo system in Medium Earth Orbit (MEO), boosting the overall resilience, enhancing its performance, and opening opportunities for new service capabilities directly from LEO.

Finland seeks to criminalise unauthorised possession of GNSS jammers

On 19 February 2026, the Finnish government submitted a legislative proposal to parliament to criminalise possession and import of radio-frequency jammers and spoofers, including those blocking GNSS signals. According to Ministry of Transportation and Communications, the amendments would be made to the Act on Electronic Communications Services. The government proposes to amend the provisions on equipment that jam or spoof radio communications.

Unauthorised use of jammers is already banned. The government proposes to criminalise unauthorised possession of jammers, enabling confiscation and improving the authorities' ability to intervene in the unauthorised possession and import of such devices. The proposal would introduce a distinct definition for jammers, separate from radio equipment, allowing for stricter regulation.

The amendment would set clearer conditions for the use and possession of jammers for the authorities and other authorised parties. The possession and use of jammers for research and product development would be permitted under a licence if certain conditions are met.

Jammertest returns to Andøya for large-scale GNSS resilience trials



From 14-18 September 2026, a coalition of Norwegian government agencies and national institutions will organise Jammertest, on the island of Andøya, Norway, for the fifth consecutive year. The annual event has become recognised as the world's largest open PNT/GNSS resilience test, providing a controlled yet realistic environment for evaluating the robustness of

navigation and positioning systems under interference conditions.

Each year, Jammertest is organised by a partnership that includes the Norwegian Public Roads Administration, Norwegian Communications Authority, Norwegian Defence Research Establishment, Norwegian Metrology Service, Norwegian Space Agency, Norwegian Mapping Authority, Avinor and Testnor. Together, the partners provide access to infrastructure, regulatory oversight and technical expertise, positioning the event as a key platform for resilience testing across civil and defence-related applications.

Air Mission Training School

The AIN webinar in April 2026 was delivered by Wing Commander Tarek Tabbouche, Commanding Officer of the Air Mission Training School (AMTS) at RAAF East Sale. The AMTS can trace its history with the establishment over 80 years ago of the RAAF

School of Air Navigation. The AMTS plays a critical role in training non-pilot aircrew, including Airborne Electronics Analysts (AEA), mission controllers, and operations officers, preparing them for complex, high-stakes operational roles. As defence demands evolve, the AMTS is undergoing a major transformation to ensure personnel are mission-ready for contemporary warfare.



WGCDR Tabbouche noted that about 95% of the trainees entering the RAAF Aviation Academy progressively find a role – whether it be pilot, non-pilot or ground-based air support roles – where they can carve out fulfilling and critical careers. The throughput of AMTS is about five times what the maximum throughput of the School of Air Navigation ever was, and reflects the greater number of platforms and variety

of roles that non-pilot aircrew now needed.

Starting in 2026, the AMTS is set to implement the Future Air Mission Training System (F-AMTS), a \$270 million project led by CAE Australia. This system marks a shift towards highly integrated learning, combining advanced classroom instruction, high-fidelity simulators, and updated airborne training. The F-AMTS initiative is expected to increase aircrew training throughput by approximately 70%.

Training will specifically prepare crews for advanced platforms, including the MQ-4C Triton high-altitude unmanned aerial system and the MC-55A Peregrine airborne electronic warfare aircraft. The training will move away from traditional methods to a "synthetic ecosystem," utilising digital twin technology and immersive simulation, with the first graduates of this new system anticipated by 2028.

AIN Webinar Series — 25 May 2026 @ 1200 hrs AEST



Our Webinar for May will be given by CAPT Matt Shirley, CEO of Safe Harbours Australia Pty Ltd. He will discuss the dependence on GNSS for Port Operations and the risks that entails. Register here: [Australian Institute of Navigation Webinar Series — May 2026 | Join meeting in Teams | Microsoft Teams](#)

Modern maritime operations are increasingly built on the precision and convenience of GNSS. A new generation of seafarers has grown up in a GNSS-native environment, where positioning, navigation and operational decision-making are deeply integrated with digital tools and automated systems. This has transformed maritime capability, improving efficiency, safety and situational awareness, but it has also introduced new vulnerabilities.



This webinar explores the growing reliance of ports, pilotage operations and maritime infrastructure on GNSS-enabled systems, particularly as vessels become larger and waterways more constrained. While disruptions at sea can sometimes be managed through alternative navigation practices, operations in confined port environments leave far less margin for error. Spoofing and jamming of GNSS signals now present a credible systemic risk, with the potential to impact vessel safety, disrupt trade flows and create cascading consequences for critical infrastructure.

Drawing on contemporary maritime challenges, this discussion examines how increasing automation and GNSS dependence are reshaping operational risk, and why building resilience in PNT systems has become essential for the future of safe and secure maritime operations.

The session will be facilitated by Kym Osley AM, CSC, Secretary, Australian Institute of Navigation. Kym Osley is a highly respected defence executive with more than 45 years of experience across military, government and industry.

Current AIN Committee Members

The post-AGM (held November 2025) elected office holders are as follows:

- President – CAPT Gavin Permain
- Vice-President (1) – CAPT (Dr) Peter Martin
- Vice-President (2) – PROF Andrew Dempster
- PNT Sub-Committee Chair – PROF Andrew Dempster
- Executive Secretary – Air Vice-Marshal Kym Osley AM, CSC
- Treasurer – PROF Allison Kealy
- Public Officer and Asst Secretary – Assoc PROF Craig Roberts
- Councillor – PROF Chris Rizos
- Councillor – Commander Simon McEvoy, RAN (Reserve)
- Councillor – CAPT Dave Pyett

The Committee is keen to have younger members take up Committee roles and so if you are interested, please reach out to one of the above members and let us know! All Committee positions will be vacated at the AGM in November 2026, and an opportunity will be presented to any member who wants to help lead the AIN as it progresses towards its 80th anniversary!

Monthly Company of Master Mariners/AIN Sydney Meeting

For any Sydney-based members, as a general rule, the regular monthly lunch meetings of the Company of Master Mariners, Nautical Institute and AIN are held on the third Thursday of each month unless otherwise advised. The Secretary will advise details of upcoming meetings ahead of the event. The events are held generally as follows:

- VENUE:** Occidental Hotel ,43 York street, Sydney.
Fairmont Dining Room, Level 1.
- COST:** \$55/Head, paid cash on arrival.
- RSVP:** By Tuesday before the event to CAPT John Bradley at the Company of Master Mariners at email: bradleyJ@Ymail.com or text to 0415 600 519.

Upcoming Events

- **SOF Week 2026.** Will be held 19–21 May, in Tampa, Florida, USA. Includes defence-focussed exhibitions highlighting PNT solutions for special operations and electronic warfare environments.
- **Australian Institute of Navigation Webinar Series** (next webinar is 25 May, Online – see details elsewhere in this newsletter): Focusses on maritime GNSS-enabled systems, addressing vulnerabilities to jamming/spoofing in confined port environments.
- **Geoscience Australia Public Talk:** Multimodal AI models built on Australian Geoscience Data. Wednesday, 27 May, 11:00 am. This seminar will be held in the Sir Harold Raggatt Theatre and online and is free and available to all. Presented by Dr Sue Keay (UNSW AI Institute) and Professor Flora Salim (UNSW AI Institute).
- **The Royal Institute of Navigation** is also a partner organisation to the AIN. A full list of RIN events and seminars can be found at https://rin.org.uk/events/event_list.asp.
- **ION Joint Navigation Conference (JNC 2026).** When: 1–4 June, 2026, Where: Covington, KY, USA. Focus: The largest military navigation conference, featuring presentations on GNSS, inertial sensors, and navigation warfare (NAVWAR).
- **ION GNSS+.** This is the world's largest technical meeting and showcase of GNSS technology, products and services. ION GNSS+ 2026 takes place 14-18 September, 2026, at the Hyatt Regency Grand Cypress in Orlando, Florida, USA.
- **The US ION International Technical Meeting.** ITM features a technical program related to positioning, navigation and timing and includes the ION Fellows and Annual Awards presentations. ITM 2027 will take place in Anaheim, California,

USA, 25-28 January, 2027, and will be co-located with the Precise Time and Time Interval Systems and Applications Meeting (see below). A commercial exhibit and pre-conference tutorials are held in conjunction with the conference.

- **Precise Time and Time Interval (PTTI) 2027.** PTTI2027 will take place in Anaheim, California, USA, 25-28 January, 2027, and will be co-located with the ION International Technical Meeting. A commercial exhibit and pre-conference tutorials are held in conjunction with the conference.
- **Spatial Information Day 2026.** When: 7 August, 2026; Where: South Australia (In-person); Focus: A key Australian event bringing together spatial and GNSS experts to discuss local and national developments in positioning.
- **Tasmanian State of GIS Conference 2026.** When: Mid-2026. Suggest watching out for further details on line!
- **NAVICON 2026.** This navigation conference will be held for the first time this year in December 2026. All details are at <https://ieee-nav.org/2026>.
- **FIG Congress 2026:** Scheduled for 24–29 May, 2026, in Cape Town, South Africa.
- **Assured PNT Summit 2026:** A U.S.-based event focussed on military and civilian PNT security.

AIN Webpage and Other Useful Websites

- Please send any items of general interest to the AIN Secretary (kym.osley1@gmail.com)
The website is accessible at <https://www.ain.org.au/>
- Royal Institute of Navigation website - <https://rin.org.uk/>
- US Institute of Navigation newsletters – <https://www.ion.org/newsletter/>
- Japan Institute of Navigation Journals - <https://www.jstage.jst.go.jp/browse/jin>
- International Association of the Institutes of Navigation - <https://iainav.org/>
- German Institute of Navigation - <https://www.dgon.de/de/home>
- Italian Institute of Navigation - <https://www.istnav.org/>
- Korean Institute of Navigation - <http://kinpr.or.kr/>

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