IATA and EASA release joint strategy to counter GNSS interference risks

The International Air Transport Association (IATA) and the European Union Aviation Safety Agency (EASA) have published a comprehensive plan to mitigate risks stemming from GNSS interference. The plan was part of the conclusions from a jointly hosted workshop on the topic of GNSS interference.

With incidents of GNSS signal jamming and spoofing rising, especially in Eastern Europe and the Middle East, the workshop called for a broader, more coordinated response. The plan focuses on four areas: improving information gathering, strengthening prevention and mitigation, making better use of infrastructure and airspace management, and enhancing coordination among agencies.

“GNSS disruptions are evolving in both frequency and complexity. We are no longer just containing GNSS interference — we must build resilience,” said Jesper Rasmussen, EASA Flight Standards Director. “Through collaboration with partners in the European Union and IATA and by supporting the International Civil Aviation Organization, we are committed to keeping aviation safe, secure, and navigable.”

According to IATA, the number of GPS signal loss events increased by 220% between 2021 and 2024. “With continued geopolitical tensions, it is difficult to see this trend reversing in the near term,” said Nick Careen, IATA senior vice president for operations, safety, and security. “The next step is for ICAO to move these solutions forward with global alignment on standards, guidance, and reporting. This must command a high priority at the ICAO Assembly later this year.”

Read more in *GPS World* article. https://www.gpsworld.com/iata-and-easa-release-joint-strategy-to-counter-gnss-interference-risks/?utm_source=Omeda&utm_medium=Email&utm_campaign=NCMCD250618002&oly_enc_id=1784A2382467C6V

2025-06-19

GNSS jamming widespread in Strait of Hormuz, ships collide

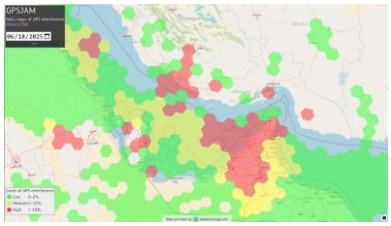
GNSS jamming is causing confusion for ships traveling through the Strait of Hormuz, reports gCaptain. The regional threat levels are labelled “significant” because of air strikes between Iran and Israel, according to the Joint Maritime Information Center (JMIC). Maritime threat levels are marked as “elevated”.

The JMIC highlighted GNSS jamming problems around the Port of Bandar Abbas and throughout the Strait of Hormuz and Persian Gulf regions. Nevertheless, commercial shipping traffic has continued at normal rates.

Naivgational error is considered the cause of a collision June 17 between two tankers in the Gulf of Oman. The Very Large Crude Carrier (VLCC) Front Eagle, with 2 million barrels of Iraqi crude bound for China, hit the Suezmax tanker Adalynn 15 nautical miles off Fujairah. There was fire on both ships, but no injuries. The Front Eagle appeared to be onshore in Iran days before the collision.

Read more in *GPS World* article. https://www.gpsworld.com/gnss-jamming-widespread-in-strait-of-hormuz-ships-collide/?utm_source=Omeda&utm_medium=Email&utm_campaign=NCMCD250618002&oly_enc_id=1784A2382467C6V

2025-06-18



OneNav L5-direct navigates through GPS interference in field trial

For the first time, the oneNav L5-direct receiver was flown on a UAV through a simulated electronic warfare GPS signal interference field. The assessment took place Feb. 12 at the Emerging Technology Lab at U.S. Special Operations Command (USSOCOM). This non-classified evaluation replicated battlefield conditions, including variable speeds, altitudes, maneuvres and robust L5 signal interference.

The in-flight assessment, conducted on a UAV under real-world dynamic and RF interference conditions, demonstrated that the oneNav L5-direct receiver operates independently of legacy GNSS signals such as L1 and L2. While conventional dual-band receivers require L1 acquisition before transitioning to L5 tracking, the oneNav solution used only modern L5 signals for both functions.

Read more in *GPS World* article. https://www.gpsworld.com/onenav-l5-direct-navigates-through-gps-interference-in-field-trial/?utm_source=Omeda&utm_medium=Email&utm_campaign=NCMCD250618002&oly_enc_id=1784A2382467C6V

2025-06-18

Aquark, UK Royal Navy trial cold atom-based atomic clock

Quantum sensing specialist Aquark Technologies has completed a second trial of its AQlock atomic clock system, facilitated by the Disruptive Capabilities and Technologies Office (DCTO) of the UK Royal Navy. The AQlock functioned continuously aboard HMS Pursuer in the Solent area over three days, what Aquark calls an important milestone for position, navigation and timing (PNT) technology and a step forward in the mission to reduce global reliance on GNSS.

The Defence Science and Technology Laboratory supported the company's latest trial, providing time and frequency test and evaluation expertise and equipment. It aims to improve conventional PNT by transferring the stability of atoms that have been cooled to near absolute zero to a conventional oscillator to reduce long-term drift. This makes the technology capable of maintaining high precision for longer, without the usual required correction from GNSS, augmenting existing timing capabilities.

The AQlock is an industrially designed and built cold atom-based atomic clock. The technology is underpinned by the supermolasses trap, a unique method of trapping

atoms pioneered by Aquark that makes the technology highly robust, portable, and more affordable. The technology is suitable for miniaturisation due to its reduced component count and power requirements when compared to alternative methods.

Read more in *GPS World* article. https://www.gpsworld.com/aquark-uk-royal-navy-trial-cold-atom-based-atomic-clock/?utm_source=Omeda&utm_medium=Email&utm_campaign=NCMCD250618002&oly_enc_id=1784A2382467C6V

2025-06-19

LEO PNT: A Fundamental Evolution to Answer New Application Needs

Positioning, Navigation and Timing (PNT) services currently rely almost exclusively on GNSS in medium Earth orbit (MEO). The first GPS system (NAVSTAR), developed in the 1980s by the U.S. Department of Defense, was followed by several other constellations such as Galileo, GLONASS, BeiDou, and QZSS, providing end users with a vast array of navigation signals capable of supporting a wide range of applications.

The market adoption of such capabilities went tremendously fast. Today, PNT is an integral part of our day-to-day lives, impacting critical infrastructure, asset tracking, agriculture and Industry 4.0, as well as intelligent transport systems. The evolution of the application ecosystem is pushing PNT systems to the limits of their capacity, generating highly dynamic research efforts to meet growing needs as effectively and swiftly as possible. Low Earth orbit (LEO) PNT has become a critical factor in making that happen.

Read more in *Inside GNSS* article. https://insidegnss.com/leo-pnt-a-fundamental-evolution-to-answer-new-application-needs/

2025-06-04

13 EU member states demand action on GNSS interference

13 member states of the European Union have called on the European Commission to respond to interference with GNSS in EU countries.

The interference originates in Russia and Belarus, as a result of the ongoing war with Ukraine.

The ministers for transport from 13 countries urged immediate and coordinated action in response, reports the Baltic Times. The joint letter was signed by the ministers of Lithuania, Latvia, Estonia, Germany, Slovakia, Finland, Slovenia, the Czech Republic, Italy, the Netherlands, Spain, Denmark and Romania.

In the joint letter, the ministers emphasize that since 2022, two types of interference to GNSS — jamming and spoofing — have been observed in the airspace of the Baltic Sea Region, posing a threat to various modes of transport, particularly civil aviation and maritime navigation.

Read more in *GPS World* article. https://www.gpsworld.com/13-eu-member-states-demand-action-on-gnss-interference/?utm_source=Omeda&utm_medium=Email&utm_campaign=NCMCD250611002&oly_enc_id=1784A2382467C6V

2025-06-11

InfiniDome successfully resists jamming in test

Security company InfiniDome has partnered with one of Israel's largest vehicle tracking and fleet management companies to simulate a real-world car theft scenario.

The test recreated a scenario in which criminals deploy in-car GNSS jammers to disable location reporting systems. Two identical tracking units were installed: one protected by OtoSphere-Lighthouse (80×78.5x28mm, 180g), infiniDome's newest anti-jamming module for commercial use, and one left unprotected.

As jamming began inside the vehicle, the unprotected tracker quickly lost GPS signal and failed to transmit location. In contrast, the protected unit maintained full functionality, continuously reporting real-time data throughout the test.

The trial demonstrated the reliability of infiniDome's technology in commercial environments, the company said. The OtoSphere-LightHouse module was developed to deliver advanced anti-jamming protection for critical applications. As GPS has become essential across industries — from logistics to emergency service — so have the risks.

Read more in *GPS World* article. https://www.gpsworld.com/infinidome-successfully-resists-jamming-in-test/?utm_source=Omeda&utm_medium=Email&utm_campaign=NCMCD250611002&oly_enc_id=1784A2382467C6V

2025-06-11

Russian jamming creates 'Bermuda Triangle' in Baltic

Russian jamming of GPS signals is suspected to be the cause behind a new "Bermuda Triangle" of navigation confusion in the eastern Baltic Sea.

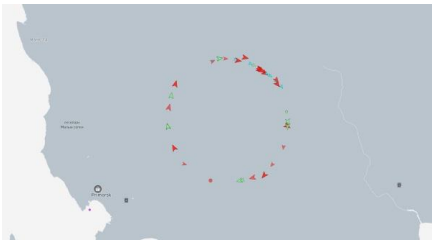
In the Gulf of Finland, ships are disappearing from radar and Russian fighter jets are travelling through NATO airspace, according to Danwatch, a Danish news outlet.

Ship monitoring service MarineTraffic shows the position of ships in completely different places than their actual positions, currently on land east of coastal city Primorsk, Russia.

Experts say that not only is GPS being disrupted, but hackers are also manipulating navigation data. They blame Russia for its hybrid activities and attacks, which it carries out both from its mainland territory and from the Kaliningrad enclave, located between Poland and Lithuania.

Read more in *GPS World* article. https://www.gpsworld.com/russian-jamming-creates-bermuda-triangle-in-baltic/?utm_source=Omeda&utm_medium=Email&utm_campaign=NCMCD250604003&oly_enc_id=1784A2382467C6V

2025-06-05



Ensuring High-Accuracy Positioning in GPS-Denied Environments

The 746th Test Squadron (746 TS) utilizes a non-GPS based positioning system (NGBPS) developed by Locata Corporation to provide high-accuracy navigation solutions in GPS-denied environments. The Locata system broadcasts signals that are processed by an onboard, airborne receiver during flight testing. Post-processing techniques are applied to improve the precision of the navigation solution. This unique infrastructure of ground pseudolites at White Sands Missile Range (WSMR) provides a useful resource for testing and evaluation in GPS-denied scenarios by providing a localized, off-band signal for reference. However, the availability of this high-accuracy solution is limited by the placement of transmitters on range and the

location of the antenna on the aircraft as it traverses the field, emphasizing the need for careful mission planning.

To address these challenges, the 746 TS has used the Ansys Government Initiatives (AGI) System Took Kit (STK), a software tool for modeling and analyzing systems, to simulate the performance of the Locata system. By incorporating flight profiles with attitude information, STK enables the estimation of the system's performance. This simulation-based approach has led to significant improvements in mission planning and post-mission analysis. The 746 TS can ensure flight paths are optimized for the Locata system, leveraging the capabilities of STK to model the effects of body masking and aircraft dynamics to develop profiles that maximize the accuracy and reliability of the Locata navigation solution.

Read more in *Inside GNSS* article. https://insidegnss.com/ensuring-high-accuracy-positioning-in-gps-denied-environments/
2025-06-02

u-blox launches triple-band GNSS module for fast-scaling robotics

u-blox has expanded its ZED form-factor portfolio with the ZED-F20P, a L1/L2/L5 triple-band GNSS module designed for high precision applications in ground and air robotics.

The ZED-F20P provides OEMs deploying fleets of ground robots, drone light shows, and other dynamic autonomous platforms with centimetre-level RTK and PPP-RTK positioning, fast convergence times, and integrated security features.

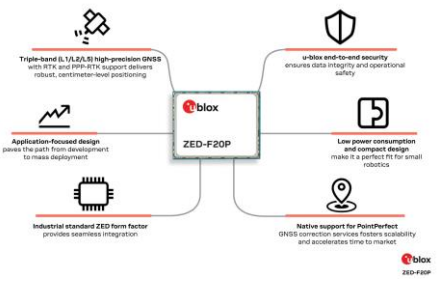
Within the u-blox high precision receiver family, the ZED-F20P is a dedicated L1/L2/L5 triple-band specialist. It delivers deterministic, centimetre-level RTK and

PPP-RTK accuracy tailored to the needs of lightweight and dynamic platforms. Its end-to-end silicon-to-firmware architecture supports 25Hz update rates, robust security features, and low power consumption in a streamlined design.

These capabilities combine to deliver industrial-grade reliability and enable smooth scaling from proof-of-concept to high-volume deployment without increasing system cost, power consumption, or integration complexity.

Read more in *GPS World* article. [hhttps://www.gpsworld.com/u-blox-launches-triple-band-gnss-module-for-fast-scaling-robotics/?utm_source=Omeda&utm_medium=Email&utm_campaign=NCMCD250604003&oly_enc_id=1784A2382467C6V]

2025-06-05



Government Turmoil and the PNT Community

Two important federal efforts to get public input on PNT issues have recently been put on hold.

The President's National Space-Based PNT Advisory Board has met twice each year since its inception in 2004, but the board's charter expired on April 25. Future meetings are on hold while the new administration reviews the more than 1,000 groups that have been operating under the provisions of the Federal Advisory Committee Act.

The charter for the Department of Transportation's Civil GPS Service Interface Committee (CGSIC) appears to still be in place. This forum is the federal government's method of getting feedback and input from civil users across the globe.

In the past, the committee met immediately prior to, and at the same venue as, the Institute of Navigation (ION)'s GNSS+ annual conference. The synergy benefited both events and attendees.

We understand new federal policy requires these kinds of government meetings to be held in Washington, D.C. or its immediate vicinity. Consequently, this year's CGSIC event will not be held with ION GNSS+ in Baltimore. No date or location for the group's next meeting has been announced.

Read more in *Inside GNSS* article. https://insidegnss.com/government-turmoil-and-the-pnt-community/
2025-05-28

The use and promise of artificial intelligence in GNSS PNT

Artificial intelligence (AI) has become part of the daily lexicon, and an endless stream of media reports assert that AI either has affected or will affect most aspects of human life. What is AI and what are its components? How is it being used in GNSS technology? What is the near-term potential of AI in GNSS/PNT? These are weighty, evolving questions for which this column attempts an initial synthesis.

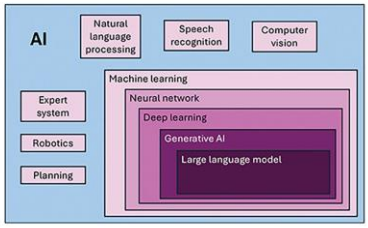
AI definitions and descriptions vary widely. One general and broad definition from IBM (2025) is "Artificial intelligence (AI) is technology that enables computers and machines to simulate human learning, comprehension, problem solving, decision-making, creativity and autonomy." The idea of thinking machines and the term "artificial intelligence" were introduced in the 1950s. The 1960s and 1970s saw the development of neural networks. The 1980s brought advances in neural network training and deep learning. The 1990s saw rapid advances in computing power. Big data and cloud computing developments in the 2000s allowed for the management

and analysis of large datasets. The 2010s brought deep neural networks/deep learning, and the 2020s have seen the introduction and flourishing of large language models.

This column primarily focuses on the impacts that AI is directly having and could potentially have on GNSS hardware and PNT solutions, including receiver signal acquisition, measurement processing, position estimation, integrity and mitigation of jamming and spoofing.

Read more in *GPS World* article. https://www.gpsworld.com/the-use-and-promise-of-artificial-intelligence-in-gnss-pnt/?utm_source=Omeda&utm_medium=Email&utm_campaign=NCMCD250521002&oly_enc_id=1784A2382467C6V

2025-05-23



GNSS under attack: Recognizing and mitigating jamming and spoofing threats

Jamming occurs when signals are disrupted or denied, making it difficult or impossible for receivers to interpret information correctly. In contrast, **spoofing** involves malicious transmission of fake signals that mimic real ones, tricking receivers into delivering inaccurate location data. Spoofing is basically someone trying to pretend they're a real satellite.

While jamming focuses on disruption through noise and interference, spoofing relies on deception, sending false signals that systems accept as legitimate. Both pose serious challenges, but their differences require unique detection and prevention strategies.

When jamming occurs — whether it be noise (chirp) jamming, tone jamming or pulsed jamming, devices may experience significant signal degradation resulting in interrupted communication and loss of both data and situational awareness. By

contrast, spoofing — be it meaconing, coherent or signal overlay — can subtly alter data, leading to false readings and misguided actions.

Read more in *GPS World* article. https://www.gpsworld.com/gnss-under-attack-recognizing-and-mitigating-jamming-and-spoofing-threats/?utm_source=Omeda&utm_medium=Email&utm_campaign=NCMCD250521002&oly_enc_id=1784A2382467C6V

2025-05-27

MSC Antonia Grounding in the Red Sea Attributed to Suspected GNSS Spoofing

On May 10, the 7,000 TEU container ship *MSC Antonia* ran aground near the Eliza Shoals south of Jeddah Port in the Red Sea. Emerging analysis suggests the vessel may have been affected by deliberate GNSS interference, renewing attention to the operational impact of spoofing in congested maritime corridors.

The *Antonia*, flagged in Liberia and operated by MSC, was transiting from Marsa Bashayer, Sudan, to Jeddah when it deviated from its intended course and grounded in shallow waters. No injuries were reported, but the vessel remains stuck, with tugs mobilized for a potential refloating.

AIS and vessel tracking data indicate abnormal positioning behaviour leading up to the incident. Maritime data intelligence providers—including Windward, MarineTraffic, and Pole Star Global—have since released analyses pointing to probable GNSS spoofing or jamming as contributing factors.

Read more in *Inside GNSS* article. https://insidegnss.com/msc-antonia-grounding-in-the-red-sea-attributed-to-suspected-gps-spoofing/

2025-05-15


POLE STAR DEFENSE
Date of Imagery: 2025-05-10 | 08:04:14 UTC
21°43.32'N, 038°48.20'E
MSC ANTONIA (IMO: 9398216)
Copernicus Sentinel Data 2025