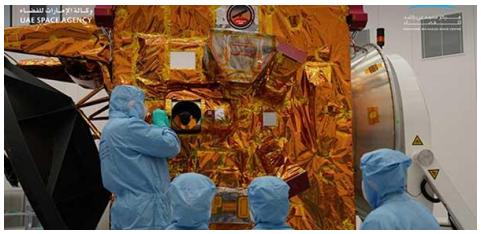
Following Mars Probe, UAE to Launch Two Navigation Satellites

The United Arab Emirates (UAE) will launch the first of two navigation satellites in 2021, according to the Emirates News Agency (WAM), spurred by the successful launch of a Mars probe on July 19. The satellite is designed to demonstrate the country's technological capabilities. A second, further enhanced satellite will be launched in 2022, said Khaled Al Hashmi, director of the National Space Science and Technology Center (NSSTC) at UAE University, Al Ain.

The satellites are the first project of Satellite Assembly, Integration and Testing Center, a collaboration formed by Tawazun Economic Council with Airbus and the NSSTC. Funded by the UAE Space Agency, the satellites are not intended to add a navigation system — at least not right away. "We try to select a certain technology, design and develop the satellite and payload here, and will own the intellectual property rights," Hashmi told WAM, the state news agency.

Read more in *GPS World* article. https://www.gpsworld.com/following-mars-probe-uae-to-launch-two-navigation-satellites/?utm_source=Navigate%21+Weekly+GNSS+News&utm_medium=Newsletter&utm_campaign=NCMCD200812003&oly_enc_id=1784A2382467C6V

2020-08-12



White House Office Asks What to Research to Protect GPS

The White House Office of Science and Technology Policy is asking for ideas on what technology to research to protect GPS. The research and development dollars are earmarked for projects that minimise or eliminate disruption to critical infrastructure from intentional and unintentional interference.

The "Notice of Request for Information on Positioning, Navigation, and Timing Resilience" was issued Aug. 10 in the Federal Register.

The office is seeking input “from all interested parties on the development of a National Research and Development Plan for Positioning, Navigation, and Timing (PNT) Resilience.

Read more in *GPS World* article. https://www.gpsworld.com/white-house-office-asks-what-to-research-to-protect-gps/?utm_source=Navigate%21+Weekly+GNSS+News&utm_medium=Newsletter&utm_campaign=NCMCD200812003&oly_enc_id=1784A2382467C6V

2020-08-12

No Silver Bullet For US PNT: Many Sources Needed

The Department of Transportation (DOT) is responsible for leading civil positioning, navigation, and timing (PNT) issues for the United States. At the moment, the U.S. GPS provides the vast majority of PNT services in the U.S. and around the world. Yet, like all space-based systems, its signals are weak and very vulnerable to interference.

A recent example of how dangerous that can be in automated transportation systems was revealed recently in an accident report released by the British government. Interference from an unknown source caused a 15.5 kg drone to get away from its operator and crash. Fortunately, no one was hurt. The report cited analysis showing that such a weight could have easily killed someone on the ground.

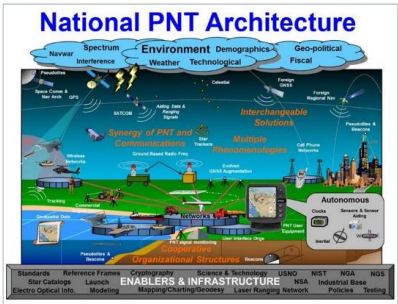
Even more concerning, GPS signal characteristics are well known and therefore easy to imitate. Thousands of cases of “spoofing” have been documented with government and malicious actors causing receivers to report they are far from their actual location. In the worst cases, this can cause accidents or enable criminal acts.

One result of all of this is the President of the United States issuing an Executive Order encouraging “responsible use” of PNT systems. It also directs steps to encourage

development and adoption of alternative systems. This includes a White House-level plan for research and development of non-GNSS PNT.

Read more in *GPS World* article. https://www.gpsworld.com/no-silver-bullet-for-us-pnt-many-sources-needed/?utm_source=Professional+OEM+%2B+UAV&utm_medium=Newsletter&utm_campaign=NCMCD200813002&oly_enc_id=1784A2382467C6V

2020-08-18



NSW Seeking Approval to Put GPS Repeaters in Sydney Tunnels

Transport for New South Wales is looking for permission to install GPS repeaters in the tunnels under Sydney to test the impact it would have on emergency services, as well as GPS units and smartphones.

The one obstacle in the way of such a test is the retransmission of a radionavigation-satellite service, which is currently forbidden by the *Radiocommunications Act 1992* since it could interfere with signals.

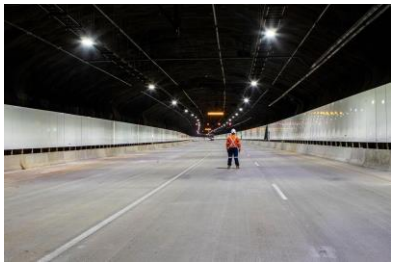
The Australian Communications and Media Authority is currently conducting a review of the ban, and in particular, is looking into GPS repeaters in tunnels, as well as allowing police to "deal with drone security and safety threats".

"As many motorists know, GPS signals don't work in road tunnels because they lose the line of sight to satellites. Some vehicles use other technology but GPS is the most accurate and is used by emergency services," Transport for NSW deputy secretary for greater Sydney Elizabeth Mildwater said.

Read more in *article*…

https://www.zdnet.com/article/nsw-seeking-approval-to-put-gps-repeaters-in-sydney-tunnels/

2020-08-19



GPS III Space Vehicle 04 Safely Arrives in Florida

The U.S. Space Force Space and Missile Systems Center on July 14 delivered the fourth GPS III satellite to Cape Canaveral Air Force Station, Florida. The satellite is scheduled for launch on Sept. 30.

GPS III Space Vehicle (SV) 04 was safely transported from the Lockheed Martin facility in Waterton, Colorado to Space Coast Regional Airport in Titusville, Florida. The satellite was carried aboard a C-17 Globemaster III originating from Joint Base Lewis-McChord, Washington.

The delivery of GPS III SV04 starts the clock for final testing and checkout prior to launch. The satellite will be processed at the Astrotech Space Operations facility in Florida to ensure the full functionality of the satellite, prepare the satellite for propellant loading, and encapsulate the satellite in its protective fairing. At the completion of these activities, the satellite will be horizontally integrated with the SpaceX Falcon 9 launch vehicle.

Read more in *GPS World* article. https://www.gpsworld.com/gps-iii-space-vehicle-04-safely-arrives-in-florida/?utm_source=Navigate%21+Weekly+GNSS+News&utm_medium=Newsletter&utm_campaign=NCMCD200805003&oly_enc_id=1784A2382467C6V

2020-08-06

Ready, Steady, Go — Here at Last Comes GLONASS-K

The third next-generation GLONASS-K navigation satellite, postponed several times, will now take place in late August or early September, according to reported statements by Russian space industry sources. This marks a long-delayed step along a road towards interoperability with other GNSS. The first GLONASS-K satellite was launched in 2011 and a second one in 2014.

In February 2020, satellite manufacturer ISS-Reshetnev announced that nine new GLONASS-K satellites would fly up to the constellation by 2022. The GLONASS constellation currently counts 23 operational satellites.

The GLONASS-K version, succeeding GLONASS-M and the first generation GLONASS, features a lighter, standardised unpressurised bus, a third L-band transmitter for civilian users known as L3, principally designed for use by the aviation sector. GLONASS-K has a design life of 10 years, 3 years longer than its predecessors. The payload promises to provide more precise navigation and add a search and rescue function.

Read more in *Inside GNSS* article. https://insidegnss.com/ready-steady-go-here-at-last-comes-glonass-k/
2020-08-04

Galileo Next-gen Satellites to be More Powerful, Reconfigurable

With 26 satellites now in orbit and more than 1.5 billion smartphones and devices worldwide receiving highly accurate navigation signals, Europe's Galileo navigation system will soon become even better, ensuring quality services over the next decades.

Following the European Commission's decision to accelerate development of Galileo Next Generation, ESA has asked European satellite manufacturers to submit bids for the first

batch of the Galileo Second Generation (G2) satellites. The new spacecraft are expected to be launched in about four years.

The next-generation satellites will provide all the services and capabilities of the current first generation with a substantial improvements and new services and capabilities.

Read more in *GPS World* article. https://www.gpsworld.com/galileo-next-gen-satellites-to-be-more-powerful-reconfigurable/

2020-08-14

‘The Dish’ Added to National Heritage List

Iconic Parkes radio telescope becomes first functioning science instrument to be added to heritage register.

‘The Dish’, CSIRO’s radio telescope at Parkes in NSW that played a crucial role in relaying NASA’s 1969 Moon landing to Earth, has been recognised for its contribution to humankind’s understanding of the Universe, and Australian astronomy.

Completed in 1961, the Parkes telescope continues to play a critical role in observing extraterrestrial phenomena, having been pivotal in identifying the first fast radio burst, rapidly spinning neutron stars and most of the known pulsars.

Read more in *Spatial Source* article. https://www.spatialsource.com.au/gis-data/the-dish-added-to-national-heritage-list?utm_medium=email&utm_campaign=SS%20Newsletter%20120820&utm_content=SS%20Newsletter%20120820+Version+A+CID_f49df44c7920f9e82f020644bde338a9&utm_source=Campaign%20Monitor

2020-08-12

Senator Takes a Stand for GPS

U.S. Sen. Jim Inhofe (R-Okla.), chairman of the Senate Armed Services Committee, announced that he has placed a hold on the nomination of Mike O'Rielly to a third term as Federal Communications Commision (FCC) Commissioner until O'Rielly publicly commits to vote to overturn the current Ligado Order.

"Over the past few months, I have sent letters, held hearings and called countless officials to highlight what we all know to be true: the FCC's Ligado Order is flawed and will lead to significant harm to our military and the thousands of individuals and businesses that rely on GPS," Inhofe stated. Then he added something not widely known. "The Trump administration understands this and has urged the FCC to reconsider the Ligado Order."

"I am holding Commissioner O'Rielly's nomination until he publicly states that he will vote to overturn the current Ligado Order. I understand that O'Rielly has stated that he would give 'due consideration to a stay' 'based on new data or evidence' – but that isn't enough. This isn't just about our military, but all users of GPS are united in opposition. All of America can't be wrong, and he understands that. I need his commitment in plain English to vote to overturn the order, not just consider it, before I will allow his nomination to proceed."

Read more in *Inside GNSS* article. https://insidegnss.com/senator-takes-a-stand-for-gps/
2020-07-31

Now Operational, BeiDou Could Conceal Cybersecurity Threat

As the final BeiDou satellite reaches geostationary orbit, experts in the satnav community worry about security implications of the now officially operational Chinese system. As a two-way rather than a one-way communication system, BeiDou differs in two key aspects from other GNSS: BeiDou can identify the locations of receivers on the Earth's surface, and BeiDou-compatible devices can transmit data back to the satellites in text messages of up to 1,200 Chinese characters.

China's government puts its in a rosy light. "In layman's terms, you can not only know where you are through BeiDou but also tell others where you are through the system," according to state-owned television.

Others are not so confident of the beneficence. A story on the U.S. government-sponsored Voice of America website quotes Dr. Larry Wortzel, a commissioner of the U.S.-China Economic and Security Review Commission (USCC). "All cellular devices, as I understand their function, can be tracked because they continually communicate with towers or satellites. So just as here in the U.S., there are concerns that police or federal agencies can track people by their cellphones. That can happen. The same is true of a cellphone relying on BeiDou."

Read more in *Inside GNSS* article. https://insidegnss.com/now-operational-beidou-could-conceal-cybersecurity-threat/

2020-08-03

Galileo Saved in Latest EU Budget Slash

The European Commission cut its space budget for the next seven years but kept the Galileo and Copernicus satellite programs largely on track. The move came after intense negotiations over a 1.8-trillion-euro European Union budget seeking to absorb and remedy economic impacts of the coronavirus pandemic.

In previous years, the EC had sought a space budget totalling 16 billion euros, a nearly 50% increase over the budget from 2014 to 2020. However, a revision in May brought this down to 15.2 billion euros for space, and a further slice took it to E13.2 billion. The loss of British funding after Brexit takes effect in January 2021 also played into the division.

The Galileo GNSS system garners the lion's share of the space budget with 8 billion euros, while the Copernicus environmental monitoring satellites, which employ both GPS and Galileo signals, must survive on 8 billion euros.

"Basically they are saving Galileo as much as they can," said one trade group representative. The budget goes into effect Jan. 1, but must first be approved by the European Parliament.

Read more in *Inside GNSS* article. https://insidegnss.com/galileo-saved-in-latest-eu-budget-slash/
2020-07-27

2 SOPS All-female Crew Gains Control Over GPS III SV03

Schriever's 2 SOPS, the providers of GPS signals to billions of users worldwide, made history July 23 when a crew of eight women space operators gained satellite control authority of satellite vehicle number 76 (SVN 76), previously known as GPS III SV03.

The crew included 1st Lt. Kelley McCaa, 2 SOPS satellite vehicle operator; 1st Lt. Alexis Thuli, 2 SOPS operations assistant flight commander; Staff Sgt. Kelly Malone, 2nd SOPS satellite systems operator and crew chief; 1st Lt. Mary McLaughlin, 2 SOPS payload system operator; 1st Lt. Mikayla Roberts, 2 SOPS mission analyst; Senior Airman Joelle Schritt, 19th SOPS mission planner; Airman 1st Class Gillian Clover, 2 SOPS satellite systems operator; and Airman 1st Class Larissa Contreras, 2 SOPS SSO.

"It's like the grandparents hand the keys to the parent, then the parent hands the keys to us," said McCaa. "When a new satellite is launched, we don't have full authority of it. [Lockheed Martin] takes it over [after launch], then we bring it into our systems and then we actually gain full control of [the satellite] as a squadron."

Read more in *GPS World* article. https://www.gpsworld.com/2-sops-all-female-crew-gains-control-over-gps-iii-sv03/?utm_source=Navigate%21+Weekly+GNSS+News&utm_medium=Newsletter&utm_campaign=NCMCD200729003&oly_enc_id=1784A2382467C6V

2020-07-30

How Vulnerable is GPS?

In the cool, dark hours after midnight on June 20, 2012, Todd Humphreys made the final preparations for his attack on the Global Positioning System. He stood alone in the middle of White Sands Missile Range, in southern New Mexico, sixty miles north of Juárez. All around him were the glowing gypsum dunes of the Chihuahuan Desert. In the distance, the snow-capped San Andres Mountains loomed.

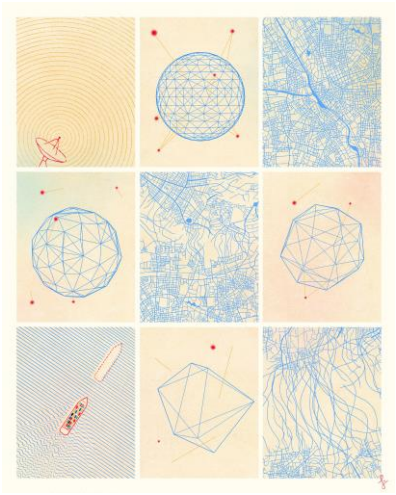
On a hill about a kilometre away, his team was gathered around a flat metal box the size of a carry-on suitcase. The electronic machinery inside the box was called a spoofer—a weapon by another name. Soon, a Hornet Mini, a drone-operated helicopter popular with law-enforcement and rescue agencies, was scheduled to appear forty feet above them. Then the spoofer would be put to the test.

Humphreys, an engineering professor at the University of Texas at Austin, had been working on this spoofing technology for years, but he was nervous. Witnessing the test that morning was a group of about fifteen officials from the Federal Aviation Administration, the Department of Homeland Security, and the Air Force's 746th Test Squadron. They were Humphreys's hosts, but they very much wanted him to fail.

Read more in *article*…

https://www.newyorker.com/tech/annals-of-technology/how-vulnerable-is-gps

2020-08-06



Xi Unveils BeiDou Full-scale Coverage

President Xi Jinping announced on Friday 31 July that China's BeiDou Navigation Satellite System has been completed and has started providing full-scale global services that day. Xi, who is also general secretary of the Communist Party of China Central Committee and chairman of the Central Military Commission, declared the commissioning of the global navigation and positioning system's third-generation network at a ceremony at the Great Hall of the People in Beijing.

General Zhang Youxia, vice-chairman of the Central Military Commission, read a congratulatory letter at the ceremony on behalf of the CPC Central Committee, the State Council and the top military commission, calling the commissioning of BeiDou's full-scale global service a significant milestone in China's efforts to boost science and technology and strengthen its space industry.

Read more in *GPS Daily* article.
https://www.gpsdaily.com/reports/Xi_unveils_Beidou_full_scale_coverage_999.html
2020-08-03