S. Korea Successfully Deploys Precision Navigation Satellite

to Boost GPS Accuracy, Flight Safety

South Korea successfully launched a precision aviation satellite Thursday to improve the accuracy and reliability of GPS signals and better ensure flight safety, the government said.

The satellite for the Korea Augmentation Satellite System (KASS), the country's first precision GPS location augmentation system, lifted off from Guiana Space Center in Kourou in French Guiana, at 6:50 a.m. Thursday (Seoul time), according to the Ministry of Land, Infrastructure and Transport. The satellite was successfully separated from the rocket at around 7:18 a.m. after the fairing and first stage rocket separations.

For KASS, South Korea leased Malaysia's MEASAT-3d communication satellite for 15 years.

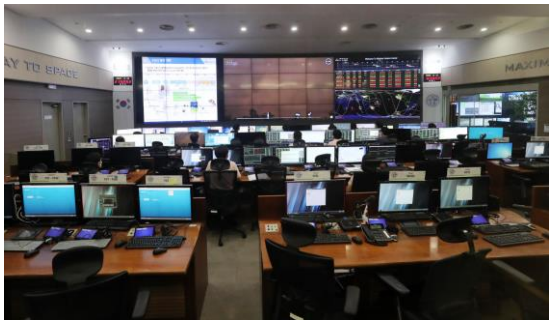
The system can improve the GPS position error to 1.0 to 1.6 metres from the current 15-33 metre level in real time to ensure information reliability throughout the country.

The government plans to begin a pilot service around December before its full-fledged operation next year, according to the ministry.

Read more in *article*…

https://www.koreaherald.com/view.php?ud=20220623000235

2022-06-23



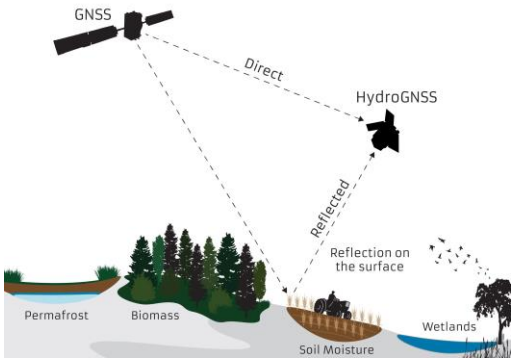
ESA Using GNSS to Monitor Environmental Features

The European Space Agency (ESA) is bringing to bear an innovative GNSS-based method for ocean surface topography, delivering important environmental data for a range of applications.

A project supported by the Discovery element of ESA's Basic Activities funding scheme recently investigated a GNSS-based technique to precisely measure ocean surface topography (OST). The project was based on an idea submitted by the Institute for Space Studies of Catalonia (IEEC) through the Open Space Innovation Platform.

OST is the study of the height of the ocean's surface above the geoid, that is the shape the ocean would have if all its currents and tides were calmed. OST is important for a variety of scientific and societal applications, such as current forecasting, climate research, ship routing, cable laying, and debris tracking. Other application areas include fisheries management, navigation and offshore operations.

Read more in *Inside GNSS* article. https://insidegnss.com/esa-using-gnss-to-monitor-environmental-features/
2022-06-06



The Face of Galileo

Ahead of Galileo satellites like this one going to space, they are switched on as if already operating there within ESA's Maxwell EMC Facility. This test procedure is a check of the satellite's 'electromagnetic compatibility', with all its systems running together to detect any harmful interference between them.

Once Maxwell's main door is sealed, its metal walls form a 'Faraday Cage', screening out external electromagnetic signals. The 'anechoic' foam pyramids covering its interior absorb internal signals - as well as sound - to prevent any reflection, mimicking the infinite void of space for satellite testing.

Seen here sheathed in multi-layer insulation, the 2.5m by 1.2 m by 1.1 m satellite's main 1.4-m diameter antenna transmits L-band navigation signals down to Earth.

Read more in *GPS Daily* article.
https://www.gpsdaily.com/reports/The_face_of_Galileo_999.html
2022-06-10

NASA Moon Mission Set to Break Record in Navigation Signal Test

As the Artemis missions journey to the Moon and NASA plans for the long voyage to Mars, new navigation capabilities will be key to science, discovery and human exploration.

Through NASA's Commercial Lunar Payload Services initiative, Firefly Aerospace of Cedar Park, Texas, will deliver an experimental payload to the Moon's Mare Crisium basin. NASA's Lunar GNSS Receiver Experiment (LuGRE) payload will test a powerful new lunar navigation capability using Earth's GNSS signals at the Moon for the first time.

"In this case, we are pushing the envelope of what GNSS was intended to do — that is, expanding the reach of systems built to provide services to terrestrial, aviation, and maritime users to also include the fast growing space sector," said J.J. Miller, deputy director of Policy and Strategic Communications for NASA's Space Communications and Navigation (SCaN) program. "This will vastly improve the precision and resilience of what was available during the Apollo missions, and allow for more flexible equipage and operational scenarios."

LuGRE — developed in partnership with the Italian Space Agency (ASI) – will receive signals from both GPS and Galileo, and use them to calculate the first-ever GNSS location fixes in transit to the Moon and on the lunar surface.

Read more in *GPS World* article. https://www.gpsworld.com/nasa-moon-mission-set-to-break-record-in-navigation-signal-test/?utm_source=Navigate%21+Weekly+GNSS+News&utm_medium=Newsletter&utm_campaign=NCMCD220608003&oly_enc_id=1784A2382467C6V

2022-06-08

UK's SBAS Signal Repurposed for Sovereign UK PNT Capability

An Inmarsat-led team of companies in the United Kingdom has begun broadcasting a satellite navigation signal as part of a program to explore the creation of a sovereign national capability in resilient positioning, navigation and timing (PNT) for the aviation and maritime sectors.

The signal, being broadcast in coordination with the U.S. Federal Aviation Administration (FAA), the European Space Agency (ESA) and the European Union Space Programme Agency (EUSPA), is now stable and operational, enabling ongoing testing and validation by industry, regulators and users.

Inmarsat, a satellite communications company, alongside British partners Goonhilly Earth Station and GMV NSL, is delivering the UK Space Agency-funded tests with the European Space Agency via ESA's Navigation Innovation and Support Program (NAVISP).

The UK Space-Based Augmentation System (UKSBAS) generates an overlay test signal to the U.S. GPS, compliant with International Civil Aviation Organization

(ICAO) standards, to enable assessment of more precise, resilient and high-integrity navigation for maritime and aviation users in UK waters and airspace.

Read more in *GPS World* article. https://www.gpsworld.com/uks-sbas-signal-repurposed-for-sovereign-uk-pnt-capability/?utm_source=Autonomous+Arena&utm_medium=Newsletter&utm_campaign=NCMCD220609003&oly_enc_id=1784A2382467C6V

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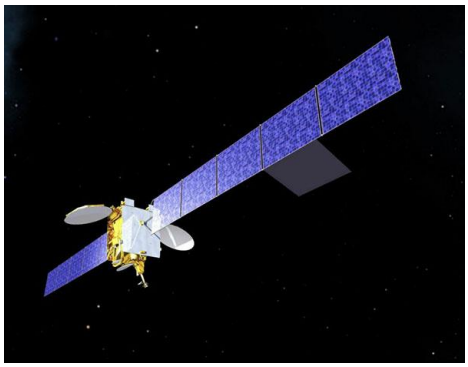


Hexagon | NovAtel Joins Xona on Assured PNT LEO Constellation

Hexagon | NovAtel has signed a memorandum of understanding with Xona Space Systems to collaborate in the positioning, navigation and timing (PNT) development of Xona's new low-Earth orbit (LEO) constellation.

LEO constellations offer a new avenue of assuring PNT by providing stronger signals with satellites closer to Earth and improved positioning accuracy with rapidly changing geometry, NovAtel explained. Additional constellations and a larger number of available satellites improve visibility in cases where parts of the sky are obstructed by buildings and other obstacles.

Also, as the threat of unintentional or malicious jamming and spoofing increases, it becomes important to consider alternative sources of PNT and resiliency methods, the companies said.

"Precise and robust PNT forms the foundation for safe operation of modern applications such as automotive and autonomy," said Brian Manning, CEO of Xona. "We are thrilled to be collaborating with NovAtel to demonstrate the benefits that our combined technologies can bring to these markets and many more."

Read more in *GPS World* article. https://www.gpsworld.com/hexagon-novatel-joins-xona-on-assured-pnt-leo-constellation/?utm_source=Navigate%21+Weekly+GNSS+News&utm_medium=Newsletter&utm_campaign=NCMCD220601002&oly_enc_id=1784A2382467C6V

2022-06-04

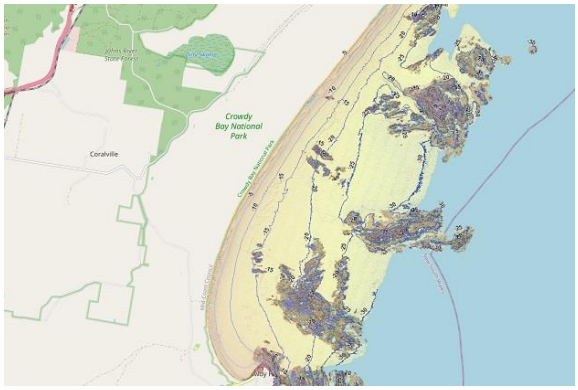
Online Map Reveals 6,800 Square Km of NSW Coastline

The SeaBed NSW map viewer captures the state's entire coastline, covering 6,800 square kilometres of the coast and the sea floor to depths of up to 35 metres.
The 3D zoomable maps provide highly detailed information on the sea floor habitat, which can help with the management of marine ecosystems and coastal management programs

According to the NSW Department of Planning and Environment's Sharing and Enabling Environmental Data in NSW (SEED) initiative, the SeaBed program "builds on the research expertise and specialist capabilities developed in 2005 as part of the HABMAP program mapping seabed habitats of our marine estate."
"The SeaBed NSW project maps large areas of the seafloor on the inner continental shelf using airborne laser mapping (LADS) in shallow water depths and vessel-based multi-beam sonar further offshore."

Read more in *Spatial Source* article. https://www.spatialsource.com.au/online-map-reveals-6000-km-of-nsw-coastline/?utm_medium=email&utm_campaign=SS%20Newsletter%2008062022&utm_content=SS%20Newsletter%2008062022+CID_77d4aca1f0cdce9d442dd39b1fdaeb23&utm_source=Campaign%20Monitor&utm_term=READ%20MORE

2022-06-08



Fifth GPS Satellite Set Healthy for Operational Use

The fifth GPS III satellite is now set healthy for initial operational use, according to the U.S. Coast Guard Navigation Center (NAVCEN). GPS III 05 (SVN-78/PRN-11) was launched June 17, 2021, from Space Launch Complex-40 at Cape Canaveral Air Force Station, Florida.

The U.S. Space Force Second Space Operations Squadron (2 SOPS) indicates that GPSIII 05 replaced SVN-61/PRN-28 in the D plane at slot D1.

Read more in *GPS World* article. https://www.gpsworld.com/fifth-gps-satellite-set-healthy-for-operational-use/?utm_source=Navigate%21+Weekly+GNSS+News&utm_medium=Newsletter&utm_campaign=NCMCD220525002&oly_enc_id=1784A2382467C6V

2022-05-27

The Billion-dollar-a-day GPS Mistake?

Over the last several weeks, I have repeatedly heard government officials and others talking about the value of GPS to the U.S. economy.

In each case they cited a 2019 report sponsored by the National Institute of Standards and Technology. It determined that, if GPS services were to go away, the U.S. economy would lose one billion dollars a day.

A billion dollars is a lot of money.

Yet the U.S. annual gross domestic product is more than $22 trillion a year. That's more than $60B a day. One billion dollars is less than 1.7%.

That just doesn't seem right.

Read more in *GPS World* article. https://www.gpsworld.com/the-billon-dollar-a-day-gps-mistake/?utm_source=Navigate%21+Weekly+GNSS+News&utm_medium=Newsletter&utm_campaign=NCMCD220525002&oly_enc_id=1784A2382467C6V

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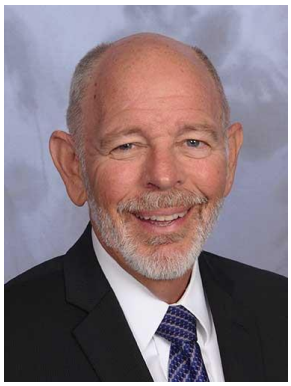

The Power of the Crowd: Collecting Raw GNSS Data to Improve Weather Forecasting

The release of Android version 7.0 in 2016 allowed users to access raw data transmitted by the Global Navigation Satellite System (GNSS) for the first time. More recently, it has become possible to receive even more raw GNSS data due to the capability of some Android mobile phones to record data at multiple frequencies and from additional satellite systems. The innovations in these domains have translated into a new source of untapped big data that can not only improve navigation but can also be applied to other scientific areas, for example to improve weather forecasting.

Recognising the opportunities emerging from the possibility of acquiring GNSS data with smartphones for scientific applications that go beyond navigation led to

the CAMALIOT project, which is one of two sister projects funded by the European Space Agency under their NAVISP Element 1 programme. Led by ETH Zurich, the team has demonstrated that different models of dual frequency Android mobile phones can record GNSS data to precisely determine atmospheric parameters if placed in a static position with an unobstructed view of the sky. The next step was to find a way to collect the data over a longer period of time over a wider geographical area.

Read more in *GIM International* article. https://www.gim-international.com/case-study/the-power-of-the-crowd-collecting-raw-gnss-data-to-improve-weather-forecasting?utm_source=newsletter&utm_medium=email&utm_campaign=Newsletter+%7C+GIM+%7C+02-06-2022&sid=46052

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