ACSER Develops Advanced New GNSS Receiver

Researchers at the Australian Centre for Space Engineering Research (ACSER) at the University of New South Wales have developed a new, advanced receiver that accepts signals from the GPS and Galileo constellations, across multiple frequencies. The device is an evolutionary upgrade of an earlier generation of receiver, called Kea.
Made in Australia and New Zealand, Kea was a single-frequency GPS receiver and one of the first locally made units of its kind to be proven in spaceflight (aboard the UNSW-ECO cubesat). Development of the new receiver was led by Professor Andrew Dempster, Director of ACSER.

“The idea was to take that work (on Kea) and upgrade it for this multi-frequency, multi-system solution,” Professor Dempster says.

Read more in *Spatial Source* article. https://www.spatialsource.com.au/acser-develops-advanced-new-gnss-receiver/?utm_campaign=SS%20-%20Overall%20Publication%20-%20Master&utm_medium=email&_hsmi=247112976&_hsenc=p2ANqtz-_PCm4v5uOB1c0Gho6dED9YGE9CVlih10tOX4mtsxPfONyww4qdf_pVefJxZspP0KqtXju5LmV4V_MGOeSR2yi8dYTqdA&utm_content=247112976&utm_source=hs_email
2023-02-21

Galileo Authentication and High Accuracy: Getting to the Truth

For the last decade, Galileo, the European satnav system, has developed an Open Service Navigation Message Authentication (OSNMA) mechanism and a High Accuracy Service (HAS) to provide the most precise orbit and timing corrections with the current infrastructure. In January 2015, Inside GNSS published the results of the first-ever tests of a GNSS with message authentication and high accuracy corrections. The tests consisted of pre-recorded correction files injected into the system offline, and rebroadcast some minutes later through the E6-B signal component (1278.75 MHz). Thanks to this message, which was also authenticated, receivers achieved an accuracy of about 30 cm RMS per 3D position component.

During the last eight years, Galileo designed, developed operationally and tested OSNMA and HAS, and today both services are transmitted worldwide, openly and free of charge. This article presents some background on the Galileo infrastructure, followed by a high-level technical description of OSNMA and HAS, recent performance results and prospects for the near future.

Read more in *Inside GNSS* article. https://insidegnss.com/galileo-authentication-and-high-accuracy-getting-to-the-truth/

2023-02-13

NTS-3: Advancing PNT

The Navigation Technology Satellite-3, or NTS-3, is expected to change the architecture for satellite navigation and to deliver more robust PNT capabilities to warfighters. The experimental satellite will broadcast new signals from near-geosynchronous orbit (GEO), breaking the mold of how we currently view GPS and modernising the service. The satellite recently just entered its next phase: preparation for a late 2023 launch.

Only four years after NTS-3 was announced as the U.S. Air Force's first Vanguard program, the L3Harris space vehicle was recently delivered to an Air Force Research Laboratory (AFRL) test facility. The space vehicle is fully integrated and the PNT payload put together and assembled into the Northrop Grumman ESPAStar bus, with the team planning to start characterizing overall system performance this summer, NTS-3 Program Manager Arlen Biersgreen said.

This is a significant step forward as AFRL is now positioned to apply government and contractor resources to efficiently complete all the necessary steps before the satellite can be sent to Cape Canaveral for launch, Biersgreen said. This includes remaining intra-payload and payload-to-bus functional and performance tests. The

first radio frequency broadcast tests of the novel PNT signals that will be demonstrated from GEO after the launch are among them—marking a huge milestone once achieved.

Read more in *Inside GNSS* article. https://insidegnss.com/nts-3-advancing-pnt/
2023-02-14

GMV Assesses Impact of Turkey Earthquake From Space

As part of its emergency management efforts, GMV is conducting an impact assessment of the earthquake that struck Turkey and Syria in the early hours of Monday, February 6. It is already considered the deadliest earthquake in the last 10 years, with a death toll of 33,000 so far.

GMV is using optical imagery of the highest resolution to keep the EU Civil Protection Mechanism's Emergency Response Coordination Centre (ERCC) apprised of the situation facing the population and infrastructure in several affected cities (Gaziantep, Islahiye, Duzici and Bahce).

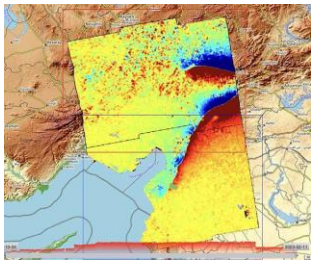
GMV is assessing how the population and infrastructure have been affected by one of the largest quakes in the last decade, compiling all information from high-resolution satellite imagery. These images show the challenge faced by rescue teams and reveal the widespread destruction caused in towns and villages across the region. Completely flattened residential areas, makeshift tents set up on soccer fields, and heavy traffic jams on roads, many of which are closed, are some examples of what they have captured.

This action is being done thanks to the Copernicus program, which keeps satellites and Earth observation services operational to support management and decision-making in different areas, particularly in the field of emergency management.

Read more in *article*…

https://www.spacedaily.com/reports/GMV_assesses_impact_of_Turkey_earthquake_from_space_999.html

2023-02-15



Corrections Services Abound

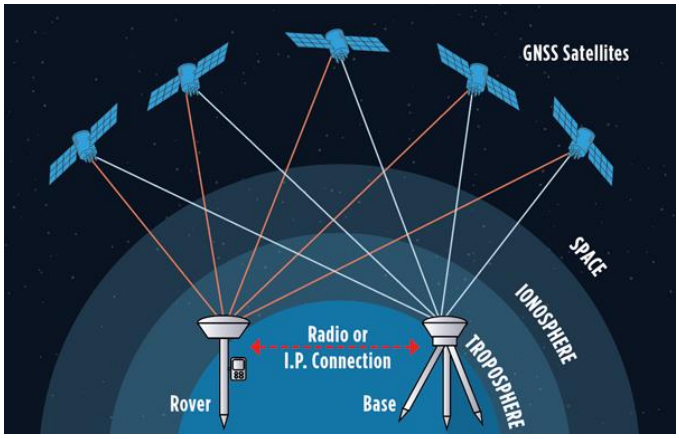
The boom in the development of corrections services for applications such as autonomy and robotics has brought a whole new slate of market players, and an expansion of services from established corrections providers. This has benefitted high-precision users as well as the new not-so-high-precision applications.

Whereas very high precision — centimetres — is of paramount importance to sectors such as precision agriculture, construction automation, surveying and mapping, new market sectors are less concerned with precision as they are with reliability, availability and resilience. There are many corrections services that can deliver reliable lane-level precision, decimetre precision, sub-metre or whatever the application requires.

Corrections have been around in various forms for nearly 30 years. Whereas traditional high-precision applications would access corrections services or network infrastructure directly, the user of a mass-market application, such as assisted or autonomous driving, receives corrections second or third hand.

Read more in *GPS World* article. https://www.gpsworld.com/corrections-services-abound/?utm_source=Navigate%21+Weekly+GNSS+News&utm_medium=Newsletter&utm_campaign=NCMCD230201002&oly_enc_id=1784A2382467C6V

2023-01-25



Galileo HAS Now Operational With 20cm Accuracy

The high-accuracy service (HAS) offered by Galileo is now available and provides sub-metre accuracy over most of the globe. It will help enable emerging technologies such as UAVs and autonomous vehicles, which require stringent levels of accuracy for better navigation, safety and efficient traffic management.

Other industries expected to benefit include transportation, agriculture, geodesy and entertainment. Thierry Breton, European commissioner for Internal Market, announced that the service was now live during the annual European Space Conference in Brussels, Belgium, on Jan. 24.

The European Union Agency for the Space Programme (EUSPA)developed Galileo HAS along with the European Commission and the European Space Agency (ESA). The new service will become a pillar of government programs such as EU sectorial policies and national policies by EU Member States.

“This new service has been made possible thanks to the outstanding cooperation and team commitment of all involved partners,” said Rodrigo da Costa, EUSPA executive director.

Read more in *GPS World* article. https://www.gpsworld.com/galileo-has-now-operational-with-20-cm-accuracy/?utm_source=Navigate%21+Weekly+GNSS+News&utm_medium=Newsletter&utm_campaign=NCMCD230201002&oly_enc_id=1784A2382467C6V

2023-01-25

KASS: The Future of SBAS in Korea

The Korea Augmentation Satellite System (KASS) is the future satellite-based augmentation system (SBAS) for the Republic of Korea. It is currently developed by the Korea Aerospace Research Institute (KARI) for the government of the Republic of Korea. Thales Alenia Space is the industry prime contractor for this development.

The purpose of KASS is to provide SBAS service compliant with ICAO SARPS Annex 10 [1] over the South Korea area with service level up to APVI.

The KASS system will comprise of the following segments obtained from different manufacturers or service providers:

• A ground segment including network of KASS Reference Stations (KRSs), the redundant KASS Processing Stations (KPSs), the KASS Control Stations (KCSs), the KASS Uplink Stations (KUSs) and an external data interface.

• A network segment ensuring the communication network between all subsystems distributed across Korea (WAN) and the WAN Network Monitoring (WNM).

• A space segment including the Geostationary Earth Orbiting (GEO) satellites and the navigation payloads on-board them.

KASS system deployment began at the end of 2020 with the onsite installation of the system reference stations network.

Read more in *Inside GNSS* article. https://insidegnss.com/kass-the-future-of-sbas-in-korea/
2023-02-07