

Industry news and developments | GPS | Galileo | GLONASS

» **ESNC 2014**

Are You Master of the Galileo Universe?

The European Satellite Navigation Competition (ESNC) is looking for services, products, and business innovations that use satellite navigation in everyday life. Prizes will be awarded by some of the most relevant institutional GNSS stakeholders, such as the European GNSS Agency (GSA) and the European Space Agency (ESA). In addition, partner regions from all over the world are hosting regional challenges.



▲ 2013 Galileo Master KINEXON offered a precise tracking and monitoring solution for sports and healthcare.

The competition officially kicks off at the European Navigation Conference in Rotterdam on April 15, but submissions are being accepted from April 1 to June 30.

The prize pool of ESNC 2014 is expected to value about 1 million euros. Awards include cash prizes, business incubation, business coaching, patent consulting, technical support, access to testing facilities, prototype development, publicity, marketing support, feasibility studies, access to experts and public funding, and more.

In 2013, 25 partner regions offered prizes, and seven special prizes were provided by leading European industry and research partners. Entries will be assessed by the expert panels of the regions and special prize partners.

The overall winner — the Galileo Master — will be selected from among all regional and special prize winners by an international panel of high-ranking experts. The Galileo Master will

ESNC Hosts at CAPIGI

The ESNC is hosting a session at the CAPIGI conference in Amsterdam on April 3, jointly with the Copernicus Masters. The conference is dedicated to space technology for agriculture, focusing on the European Flagship programs Galileo and Copernicus. CAPIGI, the Community on Agricultural Policy Implementation and Geo-Information, is a network for geo-information experts active in agriculture.

be revealed at an awards ceremony in Munich, Germany, in October, and will receive an additional cash prize of 20,000 euros as well as the chance to realize the winning idea as part of a six-month incubation program in the region of his or her choice.

For full details, visit the competition website at www.galileo-masters.eu.

» **PROFESSIONAL OEM**

Septentrio, Imec Design High-Precision Galileo Antenna

Imec and Septentrio have collaborated to design multi-frequency GNSS antenna that simultaneously receives all GPS, GLONASS, BeiDou, and Galileo bands.

Developed under the European Community's Seventh Framework Programme project Handheld, the compact antenna can be integrated in multi-frequency handheld GNSS devices for high-precision location applications up to 1 centimeter.

The compact antenna integrates Imec's GNSS antenna and Septentrio's GNSS RF front-end. Imec's antenna design satisfies the requirements



for the high-accuracy GNSS market while remaining small enough to fit in a handheld surveyor device, the companies said. The antenna has desired uniform gain and phase coverage over the complete upper hemisphere, with strong suppression of unwanted reflected signals below or

in the vicinity of the GNSS receiver.

The GNSS RF front-end, based on established front-end technology developed by Septentrio, is characterized by superb out-of-band interference rejection to avoid device self-interference with other radiation sources such as Bluetooth and WLAN radios, as well as other ambient intentional and non-intentional interference.

The research leading to these results has received funding from the European Union Framework Programme (FP7/2007–2013) under grant agreement n°287183.

» HIGH-PRECISION GNSS

Veripos Upgrades Reference Stations with Septentrio Multi-GNSS Receivers

Veripos is concluding the upgrade of its global network of GNSS reference stations with high-performance multi-frequency GPS/GLONASS/Galileo/BeiDou receivers from Septentrio.

Veripos owns and operates a network of more than 80 reference stations worldwide that is used to determine estimates of the orbit and clock errors of multiple GNSS satellite constellations. Veripos uses these estimates to calculate corrections that are then broadcast to end users to significantly improve the accuracy of positioning.

At the heart of the network is Septentrio PolaRx4, a full-featured reference receiver that provides high-quality tracking and measurement of all available and upcoming GNSS signals.

The upgrade of the Veripos global network of reference stations with the latest Septentrio reference receiver technology is an outcome of the multi-year collaboration between the two companies.

Septentrio also supplies Veripos with



▲ THE SEPTENTRIO PolaRx4 reference receiver.

multi-frequency GNSS and heading receivers for its marine business, including the LD series of integrated mobile units that deliver the complete range of Veripos augmentation services to its customers worldwide.

» FLEET TRACKING

Navman Wireless Debuts Fleet Telematics Portal

Fleet tracking provider Navman Wireless USA is offering a web-based telematics portal designed to streamline management of mixed heavy-equipment fleets by consolidating machine data from all OEM and Navman Wireless-tracked assets into a single interface.

The new solution complies with the AEMP Telematics Data Standard, provides one-stop fleetwide visibility without adding third-party hardware to machines that already have factory-installed OEM telematics, and supports integration of data into the enterprise office system for broader business use.

Fleet operators can request data-access credentials from each OEM in the fleet. Data is securely transmitted to operators' servers and then aggregated for use in the portal's widgets, dashboards, maps, and reports.

Information available ranges from machine location, fleet utilization, fuel burn, and geofence and curfew violations to equipment use by jobsite and preventive maintenance schedules. Machine inspection data and photographs of machine damage can be imported into the system for further data consolidation.



▲ JAVIER BENEDICTO, Galileo project manager, looks on as Galileo performs its first position fix on March 12, 2013, at ESTEC. The left screen shows the position fix. The right screen shows the positions of the four Galileo satellites and their signal coverage.

Have Galileo Position Fix? ESA Is Offering Prizes

Did you get a fix on four Galileo satellites? The European Space Agency (ESA) will award commemorative certificates to the first 50 groups that document their achievement of a past or present fix, to mark the first anniversary of Galileo's historic first satnav positioning measurement.

In 2011 and 2012 the first four satellites were launched, the minimum number needed for navigation fixes. On March 12, 2013, Galileo's space and ground segments came together to perform the first Galileo fix at the Navigation Laboratory of ESA's Technical Centre in Noordwijk, the Netherlands.

From this point, generation of navigation messages enabled full testing of the entire Galileo system — not just by ESA and its industry and institutional partners but also by any entity with a customized satnav receiver.

ESA's Galileo team has heard about position fixes carried out by organizations and companies all over Europe and beyond, including as far away as Vietnam.

Applicants should send their name, address, receiver, fix details, and a plot of their position fixes on a map to IOV.fix.certification@esa.int.

» SURVEY/MACHINE CONTROL

Topcon Offers DS-200 Upgrade, Haul Truck System, Enterprise Solutions

Topcon Positioning Group made several product and service announcements in March.

DS-200. As a Hybrid Positioning capable total station, the DS-200 with XPointing technology offers the use of both GNSS positioning and optical positioning technology designed to increase field efficiency. The system can become fully robotic, allowing shots to be measured with a GNSS receiver when line of sight is blocked. It can be configured for interaction with Topcon's RC5 remote system, which allows users up to 1,000 feet away to perform a QuickLock.

Haul Truck System. The HT-30 haul truck module for Sitelink3D features a small, portable GPS-enabled control box that mounts into the truck cab. As the truck is loaded, data about the load is input, such as material type, driver, and quantity. The load is then integrated into Sitelink3D and can be tracked for scheduling, rerouted



▲ TOPCON'S NEW haul truck system.

if needed elsewhere, and recorded once delivery is made. HT-30 can be quickly plugged in so management and reporting can be maintained in real time.

Enterprise Solutions. Topcon's new workflow management system is designed to connect all sites, data, crews, and equipment. Topcon's cloud-based Enterprise Solutions offer constant communication, data sharing, scheduling, updating, supporting, and accurate productivity data in real-time. The system provides seamless connectivity from any office

or remote user, to any site, to each enabled machine and field crew, throughout the entire project life cycle.

The system is designed to allow users quicker accessibility and management of increasing volumes of data, increasing a company's efficiency. Integrating data in a cloud-based environment from Topcon software services such as Sitelink3D or MAGNET allows users to make time-sensitive decisions faster.

The system also can be deployed to key partners, such as engineers and sub-contractors, enabling instant updating of job files, material volumes, and equipment schedules instantly and accurately, Topcon said.

Mobile Apps. Two new mobile applications in the Apple App Store are Topcon Tierra (free) and Sitelink3D (for purchase). Tierra lets customers track equipment fleets from an iPhone or iPad. With Sitelink3D, customers can manage and monitor job sites.

» MARINE / CONSTRUCTION / MACHINE CONTROL

Hemisphere's Vector Adds GLONASS Functionality

Hemisphere GNSS has announced that all professional-level Vector products — including the V103, V113, VS131, and VS330 — now include the ability to use the GLONASS system along with GPS.

Vector technology processes L1 GPS and GLONASS signals to deliver precise heading, greater positioning reliability, and improved performance in challenging environments. Hemisphere GNSS' patented Vector technology computes the heading and pitch or roll angle while stationary or in motion allowing for heading accuracy of up to 0.01 degrees depending on the product selected. A variety of differential correction methods also make it possible for Vector products to provide sub-meter to centimeter level RTK position accuracy.

Professional marine industry organizations can maximize



▲ THE VECTOR VS330 GNSS receiver compass.

performance by integrating Hemisphere GNSS Professional Vector technology into their systems for hydrographic and bathymetric surveys, autopilots, dredging, and buoys. For land applications, Vector technology is designed for the alignment of cameras, antennas, and projectiles, and for machine control applications in agriculture, construction, and mining.

» LOCATION-BASED SERVICES

TomTom Integrates Indoor Mapping with Micello

TomTom has begun a strategic partnership with indoor-mapping company Micello Inc., extending its range of mapping products to include indoor venues.

Integrating Micello's maps and venue content gives TomTom's business customers access to accurate pedestrian-friendly indoor maps with points of interest data in venues worldwide. With the indoor mapping functionality, step-by-step guidance can be integrated into daily life for a wide variety of venues, including shopping malls, airports, and retail stores, according to TomTom.

Under the agreement, TomTom's business customers can incorporate Micello's indoor venue maps into its automotive, online, and mobile solutions.

BUSINESS BRIEFS

Harris Completes ADS-B Testing

Harris Corporation has achieved a key milestone under a five-year contract with Aireon LLC that will create the first global satellite-based aircraft tracking system. The company's Automatic Dependent Surveillance-Broadcast (ADS-B) 1090 Extended Squitter receiver payload has been successfully tested and qualified for simulated operation in the harsh environment of space for more than 12 years.

Harris is providing Aireon with 81 of the ADS-B receiver payloads. They will be hosted on board the Iridium NEXT satellite constellation to enable precise aircraft tracking that will optimize air

traffic management around the world. Ground-based ADS-B networks, which process GPS signals and other data from aircraft, are limited by an infrastructure that cannot monitor flights over oceans or remote regions.

MINI2 Offers Compact Performance

Carlson Software's newest data collector for land surveyors, the Carlson MINI2, replaces the Carlson MINI. With an IP68 rating, the MINI2 is waterproof, dustproof, and tested to MIL-STD-810G. It has several advancements over the MINI, including a brighter display, custom battery that lasts 20+ hours on one charge, and a scratch-resistant capacitive touchscreen with glove-friendly numeric keypad. The Carlson MINI2 was designed and manufactured by Juniper Systems.



▲ THE CARLSON MINI2.

Trimble Launches GIS Platform

Trimble has introduced the InSphere platform for geospatial information management, a cloud-based software platform for central management of geospatial applications, data and services. Trimble says InSphere offers an innovative approach for central management of geospatial

operations to improve workflow, maximize efficiency, and transform the way geospatial professionals work and access critical operational information.

The framework provides access to multiple applications, including three productivity apps: Trimble InSphere Data Manager, Trimble InSphere Equipment Manager, and Trimble TerraFlex to simplify field data collection. Also, Trimble Access Services provides a seamless data connection between field and office.

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K501
GPS L1/L2
BeiDou B1/B2
/B3(support)



K501G
GPS L1/L2
GLONASS L1/L2



K500
GPS L1
GLONASS L1
BeiDou B1

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» EVENTS

Geospatial World Forum

May 5–9, 2014, Geneva, Switzerland

www.geospatialworldforum.org

This forum is for professionals engaged in the geospatial sector and its application domain. It is a premium global platform for the geospatial community, offering opportunities for learning, sharing, connecting, networking, branding, and positioning with senior decision makers in the geospatial world. The theme is "GeoSMART Planet: Resources + Infrastructure and YOU!"

Eighth Annual Baška GNSS Conference

May 7–9, 2014, Baška, Krk Island, Croatia

www.rin.org.uk

This event aims to gather GNSS experts worldwide, and focuses on GNSS resilience and applications development.

2014 China Satellite Navigation Conference

May 21–23, 2014, Nanjing, China

www.beidou.org/english/index.asp

Theme of the CSNC is "BeiDou Application — Innovation, Integration and Sharing." It will incorporate a wide range of activities, such as academic exchange, a high-end forum, and an exhibition.

GEO Business 2014

May 28–29, 2014, London

www.GeoBusinessShow.com

GEO Business is a major new geospatial event for everyone involved in the gathering, storing, processing, and delivering of geospatial information.

The hands-on event includes an international trade exhibition, conference, and live workshops and demonstrations.



European Space Solutions 2014

June 11–13, Prague

www.european-space-solutions.eu

The conference will bring together business and the public sector with users and developers of space-based solutions to explore how space can make a difference to the lives and livelihoods of people across Europe and around the globe. Participants will learn about the potential for using space technologies such as Galileo/EGNOS (navigation) and Copernicus (Earth observation), gather insights about current developments, and discuss what is possible and needed in the future.

GEO BUSINESS 2014

**BUSINESS DESIGN CENTRE
LONDON • UK 28 – 29 MAY**

www.GeoBusinessShow.com


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*Exhibition and workshops are free to attend. Registration fee applies for the conference.