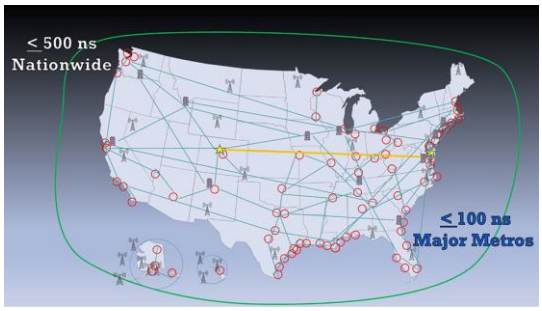
Precise Time For All: Paper Calls For Resilient National Timing

A new white paper sponsored by the Resilient Navigation and Timing Foundation (RNT Foundation) discusses the need and implementation of a reliable and resilient national timing architecture that will include space-based assets. This system-of-systems architecture — GNSS, terrestrial eLoran broadcasts and fibre — is essential to underpin today's technology and support development of tomorrow's systems, according to the executive summary of A Resilient National Timing Architecture.

"Everyone in the developed world needs precise time, all the time, whether they know it or not," said Marc Weiss, one of the paper's authors and an internationally recognised expert on timing and synchronisation. "It is a foundation of every networked technology, digital broadcast, and most navigation systems, to name just a few critical uses."

Read more in *GPS World* article. https://www.gpsworld.com/precise-time-for-all-paper-calls-for-resilient-national-timing/?utm_source=Navigate%21+Weekly+GNSS+News&utm_medium=Newsletter&utm_campaign=NCMCD201014003&oly_enc_id=1784A2382467C6V

2020-10-19



How Drones Are Helping With COVID-19, First Response Applications

A solution for these COVID-19 days, getting to injured people really fast and potentially even faster first response applications are all new drone applications featured in this month's UAV summary.

As people welcome back football this fall — although playing in empty stadiums – most people are staying home to watch the game on TV. Even though some sports

teams like the MLB Dodgers resorted to cardboard cut-outs of fans, maybe to encourage players, nothing beats having real people stamping and cheering in the stands.

So its not surprising that when the Atlanta Falcons play the Carolina Panthers this month at Atlanta's Mercedes-Benz Stadium, they are planning on having a limited number of real live fans at the game to cheer on the teams. Even in these pandemic days of social distancing and masks, it would seem that a reduced number of fans might space out well in the huge 71,000 seat capacity stadium.

Read more in *GPS World* article. https://www.gpsworld.com/how-drones-are-helping-with-covid-19-first-response-applications/?utm_source=Professional+OEM+%2B+UAV&utm_medium=Newsletter&utm_campaign=NCMCD201015002&oly_enc_id=1784A2382467C6V

2020-10-21

China Expanding Loran as GNSS Backup

An August 2020 paper published by the journal *Sensors* revealed China's plans to expand coverage of its terrestrial Loran positioning, navigation and timing (PNT) system with three new transmitter sites in the western part of the country. The article indicates that this is a part of providing a backup system for GNSS.

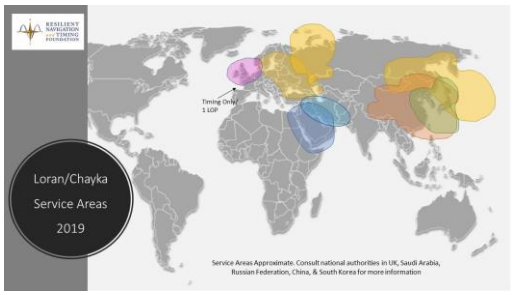
According to the paper, "…the vulnerability of GNSS to unintentional and intentional interference signals can be found frequently nowadays. For national security and economic effectiveness, a reliable and complementary navigation system is needed desperately. The suitability of the Loran for a backup navigation system has been evaluated and reported."

China has operated a Loran system for decades. While the system is capable of operating independently, its signals are also compatible with systems operated by South Korea and Russia. These are coordinated through the Far East Radio

Navigation Service (FERNS) to ensure the systems are complementary and reinforce each other where coverage overlaps. The United States and Japan were also members of FERNS until they terminated Loran transmissions in 2010 and 2015, respectively.

Read more in *GPS World* article. https://www.gpsworld.com/china-expanding-loran-as-gnss-backup/?utm_source=Navigate%21+Weekly+GNSS+News&utm_medium=Newsletter&utm_campaign=NCMCD201007003&oly_enc_id=1784A2382467C6V

2020-10-12



GPS Tracking Devices Industry to Grow 12.2% CAGR by 2026

According to a report by InForGrowth, the global GPS tracking devices market was valued at $1,567 million in 2018 and is expected to grow at a CAGR of 12.2% during the forecast period 2026. Increasing demand for fleet telematics and affordable prices of GPS tracking devices are expected to drive the growth of the GPS tracking devices market.

However, the report says, environmental obstacles and non-standard products are expected to impede the growth of the market in the coming years. The growth of the GPS tracking devices market is attributed to the increasing demand for fleet telematics in the transportation and logistics sector.

Read more in *GPS World* article. https://www.gpsworld.com/gps-tracking-devices-industry-to-grow-12-2-cagr-by-2026/?utm_source=Navigate%21+Weekly+GNSS+News&utm_medium=Newsletter&utm_campaign=NCMCD201007003&oly_enc_id=1784A2382467C6V

2020-10-08

GPS-enabled Decoy Eggs May Help Track, Catch Sea Turtle Egg Traffickers

GPS-enabled decoy eggs could help authorities track sea turtle egg poachers and disrupt illegal wildlife trade networks. In a proof-of-concept study, published Monday in the journal Current Biology, researchers placed 3D-printed, GPS-enabled decoy eggs in the nests of endangered sea turtles in Central America.

Using the ingeniously named InvestEGGator, scientists were able to track the contraband from the beach to restaurants and bars where the eggs are sold as a delicacy.

"Our research showed that placing a decoy into a turtle nest did not damage the incubating embryos and that the decoys work," lead study author Helen Pheasey said in a news release.

"We showed that it was possible to track illegally removed eggs from beach to end consumer as shown by our longest track, which identified the entire trade chain covering 137 kilometres," said Pheasey, conservation biologist and doctoral student at the University of Kent.

Read more in *GPS Daily* article.

https://www.gpsdaily.com/reports/GPS-enabled_decoy_eggs_may_help_track_catch_sea_turtle_egg_traffickers_999.html

2020-10-05

Jade Morton Honoured With ION's Kepler Award

Jade Morton received the Johannes Kepler Award for advances in scientific and navigation receiver technology, automated data collection, robust carrier phase tracking, remote sensing, and profound impact as an educator and author.

Morton is the director of the Colorado Center for Astrodynamics Research at the University of Colorado, Boulder ,where she mentors students, faculty, staff and an ever-expanding international network of collaborators throughout the world. She is a prolific author with more than 270 publications. She was awarded her Ph.D. in Electrical Engineering at Pennsylvania State University. She has also authored articles for *GPS World*.

Read more in *GPS World* article. https://www.gpsworld.com/jade-morton-honored-with-ions-kepler-award/?utm_source=Navigate%21+Weekly+GNSS+News&utm_medium=Newsletter&utm_campaign=NCMCD200923003&oly_enc_id=1784A2382467C6V

2020-09-25

Europe Issues Tender For GNSS High-accuracy Evolution

The European Commission (EC) is seeking help to build a roadmap for high-accuracy Galileo and EGNOS services. The EC Directorate-General for Defence Industry and Space (DG-DEFIS) has issued an Invitation to Tender for a service contract to address how the future evolution of European GNSS (EGNSS) could be beneficial for innovative demanding applications. The new service contract will assess the feasibility of an integrity service complementing EGNSS high accuracy in the 2030+ timeframe.

Read more in *GPS World* article. https://www.gpsworld.com/europe-issues-tender-for-gnss-high-accuracy-evolution/?utm_source=Navigate%21+Weekly+GNSS+News&utm_medium=Newsletter&utm_campaign=NCMCD200923003&oly_enc_id=1784A2382467C6V

2020-09-23

OneWeb LEO PNT: Progress or Risky Gamble?

In early July the communications company OneWeb, owner of a low-Earth orbit (LEO) satellite constellation, was rescued from bankruptcy by a UK government-led consortium. This triggered speculation OneWeb will form part or all of the UK government's plans for its own GNSS following the completion of Brexit at the beginning of 2021, tentatively at a fraction of the costs initially set aside for such sovereign capability. Or so it seems. Here we look into the potential of using the OneWeb constellation for the provision of PNT services.

All current GNSS operate typically in medium-Earth Orbit (MEO) 20,000 kilometres above our heads, but all have their roots in pioneering early satellites like Sputnik and TRANSIT. Those flew in LEO, just 1,000 kilometres or so above us. LEO has recently become popular for new commercial ventures. This region of space will soon be very crowded, potentially containing tens of thousands of small satellites, including the recently proposed LEO PNT constellation being developed by Silicon Valley startup Xona Space.

Read more in *Inside GNSS* article. https://insidegnss.com/oneweb-leo-pnt-progress-or-risky-gamble/

2020-09-28