Gladys West, Mathematician Who Helped Develop GPS Technology, Inducted Into Air Force Hall of Fame

Gladys West, a pivotal figure in the development of the Global Positioning System, or GPS, just received one of the U.S. Air Force's highest honours.

Earlier this month, officials inducted West, 87, into the Air Force Space and Missile Pioneers Hall of Fame for her decades of work and contributions to the branch's Space Command program. A ceremony was held in her honour at the Pentagon in Washington D.C.

As a mathematician, West was among the "hidden figures" who did computing for the U.S. military in the 1950's and '60s, an era pre-dating high-powered electronic systems. She joined the Naval Support Facility in Dahlgren, Va., in 1956, where she was just one of four African-American employees.

"Her story is amazing," **Gwen James**, a fellow member of the Alpha Kappa Alpha Sorority, told The Associated Press earlier this year. "GPS has changed the lives of everyone forever. There is not a segment of this global society — military, auto industry, cellphone industry, social media, parents, NASA, etc. — that does not utilize the Global Positioning System."

Read more in *article*…
https://atlantablackstar.com/2018/12/19/gladys-west-mathematician-who-helped-develop-gps-technology-inducted-into-air-force-hall-of-fame/?fbclid=IwAR3qz2iwSNzGgDD4Re_HYMInyQKasg3fcU8k9N5Oo7OfMnUkmTlNsNzqmNw
2018-12-19

China's Rival to GPS Technology is Looking to Go Global

China’s alternative to the American-owned GPS extended its coverage beyond the Asia-Pacific region with a goal of becoming a dominating technology in the future, spurring gains in shares of related companies.

The service, called BeiDou, is now available in some parts of Europe and Africa within China’s Belt and Road initiative, spokesman Ran Chengqi told reporters on Thursday 27 December in Beijing. The company, which uses a series of satellites to provide users’ precision positioning with an error of about 10 metres, plans to launch 12 more satellites by 2020.

“From today, wherever you go BeiDou will be with you, anywhere, anytime,” said Ran.

Read more in article…

https://www.bloomberg.com/news/articles/2018-12-27/china-s-answer-to-u-s-gps-extends-coverage-beyond-asia-pacific

2018-12-27

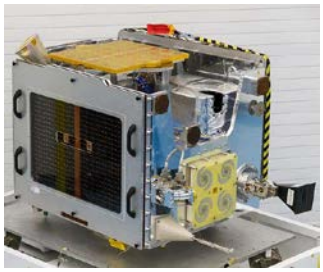
First Detection of Rain Over the Ocean by Navigation Satellites

In order to analyse climate change or provide information on natural hazards, for example, it is important for researchers to gather knowledge about rain. Better knowledge of precipitation and its distribution could, for example, help protect against river flooding. On land, monitoring stations can provide data by collecting precipitation. At sea, it's not so easy.

A new approach by a team around Milad Asgarimehr, who works in the GFZ section for Space Geodetic Techniques and at the Technical University of Berlin, together with researchers from the Earth System Research Laboratory of the National Oceanic and Atmospheric Administration of the USA (NOAA) and the University of Potsdam, uses information contained in radar signals from GNSS satellites to detect rain over the sea.

The technology is called GNSS Reflectometry. It is an innovative satellite remote sensing method with a broad spectrum of geophysical applications.

Read more in *Space Daily* article.
http://www.spacedaily.com/reports/First_detection_of_rain_over_the_ocean_by_navigation_satellites_999.html
2018-12-21



Lockheed Martin Engineers in Communication With Just-launched GPS Satellite

The GPS III satellite, built at Lockheed Martin's facility in Jefferson County, lifted off Sunday morning aboard a SpaceX Falcon 9 rocket. The launch was originally scheduled Dec.18 but severe weather and unspecified issues with sensor readings on the rocket's first stage delayed the takeoff.
Lockheed Martin said the GPS III Space Vehicle 01 was receiving and responding to commands from the company's launch and checkout centre Sunday. Air Force and company engineers announced the satellite had separated from the booster rocket and signals were being received 119 minutes after launch.

It's been an eventful couple of months for Lockheed Martin's crew in Jefferson County. The company built NASA's lander InSight, which landed on Mars Nov. 26. And a spacecraft designed and built by Lockheed Martin Space Systems reached its destination Dec. 3 in the first U.S. attempt to collect samples from an asteroid and bring them back to Earth. Centennial-based United Launch Alliance launched both spacecrafts.
The latest craft making news, the GPS III SV01, is the first of a new generation of satellites designed to modernise the GPS constellation, Lockheed Martin said.
The GPS III is three times more accurate and up to eight times harder to jam than the satellites in the constellation now.

Read more in article…

https://www.denverpost.com/2018/12/24/lockheed-martin-gps-satellite/

2018-12-24

Iono Blob Holds Back Air Safety Advances

Space Based Augmentation Systems (SBAS) – known in North America as the Federal Aviation Administration's (FAA's) Wide Area Augmentation System (WAAS) – have been fully operational in one form or another for several years. The FAA's incremental improvements to integrity, accuracy and reliability in WAAS have brought the system to a point where we have precision enroute navigation for aircraft, and we can also land aircraft using WAAS signals at thousands of airports in the US and in Canada.

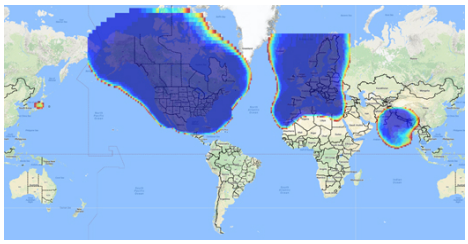
Europe benefits from high-accuracy en-route navigation, and there are also hundreds of operational approaches using the European Geostationary Navigation Overlay Service (EGNOS) SBAS.

In India, the GPS Aided Geo-Augmented Navigation (GAGAN) system provides accurate en-route navigation and approach capability. However, ionospheric disturbance may limit some aspects of performance.

Japan established the Multi-functional Satellite Augmentation System (MSAS) SBAS, and has benefited from improved enroute navigation, but it's possible that the more limited geographic distribution of GPS ground reference stations has restricted improvements to approach capabilities.

Read more in *GPS World* article. https://www.gpsworld.com/the-iono-blob-holds-back-air-safety-advances/?utm_source=pro_oem&utm_medium=email&utm_campaign=pro_oem_12192018

2018-12-19



GPS to Get Terrestrial Backup System

On Dec. 4, President Trump signed the Frank LoBiondo U.S. Coast Guard Authorization Act of 2018. Included in that bill was the National Timing Security and Resilience Act of 2018.

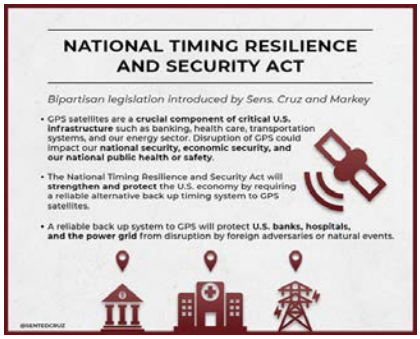
The act tasks the Secretary of Transportation with establishing a terrestrial backup timing system for GPS within two years.

Further, the bill ensures the availability of uncorrupted and non-degraded timing signals for military and civilian users in the event that GPS signals are corrupted, degraded, unreliable, or otherwise unavailable.

It also has provisions for the government to be able to establish the system through a commercial entity should it elect to do so. In such a case, it establishes several provisions that such a contract must meet.

Read more in *GPS World* article. https://www.gpsworld.com/gps-to-get-terrestrial-backup-system/?utm_source=gps_navigate&utm_medium=email&utm_campaign=gps_navigate_12112018

2018-12-05



Dual-band GNSS Market Moving From Insignificant to Billions in Less Than 5 Years

After many years of development at the fringe of the GNSS industry, dual-frequency GNSS devices are finally ready to hit the mass market and will account for more than a billion chipset shipments in 2023, according to a new market data report by ABI Research.

The report finds that the bulk of this growth will come from the adoption in the smartphone market with consumers hungry for better location accuracy.

Dual-band GNSS can mitigate the multipath interference effects, which are especially present in areas with a high density of buildings, like urban canyons, and deliver significantly higher accuracy than single-frequency devices.

However, several obstacles prevented widespread adoption of dual-band GNSS until now, including insufficient satellite coverage of a second band, which could be L2 or L5/E5, high chipset prices, and challenges in fitting these integrated circuits and related antennas into small devices such as smartphones.

Read more in *GPS World* article. https://www.gpsworld.com/dual-band-gnss-market-moving-from-insignificant-to-billions-in-less-than-5-years/?utm_source=gps_navigate&utm_medium=email&utm_campaign=gps_navigate_12112018

2018-12-06

Adelaide to Host Australia's Space Agency

Adelaide will be the headquarters of Australia's first dedicated space agency in a move that is expected to boost economic activity and provide new job opportunities for locals.

Local businesses will be able to tap into $US345 billion global space industry, effectively transforming South Australia into a hub for innovation and technology, Prime Minister Scott Morrison said on Wednesday 12 December.

Last year, the federal government pledged to spend $41 million on the agency, which Mr Morrison said would "act as a launching pad to triple Australia's space economy to $12 billion and create up to 20,000 jobs by 2030".

"This agency is part of our plan for a stronger economy for South Australia and the country which is about delivering long-term, high-wage, high-skills jobs."

The Australian Space Agency will be built at the former Royal Adelaide Hospital site by mid-2019, and accommodate branches of key federal agencies including the CSIRO, Defence Science and Technology Group and Geoscience Australia.

Read more in *article*…

https://thenewdaily.com.au/news/national/2018/12/12/australias-space-agency/

2018-12-12

Arizona City Arms Police Vehicles With Cannons That Fire Sticky GPS Trackers

One Arizona city is implementing a GPS tagging system that seems like something out of a spy movie to help police track fleeing suspects without the dangerous high-speed chases.

The police department in the Pinal County city of Maricopa, around 30 miles south of Phoenix, has equipped four of its vehicles with StarChase equipment, a tool that launches can-like tracking devices that stick to cars.

“It’s a safer method for going after anybody that would be maybe fleeing from us, or any type of threat that could arise,” Ricardo Alvarado, spokesman for the Maricopa Police Department, told *KTAR News 92.3 FM*on.

The range of the devices is about 1½ car lengths, Alvarado said, and each canister has two sticking mechanisms: a strong adhesive and a powerful magnet.

“Once that is attached, it will allow us to track that vehicle using a GPS software,” he said.

That way police can continue monitoring the suspect from out of view.

Read more in *article*…

http://ktar.com/story/2356622/arizona-city-arms-police-vehicles-with-cannons-that-fire-sticky-gps-trackers/

2018-12-14

ESA’s Pioneer Mission Sends GNSS-RO Nanosatellites into Orbit

Two tiny GNSS-RO nanosatellites now circle the Earth, ready for action. The first European Pioneer mission lifted off Nov. 29 from Sriharikota, India, to put the satellites into orbit.

The shoebox-sized satellites were launched at 04:27 GMT into low Earth orbit by the Indian Space Research Organisation’s PLSV launcher, and opened their first communication windows with their owner, Spire Global, less than an hour after they separated from the rocket.

Both satellites were developed under ESA’s ARTES Pioneer programme, and will aim to prove the value of using nanosats for space-based GNSS Radio Occultation (GNSS-RO).

Read more in *GPS World* article. https://www.gpsworld.com/esas-pioneer-mission-sends-gnss-ro-nanosatellites-into-orbit/?utm_source=gps_navigate&utm_medium=email&utm_campaign=gps_navigate_12112018

2018-12-03

Uber Ignored Multiple Warnings Ahead of Fatal Self-Driving Car Crash, Report Says

Uber plans to resume testing self-driving cars on public roads eight months after a fatal crash, but new allegations related to that crash are now being reported. According to *The Information*, an employee warned of problems with Uber's autonomous-driving tech days before a car struck and killed a pedestrian in Tempe, Arizona.

According to the report, Robbie Miller, a manager in the self-driving car program's testing operations group, sent an email to multiple Uber executives and lawyers warning that test cars were "routinely in accidents resulting in damage. This is usually the result of poor behaviour of the operator or the AV technology."

Miller allegedly referenced an incident in Pittsburgh in which a prototype autonomous car swerved off the road and onto a sidewalk. Miller's email said the incident was "essentially ignored" for days until Miller raised it to the attention of other managers. The email also said that it took two weeks to investigate an incident that took place toward the end of 2017, in which an Uber test car nearly collided with another vehicle.

"This is not how we should be operating," Miller wrote in the email.

Read more in article…

http://www.thedrive.com/news/25416/uber-ignored-multiple-warnings-ahead-of-fatal-self-driving-car-crash-report-says

2018-12-11

UK Will Build its Own Satellite Navigation System After Brexit

UK Prime Minister Theresa May announced that Britain would explore the possibility of building its own satellite navigation system instead of relying on the EU's Galileo, compelling another minister in her Cabinet to resign.

May announced that the UK was pulling out of the EU's satellite navigation system which was designed to compete with the US GPS system and is due to be launched in 2020 with civilian and military variants, the BBC reported.

The UK had invested 1.2bn pounds in the creation of Galileo out of the 9bn pounds spent. However, Brussels said that as a result of Brexit, the UK would not be allowed access to the part of the system intended for use by government agencies, the armed forces, and emergency responders. The UK demanded an exception, saying it was vital to its military and security interests, Sky News reported.

May had declared that the British army will not use Galileo and the UK will instead explore options to build its own satellite-navigation system, securing 92m pounds to look at how it can be done.

Read more in *GPS Daily* article.
http://www.gpsdaily.com/reports/UK_will_build_its_own_satellite_navigation_system_after_Brexit_999.html

2018-12-03

Russia Plans to Place Positioning Satellites Around the Moon

Russian positioning satellites could circle the Moon by 2040.

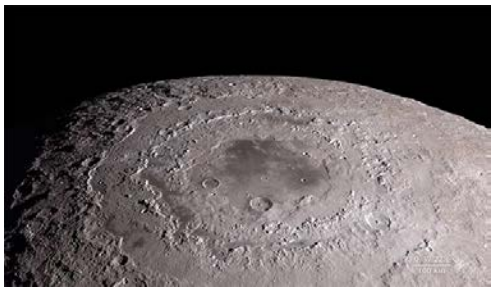
In a draft document describing Russia's program for lunar exploration, plans include deployment of navigational and communications satellite groupings in lunar orbit. The document, adopted at a Nov. 28 joint meeting of Roscosmos and Academy of Sciences officials, was obtained by Russian news agency Sputnik, which described it here.

According to the document, the tasks described for 2025-2030 include "the delivery to the Moon of a series of spacecraft for orbital research and the establishment of a global communications and positioning system."

The concept envisions the deployment of a lunar satellite navigation constellation between 2036 and 2040. Russia's Earthly navigation constellation is GLONASS.

Read more in *GPS World* article. https://www.gpsworld.com/russia-plans-to-place-positioning-satellites-around-the-moon/?utm_source=gps_navigate&utm_medium=email&utm_campaign=gps_navigate_12042018

2018-12-03



Japan's QZSS Service Now Officially Available

Services of the Quasi-Zenith Satellite System (QZSS) officially started on Nov. 1, according to a statement from Japan's National Space Policy Secretariat, Cabinet Office.

Government and industry hope the turn-on will generate new services worth nearly 5 trillion yen ($44.4 billion) by 2025 as players like SoftBank Group, Mitsubishi Electric and Hitachi plan applications in automated driving, farming and more.

"Our lifestyles would be impossible without GPS," Prime Minister Shinzo Abe said at initialization ceremony marking the start of the service. The Michibiki satellite constellation, known officially as QZSS, would let Japan turn "a new page in history," he continued.

The system keeps at least one of the current four Michibiki satellites over Japan at all times, offering an advantage over GPS-only services with a precise bird's-eye view uninterrupted by mountains or tall buildings. With special receivers, the satellites can narrow margins of error to 10 centimetres. The signal is free for anyone with a device capable of receiving the signal.

Read more in *GPS World* article. https://www.gpsworld.com/japans-qzss-service-now-officially-available/?utm_source=gps_navigate&utm_medium=email&utm_campaign=gps_navigate_11272018

2018-11-26

BMW Says Level 5 Self-Driving Car for Public Could Happen by 2021

Developing an autonomous car ready for the public is a huge task that has consumed tech companies for years, with millions of miles of on-testing that has cost hundreds of millions of dollars. It's not easy.

BMW says they could accomplish the task in about two years. Wait, what?

On Tuesday 27 November, BMW executives said they could sell a car to the public that would be capable of driving itself—without a steering wheel. The only factors keeping them from selling a completely self-driving car? Government regulations and high-resolution maps.

Klaus Froehlich, BMW Group Board of Management responsible for product development, told *Motor Authority* the company would be ready as quickly as 2021. In other words, BMW thinks it will be able to beat Google's Waymo self-driving car division to a wide market with its own technology. Waymo reportedly plans to begin a self-driving car taxi service next month.

Read more in article…

https://www.techristic.com/bmw-says-level-5-self-driving-car-for-public-could-happen-by-2021/

2018-11-28