



## Identifying ITS Opportunities for the HA Location Positioning Newsletter: December 2009

### ■ ITS RADAR INTERNATIONAL PROJECT

This project is providing intelligence for the Highways Agency on ITS developments in Europe and around the world. It is carried out by TRL and AECOM on behalf of the HA. The project summarises key information for decision makers and practitioners on activities related to Intelligent Transport Systems (ITS). The project covers specific areas of key interest to the HA.

Regular newsletters are being produced, covering information which is in the public domain. For more information about the project and the services provided, the web site can be reached at: [www.highways.gov.uk/itsradar](http://www.highways.gov.uk/itsradar).

To contact us and let us know what you would like this project to deliver please email us at: [ITSRadarInternational@trl.co.uk](mailto:ITSRadarInternational@trl.co.uk)

### ■ ABOUT LOCATION POSITIONING

This newsletter covers key developments in positioning information relevant to ITS, such as GNSS (Global Navigation Satellite Systems), the Global Positioning System (GPS) and Geographical Information Systems (GIS).

The Galileo Programme is a joint initiative of the European Commission (EC) and the European Space Agency (ESA) to provide Europe with its own independent global civilian controlled satellite navigation system. This is a particular area of focus in ITS Radar International news on Location Positioning.

The Galileo system will allow users to pinpoint their location at any time to a high degree of accuracy, and will ensure Europe's competitiveness in a global market in satellite navigation products and services.

When fully deployed, Galileo will consist of a constellation of 30 satellites in 3 orbits offering unprecedented accuracy and reliability of positioning. This allows for a range of many applications, products and services to be developed for use in transport, telecommunications, fisheries and agriculture, civil protection, building, construction etc. Galileo was due to go live in 2008 but it is now predicted to be in operation by 2013.

## ■ MEETINGS

### **Institute of Navigation International Technical Meeting 25-27 January 2010**

Source: [ION](#)

The Institute of Navigation's next technical meeting will take place in San Diego, California over 25 to 27 January 2010.

The Plenary Session will be titled: "Navigation Behind Closed Doors: Challenges of Indoor and Urban Navigation". This session will focus on challenges for first responders and navigation in urban canyons and underground.

Topics covered during the meeting will include:

- Alternative sensors and emerging navigation technologies
- Galileo and GPS/Galileo
- GNSS accuracy, integrity, continuity, and availability
- GNSS modernisation.

The full programme is available from the [ION event website](#). The deadline for registration without a late fee is 5 January 2010.

### **The Munich Satellite Navigation Summit 9 – 11 March 2010**

Source: [Munich Satellite Navigation Summit website](#)

The event will be held in Munich, Germany, over 9 to 11 March 2010. It will feature speakers from industry, science and governments dealing with the directions of satellite navigation now and in the future.

Topics covered during the event will include:

- The progressing development of the European satellite navigation system Galileo
- The evolution of the European augmentation system EGNOS,
- The modernisation of the US Global Positioning System (GPS-III),
- The revitalisation of the Russian GLONASS system
- The development of new satellite navigation systems like the Chinese COMPASS and the Indian GINS
- The development of the regional navigation systems, like the Indian IRNSS and the Japanese QZSS.

Further information on the event and a registration form can be found in [the event announcement](#).

## ■ CALLS FOR PROPOSALS

No new calls for proposals to report on

## ■ HOT TOPICS

### **Outcomes of the joint Intellect and Location and Timing KTN event**

Source: [Intellect event report](#)

Intellect and the Location and Timing KTN held a joint event titled: "Position & timing technology and the law" on 20 October 2009. The event addressed issues of what location and timing data can legally be collected, how it must be looked after and what can legitimately be shared.

Speakers addressed data retention and privacy legislation, and presented case studies on how position and timing data is being used as evidence in a wide variety of applications from service compliance to proof of dangerous driving.

Speakers and topics covered included:

- Information Commissioner's Office (ICO) on legal requirements in the light of the ICO's regulatory strategy; the discussion covered the legal implications of particular uses of the technology and European level regulations
- Nottingham Scientific Limited on "Evidential Integrity of GNSS"
- Location & Timing KTN on "Legal issues for future ITS"
- Galileo Supervisory Authority (GSA) on "Position & timing technology and the law: Positioning and Timing service through European GNSS".

These presentations are available from the [Intellect website](#).

### **HA recommended to view the presentations**

### **The EC Reduces Galileo Satellite Order**

Source: [Space News](#) and [Inside GNSS](#)

The European Commission has reduced the number of satellites it expects to order this year for Galileo. The maximum number of satellites that could be ordered this year has now been reduced to 22. According to the European government and industry officials reducing the number of satellites will make it possible to adjust the satellites to take account of new technology or developments in other satellite navigation systems; it also enables the Commission to save money at a time when the Galileo project threatens to run over budget.

Originally the Commission had asked the two final Galileo bidders, consortia led by Astrium Satellites and OHB System, to bid for 28 to 30 satellites, but recently has told them the maximum order will be for 22. The Commission has asked both bidders to quote prices for eight and 16 satellites as well, in case it decides to divide the work between the two consortia.

European Parliament members have backed Galileo on the assumption that its budget of 3.4 billion Euros through 2013 would purchase a fully operational system that year. However, neither of those objectives looks likely to be met. The Galileo system is not likely to become fully operational until 2016, according to the government and industry officials.

The Commission concluded that overruns were not due to overruns in the In-Orbit Validation (IOV) phase but instead due to contract change notices issued by ESA (Galileo's former financial backer) as Galileo added measures related to system security.

The Commission had budgeted 840 million Euros (£763 million) for the contract to build the Galileo satellites when 28 to 30 satellites were planned. Officials said the bids they have received so far appear in line with that estimate. Best-and-final offers are due in mid-November, with a decision scheduled for late December.

Two of the four planned Galileo IOV satellites are scheduled for a late 2010 launch followed by two more in 2011.

### **ITS Radar International will continue to monitor Galileo**

### **President Obama signs Bills for reduced funding and potential termination of Loran-C**

Source: [Inside GNSS](#), [GPS World](#) and [RIN](#)

The US President has signed the Department of Homeland Security (DHS) Appropriations Bill that allows termination of Loran-C in Jan 2010. As reported in [last month's ITS Radar International article](#), the Department of Homeland Security (DHS) measure allows for termination of the Loran-C signal on January 4, 2010, after certification from the commandant of the Coast Guard that it is not needed for navigation and from the Secretary of DHS that it is not needed as a backup for GPS.

Additionally, a revised version of the Coast Guard Authorisation Bill has been passed, replacing the mandate to convert Loran-C into eLoran with a call for its termination, in line with the DHS Appropriations Bill. The previous mandate allowed for conversion of Loran-C infrastructure to eLoran and recommended that eLoran be implemented as a backup to GPS. That mandate also forbids termination of Loran-C until 30 days have passed since approval of eLoran. The revised version of the mandate does not allow for a conversion of Loran-C to eLoran and instead calls for its termination.

Meanwhile, the president also signed the National Defence Authorisation Act for Fiscal Year 2010, which does not include the \$59.1 million (£35.7 million) requested funding for the High-Integrity Global Positioning System (HIGPS, also known as iGPS) and authorises \$97.4 million (£58.9 million) of funding below the amount sought by the White House for the GPS III programme and the next generation ground control system (OCX).

### **ITS Radar International will continue to monitor eLoran**

### **Compass Interface Control Documents have been written and will be released on a step-by-step basis**

Source: [Inside GNSS](#)

During a presentation at the Stanford PNT Symposium Cao Chong, a researcher with the China Research Institute of Radio Wave Propagation who works with the China Satellite Navigation Engineering Centre responsible for building the Compass system, said that the draft Interface Control Documents remain subject to further refinements before release. The ICD would be published in a "step-by-step" fashion, beginning with the open B1 signals (at

or near the GPS and Galileo L1/E2 frequency) and B2 signals (at Galileo E5b), and then other signals later on. The ICD will be publicly available via the Internet.

The previously reported schedule, see previous [ITS Radar International Article](#), has also been revised with the next 10 launches now scheduled to happen over the next two to three years. China could still reach its goal of offering a 12-spacecraft regional system by 2012, comprised of five geostationary orbit (GEO), three inclined geosynchronous orbit (IGSO), and four medium earth orbit (MEO) satellites.

The fully operational capability (FOC) global system which is expected to be in place by 2020 will add another 23 MEOs to the constellation. Launch of another GEO is planned by the end of 2009, joining the Compass M-1 MEO satellite launched April 14, 2007, and the G-2 GEO launched April 14 this year.

### **ITS Radar International will continue to monitor Compass**

#### **Device that assists with search and rescue won the Galileo master prize**

Source: [GPS World](#)

The Galileo Master prize of the 2009 European Satellite Navigation Competition went to 'Osmógrafo' - a device that combines satellite positioning and wind measurement with rescue dogs' sense of smell to help determine which areas have already been covered by search teams.

Following building collapses in events such as earthquakes, dogs are often used to find victims under the rubble. By tracking the dogs via GPS receivers on their collars, Osmografo reveals areas still to be searched, increasing the odds of finding survivors.

In addition to winning the Galileo Master prize, the device was also declared the Madrid regional winner and received the special topic prize for the best safety-of-life application from Imade, the Madrid aerospace cluster and other sponsoring partners like Deimos and INDRA.

Other awards included:

- The European GNSS Supervisory Authority (GSA) presented a prize to the team behind 'Nogago', a highly precise outdoor navigation system for smart phones. This exploits the unique properties of EGNOS, the European geostationary augmentation system for GPS.
- The innovation prize of the European Space Agency (ESA) went to the Hesse, Germany-based start-up PosiTim for a software solution that provides positioning data to all Global Navigation Satellite System service providers with millimetre accuracy.

#### **The Netherlands replaces car purchase tax and road tax by GPS pay-as-you-drive tax**

Source: [RIN](#)

On 13 November 2009, the Dutch Cabinet made a decision to scrap car purchase tax and annual road tax in favour of a GPS determined pay-as-you-drive tax scheme.

Each user's vehicle will be equipped with a black box that will have a GPS receiver. This black box will determine how far each vehicle travels and at what time. An average passenger vehicle will pay 0.03 Euros per kilometre (£0.043 per mile) with higher tariffs being applied during rush hours and on congested routes.

The scheme will be introduced in 2012 and the tax will be increased until 2018. The Dutch Government estimates that traffic will drop by 15% and rush-hour congestion will be halved, with fatal accidents falling by 7% and carbon emissions dropping by 10%. The tax could be adjusted if it fails to change traffic patterns.

Initially the black boxes will be using GPS signals but in future other GNSS signals will also be used as they become available.

### **ITS Radar International will continue monitoring developments in the Dutch road pricing scheme**

#### ■ PROJECTS

No new recent publications to report on

#### ■ RECENT PUBLICATIONS

No new recent publications to report on

#### ■ GLOSSARY

Compass	The Chinese global navigation satellite system
DHS	Department of Homeland Security (US)
EGNOS	European Geostationary Navigation Overlay Service: A positioning system designed to augment satellite navigation systems and which will ultimately form part of the Galileo satellite navigation system; typically used for air applications
eLoran	Enhanced Long Range Aid to Navigation: Terrestrial radio navigation system
ESA	European Space Agency
FOC	Fully Operational Capability
Galileo	The European contribution to the Global Navigation Satellite System; full operational capability originally planned for 2008
GEO	GEOstationary orbit
GINS	Global Indian Navigation system
GLONASS	Russian satellite positioning system
GNSS	Global Navigation Satellite Systems: a general term given to all navigation satellite systems, it includes systems such as GPS, GLONASS, Compass and Galileo
GPS	Global Positioning System
GPS III	The next generations GPS
GSA	GNSS Supervisory Authority

HIGPS	High-Integrity Global Positioning System
ICD	Interface Control Documents
ICO	Information Commissioner's Office
IGSO	Inclined GeoSynchronous Orbit
IOV	In-Orbit Validation
IRNSS	The Indian Regional Navigational Satellite System
Loran-C	The latest iteration of LOnG Range Aid to Navigation prior to the introduction of eLoran
MEO	Medium Earth Orbit
OCX	The next generation GPS ground control system (for GPS III)
QZSS	Quasi-Zenith Satellite System: Japan's regional satellite navigation system