

GNSS. asia

Facilitating Industrial GNSS Cooperation Across Continents



GNSS.asia under FP7: objectives (2012-2014)



Key achievements under FP7

- Engaged **circle of companies** interested in collaboration across continents
- **> 20 business trips** to Asia by EU companies motivated by our events
- 50-150 participants in **10 Asian events** to date
- Numerous **company visits** in different countries
- **6 thematic workshops** with industry and associations
- Active engagement with Asian GNSS actors, institutions and associations
- Annual EU-Asia Industry Collaboration Seminars: Brussels, Munich, Prague
- **Multi-language information** and communication on GNSS
- **GNSS.asia will continue with funding from Horizon 2020**

GNSS.asia under H2020: objectives & structure (2015-2016)



- India
- China
- Taiwan
- Korea
- Japan
- SEA

Objective 1:

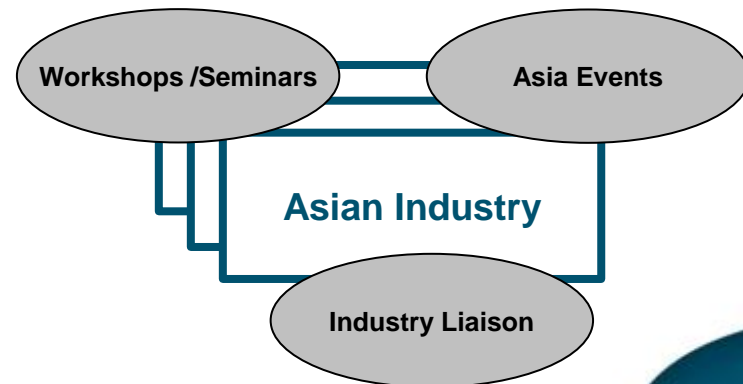
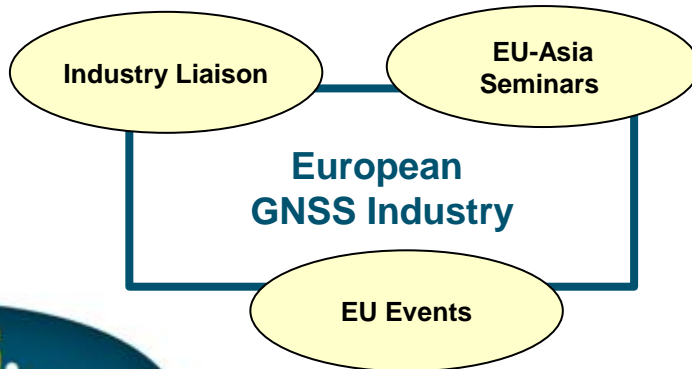
Building industrial relationships

Objective 2:

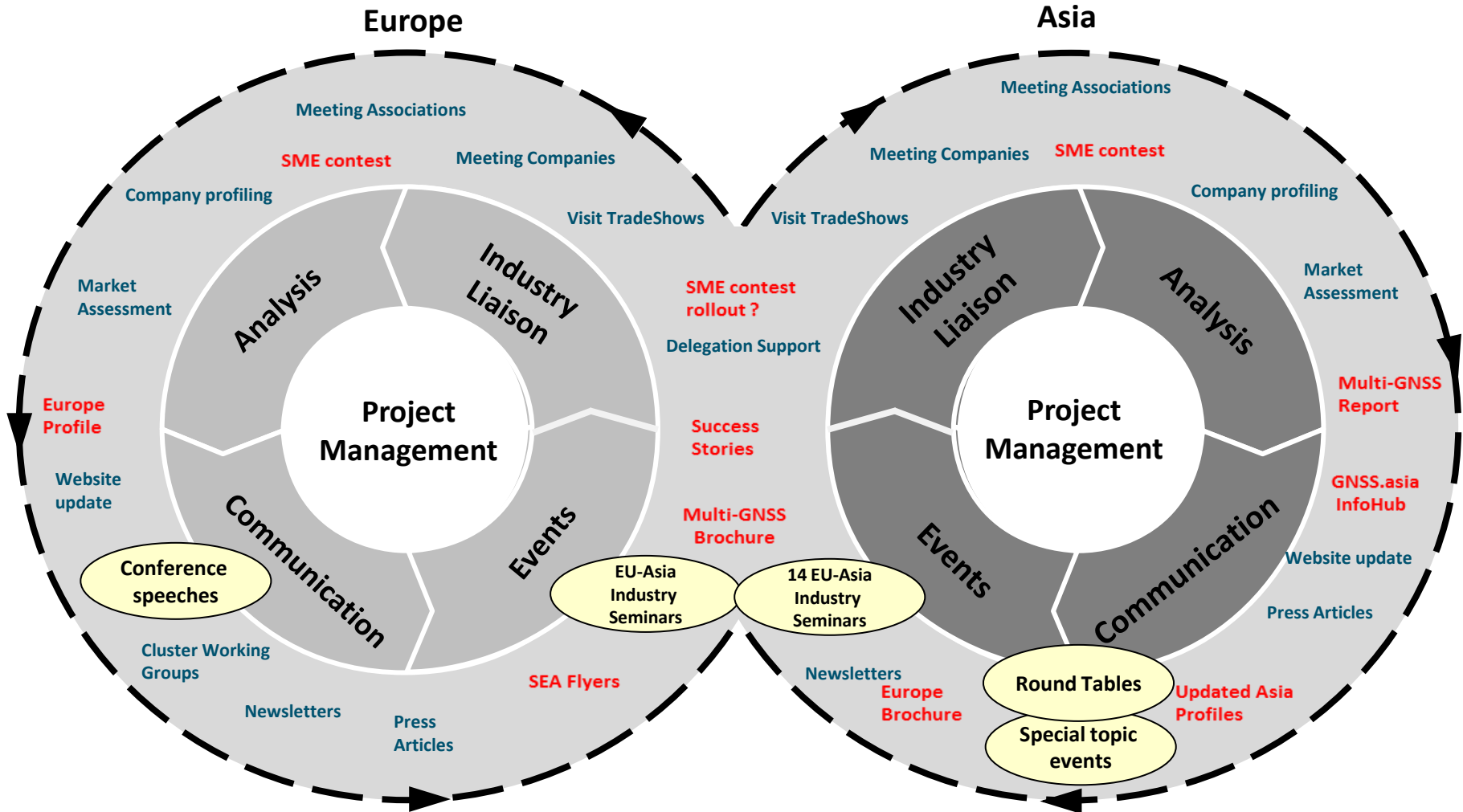
Promoting EGNSS differentiators

Objective 3:

Raising EGNSS awareness in Asia

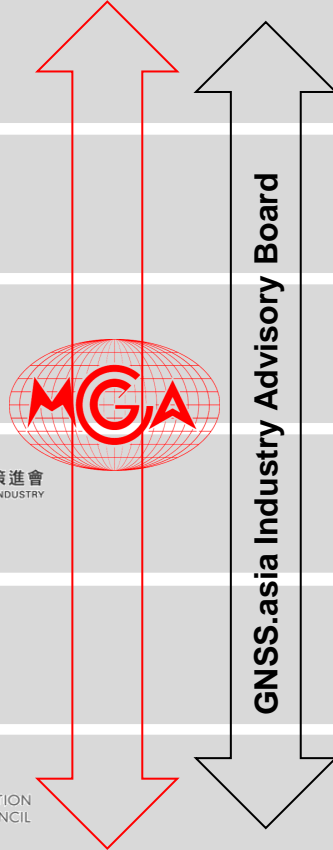


Building on the success of GNSS.asia



GNSS.asia continuation
New project elements

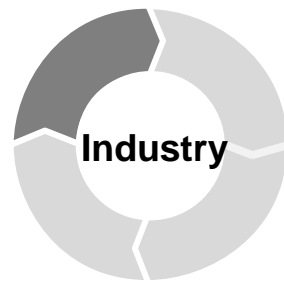
GNSS.asia collaboration network in Asia-Oceania



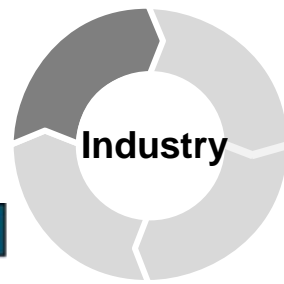
GNSS.asia Industry Advisory Board

Industrial cooperation across continents in GNSS

European companies engaged in GNSS.asia activities



And Asian companies have been very active, too



India

kalycito XYS EI Labs India Pvt. Ltd. Sheeray Digital Fargo Telecom roadmatics
ASL Advanced Systems EGS LEAD BY INNOVATION AqTronics LARSEN & TOUBRO amdl ACCORD infineon

China

Hwa Create COSIC UNICORE 和芯星通 联星 OLinkStar UniStrong 合众思壮 NAVINFO 四维图新

Taiwan

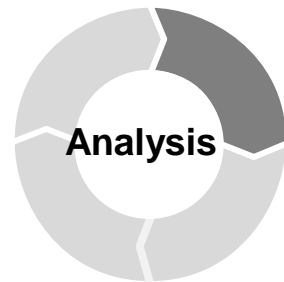
MEDIA TEK SkyTra LOCOSYS PRINCO G.top GlobalTop RoyalTek TIT
MITAC ADVANTECH DIOD PEGATRON ASUS PEGATRON Quanta Computer wistron WNC Wistron NetWeb Corp.

Korea

TELACE SAMSUNG ASCEN GPS Global GPS Leader AscenKorea Inc. SK kt DusiTech LG

Japan

FURUNO ジョルダン株式会社 Mapion SEIKO EPSON HITACHI Inspire the Next FUJITSU TEN NISSAN
MITSUBISHI ELECTRIC NAVITIME Clarion AISIN AW ALPINE



GNSS.asia has mapped the downstream sectors and the relevant GNSS stakeholder environment

- **GNSS Industry Report and Technology Observatory**
 - Extensive analysis of the various downstream sectors (e.g. LBS, road, rail, etc.)
 - Analysis of local capabilities along the GNSS supply chain
 - Presentation on latest GNSS technology drivers and hottest trends
- **GNSS database**
 - > 200 GNSS players registered in each economy's database
 - Information on GNSS market, GNSS product/service, supply chain role, short description, etc.

	Company	公司名	GNSS Market	GNSS product/services	Website	Short Description
●	KYICT	楷越科技	Road	GPS Devices	http://www.kyict.com.tw	KYICT is a company for Solar Energy technologies. In recent year, it has developed its technology in Telematics, GPS navigation and fleet management in Road applications.
●	LiDAR Technology	達雲科技	LBS	navigation services	http://www.lidar.com.tw/	LiDAR was founded in 2010, a spin-off RS research team of ITRI. The company focus on applications in Earth observations, Geo-information and LBS.
●	Leadtek	麗臺科技	Road/LBS	GPS Devices	www.leadtek.com/eng	Leadtek is a company for the integration of computer and communications technologies with its sights set on combining multimedia videophony, and GPS in a single product. It also extends to the market for broadband network devices.
●	Locosys Technology	大辰科技	Road/LBS	GNSS/GPS modules and solutions	http://www.locosystemech.com/	A leading company in the GPS/GNSS market in Taiwan

Communicating opportunities for industrial cooperation



GNSS profile Taiwan

GNSS profile China

GNSS profile Korea

GNSS profile India

GNSS profile Japan

In a nutshell

Japan's economy has matured since the burst of the bubble of the 1990's. The growing mobile phone industry and IT sectors will likely spur a slow expansion, driven by reconstruction demand related to the Great East Japan Earthquake of 2011. Japanese industry can rely on its strong domestic market, but is also highly export-oriented and thus subject to currency fluctuations. Japan faces competition from increasingly competitive neighbours, especially in high-tech areas. Japan is currently building its own regional satellite-based augmentation system – QZSS – slated for completion beyond 2018, setting the target for centimetre-class accuracy to drive future demand in applications in road transport, agriculture, Location-based Services, Indoor navigation and disaster management.



Key opportunities



Whereas leading Japanese automakers and suppliers have demonstrated both readiness and willingness to export eCall-compliant vehicles to the EU, growth is expected in road safety and accident prevention applications, map data provider services (combining location + navigation devices) and potentially high revenue growth in designing personalised, navigation-dependent advertisement services.



The navigation applications in the maritime transport sector are already covered by mature Japanese industry leaders. Other areas of expected potential include fishing fleet monitoring and catch control.



Early validation experiments involving QZSS have catered to automated precision farming (expected to significantly improve the efficiency of Japan's agriculture), remote sensing and monitoring of the environment.



GNSS applications for earthquake and tsunami warning, landslide monitoring and emergency message management are in testing phase, driven by regional cooperation projects in Asia-Oceania under the Multi-GNSS Asia demonstration campaign.



Japan sees a growing need to develop applications for better maintenance of municipal infrastructure (water and sewage), including precise guidance of construction machinery, as well as developing better GIS to preserve important touristic sites.

Strengths

- ▶ Technology-driven GNSS industry, with emphasis on building excellent development infrastructure for both outdoor and indoor navigation.
- ▶ A highly educated, homogeneous and wealthy end-consumer base, desirous of new, value-added applications
- ▶ Growing future expectations to use Galileo in Japan at the private sector level may become an opportunity for niche receiver makers.

Weaknesses

- ▶ Large, attractive market with mature, highly competitive industries in concentrated sectors makes it difficult for new entrants.
- ▶ A sceptical view of foreign firms entering the Japanese market prevails, which means that developing partnerships with Japanese companies is demanding.



GNSS.asia

Facilitating EU-Asia industrial cooperation on satellite navigation applications

- EU
- IN
- CN
- TW
- JP

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- APPLICATIONS
- OPPORTUNITY & PARTNERING
- NEWS & EVENTS
- PUBLICATIONS
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- LINKS
- NEWSLETTERS
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The project

Facilitating EU-Asia cooperation on satellite navigation applications

The GNSS.asia project, financed under the EU 7th Framework Programme for Research and Technological Development, has the objective to develop and implement GNSS cooperation activities between the European Union and China, India, Japan, Republic of Korea and Taiwan focusing on the downstream sector (applications and receivers).

[Read more](#)

INDIA



भारत गणराज्य

CHINA



中国

TAIWAN



台灣

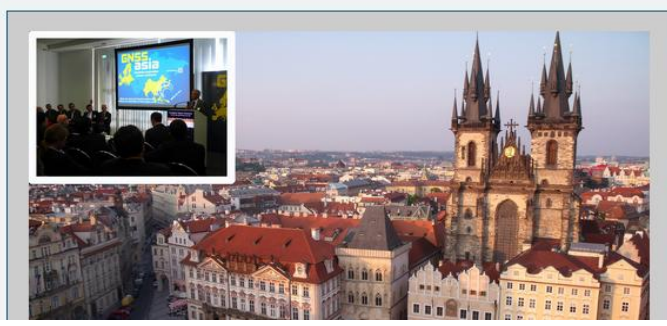
GNSS.asia newsletter

ISSUE #April 2014

IN A NUTSHELL

- Latest highlights
- News from Asia
- Industrial cooperation opportunities
- European Global Satellite Navigation activities

GNSSasia Latest highlights



GNSS.asia Overview

financed under the EU 7th Framework Programme for Research and Innovation, has the objective to develop and implement GNSS industrial cooperation between the European Union and China, India, Japan, Republic of Korea and Taiwan in the downstream sector (applications and receivers).

Objectives

- Develop a joint cooperation strategy on GNSS applications and receivers, between EU and Asia (Japan, Korea and Taiwan).
- Identify and create collaboration opportunities between European and Asian companies.
- Focus on Galileo and EGNOS.
- Facilitation of Galileo with focus on receivers/chipsets and applications.

Asia cooperation on satellite navigation applications

is supported by key European and Asian organisations with long-standing experience in industrial cooperation. They assess market areas of mutual interest, get a GNSS industrial cooperation between individual EU and Asian companies. They organise expert workshops and industry seminars with dedicated matchmaking sessions (with the EU), as well as Galileo awareness raising towards the local GNSS communities in Asia.

Consortium

European Coordinators

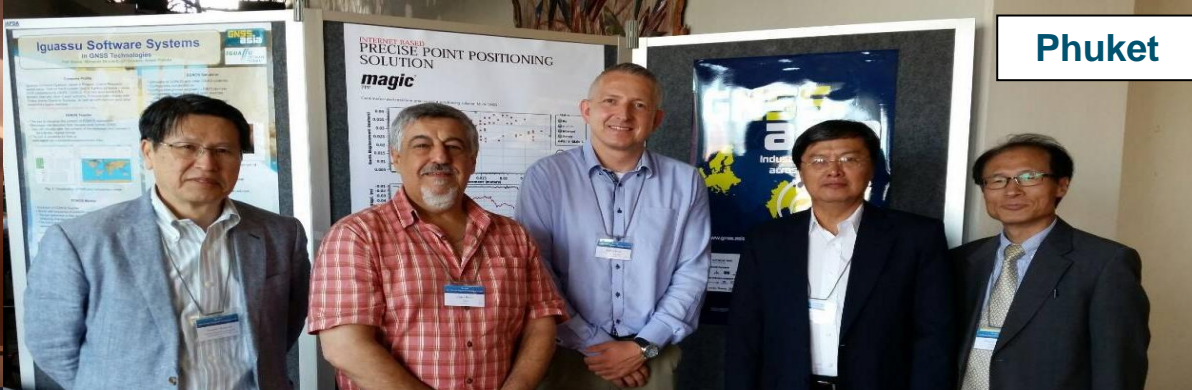


Asian Partners





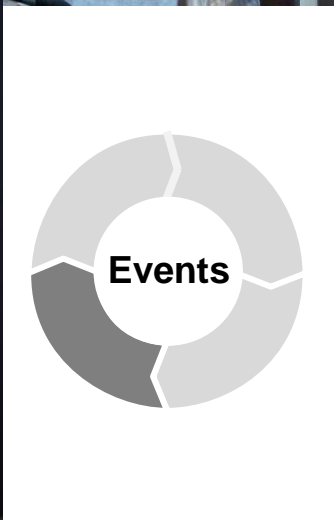
Tokyo



Phuket



Bangalore



Beijing

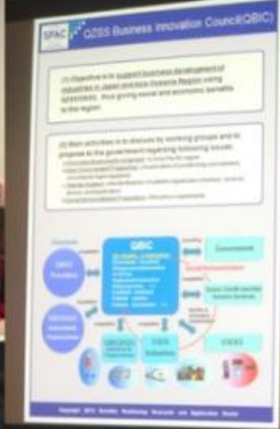


Seoul



Taipei

Munich 2013

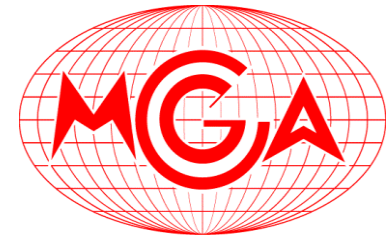


Prague 2014

Expanding the GNSS.asia horizons: Asia-Pacific

- Mapping GNSS sector in **South-East Asia** and **Australia**, with project efforts being balanced with **economic potential** in the respective country
- GNSS.asia will be likely to progress quickly towards **higher levels of EGNSS awareness** within westernised economies such as Australia, while ensuring a solid basic foundation within **selected SE-Asian target economies**
- Preliminary target economies:
 - Australia
 - Thailand
 - Malaysia
 - Indonesia
 - Vietnam
- **Priorities** in SE Asia will be further investigated by GNSS.asia in cooperation with **SPAC (JP)** and under guidance from our **GNSS.asia Industry Advisory Board**

Many GNSS.asia actors are interested in Multi-GNSS activities



Multi-GNSS chipsets, MEMs, Sensor Fusion, and Telematics. Galileo Pilot User



Precise navigation and positioning solutions, network of over 80 GNSS reference stations, Galileo CS partner



High Precision Multi-GNSS Receivers, Aviation Receivers



Sensors: MEMS, triaxial geomagnetic, barometric pressure, acceleration etc.



GNSS Development suite, real Time GNSS generators and software receivers



Multi-GNSS chipsets, mobile communications Galileo Pilot User



Maritime GNSS Galileo Pilot User



Hardware/software development for GNSS receivers



GNSS module, tracker module, indoor/outdoor asset tracking

Multi-GNSS Asia (MGA)



- MGA is a platform to promote the **Asia-Oceania Multi-GNSS Demonstration Campaign**, as well as a volunteer based organization which aims to bring together stakeholder networks and facilitate sharing of updated technologies for **Multi-GNSS utilization**
- The MGA is endorsed by the ICG, the International Committee on Global Navigation Satellite Systems, established under the umbrella of the United Nations
- Asia Oceania Multi-GNSS Demonstration Campaign aims to:
 - Encourage and promote the introduction and utilization of satellite PNT services in the Asia and Oceania region through assistance with the integration of GNSS services into their infrastructures,
 - Promote new multi-GNSS utilization and applications in the region and feedback needs and requirements related to interoperability from user communities to GNSS providers, and
 - Encourage GNSS provider and users in Asia Oceania region to develop new applications and carry out experiments or demonstrations jointly



- Asia Oceania Multi-GNSS Demonstration Campaign consists of a series of activities over the period 2010-2015. The campaign comprises the following three parts:
 - 1) Infrastructure Establishment:** In order to produce precise orbit and clock offset for multi-GNSS constellation, the Multi-GNSS Monitoring Network will be established under international cooperation.
 - 2) Projects:** Joint application developments and experiments of new or extended multi GNSS applications, such as Disaster Management, Intelligent Transportation Systems, Precise Positioning, and Location Based Systems are promoted among GNSS providers, Receiver manufacturers, local service providers, administrations and universities in Asia Oceania region.
 - 3) Regional Workshops:** A Regional Workshop on GNSS will be organized annually in the Asia Oceania region where there will be reports on the joint experiments and results as well as proposals for new joint project.
- Over the past years, GNSS.asia and MGA have established a mutually beneficial cooperative relationship. GNSS.asia will continue to intensify this cooperation **via future events** and **provide opportunities for industry to expose their products and services** to this unique audience of Asian-Pacific GNSS practitioners.

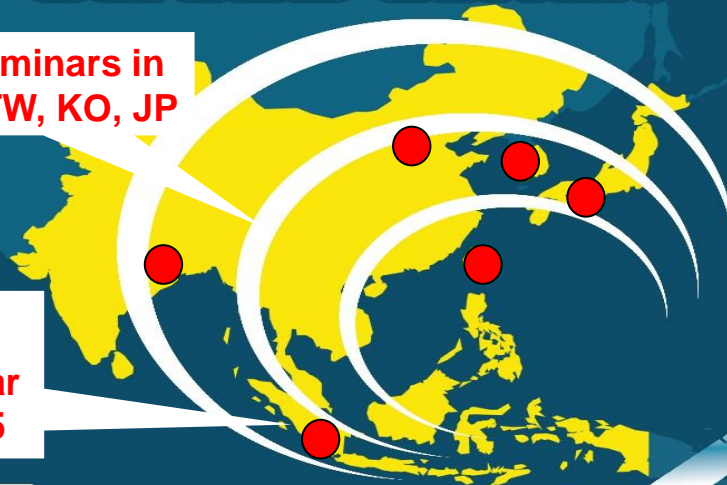
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Industrial cooperation
across continents

EU Events 2015



2015 Seminars in
IN, CN, TW, KO, JP




Industry Seminar
MGA-AOR 2015

www.gnss.asia



Industry Workshop
IGNSS, July 2015



GNSS. asia

Galileo Status Update

Galileo – EU's state-of-the-art GNSS



- The Galileo programme is Europe's initiative for a state-of-the-art global satellite navigation system, providing a highly accurate global positioning service under civilian control.
- The fully deployed system will consist of **30 satellites** and the associated ground infrastructure.
- Galileo will provide Europe with independence in satellite navigation but will also be **inter-operable with other global satellite navigation systems**.
- In short, Galileo will offer greater
 - **Precision:** Thanks to a greater number of Galileo signals, the new satellite clock design, and improved corrections of ionospheric effects, positions computed with Galileo satellites will be more accurate. When combined with GPS, the higher number of satellites available will also offer higher precision. From most locations, six to eight Galileo satellites will be visible, and in combination with GPS signals, this will allow positioning to within a few centimeters, depending on the service used.
 - **Availability:** The high number of satellites will improve the availability of signals in cities where tall buildings can obstruct signals from satellites that are low on the horizon.

Status of Galileo

- **EU successfully launched two Galileo satellites**
- “Galileo, the EU's satellite navigation programme, placed two more satellites into orbit. The lift-off took place on 27 March at 22.46 CET from the European spaceport near Kourou in French Guiana. Signals proving that the satellites were positioned as expected have been received.”
- Elżbieta Bieńkowska, European Commissioner for Internal Market, Industry, Entrepreneurship and SMEs, commented: "We demonstrated again that Europe has **state-of-the-art know-how, cutting edge technology**, and the **vision and determination** to accomplish great things."
- The next launch of Galileo satellites is scheduled for September 2015. The Commission aims to ensure the provision of **initial Galileo services by 2016** and **full services by 2020**.
- With more launches planned, the availability and coverage of the Galileo signals is set to improve and increasingly benefit citizens.



Europe is looking to foster GNSS cooperation

- Numerous sectors of the European economy already significantly relying upon satellite navigation services: in 2011, **6-7% of Europe's GDP** (EUR 800 billion) was estimated to be **dependent on satellite navigation applications**
- The EU fully comprehends the huge potential of Global Navigation Satellite System (GNSS) solutions to contribute to **economic and social growth, breakthrough innovations** and a **globally competitive industry**
- Therefore, the EU has invested in two ambitious flagship programmes, collectively known as the European GNSS Programme (EGNSS): **Galileo** and **EGNOS** (Europe's Satellite-Based Augmentation System)
- Benefits of EGNSS are not limited to Europe alone: the EU has actively been promoting **international cooperation** to achieve **global GNSS synergies**
- Aimed at capitalising on **multi-GNSS opportunities** and leveraging **GNSS expertise**, the EU is looking to further strengthen its relations with the Asia-Pacific GNSS stakeholder community



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European
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Satellite Systems
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HORIZON 2020