New Funding Opportunities to Support Safety of Navigation: EGNOS and Galileo

e-Navigation Underway
31 January-2 February 2017
The European GNSS Agency (GSA) today:

- **Staff:** about **145**
- **Nationalities:** **21**
- **Headquarters:** **Prague**  
  (since September 2012)
- **Other Locations:**  
  St Germain en Laye, Toulouse, Swanwick, and Torrejon
Galileo is being implemented

**GALILEO:**
- European GNSS that will provide initial services in 2016 (OS and SAR), and will contribute to positioning, navigation and timing applications.
- **Recognised by IMO as part of WWRNS (2016)**
- **Global** high performance services.
- Run by **civil** authorities.
- Dual frequencies as standard.
- Interoperable with other GNSS.

**Galileo System Testbed v1**
Validation of critical algorithms

**GIOVE A/B**
2 test satellites
2005/2008

**Galileo System Testbed v1**
Validation of critical algorithms
2003

**GIOVE A/B**
2 test satellites
2005/2008

**In-Orbit Validation**
4 operational satellites and ground segment
2013

**Initial services declaration**
for OS and SAR,
2016

**Full Operational Capability**
Full services, 24 satellites
2020

16 satellites for initial services
EGNOS services are operational

**European Geostationary Navigation Overlay Service**
- Uses geostationary satellites and a network of ground stations to receive, analyse and augment GPS signals (in the future also Galileo).
- Makes existing GNSS signals suitable for safety critical applications.
- Increases the accuracy of existing satellite positioning signals while providing a crucial ‘integrity message', informing users in the event of problems.

**EGNOS Open Service (OS)**
- Service Declaration: 1st October 2009
- Already extensively used in road, agriculture, maritime, and mapping segments

- EDAS Service provided since 2010
- Service Declaration: 26th July 2012
- Commercial/professional multimodal applications

**A new safety service for maritime is under definition – compliant with IMO res. 1046**
- SBAS Shipborne Receivers – A new sub-group in RTCM SC-104 for the preparation of Guidelines for implementation and definition of tests specifications
MAINT OBJECTIVES AND ACTIVITIES

E-Navigation Underway
31 January- 2 February 2017
Where we are:
SBAS/EGNOS used in maritime and IWW navigation without the use of the integrity information provided. C.a 90% of manufacturers (SOLAS and non-SOLAS) offer a SBAS-enabled receiver.

Where we want to be:
EGNOS adopted by maritime and IWW users for safety-related applications, with main focus in General Navigation.

By 2020: EGNOS complementing DGNSS infrastructure providing integrity information (at system level) for inland and coastal waters.

How to get there: Roadmap definition and implementation which includes:
- Definition of a new maritime and IWW safety service for SIS
  Service provision aspects – Service Definition
  RTCM Guidelines/Standard for SBAS shipborne receivers
- EGNOS transmission via existing shore infrastructure
  IALA Guidelines for the transmission of EGNOS corrections via IALA beacons and AIS Stations
High level roadmap for EGNOS in maritime and IWW

EGNOS V2

EGNOS Maritime Safety Service (EGNOS V3 915)
- Use EGNOS V3 SiS
- New receivers (SBAS or multisystem)
- New maritime information in SiS (if need be)

EGNOS V2

EGNOS Maritime Safety Service (EGNOS V2 1046)
- Use existing EGNOS SiS
- Adapted receivers (standardised – SBAS or multisystem)
- Specific EGNOS maritime safety service/service level

EGNOS via AtoN (AIS or IALA beacons)
Use existing EGNOS V2 SiS and/or EDAS

Performance (accuracy/integrity)
IALA GUIDELINES AND PILOT PROJECT FOR THE TRANSMISSION OF EGNOS CORRECTIONS VIA IALA BEACONS AND AIS STATIONS

E-NAVIGATION UNDERWAY
31 JANUARY- 2 FEBRUARY 2017
Roadmap for adoption of EGNOS v2:
IALA Guidelines – AIS/VDES and IALA beacons

- IALA Guideline for the use of SBAS under preparation. Work already started in IALA eNAV17 meeting in WG5-PNT.

- Pilot Project/Test Campaigns.
  - Indicative duration of the project foreseen: c.a. 1.5 years
Roadmap for adoption of EGNOS v2: Status on IALA guidelines

- GSA, ESSP and ESA started the work at IALA for the preparation of IALA guidelines on the use of EGNOS, where several input papers were submitted.

- The last input papers focused on an assessment of the best configurations for the transmission of EGNOS corrections over IALA beacons and AIS Stations.

- Next paper will focus on CBA (March 2017).
Roadmap for adoption of EGNOS v2: Status on Pilot Project

• Following the Call of interest launched on the use of EGNOS via another means of transmissions different from GEOs (i.e. IALA beacons, AIS and VDES), GSA received the confirmation of 14 countries interested in participating in a pilot.

• GSA is analysing how to support testing activities and has the intention to launch a pilot project in Q1 2017.
Countries that confirmed their interest in the Call

Spain
France
Italy
Ireland
Poland
Romania
Norway
Latvia
Hungary
Portugal
Croatia
Finland
United Kingdom
Germany
Poland
Hungary
Croatia
Romania
Portugal
Spain

Expressions of interest in the pilot project of EGNOS over AIS/VDES and IALA beacons
Applications in Satellite Navigation – Galileo – 2017
Call is OPEN!

Deadline: 01 March 2017

http://ec.europa.eu/research/participants/portal/desktop/en
### Applications in Satellite Navigation—Galileo-2017

<table>
<thead>
<tr>
<th>Type of Action</th>
<th>Topic</th>
<th>Budget (EUR mln)</th>
<th>Funding rate</th>
<th>Indirect costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>IA</td>
<td>EGNSS Transport Applications</td>
<td>14.50</td>
<td>70%</td>
<td>25% of the total eligible costs excluding:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• Subcontracting</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• Costs of resources made available by 3rd parties</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• Financial support to 3rd parties</td>
</tr>
<tr>
<td>IA</td>
<td>EGNSS Mass Market Applications</td>
<td>9.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IA</td>
<td>EGNSS Professional Applications</td>
<td>8.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CSA</td>
<td>EGNSS Awareness raising and capacity building</td>
<td>1.50</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td><strong>Total budget:</strong></td>
<td></td>
<td><strong>33.00</strong></td>
<td></td>
<td><strong>Deadline: 01 March 2017</strong></td>
</tr>
</tbody>
</table>

**Innovation Actions (IA):** activities aimed at producing plans and arrangements or designs for new, altered or improved products, processes or services.

**Coordination & Support Actions (CSA):** consisting of accompanying measures such as standardisation, dissemination, awareness-raising and communication, networking, policy dialogues and studies.
Compulsory Preliminary Business Plan
GALILEO-1,2,3

What for: Demonstrate the commercial potential of the product and/or service and describe how this potential will be realised.

Why we ask: It is an input to evaluate the Impact criteria.

How to do: Template available in the participant portal.

- Define the proposed offering: the product and/or service and target market sector.
- Review the market sector: structure, size, drivers, market and technology trends.
- Assess the competition: main players, their current offerings and market share.
- Describe the innovation of the proposed offering in the context of the competition and the sector’s needs.
- Summarise potential business model(s) together with possible entry price(s) and costs.
- Assess the key risks to market entry and possible options for risk mitigation.
- Outline, graphically, the roll-out of the offering: timescale, sales growth and market share.
Successful proposal- some hints

**Be focused and concrete:**
- Build on fairly mature application or business concepts and fill the gap
- Think to bring the products / services on the market at the end of the project

**Build on market understanding and business expertise:**
- Ideally, coordinator with good expertise in the specific market
- Demonstrable capability to commercialise the products and services developed

**Demonstrate a clear motivation to commercialise the products and services:**
- Market entry plan (marketing strategy & business plan)
- Previous achievements in the specific market

**Focus on practical impact:**
- Maximise the use of the available signals
- Prefer trials and large scale demonstration, involving final users in their real life procedures
- Produce practical tools useful for the GNSS developer community

**Select applications where EGNOS and Galileo differentiators are key for the product/service success**
Examples of emerging EGNSS applications in maritime and inland waterways (including the Arctic):

- vessels navigation,
- traffic management and surveillance,
- search and rescue,
- port operations,
- fisheries monitoring.

Proposals should in particular build on the use of current and future EGNOS dedicated services for maritime and IWW, and the Search and Rescue service of Galileo, other Galileo differentiating features and services, such as authentication, and high precision.
Examples of H2020 Galileo 1st call projects

spyGLASS- Galileo-based passive radar system for maritime surveillance

The recurrence of illegal activities at sea such as clandestine immigration, smuggling and trafficking, have made maritime surveillance a priority.

- A passive bistatic radar (PBR) based on Galileo transmissions for maritime surveillance is proposed.
- A ground based receiver is considered for coastal monitoring and also placed on mobile platforms to assure open sea surveillance.
- The primary task of this system is to detect and localize ships.
- This feature potentially enables surveillance both in coastal areas and the open sea.
Questions time

Thank you!

Manuel.LopezMartinez@gsa.europa.eu