



EGNOS, it's there. Use it.

EGNOS Multimodal Adoption Plan 2017

**EGNOS Adoption activities in aviation, maritime,
rail, agriculture and surveying market segments**

EGNOS Service Provision Workshop
Athens 3rd-4th October 2017



European
Global Navigation
Satellite Systems
Agency



Precise navigation,
powered by Europe



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- EGNOS in Aviation

- EGNOS in Maritime

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- EGNOS in Agriculture & Mapping

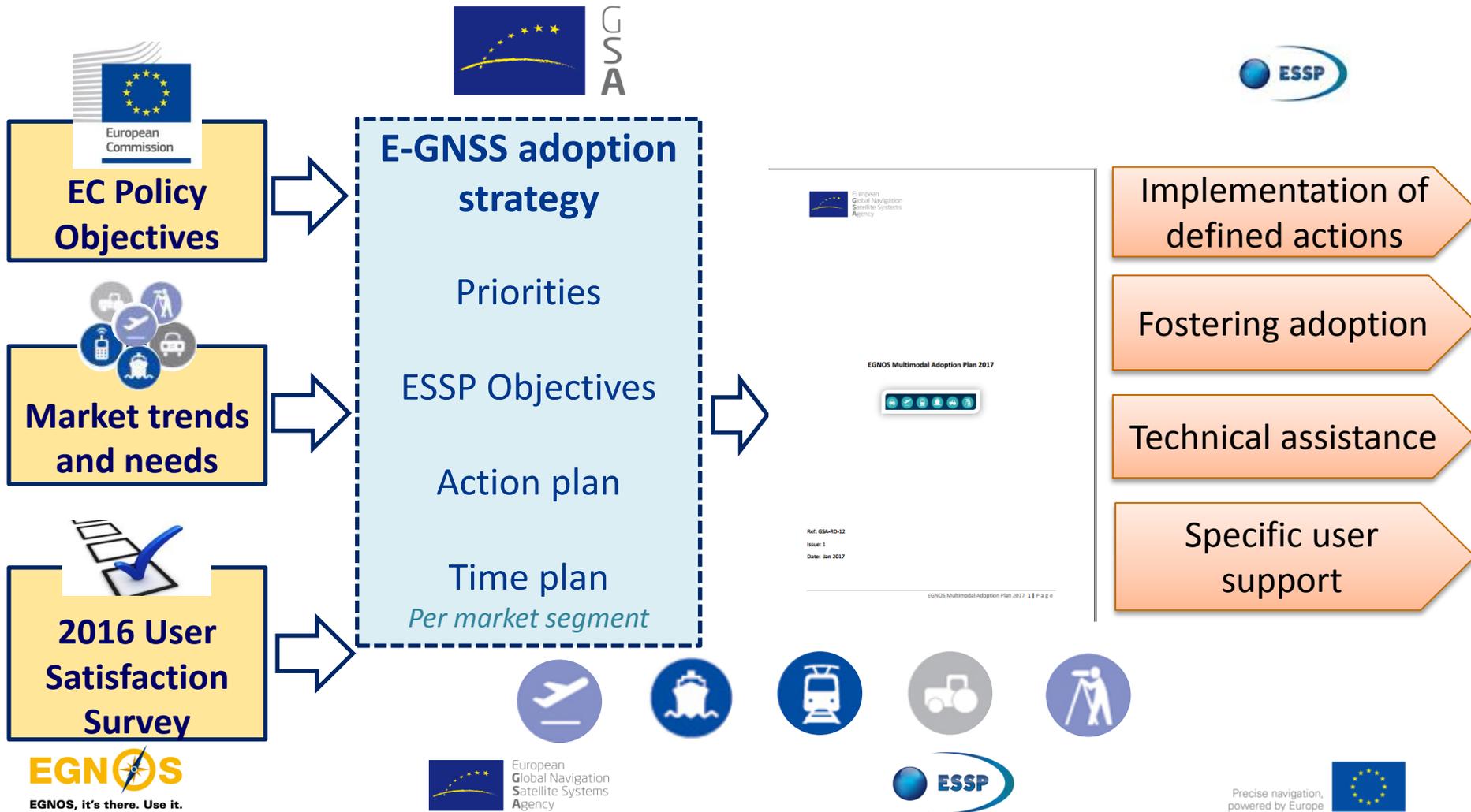


by GSA & ESSP

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GSA Adoption Strategy overview



EGNOS responds needs of the users and brings public and commercial opportunities



Make smaller airports and helipads more accessible, increases safety and facilitates business across Europe.



EGNOS contributes to a more accurate, reliable and safer navigation. GNSS has become the primary means of obtaining PNT information at sea.



EGNSS solutions can offer enhances safety for lower cost, e.g. in railway signalling and is becoming a generic system widely used in non—safety relevant applications



EGNSS applications represent a key enabler for the integrated farm management concept. Drone uptake in agriculture is increasing.



Falling device prices drive the democratisation of mapping. GNSS remains the backbone technology in increasingly sophisticated applications.

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- Tools & Actions placed to foster EGNOS adoption

EGNOS in aviation

GSA Strategy

Applications

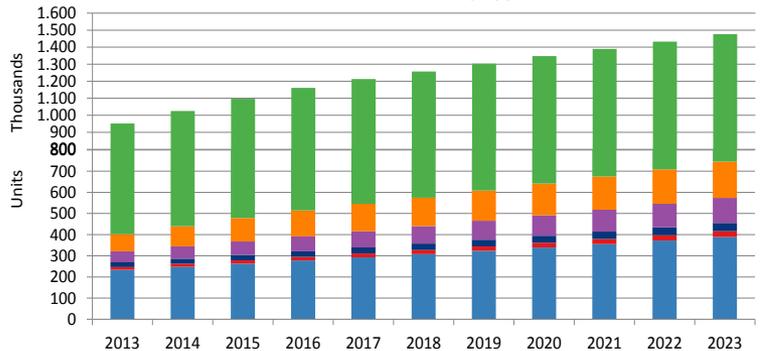
- EGNOS based procedures – **LPV200 approaches equivalent to CAT I instrument landing system (ILS) procedures**
- Rotorcraft operations, e.g. Point in Space
- Support to navigation in other phases of flight
- Surveillance, e.g. ADS-B
- Airport operations
- Drone guidance and navigation



The first LPV-200 approaches were implemented at Paris Charles de Gaulle Airport (LFPG) on 3 May 2016 after LPV200 declaration on 29 September 2015

As of today: **52 LPV200**

Installed base of GNSS devices by application



Commercial Aviation
General & Business Aviation
Search and Rescue (ELT)

Regional Aviation
General Aviation VFR
Search and Rescue (PLB)

Where we want to be by 2020:

- All NPA runways by 2020
- **Growing number of retrofit solutions and equipped operators**
- EGNOS/EGNSS as a key enabler for **Communication, Navigation and Surveillance** for all flight phases

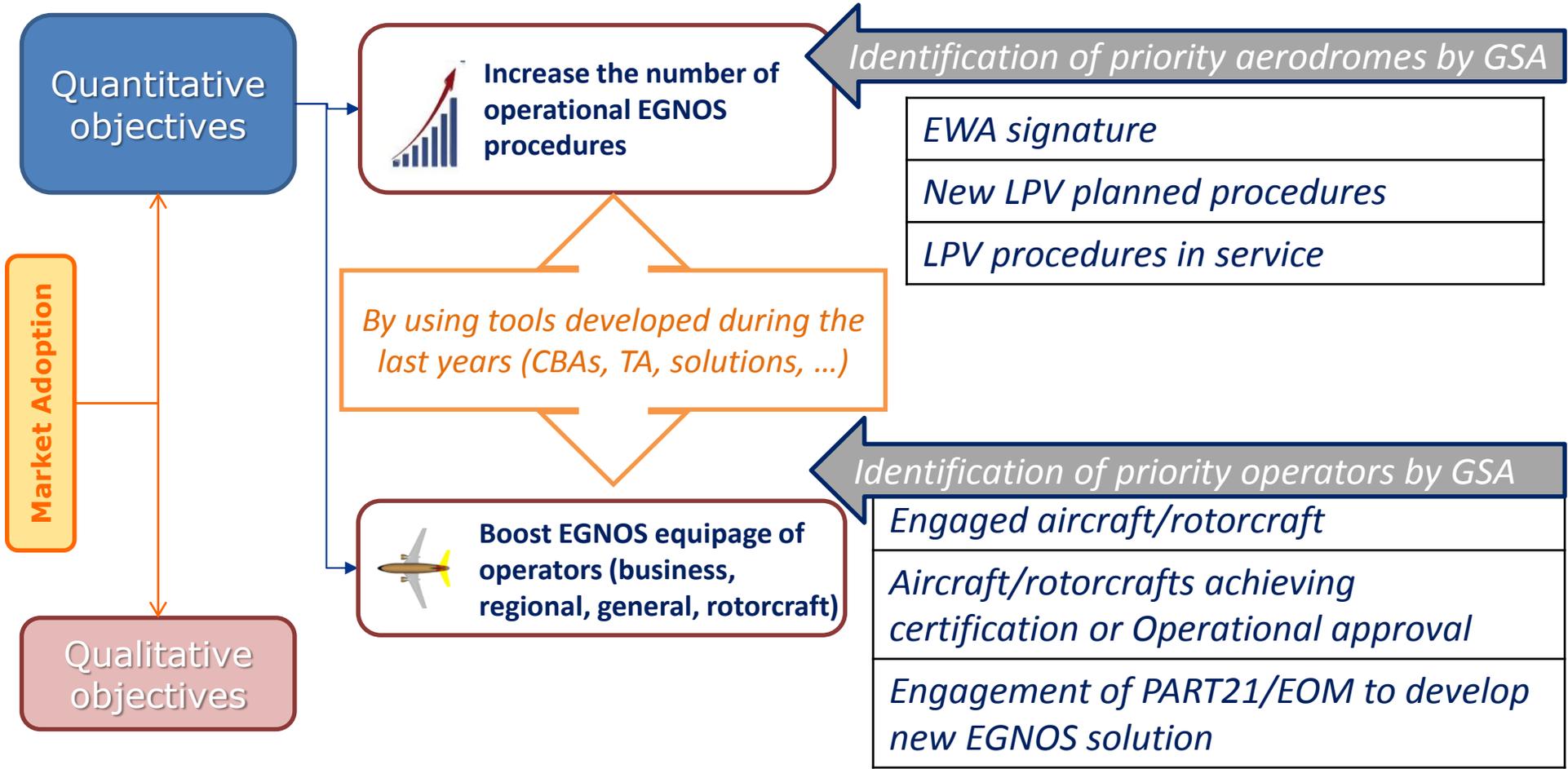
How to get there:

- Promote benefits of EGNOS based approaches and other applications
- Funding for procedure/operators and other applications
- Feasibility studies, CBAs, technical assistance and new applications development and validation
- Partnership with user communities and user groups establishment
- Contribution to regulation (e.g. PBN IR, SPI IR, pilot training, non instrument runways)



AVIATION

EGNOS Multimodal Adoption plan 2017 Priorities





AVIATION

EGNOS Multimodal Adoption plan 2017 Priorities

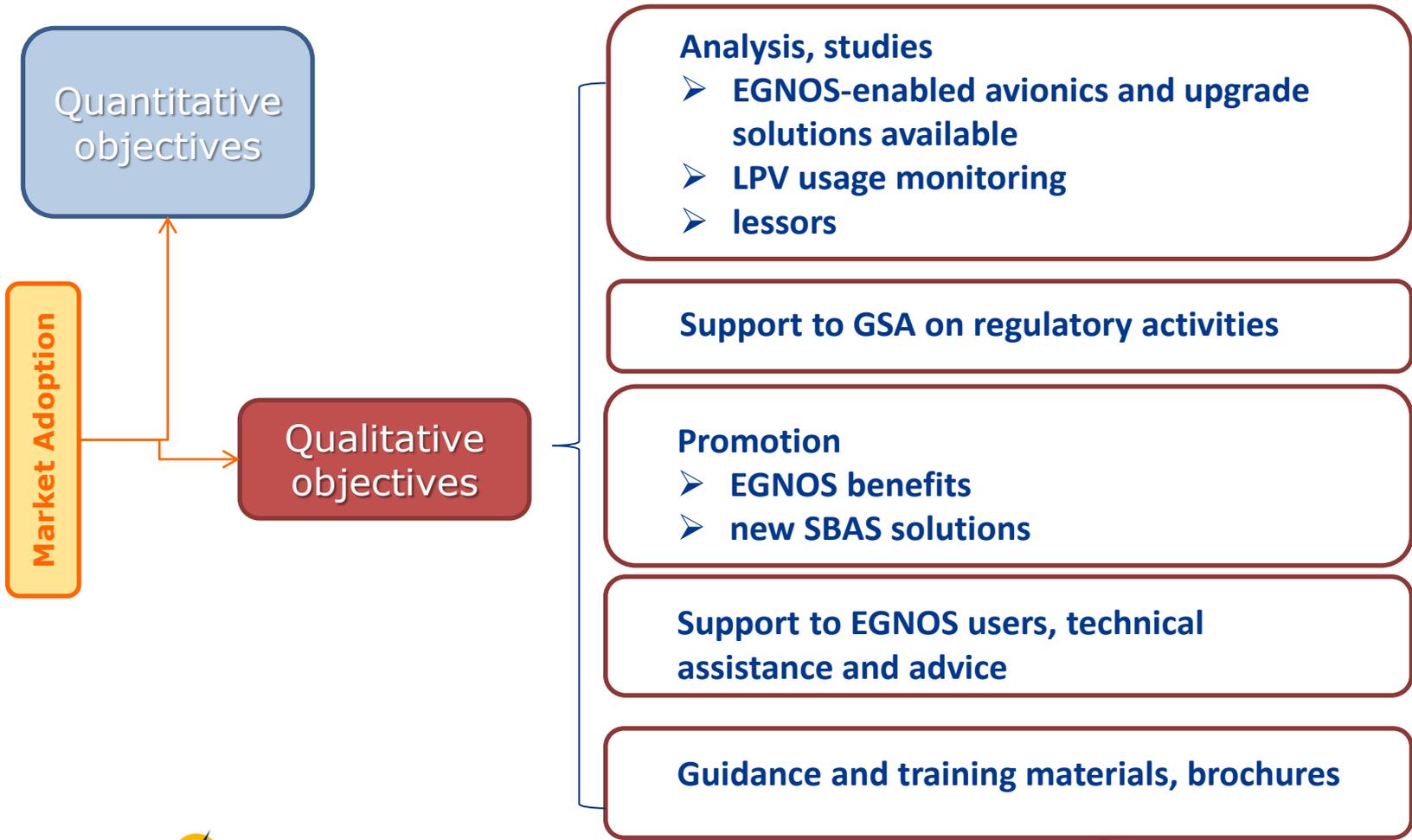


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AVIATION

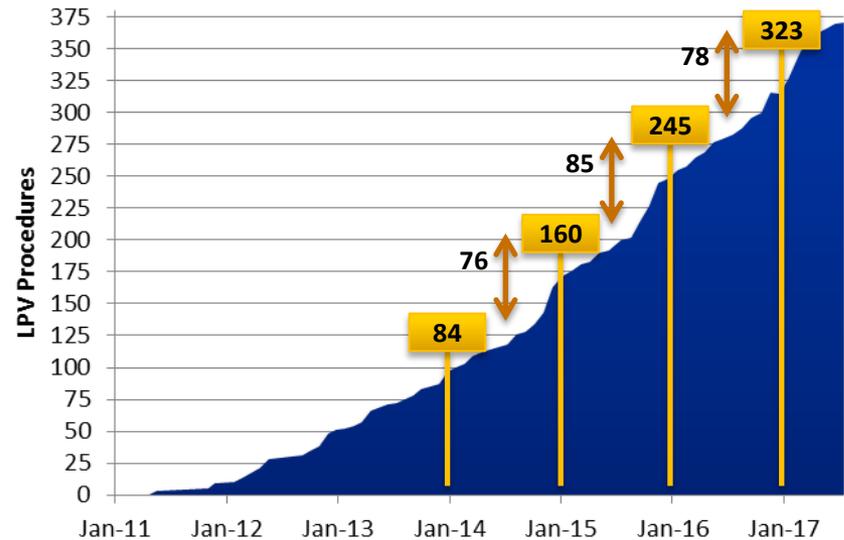
2016 objectives

EWAs signed:	10/10	✓
Operational LPVs:	78/130	✗
Planned₂₀₂₀ LPVs:	127/233	✗
GSA funded aircraft:	35 (on track)	✓
Operational aircraft:	36/62	✗
Planned_{grants} aircraft:	59/100	✗

Remarks

- ANSPs are aware about the need to establish agreements for the use of EGNOS SoL
- Allowing States to plan for new LPVs
 - 204 plans added during 2015
 - 127 plans added during 2016
- Slow but continuous implementation of new LPV approach procedures (~80/year)
- Airlines: raising awareness thanks to GSA/ESSP, funding mechanisms and growing number of LPVs in operation

LPV Procedures evolution



Swiss CS100



Air Baltic CS300



Nextjet Saab 340



AVIATION

Objectives for 2017

More EWAs signed

Target: 58

Today: 56



Yellow	Discussions paused
Green	Discussions on going
Blue	EWA signed
2	Number of published LPV procedures
White	No feedback

More published LPVs

Target: 105

Today: 59



More planned RWYs

Target: 140

Today: 98

More approved A/C

Target: 65

Today: 79

More planned A/C

Target: 70

Today: 34

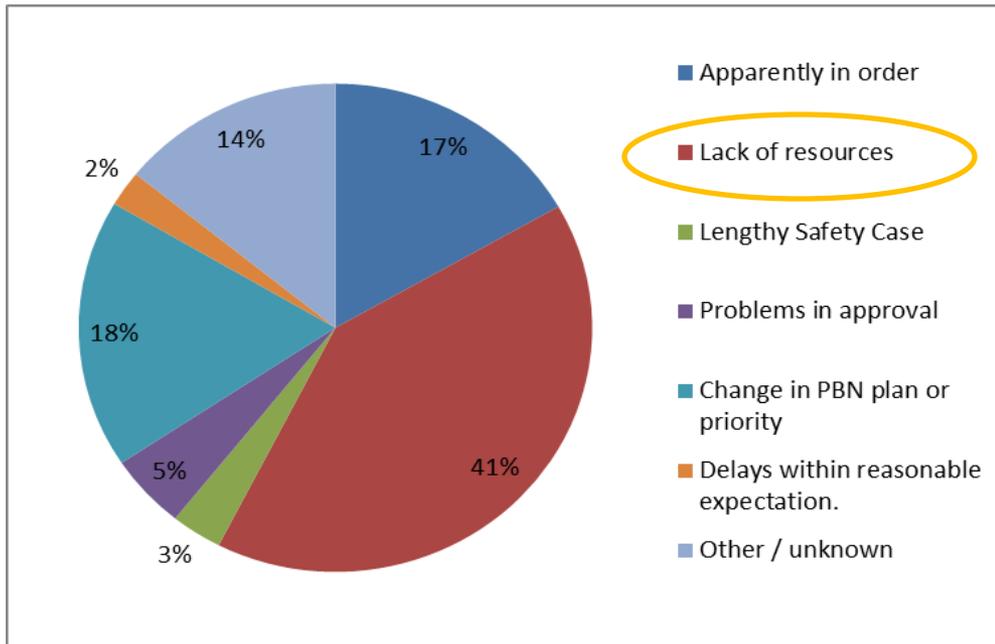




AVIATION

What is preventing LPV plans from being timely accomplished?

- Reported plans from States tend not to be timely accomplished
- Reasons, as reported from contacted Stakeholders:



Lack of resources the biggest issue

- Common among large ANSPs and authorities in charge of procedures approval
- Large ANSPs have reported in different fora the lack of qualified/trained procedure designers within their teams
- Some States/authorities do not accept airspace changes from other entities than the National ANSP

Support offered by GSA for conceptual/feasibility designs



AVIATION Achievements

Cargo airlines

← New users →

Military transport



Under study

x20 BAe ATP-F
x13 B733/4



LPV retrofit

x3 B733
x5 B734



Under study

x29 B733/4



SPANISH AIR FORCE (CECAF)

LPV retrofit

x1 Citation V

Under study

x2 Citation V



PORTUGUESE AIR FORCE

Under study

x3 Falcon 50



AIRBUS DEFENCE AND SPACE

LPV by default

CN235

C295W

Certification under EASA rules opens the door for civil users!





AVIATION Achievements OEMs highlights: **BOMBARDIER**



We certify you're there.

PRESS RELEASE

Madrid, 20 July 2016

World first commercial CS100 flight from SWISS uses EGNOS to land at Paris Charles de Gaulle

Operated by Swiss International Air Lines (SWISS), launch customer of the Bombardier CS100, the world's CS100 maiden flight, took place last Friday 15th July. The approach to Paris Charles de Gaulle was performed using an EGNOS based LPV-200 procedure.

airBaltic CS300 pilot feedback: "a LPV approach and it's details are loaded seamlessly on our CS300, allowing minimum pilot effort in the approach selection and execution."



CS100 earns steep approach approval at London City

26 APRIL, 2017 | SOURCE: FLIGHT DASHBOARD | BY: STEPHEN TRIMBLE | WASHINGTON DC

Swiss is cleared to operate a steep approach into London City airport with Bombardier CS100 jets after the manufacturer received Transport Canada and European Aviation Safety Agency approvals on 26 April.

→ **LCY PLANS FOR LPV-200**

*"The accuracy and stability of the LPV guidance is impressive. The approach procedure is **straight and simple**, and there is **no necessary changeover regarding the FGS** with respect to conventional approach aids"*



On-board avionics provides LPV as preferred approach



AVIATION Achievements

OEMs highlights: **Airbus Commercial Aircraft**

BACKGROUND

A320 represents the largest fleet of commercial aircraft in Europe. **Shall be LPV!**

- Engagement work started in 2014
- Application for CEF Transport call in 2016
- Proposal accepted with subsequent allocation of funds...

SBAS LPV FUNCTION (SLS) TO BE DEVELOPED FOR A320 NEO FAMILY

WHAT'S NEXT?

- **Launch development** of SLS function on **A320 (& A330 TBC)** family in 2017
- **Certification** expected by **2020**
- **EasyJet** (largest A320 operator) is the **SLS launch customer**



Airbus:
"SLS is **ILS look-alike**
Approach is **more stable**"



AVIATION

Achievements

Market analysis - Lessors

Under a leasing contract:

lessor = aircraft owner

lessee = aircraft operator/airline

IATA - Guidance Material and Best Practices for Aircraft Leases, Feb 2016

*“It is expected that approximately **half of all aircraft worldwide will be under an operating lease** in the next decade”*

*“[lessor] will be seeking to **maximize asset value**”*

*“The parties will negotiate [...] the general condition of the aircraft including [...] any agreed **modifications**” → **cost-sharing agreements***



AVIATION Achievements

Market analysis - Lessors

On-going work

- Identification of existing lessors whose fleet operate in Europe
 - Current targets focus on regional aviation lessors
- Promotion of EGNOS solutions amongst them to **increase “asset value”**
 - Marketing Intelligence → supporting commercial campaigns from :
 - engineering companies (EASA Part-21, design organisations)
 - avionics manufacturers





AVIATION Achievements

Market Analysis: **PART 145 (Maintenance Organisation Approvals)**

On-going work

- Identification of Part 145 organisation in Europe
 - > 1,500 approved organisations
 - AOCs
 - Part-21s
 - General aviation focussed
 - > 230 holding C3 rating (*Comms and Nav*)
- Raising awareness and promotion of EGNOS opportunities amongst them:
 - Financial incentives
 - Supplemental Type Certificates, Approved Model Lists



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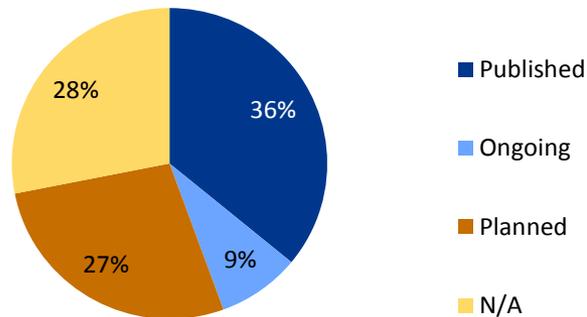


AVIATION: Tools & Actions

Investing in the development of new tools to ease decision making process

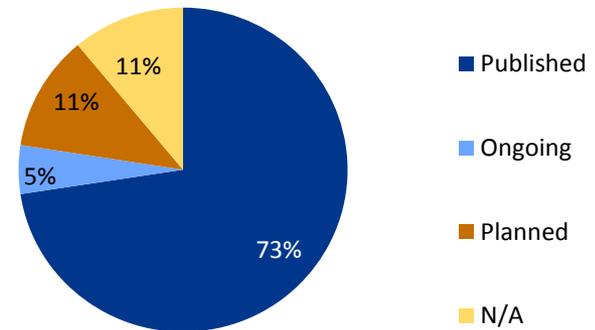
Example of Traffic Assessment for an operator

LPV Status by destination



- 36% of destinations have at least x1 LPV procedure published
- An additional 36% of destinations will have at least x1 LPV procedure by 2020

LPV Status by # of flights



- 73% of flights at destinations with at least x1 LPV procedure published
- An additional 16% of flights at destinations that will have at least x1 LPV procedure by 2020

We study the availability of LPV approaches within the network of destinations of a given aircraft operator/airline.



AVIATION: Tools & Actions

Investing in the development of new tools to ease decision making process

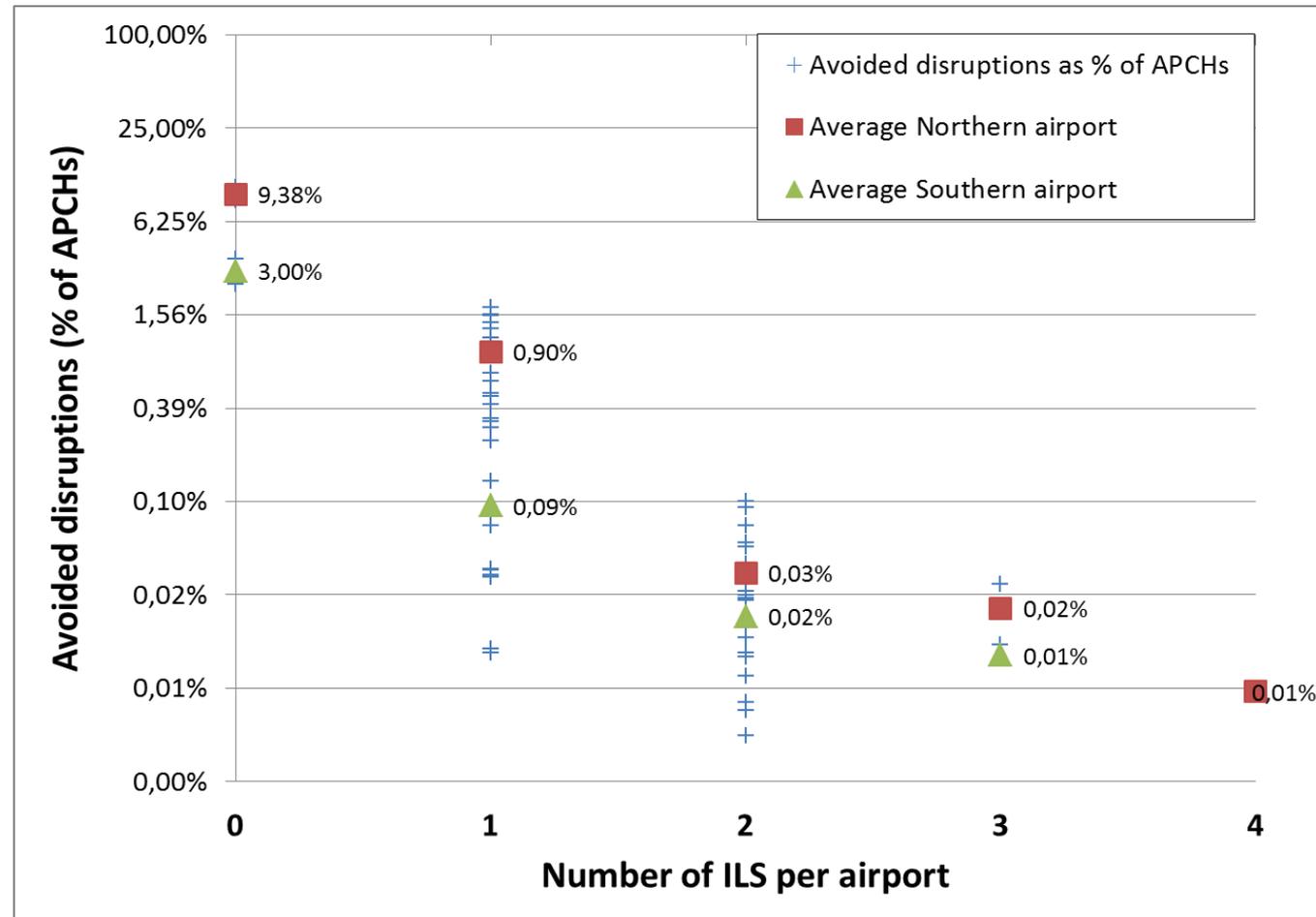
Building statistical models for Cost Benefit Analyses

60 airports analysed:

- 44 Northern EU
- 16 Southern EU

% avoided DDCs (N/S)

- No ILS: 9.38 / 3.00 %
- 1 ILS: 0.90 / 0.09 %





AVIATION: Tools & Actions

Investing in the development of new tools to ease decision making process: **CBA example**

- Largest regional airline in Sweden
- 10 Saab 340 @ 20 destinations (most served by 1 ILS)
- Avoided disruptions (lower DH):
 - 57.55 per year (0.8%): €337,477.31 savings from 2020
- Mission savings
 - 36,87h per year (Avoided DME arcs at 5 airports): €65,831.33 from 2020
- Costs: €165K per aircraft (20% shared with ADSB+CPDLC installation)
- Results:

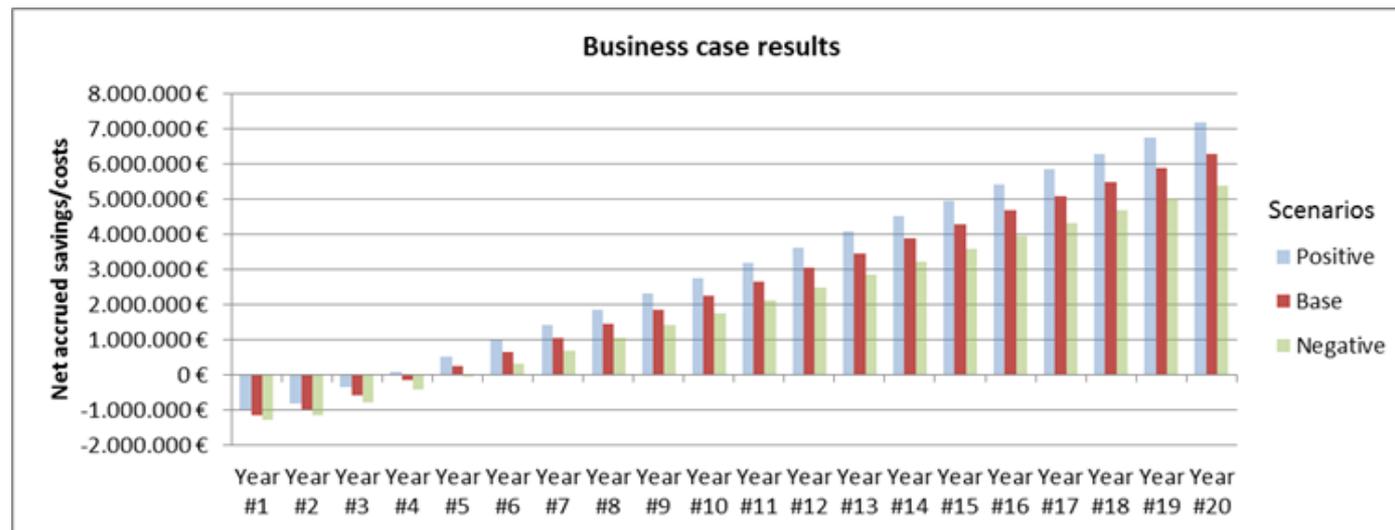


- No funding:
Breakeven **4.42y**
- 60% funds:
Breakeven **2.45y**

Retrofit on-going
(Receiving GSA funding via
call for grants 2015)



EGNOS, it's there. Use it.





AVIATION

Bits and pieces of what we do

EGNOS
EGNOS. It's there. Use it.

**EGNOS TRAFFIC ASSESSMENT
OMNI AVIATION**

Service Adoption Team - ESSP SAS

30/06/2017

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EGNOS BULLETIN
Issue 23, Q2 2017



Free on-line access to all tools and docs at the [EGNOS USER SUPPORT WEBSITE](#)

NHV Cost Benefit Analysis for LPV retrofit

30/06/2017 - Douglas Peck



TRAFFIC ASESMENTS and CBAs under request at egnos-adoption@essp-sas.eu

EGNOS
EGNOS. It's there. Use it.

Flight crew basic theoretical training for
RNP APCH down to LPV minima

European Satellite Services Provider S.A.S.
Service Provision Unit

Issue 1.1 - September 2015

HOW TO
Become compliant with European requirements for
RNP APCH operations to LPV minima

**SUCCESS
STORIES**

SWISS Bombardier
CS100s flying EGNOS

EGNOS **Morris Leslie** **ACS**

**Business case -
EGNOS benefits for Perth airport**

http://egnos-portal.gis.eurpsa.eu/
http://egnos-user-support.essp-sas.eu

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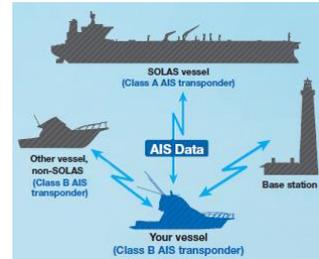
EGNOS in maritime

- EGNOS Multimodal Adoption Plan Priorities 2017
- Actions & Tools placed to foster EGNOS adoption

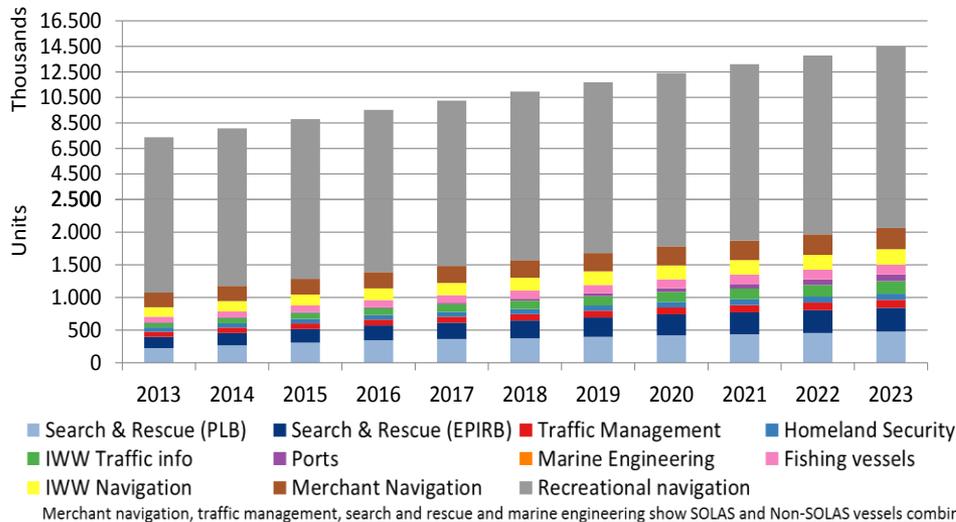
EGNOS in maritime GSA Strategy

Applications

- Navigation
 - SOLAS vessels (SoL) / Non- SOLAS vessels
 - Inland waterways
- Positioning:
 - Traffic Management and surveillance (incl. including Automatic Identification System - AIS)
 - Port operations and Environmental protections



Installed base of GNSS devices by application



Where we want to be:

EGNOS adopted by maritime users for safety-related applications.

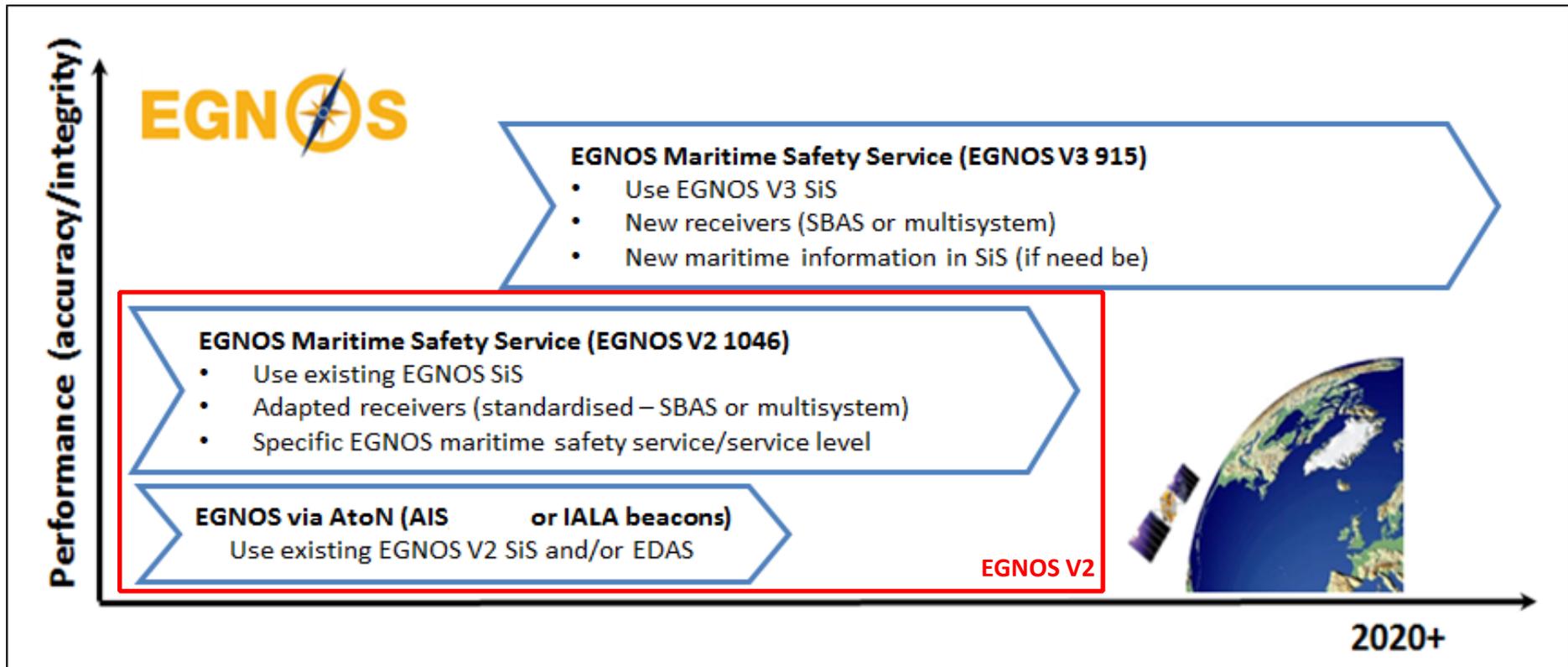
By 2020: EGNOS complementing DGNSS infrastructure providing integrity information for inland and coastal waters.

How to get there:

- EMRF WG: Service provision aspects
- RTCM SBAS WG: Guidelines for SBAS shipborne receivers
- IALA PNT WG: Guidelines for the transmission of EGNOS corrections via IALA beacons and AIS
- Pilot project for transmission of EGNOS corrections via IALA beacons/AIS with National Maritime authorities

Ca. 80% of GNSS receivers models are EGNOS enabled

High level roadmap for EGNOS in maritime





MARITIME

EGNOS Multimodal Adoption plan 2017 Priorities

GENERAL NAVIGATION



Regulated

EGNOS

1 Cost-benefit analysis for recapitalization of marine radiobeacons using EGNOS

2 Analysis of EGNOS v2 performances for its use in maritime using integrity data

3 Guidelines for the implementation of SBAS in shipborne receivers

4 Guidelines for transmission of EGNOS corrections via AIS stations

EDAS

5 Guidelines for transmission of EGNOS corrections via IALA beacons



Unregulated
Leisure

EGNOS

6 Provide support in communicating EGNOS benefits to users and receiver manufacturers/dealers

LEISURE

Market Uptake



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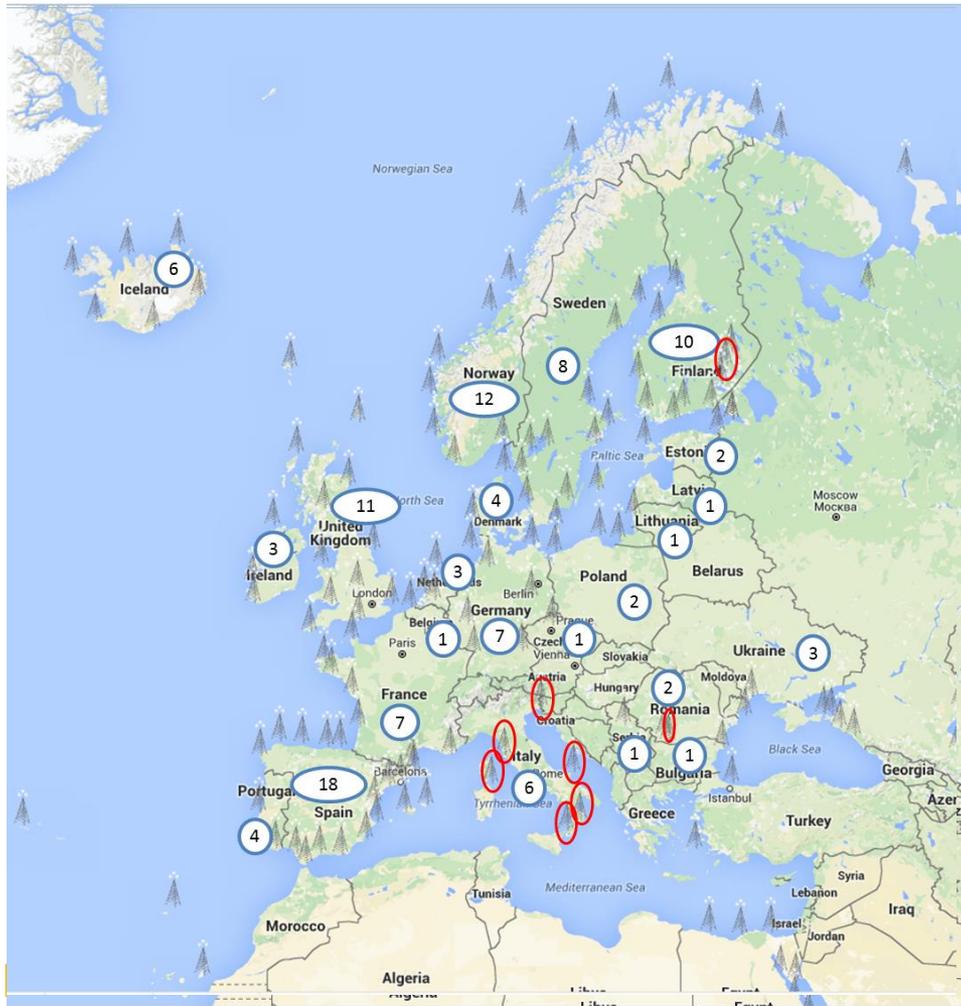
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Maritime

EGNOS corrections via IALA beacons & AIS stations (I)



EGNOS, it's there. Use it.

Agency

- European Waters are served with DGPS & AIS stations
- Some DGPS networks are experiencing obsolescence issues
- AIS networks need GPS corrections to send MT17 (mainly in inland waters)

There is room for **EGNOS**

IALA beacons location and status

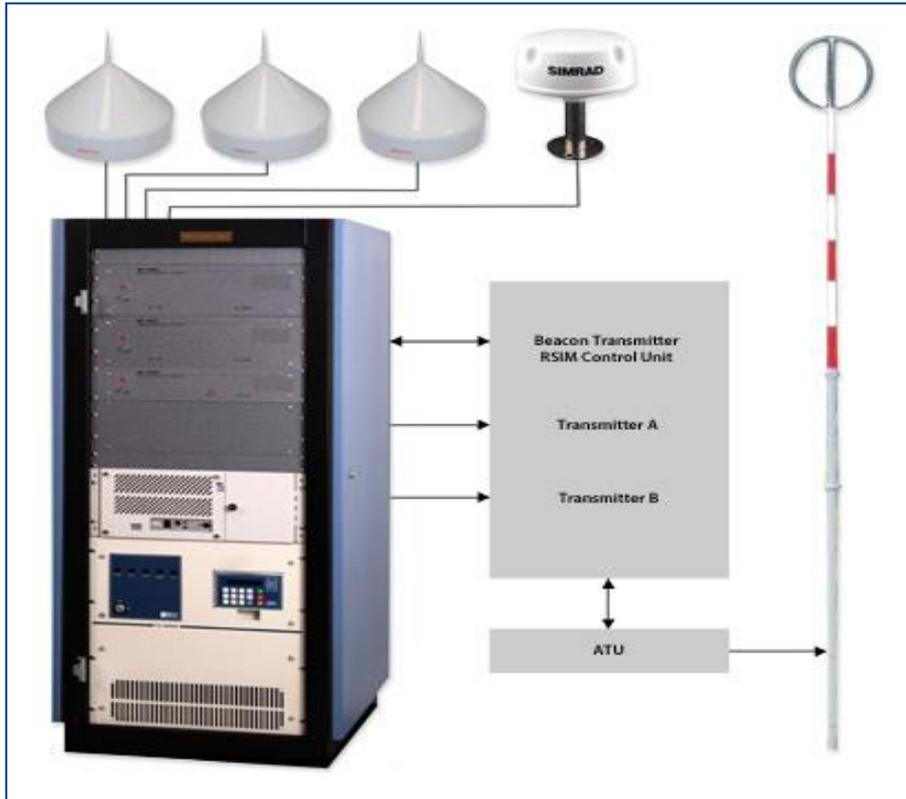


Precise navigation,
powered by Europe



Maritime

EGNOS corrections via IALA beacons & AIS stations (II)



DGSS station: GNSS receiver + MF transmitter. Courtesy: MxMarine





Maritime

EGNOS corrections via IALA beacons & AIS stations (II)



DGSS station: GNSS receiver + MF transmitter. Courtesy: MxMarine

High level architectures of an EGNOS based DGSS service over IALA beacons EGNOS SIS or/and EDAS guides

UNDER IALA APPROVAL

For interested AtoN authorities, it is offered:

- Architecture analysis & EGNOS based architectures proposal
- Cost analysis

Done for:

Puertos del Estado





Maritime

Preparing the needed background for an EGNOS maritime service

Sub-group in EMRF/NMSP to ensure an European common and harmonized approach for the Services provision aspects in the EGNOS introduction in the Maritime domain



On the 5th & 6th October: in the same venue as the EGNOS workshop, next EMRF meeting



Maritime

Preparing the guidelines for Rx manufacturers

Keep on working on the “Draft Guidelines for Manufacturers for the Implementation of SBAS in Shipborne Receivers”:

- ✓ To establish the minimum set of SBAS messages to be processed by an SBAS receiver for the maritime sector to be compliant with the IMO Resolution A.1046.
- ✓ Presentation in RTCM SC-104
- ✓ Creation of a SBAS subgroup in RCTM SC-104 to





Maritime

Understanding maritime charts & navigation requirements

- Although the precision requirement in ports' nautical charts is 2 meters, these charts are compiled with **greater accuracy**. Data are gathered with more precision even though the chart says that the minimum required precision is 2 meters
- Port management activities are performed using the **charts produced by the port authority** which are renewed very frequently (e.g.: Port of Amsterdam: they renew their charts every 48 hours)
- Electronic Navigation Charts (ENCs) that the port produces can be used internally within the port, in Vessel Traffic Management Systems (VTMS) or on Portable Pilot Units (PPUs), for example, for detailed berthing or manoeuvring of vessels.

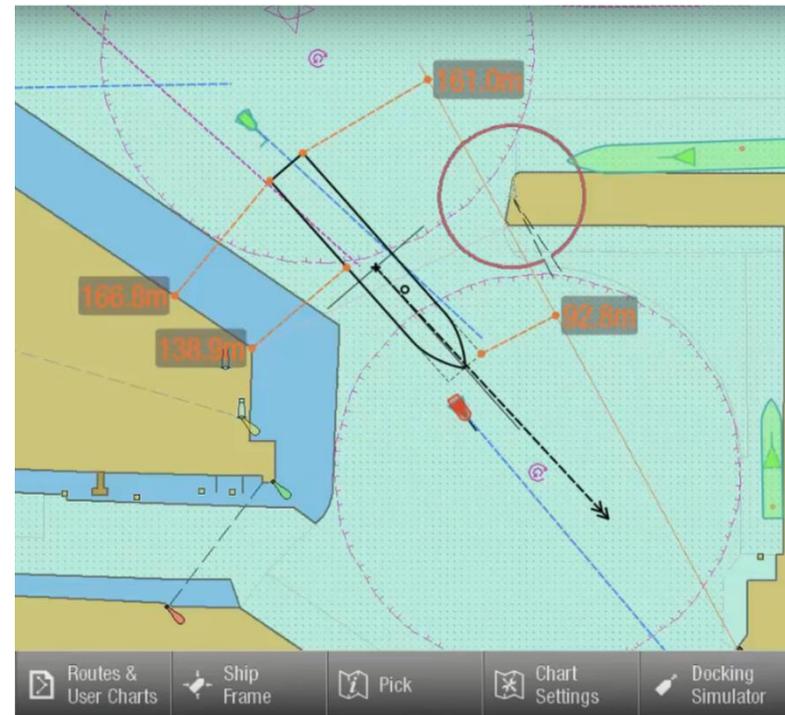


Chart displayed in a PPU (ORCA Pilot G2)



Maritime

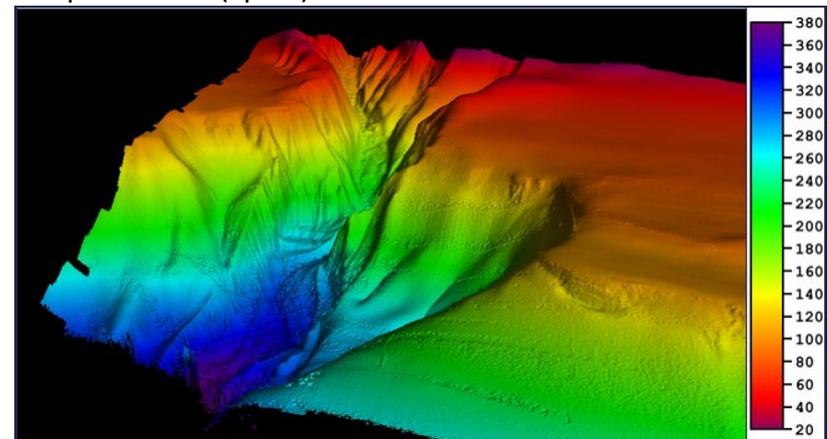
EGNOS used in charts by means of bathymetries

An average area of 685000 square kilometres in the Cantabric EEZ, has been surveyed using EGNOS by the IHM-Spain.

EGNOS complies with accuracy requirements posed by IHO S-44 for areas away from the coast (200miles)



Cape Sacratif (Spain)

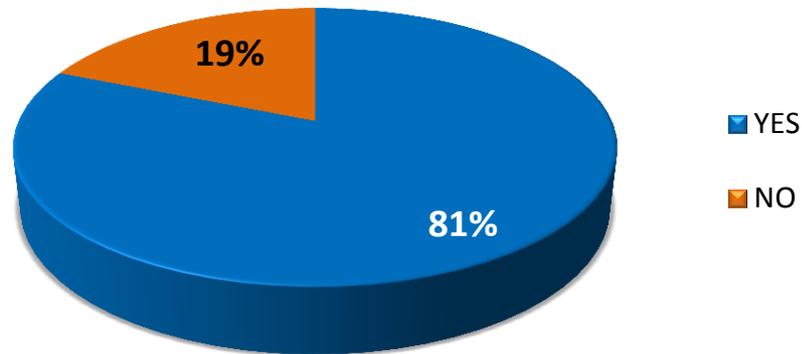


Bathymetry corresponding to Cape Sacratif, where EGNOS corrections were used. IHM courtesy



Maritime non-SOLAS Equipment

SBAS compatible



- 48 new or revamped non-SOLAS navigation equipment (officially authorised)
- 39 are SBAS compatible
- In 37, EGNOS is explicitly mentioned in documentation

- All new COBRA, FURUNO, KODEN, LOWRANCE and RAYMARINE devices are SBAS compatible and mention EGNOS

EGNOS mentioned

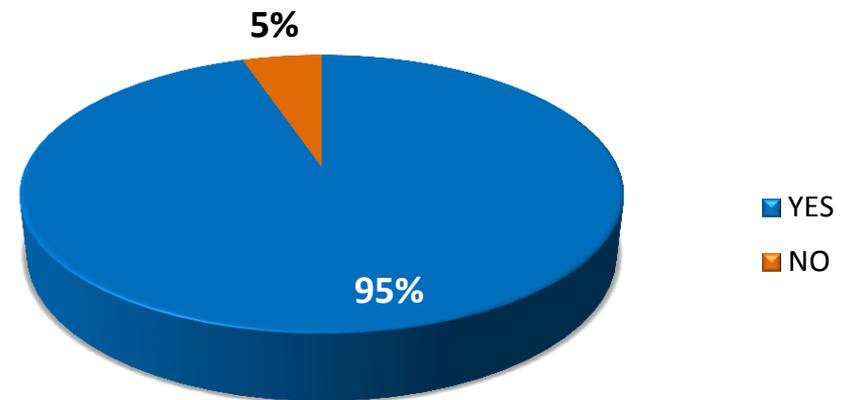


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E-GNSS value proposition for different RAIL applications

Signalling

Combination of E-GNSS with sensors for precise train positioning for use in safety of life CCS applications or with conventional communication technologies for logistics applications.

Logistics

Low density lines



Improve safety and reduce the cost of signalling (requires very few or no line side components)

Main lines



Reduce the number of physical balises and to improve the precision of the odometry

Asset management



Improve monitoring of the railway infrastructure both for operators and infrastructure managers

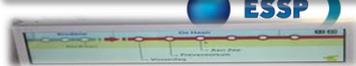
Cargo monitoring



Improve availability of the supply chain visibility information to the LSP/LSC:

- Georeferenced cargo status monitoring
- Corridorng, Geofencing

Passenger information systems



Improve precision and availability of positioning for on board PIS

EGNOS in RAIL

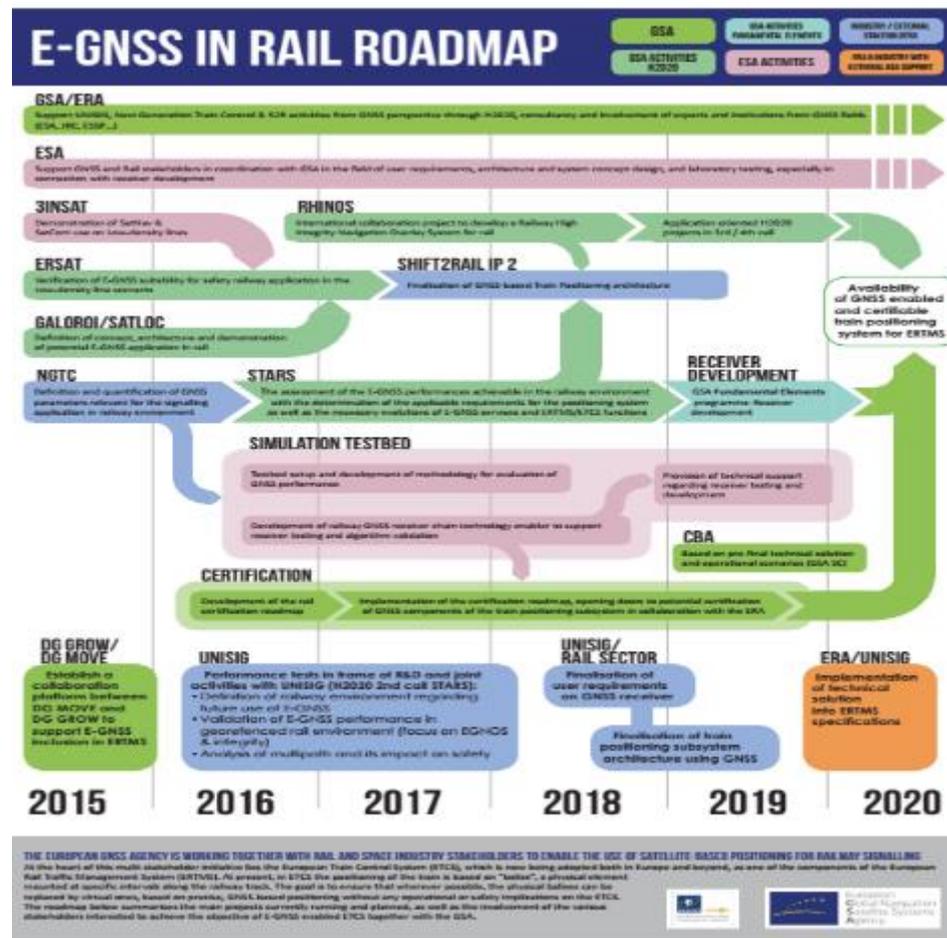


Where we want to be:

- EGNSS adopted as one of the key elements of the train command and control solutions enabling safe and efficient operations of low density lines
- EGNSS adopted within evolutions of ERTMS for main lines

How to get there:

- Support UNISIG in their effort to define industry requirements
- Coordinate relevant R&D activities together with key funding and standardization bodies (EC, ERA, ESA, ESSP, UNIFE, UNISIG and Shift2Rail)
- Cooperate with railway associations and EC to foster the role of EGNSS in the evolutions of ERTMS standard and in the standardization and certification of EGNSS receivers



RAIL

EGNOS Multimodal Adoption plan 2017 Priorities

GSA Strategic objectives

EGNSS functionalities included into the ERTMS

EGNOS benefits promotion and support to users and relevant stakeholders

Market Adoption Actions

Support to GSA with EGNOS promotion and awareness

Provide technical consultancy on safety relevant applications

Support to EGNOS users



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Rail supporting GSA

In safety relevant applications

- ✓ *Paving the way for service provision scheme for SoL use*

Exploring possibilities for

- ✓ *Public Transport*
- ✓ *Location of GSM-R reports*
- ✓ *EGNOS transmitted by the RBC to the on-board unit*

Keeping contact with stakeholders, gather feedback, attend key events



International Conference on the Single European Railway Area



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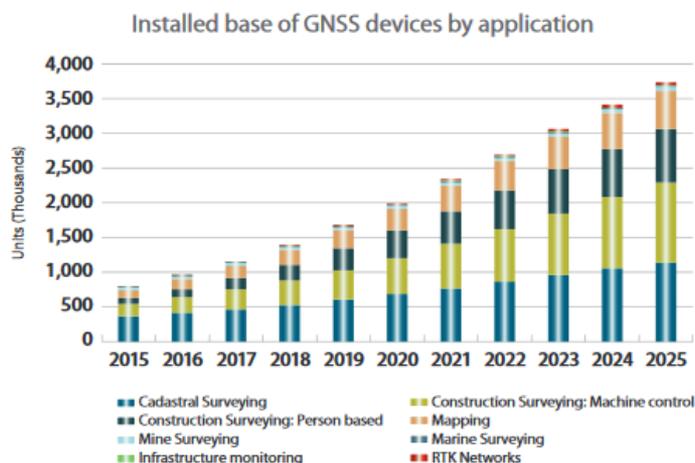
EGNOS in Mapping/Surveying

Applications:

- Thematic Mapping for municipalities
- Forestry/park management
- Construction surveying
- Utility Infrastructure monitoring



87% of GNSS receivers are EGNOS enabled



Where we want to be by 2020:

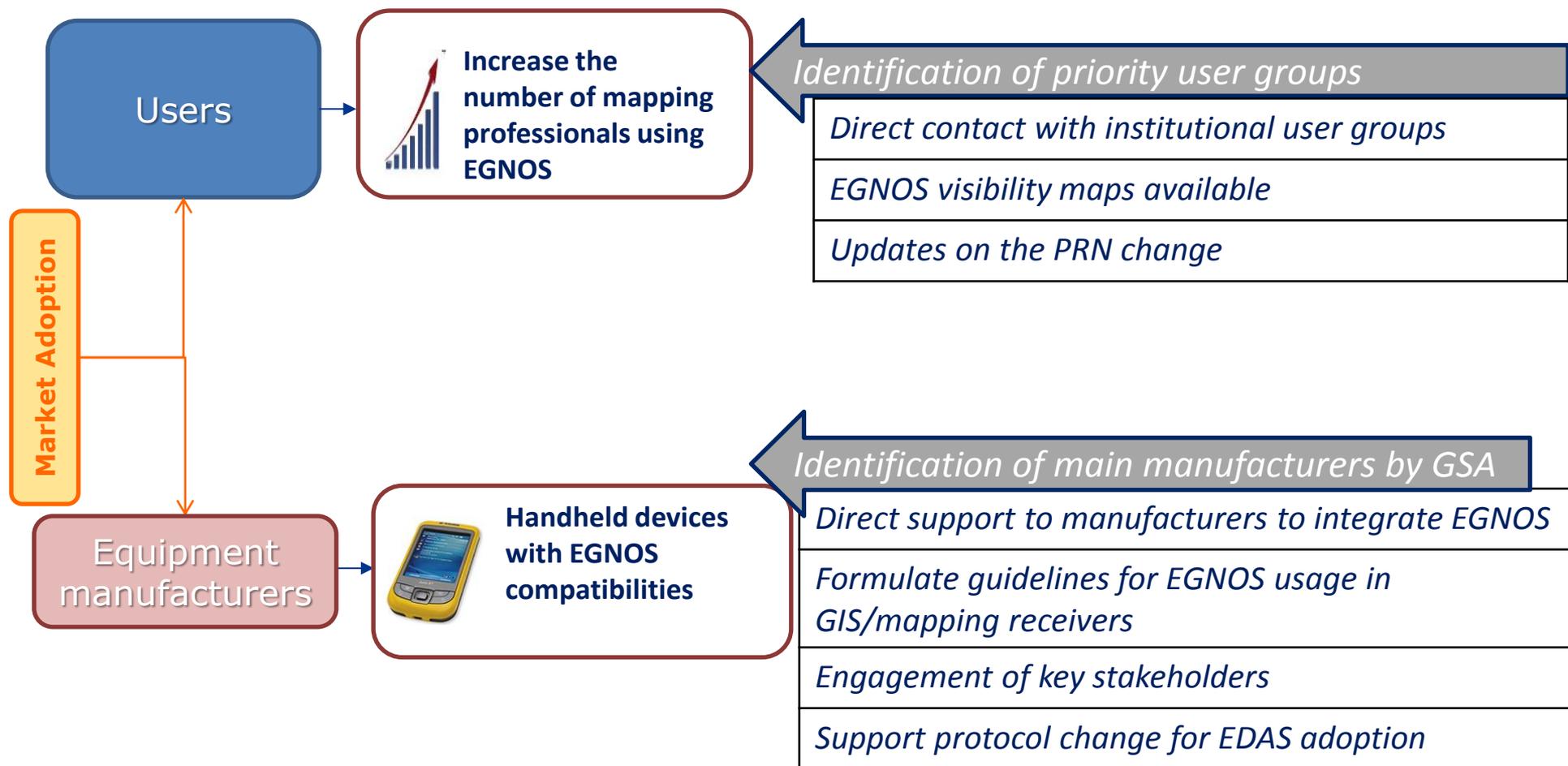
- EGNOS preferred entry technology for mapping and GIS in Europe, Africa and Middle East

How to get there leveraging EGNOS benefits :

- Service definition: EGNOS V3 with dual frequency and dual constellation capabilities from 2020+
- Strengthen partnerships with mapping/GIS users
- Leverage specialised media and events
- Build on H2020 and FE R&D activities in order to cross fertilise with overall Surveying/Mapping strategy

MAPPING & SURVEYING

EGNOS Multimodal Adoption plan 2017 Priorities



EGNOS in Agriculture

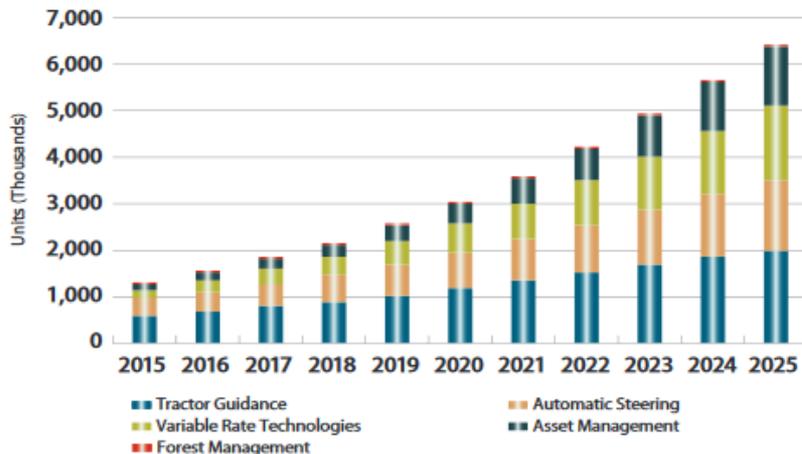
Applications:

- Tractor guidance
- Variable Rate Technologies
- Asset Management
- Forest Management



Almost 80% of European GNSS enabled tractors are using EGNOS

Installed base of GNSS devices by application



Where we want to be by 2020:

- EGNOS preferred entry technology for precision agriculture in Europe, Africa and Middle East

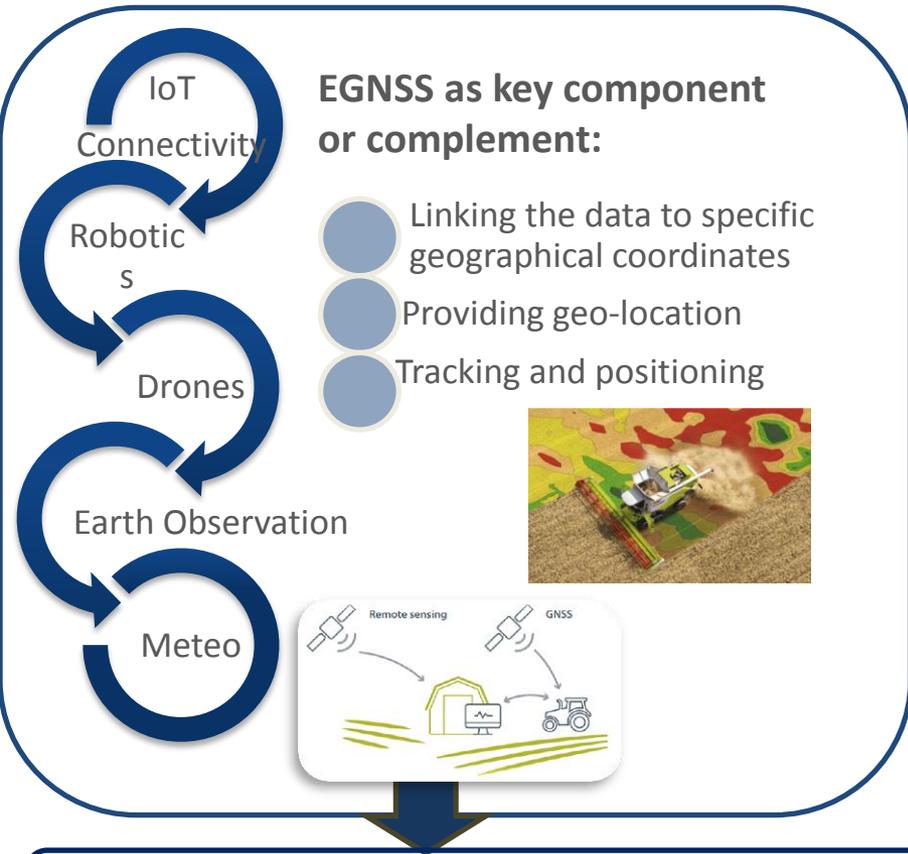
How to get there:

- Service definition: EGNOS V3 with dual frequency and dual constellation capabilities from 2020+
- Strengthen partnerships with associations of farmers and paying agencies
- Leverage specialised media and events
- Build on H2020 and FE R&D activities in order to cross fertilise with overall Agriculture strategy

Key Trends:

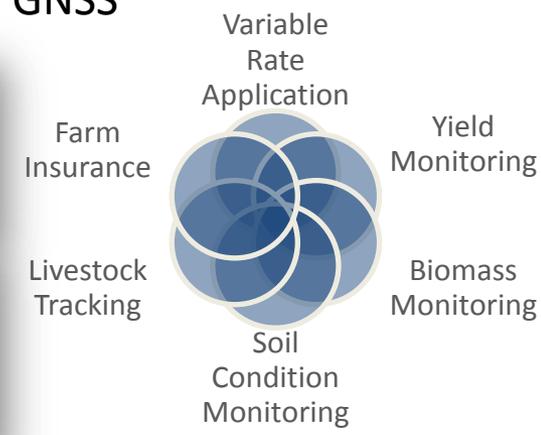
- GNSS stimulates integrated farm management's uptake
- The drones uptake

GNSS is a core component in Integrated Farm Management Systems



Integrated Farm Management Systems support farmers in their decision-making

Uptake of Drones in Precision Farming increases the use of GNSS



GNSS is the backbone of commercial drones and a key enabler ensuring safe navigation and reliability

Agriculture alone could be a \$350 million market in 2025
 Fragmented **regulation over Europe** - barriers to the **development** of commercial use drones

* GSA GNSS Market Report, Issue 5

AGRICULTURE & MAPPING

EGNOS Multimodal Adoption plan 2017 Priorities

GSA Strategic objectives

Encourage EGNOS/EDAS usage

Fostering the growth of user groups
to share experience

Demonstrate EGNOS benefits

Further uptake of EGNOS in CAP

Market Adoption Actions

AGRICULTURE

Supporting materials

Contact with paying agencies

UAV in Agriculture

COMMON AGRICULTURE AND MAPPING

Visibility maps

Co-marketing actions

Technical support to
users



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Agriculture & Mapping

Awareness campaign on PRN change

PRN configuration in equipment is found **one of the major problems for OS users**. Farming being probably the most affected user market segment by this fact.

I got asked about outages of EGNOS in the last time. I think this is related to outdated firmware that does not support all actual PRN.



- *Guidance material prepared*
- *PoCs identified to receive information*
- *Specific communication campaign launched (helpdesk, website etc)*

EGNOS satellite messages changing this month

March 15, 2017 - By GPS World Staff

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The GEO satellites broadcasting EGNOS messages are **going to be changed**.

On March 20, PRN 123 (now in test) will be introduced in the operational platform, and on March 21, PRN 136 will be moved from the operational platform to the test platform.

Users equipped with non-(E)TSO-certified SBAS receivers (such as those used in agriculture, surveying, mapping and maritime, but not in aviation), it is recommended that users reassess the equipment configuration after the change, to ensure that both operational EGNOS GEO satellites (PRN 120 and PRN 123) are configured in the equipment.

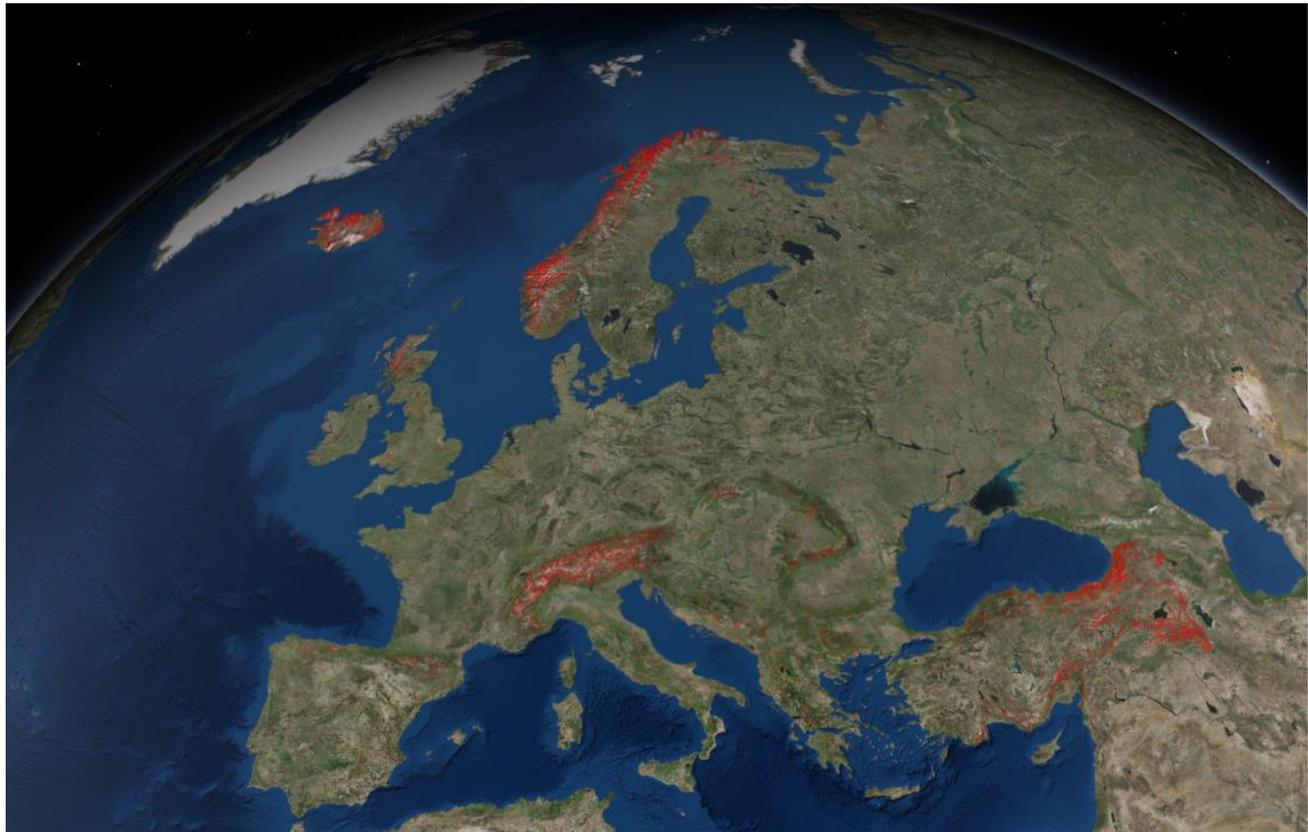


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3D EGNOS Visibility maps

EGNOS is available in all Europe, but how **terrain surface is affecting GEO visibility?**

**SOON
AVAILABLE
ON THE
EGNOS USER
SUPPORT
WEBSITE!**



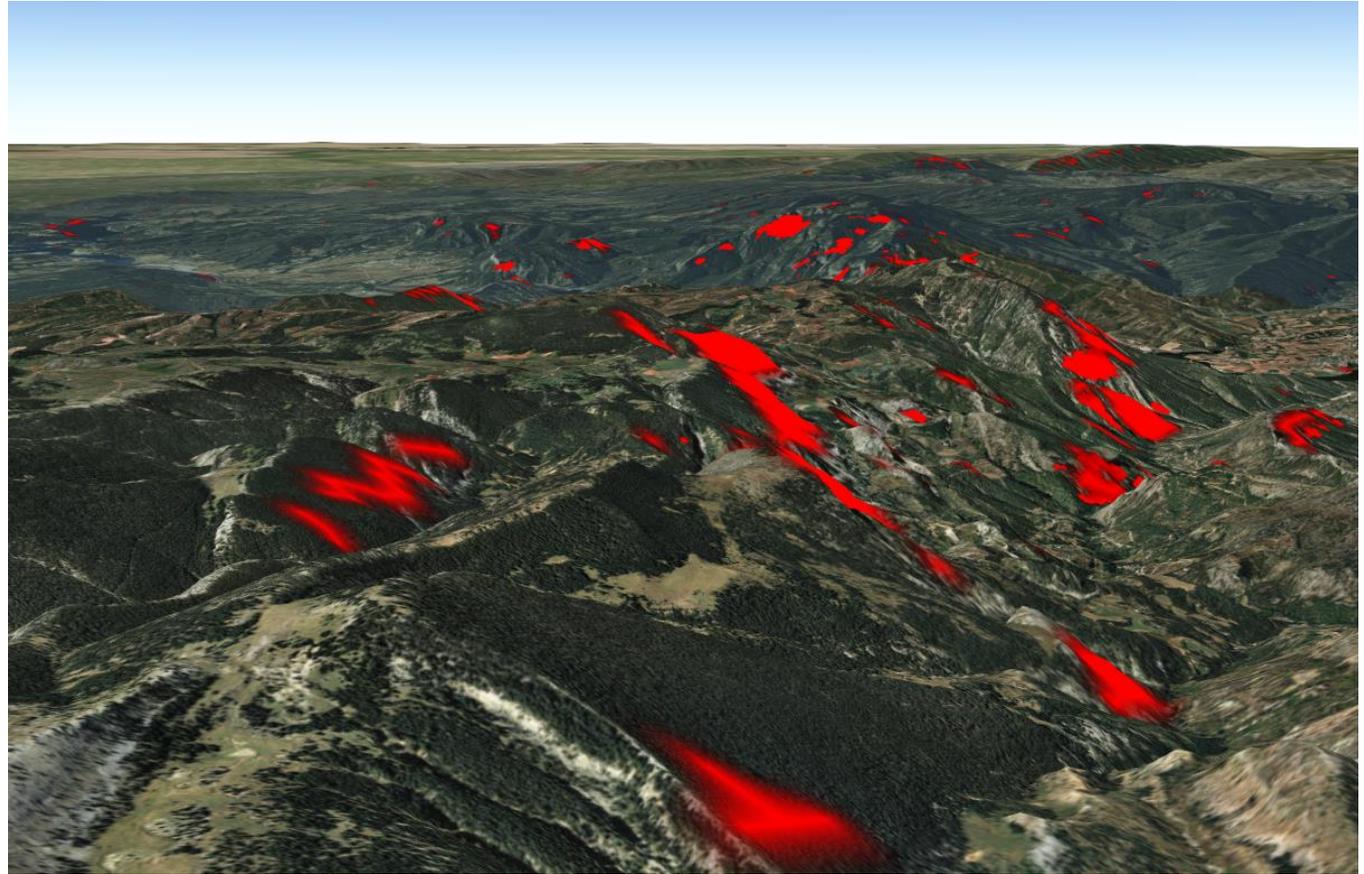


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3D EGNOS Visibility maps

The map supports zooming

Will allow users to identify “EGNOS shadow areas”.



Central Prynee valley



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User devices (I)

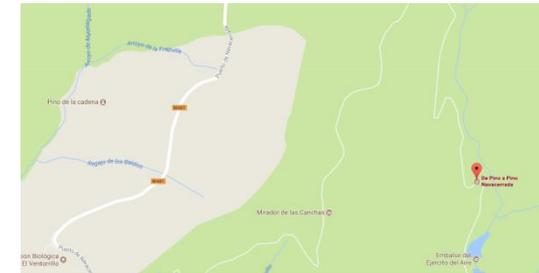
Users need portable, easy to handle devices, rugged, **connected and with GIS SW**

Saving Time is saving €

- *Time needed to obtain information has to be as small as possible*
- *If there is a need to locate thousands of points, minimum time has to be spent*



Geolocating in the field



Office work afterwards



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User devices (I)

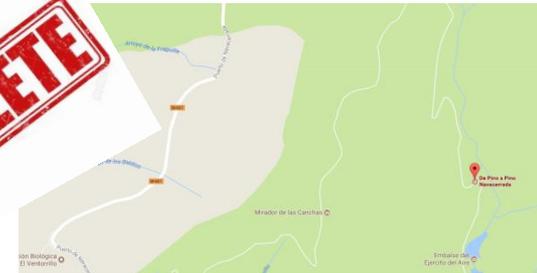
Users need portable, easy to handle devices, rugged, **connected and with GIS SW**

Saving Time is saving €

- *Time needed to obtain information has to be as small as possible*
- *If there is a need to locate thousands of point, minimum time has to be spent*



Geolocating in the field



Office work afterwards

**DEVICES
REQUIRED**



Manufacturers for such type of devices identified and contacted



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User devices (II)



EGNOS on mobile GIS+GNSS equipment

- *69 devices support EGNOS out of the 98 identified (70%)*
- *17 different brands, 4 of them from EU (Leica, Handheld, Stonex, and Satlab Geosolutions)*
- *Typically 4-5 different models per manufacturer*

FEEDBACK HIGHLIGHTS:

- All showed interest in EDAS
- **GENEQ:** *“Yes, we are aware of EGNOS user support webpage and our tech support team consults it regularly”*





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PUBLIC SECTOR:

- Awareness actions triggered towards **JRC**: their lab in Ispra premises has an EGNOS enabled equipment used to gain insight and promote EGNOS use as positioning source in parcels identification
- Supporting training for CAP inspectors for EGNOS use and configuration

PRIVATE SECTOR:

MATERIAL





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PUBLIC SECTOR:

- Awareness actions triggered towards **JRC**: their lab in Ispra premises has an EGNOS enabled equipment used to gain insight and promote EGNOS use as positioning source in parcels identification
- Supporting training for CAP inspectors for EGNOS use and configuration

JORNADA DE FORMACION DE INSPECTORES DE SOLICITUDES DE AYUDAS POR SUPERFICIE

Madrid, 07 de junio de 2017

Salón de Actos del
Ministerio de Agricultura, Alimentación y Medio Ambiente en
San Juan de la Cruz, s/n

GOBIERNO DE ESPAÑA
MINISTERIO DE AGRICULTURA Y PESCA, ALIMENTACIÓN Y MEDIO AMBIENTE

SECRETARÍA GENERAL DE AGRICULTURA Y ALIMENTACIÓN
FONDO ESPAÑOL DE GARANTÍA AGRARIA S.A.

PRIVATE SECTOR:

GETTING CLOSER TO KEY STAKEHOLDERS

CaseNH Group confirmed they consult the EGNOS User Support Website for obtaining information to support their users

EGNOS Space Segment Update
Important notice for EGNOS USERS

From 21st March 2017 onwards, the EGNOS satellite mask forecast in message Type 1) includes the final EGNOS space segment configuration in both operational GEO satellites **PRN 132 and PRN 130**.
One of the GEO satellites in use until that day **PRN 136** has become part of the EGNOS TEST Platform broadcasting the TEST SIS.
Be sure that your receiver is correctly configured to receive the operational GEOs information!

EGNOS SPACE SEGMENT (GEO PRNs)
CHANGED ON 21/03/2017

OPERATIONAL TEST

PRN 120 PRN 123 PRN 136

Do you want to know what Ag Leader, Topcon and CLAAS are saying about EGNOS?

Ag Leader Topcon CLAAS

EGNOS
EGNOS, it's there. Use it.

EGNOS
EGNOS, it's there. Use it.

EGNOS
IN PRECISION AGRICULTURE

egnos-helpdesk@essp-eas.eu
Phone H24/7D +34 911 236 555

ESSP
We certify you're there.
www.essp-eas.eu

European Commission
European Navigation Satellite Systems Agency

European Commission
European Navigation Satellite Systems Agency

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ean
Global Navigation Satellite Systems Agency





Agriculture & Mapping Increasing Awareness

GEOSPATIAL
WORLD



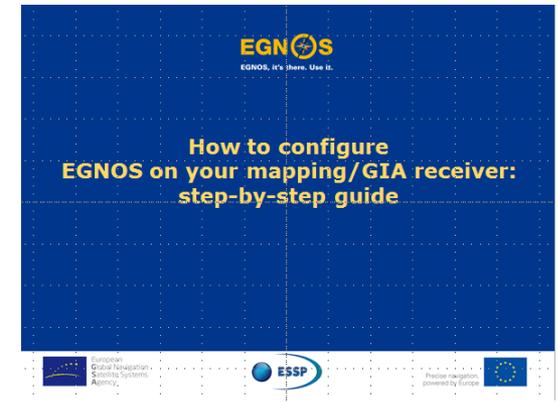
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Home > Articles > European SBAS: EGNOS offers free sub-metre accuracy in Europe

European SBAS: EGNOS offers free sub-metre accuracy in Europe

By Reinhard Blasi, Carlos de la Casa, Álvaro González, Alina Hriscu - September 1, 2017

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EGNOS
EGNOS, it's there. Use it.

European
Global Navigation
Satellite Systems
Agency



Precise navigation,
powered by Europe

Thank you!

Questions?



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