



EGNOS Services Performance & Roadmap

EGNOS Annual Workshop 2017

03RD OCTOBER 2017



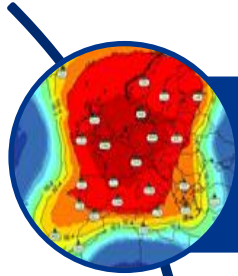
European
Global Navigation
Satellite Systems
Agency



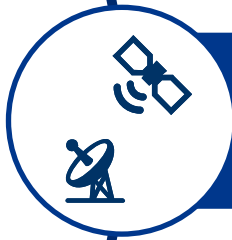
Precise navigation,
powered by Europe



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EGNOS Performance Overview

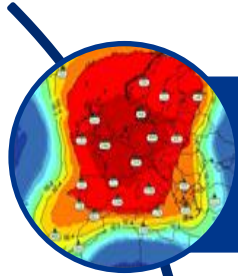


EGNOS Status

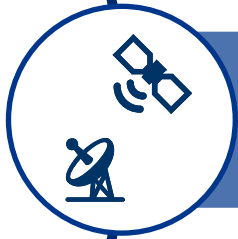


EGNOS Services Evolution

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EGNOS Performance Overview



EGNOS Status



EGNOS Services Evolution

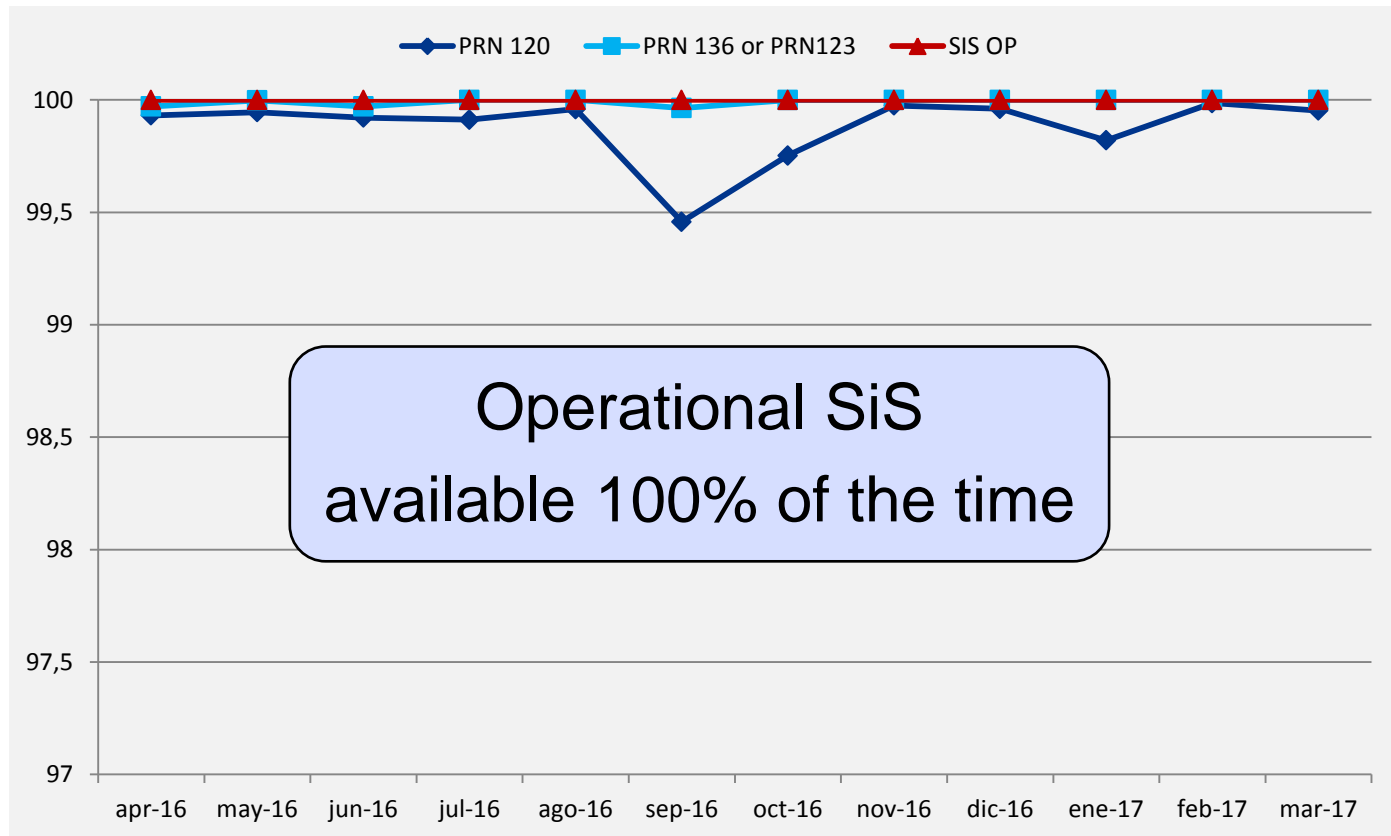
Service Performance Overview (ToC)

- Signal in Space Availability
- EGNOS Safety of Life Service
- EGNOS Open Service
- EDAS Service

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Signal in Space Availability



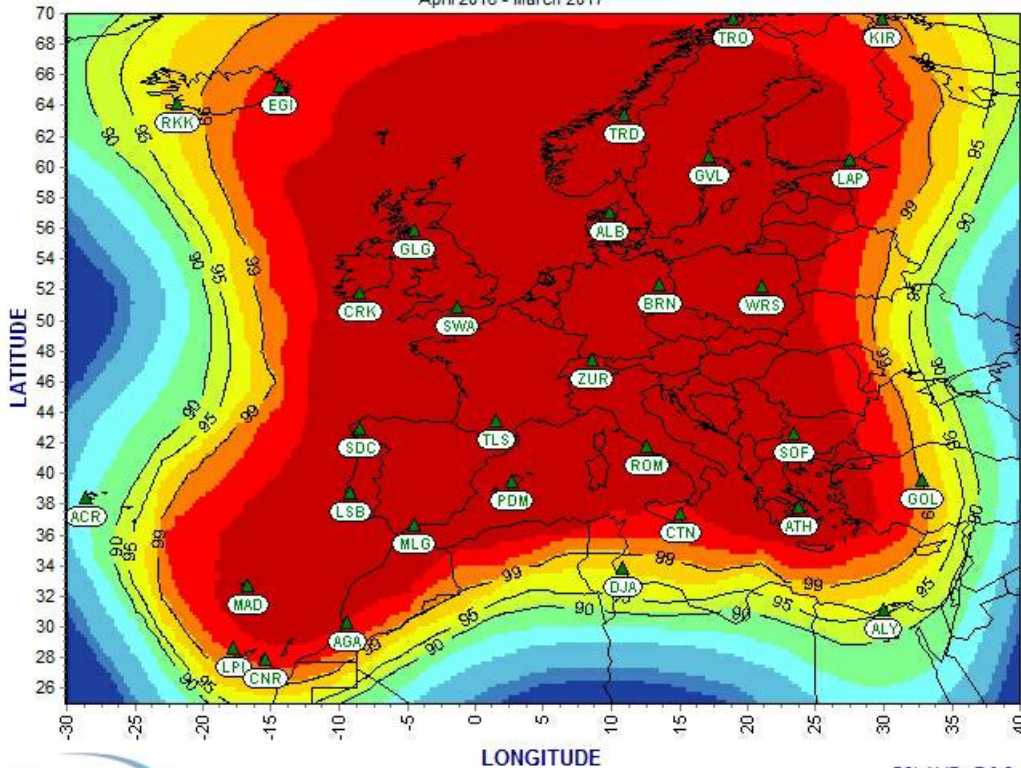
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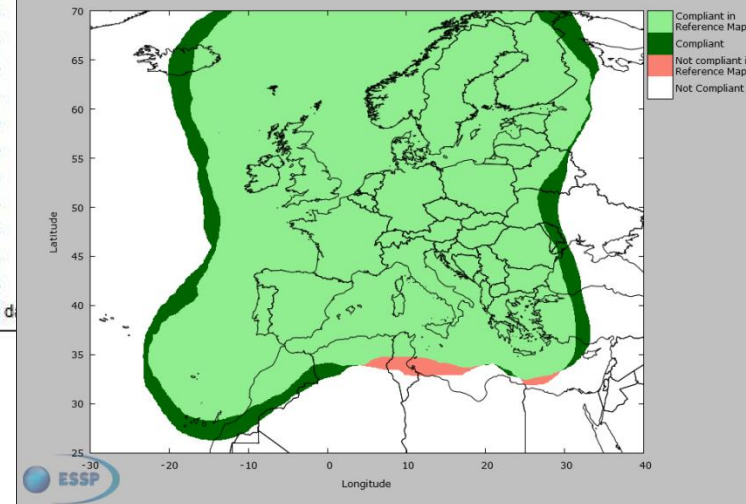
EGNOS SoL: APV-1 Availability

APV-I Availability

April 2016 - March 2017



APV-I Availability over 99% with respect to Reference Area



Compliance beyond the Service Area except in the south due to some failures in CTN and DJA stations



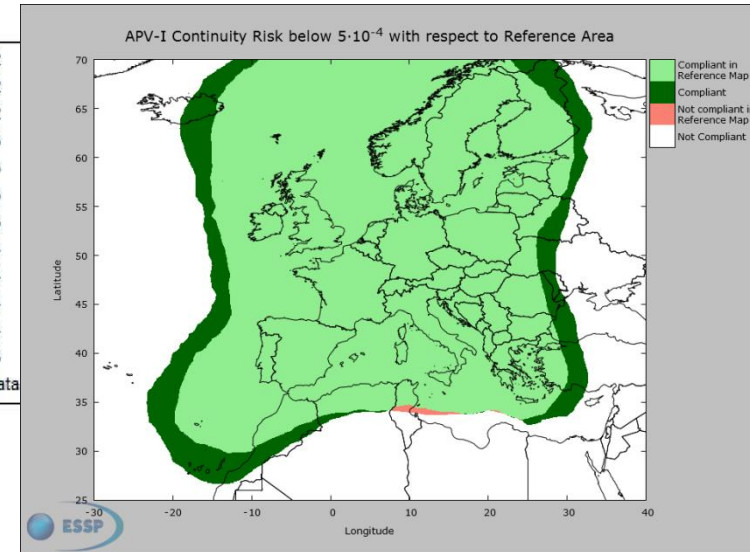
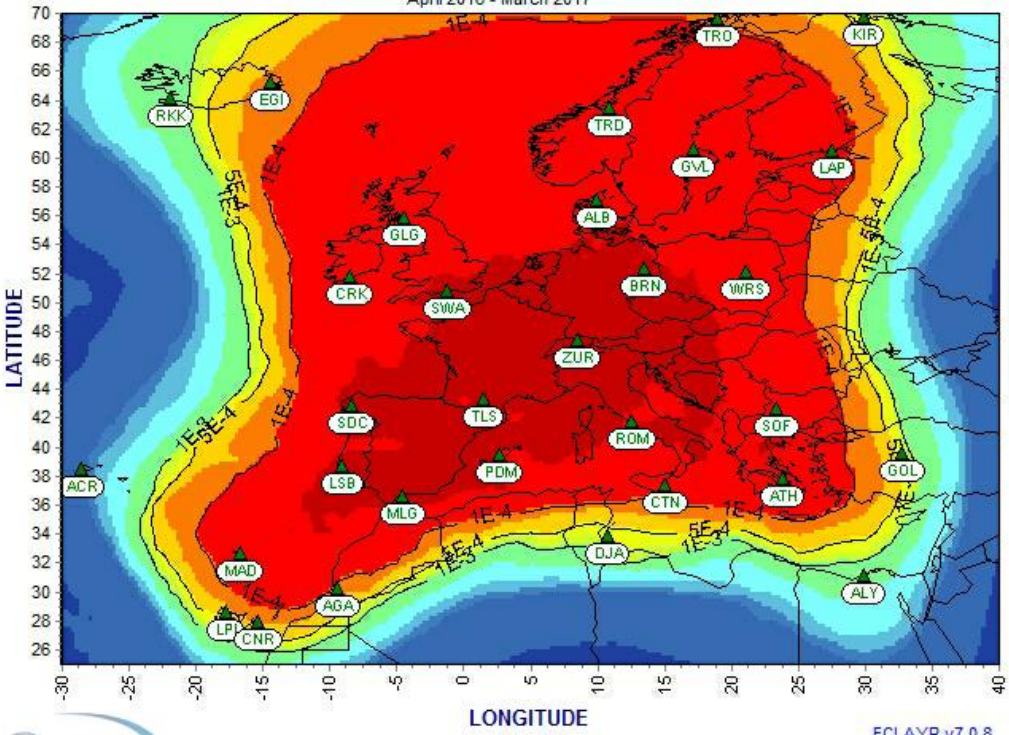
ECLAYR v7.0.8
Produced by ESSP SAS



EGNOS SoL: APV-1 Continuity

APV-I Continuity Risk

April 2016 - March 2017



Compliance beyond the Service Area except in the south due to some failures in CTN and DJA stations



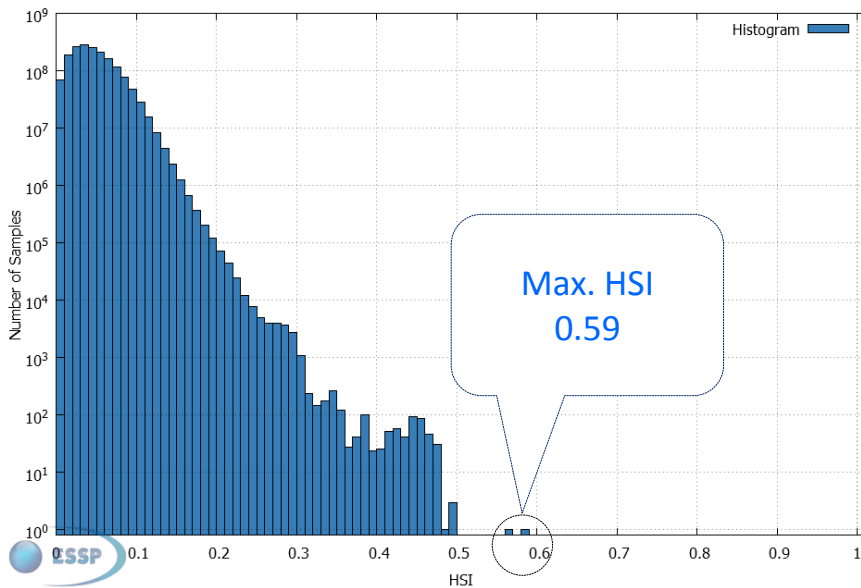
ECLAYR v7.0.8
Produced by ESSP SAS



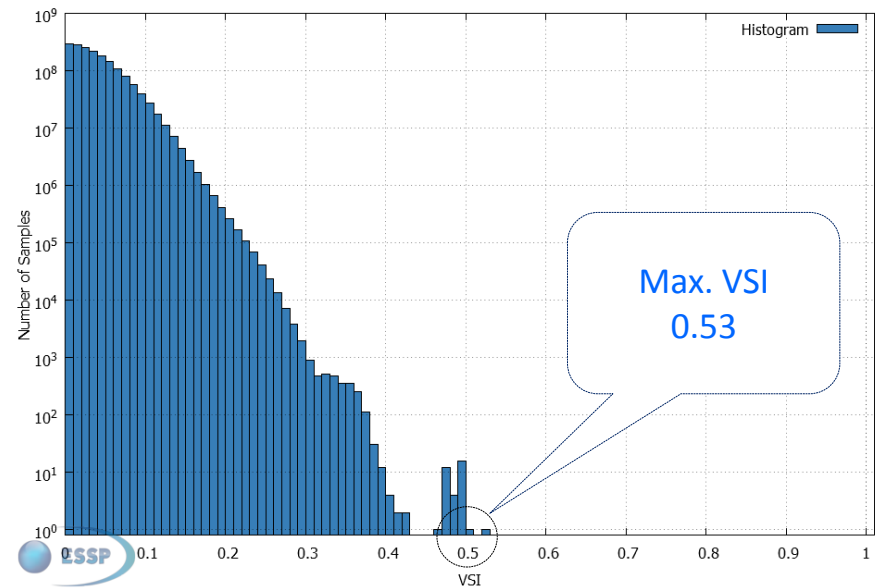
EGNOS SoL: APV-1 Integrity

- The measurements of the **Safety Index** in all RIMS stations demonstrate very **good confidence**.
- Safety index (PE/PL):

APV1 HSI Histogram
01/04/2016 - 31/03/2017

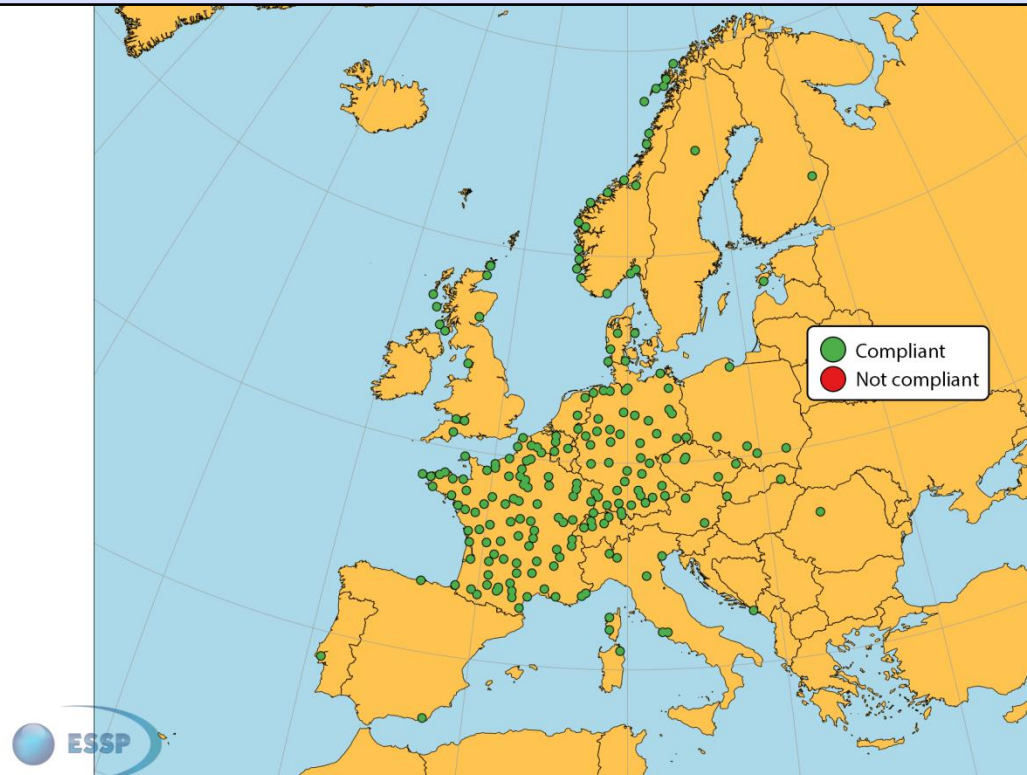


APV1 VSI Histogram
01/04/2016 - 31/03/2017

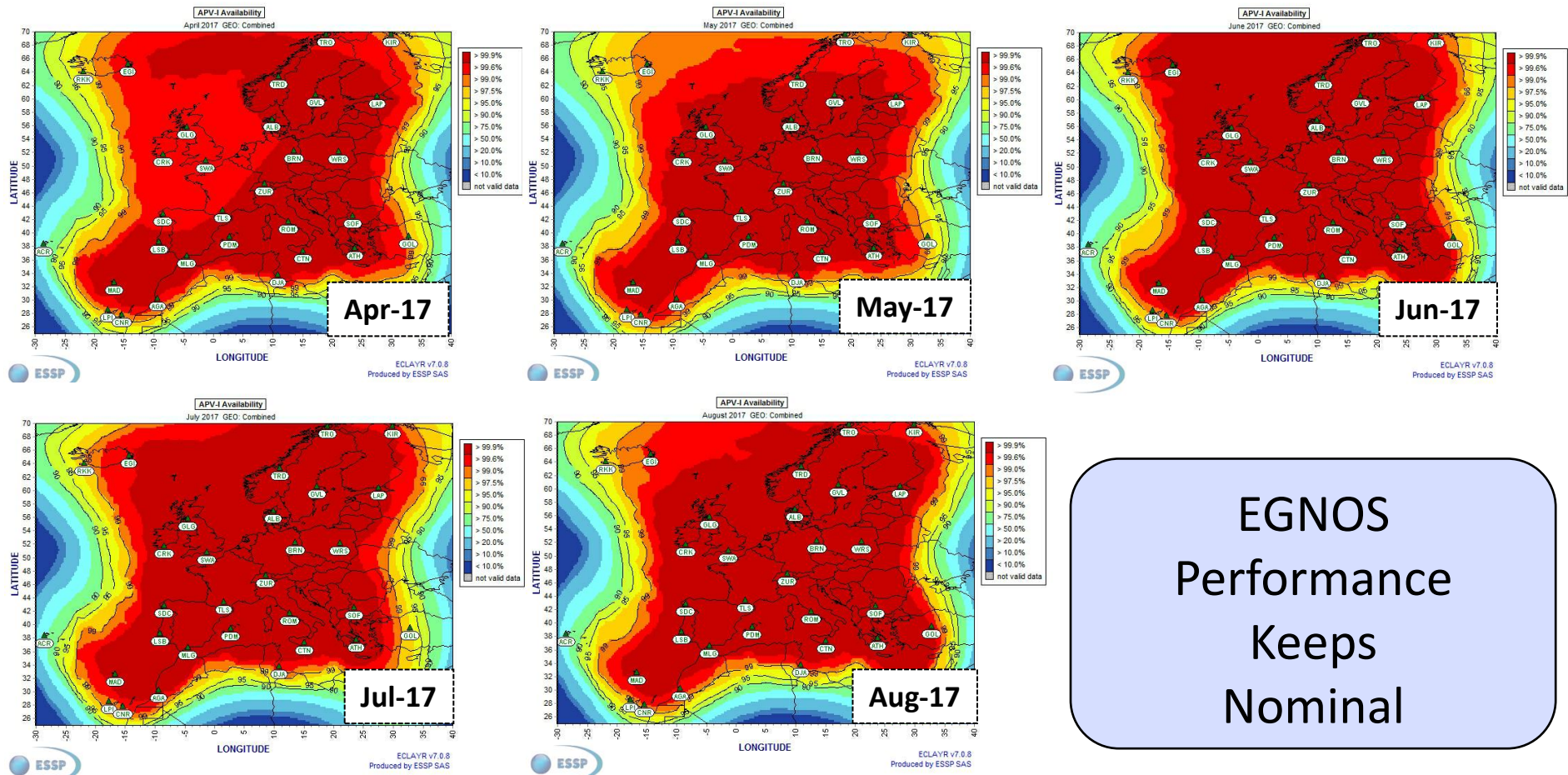


EGNOS SoL: APV-1 Availability at airports with LPV procedures

Compliance at all airports during the whole period (01-Apr-16 to 31-Mar-17)

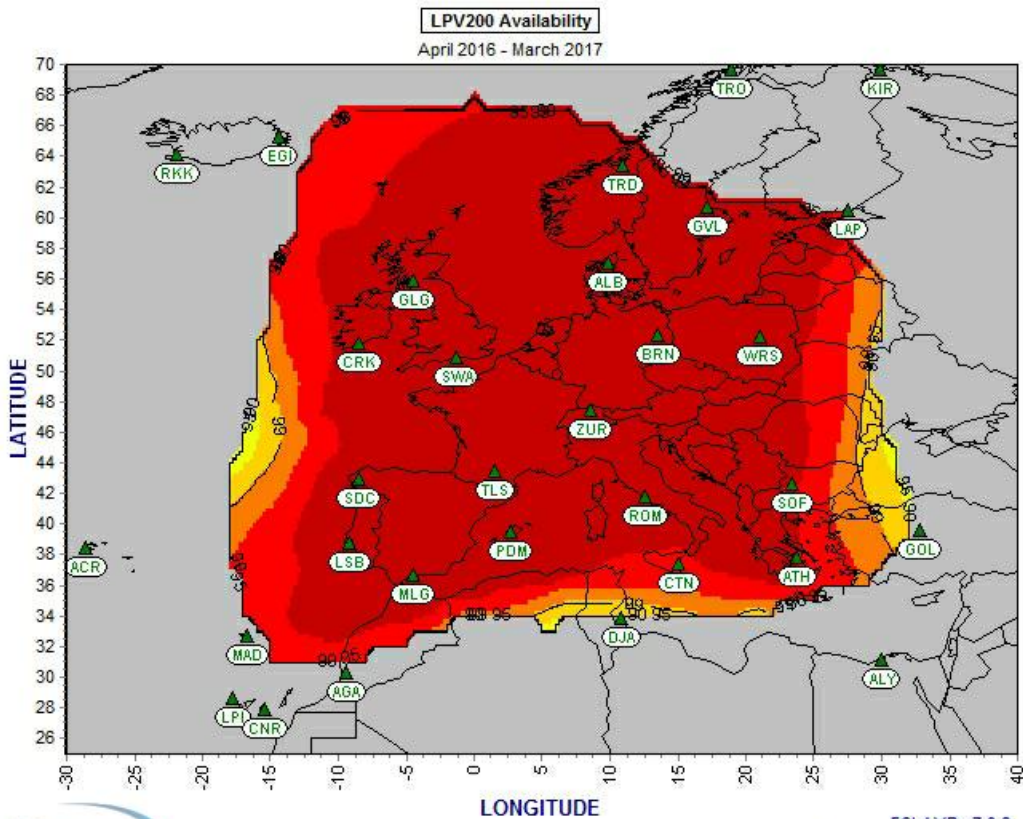


EGNOS SoL: APV-1 Availability latest months

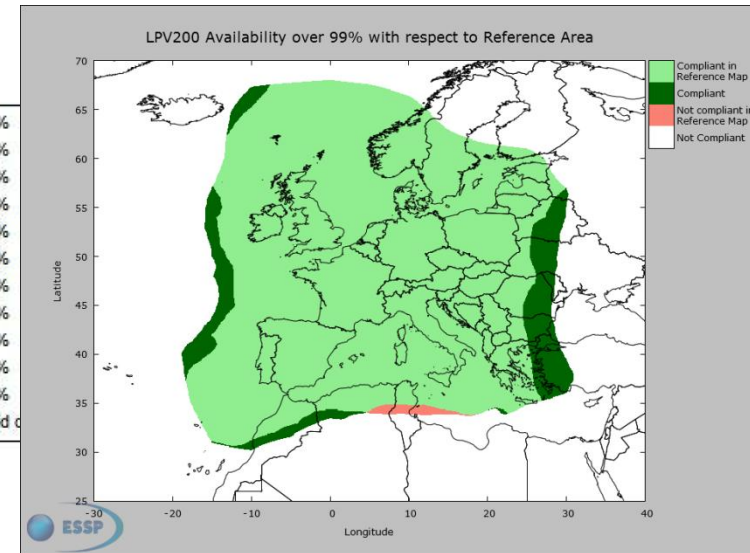


EGNOS
Performance
Keeps
Nominal

EGNOS SoL: LPV200 Availability



ECLAYR v7.0.8
Produced by ESSP SAS



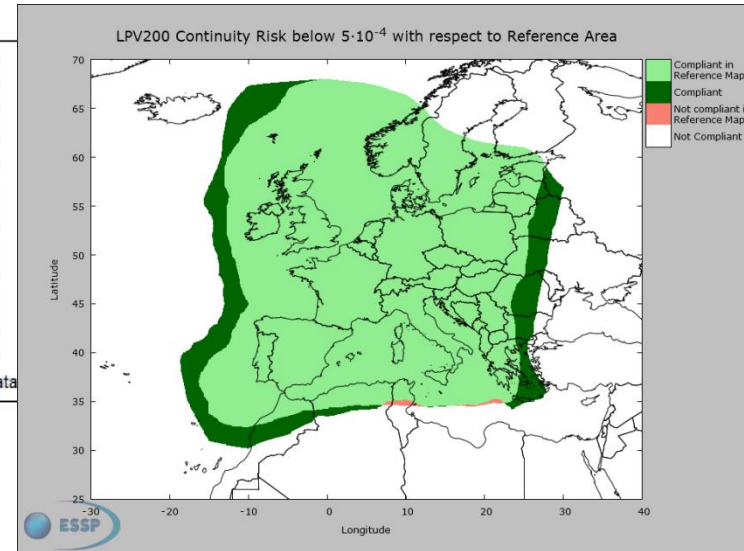
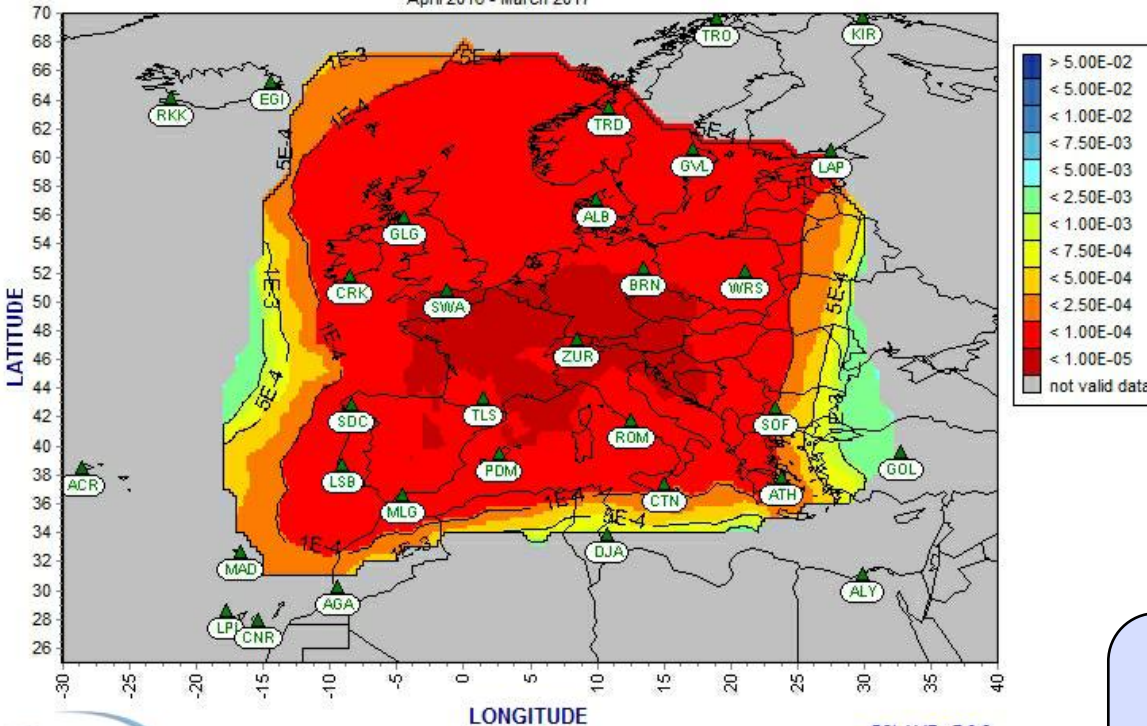
Good compliance of the Service except in the south due to some failures in CTN and DJA stations



EGNOS SoL: LPV200 Continuity

LPV200 Continuity Risk

April 2016 - March 2017

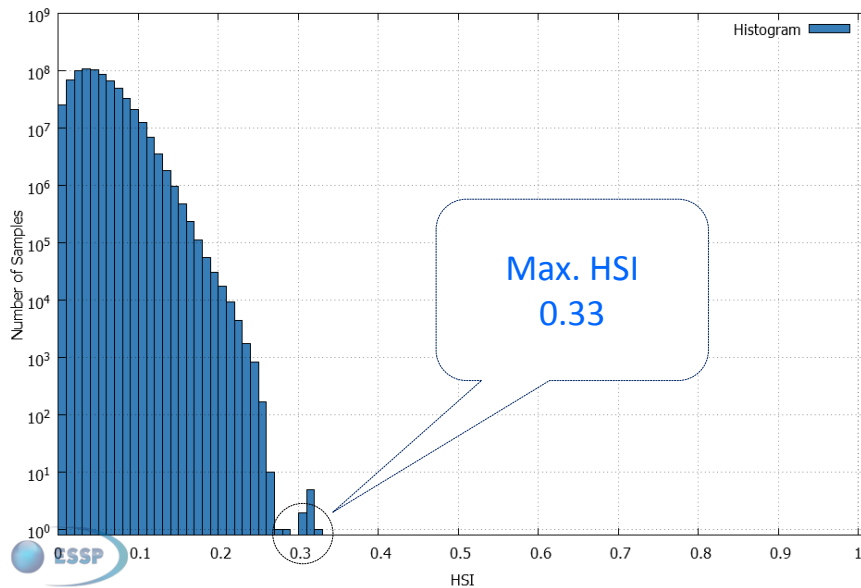


Good compliance of the Service except in the south due to some failures in CTN and DJA stations

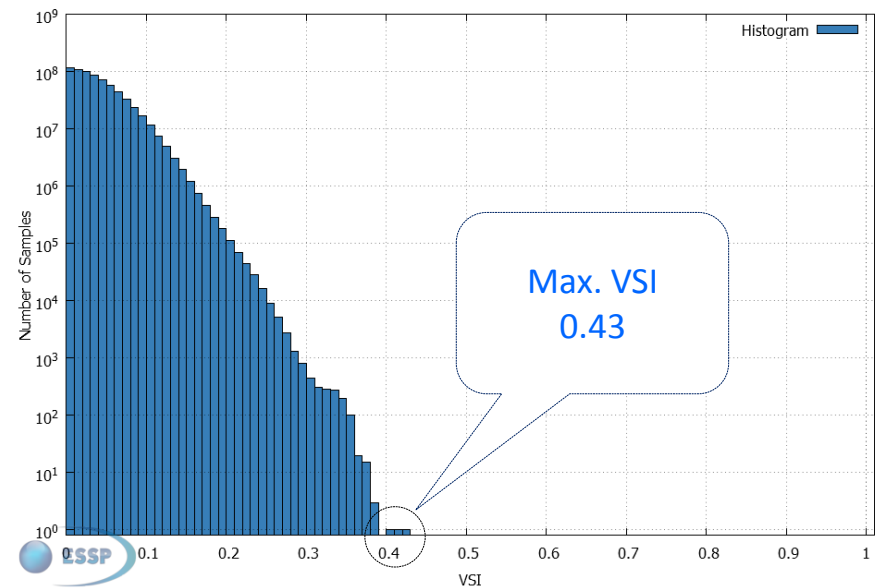
EGNOS SoL: LPV200 Integrity

- The measurements of the **Safety Index** demonstrate very **good confidence**.
- Safety index (PE/PL):

LPV-200 HSI Histogram
01/04/2016 - 31/03/2017



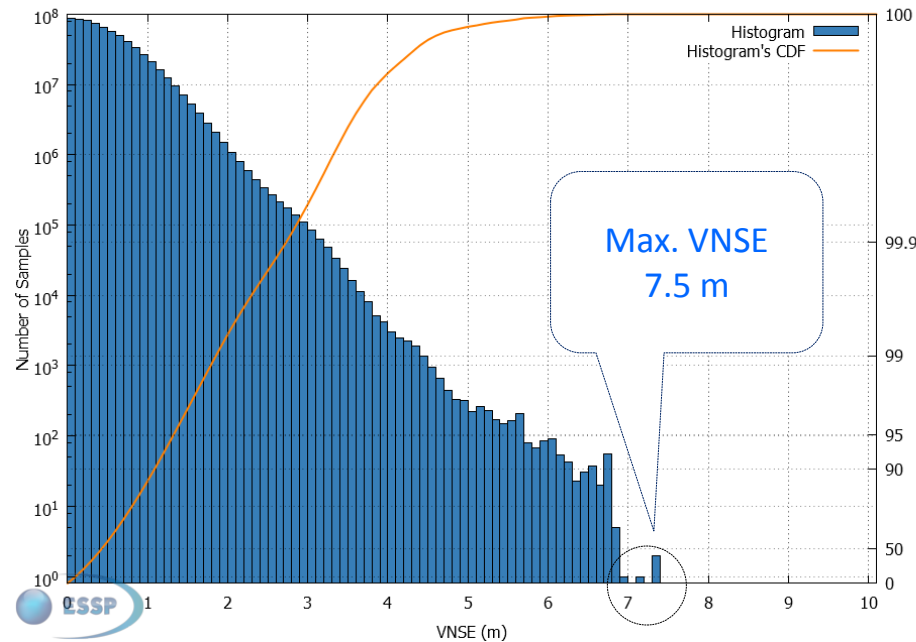
LPV-200 VSI Histogram
01/04/2016 - 31/03/2017



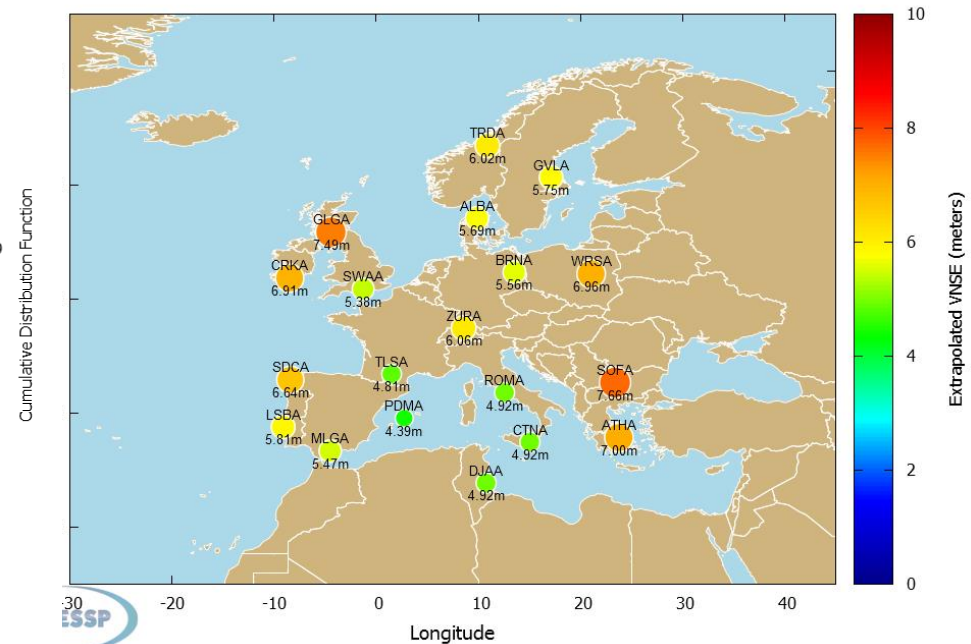
EGNOS SoL: LPV200 Vertical Accuracy

LPV200 instantaneous accuracy and extrapolated accuracy ($\text{Prob}(\text{VNSE} > 10\text{m}) < 10^{-7}/150\text{s}$) below 10m requirement

LPV-200 VNSE Histogram
01/04/2016 - 31/03/2017



Extrapolated LPV200 VNSE at $10^{-7}/150\text{s}$
01.01.2016 - 31.12.2016

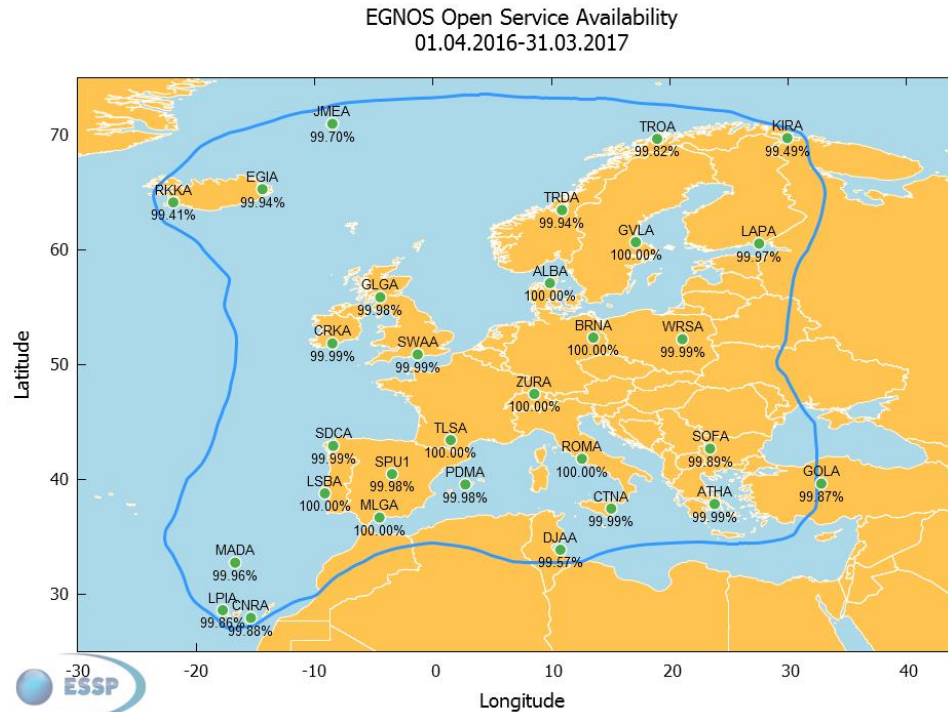


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EGNOS Open Service: Availability

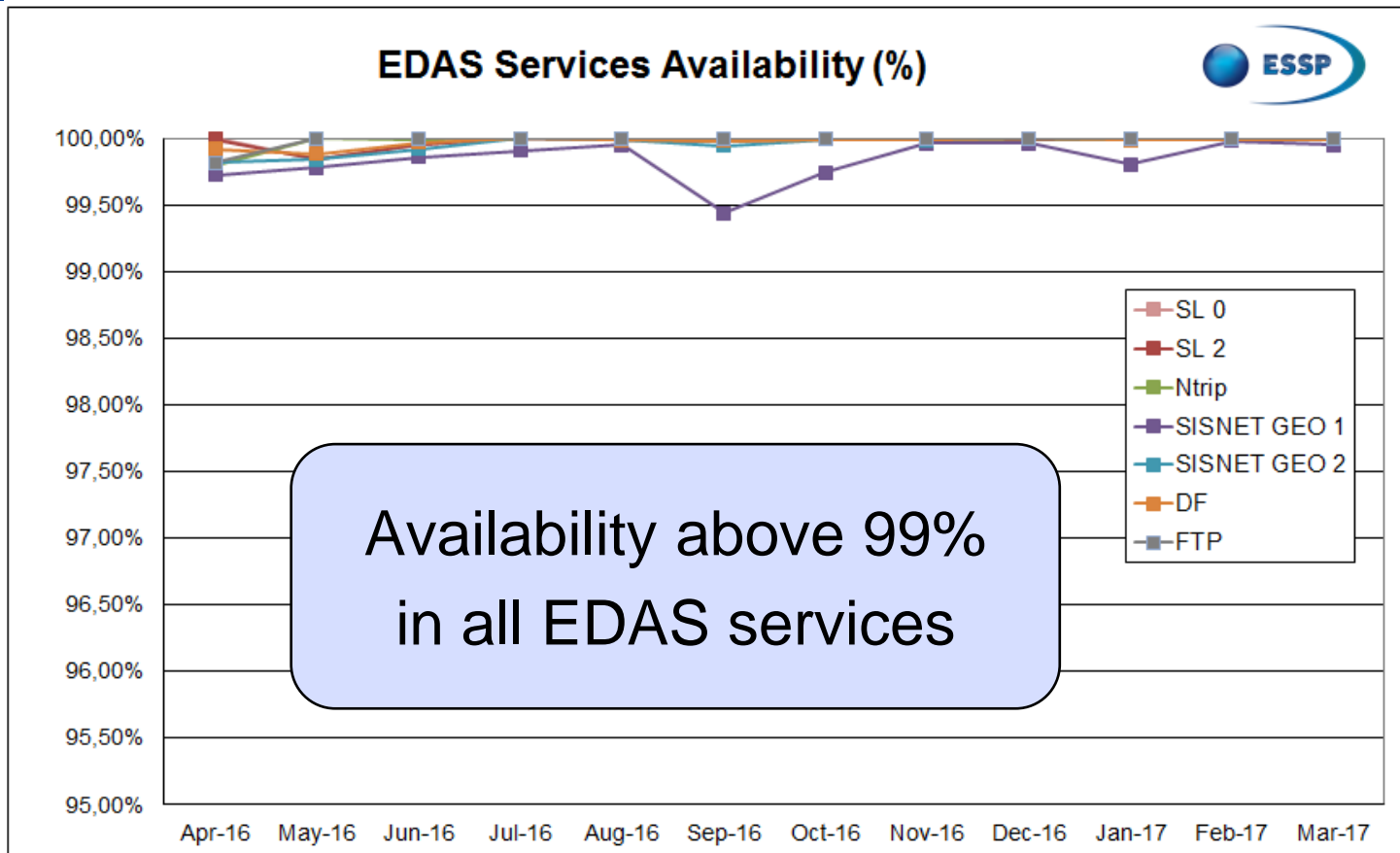
- Open Service availability > 99% with horizontal and vertical errors below 3m and 4m respectively (measured in RIMS stations during 95% of the time)



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EDAS Service



NOTE: More information about EDAS services will be provided during the second day of the workshop

Service Performance: Conclusions

- SoL Performances observed every month are very good with the exception of July 2016 in which a slight degradation is observed in the South of the coverage area (around Sicily).
- OS and EDAS performances are beyond expectations and commitment.
- With respect to daily values, for all the days the availability commitment map is well covered except for 8 days in which performance degradations were observed and managed accordingly. The causes of those degradations are:
 - High geomagnetic activity.
 - Loss of monitoring of GPS SV's or Inosphere Grid Points.
 - Failures in EGNOS monitoring stations (RIMS).

EGNOS Service Evolution



Service Implementation Roadmaps

High-level overview of the EGNOS Services current status and expected evolutions in a 3-year timeframe linked to the EGNOS System / Yearly Releases' deployments and information/interfaces evolutions



EGNOS Services Status SIR Website Location

The screenshot shows a web browser window with the URL https://egnos-user-support.essp-sas.eu/new_egnos_ops/. The page features the EGNOS User Support logo and a navigation menu with the following items: NEWS, DOCS & TOOLS, HELPDESK, EGNOS SYSTEM, SAFETY OF LIFE SERVICE, OPEN SERVICE, and EDAS SERVICE. A dropdown menu is open under 'EGNOS SYSTEM', listing: OFFICIAL DOCUMENTATION, EGNOS ADOPTION, USEFUL LINKS, SERVICE PROVISION WORKSHOP, EGNOS USER SATISFACTION, EGNOS SDOs, SERVICE NOTICES, MONTHLY PERFORMANCE REPORTS, SERVICE IMPLEMENTATION ROADMAPS, and SERVICE PROVISION MONTHLY REPORTS. A hand cursor is pointing at 'SERVICE IMPLEMENTATION ROADMAPS'. Below the navigation is a banner for 'ATHENS 3-4 OCT 2017' with a 'REGISTER NOW' button. A helpdesk contact information is provided: 'EGNOS Helpdesk will answer 24/7 your questions over the phone +34 911 236 656, via email (egnos-helpdesk@essp-sas.eu) or filling in the question form here'. The main content area is divided into three sections: 'EGNOS System' with a calendar for September 2017 showing signal availability, 'Safety of Life' with forecast, real-time, historical, and SDO views, and 'Open Service' with real-time, historical pass-to-pass, historical area, and SDO views.

EGNOS User Support

NEWS DOCS & TOOLS HELPDESK EGNOS SYSTEM SAFETY OF LIFE SERVICE OPEN SERVICE EDAS SERVICE

OFFICIAL DOCUMENTATION EGNOS SDOs
EGNOS ADOPTION SERVICE NOTICES
USEFUL LINKS MONTHLY PERFORMANCE REPORTS
SERVICE PROVISION WORKSHOP SERVICE IMPLEMENTATION ROADMAPS
EGNOS USER SATISFACTION SERVICE PROVISION MONTHLY REPORTS

ATHENS
3-4 OCT 2017
REGISTER NOW

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EGNOS System
Forecast
The top part of each cell in the calendar represents the availability forecast of PRN 126. The bottom one shows the status of PRN 123.
Planned Signal Availability
Planned Signal Outage
Risk of Signal Outage
TBC Signal Availability

| SUN | MON | TUE | WED | THU | FRI | SAT |
|-----|-----|-----|-----|-----|-----|-----|
| | | | | | 1 | 2 |
| 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| 17 | 18 | 19 | 20 | 21 | 22 | 23 |
| 24 | 25 | 26 | 27 | 28 | 29 | 30 |

Safety of Life
Forecast Real Time Historical SDO

Open Service
Real Time Historical Pass to Pass Historical Area SDO

EGNOS Services Status SIR Website Location

EGNOS User Support

NEWS DOCS & TOOLS HELPDESK EGNOS SYSTEM SAFETY OF LIFE SERVICE OPEN SERVICE EDAS SERVICE

Register Login

SERVICE IMPLEMENTATION ROADMAPS

HOME / DOCS & TOOLS / OFFICIAL DOCUMENTATION

LPV Procedures Map

EBCAST Tool

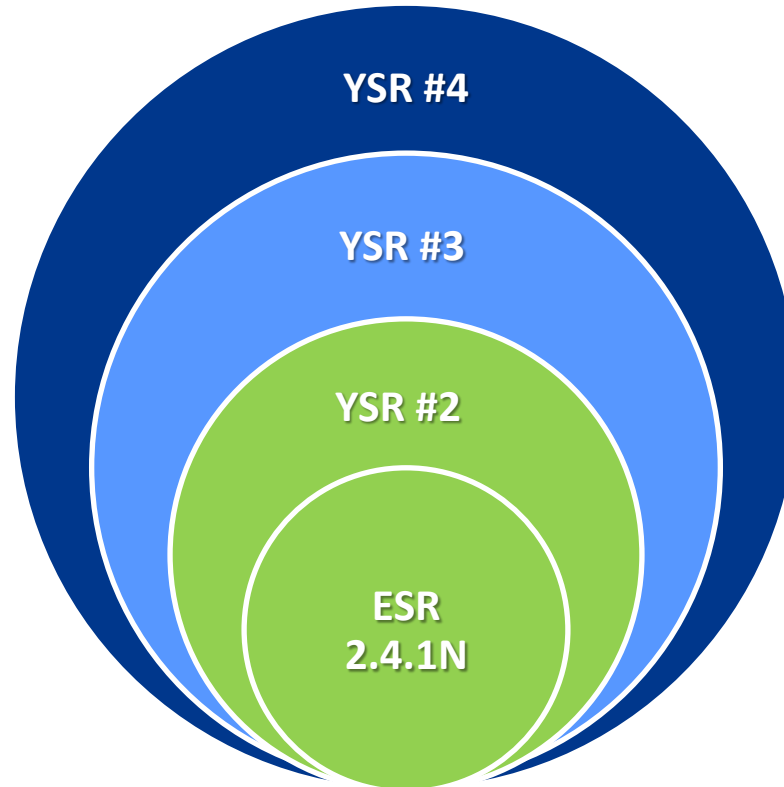
The **EGNOS Service Implementation Roadmaps** provide a high-level overview of the EGNOS Services current status and their expected evolution over time. These roadmaps are published in conjunction with the consecutive EGNOS System Releases' deployments and information/interfaces improvements/changes. These roadmaps are mainly focused on the following areas: Data availability, Service Level, Service Robustness and User Interfaces.

New versions are periodically published to reflect future evolutions of the EGNOS Services foreseen over time.

The latest versions for each EGNOS Service Implementation Roadmap are available hereafter:

| Service | Version | PDF file (for registered users) | Interactive view |
|---|-------------|---|----------------------------------|
| Safety of Life EGNOS Safety of Life Service Roadmap | Version 3.5 | PDF file (for registered users) | Interactive view |
| Open Service EGNOS Open Service Roadmap | Version 3.5 | PDF file (for registered users) | Interactive view |
| EDAS EGNOS Data Access Service (EDAS) Roadmap | Version 3.5 | PDF file (for registered users) | Interactive view |

EGNOS Service Evolution



EGNOS Services Evolution Within this year ...



SERVICE AREA

SERVICE ROBUSTNESS

USER INTERFACES

FULL EU-28 Coverage
(Except Azores)
—
OS

OS SDD publication
—
ESR 2.4.1N

EGNOS GEO SWAP:
ASTRA-SES5 (PRN136) to OP
INMARSAT 3F2 AOR (PRN 120) to TEST

All EGNOS Services

EGNOS User Support Website
new and improved website
—
All EGNOS Services

ESR 2.4.1N

YSR#2

YSR#3

YSR#4

2017

2018

2019

EGNOS Services Evolution In the coming years...



SERVICE AREA

Extension to southern regions

—
OS

SERVICE ROBUSTNESS

USER INTERFACES

EGNOS User Support Website
new version

—
All EGNOS Services

OS SDD publication

—
ESR 2.4.1N



EGNOS Services Evolution In the coming years...



SERVICE AREA

MT 27 extension to 72° N
—
SoL

RIMS Haifa Entry into OP
Extension to the south-eastern
—
All EGNOS Services

SERVICE ROBUSTNESS

Increased robustness in the
southeastern regions (linked HAIFA)
—
SoL & OS

USER INTERFACES

SoL SDD publication
—
MT27 Extension to 72°N



EGNOS Services Evolution In the coming years...



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OS SDD publication
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YSR#3 – RIMS Haifa



EGNOS Services Evolution In the coming years...



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SoL SDD publication
—
MT27 Extension to 72°N

OS SDD publication
—
YSR#3 – RIMS Haifa

SoL SDD publication
—
YSR#3 – RIMS Haifa



EGNOS Services Evolution In the coming years...



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SoL SDD publication
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EGNOS Services Evolution In the coming years...



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OS SDD publication
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YSR#3 – RIMS Haifa

SoL SDD publication
—
YSR#3 – RIMS Haifa

EGNOS User Support Website update
—
All EGNOS Services



EGNOS Services Status



Service Definition Documents



**Released
TODAY
V2.3**

EGNOS Services Status



EDAS

EDAS service
EDAS service Internet access to GNSS data in real-time and also through an historical archive*

SAFETY OF LIFE

SoL Safety of Life
The integrity message provided by EGNOS is essential when safety-critical systems are used for applications where human lives could be endangered.

OPEN SERVICE

OS Open Service
The service for applications where human life is not at stake, such as personal navigation, goods tracking and precision farming.



SDD *new version v2.3*



EGNOS Services Status



EGNOS

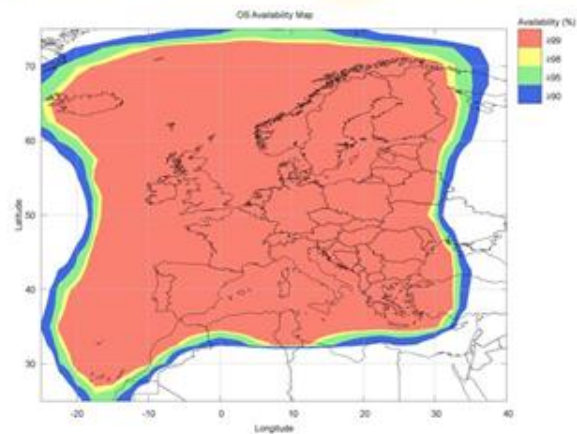
SDD new version v2.3



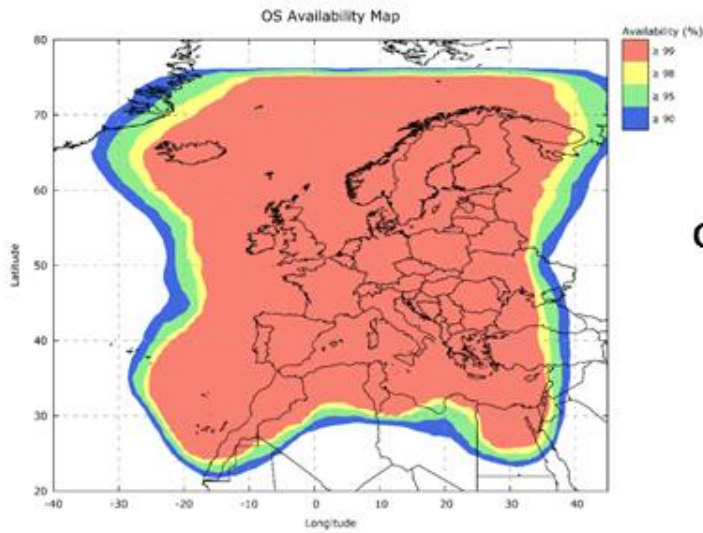
EGNOS OS SDD



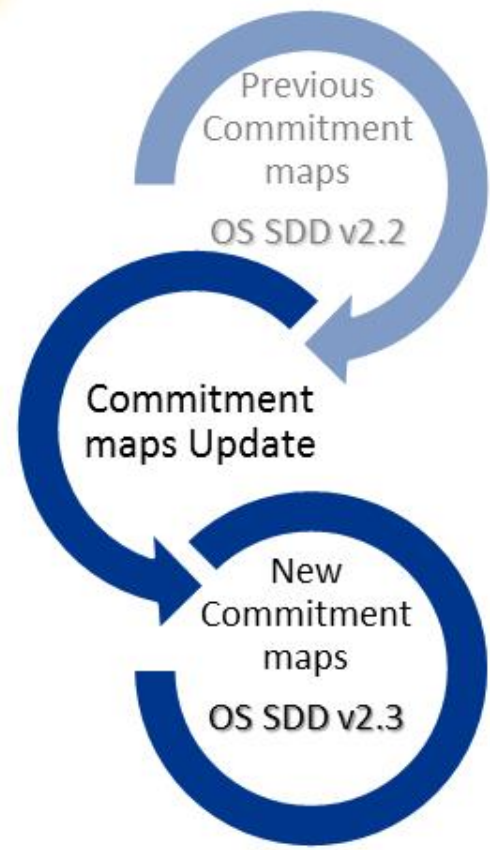
OS compliance area (In red)



OS SDD V2.2



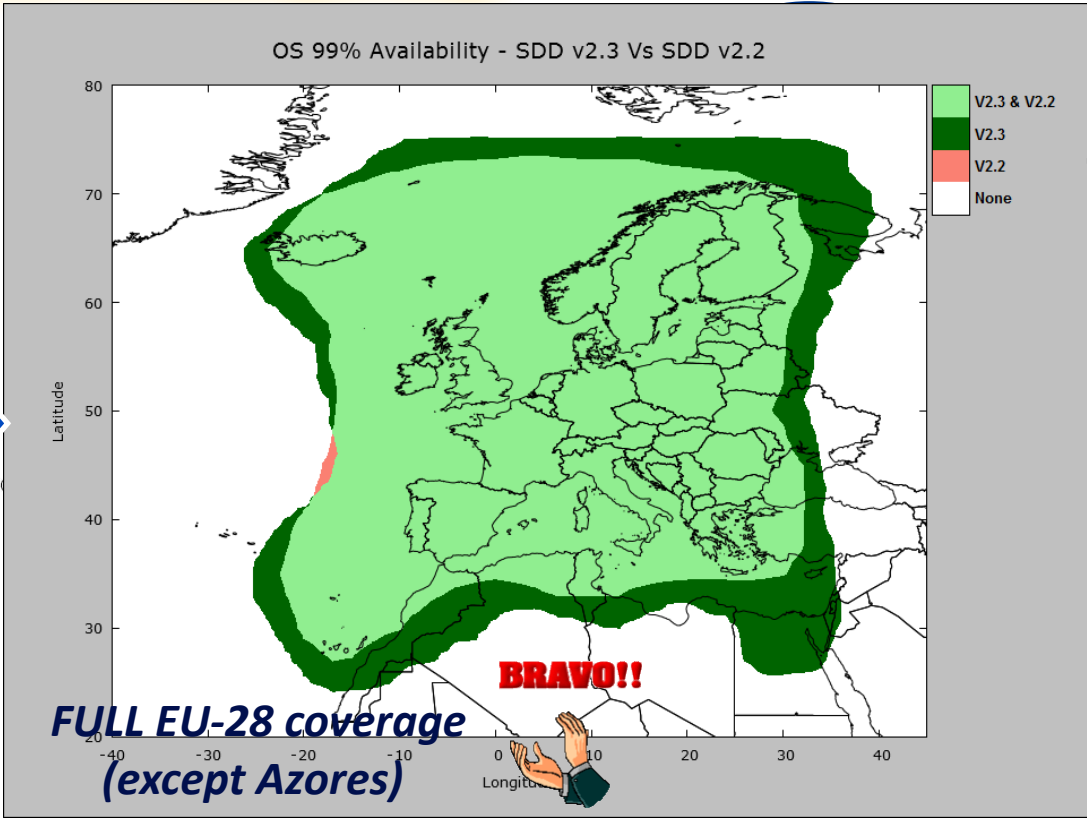
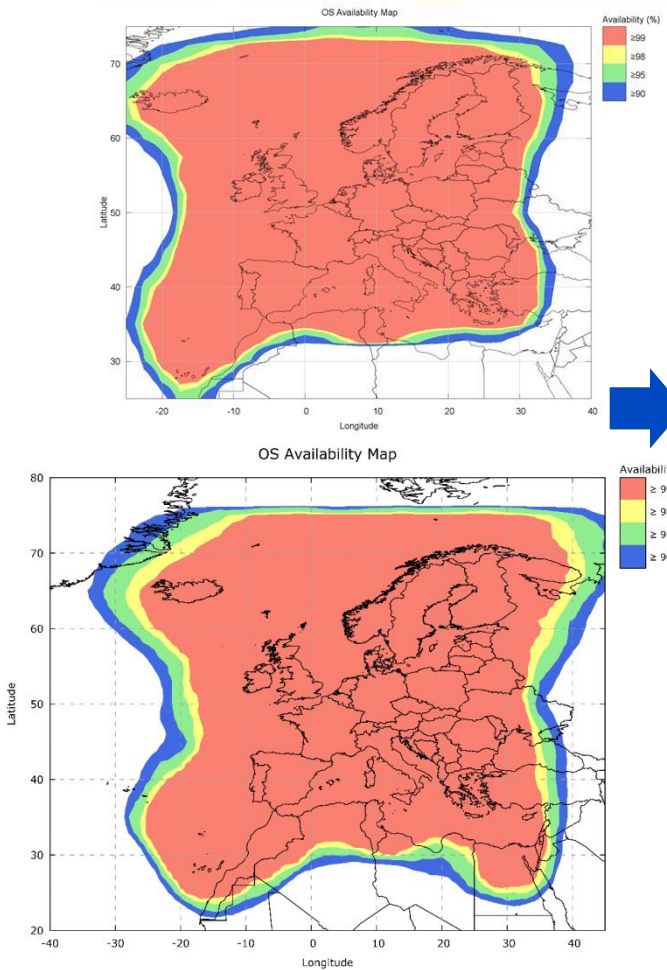
OS SDD V2.3



EGNOS OS SDD



OS compliance area (In red)





EGNOS, it's there. Use it.



NEW USER SUPPORT WEBSITE

Multidevice



Find the support you need !

Greater

New

Better

Usability

Look & Feel

Accessibility

<http://egnos-user-support.essp-sas.eu>

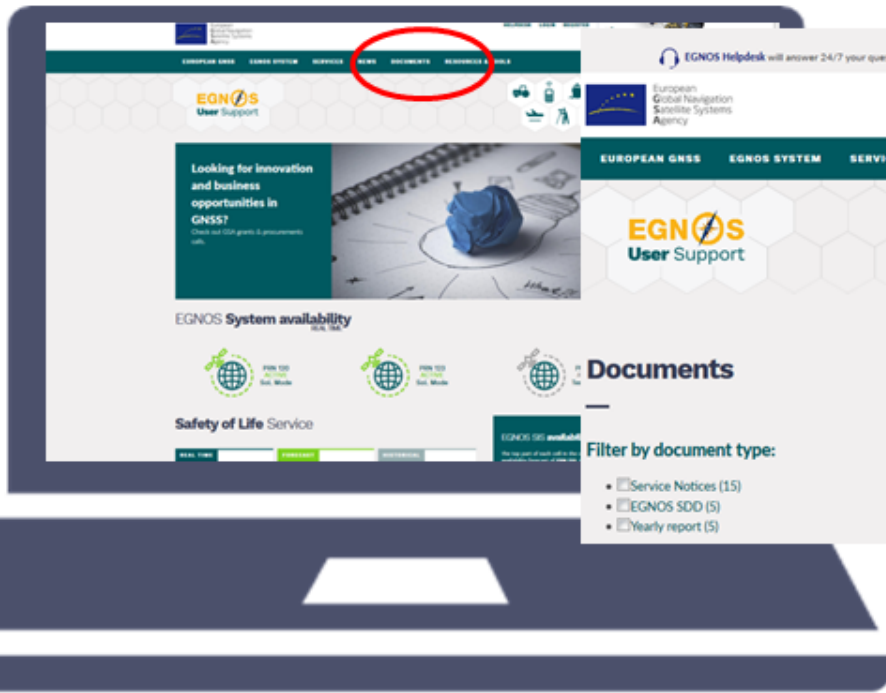




EGNOS, it's there. Use it.

EGNOS NEW USER SUPPORT WEBSITE

Multidevice



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EGNOS, it's there. Use it.



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Corporate Video

THANK YOU!