



EGNOS Working Agreement for SoL Aviation users

EGNOS Service Provision Workshop

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03/13-14/2024



EGNOS Workshop 2024



EGNOS SoL SERVICE SERVICE DEFINITION DOCUMENT



Service Definition Documents

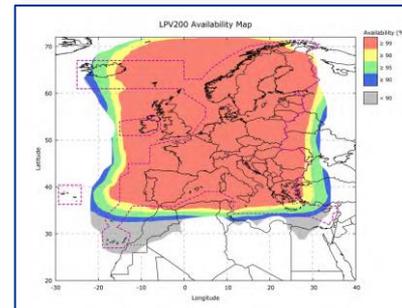
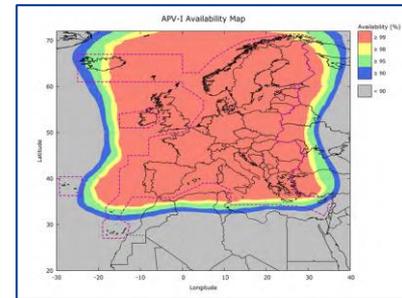


describe the characteristics, terms and conditions of access to the corresponding EGNOS services offered to users



Tenth issue v3.5 published by end-November 2023

- Update of EGNOS Space segment: Removal of INM 4F2 and inclusion of EUT 5 West B (Test)
- Update of EGNOS Ground segment: Removal of ALY and ABS RIMS (37)
- New SoL commitment maps based on ESR V2.4.2A/B + YSR5_PSS1 to reflect solar cycle impact



EGNOS Services covering all PBN specifications

EGNOS NPA Service Level

PBN navigation specifications other than RNP APCH for all flight phases

EGNOS APV-I Service Level

PBN navigation specification RNP APCH down to LPV minima down to 250ft

EGNOS LPV-200 Service Level

PBN navigation specification RNP APCH down to LPV minima down to 200ft



DEPARTURE

CONTINENTAL
EN-ROUTE

OCEANIC
REMOTE CONTINENTAL

CONTINENTAL
EN-ROUTE

ARRIVAL



APPROACH

		RNP 2		RNP1
RNAV 2 RNP1	RNAV 5 RNAV 2	RNAV 10 RNP 4	RNAV 5 RNAV 2	RNP APCH
RNAV 1, RNP 0.3			RNAV 1, RNP 0.3	
Advanced RNP				



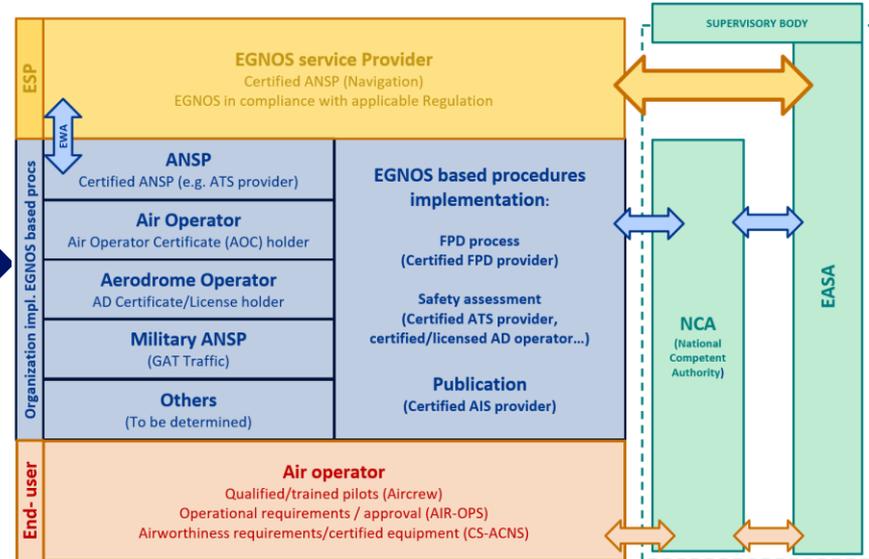
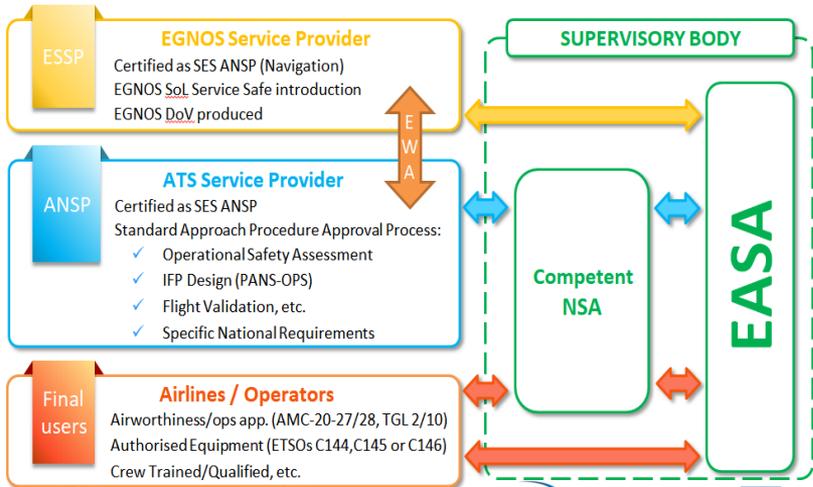
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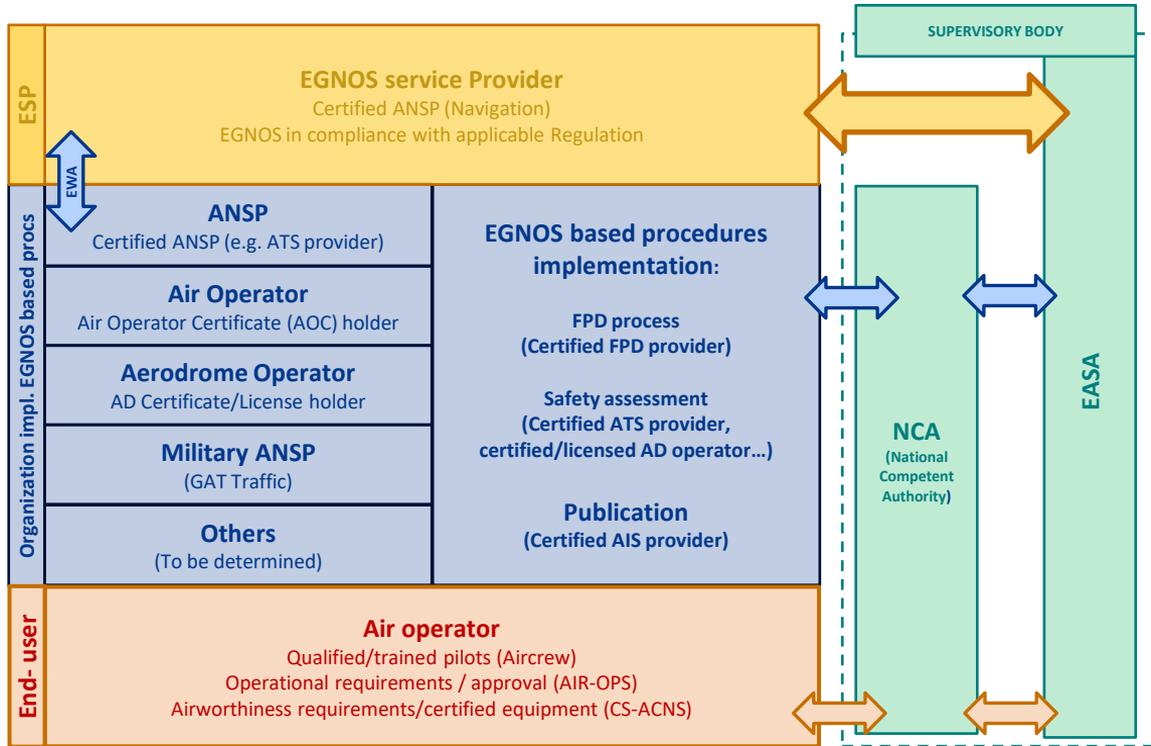
EGNOS Service Provision Scheme in Aviation

2014

2024



EGNOS Service Provision Scheme in Aviation



EGNOS Working Agreement (EWA)

EWA is a **facilitator** allowing final users to comply with applicable SES regulation

EWA core

- Requested by Single European Sky (SES) Regulation.
- Contractual liability

Annex I

- **SoL Service Definition Document (SDD)**
 - Terms, conditions and characteristics of the Service.
- **Service Notices (SN)**
 - Temporary amendments to the SoL SDD.
- **Contingency**
 - Covering non-compliances with the commitment maps included within the SoL SDD during a fixed time.

Annex II

- **NOTAM Proposal**
 - Terms and conditions under which ESSP provides the EGNOS NOTAM Proposal to the corresponding NOF.
- **Collaborative Decision Making (CDM)**
 - Involvement of both the signatory & ESSP in the EGNOS use decision making process.
- **GNSS Data Recording**
 - Terms and conditions under which ESSP provides the GNSS data recorded for occurrence investigation.

... and also defines the Liability Scheme between the Organization impl. EGNOS based procs and ESSP

EWA

Free of Charge

Non ATS Scenarios: AD Operators

Characteristic elements...

No ATS environment:

- X No ATC
- X No AFIS

Non instrument runway

Different users: private pilots/companies, service flights, flying schools, general aviation...

Certified/licensed by National Competent Authority

In force EWA with AD operators

- Lahti Vesivehmaa Aerodrome (EFLA)
- Redstone Aero (EFPR)



Non ATS Scenarios : Rotorcraft Operators

Some key shared traits...

Different types of operators

- ✓ Security
- ✓ Police Forces
- ✓ HEMS
- ✓ SAR

Non certified landing sites
Class G airspace

Complex orography
environments

Adverse weather conditions

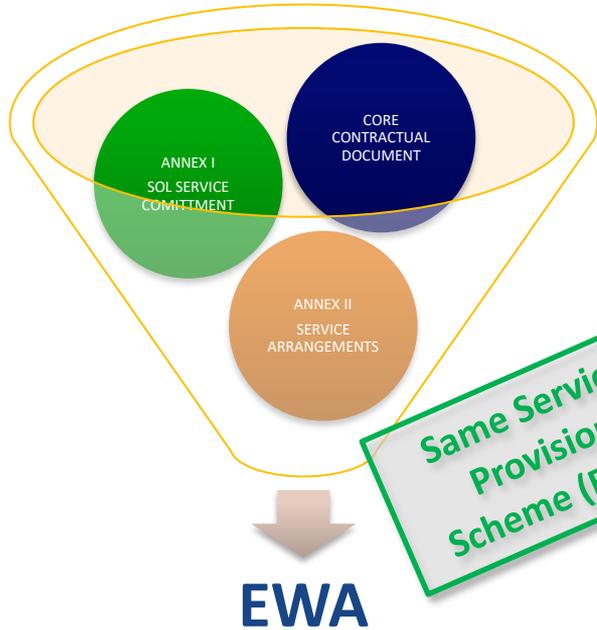
Some Air Operator EWA signatories...

- Norsk Luftambulans (NLA)
- Nowegian police (NPASU)
- AVINCIS
- Swedish police (SPASU)
- Swedish Maritime SAR (SMAHU)
- Svensk Luftambulans (SLA)
- REGA

“Since EGNOS for aviation is a Safety of Life (SoL) Service, it is important to have the agreement to [...] trust the signal [...] receive the NOTAMs”



EWA in Non-ATS environments



EWA core

- Identified with
 - ✓ A licensed aerodrome
 - ✓ An AOC holder

Annex I

- SoL Service Definition Document (SDD)
- Service Notices (SN)
- Contingency

Annex II

- NOTAM Proposal
- Collaborative Decision Making (CDM)
- GNSS Data Recording



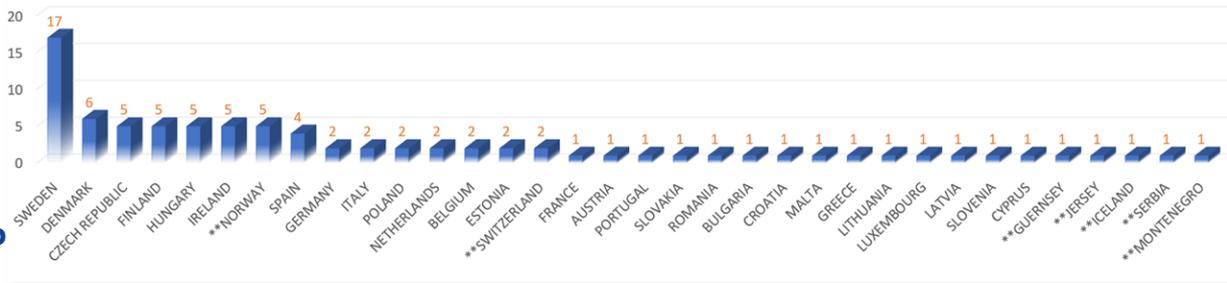
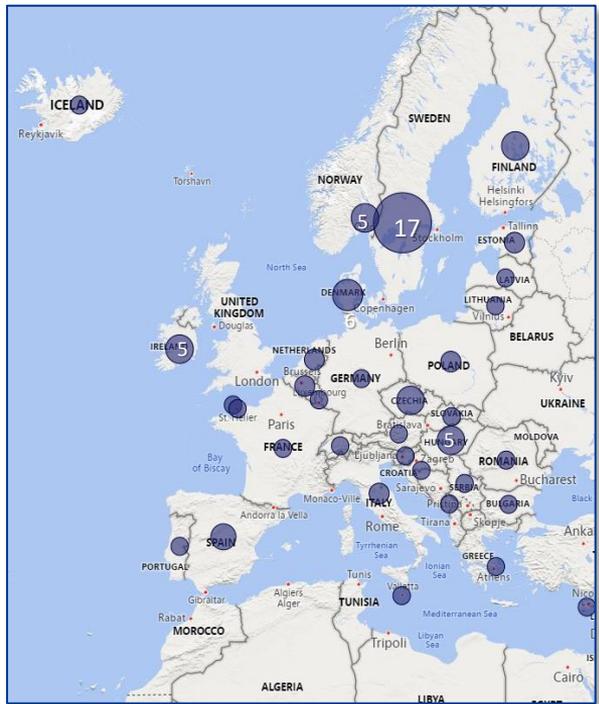
Current EWA coverage

The EWA guarantees harmonization in the implementation of EGNOS based procedures

27 EU States
7 non-EU States



85 EWAs
in force by March 2024

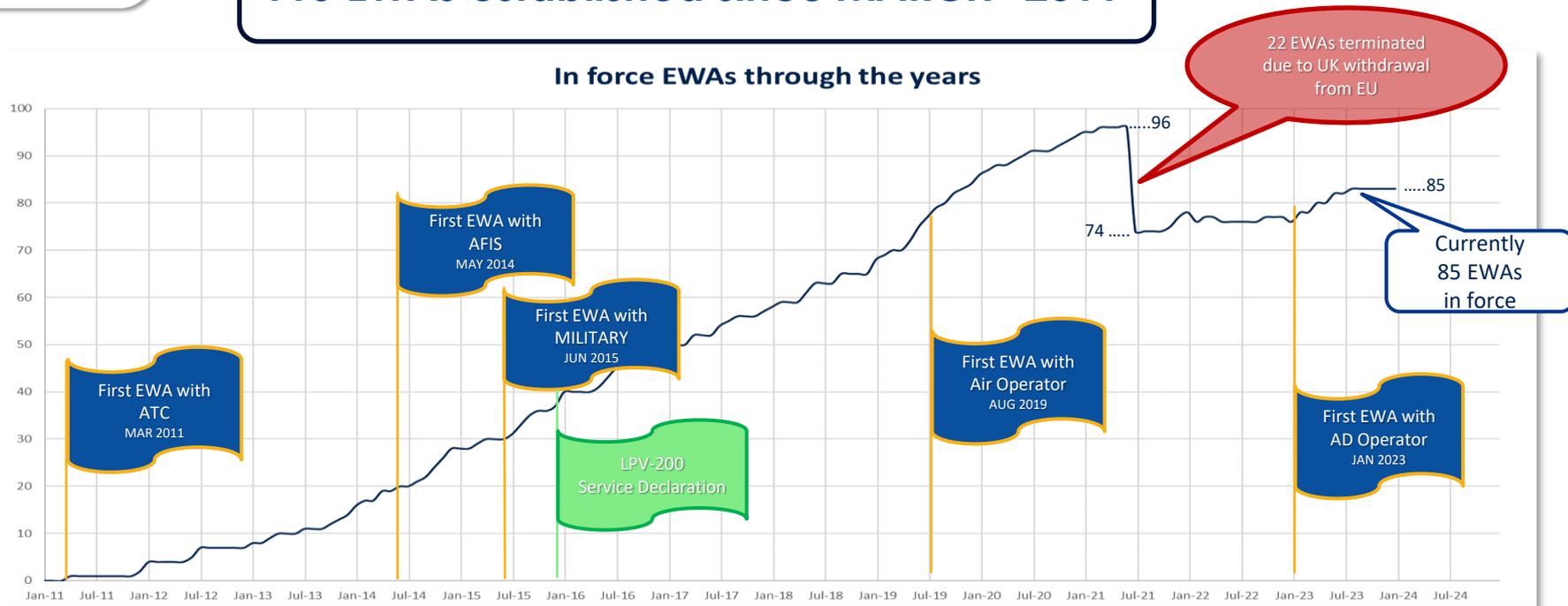


EWAs Status

2024

115 EWAs established since MARCH -2011

In force EWAs through the years



EGNOS based procedures implementation

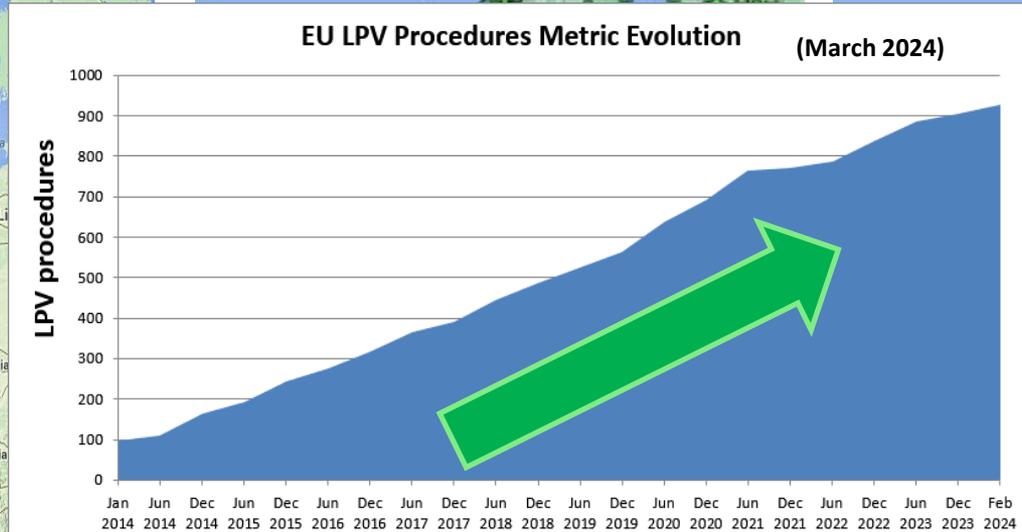
AUGUST 2014

126 LPV serving 81 airports

March 2024

954 EGNOS based procedures
(APV-I and LPV-200 SLs)
serving 523 airports + 5 RNPO.3

Plans up to near future
> 500 LPV procedures planned +
Impact of PBN IR



Non-EU States

EGNOS is directly usable in airspace of the EU territory

EGNOS can be used at non-EU States providing that:

- Enough coverage of the EGNOS SiS
- Safety Levels are equivalent to SES Regulation ones

1. To enquiry EC/EUSPA/ESSP.

2. An International Agreement between EC and the non-EU State to define the overall framework for the use of the EGNOS SoL Service.

3. If agreed, then EWA (EGNOS Working Agreement with ESSP) would be established on the basis of the previous agreement.

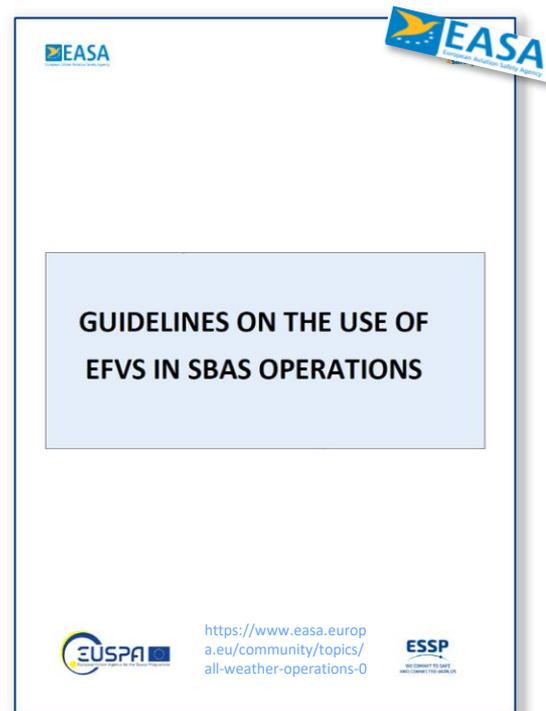
Agreements and Economic aspects are key

success stories



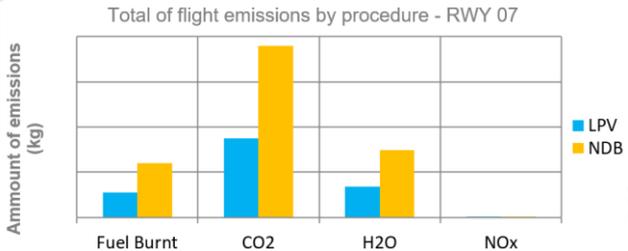
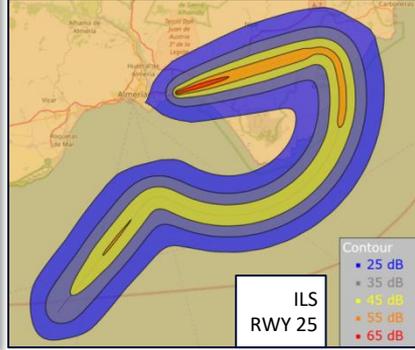
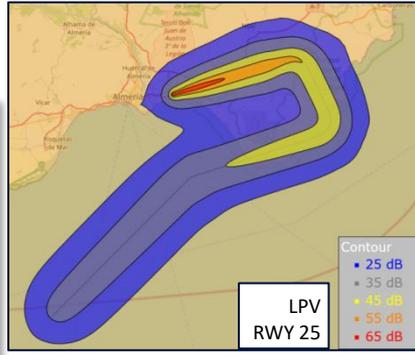
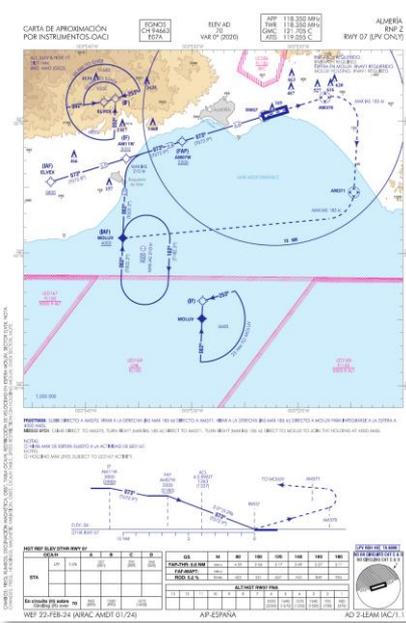
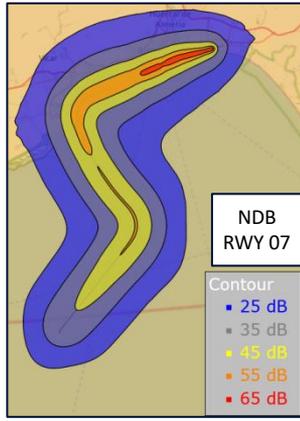
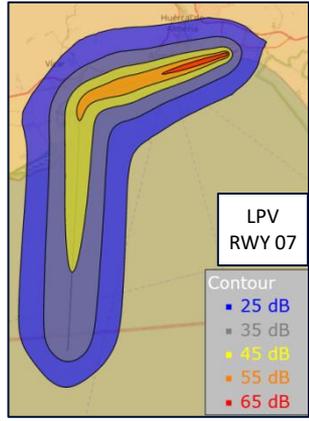
Advanced operational procedures based on EGNOS: EFVS Guidelines

EGNOS/SBAS procedures are fully compatible with EFVS operations.



Advanced operational procedures based on EGNOS: Environmental benefits

The combination of EGNOS based procedures with operational technics as CDO/CDA contributes to reduce the aviation environmental impact.



Advanced procedures based on EGNOS: RNP AR APCH

ICAO DOC 9905 RNP AR MANUAL:

- ✓ RNP AR APCH allow approach operations to airports conditioned by limiting obstacles.
- ✓ Criteria only based on Baro-VNAV systems.
- ✓ Vertical guidance based on barometric input.

Updates RNP-AR
concept to include
FAS-DB (SBAS/GBAS)

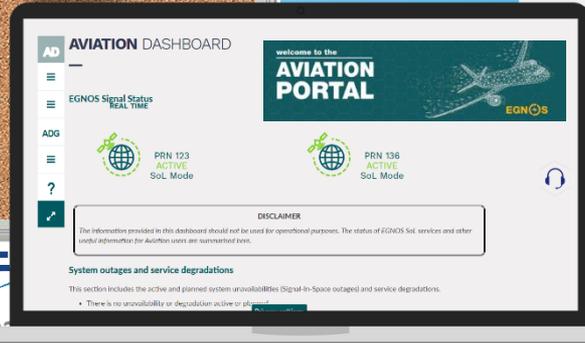
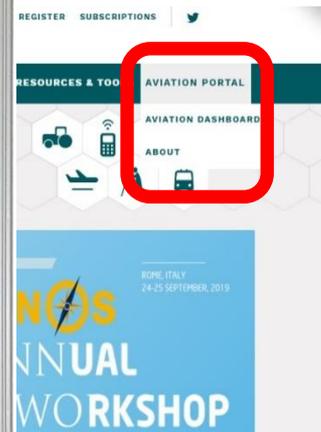
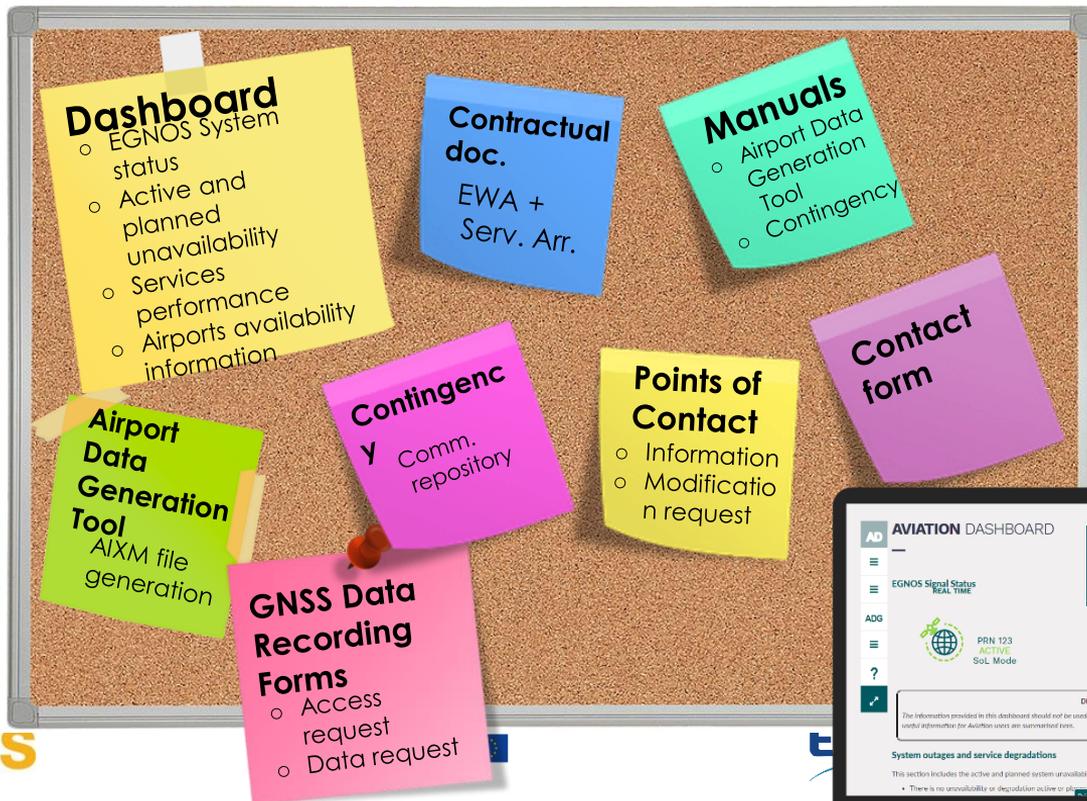
ICAO Job Card
IFPP.026.01



EXPECTED BENEFITS (expected to be applicable from Nov 2030):

- ✓ Lower minima.
- ✓ Shallower approach angles in obstacle critical environments.
- ✓ Guided turns to shorter precision approaches in environmentally sensitive locations.
- ✓ Improved accessibility.
- ✓ Reduction in crew workload

Aviation Portal



Time for QUESTIONS!

ESSP



WE COMMIT TO SAFE
AND CONNECTED WORLDS



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