



सत्यमेव जयते

नागर विमानन मंत्रालय, भारत सरकार  
MINISTRY OF CIVIL AVIATION, GOVERNMENT OF INDIA



# ICAO APAC SBAS-GBAS IMPLEMENTATION WORKSHOP FOR AIRSPACE USERS

## “Enhancing airport accessibility and safety on final approach with SBAS and GBAS”

14 to 16 October 2025  
Bengaluru, India



# ESSP Experience as EGNOS Service Provider in Europe

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Carlos Martín

Service Development Engineer

European Satellite Services Provider (ESSP-SAS)

# Agenda

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**01** ESSP: The EGNOS Service Provider

**02** The EGNOS System

**03** EGNOS Safety of Life Service for Aviation

**04** EGNOS Implementation across Europe

**05** EGNOS User Support Website

# ESSP: Provider of the EGNOS SoL Service for Aviation

#EUSpace 



## ESSP, a certified Air Navigation Service Provider (ANSP) by EASA

-  Deliver services 24/7
-  Operate and maintain systems
-  Development and promotion applications
-  Interface and support to users
-  Monitor & analyse service performance
-  Support the development of satellite-based applications



# Agenda

01 ESSP: The EGNOS Service Provider

02 The EGNOS System

03 EGNOS Safety of Life Service for Aviation

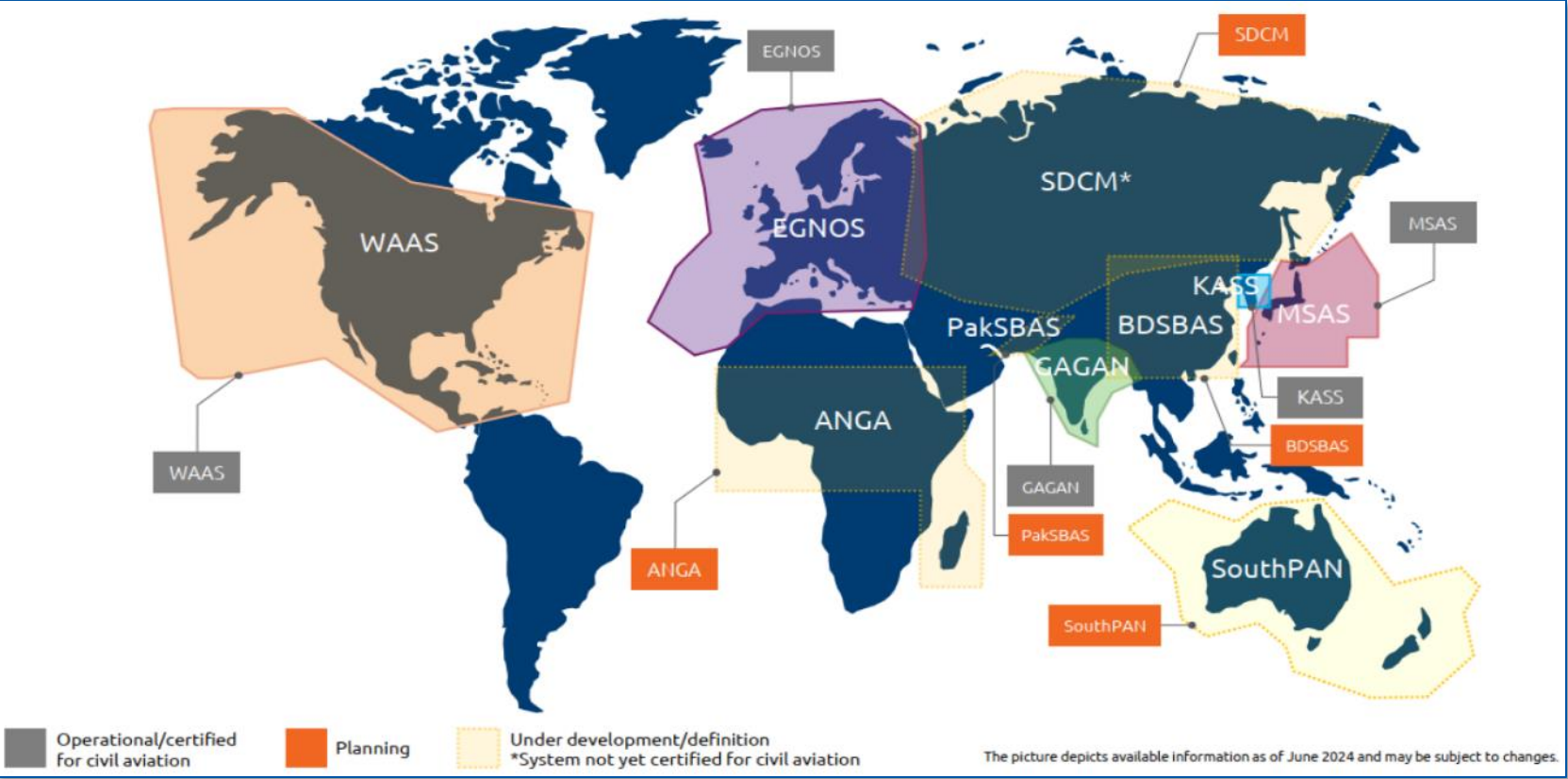
04 EGNOS Implementation across Europe

05 EGNOS User Support Website



# The EGNOS system

Existing and planned SBAS systems with indicative service areas



EGNOS provides **FREE** of charge services

EGNOS is the European Satellite-Based Augmentation System (SBAS)

EGNOS is compliant with ICAO SARPs (Annex 10, Vol. I) requirements for SBAS.

EGNOS improves accuracy of Global Navigation Satellite Systems (GNSS) - currently GPS, and GPS+GALILEO in the future - and Integrity information

Service is provided by geostationary satellites (GPS-like structure and frequency signal)

## Roles in EGNOS Services Provision:



**European Commission:** Owner of EGNOS Infrastructure



**EU Agency for the Space Programme:** Exploitation of EGNOS



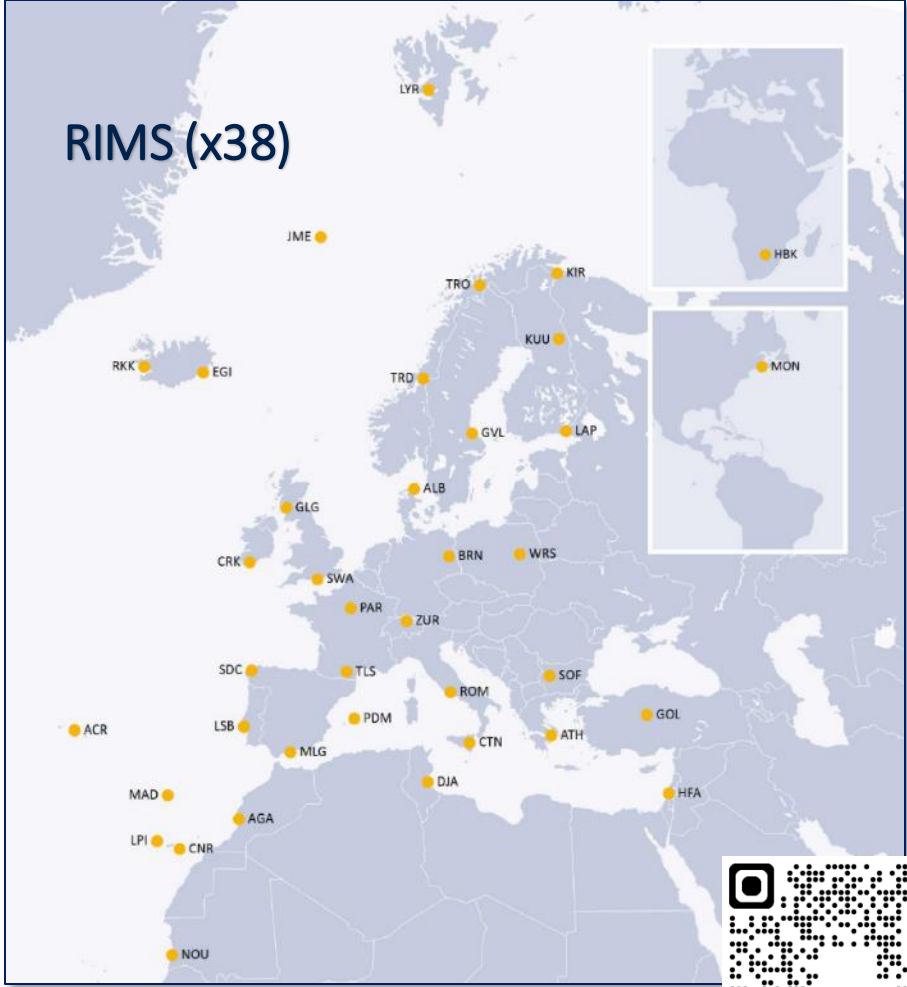
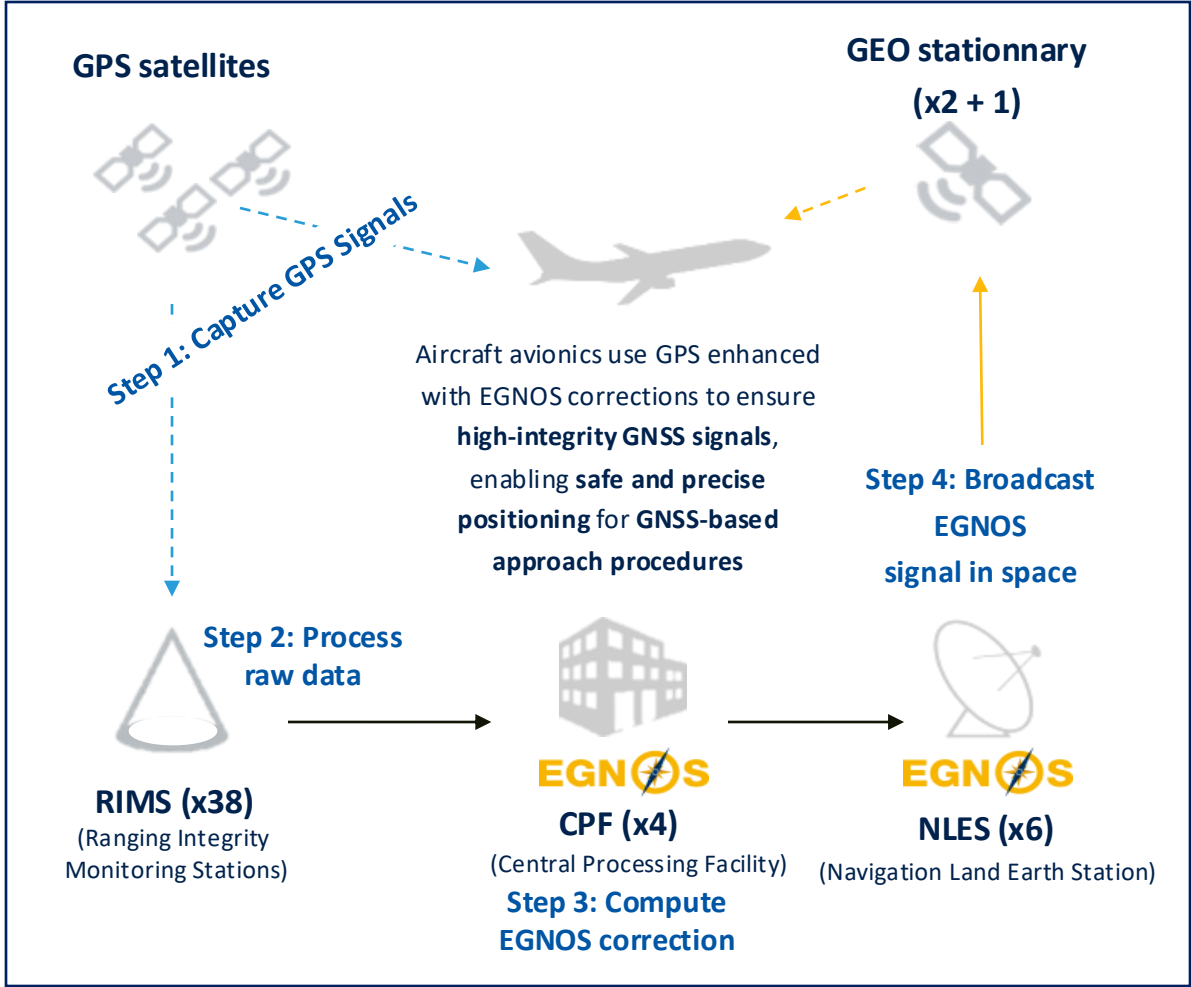
**European Space Agency:** Design agent and System Evolutions



**European Satellite Services Provider:** EGNOS Service Provider under a contract with EUSPA. Certified by EASA according to Single European Sky as ANSP.

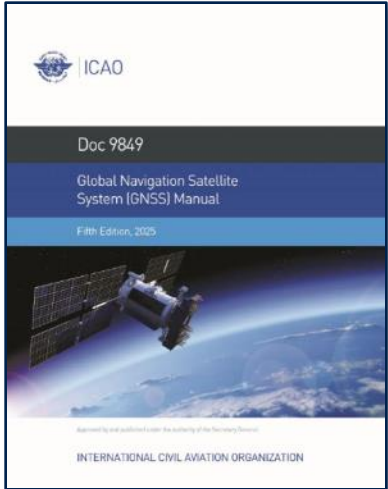
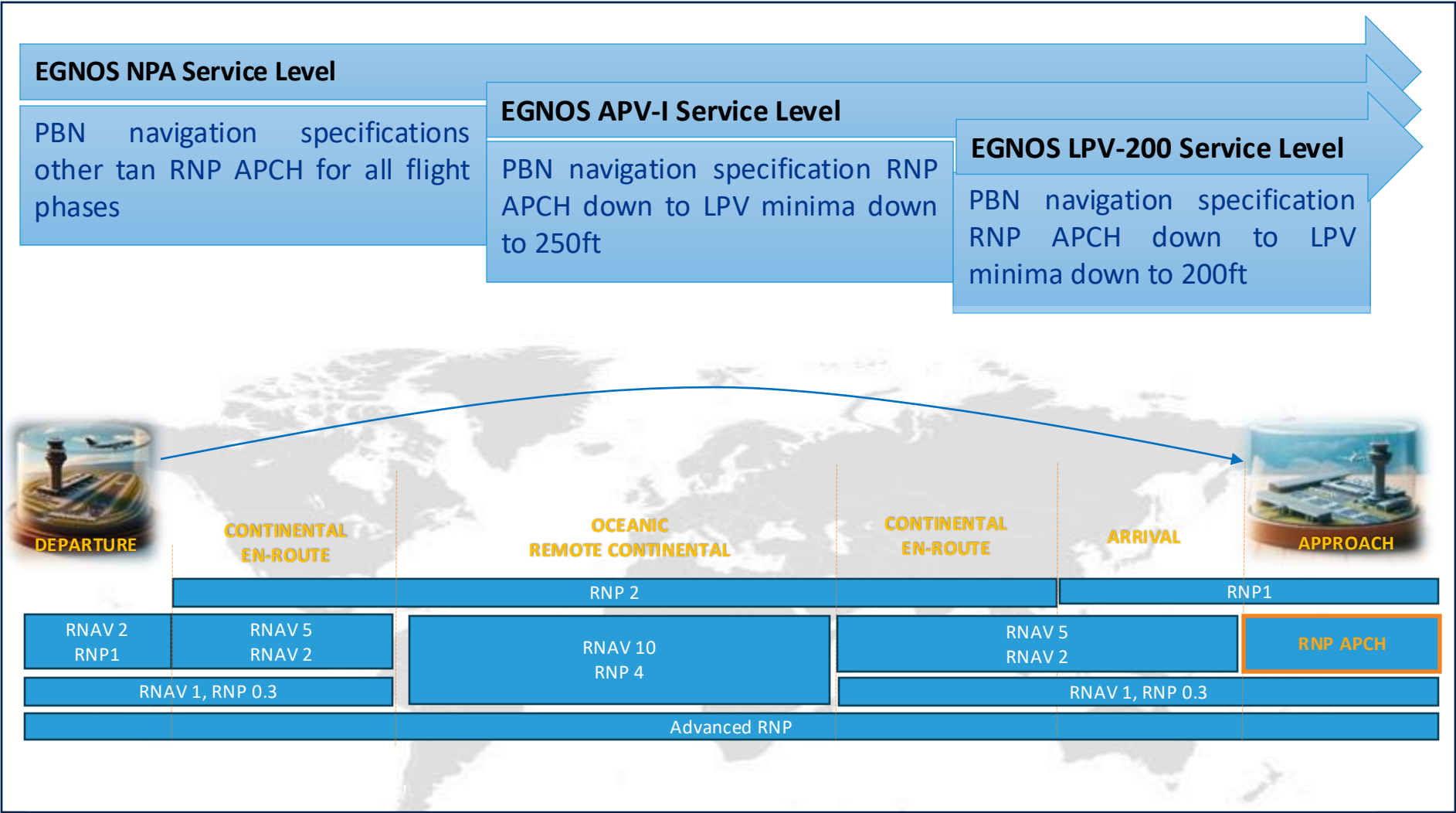


# The EGNOS system

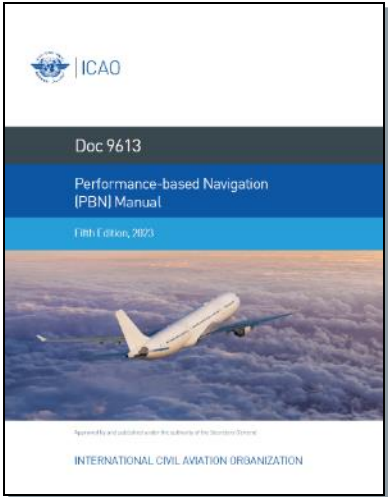


# The EGNOS system

EGNOS Services covering all PBN specifications



Doc. 9849 Global Navigation Satellite System (GNSS) Manual



Performance-based Navigation (PBN) Manual



# The EGNOS system

## EGNOS Services differences



Accuracy	Definition	Value
Horizontal	Corresponds to a 95% confidence bound of the 2-dimensional position error <sup>17</sup> in the horizontal local plane for the Worst User Location	3 m
Vertical	Corresponds to a 95% confidence bound of the 1-dimensional unsigned position error in the local vertical axis for the Worst User Location	4 m



		Accuracy	
		Horizontal Accuracy 95%	Vertical Accuracy 95%
Performance	NPA	200 m	N/A
	APV-I & LPV-200 <sup>25</sup>	3 m <sup>26</sup>	4 m

	OPEN SERVICE (OS)	Safety of Life (SoL)
GNSS corrections dissemination (clock, ephemeris, etc)	✓	✓
Broadcast via Signal in Space (SiS)	✓	✓
Performance monitoring	✗	✓
Requires certified receivers	✗	✓
Compliance with ICAO Annex 10 requirements	✗	✓
Use in safety-critical applications	✗	✓
EGNOS Working Agreement	✗	✓

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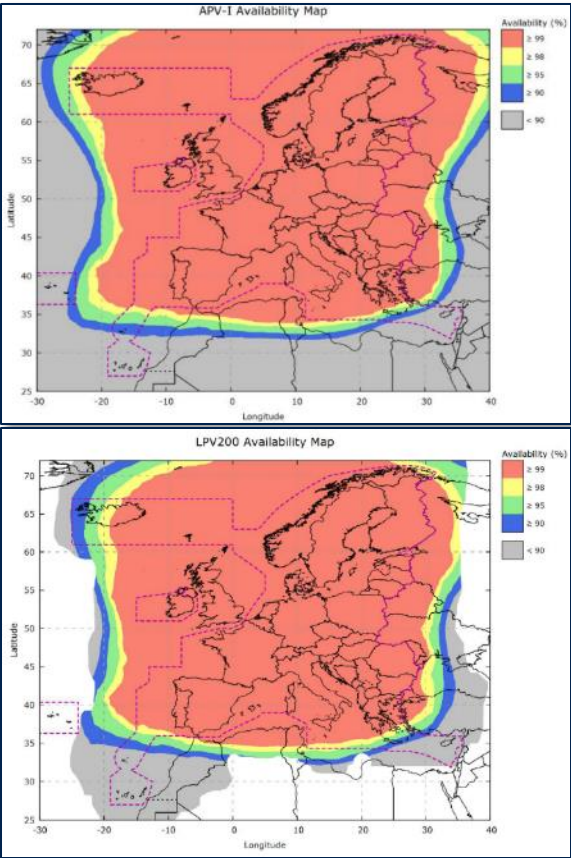
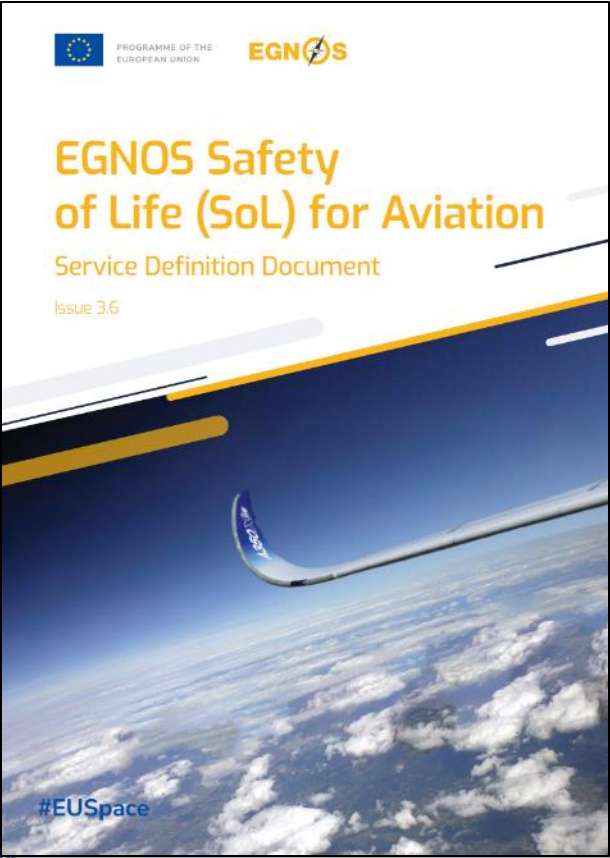
03 EGNOS Safety of Life  
Service for Aviation

04 EGNOS Implementation across  
Europe

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# EGNOS Safety of Life Service for Aviation

## Service Definition Document (SDD)



# Agenda

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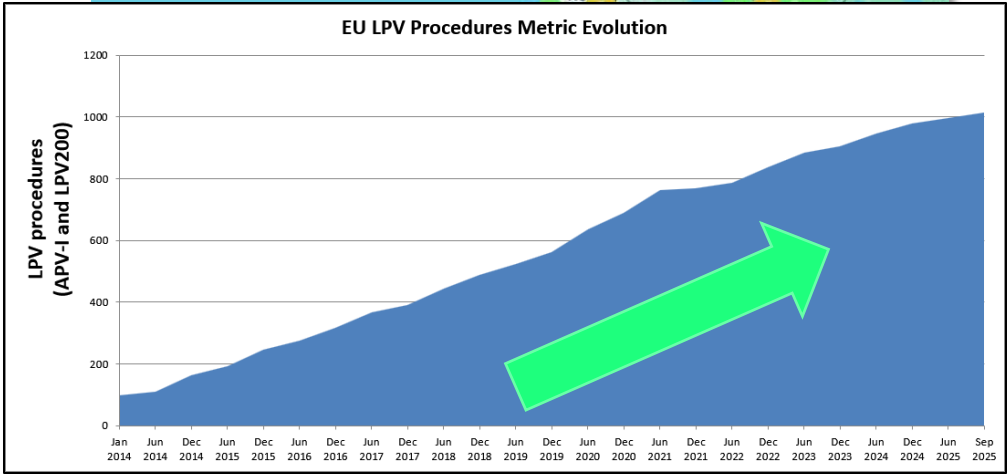


# EGNOS implementation across Europe

RNP APCH down to LPV minima implementation and most common SBAS-equipped aircraft in Europe

>1015 RNP APCH (APV-I and LPV-200 SLs) serving:  
✓ 546 airports (coexisting in 41)  
✓ 97 out of the 1015 LPVs are PINS  
Plans up to near future  
> 400 LPV procedures planned

UPDATED AIRAC 2510



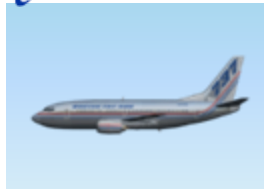
>2100 SBAS approved aircraft units

AIRBUS



Airbus family

BOEING



Boeing 737 family (excl, MAX)  
Boeing 777-9

ATR



ATR 42, ATR 72

BOMBARDIER



Bombardier DCH-8-Q400,  
CRJ700/900/1000,  
(CS100/300)

EMBRAER



Embraer E-JETS / E-JETS  
E2, RJ135/145 and  
EMB110/550

BAE SYSTEMS



Avro RJ85/100

Fokker



Fokker 50

LEONARDO



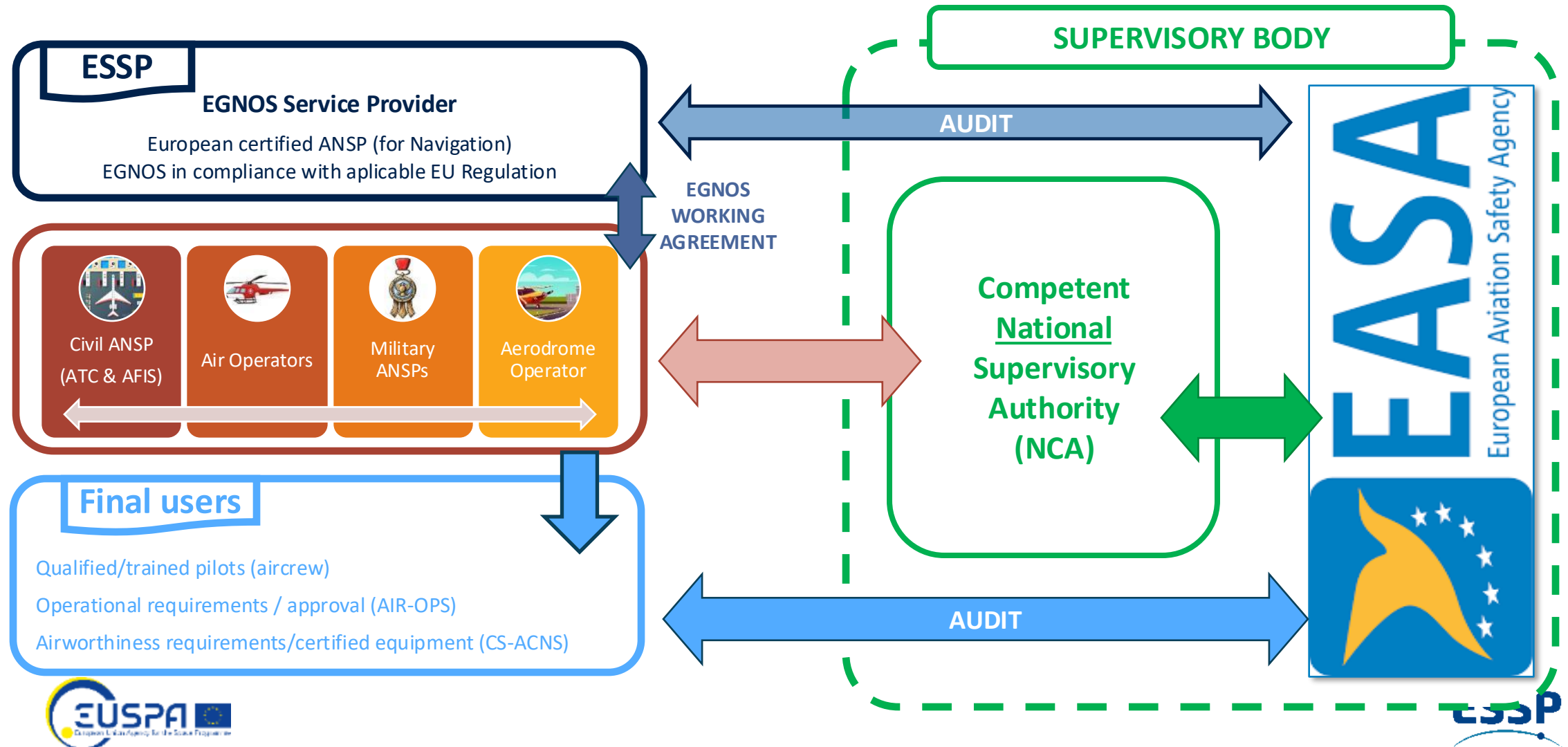
LEONARDO AW109SP



EGNOS  
User Support Website

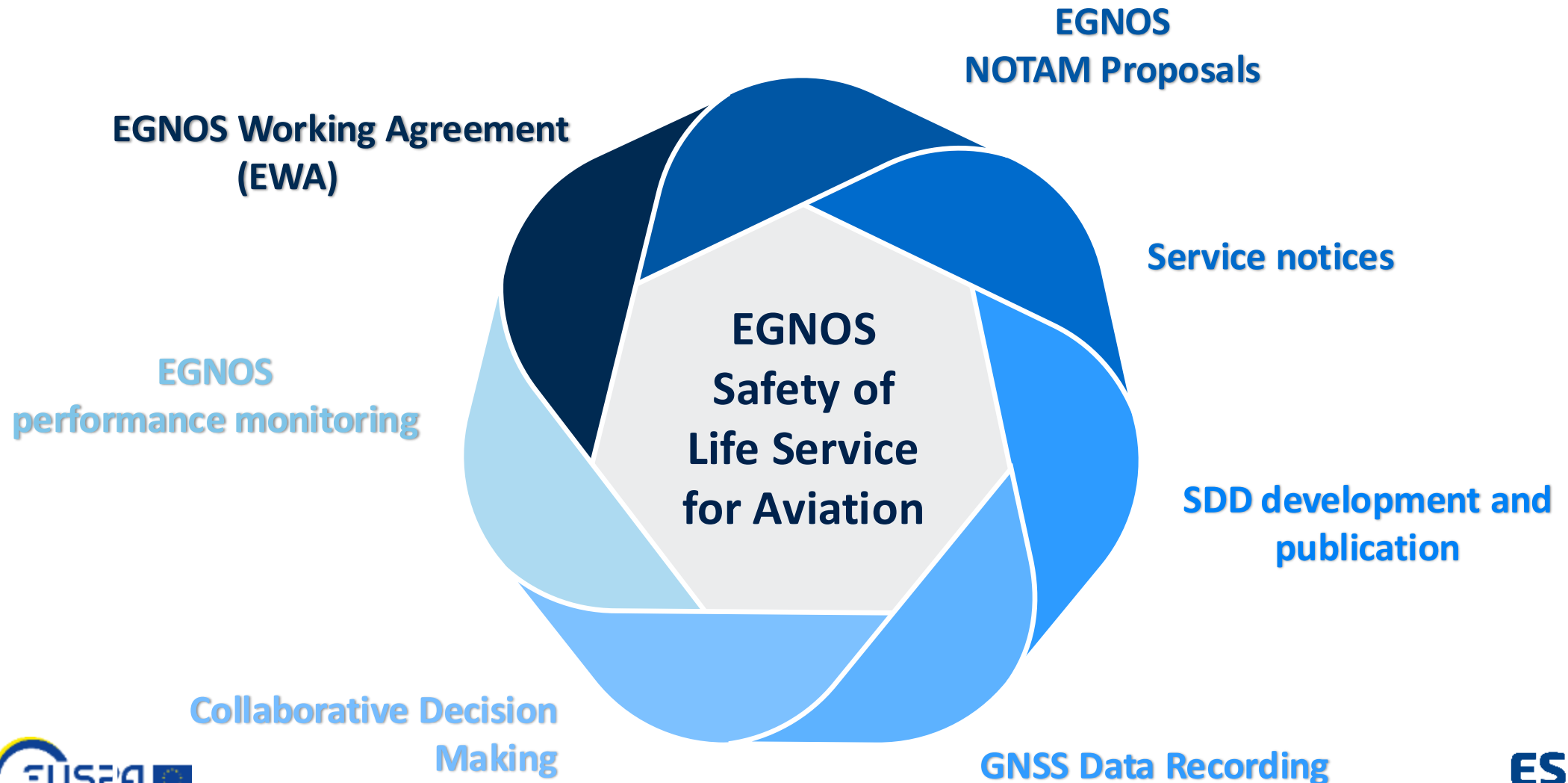
# EGNOS implementation across Europe

## Stakeholders' environment



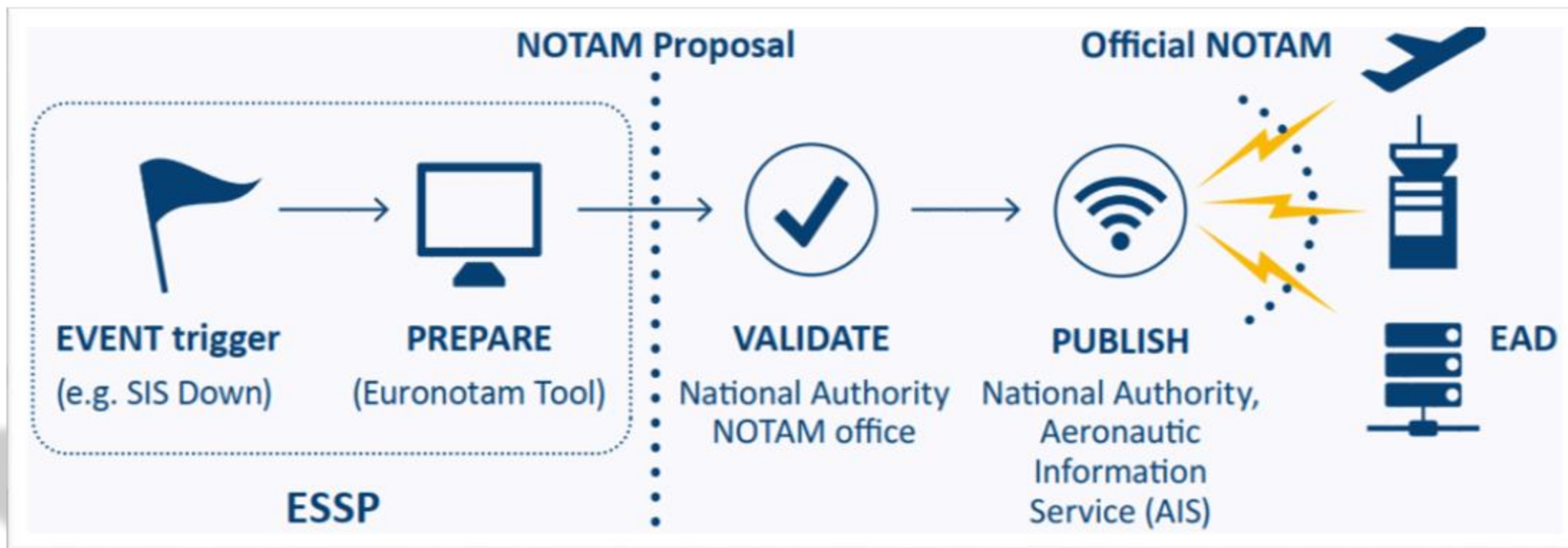
# EGNOS implementation across Europe

EGNOS SoL end users and Service Provision



# EGNOS implementation across Europe

## EGNOS SoL end users and Service Provision





# EGNOS implementation across Europe

## Voices from the Cockpit: Pilots and Operators on EGNOS

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### Norsk Luftambulans (NLA)

"Pilots are really happy with EGNOS-based PinS procedures; they want to fly safely when the weather is bad"

### Air Nostrum

"Pilots appreciate that LPV approaches are more stable than ILS, and there is not much operational difference for them"

### AEROTEC

"LPV procedures, enabled by EGNOS, allow pilots to have a reliable, stable and accurate positioning source for 3D operations as low as 200 ft minima"

### EFLA Aerodrome

"The most important advantage for flight schools at EFLA was the vertical guidance provided by EGNOS"

### ISAVIA ANS

"EGNOS performance has improved significantly; NOTAMs due to degradation are now almost zero"



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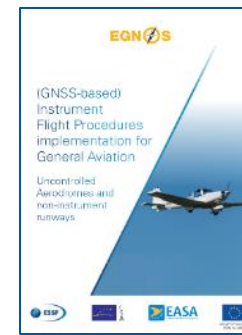
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# EGNOS User Support Website

## Guidance material



## Dashboard

- ✓ EGNOS System status
- ✓ Active and planned unavailability
- ✓ Services performance
- ✓ Airports availability information

## Resources and Tools

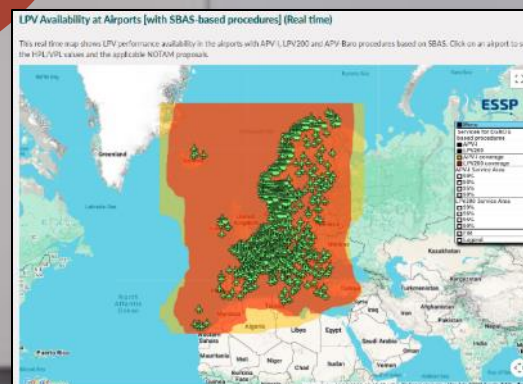
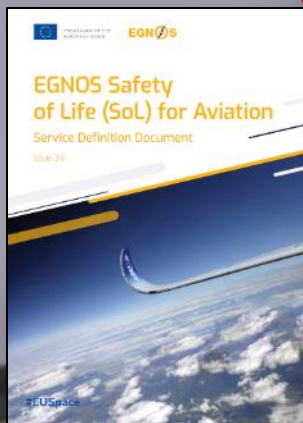
- ✓ LPV Procedures map
- ✓ Companies catalogue
- ✓ Training material
- ✓ SBAS/LPV solutions available (STC/SB)

## Aviation Portal

- ✓ Working Agreement Documentation (EWA)
- ✓ EWA Service Arrangements
- ✓ Airport Data Generation Tool (AIXM files)
- ✓ Contingency Communication Repository
- ✓ (...)

## Documentation

- Service Definition Document
- Service Implementation Roadmaps
- Monthly Performance Reports
- Service notices
- Success Stories
- (...)



### EWA package signed



### Service Arrangements in Force



### EWA Amendments





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Thank You!

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