



# EGNOS Market update

## EGNOS Status

Carmen Aguilera – Market Downstream and Innovation

5<sup>th</sup> October 2022, Prague

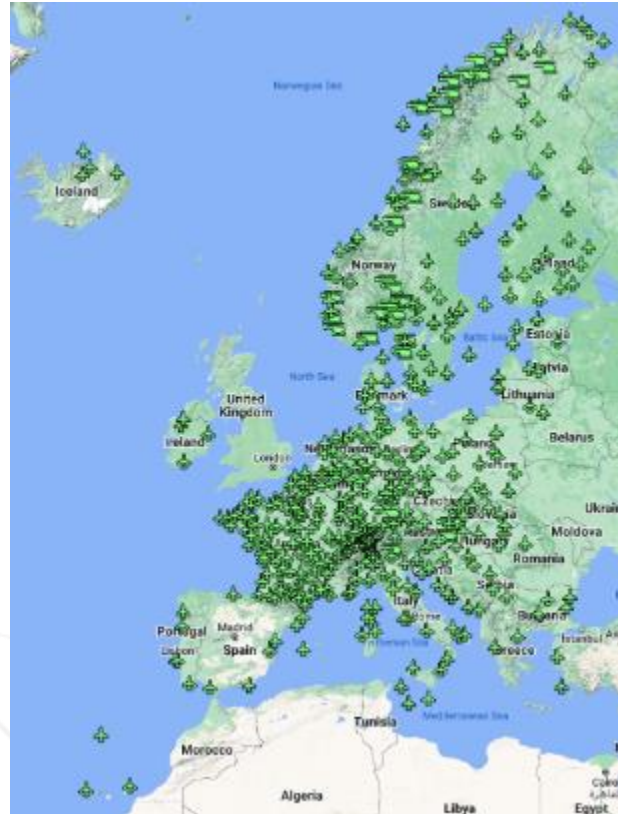


# EGNOS is becoming mainstream in aviation



## EGNOS approaches in all Member States, NO, CH, IS

- ✓ 835 EGNOS-based approaches in 439 EU destinations
- ✓ More than 65% of EU IRE with SBAS
- ✓ Point in Space and Low level routes in Switzerland, Italy, Sweden, Norway



Visit the LPV map [here!](#)

## Avionics available for all airspace users

### New EU avionics for commercial aircraft hit the market in 2022

Airbus delivered to EasyJet the first A320 equipped with the EGNOS

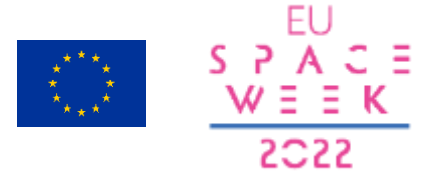
Fokker completed a STC for LPV on B737NG with ASL Belgium



- ✓ More than 250 STCs and 80 SBs available for LPV implementation on about 200 different aircraft models
- ✓ Offered as “LineFit” for 90 aircraft models

Details on the [STC/SB tool](#)

# EGNOS supports Greener Aviation



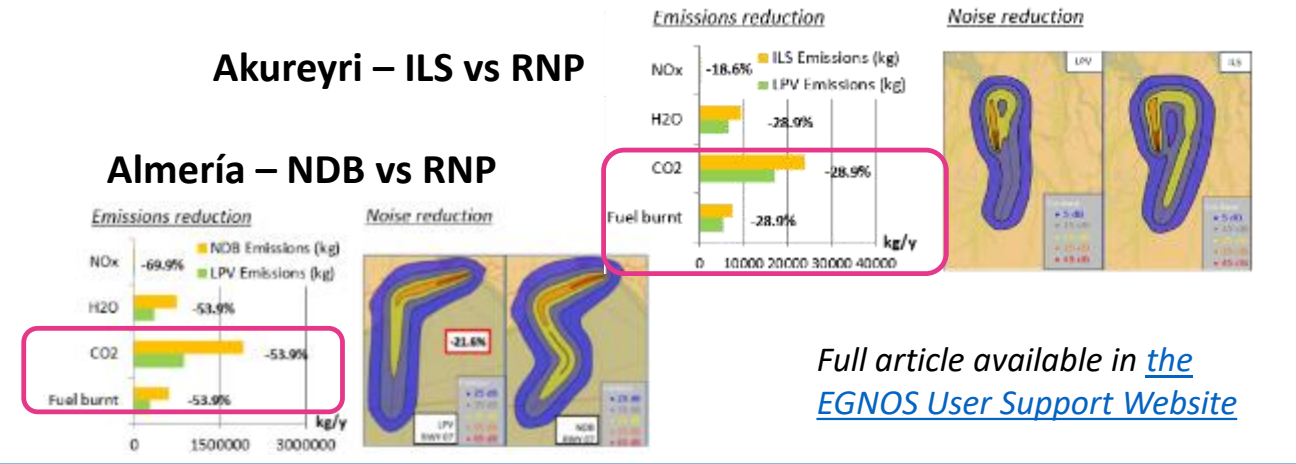
## Scenarios where EGNOS can support greener aviation

- Cluser alternate
- Missed Approach reduction
- Track reduction
- Rationalization of conventional radio NavAids infrastructure
- LPV to runways without instrument approach procedures published



## Environmental showcases

Theoretical estimation of emissions and noise reduction thanks to EGNOS together with optimal aircraft performance at Akureyri and Almería.



Full article available in [the EGNOS User Support Website](#)



## New Online Environmental tool available

Estimate potential savings in fuel and CO2 thanks to EGNOS LPV in the [EGNOS User Support Website](#).

# Combining EGNOS with Enhanced Vision systems

## New guidelines under development

### WHY?

Support aircraft operators, aerodrome operators and ANSPs by providing high-level material to facilitate the implementation of EFVS & SBAS/LPV under the updated EASA AWO regulations.

### Benefits of integration of EFVS + SBAS

Greater availability of suitable destination and alternate aerodromes.  
Reduces the number of weather-related delays, cancellations or diversions of flights.  
Shorter routings (reducing fuel costs and environmental impact).  
Enables a faster return to scheduled operations.

### What's next

Ongoing consultation of guidelines with stakeholders  
Validation in partnership with an operator aiming to implement EFVS during SBAS approaches.



*Support to All Weather Operations*

# Adapting the RNP concept to drone operations

The Specific Operations Risk Assessment (SORA) requires ensuring containment of the drone within a 3D corridor along the desired flight path.

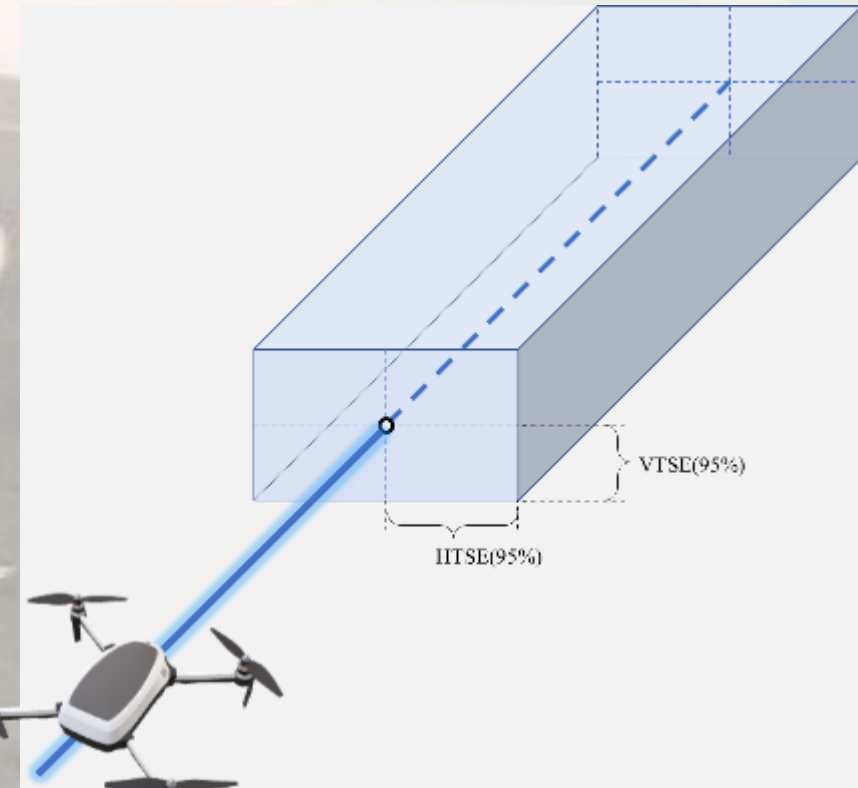
- PVT source: mainly GNSS
- Desired flight path, flyability, definition and coding
- Autopilot: characterisation & op envelope

**New mechanism for on board performance monitoring and alerting suited to drone dynamics**

Work in progress  
From User consultation Platform on Monday

1. Horizontal NSE (m): 3 – 8 m \*
2. Vertical NSE (m): 4 – 13 m \*
3. Integrity: 1-1E-5/hr
4. TTA: <6s
5. Alert limits:
  - HAL:
    - a) 25 -27 m (fixed wing)
    - b) 10 - 14 m (rotary)
  - VAL:
    - a) 12 - 22 m (fixed wing)
    - b) 7 – 23 m (rotary)
6. Continuity: 1-1E-4/hr
7. Availability: 0.9999

\* Anticipated to be more stringent for terminal, take-off and landing



# Towards an EGNOS maritime service

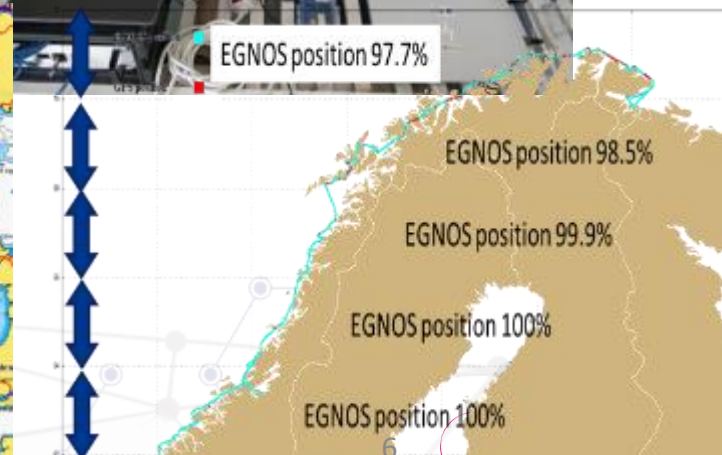
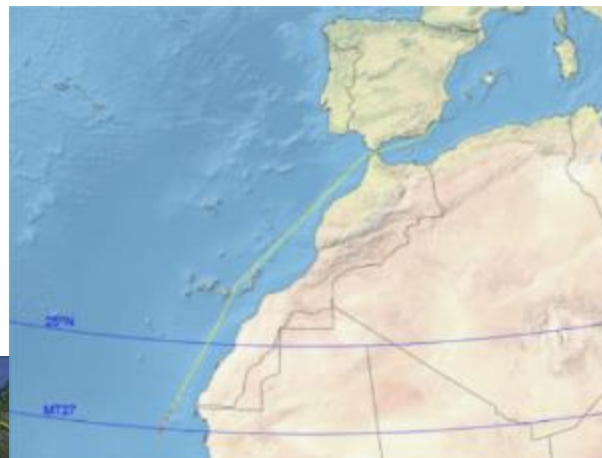
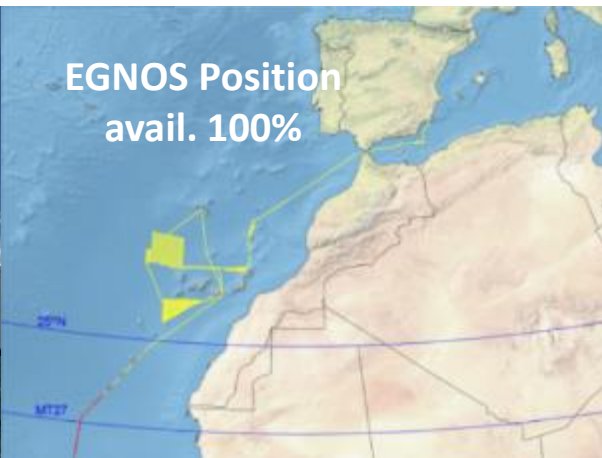
## Data collection campaigns in the border of the coverage area



EU  
SPACE  
WEEK  
2022



can support “Navigation in harbour entrances/approaches and coastal/ocean waters” according to IMO Res A.1046 (27)



# Supporting ERTMS with EGNSS



**Draft ERTMS change request documentation prepared in cooperation between space and rail sector addressing:**

- GNSS Augmentation System
- Draft Failure Modes and Effects Analysis for GNSS Augmentation
- Draft FIS for GNSS Augmentation
- Draft Receiver guidelines for onboard and trackside

**Revision of ERTMS Technical Specifications for Interoperability (TSI) including future integration of GNSS will be addressed within ERJU System Pillar**



**Receiver prototyping** launched in 2021

**Mission study for GNSS rail service**

**Coordination** with main EU stakeholder associations & agencies



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