



EU SPACE

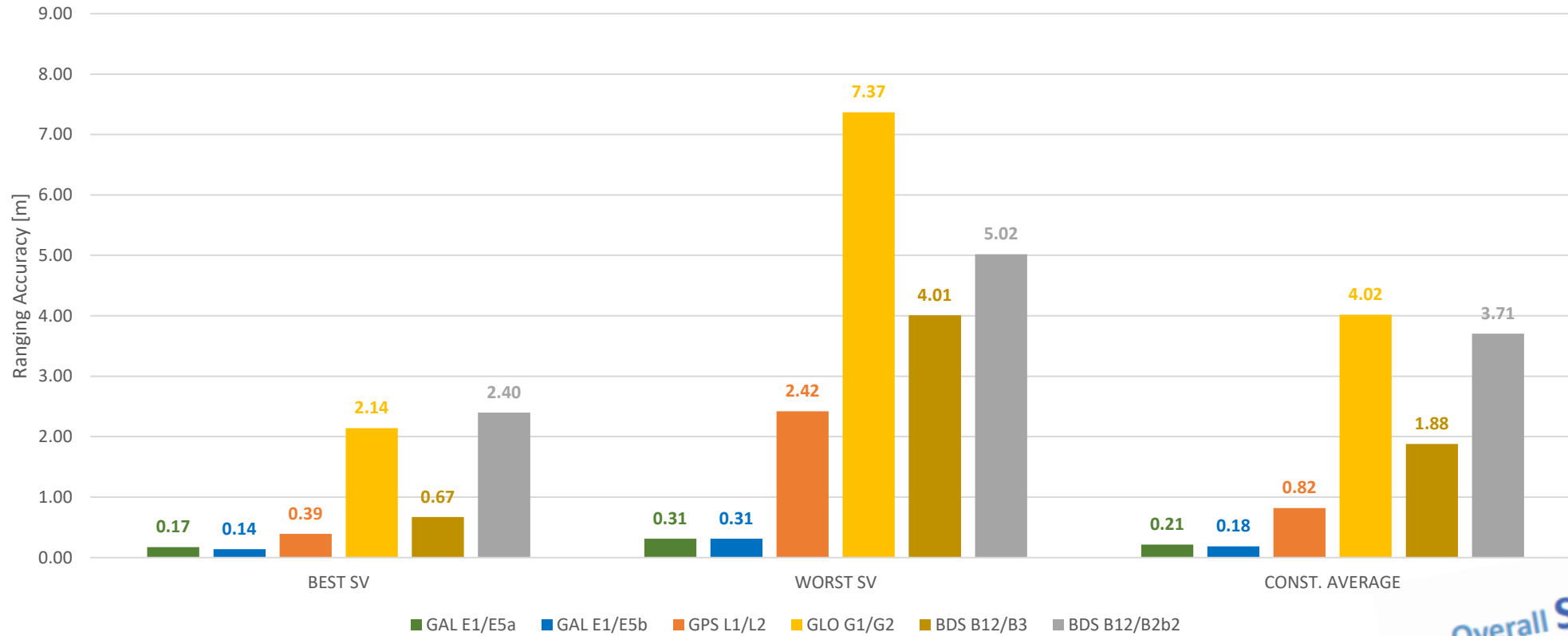
# **Galileo Programme Status**

## **UTOKYO/ICG GNSS Training**

**Dominic HAYES, European Commission (EC)**

# Performance Above All

Ranging Accuracy, 95% @ AUL - Dual-Frequency - June 2023



Overall **SATISFACTION**  
with Galileo continue to grow

82.35%

# Expanded and Strengthened Ground Infrastructure

- New release for End 2023 (Focus on PRS and Cyber)
- Deployment of New Sensor and TT&C Stations



# Launchers

- Two delayed launches to reach Galileo FOC constellation level
- Further enhanced deployments planned with Ariane 6
  - Maiden Flight postponed to mid-2024



Credit ESA



Credit ESA

- Out-of-EU solution for next two launches - SpaceX
- Required a security agreement
  - Spring and autumn 2024 timeframe
- Aiming for full constellation *with* adequate redundancy

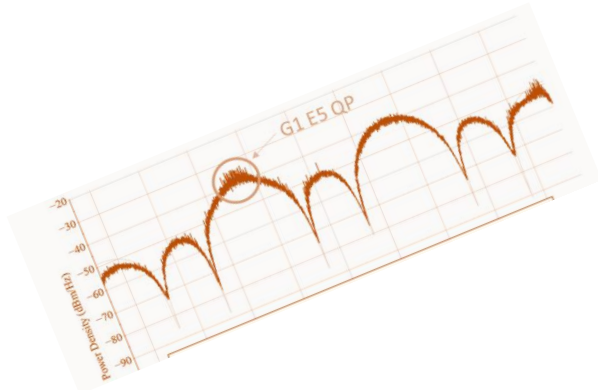
# INAV Improvements and New Pilot Signal

- New Reduced Clock and Ephemeris Data
- Reed Solomon Outer Forward Error Correction
- Secondary Synchronisation Pattern

INAV = Faster TTFF, simplified acquisition, and increased robustness

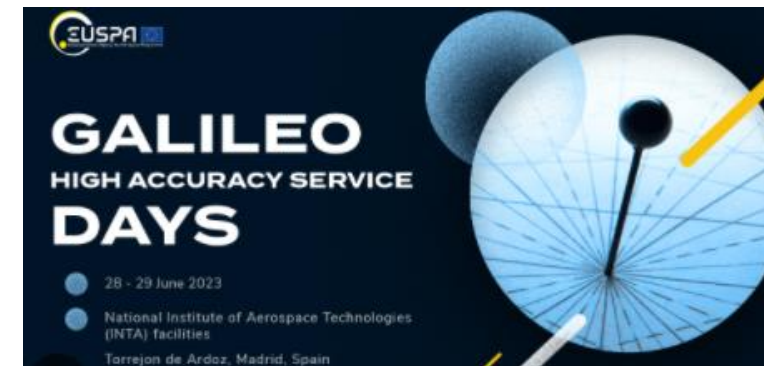
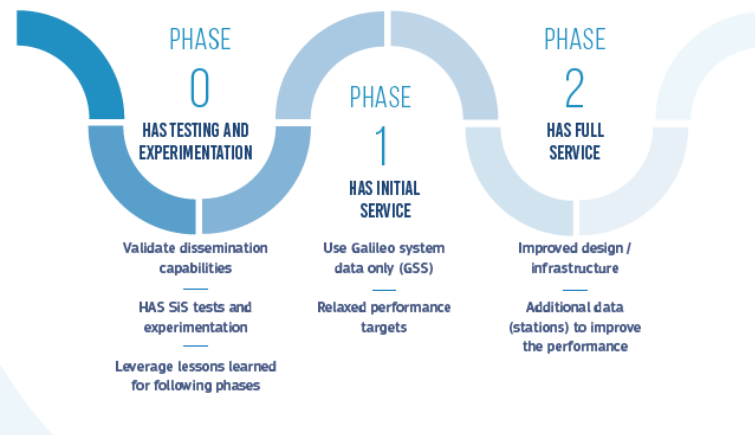
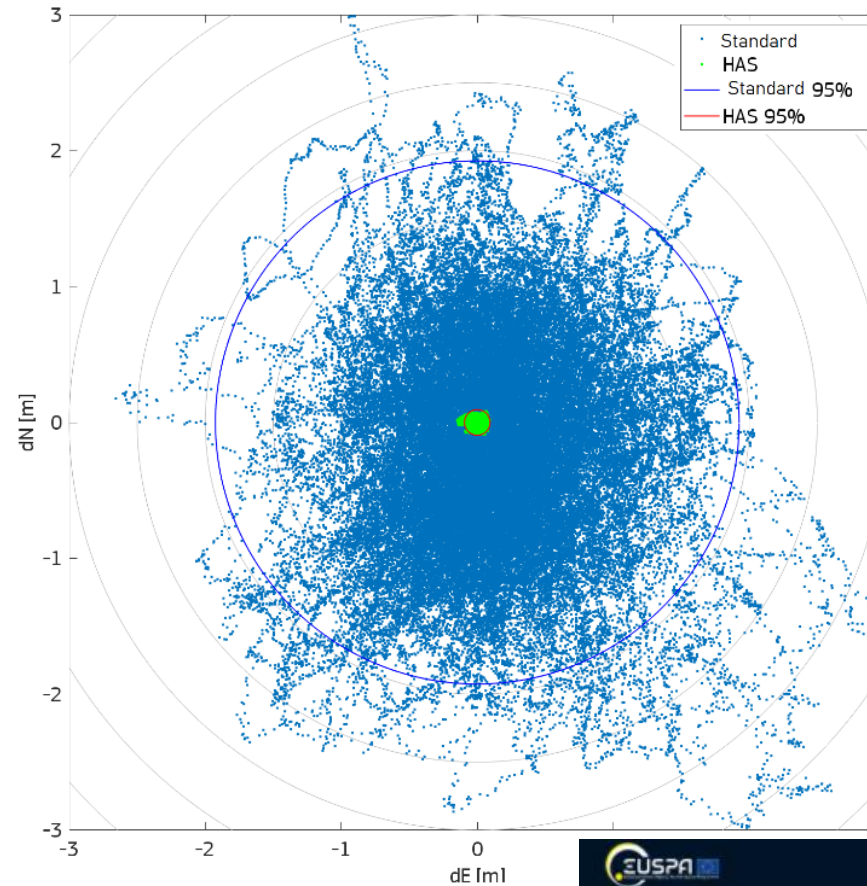
**READY**

- New Test signals on GSAT 201 and 202
  - Pilot Signal on E5
- = Faster E5 acquisition and better single frequency potential

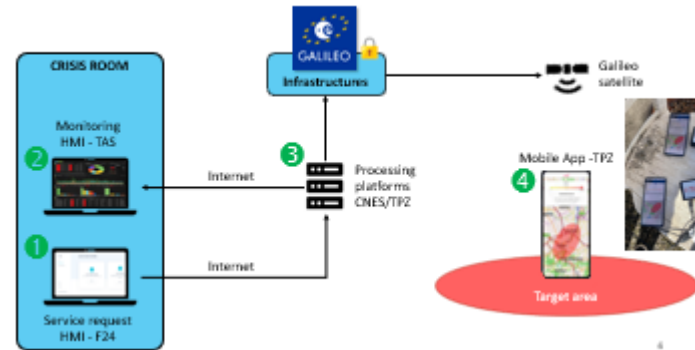


# Highest Accuracy

- **High Accuracy** Initial Service Declared in early 2023 – one year of service
- **Very good performance since then!**
- Excellent feedback and interest for the internet distribution service.
- Start of HAS Phase 2 implementation actions



# Emergency Warning Satellite Service



## Showcase the end-to-end concept

Show user interfaces, functionalities, devices, infrastructures, performance

## Consolidate the service concept

Collect feedback from civil protection authorities, to improve the initial service concept

## Support the adoption by the civil protection authorities

Build awareness, generate interest, establish credibility

Explain users' duties and obligations, interface requirements, service limitation



# SAR

## Remote Beacon Activation

- EUROCAE standard approved
- Under consolidation

## Two Way Communication

- Enabled by the long Return Link Message
- Based on predefined Q&A helping the rescue mission

**Pilot services planned for both, 2025**

## Distress Position Sharing

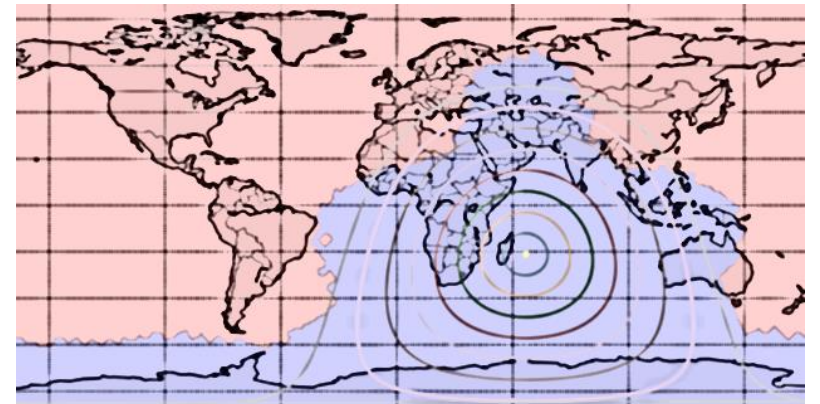
- Rescue Centres can contact Galileo to share the position of a beacon user in distress with other nearby users
- Enable quicker rescue deployment thanks to nearby users

**Galileo**  
SAR/Remote  
Beacon  
Activation



## New MEOLUT In Reunion Island

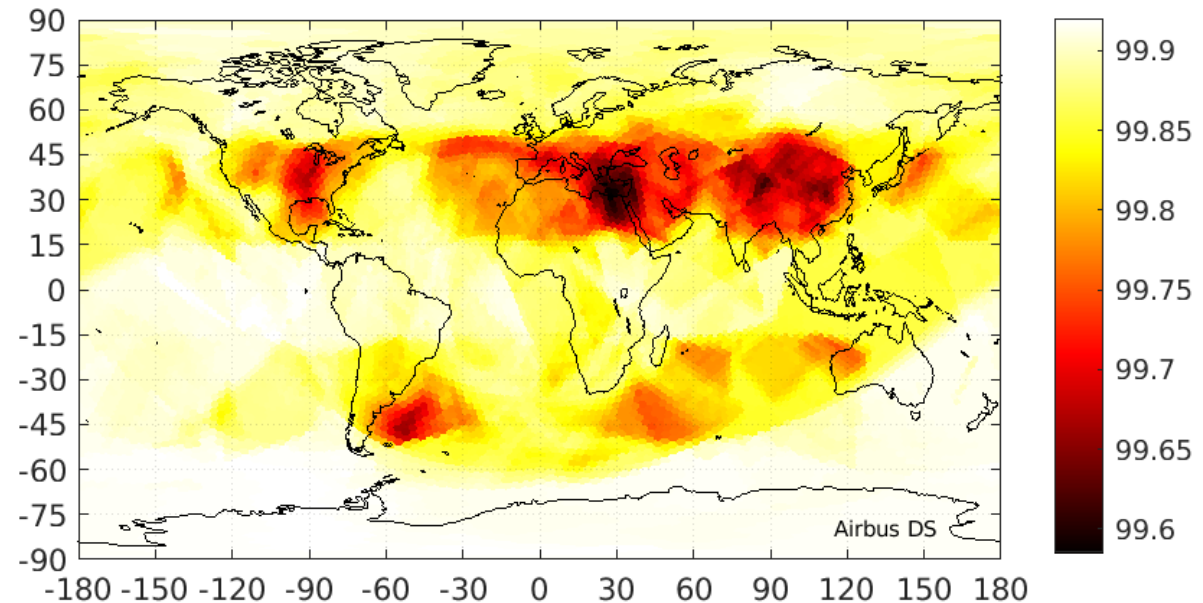
Improves SAR coverage reliability in the Indian Ocean region





# The Spoofing Challenge

- OS NMA - Long awaited GNSS feature
- Final OSNMA SIS ICD and receiver guidelines published in late 2022
- Transition to final signal broadcast in July 2023.
- Public Key Infrastructure under finalisation
- Initial Service declaration planned for early 2024
- First OSNMA receivers on the market



# Galileo 2<sup>nd</sup> Generation

Robustness

New Signals

New and Improved Services

More Data Capacity

State of the Art Technology

Flexibility

Backward Compatibility



# Future Evolution



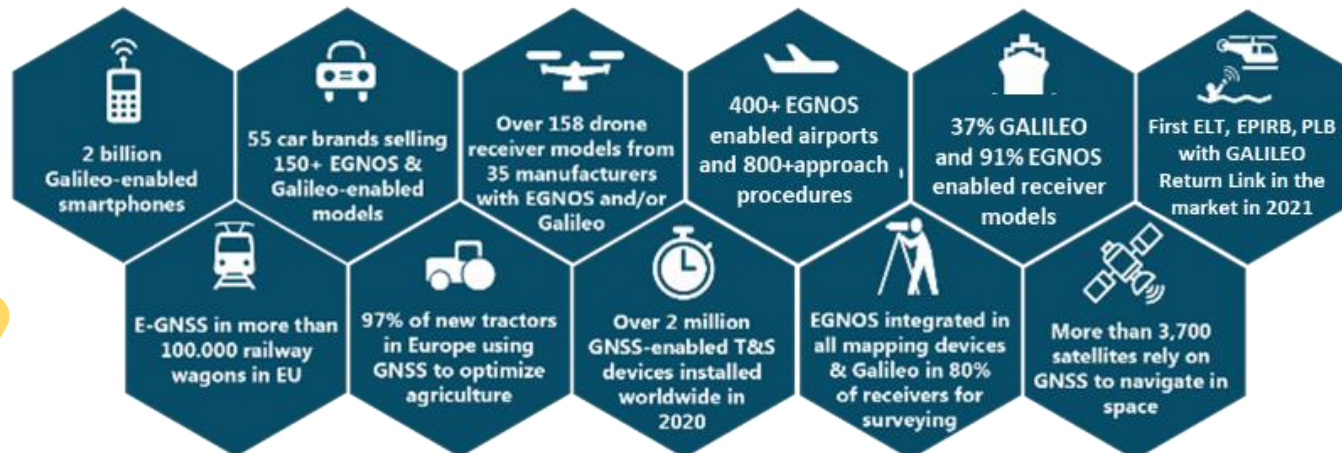
# Support Galileo Global Users

4 000 846 595

Estimated number of Galileo enabled smartphones sold until today.



And many more Galileo enabled devices  
Find you Galileo enabled device at [www.useGalileo.eu](http://www.useGalileo.eu)



Download the new EO and GNSS EUSPA Market report [www.euspa.europa.eu](http://www.euspa.europa.eu)

