

#EUSpace 

The EU Space Programme in action: The receiver manufacturers and users' views

USER CONSULTATION PLATFORM 2025

Space Downstream Day

04/12/2025





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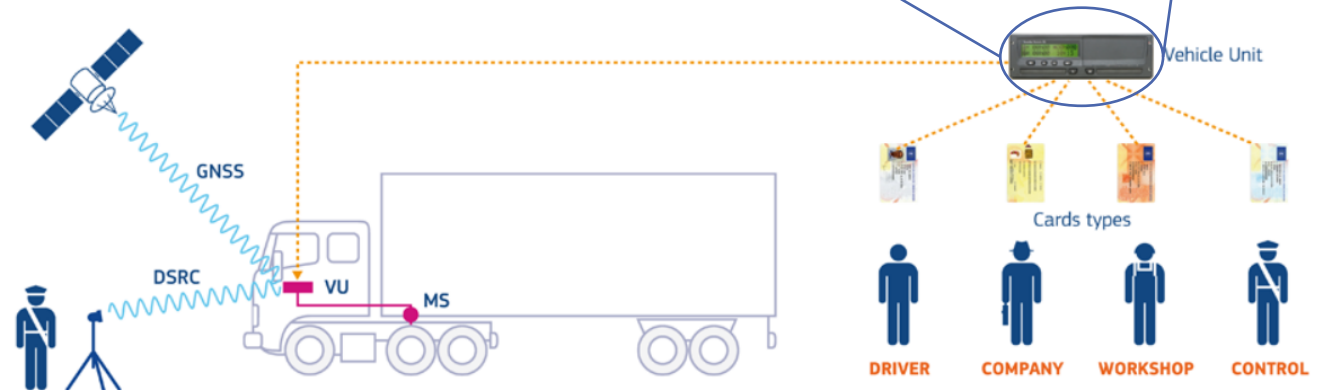
AUMOVIO Germany GmbH

Smart Tachograph System overview

- **Mandatory in European Union for:**
 - Commercial Vehicles (>3.5 tonnes)
 - Buses (>9 seats)
 - Light Commercial Vehicles (LCVs) (2.5 - 3.5 t)
- **Primary Purpose:**
 - Improve Road Safety
 - Ensure Fair Competition
 - Strength Enforcement
 - Maintain Driver's Wellbeing
- **Primary Features:**
 - Driver's activities recording
 - Events and faults recording
 - PVT recording



Smart Tachograph



Credit: [Joint Research Centre](#)

Galileo OSNMA

Challenges and Recommendations

Satellites & Signal

- Challenges:
 - Number of visible satellites w. OSNMA
 - Reliability of the data streams
- Recommendations:
 - Increase number of satellites w. OSNMA and improve reliability of data stream



Environment

- Challenges:
 - External interference sources
 - Weather conditions
 - Reflection / absorption
- Recommendations:
 - Modern Rf measures and improve the codes

Infrastructure

- Challenges:
 - OSNMA service availability in the satellite
 - Connection bandwidth
- Recommendations:
 - Public Key more often/random over SiS
 - 2nd Public Key availability upfront

User & Receiver

- Challenges:
 - Antenna Placement
 - Dynamic conditions, like driving
 - Interference sources
- Recommendations:
 - Create user awareness

Galileo OSNMA

Benefits and Deployment

Benefits:

- Open and freely accessible service
- Additional layer for system security:
 - Motion conflict detection
 - Time conflict detection
- Enhanced security against Spoofing
- Improved data integrity
- Increased trust and robustness of PVT
- Ensures the primary purpose of the tachograph system, high-security data recorder
- Fosters the trustworthiness and resilience of the control instrument

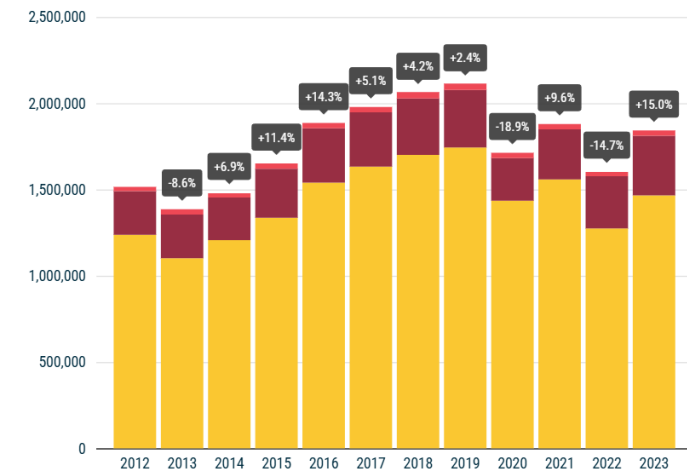
Deployment:

- Introduction and use as of Jan 2026
- Statistics for newly registered commercial vehicles in EU:
 - In average:
 - ~ 320.000 new registrations (truck & buses)*
 - ~ 38.000.000 in total (truck & buses)*
 - ~ 13 years, average age*
 - ~ 95% affected by tachograph

NEW EU COMMERCIAL VEHICLE REGISTRATIONS

In units, % change / 2012 - 2023

■ Vans ■ Trucks ■ Buses



* Based on [ACEA](#) reports

Kongsberg Discovery

HASMAR

- Integrating Galileo HAS into Kongsberg Discovery's DP reference system (TRL-8)
- Demonstrating Galileo HAS in a ferry auto-docking operation (TRL-9)
- Building resilience:
 - Adding Galileo OSNMA at the product prototype level
 - Replacing standard GNSS antennas with CRPA antennas
 - Testing at **Jammertest**
- Duration 24 months, project started in May 2025



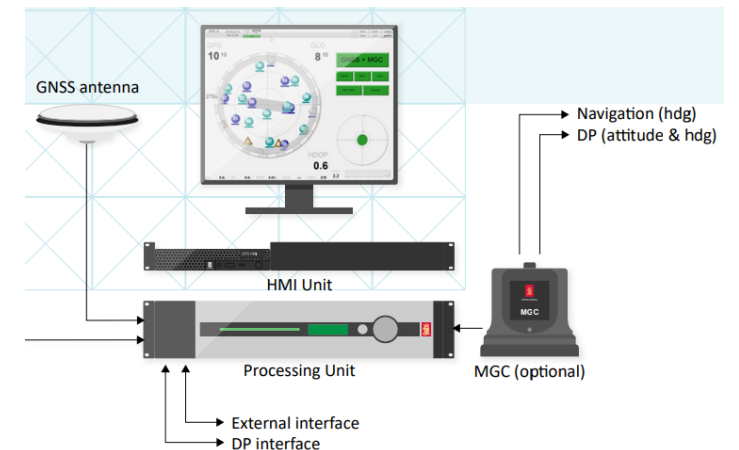
DP – Dynamic Positioning

TRL – Technology Readiness Level

OSNMA – Galileo Open Service Navigation Message Authentication

Jammertest - An open GNSS interference test arena organized by Norwegian authorities to accelerate the development of resilient GNSS applications.

[Jammertest 2025 Official Page](#)



[HASMAR | EU Agency for the Space Programme](#)

Integrated solutions

Dynamic Positioning



Sensors used:

- GNSS
- Radar
- Gyro
- Wind sensors
- Radius
- Laser reference system
- MRU
- INS
- HIPAP
- ...

Autonomous
"electronic anchor"

Integrated solutions

Remote & Autonomous



Fully electric **autonomous** road ferries
—zero emission

FLIR TransponderTech

Use of Galileo HAS

Hydrographic Surveying (Horizontal accuracy well within needs)

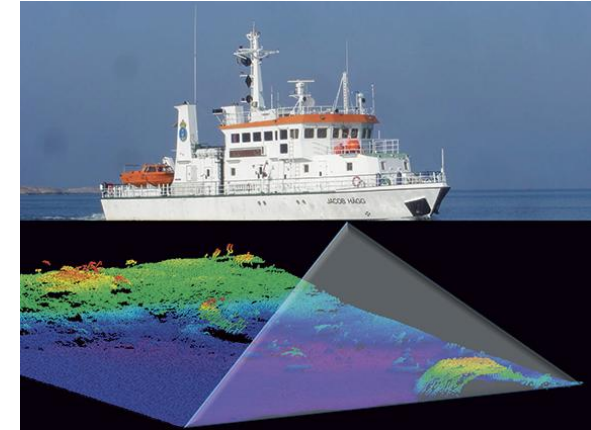
Precise Maneuvering (when docking, in locks, ..)

Ice Breaking (Movement of vessel in the Ice)

Under Keel Clearance /Height of Vessel (Bridge passages)

Remote Pilotage (To and from dock)

Minimizing fuel consumption (Squat and trim)



Remote Pilotage

Accurate Position Information (decimeter)

Understand behavior of the vessel in maneuvers

- **Accurate longitudinal and transversal speed**
- **Course over Ground**
- **Heading**
- **Rate-Of-Turn**
- **Trim**



Performance from field



Stockholms Skärgård

Översikts- och planeringskort

1:100 000

ANTI-JAMMING

- Jamming signal suppression
- Signal comparison
- Signal anomaly detection
- OS-NMA

ANTI-SPOOFING

Deviation
Latitude
0.035m

Longitude
0.033m

05:07 UTC NAV - Position Corr: GALHAS
Quality: RTK

Last Update: 26 May 05:07:05 UTC WGS-84

LAT: **59° 33.4178' N**

LON: **018° 36.9592' E**

Magnetic Variation: 8.0° E

COG: **236.8°** SOG: **9.9 kn**

05:38 UTC NAV - Jamming

← Previous Current →

■ L1 ■ L2 ■ L5

Critical - 5						
Severe - 5						
Minor - 5						
None - 5						
Critical - 2						
Severe - 2						
Minor - 2						
None - 2						
Critical - 1						
Severe - 1						
Minor - 1						
None - 1						

Deviation
Latitude
0.035m

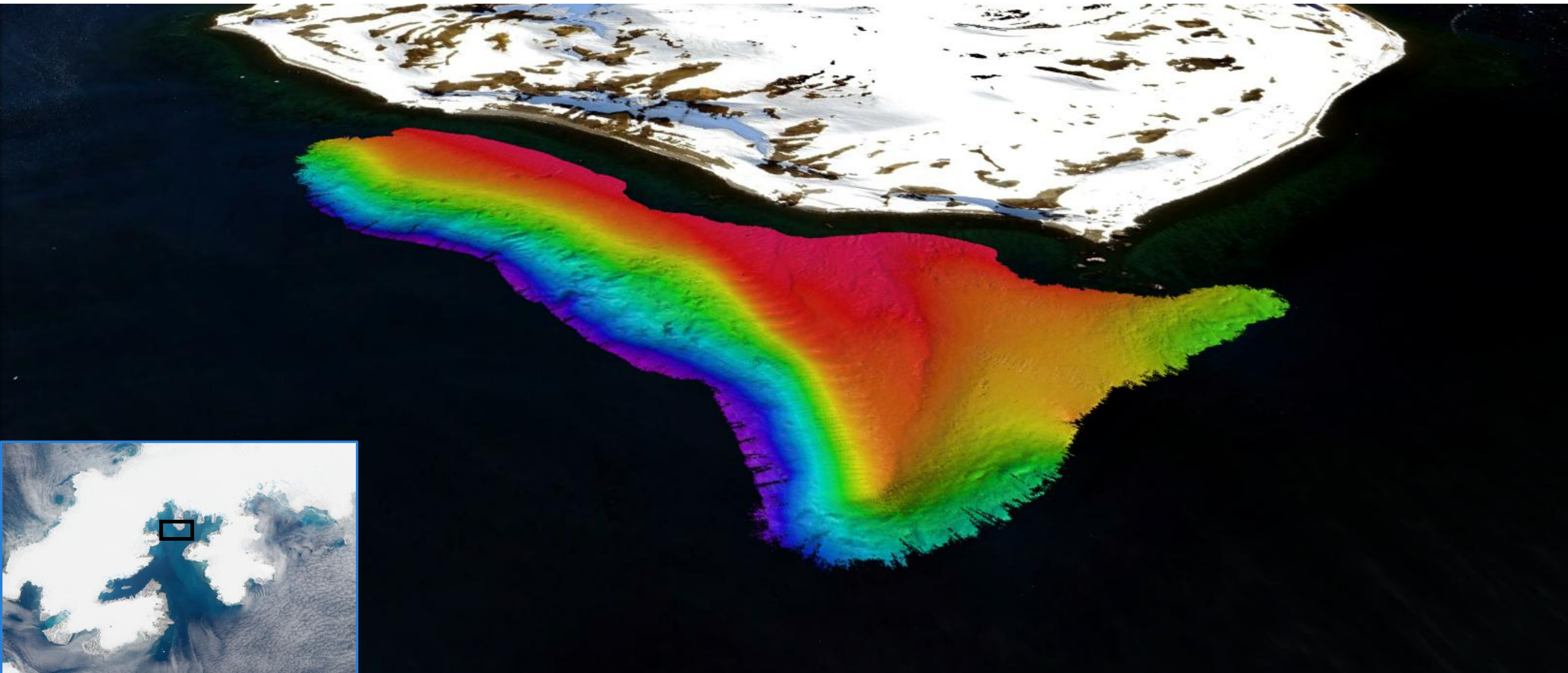
Longitude
0.033m

Satellites
In Use

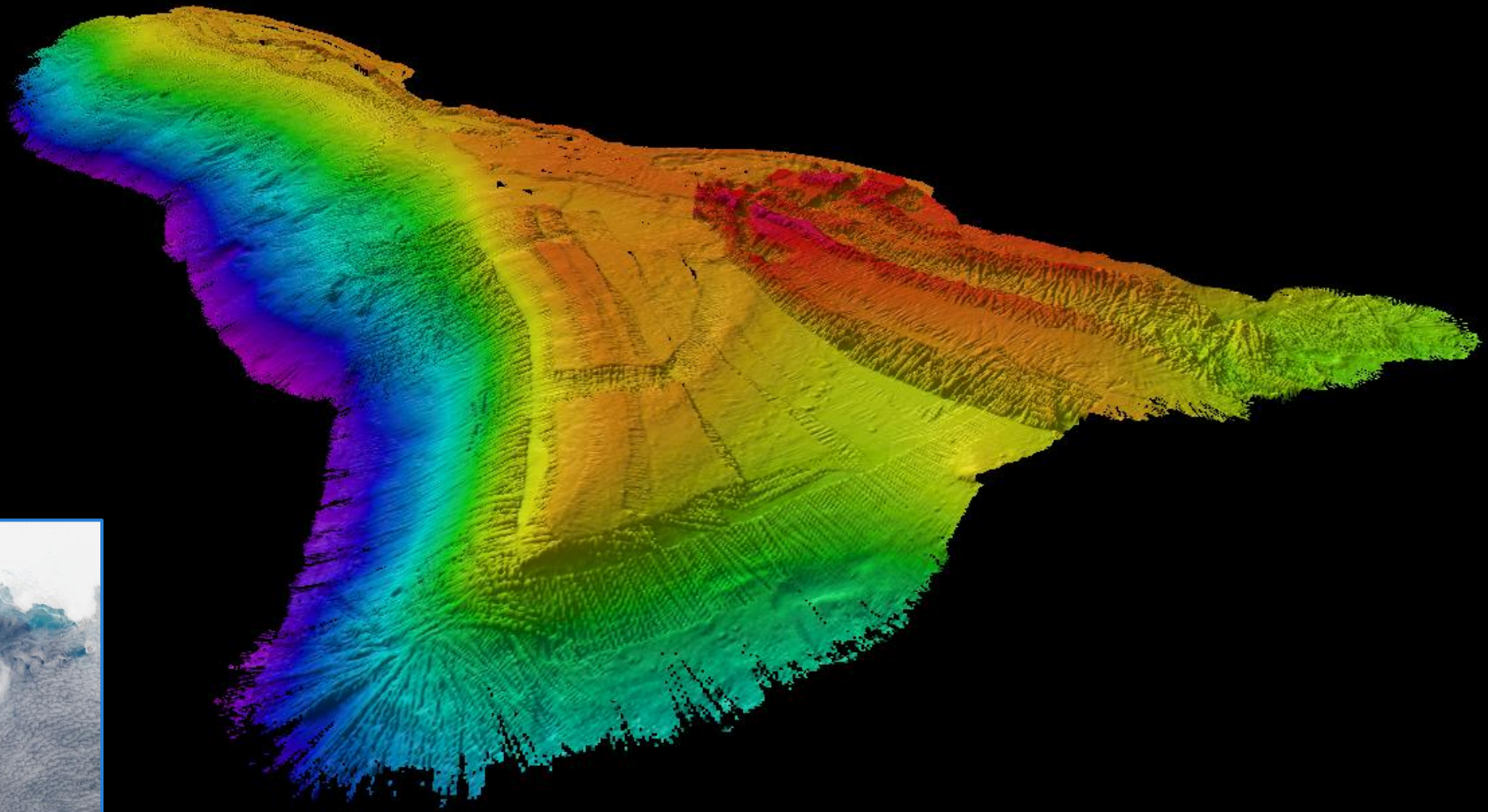
GPS: 9
GLO: 0
GAL: 9
BEI: 0
QZS: 0
IRS: 0

Ocean Mapping Group University of New Brunswick

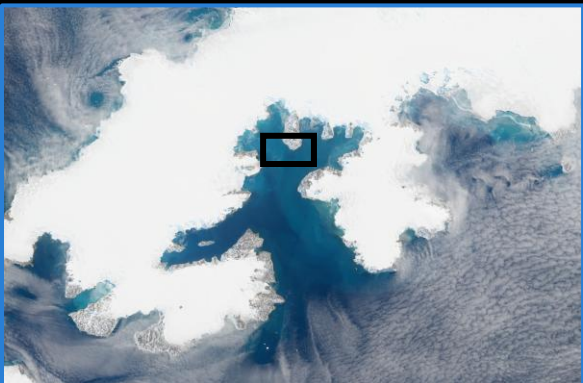
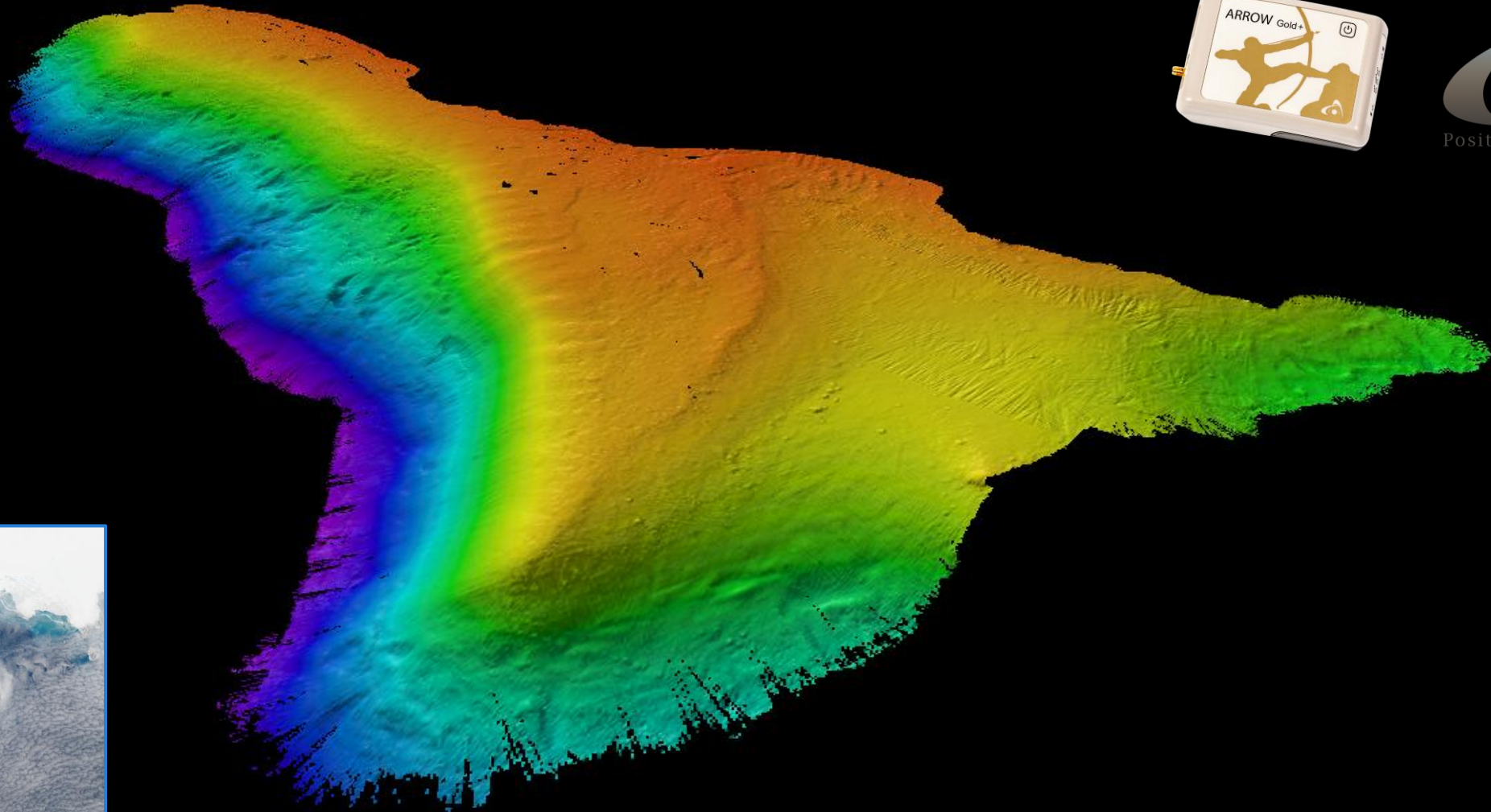
Keller Peninsula, King George Island



Without Galileo High Accuracy Service



With Galileo High Accuracy Service



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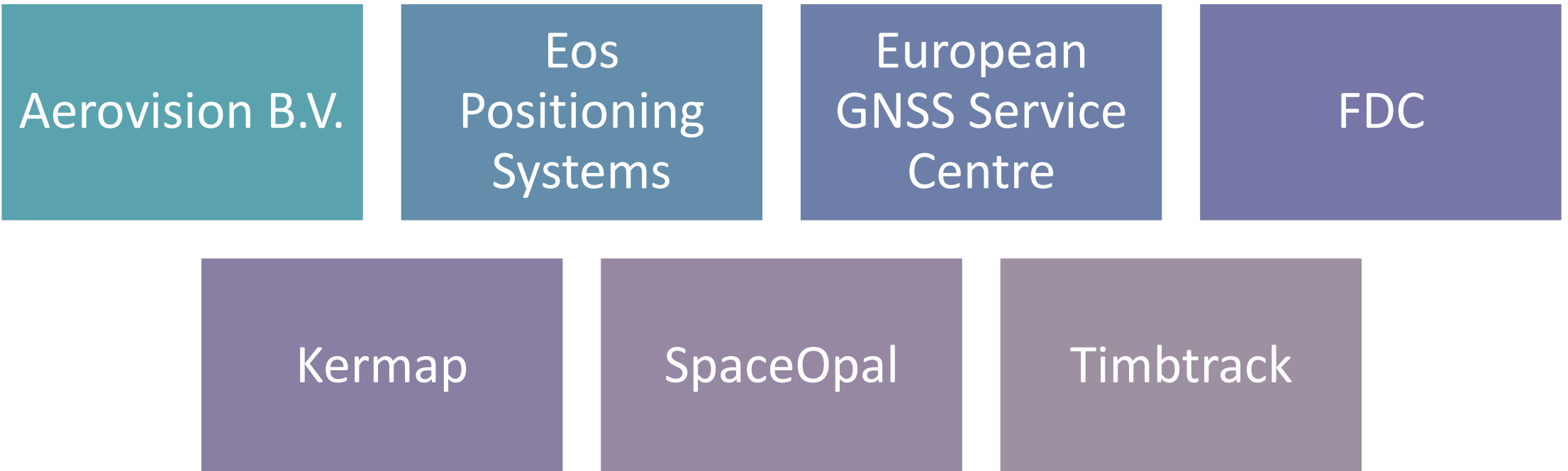


Join at
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Time for audience interaction!

Grab your phones and
answer the polls

Introduction to demonstrations



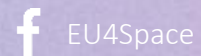
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Linking space to user needs

Get in touch with us

www.euspa.europa.eu



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