

#EUSpace



How GNSS Contributes to CO2 Reduction

ICG-17

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GNSS a key enabler to efficient, safe and environmentally friendly mobility solutions

Smart cities, ports and airports



Optimised traffic management
Automation of operations

Sustainability



Emissions monitoring
Intelligent routes

Digitalisation



Intelligent logistics
Virtual reality

Autonomous vehicles



New mobility schemes
New transport infrastructure
New traffic management systems

Across all transport modes: Aviation, Drones, Maritime and Inland Waterways, Rail, Automotive

Towards European Green Deal Objective: reduction in transport-related greenhouse gas emissions.

In the air: Building the future Urban Air Mobility (UAM) with Galileo

Why UAM?

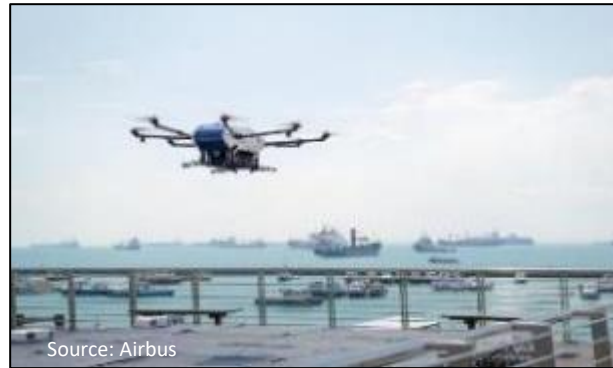
- Solutions to respond to transport needs in cities
- Safe, quiet, sustainable and eco-friendly
- Opens new business opportunities

Why Galileo?

- **Increases availability** in Urban Environment
- **High Accuracy and authentication** for resilient navigation



Passenger Urban Air Mobility



Urban Air Delivery



New mobility solutions for the first and the last mile driven by Galileo

In the air: SBAS supports Greener Aviation

SBAS supports greener aviation

Closer alternate

Missed Approach reduction

Track reduction

Rationalization of conventional radio NavAids infrastructure

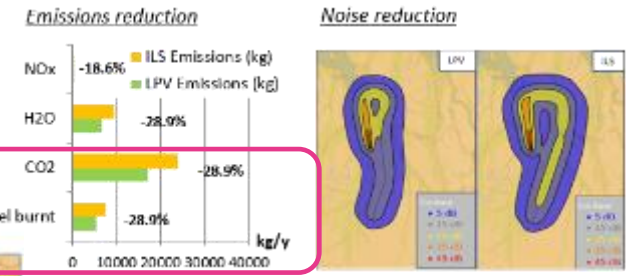
LPV to runways without instrument approach procedures published



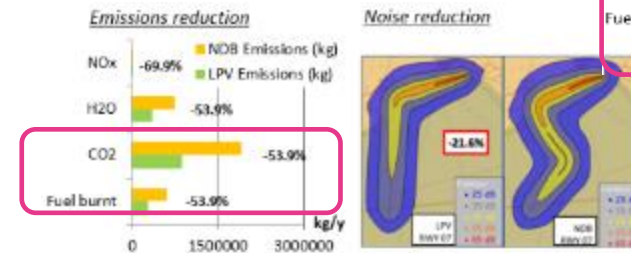
Environmental showcases

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

Akureyri – ILS vs RNP



Almería – NDB vs RNP



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



Online Environmental tool available

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

At the sea: GNSS enable greener and safer operations at sea and inland waterways



Automation and digitization of the ports of the future



High accuracy and integrity for future Autonomous vessels



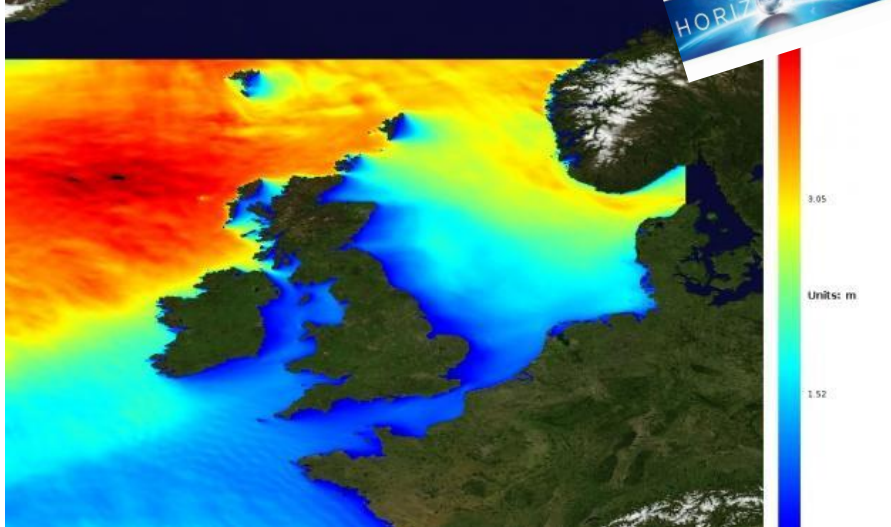
Prepare Ships



Accurate and authenticated position for vessel monitoring to fight illegal fishing



Galileo positioning and Search and Rescue for Surveillance and safety at sea



Optimized routing and collision risk reduction with Galileo and Copernicus

On the ground: GNSS support transition to more efficient railway transport

- **GNSS is a game changer to develop ERTMS (European Railway Traffic Management System):**
 - Contribute to EU Green Deal by dematerializing the signaling infrastructure
 - Increase safety and the efficiency of the traffic
 - Provide significant cost savings for deployment and maintenance
 - Support interoperability of regional/capillary lines



In our cities: GNSS increases the efficiency of public transport towards greener cities

- Transport is the main cause of city air pollution.
- Some cities decided not to 'return to normal' after COVID, but build a better, more sustainable and efficient transport system and sustainable urban planning in their recovery plans.



Galileo in Prague trams in 2020



New bike lines in Milan during COVID



Madrid buses ready for Galileo



Sustainable urban planning

GNSS can help cities move towards greener transportation, support urban planning and activity monitoring while boosting innovation and economic growth.

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Linking space to user needs

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