





# The EU Space Programme

## EU space activities under one umbrella

 <p><b>EGNOS</b></p> <p>EGNOS "Makes navigation signals more accurate and trustworthy for Safety-critical applications"</p> <p>Operational in <b>400+ airports</b> &amp; helipads in 23 countries</p>	 <p><b>Galileo</b></p> <p>Global satellite navigation and positioning system (GNSS)</p> <p>More than <b>3 billion Galileo receivers</b> worldwide</p>	 <p><b>Copernicus</b></p> <p>Earth Observation (EO) and monitoring based on satellite &amp; non-space data</p> <p><b>Nr.1 world provider</b> of space data and information (&gt;20TB/day)</p>	 <p><b>GOVSATCOM &amp; IRIS<sup>2</sup></b></p> <p>Secure satellite communications for EU governmental actors</p> <p>Rapid support over crisis areas</p>	 <p><b>SSA</b></p> <p><b>Space Situational Awareness (SSA)</b></p> <p>Space Surveillance and Tracking (SST)</p> <p>Space Weather Events (SWE)</p> <p>Near-Earth Objects (NEO)</p>	 <p><b>Others</b></p> <p>Access to Space</p> <p>Research &amp; Innovation</p> <p>Entrepreneurship</p> <p>Certification &amp; standardisation</p> <p>Capacity Building</p>
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**Exploitation**

- Management, operation, maintenance, improvement, evolution & protection of infrastructure
- Galileo and EGNOS services provision and 24/7 operations
- GOVSATCOM hub
- Space Surveillance and Tracking (SST) Front Desk as of 2023



**Security**

- Security Accreditation for all components
- Operational security of Galileo and EGNOS
- Operation of the Galileo Security Monitoring Center (GSMC)



**Market development, communications, user uptake, applications, innovation**

- Galileo, EGNOS, Copernicus, GOVSATCOM

**Focusing on firefighting operations: the EUSPA approach**





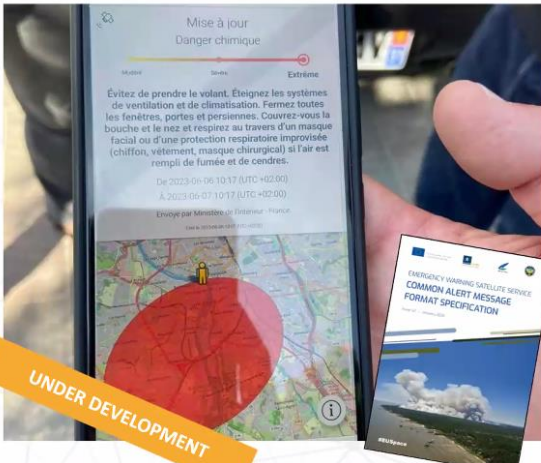
# Enhancing the use of EU Space services for emergency management

## Exploiting Galileo services:

- Galileo Return Link Service (RLS) in **Personal Locator Beacons (PLB)** useful for **firefighter's safety**
- Support the industry in developing **fit-for-purpose devices** (e.g. more robust, with low power consumption) **Location-based applications** for firefighters (smartphone apps)
- Galileo-supported **wearables** (e.g. bodycam systems)
- Galileo **Emergency Warning Satellite Service (EWSS)**
- Galileo as an **enabler of drones** and autonomous operations



# Galileo Early Warning Satellite System (EWSS)



## A future Galileo alert service for broadcasting alerts to the population

The EWSS service (Emergency Warning Satellite System) will **support and complement the current civil protection services** by taking advantage of the global 24/7 infrastructure of Galileo and its signals.

In the framework of the Horizon Europe project (STELLAR) a live demonstration was carried out in the presence of the French Ministry of Interior, the Toulouse prefecture, and civil protection authorities (Service d'Aide Médicale Urgente, Town Hall, Firefighters/Service Départemental d'Incendie et de Secours).



# AWARE (enAbling EWS/GALileo maRket uptake in widEspread PWS solutions)

Benefits of using **Galileo EWSS and Copernicus Emergency Management Service (EMS)** for disaster risk reduction and efficient crisis management

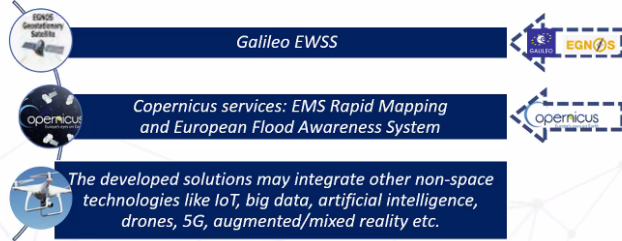


**Main project objective:**

Exploit and demonstrate an additional warning system. Save human lives, reduce crisis response costs and reduce the risk incurred by the emergency service staff.



- Duration: 24 months
- Consortium: 8 participants
- Budget: 2.609.343 EUR



## Drones for emergency management operations

- **Situational awareness** on-the-spot (delivering images and video) for **early warning and/or monitoring**
- Supporting **communications** on the field (creating connectivity bubble)
- Reaching difficult areas particularly during **search and rescue** ops
- Assessing **thermal sources**, revealing hidden hotspots and smoldering areas



CITYMESH

**Our mission:** EUSPA supports the development of drone solutions for firefighters, making sure the Galileo Services are used and valorized properly

# Connectivity for firefighters: GOVSATCOM

## Secured Satellite Communications for Governmental users

- High availability, robust, everywhere
- Resilience, non-dependence on terrestrial networks
- Guaranteed and easy access

## Pooling & sharing of capacities & services

- Aggregation of demand, supply matching => cost-effective services
- Pool of capacities of EU governmental and commercial SATCOM providers

## Governmental Users:

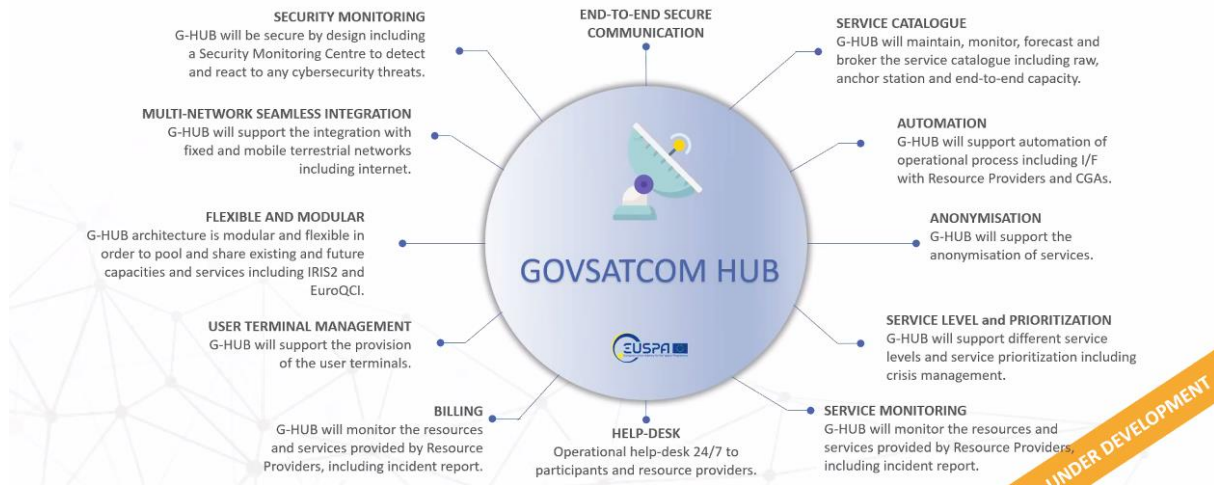
- Crisis Management: guaranteed comms (audio/video) in the field and with the rear bases / control centers
- Border and Maritime Surveillance: NRT distribution of data from sensors (UAV's, ships, etc.) to border control authorities
- Key and critical infrastructures management, diplomatic networks

GOVSATCOM services will be accessible through a Secure Hub, which will connect users with providers



UNDER DEVELOPMENT

# GOVSATCOM Hub: Unique Secure Infrastructure



UNDER DEVELOPMENT

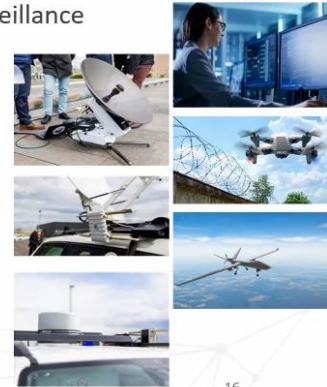
# Launching a new governmental network of end-users



EUSPA supports MS and EU governmental users in the exploitation of the EU Space services aimed at resilient missions and operations in Critical Infrastructure, **Emergency Management** and Humanitarian aid and Security and Surveillance

## How to foster EU Space services uptake in the Gov sector

- Building upon the ENTRUSTED initiative
- Focus on Secure SATCOM + synergies with other components
- Workshops and Consultations - Access to pilot / demonstrations
- Express/update user needs and requirements
- Interact with market solution providers



### Call for interest (open to firefighters)

Are you interested to join this initiative?

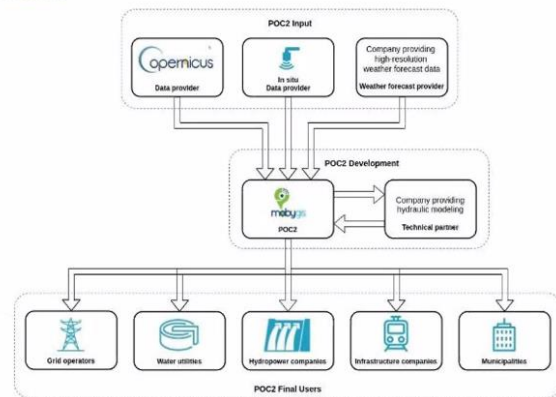
→ Contact us at [emaid@euspa.europa.eu](mailto:emaid@euspa.europa.eu)

# Copernicus Demonstrators

Demonstrating the benefits of space data and services in the user's operational environment

## Proof of Concept on Emergency Preparedness and Early warning of Floods

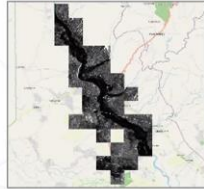
- ✓ User-tailored (2 engaged entities)
- ✓ Asset-focused
- ✓ Semi-dynamic maps (hydrological and hydraulic modeling)
- ✓ Early-warning on assets



## R&I activities on floods



- Training and operationalization of AI-based and EO-based algorithms:
  - Continuous multi-class water monitoring over Poland
  - On-demand flooded area delineation
  - Ongoing and cover maps, VHR algorithms, hotspot detection



## R&I activities on floods



BUILDSPACE

The pilot aims at **expected flood damage** to buildings, considering:

1. flood extent scenarios with flood protection measures in place, and
2. increased flood extent scenarios with climate change taken into account.

In its current form, the application allows the user to visualise floods with statistical return periods of 10, 100 or 500 years.



# New EUSPA emergency management-relevant activities

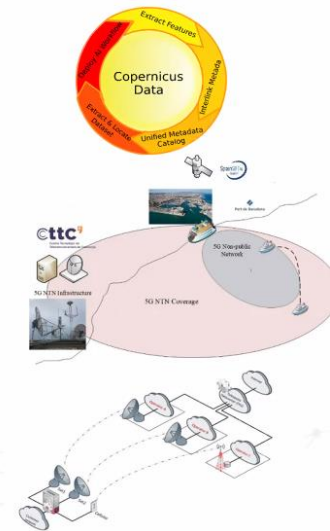


Projects that kicked-off

**GEXTRECS:** End-to-End GOVSATCOM Service supporting Extreme Events Crisis Management  
**SIGMA:** Real-world demonstrations in emergency response use cases in Germany and Luxemburg

Projects in the pipeline

- European space, aerial and terrestrial assets **supporting first responders' operations**
- Secure SatCom-based solution enhancing emergency services and search & rescue missions
- Fifth generation services Hub for EU Governmental Satellite Communications
- Copernicus emergency applications for resilience addressing businesses' needs and policy making



## Conclusions – take aways

- **EUSPA:** user-driven innovation based on the EU Space Programme
- **Galileo** as enabling technology
- **GovSatCom Hub** your future entry point for secure SatCom
- New projects that demonstrate EU Space capabilities
- Be part of our **Network of Users** (-> [emaid@euspa.europa.eu](mailto:emaid@euspa.europa.eu) )



## Framing

- Overview of the EU Agency for the Space Programme (EUSPA), the **EU Space Programme** and its components
- Understand on how space capabilities can **support firefighter's mission**
- Provide **examples** from EUSPA research & innovation projects that develop tools for first responders

## EU Space Programme for disaster management applications



### AWARENESS → Copernicus

- Delivering a treasure of **free, open and accessible Copernicus data to understand and quantify risk - detect and monitor hazards**
- **Supporting downstream development** with cloud-based infrastructure
- **Operational Copernicus Services** -> **Emergency Management Service**, C3S etc.



### NAVIGATION & MONITORING → Galileo/EGNOS

- **Navigating** responders (and vehicles/drones) on the field
- Enable crowdsourcing applications (geo-tagged images)
- **Receivers** accurately detect earthquakes, landslides, land deformations etc.



### COMMUNICATION & COORDINATION → GOVSATCOM/IRIS<sup>2</sup>

- **Connectivity** to first responders and humanitarian aid actors, enabling secure and resilient communication and data transmission services