



EUROPEAN UNION  
SATELLITE CENTRE

*Analysis for decision making*

# SatCen and the Geospatial Intelligence domain

***Switch to Space***

12/10/2020

Sergio Albani

Head of RTDI Unit

[sergio.albani@satcen.europa.eu](mailto:sergio.albani@satcen.europa.eu)



# European Union Satellite Centre

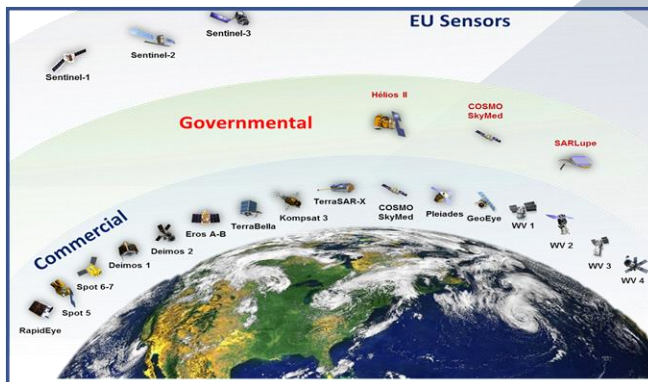
*SatCen supports the decision making and actions of the European Union in the field of **Common Foreign and Security Policy** by providing products and services resulting from the **exploitation of relevant space assets and collateral data***



- ✓ Agency of the EU Council
- ✓ Operational User of EO data



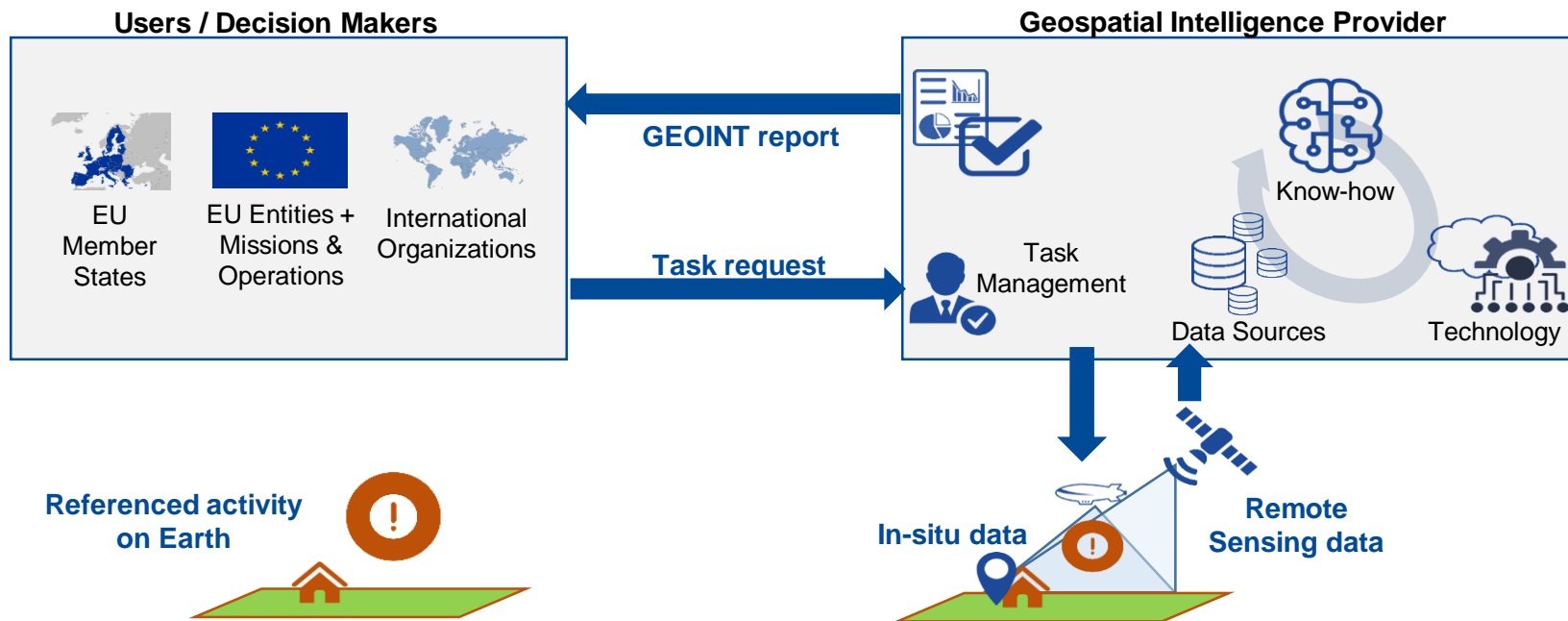
- ✓ HQ near Madrid (ES)
- ✓ GEOINT Service Provider



# What is GEOspatial INTelligence?

GEOINT comprises the exploitation and analysis of imagery and geospatial information to describe, assess and visually depict physical features and geographically referenced activities on Earth.

GEOINT organizes and combines all available data around its geographical location on Earth and then exploit it to prepare products to be used by planners, emergency responders and decision makers.



# SatCen Service Portfolio



# Examples of SatCen Application Domains

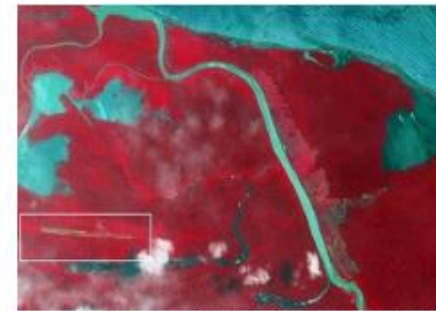
*SatCen provides services and products to support all phases of Crisis Management*



HUMANITARIAN AID



CONTINGENCY PLANNING



GENERAL CRIME AND SECURITY SURVEILLANCE



CRITICAL INFRASTRUCTURE

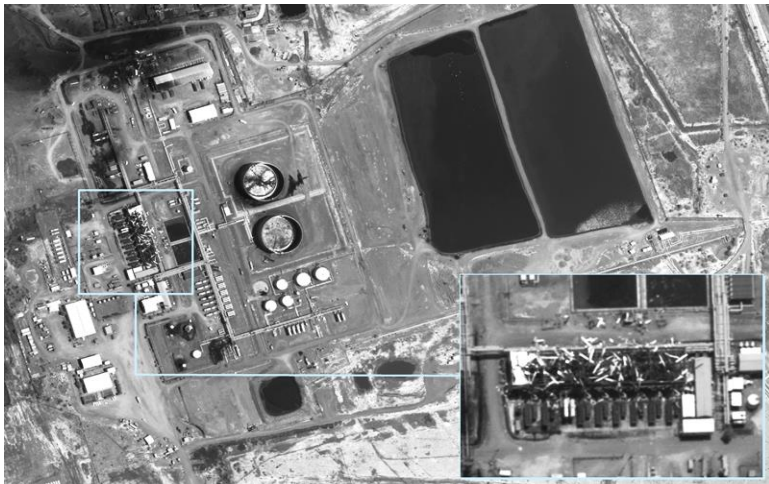
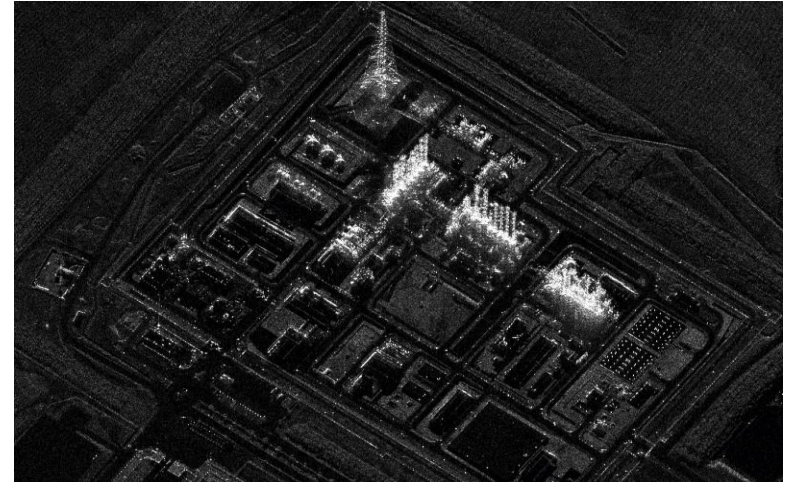
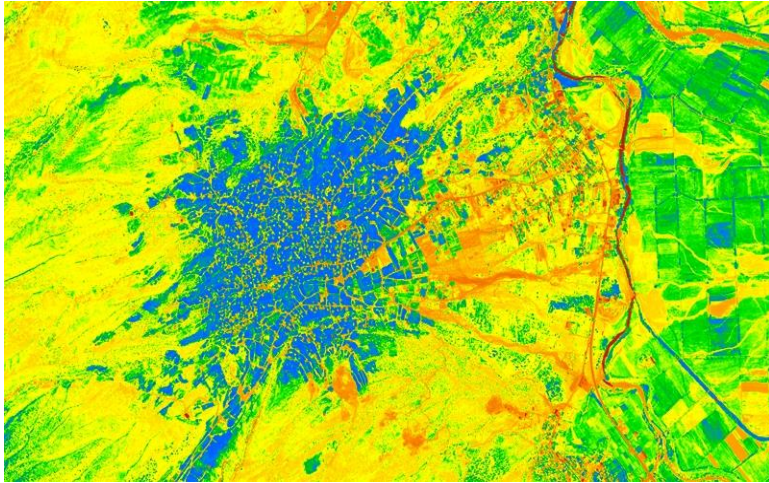


MILITARY CAPABILITIES



WEAPONS OF MASS DESTRUCTION

# Examples of SatCen Products



# Research, Technology Development and Innovation

The RTDI Unit is implementing new operational solutions looking at the whole EO and collateral data lifecycle

- Cooperation (e.g. H2020 Projects, ESA, GEO)
- New Data Acquisition Systems (e.g. HAPS)
- Secure Satellite Communications (e.g. EU GOVSATCOM)
- Innovative Technologies (e.g. AI, Big Data, Cloud Computing)
- EO Based Applications (e.g. SAR Change Detection)

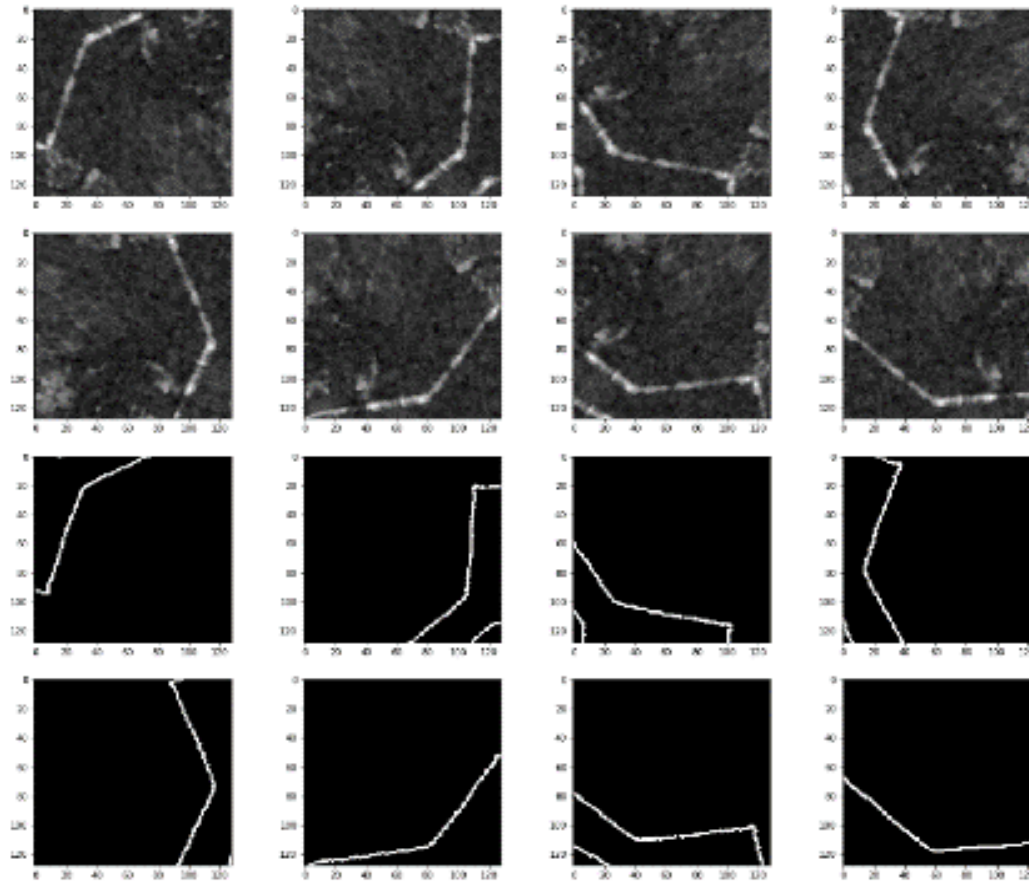


RTDI



# Example of RTDI Applications

In cooperation with ESA, SatCen has developed an AI based application to automatically detect linear features on satellite imagery



*Linear features detection in SAR images (Sentinel-1)*



# Example of RTDI Services

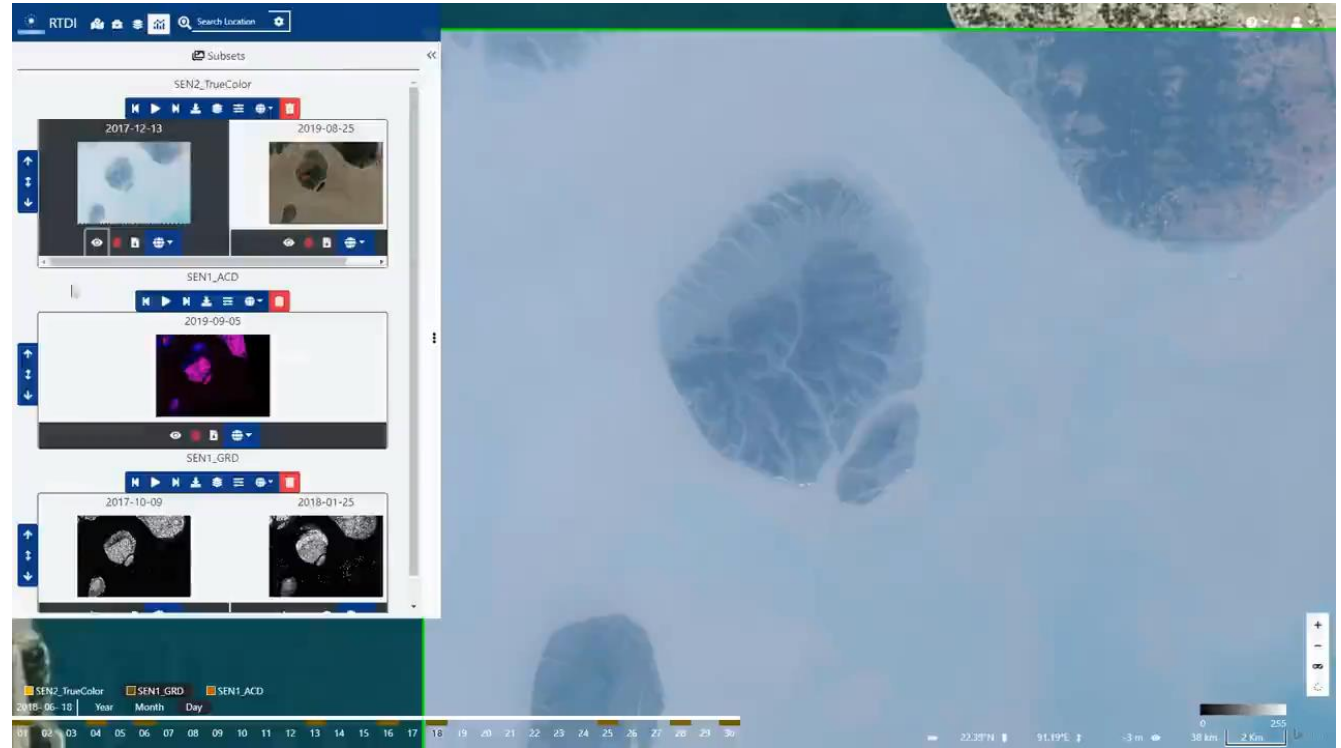
GEO-DAMP guarantees the sustainability of R&I results and is the SatCen pre-operational environment for new EO applications

## Rohingyas: victims of ethnic cleansing



## Bangladesh prepares to move Rohingya to island at risk of floods and cyclones

Foreign affairs minister defends controversial proposal as 'only solution' despite misgivings of human rights campaigners



# EU GOVSATCOM

*The EU Governmental Satellite Communications initiative aims to provide **secure and guaranteed satellite communication capacity and services to EU governmental stakeholders** (EU countries, agencies and institutions) for various security, defense, humanitarian aid, emergency response, and diplomatic communications missions.*

- EC coordinates several activities to start shaping the future EU GOVSATCOM programme
- The H2020 ENTRUSTED project, led by GSA, currently counts 21 institutional partners
  - ENTRUSTED created a Network of Governmental Users to produce a consolidated set of institutional EU user requirements for secure SatCom services and a long-term Roadmap & Coordination plan for R&I activities related to the user technologies
  - SatCen leads the gathering of user needs to generate user requirements, fields of application and use cases as baseline for future activities



# Space Situational Awareness

*Space-based products and services rely on satellites which must be monitored and protected against threats to ensure a safe and uninterrupted service. At the same time, people on Earth must be also be protected against space hazards such as asteroid strikes. Being informed about the situation in space is referred to as **SSA**.*

- SSA is covering three main areas:
  - Space Surveillance and Tracking (SST)
  - Space Weather (SWE)
  - Near-Earth Objects (NEO)
- Since 2016 the SST Consortium and SatCen have worked together to develop a European SST capability and formed the SST Cooperation.

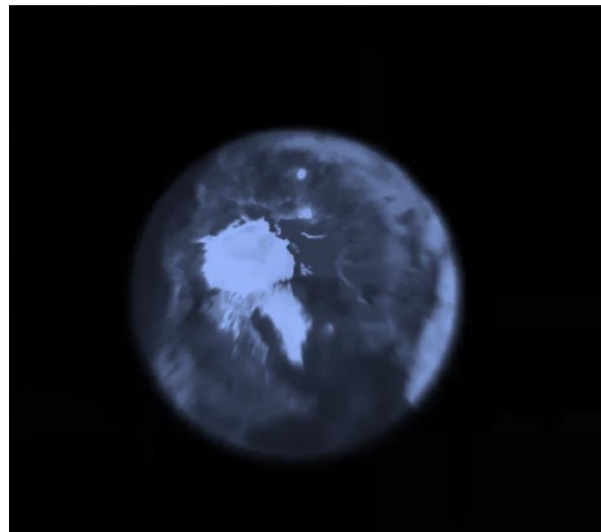


# Space Surveillance and Tracking

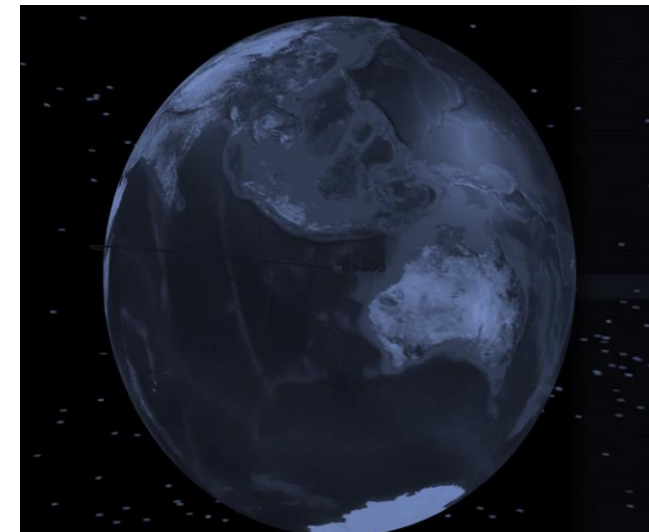
- SatCen is the SST Front Desk, responsible for the EUSST Service Provision Portal, the EUSST Help Desk and the User Interaction Mechanism
- Through the SST Service Provision Portal, a set of services are offered to SST Users
- SST Users are EU Member States, the Council, the European Commission, the EEAS, public and private spacecraft owners and operators, and public authorities concerned with civil protection



**Collision Avoidance**



**Fragmentation Analysis**

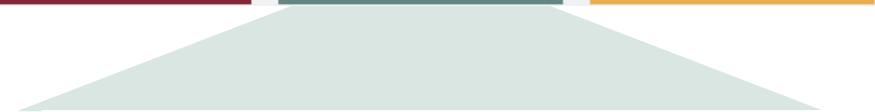


**Re-entry Analysis**

# Copernicus

*Copernicus is the European Union's Earth Observation Program, looking at our planet and its environment for the ultimate benefit of all European citizens.*

*Copernicus provides 6 operational services through the exploitation of space infrastructure (Sentinel satellites and 3<sup>rd</sup> party missions) and in-situ data*



Border  
Surveillance

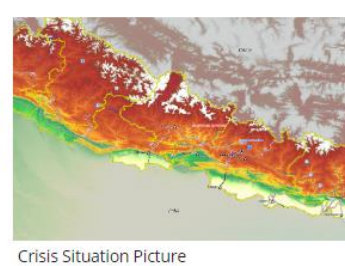
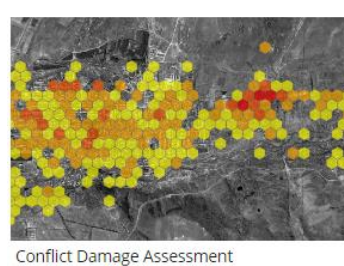
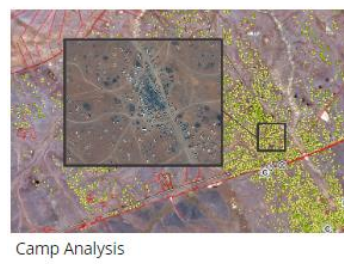
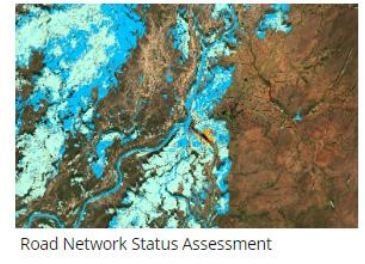
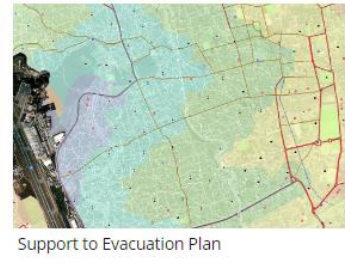
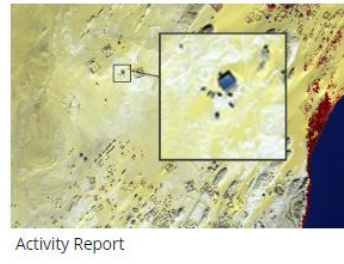
Maritime  
Surveillance

Support to  
External Action



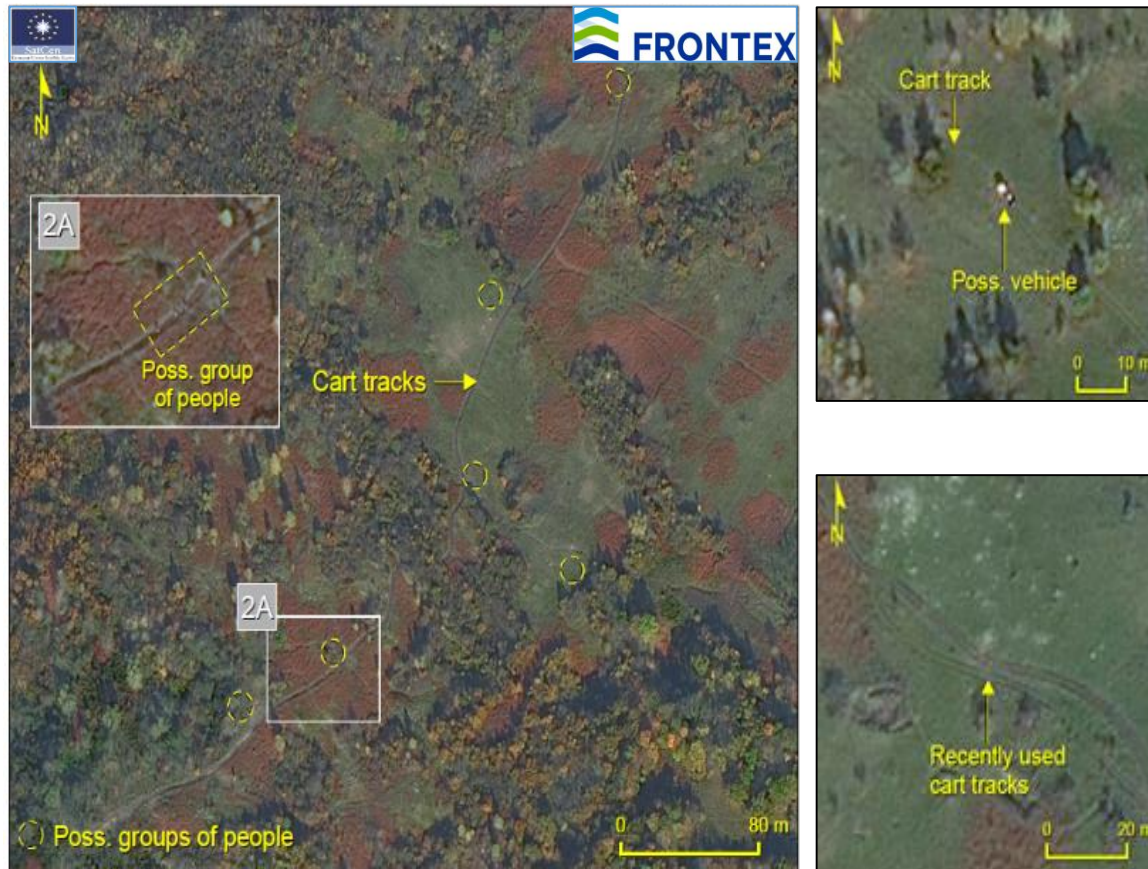
# Copernicus Support to EU External Action

The Copernicus SEA Service is a European GEOINT service which assists the EU and its Member States in its operations and interests outside EU territory



# Copernicus Border Surveillance

The Copernicus BS Service provides situational awareness capabilities on the EU's external land and sea borders, supporting EUROSUR (managed by FRONTEX)



# Conclusions

- GEOINT is important as it provides invaluable information that may help to support critical decision making related to civil security and to shape foreign policy
- SatCen provides reliable analysis of satellite data to face current security challenges and participate in key space programmes' initiatives
- The EU Space Programme is empowering EU Space activities and ensuring EU autonomy in Space
- R&I is key to maintain EU capabilities and enable the development of operational solutions in line with state-of-the-art technologies



Thank you!



Sergio Albani  
Head of RTDI Unit  
[sergio.albani@satcen.europa.eu](mailto:sergio.albani@satcen.europa.eu)