

# GIS for Border Management and Surveillance

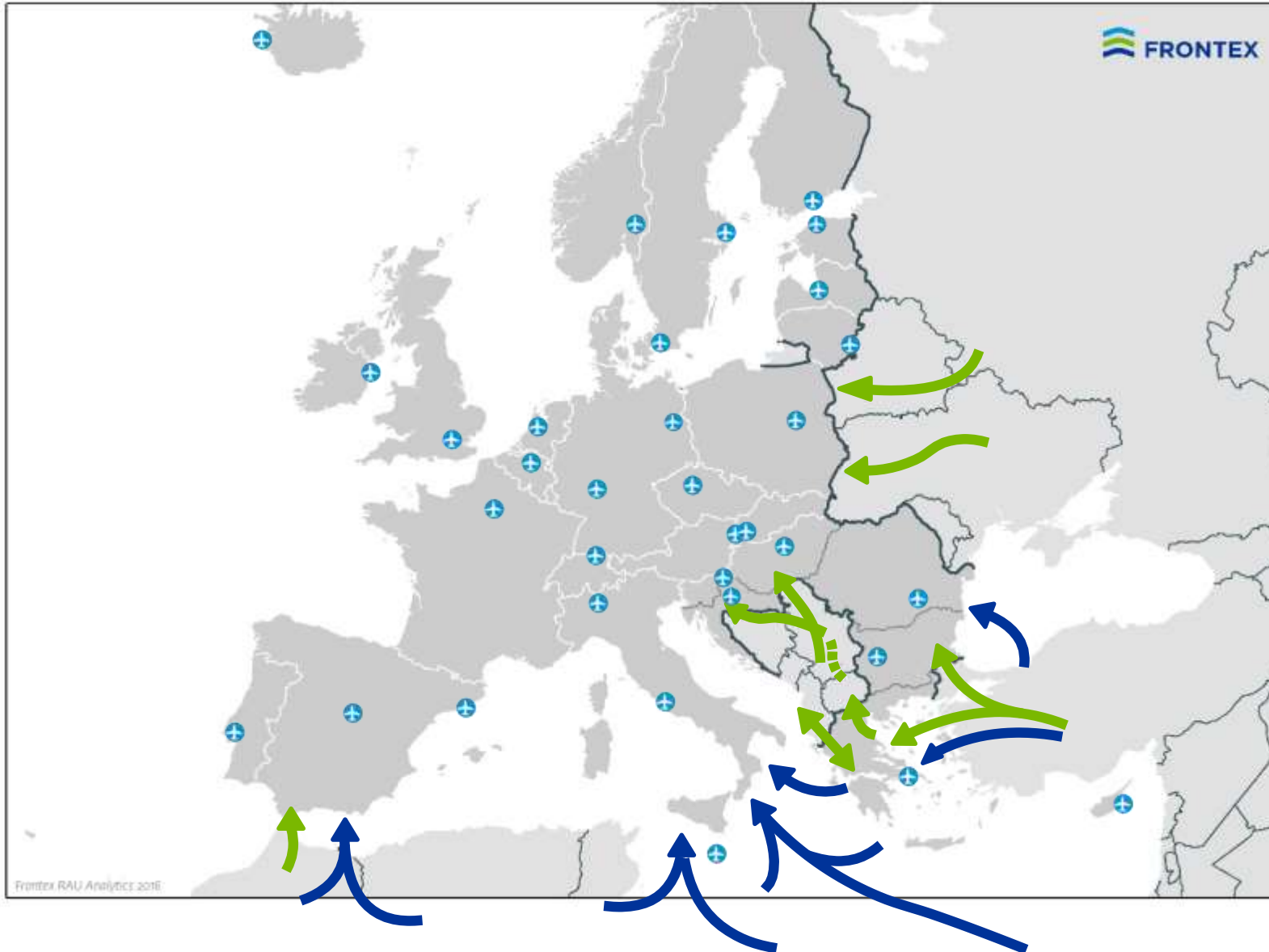
Risk Analysis Unit - Operations Division

Filipe Paisana

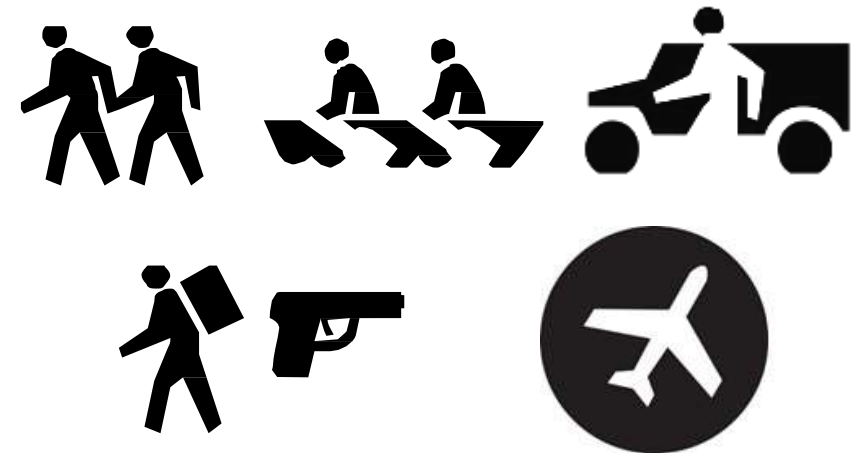
# Frontex Mission

- Frontex promotes, coordinates and develops European border management in line with the EU fundamental rights charter applying the concept of Integrated Border Management.

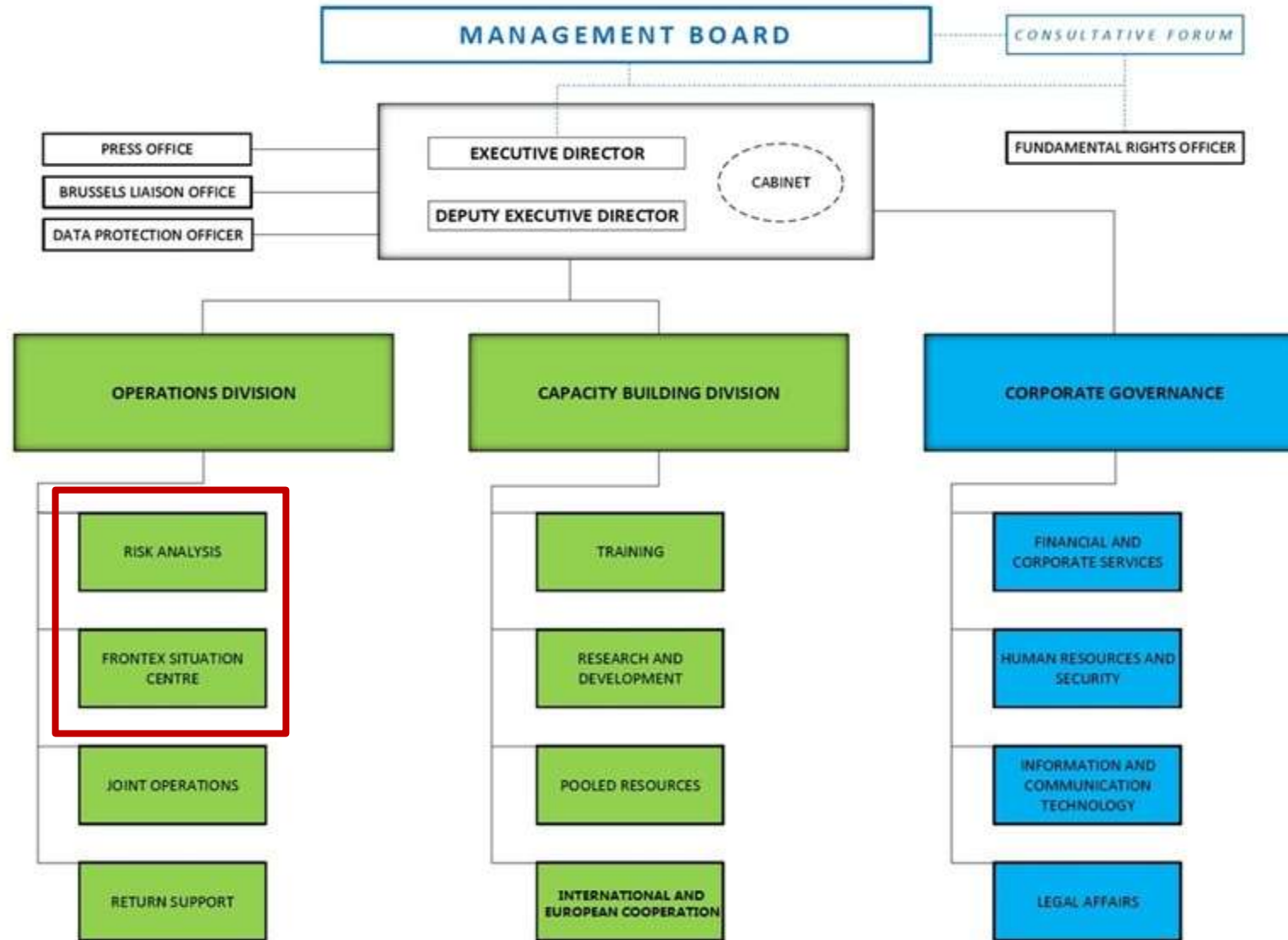
# EU External Borders



- 44 000 km of coastline
- 9 000 km of land borders
- Border Crossing Points
  - 811 Sea
  - 481 Land
  - 675 Air

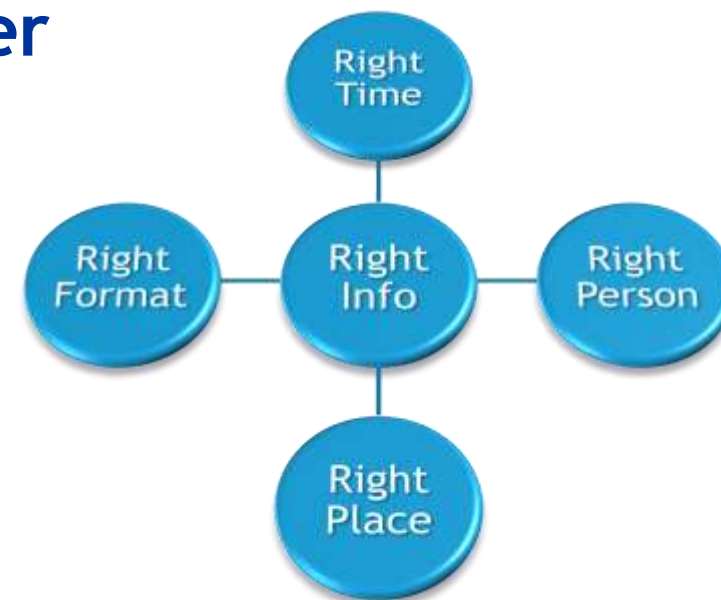


# Frontex Structure



# Frontex Situation Center

- 01 To promote enhanced situational monitoring
- 02 To act as an information exchange hub - contact point
- 03 To drive Eurosur operational running
- 04 To perform media monitoring



- Incidents (JORA)
- Vessel Detection
- Vessel Monitoring and Tracking
- Satellite Imagery
- Digital Surface Model
- Weather forecast
- Operational Areas
- ...

## Situational Picture

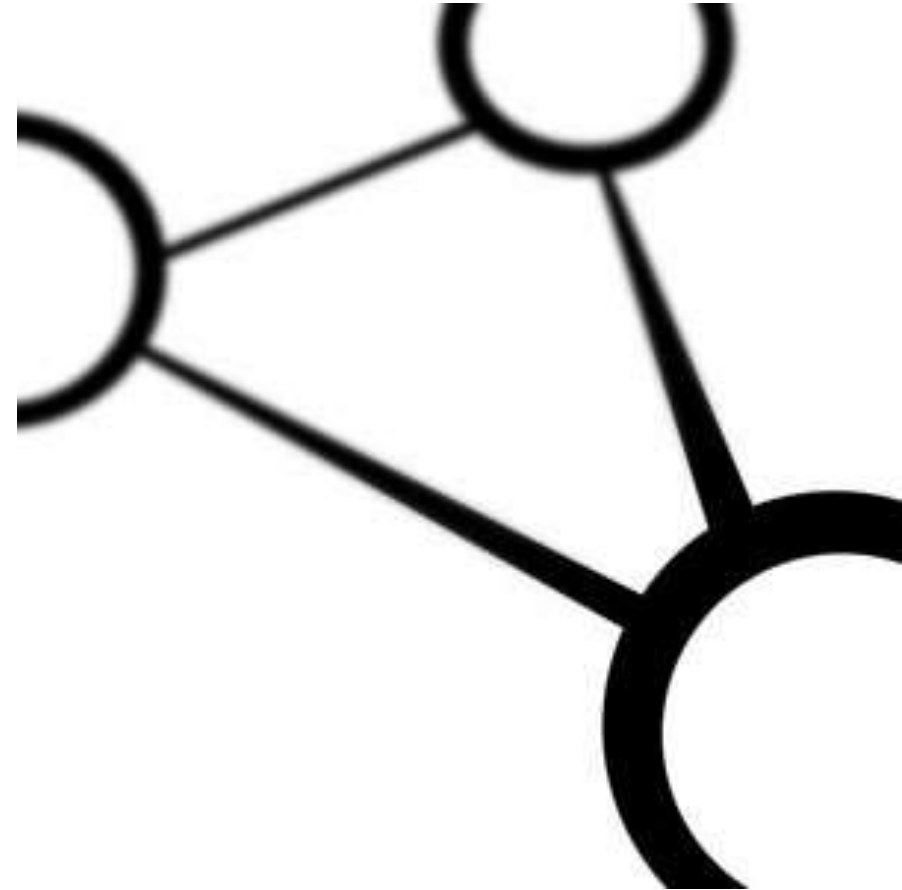


# Situational monitoring



## Risk Analysis Unit

- 01 Situation at EU's external border and **key factors influencing it**
- 02 Establish **trends and identifying risks**
- 03 **Advice for high-level decision making as well as joint operations**
- 04 To produce relevant, accurate and **timely intelligence products**





# Risk Analysis Unit - Sectors

## Strategic Sector

## Operational Sector

## Analytical Sector

- Border authorities of Member States and non-EU countries
- EU partners
- International organisations
- Joint Operations
- Intelligence debriefing
- Open sources

Information is requested, collected, analysed, and disseminated

### Risk Analysis Networks with MS/SAC

FRAN, EDF-RAN, THB Experts, ALUG

### Regional Risk Analysis Networks

EaP countries

WB-RAN

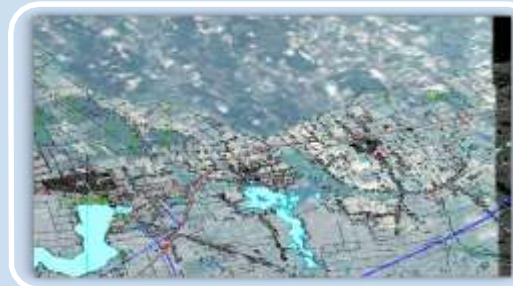
TU-RAN

AFIC Participant

AFIC Invited as observers



# ANALYSIS LAYER Earth Observation SERVICES (ALEOS)



Coastal  
Monitoring

Delivery of surveillance information on specific external coastal areas

Pre-frontier  
Monitoring

Delivery of surveillance information on specific Pre-frontiers areas

Reference  
Mapping

VHR imagery and vectors covering specific third-country areas identified through risk analysis

# Coastal Monitoring: Illegal immigration and criminal networks

## Monitoring areas of embarkation in Libya

17 Aug 2016 EU UNCLASSIFIED / For Official Use Only FXQ516002 N033 I006 (First Impression Report)

GeoEye Alpha

5x inflatable Rubber boats

18x Abandoned inflatable rubber boats

02x Unidentified vehicles

Entrance

Civilian vehicle

02x Unidentified vehicles

Civilian vehicle

Image dated 16 Aug shows the previously reported wall-secured compound Alpha. The comparison between the 01 Aug 2016 and 16 Aug images reveals significant changes on the indicators related to possible illegal migration activity. **Inset 1** shows the swimming pool area where five inflatable rubber boats (10x3.5 in size) have been noted. The area has direct access to a beach suitable for launching operations. The better resolution of the GeoEye-1 image has facilitated the identification of eighteen inflatable rubber boats in **Inset 2**. The previous images has revealed that the inflatable rubber boats have been in the same position during the monitoring period suggesting that they are probably abandoned. **Inset 3** shows the compound where the gate was closed and two unidentified vehicles (5x2.5m in size) and one civilian vehicle in its surroundings have been noted. **Inset 3** displays the main building of the compound. One unidentified vehicle, with the same dimensions as the ones described in **Inset 3**, located near the entrance of the building and another one situated on the roof of the building have been observed. **Inset 5** shows one civilian vehicle in the vicinity of the **Inset 2**. The presence of inflatable rubber boats probably suggests that the compound is currently being used by the migrants smugglers networks. There were no significant changes observed in the other previously reported named locations.

EU UNCLASSIFIED / For Official Use Only 2 of 2

EU UNCLASSIFIED / For Official Use Only FXQ515002 / R001 ISSUE 005

Possible Embarkation Area

Vehicle positions between 11 Jun and 23 Jun 2015

Density of activity

Low High

This page provides an overview of the vehicle activity observed in the area of interest from 11 Jun 2015 to 23 Jun 2015. The positions of the vehicles observed during this period, are pinpointed in order to highlight the areas, where they were more frequently parked and their potential connection with the use of specific buildings within the compounds. During the monitoring period there were no gatherings of personnel observed outside the buildings.

IR Comment: The presence of civilian vehicles observed at the two compounds confirm that there is some kind of activity taking place. The nature of this activity cannot be determined solely from analysis of satellite imagery. However, the fact that there are big fluctuations in the amount of vehicles suggests that these activities may not follow a regular pattern.

EU UNCLASSIFIED / For Official Use Only 6 of 8

# Coastal Monitoring: Illegal immigration and criminal networks

## Changes in areas of embarkation in Libya

23 Sep 2016 EU UNCLASSIFIED / For Official Use Only FXGS16002 N033 I009 (First Impression Report)

The Pleiades-1 image dated 22 Sep 2016 shows the previously reported wall-secured compound Alpha where a highly significant irregular migration activity has been noted. Frame A displays the swimming pools area, where fifteen inflatable rubber boats (IRB) with 10.5 x 3 metres in size and associated debris. Several unidentified objects, probably related to the preparation of the embarkation activity, have been observed nearby. Frame B shows the main building, where one utility vehicle has been identified. Frame C displays the entrance of the compound, where the level of vehicle activity has significantly increased during the monitoring period as four new vehicles have been noted. Frame D displays an area on the east side of the compound, where one vehicle has been observed. Insets 1, 2 and 3 show three vehicles located on the access road that leads to the compound and which are not visible in the overview. The analysis of a second image acquired at 09:59:24Z on 23 Sep 2016 does not reveal any change in the location and distribution of the fifteen IRBs identified on 22 Sep 2016. However, a significant decrease of vehicle activity in the entrance of the compound has been noted.

**IA Comment:** The analysis of the imagery suggests that an upcoming irregular migration embarkation is being prepared within the wall-secured compound. The comparison of IRB open source images as the one displayed in **Picture 1** provides an estimation of the on-board capacity per IRB in sixty to eighty migrants. Consequently, the event could dispatch more than a thousand migrants towards Italy. Finally, the type of utility vehicle displayed in **Inset 3** (7.3 x 2.3m in size and black colour) has been identified in several images during the monitoring period which could suggest that it may play an important role during the preparation of the launching activities. The analysis of the image dated 23 Sep 2016 could suggest that the IRBs are prepared and standing by during several days in the compound while the preparation of activities related to the embarkation event, such as migrants transportation, are occurring.

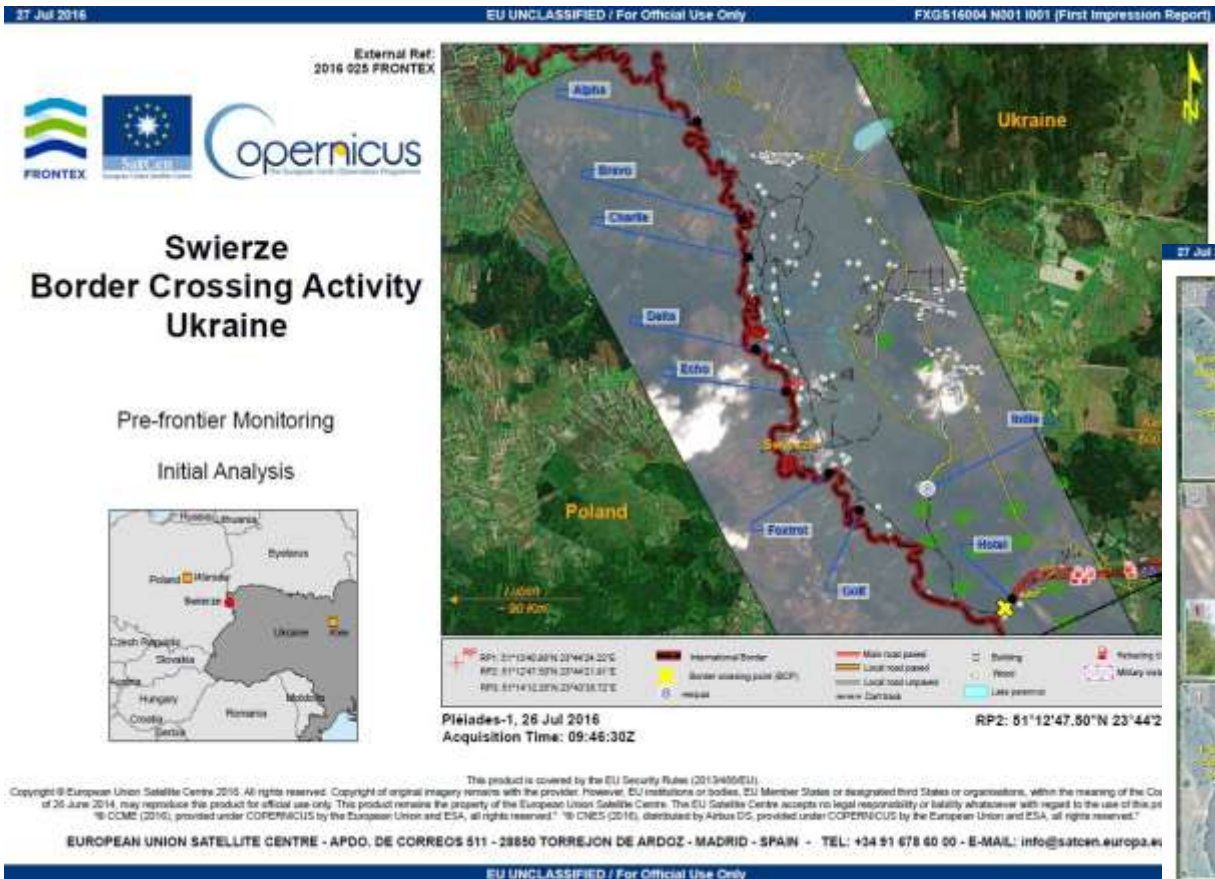
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# Coastal Monitoring: Illegal immigration and criminal networks

Confirmation and continue monitoring and analysis for critical intelligence



# Pre-frontier Monitoring: CBC activities



Illegal migration  
Firearms  
Tobacco smuggling



The area of interest covers the border between Poland and Ukraine near the village of Swierze. The village is located in eastern Poland, 6 kms north from Bieszczadz BCP. It has a population of 950 people (Source: Wikipedia). The border between both countries follows the River Bug. The river has an average width of 25 metres, which makes crossing feasible. The Ukrainian side of the border is mainly composed of small settlements and farms, where several warehouses have been observed, probably for agricultural use. The terrain consist mainly of marshes, lakes and areas with dense vegetation suitable for hiding which form part of the natural reserve (Bug General Zoology Reserve). After a long period of cloud cover, the 27 Jul 2016 Pleiades-1 image shows potential crossing points at: Alpha, Bravo, Charlie, Delta, Echo, Foxtrot and Golf. At these points, car tracks have been observed coming across the dense vegetation (in some cases) and reaching the shore. No rubber boats or groups of people have been observed. No vehicle activity has been observed along the border with the exceptions of the Ukrainian Border Guards compound (Hotel) and at the BCP (Hotel). Pictures 1 and 2 illustrates some of the reported areas.

IA Comment: The image was acquired at 11:46 local time so smuggling activity probably took place earlier. Indicators such as car tracks have been observed although they could also be related to the normal activity of the area of interest. The 2013 open source Picture 3 shows a Bug Border Guard officer in Swierze intercepting a car with cigarettes parked in boxes in plastic bags.

- Identify groups of offenders
- Identify main routes used by smugglers
- Identify the exact crossing points
- Key objects of interest: groups of people, vehicles and MO

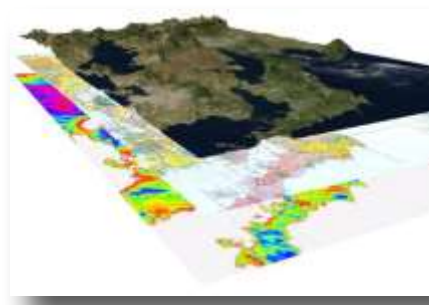
# GEOINT products and services



Imagery



Imagery Intelligence



Geospatial Data

- Supporting tool for intelligence analysis
- Gathering additional information (contextualisation AoI)
- Support detection-prevention-combating CBC & other security threats



- Validation/confirmation of hypothesis
- Improve specific analysis

# RAU GIS Portal

A Portal to collaborate, share and integrate information

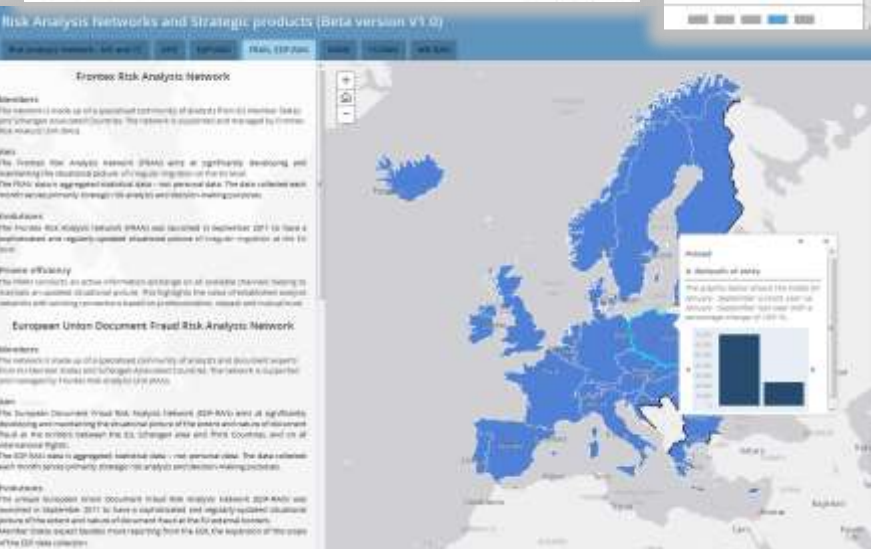
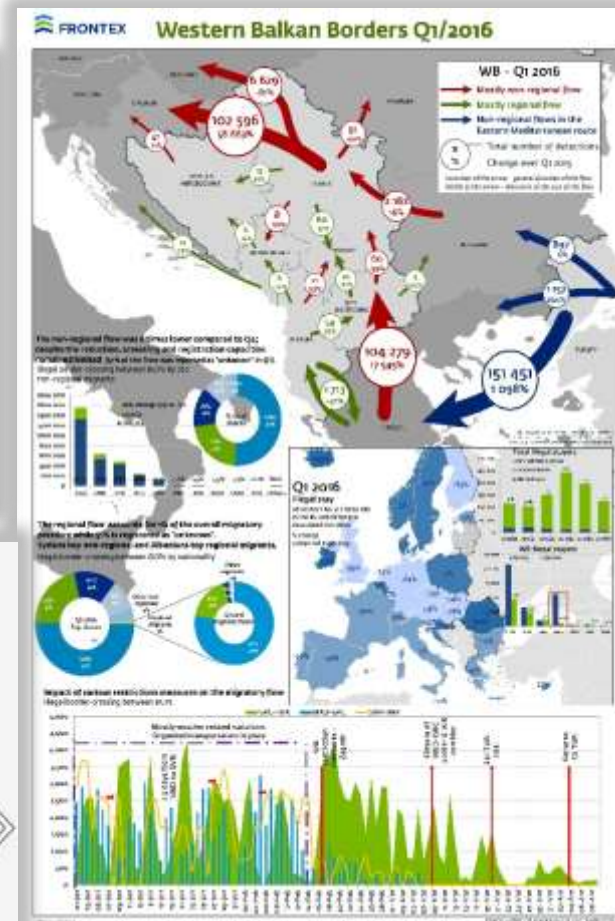
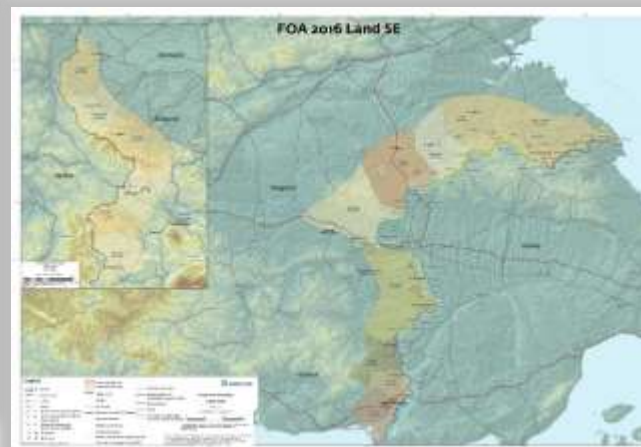
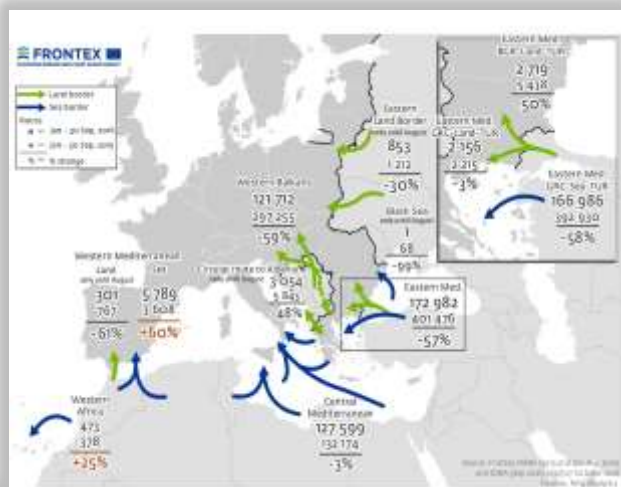


- Access to GIS products and services
- Create and share content
- Access point for Web map applications
- GIS collaborative environment
- Support other Frontex Divisions/Units (JOU; PRU; Press)



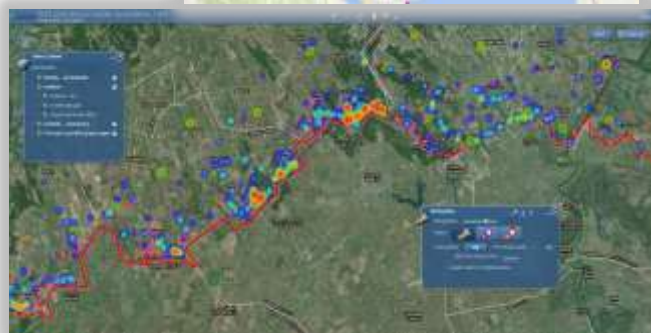
# GIS products and maps

Access to the latest updated information and indicators



# Web Map Applications

- Interactive way to display and analyze geographic information
- Customized for analysts requirements



- Operational
  - Incidents
  - Number of migrants
  - Nationalities
  - Density
  - Time slider
  - Clusters
  - Distances
  - Statistics
  - ...

- Third Country Monitoring
  - Reports
  - Validation
  - Notifications
  - Collaborative

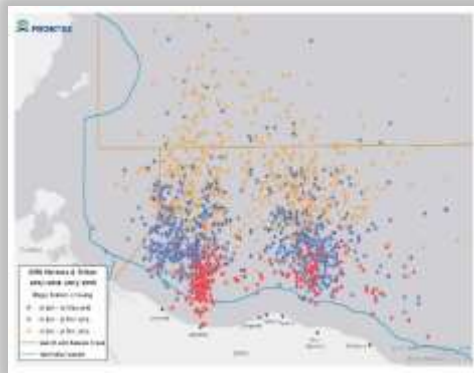


- Liaison Officers



# RAU Products - Dissemination

- Annual, Quarterly, Monthly, Weekly...
- Map production



**Thank you**