

EURISY

# WORLD FROM SPACE





RGB Landsat 8 image 05/10/2025

RGB landsat 8 image 30/10/2025 (floods culminated 29/10/2025)

TOPIC:

## SATELLITE-BASED SERVICES FOR DISASTER RISK MANAGEMENT







# AGENDA

TOPIC: **SATELLITE-BASED SERVICES  
FOR DISASTER RISK MANAGEMENT**

10 min

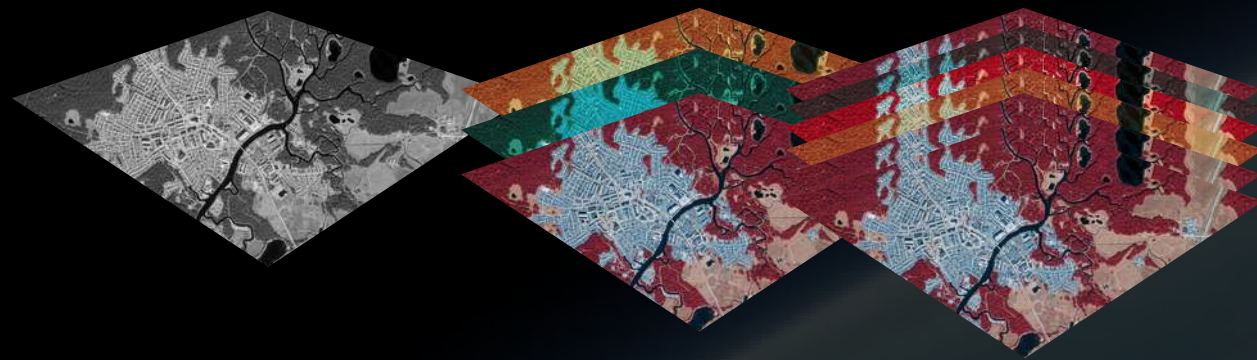


- 01** **SPACE DATA - VALUE AND LIMITATIONS**  
WORLD FROM SPACE: WHAT, WHY AND HOW WE DO
- 02** **DISASTER RISK MANAGEMENT**  
SCENARIOS: CHALLENGES VS SOLUTIONS
- 03** **READY WITH WORLD FROM SPACE**  
HOW WE WILL SUPPORT YOU
- 04** **DISCUSSION**  
YOURS QUESTIONS AND INSIGHTS

# 01 SPACEDATA VALUE VS LIMITS

## OPTICAL

PANCHROMATIC, MULTI/ HYPERSPECTRAL



## RADAR (SAR)

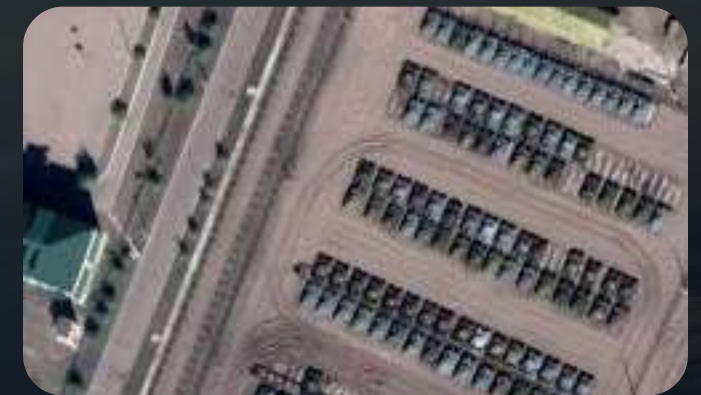


## THERMAL



- 0,25-1 m / pixel,  
~ 0,8 x 0,8 km / image:
- WorldView, Pleiades, GeoEye
- Object recognition

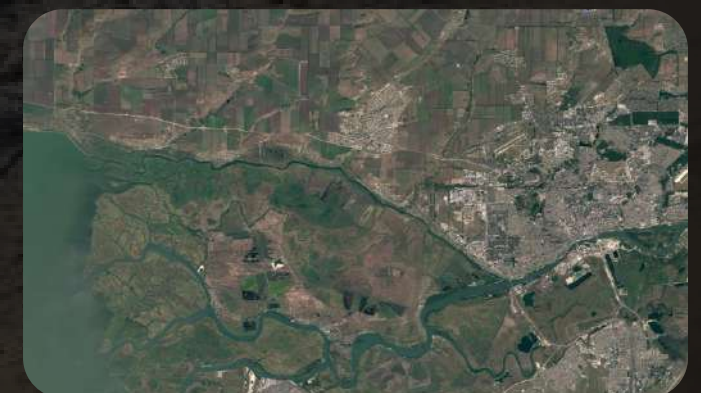
Very High Resolution, **VHR**



High Resolution, **HR**



Medium Resolution, **MR**



- 1 - 10 m / pixel,  
~ 20 x 20 km / image:
- PlanetScope, SPOT
- assessment of terrain and infrastructure

- 10 - 30 m / pixel,  
~ 0,8 x 0,8 km / image:
- Sentinel, Landsat
- typology of terrain and vegetation



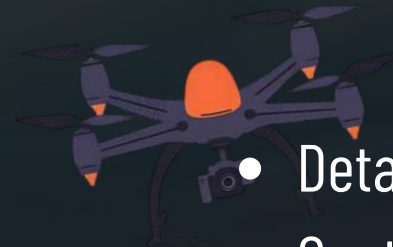
# 01 SPACE DATA VALUE VS LIMITS

## SATELLITE



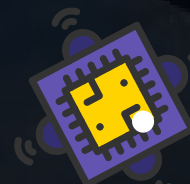
- **Global coverage, fully remote operation**
- **Variety of sensing spectrums**
- **Frequent revisit, data history**

HAPS,  
AERIAL, UAV



- Detailed resolution and video/ live-streaming
- Continuous monitoring of a single area

IN SITU - IOT



- Precise detection, minimal change recognition
- Early warning enablement

COMPLEMENTARY TECHNOLOGIES

INTEGRATION OR TASKING





# 02 DISASTER RISK MANAGEMENT

*Beirut - Port Explosion, 2020*



*Hodonin, CZE - Tornado, 2021*



*Central Europe (CZE, GER) - Floods, 2024*

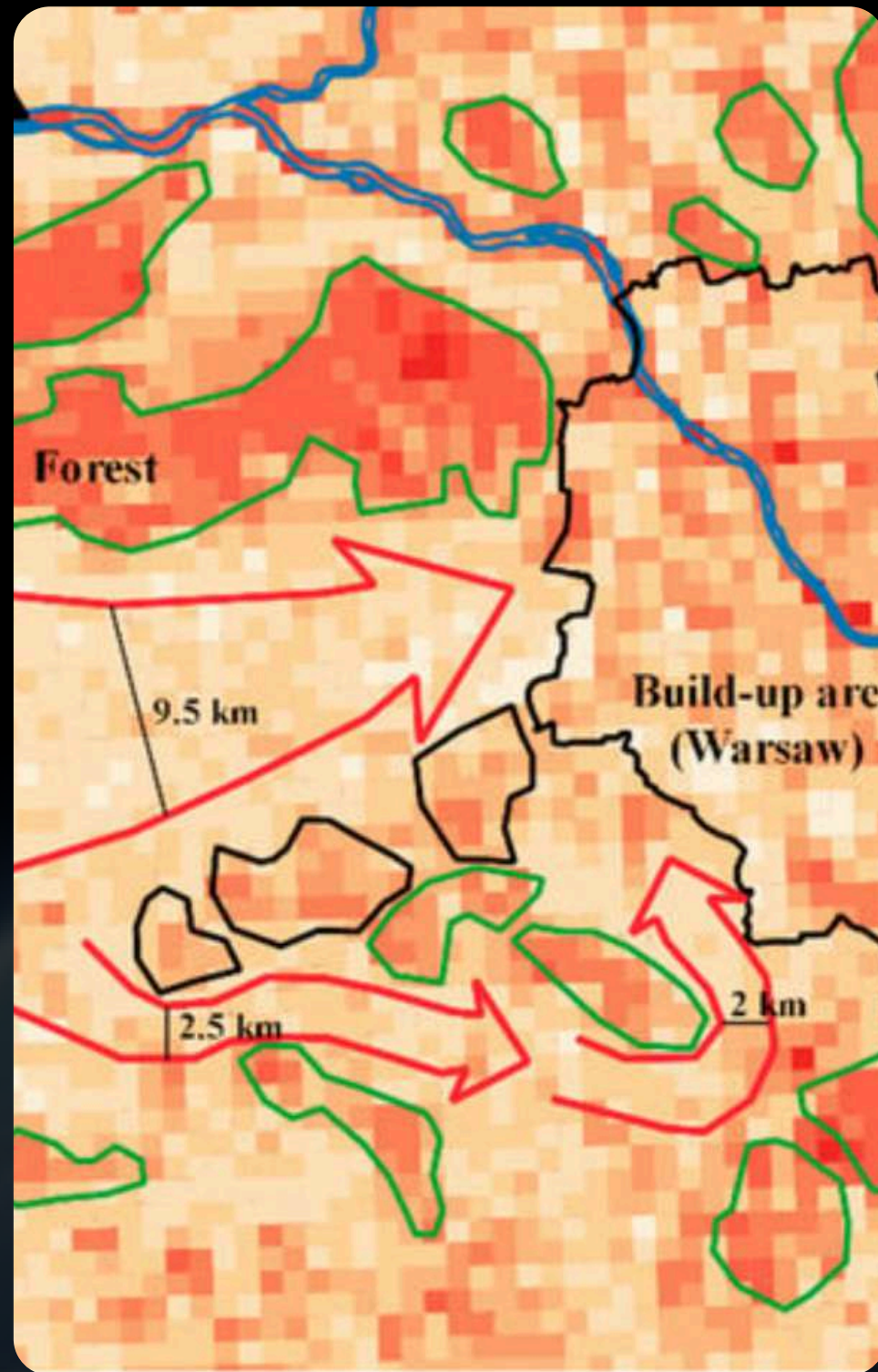


*Turkiye - Earthquake, 2020*





# 02 DISASTER RISK MANAGEMENT



## KEY CHALLENGES

### **LIMITED UNDERSTANDING OF IMPACT-SCOPE**

Size, location, and criticality of impacted areas is unknown

### **MAPS NOT UP-TO DATE**

Paper and digital maps get outdated fast without automated updating

### **INTERRUPTED TRANSPORTATION**

Disruption of transportation due to road infrastructure damage or flooding

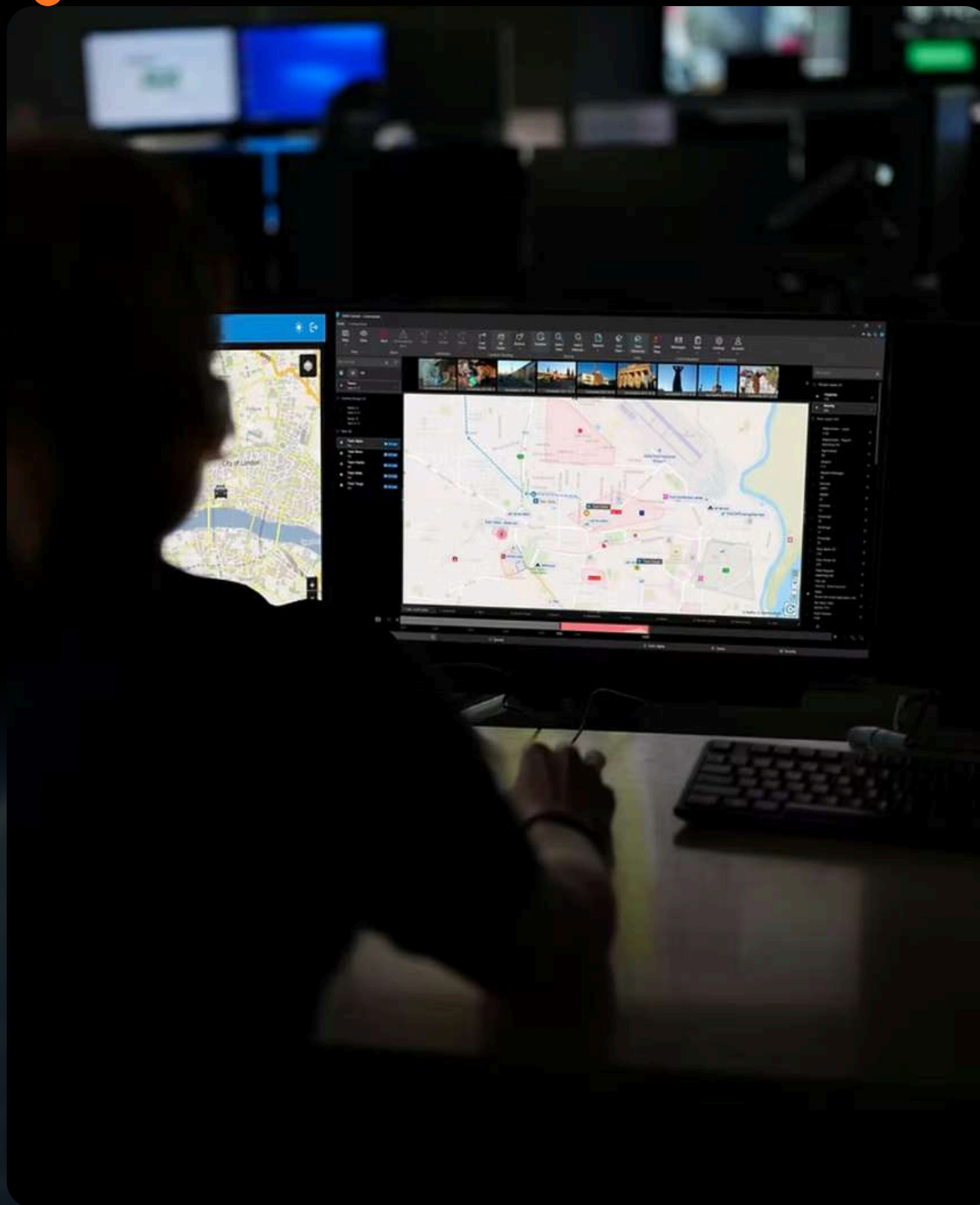


### **NEED FOR SPEED!** *(NOT THE COMPUTER GAME)*

Fast information about changes and hazards in a large-scale areas.

Use of a Multilayer Perceptron to Automate Terrain Assessment for the Needs of the Armed Forces  
by Krzysztof Pokonieczny – ISPRS Int. J. Geo-Inf. 2018, 7(11), 430

# 02 DISASTER RISK MANAGEMENT



## VALUE OF EARTH OBSERVATION DATA

### **IMPACT ASSESSMENT**

- localisation and scale of impacted area(s)
- typology of impacted areas
- risk and response prioritisation

### **DECISION-MAKING SUPPORT**

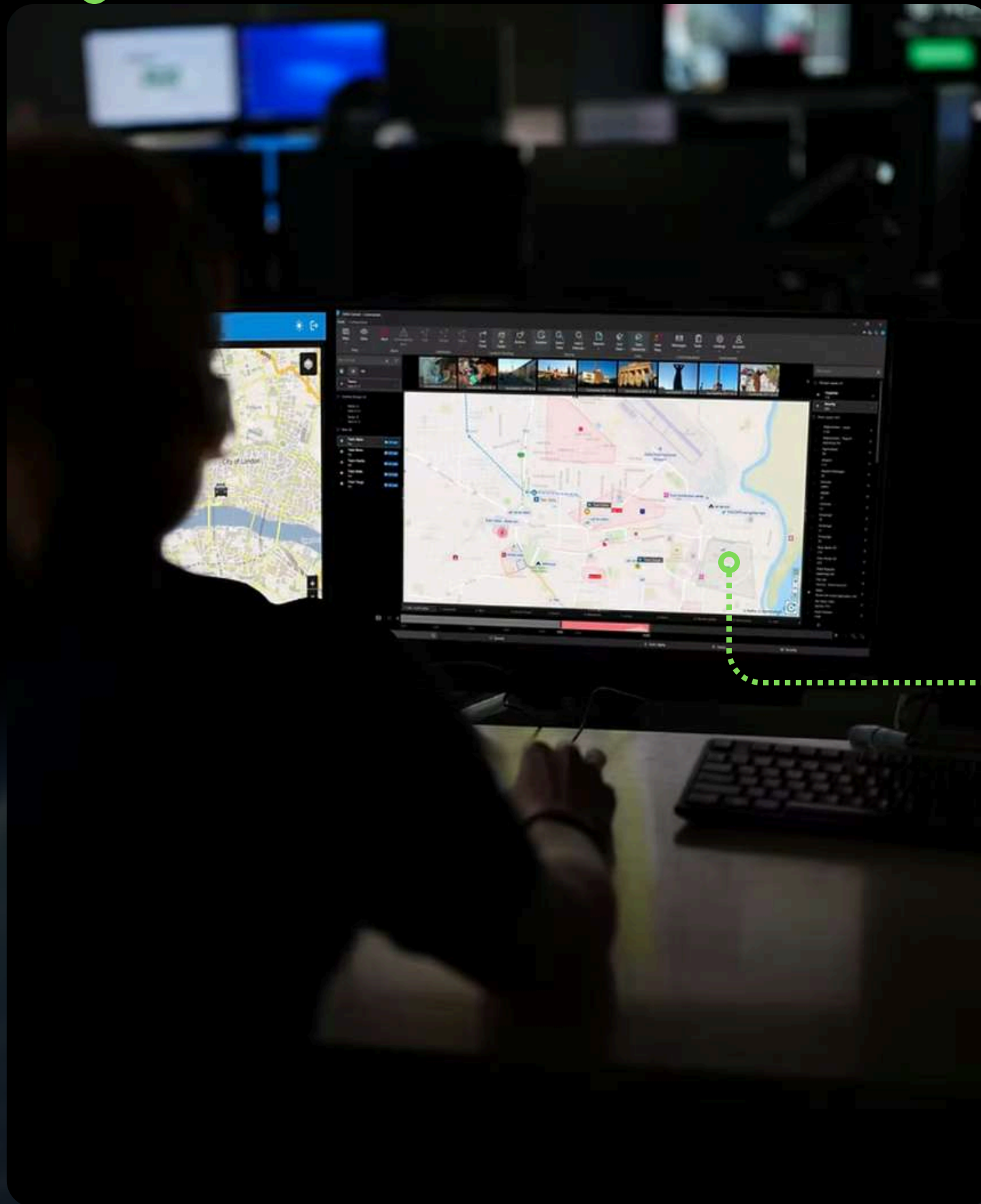
- critical location/ infrastructure targeting
- availability of transport infrastructure
- off-road navigation support

### **RELIEF AND RECONSTRUCTION SUPPORT**

- priority and gap assessment
- progress monitoring
- impact monitoring



# 03 READY WITH WFS



## OUR CONTRIBUTION TO YOUR EFFORTS



### **FAST DATA ANALYTICS**

- agile on-request service
- speed thanks to AI and Experience
- consultation support



### **SOLUTION CO-DEVELOPMENT**

- automated solutions, actionable insights
- decision-making support
- integrate with CAD, AVL, Field apps..



### **RESEARCH AND POLICY MAKING**

- expert research programmes
- true, reliable data-based
- implementation support, documents, events



EXAMPLES OF WFS DELIVERIES

IMPACT SCOPE MAPPING

CRITICAL AREA DETERMINATION

INFRASTRUCTURE DAMAGE MAPPING

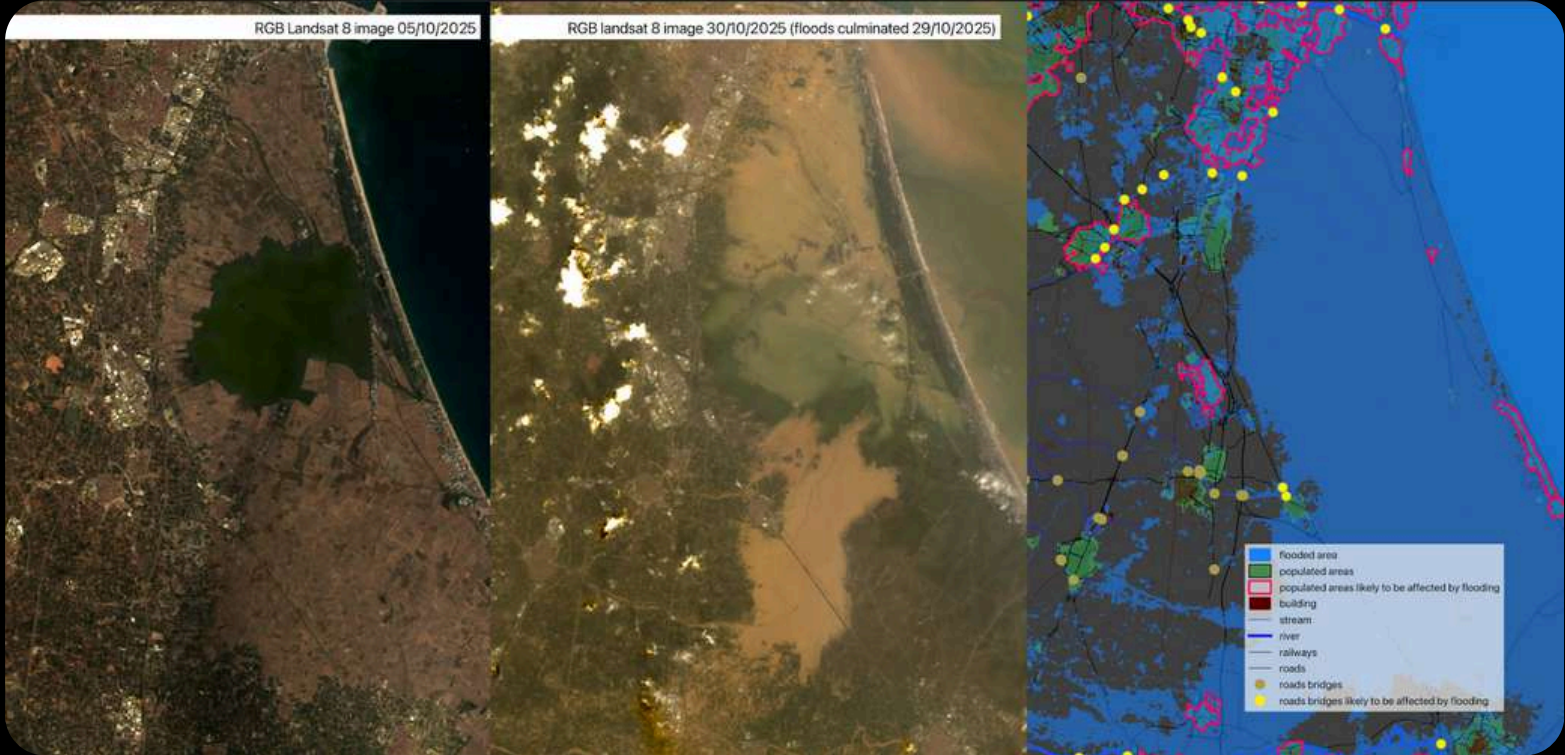
NAVIGATION AND LOGISTICS SUPPORT

1

2

3

4



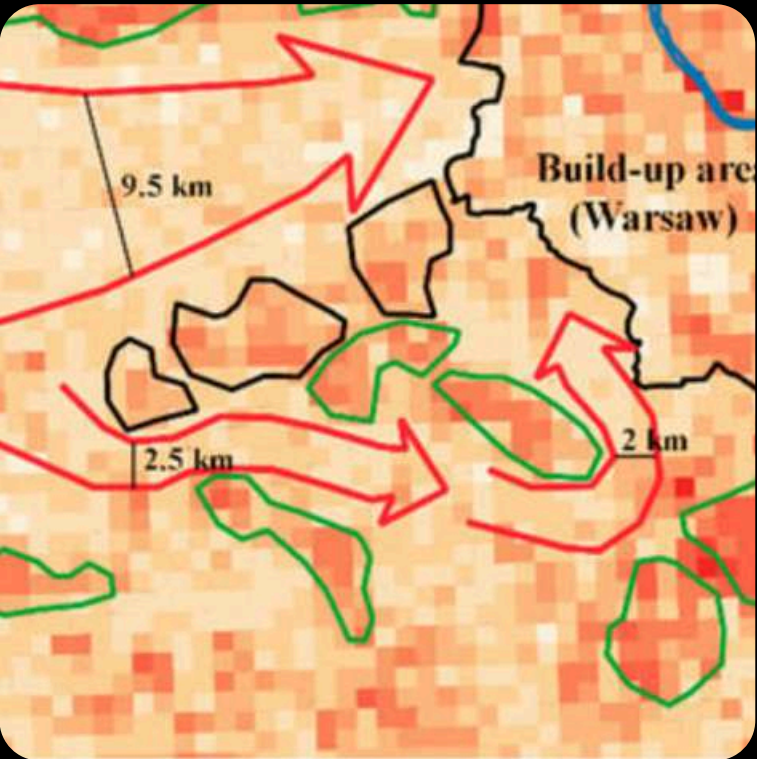
1

2

4

Floods - Valencia 2025

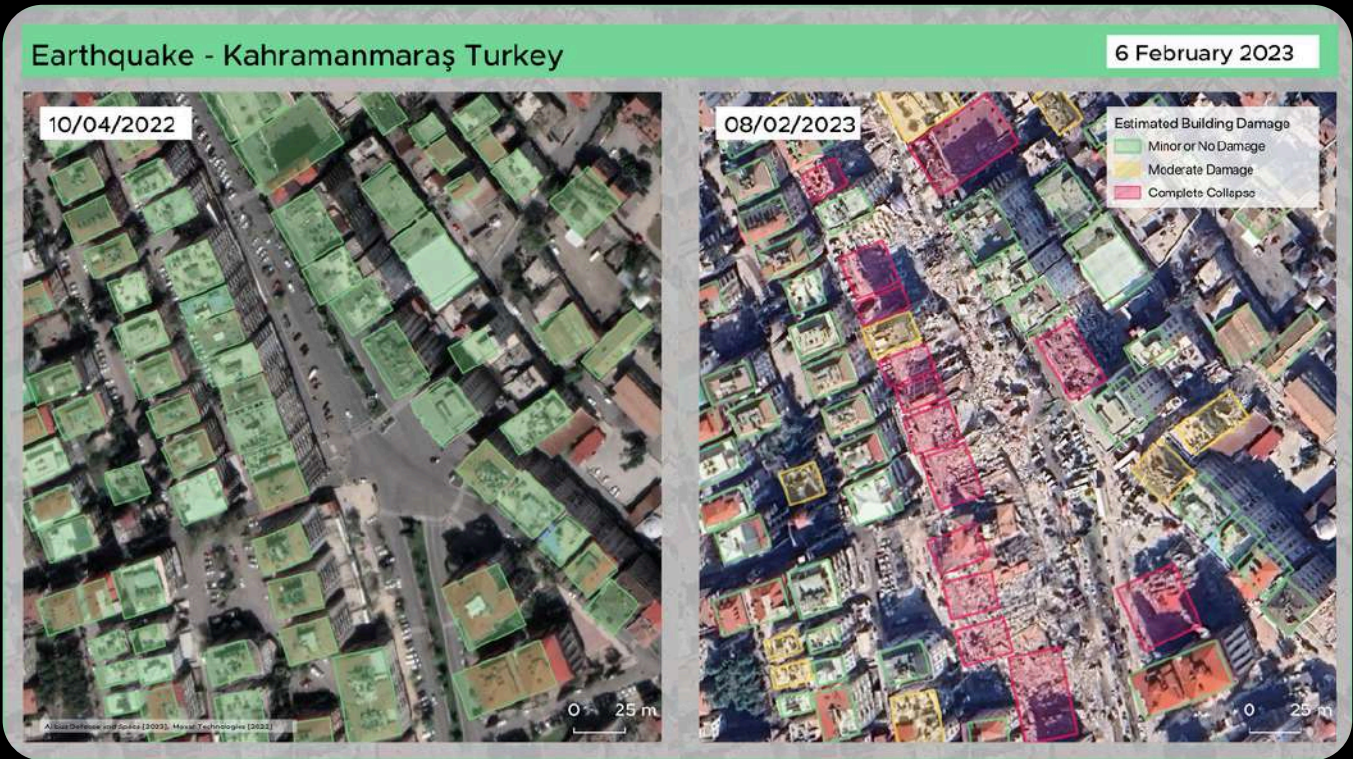
4



2

4

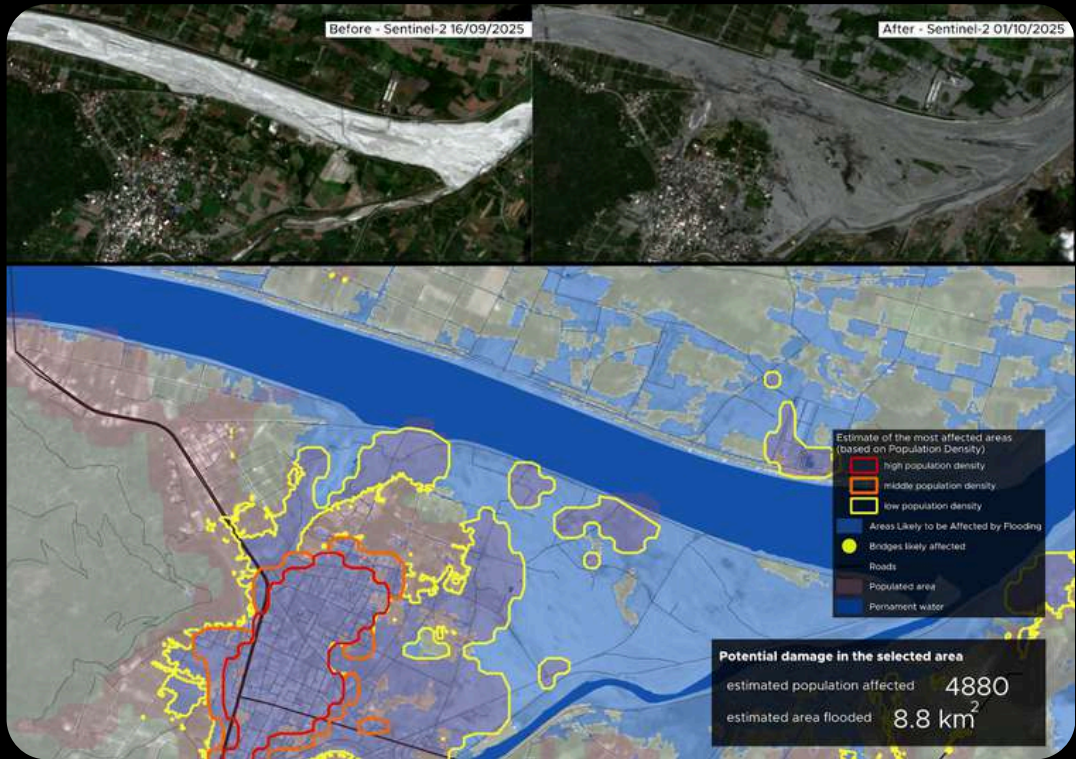
Earthquake - Turkiye 2022



1

2

Floods - Taiwan 2025





# 03 READY WITH WFS

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**RAPID MAPPING**  
IMPACT ASSESSMENT

**POLICY-MAKING SUPPORT**  
PREVENTION AND EARLY WARNING

**DECISION-MAKING SUPPORT**  
AUTOMATED TOOLS FOR ACTIONABLE INTELLIGENCE

**RESEARCH / UNIVERSITY PROJECTS**



European Space Agency

■ flooded area  
■ populated areas  
■ populated areas likely to be affected by flooding  
■ building  
— stream  
— river  
— railways



# NOISID 04 DISCUSSION

RGB Landsat 8 image 05/10/2025

RGB landsat 8 image 30/10/2025 (floods culminated 29/10/2025)

## READINESS THROUGH COLLABORATION



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