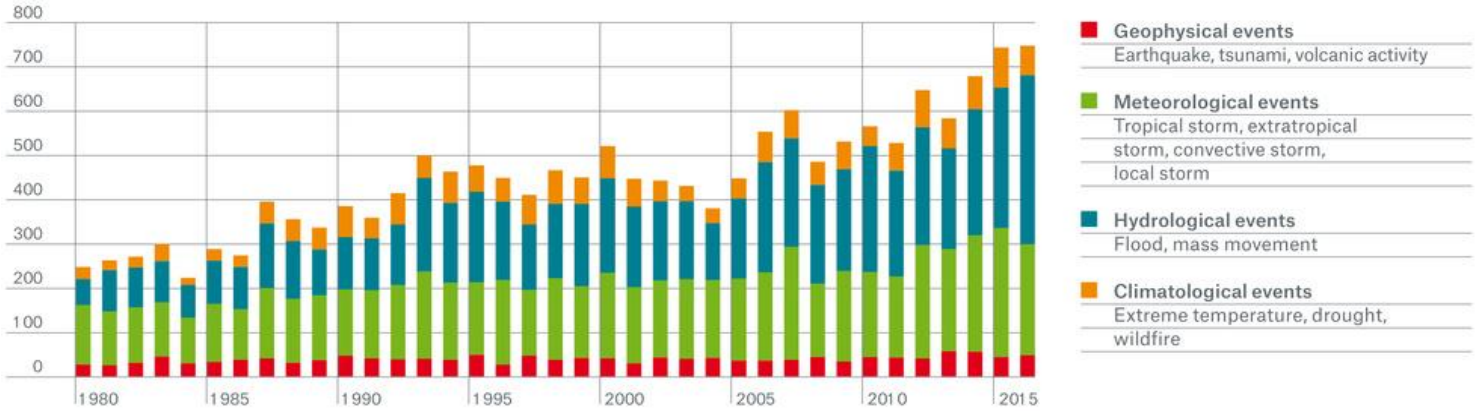
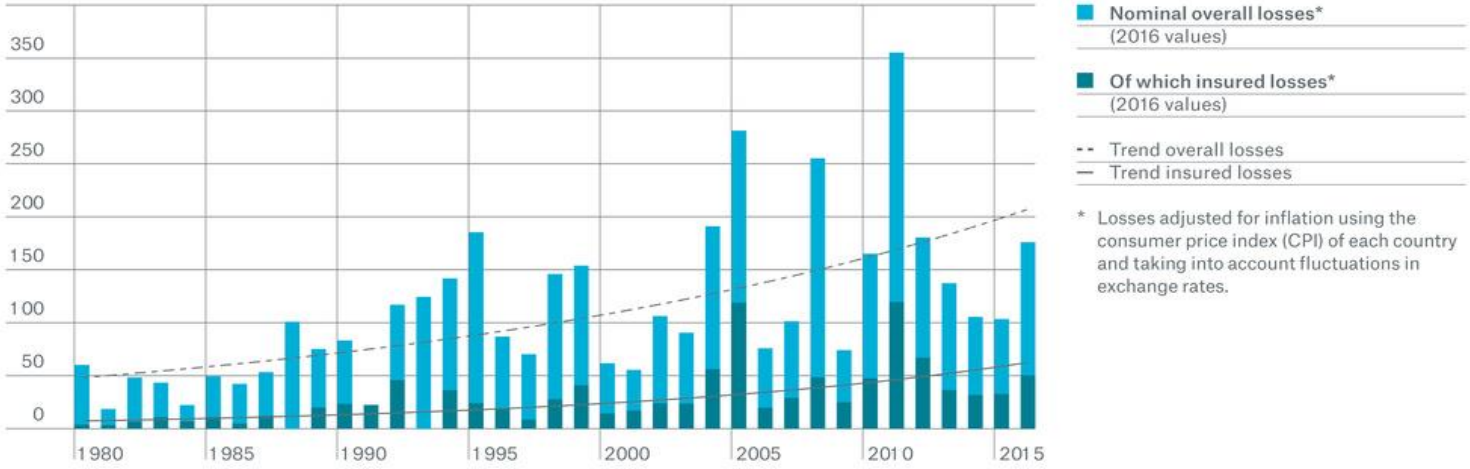
Number of loss events 1980-2016



Overall losses and insured losses 1980-2016 (in USD bn)



Source: Munich Re NatCatSERVICE

Overall losses: US$ 175bn

Percentage distribution

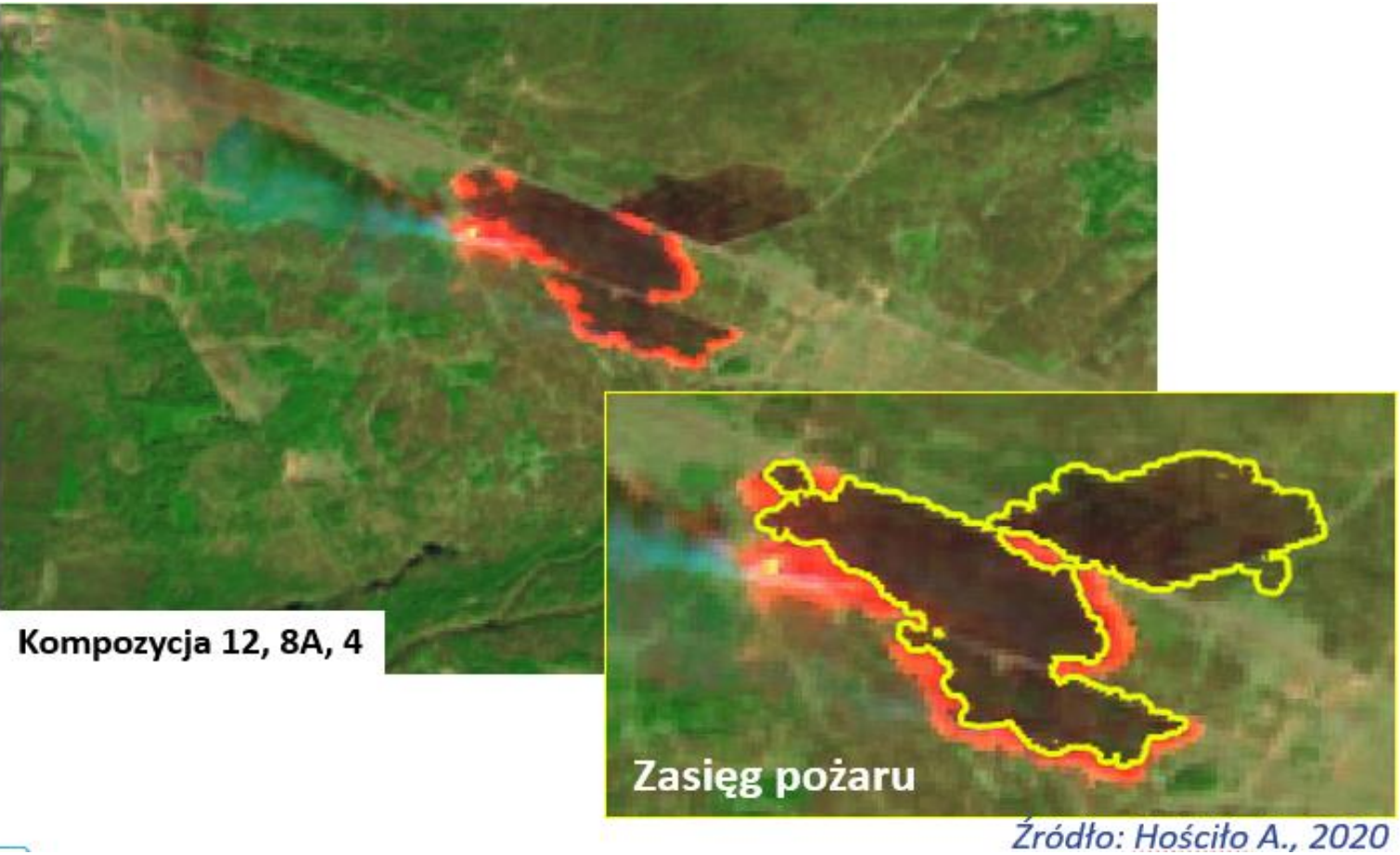
Geophysical events	27%
Meteorological events	31 %
Hydrological events	32%
Climatological events	10%

Source: Munich Re NatCatSERVICE

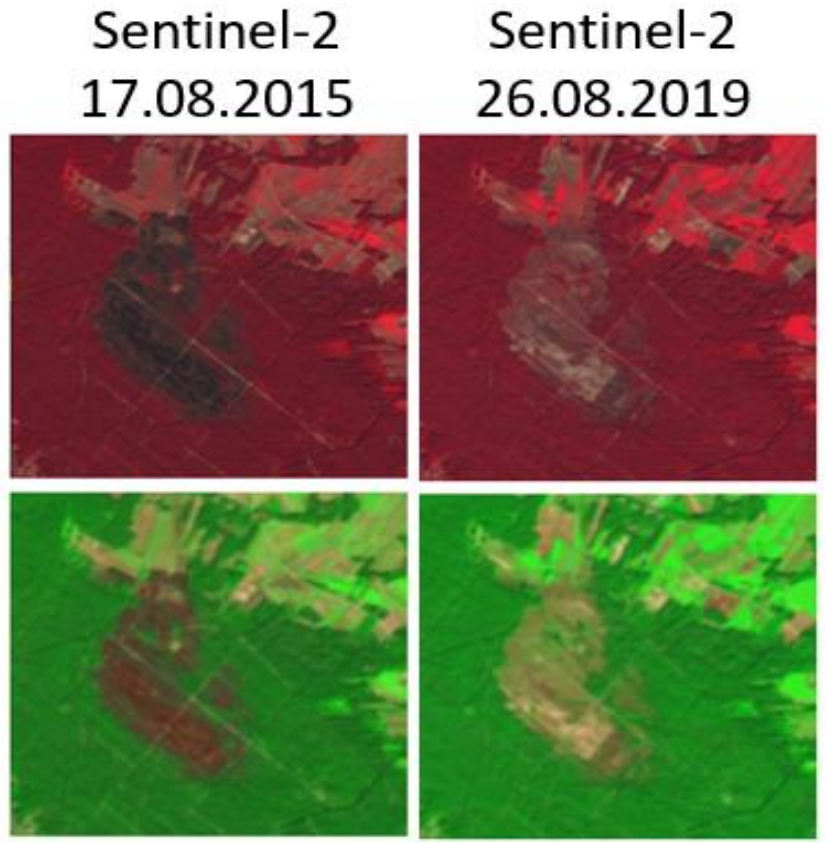
Perspective ?

Source: WION Web Team

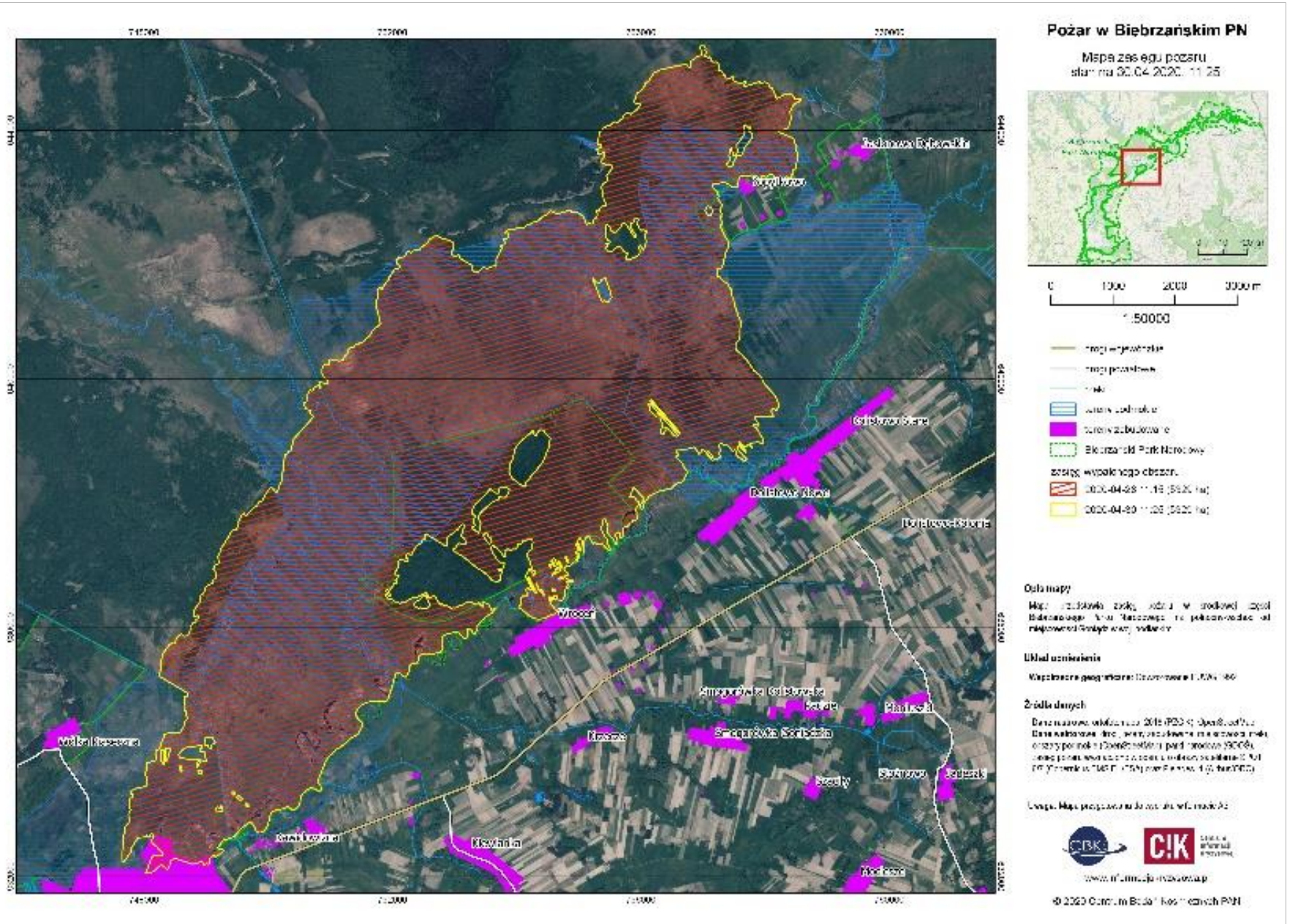
Detection of damages in the area of crisis situation



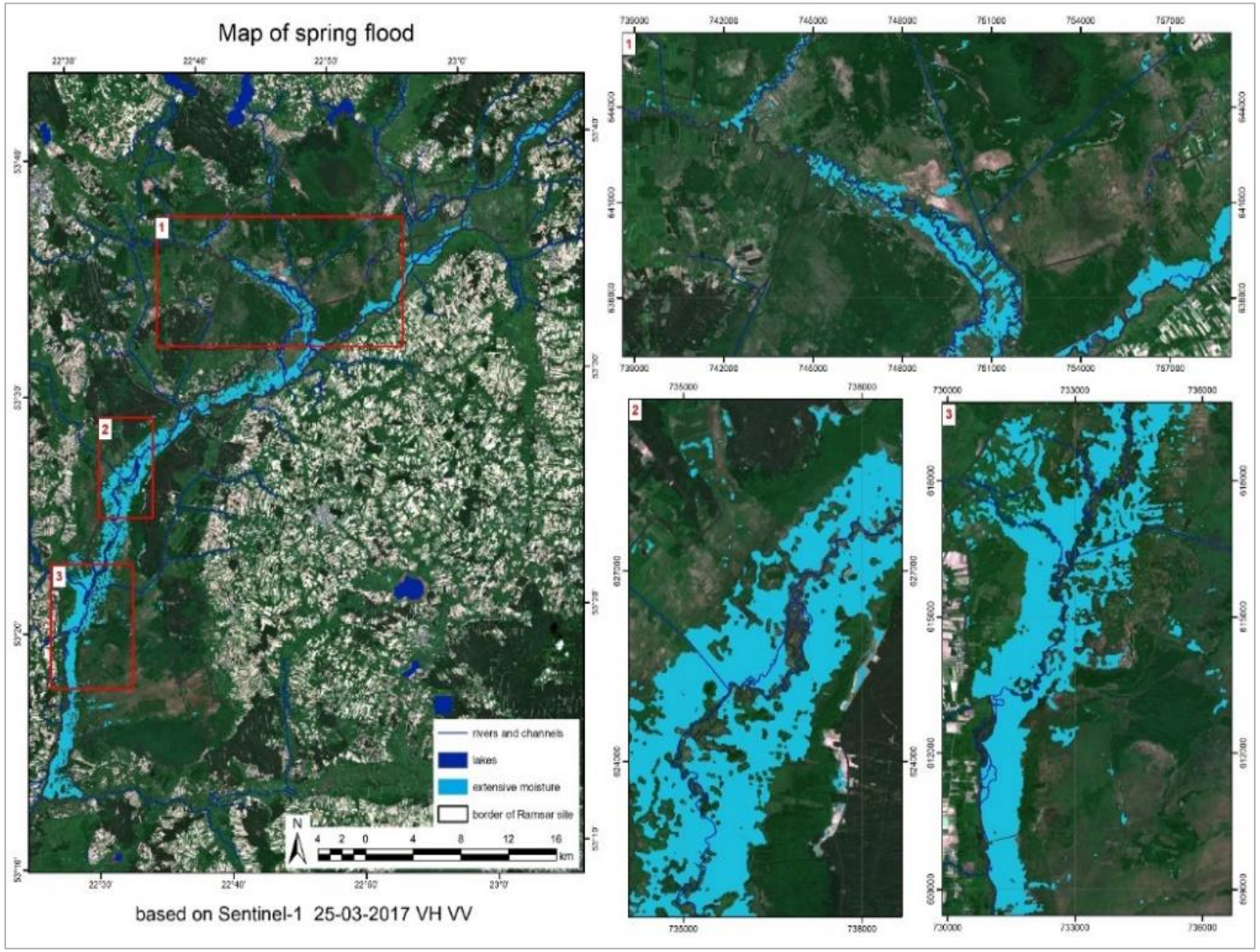
Źródło: Hościło A., 2020



Damage detection with VHR imagery

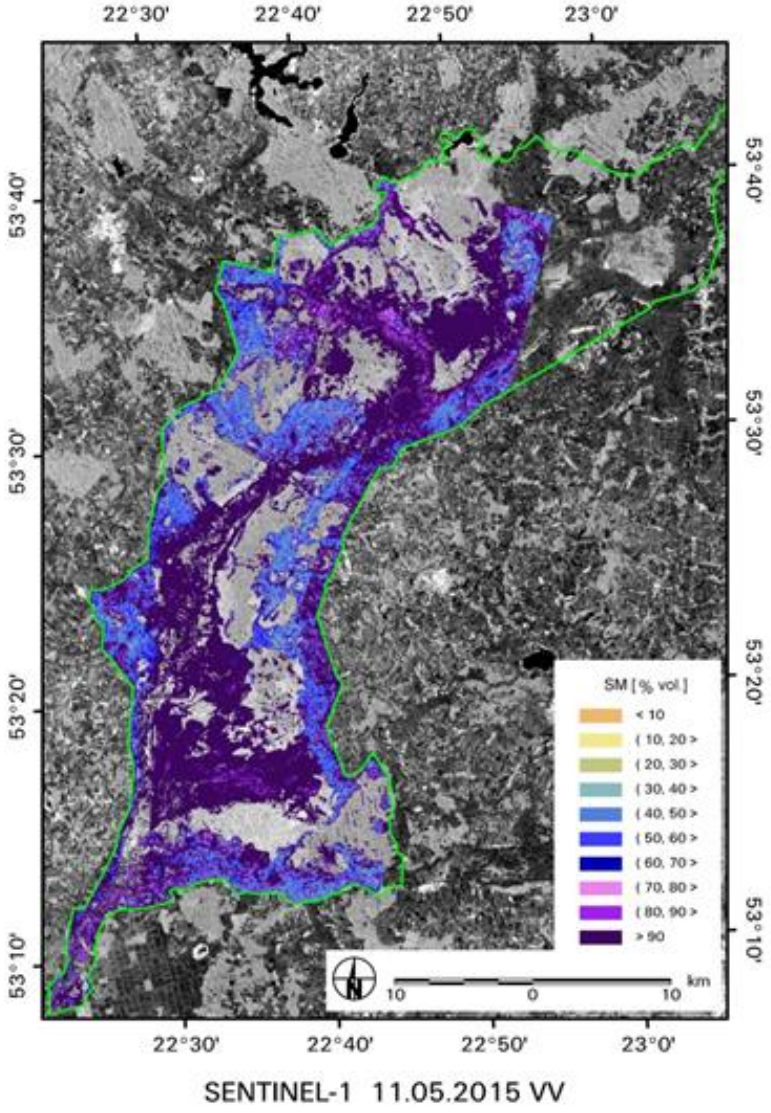


Detection of damages in the area of crisis situation

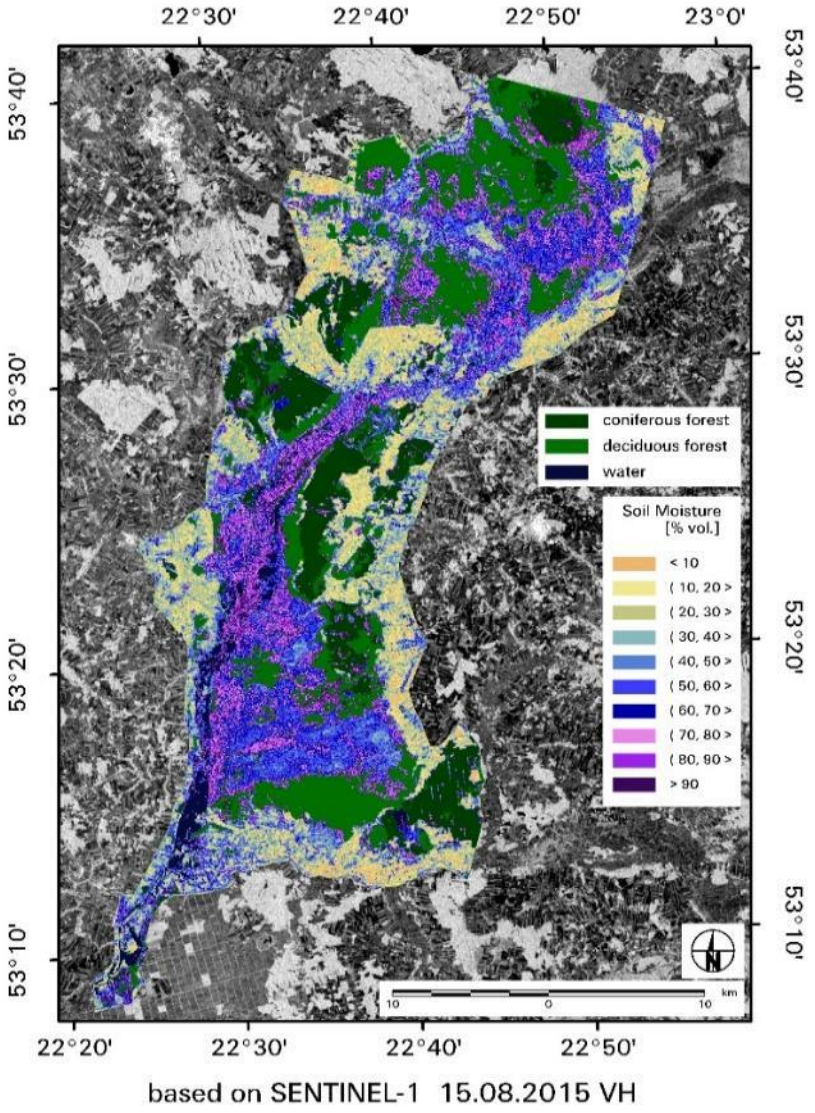


Flood extent detection with VHR imagery.

Detection of areas prone to local flooding from underground waters

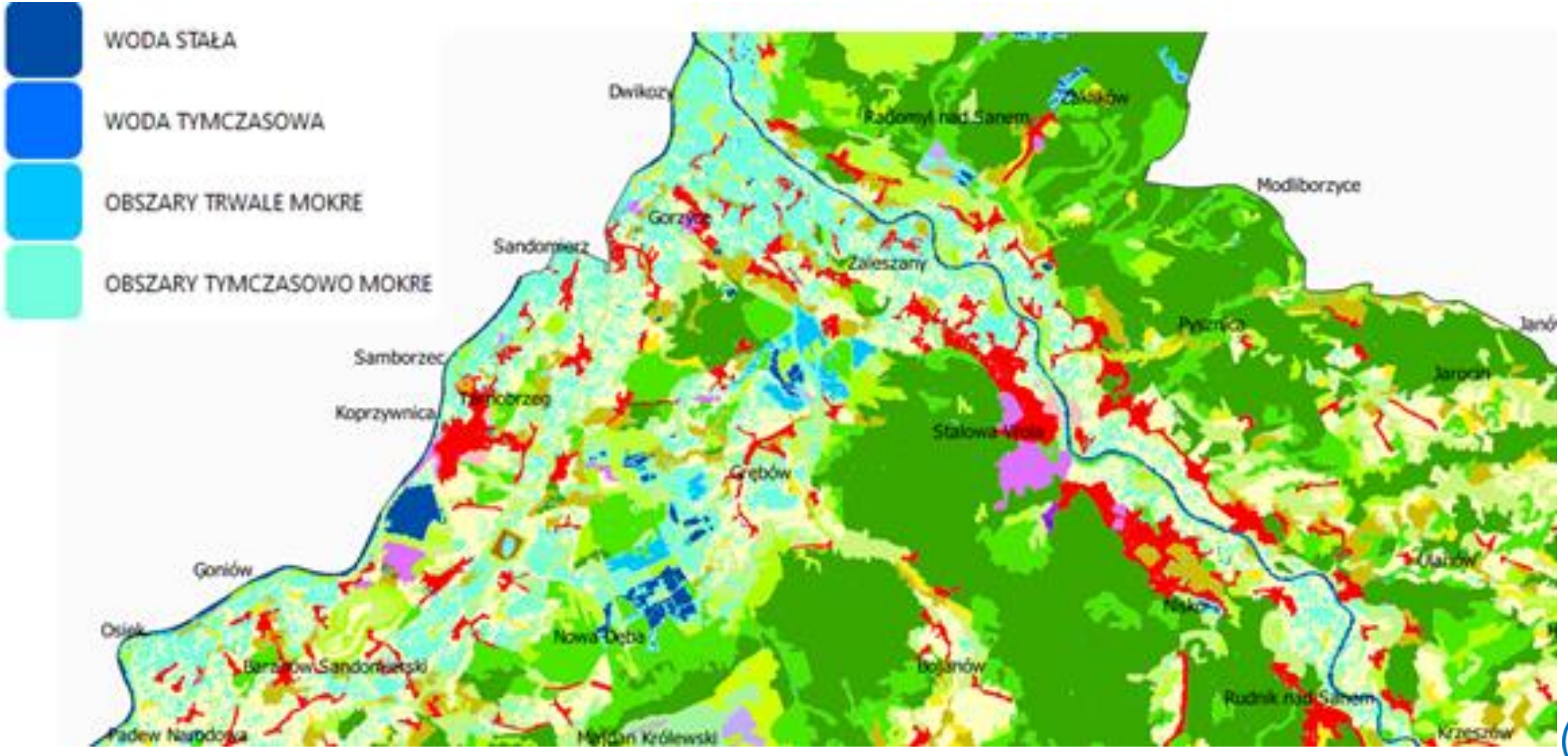


SENTINEL-1 11.05.2015 VV



based on SENTINEL-1 15.08.2015 VH

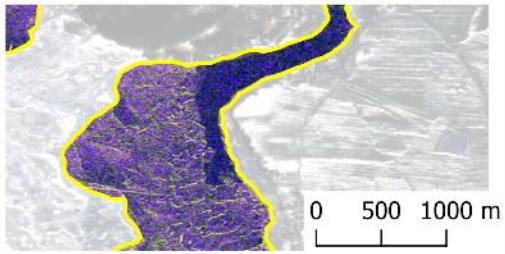
Detection of areas prone to local flooding from underground waters



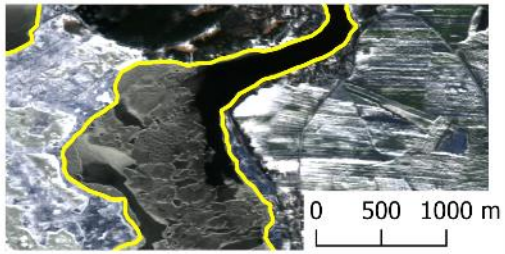
Monitoring of ice cover on rivers using VHR data

TerraSAR-X

HH - VV - HH/VV [db]



Sentinel-2
RGB



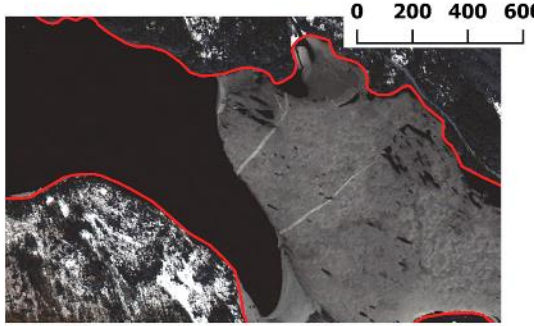
Dziwna (Oder river)

Ice detection

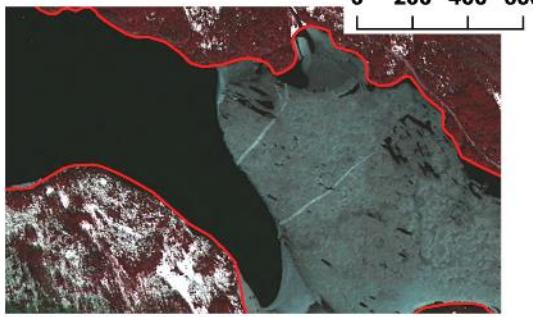
Classification:
- ice
- other
- water

0 500 1000 1500 m

Eu-hydro



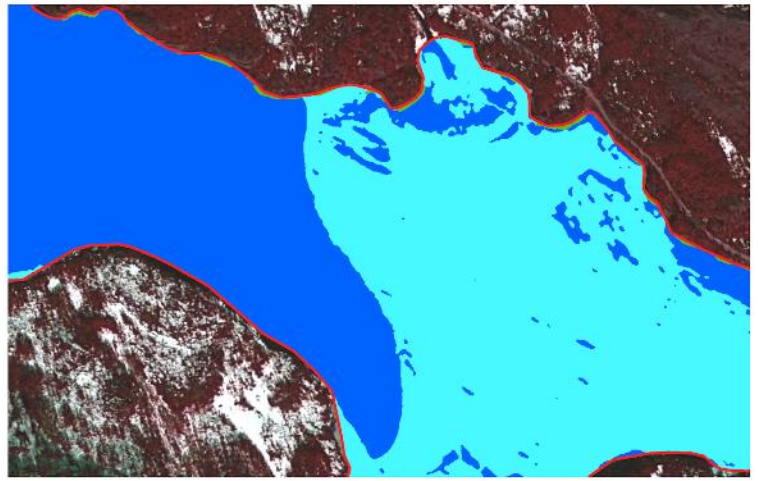
Red-Green-Blue Composition



NIR-Red-Green Composition

Eu-hydro

Spot 6
Fyresvatn Lake

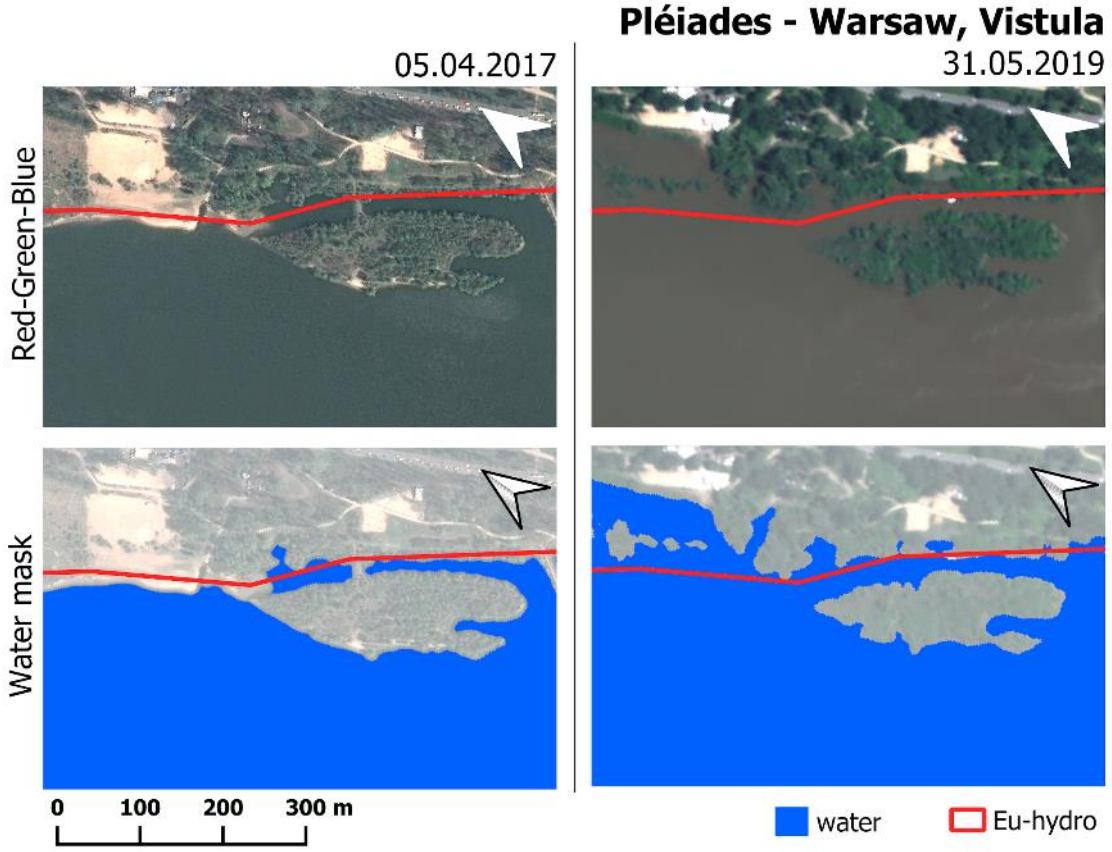


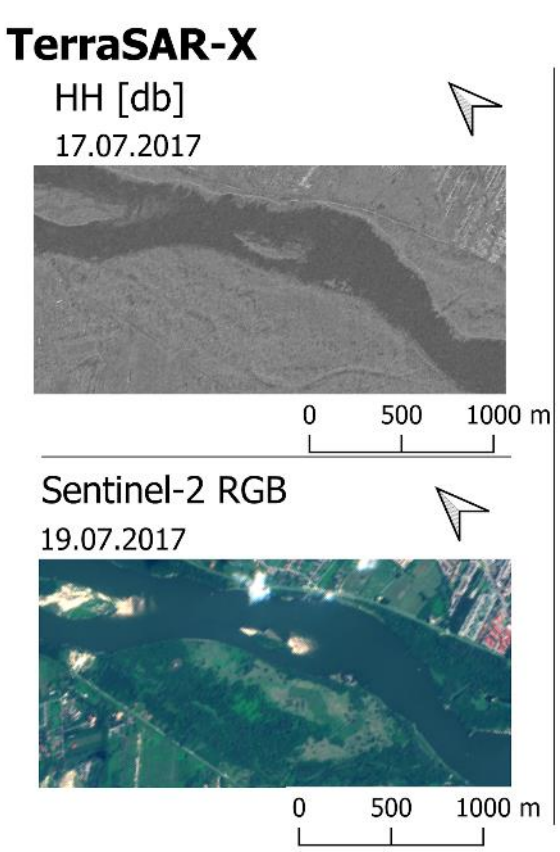
0 200 400 600 m

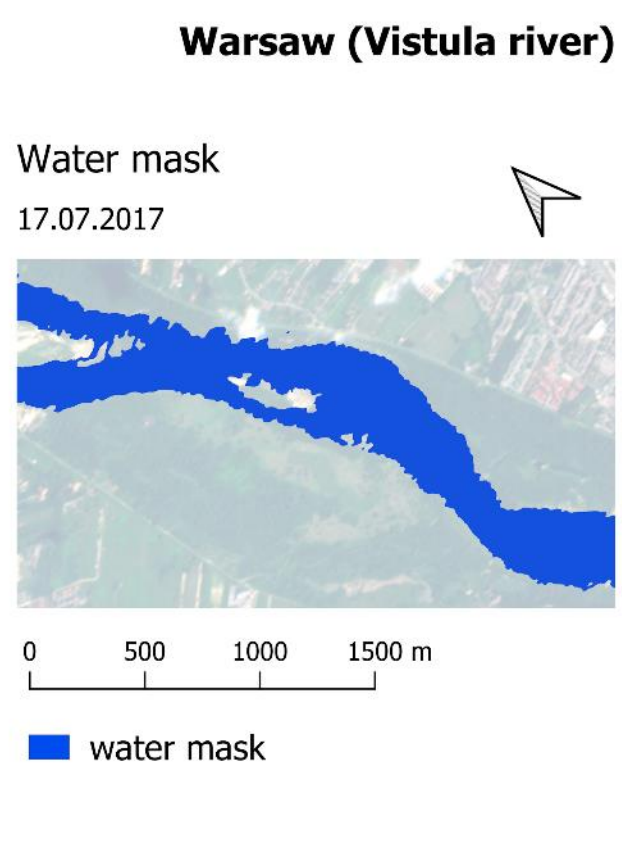
Eu-hydro

Classification:
- ice
- vegetation
- water

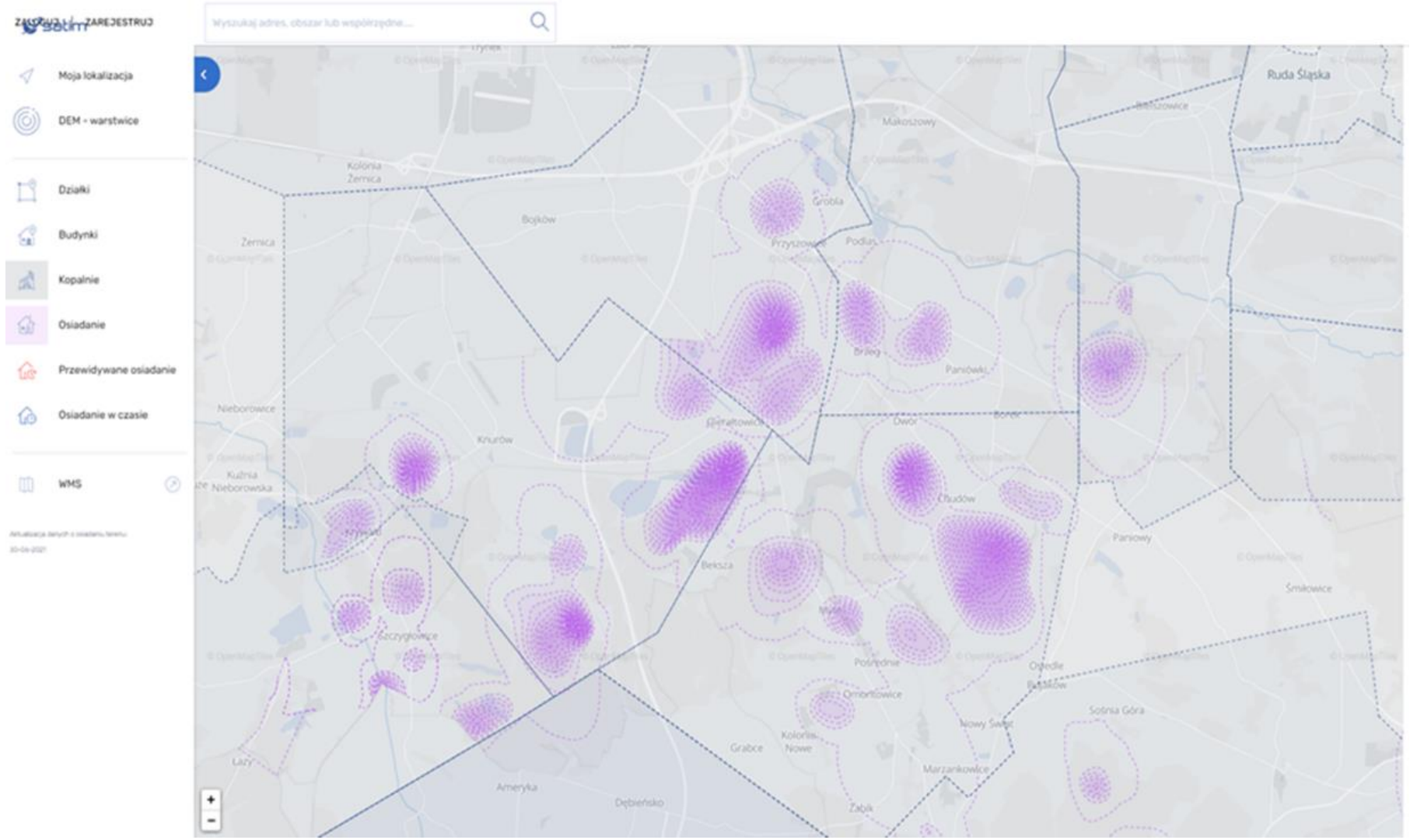
Monitoring of the actual water range using VHR data



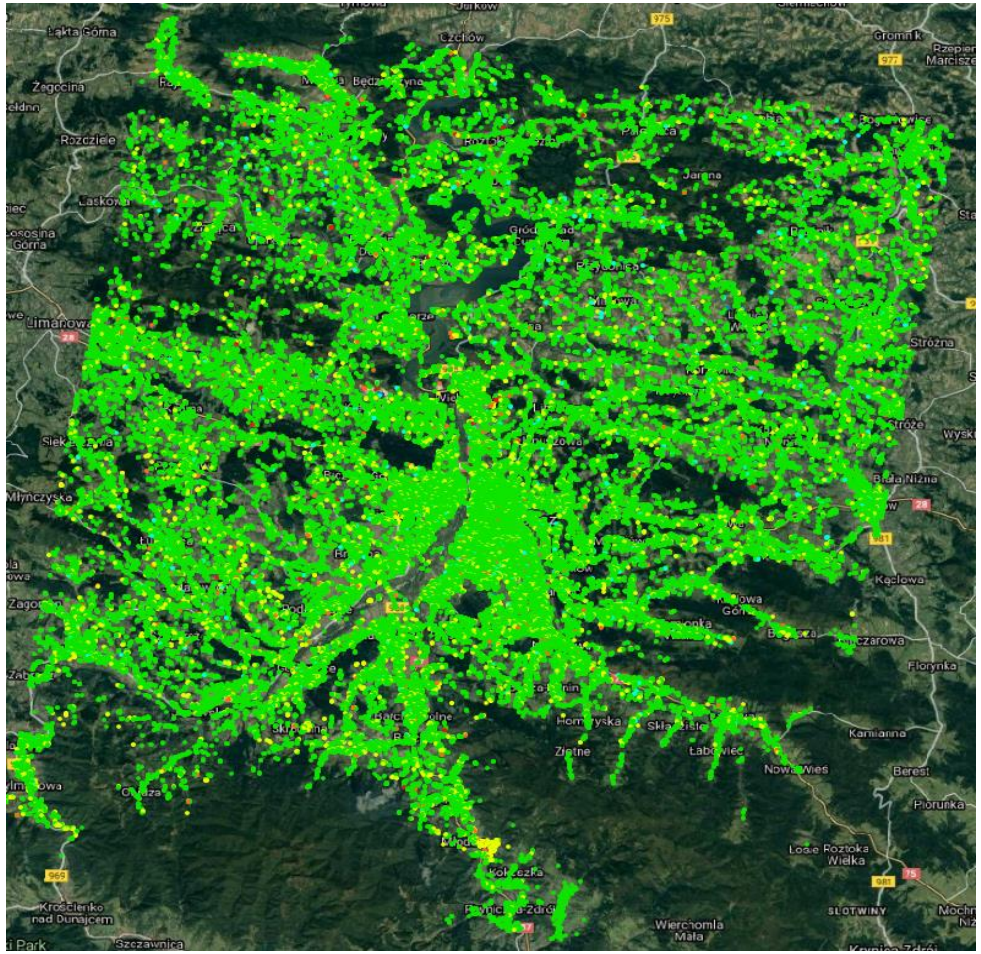




Monitoring of ground subsidence



Monitoring of landslides



Monitoring of land cover changes in risk areas

LC 2017

LC 2020

LC 2021

USeEO Project funded by ESA: Custom EO tools for resilience management in Poland

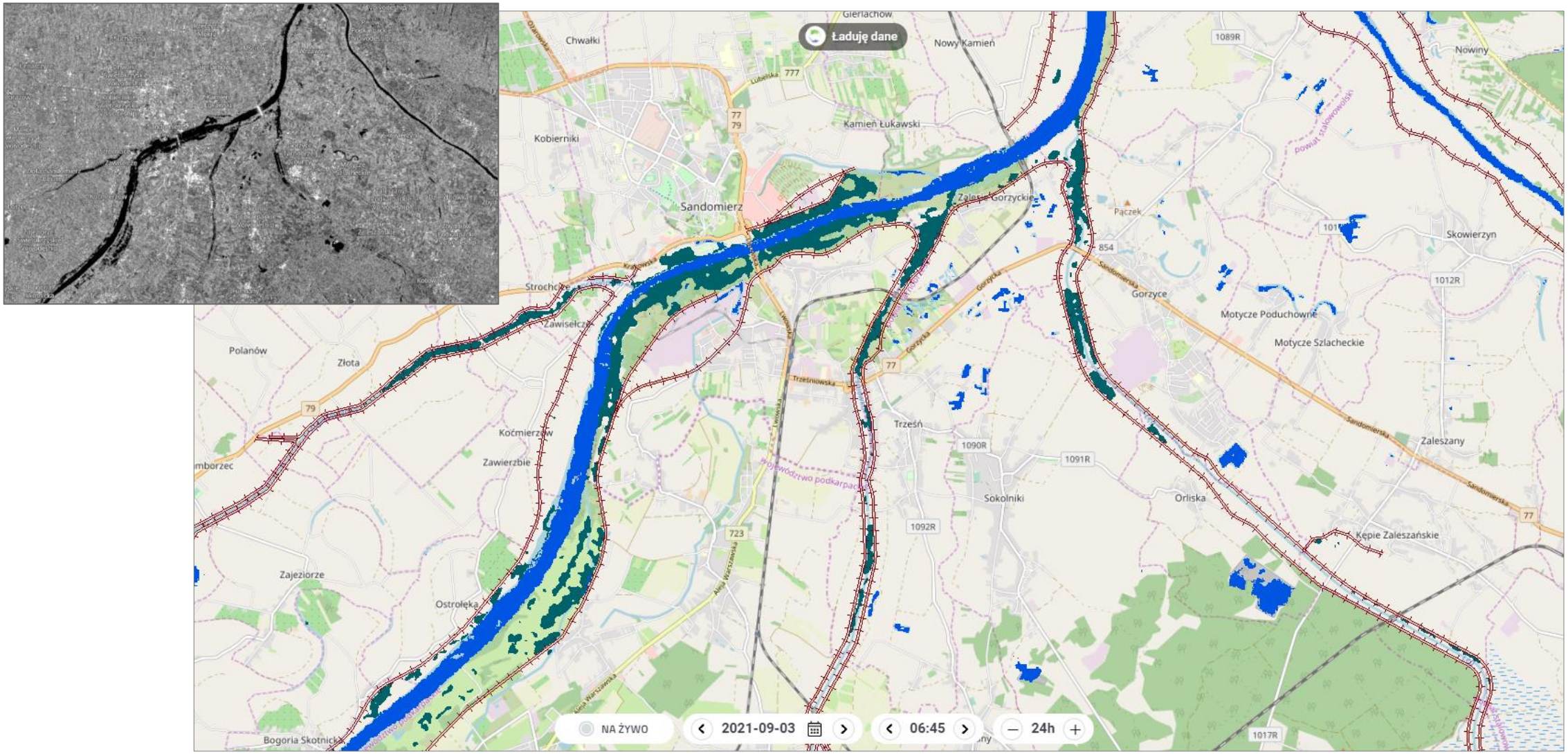
Objectives:

- to develop and validate of a set of customized EO derived information products to support the different stakeholders working in the resilience sector in Poland
- verify the utility and benefits resulting from the use of these products

Main benefits:

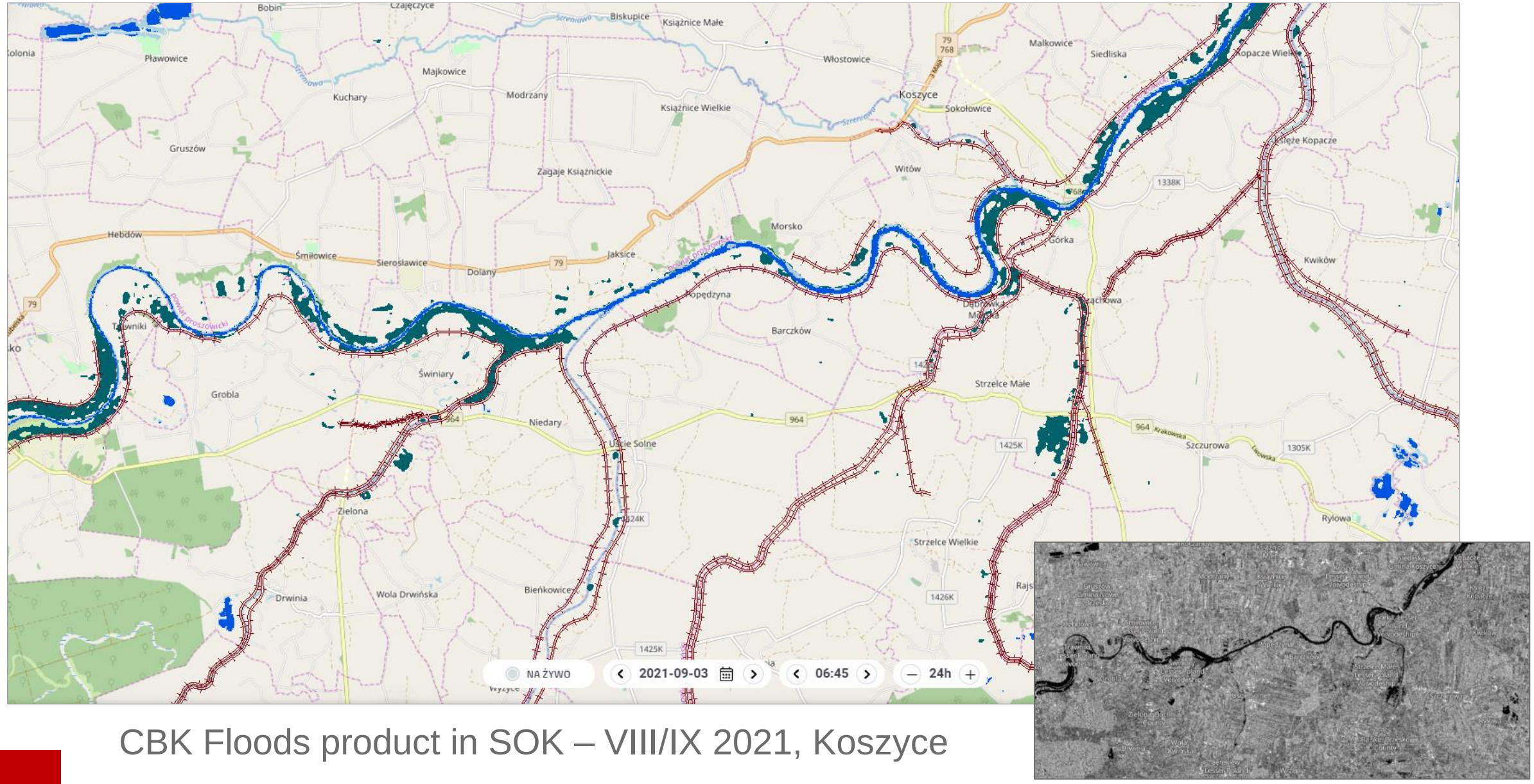
- Access to operational system trough 12 months for end-user
- Accuracy and reliability of the prepared products
- Products produced form HR and VHR data
- Full support in the use of the system
- EO products tailored to end-users needs
- Ability to implement and develop the service in the future

Crisis Management Portal (SOK) – Sat4ENVI



CBK Floods product in SOK – VIII/IX 2021, Sandomierz

Crisis Management Portal (SOK) – Sat4ENVI



CBK Floods product in SOK – VIII/IX 2021, Koszyce