



Ministry of Science and Higher Education
Republic of Poland



JAGIELLONIAN UNIVERSITY
IN KRAKÓW



EUROPEAN SPACE AGENCY

15 - 19 June 2026 | Auditorium Maximum of the Jagiellonian University, Kraków, Poland

FRINGE 2026

SAR DATA FOR NATIONAL NEEDS - SOURCES AND APPLICATIONS

ESA UNCLASSIFIED - For ESA Official Use Only



→ THE EUROPEAN SPACE AGENCY

- a government executive agency established in **2014**
- operates under the supervision of the **Ministry of Development and Technology**
- cooperates with national and international institutions, including the **Ministry of National Defence** and the **Ministry of Science and Higher Education**

Purpose of Establishing POLSA

- to increase the use of satellite systems;
- to accelerate the development of space technologies for the benefit of public administration, science, education, the economy, and national defense



DZIENNIK USTAW RZECZYPOSPOLITEJ POLSKIEJ

Warszawa, dnia 6 listopada 2014 r.

Poz. 1533

USTAWA

z dnia 26 września 2014 r.
o Polskiej Agencji Kosmicznej¹⁾

Rozdział 1

Przepisy ogólne

Art. 1. 1. Tworzy się Polską Agencję Kosmiczną, zwaną dalej „Agencją”.

2. Agencja jest agencją wykonawczą w rozumieniu przepisów ustawy z dnia 27 sierpnia 2009 r. o finansach publicz-





International Cooperation

participation in EU, ESA, and other international programmes and organisations



Earth Observation, navigation, SATCOM

Supporting the use of satellite solutions at both national and local government levels



Space Security

Supporting the enhancement of defence capabilities - including SSA and launch capabilities



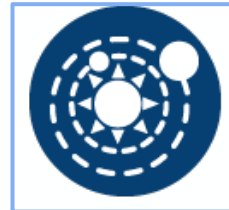
Research and Development

Supporting research institutions and space sector companies and fostering cooperation between industry and academia



Support Public Administration

Facilitating and enabling administration to use satellite technology (EO, PNT, SATCOM)



Education

Promoting the space matters through educational activities, workshops, conferences, public outreach initiatives, and information campaigns.

OPERATIONAL MANDATE



Ministry of Science and Higher Education
Republic of Poland



The Agency shall:

act as the
**National Satellite
Data
Administrator;**
operate
**National Satellite
Information
System**

Operate of the
national monitoring
system for
interference
affecting Global
Navigation Satellite
System (GNSS)
signals

Operate of the
National Space
Safety and
Security System

Operate of the
National Register
of Space Objects

Under the amended on 13 February 2026 Polish Space Agency Act (26 September 2014), POLSA is entrusted with operational responsibilities extending beyond coordination and policy support

NATIONAL SATELLITE INFORMATION SYSTEM

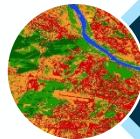
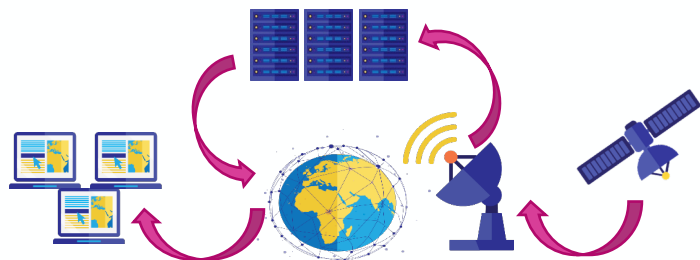


Ministry of Science and Higher Education
Republic of Poland

JAGIELLONIAN UNIVERSITY
IN KRAKÓW



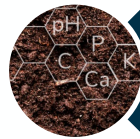
a national interoperable system for the reception, storage, processing and dissemination of satellite data, together with the necessary infrastructure



maintaining, operating and administering the system on an ongoing basis



updating and expanding the resources



acquiring and making available products and services developed using satellite data



promoting knowledge of satellite data and encouraging their use



acting as the contact point for public administration bodies for the acquisition of data



integrating the capabilities of the commercial sector with the needs of public administration

NATIONAL ECOSYSTEM OF SATELITE DATA - NSIS



Ministry of Science and Higher Education
Republic of Poland



NSIS Portal

The tool for performing basic spatial analyses on satellite products.



Marketplace

The place that supports the space industry by promoting solutions offered by private companies.



Knowledge Base

The collection of scientific, technical, and practical information.



NSIS Cloud

The integration of a satellite data repository with a scalable cloud computing environment.

NSIS Pilot launched in June 2023
NSIS Cloud launched in November 2025



UNIQUE VISITORS
>40 000



NSIS DATA
1.6 TB

POLSA'S PRODUCTS

2019 – 2025 Land Cover Maps
2019 – 2024 Land Cover Change Maps
2021 – 2024 Orthophotomaps
2022, 2024 SuperResolution Orthophotomaps
2010 – 2025 Agricultural Drought
2022, 2024 Urban Heat Island

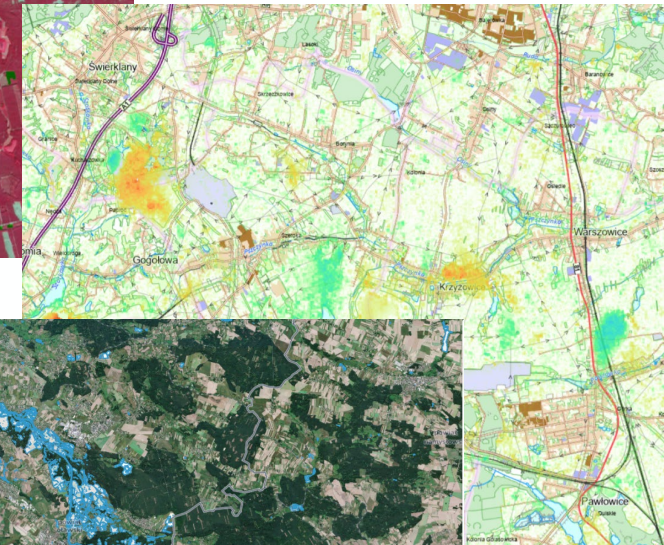
2024, 2025 Tree Cover Maps
2016 – 2024 Tree Cover Change Maps
2021, 2022 Soil Moisture
2022 - 2025 Deformation of Flood Protection Dams
2024 Water Extent and Flooded Areas
2025 Ground Displacement Map

**SAR
based**

Tree Cove Change_Map_NSIS



Vertical and horizontal
ground displacements
for part of the
Górnośląskie Zagłębie
Węglowe (GZW)_NSIS



Water extend and
flooded areas_NSIS



CRITICAL INFRASTRUCTURE



Ministry of Science and Higher Education
Republic of Poland



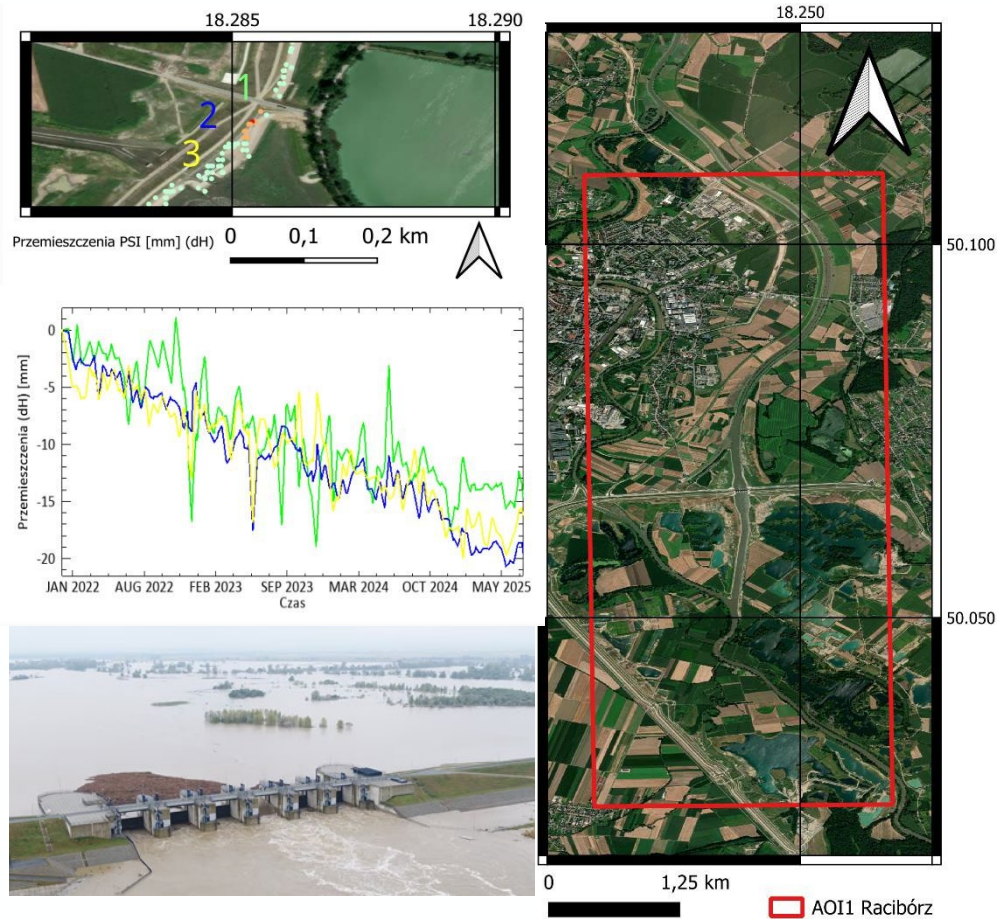
JAGIELLONIAN UNIVERSITY
IN KRAKÓW



EUROPEAN SPACE AGENCY

Monitoring of dam structures – implemented on NSIS

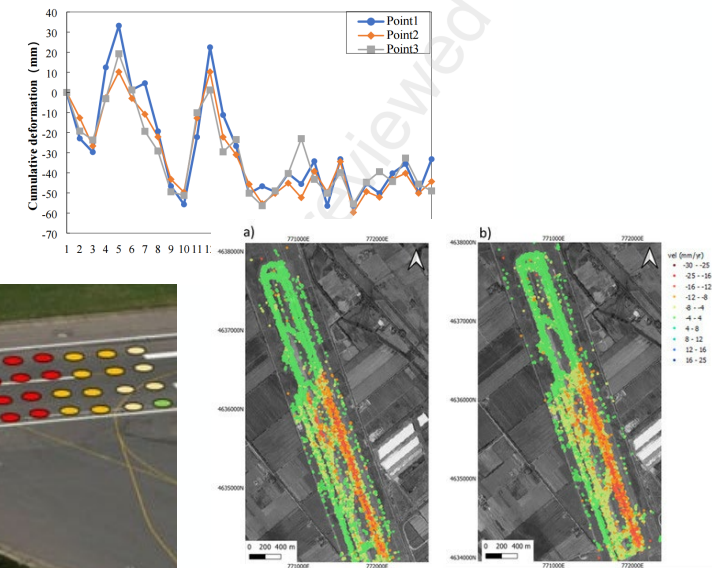
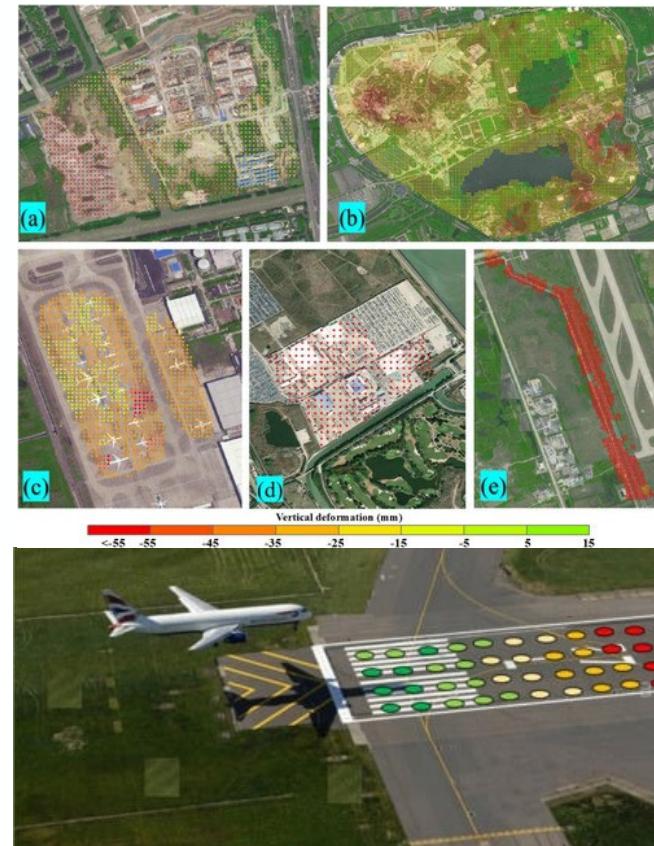
Stability of dam structures - flood hazards



Interferometric Synthetic Aperture Radar

Monitoring of airport infrastructure – under development

Monitoring of operational infrastructure (airside) - runways, taxiways and airport infrastructure

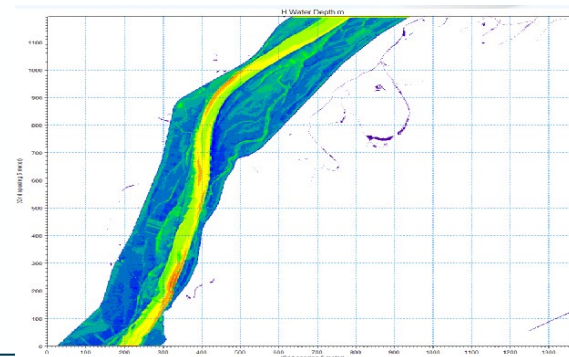
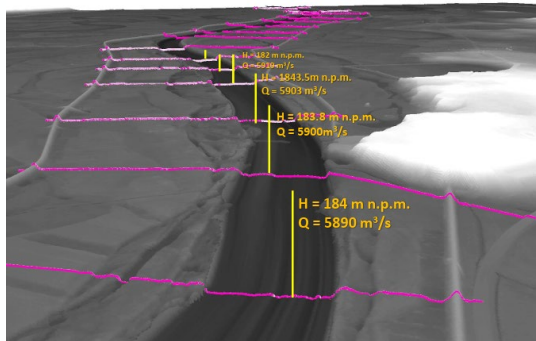
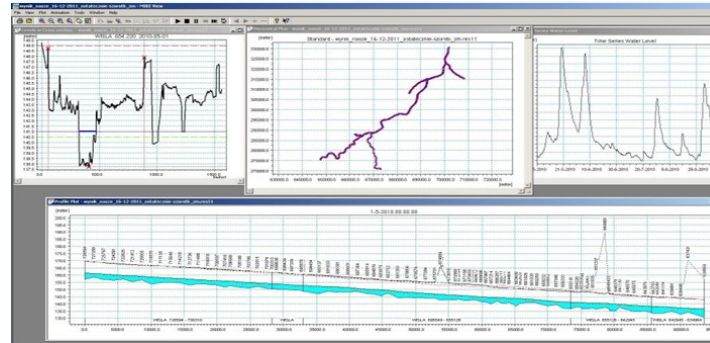


Interferometric Synthetic Aperture Radar

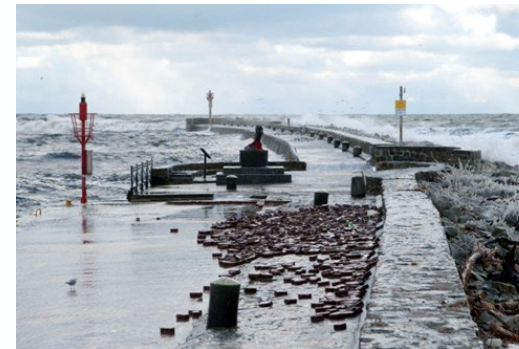
Monitoring of vegetation cutting in areas between river embankments – under development

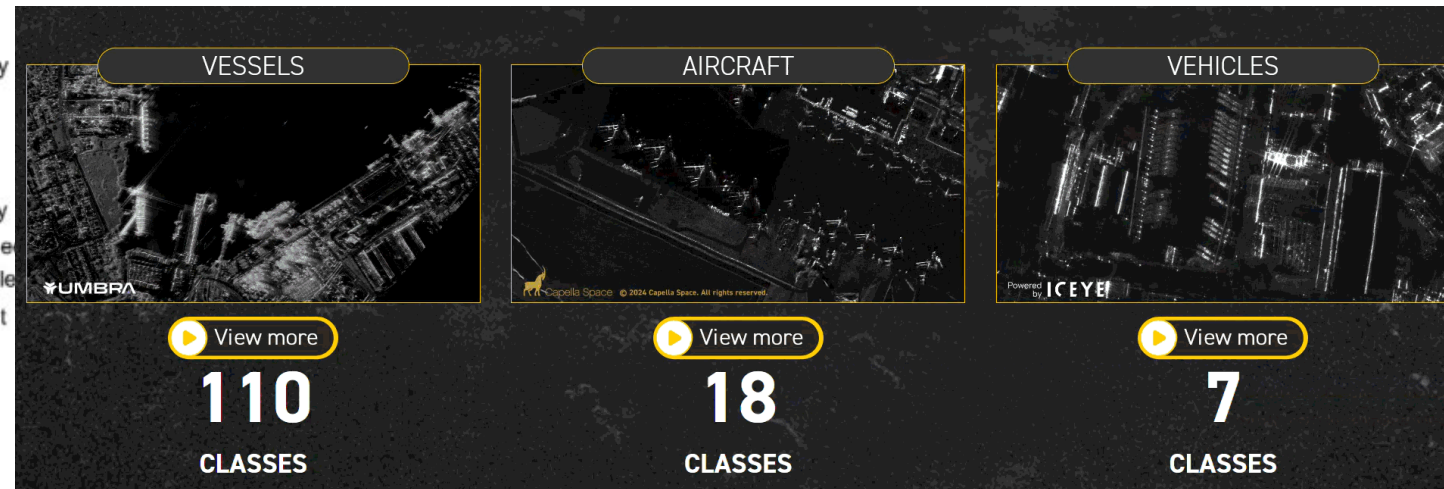
Monitoring of maritime infrastructure – under development

Hydrodynamic modeling - flood hazards



Offshore infrastructure, monitoring the stability of port infrastructure





10



Polish EO/SAR Constellations



Ministry of Science and Higher Education
Republic of Poland



➤ CAMILA

POLSA - Mission Managing Authority

OPTO

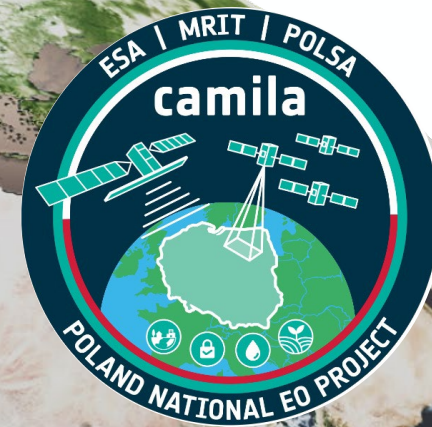
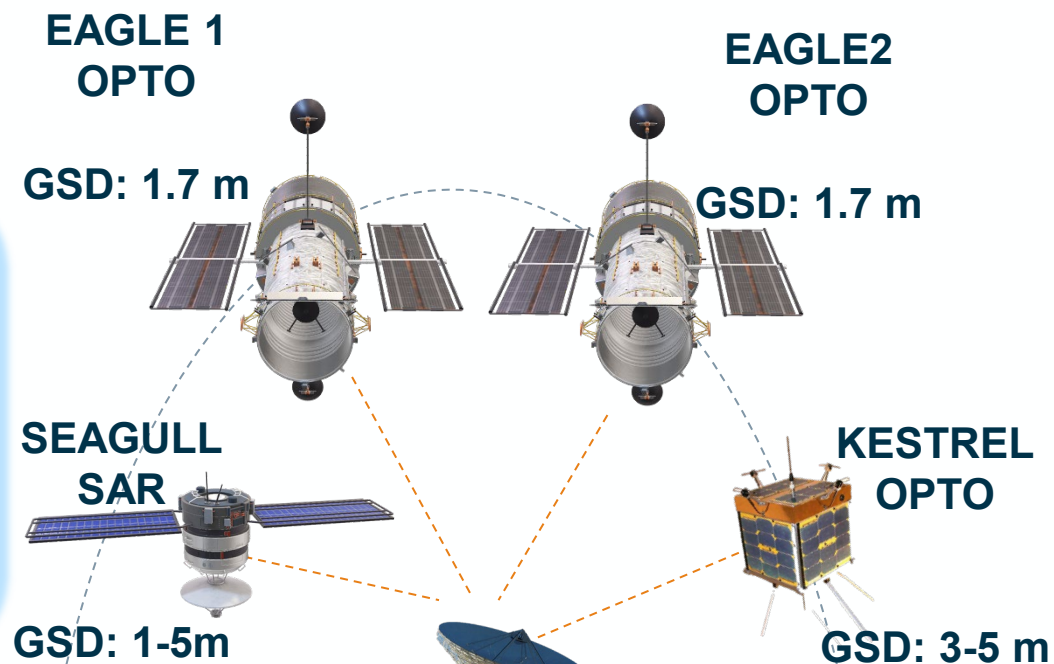
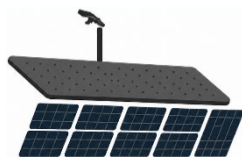
- Blue: 0.45 – 0.51 μm
- Green: 0.53 – 0.59 μm
- Red: 0.64 – 0.68 μm
- Near Infrared: 0.83 – 0.88 μm

SAR

- Spot mode (~10 km)
- Strip mode (20-50 km)
- Scan mode (>250 km)

- POLSARIS (ICEYE Poland):
3 (+3) microsatellites – SAR

- November 2025
- March 2026
- May 2026



All-Weather, day and night Monitoring

Reliable imaging regardless of cloud cover, smoke, or haze

Growing Demand for High Revisit Frequency

Near-real-time monitoring of dynamic events

Miniaturization of SAR Systems

Reduced manufacturing and launch costs; Enables deployment of large constellations

Rising Security and Defence Requirements

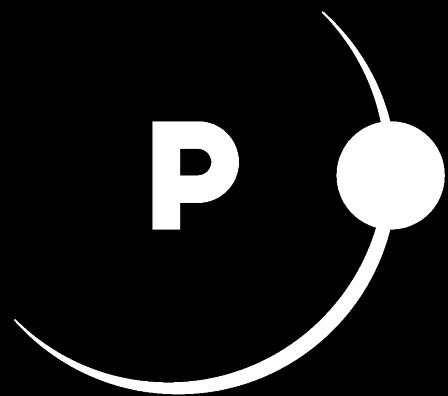
Persistent surveillance capability; Situational awareness regardless of weather conditions

AI-Driven Analytics

Automated change detection; Object recognition and activity monitoring

Persistent Earth Observation

monitoring of environmental and human activities; Disaster response, infrastructure monitoring, security apps



PLSA

Polska Agencja
Kosmiczna



www.polsa.gov.pl

