

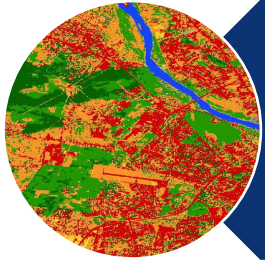


The National Satellite Information System for Environmental Indicators and Policy Support

ESRIN, 6 May 2026

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NATIONAL SATELLITE INFORMATION SYSTEM (NSIS)



Launching, improving and expanding including access provision to monitoring services (6 thematic areas).



Integration of existing technical solutions and development of infrastructure, Copernicus archive, product repository, POLSA operational center.



Information, communication, education and training activities and ongoing cooperation with users and suppliers.

Interoperable system for receiving, storing, processing and sharing satellite data to provide monitoring services, information products, analytical tools along with the necessary infrastructure.



NSIS Cloud

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

NSIS Portal

The tool for performing basic spatial analyses on satellite products.

Knowledge Base

The collection of scientific, technical, and practical information.

Marketplace

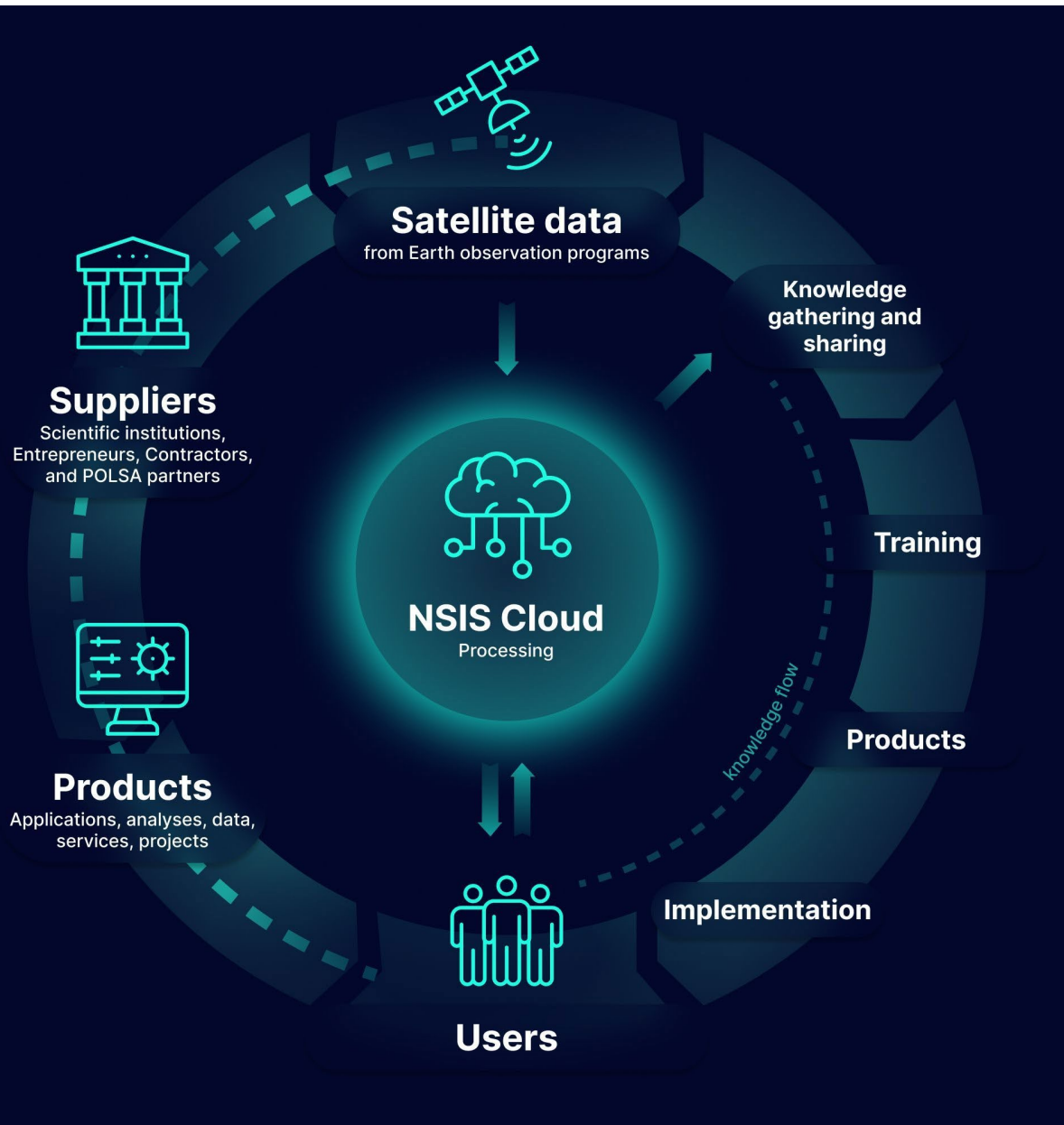
The place that supports the space industry by promoting solutions offered by private companies.

NSIS EDU

The application shows in an accessible way how satellite data is used in various fields.



NSIS Cloud Resources Overview



REPOSITORY:

- Sentinel (1, 2, 3, 5P, 6)
- Suomi – NPP
- LANDSAT (5, 7, 8, 9)

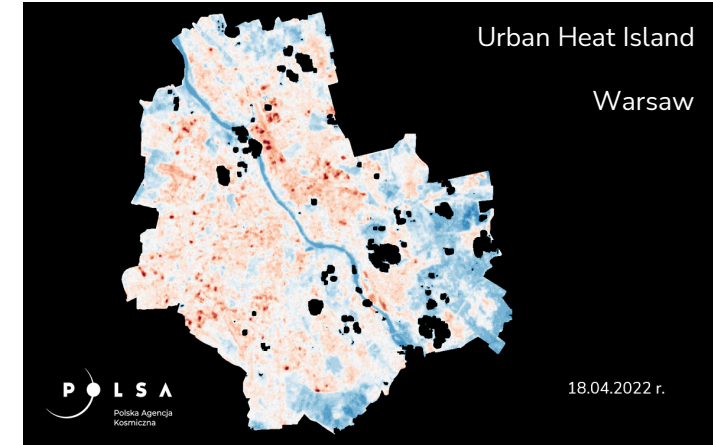
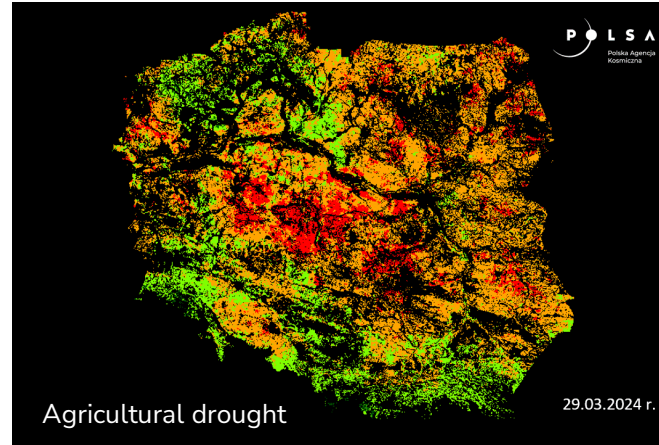
CAMILA
MIKROGLOB



- **End-to-end processing of raw satellite data (CADU)**, including future Polish missions.
- **Integrated access to EO data and computing resources** in a single environment.
- **High-performance infrastructure on demand** (including GPU and HPC capabilities).
- **No need to maintain own infrastructure**, reduced costs and faster deployment.

POLSA SATELLITE PRODUCTS:

- 2019 – 2025 Land Cover Maps
- 2019 – 2024 Land Cover Change Maps
- 2024, 2025 Tree Cover Maps
- 2016 – 2024 Tree Cover Change Maps
- 2021 – 2024 Orthophotomaps
- 2022, 2024 SuperResolution Orthophotomaps
- 2010 – 2025 Agricultural Drought
- 2022, 2024 Urban Heat Island
- 2024 NDVI for Forest
- 2024 Water Extent and Flooded Areas
- 2025 Ground Displacement Map



UNIQUE VISITORS
>40 000



NSIS DATA
1.6 TB



➤ **Art. 8 Nature Restoration Law – Urban Ecosystem Restoration**

Focus on restoration of urban ecosystems across EU Member States by 2050.

Aims to increase and preserve urban green areas and improve environmental quality in cities.

- **Data fusion** (e.g. Sentinel-1, Sentinel-2, national datasets: Topographic Objects Database, Forest Data Bank).
- **Definition of tree-covered areas** (minimum area 0.10 ha, tree canopy cover >10%, minimum width 10 m).
- **Algorithm:** CatBoost.

➤ **Comparison – City of Gdansk**





Category	POLSA [ha]	HRL DTL [ha]	Difference [%]
Broadleaved trees	8,435.52	4,497.08	+87.6%
Coniferous trees	1,844.23	2,238.63	-17.6%
Total	10,279.75	6,735.71	+52.6%



- **Forest management** – analysis of tree cover changes for the State Forests, local authorities, and green area managers; provided as supporting material only, not as a primary data source.

- **Time series data** (e.g. Sentinel-1, Sentinel-2, CLMS HRL).
- **Base year:** 2016; 2021-2024.
- **Algorithm:** Integrated Forest Z-score.

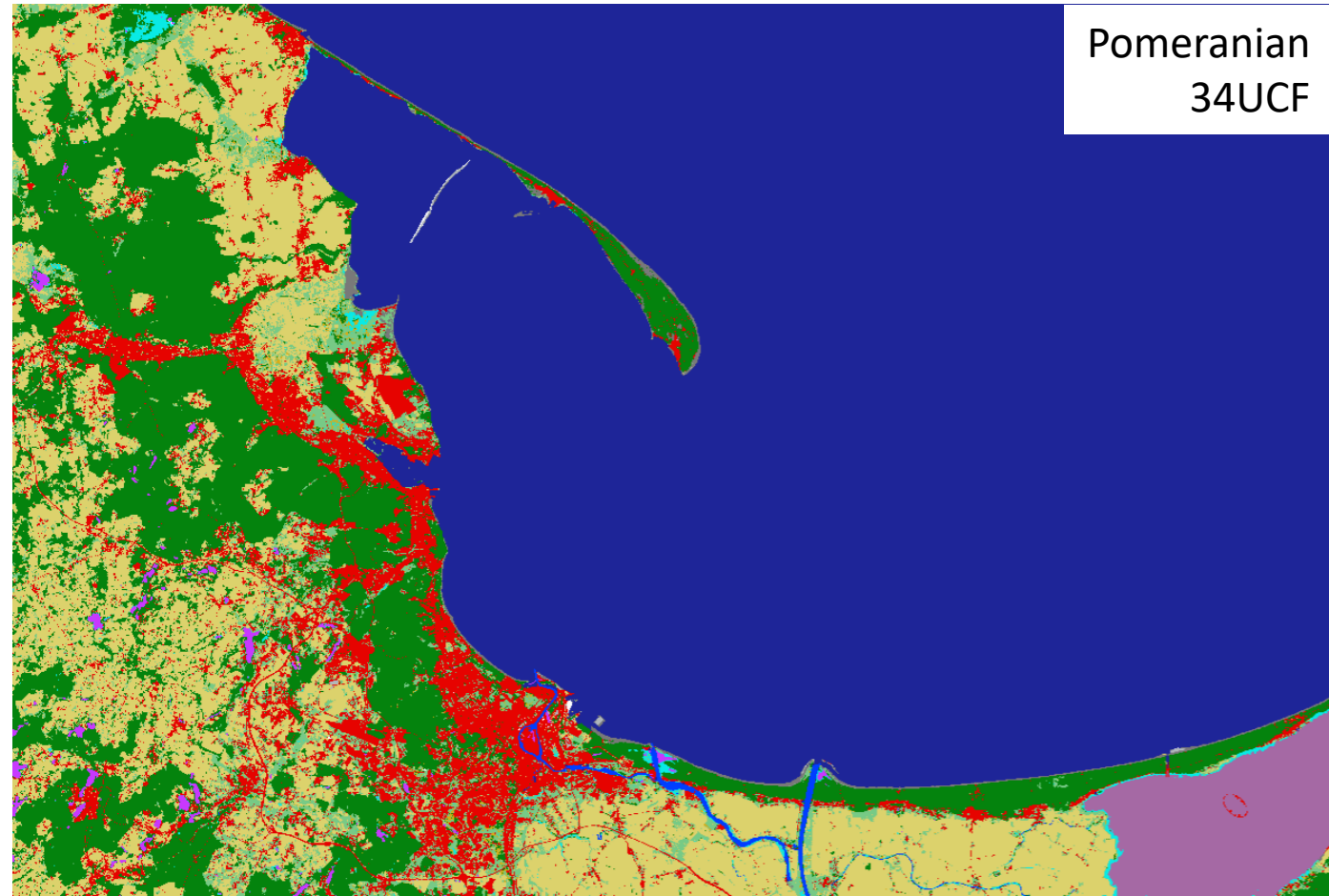
➤ **Results**

Period	Change Type	Area [km ²]
2016–2024	 Afforestation	918.13
2021–2022	 Loss	302.32
2022–2023	 Loss	269.77
2023–2024	 Loss	313.01



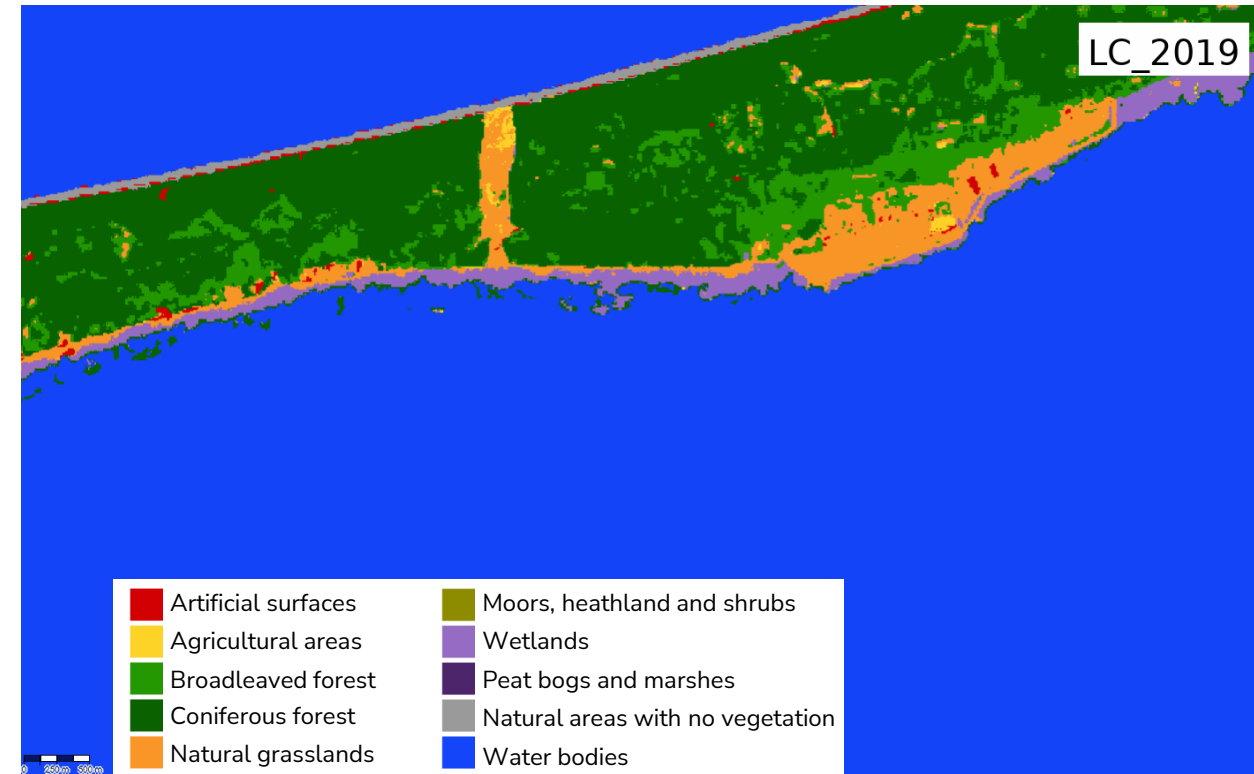
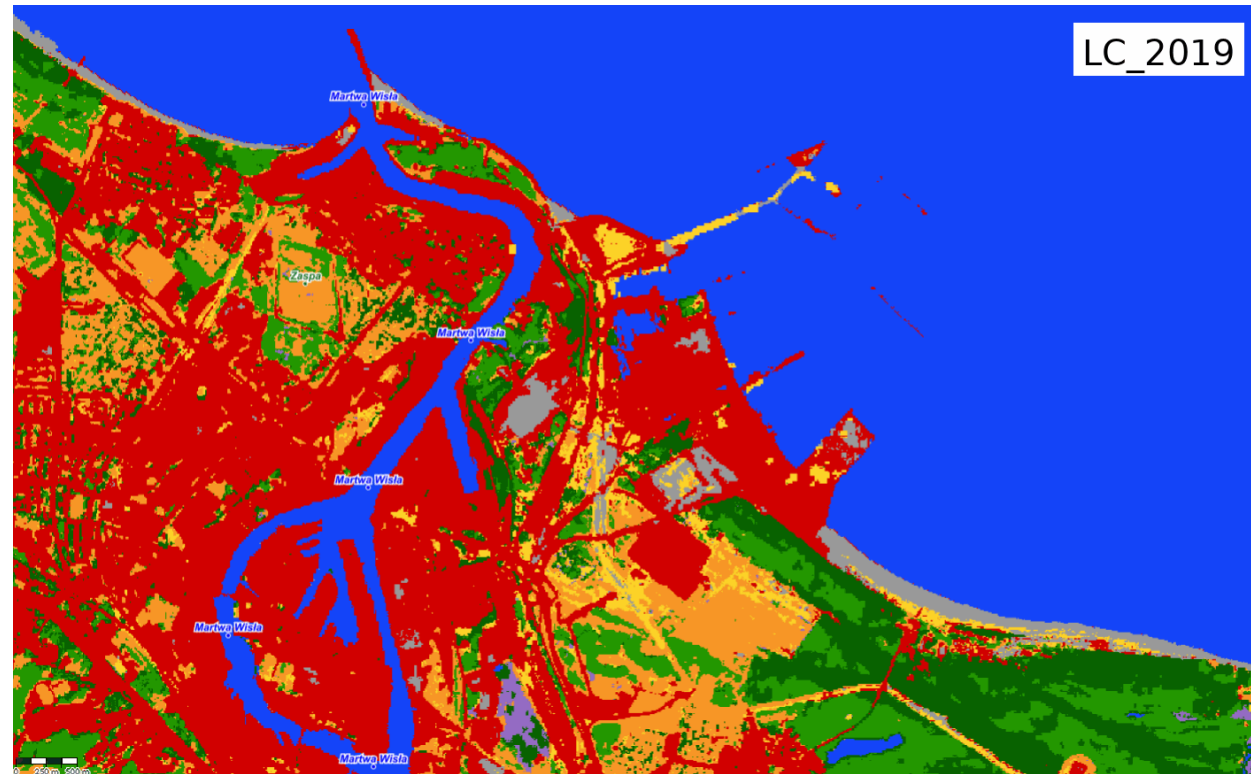
- **Regulation (EU) 691/2011** – developed for Statistics Poland in accordance with Regulation (EU) 2024/3024 of the European Parliament and of the Council of 27 November 2024 on the introduction of new modules of environmental economic accounts.

- **Data fusion** (raster and vector layers).
- **Base year:** 2024.
- **Algorithm:** XGBoost.
- **Source:** Guidance notes on ecosystem services accounts enriched and updated with national datasets.





- **Amendment to the Environmental Protection Law (27 January 2024)** – a strategic document mandatory for cities with more than 20,000 inhabitants in Poland, defining climate adaptation measures, developed by a team of the Ministry of Climate and Environment.





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