European Commission

Poland Team 2

European Big Data Hackathon 2025

Earth Observation: from Space to European Statistics

Brussels, 6–11 March 2025

eurostat

FloodWatch

FloodWatch is an interactive web app to view historical Flood data in Poland and the Czech Republic

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What does it address

FloodWatch helps us analyze data on floods in Poland and Czechia in 2024

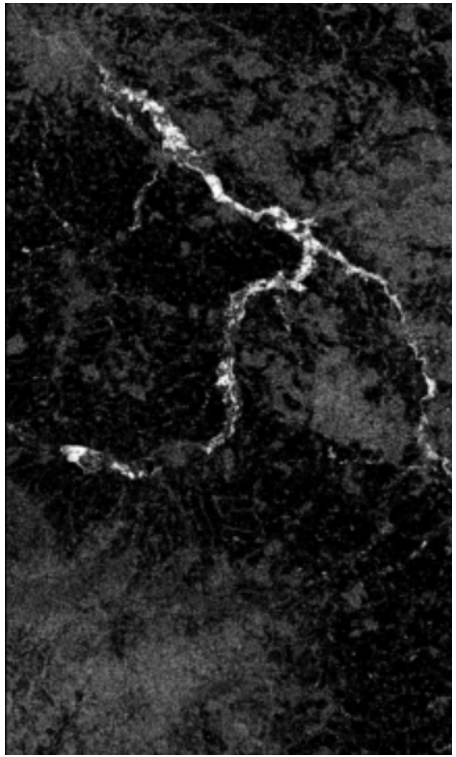
Using Sentinel-1 SAR data, we accurately mapped flood-affected zones from the September 2024 flooding in Nyskie, Poland, and the South Moravian region, Czech Republic, a well-documented event caused by Storm Boris. The floods led to significant damage and evacuations in the affected areas. Unlike optical imagery, Sentinel-1's radar can penetrate cloud cover—common during floods—ensuring precise water level assessments.

What does it address

To estimate affected populations, we created and overlaid a flood mask onto regional population density maps and calculated the number of impacted individuals—an insight not easily obtainable from conventional sources.

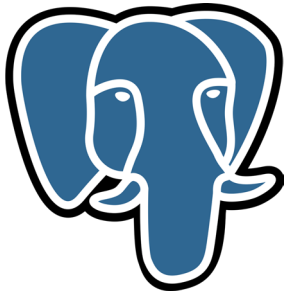
We also estimated how much of the region was flooded.

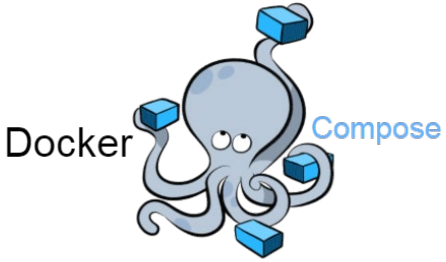
Our app also integrates annual rainfall data, allowing users to analyze correlations between precipitation and flooding, providing valuable insights for disaster response and risk assessment.



Technical details

Our app is portable and scalable, running in two Docker containers: one for the R Shiny app with shiny-server and Nginx as a reverse proxy, and another for the PostgreSQL database storing app data. These containers are orchestrated with Docker Compose. All the tools used for app development are open source.





Live Demo

http://64.225.141.20

Thank you for your attention