



PROGRAMME OF  
THE EUROPEAN UNION



Implemented by



European  
Commission



Emergency  
Management

#EUSpace

# Supporting Disaster Risk Management with AI

Examples from the  
Copernicus  
Emergency  
Management Service



# “ Artificial Intelligence for Building Damage Assessment

*Investigating the potential of AI to accelerate and enhance the accuracy of post-disaster building damage assessments following Earthquakes and Storms*

The screenshot displays the Copernicus Emergency Management Service (EMS) Rapid Mapping interface. The main map shows an aerial view of a city in Myanmar, with numerous yellow and red markers indicating building damage. A sidebar on the left lists the event extent areas:

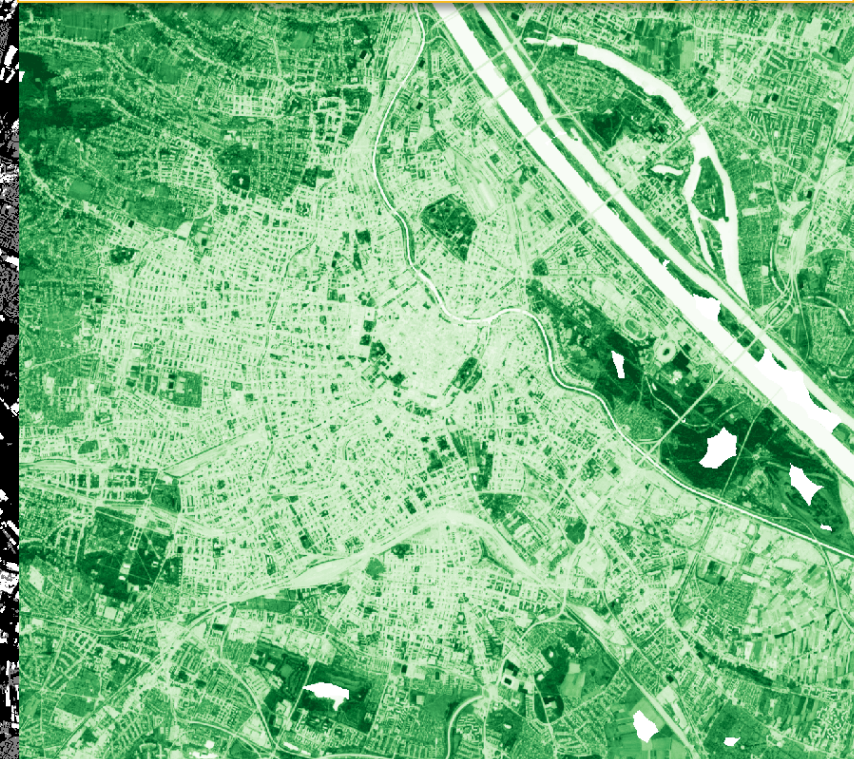
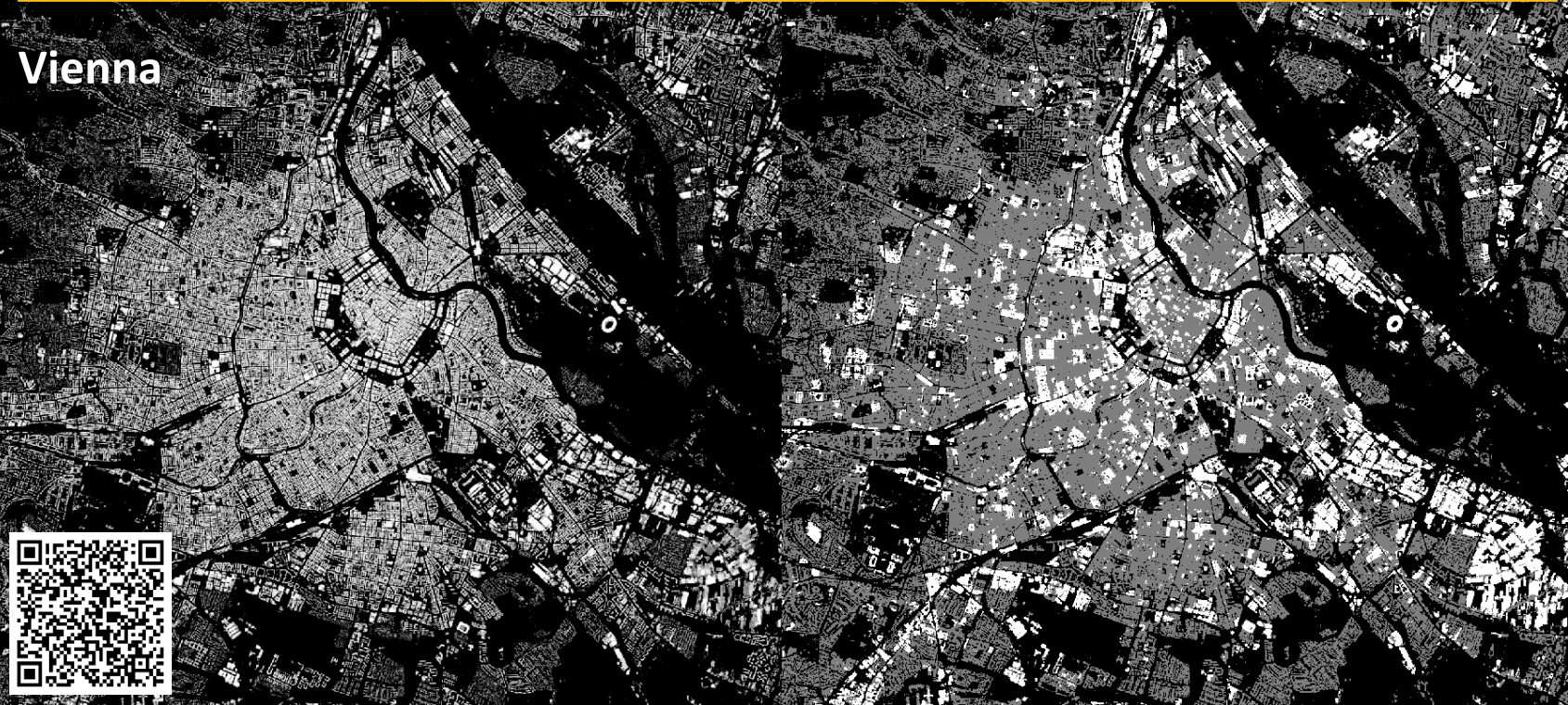
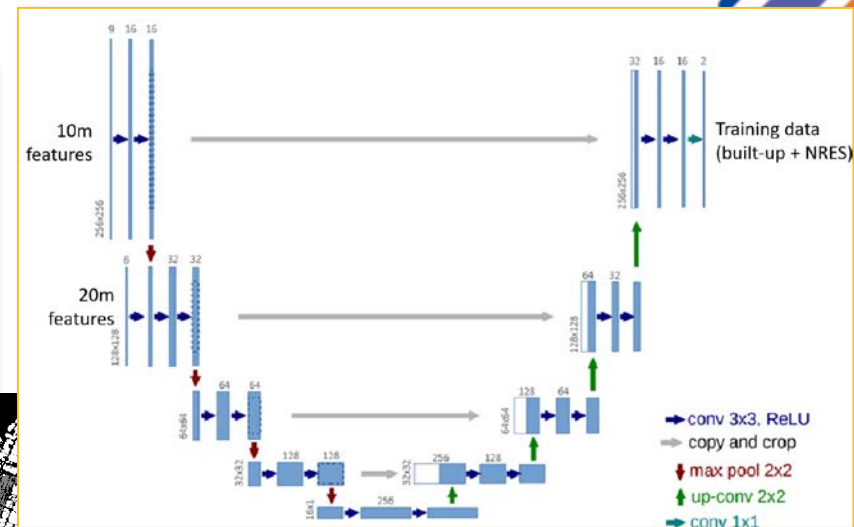
- 01 Taungpyon
- 02 Kalamtaung
- 03 Min Kun
- 04 Lamaing
- 05 Madaaya
- 06 Sadaung

Each area has a 'Grading' button and a 'Legend' button. The interface also includes a navigation menu at the top with options like 'Home', 'About', 'Activations', 'Stats', and 'News'. The bottom right corner shows the coordinates 'Lat 19.7698, Lon 96.2235' and a 'Product details' button.



# Extracting built-up fraction from Sentinel-2 using AI

- Building on the experience of GHSL
- Exploiting global building footprint data sets for training
- Using the full Sentinel-2 time series (10m & 20m bands) in a dedicated U-Net architecture



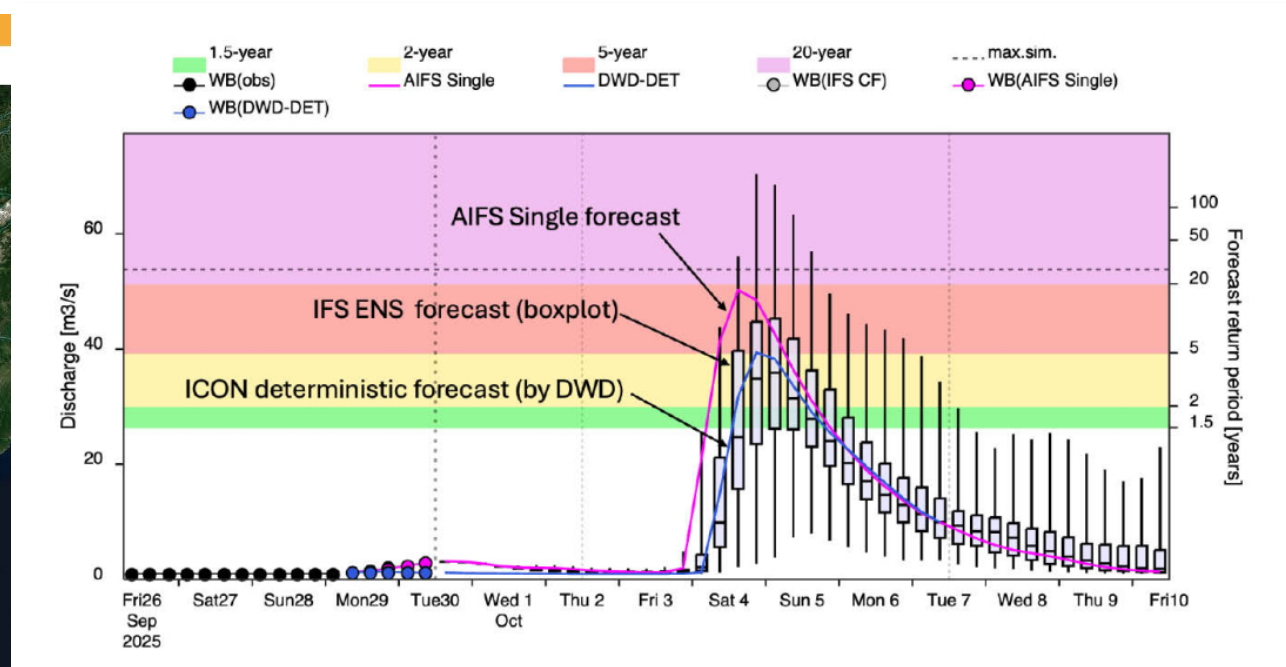
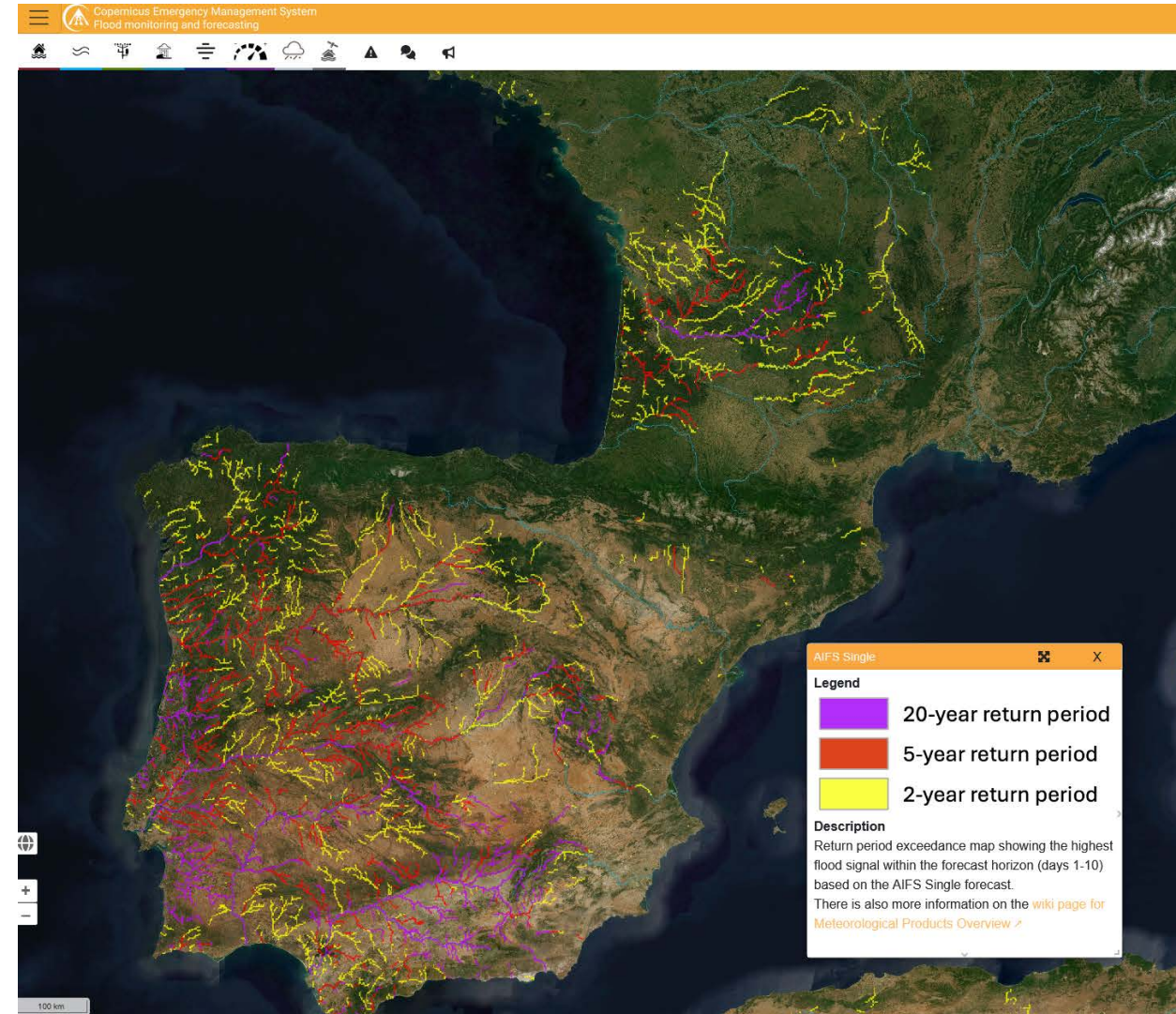
Built-up fraction

Residential / non-residential classification

Greenness layer



# Forecasting floods with AI-based weather predictions

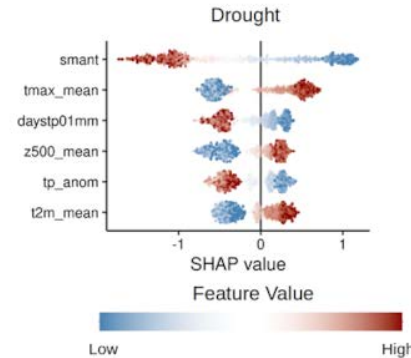
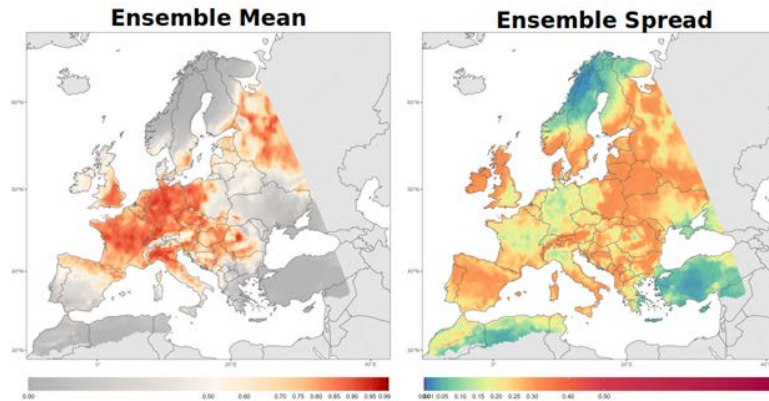


Since September 2025 EFAS and GloFAS integrate ECMWFs AIFS-Single to predict floods



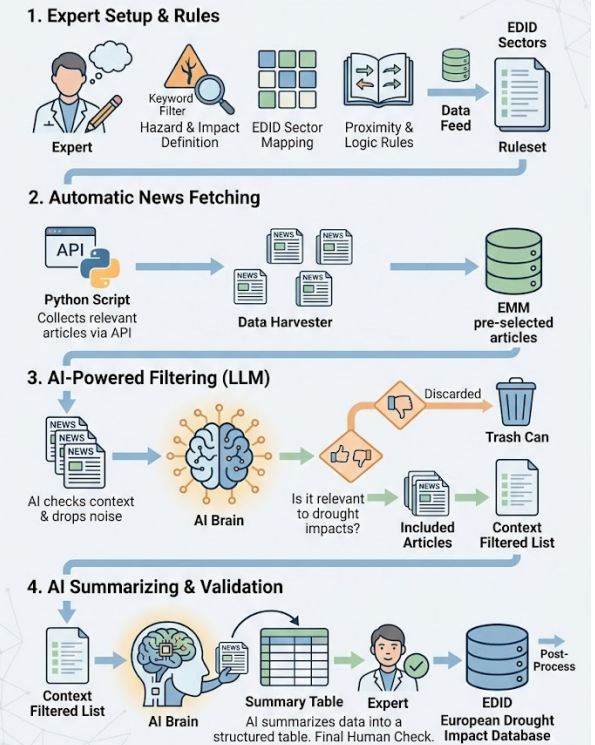
# Artificial Intelligence for Supporting Drought Risk Management

Advancing EDO's capabilities through explainable AI for transparent drought risk detection and LLMs for automated operational drought impact data harvesting.



## AUTOMATED DROUGHT NEWS PIPELINE FOR JRC EDID

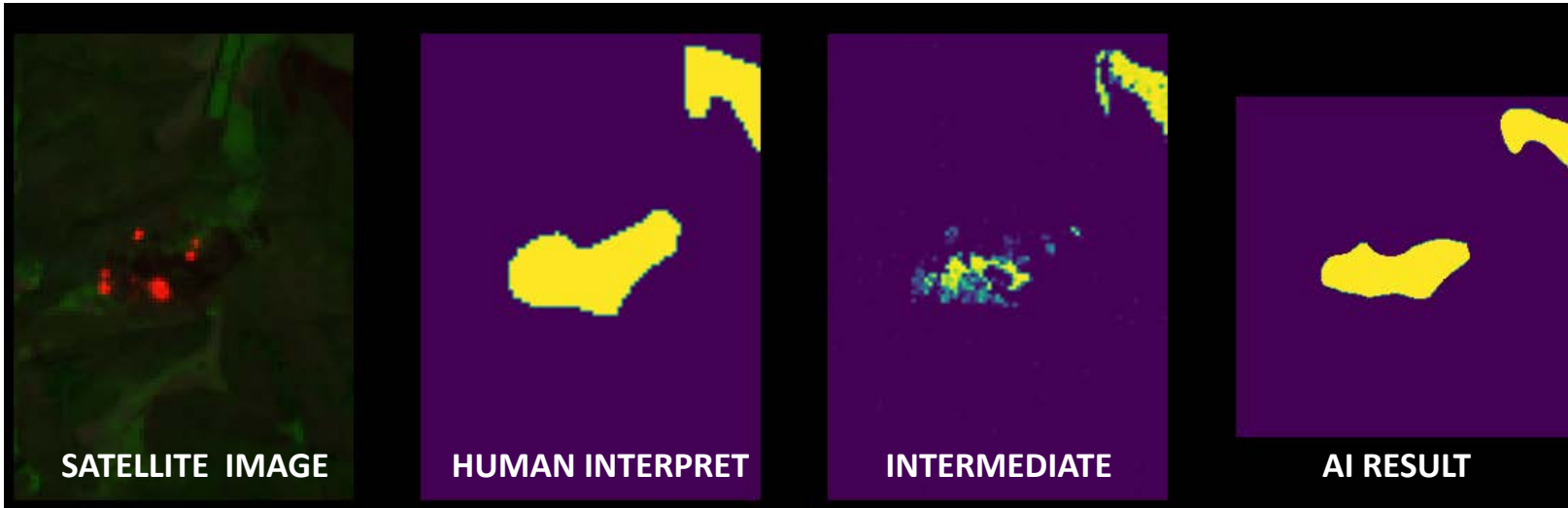
From Global News to a Validated Impact Database



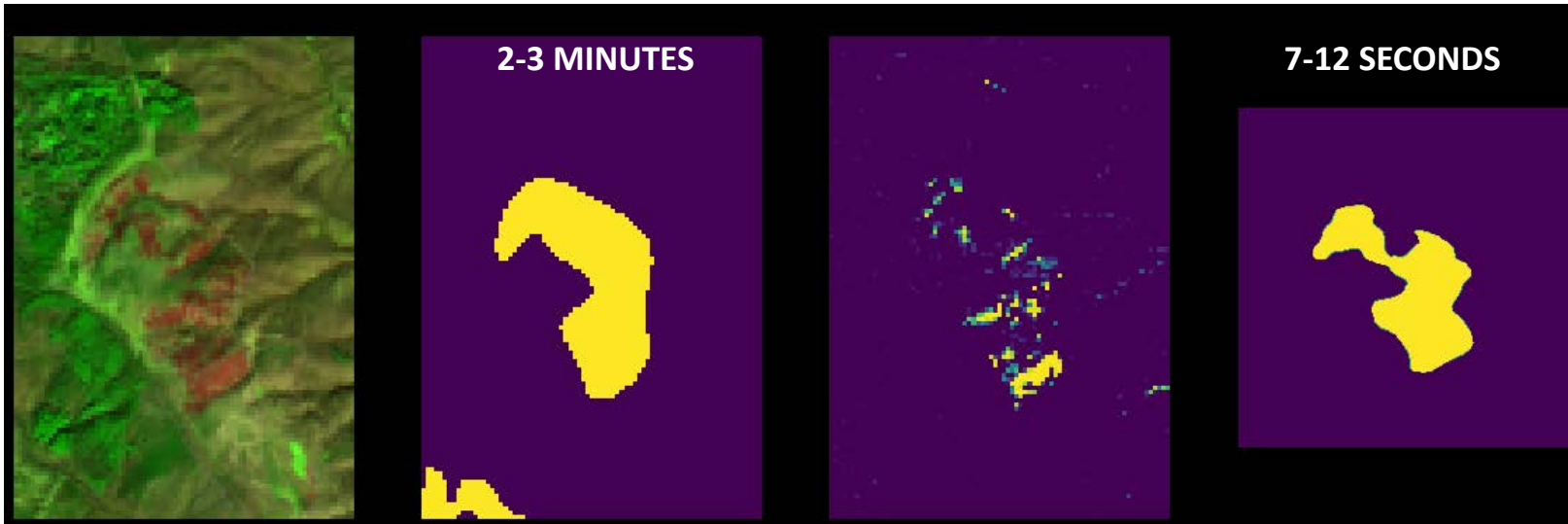


# AI-assisted high-resolution burnt area mapping for wildfires

Area Of Interest 1



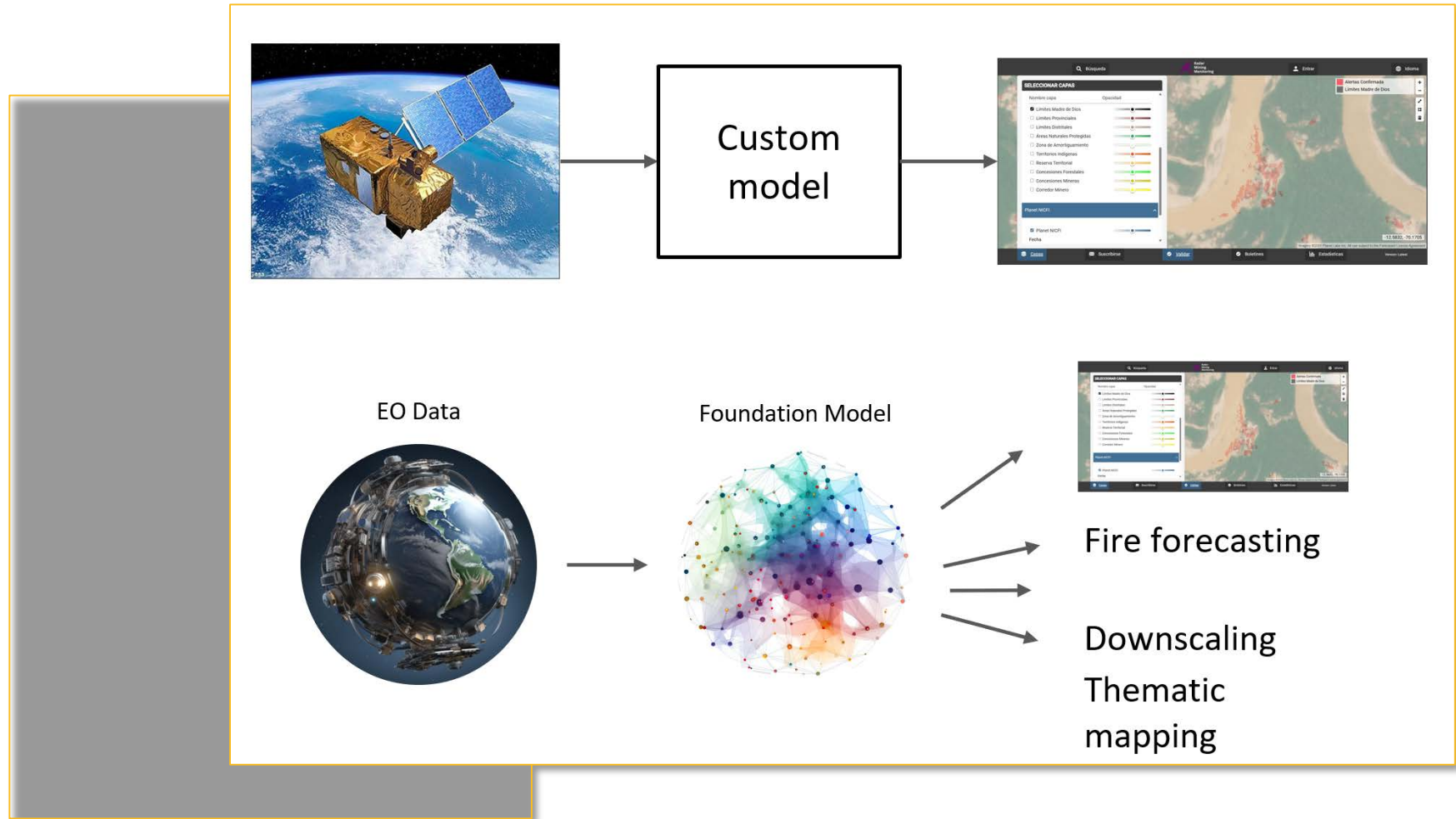
Area Of Interest 2





# AI-supported Global Decision Support System for Wildfires

- Integration of complex and diverse sets of information (e.g. sensors, models).
- Geo foundation models: an opportunity to improve datasets (e.g. fuel models meteo data).



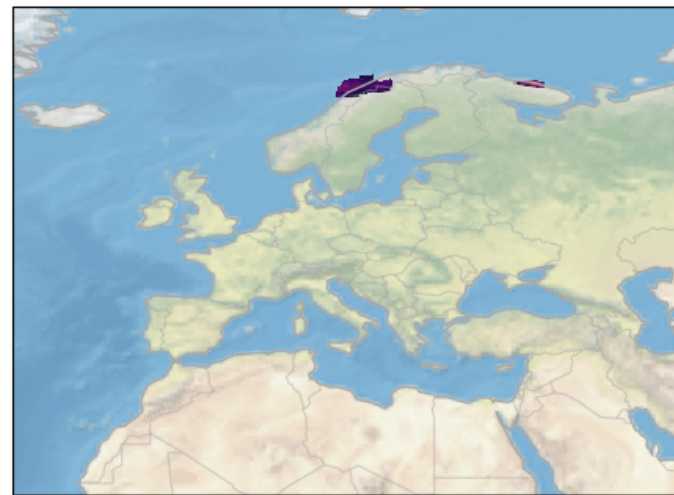


# “ Artificial Intelligence for Supporting Drought Risk Management

*Harnessing AI to transform raw drought-related data into actionable insights through advanced detection of drought events and interactive natural language communication.*

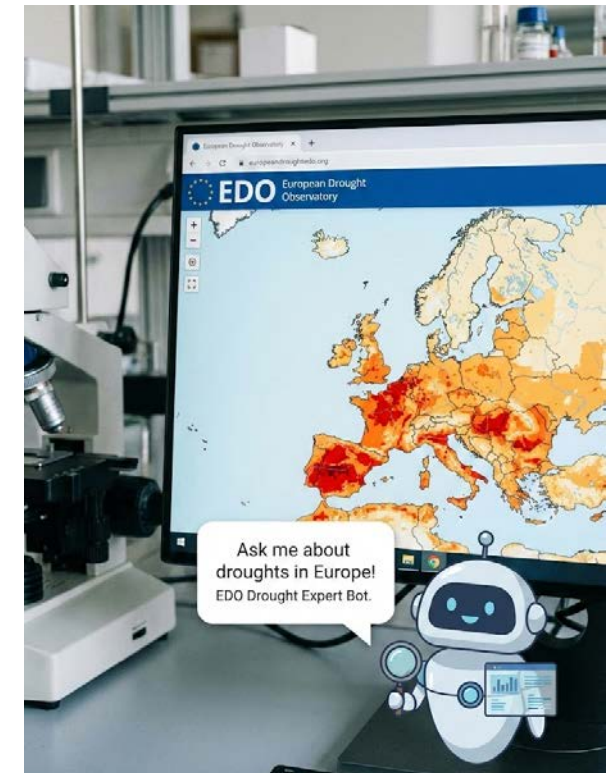
## Spatiotemporal Tracking of Drought Events

Weighted Meteorological Drought Tracking  
2018-01-21



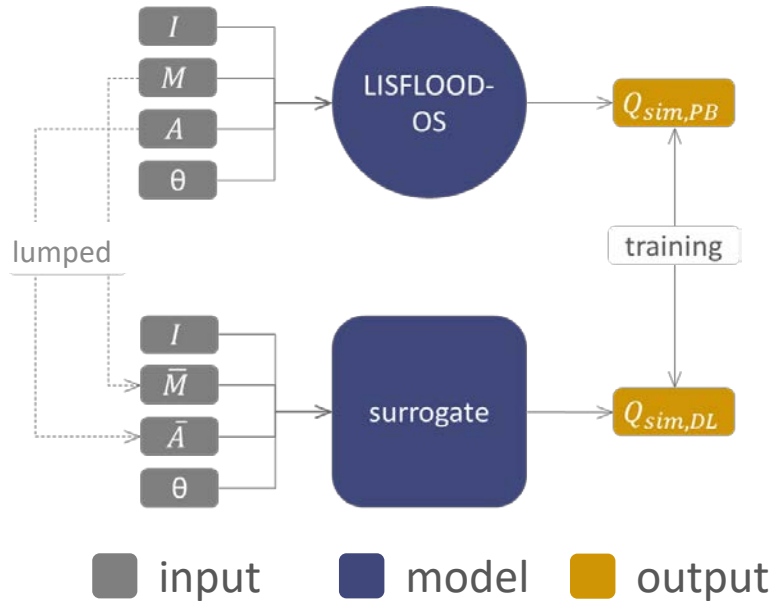
0.0 0.2 0.4 0.6 0.8 1.0  
Weighted Meteorological Drought Tracking [-]

## Drought chatbot

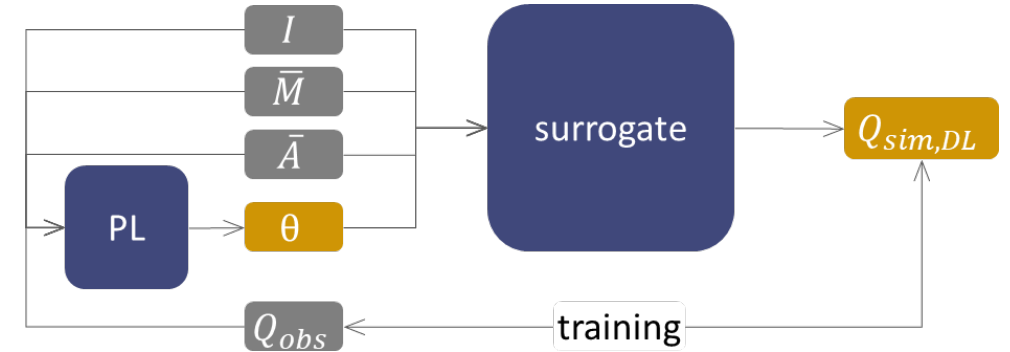


# Improving hydrological predictions in ungauged catchments

## Parameter learning



$I$ : inflow  
 $M$ : meteorological inputs  
 $\bar{M}$ : catchment aggregated meteorological inputs  
 $A$ : static attributes  
 $\bar{A}$ : catchment aggregated static attributes  
 $\theta$ : model parameters



**Leveraging on the computational power and learning capacity of deep learning algorithm to benefit from information from all calibrated catchments.**

