

INLINE

Integrated pan-European rainfall and floods impact forecasts for cooperation in emergency management

Marc Berenguer, Shinju Park, Calum Baugh, Karen O'Regan, Oisin Morrison, Seppo Pulkkinen,
Heikki Millikovsky, F. Javier Rodríguez, Sara Gómez, Nuno Moreira, Sandra Correia, Antonio
Santiago, Ana Durán, Rosa M. Torres, Abel Gomes, Ana Freitas

UCPM-2024-KAPP Kick-off Meeting, Brussels, 13 March 2025

Project summary

Early warning Demonstration of pan-European rainfall-induced impact forecasts

- **Duration:** 01 Mar 2025 - 28 Feb 2027 (24 months)

- **Budget:** 1,173,954.78€ (grant: 997,861.55€)

- **Partners:**

Universitat Politècnica de Catalunya (ES)

European Centre for Medium-range Weather Forecasts (INT)

Finnish Meteorological Institute (FI)

State Agency of Meteorology (ES)

Institute for Sea and Atmosphere (PT)

Environment and Water Agency of Andalusia (ES)

Directorate-General for Civil Protection and Emergencies (ES)

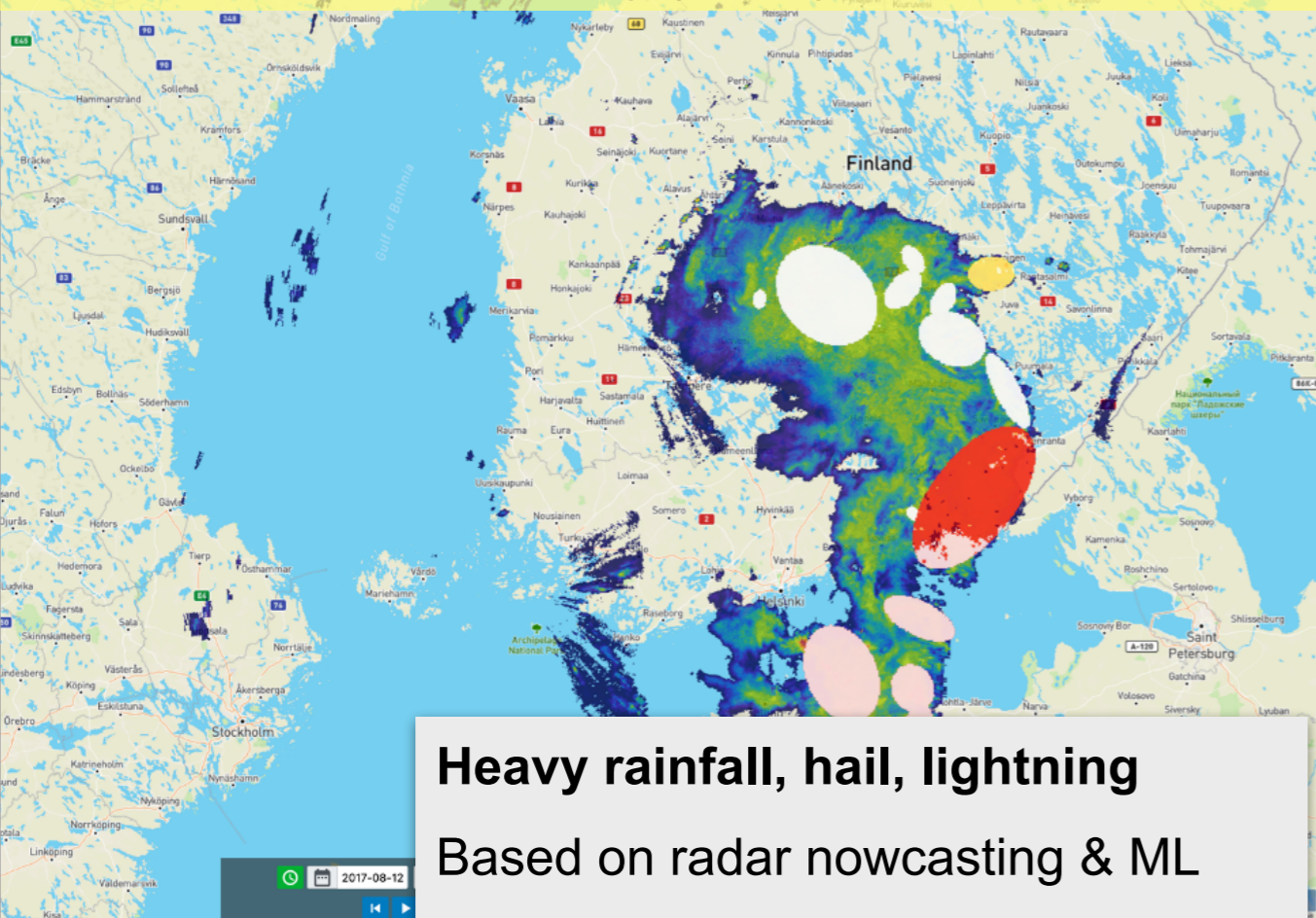
National Authority of Emergency and Civil Protection (PT).

Main objective

Advance on the capabilities of EWS with tools to anticipate the **impacts caused by storms, heavy rain and floods** to support the **decision-making workflows** of various levels of Civil Protection Agencies (CPAs), including their coordination and cooperation.

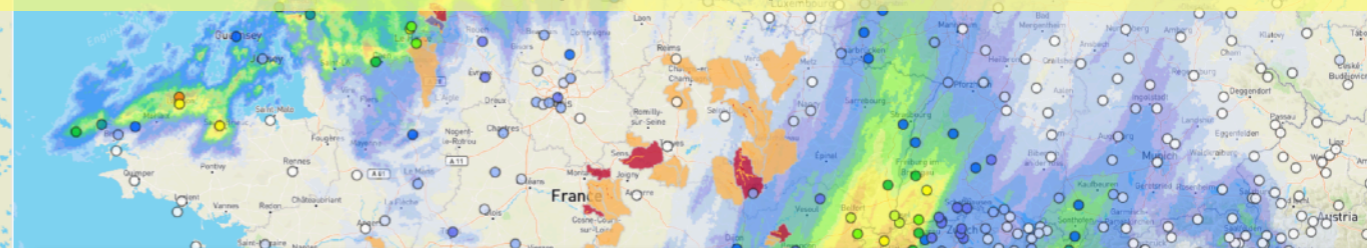
Impact forecasts for storms and heavy rainfall

Storm impact nowcasting (0-3 h).



Heavy rainfall, hail, lightning
Based on radar nowcasting & ML
Extended to European scale
European-wide exposure.

Flash flood impacts (0-120 h).



Flash floods (basins 10 - 2000 km²)

Resolution: 1 h, 1 km - Update: 1 h

Blended precipitation forecasts

Flash flood hazard

Flash flood impacts

- Using probabilistic nowcasting & NWP.
- Seamless blending in the first 6 hours
- Basin-aggregated precipitation on the drainage network (1 km).
- Hazard assessment by comparison with climatological thresholds.
- By combining hazard with exposure.

Specific objectives and expected outputs

- **Improved precipitation estimation for hydrological forecasting.**
- **Enhanced pan-European impact forecasting products with the use of AI**, applying a strategy to provide compound impact forecasts, and implement configurable user-defined notifications.
 - > *more reliable and longer storm probabilistic hazard nowcasts*
 - > *improved impact forecasts by combining the hazard with multiple exposure datasets*
- **Local adaptability of multi-hazard storms and compound floods forecasting** for improved preparedness and response management during flood events.
 - > *New/more flexible notification functionalities*
- **Demonstration of the impact forecasts with end users** at European scale and in the pilot site.
 - > *Assessment of the added value of the integration for CPAs*
- **Creation of an INLINE Community of Interest** to promote the adoption of the developed impact forecasting products and functionalities.
 - > *Uptake of developed functionalities for storms and floods forecasting*
 - > *Sustainability of the products*

INLINE demonstration

- September 2025 – November 2026.



Portugal

National Authority of Emergency and Civil Protection
Portuguese Institute of Sea and Atmosphere



Finland

Finnish Meteorological Institute
Finnish Ministry of Interior
Kymenlaakso Rescue Services
North Karelia Rescue Department

Spain

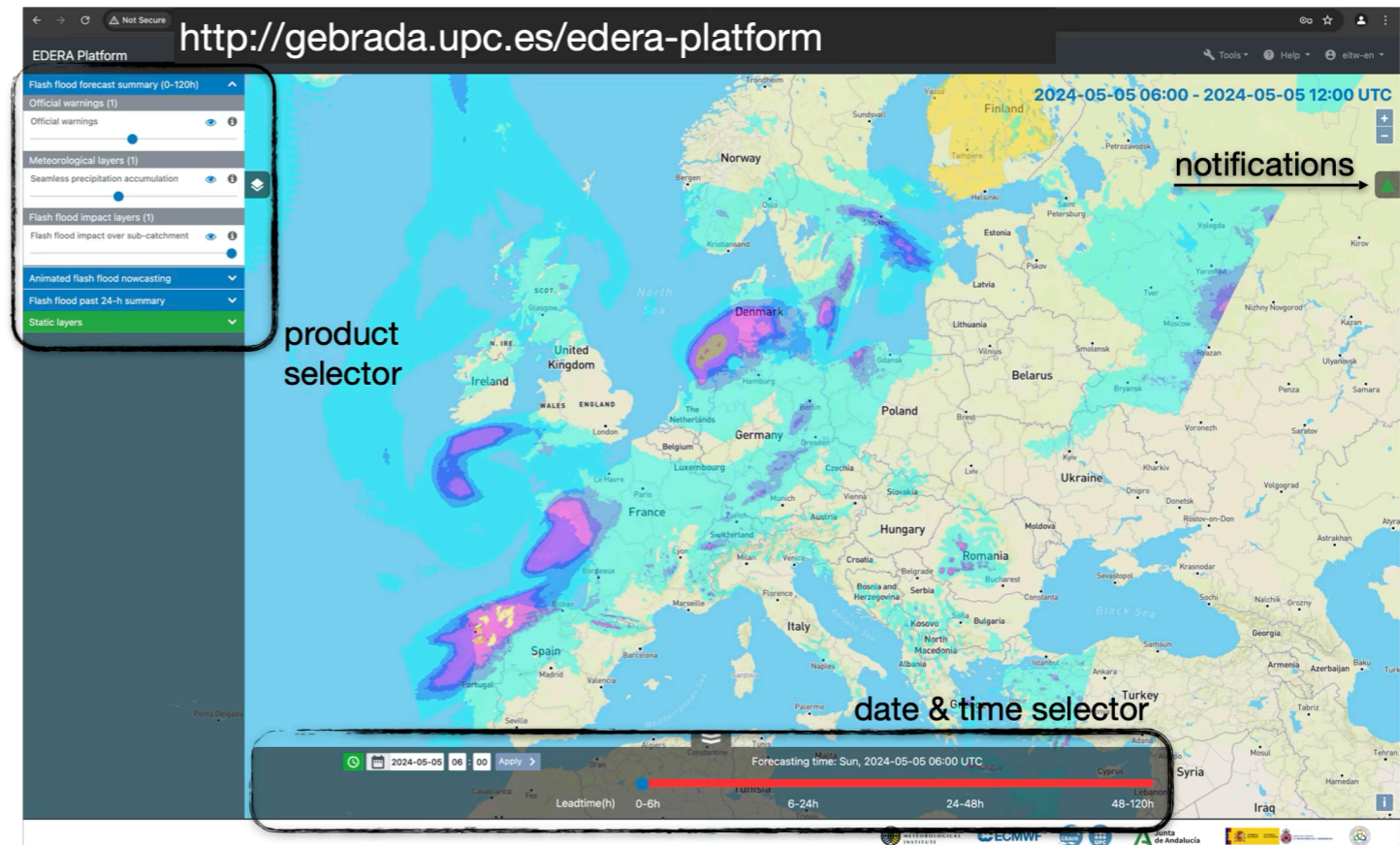
Directorate-General for Civil Protection and Emergencies
Environment and Water Agency of Andalusia
State Agency of Meteorology
Civil Protection of Galicia
Civil Protection of Castilla y León
Secretariate General of Interior, Emergencies and CP (Extremadura)
Civil Protection of Andalusia



Co-funded by the European Union

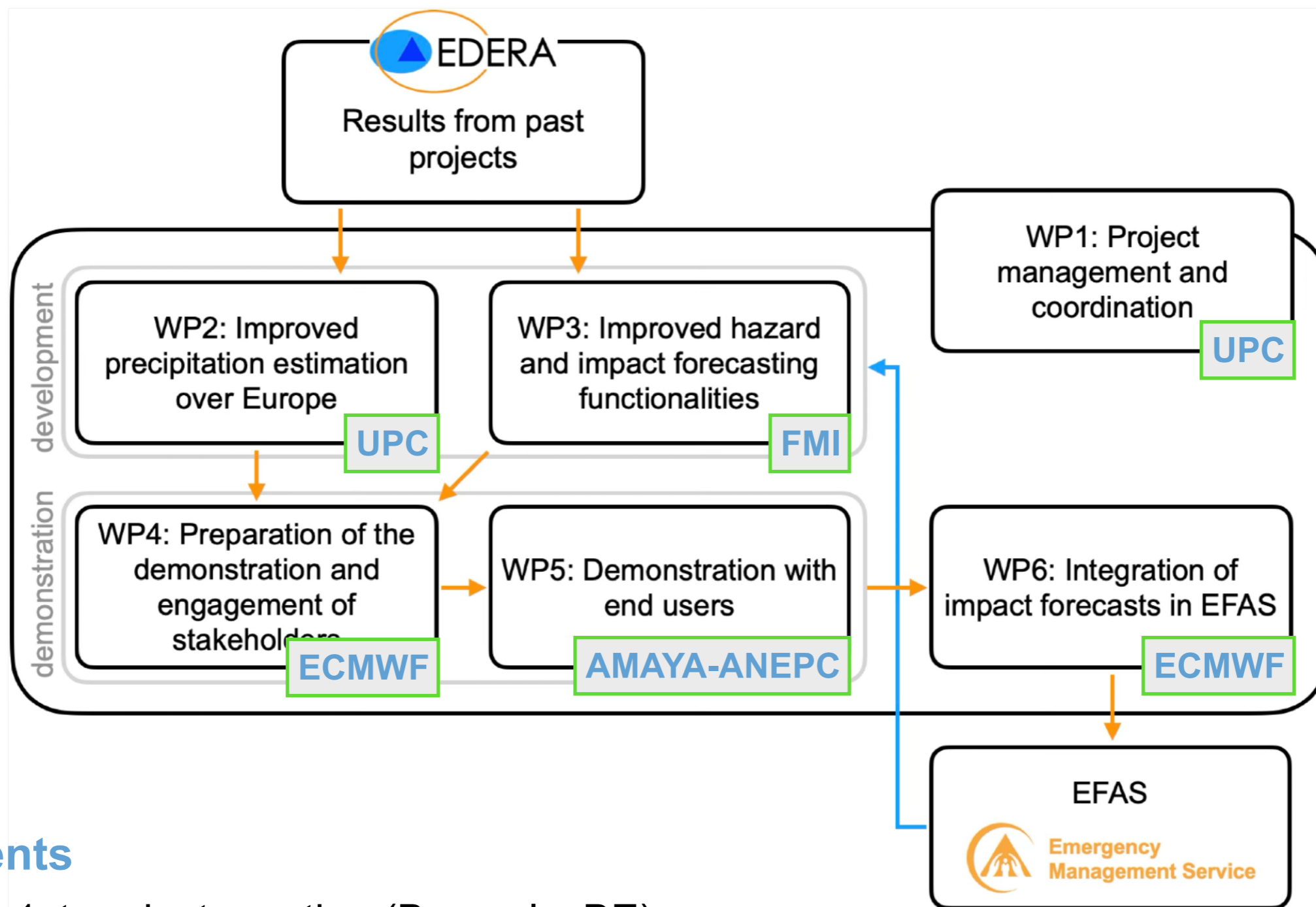
INLINE demonstration

- September 2025 – November 2026.
- With the participation of end users.
- Access to the products in real time through
 - + WMS
 - + Web-based platform



- Integration of *local* products/information (exposure, vulnerability, obs...)
- Notifications adapted to the end user
- Evaluation: feedback about the products, functionalities and results during events.

Project organisation



Main events

Mar 2025: 1st project meeting (Brussels, BE)

May 2026: International demonstration Workshop (Lisbon, PT)

Feb 2027: Final workshop (Brussels, BE)

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