

Minutes of the first EDERA meeting (02-03 March 2023)

Participants

	Name	Organisation		Name	Organisation
MB	Marc Berenguer	UPC	AS	Antonio Santiago	AMAYA
SPa	Shinju Park	UPC	AD	Ana Durán	AMAYA
CP	Christel Prudhomme	ECMWF	MV	María Vara	DGPCE
CB	Calum Baugh	ECMWF	RT	Rosa M. Torres	DGPCE
SPu	Seppo Pulkkinen	FMI	AG	Abel Gomes	ANEPC
HM	Heikki Myllykoski	FMI			

Topics discussed and decisions made

- TAMIR flash flood impact products (CP)

The TAMIR products are integrated in EFAS under the menu “Flash floods”. They are running as real-time pre-operational products, which means that no immediate fix is made when the production stops and no official warnings are issued based on these products.

The integrated products are:

- Flash flood impact summary (lead times: 0-6 h, 6-24 h, 24-48 h, 48-120 h).
- Animated products (Hourly for lead times up to 6 h, and 6-hourly for lead times up to 5 days):
 - Precipitation 80th percentile.
 - Impact on the drainage network (spatial resolution: 1 km). Combining flash flood hazard probability and exposure. 4 impact categories.
 - Catchment impact.
- Observed 24-h precipitation accumulation. Updated every 12 hours.

Access to EFAS in real time is restricted to partners that need to be authorised by the full partners of their country (institutions that are officially in charge of flood warnings).

ERIC will be changed because COSMO will stop soon. It will be likely replaced by ECMWF IFS (ECMWF needs to proposed a solution to JRC by September)

Access to EFAS products in real time by EDERA partners and stakeholders:

- DGPCE and ANEPC have access to EFAS. **AG**: However, Algarve does not receive the official warnings in Portugal.
- AMAYA has access to EFAS. **AS**: But it does not receive the official EFAS warnings (it is in connection with those who has access).
- FMI has no access. The Finnish EFAS partners is SYKE (environment institute).
- CP Andalusia, application under process.

MV: what is the source of information of the exposure layer used to assess the impact? Would it be possible to integrate improved information in the exposure layer? (within the IMPACTO project, Spain is processing improved exposure cartography, assessing the costs of the event and the contour of the affected area). **CB:** There is no flood area information - human assessment layer from JRC - population. The results of IMPACTO could be useful to evaluate the forecasted impacts.

AG: Are dynamic variables integrated in the exposure layer (e.g. changes in population due to tourism)? **CP:** Not yet (only resident population).

- Convective impact nowcasting over Europe (SPu)

Based on gauge -adjusted accumulations from OPERA composites. Convective cells identified from the reflectivity product

Critical factor: how to assess the impacts data. **SPu** proposes to use the reports from the European Severe Storms Laboratory's European Severe Weather Database (ESSL-ESWD). These reports might include some short description of the event and its impacts.

CB: There is also the information from the Rapid Mapping Module of CEMS - maintained by JRC. The results are available in open access (activation by the national authorities, sometimes based on EFAS – GLOFAS).

CP/CB: EFAS social media product could also be explored. **MB:** similar product supplied by Jens de Bruijn (Vrije Universiteit Amsterdam).

SPu: Besides of applying for a license to OPERA for radar precipitation composites, applying for a license of Vaisala GLD360 lightning product could be considered.

SPu: Would it be possible to access the mask and gauge-adjustment factor map for a period of time? **SPa:** It would be good to guarantee that clutter does not affect the training of the algorithm.

- Towards compound flood forecasting (MB)

The objective of the compound product is to make a consistent combination of the existing products (considering the different lead-time) and demonstrate the capacity to run it in real-time.

The river floods product will be based on EFAS forecasts, the flash flood hazard, based on TAMIR, and the pluvial floods based on point rainfall for short durations, using thresholds from the OPERA composite, and limited to the most impermeable areas (urban, industrial areas and road network, identified from CORINE land cover information), similarly as for the convective storm impacts.

CB: The TAMIR precipitation products are based on the OPERA radar rainfall product and the ECMWF model outside of the OPERA domain.

CB/CP: ECMWF model's resolution is expected to change from 18 km to 9 km with no climatological precipitation dataset available (transition is foreseen in a couple of years).

CB/CP: What is the maximum lead time of the compound flood forecasting product? Is it for nowcasting (6 hours) or medium-range (up to 5 days)? **MB:** Given that riverine floods are also included, the aim is to go beyond the nowcasting range.

- Enhanced flash flood impact forecasts (CB)

In EFAS, notifications are made with confirmation by an expert, issued 1 day ahead and disseminated via email. In EDERA, the aim is to design fully automatic notifications adapted to the needs of each end user and disseminate them by email

Aspects that could be considered in the design of the EDERA notifications:

- Add more contextual information in the catchment summaries what information should be included in the warning
- Define area of interest - river basin vs. administration region (municipalities + sub-basins + ...).
- Parameters to generate automatic notifications - start with low thresholds what lead times?
- The warning could include some information about how the forecast was produced
- Consider how changes in the probability could be taken into account.

AS: The warnings could be used to Share information with Portugal. **CP:** is there any potential conflict for sharing information among countries?

Stakeholders that could be users of the EDERA warnings:

- CP Andalusia
- Puente Genil Civil Protection
- Huelva sub-delegation of the Spanish Government.
- Finnish Pilot Site?

- Current systems for real-time forecasting in Spain and Portugal (AS & AG)

AS: In Andalusia (AMAYA and CP Andalusia) there is not an *ad-hoc* real-time flood forecasting.

Floods emergency management is based on the official weather warnings from AEMET (Spanish Agency of Meteorology) and the hydrological warnings from the Hydrographic Confederations (basin authorities). Multiple agencies are involved and they lack of centralised information.

CP Andalusia is in charge of making decisions, alerting local authorities and activating first responders. In AMAYA, once the event appears in EFAS, they provide information of the event to the staff on duty in the INFOCA Control Centre.

AMAYA wish list for EDERA: tool to deal with adverse weather in general and to enable the integration of enhanced information for storms and floods for the staff on duty in INFOCA.

AG: Portuguese Civil Protection organisation changed on 01 January 2023:

- National command located near Lisbon

- 5 regional commands (Algarve is one of them)
- 24 sub-regional commands (Algarve is both regional and sub-regional)
- Coordination structure include a mix of political & operational structures.

For meteorological matters, the national command have daily briefings with IPMA (Portuguese Institute of the Sea and Atmosphere). IPMA also provides direct information through a private website.

The Portuguese Environment Service provides information on the level of the rivers and reservoirs.

- Current systems for real-time forecasting in Finland (SPu)

Operational forecasting systems at FMI based on Harmonie & Arôme. Also, FMI Probabilistic precipitation nowcasting (FMI-PPN)

Operational warning systems

- Ilmanet - main platform provided by FMI for warnings used by Finnish authorities like CPs (also, in TAMIR).

all kinds of different warnings - LUOVA advisories (provided by FMI for the next 5 days)
at the regional level

includes impact assessment

extended description and uncertainty assessment

It does not include the flood products (done by the Environmental Agency, SYKE)

Some examples of application in the SASSE project (applied to electric failures - for electric companies) and SILVA project (specialised on weather impacts - large impact database - it provides impact forecast with a pilot site in southern Finland).

- GeoWeb - potential replacement of Ilmanet for future applications with more spatial description.

developed by KNMI based on opengeoweb

messaging system for end-users

- Ideas on the preparation of training material & local trainings in Loulé, PT and Helsinki, FI (CP)

Decisions to be made:

- What needs to be the content: Guidance vs. Technical
- How will the content be presented: e-learning material (complementary to the wiki) + face-to-face trainings (training sessions in the pilot sites + international training in Madrid).
- E-learning material: target audience, level of interaction, real examples and delivery methods
- Format and preparation.
- Pre-meeting knowledge (should the exercises be sent to experts before the meeting?)

Decisions made:

- The training sessions in Loulé and Helsinki will be done in mid November 2023.
- Attendees expected in the training activities: those who might use the tools in the operation centres of the pilot sites end users.
- Prepare some e-learning material that they can follow + webinar before the local Training
- Duration: attendees spend one night in place:
- Afternoon first day: introduction on the event & products (recap from e-learning)
- Morning second day: hands-on exercises.
- Cross-border event for the Spain-Portugal pilot site.
- ECMWF will prepare an agenda/questionnaire to survey expectations and practical arrangements and constraints from the local partners before Easter.
- In terms of (i) scope (aim, expected outcomes, measure success and EDERA contributors) and (ii) audience & facility (characteristics and number of trainees, language, level of expertise, duration and type of rooms and access to IT).

- Configuration of the two pilot sites (MB)

The aim of the pilot sites is combining the TAMIR products with local forecasts and exposure information and EFAS forecasts. Simple solution: give access through the EDERA platform.

Flood hazard and risk maps from the Floods Directive with resolution adapted to the needs of the local stakeholders (100 m, 200 m).

The EDERA platform can be used for Training (or training material).

CB: Flood map EU level at 100 m working on progress by Calum (ECMWF), shapefile on the web with the flood extent (no info of water depth shown).

- Plans/needs for historical evaluation in the Pilot Sites (CB)

Forecast skill can be computed and summarized (mapping in NUTs) with observations available from FloodList, ESWD, EFAS partners (hit/miss) – any observation data from partners will be useful.

CP: Map displaying how well the EDERA product has performed in the 5- years period. Would it be useful? **AS:** the information is interesting and simple to understand - it could be useful for the demonstration - too much for the decision-making during emergencies - maps are good way to present the results.

The procedure for collecting impact reports to support the evaluation of the products:

- Adopt similar Questionnaires applied for EFAS to EDERA demo warnings
- Emergency actions deployed (targeting the emergency officers)
- Impact database linked
- Flood activation actions have happened.

MV will ask if there are some activations done over Spain.

- Current cross-border frameworks for emergency management in ES-PT (MV & AG)

MV: Description of Civil Protection organization in Spain.

Protocol between Spain and Portugal on Technical Cooperation & Mutual Assistance in CP (1992-2003-2009-2018). Mutual assistance in transboundary risks and emergency management. Initially, only for forest fires. 2 procedures:

- Type A: within 25 km of the border (special first attack procedure).
- Type B: decentralised procedure.

ARIEM+: INTERREG project to test a mechanism for cross-border collaboration between Spain and Portugal in the Northern portion of the border (www.ariemplus.eu).

Union Civil Protection Mechanism (UCPM): when one partner asks for assistance during an emergency, other member states offer, the affected country chooses and DG-ECHO decides.

- Toward evaluation of the demonstration in the pilot sites

Based on gauge -adjusted accumulations from OPERA composites. Convective cells identified from the reflectivity product

- Engagement of stakeholders in the project - participation in the European demonstration (including OPERA)

MB: Stakeholders have not yet been informed that the project has started. In the coming weeks, they will be informed, starting by those most involved in the two pilot sites of the project.

AEMET (Spanish Agency of Meteorology) has confirmed their participation as EDERA stakeholders.

- Management issues: financial reporting, communication and promotion

MB will provide the form for financial report as example.

MB: For those partners who wish so, an intermediate financial report will be possible in M12.

- Other

Interesting events of interest in the pilot sites

- 01 November 2015 (pluvial and flash floods) in Algarve (PT) - 200 mm in 2 hours.
- 04 Dec 2016 Estepona (ES)
- 19 Dec 2019, Extremadura (ES) - [link](#)
- 21 March 2020 Valencia (ES) – activation of Copernicus
- 20 Oct 2020, Extremadura - [link](#)
- 05 Nov 2020 Huelva (ES) - [link](#)
- 30 Nov 2020 Algarve (PT) – [link](#)

- 2020 cross-border event (Algarve-Huelva)
- Dec 2021, Jerte (ES)
- 07-09 December 2022 - Algarve (PT) and Extremadura and Huelva (ES). - [link1](#), [link2](#), [link3](#)

Action items

- UPC
 - Inform the confirmed stakeholders of the project that the project has started.
 - Invite SYKE (Finnish Environmental Agency) to become stakeholder of the project (contact person: Tero Niemi).
 - Initiate the contact with Finnish stakeholders (KYMPE, Helsinki Rescue Department and SYKE TBC) to start the activities of the Finland pilot site.
 - Apply for an EFAS research licence for EDERA.
 - Add template for financial report in the EDERA Partners Area.
- ECMWF
 - **CP** will check with Peter Salamon (JRC) for the license of using some of EFAS products.
 - Prepare the questionnaire before April.
 - Include precipitation type in real-time flash flood hazard & impact forecasting - to remove snow areas from the forecasts.
- AMAYA
 - Explore the possibility to contact the Water Authority of Guadiana to participate in the project.
- DGPCE
 - Engage the vice-delegation of the Government in Huelva in the project.
- ANEPC
 - Check the access to the flood hazard and risk maps in Portugal through the Agência Portuguesa do Ambiente (Portuguese Environmental Agency). Could they be engaged as stakeholder of the project?