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TAMIR newsletter on the developed products and final workshop

Dear colleagues,

we would like to share news from the TAMIR-project and the development that has happened since our last newsletter one year ago. The project is approaching its final stage and closing in the coming May.

In July 2021, the TAMIR mock-up platform was publicly launched, along with a questionnaire to hear from users how the TAMIR forecast products could be improved. Since then, the TAMIR team worked on new product definition and design to address the key stakeholders needs gathered from the survey. In December 2021, we have updated the products shown for mock-up platform (Figure 1.) and currently the work is in progress to bring the products in real-time shared through the EFAS platform.

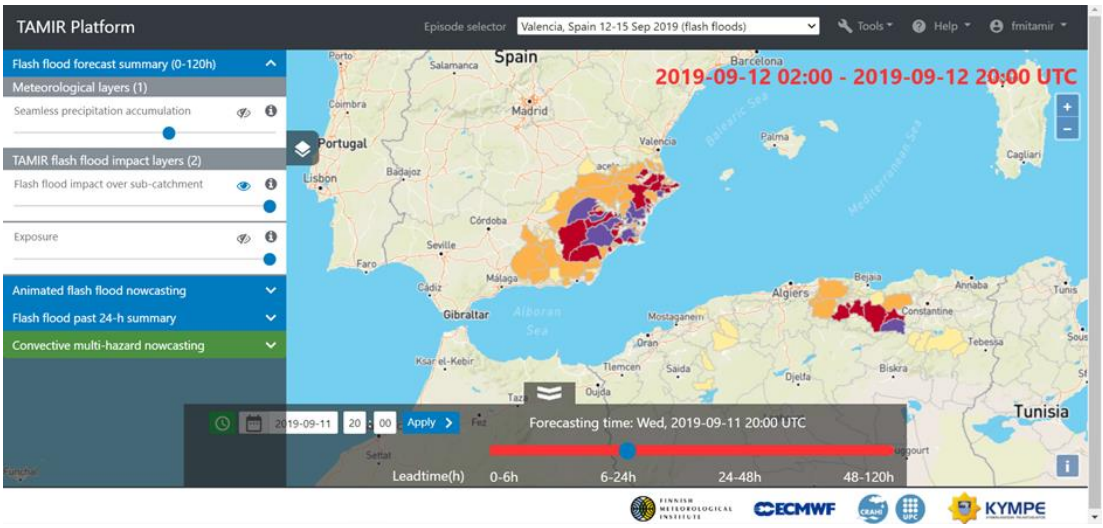

Figure 1. Example screenshot of the mock-up platform showing the flash flood impact layer calculated over the sub-catchment during a flood event in Spain, on September 12-15, 2019.

How to get an access to the mock-up platform

The platform can be accessed at the following link: http://www.crahi.upc.edu/tamir-platform

Due to data licensing conditions and security restrictions, we need to ask you to register to create individual username and password at the following link.

Once you submit your registration request, you will receive a confirmation email in a few hours that will allow you to access the platform. By registering and accessing the platform you will commit not to share the login information and not to use the data displayed for any purpose other than evaluating the interest of the TAMIR products for your professional duties.

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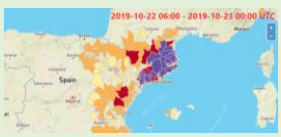
The TAMIR pan-European products

Following users' feedbacks, three main pan-European products showing forecasts for lead times up to 5 days (120 hours) ahead were selected and adapted to become the experimental TAMIR products to be shown in EFAS: two animated layers and one summary layer with additional information available on click. Every TAMIR forecast product is updated once per hour. Past forecasts are only available for the last five days for the animated layers, and for forecasts produced at 00UTC and 12UTC for the summary layer.

TAMIR final product	Description	In response to end-user feedback, we have…
 **Seamless precipitation accumulation**	• Animated layer • Forecasted 1-hour total precipitation for the first 6 hours, 6-hour thereafter up to 5 days ahead, for the 80th percentile of the ensemble forecast. • Also shown are the previous 24 hours of hourly rainfall created by blending gauge-corrected radar observation with the closest matching member from the ECMWF ensemble forecast.	• Extended the animation to 5 days to capture a longer decision-making range. • Changed the precipitation layer to display the 80th percentile of precipitation instead of the control member to represent a reasonable worst-case scenario. • Improved the legend and documentation text associated with the layer to aid users' understanding
 **Flash flood impact forecast**	• Animated layer • Forecasted hourly flood impact levels over the 1-km river network for the first 6 hours, and every 6 hours afterwards up to next 5 days. • The impact level in each forecast timestep is defined according to the exceedance probability of the flash flood hazard 2-year return period threshold and the combined population and critical infrastructure exposure	• Extended the animation to 5 days to capture a longer decision-making range. • Improved the legend and documentation text associated with the layer to aid users' understanding.
 **Flood impact catchment summary**	• Forecasted flood impact level for four aggregation periods (0-6, 7-24, 25-48, 49-120 hours) summarized by sub-catchment. • The sub-catchment impact level is the region-wide 90th percentile value of the maximum 1-km impact level over the aggregation period. • When a sub-catchment is clicked, a pop-out window appears which shows the flood impact matrix and the earliest lead time when the flood impact level is expected to occur	• Shaded sub-catchments according to the region-wide 90th percentile maximum impact level, minimizing the over-statement of impact due to the influence of a single grid cell. • Implemented a pop-out window displaying the impact matrix and the earliest date and time when the impact level is reached within the sub-catchment. • Improved the legend and documentation text associated with the layer to aid users' understanding.

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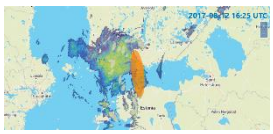
The TAMIR regional products

These products are created to demonstrate convective multi-hazard nowcasting hazard and impact products based on machine-learning classification. Products are available only in Finland on customer platform of Finnish Meteorological Institute (Ilmanet). The mock-ups are also presented on TAMIR mock-up platform.

Convective multi-hazard nowcasting	Description	In response to end-user feedback, we have…
 **Radar reflectivity**	• Background layer • 5-minute reflectivity composite of Finnish Meteorological Institute	
 **Hazard probability nowcast**	• Shows a 5-minutes weather radar-based nowcasting product for multi-hazards caused by thunderstorms (heavy rainfall, wind gusts, hail, and lightning) • The product combines a cell-based storm nowcast model with a machine learning classification which estimates the hazard level of convective storms based on historical meteorological observations and emergency calls	• Changed the color-scale to be more illustrative • Improved the explanation of the shown hazard level
 **Impact probability nowcast**	• This product combines the 5-minute hazard probability nowcast with exposure layer, 3 different impact layers were implemented • This layer describes the total risk of storms considering the vulnerability of the affected locations.	• Verified and evaluated the used impact layers

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Next steps in short:

- **May 2022.** The mock-up platform is being updated to integrate the new products design on two use cases: 22nd-23rd October 2019 and 11th-15th July 2021.
- **May 2022.** A hybrid final TAMIR end-user workshop is to take place on **May 4th-5th, 2022** at Finnish Meteorological Institute, Helsinki (Finland) to present the project achievements and showcase the products. Invitation can be found below and in TAMIR website (www.tamir-project.eu).
- **Later in spring.** The EFAS platform will showcase the TAMIR products to EFAS users. The timing for TAMIR product integration depends on the EFAS cycle upgrade and will be advertised through the EFAS news item.

The second TAMIR end-user workshop

A final workshop is scheduled to take place the **on 4th - 5th May, 2022 at Finnish Meteorological Institute, Helsinki, Finland as a hybrid event** to facilitate in person interaction and exchange whilst offering also access to a wider audience under a still difficult unsure environment.

The preliminary schedule:

Wednesday May 4th, 2022	
09:00 CEST	**Session 1: TAMIR Product session** Presentations of the TAMIR hazard and impact products
12:00	**Networking lunch + poster session (physical meeting only)**
13:30	**Session 2: Interactive session on the use of the tools** Demonstrate in small break-out groups the use of the tools with past events. Groups are divided according to the event. This preference is asked in the registration. • Flash floods in Spain-France, 21-23 Oct 2019 • Flash floods in Scotland (UK), 10-12 Aug 2020 • Convective storm in Finland, 21-23 June 2021 • Flash floods in Central – Europe, 12-15 July 2021
15:30	**End of Day 1**
17:30	**Workshop dinner at Suomenlinna (Fortress island)**
Thursday May 5th, 2022	
09:00 CEST	**Session 3: The use of flash flood hazard and impact tools in future** **Recap of yesterday's interactive sessions**
10:00	**Panel discussion: Toward the use of impact products in real-time emergency management**
12:00	**Networking lunch + poster session (physical meeting only)**
13:30	**End of Day 2**

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We would cordially like to invite you to the workshop and hope to see you Helsinki!

Please register to the hybrid workshop at this link by 29th of April 2022. NOTE the extended deadline only for online participants.

We would be happy to collaborate with you, and if any questions or comments, please do not hesitate to connect us with tamir@fmi.fi.

Best regards,

Annakaisa von Lerber
On the behalf of the TAMIR- consortium