

History

In the framework of the earlier Rába forecast projects, we developed a cross-border 1D flood forecast model covering the entire Rába river basin, which produces water level and discharge forecasts for specific forecast points along the water-courses for the next 6 days. These forecasts are currently available to experts from the organisations responsible for flood protection (flood and disaster management organisations and institutions), which are evaluated by the experts and then also made available to the public in a specified form.

Objectives

- Update and develop the hydrodynamic and hydrological models in the existing forecast system; update the applied software systems;
- Develop an up-to-date warning and forecast system to support the activities of the organisations responsible for flood and disaster management;
- Conduct a cross-border test run of the warning and forecast system in cooperation with the organisations responsible for flood management

New Developments

- Calculation and presentation of water level and discharge results in several variations;
- Real-time inundation modelling in several variations;
- Graphic flood warning system

Joint Added Value

For the first time, an EU project will make inundation areas available. The operators of the forecast system and the organisations responsible for flood and disaster management will benefit from these developments, as it will allow for better coordination of protection measures in the Rába river basin and the best possible protection can be guaranteed for the population and infrastructure affected by floods.

Raab Flood 4cast

Up-to-date Hungarian–Austrian warning and forecast system supporting flood protection in the Rába river basin

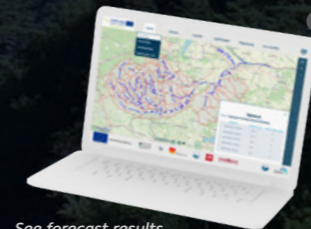
Flood Forecast Output

The Hungarian and Austrian forecast data are displayed on the Austrian and Hungarian websites in accordance with target groups and protection responsibility authorisations.

See forecast results on the Austrian website



See forecast results on the Hungarian website



Project Content

Floods of the river Rába pose a threat to human life and infrastructural values. It is in the interest of flood and disaster management organisations to have early information on the propagation of floods and to plan cross-border assistance more effectively.

Project Results

- Updated and developed hydrodynamic and hydrological models
- Updated software systems and high-performance hardware
- Up-to-date warning and forecast system to support the activities of the organisations responsible for flood and disaster management
- Precipitation and inundation scenarios
- Calculation of water level and discharge in several flood variations
- Real-time inundations in several flood variations
- Graphic flood warning system
- Successful pilot run of the flood warning and forecast system in cross-border cooperation with the organisations responsible for flood management

Main Project Data

Program:	Cooperation Programme Interreg V-A Austria–Hungary
Project Acronym:	Raab Flood 4cast
Project Title:	Cross-border temporal and spatial forecast of inundation areas to support the planning of the deployment of flood and disaster management
Project ID:	ATHU031
Project Duration:	01/07/2016 – 30/06/2020
Project Budget:	EUR 1,932,155
ERDF Support:	EUR 1,642,331

Contact

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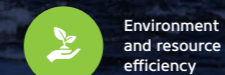
interreg-athu.eu/raabflood4cast



Raab Flood 4cast

ATHU031

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Raab Flood 4cast

ATHU031

Up-to-date Hungarian–Austrian warning and forecast system supporting flood protection in the Rába river basin



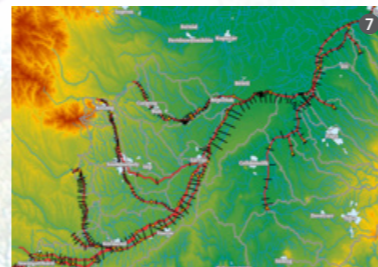
WORK PACKAGES / OUTPUTS

Database Development and Updating the Model

In the first work package of the project, the previously operating warning and forecast system was renewed and further developed. Improvements in hydrodynamic models have been achieved by incorporating new geometric data as well as the reservoirs which had not been included in the earlier models. In the Austrian territory, hydrological models have been made more accurate with newly calibrated INCA precipitation data and the incorporation of global radiation data into snow models. With all these modifications, the model system for the entire river basin has been recalibrated. Furthermore, the software system has been updated and the hardware system has been upgraded.



The Austrian water network of the Rába river basin

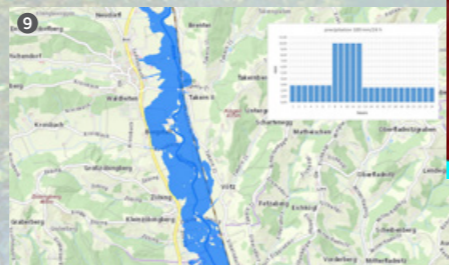


The Hungarian water network of the Rába river basin

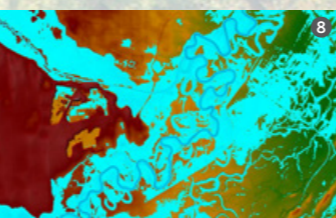
Precipitation Scenarios, Interconnecting Flood Forecast & Inundation Areas

In the second work package, on the Austrian side, the results of the flood forecast models were interconnected with the inundation areas extracted from the 2D runoff models. Flood scenarios of the pre-prepared 2D runoff models are stored in a catalogue system. On the Hungarian side, the warning and forecast system was prepared to determine flood plain runoff and water coverage. Inundation areas are calculated in real time on a hydrodynamic basis. This predicted inundation information is available for the organisations responsible for flood management through a warning and forecast system. In Styria and Burgenland, these data will be integrated into management information systems, while in Hungary this information will be used by the Water Directorates, Municipalities and Disaster Management. System operators and users are licensed for use after completing a training providing the appropriate level of knowledge.

Calculated inundation areas



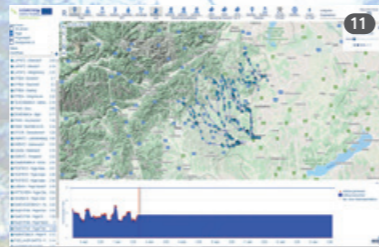
Inundation areas along the Austrian stretch of the Rába, calculated on the basis of predefined precipitation scenarios



Relationship between 1D and 2D models

Pilot Implementation, Flood Protection Exercise, Evaluation, Recommendations

Prior to putting the system into service, the Austrian and Hungarian project partners carried out a joint test practice on 26 May 2020 according to a pre-prepared scenario. The completed forecast systems functioned well and provided an efficient exchange of information for flood management organisations in both countries. Documentation was prepared on the course and evaluation of the exercise. The partners concluded the “discussion based exercise” successfully, so the completed warning and forecast system was put into service.



Austrian website



Hungarian website

Management

The project management is responsible for the successful strategic and operational implementation of the project. In order to continuously coordinate and evaluate efficient implementation and the progress of the project, the project partners held regular project meetings and expert meetings; the Project Steering Group (PSG) also met several times.



PSG Meeting



Project Meetings

Communication

The objective, significance and results of the project were communicated to the target groups in multiple languages using modern means of communication.



Kick-off event

Completed communication activities:



A website providing a continuous flow of information



Media campaign, Facebook



Promotional materials



Information events

Furthermore: Memorandum, Newsletters, Press releases / Press conferences, Scientific publications