

Flood Warning System for Small Catchments in Styria

Austrian Pilot action under the Interreg CENTRAL EUROPE project LOCALIENCE

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The Sulm catchment area (approx. 1,100 km²) in southern Styria is increasingly affected by intense thunderstorms and heavy rainfall. Recurrent fluvial and pluvial flood events—most recently in August 2023—have caused significant damage to settlements, infrastructure, and public facilities. Existing warning mechanisms do not always provide sufficiently localised or timely information for small catchments, limiting the effectiveness of emergency response and disaster preparedness.

The pilot action develops a multi-stage flood warning system tailored to the Sulm catchment area and selected sub-catchments. It builds on the proven KAMPUS hydrological model and combines real-time measurement data with forecasts, depending on local conditions. New water-level sensors complement existing gauging stations to improve data coverage and response times. Several available two-dimensional runoff models along the tributaries and the main river Sulm are combined to one single model, which is sequentially coupled with the hydrological model to provide inundation forecasts in real-time. An interactive visualisation tool allows authorised users to view forecasts and warnings and share local observations, images, and short reports during flood events. This operational forecasting model, which was developed by JR Aquaconsol and Flowengineering as part of the LOCALIENCE project, has won the **2025 Austrian State Prize for Consulting – Engineering Consulting**, awarded by the Federal Ministry of Economy, Energy and Tourism.

The pilot action is implemented in close cooperation with key local and regional stakeholders involved in flood risk management. Municipalities and water boards contribute operational responsibility and local knowledge, while district administrations and building authorities provide technical expertise. Disaster control institutions participate in system development and testing to ensure practical usability.

The local population is informed through public events and communication activities, supporting awareness and acceptance of the warning system.

The pilot action is expected to improve the timeliness and accuracy of flood warnings in the Sulm catchment area. More localised and actionable information will support better preparedness and coordination among emergency services. As a result, faster response times and reduced damage to infrastructure and property are anticipated. In the longer term, the action strengthens community resilience and offers a transferable approach for other flood-prone regions.

The warning system is designed for **long-term operation beyond the project lifetime**, with defined ownership, maintenance arrangements, and continuous evaluation. Its **modular structure** allows easy adaptation to other regions and transfer to additional target groups across Central Europe.

Project information

Project: LOCALIENCE (CE0100182)

Pilot location: Sulm catchment, Styria (Austria)

Implementation period: April 2024 – December 2025

Lead partner: Office of the Styrian Government, Department 14 – Water Management, Resources and Sustainability

Website: www.interreg-central.eu/projects/localience

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