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## Tailoring SINFONY forecasts and other DWD products to flood forecasting applications following a co-design approach

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In recent years, several regions in Germany experienced devastating impacts from heavy precipitation events associated with severe convective storms. To improve the prediction of such events, Deutscher Wetterdienst (DWD) is strengthening its collaboration with Germany's flood forecasting authorities.

With its focus on the seamless and probabilistic prediction of severe summertime convective events and associated heavy precipitation, DWD's novel Seamless Integrated Forecasting System (SINFONY) is considered as a major step towards improving precipitation information for the forecast range from minutes to approx. 12 hours. To ensure a significant contribution of the newly developed SINFONY data and products for hydrological applications, in particular the prediction of floods in smaller catchments, the SINFONY team engages in a continuous dialogue with users from flood forecasting centres. One of the main objectives is to identify user requirements and to utilize this information for targeted development of forecast products. In addition, users are supported in implementing the novel data and products in their models and decision-making processes.

Together with colleagues from regional German Flood Forecasting Centres, a joint project for augmenting the hydrometeorological value chain through co-design was initiated in 2023. The project is part of DWD's new binational research program "Italia –Deutschland science-4-services network in weather and climate", part of which is jointly funded by DWD and the state of Rhineland-Palatinate.

The activities within the "Co-Design Project" stretch across the value chain for the generation of hydrometeorological forecasts. They aim for:

1. a user-oriented evaluation and optimization of DWD's precipitation forecasts (SINFONY, GLORI, ICON-D2-EPS,...);
2. the implementation of functionalities tailored to the needs of flood forecasting centres into DWD's new warning system;
3. the evaluation of (new) DWD data and products within operational flood forecasting models;
4. the harmonisation and improvement of the communication of precipitation as well as flood forecasts and warnings for a better basis for decision-making

With this contribution we will provide an overview of the "Co-Design-Project". It will be accompanied by separate presentations, providing first examples and results on the user-oriented evaluation and communication aspects. We are also interested in an exchange with participants of the PrePEP Conference, working at the intersection of meteorology and hydrology, to learn about their experiences.

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**Session**

Precipitation and Hydrological Models: Evaluation, verification and interfaces

**Preferred Contribution Type**

Oral Presentation

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