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The Decision Support System AutoWARN for the Weather Warning Service at DWD

Bernhard Reichert, Jenny Glashoff, Reinhold Hess, Tamas Hirsch, Paul James, Christine Lenhart, Jan Paller, Cristina Primo, Wolfgang Raatz, Thorsten Schleinzer, and Guido Schröder

Deutscher Wetterdienst, Research and Development, Offenbach, Germany (bernhard.reichert@dwd.de)

The semi-automatic warning decision support system AutoWARN has been developed at the German Weather Service (DWD) as part of its overall strategy of further automation and centralization of the weather warning service. One aim is to help forecasters to deal with increasing amounts of NWP and observational/Nowcasting data.
In a first step, available NWP model and ensemble forecasts (COSMO-DE-EPS, ECMWF-EPS, ICON) are combined into a single warning forecast product (ModelMIX). This is done using an Ensemble Model Output Statistics (Ensemble-WarnMOS) approach based on logistic regression on a probabilistic basis. DWD's Nowcasting systems (KONRAD, CellMOS, RADVOR-OP, VIL derived from 3D-Radar data) as well as observations and model output (COSMO-DE) are combined using a fuzzy logic approach to obtain a robust Nowcasting Warning Product (NowCastMIX), updated every 5 minutes. In a second step, both products with a spatial resolution of 1 km are used by AutoWARN in order to generate automated warning proposals that can be quality-controlled and modified manually by forecasters or that just serve as a basis for issuing individual manual warnings by forecasters. The result is a final warning status used to produce the full range of individual textual and graphical warning products for customers in a fully automatic mode. These products include internet and mobile app visualizations for about 300 German districts with a high update frequency. An even higher spatial resolution for up to around 11,000 German municipalities is planned.
The presentation gives an overview of the entire system, illuminating individual components and their operational status.