



## **Development of a new seamless prediction system for very short range convective-scale forecasting at DWD**

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At Deutscher Wetterdienst, a new internal project has been set up to develop a seamless ensemble prediction system for convective-scale forecasting with forecast ranges of 6 up to 12 hours. The focus is on severe summertime convective events with associated hazards such as heavy precipitation, hail and wind gusts.

Up to now, the prediction relies for the first 1-2 h mostly on observation-based nowcasting products, whereas convection-allowing ensemble NWP (COSMO-DE-EPS) can reach or even outperform the quality of nowcasting only at later times. New NWP forecasts are started only every 3 h and after some technical time delay. Moreover, nowcasting and ensemble NWP are treated as two separate and independent methods, and there are few common products available for the forecasters.

The goal of the new project is to narrow down these gaps, on the one hand by separate enhancements to both nowcasting and NWP, and on the other hand by mutual information exchange and combination, to further enhance the quality of both methods. High-resolution observational data (radar, satellite, GPS-derived moisture, etc.) will be exploited.

We consider in particular nowcasting ensembles (ensembles of "objects", also informed by uncertainties from NWP), life cycle in nowcasting (informed by radar, lightning and satellite data and by information from NWP), Rapid Update Cycle (RUC), ensemble NWP (km-scale, LETKF, hourly update, 40 members, 2-moment microphysics including hail), assimilation of radar and satellite data in ensemble NWP (native observations as well as nowcast "objects") and new products combining nowcasting and NWP for our forecasters.

For the nowcasting we integrate information from the NWP, e.g. in nowcasting ensembles (ensembles of "objects", using uncertainties from NWP) and in life cycles (using radar, lightning and satellite information). Furthermore we focus on a Rapid Update Cycle (RUC), ensemble NWP (km-scale, LETKF, hourly update, 40 members, 2-moment microphysics including hail) and assimilation of radar and satellite data in ensemble NWP (native observations as well as "objects" from nowcasting). Additionally new products for our forecasters combining nowcasting and NWP are developed.

This project has been started recently, and the poster will give an overview and will show results of first case studies.