# Combination of object-based probabilistic Nowcasting and NWP-Ensemble

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A pilot project has been set up at Deutscher Wetterdienst (DWD) to develop a Seamless INtegrated FOrecastiNg sYstem (SINFONY). It aims to integrate nowcasting techniques with numerical weather prediction (NWP) to create a seamless forecast from observation time up to, at least, +6 h. To achieve this goal, the project focuses on enhancing both nowcasting and NWP separately and developing more reliable combined products.

Regarding these combined products; SINFONY will provide a probabilistic object-based forecast based on the combination of convective cells detected in probabilistic nowcasting and in NWP-Ensemble. The detection of these cells is carried out with KONRAD3D, a method developed at DWD to detect, tracking and forecast the trajectory and evolution of convective cells based on observed radar reflectivity. This method can also be used to detect cells simulated by the NWP since the model forward operator EMVORADO (Efficient Modular VOlume scanning RADar Operator) is able to provide simulated radar data with the same structure and time resolution as the actual radar observations (each 5 minutes). The use of the same method for object identification facilitates the comparison of the identified objects in both nowcasting and NWP.

After comparing and analyzing the simulated and observed cells, a method based on clustering-techniques has been developed to generate the object-based combined product. The first results concerning this product are presented here.