

4th workshop on assimilating satellite cloud and precipitation observations for NWP



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Impact of Hydrometeor Initialization on Short-Term Convective-Scale Numerical Weather Prediction

Cloud and precipitation forecasting is both an essential and challenging task in Numerical Weather Prediction (NWP). In this process, a significant part of the errors can be traced back to imperfect initialization of the models. As regards the 3D fields of rain, cloud water, ice crystals, rain and graupel (hydrometeor content fields), several barriers make their initialization a sensitive issue: strong non-linearity of observation operators, strong non-Gaussianity of model errors, spatial discontinuity and positivity of the variables. Hence, these variables are generally neglected in the initialization process, and assumed to adapt to large-scale fields such as temperature and humidity. This poster aims to challenge this practice.

Could hydrometeor initialization substantially improve short-term forecasting? Two NWP experiments have been conducted to assess the impact of hydrometeor initialization on short-term forecasting.

The improvement in forecast skill for precipitation and cloud cover is then respectively assessed by comparing the results of the two experiments.

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