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Towards Rapid Update Cycling of Cloud and Precipitation Observations at DWD

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Prediction of severe precipitation events and flash floods happens at timescales of minutes to hours, which is also the intersection of nowcasting (NWC) and numerical weather prediction (NWP). At most centers, NWC and NWP have thus far comprised very separate systems, with not just different prediction methods but also different observation types used to constrain the predictions. One aim of DWD's SINFONY project is to bring NWC and NWP together by taking the data assimilation cycle of the NWP system from 3-hourly to 1-hourly updates, while also bringing in new observation types that contain information about clouds, precipitation, and convection. These observation types include radar, lightning, and cloud images, and are, at least in part, already used for nowcasting. This talk will discuss recent progress in making the assimilation and rapid update cycling of these observations a reality, identifying the particular difficulties of assimilating cloud- and precipitation-related observations while also outlining the possibilities that these new observation types present for better short-term weather prediction.

Author: NEEF, Lisa (Deutscher Wetterdienst)

Presenter: NEEF, Lisa (Deutscher Wetterdienst)

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