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Development and verification of a lightning nowcast in the nowcasting system INCA-BE

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In 2011, the Royal Meteorological Institute of Belgium started the implementation of the INCA system (Integrated Nowcasting through Comprehensive Analysis) for Belgium (INCA-BE), and its output was gradually made available to the forecasters during 2012. INCA is a nowcasting system for the analysis and nowcasts of several meteorological fields, like temperature, humidity, wind, cloudiness, precipitation and some derived fields like precipitation type and visibility. It has been developed at the Austrian national weather service (ZAMG), and it operates at a horizontal resolution of 1 km^2, and on an hourly basis (10 min for precipitation and cloudiness).

In this contribution, we focus on the recent addition of lightning data to the precipitation module of INCA-BE. A "lightning activity" field has been defined for this purpose, and is advected along with the precipitation. This advected field is not intended to be used as a deterministic field, but has to be interpreted as a "risk zone" where lightning can potentially occur. An initial smoothing is applied before the advection, and two advection schemes have been explored. We will present verification statistics for both schemes for some selected case studies.