Overview and recent developments of the nowcasting system INCA in Belgium (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, and its output was gradually made available for 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. INCA has been developed at the Austrian national weather service (ZAMG), and is currently being used in several European countries as the operational nowcasting system. It operates at a horizontal resolution of 1 km, and on an hourly basis (10 min for precipitation and cloudiness). In this contribution, we focus on the implementation of the system for Belgium: INCA-BE. We discuss its main characteristics, the adaptation to our local domain, its data sources, and the current users and applications. The precipitation module is discussed in more detail. Recently, lightning data were added to the precipitation module of the system. A "lightning activity field" has been defined for this purpose, and is advected along with the precipitation. This advected field has to be interpreted as a "risk zone" where lightning can potentially occur.