Radar-based Hail Statistics Over Belgium
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The Royal Meteorological Institute (RMI) of Belgium has been operating a C-band Doppler weather radar for more than ten years (2001-2012). Archived volume radar data are available since 2002 and constitute an invaluable source of information for various statistical studies. Next to many other applications the high resolution volumetric reflectivity measurements of the radar are used for operational hail detection. The hail detection algorithm is based on the criteria proposed by Waldvogel and calculates the Probability Of Hail (POH) as a function of the radar echotop and freezing level heights.

In this study, the Severe Hail Index (SHI) algorithm, which also estimates the Probability of Severe Hail (POSH) and the Maximum Expected Size of Hail (MESH), will be implemented next to the operational algorithm. The temperature profile data, required by the SHI algorithm, will be extracted from a NWP model. Based on the volume radar data and temperature information, the two detection algorithms will be run for the ten-years period. This will allow us to derive statistics on the occurrence of hail events and on their severity. These statistics can be used later for verification of regional climate models.