



Precipitation climate maps of Belgium

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The Royal Meteorological Institute of Belgium (RMI) has recently updated the precipitation climate maps of Belgium in order to account for the reference period 1981-2010. These climate maps include information on the mean annual, seasonal and monthly precipitation quantities as well as on precipitation frequencies, i.e., the average number of days per year with daily precipitation quantities exceeding given thresholds. These maps mainly rely on the daily observations of the precipitation quantities from the network of the climatological stations maintained by voluntary observers.

Several issues were investigated in this study. First, a tradeoff had to be found between the number of stations used in the mapping process and the level of data completeness of the corresponding time series. Second, the benefit of exploiting covariate data was investigated. A typical covariate is the orography. Another covariate results from measurements of the precipitation quantities made with an ancillary networks of pluviometers. In particular, the South part of Belgium, which exhibits a quite complex orography with respect to the rest of the country, is covered by an additional network of about 90 automatic sensors that became operational in 2005. The 2005-2012 mean precipitation quantities at these stations enabled to improve the mapping of the precipitation normals for the period 1981-2010. Finally, the uncertainty attached to the interpolation process was assessed.