



Overview and validation of observational gridded data products for Belgium

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Observational gridded data provides an estimate of the spatial distribution of a meteorological variable based on observations. While instrumental measurements are taken at irregularly distributed stations, gridded data represents the meteorological variable on a predefined regular grid. Gridded climate data is of strong benefit in disciplines applying distributed quantitative models to examine the influence of weather and climate. Gridded data are also very convenient to provide estimations for any specific location of interest for the user.

An operational automated suite of gridded data covering Belgium at a spatial resolution of 5 km has been developed at the Royal Meteorological Institute of Belgium (RMI). These products encompass several variables (precipitations, air temperature, sunshine duration, solar radiation, relative humidity and wind speed) and are available in different temporal resolutions (daily, monthly, seasonal and annual values). These products are first generated in near real-time (i.e. the next day) with the observations already available and then updated for archiving as soon as the data quality control is fully completed.

The data processing follows the following steps:

1. automatic data filtering in order to eliminate gross observation errors in the near real-time grids
2. spatial interpolation procedures adapted to each parameter and temporal resolution
3. computation of derived variables (e.g., the reference evapotranspiration, the standard precipitation index (SPI), various simple climate indices, etc.)
4. generation of end-users products (e.g., areal statistics, climate maps, etc.).

This contribution provides an overview of the operational suite for observational gridded data covering Belgium. In addition, validation results regarding the spatial analysis of air temperature in Belgium are presented.