



## **Validation of the high-resolution gridded observation data sets of ÖKS15**

Theresa Schellander-Gorgas (1), Johann Hiebl (1), Michael Hofstätter (1), Christoph Frei (2), Barbara Chimani (1), and Christoph Matulla (1)

(1) ZAMG - Climate Research Section, (2) Federal Office of Meteorology and Climatology MeteoSwiss

In 2015/16 a climate dataset of downscaled regional climate model results for Austria was created. The intention of this dataset was to create a basis for further climate impact research in order to make future studies more comparable (EMS2016-474; ÖKS15 dataset).

The project STARC-Impact (07/2016-07/2018) funded by the Austrian Climate Research Program (ACRP) aimed at assessing the quality, uncertainty and limitations of the ÖKS15-data sets. It revealed the strengths and weaknesses of the data sets with regard to their possible applications in climate impact research. The evaluation of ÖKS15 was oriented towards the main questions and needs of data users and resulted in a comprehensible guideline addressing stakeholders and decision makers (EMS2018-239).

A set of high-resolution gridded (1 km x 1 km) observation data, part of ÖKS15, was used for the down-scaling and bias-correction of the climate model runs. The observation data involve data sets for mean, maximum and minimum temperature (SPARTACUS), precipitation (GPARD-1), global radiation (APOLIS) and evapotranspiration (ARET) on a daily basis. The observed period comprises 1961-2011, with exception of APOLIS data set (1981-2011). It is a designated target of the gridded data to achieve a high-level of temporal consistency. This was already considered in the selection of the underlying station data.

The validation methods for the observation data were selected according to the characteristics of the specific meteorological parameters and the analysis method used for the creation of the data sets. Among others they imply a continuous 50-year leave-one-out cross validation and an ensemble approach for the evaluation of interpolation uncertainty and effective resolution. Further assessments addressed the consistency of trends, the quality of deduced climate indices and the influence of weather regimes.

The presentation offers an overview on the validation results and summarizes the main messages addressed to users of the observation data sets.