Geophysical Research Abstracts
Vol. 13, EGU2011-10587, 2011
EGU General Assembly 2011

Development of gridded reference datasets covering Germany and bordering river basins

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Within the German research programme KLIWAS the impact of climate change on waterways and navigation is investigated. In KLIWAS different combinations of global and regional climate model runs (multi model approach) are used to provide information to develop strategies of adaptation for possible climate conditions in the future. As part of KLIWAS, Deutscher Wetterdienst provides the needed reference data sets in a daily resolution. In order to assess climate change, high-quality gridded datasets based on observational data are essential as a reference. Therefore project HYRAS has been started with the aim to calculate gridded datasets relevant for hydrological applications in high spatial (1km) and temporal (daily) resolution from 1951 to 2006. The most important parameters for hydrological application which are considered in HYRAS are precipitation, mean temperature, relative humidity, global radiation, sunshine duration and wind speed. One aim within KLIWAS is to perform a statistical analysis of the acquired data and the derived datasets, especially with regard to dry and wet situation. They are also used as a basis to evaluate the climate model results used in KLIWAS.

The main focus of the presentation will be about the gridded precipitation dataset: the database, the data quality, the applied method of spatial interpolation, first analysis of the data including a statistical analysis and some comparisons with other gridded data sets. The database has been quality checked regarding obvious errors, outliers and homogeneity. In a first step established methods for the spatial interpolation used and developed by Deutscher Wetterdienst were applied. The method used for interpolation of daily precipitation data (“REGNIE” method of Deutscher Wetterdienst) will be presented.