



HYRAS – Hydro-meteorological reference data for German river basins

M. Rauthe, U. Riediger, A. Mazurkiewicz, H. Steiner, and A. Gratzki

Deutscher Wetterdienst, Hydrometeorology (KU41), Offenbach, Germany (monika.rauthe@dwd.de)

Climate change in the past and the future can only be reliably evaluated if a climatological reference is well defined. The purpose of the German research programme KLIWAS (www.kliwas.de) is the assessment of climate-induced changes of flows and water levels in navigable inland waterways. Of importance to provide such statements is the creation of possible adaptation strategies to mitigate the impacts of future climate change. The aim of our role in the project is to produce hydro-meteorological gridded data for the validation of climate models and for long-term climatological studies of hydro-meteorological conditions (situations of high and low water). Additionally, the data are used for hydrological modelling. The gridded data of daily precipitation, which already exists for Germany, is expanded to include neighbouring river catchment areas. Furthermore, daily gridded data will be produced for other hydro-meteorological elements, such as air temperature, relative humidity, wind speed, and solar radiation. These HYRAS datasets have a spatial resolution of 5 km x 5 km for the entire domain and cover the period from 1951 to 2006.

In the presentation the state and the development of the HYRAS data will be declared. First, a short overview of the quality of the data sets (interpolation errors and comparisons with other data sets) will be given. The main part of the presentation focuses on the climatological analyses of different indices based on grid points or river basins. Here, we place the emphasis on the parameters precipitation and temperature. Both mean values and extremes such as dry days or values exceeding thresholds are investigated. The spatial distribution as well as the trends will be presented.

This study is part of the KLIWAS research program, which is supported by the Federal Ministry of Transport (BMVBS). The presented data and analyses are results from the research task 1: Validation and evaluation of climate projections – provision of climate scenarios for the application on waterways and navigation, on which the Deutsche Wetterdienst is employed.