



Precipitation bias statistics for objective weather types in regional climate model simulations

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In the German research programme KLIWAS (www.kliwas.de), funded by the Federal Ministry of Transport, Building and Urban Development, the likely impacts of climate change on waterways and navigation are evaluated and possible options to adapt will be proposed. As part of the German Strategy for Adaptation to Climate Change, KLIWAS aims at providing a sound basis for adaptation strategies. KLIWAS uses information derived from a wide variety of climate model runs (multi model approach).

Within KLIWAS, the task of Deutscher Wetterdienst is to process and evaluate reference data and climate model simulations and prepare them for the use in impact models. For waterways, weather situations related to hydrological events such as drought and floods are of particular interest. To assess the ability of global and regional climate models to simulate weather elements realistically, an objective weather type classification is used (Bissolli & Dittmann 2001).

In a first step, the occurrence of circulation patterns in the control runs (1961 to 2000) of IPCC Global Climate Models is compared to different reanalysis data. In a second step, precipitation bias statistics from the nested Regional Climate Models control runs are investigated. For that, results from the ENSEMBLES project (van der Linden & Mitchell 2009) are used. The comparison of precipitation parameters like mean or dry days based on the GCM derived weather patterns. Downscaled precipitation simulations from the RCMs is here compared to regionalised daily precipitation data based on surface measurements in high dense (called HYRAS data set). The results reveal deficiencies for representative GCM circulation statistics as well as circulation patterns induced precipitation bias in the RCM output.

Bissolli & Dittmann: The objective weather types classification of the German Weather Service and its possibilities of application to environmental and meteorological investigations. *Meteorologische Zeitschrift*, 11, No. 4, 253-260, 2001

Van der Linden & Mitchell: ENSEMBLES: Climate Change and its impacts: Summary of research and results from the ENSEMBLES project. Met Office Hadley Center, Exeter, 160 pp., 2009