Geophysical Research Abstracts,
Vol. 11, EGU2009-2189, 2009
EGU General Assembly 2009


# Area differentiated analysis of impacts of climate change scenarios on groundwater resources in Northwestern Germany

F. Wendland (1), R. Kunkel (1), H. Kunstmann (2), I. Lingemann (2), and B. Tetzlaff (1)

(1) ICG-4, FZ Juelich, Juelich, Germany (f.wendland@fz-juelich.de), (2) IMK-IFU FZ Karlsruhe Kreuzeckbahnstrasse 19, D-82467 Garmisch-Partenkirchen, Germany

Regional climate change scenarios were studied with the water balance model GROWA (Kunkel and Wendland, 2002) to predict the temporal development of mean long – term total runoff, direct runoff and groundwater runoff, including regionally dif-ferentiated analyses for river basins, regions and administrative units. Special emphasizes was given to the regionally differentiated prediction of the mean long-term impacts on groundwater recharge, which determines both, the river discharge and ecological status of rivers during dry periods, as well as the upper limit for the sus-tainable abstraction of groundwater (e.g. prognosis of groundwater hydrograph trends in regions, where water supply is fed from groundwater). As a reference, the GROWA model was calibrated and validated for the hydrological period 1971 – 2000 in an area of ca. 90.000 km$^2$ in the North – Western part of Germany, i.e. for the entire Federal States of North Rhine - Westphalia, Lower Saxony, Hamburg and Bremen.