

Climate, Water, Mankind - impacts of long-term climatic changes in the drought polygon of Northeast-Brazil

HEINRICHS, G. and VOERKELIUS, S. Hydroisotop GmbH, Schweitenkirchen, Germany.

According to the present state of knowledge, the worldwide global change in economy, industry and population structure will lead to obvious climate changes. The Northeast of Brazil is actually characterized by recurrent drought periods, vulnerability of the natural resources and of the social structure, causing an exodus from the rural areas. Within the bilateral German-BMBF/Brazil-CNPq scientific program WAVES, the federal states of Piauí and Ceará were selected, representing a large semi-arid region as well as a transition zone to the more humid savanna ecoregion.

For case studies two reference areas were chosen, both located within the "Drought Polygon" of NE Brazil. They differ in their ecological and socio-economic characteristics, which may lead to a good transferability of the obtained results to other regions in the Northeast of Brazil.

Within WAVES, hydrogeological, hydrological as well as agroecological and sociological studies have been carried out. The program is an interdisciplinary scientific approach with groups from Brazil and Germany.

Considering the knowledge about the interactions of natural and social systems an Integrated Model, based on partial models reflects the system dynamics on state level. For the focus region Picos/PI results of single disciplinary models (e.g. MODFLOW) will be integrated into the land use model MOSDEL, based on a GIS. The combined expert knowledge will lead to different plausible assumptions of future situations in NE-Brazil.