Geophysical Research Abstracts
Vol. 14, EGU2012-3485, 2012
EGU General Assembly 2012

Progressive Development of Groundwater Sources in Dryland Basins with Vague Hydro-geological Information – Methodology and Examples from the Middle East

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Abstract

The history of Middle East was influenced by past global climatic changes. Warm periods caused droughts, which brought desertification, migrations and wars. Cold periods were humid and brought abundance and the settling of the deserts' fringes. The forecast based on this correlation is that the present global warming will cause the drying up of the Middle East. Like in the past, the mitigating of this negative impact should be by the utilization of the long-term storage of the groundwater resources. This will involve deep drilling and pumping and modern irrigation methods in the framework of a new policy of "Progressive Development", which will entail the utilization of the up-till-now, undeveloped natural water resources beyond that of present water replenishment. While the utilization of the one-time groundwater reserves is taking place a master long term comprehensive progressive development plan for the Middle East will be prepared. The Progressive Development methodology infers the step by step development of all existing water resources like treated effluents, desalinated brackish groundwater and at the end desalination of seawater.

Key words: climate change, desertification, groundwater, irrigation, desalination