



Impact of climate change on water and agriculture: Challenges and possible solutions for the Nile Delta

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The Nile-Delta is subjected to continuous changes; including shoreline changes either erosion or accretion, subsidence of the delta, as well as sea level rise due to climate change. The impacts of climate change on the Nile Delta have been addressed on local and international level as the Nile Delta coastal zones are vulnerable to sea level rise.

The poster presents recent research activities and findings from the CLIMB project in the Nile Delta and costal zones of Egypt.

Lots of field data have been collected such as aquifer geometry data, soil properties data, well data and contamination sources. All of these data support a coupled modeling approach of the land surface hydrological model WASIM-ETH and the hydrological model MOD-Flow to simulate and project the future impact translation of climate projections into hydrological impacts. Results confirm intensified threads to water security. Increasing potential evaporation (in response to increasing temperature) in combination with decreasing water levels in the Nile river, reduced precipitation and groundwater recharge and deteriorating groundwater quality, imposes great challenges to ensure the supply of drinking water and irrigation.

Current irrigation strategies are highly inefficient and must be replaced by new and adapted systems. Based on the results of the coupled modeling approach, various scenarios can be evaluated. The vision is to develop a road map for climate change and green economy that maximizes wellbeing of the Egyptian citizens, operates with environmental limits, and is capable of adapting to global environmental change.