Geophysical Research Abstracts,
Vol. 11, EGU2009-13598, 2009
EGU General Assembly 2009

Impact of Climate Change on Water Resources in Lebanon – a Look Crop Water Consumptive Use

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Potential climate change impacts on Lebanon could be harsh as a result of increased temperature which could eventually lead to loss of vegetative cover. Rising temperatures in a range of 1.8-4.0 oC as projected by the Intergovernmental Climate Change IPCC in 2007 would lead to a reduction in the snow cap of mountainous areas in Lebanon. This would result in increased surface runoff and reduced recharge of groundwater. The objective of this study is to assess the impact of climate change on water resources in Lebanon by delving into plant consumptive use of water at different vegetation scales using the CROPWAT model (FAO, 1992). Baseline climatic data (temperature, humidity, wind speed and daily sunshine) based on available 30 years data series (1956-2002) were used. The paper will evaluate the sensitivity of evapotranspiration to climate change by determining crop water requirement under scenarios of varying temperature and relative humidity. CROPWAT will be used to analyze the water consumption by plants in two differently sized watersheds with a variety of vegetative covers (forest, shrub, agricultural, etc.) and in different agroclimatic regions - namely Wadi Barsa lying on the coastal strip and Wadi Charbine located inland. The work is on-going and it is expected that by the time of presentation at the conference the authors will be able to present results indicating whether available precipitation will be sufficient for maintaining groundcover and agricultural crops in the two agroclimatic regions of Lebanon.