



The Assessment of Microclimate Change due to the Construction of a Small Dam in the Southern Anatolian Irrigation Project Region of Turkey

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The main purpose of this research is to provide information on the change of temperature and humidity fields after the development of a new reservoir in the southeastern part of Turkey. It is believed that pistachio and pomegranates production rate might decrease due to a change of the microclimate of the Southern Anatolian Irrigation Project Region (GAP) with an inclusion of a large water volume. Since temperature and humidity are the significant meteorological variables for growing of these products, their change with the inclusion of the reservoir is analyzed using the WRF model. Two summer years, 2000 and 2002, are studied to indicate the importance of warm and cold summer years, respectively. NCEP/NCAR Reanalysis dataset is used for setting up initial and boundary conditions for 27 km, 9km, 3km, and 1km nested domains. 1 km resolution run is performed using ndown option of the WRF Model for 4 months of these two years, from June to October. 5 different microphysics, atmospheric boundary layer, cumulus, and land use parameterization scheme combinations are analyzed to decide on the appropriate physics scheme combination in order to reduce the biases occurred due to steep topography of this domain of interest. After this decision, the WRF model is performed for both control case, i.e. without the inclusion of any water bodies; and wet case, i.e. with the inclusion of a water body. The preliminary results show that the difference between wet and control cases is about 1°C for 2m temperature; whereas 2m relative humidity change is about 3% from the monthly averages of the 4 months. Therefore, these results may indicate that the production of pistachio and pomegranates may not be affected from the inclusion of a reservoir to the southeastern part of Turkey.