

ABSTRACT

SIMULATION OF SOIL MOISTURE RANGING DUE TO CLIMATE CHANGE FOR A SAMPLE COTTON PLOT IN AYDIN BY SWAP MODEL

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This study has focused on soil moisture of agricultural lands which affected by environmental effects of climate change due to global warming. The climate change, especially rainfall and temperature, may cause significant changes on the surface and ground water resources and amount of moisture stored in soil. In this context, this study targeted to study effects of climate change on soil moisture and likely climate changes that may occur in the Mediterranean basin. According to the possible changes foreseen in the future, some climate change scenario analyses were performed by an agro hydrological model. SWAP model was used with the data set of soil-climate and vegetation. During the summer cultivation period in the province of Aydın, the soil moisture was monitored according to soil properties of the layers in a selected area on an alluvial soil. Then, soil moisture balance on the basis of point measurements were simulated based on the soil conditions at a plot in selected area. According to the results from scenario analysis, it was estimated that the evaporation from soil and transpiration from plants will increase potentially and there will be a water movement upward from high water table to the root zone to meet this increasing demand.

Keywords: Aydın, climate change, soil moisture, SWAP model