

PROJECTION OF THE IMPACT OF CLIMATE CHANGE ON THE SURFACE ENERGY AND WATER BALANCE IN THE SEYHAN RIVER BASIN TURKEY

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Abstract :

In this study, the surface energy and water balance components and related hydrological variables of the Seyhan River basin Turkey are estimated through off-line simulation of the land surface model. The simulation domain is 2.75 degree \times 2.75 degree area (E34.25-37.0, N36.5-N39.25) with 5 min resolution (33 \times 33 grids). As for the atmospheric forcing data, the products from RCM (Regional Climate Model) for both present and future (warm-up) condition are used. Based on the field survey and NDVI time series analysis, landcover dataset of this target basin is improved and utilized in the numerical simulation.

In the warm-up run, annual precipitation is projected to decrease, while evaporation increases in general. This means that the reduction in runoff is larger than the reduction in precipitation. In terms of basin average annual water balance, precipitation is projected to decrease about 210mm, while evapotranspiration increases about 30mm. This means that the reduction in runoff is about 240mm. Considering the amount of present water balance, these impacts are thought to be significantly large.

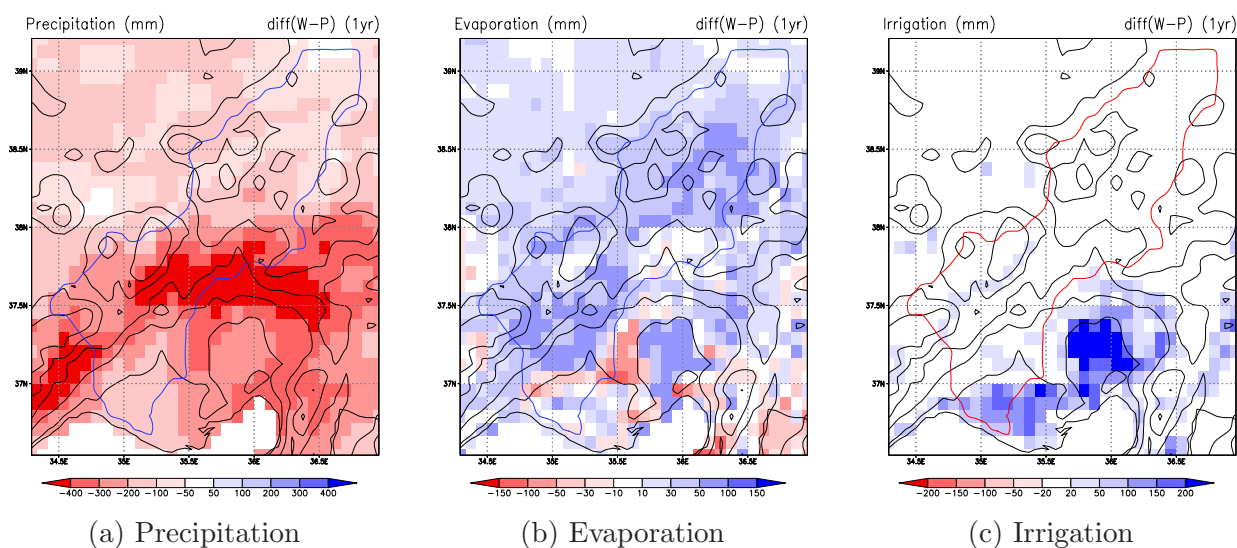


Fig. Difference (Future - Present) of annual water balance components