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Comparing Process-Based Net Primary Productivity Models in a Mediterranean Watershed

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Abstract. The aim of this study was to compare the estimation capability of two different process-based NPP models (CASA and LPJGUESS) in a Mediterranean watershed. Remotely sensed data and climate time series (temperature, precipitation and solar radiation) were input to these models in the example of Goksu River Basin which is located in the Eastern Mediterranean Part of Turkey.

The comparison of these models was based on output variables. These variables were divided into three groups: (i) spatially interpolated total NPP estimations, (ii) NPP distribution of land cover classes, (iii) annual and monthly based NPP variations. Different model approaches were evaluated within their capability to prove the relationship between annual / monthly NPP and major climatic variables. The effect of vegetation distribution on the accuracy of models was examined. The uncertainties of the CASA and LPJ-GUESS model were evaluated by incorporating remotely sensed data, percent tree cover and ground measurements. The differences between model outputs were guided to enhance modelling strategies by means of remotely sensed data and other input parameters.

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