

Coupling a water balance model with a global evapotranspiration model to assimilate SMAP data



Only a few remote sensing ET algorithms are both globally applicable and physically defensible such as PT-JPL and PM-MOD16 (see figure). However, they operate without soil moisture inputs. This is not for lack of understanding of the mechanisms, but due to the lack of data until recently with accurate and high-resolution data from SMAP NASA mission. The overall objective is a) assimilate SMAP data L3 and L4 products into a global remote sensing evapotranspiration model; b) estimate evapotranspiration fluxes when there are no satellite observations in the optical and thermal ranges (due to clouds or satellite failures) using rainfall data.

Student task: Couple a simple infiltration model (Richards equation) to the PT-JPL or PM-MOD16 model using Matlab.

Project type

Topic is suitable for MSc project

Pre-requisite

Experience with MatLab

Group size

1-2 students

Department of supervisors

Main supervisor: DTU Environment

Co-supervisor: DTU Compute or DTU Space

Contact person

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