

Evapotranspiration fluxes simulation with CLM 5.0 in grassland, forest and vineyard

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The simulations are carried out using the Community Land Model (CLM5) for three sites: Nivolet, Bussoleno forest, Carpeneto, and Cogne. The simulation period for the Nivolet site spans five years, from 2019 to 2023. For Bussoleno Bosco, simulations cover the years 2021 to 2023, and for Cogne, from 2014 to 2017. These sites are located at elevations of 2555 m, 655 m, and 1700 m a.s.l., respectively. The simulation type used is Single Point Simulation (SPT), with each pixel generated based on the coordinates of the corresponding site. The input dataset was created through the processing of raw data.

Nivolet is classified as grassland, Bussoleno as forest, Carpeneto a vineyard, and Cogne half shrubs, half grass being an abandoned pasture. Therefore, they have quite different characteristics, beyond having different soils. The parameters were not calibrated, and the results are quite encouraging. One example for Bussoleno forest in 2021 of comparison of modeled and experimental (a mast 23 m high with eddy covariance) data is in the figure regarding actual evapotranspiration and soil moisture at 10 cm depth.

