



Verification Of The SimSphere SVAT Model Performance In Simulating Key Land Surface Parameters At Selected CarboEurope IP Sites

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Comparison of model simulations versus corresponding validated in situ observations forms an integral and important validatory check of a computer simulation model before the developed code is used in performing any kind of analysis or other operation.

The present study presents the results pertaining to the accuracy assessment of a 1D SVAT model named SimSphere, in examining its ability in simulating key parameters characterising land surface interaction processes. For this purpose, model predictions have been compared versus in-situ validated observations obtained from selected test sites and days belonging to the CarboEurope IP measurement network, representing a variety of climatic, topographic and environmental conditions.

Overall, despite the occasionally inferior performance of the model in simulating the examined parameters (mainly the underestimation of sensible heat flux), SimSphere was able to identify the patterns of change expected, if not always the magnitudes. SimSphere evaluation results, particularly for the subset of days of comparison including for the cloud-free days and flat terrain sites, evidenced the use of the model as a tool that identifies the patterns of change expected, if not always the magnitudes, thus indicating the usefulness of the model in practical applications either as a stand alone tool or in combination with remote sensing observations.

The present study is also very timely, given that this SVAT model is being considered in a methodology being developed by National Polar-orbiting Operational Environmental Satellite System (NPOESS), for the operational retrieval of surface moisture content from a series of satellite platforms due to be launched in the next 12 years starting from 2012.

KEYWORDS: CarboEurope IP, SimSphere, SVAT evaluation, land surface interactions