Evaluation of a snow scheme in Integrated Land Simulator

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Accurate representation of land processes is crucial for many purposes, such as climate simulation, weather and flood prediction, and water resources assessment. To realize high-accuracy land simulations with rapid model development cycles, we have been developing a new land simulation framework, Integrated Land Simulator (ILS). ILS consists of multiple land components and an independent I/O component. They are executed based on an MPMD (Multiple Program-Multiple Data) approach using a general-purpose coupler Jcup. Currently, ILS includes a physical land surface model, Minimal Advanced Treatments of Surface Interaction and Runoff (MATSIRO), a next-generation river model, CaMa-Flood, and an independent I/O component. MIROC5 version of MATSIRO was rewritten in the modern structure. Using the reference site dataset prepared in ESM-SnowMIP project, we evaluated a snow scheme in ILS. The result shows that the reproducibility varies by sites but there are some systematic biases such as cold biases in soil temperature in winter. Future directions of the model improvement will be discussed in the presentation.

Keywords: land model, snow scheme