EGU Journals   EGU.eu

Manuscript tracking

About

Editorial board

Articles GMD

- Recent final revised papers
- Volumes and issues
- Special issues
- Full text search
- Title and author search

Articles GMDD

Subscribe to alerts

Peer review

For authors

For reviewers

User ID [   ]

Password [   ]

New user? | Lost login?

Follow @EGU_GMD

Journal metrics

Definitions

Article | Metrics | Related Articles

Model Description Paper   26 Jun 2012

Land surface Verification Toolkit (LVT) – a generalized framework for land surface model evaluation

S. V. Kumar[1,2], C. D. Peters-Lidard[2], J. Santanello[2], K. Harrison[2,3], Y. Liu[2,3], and M. Shaw[1,2,4]
[1]Science Applications International Corporation, Beltsville, MD, USA
[2]Hydrological Sciences Laboratory, NASA Goddard Space Flight Center, Greenbelt, MD, USA
[3]Earth System Science Interdisciplinary Center, College Park, MD, USA
[4]Air Force Weather Agency, Offutt, NE, USA

Abstract. Model evaluation and verification are key in improving the usage and applicability of simulation models for real-world applications. In this article, the development and capabilities of a formal system for land surface model evaluation called the Land surface Verification Toolkit (LVT) is described. LVT is designed to provide an integrated environment for systematic land

model evaluation and facilitates a range of verification approaches and analysis capabilities. LVT operates across multiple temporal and spatial scales and employs a large suite of in-situ, remotely sensed and other model and reanalysis datasets in their native formats. In addition to the traditional accuracy-based measures, LVT also includes uncertainty and ensemble diagnostics, information theory measures, spatial similarity metrics and scale decomposition techniques that provide novel ways for performing diagnostic model evaluations. Though LVT was originally designed to support the land surface modeling and data assimilation framework known as the Land Information System (LIS), it supports hydrological data products from non-LIS environments as well. In addition, the analysis of diagnostics from various computational subsystems of LIS including data assimilation, optimization and uncertainty estimation are supported within LVT. Together, LIS and LVT provide a robust end-to-end environment for enabling the concepts of model data fusion for hydrological applications. The evolving capabilities of LVT framework are expected to facilitate rapid model evaluation efforts and aid the definition and refinement of formal evaluation procedures for the land surface modeling community.

Search GMD

Full Text

Final Revised Paper

PDF XML

Citation

- BibTeX
- EndNote

Discussion Paper

Published on 08 Feb 2012

Share