2008 Fall Meeting
Search Results

Cite abstracts as **Author(s) (2008), Title, *Eos Trans. AGU*, *89*(53), Fall Meet. Suppl., Abstract xxxxx-xx**

Your query was:
leavesley

HR: 08:15h
AN: **H51L-02 INVITED**
TI: A Collaborative Approach to Component-Based Community Models and Tools
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AB: The advantages of community, component-based models are well recognized. Getting a community to participate in such a development involves a variety of technical, as well as related social, issues. A key technical issue is the choice of an existing, or design of a new, modeling framework. A wide variety of modeling system frameworks and tools are reported in the literature. Differences among these systems typically are related to the science concepts, problem objectives and institutional guidelines that were used in the design and development of the system. While alternative designs have limited the ability to share components and tools among systems, they have enabled the evaluation of the strengths and limitations of different approaches to system development. Building on this previous experience and knowledge, more recent systems enable the use of multiple programming languages, different computational platforms, and distributed cluster computations. One of these systems is the U.S. Department of Agriculture (USDA) Object Modeling System (OMS). OMS is a modular modeling framework that uses an open source software approach to enable all members of the scientific community to collaboratively address the many complex issues associated with the design, development, and application of distributed hydrological and environmental models. OMS will be used as an example to compare and contrast alternative modeling framework concepts and opportunities for component sharing among frameworks. An important feature in the OMS design is scalability of component applications. That is, components can be developed and tested on a laptop with a multi-core processor, but are fully compatible for execution on a cluster or a computing cloud. Collaborative multi-disciplinary and multi-institutional model and tool development in OMS is supported by the USDA internet-based Collaborative Software Development Laboratory (CoLab). Providing a common development environment addresses a number of technical issues, and through improved communication and technical support, addresses some of

the social issues as well.
DE: 1805 Computational hydrology
DE: 1816 Estimation and forecasting
DE: 1847 Modeling
DE: 1880 Water management (6334)
SC: Hydrology [H]
MN: 2008 Fall Meeting

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