



UFZ Environmental Modeling & Monitoring Lecture

Wednesday, 30 May 2018, 2:30 pm, UFZ Leipzig, KUBUS, Lecture Hall 2AB

“The evolution of process-based hydrologic models: historical challenges and the collective quest for physical realism”

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The diversity in hydrologic models has historically led to great controversy on the “correct” approach to process-based hydrologic modeling, with debates centered on the adequacy of process parameterizations, data limitations and uncertainty, and computational constraints on model analysis. In this presentation, we revisit key modeling challenges on requirements to (1) define suitable model equations, (2) define adequate model parameters, and (3) cope with limitations in computing power. We outline the historical modeling challenges, provide examples of modeling advances that address these challenges, and define outstanding research needs. We illustrate how modeling advances have been made by groups using models of different type and complexity, and we argue for the need to more effectively use our diversity of modeling approaches in order to advance our collective quest for physically realistic hydrologic models.

After the lecture, there will be a coffee break and the chance for interaction with Martyn Clark. All interested colleagues are kindly invited.

Link to registration: <http://www.ufz.de/index.php?en=43699>

Martyn Clark



... is a Senior Scientist in the Hydrometeorological Applications Program in NCAR’s Research and Applications Laboratory. His research spans three broad areas: developing approaches to simulate hydrological processes, including understanding inter-model differences; developing methods to improve streamflow forecasts; and understanding space-time variability in climate and hydrology, including understanding the effects of climate change on regional water resources. Martyn Clark has published on research topics such as hillslope hydrology, snow hydrology, land-atmosphere interactions, and statistical hydrology. He was elected an American Geophysical Union (AGU) Fellow in 2016. Currently he serves as the Editor-in-Chief for Water Resources Research, the major scientific journal in the field. **For more details, see:** <https://staff.ucar.edu/users/mclark>