



Effect of Large Scale Multimedia Hydrologic Modeling Tools on Student Learning and Decision Making

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Abstract

This presentation examines how the incorporation of the concept of scaling as well as large-scale processes into student curriculum impact student learning and their decision making capabilities. With the wide range of scales of hydrological processes, spanning about eight orders of magnitude in space and time, defining large-scale hydrological modeling is critical. To achieve this goal, learning material were prepared to introduce the concept of scaling, provide hydrologic modeling case studies, and test for students' enhanced knowledge and improved decision making skills. The material were designed to accommodate different time allocations, levels (undergraduate vs. graduate), and students' technical backgrounds. An outcome-based evaluation procedure was used to measure the effectiveness of the use of large-scale hydrologic modeling in enhancing student learning and decision making capabilities. Results showed that introducing the concept of scaling and its application using large scale computer models improved student learning and their decision making skills. Students' level of confidence in answering the pre- and post- tests also increased after the introduction of the scaling concept and following the computer model exercise.