Abstract Submitted
for the TSF14 Meeting of
The American Physical Society

Student Understanding of the Physics of Hydrology[1] JILL MARSHALL, ADAM CASTILLO, BAYANI CARDENAS, Univ of Texas, Austin — For a full understanding physical hydrology, students must master conservation of mass, Newton's laws of motion, the second in particular, laws of thermodynamics (conservation of energy), and the relationship between flux, resistance, and gradient (analogous to Ohm's Law). Hydrology students do not always relate the specialized laws of hydrology to the fundamentals they learned in their physics class, and mathematical treatments do not always develop a conceptual understanding that promotes transfer. I will report on an extended study of student understanding in an upper division and graduate physical hydrology course, with and without the addition of COMSOL Multiphysics modeling activities in the curriculum. Student understanding was measured with a pre/post assessment and volunteer students were interviewed about their understanding in the course.

[1]Supported by National Science Foundation CAREER Grant EAR-0955750.

Jill Marshall
Univ of Texas, Austin

Date submitted: 22 Sep 2014 Electronic form version 1.4