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Benjamin J Galluzzo* (bgalluzz@math.uiowa.edu), Department of Mathematics, MacLean Hall, University of Iowa, Iowa City, IA 52242. *Parameter Determination for Subsurface Fluid Flow Modeling*. Preliminary report.

Subsurface fluid flow modeling is dependent on understanding the permeability of geologic media. However, the intrinsic heterogeneity of the subsurface severely limits the effectiveness of many such models. Analytic solutions simplify the problem by assuming homogeneity, while some models presume reasonable subsurface characterization impossible and in turn, employ a random field. In this talk we will discuss our method for subsurface mapping; specifically our approach to solving the inverse problem as it relates to the transient saturated flow equation in hydrogeology. We will also present a numerical simulation as well as a comparison between numerical and experimental results. (Received September 17, 2008)