

DEVELOPMENT OF A COMPUTATIONAL TESTBED FOR STUDYING NEAR-SURFACE PHENOMENA

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ABSTRACT

The deployment of proven technologies into field operations is often hindered by an ad hoc trial and error period of unit testing. For instance, this includes the testing of several different types of tires on a new vehicle. This procedure has been true in the area of remote sensing for studying near-surface phenomena. This minisymposium will focus on the development of a computational testbed which will be used to provide a virtual proving ground for future remote sensing technology. This work has involved the coupling of several different codes on several parallel computational architectures. These coupled models include a three-dimensional finite element software package for simulating moisture and heat transport in the shallow subsurface, a ray tracer, and heat transport for vegetation. Presentations will address various computational challenges of this process, which include: rapidly generating meshes for testing scenarios, parameter estimation techniques for determining soil properties, and multiscale issues arising in the move from *cm* to *km* scale simulations.