

A Solution Framework for Environmental Characterization Problems

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Abstract

This paper describes experiences developing a grid-enabled framework for solving environmental inverse problems. The solution approach taken here couples environmental simulation models with global search methods and requires readily available computational resources of the grid for computational tractability. The solution framework developed by the authors uses a master worker strategy for task distribution and a pool for task mapping. Solution and computational performance results are presented for groundwater source identification and release history reconstruction problems. They indicate that high quality solutions and significant raw performance improvements were attained for a deployment of the solution framework on the TeraGrid.

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