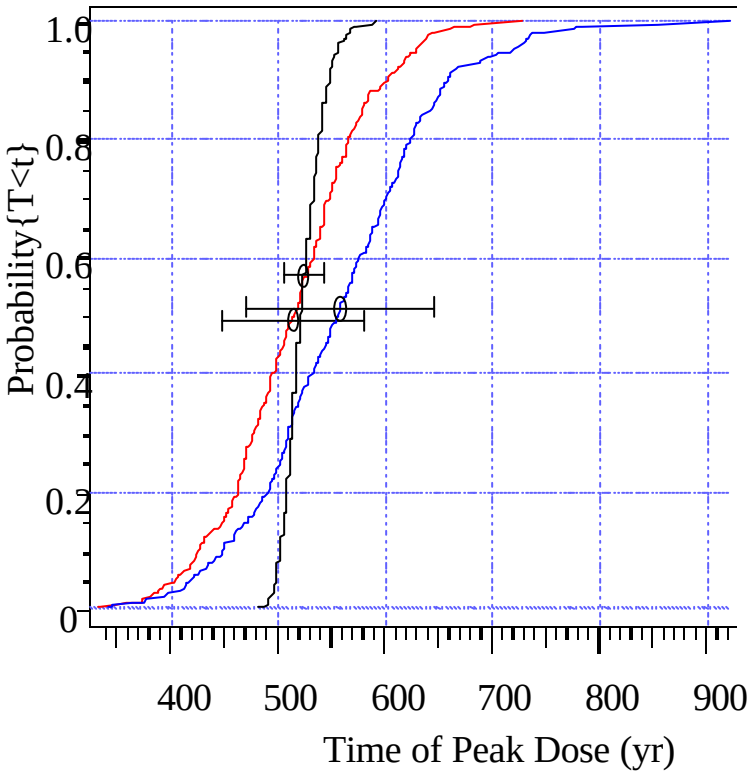
Pilot-18 Highlight

PNNL

Evaluating Uncertainty Estimates Produced by Dose Assessment Models



Estimates and Uncertainty in peak doses at a pumping well downstream of a hypothetical decommissioning site: a comparison between a complex, 3D stochastic model, using STOMP, and a simplified 1D model, RESRAD. Error bars represent plus/minus standard deviation. The results of 300 (Monte Carlo) simulations show a four-fold reduction in uncertainty when the complex model is used. The parallel machines MPP1 and ECS1 were used for the STOMP simulations.

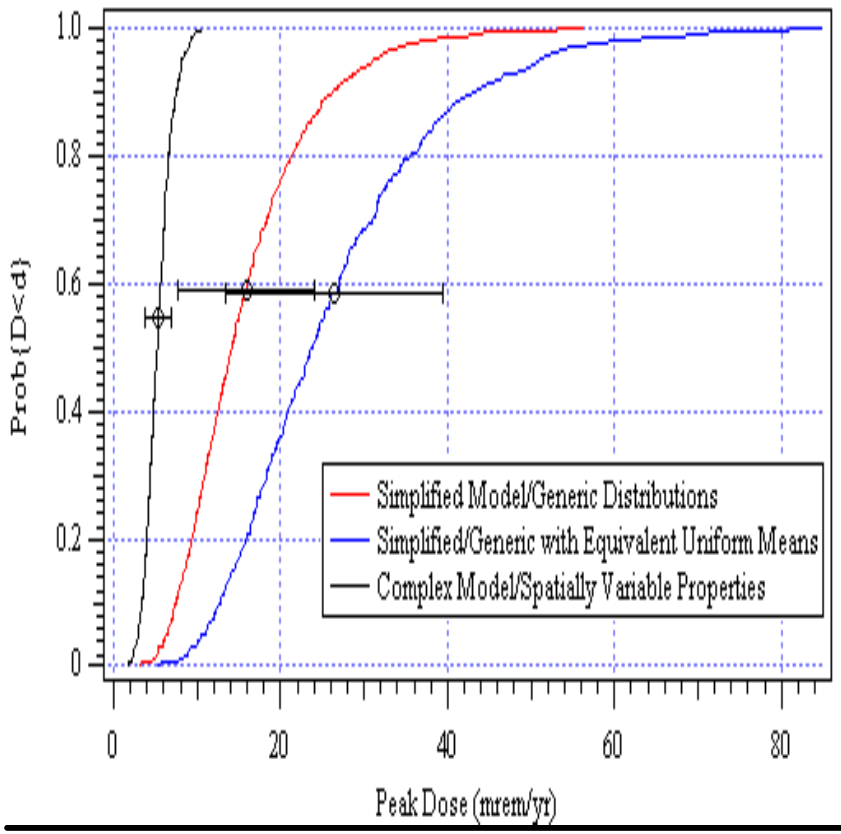
P.D. Meyer and S. Orr, "Evaluating Uncertainty Estimates Produced by Dose Assessment Models", presentation at the USGS Unsaturated Zone Interest Group Meeting, August, 2001

- Simplified Model/Generic Distributions
- Simplified/Generic with Equivalent Uniform Means
- Complex Model/Spatially Variable Properties

Pilot-18 Highlight

PNNL

Evaluating Uncertainty Estimates Produced by Dose Assessment Models



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Pilot-18 Highlight

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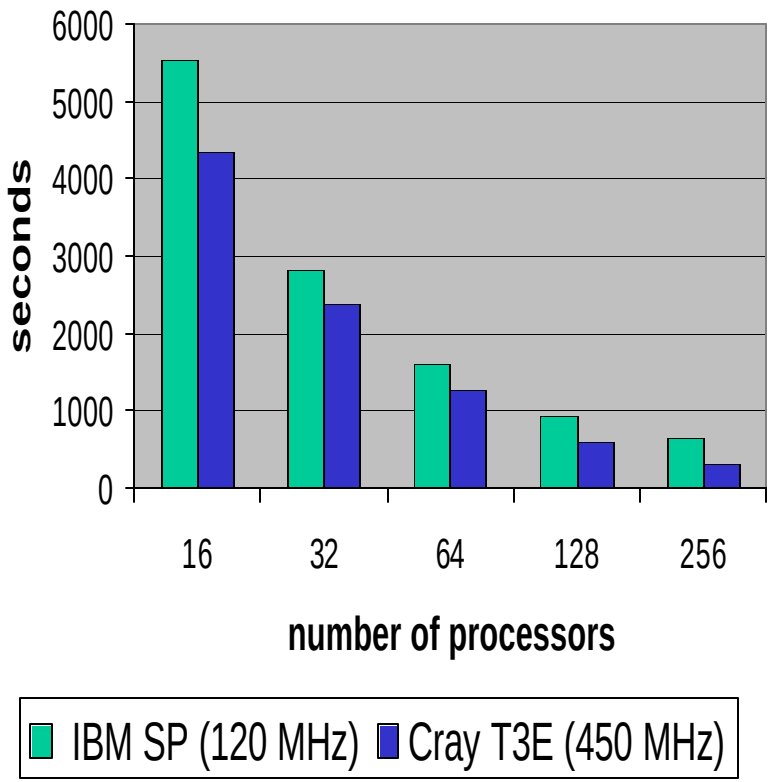
Hanford Site-wide Flow and Transport Modeling



Linear model estimation is an important tool for bridging the gap between experimentation, field studies and modeling in Environmental Sciences. We have developed parallel software for computing (restricted) maximum likelihood (REML) covariance estimates in stochastic linear models. This software based on PETSc and TAO demonstrates the scalability of an important statistical computation on massively parallel computers.

J.M. Malard, "Parallel Restricted Maximum Likelihood Estimation for Linear Models with a Dense Exogenous Matrix", to appear in Parallel Computing, 2002