



Example User Feedback (18 Interviews)



Practical considerations

- Optimize data needs and model complexity for each problem (graded and iterative approach)
- Recognize uses – sampling and analysis plans, DQO process, monitoring plans, waste acceptance criteria, special analyses
- Regulators like to be able to use codes, need transparency of data and assumptions, QA
- Off-site computing – firewalls, priority on high performance computers



Data/Execution

- I/O Flexibility – data and tools use variety of different structures (also mesh conversion)
- Integration of data currently in different sources
- Links with GIS and other graphical tools
- Archive key information for Legacy Management, etc.
- Fast run-times for “what-ifs”, debugging
- Improved integration and recognition of dependencies from one tool to the next (automated?) - UQ

Integration of tools





Conceptual Models

- Graded tools – screening needed for simple problems, add detail where necessary
- Multiple approaches – check and balance, conceptual uncertainty
- Composite analysis – many sources over large area, insert source terms



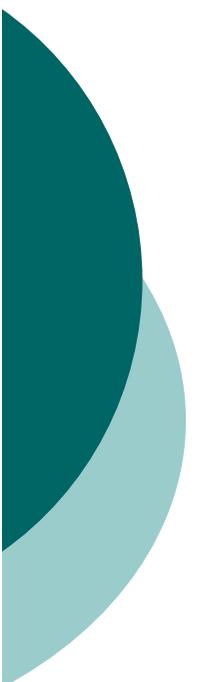
Uncertainty Quantification, Decision Tools

- Aleatory and epistemic uncertainty separately
- Quantitative uncertainty analysis with more complexity
- Ability to identify drivers of risk at different times, barrier analysis, realizations leading to doses on tails
- Optimize use of sampling information (better averaging), prioritize data collection and model complexity
- Geostatistical tools to better quantify existing contamination (current bias towards high values) and also to optimize characterization
- Use composite analysis as decision tool for site-wide remediation activities



Visualization

- Animations to supplement standard graphics
- Visual tools for debugging inputs
- UQ tools – scatter plots, influence diagrams, tornado plots
- Plot derived distributions and data
- Intermediate results – fluxes from source region, vadose zone to water table, etc.



Processes

- Variety of specific process needs
 - VOCs attenuation, retention
 - Improved representation of pump and treat, SVE, injection of substrates
 - Cover and liner degradation
 - Cementitious materials degradation, redox, geomechanics (vaults, buildings, slabs)
 - Waste forms (glass, cement, metals)
 - Reactive transport, coupled processes, fractured media
 - High ionic strength, osmotic potentials
- Site Attributes task also looking a potential demonstrations