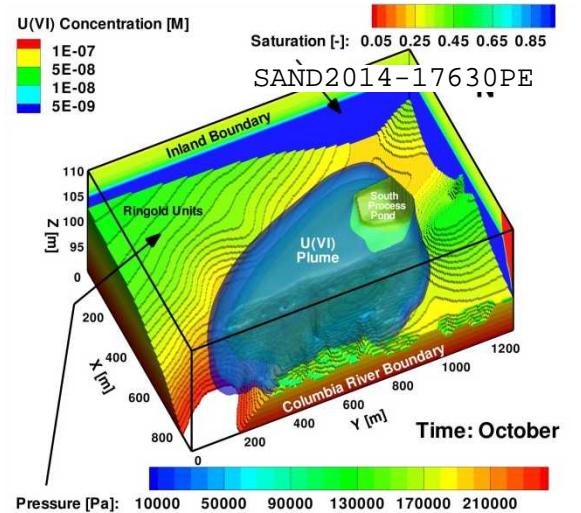


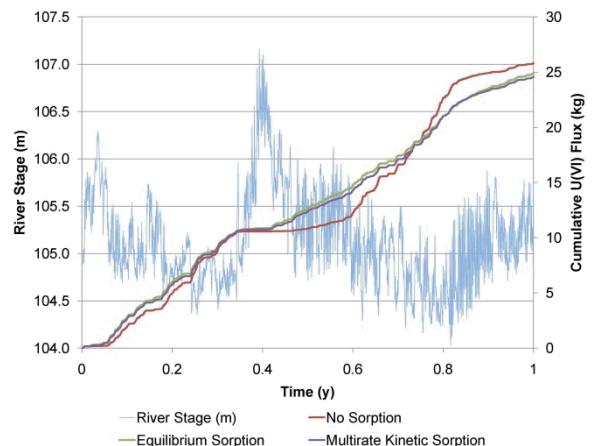
# PFLOTRAN

- Massively-parallel reactive multiphase flow and transport code
- Runs on laptops, desktops, supercomputers, etc.
- Chemical reactions enabling the modeling of radionuclide fate and transport:
  - Aqueous speciation
  - Mineral precipitation-dissolution
  - Sorption (surface complexation, ion exchange, isotherm-based)
  - Radioactive decay with daughter products
  - Colloidal transport
- Capable of running ensembles of parallel simulations simultaneously on tens of thousands of processor cores for uncertainty quantification, parameter estimation, etc. (Chen et al., WRR, 2013)
- Open source licensing (GNU LGPL)

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Uranium plume at Hanford 300 Area



Cumulative flux of uranium to Columbia River comparing sorption modeled through multiple process models

(Hammond and Lichtner, WRR, 2010)