Parallel Simulation of CO_2 Sequestration and Dissolution with a Capillary Pressure / Phase Pressure Formulation

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Carbon Capture and storage is simulated with a two-phase two-component flow model employing a special set of primary variables (capillary pressure / phase pressure) to deal with the (dis-)appearance of the non-wetting phase. The implementation is based on DUNE PDElab. Numerical results of massive parallel simulations for test cases with millions of unknowns on the super computer HERMIT (Cray X6) are presented and discussed.