

Finite Volume Methods

Assignment 7 (optional)

Problem 1

If you took the iterative solvers course, you can try the following:

Combine your 1D shallow water FV implementation and/or your 1D linear advection DG implementation with implicit Euler and solve the arising nonlinear/linear systems using a Jacobian-free Newton-Krylov solver.

Problem 2

Consider the 2D shallow water equations on $[-1, 1] \times [-1, 1]$. To extend the 1D Roe flux is straightforward. Otherwise, use an equidistant cartesian discretization with $\Delta x = \Delta y$. Then let a diagonal dam break.

Return: Thursday, May 23rd, in class