

Performance Comparison of A-grid and C-grid Staggering on Icosahedral Grids

An earlier presentation (#349714) entitled "Compare A-grid and C-grid Shallow Water Model Solver on Icosahedral Grids" introduced a relatively simple and self-contained software framework to test computational performance and parallel efficiency for Arakawa A-grid and C-grid schemes solving the shallow water equations. The earlier presentation focused on comparing accuracy, stability and conservation (mass momentum and energy) of the two grids. This presentation will focus on the parallelization, numerical performance, and parallel efficiency on the GPU and CPU for the two grids. The communication method will be described in detail and communication time will be presented for both grids to investigate whether the additional communication required by the C-grid is significant.