

Stony Brook Parallel Ocean Model (sbPOM)

We have implemented MPI in POM, using two-dimensional (x-y) domain decomposition. The MPI is based on the latest version, MPICH2. If your system uses the older version, it won't be compatible. We also have implemented parallel netcdf for faster I/O. The code is meant for solving very large problem. We have, for example, run the code for > 1K nodes. The input, output and restart files are all stored in netcdf, which makes the code machine independent.

We have re-arranged the POM's main program into several subroutines, following the example of Dr. Miyazawa (MPI-pom).

1. pom.f: main program
2. initialize.f: set the seamount problem
3. advance.f: advance sbPOM in time
4. solver.f: main subroutines
5. parallel_mpi.f: communicate between processors

MPICH2 (<http://www.mcs.anl.gov/mpi/mpich2>)

6. io_pnetcdf.F: input/output

Parallel Netcdf (<http://trac.mcs.anl.gov/projects/parallel-netcdf>)

The test case is the simulation of tides in a shallow basin (a small problem). It is run with 8 processors on an AMD Opteron workstation. We have also included mfiles to show how to generate input and analyze output.

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