README.pdf

Fortran-90 source code for model IB for various initial conditions:
IBSBR.f90 = Solid Body Rotation, Williamson et al. [1992] Test Case 2
IBRH3.f90 = Rossby-Haurwitz Wave 3
IBZ.f90 = Solid Body Rotation but with Earth bottom topography
IBZ.f90 requires topography file not provided on AOM web site.
Tweaked and Centroid grid location files not on AOM web site.

To change horizontal resolution modify TITLE, LOG2IM, and NSRCS.
TITLE: output files start at column 17 and should include IM
TITLE: description starts at column 33 or later, not 32
LOG2IM: grid resolution, usually 4 to 8
NSRCS: dynamic time step (s) = 86400 / NSRCS*NDYNS

Compile Fortran source file producing executable module: IBSBR.
Some versions of Intel ifort with Opt=2 produce incorrect results due to coding at end of subroutine ADVECV; Opt=1 produce correct results.
If compiler does not accept “OPENMP” parallelization, delete line:

```
      Call OMP_SET_NUM_THREADS (5)
```

Execute “IBSBR”: shows filename, resolution, and timesteps

Execute “IBSBR 0”; shows difference between model IB’s initial derivatives for height field (primary cells C) and eastward velocity and northward velocity (momentum cells A and B) for advection and pressure gradient force minus exact derivatives. Diamond shape output shows corner numbers for 2 of 20 major triangles. End of Fortran source files show organization of cells C, A and B.

Execute “IBSBR 10”: runs program for 10 days and produces binary xxx.O file and text xxx.CONS file that shows conservation properties and error results.