Team Meeting May 29, 2009

Update from Will, Christiane, Brian

latest tag of the FVcubed dycore, last check-in

- `fvcubed_cam3_6_34_tags/fvcubed21_cam3_6_34`

issues in the current FVcubed dycore (parallelization, performance)

- Extensive problems on Jaguar (Art), still many on bluefire
- Latest GEOS FVcubed release may solve some problems.

current workaround/fix: no 4th order divergence damping with potential for noisy simulations

- Noise can be compensated for with higher 2nd order DD
- Upgrade to FVcubed may solve this

upgrade of the dycore to the newest NASA version, pathway for future upgrades

- Brian now can compile FVcubed on Bluefire and Dublin (PGI)
- Lahey still an issue (?)
- Will has started modifying CAM-GFDL interface `FV_StateMod` to accommodate new release. 1-2 days of work (?)

status of baroclinic tests and built-in test suite

- Test cases 1-2 run, with tracers 1234. Results available
- Test case 4 seems to be running
- Test 5 develops a wave-4 instability, run dies after 0.5 days. So far tried different divergence damping configurations, is time step unstable? Test ran fine during 2008 colloquium. Further investigations needed
- Test cases 3, 6: problems with specification of the hybrid coefficients for the 60 and 20 levels, Will investigates

status of the ideal physics tests (Held-Suarez)

- 400 day simulation available. Results look good.

status of the aqua-planet tests

- Runs for 5 days, but cubed sphere artifacts appear.
- Dry air mass adjustment runs. Some scientific questions remain.

offline interpolation of the CAM history files with interpolation package GECoRe: status and current issues

- It is running now for both history and restart NetCDF files!
- Assumes equi-angular grid - not the case in FVCUBED; initialization needs to be tweaked (Paul and Christtiane)
- Document on WIKI page (Will)

initial condition netcdf files and use of the `interpic_new` tool

- This all works as advertized.
- Document on WIKI page (Will)

science issues with the dry air adjustment routine in the dycore

- Discuss with S.J.
- Mark Taylor has worked on this - contact

Open software engineering issues: (Will, Brian)

restart

- Bug found in mapping
- Now runs, but there is still a subtle bug
- Something in fv_dynamics is not being set directly

upgrade to new version: time line and complexity

- More information by the end of Friday, May 29.

analytic (online) initialization of the staggered edge-tangent velocities

- After discussion with
  use of routine outfld

ESMF clock

will the namelist option INIC work? If yes, with staggered velocities?

Performance analyses (Art, Pat)

- selection of test case for performance studies: test 2 (baroclinic wave)
- FVcubed model configurations (resolution, number of tracers)
- compilation and run time issues on Bluefire and Jaguar
- comparisons to CAM FV lat-lon?

Documentation (all)

- NCAR Wiki https://wiki.ucar.edu/display/ccsm/Implement+FVCUBED+Dycore
- configure options, machine dependencies
- namelist options for baroclinic test cases

Plans for CCSM workshop (Christiane, all)

- poster: selection of test cases and simple performance plots
- round-table meeting at the CCSM workshop, common area, on Wednesday 4-5pm (MDT).

Plans for the next few weeks: (all, advise by HOMME team)

- aqua-planet runs
- analysis of aqua-planet results, standard NCL scripts?
- coupling to land, ice and ocean, are full CCSM runs possible? Brian: grid weight files needed. Contact Mark.
- AMIP-style runs with data ocean; Contact Mark.
- on the wishlist: settings that allow a single-level shallow water setup
- future maintenance
- Next Telecon: Friday, June 12, 2009.