WACCM Development Discussion

For WAWG, June 2014

Science Priorities: Next Scientific Release (post 2014)

- New CCMI chemistry

- WACCM5: 'keep up with' CAM

- Gravity Waves: fixes and integration

- Increased vertical resolution

- Prognostic volcanic (MAM) aerosols

- WACCM X: Interactive Ionosphere-Plasmasphere

Simulation Priorities

- Last Millennium WACCM4 Run (850—2005)

  - 850 control (1100yr), 1850 control (200yr)

  - Joint with Paleo Group

- WACCM4 large ensemble runs? (1920-2080)

  - Last millennium run could be extended to 2050

  - Do multiple ensembles? (1920-2080)

  - Do NOT have time for this

  - Who is interested?

Software Engineering Priorities

- GW: intertial GW (Hanli), Bug fixes (Sean/Rolando, Isobaric Coord & Dry static Energy changes (Yudin).

- GW (2): Deep (Yaga) and Shallow Convection (Leslie/Yaga), Oro GW (Julio)

- QBO tuning (includes vertical levels)

- Volcanic Aerosols in WACCM5, CAM5 (Mills)

- Chemistry: CCMI chemistry (Vitt, Kinnison)

- Ionospheric Electrodynamics (Liu, McInerney)

Proposed Timeline

- WACCM- CCMI (CESM Tag as Tarball)

- Developments by Early 2015 (on main dev trunk):

  - Updated GW

  - Prognostic Volcanic Aerosols

  - CCMI Chemistry

  - WACCM-X Ionosphere

- Joint Strategy with AMWG (and other WGs)

  - Dy Core, Vertical Resolution, GW, Model Tops, Transport

- Integrate WACCM5 with CAM5+ physics: Spring 2015

  - Prepare for WACCM6 in CESM2

- WACCM6 release in CESM2 (June 2016)

WACCM Graphical Timeline

CAM5+ Available

| Now | 2015 | 2016 | CESM2 |

Releases | 1.0.6/1.2.2: SC, stability fixes | WACCM-CCMI | | WACCM6 WACCM6X

Development
GW
CCMI Chemistry
Prognostic Volcanic Aero
Ionosphere Electro

Joint Decisions
Vertical and Horizontal Resolution
Dynamical Core/Transport Scheme
GW in CAM

Integration
Prognostic Volcanics
Test with CAM5+ Physics
Iterate with CAM, other WG

WACCM 'Finalization'