SPCAM Genealogy

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CMMAP
Reach for the sky.

"Official" SPCAM Releases

name	CAM version	SAM version	released
cam3_sp (SPCAM3.0)	3.1	6.4.2	2006
SPCAM3.5.0	3.5.11	6.7.5	2009
SPCAM5	spcesm1.1.1	6.8.2	2013

The Original: cam3_sp (SPCAM3.0)

- 18-year AMIP simulation available

- Available at CMMAP subversion repository (created in 2010)
  https://svn.sdsc.edu/repo/cmmap/cam3_sp

  - Mike Pritchard has made a number of nice additions (e.g., T and q budget closure test, enhanced output capabilities)

- **Limitation:** max number of cores per node for SLD T42 grid is 64

- CRM code is Fortran-77

The Next Generation: SPCAM3.5.0

- no AMIP simulation available?

- Available at **https://svn.sdsc.edu/repo/cmmap/SPCAM**

- MJO as well as rain and cloud climatologies not as good as cam3_sp

  - tuning issue related to FV versus SLD dynamical core?

- CRM code is Fortran-90

Official NCAR Release

- Not yet on the trunk but it's coming

- **https://svn-ccsm-release.cgd.ucar.edu/ model_development_releases/spcam2_0-cesm1_1_1/**

- Can run with CAM4 physics + single moment microphysics + CAMRT radiation OR CAM5 physics + double moment microphysics + RRTM radiation

- Other major additions from Minghuai Wang (originally called **MACM**)

    - incorporation of CLUBB, ECPP, etc.

- Can run fully-coupled by setting up appropriate compset

Other Versions

- **SPCCSM3 / SPCCSM4:** fully-coupled version (Cristina Stan)

  - both use same version of SAM (6.6.4)

  - degradation of results in SPCCSM4 compared to SPCCSM3

- **SPCESM4:** CAM4 fully-coupled version (Mark Branson)

  - how does MJO look in this version?

- **SPCAM-IPHOC:** coupled to turbulence scheme (Anning Chen, Kuan-man Xu

- others?

What Else Do We Know

- Is the FV dycore the culprit in the degradation of the MJO? **Mike: Maybe.**

- Were updates to the CRM in SPCAM3.5.0 the culprit? **Marat: Maybe?**

- OR: **Changes in the exterior host model are responsible (CAM3.1 to CAM3.5)?**

- In developing the multi-instance SPCAM we found that the meridional CRM winds were turned off.

  - turning them back on didn't make a huge difference on the MJO results

  - Mike ran cam3_sp with them turned off, no significant differences