Community Earth System Model
(CESM)

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CESM2 targets and timeline

• CESM2 release June 2016
• 2 main target configurations for CMIP6
  ➢ 1-degree CAM5.5-FV
    ➢ for BGC/Chemistry/WACCM/Paleo/…
  ➢ ¼-degree CAM6-SE
• CAM5.5 to be finalized by winter AMWG 2015 and released by June 2015 to allow for testing and development of other components
• Start CMIP6 simulations second half of 2016
Planned versions: ocean at 1º

1. physical climate (1º, low-top) (1x)
2. + biogeochemistry (1º, CO₂ emission and/or concentration driven, low-top) (1.6x)
3. + atmospheric chemistry + biogeochemistry (1º, CO₂ emission driven, high-top) (8.5x)
4. physical climate (1/4º atm, low-top) (150x)

Overall computing time undefined but likely > 80K 1x years

Notes:
1. ocean at 0.1º research topic (scaling of computational cost relative to to version #1)
2. Scaling subject to model development and optimization
Interest in MIPs

• Largest limitation will probably be people-driven!

• Initial internal selection based on specific interest by community (need someone “championing” the MIP)

• Strong investment in biogeochemistry and high-resolution

• Easier to run ensembles/long simulations than multiple experiments
List of primary interests in MIPs

- AerChemMIP
- C4MIP
- CFMIP
- DAMIP
- DCPP
- GeoMIP
- HighResMIP*
- ISMIP6
- LS3MIP
- LUMIP
- OMIP
- PMIP
- RFMIP
- ScenarioMIP
- DynVar
High-res tunings
- Bug fixes
- MAM4
  - Energy changes
- Code speed-up

CAM5.3
- High-res timeslice
- MAM4
- Control Simulations fv1,fv2,ne30
- Other physics
  - CSLAM
    - Ice + mixed phase
    - Convection micro
    - TMS, Dust emis.

MG2
- Coupled Simulations

CLUBB+MG2
- Coupled Simulations

UNICON
- Coupled Simulations

Unlikely to have both for CAM5.5

November 2014

February 2015