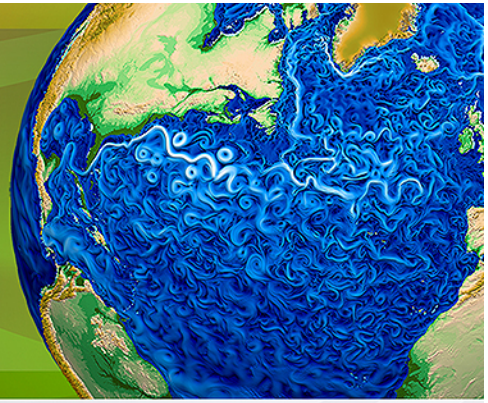
ACME
Accelerated Climate Modeling for Energy



Coupled Simulation v1 alpha

U.S. DEPARTMENT OF ENERGY

- By the end of 01 Nov 2015 Issue Pull Requests (PRs) for each feature (feature freeze)
- 01 Nov 2015 - 31 Dec 2015 Create documentation on Phase 2 process of Code Review for features or their aggregate
- 31 Dec 2015 ACME v1.0-alpha - coupled tests and validation from this point on
- 31 Mar 2016 ACME v1.0-beta - configuration and switches decided for all 3 major experiments, only tuning from this point on
- 30 Jun 2016 ACME v1.0 tag
- 01 Jul 2016 Start running all 3 major experiments
- 30 Jun 2017 Complete all 3 experiments

V0.1

Baseline simulations will be complete by December 31

PI control – 100 years

Climate change 1980-2010

- *Model was not retuned*
- *Simplified, steady-state forcing; system response is time-dependent*

Tuning Considerations

- *Baseline metrics serve as basis for measured improvements – also set constraints for tuning*
  - Climatology and trends of zonal precipitation
  - Climatology and trends of zonal top of atmosphere incoming and outgoing radiation
  - Climatology of surface winds
  - Climatology and trends/seasonal cycle of sea ice area fraction (%) and thickness (m)
  - Climatology and trends of SST
  - Trends of ocean heat content
  - Climatology of meridional ocean heat transport, and climatology and trends of MOC mass transport
  - Nino3.4 index

V1 Coupled system Tuning

- Chris Golaz is task leader
- Want a consistent set of tuning parameters for both PI and year 2000
- Priority for people and computers
- Simulated Years per Day
- Triage
  - Committed to new ocean and sea ice
  - Everything else optional – fall back to v0 for other components