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 1°

1. physical climate (1°, low-top) (1x)
2. + biogeochemistry (1°, CO_2 emission and/or concentration driven, low-top) (1.6x)
3. + atmospheric chemistry + biogeochemistry (1°, CO_2 emission driven, high-top) (8.5x)
4. physical climate (1/4° atm, low-top) (150x)

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

Notes:

1. ocean at 0.1° research topic
2. Scaling subject to model development and optimization

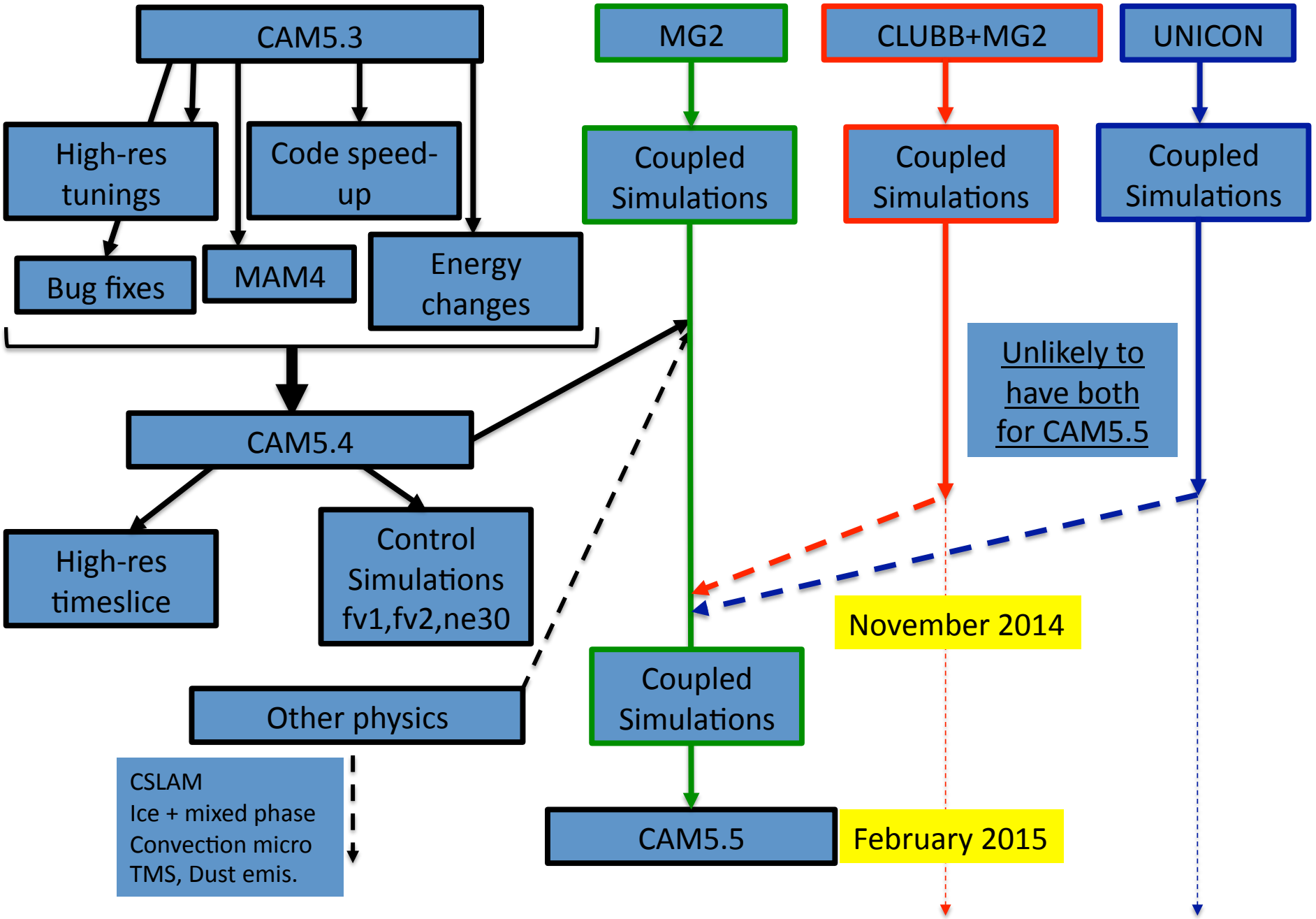
(scaling of computational cost relative to to version #1)

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


CAM5.3
High-res tunings
Code speed-up
Bug fixes
MAM4
Energy changes
CAM5.4
High-res timeslice
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
Coupled Simulations
CAM5.5
February 2015