



# Ocean Model BGC Ongoing Developments

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# Background

- Ocean BGC was frozen in Fall 2009
- Inclusion of Ocean BGC in CESM1 release in Summer 2010 is milestone/reference point
- Preliminary timeline for CESM1.5 has release in Fall-Winter 2012
- CAM5, prescribed aerosols, HOMME dycore to be frozen in Summer-Fall 2011 for use in development of other components

# Developments for Version Next

- Functioning Diagnostics Package
- Fe/C stoichiometry, growth and grazing updates
- River Inputs of Nutrients
- Improved DOM cycling
- Coupling to a simple sediment model
- $\text{NH}_3$ ,  $\text{N}_2\text{O}$  surface emissions
- Ocean Acidification Feedbacks
- Enhancement of Calcifying Functional Groups
- Treatment of Sea-Ice Heterogeneity
  - PAR yes, sinking particles maybe
- Isotopes (C,  $\text{O}_2$ , N)
- Couple to Sea-Ice Algae
- Get Newton-Krylov fast spinup working at x1