

CICE Development Timelines

The path towards CESM2 and CMIP6

Implement CICE5 within CESM1.2
Coupled control run with CICE4 options

Test CICE5 Options in coupled
control runs, compare to CICE4

Physics/Resolution
decisions for CICE5

**CICE5 released
(functional?)**

Coupled Runs
with CICE5 final configuration

**CICE5 released in
CESM2 for CMIP6**

2014 Winter 2014 Breckenridge 2015 Winter 2015 Breckenridge 2016 Winter 2016 Breckenridge (CESM2)

CICE5 options to test

- ✓ Mushy thermodynamics (prognostic salinity) - **Run in progress**
- ✓ Form drag (not expensive, “no brainer”)
- ✓ Melt ponds (as long as you have one it doesn’t make a huge difference which one in stand-alone CICE tests). Options: level ice (more expensive but more accurate in a changing climate), topo (based on present day observations)
- ✓ Anisotropic rheology (4-5x increase in cost and changes solution so it will require re-tuning the model, is it worth it?)
- ✓ Other parameters in CICE5 (Elizabeth)
- ✓ Skeletal Layer BGC (skl-BGC) parameters

- ✓ BGC aerosols including iron – coupling to the ocean?
- ✓ Vertical BGC + new aerosols (zBGC) -- summer 2014 in CICE5
- ✓ Coupling to ocean (all BGC) ?

- ✓ Number of thickness categories (more resolution in thicker ice bins?)
- ✓ Number of vertical levels (7 evenly spaced, more?)

