



Plans for Sea Ice Component of CESM3 and Diagnostics

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Why build a CICE Consortium?

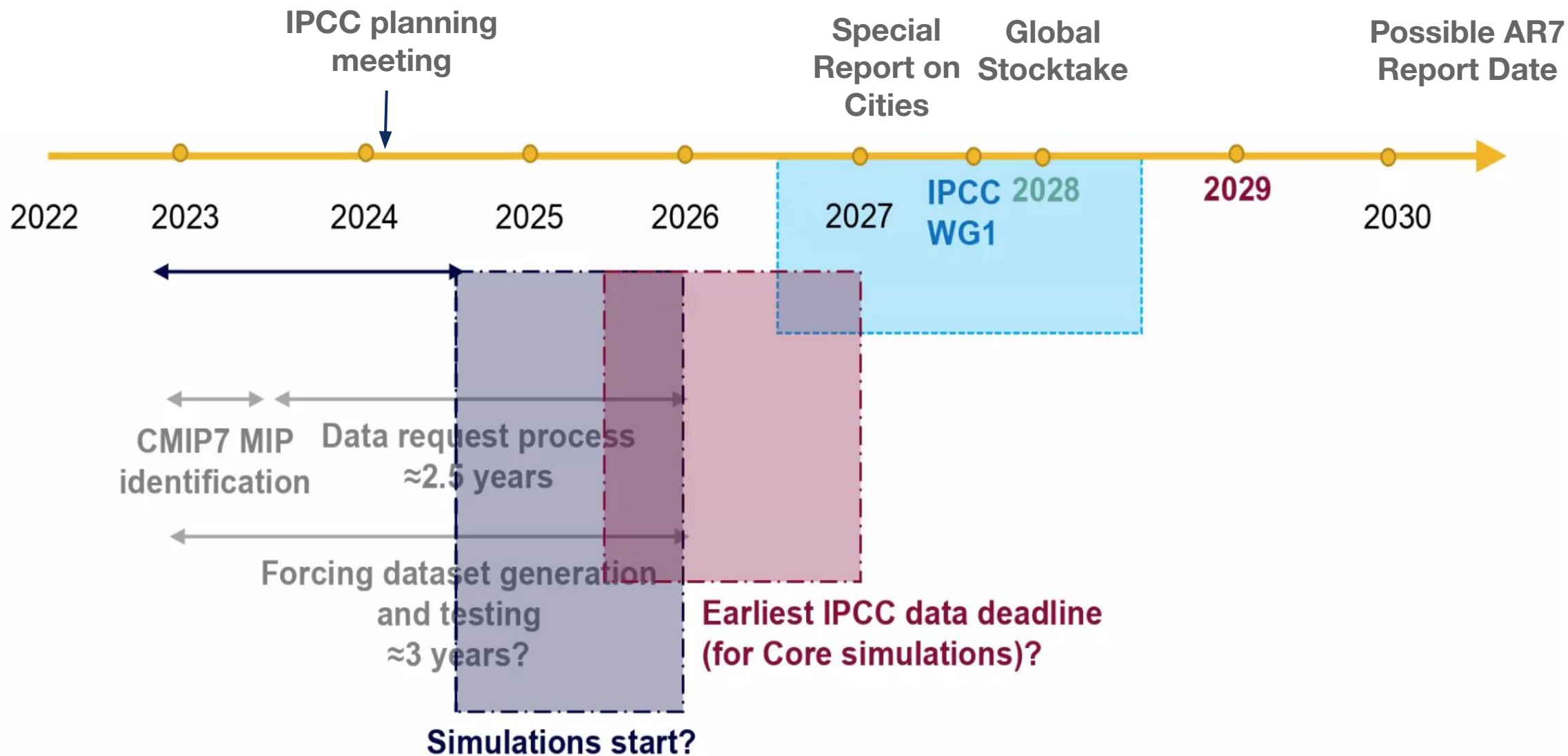
To enhance sea ice model development for and by the
community

- Acceleration of scientific development
- Acceleration of R&D transfer to operational use
- Vehicle for collaboration and sharing

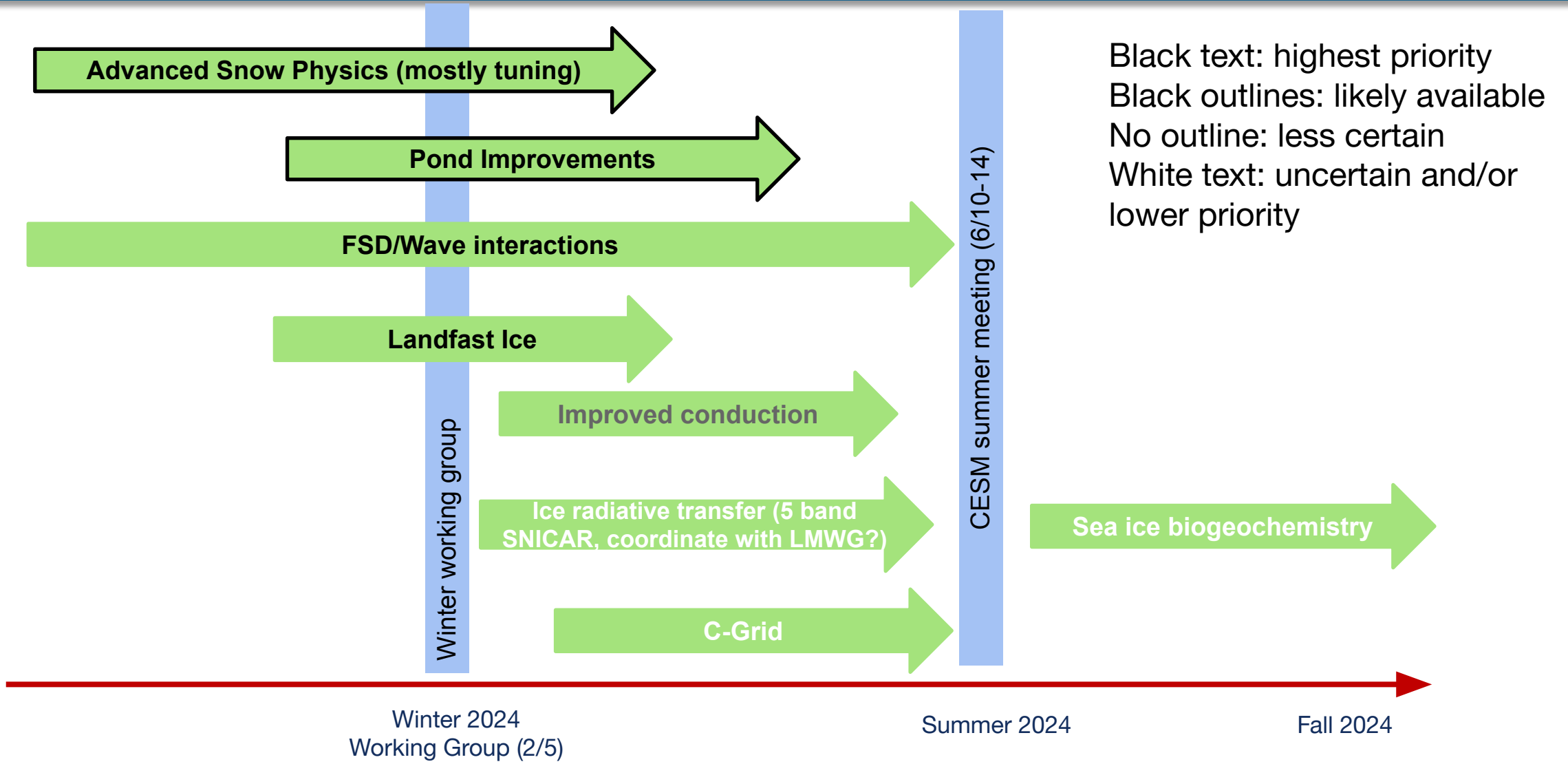
<https://github.com/CICE-Consortium>



Draft CMIP7 Timeline



PCWG Sea Ice Plans



Methods – Single Column Modeling

Atmosphere Measurements



Ocean Measurements



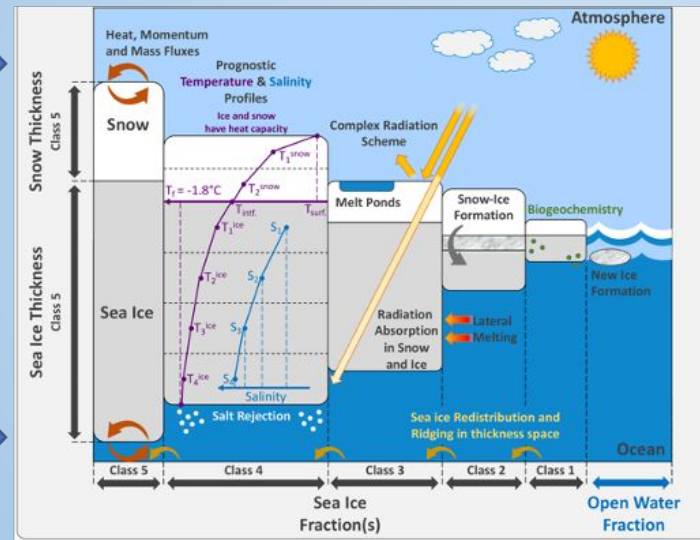
Photo: J. Schaffer

Snow and Ice Measurements



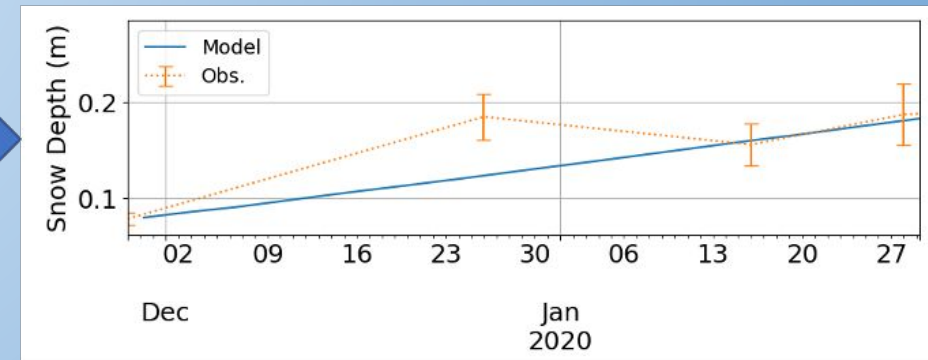
Photo: D. Clemens-Sewall

Icepack SCM



Zampieri (2021)

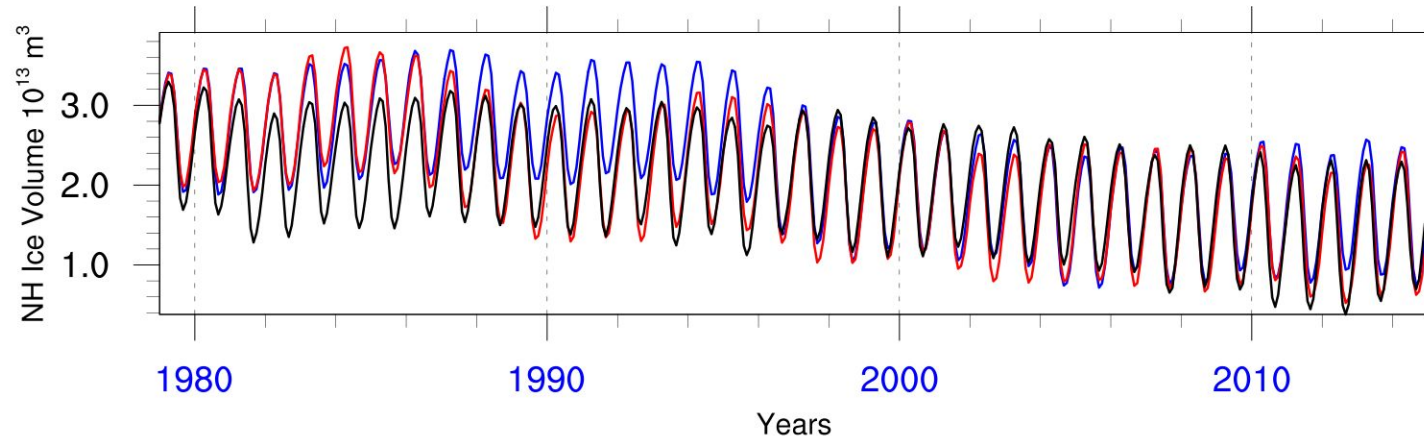
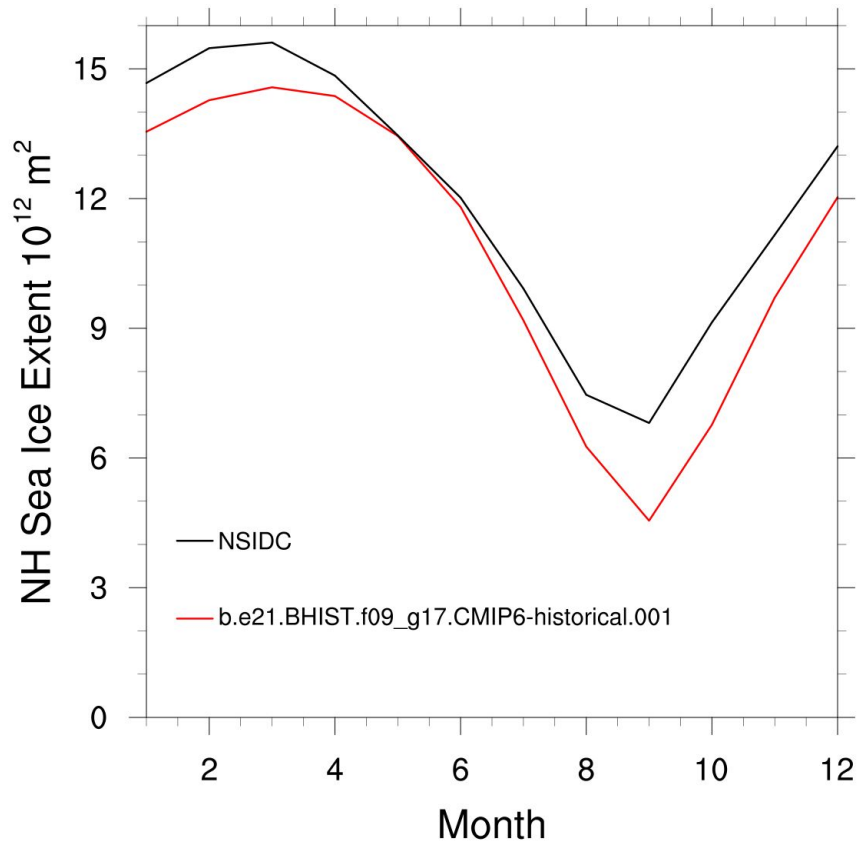
Model Validation



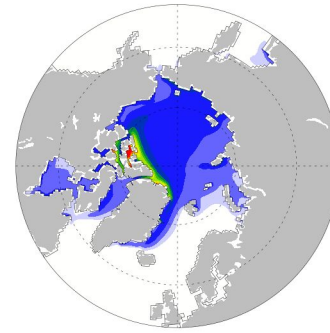
Slide courtesy of D. Clemens-Sewall

“Old” Sea Ice Diagnostics

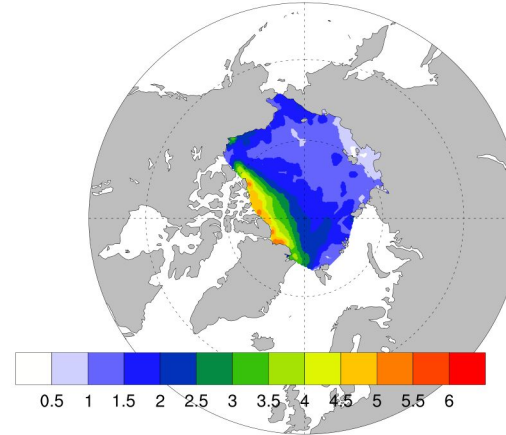
- qualitative comparisons to observations: NSIDC, IceSat, PIOMAS, ASPECT



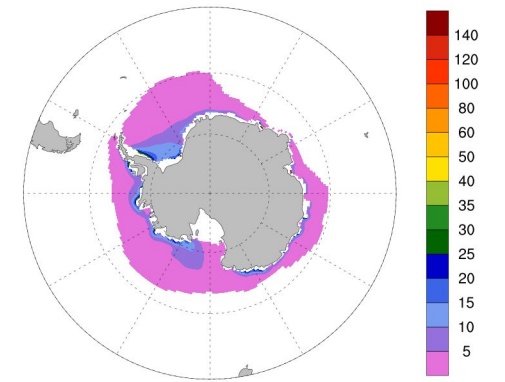
Ice Thickness (m)
b.e21.BHIST.f09_g17.CMIP6-historical.001 (FM) 1985-2014



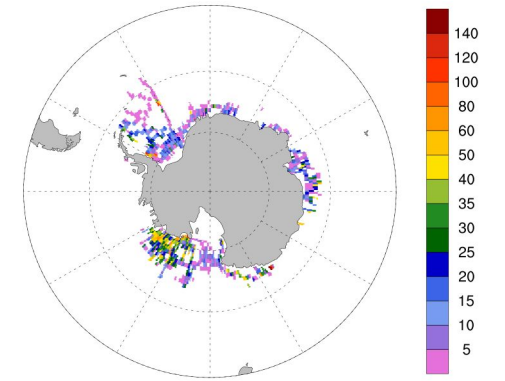
IceSat (FM) 2001-2005



Case b.e21.BHIST.f09_g17.CMIP6-historical.001
JFM Mean Years 1985-2014
grid cell mean snow thickness cm



ASPeCt 1x1 grid mean snow depth cm





CUPiD: CESM Unified Postprocessing and Diagnostics

Python Framework for Generating Diagnostics from CESM

Project Vision

CUPiD is a collaborative effort that unifies all CESM component diagnostics and provides

- Python code that
 - i. runs in an easy-to-generate conda environment, and
 - ii. can be launched via CIME workflow or independently
- Diagnostics for single/multiple runs and single/multiple components
- Ability to call post-processing tools that other groups are working on
- An API that makes it easy to include outside code
- Ongoing support and software maintenance

Installing

To install CUPiD, you need to check out the code and then set up a few environments. The initial examples have hard-coded paths that require you to be on `casper`.

The code relies on submodules to install `manage_externals` and then uses `manage_externals` for a few packages that are still being developed, so the install process is a little more complicated than usual.

Deployments 7

✓ github-pages 2 weeks ago

+ 6 deployments

Languages

● Python 100.0%

New Python Notebook

https://webext.cgd.ucar.edu/BLT1850/b.e23_alpha16g.BLT1850.ne30_t232.059/ice/b.e23_alpha16g.BLT1850.ne30_t232.059-b.e23_alpha16b.BLT1850.ne30_t232.054/seaice.html