CESM2 PCWG Update
and NCAR Computing Cheatsheet

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Sea Ice Component

- CESM2 will contain version 5.1.2 of the Los Alamos Sea Ice Model (CICE).

- New physics including the mushy-layer physics of Turner and Hunke 2015.

- Level ice melt pond scheme of Hunke et al. 2013.

- The vertical levels in the sea ice have been increased from 4 to 8 and in the snow from 1 to 3.

- We have also moved to a temperature dependent freezing point of Assur, 1958.

CESM2 Development Runs
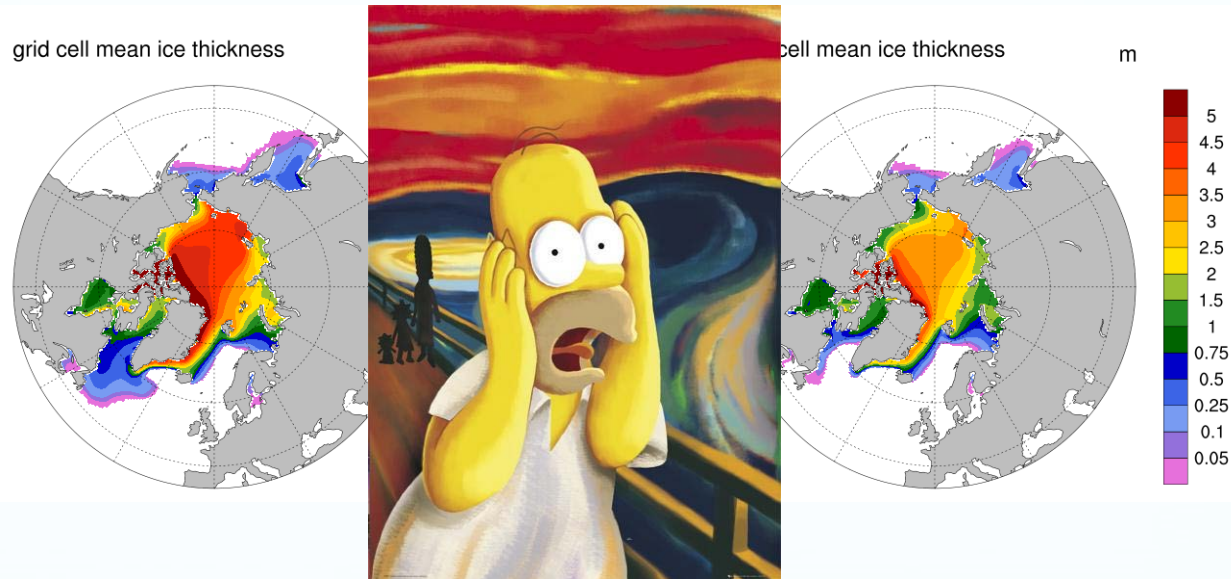
- "Gustiness" flux modification following Mahrt and Sun 1995. i.e. increase wind speed in flux calculation over ocean and sea ice when air temperature is 10C colder than surface.
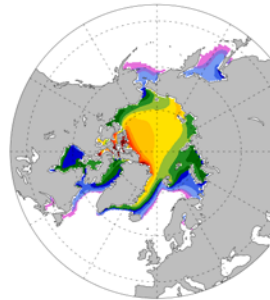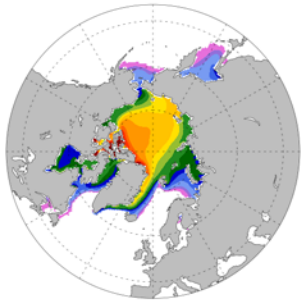- CLUBB moisture flux bug.

CESM2 Development Runs
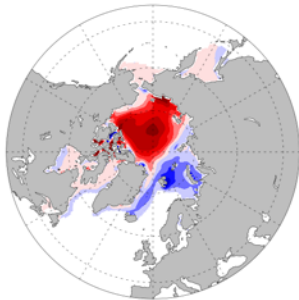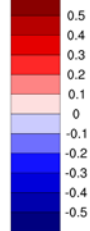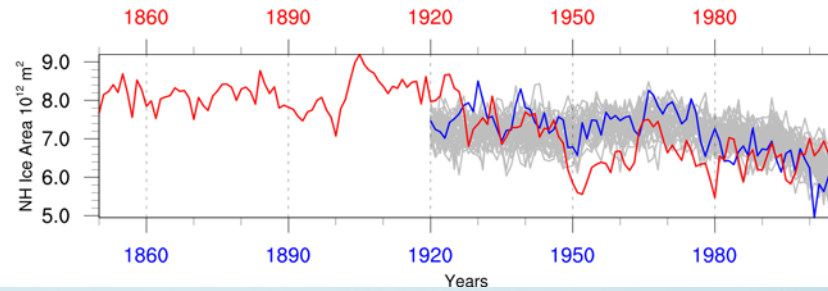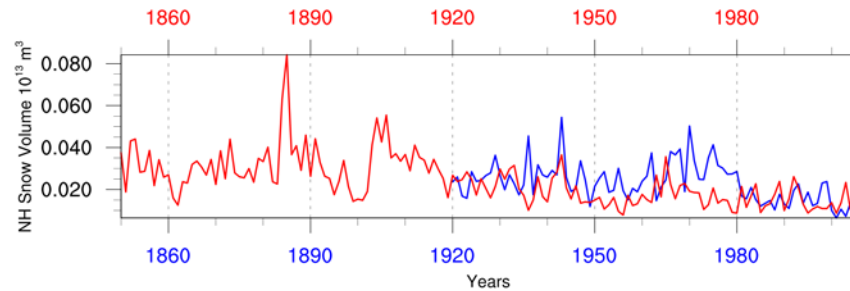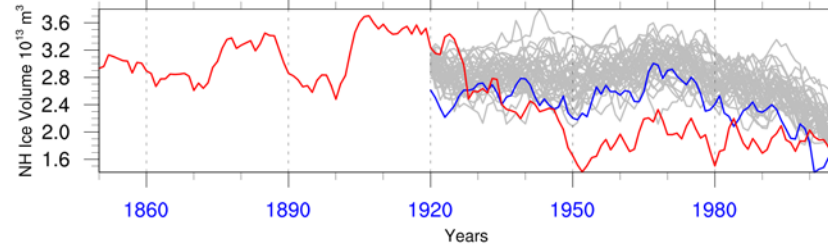
Arctic System Change Workshop

The workshop will address the natural and anthropogenic drivers of Arctic change. This will include a system-wide perspective on the changing Arctic system, the influence of local and remote controls, and the importance of coupled interactions. A primary goal of the workshop is to provide new insights on how to better integrate observing and modeling approaches to enhance understanding of Arctic system change. The meeting will include participants from the atmospheric, terrestrial, and marine science communities.

http://www.cgd.ucar.edu/events/20180409/

To apply for early career scientist funded travel, please fill out the form at:

https://goo.gl/mm3N1D

CESM Tutorial

There is also an annual CESM tutorial held in July/August and pieces of this are focused on the sea ice component.

Targeted at 2-3 year graduate students.

The next one is August 6-10, 2018 at the NCAR Mesa Lab in Boulder.

The course materials (lectures and exercises) are also available online at:

http://www.cesm.ucar.edu/events/tutorials/

We will also have a formal module available soon through the NCAR COMET program!

Polar Tutorial

There is a follow on workshop titled "Enabling US Early Career Researchers to Advance Polar Science using High Performance Computing and Earth System Modeling". If your research involves any aspects of polar science (polar atmosphere, ice sheets, sea ice, tundra/permafrost) then we encourage you to also apply to this workshop following the CESM Tutorial.

Dates: August 13-17, 2018

CICE Consortium Organization

Executive Oversight Board
DOE/ACME, DoD/NRL, DoD/NPS, NOAA/NWS/GFDL, NSF/NCAR, ECCC

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LANL

Co-Lead
[TBD]

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Cheyenne Quick Start

Important changes from yellowstone:

1. PBS batch system (qsub, qdel, qstat)

#PBS -N ice_averages
#PBS -q regular
#PBS -l select=8:ncpus=4:mpiprocs=4
#PBS -l walltime=01:00:00
#PBS -A P93300665

2. Compile on compute notes using qcmd

qcmd -- ./case.build (note the double dash)

3. Modules are your friend.

module spider
module avail
module list
module load netcdf

https://www2.cisl.ucar.edu/resources/computational-systems/cheyenne/quick-start-cheyenne

New Geyser/Caldera Quick Start

Important changes from old geyser/caldera:

1. SLURM batch system (sbatch, scancel, squeue)

```
#SBATCH -J getrest
#SBATCH -n 1
#SBATCH -N 1
#SBATCH --ntasks-per-node=16
#SBATCH -t 12:00:00
#SBATCH -A P93300665
#SBATCH -p dav
#SBATCH -e getrest.err.%J
#SBATCH -o getrest.out.%J
```

2. New scripts to access Geyser/Caldera nodes:

execgy (interactive geyser access)
execca (interactive caldera access)
execdav -a account -n ncores -t hh:mm:ss -m memory -g gpu (generic)

https://www2.cisl.ucar.edu/resources/computational-systems/geyser-and-caldera

CESM2 Changes

- All of the batch directives are handled in the CESM scripts (case.build, case.submit, etc.)

- The batch system variables are in env_batch.xml.

- CESM Postprocessing (Python/NCL)
  - Multi-variable, single time slice to single variable, multiple time slice processing.
  - Sea ice diagnostic plots.
  - Comparison to LENS.

CESM Migration to Github!

https://github.com/escomp