## **SEWG Welcome**









## Agenda

#### Tuesday, June 10th - 1:00PM to 3:00PM

\* All times are MDT; Speakers: 10-12 min. talk. Please leave 3-5 min at the end of your slot for questions.

Time	Торіс	Speakers
1:00p	Welcome	Ligia Bernardet and Michael Levy
1:10p	ESMF updates and roadmap	Ann Tsay
1:25p	Progress in Expanding the Unified Forecast System to Multiple Dynamical Cores	Ligia Bernardet
1:40p	Update on CAM-SIMA and the development of CCPP physics	Jesse Nusbaumer
1:55p	How do we Help Scientists Embrace their Inner Research Software Engineer (RSE)?	Erik Kluzek
2:10p	Chiltepin: A Federated Workflow System For Earth Science	Christopher Harrop <del>(remote)</del>
2:25p	UXarray: Streamlining Analysis of CESM Model Output on Native Grids	Philip Chmielowiec (remote)
2:40p	Discussion	everyone

## Agenda

Beyond this session:

- Erik Kluzek poster yesterday
- Cheryl Craig history talk later today
  3:30pm 30th Anniversary Celebration
- Happy Hour tomorrow (Wed, June 11)
  5:30p at the Rayback Collective
  2775 Valmont Rd in Boulder
  just west of 28th and Valmont



# **NOAA Updates**



## **Unified Forecast System**



- Community model supported by <u>EPIC</u> and used by NOAA
- Coupled global or limited-area model
  - **Atm:** FV3 dycore + CCPP Physics/smoke/dust
  - Marine: MOM6, CICE, WAVEWATCH
  - Land: RUC, Noah, Noah-MP, GFDL LM4
  - Fire and atmos composition: Community Fire Behavior Model, GOCART, CMAQ
- **Apps:** Short-Range Weather, Hurricanes, Medium-Range Weather, Subseasonal, Seasonal, Air Quality, Coastal
- Other infrastructure connections with NCAR, CESM, and SIMA
  - CMEPS, CDEPS, ESMF, FMS, ...
  - Exploring inclusion of MPAS-A dycore

## **Selected UFS News since Last Workshop**

### HAFS v2.1 -> July 2025



#### **RRFS v1 -> March 2026**



#### SFS v1 -> 2028



# Idealized capabilities released

## **Upcoming UFS/EPIC Workshop**

# Unifying Innovations in Forecasting Capabilities Workshop 2025





wнем: September 8 -12, 2025 WHERE:

UCAR Center Green Boulder, CO and online

# **CESM Updates**



## **Tags and Release Planning**

- cesm3\_0\_beta01 made right after last year's workshop
- cesm3\_0\_beta06 available now
- CESM 3.0 now planned as production release
  - Timeline for the release is still uncertain
  - Last year we expected development release and 3.1 as production

Production releases of CESM will be fully supported for five years after the date of the release or for one year after the next production release, whichever period is longer. We will strive to provide limited support beyond that date, particularly for users who started simulations during the support period but then require additional support after the official support period has ended (for example, because a paper reviewer has asked them to run additional simulations). Development releases will be supported only until the next development or production release. More details are provided below.

## Addition of DGLC and Ice Sheet Flux Simplification In CESM3

## • DGLC = Data Glacier Model or Data Land Ice

- A simple way to describe glacier impacts on climate, similar to CISM NoEvolve mode but with a few perks
- DGLC has a smaller code base and builds and runs faster than CISM NoEvolve
- Interior logic handles SMB and fluxes such that CLM can treat this exactly the same way as Active CISM (no special cases)



## Addition of DGLC and Ice Sheet Flux Simplification In CESM3

## • DGLC = Data Glacier Model or Data Land Ice

- A simple way to describe glacier impacts on climate, similar to CISM NoEvolve mode but with a few perks
- Includes a simple SMB "hole filling" parallel algorithm to greatly reduce the amount of negative water fluxes to the ocean
- All land ice fluxes rerouted to the runoff model (instead of direct to ocean) to simplify mapping.



## **CTSM documentation overhaul**

Aim: Fix and simplify documentation process in advance of content updates for upcoming release.

- Added GitHub Workflows to check for issues before merging
- Documentation website now automatically updates when source files change
- Simplified instructions for building/previewing on personal machines



/ Welcome to the CTSM documentation for the latest

View page source

#### Welcome to the CTSM documentation for the latest development code

You are viewing the documentation for the latest development code. There are separate versions of this documentation for each maintained CTSM release (e.g., CLM5.0) and for the latest development code. Use the menu at the top left to select the version of CTSM you are using.

## **Quick Component Updates**

- CAM:
  - Released CAM70 physics (formerly CAM-DEV)
  - Dropped Eulerian dynamical core and SP-CAM configuration
- MOM6:
  - Added support for MARBL (BGC tracer package)
  - Improved ocean wave interactions
  - New scheme to improve submesoscale parameterization (Bodner et al. 2023)

Jesse Nusbaumer, Gustavo Marques

## CUPiD

## CUPiD integrated into CESM workflow

- **New** env\_postprocessing.xml file
- Can run after case.st\_archive or with

./case.submit --only-job case.cupid

- Introduced in latest beta tag
  - Current development focused on generating diagnostics for CESM3 runs
  - Cecile H is testing for us, more improvements coming in beta07 tag series

