

Thanks and acknowledgements



Mariana Vertenstein is the recipient of the 2010 CESM Distinguished Achievement Award.

How did I get here?

Blackforest

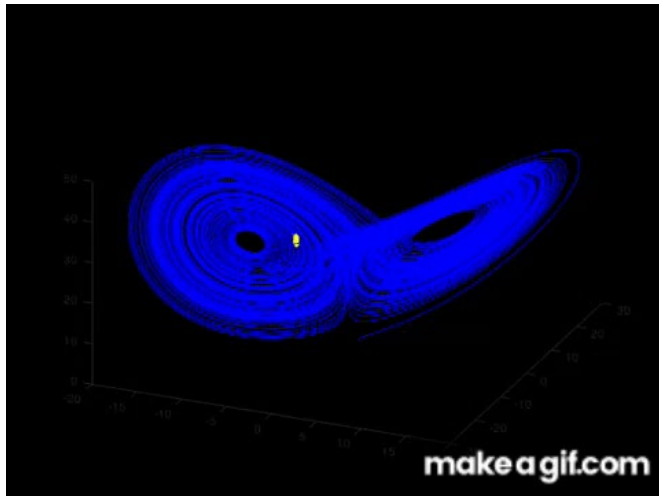
Peak teraflops: 1.96

Processors: 1,308

Clock speed: 0.38GHz

Memory (terabytes): 0.70

Electrical power consum



Derecho

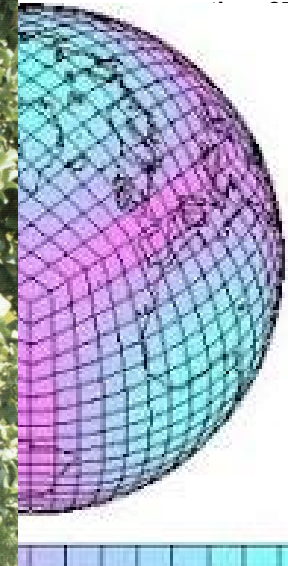
Peak teraflops: 198700

Processors: 323,712

Clock speed: 2.45GHz

Memory (terabytes): 692TB

Electrical power consum 10 kW



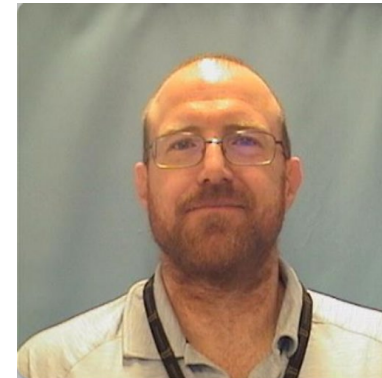
CIME CASE CONTROL SYSTEM

Steps to create an experiment:

1. `create_newcase` –
`case` `-res` `-compset`
2. `case.setup`
3. `case.build`
4. `case.submit`



Rob Jacob
ANL



Jim Foucar
SNL



Jason Boutte
LLNL



Unlocking the Power of CESM Climate Modeling for Everyone

*Jim Edwards ,
NCAR CGD Software
Engineer*

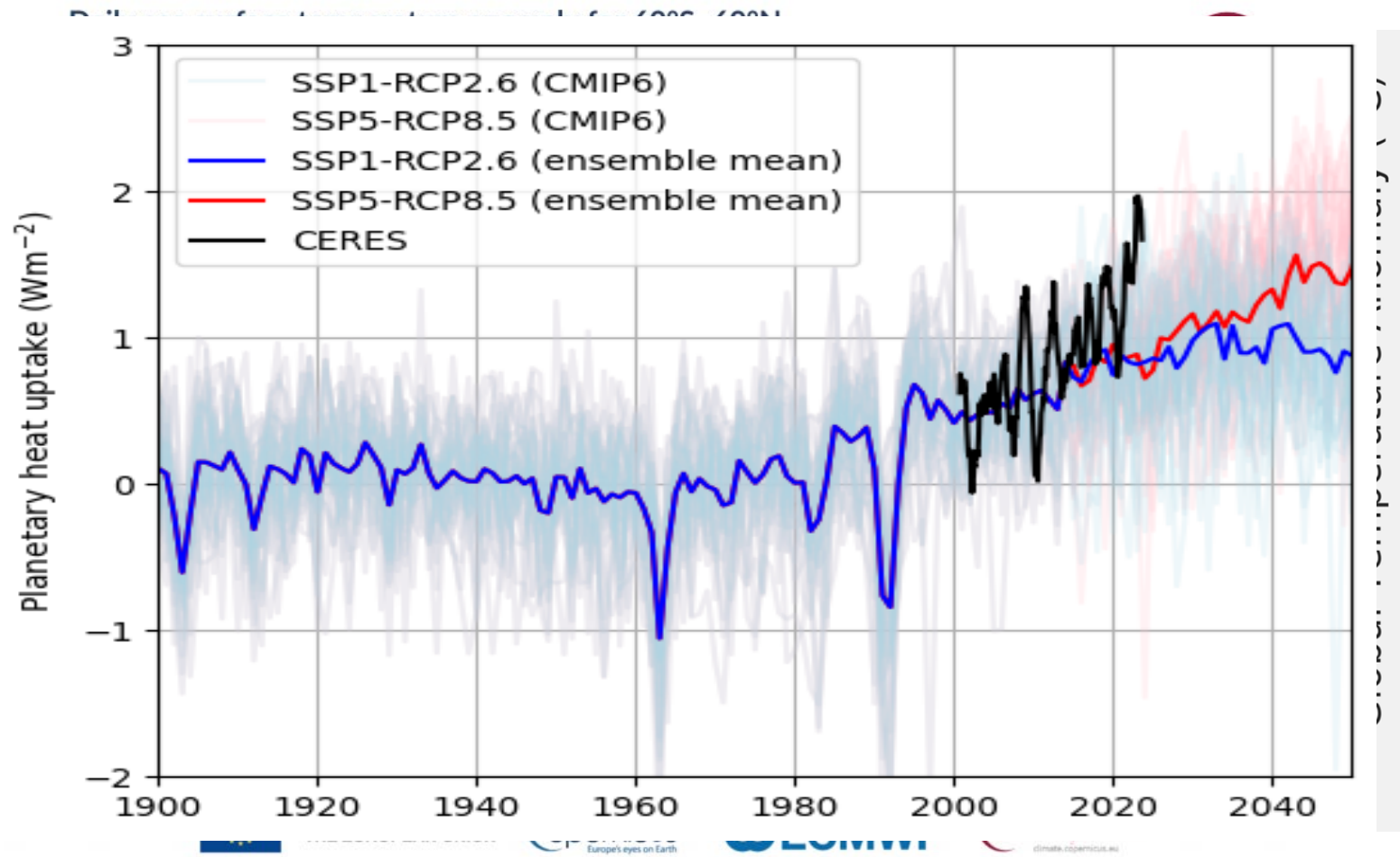
29th Annual CESM Workshop

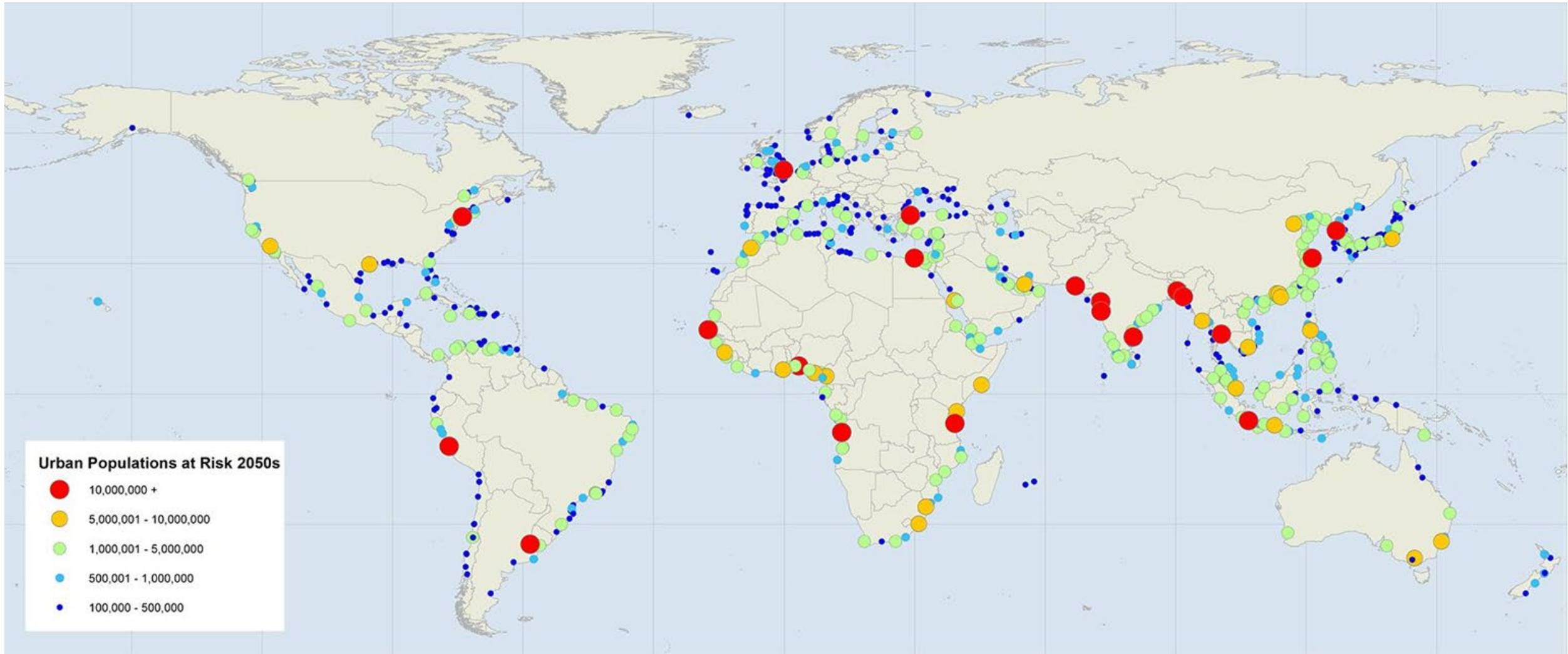
June 10, 2024



Outline

1. The immediacy of the climate crisis
2. Why I think improving our educational outreach is important.
3. Some current CESM projects that support education.
4. New projects we might consider.
5. How this will benefit the CESM community.





Populations at risk due to global sea level rise.

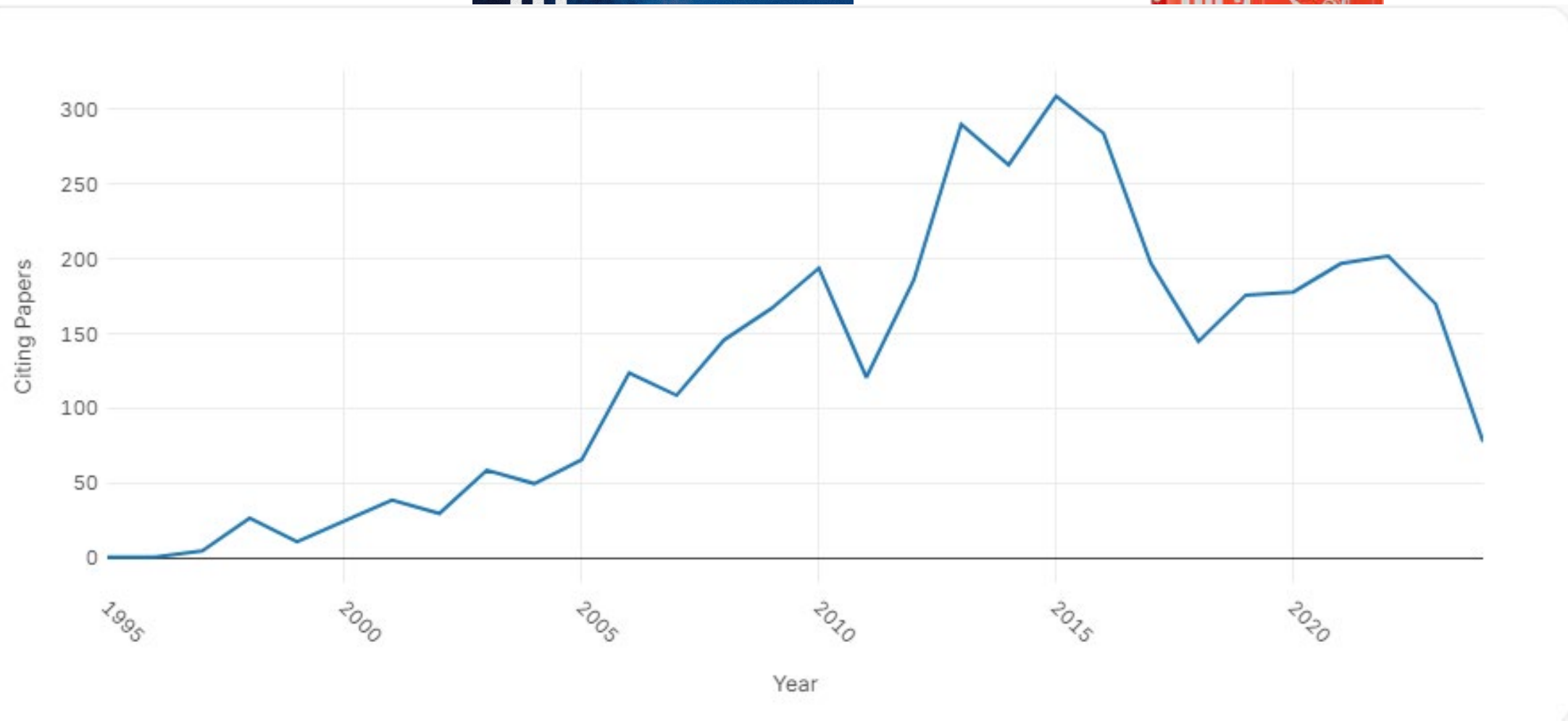
Tipping point



Climate change is no longer a hypothetical future that we should avoid, rather it is a real and present danger that we must learn to navigate.

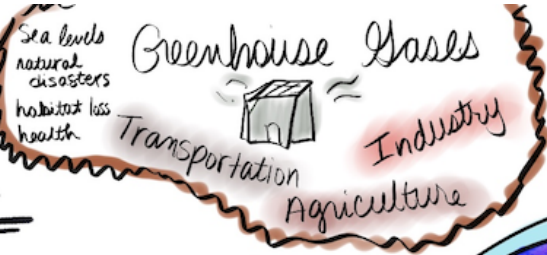
HOW TO

CESM citations



Climate Change

It's Not OVER Yet!



Sustainability

Lifestyle Choices



composting

Fair wage & treatment

Indigenous voices



Community

Local and Global

inclusion of non Westernized teaching



Heritage

Respect Culture

Placed Based



Justice

Identity

Motivation/Attachment

involvement



Ecosystem Health

Education



Connections

Internships



Nature

Conservation Protection

Comfort

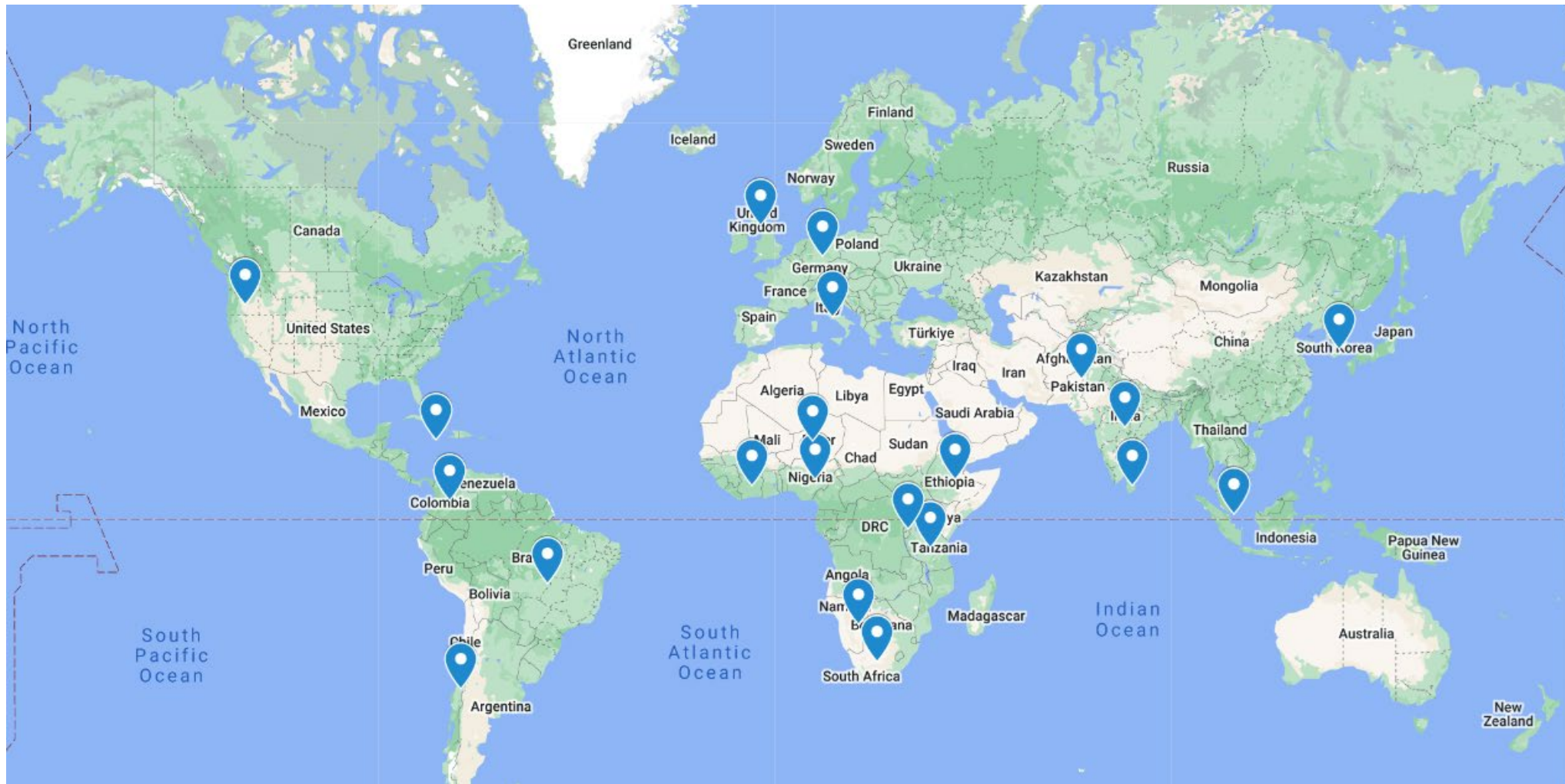
Outdoor exploration!



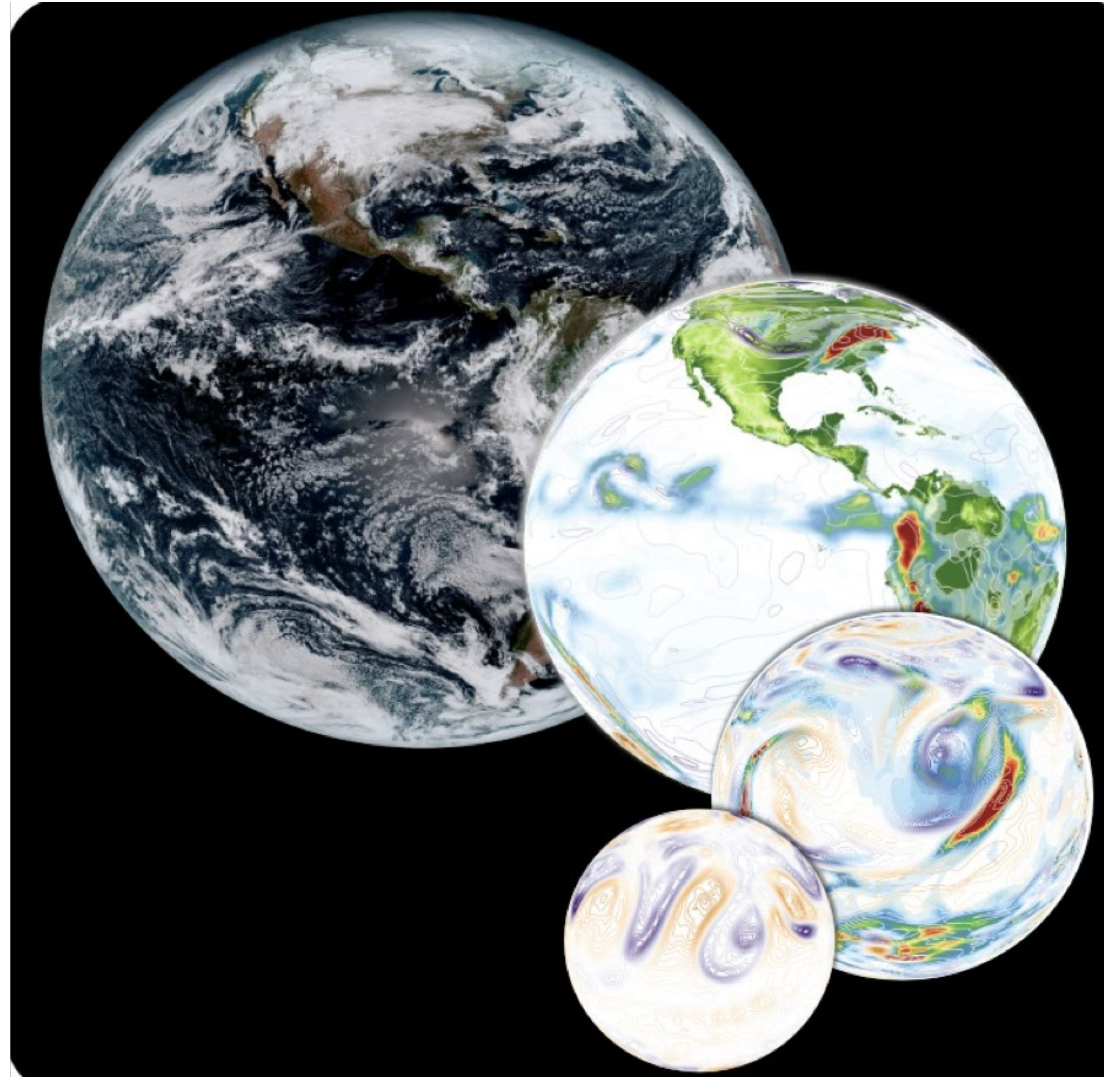
Hydroponics

Highlight species

CESM in Education: The CESM Tutorial

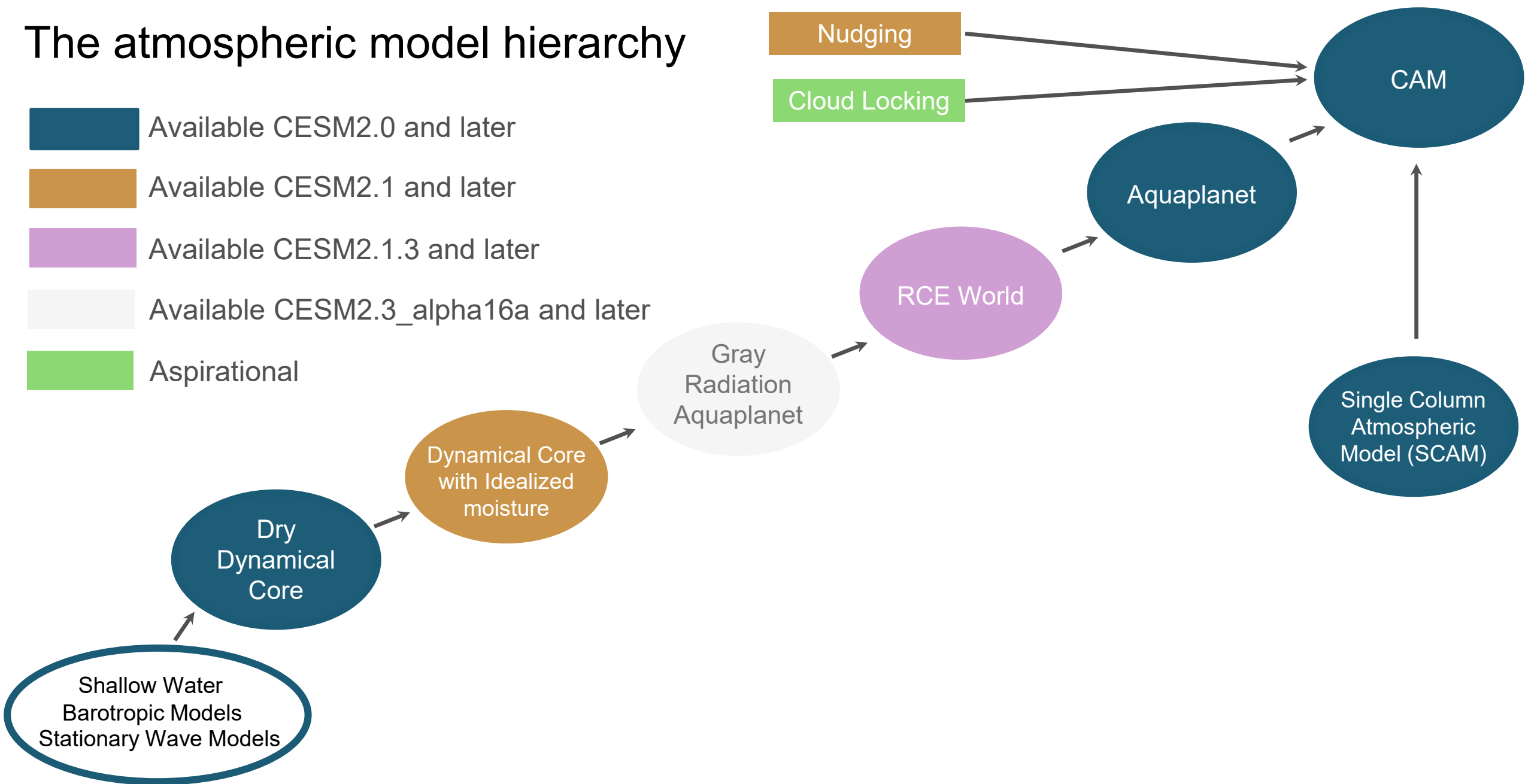


CESM in Education: CESM Simpler Models



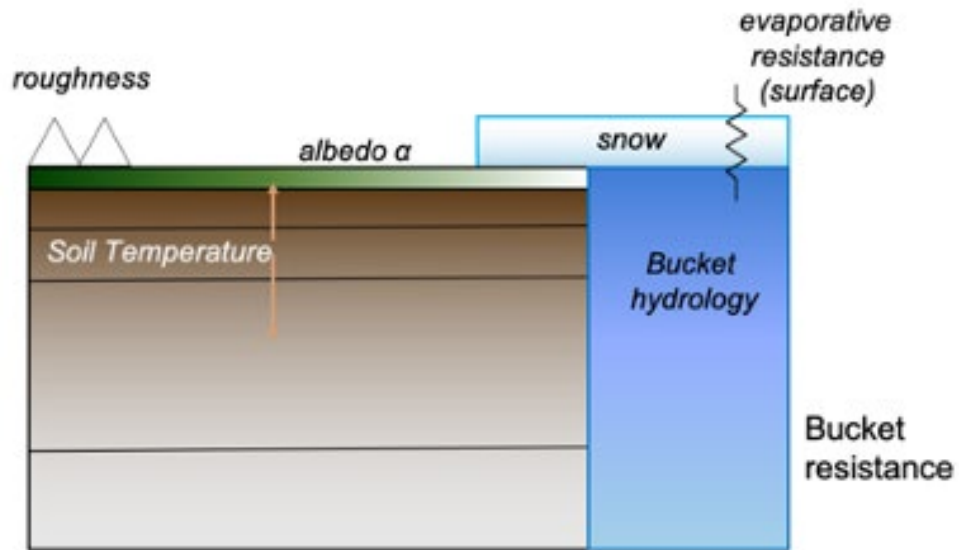
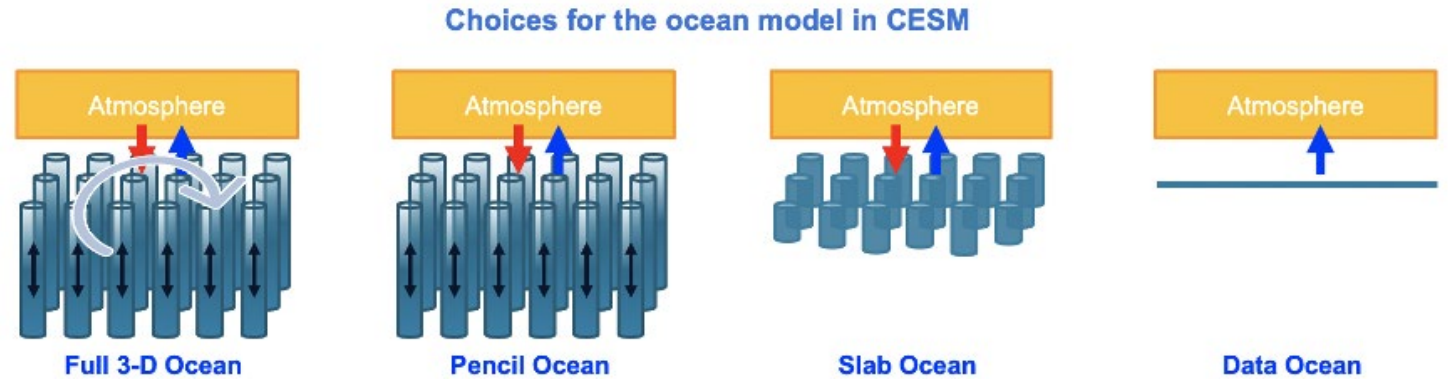
The atmospheric model hierarchy

- Available CISM2.0 and later
- Available CISM2.1 and later
- Available CISM2.1.3 and later
- Available CISM2.3_alpha16a and later
- Aspirational



CESM in Education: CESM Simpler Models

CESM in Education: CESM Simpler Models



SLIM (The Simple Land Interface Model)

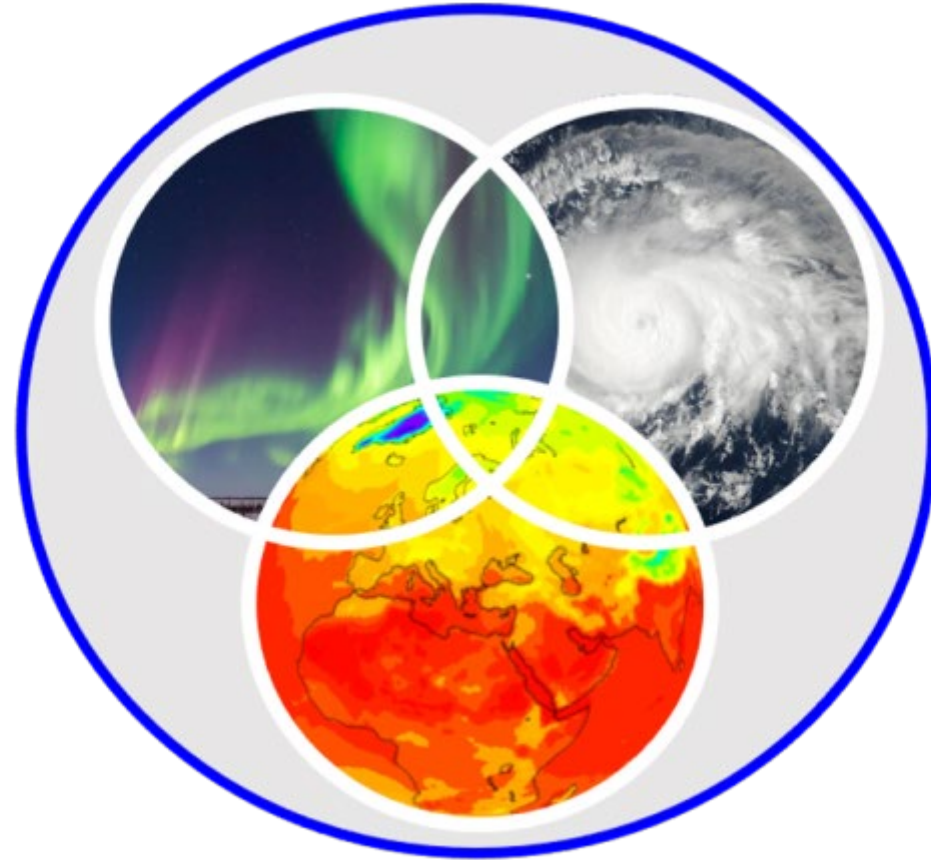
Idealized coupled Models

CESM in Education: CUPiD



CESM Unified Postprocessing and Diagnostics

CESM in Education: SIMA



System for Integrated Modeling of the Atmosphere

Ideas for improving our educational outreach

1. Provide suggested curriculum incorporating CESM for classes at all levels
2. Appoint an education and outreach liaison to improve communication between model developers and educators
3. Encourage and support outside contributions to CESM

All of these will require an increased investment in the CESM software infrastructure



CESM is:

- The most portable, configurable, customizable, climate model in the world.
- Ideally positioned as an educational tool.

Crowdsourcing has the potential to provide novel solutions to the myriad problems associated with a warming planet.

Growing the CESM community is our best hope of addressing these ever increasing challenges with considered scientific policies.

