A Community Earth System Model perspective on community modeling

Marika Holland
Climate and Global Dynamics Laboratories
NCAR

CESM Project Structure

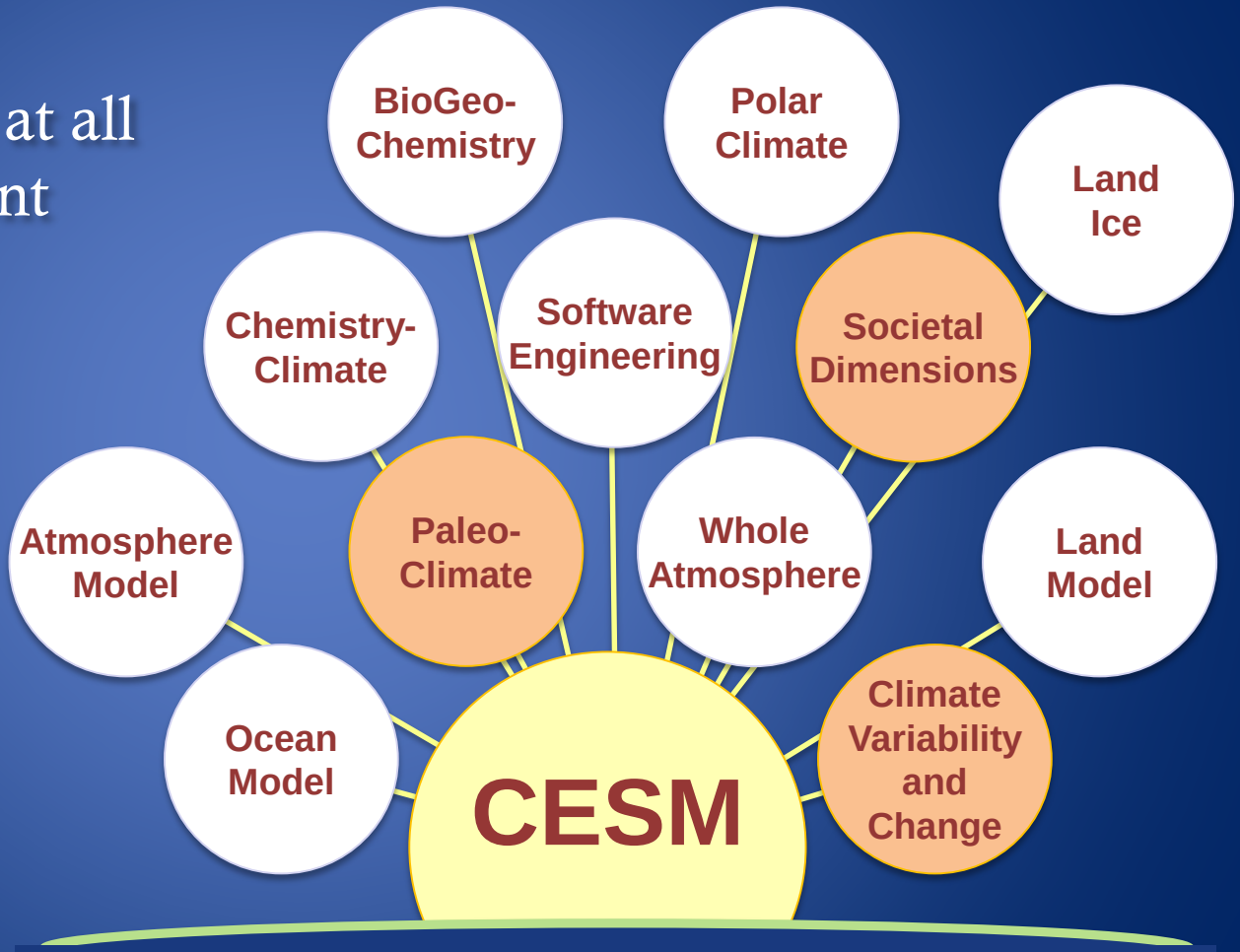
CESM Advisory Board

CESM Scientific Steering Committee

Community integrated at all levels of management

Working Groups open to all interested participants

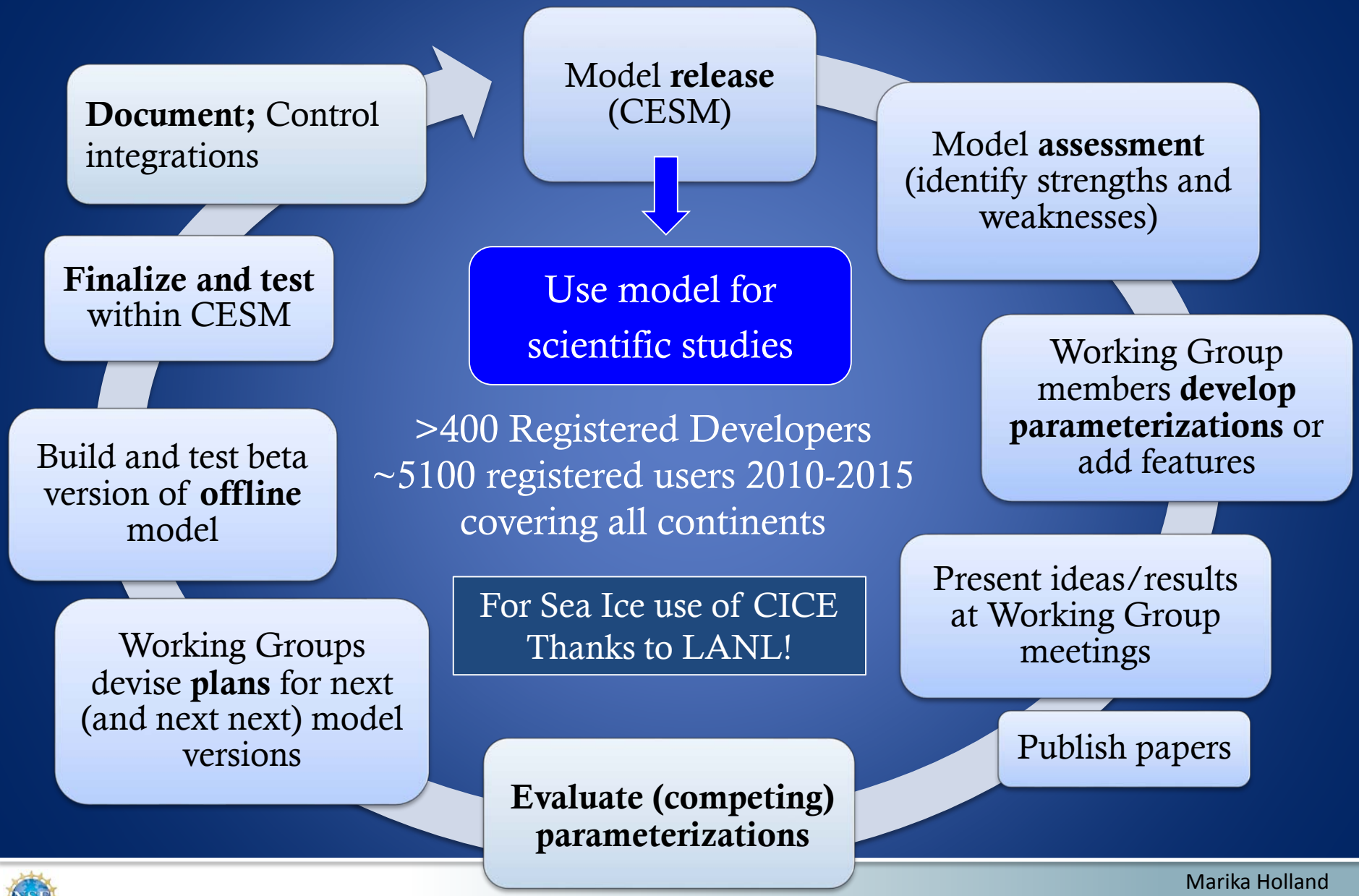
Most working groups have winter/spring meetings. Annual meeting in June.



http://www.cesm.ucar.edu/management

Marika Holland
mholland@ucar.edu

Community Model Development



Marika Holland
mholland@ucar.edu

Developer and User Support

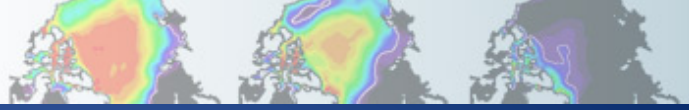
- Documented developers guidelines
- Model documentation – users & science guides
- DiscussCESM forums – Bulletin board help
- SE and Science liaisons
- Annual CESM tutorial – targeted at early career scientists
- Provision of diagnostic tools
- Provision of output from community simulations

Marika Holland
mholland@ucar.edu

"Community" in the CESM Project

- Project governance
- Model development process
- Availability of well-tested/documented code
- Dedicated community support
- Availability of model diagnostic tools
- Tutorials and training
- Availability of community simulations

Marika Holland
mholland@ucar.edu



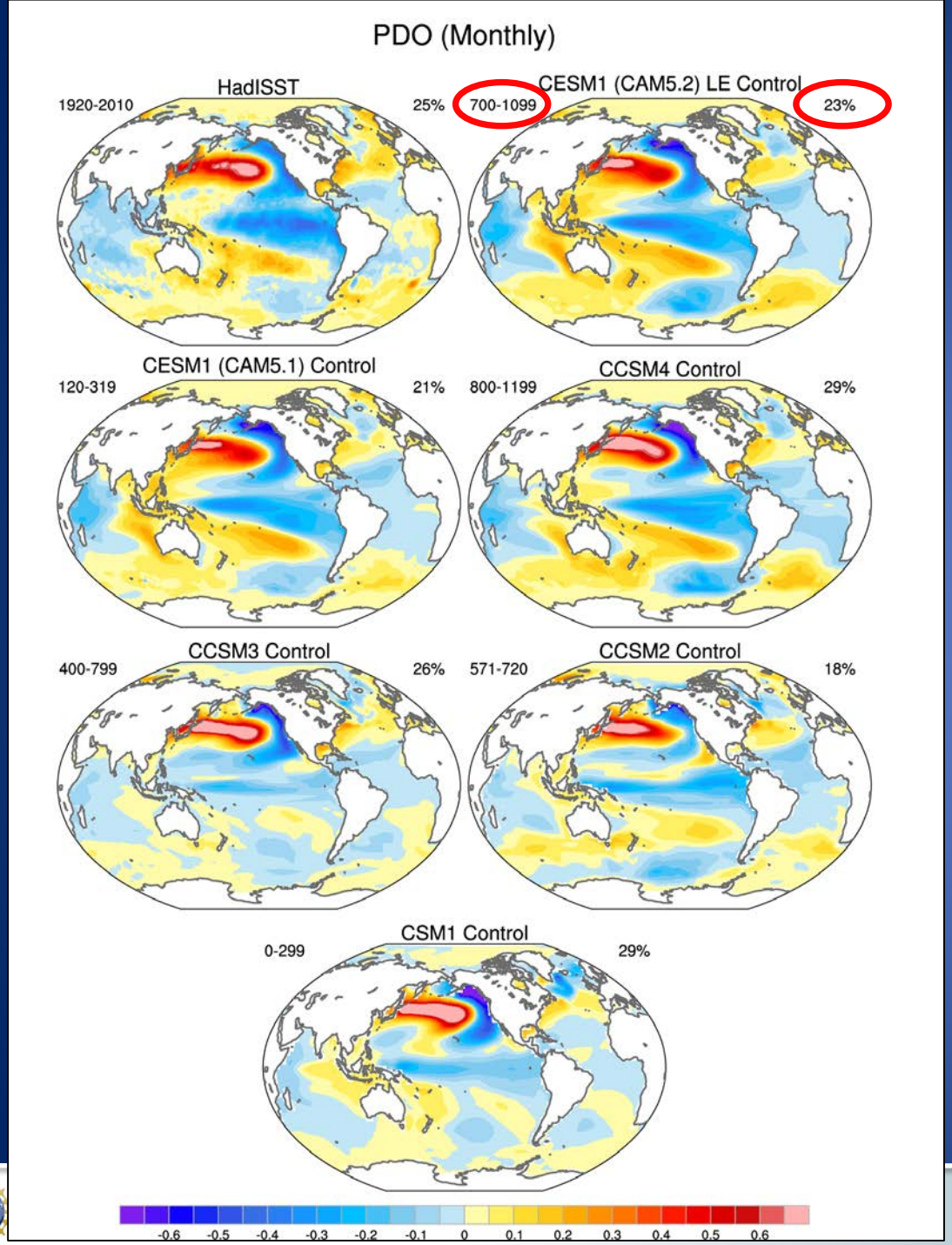
Extra Slides

Marika Holland
mholland@ucar.edu

Community model access

Downloads over the last 5 years
~5100 registered users 2010-2015

Marika Holland
mholland@ucar.edu



Climate Variability Diagnostics Package

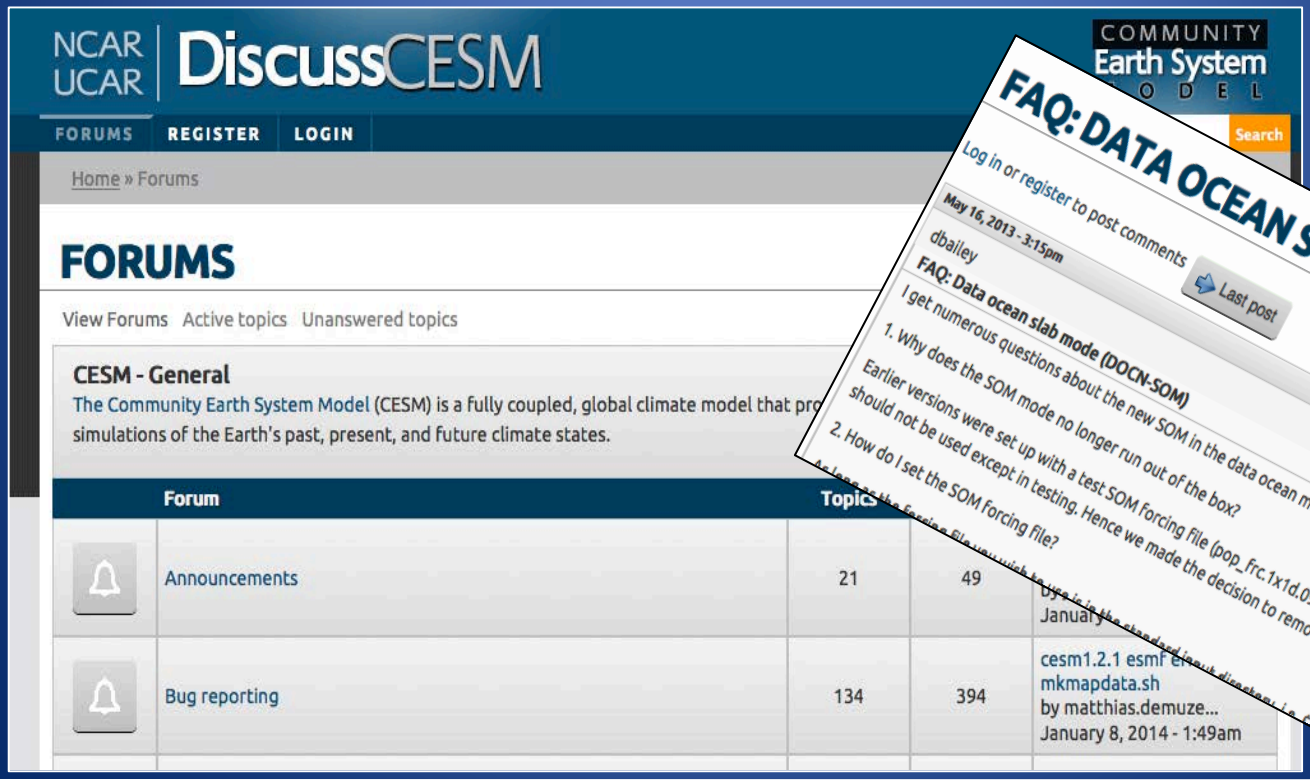
Pacific Decadal Oscillation (Global SST Regressions on PC1 North Pacific SST)

Phillips, Deser, Fasullo, EOS, 2014

Marika Holland
mholland@ucar.edu

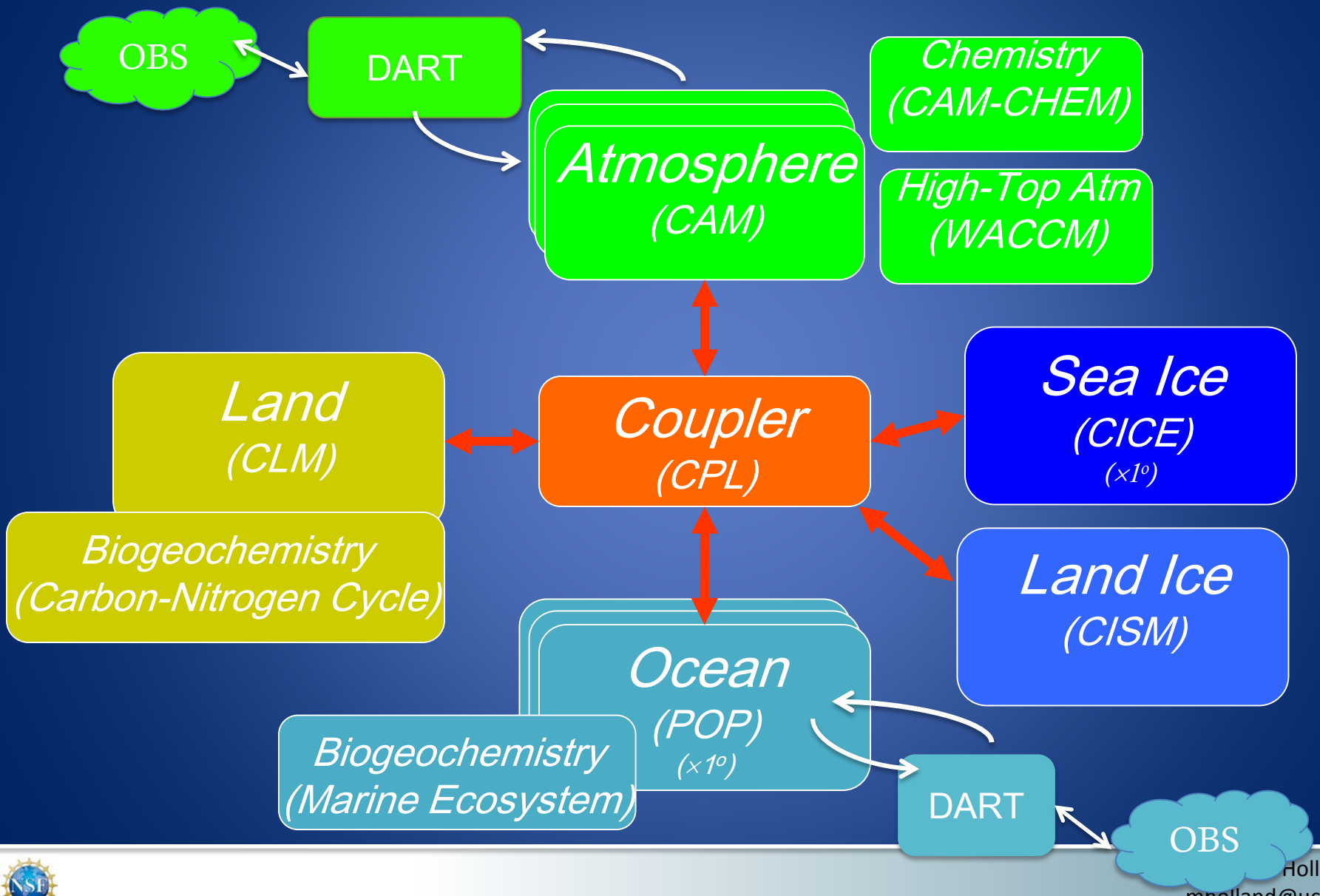
CESM Community Support – Bulletin Board

- Effective for assessing community issues and providing support
- FAQs developed for commonly raised questions
- Allows community to help each other
- Statistics: >1600 users, ~24 new users/month, ~65 posts/month



Mariika Holland
mholland@ucar.edu

Community Earth System Model

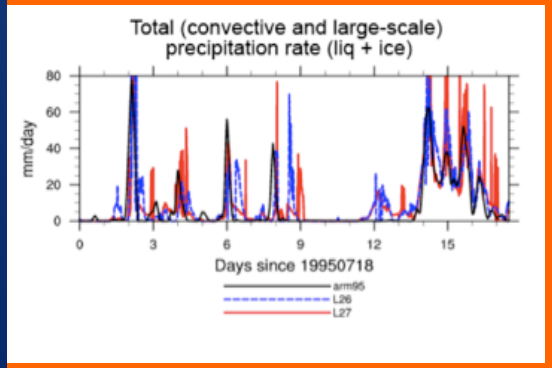


Holland
mnolland@ucar.edu

CESM supports a range of climate science goals through a *Single Model Code Base*

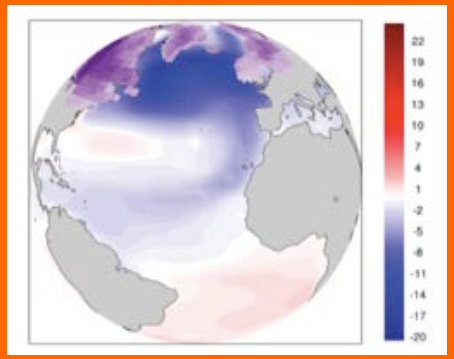
Desktop

Single column/
Coarse resolution:
Physics development



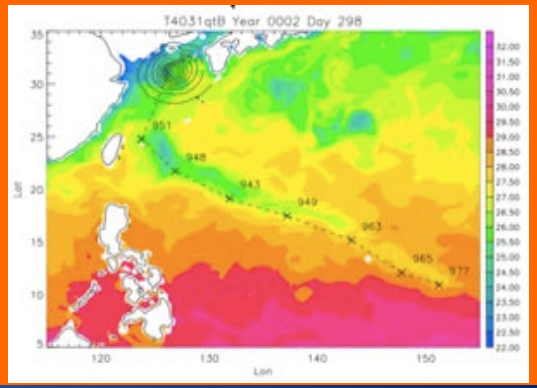
Small cluster

Lower resolution:
Paleo/Large Ensemble
University research



HPC

Higher resolution:
CMIP
Breakthrough ASD



Marika Holland
mholland@ucar.edu