

Community Earth System Model (CESM) Tutorial

NCAR Center Green Building, Boulder, CO

8-12 August 2022

Center Green Auditorium

Center Green Auditorium Room – morning lectures & practical intro

Center Green Bays– afternoon practical labs

Monday, August 8

- 8:00-8:20 Welcome, Intro, Logistics (*P Lawrence, B Otto-Bliesner, C Brinkworth, E Faircloth*)
8:20-9:10 Lecture 1: Introduction to the coupled system (*Gokhan Danabasoglu*)
9:10-9:25 Break
9:25-10:10 Lecture 2: Atmosphere Modeling I: Intro & Dynamics (*Peter Lauritzen*)
10:10-10:30 Break
10:30-11:15 Lecture 3: Atmosphere Modeling II: Physics (*Rich Neale*)

11:15-1:15 Lunch (*on your own*)

1:15-1:35 Introduction to NCAR computing environment (*Rory Kelly*)
1:35-2:45 Practical Intro 1: Run CESM (*Katherine Thayer-Calder*)
2:45-5:00 Practical Lab 1 (snacks available in lobby)

Tuesday, August 9

- 8:00-8:45 Lecture 4: Land Modeling I: Biogeophysics (*David Lawrence*)
8:45-9:00 Break
9:00-9:45 Lecture 5: Land Modeling II: Biogeochemistry: Ecosystem Modeling (*Will Wieder*)
9:45-10:05 Break
10:05-11:05 Applications 1: Defining the internal component of Atlantic Multidecadal Variability in a changing climate: Insights from Large Ensembles (*Clara Deser*)

11:05-1:00 Lunch (*on your own*)

1:00-1:30 Specialized Talk 1: Simpler Models (*Isla Simpson*)
1:30-2:20 Practical Intro 2: Run CESM: Simple Modifications (*Hui Li*)
2:20-5:00 Practical Lab 2 (snacks available in lobby)

Wednesday, August 10

- 8:00-8:25 Lecture 6a: Atmosphere Modeling III: WACCM (*Mike Mills*)
8:25-8:50 Lecture 6b: Atmosphere Modeling IV: Chemistry, Aerosols (*Simone Tilmes*)
8:50-9:05 Break
9:05-9:50 Lecture 7: Ocean Modeling I (*Gustavo Marques*)
9:50-10:10 Break
10:10-11:10 Applications 2:
 - #1 Tropical Cyclones and climate (*Hui Li*)
 - #2 Land Use and Land Cover Change (*Peter Lawrence*)
 - #3 Ecosystem Dynamics and Fire (*Jacquelyn Shuman*)

11:10-1:00 Lunch (*on your own*)

11:40-12:40 Meet a CESM Scientist (*Danabasoglu, Wieder, Moulton, Neale, Otto-Bliesner/Zhu, Bachmeister*)

1:00-1:30 Specialized Talk 2: Model development: Coupling/Tuning (*Cecile Hannay*)

1:30-2:20 Practical Intro 3: Diagnostics and Output (*Jesse Nusbaumer*)

2:20-5:00 Practical Lab 3 (snacks available in Damon room)

Thursday, August 11

8:00-8:45 Lecture 8: Ocean Modeling II (*Peter Gent*)

8:45-9:05 *Break*

9:05-9:50 Lecture 9: Ocean Biogeochemistry (*Keith Lindsay*)

9:50-10:15 *Break*

10:15-11:00 Lecture 10: Sea Ice Modeling (*David Bailey*)

11:00-12:45 Lunch (*on your own*)

11:40-12:40 Meet a CESM Scientist (*Lauritzen, P Lawrence, Shuman, Tilmes, Krumhardt, Wieder, Simpson, Deppenmeier, Gent*)

12:45-1:30 Specialized Talk 3: Porting and New Features (*J Edwards, B Dobbins, M Vertenstein*)

1:30-2:20 Practical Intro 4: Namelist and Code Modifications (*Cecile Hannay*)

2:20-5:00 Practical Lab 4 (snacks available in lobby)

Friday, August 12

8:00-8:45 Lecture 11: Land Ice Modeling (*Bill Lipscomb*)

8:45-9:00 *Break*

9:00-10:00 Applications 3:

- #1 Isotopes (*Jiang Zhu*)

- #2 Geoengineering (*Simone Tilmes*)

- #3 Earth System Prediction (*Stephen Yeager*)

10:00-10:05 Closing Remarks (*Peter Lawrence*)

10:05 Photo (*meet outside Main Seminar Room*)

10:05-10:20 *Break*

10:20-11:10 Practical Intro 5:

Breakouts:

Ocean/Sea Ice/Land Ice (*A. Altuntas, D. Bailey*)

Land/BGC (*P Lawrence, E. Kluzek, K. Lindsay*)

Atm/Chem/WACCM (*C. Hannay, M. Mills*)

11:10-12:30 Lunch (*on your own/ working lunch. Feel free to bring food to Center Green.*)

12:30-3:00 Practical Lab 5

3:00 Adjourn