

Intro to CAM challenge exercise

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CESM tutorial, 12 July 2023



The plan for CAM challenge exercise: F compsets

Difference between a B case and a F case

Color code:

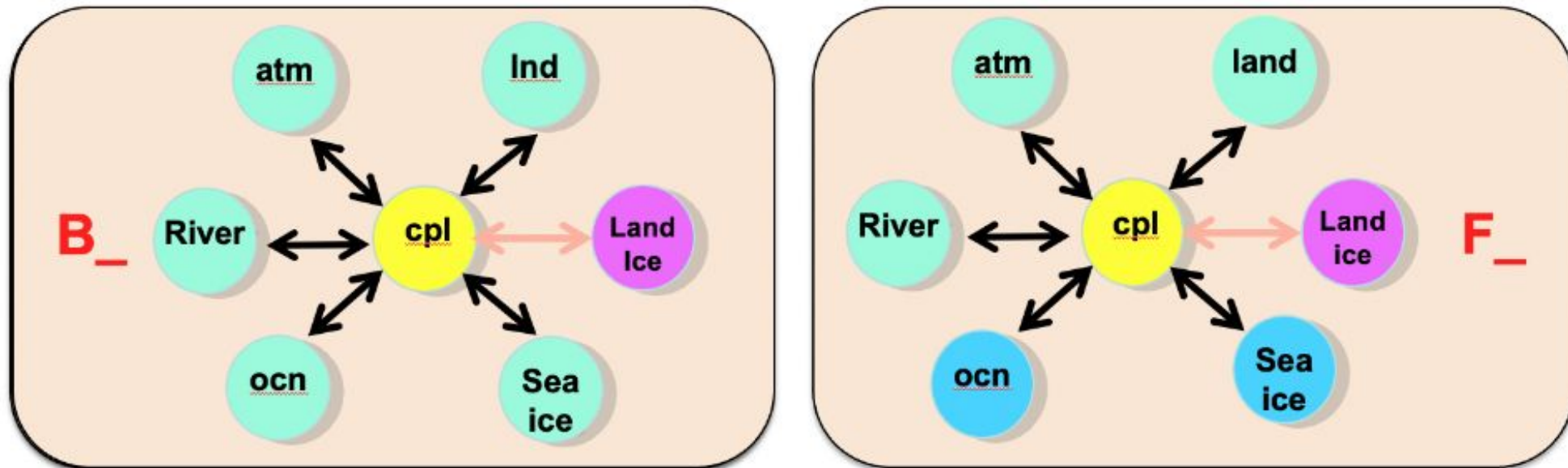


Figure: Differences between a F and a B compset.

**“I can only show you the door.
You're the one that has to walk through it”**

(The Matrix, 1999)



What are we going to do today?

Challenge Exercises

CAM

- 1: Control case: F2000climo
- 2: Historical compset: FHIST
- 3: Starting FHIST from spunup state in 1850
- 4: Increase orographic height over the western US
- 4: Modify sea surface temperature in the tropics
- 6: Adjust threshold for deep convection over land



Welcome to the CESM Tutorial

Introduction

Prerequisites for Success

Basics

Simple XML Modifications

Namelist Modifications

Troubleshooting runtime errors

Source Modifications

Diagnostics

Challenge Exercises

CAM

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CAM-chem/WACCM

CICE

CISM

What is a F compset ?

The CESM2 components can be combined in numerous ways to carry out various scientific or software experiments. A particular mix of components, along with component-specific configuration and/or namelist settings is called a component set or **compset**.

In the previous chapter, we have run experiments with the **B** compset. In this chapter we will run the experiments with the **F** compset. The **F** compsets use prescribed ocean (observed sea-surface temperature data) and prescribed sea-ice (observed sea-ice thickness and area)

- **F2000climo** uses climatological forcings from around year 2000
- **F2010climo** uses climatological forcings from around year 2010
- **FHIST** use time varying forcing

Difference between a B case and a F case

Color code: active data stub

Figure: Differences between a F and a B compset.

Guidelines for today

Challenge Exercises ^

CAM ^

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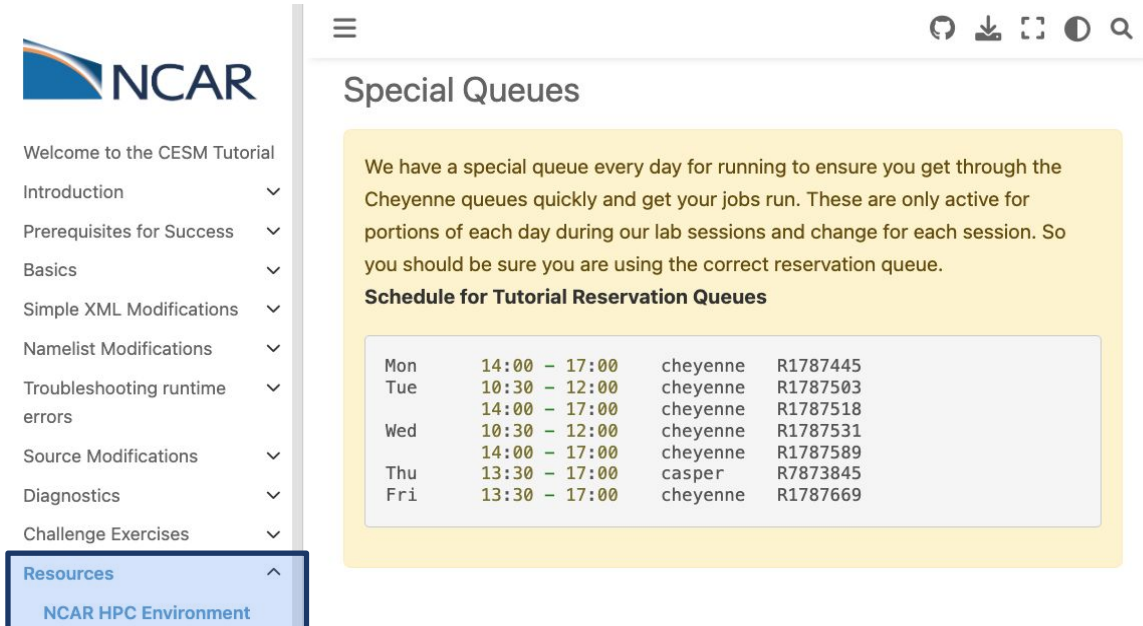
Go step by step into the chapter:

- **Challenge Exercises
CAM**

Exercises

- **Do the Control case: F2000climo**
- **Do at least one of the other exercises**

Tutorial queue



NCAR

Welcome to the CESM Tutorial

- Introduction
- Prerequisites for Success
- Basics
- Simple XML Modifications
- Namelist Modifications
- Troubleshooting runtime errors
- Source Modifications
- Diagnostics
- Challenge Exercises
- Resources**

NCAR HPC Environment

Special Queues

We have a special queue every day for running to ensure you get through the Cheyenne queues quickly and get your jobs run. These are only active for portions of each day during our lab sessions and change for each session. So you should be sure you are using the correct reservation queue.

Schedule for Tutorial Reservation Queues

Mon	14:00 – 17:00	cheyenne	R1787445
Tue	10:30 – 12:00	cheyenne	R1787503
	14:00 – 17:00	cheyenne	R1787518
Wed	10:30 – 12:00	cheyenne	R1787531
	14:00 – 17:00	cheyenne	R1787589
Thu	13:30 – 17:00	casper	R7873845
Fri	13:30 – 17:00	cheyenne	R1787669

If (Friday 13:30-17:00) then

```
./xmlchange JOB_QUEUE=R1787669 --force
```

If (another time) then

```
./xmlchange JOB_QUEUE=regular
```

NCAR HPC Environment

Questions ?



Courtesy: Kolya Dols