ACCESS Training Day Schedule 2024

Monday, Sep. 2nd	Room 1	Room 2	Room 3
9 - 9:30am	*Arrival*	*Arrival*	*Arrival*
9:30 - 11:00am	CMIP7 Evaluation Hackathon	How to find and access datasets on NCI & handle large model output	Advanced Git & GitHub best practices for software developers
11:00 - 11:15am	*Morning tea*	*Morning tea*	*Morning tea*
11:15am - 12:45pm	CMIP7 Evaluation Hackathon	How to find and access datasets on NCI & handle lar ge model output *(continued)*	Advanced Git & GitHub best practices for software developers *(continued)*
12:45 - 1:45pm	*Lunch*	*Lunch*	*Lunch*
1:45 - 3:15pm	CMIP7 Evaluation Hackathon	Running model experiments with Payu and Git	Running a high-resolution regional model using a two-level nest
3:15 - 3:30pm	*Afternoon tea*	*Afternoon tea*	*Afternoon tea*
3:30 - 5:00pm	CMIP7 Evaluation Hackathon	Running model experiments with Payu and Git *(continued)*	Running a high-resolution regional model using a two-level nest *(continued)*

Morning Training Sessions

Session Title	Brief Description	Learning Objectives	Intended Audience	Pre-requisites
How to find and access datasets on NCI & handle large model output	This session will show you some tools available for finding and accessing observational and model data on NCI. This will include an introduction to the ACCESS-NRI Intake data catalog where we will show you how to efficiently find, load and share ACCESS model output from your Python environment. In the second portion of this session, we will cover some best practices for processing and analyzing large output from ACCESS models. We will use software packages Xarray and Dask to optimize large dataset workflows.	• Understand where and how climate data is stored on NCI • Learn various methods of accessing climate data on NCI • Understand how to use the ACCESS-NRI Intake data catalog and why it's useful • Learn basic best practices for handling large model output	• All backgrounds, domains, and career stages	• Basic unix command-line knowledge • Some exposure to Python programming
Advanced Git & GitHub best practices for software developers	Learn how to use Git and GitHub more effectively by becoming familiar with more advanced Git concepts and commands. If you have been using Git at a basic level, but would like to better understand what a commit is, what really happens during a merge, what the difference is between a merge and a rebase, or what the most commonly used Git workflows are, then this tutorial is for you.	• Deep understanding of how to best use Git and GitHub for scientific software development • Exposure to common Git workflows in software development	• Those who want to improve their Git and GitHub skills • All domains and career stages	• Working knowledge of basic Git commands (*add*, *commit*, *pull*, *push*, *etc.*) • Working knowledge of GitHub for software development and collaboration • Experience with software development

Afternoon Training Sessions

Session Title	Brief Description	Learning Objectives	Intended Audience	Pre-requisites
Running a high-resolution regional model using a two-level nest	Would you like to get started using the ACCESS high-resolution regional model to simulate an interesting weather event? This session will introduce you to a realistic experiment and help you prepare to run your own experiments using ERA5+ERA5-land initial conditions.	• Gain a basic understanding of what the ACCESS high-resolution regional model is • Understand how to run a double-level nest using either ERA5+ERA5-land or ERA5+BARRA-R2 initial conditions	• Atmosphere community	• Basic understanding of what limited area models are • Basic familiarity with rose/cylc
Running model experiments with Payu and Git	Do you run ACCESS model experiments? Not sure how to best organize and share model runs? This session will cover how to use payu to run ACCESS-OM2 and ACCESS-ESM1.5 model experiments and organise experiment output. We will also cover how to use Git, and share experiment configurations on Github.	• Learn how to run ACCESS models • Understand why it's beneficial to organize and share model runs • Learn how to organize and share model runs	• Those who run or want to run ACCESS-OM2 or ACCESS-ESM1.5 on gadi	• Basic knowledge of Git • Basic unix command-line knowledge

Preliminary CMIP7 Evaluation Hackathon Program: Morning Session

9:30 AM – 09:45 AM: Introduction to the Hackathon

- **Instructor:** Romain Beucher
- **Overview:** Introduction to the goals and structure of the hackathon. Overview of the tools for evaluating CMIP7 experiments.

09:45 AM – 10:00 AM: ACCESS-NRI Evaluation Frameworks

- **ESMValTool-workflow:** Framework for evaluating and analyzing climate models
- **ILAMB-workflow:** Framework for evaluating land surface model outputs

10:00 AM – 10:30 AM: Hands-on Exercise 1: Running Your First Recipe.

- **Instructor:** Romain Beucher
- **Details:** Learn how to execute a basic ESMValTool recipe on Gadi.

10:30 AM – 11:00 AM: Supported data on NCI Gadi

- **Instructor:** Romain Beucher, Rhaegar Zeng
- **Details:** Understanding available data on NCI Gadi, what's supported by ESMValTool and ILAMB workflows, and a brief on the ct11 data collection and zv30 project.

11:00 AM – 11:15 AM: Morning Tea

11:15 AM – 12:00 PM: Hands-on Exercise 2: Writing Your Own Recipe

- **Instructor:** Felicity Chun
- **Details:** Develop your own recipe using provided templates.

12:00 PM – 12:45 PM: Hands-on Exercise 3: Writing Your Own Diagnostics

- **Instructor:** Felicity Chun
- **Details:** Create custom diagnostics for your analysis.

12:45 PM – 1:45 PM: Lunch Break

Preliminary CMIP7 Evaluation Hackathon Program: Afternoon Session

1:45 PM – 2:30 PM: Hands-on Exercise 7: Use a Jupyter Notebook to Run a Recipe

- **Instructor:** Felicity Chun
- **Details:** Execute ESMValTool recipes within a Jupyter notebook.

3:15 PM – 3:30 PM: Afternoon Tea

3:30 PM – 4:00 PM: Hands-on Exercise 8: The ESMValCore API

- **Instructor:** Felicity Chun
- **Details:** Use ESMValCore preprocessor for repetitive tasks and develop diagnostics interactively in a Jupyter notebook.

4:55 PM – 5:00 PM: Closing Remarks and Adjourn

ILAMB-Workflow Hands-on Exercises *(run in parallel to afternoon session, in separate room)*

2:15 PM – 2:45 PM: Exercise 1: Running ILAMB on Gadi

- **Instructor:** Rhaegar Zeng
- **Details:** The ilamb-tree generator.

2:45 PM – 3:15 PM: Exercise 2: Support for RAW ACCESS Outputs

- **Instructor:** Rhaegar Zeng
- **Details:** Hands-on support for RAW ACCESS outputs.