

LEAP 2024 winter Momentum Boot Camp Day-1

Processing and Visualization of Climate Data

Instructor:

Yu Huang

Ph.D. candidate

Department of Earth and Environment Engineering

Columbia University

Learning Goals:

1. Learn to process, analyze and visualize climate data with scientific Python using the LEAP-Pangeo Jupyter Hub;
2. Gain a understanding of fundamental climate concepts, alongside common diagnostic statistics and techniques.

Schedule

The workplan for Day-1 is on the following page. We mainly follow the workshop [2023 Train-the-Trainer Bootcamp Day 1: Climate and Geospatial Data Analysis](#) by Prof. Ryan Abernathey. The day is divided into lecture sessions and interactive studios, offering participants the chance to solidify their learning through hands-on practice. Students are asked to mirror the instructor's each step during lecture sessions using LEAP-Pangeo Hub and are encouraged to work in groups.

Materials:

- [An Introduction to Earth and Environmental Data Science](#)
- [Xarray User Guide](#)
- [Introduction to Climate Modelling](#)
- [What Is Remote Sensing?](#)

Time	Topic
8:30 – 9:15	Check in / Breakfast
9:15 – 9:30	Introduction of Climate Data & LEAP-Pangeo
9:30 – 11:00	Session 1: Basic Xarray (Argo)
11:00 – 12:00	Studio 1: Analyzing Atmospheric Radiation (CERES)
12:00 – 13:00	Lunch + Break
13:00 – 14:30	Session 2: Advanced Xarray
14:30 – 15:20	Studio 2: Analyzing El Niño Variability (ERSST)
15:20 – 15:30	Break
15:30 – 16:20	Session 3: Climate Simulations in the Cloud (CMIP6)
16:20 – 17:00	Studio 3: Multi-Model Analysis and Comparison