Multidimensional Arrays (/nDarrays/)

datasets for the xarray tutorial

> (/nDarrays/01-introduction/)

Overview

Teaching: 0 min
Exercises: 0 min
Questions
- What sample datasets will we use in this tutorial?

Objectives
- Learn about how we acquired climate reanalysis datasets

Reanalysis datasets:

We will be exploring the xarray architecture using some sample climate data from the European Centre for Medium-Range Weather Forecasts (ECMWF (http://www.ecmwf.int/)). We will use their ERA-Intrim climate reanalysis project. You can download the data in netCDF format here (http://apps.ecmwf.int/datasets/data/interim-full-daily/levtype=sfc/). As is the case for many climate products, the process involves downloading large netCDF files to a local machine.

If you visit the ECMWF page you will find that you can download a large number of different climate fields. Here we have prepared tutorial examples around 4 variables. Note that we provide a full resolution (global) version as well as a subsetted version (Alaska). Choose the Alaska data if you are limited for space or processing power on your local computer. The tutorials exercises will work for either set of data.

Dataset	Description	Size (MB)
airtemp_global.nc	2 meter air temperature	3.0
uwind_global.nc	wind blowing to the east	3.0
vwind_global.nc	wind blowing to the north	3.0
SST_global.nc	sea surface temperature	3.0
airtemp_AK.nc	2 meter air temperature	0.1
uwind_AK.nc	wind blowing to the east	0.1
vwind_AK.nc	wind blowing to the north	0.1
SST_AK.nc	sea surface temperature	0.1

Note 1: when loading the data into xarray, we will use “engine = scipy” for all of the global datasets. You do not need to specify an engine for the AK datasets.

Note 2: many of our examples follow from and expand on xarray developer Stephan Hoyer’s blog post (https://www.continuum.io/content/xray-dask-out-core-labeled-arrays-python).

Data Access:

- Alaska subsets are pre-loaded into the docker containers
- via ftp: host = ftp.cloudmaven.org (user/password to be provided)

Key Points

- refer to this page for access to the tutorial data