

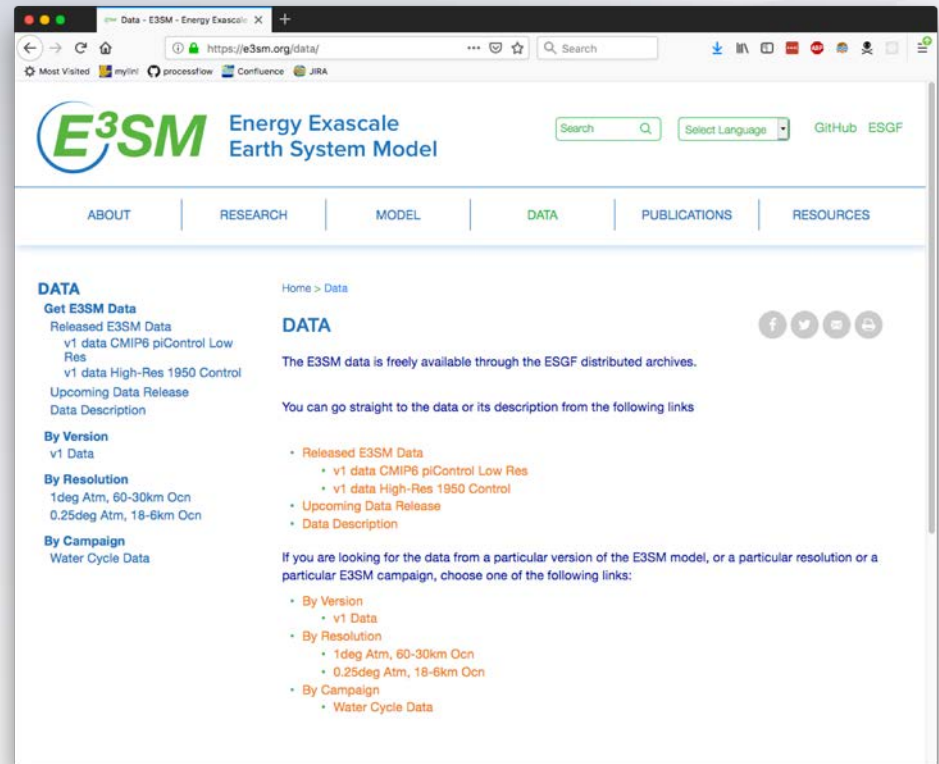
Accessing E3SM Public Data

How to find and access publicly available E3SM model output.

E3SM Data Page

Using a web browser, navigate to <https://e3sm.org/data/>

- This page gives an overview of all currently published E3SM data and will be updated when new data is published.
- Each dataset has its own page with descriptions of both the dataset as well as the experiment configuration used to generate it.



Experiment Description

Each datasets pages includes a description of the experimental specification as well as an overview of the data files included.

Each dataset page also includes a link to the dataset itself, in this case:

<https://esgf-node.llnl.gov/search/e3sm/?experiment=piControl>

V1 DATA CMIP6 PICONROL LOW RES



The **pre-industrial control simulation (piControl)** was configured to adhere as closely as possible with the **CMIP6 DECK** specifications (Eyring et al. 2016, GMD) with prescribed forcings appropriate for 1850 conditions.

The atmosphere and land grids resolution is 1deg (~100km), the ocean and sea ice grids are variable resolution of 60 to 30 km.

It's configuration is fully described in

- [v1 CMIP6 piControl Low Res](#)

500 years of CMIP6 DECK piControl simulation data was published to the E3SM project on ESGF. This first release/first publication from E3SM model data does not yet adhere to the CMIP6 protocol (we plan to publish properly formatted, CMORized data to CMIP6 project on ESGF shortly).

The currently provided data is one of :

- native raw model output data
- regrided (to 129x256 lon-lat grid) model output data
- regrided monthly climatologies
- regrided seasonal climatologies

The piControl run with **500 years** of data consists of:

- **34T of data**
- **43742 files**
- Each month of atmos data is 1.022G
- Each month of land data is 0.88G
- Each month of ocean data is 3.7G
- Each month of sea-ice data is 0.138G
- Each 500yr time-series is 0.757G

Water Cycle (1 deg atmosphere, 30-60 km ocean) CMIP6 DECK experiments:

- Pre-industrial control simulation (500 years)
- go straight to this data: <https://esgf-node.llnl.gov/search/e3sm/?experiment=piControl>

ESGF Dataset

Each dataset is broken into subsets for each type of data and for each model component. The piControl has the following subsets:

- Atmosphere
 - Raw monthly history files
 - Regridded monthly history files
 - Seasonal Climotologies
 - Monthly Climotologies
 - Regridded Timeseries
- Land
 - Raw monthly history files
 - Regridded monthly history files
- Ocean
 - Raw monthly history files
- Sea-Ice
 - Raw monthly history files

The screenshot displays the ESGF Data Search interface. The browser address bar shows the URL <https://esgf-node.llnl.gov/search/>. The page header includes the ESGF logo and the text "Energy Exascale Earth System Model". A navigation menu contains links for "Home", "About Us", "Resources", and "Contact Us". A search bar is present with a search button and options for "Reset", "Display 10 results per page", and "More Search Options". The search results are filtered by "Experiment" to "piControl (9)". The results list includes:

1. E3SM_1_0_piControl.1deg_atm_60-30km_ocean.atmos.129x256.model-output.mon.ens1
Data Node: ams3.llnl.gov
Version: 1
Total Number of Files (for all variables): 6000
Full Dataset Services: [Show Metadata] [List Files] [THREDDS Catalog] [WGET Script] [Globus Download]
2. E3SM_1_0_piControl.1deg_atm_60-30km_ocean.atmos.129x256.climo.seasonClim.ens1
Data Node: ams3.llnl.gov
Version: 1
Total Number of Files (for all variables): 505
Full Dataset Services: [Show Metadata] [List Files] [THREDDS Catalog] [WGET Script] [Globus Download]
3. E3SM_1_0_piControl.1deg_atm_60-30km_ocean.atmos.129x256.climo.monClim.ens1
Data Node: ams3.llnl.gov
Version: 1
Total Number of Files (for all variables): 1212
Full Dataset Services: [Show Metadata] [List Files] [THREDDS Catalog] [WGET Script] [Globus Download]
4. E3SM_1_0_piControl.1deg_atm_60-30km_ocean.atmos.native.model-output.mon.ens1
Data Node: ams3.llnl.gov
Version: 1
Total Number of Files (for all variables): 6000
Full Dataset Services: [Show Metadata] [List Files] [THREDDS Catalog] [WGET Script] [Globus Download]
5. E3SM_1_0_piControl.1deg_atm_60-30km_ocean.land.129x256.model-output.mon.ens1
Data Node: ams3.llnl.gov
Version: 1
Total Number of Files (for all variables): 6000
Full Dataset Services: [Show Metadata] [List Files] [THREDDS Catalog] [WGET Script] [Globus Download]
6. E3SM_1_0_piControl.1deg_atm_60-30km_ocean.sea-ice.native.model-output.mon.ens1
Data Node: ams3.llnl.gov
Version: 1
Total Number of Files (for all variables): 6000
Full Dataset Services: [Show Metadata] [List Files] [THREDDS Catalog] [WGET Script] [Globus Download]
7. E3SM_1_0_piControl.1deg_atm_60-30km_ocean.ocean.native.model-output.mon.ens1
Data Node: ams3.llnl.gov
Version: 1
Total Number of Files (for all variables): 6000
Full Dataset Services: [Show Metadata] [List Files] [THREDDS Catalog] [WGET Script] [Globus Download]
8. E3SM_1_0_piControl.1deg_atm_60-30km_ocean.atmos.129x256.time-series.mon.ens1
Data Node: ams3.llnl.gov
Version: 2
Total Number of Files (for all variables): 25
Full Dataset Services: [Show Metadata] [List Files] [THREDDS Catalog] [WGET Script] [Globus Download]
9. E3SM_1_0_piControl.1deg_atm_60-30km_ocean.land.native.model-output.mon.ens1
Data Node: ams3.llnl.gov
Version: 2
Total Number of Files (for all variables): 12000
Full Dataset Services: [Show Metadata] [List Files] [THREDDS Catalog] [WGET Script] [Globus Download]

Download Methods

- There are three download methods
 - Globus
 - Recommended method
 - Able to download entire datasets
 - much faster than standard HTTP
 - WGET script
 - More complex, can only handle 1000 files at a time
 - Individual file download
 - one file at a time

Globus Download

Select the dataset you would like to download, and click the Globus link.

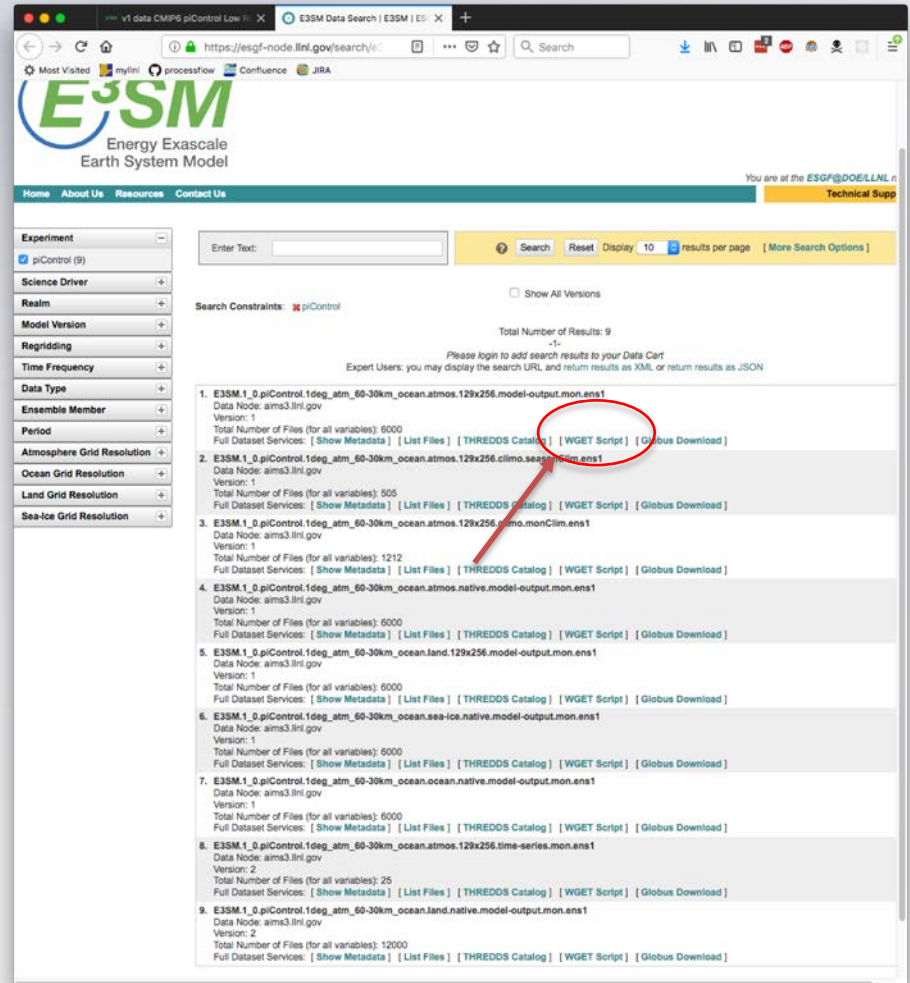
Either create a new OpenID account, or use an existing account to log into the ESGF node.

If your globus account isn't setup, use their setup link:
<https://www.globus.org/SignIn#step=signup>

The top screenshot shows the ESGF search results page for the 'piControl' dataset. The search results list three datasets, each with a 'Globus Download' link. A red circle highlights the 'Globus Download' link for the first dataset: 'E3SM 1.0 piControl.1deg_atm_60-30km_ocean.atmos.129x256.model-output.mon.ens1'. The bottom screenshot shows the OpenID login page, which includes a text input field for the OpenID, a 'Login' button, and links for 'Forgot OpenID?', 'Forgot Password?', 'Login Help', and 'Create Account'.

WGET Script

- Selecting the WGET Script option will download a bash shell script to your machine.
- You must have either an up to date version of the Java Development Kit, or myproxy-logon installed.
- Run the script via the command line which will prompt for your credentials and begin downloading files one at a time.

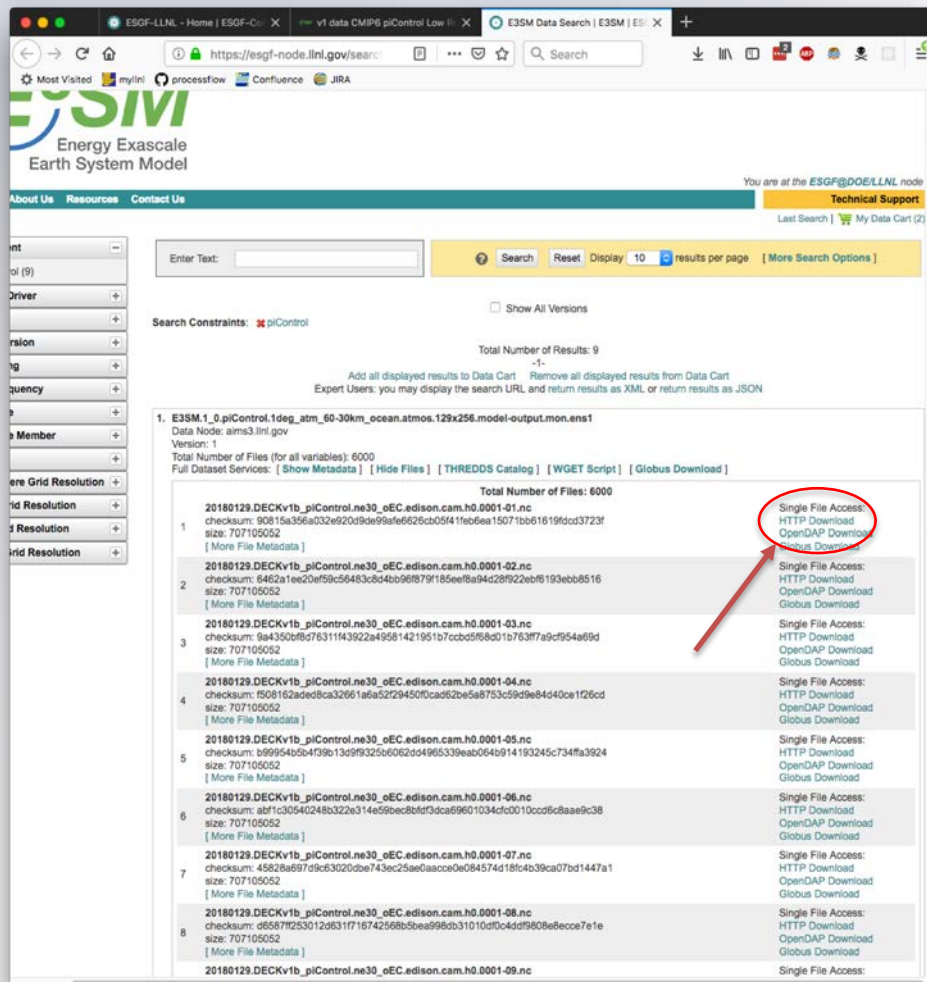


The screenshot shows a web browser window displaying the E3SM Data Search interface. The URL is <https://esgf-node.llnl.gov/search/>. The page features a search bar with the text "Enter Text:" and a search button. Below the search bar, there are search constraints for "piControl" and a "Show All Versions" checkbox. The search results are displayed in a list format, with each entry including the dataset name, data node, version, and total number of files. A red circle highlights the "WGET Script" link in the first search result, and a red arrow points to it from the right side of the page.

Dataset Name	Data Node	Version	Total Number of Files	Actions
E3SM_1_0_piControl.1deg_atm_60-30km_ocean.atmos.129x256.model-output.mon.ens1	aims3.llnl.gov	1	6000	[Show Metadata] [List Files] [THREDDS Catalog] [WGET Script] [Globus Download]
E3SM_1_0_piControl.1deg_atm_60-30km_ocean.atmos.129x256.climo.seasonal.mon.ens1	aims3.llnl.gov	1	505	[Show Metadata] [List Files] [THREDDS Catalog] [WGET Script] [Globus Download]
E3SM_1_0_piControl.1deg_atm_60-30km_ocean.atmos.129x256.climo.monClim.ens1	aims3.llnl.gov	1	1212	[Show Metadata] [List Files] [THREDDS Catalog] [WGET Script] [Globus Download]
E3SM_1_0_piControl.1deg_atm_60-30km_ocean.atmos.native.model-output.mon.ens1	aims3.llnl.gov	1	6000	[Show Metadata] [List Files] [THREDDS Catalog] [WGET Script] [Globus Download]
E3SM_1_0_piControl.1deg_atm_60-30km_ocean.land.129x256.model-output.mon.ens1	aims3.llnl.gov	1	6000	[Show Metadata] [List Files] [THREDDS Catalog] [WGET Script] [Globus Download]
E3SM_1_0_piControl.1deg_atm_60-30km_ocean.sea-ice.native.model-output.mon.ens1	aims3.llnl.gov	1	6000	[Show Metadata] [List Files] [THREDDS Catalog] [WGET Script] [Globus Download]
E3SM_1_0_piControl.1deg_atm_60-30km_ocean.ocean.native.model-output.mon.ens1	aims3.llnl.gov	1	6000	[Show Metadata] [List Files] [THREDDS Catalog] [WGET Script] [Globus Download]
E3SM_1_0_piControl.1deg_atm_60-30km_ocean.atmos.129x256.time-series.mon.ens1	aims3.llnl.gov	2	25	[Show Metadata] [List Files] [THREDDS Catalog] [WGET Script] [Globus Download]
E3SM_1_0_piControl.1deg_atm_60-30km_ocean.land.native.model-output.mon.ens1	aims3.llnl.gov	2	12000	[Show Metadata] [List Files] [THREDDS Catalog] [WGET Script] [Globus Download]

Individual file download

- Clicking the “Show Files” option on any dataset will list all files in the dataset.
- Select the “HTTP Download” option for any file will start a download in your browser.



The screenshot displays the E3SM Data Search interface. The search results for 'piControl' are shown, listing 9 files. A red circle highlights the 'Single File Access' options for the first file, with a red arrow pointing to the 'HTTP Download' option.

File ID	Checksum	Size	Download Options
20180129.DECKv1b_piControl.ne30_oEC.edison.cam.h0.0001-01.nc	90815a356a032e920d9de99af6625cb0541f6b6ea15071bb61619fcd3723f	707105052	Single File Access: HTTP Download OpenDAP Download Globus Download
20180129.DECKv1b_piControl.ne30_oEC.edison.cam.h0.0001-02.nc	6462a1ee20ef59c56483c8d4bb96879f185ee8a94d28922eb6193ebbb8516	707105052	Single File Access: HTTP Download OpenDAP Download Globus Download
20180129.DECKv1b_piControl.ne30_oEC.edison.cam.h0.0001-03.nc	9a4350b0b76311f43922a49581421951b7ccbd5f68d01b763ff7a9cf954a69d	707105052	Single File Access: HTTP Download OpenDAP Download Globus Download
20180129.DECKv1b_piControl.ne30_oEC.edison.cam.h0.0001-04.nc	f508162aded8ca32661a6a52f29450f0cad62be5a8753c59d9e84040ce126cd	707105052	Single File Access: HTTP Download OpenDAP Download Globus Download
20180129.DECKv1b_piControl.ne30_oEC.edison.cam.h0.0001-05.nc	b99954db4739b13d99f325b06020d4965339aab064b914193245c734ffa3924	707105052	Single File Access: HTTP Download OpenDAP Download Globus Download
20180129.DECKv1b_piControl.ne30_oEC.edison.cam.h0.0001-06.nc	abf1c30540248b322e314e59ac8bdf3dca69601034c0c010ccdfc8aae9c38	707105052	Single File Access: HTTP Download OpenDAP Download Globus Download
20180129.DECKv1b_piControl.ne30_oEC.edison.cam.h0.0001-07.nc	45828a697d9c6302d0e743ec25ae0aacce0e084574d18fcb39ca07bd1447a1	707105052	Single File Access: HTTP Download OpenDAP Download Globus Download
20180129.DECKv1b_piControl.ne30_oEC.edison.cam.h0.0001-08.nc	68587f2330120831f7167425680b8ea998cb31010fcb4d9808e8ecce7e1e	707105052	Single File Access: HTTP Download OpenDAP Download Globus Download
20180129.DECKv1b_piControl.ne30_oEC.edison.cam.h0.0001-09.nc			Single File Access: