


# CMIP6 Download Instructions


This is a walkthrough designed to help you download CMIP6 from ESGF. The data is currently open-access, so you won't need to sign up for an account.


1. Go to <https://esgf-node.llnl.gov/search/cmip6/>

Hosted by

 Department of Energy  
Lawrence Livermore National Laboratory

Powered by

 ESGF and C-ESG  
Welcome, Guest. | Login | Create Account

 WCRP CMIP6  
World Climate Research Programme

Home Contact Us Data Nodes Status

You are at the [ESGF@DOE/LLNL](#) node

Technical Support

MIP Era

Activity

Model Cohort

Product

Source ID

Institution ID

☒ NOAA-GFDL (8)

Source Type

Nominal Resolution

Experiment ID

☒ ssp585 (8)

Sub-Experiment

Variant Label

☒ r1i1p1f1 (8)

Grid Label

Table ID

Frequency

☒ mon (8)

Realm

Variable

CF Standard Name

☒ sea ice area fraction (4)  
☒ sea surface temperature (4)

Data Node

WARNING: Not all models include a variant "r1i1p1f1", and across models, identical values of variant\_label do not imply identical variants! To learn which forcing datasets were used in each variant, please check modeling group publications and documentation provided through ES-DOC.

CMIP6 project data downloads are unrestricted. Please use the -s option to wget scripts to bypass the login prompt.

Enter Text:

Search

Reset

Display 10 results per page

More Search Options

☐ Show All Replicas ☐ Show All Versions ☐ Search Local Node Only (Including All Replicas)

Search Constraints: ☒ ssp585 ☒ sea\_ice\_area\_fraction,sea\_surface\_temperature ☒ mon ☒ r1i1p1f1 ☒ NOAA-GFDL

Total Number of Results: 8

-1-

Please login to add search results to your Data Cart

Expert Users: you may display the search URL and return results as XML or return results as JSON

1. CMIP6.ScenarioMIP.NOAA-GFDL.GFDL-CM4.ssp585.r1i1p1f1.Omon.tos.gn

Data Node: esgdata.gfdl.noaa.gov

Version: 20180701

Total Number of Files (for all variables): 5

Full Dataset Services: [Show Metadata](#) [List Files](#) [WGET Script](#) [LAS](#) [Show Citation](#) [PID](#) [Globus Download](#) [Further Info](#)

2. CMIP6.ScenarioMIP.NOAA-GFDL.GFDL-CM4.ssp585.r1i1p1f1.Omon.tos.gr

Data Node: esgdata.gfdl.noaa.gov

Version: 20180701

Total Number of Files (for all variables): 5

Full Dataset Services: [Show Metadata](#) [List Files](#) [WGET Script](#) [LAS](#) [Show Citation](#) [PID](#) [Globus Download](#) [Further Info](#)

3. CMIP6.ScenarioMIP.NOAA-GFDL.GFDL-CM4.ssp585.r1i1p1f1.Simon.siconc.gn

Data Node: esgdata.gfdl.noaa.gov

Version: 20180701

Total Number of Files (for all variables): 1

Full Dataset Services: [Show Metadata](#) [List Files](#) [WGET Script](#) [LAS](#) [Show Citation](#) [PID](#) [Globus Download](#) [Further Info](#)

4. CMIP6.ScenarioMIP.NOAA-GFDL.GFDL-CM4.ssp585.r1i1p1f1.Simon.siconc.gr

Data Node: esgdata.gfdl.noaa.gov

Version: 20180701

Total Number of Files (for all variables): 1

Full Dataset Services: [Show Metadata](#) [List Files](#) [WGET Script](#) [LAS](#) [Show Citation](#) [PID](#) [Globus Download](#) [Further Info](#)

5. CMIP6.ScenarioMIP.NOAA-GFDL.GFDL-ESM4.ssp585.r1i1p1f1.Simon.siconc.gn

Data Node: esgdata.gfdl.noaa.gov

Version: 20180701

Total Number of Files (for all variables): 1

Full Dataset Services: [Show Metadata](#) [List Files](#) [WGET Script](#) [LAS](#) [Show Citation](#) [PID](#) [Globus Download](#) [Further Info](#)

6. CMIP6.ScenarioMIP.NOAA-GFDL.GFDL-ESM4.ssp585.r1i1p1f1.Simon.siconc.gr

Data Node: esgdata.gfdl.noaa.gov

Version: 20180701

Total Number of Files (for all variables): 1

Full Dataset Services: [Show Metadata](#) [List Files](#) [WGET Script](#) [LAS](#) [Show Citation](#) [PID](#) [Globus Download](#) [Further Info](#)

7. CMIP6.ScenarioMIP.NOAA-GFDL.GFDL-ESM4.ssp585.r1i1p1f1.Omon.tos.gn

Data Node: esgdata.gfdl.noaa.gov

Version: 20180701

Total Number of Files (for all variables): 5

Full Dataset Services: [Show Metadata](#) [List Files](#) [WGET Script](#) [LAS](#) [Show Citation](#) [PID](#) [Globus Download](#) [Further Info](#)

8. CMIP6.ScenarioMIP.NOAA-GFDL.GFDL-ESM4.ssp585.r1i1p1f1.Omon.tos.gr

Data Node: esgdata.gfdl.noaa.gov

Version: 20180701

Total Number of Files (for all variables): 5

Full Dataset Services: [Show Metadata](#) [List Files](#) [WGET Script](#) [LAS](#) [Show Citation](#) [PID](#) [Globus Download](#) [Further Info](#)

2. Expand the filters and check boxes for variables/experiment/time resolution/model institution you want to download, then hit search. In the example above I've searched for sea surface temperature and sea ice area fraction for the GFDL model's SSP585 experiment at a monthly resolution. The variant label label 'r1i1p1f1' is the *ripf* label, the

*realization, index, physics, forcing* indices. R1i1p1f1 is recommended, selecting it helps to narrow down the number of results (often there will be hundreds).

3. You may click 'Show Metadata' to view more details of the data.
4. When you have decided which data you want to download, click 'WGET script' and a .sh file will download.



5. Go into your jupyter notebook and create a folder to store the data. Drag the wget scripts from your local machine's Downloads folder or from your browser's downloads bar into the new folder. Click the Upload button.
6. Now open up a terminal and use the cd command to change to the directory where the wget scripts are located:  
`cd other_data/`
7. For a single wget script, or if you want to run them one at a time you may just enter  
`sh <wget_name.sh> -s`
8. If you want to run more than one wget script at once you can type python into your terminal and follow each of the following lines (paste into the terminal window), pressing enter twice after `os.system('sh '+ i+ ' -s')` , the tab before `os.system('sh '+ i+ ' -s')` is important!!!  

```
from glob import glob
import os
f = glob(os.getcwd()+ '/*.sh')
for a,i in enumerate(f):
    os.system('sh '+ i+ ' -s')
```

```

(base) [twemmen@jupyter other_data]$ python
Python 3.7.6 (default, Jan 8 2020, 19:59:22)
[GCC 7.3.0] :: Anaconda, Inc. on linux
Type "help", "copyright", "credits" or "license" for more information.
>>> from glob import glob
>>> import os
>>> f = glob(os.getcwd()+ '/*.sh')
>>> for a,i in enumerate(f):
...     os.system('sh '+ i+ ' -s')
...
##### This is a bash script! #####
Change the execution bit 'chmod u+x /home/twemmen/other_data/wget-20200422171113.sh' or start with 'bash /home/twemmen/other_data/wget-20200422171113.sh' instead of sh.
Trying to recover automatically...
*****
*
* Note that new functionality to allow authentication without the need for
* certificates is available with this version of the wget script. To enable,
* use the "-H" option and enter your OpenID and password when prompted:
*
* $ wget-20200422171113.sh -H [options...]
*
* For a full description of the available options use the help option:
*
* $ wget-20200422171113.sh -h
*
*****
Running wget-20200422171113.sh version: 1.3.2
Use wget-20200422171113.sh -h for help.

Script created for 1 file(s)
(The count won't match if you manually edit this file!)

```

Your terminal should look like this after pressing enter twice

9. Now the netCDF files will be in your current directory. You can use the data\_skeleton scripts to adapt your code to make plots of the data!
10. If you wish to interpolate the data (model comparison) or if you wish to combine multiple files into a single .nc file, you will need to copy the regrid\_skeleton file and follow the instructions there.