

# CDO (Climate Data Operators) & Miniconda

A collection of command line operators to manipulate and analyze climate and NWP model data, including data formats such as GRIB 1/2 and netCDF3/4.

<https://code.mpimet.mpg.de/projects/cdo/>

## Configuration on CentOS 7 for NVU-Lyndon Atmospheric Sciences

Miniconda (a Python package manager) is not installed in ASAC 315 and the WX Center on Linux by default. This documentation includes instructions for downloading and installing Miniconda, and installing cdo.

**If you have previously installed Miniconda on Linux, skip to step 7.**

**If you have previously followed these instructions to install cdo, skip to step 11.**

1. Click on the Applications menu, click on Favorites, and click **Terminal** to open a terminal.
2. Type each of the follow lines, followed by the Enter key, into the terminal.

```
cd Downloads
```

```
wget https://repo.anaconda.com/miniconda/Miniconda3-latest-Linux-x86_64.sh
```

3. To install Miniconda, type the following and press Enter:

```
bash Miniconda3-latest-Linux-x86_64.sh
```

4. Follow the prompts to install Miniconda. Press the Enter key to scroll down the license terms. Type **yes** to accept the terms, and press Enter. You **DO** want to install Miniconda to your Linux home directory: /mnt/homes/<username>/miniconda3 (this is the default). Press Enter to confirm the location:

```
Do you accept the license terms? [yes|no]
[no] >>> yes

Miniconda3 will now be installed into this location:
/mnt/homes/██████████/miniconda3

- Press ENTER to confirm the location
- Press CTRL-C to abort the installation
- Or specify a different location below

[/mnt/homes/██████████/miniconda3] >>> █
```

5. **Please be patient and wait for Miniconda to install. Installation will likely take over 15 minutes to complete.** This step is only required once, when initially installing Miniconda.
6. When asked to initialize Miniconda3 in .bashrc, press Enter to accept [no] (the default). Miniconda is finished installing!
7. Test your Miniconda installation. Type the following into the terminal window:

```
conda list
```

For a successful installation, a list of installed packages appears.

- Update conda to the latest version. Type the following into the terminal window, and press **y** to confirm the packages to be updated (even if you just installed Miniconda, there may be updates available. Conda developers recommend that you always keep conda updated to the latest version.)

```
conda update conda
```

- Type the command below to install the conda-forge channel. You should run this command even if you have done so previously, as it will ensure that conda-forge is set as the highest priority channel.

```
conda config --add channels conda-forge
```

### About conda-forge

Conda-forge is a community-driven collection of packages that are continually tested to ensure compatibility. CDO is not available without using the conda-forge channel. See <https://conda-forge.github.io/> for more details.

- Install cdo by typing:

```
conda install cdo
```

Conda checks to see what additional packages (“dependencies”) cdo will need, and asks if you want to proceed. When prompted, type: **y** and press Enter to proceed. It may take several minutes to install everything.

- To ensure that cdo is installed successfully, type:

```
cdo --version
```

If you see NetCDF library version : 4.6.2 (or newer) near the bottom of the output, cdo is installed successfully.

- Change the directory to where you have saved the wrfout netCDF files. For example, type:

```
cd /mnt/homes/<username>
```

It is easiest to work with wrfout netCDF files when running cdo commands from the directory where the wrfout files are saved.

### For Future Reference

See the CDO reference card for CDO commands:  
[https://code.mpimet.mpg.de/projects/cdo/embedded/cdo\\_refcard.pdf](https://code.mpimet.mpg.de/projects/cdo/embedded/cdo_refcard.pdf)