Computer Requirements for the ARSET Training

All participants must bring their own laptop for the training. It must be equipped with:

- **Wifi Capability**
- **MS Office (PowerPoint, Excel, Word)**
- **PDF Reader (e.g. Adobe)**
- **Internet Browser (Chrome is Preferred)**

Other Requirements

- **Earthdata Registration (Required) https://urs.earthdata.nasa.gov/users/new**
- **Attendees will need access to Google Drive and Google Colab. To access these resources, users must use an email ending in 'gmail.com'.**
- **Optional: attendees may wish to use Google Earth Engine to access and visualize data. To do so, follow these steps:**
  - **Visit https://code.earthengine.google.com/register**
  - **Sign in with your gmail.com email address**
  - **Select the option to "use without a cloud project"**
  - **Check your email for a confirmation that you are registered**
- **Optional: Python – See more instructions below**

Optional: Installing Python with Anaconda

The training will utilize Google Colab for running Jupyter Notebooks. If you prefer not to use Google Colab, please use the following instructions to install Python 3.7. **If you encounter a problem, please look for a solution online or with your IT department.** Due to limited resources, ARSET is not able to further assist you in the Python installation process.

Downloading and Installing Anaconda

1. If you do not have administrative privileges on your computer, install on a local directory to avoid any permission issues.
2. Download the Anaconda installer at https://www.anaconda.com/distribution/.
3. For this training, we recommend you install Python 3.7.

Installing Packages

4. Once you have installed Anaconda, open an Anaconda Prompt (e.g., Terminal/CMD) and enter the following command:

```
conda install -c anaconda netcdf4
```

5. If this does not work, try the following commands:

conda install -c conda-forge netcdf4=1.2.7

Or

conda install netCDF4

Anaconda will then display a description of what it intends to install before asking you to confirm installation. **Read this carefully** any time you install a package with Anaconda; it sometimes upgrades or downgrades packages (if needed), which can cause previously installed packages to stop working.

6. Install mpl_toolkits.basemap using
```
conda install basemap
```
7. If this does not work, try the following commands:
```
conda install -c conda-forge basemap
```

• Note: You can check which packages are installed with the following:
```
conda list
```

8. Similarly, phdf can be installed as:

```
conda install -c conda-forge pyhdf
or
conda install -c conda-forge/label/gcc7 pyhdf
or
conda install -c conda-forge/label/cf201901 pyhdf
```

9. List of packages required for this course:
- os
- sys
- warnings
- time
- datetime
- xarray
- netCDF4
- pandas
- dask
- scipy
- sklearn
- itertools
- random
- copy

- cartopy
- wget
- pydap
- json
- certifi
- requests
- s3fs
- urllib3
- netrc
- subprocess

10. If needed, you can update a package by repeating the installation

command

Using Integrated Development Environments (IDEs) with Anaconda

Depending on the IDE you are trying to use, it may be possible to set up your IDE to use the Anaconda environment. This will mean using the interpreter and packages installed with Anaconda. For specific instructions on how to do this, visit: http://docs.continuum.io/anaconda/user-guide/tasks/integration/.

Note*: Anaconda comes with a minimal IDE named Spyder, which is available from the Anaconda Navigator.*

Further Anaconda Details and Capabilities

In addition to being a package management software, Anaconda is also an environment management software. This means two things:

- It stores all files (including the Python interpreter and packages) in the anaconda directory, which can lead to difficulties if you try to use the files in an external version of Python.
- It can manage multiple versions of Python separately.

For more details, visit: http://conda.io/docs/py2or3.html.