Workshop Requirements:

Python Download Link: Mac / Windows

Linux

1. Download and extract Python:

```
cd ~
wget https://www.python.org/ftp/python/3.9.22/Python-3.9.22.tgz
tar -xzf Python-3.9.22.tgz
cd Python-3.9.22
```

2. Configure and build:

```
./configure --prefix=$HOME/python392 --enable-optimizations
make -j4
make install
```

3. Add Python to your path:

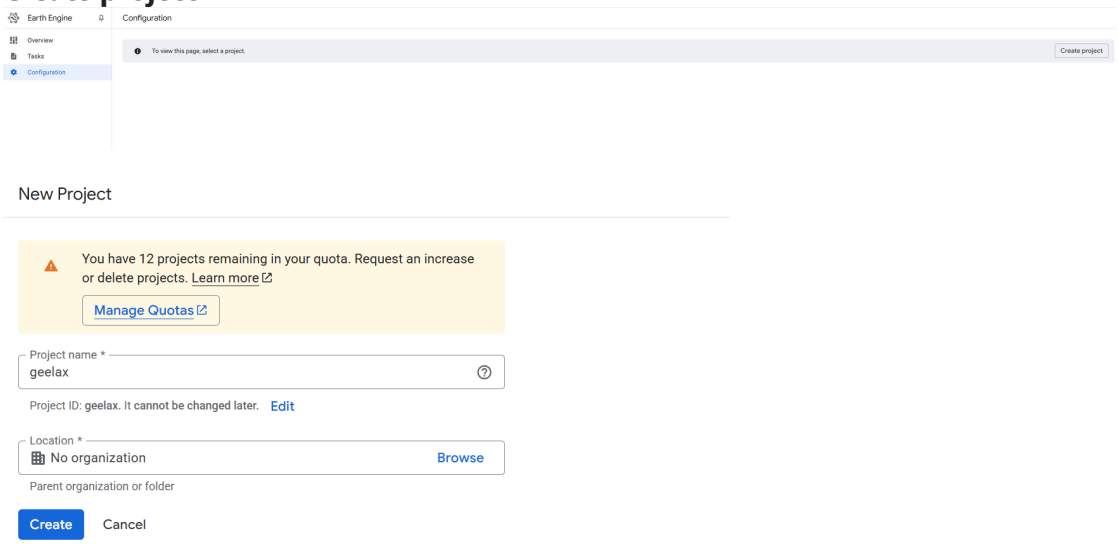
```
echo 'export PATH="$HOME/python392/bin:$PATH"' >> ~/.bashrc
source ~/.bashrc
```

4. Verify installation:

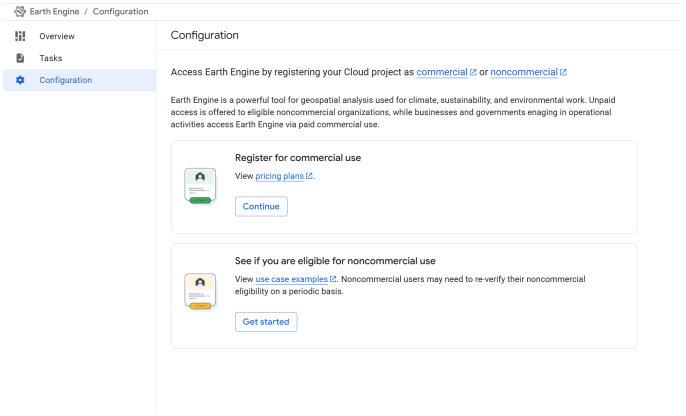
```
python3.9 --version
```

Google Earth Engine Account Link: Signup :

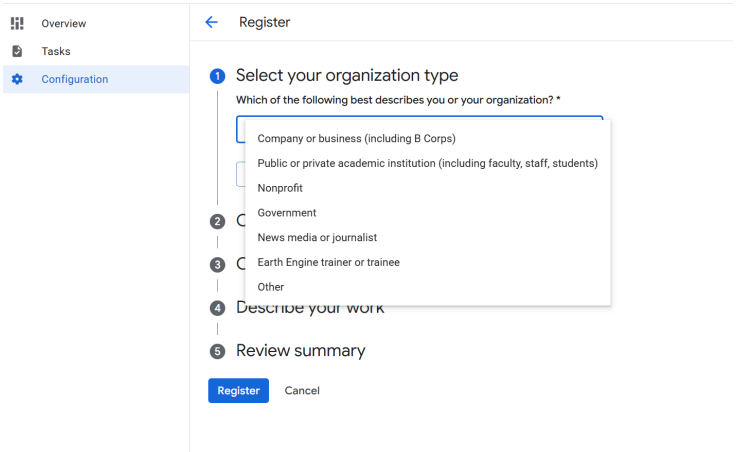
Create project



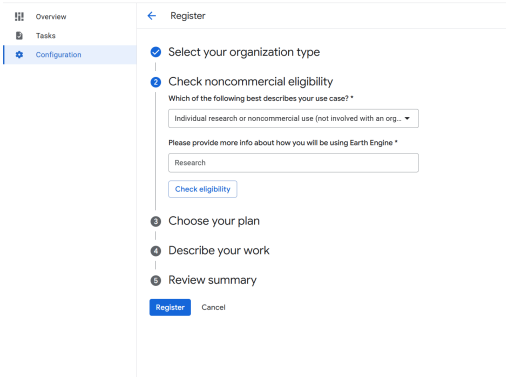
Pick eligible for noncommercial use:



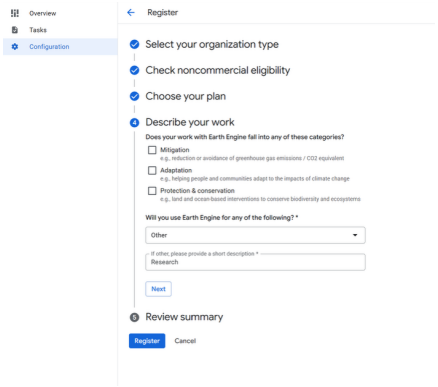
Pick Other



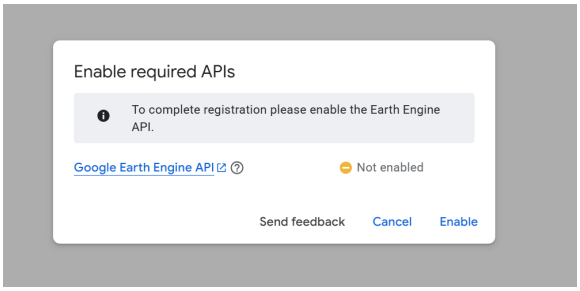
Pick Individual research.

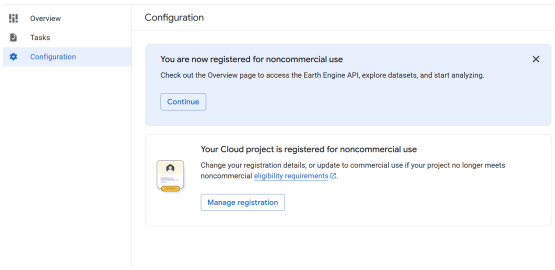


Register:



Enable API:





Visual Studio Code Download and setup:

Download link: Download VS code

Setup Guide:

🔵 Windows

> ✅ Use the official installer (admin access may be required)

1. Download from: VS Code for Windows
2. Run the installer and follow the setup instructions.
3. After installation, open **Command Prompt** or **Start Menu**, and run:

```
code
```

🟣 macOS

1. Download the macOS Universal installer: VS Code for macOS
2. Open the `.zip` file and drag **Visual Studio Code** to the **Applications** folder.
3. Open Terminal and run:

```
code
```

> If `code` is not found, open VS Code, press `Cmd+Shift+P`, and run: `Shell Command: Install 'code' command in PATH`

🟢 Linux (no sudo)

> ✅ Extract and run from a `.deb` file manually

1. Download the latest `.deb` file: VS Code `.deb`
2. Extract contents without installing system-wide:

```
ar x code_*.deb
tar -xf data.tar.xz -C ~/code_extracted
~/code_extracted/usr/share/code/bin/code
```

3. (Optional) Add to PATH:

```
echo 'alias code="$HOME/code_extracted/usr/share/code/bin/code"' >> ~/.bashrc
source ~/.bashrc
```

4. Launch VS Code with:

```
code
```

> ✅ You now have VS Code running without needing admin rights.

Git Download and Setup Instructions: Git Download

Tool Index-Visualizer: Visualize and compare Spatial data

Clone the repository:

```
git clone https://github.com/Saurav-JSU/Index-Visualizer.git
cd Index-Visualizer
```

Create and activate a virtual environment:

```
python3 -m venv .venv
source .venv/bin/activate
```

Upgrade pip and install requirements:

```
pip install –upgrade pip
pip install -r requirements.txt
```

Authenticate with Google Earth Engine:

```
earthengine authenticate
```

Open the project in VS Code:

```
code .
```

Select the virtual environment and play around with notebook.

Cleanup

```
rm -rf Index-Visualizer
deactivate
```

GeoClimate-Fetcher: Download Average timeseries or Grided data.

Clone the repository:

```
git clone https://github.com/Saurav-JSU/GeoClimate-Fetcher.git
cd GeoClimate-Fetcher
```

Create and activate a virtual environment:

```
python3 -m venv .venv
source .venv/bin/activate
```

Upgrade pip:

```
pip install –upgrade pip
```

Install the package in development mode:

```
pip install -e .
```

Authenticate with Google Earth Engine:

```
earthengine authenticate
```

Running the Interactive GUI

```
jupyter notebook geoclimate_fetcher/notebooks/interactive_gui.ipynb
```

Play around with the notebook.

Cleanup

```
rm -rf GeoClimate-Fetcher
deactivate
```

Tool GroundData-validator: Download, Compare and validate modeled data against ground station readings.

Clone the repository:

```
git clone https://github.com/Saurav-JSU/GeeData-GroundData-validator.git
cd GeeData-GroundData-validator
```

Create and activate a virtual environment:

```
python3 -m venv .venv
source .venv/bin/activate
```

Upgrade pip and install requirements:

```
pip install –upgrade pip
pip install -r requirements.txt
```

Authenticate with Google Earth Engine:

```
earthengine authenticate
```

Run the tool with python.

```
Python main.py
```

Earth Engine tab and authenticate first.
Play around with the tool.
Recommended Download Select 1-2 year period, Montana state less stations DAYMET PRISM.
Analysis Tab: Run analysis.
Visualization Tab: Timeseries, Dataset comparison. Spatial Distributions.

Cleanup

```
rm -rf GeeData-GroundData-validator
deactivate
```