

# Instructions for Setting Up Arctic Image Downloader Script and Viewing Image

## **Part 1: Installation/Setup**

### **1.0 Create NASA EarthData account**

- [Here](#)
- This username and password will be hard-coded into the script. For security reasons, it is suggested to create a new dedicated login specifically for this script.

### **2.0 Install Anaconda**

Download and install Anaconda from the following link:

<https://www.anaconda.com/products/individual#Downloads>

### **3.0 Install environment**

Step 1: Prepare the Environment File

- Download the "ImageDownloader.yml" file
- Create a new directory for your project (recommended name: "WeatherProject")
- Move the downloaded yml file into this new directory

Step 2: Open Anaconda Prompt

- Search for and open "Anaconda Prompt" from your Start menu

Step 3: Navigate to Your Project Directory

- Type the following command, replacing the path with your actual project location:  
`cd C:\Users\YourUsername\Documents\WeatherProject`

Step 4: Create the Environment

- Type the following command to create the environment from the yml file:  
`conda env create --file ImageDownloaderEnvironment.yml`
- Note: This process may take a significant amount of time

Step 5: Activate the Environment

- Once installation completes, activate the environment by typing:  
`conda activate image_downloader`

```
(base) C:\Users\leodo\Documents\WeatherProject>conda activate image_downloader
(image_downloader) C:\Users\leodo\Documents\WeatherProject>
```

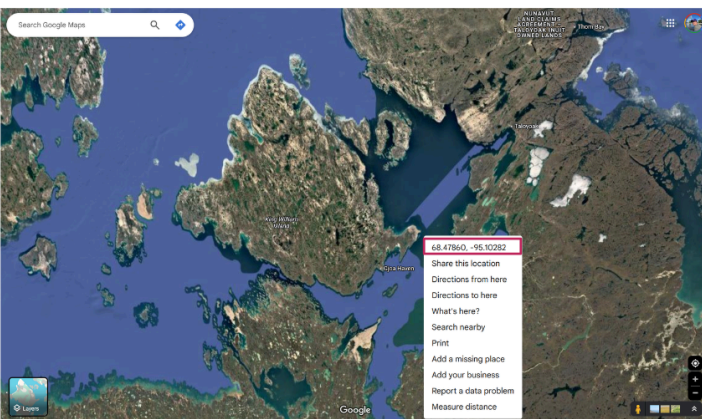
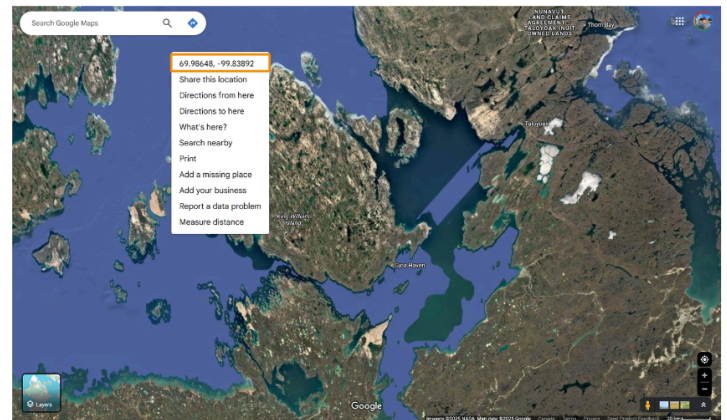
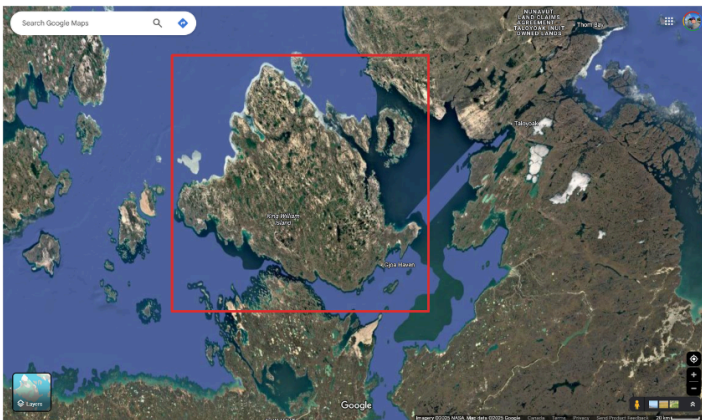
## 4.0 Setup the Script

Step 1: modify username and password variables

```
# NASA Earthdata credentials - CHANGE THESE TO YOUR OWN VALUES
os.environ['EARTHDATA_USERNAME'] = 'username' # Replace with your actual username
os.environ['EARTHDATA_PASSWORD'] = 'password' # Replace with your actual password
```

Step 2: Add an Area of Interest

The code works by using the coordinates of the rectangular area of interest. The easiest way to get the coordinates is through google maps. You can right-click anywhere and the coordinates will show up. Right-click on the top left of the area of interest. The first number will represent the max latitude and the second number will be the max longitude. Repeat the steps on the bottom right point of the area of interest, this time changing the minimum values.



```
aoi = {
    'min_lon': -95.10, # Western boundary
    'min_lat': 68.47, # Southern boundary
    'max_lon': -99.83, # Eastern boundary
    'max_lat': 69.98 # Northern boundary
}
```

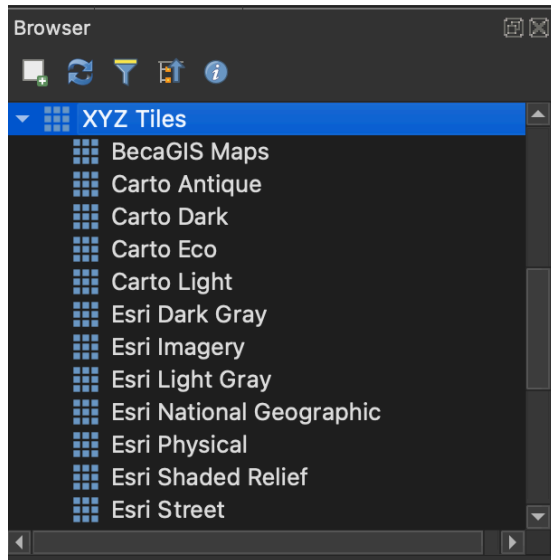
Figure 1: Example of King William Island NU

## **Part 2: After running script**

### **5.0 Open images in QGIS**

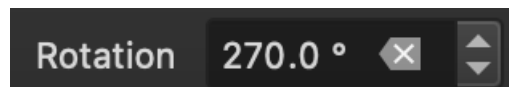
Step 1: Add satellite imagery for reference

- In browser pane > scroll down to XYZ tiles > open drop down menu and drag in desired basemap



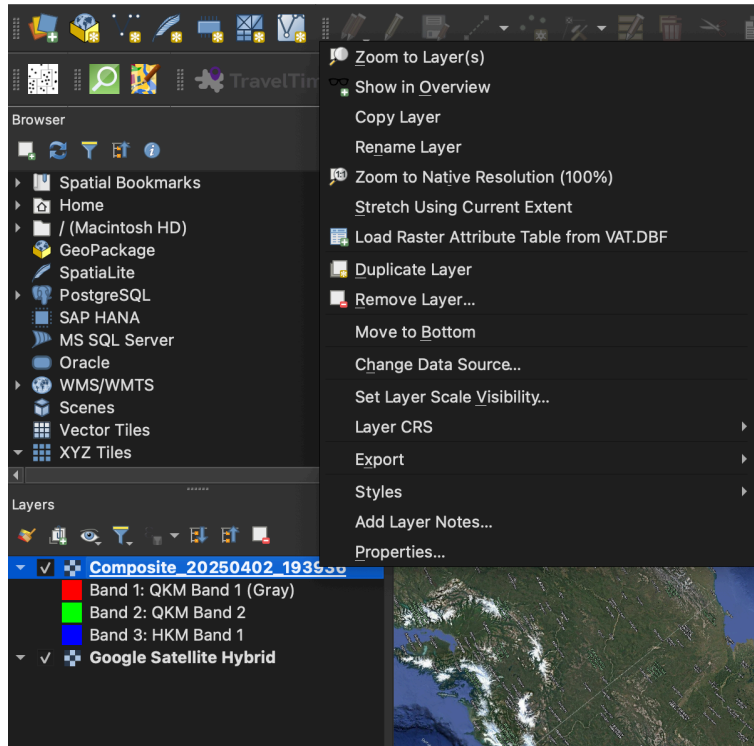
Step 2: Rotating canvas

- In bottom right corner of QGIS there is an option to rotate the view, the images are in an arctic projection where north appears to be on the right of the images, so rotate accordingly, in most cases 270° will rotate so north is at the top of the screen.



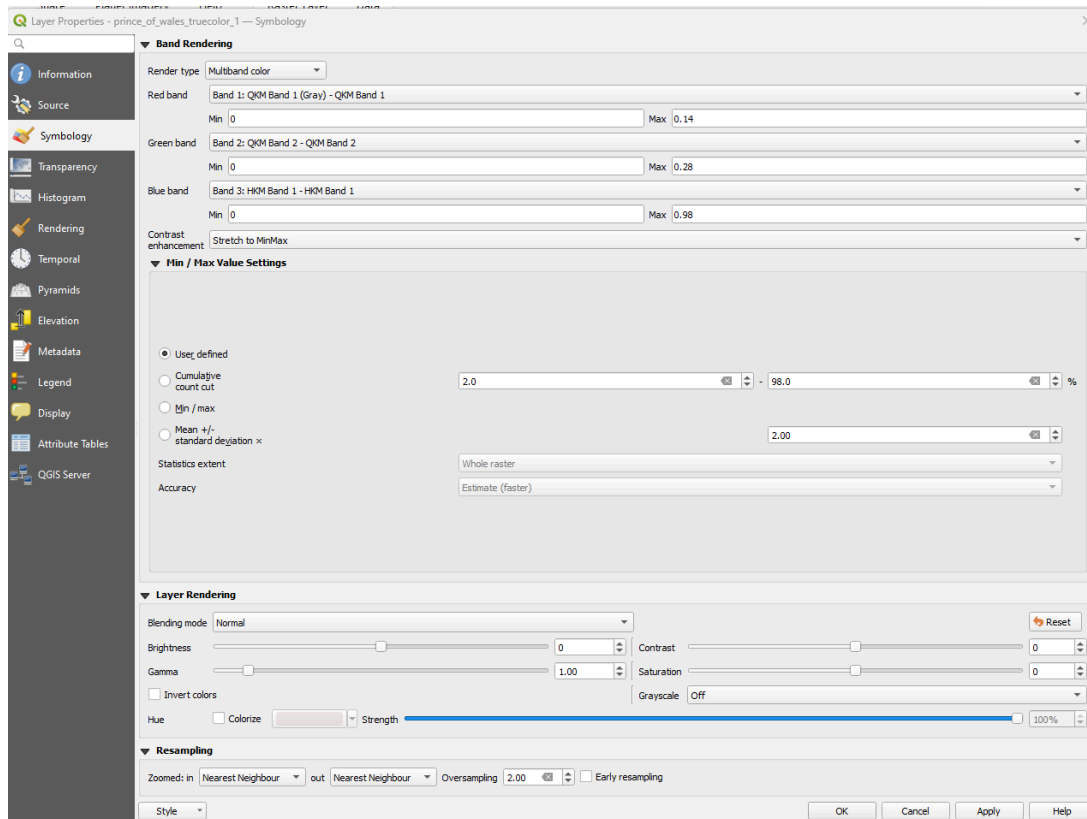
Step 3: Change visualization parameters

- Right click > properties > symbology



True colour visualization:

- Set Red band to “Band 1: QKM Band 1”, Green band to “Band 2: QKM Band 2”, and Blue band to “Band 3: HKM Band 1”
- Change max values for each band to match the screenshot below
- Set contrast enhancement to “stretch to MinMax”
- These parameters are a standard and may not work perfectly for every image.



False colour visualization:

- Set red band to “Band 7: HKM Band 5”, Green band to “Band 1: QKM Band 1” and Green to “Band 3: HKM Band 1”
- Max values were kept as the default values
- Set contrast enhancement to “stretch to MinMax”
- These parameters are a standard and may not work perfectly for every image.

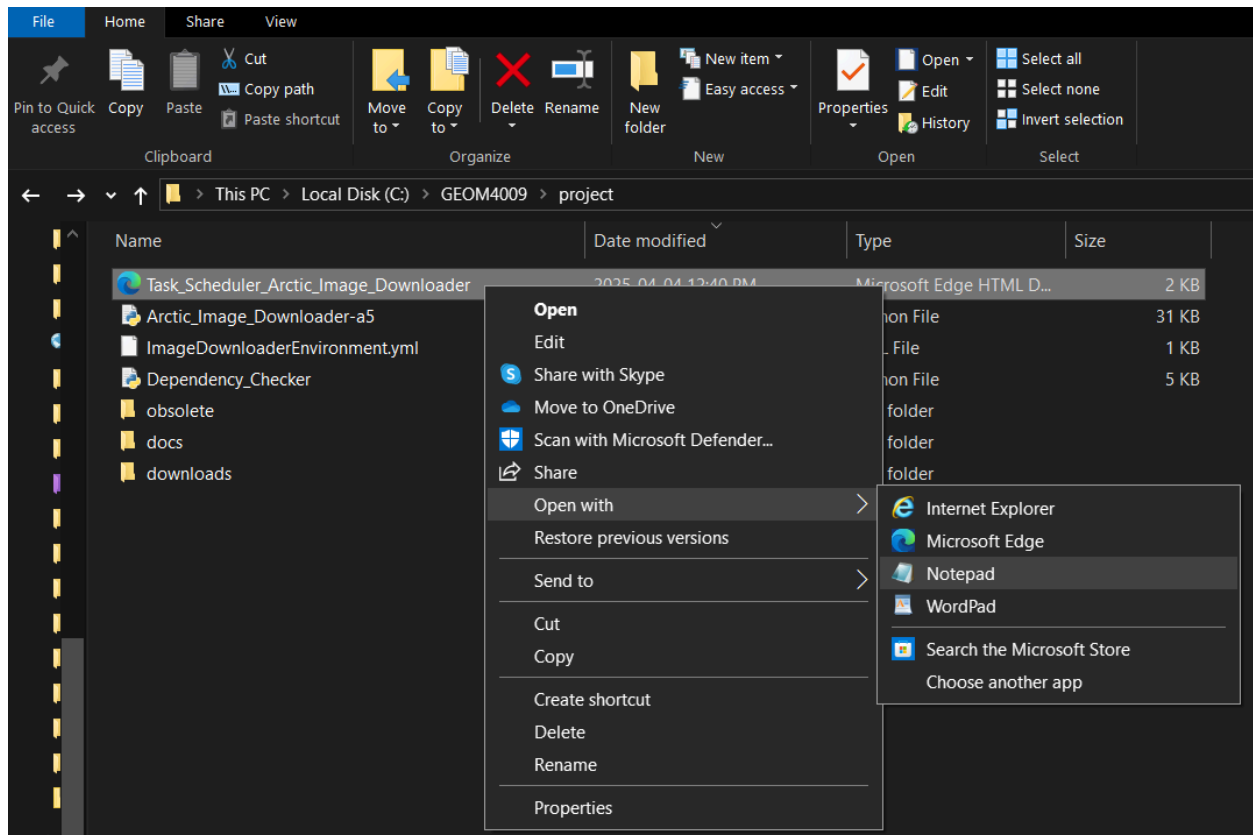


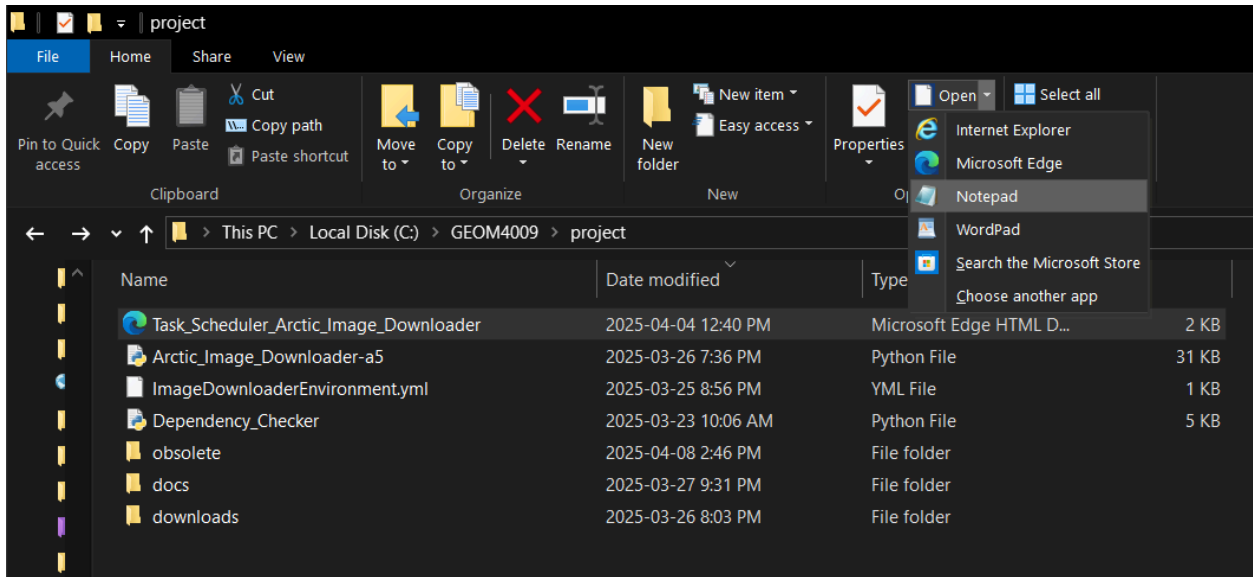
## 6.0 Task Scheduler

Step 1: download the xml file “Task\_Scheduler\_Arctic\_Image\_Downloader” from the GitHub repository

Step 2: Open the XML File in a Text Editor (notepad or wordpad).

This can be done one of two ways: either by right clicking on the file and selecting “Open with” (See first figure below) or by clicking on the file and using the ribbon menu and selecting the dropdown next to “Open” (See second figure below).



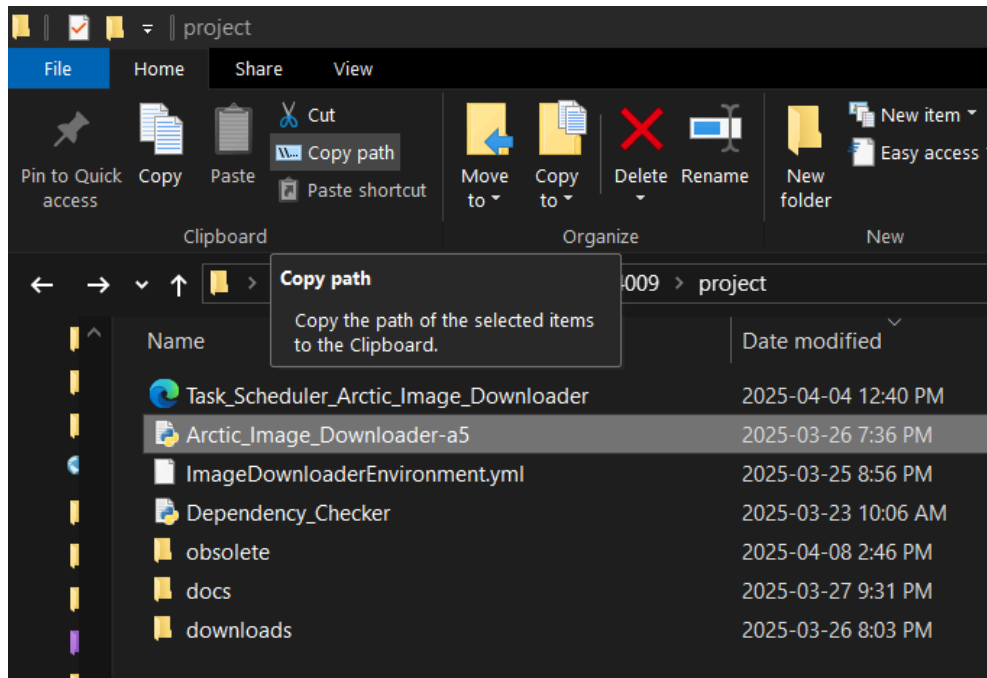


Step 3: Change the File Path and then save the file.

- Once the file is open in notepad, navigate to the bottom of the page under the heading `<Actions>` to a line that reads: `<Arguments>/c "C:\Users\YourUsername\anaconda3\Scripts\activate.bat ...`
- The text highlighted in yellow, "YourUsername", should be changed to the username of the account on the computer or server.
- The text highlighted in magenta should be changed to the path of where the Arctic\_Image\_Downloader python script was saved. This can be found by highlighting the python file and using the copy path button on the ribbon menu.
- Once the changes are made hit save and close the file

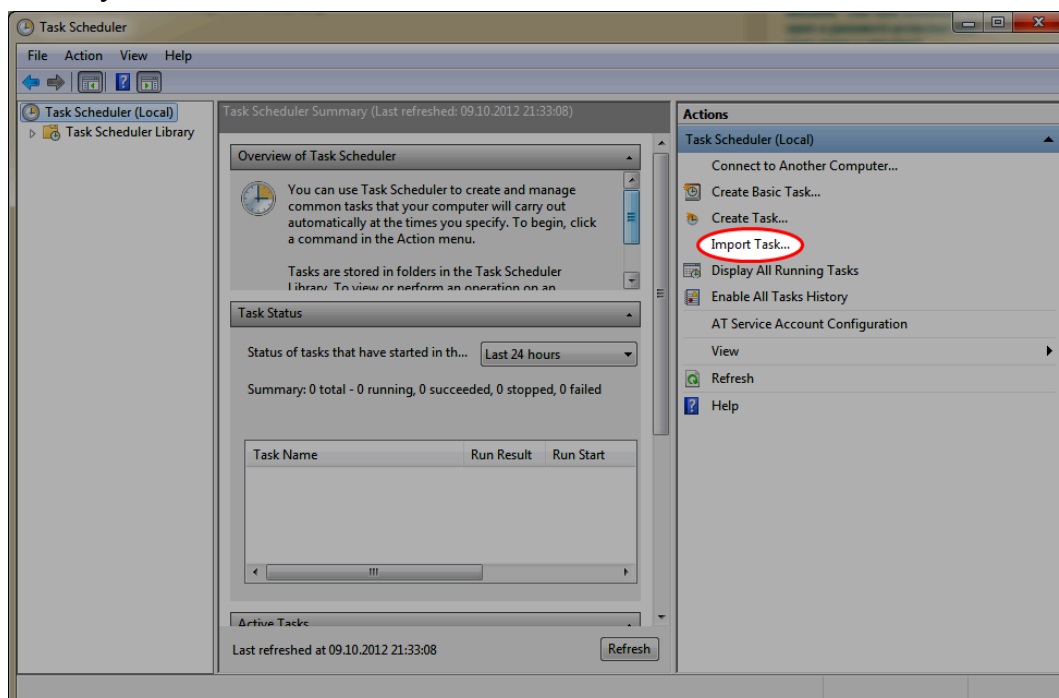
```
<Actions>
<Exec>
<Command>cmd.exe</Command>
<Arguments>/c "C:\Users\YourUsername\anaconda3\Scripts\activate.bat &amp;&amp; conda activate image_downloader &amp;&amp; python %path%\Arctic_Image_Downloader.py"</Arguments>
</Exec>
</Actions>
</Task>
```





Step 4: Import the file into Windows Task Scheduler

- Open Windows Task Scheduler and select import task. This will open a window where you will browse to the xml file



Step 5: Verify the task is running as expected

- After a few hours check to verify that the task is executing at the expected schedule