**HLS Acquisition Guide**

# Locating Granules

Go to: <https://search.earthdata.nasa.gov/search> and log in

1. Scroll and hover over the dataset “HLS Sentinel-2 Multi-spectral Instrument Surface Reflectance Daily Global 30m v2.0” .
2. Click on the information (i). Download the Quick Guide pdf and the User Guide pdf. They will be helpful in understanding the file names.
3. Once you have the dataset selected, now we have to filter the dataset by time.
4. Select the calendar icon.
5. Fill out the desired date range.
6. Look for a “crop icon” click on it and select “rectangle” (or however you desire to select your area of interest).
7. Now draw/select the area of interest on the map. Or enter the exact coordinates of the area.
8. Now granules will appear that include the area of interest. Hover over each granule to have it render in the map. Be careful though ***not all granules will encompass the* *entire area*. *The area that a granule does cover will sometimes overlap with another granule.***
9. Make sure to take note of the coordinates of the box. This information is trivial to find on the website.
10. Also, note that you can edit the time now too, by altering the actual date via typing.
11. Once you have the granules that you want (select by clicking the ‘+’ below each one) click download.

# Downloading

1. For the next part of the acquisition, it’ll depend on your use case. For mine, I wanted all the “surface reflectance” files, all bands. Reading the quick guide pdf was sufficient enough.
2. Over the results: hit “ctrl + F” and search for “Bxx” with the xx replaced with the band number.
3. Then download all the results manually.

OR

1. Follow the download instructions.

# Performing Operations on the Downloaded Files

1. In QGIS, load the google satellite basemap.
2. For each band, load all tiles
3. Reproject ( Rasters -> Projections -> Warp (Reprojections) ) each tile to ‘ EPSG:4326 - WGS 84 ‘.
   1. Make sure that a common data type is selected (for me it was float32)
4. Merge all the Reprojections together ( Rasters -> Miscellaneous -> Merge ).
   1. After Merging them all together, right click on the final Merged raster and select ‘ export ‘ -> ‘ save as ’.
   2. A dialogue box will appear. Underneath the Extent section; select the drop down box with the words ‘ Layer ‘ and select the appropriate layer (the merged layer)
   3. Underneath the Resolution section check columns.
   4. Check Pyramids
   5. Go back up and select the ‘ … ‘ button next to filename, navigate to the desired folder and name the file. Then press ‘Ok’ to save the file.
5. Crop the Merged Raster (Raster -> Extraction -> Clip Raster by Extent)
   1. For the box with Clipping extent (these should be the city extent coordinates): minimum longitude, maximum longitude, minimum latitude, maximum latitude)
   2. Right click on the final clipped raster and select ‘ export ‘ -> ‘ save as ’.
   3. A dialogue box will appear. Underneath the Extent section; select the drop down box with the words ‘ Layer ‘ and select the appropriate layer (the merged layer)
   4. Underneath the Resolution section check columns.
   5. Check Pyramids
   6. Go back up and select the ‘ … ‘ button next to filename, navigate to the desired folder and name the file. Then press ‘Ok’ to save the file.
6. Remove all rasters except for the basemap from the layers box in QGIS.

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