NOTE:

* The following commands can be run in the conda prompt or on your desired command line. Highlighted are the commands for converting files. Every section explains the used parameters along the I/O directories to retrieve and store files.
* However, I have created similar work on a single `jupyter notebook` file: **open\_geotiff\_file.ipynb.** that should perform a similar operation.

**1.** **Convert CSV file to JSON format**

The dataset that you’re **using is an un-gridded L2 dataset. You can convert it into a common GIS format like GeoJSON using OGR.**

ogr2ogr -oo X\_POSSIBLE\_NAMES=longitude -oo Y\_POSSIBLE\_NAMES=latitude -a\_srs 'EPSG:4326' oco2\_2020.json oco2\_2020.csv

· “POSSIBLE\_NAMES” options tell **OGR** which fields are used for the **coordinate** values.

· a\_srs **refers to the source** file map projection.

· EPSG:4326 is the **standard equirectangular map projection**.

**Output**: creates a folder of GeoJSON files (4 files total) which will be used to create a tif file

**2.** **Convert JSON file to GeoTIFF**

If you want to convert it to GeoTIFF, you’ll **need to grid or rasterize the dataset**. A quick way of doing it is **using gdal\_rasterize**:

gdal\_rasterize -a Xco2 -a\_nodata 0 -ts 512 256 oco2\_2020.json oco2\_2020.tif

· ‘-a’ refers to the field name. We use ‘-a\_nodata’ to give it a nodata value of 0.

· ‘-ts’ refers to the **target size**; I just picked something small for quick visualization. Ideally, you’ll want to u**se the native extents and footprint sizes for each measurement**, but that gets complicated so I’ll leave that out for now.

3. **COLOR png format file**

If you want to produce a **colored PNG output**, you can do that in a few steps. **First**, generate a txt colormap (I have a simple one attached). Then create a colored TIFF file with a transparent alpha channel:

gdaldem **color**-relief -alpha oco2\_2020.tif colormap.txt oco2\_2020\_colors.tif

Finally, **run gdal\_translate to convert to PNG** with a worldfile for georeferencing:

gdal\_translate -of PNG -co "WORLDFILE=YES" oco2\_2020\_colors.tif oco2\_2020.png