



# Polar2Grid and Geo2Grid: Open Source Software for Creating High Quality Images



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## Polar2Grid - Supporting Polar Orbiter Satellites

CSPP LEO - <http://cimss.ssec.wisc.edu/cspp/>

## Geo2Grid - Supporting Geostationary Satellites

CSPP Geo - <http://cimss.ssec.wisc.edu/csppgeo/>

**Introduction:** A common requirement for anyone who works with satellite data and products is creating high quality images. Polar2grid and Geo2Grid address this problem by creating an easy to use interface for reprojecting and reformatting polar and geostationary meteorological satellite data into commonly used formats.

### Polar Level 1 Products Supported

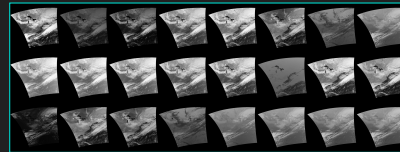
- VIIRS - S-NPP and NOAA-20 | MODIS - Aqua and Terra
- AVHRR - NOAA-18, 19 Metop-A,B,C | ATMS - NOAA-20 and S-NPP
- AMSR-2 - GCOMW-1

### Polar CSPP Science Products Supported

- ACSPO SSTs from VIIRS, MODIS, AVHRR
- MIRS Microwave Retrievals from ATMS, AMSU, and MHS
- NUCAPS Retrievals from CrIS/ATMS, IASI/AMSU
- CLAVRx Cloud Retrievals from VIIRS, MODIS and AVHRR

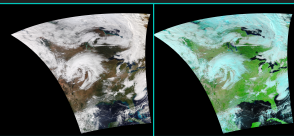
### \* Simple Bash Shell Script interface to Python (SatPy Library)

```
polar2grid.sh viirs gtiff -f /path_to_data
```



### \* Easy to Select Specific Bands/RGBs True and False Color VIIRS/MODIS Image Creation includes Atmospheric Correction

```
polar2grid.sh crefll gtiff -p --true-color --false-color -f /path
```



### \* Easy to Reproject to User Defined Grid

User Grid: Miami Lambert Conic Conformal grid 300m spatial resolution

```
polar2grid.sh crefl gtiff --false-color --grid-configs grid.conf -g miami -f /path
```



### Other Polar2Grid Features

- Output Format options
  - GeoTIFF, HDF5, Binary, KMZ, AWIPS, NinJo
- Map, Grid overlays
- Many predefined grids

### Coming Enhancements

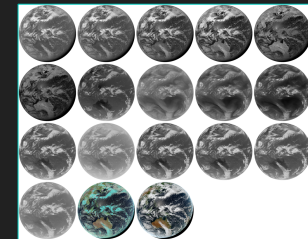
- Adding support for more products
  - CSPP Active Fire overlays
  - CSPP Flood Detection
  - FY3-B VIRR
  - FY3-D MERSI-2

### Geostationary Level 1 Products Supported

- GOES-16 and 17 ABI, All Bands and All Modes  
True and Natural Color RGBs  
Airmass, Ash, Dust, Fog, Night Microphysics RGBs
- Himawari-8 AHI All Bands  
True and Natural Color RGBs
- Himawari-9 AHI All Bands  
True and Natural Color RGBs

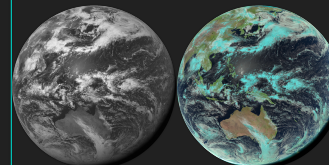
### \* Simple Bash Shell Script interface to Python (SatPy Library)

```
geo2grid.sh -r ahi_abi -w gtiff -f /path_to_data
```



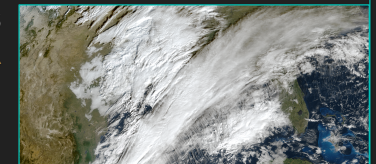
### \* Easy to Select Specific Bands/RGBs

```
geo2grid.sh -r ahi_hsd -w gtiff -p C03 false_color -f /path
```



### \* Easy to Create Areal Subset Images

```
geo2grid.sh -r abi_l1b -w geotiff --ll-bbox -105 23 -75 37 \
--num-workers 8 -p true_color -f /path
```



### Other Geo2Grid Features

- Script for creating animations
- Efficient Processing
  - Dask Parallel Processing with xarray
- Map, Grid overlays

### Coming Enhancements

- Adding support for more products
  - AMI Imager
- Expanded support for RGBs