

MODIS L1B Aggregated Data Files

Introduction

The intent of these files is to allow quality assessment of L1B top-of-atmosphere reflectances and radiances for individual bands that are used in the downstream atmospheric product retrievals. The files are generated on demand by the Atmosphere QA team. Hence, files are not available for the entire mission period, nor are they available from LAADS. At this time, the files are available for two time periods - daily and monthly (M(O/Y)D02_D3 and M(O/Y)D02_M3).

Aggregation Algorithm and File Details

The algorithm uses day time sub-sampled 5km L1B data M(O/Y)D02SSH as input. Aggregation is performed for the reflective bands 1, 2, 3, 4, 5, 6, 7, and 26, and emissive bands 20, 21, 22, 23, 29, 30, 31, 32, and 33.

For every data granule, the pixels from each band are divided into three streams based on the sensor zenith angle.

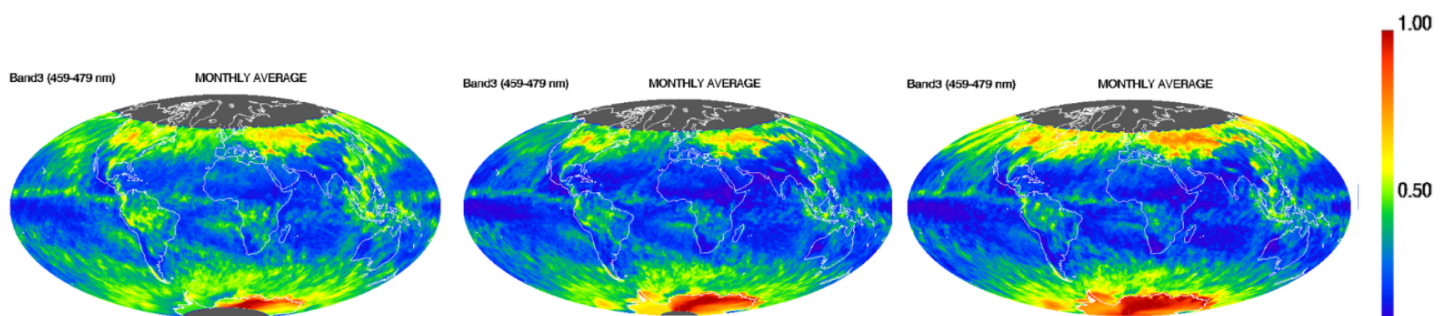
- 1) Nadir view pixels: $\pm 30^\circ$ view angle on either side of the swath;
- 2) “End of scan” portion of the swath: -30° to -60° view angle pixels;
- 3) “Start of scan” portion of the swath: $+30^\circ$ to $+60^\circ$ view angle pixels.

Data from each stream for each day is then aggregated into an equal angle latitude-longitude global grid of 5x5 km box. For grid boxes at higher latitudes with pixels from overlapping orbits, the aggregated statistics are pixel-weighted. It is then averaged into 1x1 degree grid box. The following set of statistical parameters are computed for each grid, for each band:

- 1) Mean
- 2) Minimum
- 3) Maximum
- 4) Standard Deviation
- 5) Pixel counts

Statistics for monthly data are computed from 1x1 degree daily grid cells that spans a (calendar) monthly interval. The browse images are available for an equal area Hammer-Aitoff projection.

Figure: Monthly Terra L1B 1x1deg data for December 2016, Band 3 (459-479 nm) for three ranges of sensor view zenith angles: a) pixels on the end of swath portion of the scan, b) nadir view zenith pixels, and c) pixels on the start of swath portion of the scan.



MOD02_D3 File Spec

netcdf MOD02_D3.A2016001.006.0-3000.1deg {

dimensions:

 ydim = 180 ;

 xdim = 360 ;

variables:

 float Latitude (1 deg)(ydim, xdim) ;

 float Longitude (1 deg)(ydim, xdim) ;

 float EV_250_Aggr1km_RefSB.1_Mean (1 deg)(ydim, xdim) ;

 float EV_250_Aggr1km_RefSB.1_Maximum (1deg)(ydim, xdim) ;

 float EV_250_Aggr1km_RefSB.1_Minimum (1deg)(ydim, xdim) ;

 float EV_250_Aggr1km_RefSB.1_Standard_Deviation (1deg)(ydim, xdim) ;

 float EV_250_Aggr1km_RefSB.1_Pixel_Counts (1deg)(ydim, xdim) ;

 float EV_250_Aggr1km_RefSB.2_Mean (1 deg)(ydim, xdim) ;

 float EV_250_Aggr1km_RefSB.2_Maximum (1deg)(ydim, xdim) ;

 float EV_250_Aggr1km_RefSB.2_Minimum (1deg)(ydim, xdim) ;

 float EV_250_Aggr1km_RefSB.2_Standard_Deviation (1deg)(ydim, xdim) ;

 float EV_250_Aggr1km_RefSB.2_Pixel_Counts (1deg)(ydim, xdim) ;

 float EV_500_Aggr1km_RefSB.1_Mean (1 deg)(ydim, xdim) ;

 float EV_500_Aggr1km_RefSB.1_Maximum (1deg)(ydim, xdim) ;

 float EV_500_Aggr1km_RefSB.1_Minimum (1deg)(ydim, xdim) ;

 float EV_500_Aggr1km_RefSB.1_Standard_Deviation (1deg)(ydim, xdim) ;

 float EV_500_Aggr1km_RefSB.1_Pixel_Counts (1deg)(ydim, xdim) ;

 float EV_500_Aggr1km_RefSB.2_Mean (1 deg)(ydim, xdim) ;

 float EV_500_Aggr1km_RefSB.2_Maximum (1deg)(ydim, xdim) ;

 float EV_500_Aggr1km_RefSB.2_Minimum (1deg)(ydim, xdim) ;

 float EV_500_Aggr1km_RefSB.2_Standard_Deviation (1deg)(ydim, xdim) ;

 float EV_500_Aggr1km_RefSB.2_Pixel_Counts (1deg)(ydim, xdim) ;

 float EV_500_Aggr1km_RefSB.3_Mean (1 deg)(ydim, xdim) ;

 float EV_500_Aggr1km_RefSB.3_Maximum (1deg)(ydim, xdim) ;

 float EV_500_Aggr1km_RefSB.3_Minimum (1deg)(ydim, xdim) ;

 float EV_500_Aggr1km_RefSB.3_Standard_Deviation (1deg)(ydim, xdim) ;

 float EV_500_Aggr1km_RefSB.3_Pixel_Counts (1deg)(ydim, xdim) ;

 float EV_500_Aggr1km_RefSB.4_Mean (1 deg)(ydim, xdim) ;

 float EV_500_Aggr1km_RefSB.4_Maximum (1deg)(ydim, xdim) ;

 float EV_500_Aggr1km_RefSB.4_Minimum (1deg)(ydim, xdim) ;

 float EV_500_Aggr1km_RefSB.4_Standard_Deviation (1deg)(ydim, xdim) ;

 float EV_500_Aggr1km_RefSB.4_Pixel_Counts (1deg)(ydim, xdim) ;

 float EV_500_Aggr1km_RefSB.5_Mean (1 deg)(ydim, xdim) ;

 float EV_500_Aggr1km_RefSB.5_Maximum (1deg)(ydim, xdim) ;

 float EV_500_Aggr1km_RefSB.5_Minimum (1deg)(ydim, xdim) ;

 float EV_500_Aggr1km_RefSB.5_Standard_Deviation (1deg)(ydim, xdim) ;

 float EV_500_Aggr1km_RefSB.5_Pixel_Counts (1deg)(ydim, xdim) ;

 float EV_1KM_Emissive.1_Mean (1 deg)(ydim, xdim) ;

 float EV_1KM_Emissive.1_Maximum (1deg)(ydim, xdim) ;

 float EV_1KM_Emissive.1_Minimum (1deg)(ydim, xdim) ;

```
float EV_1KM_Emissive.1_Standard_Deviation (1deg)(ydim, xdim) ;
float EV_1KM_Emissive.1_Pixel_Counts (1deg)(ydim, xdim) ;
float EV_1KM_Emissive.2_Mean (1 deg)(ydim, xdim) ;
float EV_1KM_Emissive.2_Maximum (1deg)(ydim, xdim) ;
float EV_1KM_Emissive.2_Minimum (1deg)(ydim, xdim) ;
float EV_1KM_Emissive.2_Standard_Deviation (1deg)(ydim, xdim) ;
float EV_1KM_Emissive.2_Pixel_Counts (1deg)(ydim, xdim) ;
float EV_1KM_Emissive.3_Mean (1 deg)(ydim, xdim) ;
float EV_1KM_Emissive.3_Maximum (1deg)(ydim, xdim) ;
float EV_1KM_Emissive.3_Minimum (1deg)(ydim, xdim) ;
float EV_1KM_Emissive.3_Standard_Deviation (1deg)(ydim, xdim) ;
float EV_1KM_Emissive.3_Pixel_Counts (1deg)(ydim, xdim) ;
float EV_1KM_Emissive.4_Mean (1 deg)(ydim, xdim) ;
float EV_1KM_Emissive.4_Maximum (1deg)(ydim, xdim) ;
float EV_1KM_Emissive.4_Minimum (1deg)(ydim, xdim) ;
float EV_1KM_Emissive.4_Standard_Deviation (1deg)(ydim, xdim) ;
float EV_1KM_Emissive.4_Pixel_Counts (1deg)(ydim, xdim) ;
float EV_1KM_Emissive.9_Mean (1 deg)(ydim, xdim) ;
float EV_1KM_Emissive.9_Maximum (1deg)(ydim, xdim) ;
float EV_1KM_Emissive.9_Minimum (1deg)(ydim, xdim) ;
float EV_1KM_Emissive.9_Standard_Deviation (1deg)(ydim, xdim) ;
float EV_1KM_Emissive.9_Pixel_Counts (1deg)(ydim, xdim) ;
float EV_1KM_Emissive.10_Mean (1 deg)(ydim, xdim) ;
float EV_1KM_Emissive.10_Maximum (1deg)(ydim, xdim) ;
float EV_1KM_Emissive.10_Minimum (1deg)(ydim, xdim) ;
float EV_1KM_Emissive.10_Standard_Deviation (1deg)(ydim, xdim) ;
float EV_1KM_Emissive.10_Pixel_Counts (1deg)(ydim, xdim) ;
float EV_1KM_Emissive.11_Mean (1 deg)(ydim, xdim) ;
float EV_1KM_Emissive.11_Maximum (1deg)(ydim, xdim) ;
float EV_1KM_Emissive.11_Minimum (1deg)(ydim, xdim) ;
float EV_1KM_Emissive.11_Standard_Deviation (1deg)(ydim, xdim) ;
float EV_1KM_Emissive.11_Pixel_Counts (1deg)(ydim, xdim) ;
float EV_1KM_Emissive.12_Mean (1 deg)(ydim, xdim) ;
float EV_1KM_Emissive.12_Maximum (1deg)(ydim, xdim) ;
float EV_1KM_Emissive.12_Minimum (1deg)(ydim, xdim) ;
float EV_1KM_Emissive.12_Standard_Deviation (1deg)(ydim, xdim) ;
float EV_1KM_Emissive.12_Pixel_Counts (1deg)(ydim, xdim) ;
float EV_1KM_Emissive.13_Mean (1 deg)(ydim, xdim) ;
float EV_1KM_Emissive.13_Maximum (1deg)(ydim, xdim) ;
float EV_1KM_Emissive.13_Minimum (1deg)(ydim, xdim) ;
float EV_1KM_Emissive.13_Standard_Deviation (1deg)(ydim, xdim) ;
float EV_1KM_Emissive.13_Pixel_Counts (1deg)(ydim, xdim) ;
float EV_1KM_RefSB.15_Mean (1 deg)(ydim, xdim) ;
float EV_1KM_RefSB.15_Maximum (1deg)(ydim, xdim) ;
float EV_1KM_RefSB.15_Minimum (1deg)(ydim, xdim) ;
float EV_1KM_RefSB.15_Standard_Deviation (1deg)(ydim, xdim) ;
float EV_1KM_RefSB.15_Pixel_Counts (1deg)(ydim, xdim) ;
```

```
}
```

MOD02_M3 File Spec

```
netcdf MOD02_M3.A2016032.006.0-3000.1deg {
```

```
dimensions:
```

```
  ydim = 180 ;
```

```
  xdim = 360 ;
```

```
variables:
```

```
  float EV_250_Aggr1km_RefSB.1_Mean (1 deg)(ydim, xdim) ;
```

```
  float EV_250_Aggr1km_RefSB.2_Mean (1 deg)(ydim, xdim) ;
```

```
  float EV_500_Aggr1km_RefSB.1_Mean (1 deg)(ydim, xdim) ;
```

```
  float EV_500_Aggr1km_RefSB.2_Mean (1 deg)(ydim, xdim) ;
```

```
  float EV_500_Aggr1km_RefSB.3_Mean (1 deg)(ydim, xdim) ;
```

```
  float EV_500_Aggr1km_RefSB.4_Mean (1 deg)(ydim, xdim) ;
```

```
  float EV_500_Aggr1km_RefSB.5_Mean (1 deg)(ydim, xdim) ;
```

```
  float EV_1KM_Emissive.1_Mean (1 deg)(ydim, xdim) ;
```

```
  float EV_1KM_Emissive.2_Mean (1 deg)(ydim, xdim) ;
```

```
  float EV_1KM_Emissive.3_Mean (1 deg)(ydim, xdim) ;
```

```
  float EV_1KM_Emissive.4_Mean (1 deg)(ydim, xdim) ;
```

```
  float EV_1KM_Emissive.9_Mean (1 deg)(ydim, xdim) ;
```

```
  float EV_1KM_Emissive.10_Mean (1 deg)(ydim, xdim) ;
```

```
  float EV_1KM_Emissive.11_Mean (1 deg)(ydim, xdim) ;
```

```
  float EV_1KM_Emissive.12_Mean (1 deg)(ydim, xdim) ;
```

```
  float EV_1KM_Emissive.13_Mean (1 deg)(ydim, xdim) ;
```

```
  float EV_1KM_RefSB.15_Mean (1 deg)(ydim, xdim) ;
```

```
  float Latitude (1 deg)(ydim, xdim) ;
```

```
  float Longitude (1 deg)(ydim, xdim) ;
```

```
}
```