

An Analysis of MODIS Vegetation Products

The purpose of this project is to analyze 5 standard MODIS products (Leaf Area Index [LAI], Fraction of Photosynthetically Active Radiation [fPAR], Net Photosynthesis [PsnNet], and Vegetation Index [both NDVI and EVI] to identify their similarities and differences. We will work with a subset of one MODIS tile for one calendar year (2003).

The following pre-processing steps are necessary:

1) Acquire data from LPDAAC archive via EDG (already done for you). The LAI, fPAR and PsnNet data are 8-day composites (46 observations per year) while the VI data are 16-day composites (23 observations per year).

2) Use the MRT to subset and reproject the data. Again, the tiles have already been reprojected and layer-stacked using the following projection parameters:

Reprojection parameters:

Lambert Azimuthal Equal Area projection

Radius of Sphere: 6370997

Latitude of origin: -100 00 00

Longitude of origin: 45 00 00

False easting: 0.0

False northing: 0.0

The output pixel size was set to 1000 meters

3) It is always a good idea to quality check the output by selecting a few, random images and viewing them with your image processing software. Does the image look right? Check random pixel values. Do they make sense? Double-check against the one-pagers on the LPDAAC web page...does the scaling factor seem to work?

4) Open a second viewer. Select one product for one viewer (LAI) and select another product (PSN) with the second viewer. Link the windows. Examine the values of the two data sets simultaneously with your cursor function. Do they seem to be related? Open a third viewer and repeat.

5) You may examine the time-series temporal characteristics for each data set by producing a "z-profile". Right click in the image window and select Z-profile. Does the temporal profile look like it makes sense?

6) Now that the images are ready for analysis, discuss an approach for assessing the relationship among the data sets. Select an approach and proceed, keeping in mind the time constraints on this project.