Problem Set 1.   ESS 138 Remote Sensing. Due April 26th in lab.

Choose 1 of 7 land cover types to ground truth in Southern California and identify your team, working with the T.A. Possible land cover types include 1) annual grassland, 2) chaparral, 3) evergreen conifer, 4) desert (Mojave or Sonoran) 5) bare soil, 6) evergreen grass park (suburban or urban).

1. Work with your team using Landsat data in the lab to identify possible site locations. Save an image as a jpg using ENVI, identifying the location of possible sites with markers. In addition to the image, save and report latitude and longitude coordinates for possible sites.

2. Scout for your site and take several digital pictures and report exact site coordinates with high precision for both latitude and longitude– using a GPS unit. Describe the dominant species or plant functional types, land cover, and estimate the leaf area index in 1 paragraph. Take a picture of your team at the site. Recall that we would like the region to be relatively homogenous in terms of land cover for approximately 2 km radius. Provide this information (including pictures) on less than 1 page of a word – document.

3. Retrieve ASCII text EVI and NDVI time series from your site from the NASA MODIS subsetting tool website:
http://www.modis.ornl.gov/modis/NorthAmerica_Tool/index.cfm
Show your conversion approach from degrees, minutes, and seconds to fractional degrees (required input for MODIS subsetting site).

4. Plot your data vs. time in Excel (over the full record). Please explain the rational for the data subset options that you choose to report (1 paragraph). What features do you see in the data? Is there a seasonal cycle if so, when does NDVI reach a maximum and why? Is the absolute value of NDVI what you expected – why or why not? 1-2 paragraphs.

5. Please email Aparna with an excel file with time, ndvi, and evi of the MODIS time series for your site in three columns. We will plot all of the data together (across all sites) and then have a discussion of our findings at an upcoming lab session.