Monitoring Tool ReadMe/ Instructions

I. DEPENDENCIES

Python included with ArcGIS 10.2 or above
Dnppy 1.15.2 from https://github.com/nasa/dnppy

ArcGIS 10.2 or above with python should be installed first. Dnppy should be installed on the python included with ArcGIS.

II. USING generateSDCI_CostaRica_tool

generateSDCI_COstaRica_tool combines processing for Land Surface Temperature (Terra MODIS-LST), Normalized Difference Vegetation Index (Terra MODIS-NDVI), Precipitation (GPM) and final raster calculations into one script. The script is divided into sections accordingly.

The data must be downloaded and stored in a directory to be processed. All of the modifications necessary to use the script are at the start of the script and located below label "CHANGE VARIABLES BELOW".

Variables to change:

mainDir:change this to where the raw files and processed files will be saved
Mask: the location of the shape file of the study area (example: `"C:/test/Mask/mask_extent.shp")`
projFile: Location of "WGS_1984.prj" from arcGIS (example: `"C:/test/WGS_1984.prj")`

III. INSTRUCTIONS

The instructions below describe the process of running the near-real time monitoring tool for the Standardized Drought Condition Index (SDCI) for the Arenal-Tempisque watershed in the Guanacaste province, Costa Rica using NASA Earth Observations.

Step 1: Create a free account with Earthdata.

Step 2: Download necessary TerraMODIS data. For SDCI, you will need Land Surface Temperature (LST) and Normalized Difference Vegetation Index (NDVI) for the month you wish to analyze.

Click here to download LST and here for instructions.
Click here to download NDVI and here for instructions.

Step 3: Create a free account to download data from the NASA EOS Precipitation Measurement Missions
https://registration.pps.eosdis.nasa.gov/registration/newContact.html

Step 4: Download the necessary GPM data for the months of interest
GPM L3 IMERG Final 1 month 0.1 degree x 0.1 degree precipitation V03 (GPM_3IMERGM)

Step 5: Set up files for processing. Locate a directory in which the raw, intermediate, and final data can be stored during processing. Store the raw data in folders under the following file names:
NDVI_hdf
LST_hdf
GPM_raw

Step 6: Change variables in the script to reflect the appropriate main directory, mask, and projection file.

Step 7: Run the tool.

III. FILES GENERATED

SDCI files can be found in mainDir/SDCI. The file(s) will be formated as YYYYDDD_SDCI.tif, where DDD is the day of the year (eg. February 2nd is 033). A Julian Date Calendar can be found at http://landweb.nascom.nasa.gov/browse/calendar.html.

The other folders contain downloaded data and other files processed along the way. They may be deleted if only the final SDCI raster is needed.

IV. Contributors

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