Exercise 2: Using Python for Converting GPM HDF5 Files to Text Files

Objectives

- Convert a data file written in HDF5 using a python script into:
  - A text file to browse the data
  - A GeoTIFF format for use in QGIS

Exercise

- Use the document *Python Installation and Download* if you do not have python on your computer
- If you have Python on your computer, please make sure that you have tested the availability of routines required for this exercise (see Part 2 of whatever we end up calling Python-Installation-Instruction.docx)
- Download the Python script ConvertClip_HDF5_to_TextGeotiffl.py onto your computer
  - This script is designed to extract a desired region (specified by latitudes and longitudes) from a global data file in HDF5 format and save the extracted data into text file and a GeoTIFF raster file
- Copy or move the IMERG half-hourly file you downloaded from PPS in Exercise 1 into the same directory where the Python script is downloaded
  - **Note**: if you need to convert more than one HDF5 file, they should all be moved or copied to this same directory
- Type 'python ConvertClip_HDF5_to_TextGeotiff.py' [on your computer console in command line]
- The script will ask you to enter the north and south latitudes, and east and west longitudes of the rectangular region you want to extract from the data file
- Enter:
  - 44.0 for north latitude
  - 32.0 for south latitude
  - -114.0 for east longitude
  - -136.0 for west longitude

  Note: This is the region over California for which you created a rainfall animation
- The script will create two sub-directories in your working directory named 'text_files' and 'raster_files'

- If you have more than one HDF5 file in the directory, all of them will be converted into text and raster format
- After the script has run successfully, check each directory: 'text_files' and 'raster_files'
- In the 'text_files' directory there will be four output files:
    - *For example if an HDF5 file with name 'Filename.HDF5' is converted the output will be:*
    - Filename_lat_clipped.txt
    - Filename_lon_clipped.txt
    - Filename_precip_clipped.txt
    - Filename_combined_clipped.txt
- The '_combined' file (last one) lists latitude, longitude, and precipitation for each grid point in the subset. This file can be copied into Excel.
- The first three files, '_lat','_lon' and '_precip', list each grid information separately and each can be copied in to Excel
- In the 'raster_files' directory there will be one output file:
    - Filename.tif
- This file can be imported into QGIS and will be analyzed in the next exercise
- This script can be used to convert any HDF5 data file
- **Note:** This script is developed for this training exercise to read IMERG precipitation. The script will require minor modification to read different data sets in HDF5 format