

Exercise 1a: Precipitation Data Access for Monitoring Drought Over California

Objectives

By the end of this exercise, you will be able to subset and download precipitation data over California:

- Subset and download TMPA (monthly precipitation data) over California using [Giovanni](#), a NASA data access and analysis tool
- Calculate and save monthly precipitation climatology based on 2001 to 2010 mean precipitation data over California
- Download California's monthly precipitation for 2015

The data from this exercise will be put into QGIS in Session 2 (July 19) to analyze precipitation anomalies for identifying areas affected by drought.

Outline

- Part 1: Subset TMPA and Retrieve Monthly Precipitation Climatology Over California
- Part 2: Download Monthly Precipitation Data for 2015 Over California

Part 1A: Subset TMPA and Retrieve Monthly Precipitation Climatology Over California

Select Region (Bounding Box or Shape)
Format: West, South, East, North

-126,32,-114,44

- Go to Giovanni: <http://giovanni.gsfc.nasa.gov/giovanni>
- On the Giovanni page you will see the following options:
 - Select Plot:** allows selection of analysis options
 - Select Data Range:** allows selection of a time period
 - Select Region (Bounding Box or Shapefile):** allows selection of a geographic region by latitude-longitude, map, or shapefile
 - Keyword:** Search data parameter by keyword
 - Plot Data:** located on the bottom right of the page, starts action to make desired plot

Select Plot

Maps: Time Averaged Map
 Comparisons: Select...
 Vertical: Select...
 Time Series: Select...
 Miscellaneous: Select...

Select Date Range (UTC)

YYYY-MM-DD HH:mm

- - : 00 : 00 to - - : 23 : 59

Valid Range: 2015-03-14 to 2017-03-02

Please specify a start date.

Select Region (Bounding Box or Shapefile)

Format: West, South, East, North

Show Map

- Enter the following options:

- Keyword:**
 - Enter TMPA, then click **Search**

Keyword: TMPA Search Clear

Variable	Source	Temp.Res.	Spat.Res.	Begin Date	End Date	Units
<input checked="" type="checkbox"/> Precipitation Rate (TRMM_3B43 v7)	TRMM	Monthly	0.25 °	1998-01-01	2017-03-31	mm/month
<input type="checkbox"/> Precipitation (TRMM_3B42 v7)	TRMM	3-hourly	0.25 °	1997-12-31	2017-03-31	mm/hr
<input type="checkbox"/> Precipitation Rate (TRMM_3B42_Daily v7)	TRMM	Daily	0.25 °	1998-01-01	2017-03-31	mm/day

- Select Monthly TMPA
 - Select Units to be mm/month
- Select Plot**
 - Next to **Maps**, select **User-Defined Climatology**
 - In the window **Select Seasonal Dates** 'Month or Season or YYYY range', Select **Months** and check the boxes next to **all the months**

Select months or seasons

Months Seasons

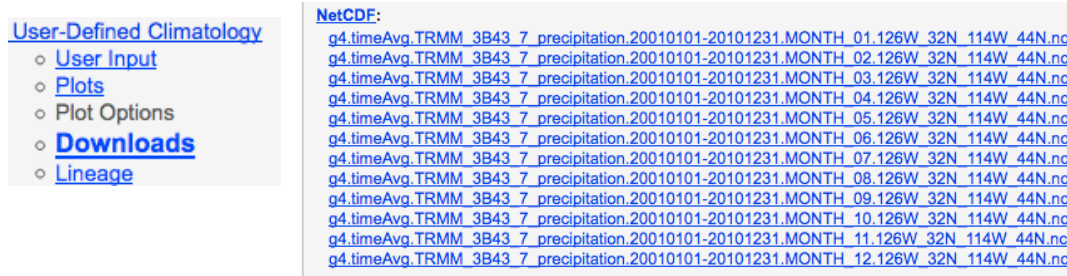
January July
 February August
 March September
 April October
 May November
 June December

- Select Region (Bounding Box or Shapefile):**

- Enter longitude-latitude around California: -126.0, 32.0, -114.0, 44.0
- Note: west longitudes and south latitudes are negative, whereas east longitudes and north latitudes are positive
- Click on **the icon** to see the region
- **Select Date Range (UTC)**
 - Enter 2001 and 2010 for years 2001 to 2010
 - Click on **Plot Data** (at the bottom right of the screen)
 - It will take a few minutes to get 12 (January to December) monthly maps

Download the Monthly Climatology Data

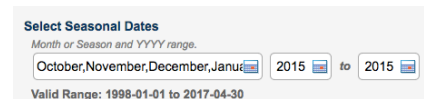
4. On the left side of the screen, you will see a list of options with **Download** options
5. Click on **Downloads**
6. You will get links to the files, as shown below



7. By clicking on each link, you can save each file on your computer
 - Suggestion: Create a folder named 'TMPA-Climatology' and save all 12 monthly files in the folder. Also change the long file names to a short name, e.g. TMPA-Clim_Jan (for January)
8. Click on the **NetCDF** files and save them on your computer
 - NetCDF files can be imported into QGIS

Part 2: Download Monthly Precipitation Data for 2015 over California

1. Click on **Back to Data Selection** on the lower right-hand side of the page
2. Select **Seasonal Dates**
 - Select all Months
 - Enter 2015 to 2015 for the single year data
 - Note: This is a quick method to get monthly data for single and multiple years
3. Click on **Plot Data** (on the bottom right)
 - You will get 12 (January to December) monthly maps
4. Click on the **Downloads** link on the left, and you will see the following files:



NetCDF:

- [g4.timeAvg.TRMM_3B43_7_precipitation.20150101-20151231.MONTH_01.126W_32N_114W_44N.nc](#)
- [g4.timeAvg.TRMM_3B43_7_precipitation.20150101-20151231.MONTH_02.126W_32N_114W_44N.nc](#)
- [g4.timeAvg.TRMM_3B43_7_precipitation.20150101-20151231.MONTH_03.126W_32N_114W_44N.nc](#)
- [g4.timeAvg.TRMM_3B43_7_precipitation.20150101-20151231.MONTH_04.126W_32N_114W_44N.nc](#)
- [g4.timeAvg.TRMM_3B43_7_precipitation.20150101-20151231.MONTH_05.126W_32N_114W_44N.nc](#)
- [g4.timeAvg.TRMM_3B43_7_precipitation.20150101-20151231.MONTH_06.126W_32N_114W_44N.nc](#)
- [g4.timeAvg.TRMM_3B43_7_precipitation.20150101-20151231.MONTH_07.126W_32N_114W_44N.nc](#)
- [g4.timeAvg.TRMM_3B43_7_precipitation.20150101-20151231.MONTH_08.126W_32N_114W_44N.nc](#)
- [g4.timeAvg.TRMM_3B43_7_precipitation.20150101-20151231.MONTH_09.126W_32N_114W_44N.nc](#)
- [g4.timeAvg.TRMM_3B43_7_precipitation.20150101-20151231.MONTH_10.126W_32N_114W_44N.nc](#)
- [g4.timeAvg.TRMM_3B43_7_precipitation.20150101-20151231.MONTH_11.126W_32N_114W_44N.nc](#)
- [g4.timeAvg.TRMM_3B43_7_precipitation.20150101-20151231.MONTH_12.126W_32N_114W_44N.nc](#)

5. By clicking on each link, you can save each file on your computer
 - Suggestion: Create a folder named 'TMPA-2015' and save all 12 monthly files in the folder. Also change the long file names to a short name, e.g. TMPA-2015_Jan (for January 2015)