

Hands-on Session: CMBhatt; CSSTEAP/IIRS

Open Source Data Access for Floods Disasters

Learning Objectives:

- Familiarization with open source disaster alert portal GDACS; NRT flood information access using ISRO BHUVAN portal; MODIS NRT Flood Maps Access and Precipitation data access using NASA Giovanni Portal

Handson-1: Disaster Alerts Exploring through GDACS Portal:

- Open link <http://www.gdacs.org/>
- Home page will show latest disasters globally in spatial format

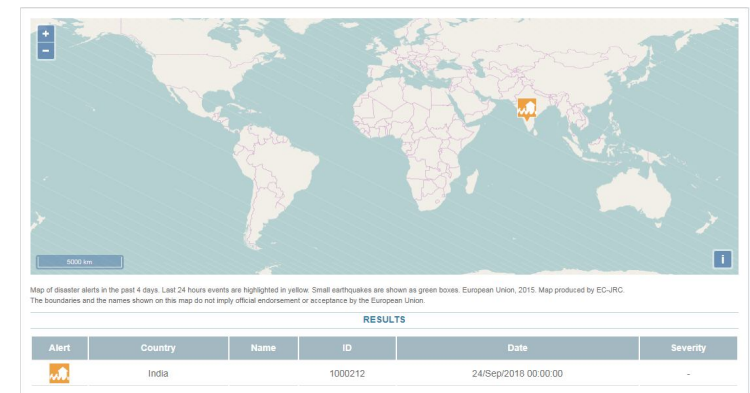


- Click on Alerts Tab→Go to Search→Select Disaster-Flood; Date (10-08-2018 to 30-08-2018);Level-Orange; Country-India → Submit

GDACS is a cooperation framework between the United Nations, the European Commission and disaster managers worldwide to improve alerts, information exchange and coordination in the first phase after major sudden-onset disasters.

The screenshot shows the GDACS Alerts search interface. The search criteria are set to: Earthquakes (checked), only Tsunamis (unchecked), Floods (checked), Cyclones (unchecked), Volcanoes (unchecked), and Droughts (unchecked). The date range is from 08/13/2018 to 08/26/2018. The level is set to Orange, and the severity is set to Severe. The country is set to INDIA. The Submit button is visible.

- See the output Alert result

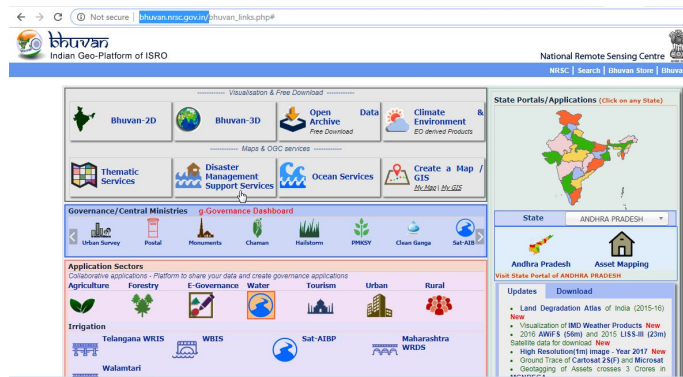


- Click on the orange icon under Alert under Results and explore the different Tabs Summary/Impact/Maps/Resources

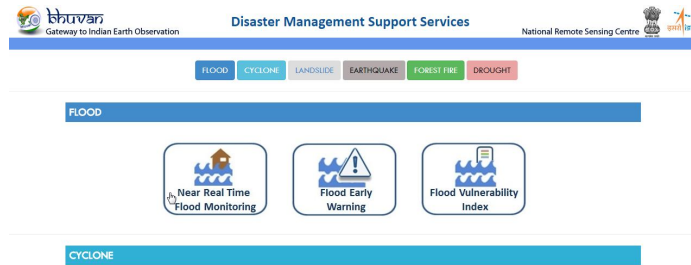


Handson-2: Exploring Flood Extent on Bhuvan Geoportal:

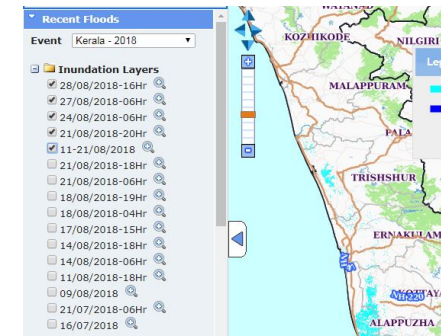
1. Open link <http://bhuvan.nrsc.gov.in/> and click on Disaster Management Support Services



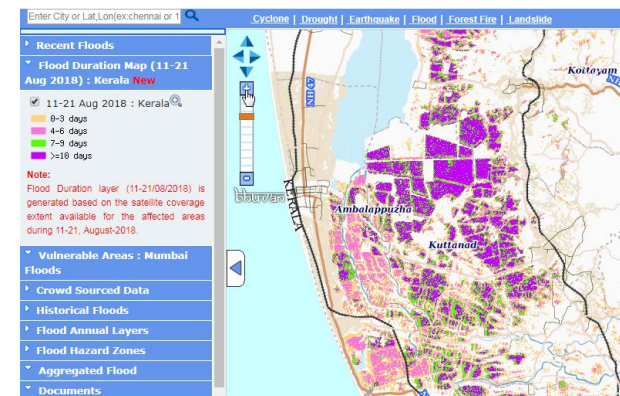
2. Click on Flood→Near Real Time Flood Monitoring



3. Click on Recent Floods Tab→From Event Tab Select Kerala-2018 (from drop down menu)



4. Select the flood layers date on left and click on zoom icon on right
5. Visualize the flooding extent
6. Switch off flood layers opened and go to Flood Duration (second tab down)

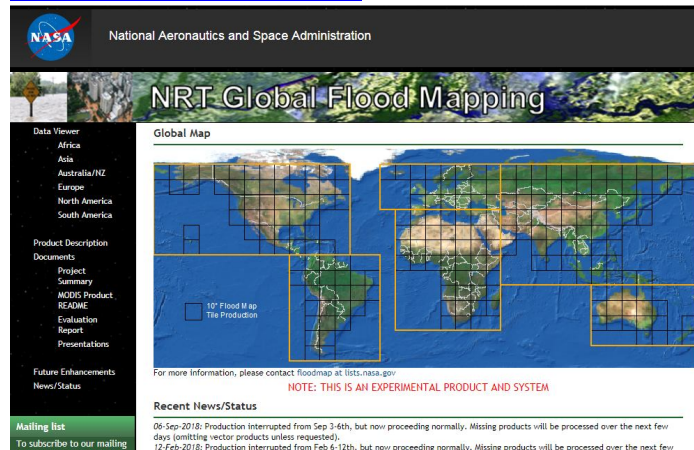


7. Click on the layer and zoom to see the layer and its legend
8. Which day maximum extent of flooding is observed?
9. Which parts are flooded for more than 10 days?

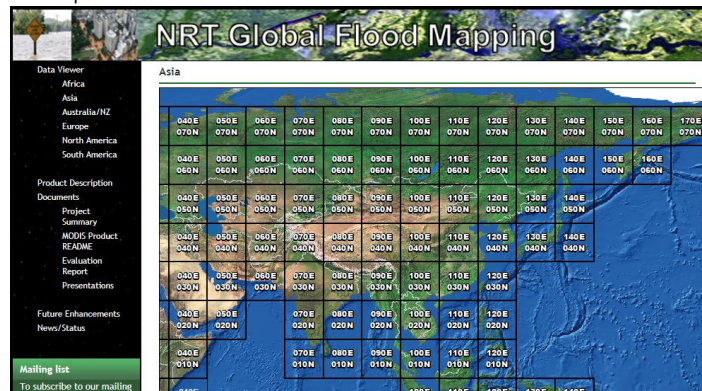
Handson-3: Exploring Flood Extent on MODIS NRT Global Flood Mapping Portal:

1. Exploring MODIS Near Real-Time (NRT) Global Flood Mapping Portal:

<https://floodmap.modaps.eosdis.nasa.gov/>

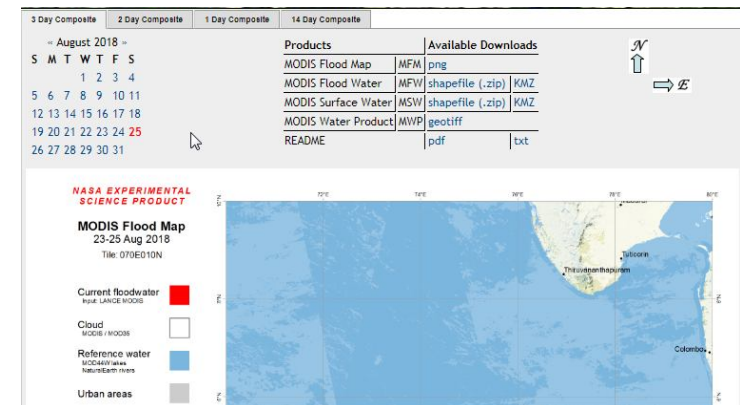


2. Click on Asia on left panel



The MODIS Near Real-Time Global Flood Mapping Project produces global daily surface and flood water maps at approximately 250 m resolution, in 10x10 degree tiles.

3. Click over grid representing Kerala i.e. 70E and 10N



4. Download Floodwater shapefile (.zip) and KMZ file for 3 days and 14 days composite.

5. Unzip the shapefiles

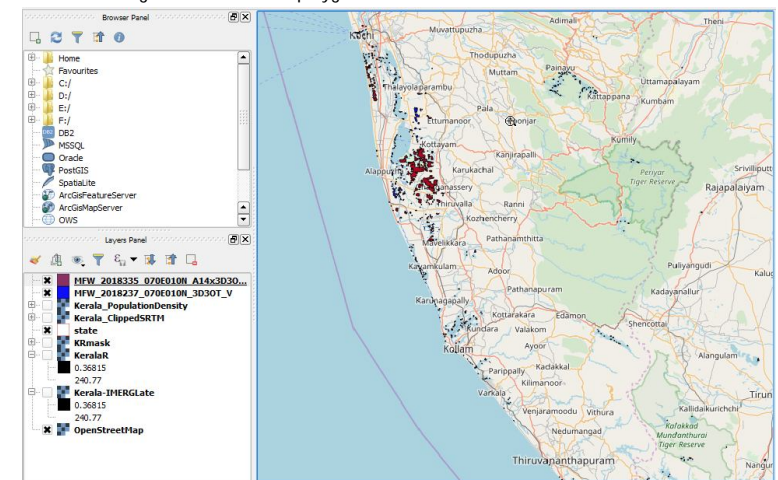
MFW_2018237_070E010N_3D30T_V.zip (3D30T: 3 Days imagery, 3

Observations required, Terrain masking applied) &

MFW_2018335_070E010N_A14x3D30T_V.zip

6. Add the layers in QGIS to see the layer

7. Zoom and navigate to see flooded polygons



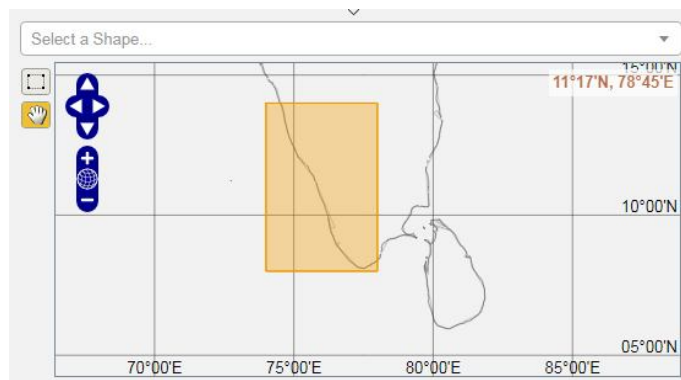
8. Which areas have flooding polygons?

Handson-4: Analysing Rainfall Using NASA Giovanni Portal

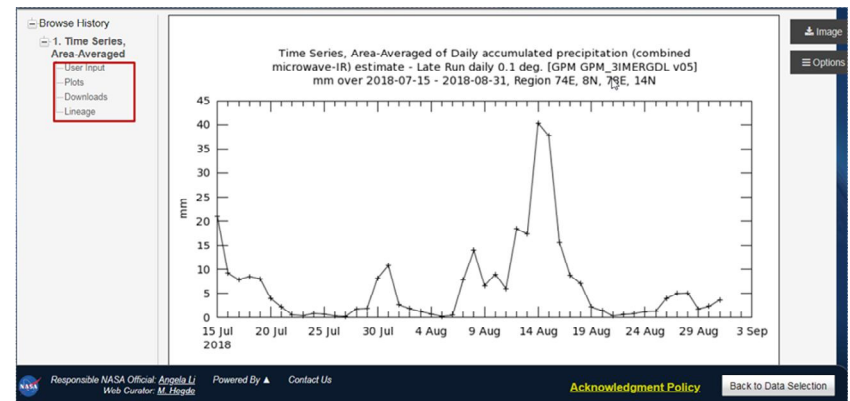
Plotting Time Series

1. Go to the Giovanni website using the web browser: <https://giovanni.gsfc.nasa.gov/giovanni/>
2. Window shown as below will open

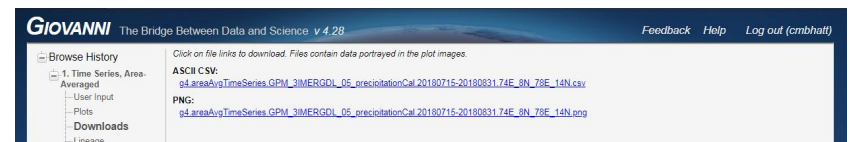
3. Enter the coordinates within Bounding Box → 74, 8; 78, 14
4. Enter Date Range → 2018-07-15 to 2018-08-31
5. Click on the map icon to see the region



6. Enter the following options: – Next to Keyword → Enter IMERG Late → Click Search → Select Daily accumulated precipitation (combined microwave-IR) estimate – Late Run (GPM_3IMERGDL_v05)
7. Click on Plot Data (on the bottom right) – You will get the time series of daily accumulated rainfall for August 2018, averaged over the selected domain



8. Click on Download (on the left menu bar) to save the time series image and also the csv file on your computer

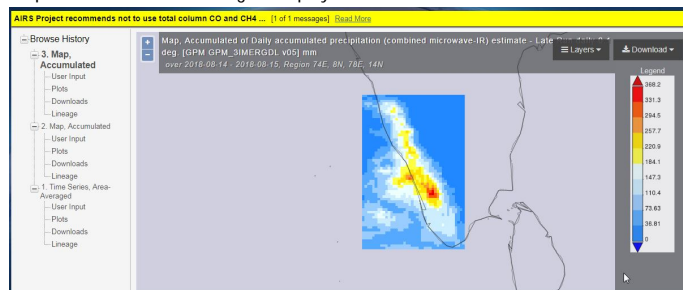



	A	B	C	D	E	F	G	H	I	J	K	L
1	Title:	Time Series Area-Averaged of Daily accumulated precipitation (combined microwave-IR) estimate - ()										
2	User Start Date:	2018-07-15T00:00:00Z										
3	User End Date:	2018-08-31T23:59:59Z										
4	User Bounding Box:	74.8, 76.14										
5	Data Bounding Box:	74.05, 8.05, 77.95, 13.95										
6	URL to Reproduce Results:	https://giovanni.gsfc.nasa.gov/giovanni/#service=ArAvTs&starttime=2018-07-15T00:00:00Z&endtime=2018-08-31										
7	Fill Value (mean_GPM_3IMERGDL_05_precipitationCal):	-9999.9										
8												
9	time	mean_GPM_3IMERGDL_05_precipitationCal										
10		7/15/2018	21.01318									
11		7/16/2018	9.189431									
12		7/17/2018	7.857101									
13		7/18/2018	8.525031									
14		7/19/2018	8.031585									
15		7/20/2018	3.90846									
16		7/21/2018	2.18414									
17		7/22/2018	0.534036									
18		7/23/2018	0.34083									
19		7/24/2018	0.814647									
20		7/25/2018	0.679721									
21		7/26/2018	0.29086									
22		7/27/2018	0.213338									
23		7/28/2018	1.776482									
24		7/29/2018	1.880903									
25		7/30/2018	8.207689									
26		7/31/2018	10.76972									

1. Which day had the maximum precipitation? How much?
2. Which period of the month experienced daily precipitation > 15 mm?

Plot IMERG Rainfall Maps

1. Select Plot → Map: Accumulated
2. Select Date Range (UTC) → 2018-08-14 to start and 2018-08-15 for the end date
3. Click on Plot Data (on the bottom right)
4. Map of accumulated rainfall gets displayed



5. Click on the Downloads link on the left → Choose the NetCDF (.nc) file by clicking on the link to save the file to your computer

1. What is the maximum accumulated rainfall during 14 and 15 August 2018?
2. What is the precipitation accumulated during 14 and 15 August 2018 over Kerala?