

NASA ARSET Training on Climate Variability, Hydrology, and Flooding  
2<sup>nd</sup> GEO-CIEHLYC Water Cycle Capacity Building Workshop  
Cartagena, Colombia  
May 19-22, 2015

## Case Study Guide and Outline

In this exercise you will analyze a flood case, including streamflow and inundation maps, examine rainfall during the flood event and assess whether climate condition (i.e. El Nino or La Nina event) may have played a role in this event.

This will be a team project making use of as many of the relevant resources presented in this course as possible and any other data you wish to include. You may choose to analyze a past event of heavy rain and flooding that you may have experienced in your region or may have known from the news media.

Conceptually you can think of this as telling a story using remote sensing data, flood monitoring tools, and socio-economic data to reinforce the points you want to make. You can use images/maps, time series, and animation from various tools, and may also use GIS for your case study.

Your case study will be presented at 10 AM. You may choose to make a Powerpoint presentation. Plan on 5 – 15 minutes for your presentation.

Here are the steps you should go through for this exercise.

1. Find a group of 3 – 5 people to work on your case study. Determine the flooding case you will be analyzing. You can choose a case from the [Dartmouth Flood Observatory](http://floodobservatory.colorado.edu/) flood archive: <http://floodobservatory.colorado.edu/> or can also use current flood information from TRMM: [http://trmm.gsfc.nasa.gov/publications\\_dir/potential\\_flood\\_hydro.html](http://trmm.gsfc.nasa.gov/publications_dir/potential_flood_hydro.html)
2. Identify the resources you wish to use and list these in the **Case Study Analysis Sheet**. You should make use of any and all course materials (including instructors) to identify resources for your case study.
3. Once you have identified the flood case begin assembling the data you will use. It will be more efficient to divide this task among the people in your group. It is strongly suggested that in this and the next step you begin to fill in the information on the “**Case Study Analysis Sheet**” to guide you in your presentation.
4. Organize the information you have gathered so that it can be presented using your platform(s) of choice and practice telling your story.
5. You can select one person to make the presentation or you can have several people take turns, each presenting one piece.

## **Suggested Resources:**

It is suggested that your group first compile a list of resources that can be used including where to find this information. Since this is mostly a visual presentation consider sources that can provide visual context.

**For the streamflow:** <http://flood.umd.edu/>

**For the surface inundation:** <http://oas.gsfc.nasa.gov/floodmap/>  
<http://floodobservatory.colorado.edu/>

**River Watch:** <http://floodobservatory.colorado.edu>

**For rainfall analysis:** Giovanni (<http://giovanni.gsfc.nasa.gov/giovanni/>)  
[http://trmm.gsfc.nasa.gov/publications\\_dir/potential\\_flood\\_hydro.html](http://trmm.gsfc.nasa.gov/publications_dir/potential_flood_hydro.html)

**For Terrain, Population, Roads, etc. you may use SEDAC maps**

**For climate conditions before/during the time of your case study:**

IRI Map Room: <http://iridl.ldeo.columbia.edu/maproom/index.html>

NOAA Climate Indices: <http://www.esrl.noaa.gov/psd/data/climateindices/>

Sea Surface Temperatures: AIRS SST Maps from Giovanni  
(<http://giovanni.gsfc.nasa.gov/giovanni/>)

## **Additional New Resources:**

Weather Parameters from MERRA: Giovanni (<http://giovanni.gsfc.nasa.gov/giovanni/>)

Current State of the Tropical Pacific: <http://www.esrl.noaa.gov/psd/enso/enso.current.html>

ENSO Warm and Cold Events Anomalies by Seasons:

[http://www.cpc.ncep.noaa.gov/products/analysis\\_monitoring/ensostuff/ensoyears.shtml](http://www.cpc.ncep.noaa.gov/products/analysis_monitoring/ensostuff/ensoyears.shtml)