NASA ARSET Training
June 15, 2015
Exercise: Monitoring Flooding using Global Flood Monitoring System (GFMS)
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Objective: To detect and monitor regional flooding using the Global Flood Monitoring System
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There are three parts to this exercise:

1) Locate a flood event through the Global Disaster Coordination and Alert System (GDACS)
2) Analyze streamflow/runoff associated with the selected flood event.
3) Analyze flood detection/intensity and inundation at a given location

Part 1: Locate a flood event through the Global Disaster Coordination and Alert System - Global Flood Detection System (GDACS-GFDS)

Go to: http://www.gdacs.org/default.aspx

Explore the GDACS site.
On the left under **Latest disaster alerts** scroll down to and click FLOODS

On the next page you will be able to search for disaster events by date, type or impact, through the Event Map or by the event list.

Expand the option **Click to search all GDACS events by date, type or impact**

Be sure the Floods box is checked and change the Alert Level to All and Click Apply.

The map will show all recorded flood events globally and the Event List below will have been populated with details on each.

Locate a flood event of your choice from the list and locate it on the map. Click on the icon for the event. A text box will open with information on the flood. For further details, follow the title link in the text box.

Explore the event details through the Summary, Flood Impact, Media Analysis, and Data Resources Tab.

Be sure to note down the date range and location associated with the flood event.

Part 2: Using the Global Flood Monitoring System (GFMS) analyze streamflow/runoff associated with the selected flood event

a) Go to (http://flood.umd.edu/)

Scroll down to the middle map panel titled 'Streamflow 12 km res. [m3/s]'
Using 'Zoom In / Zoom out' and 'Pan the Map panel' (on the right side of the map) zoom over your region of interest.

You will see today's map of streamflow
Please note down the following for today:
 i) Time of the map

ii) Range of the streamflow (include units)

iii) What do the shaded areas outside the river channels mean?

b) Enter the date range associated with your chosen flood event in the fields below the map

   For example: Start Time : 00Z**01Jul2014**   End Time: 21Z**05Jul2014**

(the first 3 characters, for example '00Z' refer to the 3 hour increments in which the data is given)

  Click 'Animate' next to the time windows

Observe how the streamflow changes in the major rivers.

Hovering your mouse over the map, you can click on a river to see the time series for that point. You may also use the

'Plot time series for an individual point (lat, lon)' box to the right to adjust the date range for the time series then **Click on 'See time series'**

If the date range for your chosen flood event is after March 1, 2015, you the the option use the new higher resolution (1 km) monitoring plot

To view this new higher resolution plot, to the right of the map, go to Plot Different Variable, click the down arrow, select: 'Streamflow 1 km res. [m3/s], and click Plot.

Note, you may need to zoom in closer for proper display.

You may also need to re-enter the date range after zooming in/out or scrolling on the map.

Part 3: Analyze flood detection/intensity at a given location

a) To the right of the map, go to Plot Different Variable, and by clicking the down arrow select: Flood Detection (Depth)

Click 'Plot'

Go to 'Plot time series for an individual point (lat,lon):'

Enter your chosen date range.

Click on 'See time series'

 You will get a time series of flood intensity

 i) What was the highest flood intensity (depth) during this period?

 ii)   Note down the time period when the flood intensity was the highest (for example 26 June – 1 July)

Return to Plot Different Variable, and by clicking the down arrow select: Inundation map 1km res.

Click 'Plot'

 i) What are the units in which inundation is being displayed?

b) Use the back browser back arrow to go back to the map. Scroll to the first map panel titled 'Flood Detection/Intensity (depth above threshold [mm]).
Using 'Zoom In / Zoom out' and 'Pan the Map panel   (on the right side of the map) zoom to approximately the same lat-lon where the time series was plotted

Enter the time range where the highest flood intensity was found in the time series

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Start Time : ??   End Time: ??

Click 'Animate' next to the time windows

i) Do you see how the flood intensity changed at and around this point? At what date/time the spatial extent of flood was maximum?

Explore the other plot types such as the Rainfall options and animate to see the weather that may have led to the flood event. You will likely need to zoom out to visualize the rainfall plots.