Floods IQuest

Before embarking on this assignment, take some time to consider what you already know about floods. Think about the following aspects of this topic-

- What causes flooding to occur?
- How does flooding impact people?
- How can flooding impact Earth's surface?
- What can be done to predict flooding?

We are going to visit various websites to learn about floods. In this assignment, you will learn what flooding is, the causes of flooding, how floods impact Earth's systems, flood safety, and how we can make predictions about where flooding will occur. We will also learn how new technology will enable us to better predict where flooding will occur, and will learn how an upcoming NASA mission, the "Global Precipitation Measurement" mission (GPM) will improve our ability to predict where flooding may occur throughout the world.

As you might have predicted, too much precipitation can result in severe flooding. What causes flooding? Why do some areas experience floods and other areas don't? Let's go to this website http://www.pbs.org/newshour/infocus/floods/science.html to explore some of the causes of flooding.

Go to the National Weather Service's "Flood Safety" website at http://www.nws.noaa.gov/floodsafety/floodsafe.shtml to learn how you can find out if there is danger of flooding in your area, and steps you can take to keep yourself and your property safe from flooding.

Now we will watch a short video (4:14) to learn more about flooding and how NASA is developing technology that will allow us to predict and measure precipitation across the globe with increasing accuracy.
http://pmm.nasa.gov/education/videos/gpm-hurricanes-beyond-tropics

About how much precipitation do you estimate falls in your region per year? To find out, go to the Weather Channel site at http://www.weather.com and enter your zip code in the search box. Once you find your closest city, scroll down using the left hand tool bar and click on "monthly". When you come to the monthly planner page, scroll down to the bottom of the calendar and click the menu bar for "averages". If you scroll down to the bottom of the graph, you will see the monthly average precipitation totals for your area. Add up the monthly amounts, and see what the total average precipitation is for your area. Was it more or less that you had predicted? Want to see how this data compares with data that has been collected

since 1895? Go to the NOAA National Climactic Data Center at http://www.ncdc.noaa.gov/cag/ and enter your state. You can change the parameters, and can compare the amount of precipitation over any number of years. See how the yearly amount of precipitation for your state or region compares with the total yearly average for your city.

Want to have a little fun? Go to the National Severe Storms Laboratory site at http://www.nssl.noaa.gov/projects/ping/ and think about helping out with precipitation measurements with your class! All you have to do is look out the window and send in a report on whether or not you are receiving any precipitation- any time of the day. You can see where volunteers have currently reported data by clicking on the "View the Reports" link.

How do we find out how much precipitation is falling in different places on Earth? We can use rain gauges and Doppler radar, but most of Earth's surface is covered by ocean water, and we can't use these instruments over the ocean. In this video, we will find out how an upcoming NASA mission will soon be measuring precipitation across the Earth from space. http://pmm.nasa.gov/education/videos/for-good-measure

Here is a look at some of the ways that NASA is partnering with other agencies to learn more about flooding. Watch this news report to learn about the "IFloods Campaign" that is taking place from now through mid-June: http://www.kwwl.com/story/22058477/2013/04/23/iowa-flood-center-partners-wtih-nasa-for-unprecedented-project-

What types of scientific and engineering questions will the "IFloods Campaign" be studying? Go to the Iowa Flood Center's project page at http://iowafloodcenter.org/projects/ifloods/ and NASA's "Global Precipitation Measurement" mission science page at http://www.nasa.gov/mission_pages/GPM/news/iowa-ground-campaign-floods.html to learn more about this unique partnership event.