

# Lab 2: Calculating and plotting area average rainfall using NASA Giovanni

<https://giovanni.gsfc.nasa.gov/giovanni/>

This lab is an extension of last week's lab that focused on accumulated rainfall associated with Hurricane Beryl (2024). Comparing daily rain rates between the eastern Caribbean and western Caribbean during the June 30 – July 12 period is the goal for lab 2. To do this, area averaged rainfall time series plots will be compared for a user defined box that describes the eastern Caribbean and another box that defines the western Caribbean.

1. Access NASA Giovanni and log in.
2. Select "Time Series, Area Averaged" from the plot options in the upper left.
3. Choose the same dates that were chosen from Lab 1.
4. Select a region that defines the eastern Caribbean. This is up to you, but be sure to include a region that Beryl propagated across.
5. Select the same GPM daily rainfall variable from lab 1.
6. Plot Data.
7. Now, redo the above but this time select a region that describes the western Caribbean.
8. Finally, redo the above but this time select the entire region that was selected from lab 1.
9. Be sure to standardize all y-axis values. Select OPTIONS for each time series plot and adjust the range of values to go from 0.0 to a upper value of your choice so that all three plots have a consistent y-axis range.

For this lab you will submit the following items in one single document:

1. Area average time series plot for the east **1pt**
2. Area average time series plot for the west **1pt**
3. Area average time series plot for the entire region **1pt**  
BE SURE TO SHOW A SCREEN CAPTURE THAT SHOWS THE AREA BOXES THAT WERE CHOSEN. **1pt**

You will also answer the following questions:

1. Which area (eastern or western) had the highest daily rain rate during the entire duration of Beryl? What was the highest daily rain rate for each region? **2pts**
2. How would you calculate the total area averaged accumulated rainfall for each region for the duration of Beryl? Hint: use information from the area average time series plots. **2pts**
3. You know that accumulated rainfall in some areas along Beryl's path exceeded 400mm. Why are the values found in the area average daily rainfall plots so low? **2pts**

Submit to [tallen@cimh.edu.bb](mailto:tallen@cimh.edu.bb) BEFORE SEPT 17<sup>th</sup>.