GLOBAL CLIMATE MODELS

Objective: to map future rainfall projections for the Caribbean region using 3 different simulation scenarios. You will investigate projections from the CMIP6.

Task 1: Use CMIP6 to map summer rainfall projections and report both anomalies and percent change.

Directions:

1) Go here: https://psl.noaa.gov/ipcc/cmip6/ccwp6.html
2) Select Experiment RCP2.6
3) Select Precipitation variable under the shading option.
4) Select three model members: MIROC6, CAN-ESM5, and HADGEM3-GC31-LL, and also the option "Average of All Models".
5) Select the Anomaly statistic
6) Select NO future climate
7) Select July-September for the time period
8) Select 1985-2014 as the historical period
9) Select 2050-2099 for the 21st Century Period
10) Select REGION FROM MAP, then drag an outline around the Caribbean region
11) Go near the top of the page and select "Make Slideshow"

The first set of three maps represent the historical climate from 1985-2014. This is your baseline period. You will see a map from each model member.

11) Click on the map to enlarge. Then select the right arrow button to navigate to the projected anomalies.

Does the output from all of the model members look the same? Are they different? Make note and answer the below questions.
Then repeat the above for RCP8.5.

Q1: What is the approximate percent difference in July-September rainfall for Jamaica for each model member and the ensemble mean? The answer to this question involves a few steps. 1) subtract the anomaly from the baseline mean value to calculate the future mean value (as opposed to the anomaly). 2) Then, divide the future mean value by the baseline mean value. 4pts. ***Work must be shown to receive full credit.***

Q2: What is the difference between the percent difference from the RCP2.6 and RCP8.5 for the ensemble mean? What is the primary difference between the two scenarios? 3pts

Task 2: Use CMIP6 to plot a time series of Sea Surface Temperature projections for the Caribbean Sea.

Click here: https://psl.noaa.gov/ipcc/cmip6/timeseries6.html

1) Select the first three SSP experiments
2) Select the Sea Surface Temperature field
3) Select Average of All Models
4) Select climatology period between 1981-2010
5) Select September for the season
6) Select 10 year time average
7) Plot area: Caribbean Sea
8) Select Plot Time Series from above.

Q3: Copy the resulting time series plots. 1PT
Q4: Which scenario has the largest spread between all of the model members? 1pt
Q5: Do the same for the “ENTIRE YEAR”. What is the projected anomaly for each of the RCP scenarios by the end of 2085? 2pt.

PLEASE SUBMIT BY MONDAY April 1. Email responses as an attachment to tallen@cimh.edu.bb