

Brain workout session #1 (“assignment” sounds so painstakingly patronizing...)

OBJECTIVE: plot maps of sea surface temperature (SST) monthly climatology

General description: *The primary task is to understand how to define “climatology” and what it means. You will access monthly SST data since 1981 and build monthly and seasonal SST climatologies for the Caribbean region. Building and interpreting SST climatology maps will demonstrate successful understanding of this session.*

1. Access monthly SST data from here:

https://iridl.ldeo.columbia.edu/SOURCES/.NOAA/.NCEP/.EMC/.CMB/.GLOBAL/.Reyn_SmithOlv2/.monthly/.sst/

2. Click on the Data Selection tab near the top.

3. Enter the range of reasonable latitude and longitude values that define a general Caribbean region. Use your own liberty to make your own spatial selection. You will enter these values in the gray “Setting Ranges” box. It is best to enter longitude values from 0 to 360. (DO NOT enter 0 and 360, pick reasonable values.)

4. Now, select all JULY months to calculate the July SST climatology. Enter JUL in the time range box; this will enter all July months for the entire dataset.

5. Select Restrict Ranges.

6. select “Stop Selecting” in the top gray box.

7. Click on the “Views” tab at the top of the page.

8. Select “colors with land”

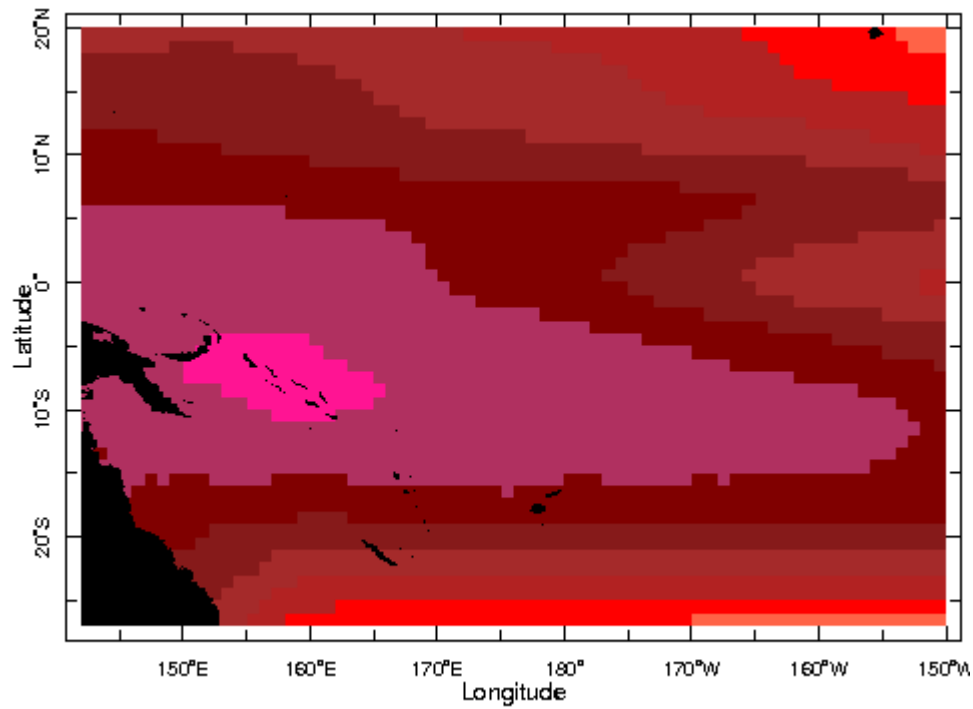
9. Now you will see the SST for July 2021. You will see July 2020 if you click on Jul 2020....and so on to July 1982. But, we want the JULY MONTHLY SST CLIMATOLOGY...so we have to average all of those JULY months to get the JULY AVERAGE.

10. Push the back button until you return to step 8 above.

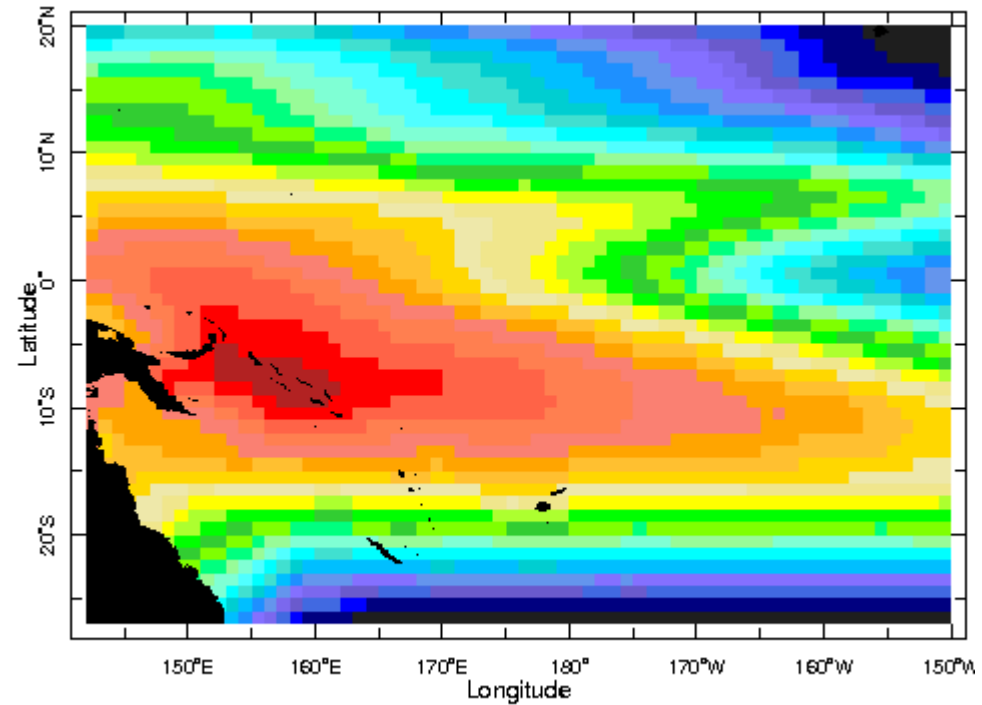
11. Now, click on “Data Filters” tab and select the letter “T” next to the Average over line. This tells the data library to average all of your time steps. In this case, it will average ALL of the July months to produce one single map that will represent the 1982-2021 July average. This is known as the July monthly climatology.

12. Click “Views”

13. Click “colors with land”voila! This is your July monthly SST climatology.



Example of standard output



Example of same output with adjusted color scale...same data, just spread out over a greater range of colors.

Your task is to do the same, but instead of mapping the JULY monthly SST climatology, you will instead produce a map of the **October** SST climatology for the Caribbean region.

Then, you will map the June-Aug SST climatology. This three month average is known as the *seasonal* climatology.

You will need to enter Jun-Aug for the data selection instead of October and follow the same steps as above. (Enter Jun-Aug EXACTLY AS IT IS WRITTEN HERE, no spaces, etc...)

Point Breakdown (10pts):

- Produce a map of October monthly SST climatology (2pts)
- Adjust the color scale to maximize the color range. (1pt)
- Write a few sentences (no more than 5 max) describing the regional variability. Where in the Caribbean is SST usually warmest in October? (1pt).
- Produce a map of June to August monthly SST climatology (2pts)
- Adjust the color scale to maximize the color range. (1pt)
- Write a few sentences (no more than 5 max) describing the regional variability. Where in the Caribbean is SST usually warmest during the June to August season? (1pt).
- Will every October be exactly like the October climatology? Why or why not? (2pts). Place your answer in context of how climatology is calculated.

EMAIL complete answers in a word or pdf document as an attachment to tallen@cimh.edu.bb . 2 maps will be required for full credit. Don't forget to include the maps in the attachment.

Please submit NO LATER than FEBRUARY 12, 2024.