

Mapping SST Anomalies

An anomaly is the deviation or change from the normal. An average condition and a specific month is required in order to calculate an anomaly. Monthly SST anomalies allow us to understand if the SST during a particular month is warmer or cooler than normal.

For this lab we will produce 1) a monthly SST map, 2) a monthly average SST map, and 3) a monthly anomaly SST map.

Begin by accessing monthly SST from the IRI Data Library:

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

Using the “Data Selection” tab, produce a map for August monthly average SST from 1982-2022.

Enter: Aug 1982-2022

Select RESTRICT RANGES

Select STOP SELECTING

Using the “Data Filters” tab, average over T. This calculates the August average monthly SST by averaging all of the August months in the data selection.

Using the “Views” tab, produce a map of August monthly average SST.

Now, make a map of Aug 2022 SST using the method above. Note, you will NOT need to average any months because you are only interested in a single month. At this point you should have two maps: 1) SST August average and 2) SST August 2022.

The question is: where was the SST above or below average? Well, you could squint at the maps to try to locate where August 2022 was warmer or cooler. This would be tedious and inaccurate. Instead, you want to make an anomaly map.

To produce the SST Anomaly map for August 2022, simply subtract the August SST from the Average SST using the “sub” command from the previous lab. Now you will have an anomaly map that will show you where August 2022 SST was warmer and cooler than normal.

TURN IN THE FOLLOWING:

- 1) Map of SST August monthly average from 1982-2022 (2pts)
- 2) Map of August 2022 SST (2pts)
- 3) Map of August 2022 SST Anomaly map with a diverging color bar that is centered on zero. You can use the same color bar that was used in lab 4. (3pts)
- 4) Explain the difference between a SST anomaly map and a SST difference map. When or in what case would you use each? (3pts)

SUBMIT TO tallen@cimh.edu.bb as an attachment BEFORE midnight Oct. 8.

NO LATE WORK ACCEPTED