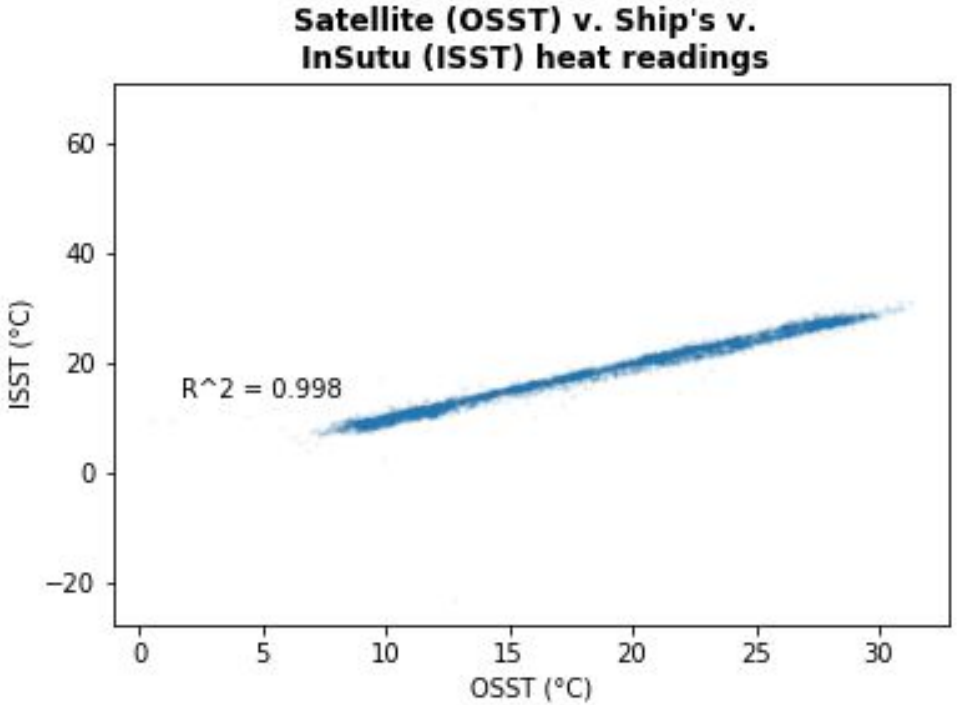
High Quality Correlation (Proj 1)

- What do you do when you have favorable data?

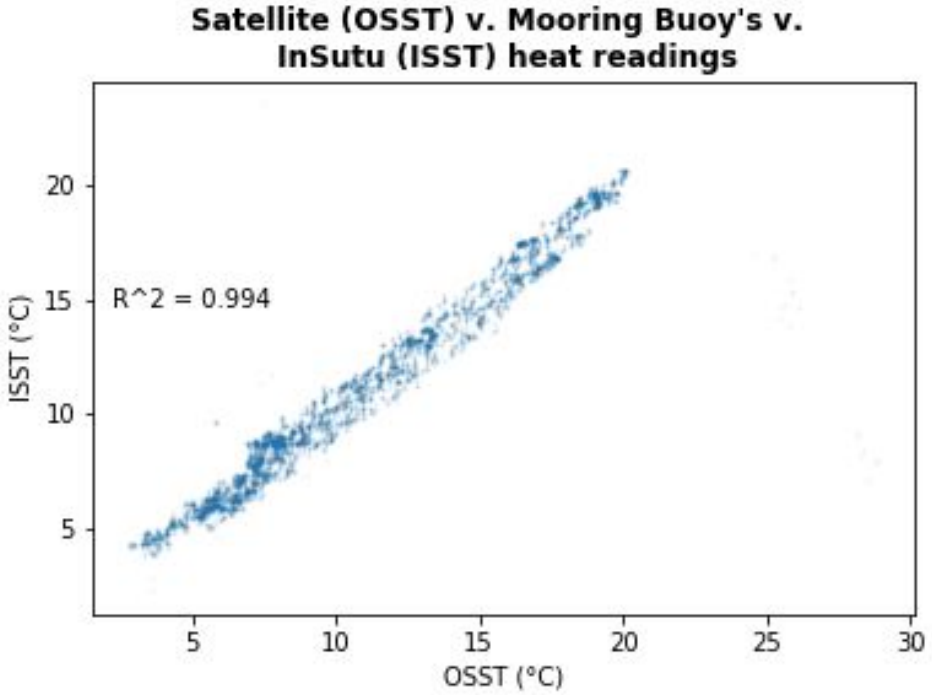
```
High quality flag percentage of Drifting Buoy's:  97.628 %
High quality flag percentage of Mooring Buoy's:  99.7941 %
High quality flag percentage of Ship's:  99.9061 %
```

Ship In Situ v. Satellite



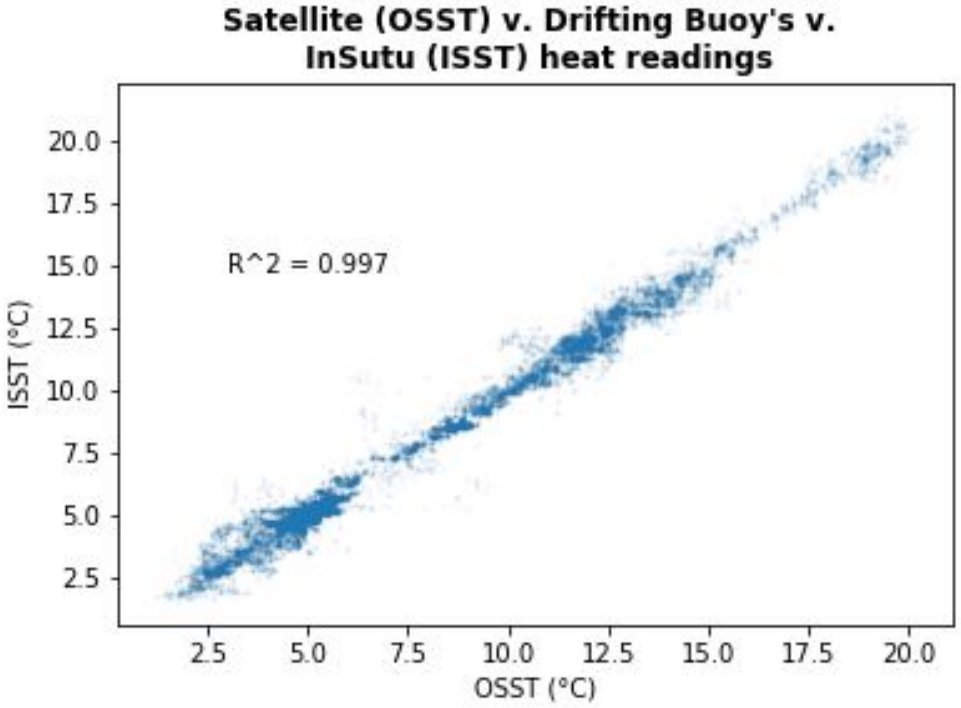
- Ideal scenario even after cleaning little to no missing data.

Mooring Buoy v. Satellite



- What are the leverage points?

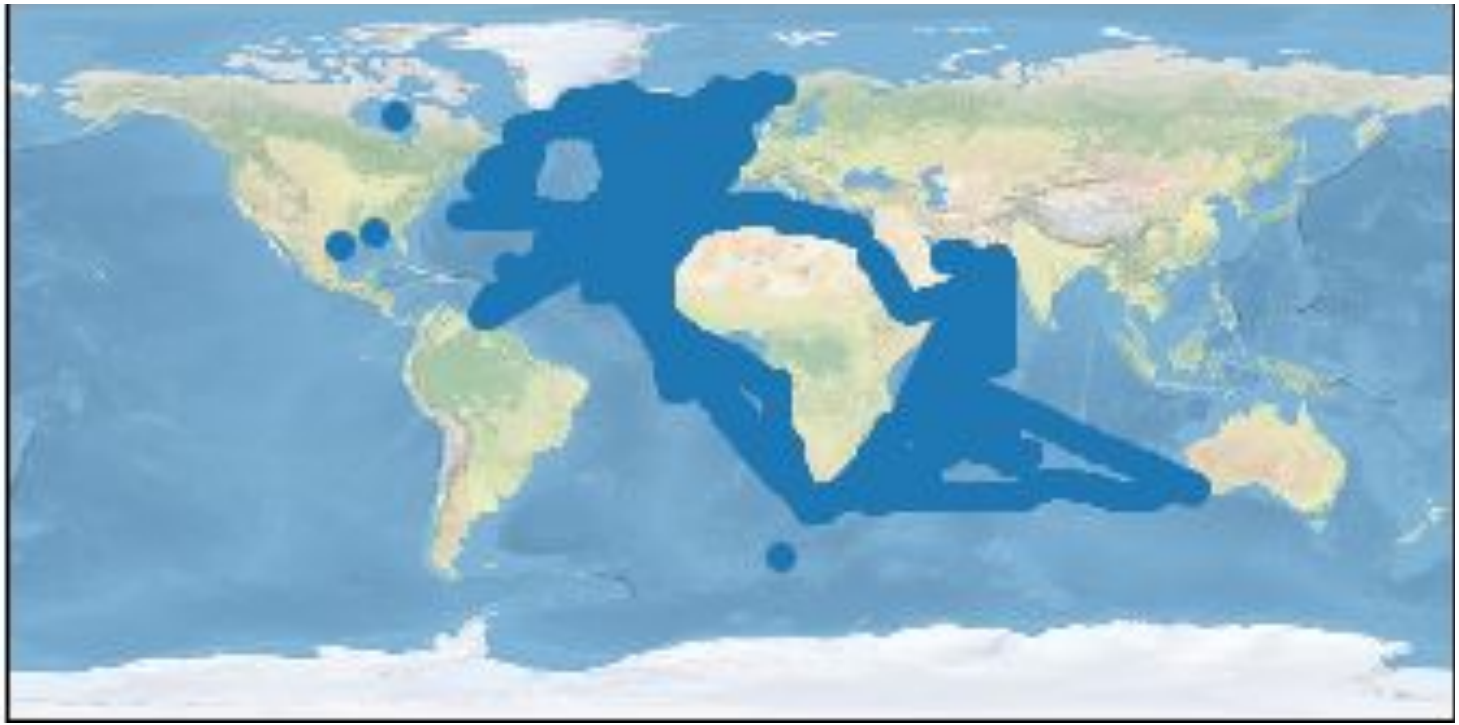
Drifting Buoy v. Satellite



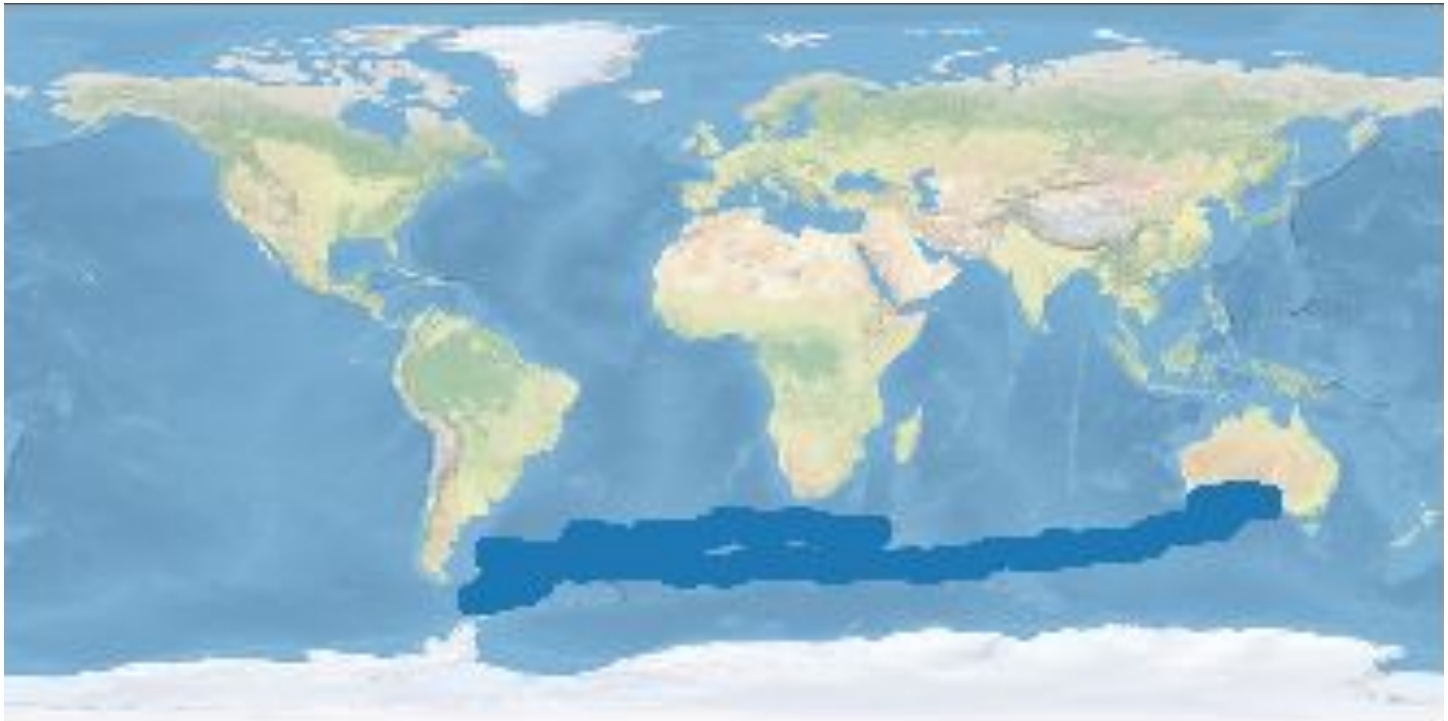
- Is Cook's distance significant?

Source code:
https://github.com/adomakor412/Applied_Statistics/tree/master/Final

Snapshot of Shipping Data (1991-2006)

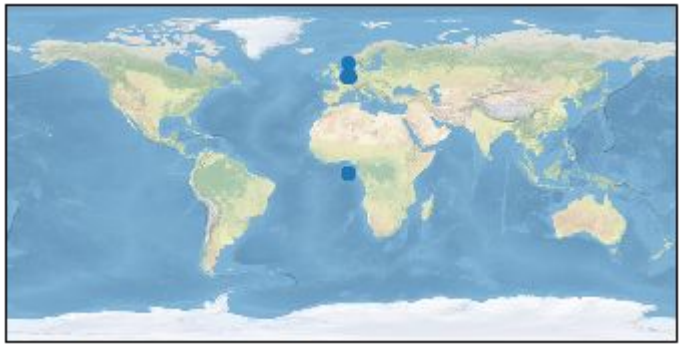


Path of Drifting Buoys (1995-2010)

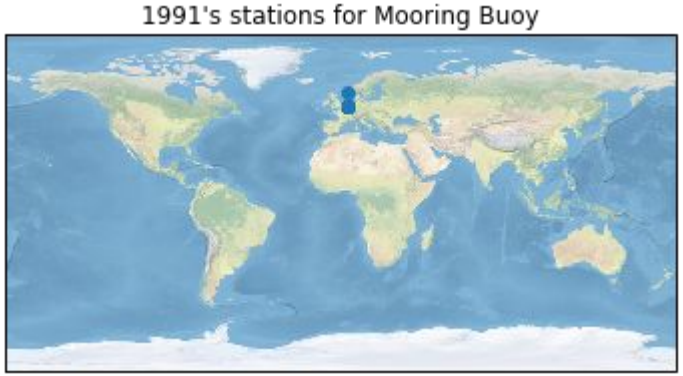


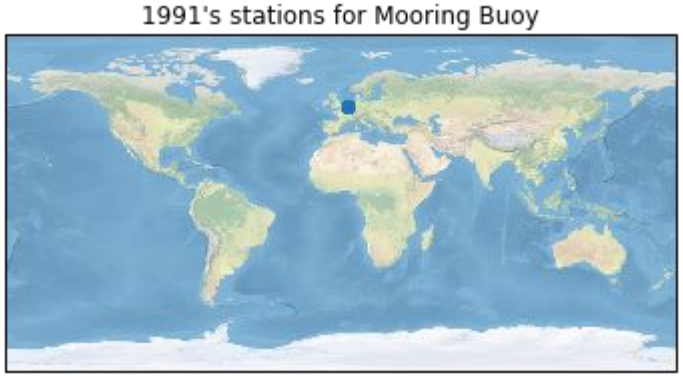
Drifting Buoys `91-`96 (data v. analysis)

- key: 1991 , no. of locations: 2
- key: 1992 , no. of locations: 2
- key: 1993 , no. of locations: 5
- key: 1994 , no. of locations: 3
- key: 1995 , no. of locations: 2
- key: 1996 , no. of locations: 1

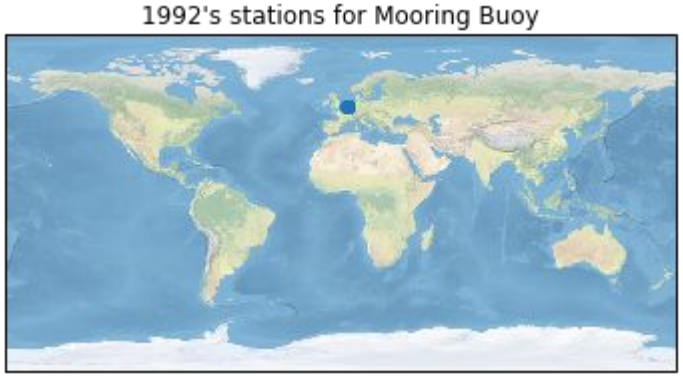


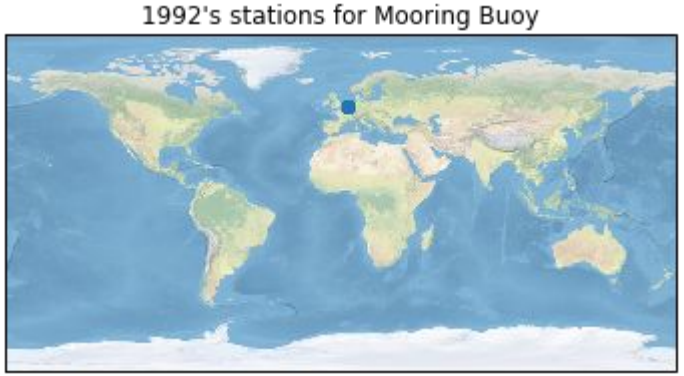
Drifting Buoys (data v. analysis ‘91)



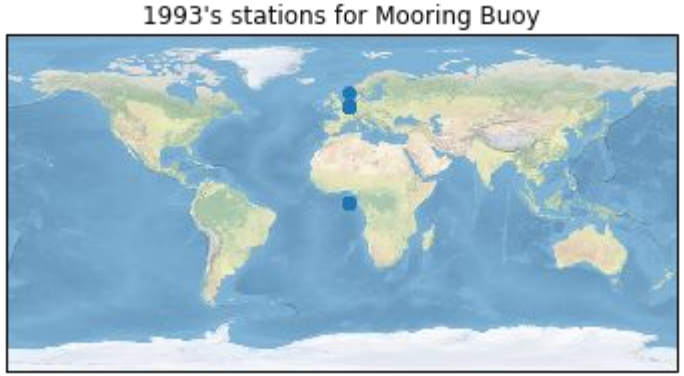


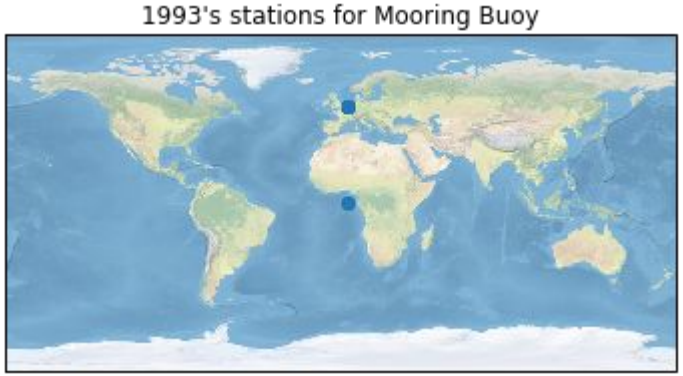
Drifting Buoys (data v. analysis ‘92)





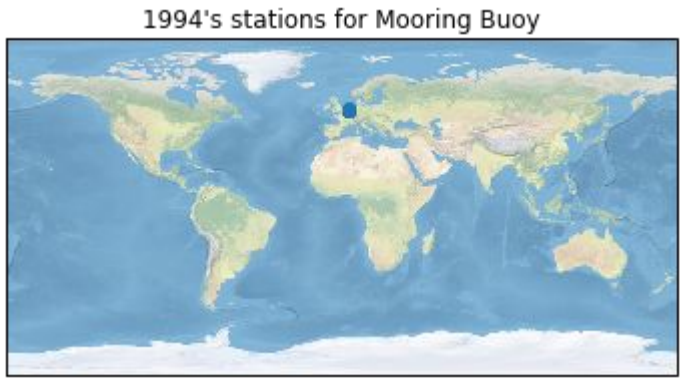
Drifting Buoys (data v. analysis ‘93)

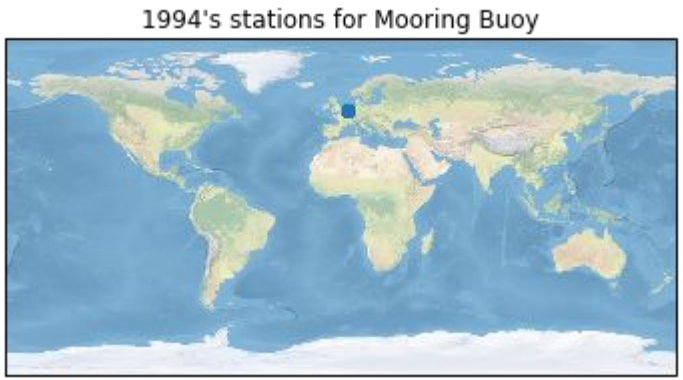




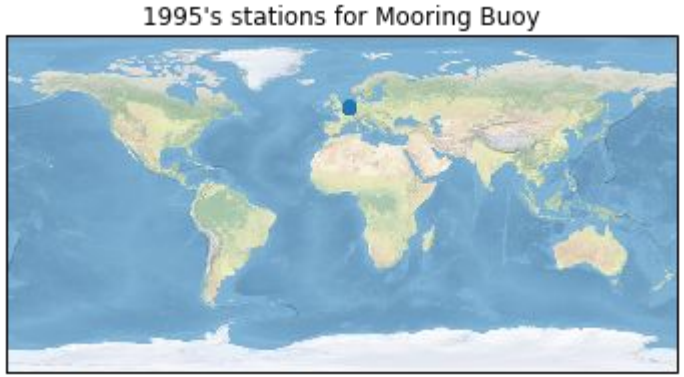
- Null hypothesis test on 1993A (51.9º,3.2º) and 1993B (0º, 3.2º)

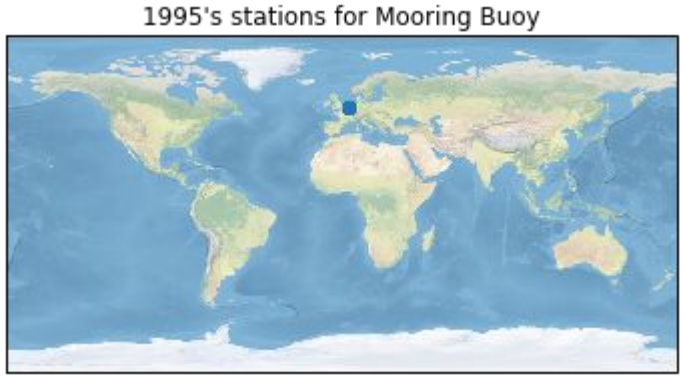
Drifting Buoys (data v. analysis ‘94)



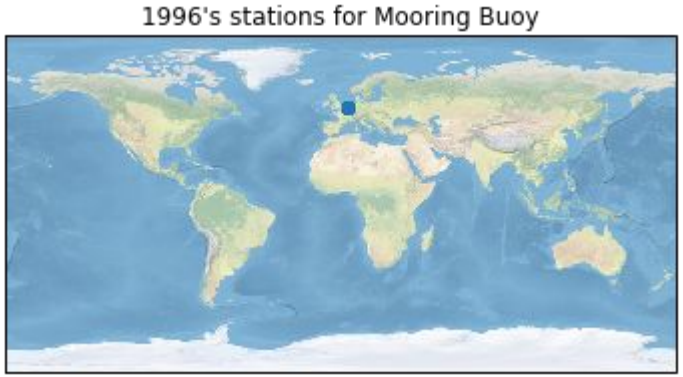


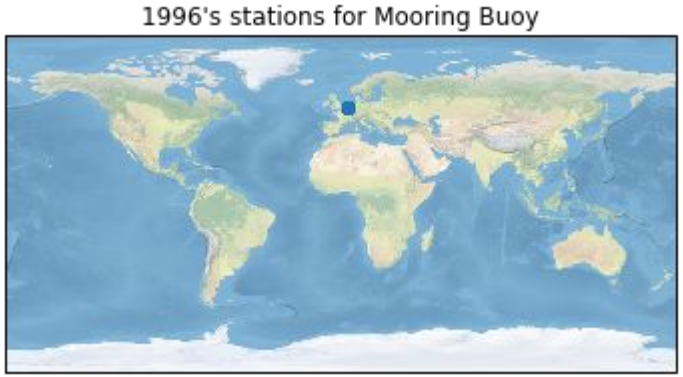
Drifting Buoys (data v. analysis ‘95)





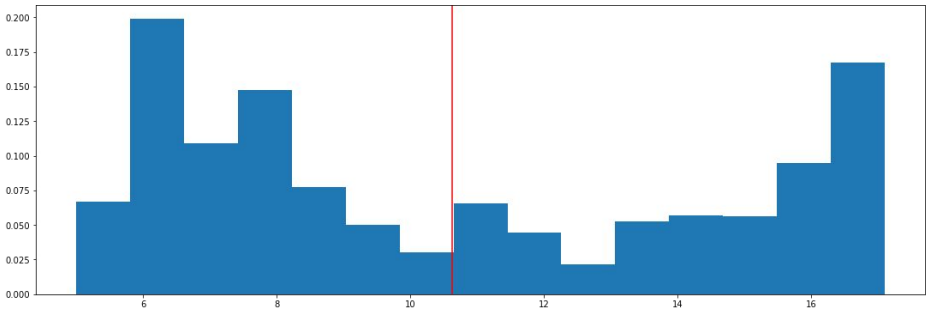
Drifting Buoys (data v. analysis ‘96)

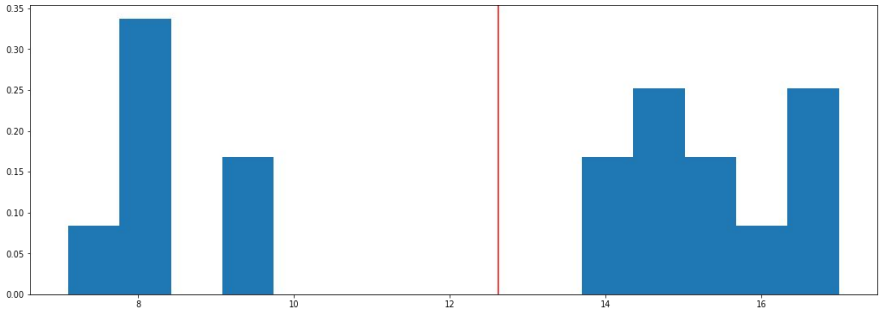




Null Hypothesis testing (ISST ‘93)

- Test H0 on ISST
- Test HA on ISST

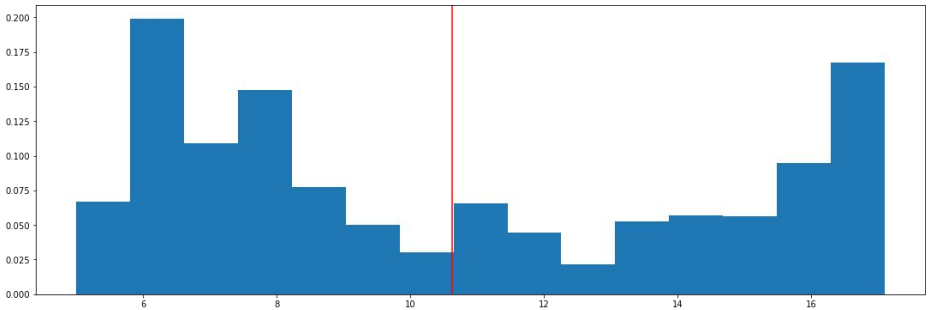


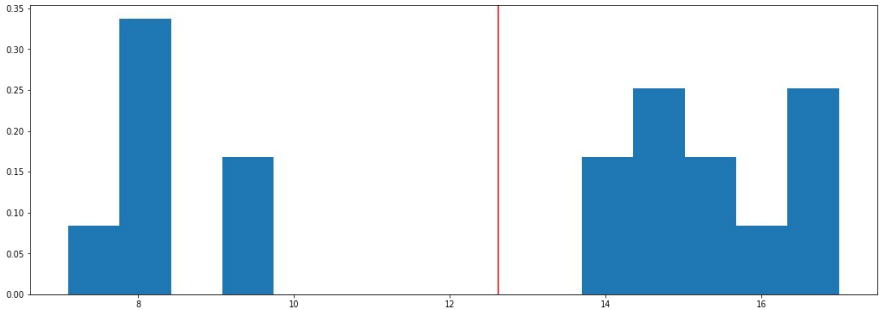


- Hypothesis is on regions of 1993A (51.9º,3.2º) and 1993B (0º, 3.2º), which were separated by latitudes above and below 25º to account for “wiggle”.

We Reject Null Hypothesis (ISST ‘93A v. ‘93B)

- Test H0 on ISST
- Test HA on ISST

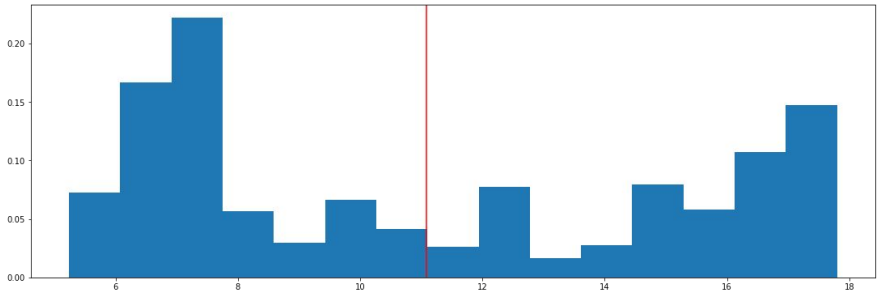


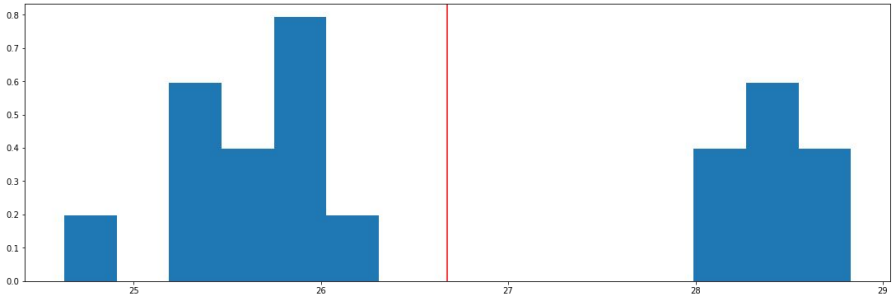


- p-val is 0.03420592024121761 6, so the points are different.

Validate null Hypothesis testing (OSST ‘93)

- Test H0 on ISST
- Test HA on ISST

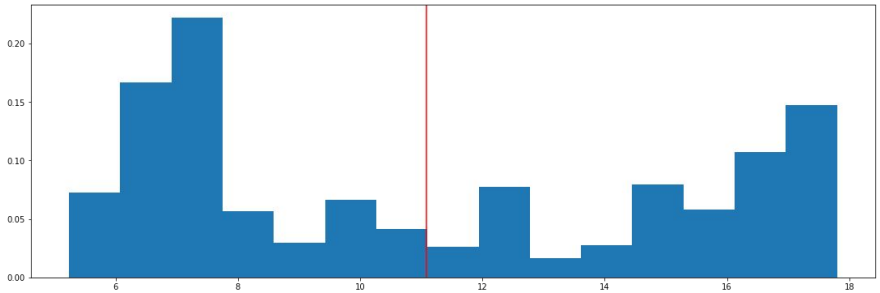


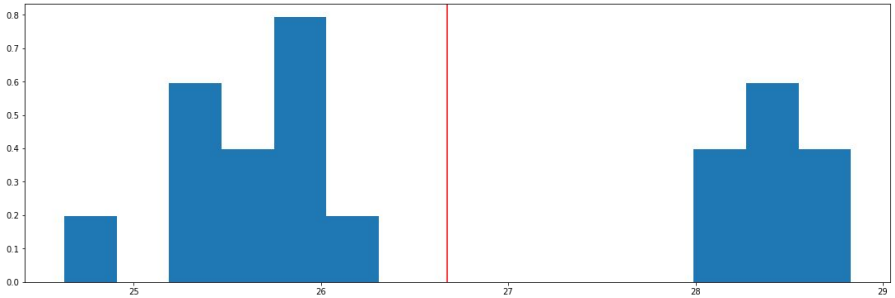


- We run another null hypothesis test–this instance using OSST to measure the temperatures. We assume that ISST and OSST measurement are independent.

We reject Null Hypothesis (OSST ‘93A v. ‘93B)

- Test H0 on OSST
- Test HA on OSST





- p-val is 1.595693672355038 5e-51, verifies our test that the points are different

Suggested coordinates represents population

- We want to know whether the coordinate chosen for 1993A and 1993B is represented of their respective wiggle room. Ideally we can test for this.

- There aren't enough points outside of coordinate (51.9º, 3.2º) for 1993A and outside of coordinate (0º, 3.2º) for 1993B, which were separated by latitudes above and below 25º.

- From reliability we can objectively assert that these coordinates are representative of their respective populations. 1993A's coordinate has 99% reliability and 1993B's coordinate has 100%. There are too few points to further validate by boot-strapping: this is a secondary technique.

Conclusion (Proj 1)

- Investigating the data lead to know no obvious questions on what to verify. ISST and OSST measurements where statistically the same.
- A prediction model was not in context since we had high reliability from the number of data points retained after cleaning and high correlation between ISST and OSST
- We looked at the suggested locations for shipping data, drifting buoy, and mooring buoy.
- We objectively analyzed the years suggest from mooring buoy and filtered out noise graphically and statistically shown that there were two different 1993s.