- Home
- Homework #1

Notes

1) Interactive display appeals to the individual way we perceive visual data. Selecting different scales allows the individual to explore data on scales that make sense to them, while maintaining feature hierarchy.

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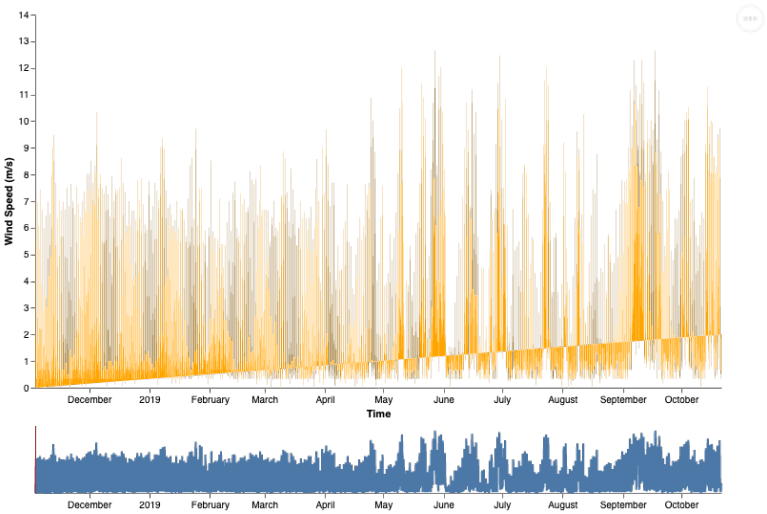
Hypothesis

H1: Wind speeds at Salar de Pajonales do not change seasonally.

H2: Wind speed and direction at Salar de Pajonales have an approximately normal distribution.

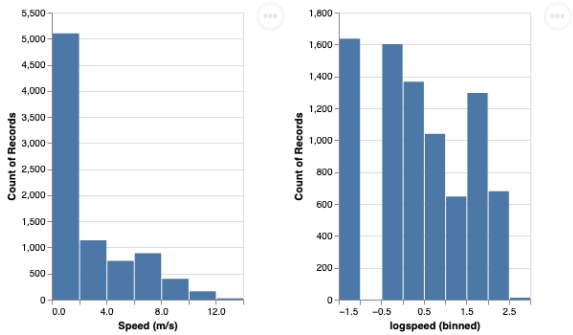
Wind speeds (m/s) from October 2018 to November 2019, Salar de Pajonales, Chile.

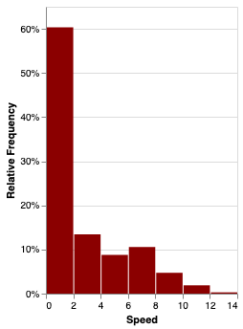
These are the raw data. Click and drag a box on the lower graph to zoom in on the selected time period. We can see that wind speeds not only change seasonally but also experience diurnal changes.



Wind speed histogram.

Geologists typically work with right skewed data. The histogram is a good way to see if the data can benefit from a transformation. We can see the wind speeds are right skewed and a log transformation of the y-axis should smooth out the distribution.





2) The histogram series demonstrates the gestalt principles of similarity, proximity, and connection. The visualizations could be improved w/ formatting so that graphs were in the same frame.

Looks like a log transform did not help because of the large number of zero and negative values. These might be sensor errors or something else because log speed should not return a negative value. I want to remove them from the dataset, but I should look at the relative frequency of all wind speeds to get a better idea of how they are distributed.

We can see in the red histogram 60% of wind speeds are 2 m/s (~4.5 mph) or less. These speeds are not high enough to include in my multiple regression model and can be removed.