"Sunny California, Not so Sunny Anymore?":

Investigating the Variation in Temperature, Wind Speed, Wind Gust and Precipitation Levels in Los Angeles, CA

Publically Available Project Link:

https://github.com/COMP790-InfoVis/module-two-data-three-ways-aayush110

This report takes inspiration from Visual Crossing's data story on the record-breaking levels of snow and precipitation that have especially been observed during the month of February 2023[1]. While Visual Crossing's article includes visualizations of the weather observed in Central California, my report will delve deeper into understanding how temperature, wind speed, wind gust, and precipitation levels have changed during the past two months in Los Angeles, Southern California.

The first two variables that my report explores are temperature and wind speed, and how they have changed from the 1st of January, 2023 to the 1st of March, 2023 in Los Angeles. The below visualization (*Figure 1)* shows the relationship between temperature and wind speed over time where each data point corresponds to a discrete date. While the scatterplot shows the temperature on the x-axis with the associated wind speed on the y-axis, the associated histogram highlights how temperature values have changed over the two months. The full visualization is available when one runs the "Figure 1 for Module 2 (Altair Graph).ipynb" file. One will see the full graph when they run the last cell of the Jupyter notebook, after running all the cells before it.

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[1] https://www.visualcrossing.com/resources/blog/californias-record-breaking-snow-and-rain/
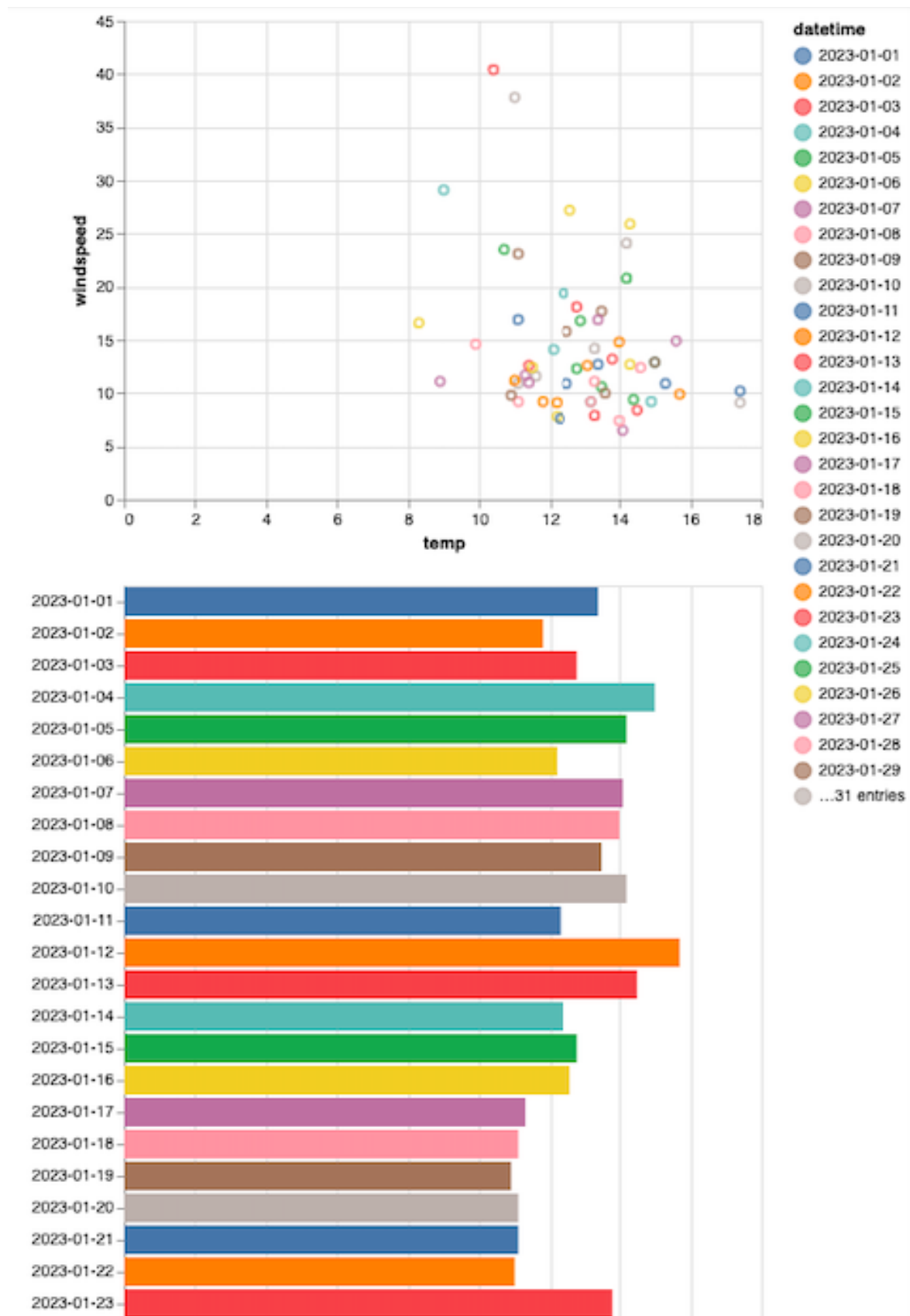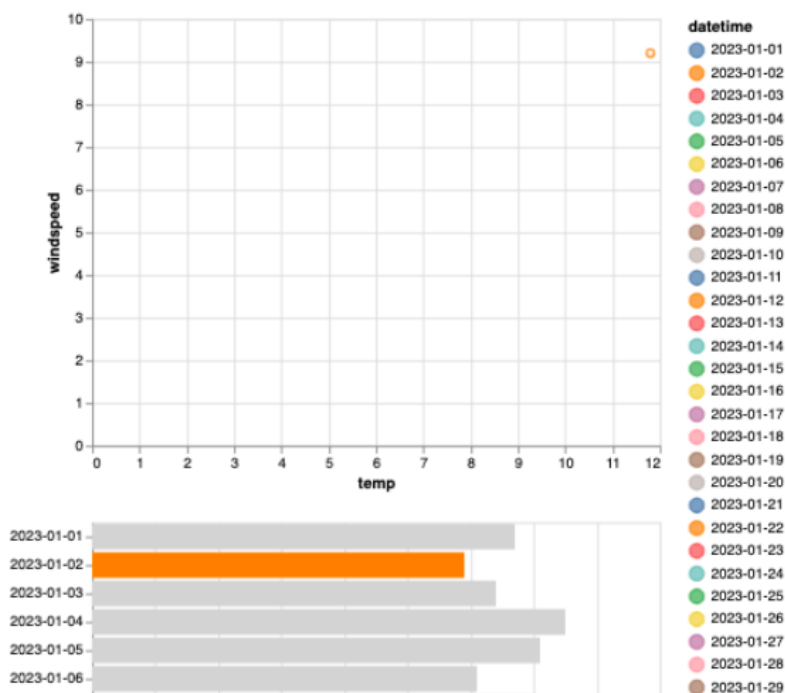
Figure 1

The visualization also includes an interactive histogram that is synchronized with the scatterplot. The histogram provides a more specific perspective on how temperature values have changed over the two months. When a user clicks on a specific bar of the histogram, they see the corresponding data point on the scatterplot to understand what the temperature and wind speed was on that given day. The figure below (*Figure 2*) provides a screenshot to depict this functionality of the visualization.
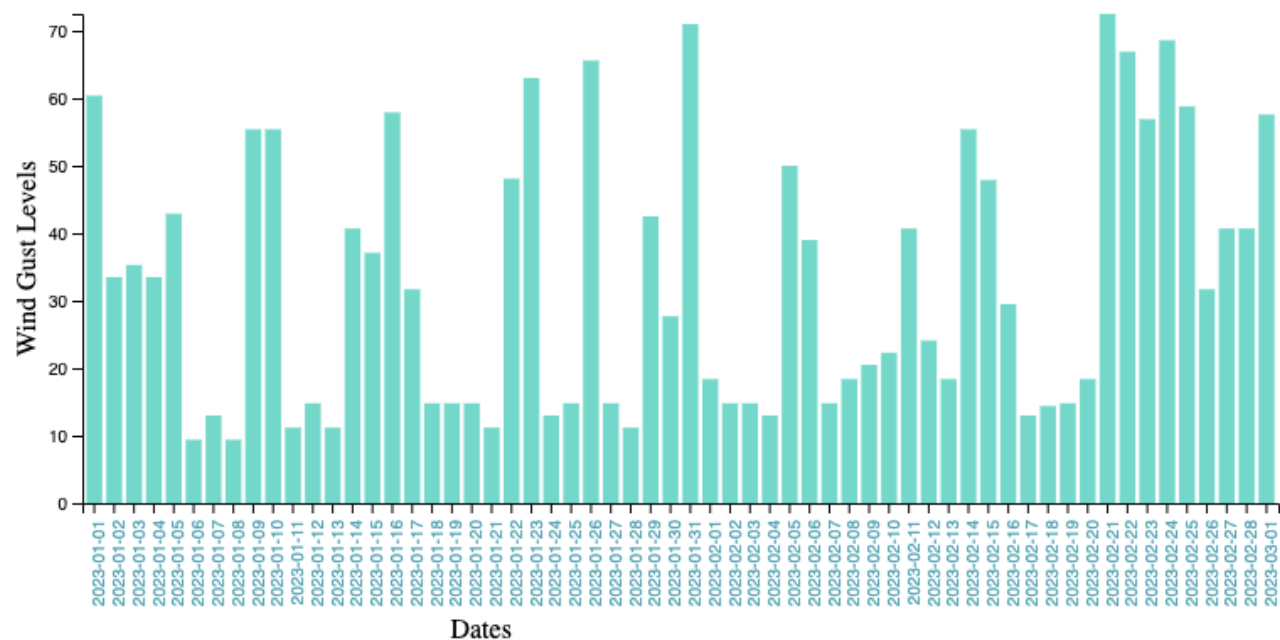

Figure 2

The visualization (*Figure 1*) that was made using Altair, helps in depicting that there is no significant relationship between temperature and wind speed over time. However, it definitely does show how unpredictable the weather has been in Los Angeles since the graph shows how erratically the temperature values have fluctuated over the two-month period. The visualization shows that the temperature stayed between 8 degrees and 18 degrees (F), however within these
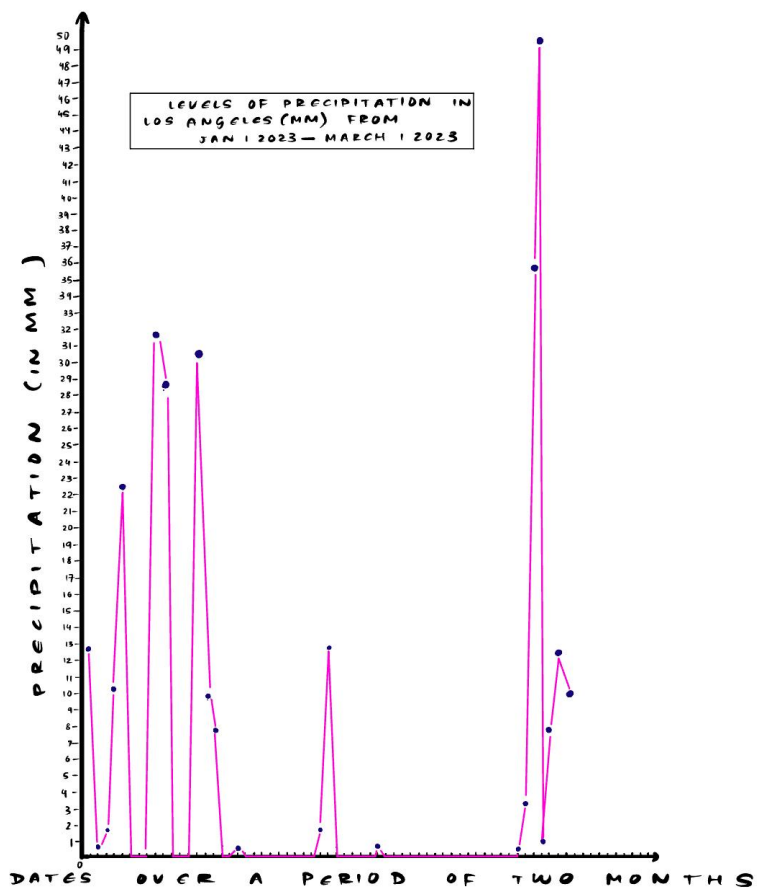
boundaries it frequently oscillated. The graph also shows how unpredictable the wind speed has

been in Los Angeles. For example, on the 10th of January, it was 24.1 mph and then it jumped

down to 7.6 mph the very next day.

My next visualization which was made using D3, highlights how wind gust levels changed in

Los Angeles over the two months. The visualization (*Figure 3*) below further emphasizes how

unpredictable the weather has been in Southern California. It shows how the levels of wind gusts

frequently dipped and rose up again. For example, on the 8th of January, it was 9.4 mph, after

which it suddenly shot up to 55.4 mph on the 9th of January.

Figure 3

My final visualization (*Figure 4*) below, depicts the levels of precipitation that have been seen in

Los Angeles over January and February. According to an article by the LA Times, downtown

Los Angeles reported a record-breaking rainfall record of 1.82 inches on January 15, 2023.[2]

While my visualization does not depict rainfall data over a multi-year period, it does depict how

varied the precipitation has been over the two-month period where it has varied from 0 mm to

49.347 mm, further corroborating how abnormal and unpredictable Los Angeles weather has

been. A clearer image of figure 4 is provided in the Github submission.

Figure 4

[2] https://www.latimes.com/california/story/2023-01-15/storm-set-new-rain-records-timeline

Overall, my report highlights how temperature, wind speed, wind gust, and precipitation levels wildly oscillated during the period of January 1, 2023, to March 1, 2023, in Los Angeles, signifying how erratic and varied the climatic conditions have been in Southern California.