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WUSTL Data Analysis Bootcamp

Python API Homework Report

From looking at weather data extracted from the OpenWeatherMap API for over 500 randomly-selected cities, I noticed a few trends in the data. Measuring latitude against a handful of weather statistics including humidity, cloud cover, and temperature, I observed the following:

* To answer the initial question of the assignment, my findings offer strong evidence that temperature increases the closer you move to the equator. The sample provided a parabola-shaped scatterplot when latitude was measured against max temperature, peaking as a group at zero degrees (the equator) and decreasing with distance in either direction. There were no observations below -60 degrees latitude, but it seems safe to assume that if there had been, they would follow the expected trend of lower temperatures on average.
* There doesn’t seem to be any correlation between latitude and either humidity or wind speed. Generally speaking, the dataset skews toward more humid conditions and milder wind speeds, irrespective of distance from the equator.
* The same is true of cloudiness, but in this case the data appears more stratified, with multiple cities clustering at the 0%, 20%, 40%, 75%, 90%, and 100% markers. This may have to do with the accuracy of the instruments the OpenWeatherMap service uses, or with the constant shifting and movement of clouds relative to however often the measurements are taken.