A Study of Climatographs
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Abstract

My objective was to find out how accuracy is affected by the amount of data collected during a month. To test whether the data was more accurate with more frequent observations, I compared the Waterloo Airport's data with Orange School's data. Then I made graphs. The results showed that my hypothesis was true and the months with the most data points have the best correlation. If GLOBE schools want to have more accurate data they need to have at least 35 data points for each month and more regularly collect the data each year.

Problem Statement

My question was: How does the temperature data Orange School collected compare to that of the Waterloo Airport? My hypothesis is that the more days Orange School collected data for that month the closer the climatograph for that month will be to the Airport's climatograph. The more data available means all the possibilities of temperatures for that month would be represented. The fewer points/days available the higher the chance that many similar days would have been sampled. Fahrenheit was used because more Iowa students know how Fahrenheit feels.

References & Acknowledgments

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The GLOBE Program. 2005. The GLOBE Teacher's Guide. Atmosphere Protocols.

The GLOBE Program. Data Access. Orange Elementary School Raw Data. Retrieved December, 2005, from http://www.globe.gov

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Procedures

1. I looked at the minimum and maximum air temperature data from both the Airport and Orange for each month of the year.
2. Then I created my hypothesis.
3. Next I got the data for the Airport and put that into a rough draft on graph paper.
4. I changed the Celsius on the Orange data to Fahrenheit and found the highest high the lowest low and calculated the averages for each month.
5. After that, I put the data I had collected (Orange's) into the rest of the raw data.
6. I made the graphs for both the Airport and Orange on the laptop.
7. Subsequently I made my conclusions.
8. I made recommendations for Orange school and other GLOBE schools.

Results

A Comparison of Orange Elementary Climatograph to Waterloo Airport Climatograph.

Average Temperature Reported, Orange Elementary

Average Temperature Reported, Waterloo (ALO)
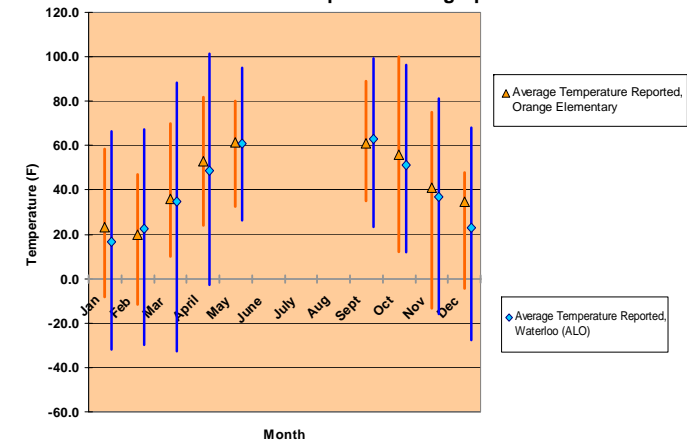
Each bar represents maximum temperature, the minimum temperature and the average temperature for the month.

Total Number of Days/Month for Orange Elementary Data from 1997-2005

Month	Days	Month	Days	Month	Days
January	18	May	4	September	24
February	8	June	0	October	37
March	10	July	0	November	21
April	5	August	0	December	10

Conclusions

My hypothesis is supported by the data. October was the month with the most data collected and that month was closest to the Airport's data. May was the month with the least data and that showed the worst correlation. In general the months with the most data points have the best correlation. I recommend if the other GLOBE schools want to make a climatograph they have at least 35 data points for each month. Orange needs to more regularly collect the data each year.