



REFLECTION AND EVALUATION OF ACADEMIC WORK

Tracking The Weather

Title of Project

Documented Hours _____

Actual Project Credits _____

Grade _____

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Student Name

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Student's Advisor

Minnesota Graduation Standard/Profile Fulfilled:

Science: Earth: Water Cycle and Weather

Reflection/Evaluation of Work:

I tracked the weather light percentage and fahrenheit temperature to get a sense of how accurate the weather reports are. I also tracked WeatherUnderground's Grand Avenue weather report to get a grasp of what the professionals are reporting as accurate weather predictions. I wrote a paragraph per day of simple personal observations of what the weather situation really was. I did this project because I'm genuinely interested in the answer to the project's driving question and learning more about the equipment that is used to track the weather.

The most impressive part of my project was probably the data analysis. I had well over 1,000 data points for both the fahrenheit temperatures and light percentages. I managed to graph all the data points, though only 24 of each type were used for the final analysis. The analysis consisted of primarily comparing the data I collected up against the single checks of the WeatherUnderground temps. Since I had no way to collect the barometric pressure on my own I relied on the pressure amounts that I got from WeatherUnderground for my own investigation on the connections that the pressure has to both the light and temp. I took all my conclusions from the comparasins to form the basis for my final argument saying that the weather reports on TV, in the newspaper, and online aren't accurate for our day-to-day use. Part of my look into the accuracy of the weather reports included taking a look at the extended forecast, and then seeing how accurate that was.

One of the most significant set of problems I had in completing this project came in the various bugs and troubleshooting that I essentially spent a whole weekend working through to get the data logging hardware/ software to function properly. The issue was that it would collect the data, but both light and temp would be the same. After about 1.6 days of straight troubleshooting I noticed that the hardware wasn't the issue, but instead the software (on my Mac, but running through integrated PPC emulation) was misbehaving. Right after uploading the data the two data sets would be different values, but if I switched from the first data set to the second data set then the first data set would consist of the second data set's values. I worked around this annoying issue by making sure to export the first data set to plain text before even viewing the second data set. The one thing that I learned from all this was simply that there was a software bug/ disk permissions issue that aligned to form the data-not-saving bug.

This project has affected me as a student in that I can now feel comfortable with the kinds of work that I did in order to complete the project. This includes the data collection and analyzing work as well as the online weather report tracking and the deliverable-quality keynote that I made (which turned out to be mainly text). This project has affected me as a citizen because I now understand further the true trust level that we can have in weather reports and can also provide minimal alternative results that might be better than the mainstream media's reports if needed (though, of course, I'd need to know in advance that it'll be needed). This project has affected me as a family member for the same reasons as it has affected me as a citizen.

The above paragraph pretty much answers the topic for this question. But, expanding on that topic, though I can't fully rely on my own data collections (due to variables that I mentioned in the project itself), I can trust them to be closer to the areas I am versus the mainstream weather reports that generally come from airports.

I liked doing the data collections and analysis components of this project. But the research on the equipment that the professionals use was not as fun, or (to a small extent) easy. This is reflected a little bit in the quality of the research component when directly compared to the quantity of collected data points and the quality of the following analytical comparison and conclusion. I enjoyed the data collection and analysis more than the research purely because it was more hands-on.

The core question that drove this project was to find the accuracy of the weather reports. As noted in the conclusion, that question is a little bit hard-to-impossible to answer due to the simple fact that the reports are generated based on data from most certainly a far distance from where you are. The second question ties to the equipment used by the weather stations. That information was barely touched on by me for nothing more than lack of resources or leads. I did research the Systems Integration Branch just a bit, but that was just the supporting foundation for the hardware, not the hardware itself. The third and final question was in relation to how to set yourself up as a Personal Weather Station to feed into WeatherUnderground. I did a morning of research reading WeatherUnderground's support site (WunderWiki) to learn the precise steps. And setup requirements, for the stations. But I never got any further on that question.

The standard asks you to simply understand the inner-workings of the atmospheric cycle and the water cycle. My analysis' conclusion and associated explanation of why the weather reports are inaccurate outlines my basic understanding of the content for this graduation standard. The basic fact is that the pressure and temperature changes determine the cloud forms, which in turn *is* the core of the atmospheric cycle. Clouds are formed of water, hence the water cycle.

The quality of the data logged by myself is of extremely good quality in both the way it was logged and the complete analysis done on that data. I made pretty graphs of each data session to illustrate further certain aspects that the simple spreadsheets of data could not. The data collected from WeatherUnderground twice daily was added not to the initial data spreadsheets, but to a copy saved in a different location in order to keep the raw data from being infected with analysis additions.

My keynote deliverable is a simple-flowing explanation of the basic components to the project, the data, and my conclusion. I outline the basic elements to the data and the answers to the question to easily explain the scope and final conclusions to the project.

The project didn't develop a whole lot from the start of it. I needed to modify my data collection program and upload workflow a bit to get over some bugginess in the Robolab software and RCX hardware. But the ways in which I used the data and analyzed it played out exactly as internally planned by myself. Not much else was

assumed in the project brainstorm sheet (the question has since been removed from the sheet) that came up as a bump in the project.

Not that I didn't already know, but the stark contrast of activity between the data collections and the research clearly taught me that I'm a better learner if I'm doing hands-on activities than reading materials (websites, books, textbooks, etc.). I learned that though the data I collected over the multiple collection sessions was interesting to deeply analyze and try to fully understand that I won't be able to pursue a weather-related career or constantly-experimenting job as a portion of my adult life. I did, however, fully enjoy the computer programming that was required to even think about doing the data logging.

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