The interconnectivity of weather variables. Does one lead them all?

Living in a coastal rainforest environment (Squamish, BC) means changing weather is a daily occurrence. Considering, Squamish has a rainforest climate, precipitation is a major factor in climate data. Also being located at the end of a sound allows Squamish to have strange weather patterns not usually found in other locations. The valley and the mountains surrounding the town account for the tunneling of stronger winds. In all, Squamish and the surrounding area have a very special environment. This makes the study of climate and weather in this area very interesting. Quest University weather station, located in the field study area, has the capacity of recording temperature (**°C)**, relative humidity (%), precipitation (mm), wind direction (**ø)**, wind speed (m/s), and gust speed (m/s). The aspect of weather that I would like to study is the correlation between measured variables and how one may drive/effect another. Even though others have already answered this question, I believe it is important to see if my data set will come to have a similar conclusion.

I hypothesize that specific groups of variables will be connected. The variables that I predict are related are wind speed and gust speed, Wind direction and time of day, humidity and precipitation. The last variable of temperature will have strong effects on all the variables either increasing or decreasing there effect.

I plan to test my hypothesis by creating a computer program that will decipher trends between all variables and the selected pairs of variables that I predict are related. I will visually demonstrate this with graphical representations of variables reacting to each other highlighting specific areas of interest. However, I will also seek to find numerical or mathematical evidence of my theories. My approach of studying only new data and not using historical data over many years will bring some inaccuracies for freak weather days (Rajagopalan , 1999). This will allow us to specifically see the reaction of variables. Considering I’m not looking at historical trends but at specific relationships of variables I do not think that historical data will influence my outcome and therefore will not hurt my scientific integrity if not used.

My expectation of testing my hypothesis is that we will see relationships between variables. Although, I believe we will find some relationship between two variables I do not think it will be a simple linear relationship.

If I am able to find direct relationships between two variables it will allow future researchers to only collect data on one variable. They would then be able to use mathematical analysis or a computer program/ simulation to reverse the collected data and find the other variables(Richardson,1984) . This would make it cheaper and easier for data collection. Also this would make that data collected half experimental based and the other half simulator based data. This data creation/collection is already preformed by many different weather simulators.

This research could lead us to more correlations between different variables in weather. Also this study can lead us to create a smaller weather simulator for this specific area. The creation of weather simulators is actually very common because area specific simulators are much more accurate then ones meant for global use (Kilsby, 2007). This is because the surface type and environment around the system influences the variables dramatically and directly.

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