The sling psychrometer weather project essay example

Environment, Climate

Weather Project: The Sling Psychrometer

One of the most important aspects of Environmental Studies involves the study of meteorology or the weather. Studying the weather is important because it can impact an individual’s day to day activities and productivity. In a community, weather predictions are also necessary in disaster risk reduction especially now that the world is experiencing climate change. A good weather prediction allows an individual or community to plan ahead in a more scientific perspective.

In this subject, we were tasked to operate and write about a weather instrument and I chose the sling psychrometer. I chose it because I thought it was interesting and uncommon compared to other weather instruments. It is simpler to construct yet provides a good estimate of the weather condition. A sling psychromoter is a simple hygrometer used to measure the moisture content or relative humidity of the surrounding environment at a particular temperature. The likelihood or rain increases with an increase in value of the moisture content of the surrounding. It only means that the air is already saturated with water vapor which will condense to form rain. Once it rains, the relative humidity or the moisture content will decrease.

A sling psychrometer consists of two thermometers: a wet bulb and a dry bulb (Tannenbaum, 1989). A wet bulb thermometer is maintained by securing a wet cloth or shoelace around the bulb of one thermometer with the use of a rubber band. The dry bulb thermometer is maintained as it is. The two thermometers are looped together with the use of a cord although other methods of construction can be done to suit this purpose. To get a reading, the wet bulb is first soaked in water and then whirled around for

about 10 seconds. After which, the temperature readings of the two thermometers are recorded. If the surrounding air is “ dry” or moisture content is low, more moisture will evaporate from the wet cloth causing a drop in temperature reading from the wet bulb. On the contrary, if the surrounding air is wet there will be little or no moisture removed from the wet cloth and thus, there will be less or no difference in the temperature readings for the two bulbs. The difference in the temperatures between the dry bulb and the wet bulb is compared to an existing Relative Humidity table. No difference in temperature reading means that the relative humidity is 100% and the likelihood for rain is very high, if not absolute. A 1. 0°C difference in temperature readings between the two bulbs equates to 93% Relative Humidity (RH) at 30°C whereas a 9. 0°C difference equates to 44% RH.

Ohio is located in a humid continental zone and generally has a humid subtropical climate. Under the Köppen Climate Classification, it is classified as Cfa (Peel, Finlayson and McMahon, 2007). Climate data obtained from the Cincinnati Airport shows that the annual average temperature in Cincinnati, Ohio is 53. 2°F, with an annual average high of 63. 2°F an average low of 43. 2°F. In a year, there are a total of 131 days with precipitation with an average total of 41. 3 inches. The total annual snowfall in the area is 23. 9 inches. The relative humidity ranges from 58. 0% to 73. 5%, where the most humid months are during February, August and September. January is the least humid month at 58. 0%. The annual average relative humidity in Cincinnati is 75. 5% (Climate Zone, 2003).

Works Cited

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