

Effects of Cloud Cover on UV Radiation

by Chowan Students



Introduction/Rationale

UV rays are radiation from the sun & can have harmful health effects. It is a major risk for skin cancer. As of 2014, North Carolina was above average in rates of melanoma (skin cancer). Cloud cover is known to block some UV radiation. In our project we are trying to see what is blocked by the clouds.

Research Problem

What is the effect of cloud cover on UV radiation?

Hypothesis

Our hypothesis was that depending on the cloud cover, the UV-A and UV-B radiation would change.



Materials and Methods

Equipment

For collecting data we use a UV-A sensor and a UV-B sensor. We use a Labquest to translate the UV coming in and to temporarily store the data if needed.

Procedure

We have been collecting data everyday around 10:55AM. We grab our UV sensors and Labquest (which processes the data) and head outside. We turn on the Labquest and plug in the sensors. We run a collection of data from the sensors for 20 seconds. We use our calculator to average the data. We write it down and record the sky's state (sunny, cloudy, semi-cloudy, etc).

Results

Date	Time	UV-A	UV-B	Cloud Cover	Rainfall
4-23-18	10:55	3,728.20	120.96		0
4-24-18	10:55	485.2	4.1		0.21
4-25-18	10:55	3328.2	93.06		0.98
4-26-18	10:55	3492	106		0.3
4-27-18	10:55	2917.6	84.14	partly cloudy	0
4-30-18	10:55	2856.8	75.18	Sunny	0
5-3-18	10:55	2915.6	97.54	Sunny	0
5-14-18	10:55	3318.2	99.14	Sunny Wispy	0

Discussion of Results

The cloud cover had a noticeable effect on the UVA by dropping the amount that got through. The UVB was not as clear but still seemed to be affected by cloud cover. If we had a chance to do this over we'd take more data for more reliable data.

Conclusion

Our hypothesis was partially correct because we found that cloud cover did have an effect on UVA but not that big of an effect on UVB.

References and Acknowledgements

References

- <https://www.cdc.gov/cancer/skin/statistics/state.htm>
- <http://www.who.int/uv/faq/uvhealthfac/en/>
- <https://worldview.earthdata.nasa.gov/>

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