Writing an Effective Plain Language Summary

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A Plain Language Summary (PLS) is a way to summarize a scientific study and its results in terms that are accessible to people outside of a specific scientific circle. The example below, taken from a research article published in *GeoHealth*, is broken down to show the four key elements that make an effective PLS and how the language from an Abstract can be modified for a Plain Language Summary.

Example from Geohealth

	ABSTRACT		PLAIN LANGUAGE SUMMARY
Topic overview	Heat stress is a significant health concern that can lead to illness, injury, and mortality. The wet bulb globe temperature (WBGT) index is one method for monitoring environmental heat risk. Generally, WBGT is estimated using a heat stress monitor that includes sensors capable of measuring ambient, wet bulb, and black globe temperature, and these measurements are combined to calculate WBGT. However, this method can be expensive, time consuming, and requires careful attention to ensure accurate and repeatable data. Therefore, researchers have attempted to use standard meteorological measurements, using single data sources as an input (e.g., weather stations) to calculate WBGT.	**What does a non-expert reader need to know about the topic to understand your paper?** • Explains the importance of this topic • Accessible to a non-expert • Acronym fully defined before use →	Heat stress is a buildup of body heat that can lead to illness, injury, or death. One method for estimating heat stress is an index called wet bulb globe temperature (WBGT). The index is usually measured with a monitor that records three types of temperature measurements and combines them. However, this method can be expensive, time consuming, and requires careful attention. Therefore, researchers have tried to use standard measurements such as wind speed, temperature, humidity, etc., to calculate WBGT.
Paper overview	Building on these efforts, we apply data from a variety of sources to calculate WBGT, understand the accuracy of our estimated equation, and compare the performance of different sources of input data. To do this, WBGT measurements were collected from Kestrel 5400 Heat Stress Trackers installed in three locations in Alabama. Data were also drawn from local weather stations, North American Land Data Assimilation System (NLDAS), and low cost iButton hygrometers. We applied previously published equations for estimating natural wet bulb temperature, globe temperature, and WBGT to these diverse data sources.	**What did you set out to investigate?** • Explains what the study aims to do • Describes where the data come from →	Building on these efforts, we wanted to determine if it was possible to accurately calculate WBGT with a variety of inexpensive data sources in central Alabama. We used previously published equations to estimate WBGT.
Paper findings	Correlation results showed that WBGT estimates derived from all proxy data sources—weather station, weather station/iButton, NLDAS, NLDAS/iButton—were statistically indistinguishable from each other, or from the Kestrel measurements, at two of the three sites. However, at the same two sites, the addition of iButtons significantly reduced root mean square error and bias compared to other methods.	**What was the most significant result or conclusion in your paper?** • Gives a general picture of the results • Simple description of what can be inferred from the results →	Results showed that all proxy methods accurately estimated WBGT in two Alabama locations, but that using local measurements did change estimates of the number of potentially dangerous heat episodes relative to estimates that rely on remote sources of weather data.
Key takeaways	N/A	**Why should a reader care about your findings?** • Explains the significance of the results →	The ability to use easily accessible measurements could be a powerful tool for studies and interventions related to heat stress.

Carter, A. W., Zaitchik, B. F., Gohlke, J. M., Wang, S., & Richardson, M. B. (2020). "Methods for estimating wet bulb globe temperature from remote and low-cost data: A comparative study in Central Alabama." *GeoHealth*, 4, e2019GH000231. https://doi.org/10.1029/2019GH000231

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