
Precipitation and Temperature Variation Monitoring Project

A Data Management Plan created using DMPTool

Creator: Chandler White

Affiliation: University of Tennessee, Knoxville

Template: National Science Foundation (NSF)

Last modified: 12-03-2015

Copyright information:

The above plan creator(s) have agreed that others may use as much of the text of this plan as they would like in their own plans, and customize it as necessary. You do not need to credit the creator(s) as the source of the language used, but using any of the plan's text does not imply that the creator(s) endorse, or have any relationship to, your project or proposal

Precipitation and Temperature Variation Monitoring Project

Products of research

Through the use of a Tru-Chek rain gauge and monitoring of the National Weather Service temperature postings, I will create a data set that will chronicle the daily precipitation amounts and current temperature as of 22:00 Eastern Standard Time for each day from September 3rd, 2015 until November 30th, 2015. From this data, I will compute the average temperature in Fahrenheit degrees on days which contain precipitation and compare this value to the average temperature in Fahrenheit degrees on days in which no precipitation is present. It is my hypothesis that days on which precipitation is present will produce a lower temperature, on average within the current month, than days in which no precipitation is present. My full monitoring protocol is as follows:

1. Preparation of equipment and verification of functionality: The rain gauge will be tested with tap water to ensure it is not leaking and does not give inconsistent or false results. All directions from the rain gauge manufacturer will be followed to ensure setup is done properly so as not to deliver inaccurate results.
2. Placement of Equipment: The rain gauge will be attached to a sturdy object positioned in a way so that it will allow the free flow of rainfall into the opening for the rain gauge. The equipment will be attached to a tree or fence post and will be approximately six feet above the ground.
3. Monitoring of Equipment: The status of the rain gauge will be checked every night at 10 PM. This time is selected to coincide with the schedule of the person conducting the experiment and monitoring the results to ensure they are available at the same time each day to monitor the status of the gauge. At this appointed time, the amount of rain water in the gauge will be recorded in a notebook and the gauge will be emptied to reset the equipment for the next day's measurement.
4. An Excel spreadsheet will be prepared to record the following data: Observed Precipitation in the rain gauge and National Weather Service temperature readings.
5. The results recorded in the notebook will be transferred to two separate Excel spreadsheets as described above for future analysis. At this time, the National Weather Service website will be accessed to acquire the observed temperature as of 10 PM EST. These results will be transferred to the Excel spreadsheets as well.
6. As data is collected in the spreadsheet, conclusions will be drawn based upon mathematical averages of recorded results. Results will be broken down into average readings for each month revealing the total amount of precipitation for each month, the average temperature for each month, number of days with and without precipitation for each month, and the temperature average for days both with and without precipitation.
7. At the end of the monitoring period, a report will be prepared explaining the results of comparisons between the observed rainfall and the temperature readings provided by the National Weather Service. The researcher will attempt to draw a correlation between the recorded rainfall amounts and the observed temperature.
8. A PowerPoint report will be prepared and presented to the class highlighting the findings of the project and seeking comparisons.
9. The equipment used in the project shall be returned to the SIS Office upon completion of the project.

Data format

The data which is collected for this research will be stored electronically via Microsoft Excel 2013 in two separate files on two separate computers. The information will be stored in .xlsx format. Hard copy logs will be kept in a spiral notebook which will be used to record the information initially from the rain gauge and from the National Weather Service website and figures will be transcribed to Excel. These logs will be retained in order to verify the information contained in the above mentioned spreadsheets. The two files will be stored on separate computers to prevent the loss of data in the event of a corrupted file, mechanical failure of one of the devices, or loss by theft or fire. Metadata for the project will be created based on the Dublin Core and FGDC BDP standards.

Access to data, and data sharing practices and policies

Data from this project will be made available to the faculty at the University of Tennessee through electronic submission to Blackboard Learn. This is a grading requirement for the project. There are no restrictions or limits on public viewing of this data and the conclusions drawn from it.

Policies and provisions for re-use, re-distribution and production of derivatives

There are no restrictions on the re-use or re-distribution of the data obtained or the conclusions drawn in this research, as these products are intended for public use in the study of long term temperature trends. The data providers simply request users include the following citation in publication or presentation materials based on these products to acknowledge the University of Tennessee and Chandler White as a data source, and to credit the original research.

If possible, reprints or citations of papers or oral presentations based on this data are welcome. Such cooperation will help The University of Tennessee stay informed of how the data are being used.

Archiving of data

The data from this project will be stored permanently on the two computers owned by the creator for future recall. These files have also been preserved on a SanDisk removable thumb drive. In addition copies of the finished project, raw data, and conclusions will be submitted to the University of Tennessee through the Blackboard Learn system. Copies of the raw data and finished product will also be preserved on the UTK email server for future recall as a further means of backup.