

KALAMAZOO, MICHIGAN

SNOWFALL TOTALS

1962 - 2021



INTRODUCTION / BACKGROUND

As a student, you've probably had the experience of hearing about how much snow "we used to get" and how "you kids today have it so easy – another snow day!"

In our region of Michigan we frequently catch the edges of the snow belt. Lake effect snow, driven by our west to east weather patterns, occurs because as cold air from the upper Midwest moves across the warmer water of Lake Michigan it picks up moisture which then drops as snow as the winds move back to the colder land surface. It is not uncommon for Kalamazoo to receive significant snowfall as a result of these weather activities, although lake effect snows are more exaggerated in the counties that directly border Lake Michigan.

Finding data about "official" Kalamazoo snowfall totals has been daunting. It appears that those data were measured and recorded by personnel at the Kalamazoo State Hospital (now the Kalamazoo Regional Psychiatric Hospital) between the months of October and May for the years that included the winter of 1961-62 through 1977-78. After that winter, a gap of three years occurred, with some months being measured and some not so that the snowfall totals are incomplete. A similar situation happened after the winter of 1984-85 and it was not until 1999 that data began to be regularly measured and recorded, no longer at the psychiatric hospital on Oakland Drive, but now at Western Michigan University. These data are available due to the efforts of Robert Ruhf, Ph.D., who has compiled the data and made them available on the internet.

It is notable that many meteorological data are accessible from different sites, including Weather Underground (<https://www.wunderground.com/history/daily/KAZO/date/2022-1-12>) and the National Weather Service (<https://www.weather.gov/wrh/Climate?wfo=grr>), but if these record historical data, they are recorded as precipitation in liquid inches!

So, the question remains, "Do we get more snowfall in Kalamazoo than in the past?" Even the partial data available may be useful in examining the question. You and your data partners will examine the data and make inferences on changes in snowfall over the past half century.

DIRECTIONS

Open the data files and use Excel or Google Sheets to format and analyze the data. You will want to evaluate the information to see how the amount of measured snowfall per season has changed over many years. You should graph the data, generate a trendline (exponential, linear, other) by determining with your data partners which is most appropriate. Be sure to justify your choice. Include the equation of the trendline and its r^2 value. Establish a growth rate (positive or negative) using rolling data approximations. You may choose to add error bars to the data representation if it lends more confidence to your findings.

Be sure to keep track of any “noticings.” What do you notice as you examine the data? What is significant to you? Is the trendline predictive of the future? Why or why not? Are you confident that the data represents what is really happening? Are there data that you would like to see?

Prepare a poster that includes an appropriate title for your data analysis, a representation of your data with its trendline, a claim about the trend that you discover, based in evidence and your group should be able to justify the insights from your analysis. You may be asked to share your ideas with the larger KAMSC student group, so do your best!

REFERENCES:

Telephone conversation and email correspondence with Robert Ruhf, Ph.D. (r8ruh@wmich.edu)

http://www.x98ruh.net/kzoo_seasonal_snowfall.htm