

KALAMAZOO, MICHIGAN

MONTHLY MEAN TEMPERATURES

1948 - 2019



INTRODUCTION / BACKGROUND

As a student, you've probably had the experience of hearing about how cold "it used to get" and how "you kids today have it so easy – everybody has air conditioning now!"

In our region of Michigan, it can be hard to believe, but we have the advantage of the big lake – Lake Michigan to moderate our temperatures. Much of the heat in the summer and cold in the winter that is brought by air masses as they travel, generally from west to east, dissipate some energy as they pass over the lake. We might think of the lake as a heat sink, or source depending on the season.

Finding data about "official" Kalamazoo historical temperature data is not easy, but it is available. This data, and lots more weather information is available on a site called Weather Underground. Since its beginnings in 1993, a group of meteorologists and other interested weather observers have sought to use the internet to publish meaningful weather data from around the globe. If your interest is piqued, visit the site (<https://www.wunderground.com>) to find explore.

So the question remains, "Have the temperatures in Kalamazoo changed from the past?" You will examine the data and make inferences on changes in local temperatures over the past seventy-ish years. Enjoy the data!

DIRECTIONS – Links to Activities and Data can be found at:

<https://kamscmrc.weebly.com/kamsc-big-data-2020.html>

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 mean monthly temperatures have changed over many years. You should graph the data, generate a trendline (exponential, linear, other) by determining with 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 2-page reflection that includes a claim about your data interpretation, data that supports your claim and reasons that help explain your data. You may work with another student (group of

two is maximum) who was also absent, but be sure that your work represents both your learning about the topic and includes both your names. You should include a graph of our data for referencing. The answers to this question are not simple, so you may need to do some independent research. Be sure to reference any other sources you use. Your ideas may be shared with others, so do your best!

REFERENCES:

<https://www.wunderground.com/about/our-company>

<https://www.wunderground.com/history/airport/KAZO/2014/1/3/MonthlyHistory.html?&reqdb.zip=&reqdb.magic=&reqdb.wmo=>