MAT375 Project 2 – Statistical Analysis

- In this project, you will be comparing weather in recent years and in past years. We will be using Shippensburg University data located at: http://webspace.ship.edu/weather/ship_ob.txt
- Pick a decade between the 1930s and the 2000s.
- Pick one of the following variables: daily low temperature (Tmin), daily high temperature (Tmax), or precipitation (Prcp)
- Use Minitab (or another software) to compute the following:
    - The mean, standard deviation, histogram, and 95% confidence interval for the mean of your variable in the decade you chose
    - The mean, standard deviation, histogram, and 95% confidence interval for the mean of your variable from 1/1/2015 to the present
    - Perform a hypothesis test (2-sample T) comparing the means of your variable in the past years and the present years. Is there a significant difference, using the 5% significance level?
- Submit a paper which includes the following:
    - Which variable and years you used.
    - The mean, standard deviation, histogram, and 95% confidence interval for the mean of your variable in the past years
    - The mean, standard deviation, histogram, and 95% confidence interval for the mean of your variable from 1/1/2015 to the present
    - The P-Value for your hypothesis test, and your conclusion as to whether there was a significant difference.

Submit by D2L Dropbox by 11:59pm, Friday May 1.

(Sample project on next page)

Sample Project:

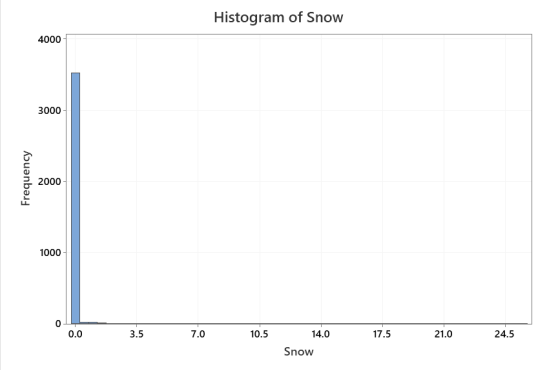
For a sample project, I used daily snowfall (inches) and the 1990s.

In the 1990s, daily snow had mean 0.1091 inches and standard deviation 0.9404 inches.

From 2010 to 2020, daily snow had mean 0.0929 inches and standard deviation 0.7830 inches.

The hypothesis test comparing the two decades had p-value = 0.422. We do not have strong evidence of a difference.

1990s snow histogram



2010-present histogram