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Dapaong Report

Based on our models, we have determined that the minimum temperatures and the maximum temperatures for the Togolese city of Dapaong are increasing and decreasing respectively.

The minimum temperature does demonstrate significant increase over time, we have come to this assumptions due to the positive slope of the line of best fit of the minimum temperature data.

Our model for the minimum temperature was a linear regression, we attempted a quadratic, however it was found that the quadratic had no significance in regards to the model. Our model was the line y=21.1118+0.0444805x. With y being Temperature as a function of Time, and x being Time.

 

The residuals of this model present in a sinusoidal manner, however without knowing how to fit a sinusoid to the data, we cannot use this information to achieve a higher level of confidence in our model.

According to our model, the maximum temperature does show a significant change, however, the change is unexpectedly a decrease in temperature.

The model we came up for the maximum temperatures was y=33.9696-0.014026x, with y being temperature as a function of time, and x being time.  

One issue with this model for the maximum temperatures is that we have one data point that is significantly lower than the rest, there is a possibility that data was recorded incorrectly that year for the maximum temperatures. Due to this significant outlier (which doesn’t even appear on the graph due to how far outside the data it is) our regression model may be more slightly skewed to decreasing. Another issue is that while the negative parameter for the slope of the regression line is significant, to the human eye it is easy to tell that there is only a slight decrease brought on by large variations in maximum temperature from year to year.