Examining the Hydrologic Properties of the Missouri River Basin

https://github.com/cwatson1013/Hydrologic_Data_Analysis_Final_Proj

Rachel Bash, Keqi He, Caroline Watson, and Haoyu Zhang

Abstract

The Missouri River provides critical water resources that drives the region's agriculture, industry, and ecosystems. This is a region that experiences surface water variability, characterized by damaging floods and severe droughts, greatly impacting the agricultural production of the area. This project highlights the changes in streamflow and water quality over time, and identifies key characteristics of the river....Twenty six sites across the lower Missouri River Basin were examined in order to get a fuller picture of the Missouri River and its tributaries over time.

<Information in these brackets are used for annotating the RMarkdown file. They will not appear in the final version of the PDF document>

Contents

List of Tables

List of Figures

<Note: set up autoreferencing for figures and tables in your document>

1 Research Question and Rationale

<Paragraph detailing the rationale for your analysis. What is the significant application and/or interest in this topic? Connect to environmental topic(s)/challenge(s).>

<Paragraph detailing your research question(s) and goals. What do you want to find out? Include a sentence (or a few) on the dataset you are using to answer this question - just enough to give your reader an idea of where you are going with the analysis.>

2   Dataset Information

<Information on how the dataset for this analysis were collected, the data contained in the dataset, and any important pieces of information that are relevant to your analyses. This section should contain much of same information as the README file for the dataset but formatted in a way that is more narrative.>

<Add a table that summarizes your data structure. This table can be made in markdown text or inserted as a `kable` function in an R chunk. If the latter, do not include the code used to generate your table.>

<C will do data table for water quality and daily values, R will do for high freq>

Table 1: Summary of Daily Value Data at 22 sites in the Missouri River Basin

Table 2: Summary of Water Quality Data in the Missouri River Basin

∞

3 Exploratory Data Analysis and Wrangling

<Include R chunks for 5+ lines of summary code (display code and output), 3+ exploratory graphs (display graphs only), and any wrangling you do to your dataset(s).>

<Include text sections to accompany these R chunks to explain the reasoning behind your workflow, and the rationale for your approach.>

4 Analysis

<Include R chunks for 3+ statistical tests (display code and output) and 3+ final visualization graphs (display graphs only).>

<Include text sections to accompany these R chunks to explain the reasoning behind your workflow, rationale for your approach, and the justification of meeting or failing to meet assumptions of tests.>
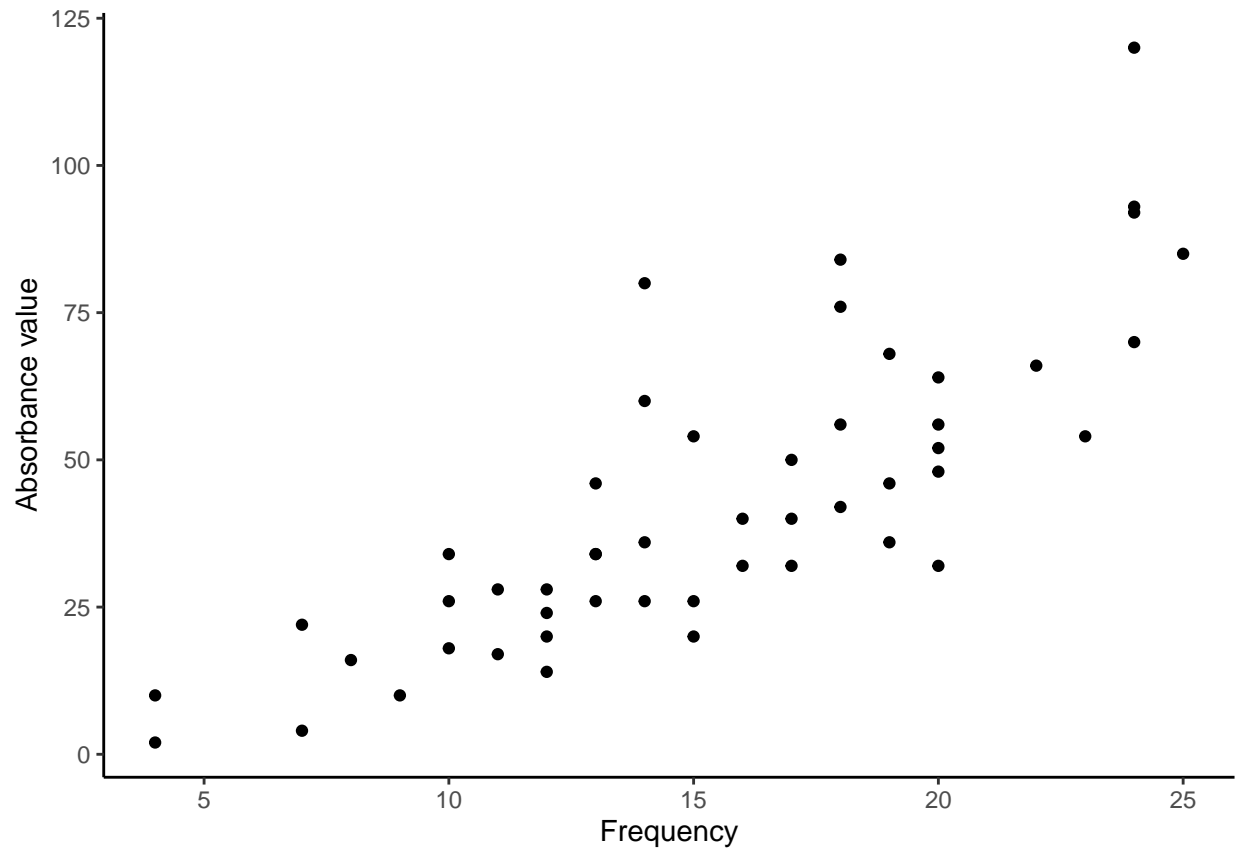
Figure 1: Absorbance frequency

5 Summary and Conclusions

<Summarize your major findings from your analyses. What conclusions do you draw from your findings? Make sure to apply this to a broader application for the research question you have answered.>

5.1 Example for autoreferencing

As seen by Figure 1, Absorbance values are not normally distributed. This is expected, as we are dealing with ecological data.