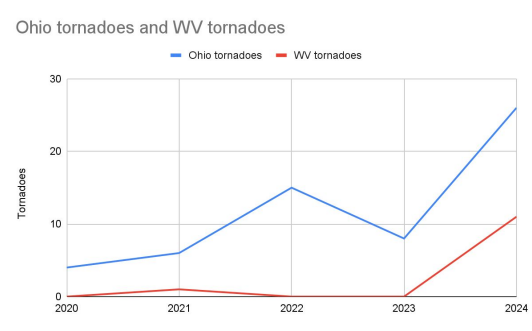
Tornadoes spawned in West Virginia vs Ohio and predict

Research Question and Hypothesis

My research question is will tornadoes spawn more in Ohio or West virginia?

My hypothesis is that tornadoes will spawn more often in West Virginia than Ohio.

Data and results



I collected tornado data from the last five years and compared them When comparing them there is a about an 80% difference.

Methods

- First gather information about past tornadoes and temperatures and the temperature the last two months in past years and this year.
- Then compare this year to the closest year in temperature.
- Then subtract the difference to the tornadoes.

Discussion and conclusion

After I calculated my data I found out that I was wrong with Ohio having a 42% chance more tornadoes spawning there.

My conclusion to my data and experiment have proven that Ohio is more suited to spawn tornadoes than West Virginia by almost half the amount West Virginia has.

Introduction

Why is this information important?

- My project is important because it could save a few lives in Ohio and in West Virginia from a tragic fate by telling people what they might expect this year for the weather.

Research

- In this field researchers have found out from “Environmental Research Letters that regional tornado outbreaks could be predicted as much as 1-3 months ahead of time by studying patterns” According to (Looking at ENSO to help predict tornadoes, 2016). So people have been advancing in this field for a long time trying new way to predicted tornadoes to save lives.

What is a tornado?

“Tornadoes are a tall, narrow, violently rotating funnel of air that extends toward the ground” according to (“Tornadoes,” 2008) and they take innocent lives every year.

Question & Answers

• Will West Virginia have more tornadoes than Ohio?	• Yes I hypothesized that West Virginia will have more tornadoes than Ohio.
• What data will this experiment use?	• This experiment will use data from the past five years with tornadoes and average temperature of different months.
• Is there any problem that might affect your answer?	• Yes there is a lot different variables that could affect my answer such as wind speed.
• Ask any question you like.	• I will answer.

Methods and procedures

Figure 1. This picture was taken by wboy.com in West Virginia

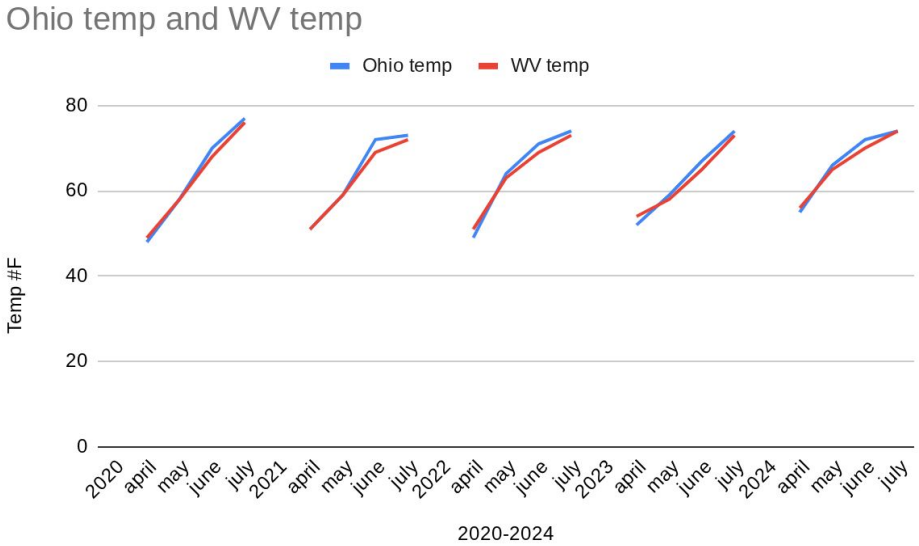
Materials: The materials I used to conduct my experiment was a website that showed me where tornadoes spawned at and at what time they spawned and the website showed us the temperature at the time. The following website names are National Centers for Environmental Information and Tornadoes Visualization Data.

Figure 2. This picture was taken by NWS in Ohio

Steps for procedures and variables

1. Gather the information I need to do the experiment (average temperature and tornado data) from the last five years April through July and October and November.
2. Compare this year's October and November to the last five years Octobers and Novembers.
3. After I calculated the number of tornadoes and temperature in each month into five groups and graphed it in two graphs (one temprecher one tornado), then six groups for October and November and graphed it for temperature.
4. After that I got the closest year in temperature from October and November to this year in those last five years and used that to predict this year's tornado forecast for the months April through July.
5. Finally I calculated the difference from the closest year to this year in temperature and put it in a percentage and subtracted that from the total number of tornadoes from that past year for each month from April through July and rounded it to the closest whole number and then we got the total amount of tornadoes to predict this year.

The **independent variables** are the location (land and climate) the **dependent variables** are the amount of tornadoes that can and will spawn in Ohio and West Virginia the **controlled variables** are the time frame and databases I used.



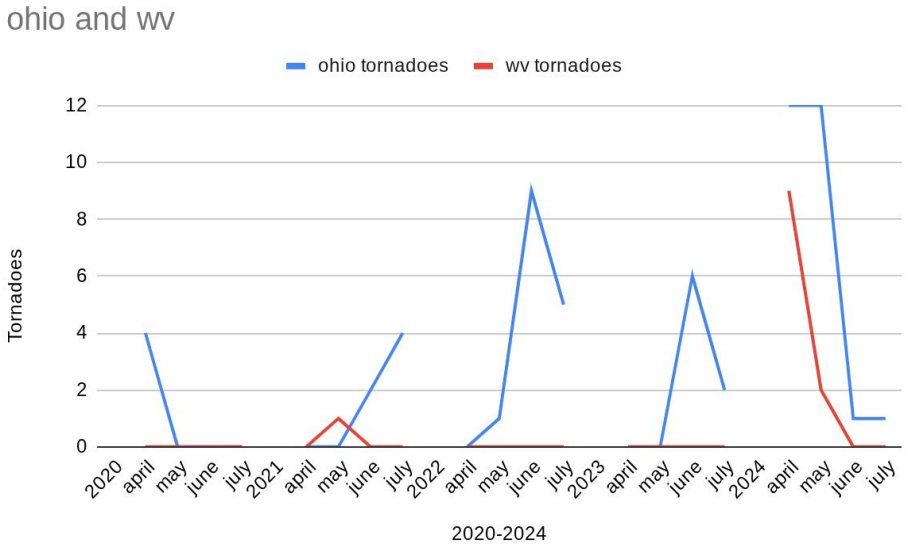


Figure 3: a graph showing the temperature from the last five years from the months April through July in Ohio and WV.

Figure 5: a graph showing the temperature from this year and the last five years from the months Oct and Sep in Ohio and WV.

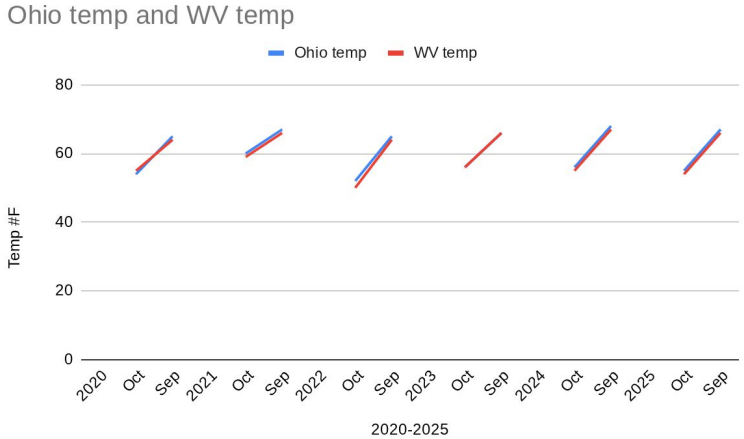


Figure 4: a graph showing the amount of tornadoes that have spawned in the last five years from the months April through July from Ohio and WV.

Results

- My data show many patterns like most of tornado in Ohio spawn between 60F and 70F and West Virginia's tornadoes spawn in upper 50F.
- Based on my data the difference between Ohio and West Virginia is 79.7% for the tornadoes that have spawn in the last five years
- My data also shows that last year in October and September is closest in temperature in temperature to this years by more than 90%
- My data also shows that the other years are very different from each other in temperature and tornadoes making them random and erratic
- With this data we can predict that West Virginia will have approximately 0-8 spawn in April, 0-2 spawn in May, 0 spawn in June, 0 spawn in July while Ohio will have approximately 0-11 spawn in April, 0-11 spawn in May, 0 or 1 spawn in June, and again 0 or 1 spawn in July by looking from the past data and the meaning Ohio will spawn more tornadoes than West Virginia this year in the months April through July.

Discussion

- The goal of this experiment was to see if with enough data if we can predict how many tornadoes will spawn in West Virginia compared to Ohio in the months between April through July.
- The results did not support the hypothesis because there is more than a 90% that tornadoes will be the same as last year that is a 42% chance that more tornadoes will spawn in Ohio than West Virginia
- A limitation or error to this experiment would be more time get information to use other tools like humanity, looking at weather graphs, wind speed, atmosphere, and the area could be smaller to get more precise information, put the areas we have and split it in groups.

Further recherch

1. This research is important to me because it could save lives even if this project could save just one life this whole project would be worth it. No one would want to lose their mother, sister, brother, or their father. So even if my data is wrong I would rather see what might happen than know nothing.
2. Some improvements would be to look farther back have more data like atmosphere and wind speed and be closer to the months I was predicting.
3. A new question that this experiment might arise would be are tornado spawns really random?

References

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