

Fairview Weather Watchers

columbia public schools

Fairview Elementary School

Home of the Falcons



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INTRODUCTION

BACKGROUND

Weather happens in the atmosphere, which is above the earth's surface. Weather is also about the movement of air in the atmosphere. Weather happens over a short period of time like from day to day. But it is different than climate. Climate happens over a long period of time. We can measure different things about weather and use it in weather forecasting. Forecasting helps us to know how to dress, how to plan our activities, and what to expect when we wake up.



Fairview Weather station

Our weather station helps us to learn more about how weather happens and different weather events like rain, tornados, hurricanes, snowstorms, and hailstorms. Hurricanes and tornados are storms involving wind and the movement of air in the atmosphere. Rain, fog, snow, ice, and hail are kinds of precipitation and are about the falling and rising of water in the air.

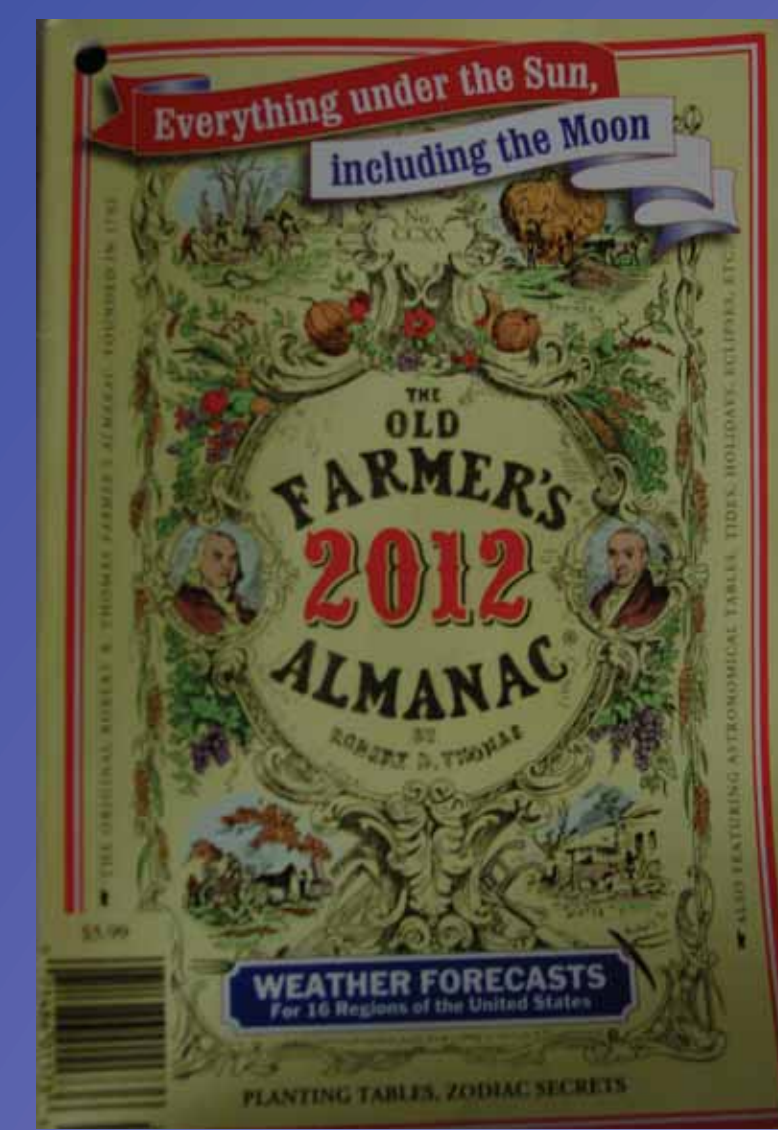


Weather station classroom console

RESEARCH QUESTIONS

We are most interested in learning about the general averages for weather occurrences in Columbia; like the average rainfall and snowfall, wind speed, and high and low temperatures for Columbia.

We also wanted to know how accurate the Old Farmer's Almanac is at predicting temperature and precipitation for Missouri.



METHODS

We picked a weather station that had all the instruments we needed to take measurements.

- Thermometer - it measures the temperature in degrees Fahrenheit (°F)
- Anemometer - it measures the wind speed in miles per hour (mph)
- Hygrometer - measures the humidity in percent (%)
- Barometer -measures air pressure in inches (in.)
- Rain gauge - measures precipitation in inches (in.)

We put the weather station on the school roof because some of the instruments had to be 6 feet or more off the ground. It also needs to be on the roof so that it can take accurate wind data, without any wind turbulence from trees.

And it is safe from kids. We take measurements every second and the station updates every 1min. Every day when we are in science we all write the wind speed, the wind direction, the temperature, the humidity, the air pressure ,and the precipitation in our science notebooks.

We are testing the Old Farmer's Almanac (OFA) by looking at their prediction for the month for temperature and precipitation. Then we look at our data and determine the mean temperature and total amount of precipitation for the month. Then we compare the means to see how close the OFA came to the actual amounts to see how good they are in making their predictions.

ACKNOWLEDGEMENTS

Fairview Elementary 5th Graders; Fairview Elementary 5th Grade Teachers (Mr. Earls, Mrs. Jacoby, Mrs. Lusby, Mrs. Wilcoxson); Fairview Elementary Principal; Fairview Elementary Staff; Ms. Hibbert; GK-12 ShowMe Nature; National Science Foundation; and Harley & Louise (classroom iguana & tortoise, resp.)

RESULTS

Figure 1. Average temperature for Fairview Elementary School versus predictions of the Old Farmers Almanac.

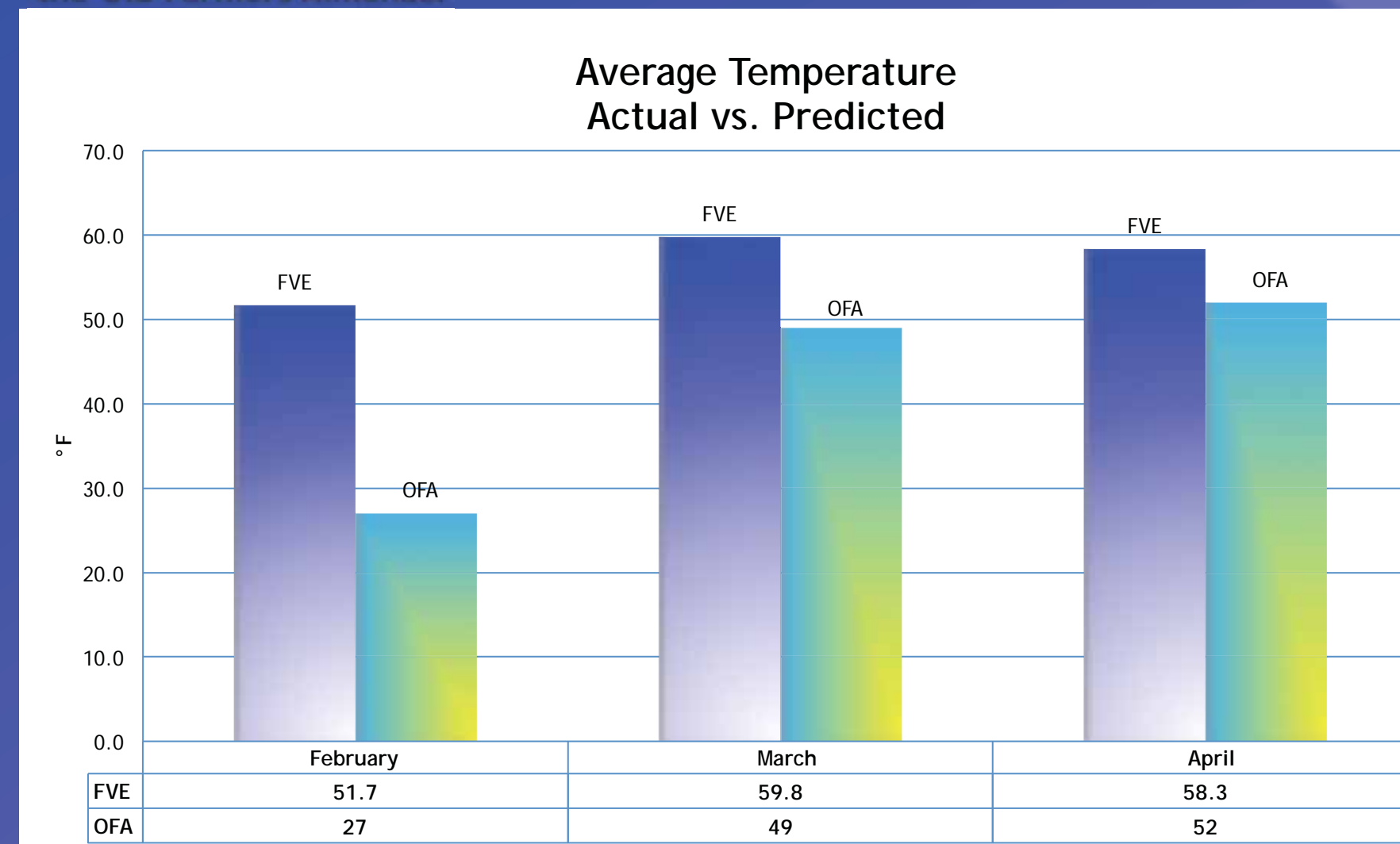


Figure 2. Precipitation for Fairview Elementary School versus predictions of the Old Farmers Almanac.

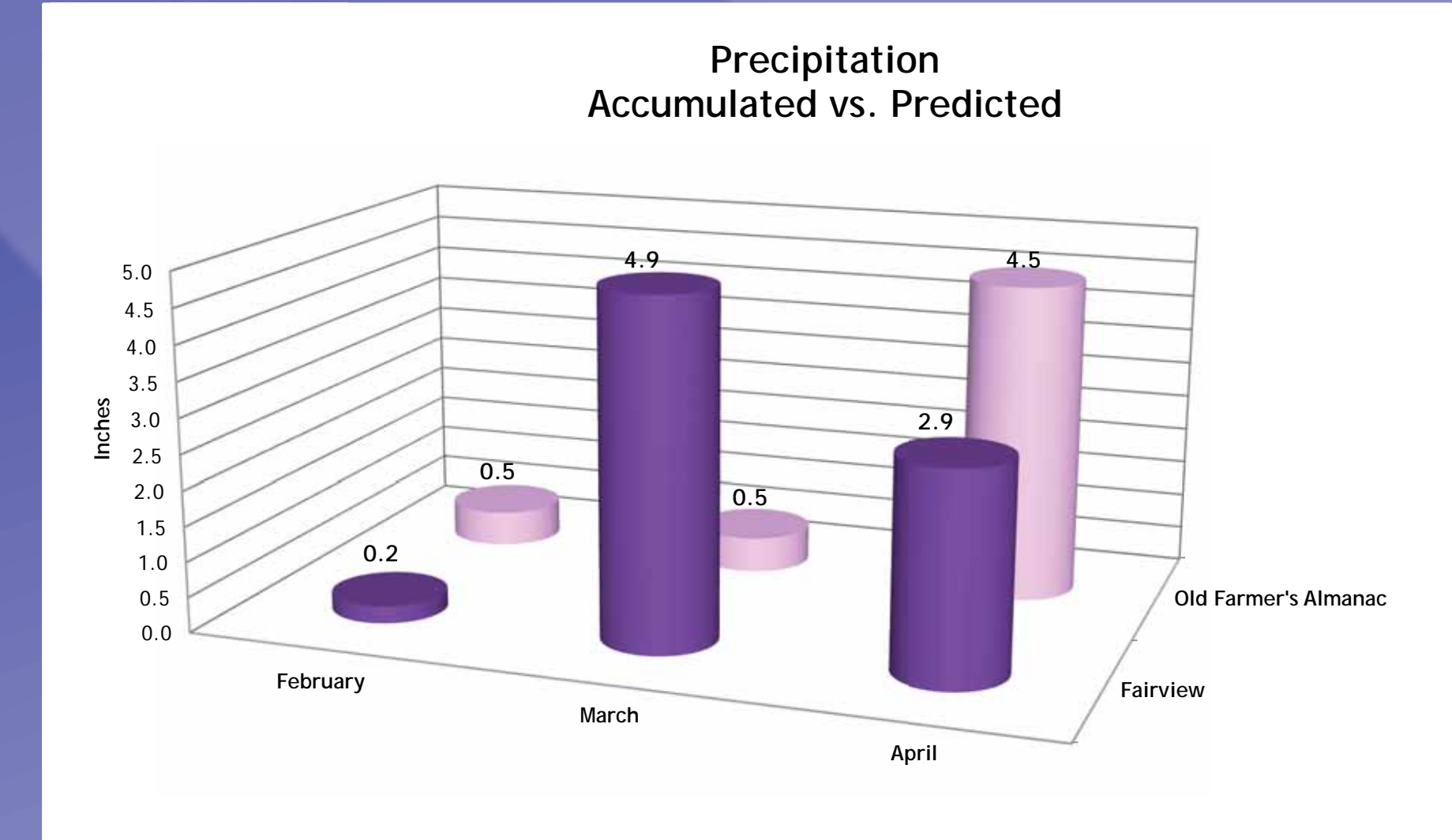


Table 1. Weather averages for Fairview Elementary School for February to April 2012.

Month	Temperature (°F)	Humidity (%)	Precipitation (inches)	Air Pressure (inches)	Wind Speed (m.p.h.)
February	51.7	45.7	0.2	30.0	3.7
March	59.8	64.2	4.9	29.9	3.4
April	57.6	64.2	2.9	30.0	2.0

Figure 3. Line graph of temperature, humidity, air pressure, and rainfall during a rainy week at Fairview Elementary School.

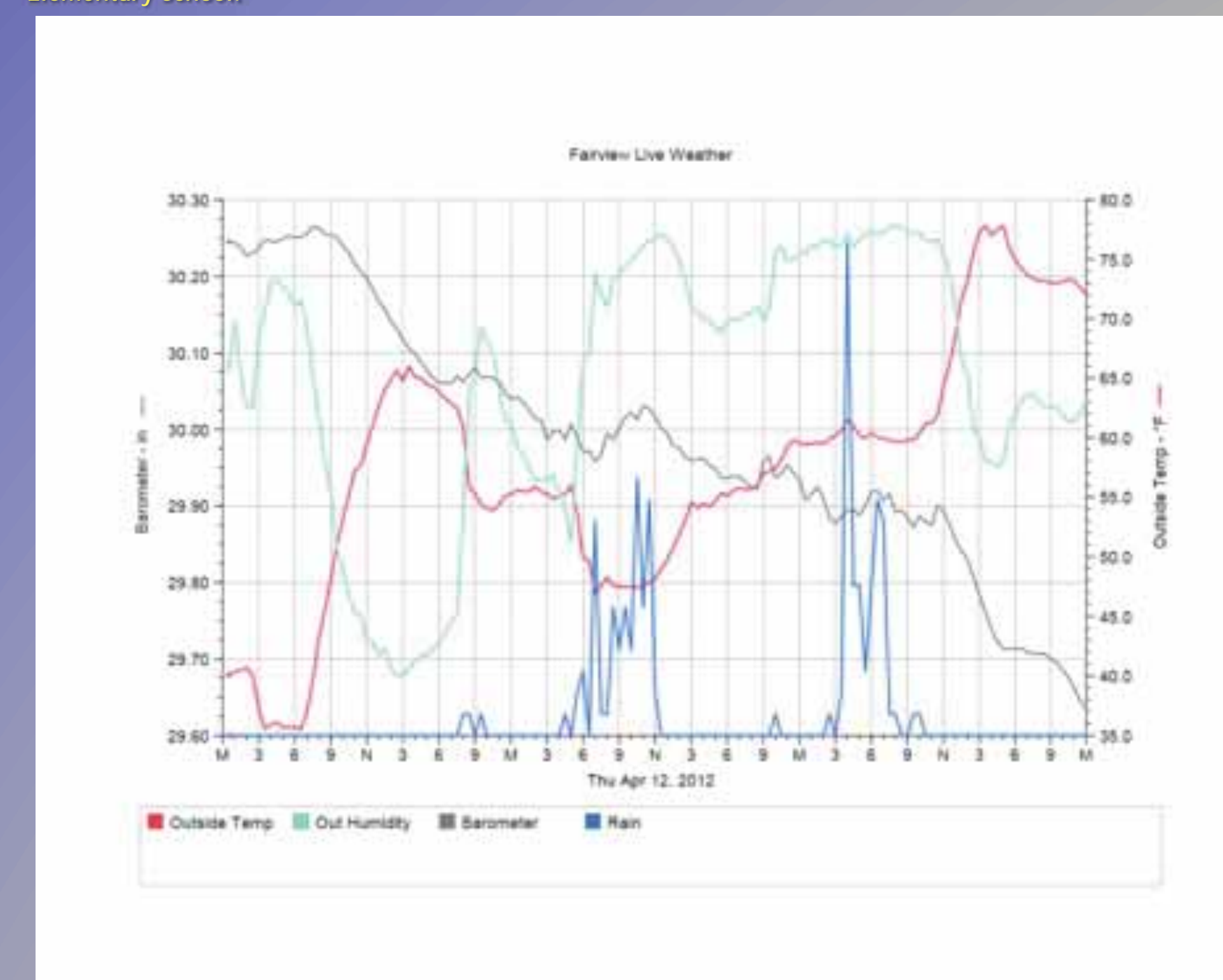
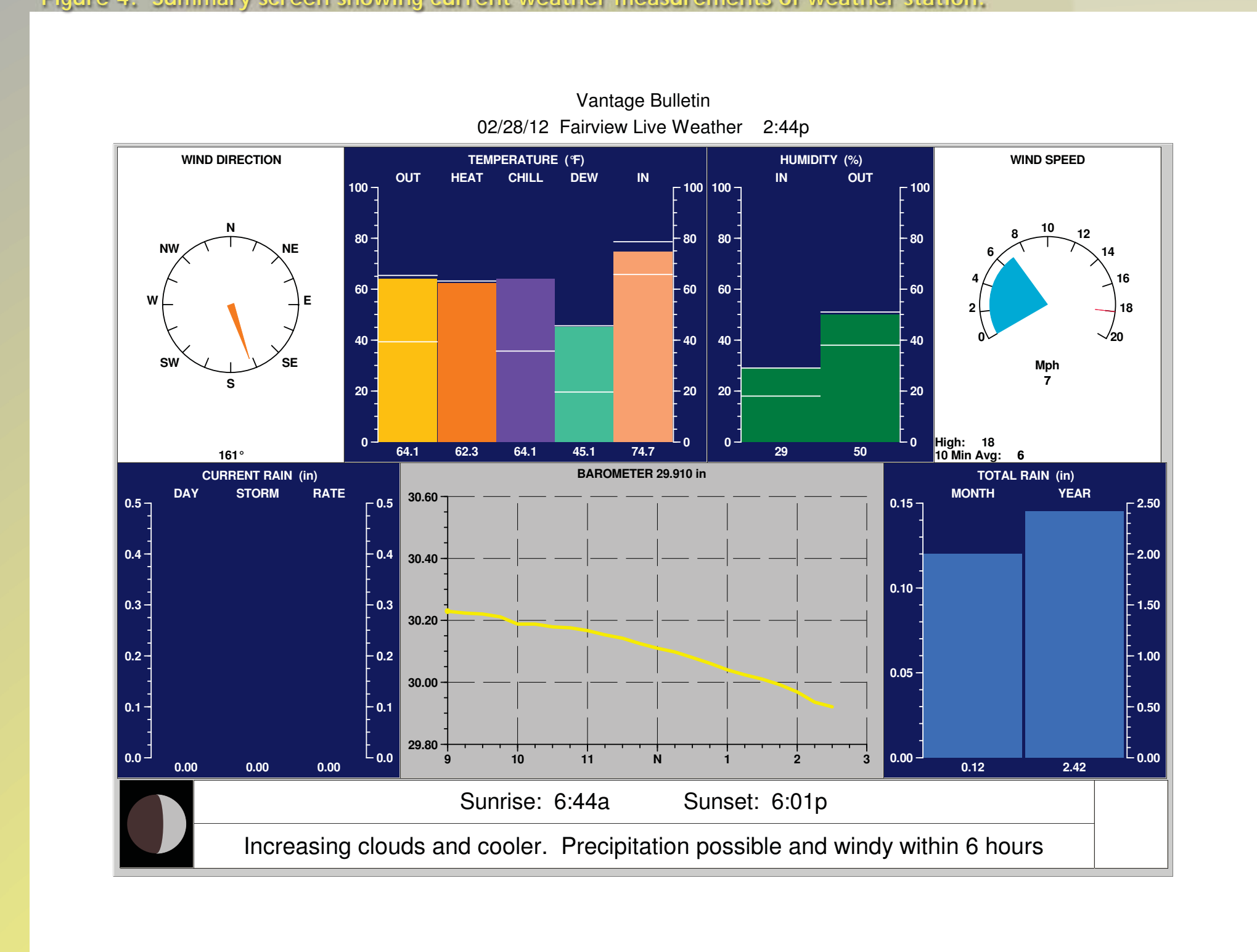


Figure 4. Summary screen showing current weather measurements of weather station.



DISCUSSION/CONCLUSION

- ✧ Our weather station data told us what we were observing about Columbia's weather patterns this winter. We did not have a typical winter season this year. It was warmer than normal.
- ☀ February and March were warmer than normal months. But April is closer to normal temperatures.
- ♣ We had less than normal level of rain for February, more rain than normal for March, with April being closer to normal rainfall.
- ✧ We found that the Old Farmer's Almanac does a pretty good job with predictions. Some things they are not very close (rainfall) on predicting, but other things they are close (temperature) with their predictions. It is harder to predict precipitation, but easier to be close when predicting temperature.
- ✧ We have a website that shares our weather data with others www.weatherlink.com/user/bearls

REFERENCES

Old Farmer's Almanac; Sanibel Elementary School (<http://sanibelseaschool.org/weather.html>); Roosevelt High school (MN) (<http://weather.wyandotte.org/>); Huerfano High School (CO) (<http://huerfano.k12.co.us/ws/weather/index.shtml>); Dan's Wild Wild Weather Page (<http://www.wildwildweather.com/>); Weather Wiz Kids (<http://www.weatherwizkids.com/weather-wind.htm>)