

Opinion Performance Task: Thunderstorms

Student Directions

Task:

Your class is studying about weather and weather patterns in the United States. You are given three sources about thunderstorms.

Read the sources carefully to **write an opinion essay** in which you give your opinion about which place you would rather live, Florida or Colorado. Make sure you clearly state your opinion and write several paragraphs supporting your opinion with reasons and details from the sources.

Sources for Performance Task:

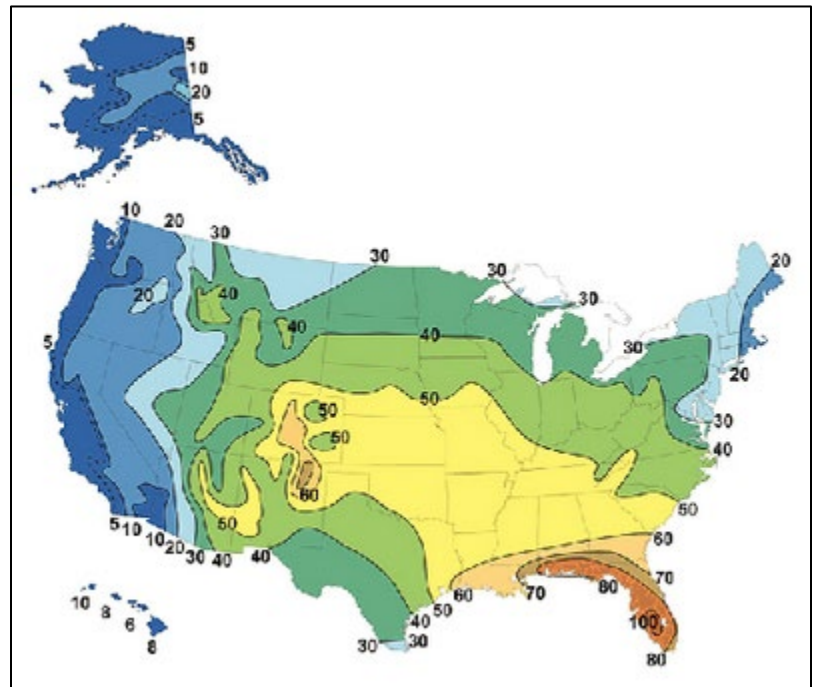
Source #1

This map from the National Weather Service shows the average number of days that places in the United States have thunderstorms. An explanation including important details follows the map.

Thunderstorms Map

Around the world, 40,000 thunderstorms are recorded each day. This means that there are about 14.6 million thunderstorms a year! The United States certainly has its share of thunderstorms.

Most thunderstorms in the United States happen between June and September. During that time some places in the United States have a thunderstorm almost every day. Other places may have more than one each day, while still other locations may have only one thunderstorm each month. Because of these great differences, the National Weather Service keeps track of thunderstorms in the United States.



There are two ways that the National Weather Service uses to find out which places in the United States have the most thunderstorms. One way is that they count the number of days thunder is heard at a weather station. The second way is that they count the actual number of days a thunderstorm is seen at a weather station. There can be a difference between these numbers, especially in a place that has more than one thunderstorm a day.

The Thunderstorm Map shows the United States, including Alaska and Hawaii. The map is sectioned into various colored sections representing how many thunderstorms each area receives. The numbers vary from 5 (Alaska) to 100 (Florida). Each state may have different numbers of storms depending upon the part of the state (ex. mountainous area vs. plains area).

The figure above shows the average number of thunderstorm days heard each year throughout the U.S. Thunderstorms happen most often in the southeastern states, with Florida having the highest number of 'thunder' days (80 to 100+ days per year). Other parts of the country, like California, get an average of five thunderstorms each year. . . .

Sources Used:

- a. Burt, C. C. (2012, June 21). *Thunderstorms: The "stormiest" places in the U.S.A. and the world*. Retrieved from: <http://www.wunderground.com/blog/weatherhistorian/thunderstorms-the-stormiest-places-in-the-usa-and-the-world>
- b. Thunderstorms: Introduction. (2010). National Oceanic and Atmospheric Association (NOAA): National Weather Service. Retrieved from http://www.srh.noaa.gov/jetstream/tstorms/tstorms_intro.htm

Source #2

This article about the weather in the Rocky Mountains is based on information from *Faces* magazine.

Thunderstorms in Sunny Colorado

by Todd Tuell

From season to season, day to day, even minute to minute, it's hard to predict the weather in the Colorado Rockies.



Thunderstorm in the Rocky Mountains by Albert Bierstadt (1859)

At different times of the year you might find an umbrella, a bottle of sunscreen, a windbreaker, or a hat and gloves lying around your house. In most parts of the country you do not use all of these things every season. However, in the Rocky Mountains you can use them every single day!

When you think of the Rocky Mountains, what comes to mind? Most people think of mountains, skiing, and lots of snow. However, the weather might surprise you. While Colorado has more than 300 days of sunshine each year, the weather is far from certain. At breakfast it could be sunny and warm. By lunchtime there could be a rumbling thunderstorm. At dinner the Rocky Mountains may have a foot of snow.

How can there be such a big difference? In the mountains, there is a constant battle of up and down wind conditions. As wind pushes up the mountain, air is cooled. Any moisture in the air **condenses*** bringing rain, snow, and sometimes hailstones. Most hailstones are about half an inch across. However, it's not unheard of to find hail the size of golf balls, baseballs, or even grapefruit.

In the warm, dry summer months, the movement of air inside of clouds that was pushed up from the mountains creates a lot of static electricity. This static electricity causes lightning and thunder. On a single stormy day in Colorado, it's possible to have 15,000 lightning strikes. It is the ice crystals that can still form within clouds in the Rockies, even in summer months, that make this large number of lightning strikes possible.

It is quite hard to predict weather in the Colorado Rockies. It can change in the blink of an eye. Rocky Mountain weather can be both as beautiful and as rugged as the mountains themselves.

***condenses:** changes from a gas or vapor to a liquid

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Thunderstorms in the Rocky Mountains, 1859. Courtesy of The AMICA Library.

Source #3

This article provides weather information for people interested in visiting Florida.

What You Should Know Before You Visit Florida by Ruth Wei



A storm over a Florida beach

Florida is known as the "Sunshine State." But did you know that Florida also has the most thunderstorms in the United States? Because of its hot and humid climate, Florida has more thunderstorms than any other

state. In some parts of the state there are over 80 days with thunder and lightning in a typical year. Because of that, Florida could also be known as the “Thunderstorm Capital” of the United States.

Florida's thunderstorms happen most often in the summertime. They can be a few minutes long or last a couple of hours. In a typical year, parts of Florida can get more than 60 inches of rain! Why does this happen? Florida’s summertime air is hot and humid. When the ocean breeze pushes this heavy air up into the cooler sky, it causes an unstable state which leads to lightning and thunder.

Florida has two main rainy seasons, during the early spring and during the warm summers. This is when most thunderstorms happen. During the rest of the year, it does not rain as much. The chart below shows the average monthly temperatures and total rainfall for the city of Orlando in central Florida.

Orlando, Florida - Average Monthly Weather and Climate (January-December 2012)

Month	Rainfall (inches)	Average Hi Temperature (degree F)(degree F)	Average Low Temperature (degree F)(degree F)
January	1.30	73.3	47.0
February	3.14	77.6	56.4
March	8.10	82.8	60.6
April	1.67	84.7	61.0
May	3.62	89.0	67.9
June	9.64	88.2	71.2
July	3.27	92.6	73.4
August	6.30	91.1	73.8
September	8.75	89.4	72.3
October	2.22	84.0	66.7
November	2.30	75.4	53.9
December	2.15	72.9	51.3

In the spring and summer, many people come to Florida to enjoy the sun, the beach, and many outdoor activities. However, visitors should remember rain and thunderstorms could be part of their vacation.

Sources used

- a. Florida Climate Center (2013). Thunderstorms. Retrieved from <http://climatecenter.fsu.edu/topics/thunderstorms>
- b. Henthorn, D. (2013). Florida's Climate and Weather. Retrieved from <http://goflorida.about.com/od/floridaweather/ss/weather.htm>
- c. National Oceanic and Atmospheric Association (2013). Climate Data Online. Data requested from <http://www.ncdc.noaa.gov/cdo-web/>
- d. Photograph of storm over a Florida beach by katgrigg. http://commons.wikimedia.org/wiki/File:Storm_over_Miami_Beach.jpg. Creative Commons Attribution-Share Alike 3.0 Unported License CC BY-SA 3.0