

Global Precipitation Measurement Mission

Expert Group- Weather and Climate in Gypsum, Kansas

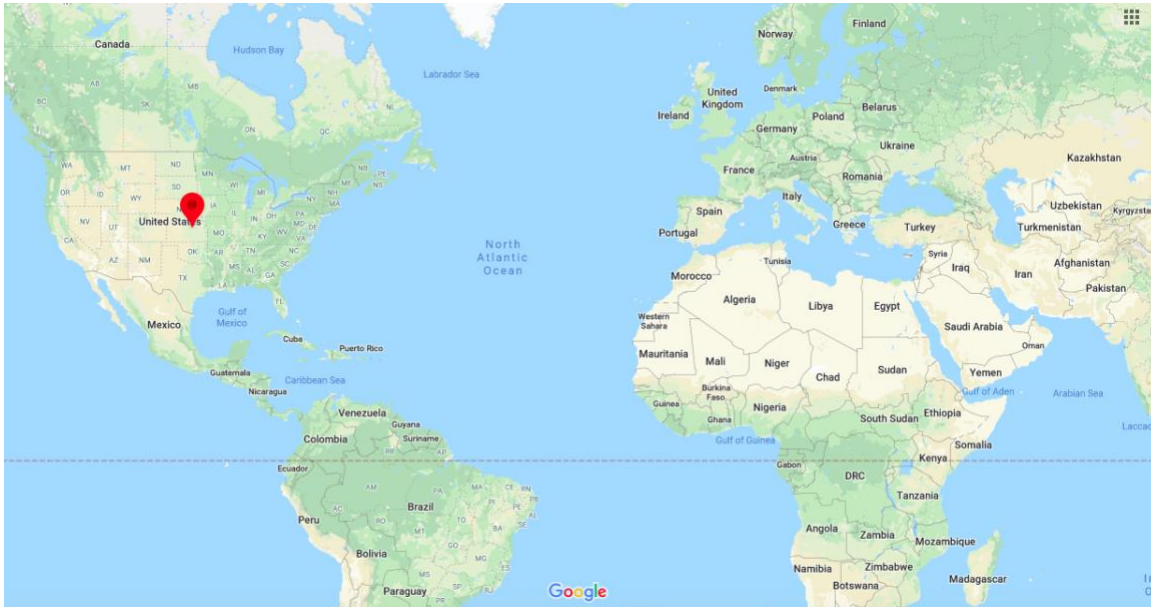


Figure 1: Developed using [Google Maps](#)

As the nation's leading wheat producer, Kansas has long been known as the “*Breadbasket of the World*”. There are over 60,000 farmers in Kansas, many of whom are female, and a third of these farmers grow wheat. Gypsum is a small city in Saline County, Kansas that is deep in the heart of wheat farming country. While it is a rather small city of only about 400 people, there are many farms in the area outside Gypsum.

In Kansas, wheat is planted in September and October, and is harvested in June and July. The wheat will sprout and grow in the fall until a winter freeze occurs, and then it will become dormant, which means it is alive but not actively growing, until spring. The wheat will mature until it is harvested during the summer. You can learn more about Kansas's wheat farmers [here](#).

Weather and Climate:

Weather and climate are different. Weather helps you decide what to wear when you go outside, and climate helps you know which clothes to have ready for possible weather conditions during that season. Weather is what is happening outside right now in the atmosphere. Climate is an average of the weather conditions over the past, and usually includes at least 30 years of weather data to determine these typical conditions. Watch [this](#) video (6:24) to learn the difference between weather and climate.

It is important to know the difference between weather and climate to understand how our climate is changing and why it is hard to predict the weather, but easy to determine the climate. Climate is based on mathematical averages and not dependent on

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atmospheric variables that are changing by the minute. Climate is determined by altitude, latitude, geography, and topography. Weather is basically the way the atmosphere is behaving, mainly with respect to its effects upon life and human activities. The difference between weather and climate is that weather consists of the short-term (minutes to months) changes in the atmosphere. Most people think of weather in terms of temperature, humidity, precipitation, cloudiness, brightness, visibility, wind, and atmospheric pressure, as in high and low pressure.

In most places, weather can change from minute-to-minute, hour-to-hour, day-to-day, and season-to-season. Climate, however, is the average of weather over time and space. An easy way to remember the difference is that climate is what you expect, like a very hot summer, and weather is what you get, like a hot day with pop-up thunderstorms. You can learn more about the differences between weather and climate [here](#).

Kansas has a temperate continental climate, with extremes between summer and winter temperatures, but only a few long periods of extreme hot or cold. The annual average temperature is 13 °C/ 5 °F. The growing season ranges from mid-April to mid-September. Normal annual precipitation ranges from less than 500 mm/20 inches in the west to more than 1,000 mm/40 inches in the southeast, with a statewide average of slightly more than 655 mm/25 inches.

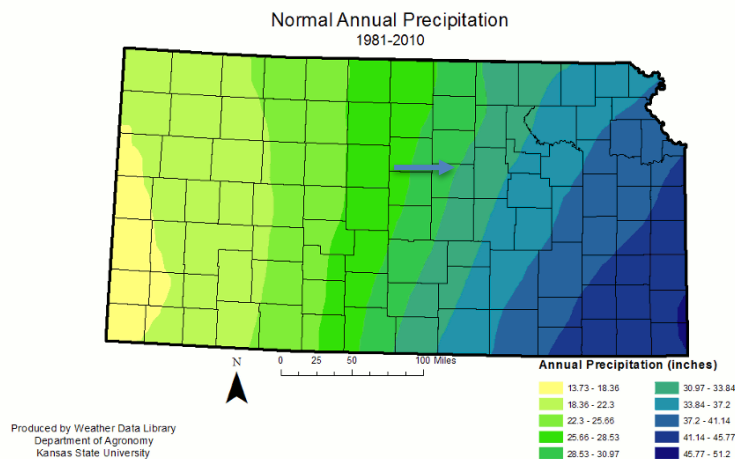


Figure 2: [Normal Annual Precipitation](#)

The map above shows the average amount of precipitation, in inches, that fell in Kansas over a 29-year period. The arrow shows approximately where Gypsum is located. You can see the variability of how much precipitation Kansas receives over the year. Variability refers to the way that the amount of precipitation varies across time or location. What factors do you think might be responsible for the variability of precipitation in Kansas?

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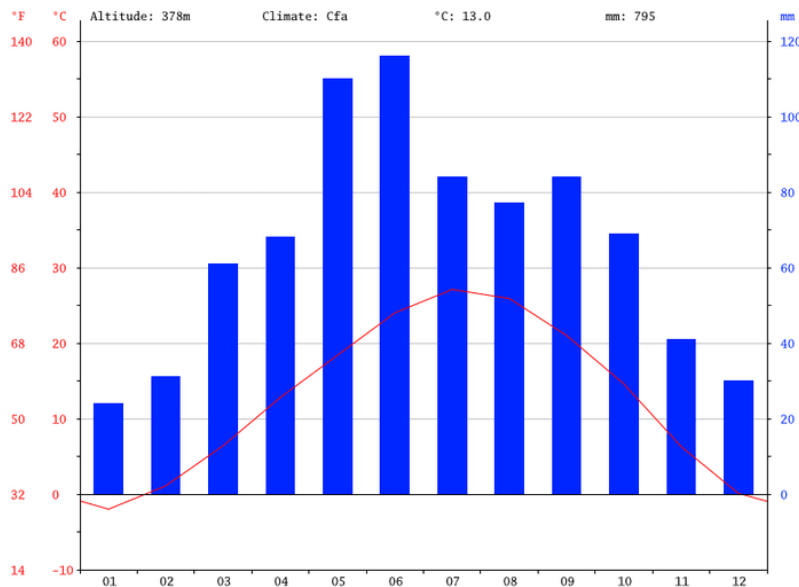


Figure 3: Climatic Averages for Gypsum Image credit: Climate-Data.org

The graph above gives us more details about the average temperature and precipitation in in Gypsum, Kansas. Remember that this data is showing average conditions based on a 30-year record of data. Take a look at the graph, and try to figure out which data is showing the average temperature, and which data is representing the average amount of precipitation.

Climate Zones

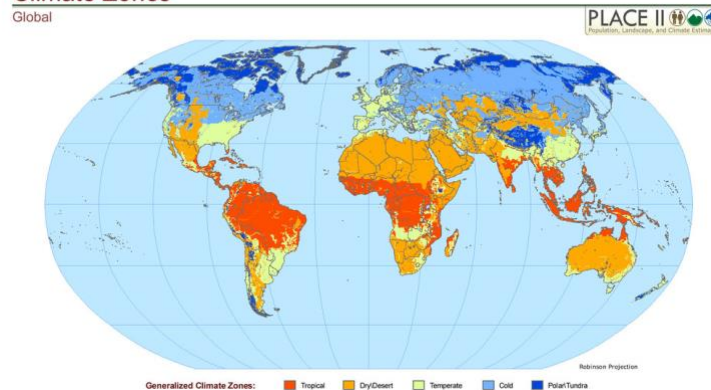


Figure 4: Global Climate Zones/ Image credit: Creative Commons

Gypsum is located in what is known as a local steppe climate. A steppe is a dry, grassy plain that is found in temperate climates, between the tropics and the polar regions. In the U.S., steppe climate zones are found in the Midwest in states such as Kansas. Steppe climates are semi-arid meaning that they receive about 25-50 cm/10-20 inches of precipitation per year. Gypsum is 378 meters above sea level. The map below shows the different climate zones around the world.

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Resources:

- [Wheat Facts](#)
- [What's Growing in Kansas?](#)
- [U.S. Wheat](#)
- [The Wheat Beat](#)
- [Encyclopedia Britannica](#)
- [NASA's Weather versus Climate](#)
- [CoCoRaHS Weather versus Climate](#)

