

Global Precipitation Measurement Mission

Expert Group- Weather and Climate in Sargodha, Pakistan



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

In Pakistan, agriculture is the largest sector of the economy, and all of Pakistan's people depend on farmers for their food. The main crops that are produced are wheat, sugarcane, rice, and maize. Of all the crops grown here, however, wheat is the biggest agricultural crop by far. The Sargodha region is known for being a major grain producer, and the main crop grown in this region is wheat. The season for growing wheat begins in February and runs through the beginning of August. As there is not always enough precipitation to water wheat crops throughout the growing season, wheat farmers will irrigate their wheat crops by flooding their fields with water.

Sargodha is the 11th largest city in Pakistan. It is also known as the City of Eagles. There are approximately 1.5 million people who live in this city (as of the last census in 2017), with another 3.9 million people living in the outlying towns. The Sargodha region includes 60 towns which lay on mostly flat fertile plains, and the Jhelum river flows on the western and northern sides of the region. It is 189m/ above sea level.

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

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the climate. Climate is based on mathematical averages and not dependent on 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](#).

Sargodha 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. In the summer months, it can get extremely hot, and the winters are fairly mild.

Like temperate grasslands everywhere, the steppes have suffered high losses due to overgrazing of livestock and conversion to cropland. As much as 70% of steppe grasslands have already been severely degraded. Some “novel threats” to the steppe include energy infrastructure, such as wind and photovoltaic farms, oil and gas extraction, and the cultivation of new crops such as biofuels. Climate change too, threatens to convert some of this arid grassland to desert. You can where Sargodha is located on the climate zone map below.

Climate Zones

Global

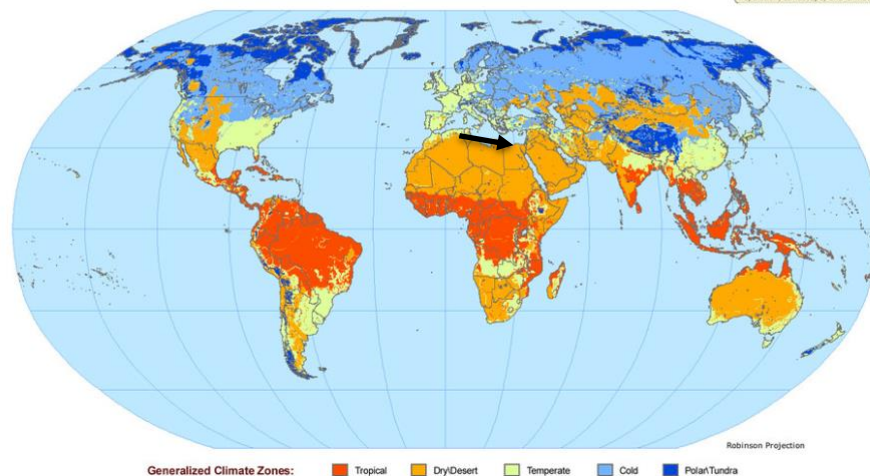



Figure 2: Global Climate Zones/ Image credit: [Creative Commons](#)

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The graph below helps to show what the average temperature and precipitation amounts are in Sargodha, Pakistan.

| | January | February | March | April | May | June | July | August | Sep- tember | October | November | December |
|----------------------------------|---------|----------|-------|-------|-------|-------|------|--------|----------------|---------|----------|----------|
| Avg. Temperature (°C) | 11.8 | 14.5 | 19.9 | 25.4 | 30.2 | 34.1 | 32.4 | 31.1 | 29.9 | 25.3 | 18.2 | 13.1 |
| Min. Temperature (°C) | 3.7 | 6.7 | 12.3 | 17.5 | 22 | 26.9 | 27.2 | 26.3 | 23.7 | 17 | 9.2 | 4.2 |
| Max. Temperature (°C) | 19.9 | 22.3 | 27.5 | 33.3 | 38.4 | 41.3 | 37.7 | 36 | 36.2 | 33.6 | 27.3 | 22 |
| Avg. Temperature (°F) | 53.2 | 58.1 | 67.8 | 77.7 | 86.4 | 93.4 | 90.3 | 88.0 | 85.8 | 77.5 | 64.8 | 55.6 |
| Min. Temperature (°F) | 38.7 | 44.1 | 54.1 | 63.5 | 71.6 | 80.4 | 81.0 | 79.3 | 74.7 | 62.6 | 48.6 | 39.6 |
| Max. Temperature (°F) | 67.8 | 72.1 | 81.5 | 91.9 | 101.1 | 106.3 | 99.9 | 96.8 | 97.2 | 92.5 | 81.1 | 71.6 |
| Precipitation / Rainfall (mm) | 17 | 21 | 29 | 22 | 25 | 24 | 105 | 114 | 28 | 8 | 5 | 12 |

The precipitation varies 109 mm | 4 inch between the driest month and the wettest month. The average temperatures vary during the year by 22.3 °C | 72.1 °F.

Figure 3: Sargodha Weather by Month/ [Image Credit: Climate-Data.org](#)

You can see the variability of how much precipitation Sargodha 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 Sargodha? When does the majority of precipitation fall in Sargodha? Pakistan has a yearly “monsoon” season. You can learn more about monsoons in this video entitled “[Monsoons: Wet, Dry, Repeat](#)” (03:48).

Now you know the difference between weather and climate, and also a lot about the climate in Pakistan and in the region around Sargodha. You will be ready to contribute to your Project Team by helping them know what the climate is like during the wheat growing season for this region.

Resources:

- [Encyclopedia Britannica: Sargodha](#)
- [Pakistan Bureau of Statistics](#)
- [National Geographic: Steppe climate](#)
- [Climate Change Profile of Pakistan](#)