Oxford
EDUCACIÓN

Study presentation

Weather and climate

Weather

Weather is the condition of our atmosphere. It has four basic **elements**.

> The **temperature** can be hot, warm, cool or cold. It is influenced by the Sun's position.

> The **wind** has two components: wind direction and wind speed.

> **Humidity** is the amount of water vapour in the air.

> **Precipitation** is water in liquid or solid form that falls from the air to the ground.

Weather

How do we measure the elements of weather?

› We measure temperature with a **thermometer**.

› We measure wind direction with a **weather vane**, and wind speed with an **anemometer**.

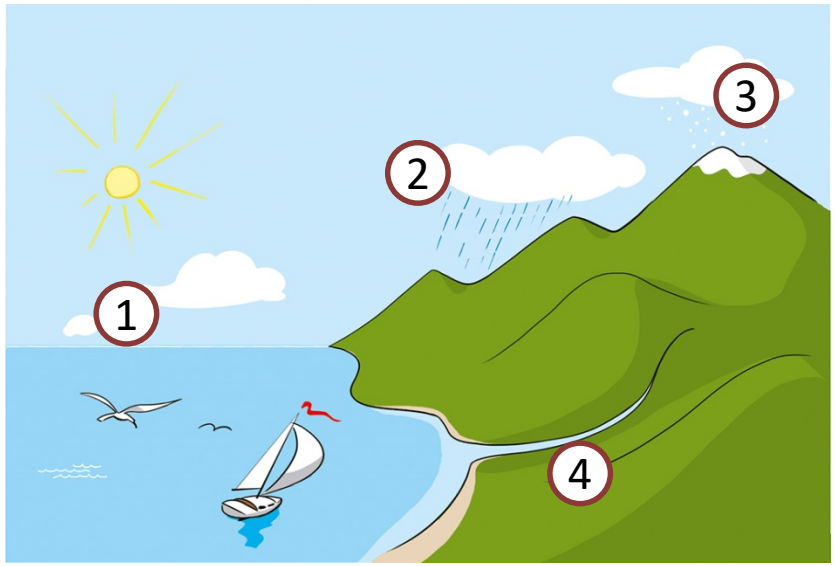
› We measure humidity with a **hygrometer**.

› A **rain gauge** is used to measure precipitation.

Clouds and precipitation

1. **Evaporation.** The Sun heats the water in the seas and oceans and causes some of the water to change into water vapour. The humidity of the air increases.

2. **Condensation.** The humid air rises through the atmosphere and cools. Some of the water vapour changes into water drops.



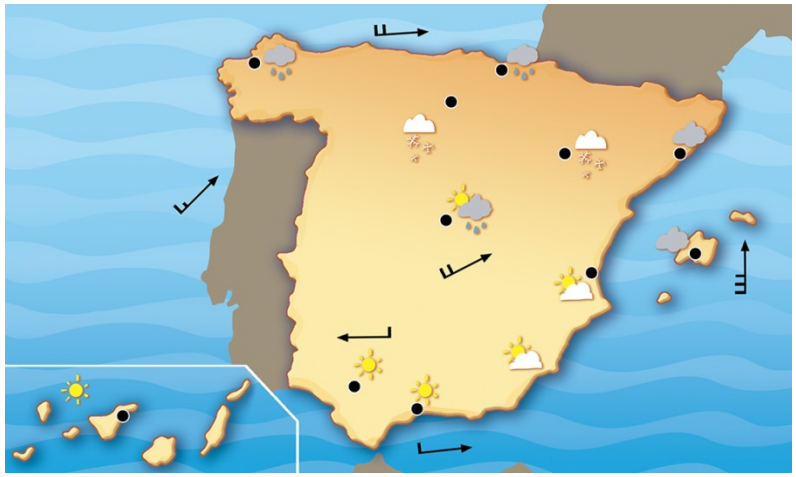
3. **Precipitation.** Lots of water drops and ice crystals together form clouds. When they become heavy, gravity pulls them down. This is called precipitation.

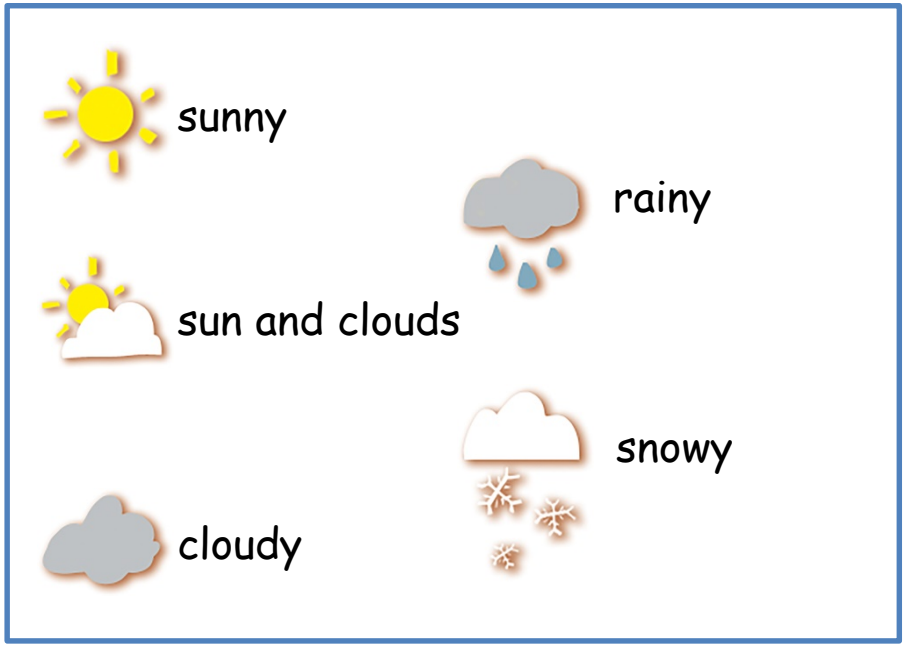
4. **Collection.** Water drops can fall as rain, snow or hail. Some precipitation falls directly into the sea and some runs off the land into rivers and groundwater.

Weather forecasts

Metereologists can use scientific data from the atmosphere to predict the weather. This is called a **weather forecast.**

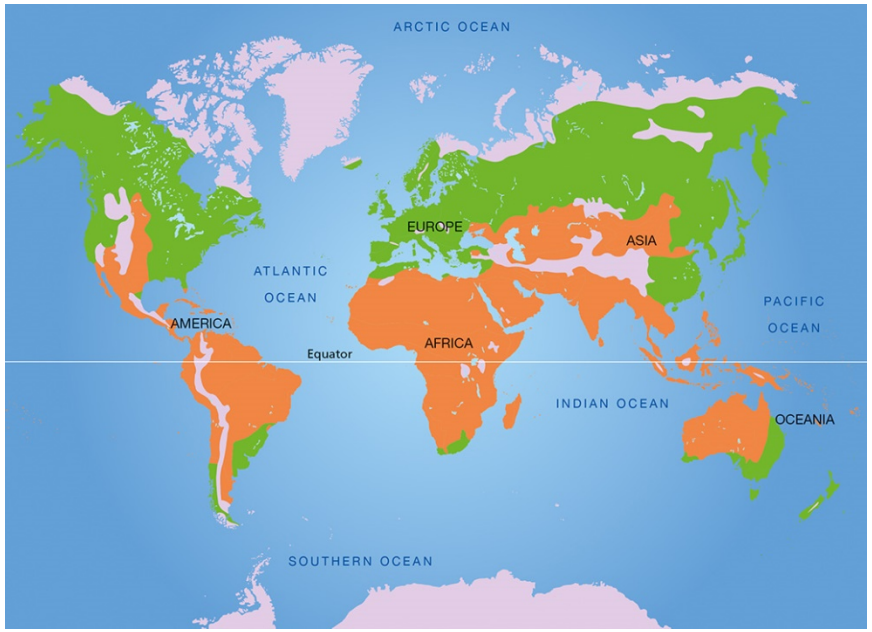
Weather maps have a key to explain the symbols they use to represent the weather.





Climate

Meteorologists also analyse weather data from the past. They use information to see weather patterns over many years in the same place.



A pattern of temperature, humidity, wind and precipitation is called a **climate**. Weather changes quickly, but climate changes slowly.

There are three main climate zones on Earth

Cold climate

Low temperatures all year round.

Temperate climate

Four seasons: summers are warm and winters are cold.

Hot climate

High temperatures all year round.

Climate

Climate changes very slowly over time. Nowadays temperatures on the Earth are increasing. It's happening faster because of human activity. This is called **global warming**.

Global warming is caused by **burning fossil fuels**. This releases gases which pollute the atmosphere.

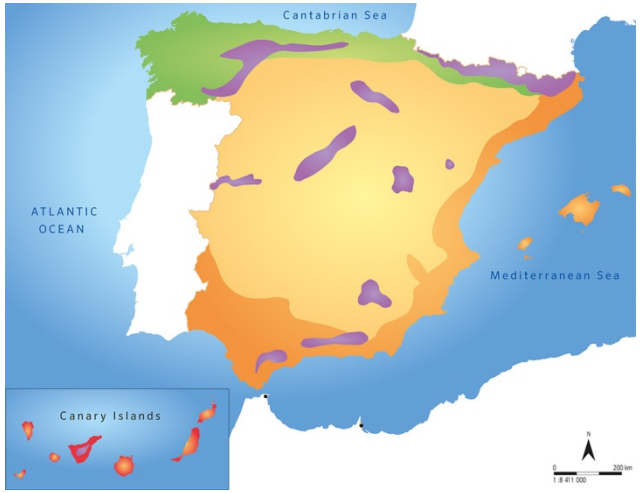
It is also caused by **deforestation**. This increases the amount of carbon dioxide in the atmosphere.

As a result of increasing temperatures, ice caps are **melting** and sea levels **rising**.

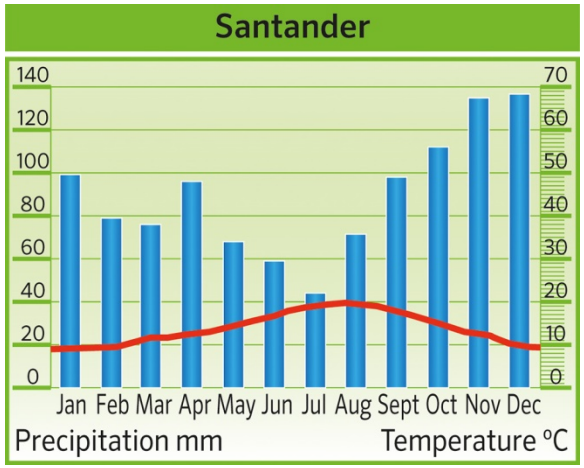
Spain's climate zones

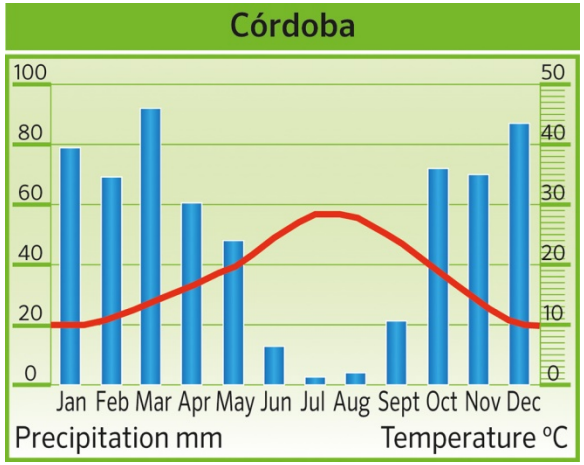
Peninsular Spain and the Balearic Islands are in the **temperate** climate zone. The Canary Islands are in the **hot** climate zone. The three main climate zones are each made up of different sub-climates, influenced by latitude, altitude and distance from the sea.

- Mountain climates have mild summers and cold winters. There's a lot of precipitation.
- Oceanic climates have mild temperatures all year.
- Continental Mediterranean climates have very hot summers and very cold winters.
- Mediterranean climates have hot summers and mild winters.
- Subtropical climates have high temperatures all year round.



Spain's climate zones





Metereologists record weather data to describe the climate of a place. This information can be shown on a **climograph**. It compares data about two elements of weather.

These climographs compare temperature and precipitation. They are a combination of a line graph and a bar chart.

The red line shows average temperatures and the blue bars show average precipitation.