

Weather and Climate

Elements of the Weather

Weather is the day-to-day condition of the atmosphere.

Climate is the average of these conditions over much longer period of time

(usually 30 - 35 years)

The key elements of the weather are:

Temperature

Pressure

Winds

precipitation (rainfall)

ocean currents

Temperature

Different temperatures are caused by the fact that the sun's rays are unevenly distributed over the surface of the earth.

Areas nearer the equator receive more concentrated sunlight

The intensity of sunlight received decreases as one moves either north or south of the equator.

Pressure

This term applies to the weight of air pressing down on the earth's surface

Warm air rises and creates less pressure than cold air

Rising warm air creates low pressure and falling cooler air creates high pressure

Pressure is measured in millibars and there are alternating belts of high and low pressure to be found across the globe.

Winds

**Wind is the movement of air
from areas of
high pressure
(an anti-cyclone)
to areas of low pressure
(a depression)**

**Winds are named after the area
from which they blow e.g. a
'south westerly' blows from the
south west towards the north
east**

Prevailing winds

**In Ireland = south west
bringing heat and rain.**

Precipitation

this term includes all forms of moisture that falls e.g. rain, hail, sleet or snow

There are three basic

Types of rain

Relief rain

Convictional rain

Cyclonic rain

Ocean Currents

these are similar to rivers of water that flow in the sea

They are caused by winds and the unequal heating of the sea in different latitudes

hot or cold

depending on whether they flow from the Equator or from the Poles

Currents can either warm or cool the winds that blow over them — thus they can make areas either warmer or cooler than one might otherwise expect for a particular latitude.

The warm North Atlantic Drift, for example, helps keep Ireland reasonably warm all year round.

Irish Weather

Irish weather is mainly influenced by the following factors:

- . South-westerly winds**
- . North Atlantic Drift**
- . The regular passage of depressions**
- . The fact that nowhere in Ireland is very far from the sea**

Areas close to the sea are a little cooler in summer and a little warmer in winter than continental areas (i.e. areas located far from the sea)

Weather Forecasting

There are a total of 15 weather stations in Ireland. They regularly measure and record the following:

Temperature

measured with a thermometer and shown on a map by means of isotherms

(lines joining areas of equal temperature)

Pressure

measured with a barometer and shown on a map by means of isobars

(lines joining areas of equal pressure)

Wind

an anemometer measures wind speed and a wind vane measures wind direction

Precipitation

measured by a rain gauge and shown on a map by means of isohyets (lines joining areas of equal rainfall)

Humidity

the amount of water vapour in the air. This is measured by a hygrometer (a wet and dry bulb thermometer)

Sunshine

a Campbell-Stokes Recorder is used to measure the amount of, and intensity of, sunshine for each day

Climates

**Climate is the average of weather
over a long period**

(usually 30 - 35 years)

Altitude

**the higher you go, the colder it
gets. Temperature drops by one
degree for every 150 metres**

Latitude

**the further one moves from the
equator, the colder it gets**

Distance from the sea

**water heats and cools more
slowly than land. Therefore
areas close to the sea are
cooler in summer and warmer
in winter than inland areas**

Prevailing Winds

winds blowing from the equator bring heat. Winds blowing over sea areas usually bring rain

Ocean Currents

warm currents off a coastline will raise temperatures. Cold currents will make temperatures drop

Types of Climates

**There are a great number of
different climates**

**They can be divided into these
broad groups:**

Hot

found near the Equator

Cold

found near the Poles

Temperate

**found between the hot and cold
regions**

Examples of Climates

Hot Climates

Equatorial climate: e.g. Amazon Basin

Hot deserts: e.g. Sahara

Cold Climates

**Borialis (coniferous forest areas)
e.g. Northern Scandinavia**

Tundra: e.g. Alaska, Greenland

Temperate Climates

**Mediterranean (warm temperate
Oceanic) e.g. Spain, California**

**Cool temperate Oceanic e.g.
Ireland.**

