

# Weather is not equal to climate!

**Weather** is the denomination for a short-term measurable status of the atmosphere in a designated spot on the earth's surface in the form of heat, cold, humidity, cloudiness or sunshine. These weather occurrences take place in the lower atmospheric layers (between 0 and 15 km above the earth's surface). To measure and predict the weather there are different measuring devices:

- **Barometer** for air pressure
- **Thermometer** for temperature
- **Hygrometer** for humidity
- **Anemometer** for wind velocity

The **climate** on the other hand is the name for the typical development of the weather conditions in a region over several years or decades. The earth is divided into different **climes**, which describe the rain periods, average temperature, drought- and cold periods and also gives information on typical vegetation.

Weather and climate play an important role in the climate change: a long term study of the weather informs us about a change in the climate of a region. According to current research, the average temperature of the earth is rising at an increasing speed. The reason for this is the way of living of the earth's inhabitants: fossil forms of energy like coal, crude oil and natural gasoline as well as other resources are being used to a larger extent and at an ever faster pace. Due to this, global warming gases, such as CO<sub>2</sub>, methane and fluorinated hydrocarbon are accumulated in the atmosphere and are warming up the planet.

This has several consequences, such as the melting of the glaciers, droughts, floods, storms and so on. Plants and animals suffer greatly under these affects and of course also mankind. Therefore, it is very important to form a collective awareness to work against this prognosis.

- **Barometer:** A barometer is a device to measure the air pressure at a certain spot. In the temperate climates (middle latitudes) a barometer is often used as a weather indicator, as changes in air pressure and „good“ and „bad“ weather often stand in correlation to another.
- **Thermometer:** The function of a thermometer is based on the expansion of a fluid, gas or other element in correlation to heat (or the lack thereof). This means that the element expands (in volume) with increasing warmth and this property is used to measure the change in temperature.
- **Hygrometer:** The hygrometer is an instrument used for measuring the moisture content in the atmosphere. Modern electronic devices use temperature of condensation (the dew point) or changes in electrical capacitance or resistance to measure humidity differences.
- **Anemometer:** An anemometer is a device used for measuring wind speed.



**A white blanket**

**covers the city - smog**

The word smog is formed from 2 words: smoke and fog. Smog is the description of a collection of harmful substances in the lower air-layers of the atmosphere, most easily visible in winter. Inversion is responsible for the formation of smog. In this case the temperature does not decrease at increasing altitude but instead increases and at the same time the air close to the ground remains relatively cold. In the higher levels a stable warm layer of air is built. This layer of warm air traps the more compact cold air underneath and forms a barrier in between of harmful substances where the sunrays cannot get through. The result is two layers of air with different temperatures which do not mix. This phenomenon is then visible as a haze.

In mountainous regions inversion develops due to the valleys laying in shade in the morning hours, at the same time as the air is warmed though the rising sun. The air in higher altitudes is warmed earlier than the air at ground level and the cold air is trapped, a typical example is the Bolzano basin.





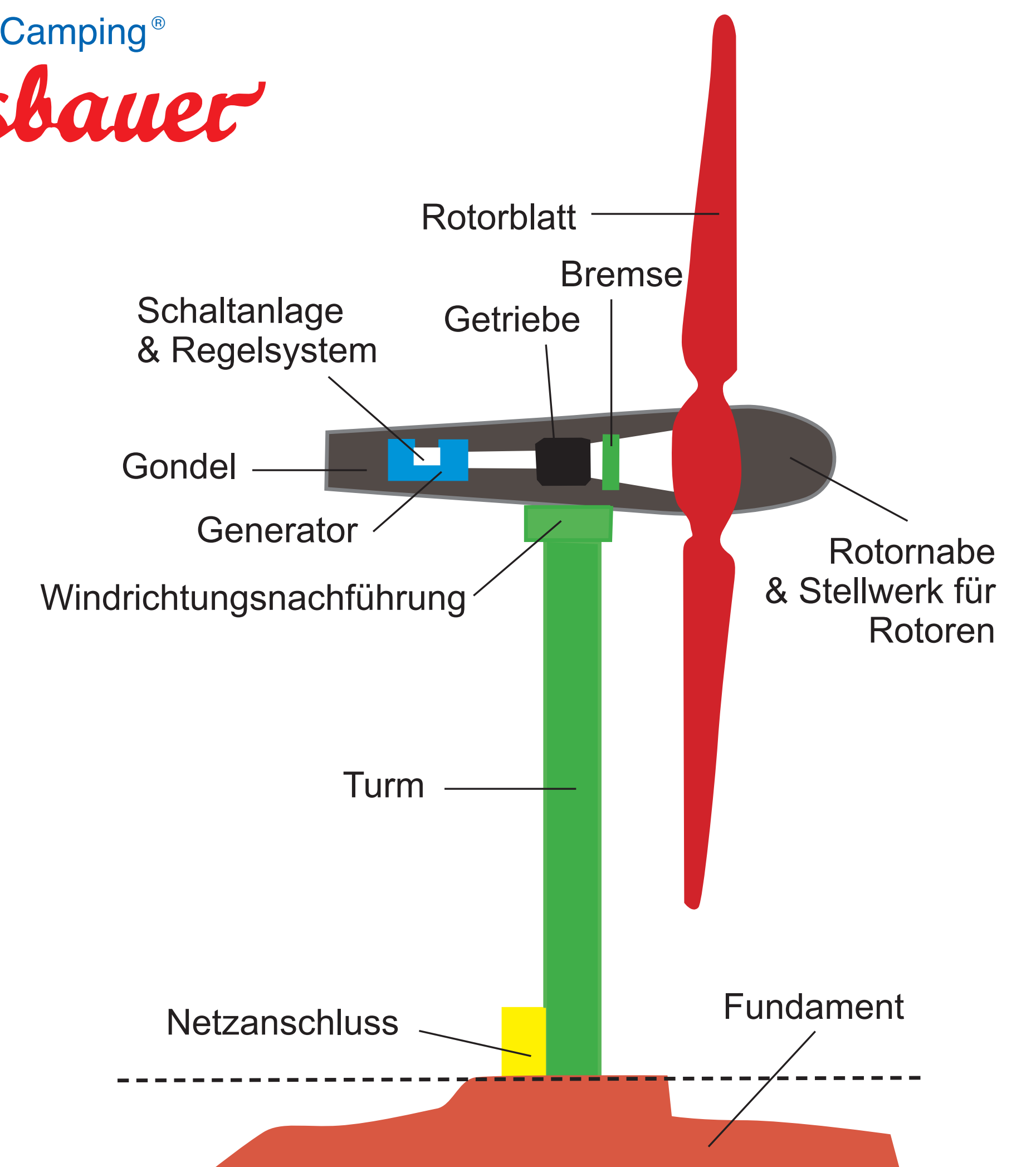
# Wind energy

Wind energy is a renewable source of energy. Energy is created by technically converting moving masses of air. Wind has been used since ancient times to produce energy for technical purposes. In previous times this mainly meant wind mills or sailing boats, today the production of power using wind generators is by far the most important form of wind energy.

When a wind generator begins to rotate, mechanical energy (rotation of the wind wheel) is transformed by a generator into power. A large yield of power can only be reached when the wind generator is placed at a spot with a large and constant wind force, for example, coastal regions, mountains, valleys and mid-sized mountains without wind-breaking barriers.

In South Tyrol the use of wind energy plays an insignificant role since the winds here are very irregular. There are also large concerns regarding the aesthetic strain on the surroundings and the noise pollution.

There are different opinions on this matter: the Alpenverein Südtirol (South Tyrol alpine club) has published an opinion paper, in which wind generators are not categorically dismissed, but demand that the all factors be thoroughly examined. A much debated project is the planned wind park on the Sattelberg (Brenner): where environmental activists fear that this will mean a massive intrusion in an untouched piece of nature. The supporters are convinced that the impact on the environment is tolerable when taking into account different precautionary measures and in view of the yield of energy.



In small, remote regions, also South Tyrol profits from wind energy. Examples are: the wind park at the Malser Haide in Val di Venosta, the wind rotor at the “Müller Hütte” in Vipiteno and the wind park “Pichlerhof” in Riva di Tures.