

Köppen-Geiger climate classification

Climate is the average atmospheric condition at a specific place or region. It represents statistically aggregated weather situations over a longer time period (typically 30 years).

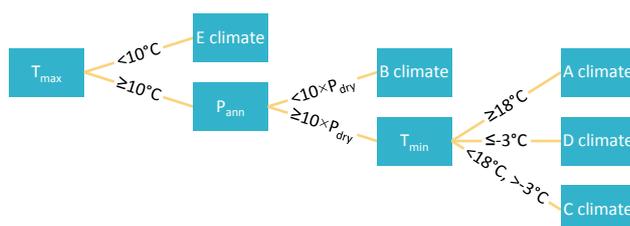
For a better understanding of climatic rules, several climate classifications give an overview of the spatial distribution of climates by highlighting climatic similarities of different regions. The most prominent example of a climate classification is the one developed by the Wladimir Köppen, which was later enhanced by Rudolf Geiger. In their classification scheme both climatologists pursue an effective approach, which means that the classification is based on observable climatic phenomena.

Classification scheme

Dependent on temperature values and amounts conditions, the Köppen-Geiger climate classification distinguishes 31 climate classes. Every class is identified by a so called *climate formula* that consists of two or three letters. The first letter represents one of the five main climate classes:

- **A: Tropical climates**
- **B: Dry climates**
- **C: Warm temperate climates**
- **D: Boreal climates**
- **E: Snow climates**

Climatic parameters relevant for the determination of the climate class are the mean temperature of the warmest month (T_{max}), the mean temperature of the coolest month (T_{min}), the total annual precipitation (P_{ann}), the annual mean temperature (T_{ann}) and a dryness index (P_{dry}). P_{dry} is $2 \cdot T_{ann}$ if rain occurs primary in winter, $2 \cdot (T_{ann} + 28)$ if rain occurs primary in summer or $2 \cdot (T_{ann} + 14)$ otherwise. The following figure illustrates which criterions are used for the determination of the main climate classes.



The second letter of the climate formula indicates the temporal distribution of precipitation (A, C, D climates), the duration of frost (E climate) or the degree of dryness (B climate).

Main classes	2nd letter	meaning
A, C, D climates	f	missing dry period
	s	dry period in summer
	w	dry period in winter
B climate	S	steppe
	W	desert
E climate	T	tundra
	F	frost

Dry-, warm temperate- and boreal climates are further characterized by a third letter that has the following meaning:

Main classes	3rd letter	meaning
B climates	h	hot
	k	cold
C and D climates	a	hot summer
	b	warm summer
	c	cool summer, cold winter
	d	extremely continental

If, for example, a climate zone is identified by the climate formula *Cfb*, the climate can be characterized as warm and temperate (C), fully humid (f) with a warm summer (b).

Time4Koeppen

In our [Time4Koeppen](#) Web-client a Köppen-Geiger climate classification can be performed on the basis of scenario datasets provided by the *Potsdam Institute for Climate Impact Research* (PIK).

For the visualization of the time-variant datasets our user-friendly interactive mapping application *Time4Maps* is used.

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