

Meteorology and space science

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Latitude, Ocean Currents, Wind, Elevation, Relief, Near Water are the factors that give every place on earth a distinct climate. Latitudinal variations that produce the differential heating of air, water, and land lead to the creation of ocean currents (driven by wind, and differences in temperature and salinity) and global winds. As for elevation, with the increase of altitude, the corresponding temperature of air decreases. It depends on the shape of the land (relief) how cold or hot it is going to be. The higher above the sea level the place is, the colder it is going to be. The water bodies of near water are providers of moisture for the landmasses of the world.

The Köppen climate classification system is most widely used for classifying the climates of the world. Realizing that the best expression of climate is native vegetation, Köppen divided the Earth's surface into climatic regions having in mind the vegetation distribution.

There are five groups based on the monthly and annual averages of temperature and precipitation. A) Moist tropical/mega thermal climates (constant high temperature at sea level or low elevation; the temperature is around 18°C or higher all year; no winter season); B) Dry (arid and semiarid) climates (Precipitation is exceeded by potential evaporation throughout the year); C) Mild temperate/mesothermal climates (average temperature is above 10°C in the warmest months, April to September, and 3°C-18° in the coldest month); D) Continental/microthermal climate (average temperature above 10 °C in the warmest and below –3 °C in the coldest month); E) Polar climates (the average temperature is below 10 °C all year)

A group climate can be found on the margins of the tropical zone, while the B group is in foggy coastal steppes. Climates C and D often co-occur. Southern

planes are located in the mild C group, while locations that are north are in the colder D group. The climates of E group occur on the near the islands of the North American Eurasian landmasses and some islands near the Antarctic Convergence. Groups A, C, D and E are defined by the average temperatures, while B is defined by the ratios of precipitation to evaporation. The first three groups have enough heat and precipitation to sustain forest and woodland vegetation.