

7. Climate Zones and Climate Change

What are the consequences of a shift in climate zones?

Backround:

The climate zones of the Earth are created by the difference in intensity of solar radiation depending on the geographical latitude. Near the equator, the angle of incidence of the Sun's rays is relatively high all year round and at certain times even perpendicular to the Earth's surface. With increasing geographical latitude, the Sun's rays reach -the Earth's surface at an increasingly flat angle, so that the irradiated energy is distributed over a larger area (see figure).



Shift of climate zones with the example of Europe

The map clearly shows the shift of climate zones towards the north (in the northern hemisphere) the end bv of this century.

At their current locations, today's trees will then no longer be adapted to the future climate. In less than a century, however, no vegetation can develop in Bavaria, for example, similar to the vegetation we see in the south of France.



180-210 = Wachstumszeit in Tagen pro Jahr

According to one study, the climate in Madrid in 2050 will resemble the climate in Marrakech today, and the climate in London in 2050 will resemble the climate in Barcelona today!

Figure sources: Shifting climate zones: bildungsserver.hamburg.de

The seasons are created by the inclination of the Earth's axis of 23.5° relative to the orbital plane of the Earth around the Sun, the so-called ecliptic. Thus, the northern hemisphere tends to tilt towards the Sun in summer and away from it in winter. (In the figure, the northern hemisphere is in winter).



2080er Jahre	180-210
25	210-240 210-240
5	240-270 90-140
120-150	832
gemäßigt	gemäßigt boreal