



Informationen zur Umwelt und für Naturreisende auf Kreta: Information about the Environment and for travellers in Crete:



Crete's climate (weather) and vegetation

Crete's climate (weather)

On Crete dominates a consistent Mediterranean climate, i.e. Mediterranean climates with dry, hot summers and mild, damp winters. The Mediterranean sclerophyll forest is the vegetation zone associated to this climate; the predominant vegetation of the Mediterranean climate is marquis or machia shrubland, characterized by small, leathery leaves with evaporation protection. During summer the climate is determined by the Azores high and brings Crete an average of 300 sunny days a year. The transition from summer to winter is quite short and according to the topography (see map ¹⁾) of the island the weather can suddenly change; it also is often windy from a slight breeze up to hurricane winds. The amount of precipitation (see map ²⁾) is low and it rains on average only at 68 days / year. The maximum average temperature per year is located at 22 ° C, the maximum average day temperature/year at 19 ° C; the latter is therefore equal to the maximum average water temperature/year.

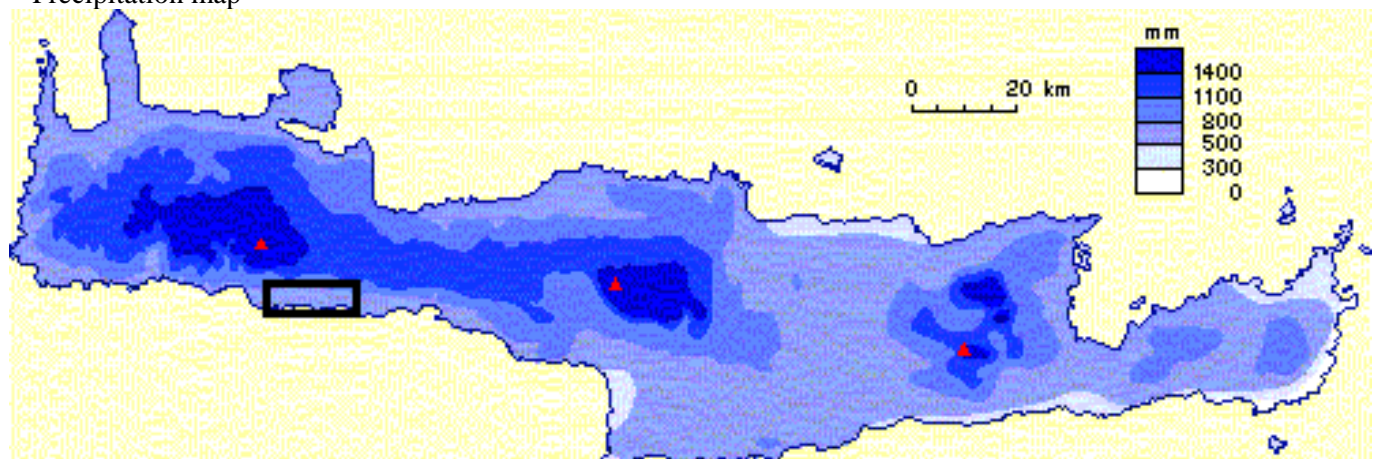
¹⁾ Topography map of Crete

Map source: www.sed.manchester.ac.uk/geography/undergraduate/fieldwork/crete/maps/index.htm



The topography is a branch of cartography/Geodesy and is concerned with measuring, illustration and description of terrain, places and landscapes. In the strict sense topography means the terrain itself – particularly with its vertical structure and the course of water and mountains. The word comes from the Greek *topos* = place and *grafein* = draw, describe, literally meaning “location description” and analogous terrain layout or map. See also our leaflet No. 081-05/E - **Geological structure of Crete**

²⁾ Precipitation map



Crete's vegetation

The Mediterranean climate of Crete affects significantly the phenology¹⁾ of soils; the geological base of Crete has also influence on vegetation. In addition factors come to affecting the plant life on specific soil types; thus they require special adaptations of plants on the corresponding soils. Also topographic factors come in which also influence and allow a characteristic classification of vegetation on certain altitudes. Therefore two basic types of altitudinal steps can distinguish in the Mediterranean: the humid altitudinal step and the arid altitudinal step. On Crete, located in the south-eastern Mediterranean is probably the arid altitudinal belt.

Within the precipitation poorest and warmest areas of Crete, along the south- and east-coast and on the south-coast offshore, species are found that can be remains of a half desert belt. On the main island probably naturally the semi desert element was in an unstable balance of competing with the sclerophyll forest. Visible differences in the vegetation over altitude ranges are not shaped in Crete.

The former forests of Crete belong, except the extra zonal relict palm groves, in the evergreen Mediterranean level. The dominant tree species were Holm oak, Kermes oak and wild olive tree, where the balance displaces with increasing aridity in favour of *Olea*, with increasing altitude in favour of *Quercus coccifera*. Above the tree line thorn- and prickled polster formations have formed. The polster-shaped growth can be interpreted as adaptation to the extreme living conditions at this stage. These plant communities are, like most of their character types, endemic in Crete. Sparse vegetation types are based on rocky places: their species include *Asperula idaea*, *Phagnalon pumilum*, *Campanula aizoides* and *Diosphera jacquinii*.

Formerly Crete was covered mainly with forest. Today it is bare over wide areas. The original evergreen forests degraded to macchia and Garrigue.

Macchia is a evergreen brushwood of 2 – 5 m highness. It is caused by human activity and is kept by fires and grazing. Would one left it to one's own it could regenerate itself again to a hard-leaf, zonal existing national vegetation. In Crete Macchia is limited to slate areas and consists pre-eminently of *Arbutus unedo* and *Erica arborea*. Hereto occur thorn brushes like *Calicotome villosa* (broom) and creepers like *Salix*- and *Tamus*-types. Outside slate areas low shrubs arise as immediate degradation product of forests, mainly consisting of bite forms of normal tree eligible species. Ordinarily dominating is *Quercus coccifera*, as well as *Olea europaea*, *Phillyrea latifolia*, *Pyrus spinosa* and *Amygdalus webbii*.

The Garrigue is mainly composed of small bushes and occurs on flat ground, dry soils under increased grazing. Their altitude expansion is ranging from the sclerophyll forest level up to the area of the sub alpine forest. Garrigue and their related dwarf shrub stocks are the most botanically varying formations of Crete. The typical representatives of Garrigue on Crete are *Coridothymus* and *Sarcopoterium*, which form heath hemispheric shrubs. They house a rich accompanying flora of Geophytes (early flowering perennial and bulbous plants), thistles and horst-grasses.



The figure right shows a "controlled fire" in the Garrigue at Drosia (west of Iraklion)

Picture: U. Kluge (12/27/2004)

About 1500 species of plants thrive on Crete, whereof approx 130 grow only on Crete. Who would like to deal more detailed with Crete's vegetation and flora can take the following two references: (German only)

DAVIS, S. (1975): Vegetationsgliederung Griechenlands (and) GREUTER, W. (1975): Die Insel Kreta – eine geobotanische Skizze.



The figures show two typical examples of Garrigue. Left: bald shrub and blossom (centre) of *Sarcopoterium spinosum* (Rosaceae) and right: *Coridothymus* (Thyme).

The figure below shows a representative of the Macchia, *Phillyrea latifolia*.



¹⁾ The word "phenology" is borrowed from Greek and means in literal translation "Science of the phenomenon"