

Soils from a warm-temperate semi-tropical ecozone (Mediterranean) with humid winter months

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Abstract

The term 'Mediterranean' is applied to a specific climate and kind of vegetation that is typical of areas surrounding the Mediterranean Sea but also found in five other world regions, namely California, central Chile, Southwest and South Australia, and the Cape region of South Africa. Because soil-forming factors vary widely among Mediterranean areas, the resulting soils share neither morphology nor genesis. Despite their considerable diversity, the body of properties of soils in the Mediterranean areas makes them significantly different from soils in subtropical and other temperate climatic regions. This justifies separate consideration of the genesis and properties of 'Mediterranean soils,' a term that is used here with no intended specific genetic meaning and encompasses all soils in areas with a Mediterranean climate.

Key points

- This chapter compiles the main aspects that explain the genesis and distribution of soils in the five Mediterranean climates of the planet.
- The main characteristic of Mediterranean soils is the discordance between high temperatures and high moisture, allowing the occurrence of a soil leaching season (winter) and soil drying season (summer).
- This particular alternation between seasons leads to coexistence of pedogenic processes such as rubefaction, illuviation and the formation of silica and calcite rich horizons.

Soil-forming factors

Climate

In Köppen's classification scheme, the Mediterranean climate is designated as a warm, temperate, rainy climate with dry summers (Cs), the wettest winter month receiving at least three times as much rain as the driest summer month. Areas with a Mediterranean climate lie mostly around the Mediterranean sea, and at latitudes of 30–45° on the west coasts of North and South America, and the SW and South coasts of South Africa and Australia. They form transitional zones between the influence of the westerlies of higher latitudes and subtropical high-pressure cells. The winter weather is dictated by the fronts of the westerlies, whereas the dry summer reflects the dominance of the midtropospheric anticyclone. A characteristic common to Mediterranean climates is their location in