Influence of Sahara Dust on soil forming in Southern Europe's ecosystems

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Abstract:

The airborne transfer of dust fraction from the Sahara Desert plays an essential soil forming role. To the description of reference soil IT008 Chromic Luvisols should be added the mixed origin of this soil between autochthonous soil formation factors and external exogenous soil formation factors such as transfer of desert dust from nearer and distant deserts. Due to a number of physical factors, these particles settle in the lower parts of these areas. Desert dust plays a significant influence on plants in the Kyustendil valley. It reduces the acidity of more acidic soils, which is why it affects crops that develop better at lower values of pH=4.5-5.5. In general, it can be expected that desert dust in certain quantities can have a positive effect on soil formation and plant development due to the enrichment of the soil with silt, clay minerals that are still in the process of degradation, introducing calcium, potassium, silicon, and other beneficial elements, this being a light fraction that is devoid of heavy metals and other harmful components. But in high amounts may cause desertification of the soil. This fraction physics-chemical is very mobile, facilitates cation exchange in the soil, also introduces the necessary organic substance in the form of polen and other biological material intercepted by the air. Silt in certain quantities improves soil structure, drainage properties, plasticity and soil evaporation. The dust increase the phosphorus content, low size particles and mechanical and chemical composition of the soil.

Key words: *Sahara Desert, dust, soil forming, plants, Chromic Luvisols*