Modelling monthly soil losses and sediment yields in Cyprus

Abstract:
The aim of this study was to map soil erosion on the Mediterranean island of Cyprus. The G2 model, an empirical model for month-time step erosion assessments, was used. Soil losses in Cyprus were mapped at a 100 m cell size, while sediment yields at a sub-basin scale of 0.62 km² mean size. The results indicated a mean annual erosion rate of 11.75 t ha⁻¹ y⁻¹, with October and November being the most erosive months. The 34% of the island’s surface was found to exceed non-sustainable erosion rates (>10 t ha⁻¹ y⁻¹), with sclerophyllous vegetation, coniferous forests, and non-irrigated arable land being the most extensive non-sustainable erosive land covers. The mean sediment delivery ratio (SDR) was found to be 0.26, while the mean annual specific sediment yield (SSY) value for Cyprus was found to be 3.32 t ha⁻¹ y⁻¹. The annual sediment yield of the entire island was found to be 2.746 Mt y⁻¹. This study was the first to provide complete and detailed erosion figures for Cyprus at a country scale. The geodatabase and all information records of the study are available at the European Soil Data Centre (ESDAC) of the Joint Research Centre (JRC).

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