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Variations in spatial and temporal distribution of rainfall erosivity index of RUSLE technology in the Mediterranean part of Turkey

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Evaluation of the spatial and temporal patterns of the energy flux of rainfalls is of significance for the interactional studies of climate, topography, soils and land use in order to plan soil and water conservation projects at a watershed scale. Since RUSLE prediction technology integrates climate data with the properties of soil, topography and land use to plan the soil and water conservation measures, spatially and temporally distributed rainfall erosivity index can be successfully used to study the effects of climate change on land-use and hydrologic dynamics of any ecosystems.

In this research, daily rainfall values recorded in the years from 1993 to 2004 at the 38 climate stations by the Turkish State Meteorological Service (TSMS) in the Mediterranean part of Turkey were analyzed for calculating rainfall erosivity index of RUSLE technology (RUSLE-R, EI_{30}). Long term trend and fluctuations in RUSLE-R associated with this time span were statistically evaluated for each station and for whole region by using Mann-Kendall and Senś T tests. Finally, a complete description of the spatio-temporal variability in the rainfall erosivity was made, and this distributed information of RUSLE-R could provide several opportunities to understand dynamic processes interactively related to climate, soil, topography and land-use and to plan integrated management systems in the Mediterranean part of Turkey.

Key words: rainfall intensity and energy, temporal and spatial variation, trend analyses, RUSLE prediction technology

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