Estimating soil erosion rates by using conversional models. A comparative study between simulated and measured on runoff plots data

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The study has been made on some runoff plots at RDCSEC Perieni, Romania, all with a cropping history, fully instrumented for measuring runoff and soil loss under different conditions concerning vegetative cover. In order to determine Cs-137 activity, from each plot soil samples were collected accordingly with a samples design disposed on six lines and were analyzed at National Institute of Physics and Nuclear Engineering "Horia Hulubei", Magurele – Bucharest.
The approach used to estimate erosion and deposition rates was founded on the comparison of measured Cs-137 inventories (kBq/m2) with a reference value that represents the inventory at a site where neither erosion nor deposition can be observed. The comparison between measured (based on historical registrations from the runoff plots since 1985) and simulated data by different models (Proportional Model, Mass Balance Model1, MB2 and MB3) showed that models worked good enough for values of erosion which ranged between 4 and 7 t * ha-1 y-1
Outside of this interval, simulated data were, generally, either underestimated (for E > 7 tha-1 y-1) or overestimated (for E < 4 t* ha-1 y-1).