

Indicator: Mean soil erosion rate

Definition: The indicator is an estimation of erosion rate in erosive areas (agriculture, forest, grassland, sparse vegetated areas) at the levels of countries (NUTS0) and regions (NUTS2)

Unit: t ha⁻¹ yr⁻¹ (Tons of soil per hectare per year)

Scale: Country; Region

First_year: 2000; **Last year:** 2016

Update_frequency: Every 3 years

Method: Soil erosion by water is one of the major threats to soils in the European Union, with a negative impact on ecosystem services, crop production, drinking water and carbon stocks. The European Commission's Soil Thematic Strategy has identified soil erosion as a relevant issue for the European Union, and has proposed an approach to monitor soil erosion. A recent [published paper](#) presents the application of a modified version of the Revised Universal Soil Loss Equation (RUSLE) model (RUSLE2015) to estimate soil loss in Europe for the reference year 2010, within which the input factors (Rainfall erosivity, Soil erodibility, Cover-Management, Topography, Support practices) are modelled with the most recently available pan-European datasets. While RUSLE has been used before in Europe, RUSLE2015 improves the quality of estimation by introducing updated (2010), high-resolution (100 m), peer-reviewed input layers. The mean soil loss rate in the European Union's erosion-prone lands (agricultural, forests and semi-natural areas) was found to be 2.46 t ha⁻¹ yr⁻¹, resulting in a total soil loss of 970 Mt annually. A major benefit of RUSLE2015 is that it can incorporate the effects of policy scenarios based on land-use changes and support practices. The impact of the Good Agricultural and Environmental Condition (GAEC) requirements of the Common Agricultural Policy (CAP) and the EU's guidelines for soil protection can be grouped under land management (reduced/no till, plant residues, cover crops) and support practices (contour farming, maintenance of stone walls and grass margins).

Main trend: The policy interventions (GAEC, Soil Thematic Strategy) over the decade (2000-2010) have reduced the soil loss rate by 9% on average in Europe. During the period 2010-2016 the mean soil erosion rate in Europe reduced only by 0.4%. It is noted that c.a 24% of EU erosive lands have erosion rates higher than the soil formation rate of 2 t ha⁻¹ yr⁻¹.

Institution: JRC

Storage: <https://esdac.jrc.ec.europa.eu/content/soil-erosion-water-rusle2015>

Validated: False (verified yes – with national/regional datasets)

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