

**Publication****A New Assessment of Soil Loss Due to Wind Erosion in European Agricultural Soils Using a Quantitative Spatially Distributed Modelling Approach****JournalArticle (Originalarbeit in einer wissenschaftlichen Zeitschrift)****ID** 3706989**Author(s)** Borrelli, Pasquale; Lugato, Emanuele; Montanarella, Luca; Panagos, Panos**Author(s) at UniBasel** [Borrelli, Pasquale](#) ;**Year** 2017**Title** A New Assessment of Soil Loss Due to Wind Erosion in European Agricultural Soils Using a Quantitative Spatially Distributed Modelling Approach**Journal** Land Degradation and Development (LDD)**Volume** 28**Number** 1**Pages / Article-Number** 335-344**Keywords** Soil degradation, GIS-RWEQ, Soil Thematic Strategy, European Union wind erosion modelling

Field measurements and observations have shown that wind erosion is a threat for numerous arable lands in the European Union (EU). Wind erosion affects both the semi-arid areas of the Mediterranean region as well as the temperate climate areas of the northern European countries. Yet, there is still a lack of knowledge, which limits the understanding about where, when and how heavily wind erosion is affecting European arable lands. Currently, the challenge is to integrate the insights gained by recent pan-European assessments, local measurements, observations and field-scale model exercises into a new generation of regional-scale wind erosion models. This is an important step to make the complex matter of wind erosion dynamics more tangible for decision-makers and to support further research on a field-scale level. A geographic information system version of the Revised Wind Erosion Equation was developed to (i) move a step forward into the large-scale wind erosion modelling; (ii) evaluate the soil loss potential due to wind erosion in the arable land of the EU; and (iii) provide a tool useful to support field-based observations of wind erosion. The model was designed to predict the daily soil loss potential at a ca. 12 spatial resolution. The average annual soil loss predicted by geographic information system Revised Wind Erosion Equation in the EU arable land totalled 0.53–1–1, with the second quantile and the fourth quantile equal to 0.3 and 1.9–1–1, respectively. The cross-validation shows a high consistency with local measurements reported in literature.

**Publisher** Wiley**ISSN/ISBN** 1099-145X**edoc-URL** <http://edoc.unibas.ch/52871/>**Full Text on edoc** Available;**Digital Object Identifier DOI** 10.1002/ldr.2588**ISI-Number** WOS:000393800400032**Document type (ISI)** Article