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Keywords

soil loss, universal soil loss equation

Short description of the dataset/summary

Various pan-European datasets and published empirical relationships were used to approximate 5 factors of the universal soil loss equation (USLE, Table 1 in the related publication). Different approaches for C and R were applied to consider different environmental conditions in northern and southern Europe (Gericke 2015, Fig. 1).

This soil-loss map (see Appendix) is the product of these factors: E = R.C.K.L.S with

L - slope-length factor, derived from the global SRTM digital elevation model (Jarvis et al. 2008)
S - slope angle, calculated from SRTM
R - rainfall and runoff factor, taken from long-term average annual precipitation for European catchments (Vogt et al. 2007)
C - vegetation cover, derived from European and global data on land use and land cover (Corine Land Cover 2006, GlobCover v2.2) (European Environment Agency 2010, 2010a, 2010b, European Space Agency 2008)
K - soil erodibility, derived from the European Soil Database (European Commission & European Soil Bureau Network 2004)

The unit of E is tons/hectare. The spatial resolution of the gridded dataset (100 metres) was determined by the digital elevation model and the land use data.

In the related publication (Gericke 2015), this map was named "2kbc". It was compared to other realisations and found to be most suitable to explain the spatial variability of suspended-solids yields and sediment delivery ratios (SDR) of river catchments in various European regions.

This map can be used in regional to continental studies to obtain regional sediment delivery ratios or to estimate sediment

yields of large river catchments. Users of this map should keep in mind the inherent limitations of the USLE and sediment yields, as well as the accuracy of the underlying datasets when assessing results. Please note that none of the alternative maps in the related study was found to optimally predict SDR and sediment yields everywhere.

General information

dataset entry ID:	FWM_13
name of the dataset:	
full name of the dataset:	Soil loss map to assess sediment delivery ratios of European river catchments
dataset short name:	European soil loss map
type of dataset:	environmental characteristics database
data type:	raster data (e.g. GeoTIFF)
science keywords according to GCMD:	
topic:	Land Surface
keywords:	erosion, suspended solids, degradation
ISO topic category according to ISO 19115:	
	Environment, Geoscientific Information

Technical and administrative specifications

data format:	others/specify
others/details:	Erdas Imagine .img format (HFA)
operating system:	all operating systems
current access level:	internal
currently available through GBIF:	no
exchange planned:	no
data in data repository:	no
Do you plan to publish the data on the Freshwater Biodiversity Data Portal:	
	no
update level:	completed
documentation:	
type:	scientific paper
language:	English
others/details:	see "dataset related references" below
contact details:	
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Intellectual property rights and citation

dataset creator (data compiler):
contact name: Andreas Gericke
contact email: gericke@igb-berlin.de
contact institution: IGB Berlin
data contributors to/owners of this dataset:
single
criteria for using this dataset: The dataset needs to be requested from dataset creator with specific conditions of use.
citation of this dataset:
author(s): Gericke, A.
title: Soil loss map to assess sediment delivery ratios of European river catchments
year: 2017
citation of the metadata:
author(s): Gericke A.
title and journal (name, number, pages): Metadata of a soil loss map to assess sediment delivery ratios of European river catchments. Freshwater Metadata Journal 20: 1-6
year: 2017
doi: https://doi.org/10.15504/fmj.2017.20
dataset related references:
reference 1:
author(s): Gericke, A.
title: Soil loss estimation and empirical relationships for sediment delivery ratios of European river catchments. International Journal of River Basin Management 13: 179-202.
year: 2015
doi: https://doi.org/10.1080/15715124.2014.1003302

General data specifications

regional coverage of the dataset:
scale of the dataset: continental
continents: Europe
spatial extent (bounding coordinates):
southernmost latitude [°]: 35
northernmost latitude [°]: 60
westernmost longitude [°]: -10
easternmost longitude [°]: 40
minimum altitude: 0 metres
maximum altitude: 4000 metres
countries: Europe: Albania, Austria, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Denmark, Estonia, France, Germany, Gibraltar, Greece,

	Hungary, Ireland, Italy, Latvia, Liechtenstein, Lithuania, Luxembourg, Macedonia, Moldova, Montenegro, Netherlands, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Switzerland, Ukraine, United Kingdom, Kosovo, Pridnestrovie (Transnistria)
ecosystem type:	general freshwater
comments:	The modelled *average* soil loss was derived from the average precipitation 1975-1999 (CCM2) and land use maps for 2006 (CLC, GlobCover).

Site specifications

coordinate system/grid data:	projected, others others: EPSG:3035
datum (e.g. WGS84):	ETRS89
grid data available:	yes
resolution:	100
unit:	m
comments:	Definition of the coordinate system as well-known text: PROJCS["ETRS89 / ETRS-LAEA", GEOGCS["ETRS89", DATUM["European_Terrestrial_Reference_System_1989", SPHEROID["GRS 1980",6378137,298.257222101, AUTHORITY["EPSG","7019"]], AUTHORITY["EPSG","6258"]], PRIMEM["Greenwich",0, AUTHORITY["EPSG","8901"]], UNIT["degree",0.01745329251994328, AUTHORITY["EPSG","9122"]], AUTHORITY["EPSG","4258"]], UNIT["metre",1, AUTHORITY["EPSG","9001"]], PROJECTION["Lambert_Azimuthal_Equal_Area"], PARAMETER["latitude_of_center",52], PARAMETER["longitude_of_center",10], PARAMETER["false_easting",4321000], PARAMETER["false_northing",3210000], AUTHORITY["EPSG","3035"], AXIS["X",EAST], AXIS["Y",NORTH]]

Climate and environmental data

climate related data:	no data available
environmental data:	no parameter data per catchment available no parameter data per site avaiable
physico-chemistry data:	no data available

Other specifications

GIS layers, shapes related to the dataset:

land use
environmental variables (freshwater or terrestrial)
climatic variables (current and predictions)
others/specify

others (specify): digital elevation model

availability of photos: no

availability of maps: no

quality control procedures:

Were any quality control procedures applied to your dataset?

no

comments: The average soil loss is in tons per hectare per grid cell. It was derived from elevation (Jarvis et al. 2008), land use and land cover in 2006 (European Environment Agency 2010, 2010a, 2010b, European Space Agency 2008), soil data (European Commission & European Soil Bureau Network 2004), and average annual precipitation 1975-1999 (Vogt et al. 2007).

European Commission & European Soil Bureau Network 2004. The European Soil Database distribution. Version 2.0 [CD-ROM] EUR 19945 EN. http://esdac.jrc.ec.europa.eu/content/european-soil-database-v20-vector-and-attribute-data

European Environment Agency 2010. Corine Land Cover 1990 raster data. Version 13. http://www.eea.europa.eu/data-and-maps/data/ds_resolveuid/8b12c16a3c93eec2d6944abe42388d90

European Environment Agency 2010a. Corine Land Cover 2000 raster data. Version 13. http://www.eea.europa.eu/data-and-maps/data/ds_resolveuid/b00116e51c79865cf89a84162b8fd21e

European Environment Agency 2010b. Corine Land Cover 2006 raster data. Version 13. http://www.eea.europa.eu/data-and-maps/data/ds_resolveuid/a645109f7a11d43f5d7e275d81f35c61

European Space Agency 2008. GLOBCOVER, ESA Globcover Project, led by MEDIAS-France/POSTEL. Version 2.2. http://due.esrin.esa.int/page_globcover.php

Jarvis A., Reuter H. I., Nelson A. & Guevara E. 2008. Hole-filled SRTM for the globe. Version 4. Available from: CGIAR-CSI SRTM 90 m Database. http://srtm.csi.cgiar.org

Vogt J., Soille P., de Jager A., Rimaviciute E., Mehl W., Foisneau S., Bodis K., Dusart J., Paracchini M-L., Haastrup P., Bamps C. 2007. A pan-European river and catchment database. Luxembourg: Office for Official Publications of the European Communities.
http://ccm.jrc.ec.europa.eu/php/index.php?action=view&id=23

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References

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http://www.eea.europa.eu/data-and-maps/data/ds_resolveuid/8b12c16a3c93eec2d6944abe42388d90

European Environment Agency, 2010. Corine Land Cover 2000 raster data. Version 13.
http://www.eea.europa.eu/data-and-maps/data/ds_resolveuid/b00116e51c7 9865cf89a84162b8fd21e

European Environment Agency, 2010. Corine Land Cover 2006 raster data. Version 13.
http://www.eea.europa.eu/data-and-maps/data/ds_resolveuid/a645109f7a1 1d43f5d7e275d81f35c61

European Space Agency, 2008. GLOBCOVER, ESA Globcover Project, led by MEDIAS-France/POSTEL. Version 2.2.
http://due.esrin.esa.int/page_globcover.php

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https://doi.org/10.1080/15715124.2014.1003302

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Vogt J., Soille P., de Jager A., Rimaviciute E., Mehl W., Foisneau S., Bodis K., Dusart J., Paracchini M-L., Haastrup P., Bamps C., 2007. A pan-European river and catchment database. Luxembourg: Office for Official Publications of the European Communities. http://ccm.jrc.ec.europa.eu/php/index.php?action=view&id=23

Appendix

The appendix shows a map of the dataset (Fig. 1).

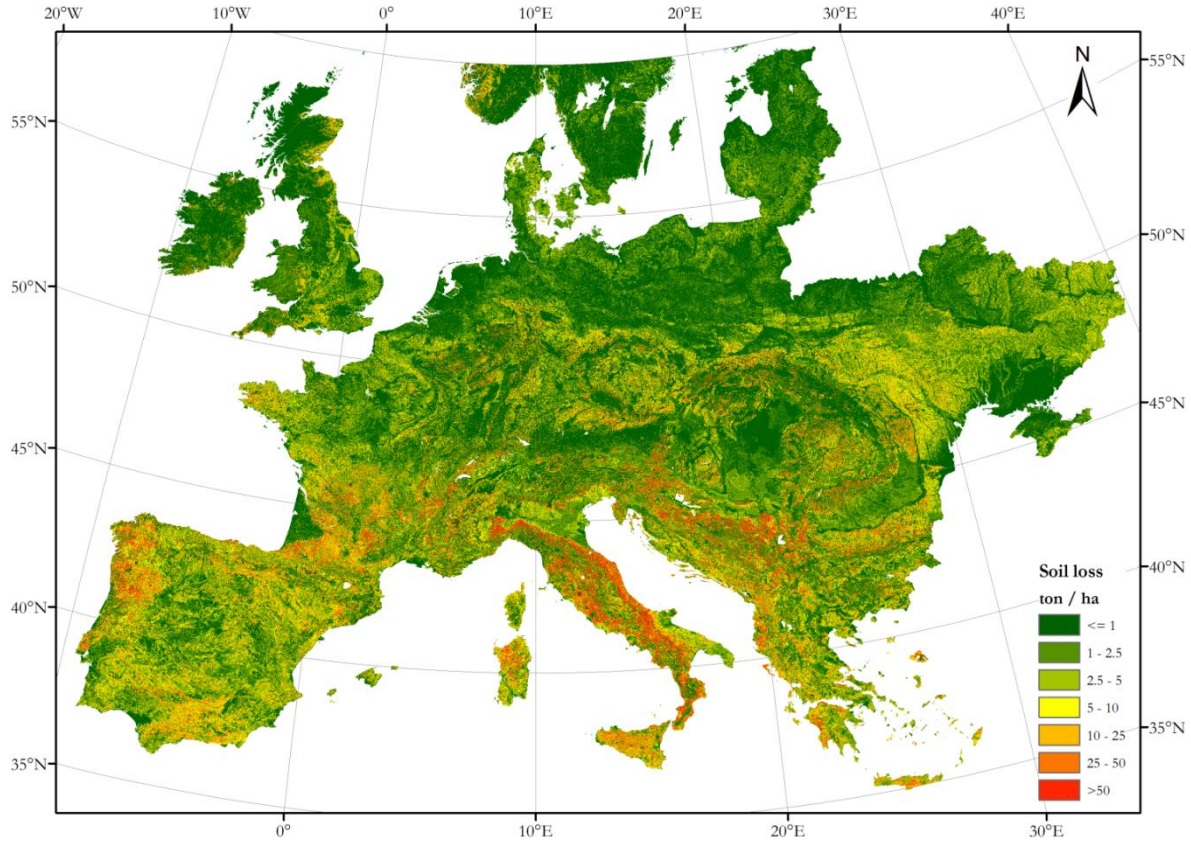

Fig. 1. Soil loss in tons per hectare. Missing values in white for some non-erosional areas (lakes, seas) and some countries (Andorra, Belarus, Iceland, Russia, San Marino, Turkey, and Vatican City).