

Model: PESERA-GRID

Author fact-sheet: Dr. Thorsten Pohlert

1. General Information	
Model name	PESERA-GRID
Version	1
Author(s) / First publication	Kirkby, M. J., Irvine, B. J., Jones, R, J. A. Govers, G. & The PESERA Team (2008): The PESERA coarse scale erosion model for Europe. I. – Model rationale and implementation, European Journal of Soil Science, 59, 1293–1306, 2008.
Contact person (name, email)	Prof. Mike Kirkby
Institute	School of Geography, University of Leeds
Web site	http://eusoils.jrc.ec.europa.eu/esdb_archive/pesera/pesera_download.html
General modelling objectives	Coarse scale soil erosion modeling
Domain of applicability	survey maps
KLIWAS contact (authority, name, email)	BfG, Dr. Thorsten Pohlert, pohlert@bafg.de
Model adaption in KLIWAS	Acquisition and processing of national and transboundary data for PESERA model applications in large river basins
Model coupling in KLIWAS	Input data from EH5r3_REMO, EH5r3_RACMO und HADCM3Q0_CLM
2. Model description	
Model type	conceptual
Temporal discretization	climate periods, daily rainfall events
Temporal resolution	generated daily rainfall volumes based on rainfall generator
Spatial discretization	distributed
Spatial resolution	500 x 500 m ²
Dimension	1D
Short description of model structure detailing main function	evaporation, soil moisture accounting, surface run-off, soil transport
Scheme of model	(sketch)

structure	
Procedure of model parameter estimation	none
3. Model inputs / Model outputs	
List and characteristics of input variables	grid maps: soil: 6 parameters relief: 1 parameter land-use: 1 parameter crops and phenology: 24 parameters climate: 6 parameters à 12 months per climate period
List and characteristics of output variables	grid map: long term annual and monthly soil erosion
4. Examples of model applications	
Catchments, objectives etc.	Rhein, Elbe, Weser, Ems – sediment delivery
Results of existing comparisons with other models	Auerswald, K., Fiener, P. & R. Dikau (2009): Rates of sheet and rill erosion in Germany – A meta-analysis, <i>Geomorphology</i> , 111, 182–193, 2009. Wurbs, D. & Steininger, M. (2011): Wirkungen der Klimaänderung auf die Böden. Untersuchungen zu Auswirkungen des Klimawandels auf die Bodenerosion durch Wasser, Umweltbundesamt, UBA-Texte 16/2011.
Application in the framework of KLIWAS	Rhein, Elbe, Weser, Ems
5. List of 5 selected references	
<p>Pohlert, T. (2012), Auswirkungen des Klimawandels auf den Sedimenteintrag in Bundeswasserstraßen, in <i>Dynamik des Sedimenthaushaltes von Wasserstraßen</i>. 14. Gewässermorphologisches Kolloquium am 09./10. November 2011 in Koblenz, BfG Veranstaltungen 03/2012, pp. 104–114, Bundesanstalt für Gewässerkunde, Koblenz, doi:10.5675/BfG Verantst 2012.3.</p> <p>Hillebrand, G., T. Pohlert, and S. Vollmer (2012), Frühere und zukünftige Entwicklung der Schwebstofffrachten im Rhein, in <i>KLIWAS Auswirkungen des Klimawandels auf Wasserstraßen und Schifffahrt in Deutschland 2</i>. Statuskonferenz am 25. und 26. Oktober 2011, BMVBS, Berlin, pp. 80–83, BMVBS.</p>	