

Documentation - Enhanced land use classification of the Rur Catchment 2015 - Update

	<p><u>Note:</u></p> <p>By downloading this dataset you accept adequate reference in case this data will be discussed or used in any publication or presentation. In this case please use the following citation:</p> <p>Waldhoff, Guido; Lussem, Ulrike; (2016): Enhanced land use classification of 2015 for the Rur catchment - Update. TR32DB. DOI:10.5880/TR32DB.19.</p>
Content	
files:	<p>data</p> <p> lu15nn_.tif</p> <p> lu15nn_.tfw</p> <p> lu15nn_.txt [land use dataset as ascii file]</p> <p> lu15nn_.prj</p> <p>documentation</p> <p> this file</p> <p> Read_Me.txt</p> <p> Legend_LU15nn.txt</p>
data size:	6 MB (115 MB unzipped)
extend:	Rur Catchment
provider:	Z1 (G. Waldhoff)
language:	english
date of publication:	03/2016
date of purchase:	/
Description	
description:	<p>This data set contains the final land use classification of 2015 for the study area of the CRC/Transregio 32: "Patterns in Soil-Vegetation-Atmosphere Systems: monitoring, modelling and data assimilation", which corresponds to the catchment of the river Rur. The study area is mainly situated in the western part of North Rhine-Westphalia (Germany) and parts of the Netherlands and Belgium, covering an area of approximately 2365 square kilometers.</p> <p>The land use classification is derived from supervised, multi temporal remote sensing data analysis using Landsat 8 and RapidEye. For the final</p>

land use analysis datasets of the following acquisition dates were employed: April 15 (RapidEye), April 23 (RapidEye), May 15 (Landsat 8), June 04 (RapidEye), July 07 (RapidEye), August 01 (RapidEye), August 20 (RapidEye), September 29 (Landsat 8), and October 01 (RapidEye). In addition to the previous version of the land use classification of 2015 two SPOT-datasets were analyzed (August 07, SPOT7 & September 10, SPOT6), to enhance the crop classification of sugar beet and potatoes in the north-western region of the study area. Since detailed data on vegetables in the Netherlands were available, the cropping areas were further disaggregated.

Full coverage of the study area was not available for all acquisition dates and thus the crop classification is partly affected in its depth of information. For the assessment of the crop classification accuracy refer to the error matrix on the last page.

To enhance the information content of the land use data product, the Multi-Data Approach (MDA) was applied to combine the remote sensing derived land use information with additional data sets like the 'Authoritative Topographic-Cartographic Information System' (ATKIS Basic-DLM, AAA schema) and 'Physical Block' information. Furthermore, OpenStreetMap (OSM) data were integrated to update the information on the road network, settlement areas in the Netherlands where CorineLandCover data were outdated, and the course of the river Rur in the Netherlands. Additionally information on cropping areas in the Netherlands were acquired and implemented. Thus, a more disaggregated land use was obtained, especially for the regions in Belgium and the Netherlands.

The methodology of the MDA is described in more detail in Waldhoff & Bareth (2008), Waldhoff et al. (2012) and Waldhoff (2014).

The classification is provided in GeoTIFF and in ASCII format. Spatial resolution: 15 m; Projection: WGS84, UTM Zone 32N.

References:

Waldhoff, G. & Bareth, G. (2008): GIS- and RS-based land use and land cover analysis: case study Rur-Watershed, Germany. - Proc. SPIE 7146, Geoinformatics 2008 and Joint Conference on GIS and Built Environment: Advanced Spatial Data Models and Analyses, 714626 (November 10, 2008); doi: 10.1117/12.813171.

Waldhoff, G., Curdt, C., Hoffmeister, D. & Bareth, G. (2012): Analysis of multitemporal and multisensor remote sensing data for crop rotation mapping. - ISPRS Ann. Photogramm. Remote Sens. Spatial Inf. Sci., I-7, 177-182, doi: 10.5194/isprsannals-I-7-177-2012.

Waldhoff, G. (2014): Multidaten-Ansatz zur fernerkundungs- und GIS-basierten Erzeugung multitemporaler, disaggregierter Landnutzungsdaten. Methodenentwicklung und Fruchtfolgenableitung am Beispiel des Rureinzugsgebiets. Dissertation, University of Cologne, Germany, <http://kups.ub.uni-koeln.de/id/eprint/5861>.

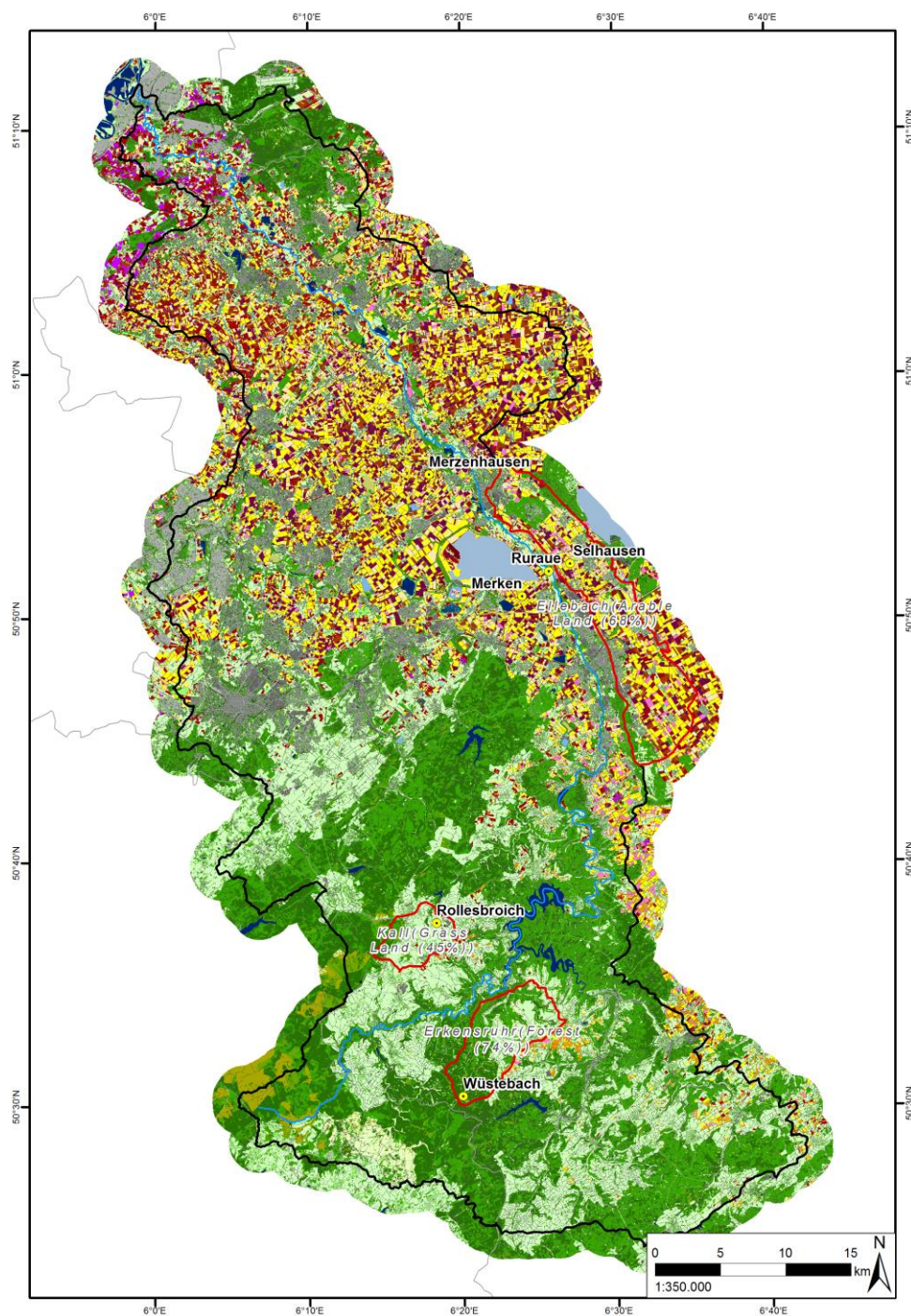
Acknowledgements:

We thank Geobasis.NRW for the provision of the ATKIS-Basic-DLM, the

	NASA Land Processes Distributed Active Archive Center (LP DAAC, USGS) for the provision of the ASTER L1A data products and the US Geological Service at the Earth Resources Observation and Science (EROS) Center for the provision of the Landsat 8 data products. The spatial data for the Netherlands was obtained from geodata.nationaalgeoregister.nl. All OSM data were obtained from Geofabrik GmbH.
abbreviations used in data:	/

Example

Coverage of the land use classification 2015 - Update



Error-Matrix of the land use classification 2015 - Update

		Referenzdaten (Pixel)											
Klassifikation (Pixel)	Klasse	WR	KT	M	ZR	WW	WG	SG	NW	LW	Total	CE (%)	UA (%)
	WR	4931	0	0	0	0	0	1	0	0	4932	0.02	99.98
	KT	0	3856	0	192	0	0	5	0	0	4053	4.86	95.14
	M	0	0	3210	38	2	0	6	0	0	3256	1.41	98.59
	ZR	2	104	0	6373	0	0	0	0	0	6479	1.64	98.36
	WW	0	0	0	0	12576	189	143	0	0	12908	2.57	97.43
	WG	58	26	0	22	174	4407	60	0	0	4747	7.16	92.84
	SG	22	0	0	0	0	0	4157	0	0	4179	0.53	99.47
	NW	0	0	0	0	0	0	0	1278		1278	0.00	100.00
	LW	0	0	0	0	0	0	0	0	1124	1124	0.00	100.00
	Total	5013	3986	3210	6625	12752	4596	4372	1278	1124	42956		
OE (%)		1.64	3.26	0.00	3.80	1.38	4.11	4.92	0.00	0.00		OA (%) : 97.5696	
PA (%)		98.36	96.74	100.00	96.20	98.62	95.89	95.08	100.00	100.00		Kappa : 0.9709	

WR = Rapeseed; KT = Potatoes; M = Maize; ZR = Sugar Beet; WW = Winter Wheat; WG = Winter Barley; SG = Summer Barley; NW = Coniferous Trees; LW = Deciduous Trees

OE = Omission Error; CE = Commission Error; PA = Producer's Accuracy; UA = User's Accuracy; OA = Overall Accuracy

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