

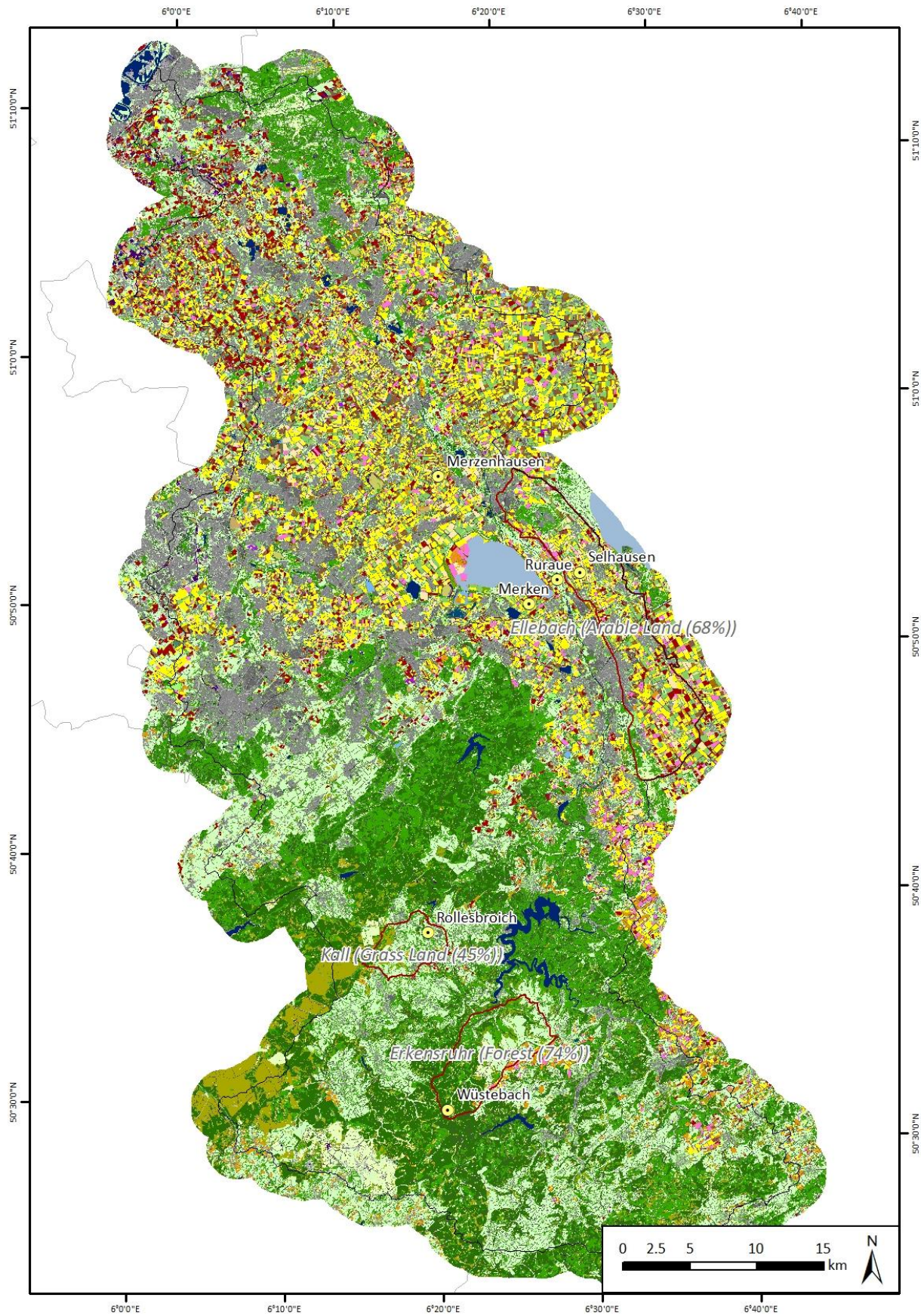
## Documentation – Enhanced land use classification of 2017 for the Rur catchment

	<p><b>Note:</b>  <b>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:</b></p> <p><b>Waldhoff, Guido &amp; Herbrecht, Marina (2018): Enhanced land use classification of 2017 for the Rur catchment. TR32DB. DOI:10.5880/TR32DB.27.</b></p>
<b>Content</b>	
files:	<p>data</p> <p>documentation</p> <p>    this file</p> <p>    lu17.tfw</p> <p>    lu17.tif</p> <p>    lu17_.txt</p> <p>    lu17_.prj</p> <p>    Read_Me.txt</p> <p>    Legend_LU17.txt</p>
data size:	7.2 MB (117 MB unzipped)
extend:	Rur Catchment
provider:	Z1 (G. Waldhoff)
language:	english
date of publication:	04.05.2018
date of purchase:	/
<b>Description</b>	
description:	<p>This data set contains the preliminary land use classification of 2017 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 (L8) and RapidEye (RE). For the land use</p>

	<p>analysis datasets of the following acquisition dates were employed: May 17 (RE), May 25 (RE), May 29, (L8), June 14 (L8), and September 24 (RE). Full coverage of the study area was only available for the second L8 image 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.</p> <p>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 ‘Authorative Topographic-Cartographic Information System’ (ATKIS Basis-DLM) and ‘Physical Block’ information. Furthermore, OpenStreetMap (OSM) data were integrated outside of the ATKIS coverage to enhance the information content on the road network, settlement areas and the course of the river Rur in the Netherlands and Belgium.</p> <p>The methodology of the MDA is described in more detail in Waldhoff et al. 2017, Bareth &amp; Waldhoff (2018) and Waldhoff (2014).</p> <p>The classification is provided in GeoTIFF and in ASCII format. Spatial resolution: 15 m; Projection: WGS84, UTM Zone 32N.</p> <p>References:</p> <p>Waldhoff, G., Lussem, U., Bareth, G. (2017): Multi-Data Approach for remote sensing-based regional crop rotation mapping: A case study for the Rur catchment, Germany. <i>International Journal of Applied Earth Observation and Geoinformation</i> 61, 55-69, <a href="https://doi.org/10.1016/j.jag.2017.04.009">10.1016/j.jag.2017.04.009</a>.</p> <p>Bareth, G. and Waldhoff, G. (2018): 2.01 - GIS for Mapping Vegetation A2 - Huang, Bo. <i>Comprehensive Geographic Information Systems</i>, Elsevier, Oxford, 1-27, <a href="https://doi.org/10.1016/B978-0-12-409548-9.09636-6">https://doi.org/10.1016/B978-0-12-409548-9.09636-6</a></p> <p>Waldhoff, G. (2014): <i>Multidaten-Ansatz zur fernerkundungs- und GISbasierten Erzeugung multitemporaler, disaggregierter Landnutzungsdaten. Methodenentwicklung und Fruchtfolgenableitung am Beispiel des Rureinzugsgebiets</i>. Dissertation, University of Cologne, Germany, <a href="http://kups.ub.uni-koeln.de/id/eprint/5861">http://kups.ub.uni-koeln.de/id/eprint/5861</a>.</p> <p>Acknowledgements:</p> <p>We thank Geobasis.NRW for the provision of the ATKIS-Basis-DLM. Additional spatial data for the Netherlands was obtained from <a href="http://geodata.nationaalgeoregister.nl">geodata.nationaalgeoregister.nl</a>. All OSM data were obtained from Geofabrik GmbH. Furthermore, we thank the Space Administration of the German Aerospace Center (DLR) and Planet Labs Germany GmbH for the provision of RapidEye data via the RapidEye Science Archive (RESA) and NASA for the provision of the Landsat 8 data.</p>
abbreviations used in data:	/

## Example

### Coverage of the enhanced land use classification 2017



### Error-Matrix of the enhanced land use classification 2017

		Reference Data (Pixel)										
Classification	Class	WR	KT	M	ZR	WW	WG	SF	SG	ER	Total	UA (%)
	<b>WR</b>	2655	0	25	0	168	225	0	53	77	6.45	82.89
	<b>KT</b>	0	784	0	103	34	0	32	0	0	1.92	82.27
	<b>M</b>	9	126	4582	70	0	95	279	0	2	10.40	88.75
	<b>ZR</b>	0	79	538	11265	2	7	118	0	35	24.26	93.53
	<b>WW</b>	3	51	11	26	13311	120	0	0	21	27.28	98.29
	<b>WG</b>	0	30	21	1	319	6681	0	13	0	14.23	94.56
	<b>SF</b>	102	503	291	63	1	0	4062	8	116	13424	78.94
	<b>SG</b>	3	82	6	0	99	57	195	1076	20	3.10	69.96
	<b>ER</b>	0	0	0	0	0	0	9	0	988	2.01	99.10
	<b>Total</b>	2772	1655	5474	11528	13934	7185	4695	1150	1259	100.00	<b>OA(%): 91.45</b>
<b>PA (%)</b>	95.78	47.37	83.7	97.72	95.53	92.99	86.52	93.57	78.47		<b>k: 0.89</b>	

WR = Rapeseed; KT = Potatoes; M = Maize; ZR = Sugar Beet; WW = Winter Wheat; WG = Winter Barley; SG = Summer Barley; ER = Pea

PA = Producer's Accuracy; UA = User's Accuracy; OA = Overall Accuracy, k = Kappa