

Supplement B

Error matrices for the time step crop type classifications for the Rur catchment for 2015

All classifications were performed using Maximum Likelihood

Abbreviations:

p = pixels
 % = percent
 OA = Overall accuracy
 PA = Producer's accuracy
 UA = User's accuracy
 OE = Omission Error
 CE = Commission Error
 Kappa = Kappa

Table 1. Crop type classifications for time step 1 of April 15, 2015 (Sensor: RapidEye).

		reference data (pixels)						
crop class		winter rapeseed	winter wheat	winter barley	Total	CE (%)	UA (%)	
Classification (p)	bare ground	17770	48	17	0	17835	0.36	99.64
	winter rapeseed	96	3858	682	68	4704	17.98	82.02
	winter wheat	370	294	11399	2996	15059	24.30	75.70
	winter barley	0	0	391	1138	1529	25.57	74.43
	Total	18236	4200	12489	4202	39127	-	-
	OE (%)	2.56	8.14	8.73	72.92	-	OA (%)	87.32
	PA (%)	97.44	91.86	91.27	27.08	-	Kappa	0.80

Table 2. Crop type classifications for time step 2 of April 23, 2015 (Sensor: RapidEye)

		reference data (pixels)						
crop class		winter wheat	winter barley	winter rapeseed	bare ground	Total	CE (%)	UA (%)
Classification (p)	winter wheat	5781	788	376	181	7126	18.87	81.13
	winter barley	199	9	0	0	208	95.67	4.33
	winter rapeseed	0	0	2290	0	2290	0.00	100.00
	bare ground	0	0	0	9351	9351	0.00	100.00
	Total	5980	797	2666	9532	18975	-	-
	OE (%)	3.33	98.87	14.10	1.90	-	OA (%)	91.86
	PA (%)	96.67	1.13	85.90	98.10	-	Kappa	0.87

Table 3. Crop type classifications for time step 3 of June 4, 2015 (Sensor: RapidEye)

		reference data (pixels)							
crop class		winter wheat	winter barley	winter rapeseed	spring barley	root crops	Total	CE (%)	UA (%)
Classification (p)	winter wheat	9800	37	0	0	0	9837	0.38	99.62
	winter barley	2518	4052	51	162	30	6813	40.53	59.47
	winter rapeseed	0	0	4362	0	0	4362	0.00	100.00
	spring barley	157	13	33	3827	12	4042	5.32	94.68
	root crops	2	2	0	244	6127	6375	3.89	96.11
	Total	12477	4104	4446	4233	6169	31429	-	-
	OE (%)	21.46	1.27	1.89	9.59	0.68	-	OA (%)	89.62
	PA (%)	78.54	98.73	98.11	90.41	99.32	-	Kappa	0.87

Table 4. Crop type classifications for time step 3 of August 1, 2015 (Sensor: RapidEye)

		reference data (pixels)							
crop class		bare ground	potato	maize	rapeseed	sugar beet	Total	CE (%)	UA (%)
Classification (p)	bare ground	21283	189	2	3405	0	24879	14.45	85.55
	potato	3	1361	314	0	2745	4423	69.23	30.77
	maize	0	71	2173	0	530	2774	21.67	78.33
	rapeseed	229	554	7	1495	5	2290	34.72	65.28
	sugar beet	13	1812	634	0	2867	5326	46.17	53.83
	Total	21528	3987	3130	4900	6147	39692	-	-
	OE (%)	1.14	65.86	30.58	69.49	53.36	-	OA (%)	73.51
	PA (%)	98.86	34.14	69.42	30.51	46.64	-	Kappa	0.57

Table 5. Crop type classifications for time step 4 of August 20, 2015 (Sensor: RapidEye)

		reference data (pixels)						
Classification (p)	crop class	bare ground	potato	maize	sugar beet	Total	CE (%)	UA (%)
		bare ground	14530	941	0	0	15471	6.08
	potato	4	2221	4	1863	4092	45.72	54.28
	maize	0	0	1997	84	2081	4.04	95.96
	sugar beet	0	94	0	4566	4660	2.02	97.98
	Total	14534	3256	2001	6513	26304	-	-
	OE (%)	0.03	31.79	0.20	29.89	-	OA (%)	88.63
	PA (%)	99.97	68.21	99.80	70.11	-	Kappa	0.81

Table 6. Crop type classifications for time step 5 of September 29, 2015 (Sensor: Landsat 8)

		reference data (pixels)					
Classification (p)	crop class	sugar beet	maize	bare ground	Total	CE (%)	UA (%)
		sugar beet	5513	23	1798	7334	24.83
	maize	368	3021	1524	4913	38.51	61.49
	bare ground	278	46	19171	19495	1.66	98.34
	Total	6159	3090	22493	31742	-	-
	OE (%)	10.49	2.23	14.77	-	OA (%)	87.28
	PA (%)	89.51	97.77	85.23	-	Kappa	0.75

Table 7. Crop type classifications for time step 6 of October 1, 2015 (Sensor: RapidEye)

		reference data (pixels)					
Classification (p)	crop class	sugar beet	maize	bare ground	Total	CE (%)	UA (%)
		sugar beet	5872	0	249	6121	4.07
	maize	182	3208	265	3655	12.23	87.77
	bare ground	570	2	30261	30833	1.86	98.14
	Total	6624	3210	30775	40609	-	-
	OE (%)	11.35	0.06	1.67	-	OA (%)	96.88
	PA (%)	88.65	99.94	98.33	-	Kappa	0.92