

Supplementary material:

1984					1	2	2	1		1	1	3	Landsat 5
1985	3		1	1									
1986	3				1		1	4	2	4	2	2	
1987	2	2		2	1	3	3	1					
1999									1	1	1		Landsat 7
2000		3	1	1	1		1	1	2	1		1	
2001		2	1	2			1	1				1	
2002		2	1		1	2	1		2	2		2	
2014	6	5	5	5	6	5	6	5	4	6	6	6	Landsat 8
2015	6	5	4	6	6	6	4	6	5	6	6	5	
2016	6	3	6	4	6	4	6	5	6	6	6	5	
	J	F	M	A	M	J	J	A	S	O	N	D	
	Dry			Long Rains				Dry			Short Rains		


 Selected monthly surface reflectance composite
n Number of available datasets (Path/Row: 168/60, 169/60, 168/61)

Figure S1: Number of Landsat surface reflectance products sorted by year, month, and season that were available in Google Earth Engine. Collections highlighted in green were chosen for the analysis.

Table S1: Overall and class-wise accuracies for 1987 (A), 2002 (B), and 2016 (C).

(A)

Overall, 1987				Confidence Intervals [%]					
Measure	Estimate [%]	Standard Deviation [%]	Standard Error [%]	99%		95%		90%	
Overall Accuracy	86.68		0.66	84.97	88.4	85.38	87.99	85.59	87.78
Kappa Accuracy	82.14		0.9	79.81	84.46	80.37	83.91	80.65	83.62
Avg. F1 Accuracy	87.79		0						

Class-Wise Overview, 1987							
Class	Errors [%]		Accuracies [%]				
	Commission	Omission	User's	Producer's	F1	Conditional Kappa	
(1) 1	8.46	21.25	91.54	78.75	84.67	87.22	
(2) 2	23.9	16.55	76.1	83.45	79.61	74.67	
(3) 3	0	1.85	100	98.15	99.07	100	
(4) 4	11.63	37.02	88.37	62.98	73.55	87.49	
(5) 5	16.99	7.37	83.01	92.63	87.56	74.89	
(6) 6	13.37	0.94	86.63	99.06	92.43	83.96	
(7) 7	4.62	0	95.38	100	97.64	95.27	

Class Codes	Class Names
(1) 1	Rainfed cropland
(2) 2	Bare land
(3) 3	Waterbodies
(4) 4	Irrigated cropland
(5) 5	Savannah grassland
(6) 6	Forest
(7) 7	Settlements
(8) 8	Greenhouses

(B)

Overall, 2002				Confidence Intervals [%]					
Measure	Estimate [%]	Standard Deviation [%]	Standard Error [%]	99%		95%		90%	
Overall Accuracy	83.84		0.73	81.96	85.73	82.41	85.28	82.64	85.05
Kappa Accuracy	78.27		1.02	75.64	80.9	76.27	80.27	76.59	79.95
Avg. Accuracy F1	87.51		0						

Class-Wise Overview, 2002							
Class	Errors [%]			Accuracies [%]			
	Commission	Omission	User's	Producer's	F1	Conditional Kappa	
(1) 1	22.88	12.07	77.12	87.93	82.17	63.32	
(2) 2	9.68	15.15	90.32	84.85	87.5	90.05	
(3) 3	0	3.9	100	96.1	98.01	100	
(4) 4	14.73	27.38	85.27	72.62	78.44	83.49	
(5) 5	13.27	28.4	86.73	71.6	78.44	81.94	
(6) 6	9.45	0.27	90.55	99.73	94.92	88.89	
(7) 7	7.79	13.41	92.21	86.59	89.31	91.94	
(8) 8	4.55	12.5	95.45	87.5	91.3	95.41	

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(C)

Overall, 2016				Confidence Intervals [%]					
Measure	Estimate [%]	Standard Deviation [%]	Standard Error [%]	99%		95%		90%	
Overall Accuracy	85.87		0.59	84.35	87.39	84.72	87.03	84.9	86.84
Kappa Accuracy	81.88		0.78	79.87	83.89	80.35	83.41	80.6	83.16
Avg. F1 Accuracy	83.59		0						

Class-Wise Overview, 2016							
Class	Errors [%]		Accuracies [%]				
	Commission	Omission	User's	Producer's	F1	Conditional Kappa	
(1) 1	18.46	25.22	81.54	74.78	78.01	75.45	
(2) 2	36.24	13.64	63.76	86.36	73.36	62.49	
(3) 3	0	26.09	100	73.91	85	100	
(4) 4	32.05	16.32	67.95	83.68	75	65.97	
(5) 5	12.58	5.19	87.42	94.81	90.96	80.7	
(6) 6	5.23	1.97	94.77	98.03	96.38	94.03	
(7) 7	1.66	31.27	98.34	68.73	80.91	98.2	
(8) 8	6.36	15	93.64	85	89.11	93.09	

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Table S2: Matrix of land cover and land use class changes between 1987 and 2002.

	Rainfed Cropland	Bare Land	Waterbodies	Irrigated Cropland	Savannah Grassland	Forest	Settlements	Greenhouses	Bush- and Shrubland	Grand Total for 1987
Rainfed Cropland	19,935.36	205.38	13.05	3,916.08	5,211.54	3,761.28	105.93	5.13	45.54	33,199.29
Bare Land	770.31	561.60	4.68	79.74	1,809.45	36.63	92.61	2.16	119.07	3,476.25
Waterbodies	7.74	2.97	54.90	13.77	9.09	16.20	6.3		8.91	119.88
Irrigated Cropland	1,119.69	3.87	0.90	517.05	822.15	1,362.42	4.5		198.09	4,028.67
Savannah Grassland	30,371.13	2,581.83	28.80	4,711.32	66,546.90	10,929.60	212.58	4.68	13,396.41	128,783.25
Forest	2,817.36	27.72	20.25	2,202.39	4,449.96	37,445.22	13.14	2.34	3,871.08	50,849.46
Settlements	78.75	45.63	2.43	18.27	51.30	9.09	110.34	0.45	36.09	352.35
Greenhouses	0	0	0	0	0	0	0	0	0	0
Bush- and Shrubland	6,839.37	275.40	19.26	1,452.42	8,860.05	5,798.43	112.59	6.39	3,490.20	26,854.11
Grand Total for 2002	61,939.71	3,704.40	144.27	12,911.04	87,760.44	59,358.87	657.99	21.15	21,165.39	247,663.26

Table S3: Matrix of land cover and land use class changes between 2002 and 2016.

	Rainfed Cropland	Bare Land	Waterbodies	Irrigated Cropland	Savannah Grassland	Forest	Settlements	Greenhouses	Bush- and Shrubland	Grand Total for 2002
Rainfed Cropland	34,601.85	617.76	39.06	5,717.61	14,581.98	4,562.55	123.57	314.64	35.28	60,594.30
Bare Land	750.60	953.64	6.30	113.22	1,134.54	32.40	139.05	7.74	505.80	3,643.29
Waterbodies	12.60	12.24	65.97	15.66	12.15	9.72	0.72	1.08	13.41	143.55
Irrigated Cropland	4,066.02	130.59	27.54	2,621.07	2,337.75	3,057.66	51.93	110.43	447.84	12,850.83
Savannah Grassland	17,202.51	2,473.02	35.73	6,837.03	49,005.09	6,347.25	152.55	129.60	5,474.52	87,657.30
Forest	5,059.80	100.08	23.22	5,718.87	5,989.23	40,730.31	29.70	29.97	1,634.22	59,315.40
Settlements	146.52	140.76	7.56	14.04	142.56	13.32	145.71	3.96	28.44	642.87
Greenhouses	6.93	1.17	0	0.90	3.51	0.36		8.28	0	21.15
Bush- and Shrubland	826.47	239.58	11.43	1,327.14	8,420.31	3,957.21	30.96	19.71	6,273.36	21,106.17
Grand Total for 2016	62,673.30	4,668.84	216.81	22,365.54	81,627.12	58,710.78	674.19	625.41	14,412.87	245,974.86