

## Supplementary Material

**Table S1.** Classification accuracies (%) for each of the five round robin test sites. OA = Overall Accuracy; UA = User's Accuracy, and PA = Producers Accuracy.

Model	Mandatory sites												Optional sites					
	Colombia			Mexico			Zambia			Overall (mandatory sites)			Gabon			Greenland *		
	OA	UA	PA	OA	UA	PA	OA	UA	PA	OA	UA	PA	OA	UA	PA	OA	UA	PA
A [o+s]	94	81	85	94	85	99	92	99	71	97	95	93	99	99	98	-	-	-
B [o+s]	94	95	71	94	84	98	84	68	75	94	85	90	95	100	93	-	-	-
C [o+s]	90	98	43	93	84	95	91	97	68	95	98	81	91	98	87	89	100	81
D [o+s]	91	93	58	93	84	98	92	99	71	96	98	85	90	100	85	-	-	-
E [s]	93	90	65	93	82	99	77	54	70	90	77	88	97	100	96	-	-	-
F [o+s]	93	76	85	90	86	80	91	96	70	94	92	83	98	100	98	94	100	90
G [s]	92	94	58	90	87	87	89	86	69	93	93	80	-	-	-	-	-	-
H [o]	95	98	74	94	85	98	90	100	62	97	100	87	-	-	-	-	-	-
I [o]	94	95	71	94	85	97	91	100	67	95	97	85	82	100	74	95	99	92
J [s]	94	87	76	93	83	98	88	82	70	93	90	83	98	99	98	89	91	89
K [o+s]	92	92	57	88	81	80	85	71	73	91	84	77	-	-	-	-	-	-
L [o]	92	83	68	91	82	90	75	53	53	89	77	78	75	99	69	85	81	98
M [o]	90	64	91	88	84	75	93	97	74	93	87	85	93	99	91	85	80	98
N [o+s]	96	95	84	94	83	100	96	96	87	98	97	96	98	100	97	97	97	98
O [o+s]	96	89	84	93	84	98	95	97	82	97	97	92	95	100	92	96	99	93

\* Excluding the months of January, March, and November.

**Table S2.** Summary of object extraction accuracies. The accuracy metrics are maximum overlap area ( $A_{\max}$ ) and quality ( $A_{\text{qual}}$ ) as a joint balanced measure of correctness ( $A_{\text{cor}}$ ) and completeness ( $A_{\text{com}}$ ). The overall score is the product between  $A_{\max}$  and  $A_{\text{qual}}$ .

	Colombia			Mexico			Zambia			Gabon			Greenland		
Model	$A_{\max}$	$A_{\text{qual}}$	OA												
A [o+s]	0.64	0.43	0.27	0.73	0.50	0.37	0.77	0.57	0.43	0.81	0.66	0.53	-	-	-
B [o+s]	0.42	0.10	0.04	0.70	0.45	0.31	0.71	0.47	0.33	0.73	0.45	0.33	-	-	-
C [o+s]	0.00	0.00	0.00	0.32	0.19	0.06	0.67	0.36	0.24	0.73	0.47	0.34	0.58	0.18	0.10
D [o+s]	0.42	0.35	0.15	0.45	0.40	0.18	0.38	0.03	0.01	0.72	0.44	0.31	-	-	-
E [s]	0.28	0.15	0.04	0.43	0.36	0.15	0.27	0.02	0.01	0.75	0.51	0.38	-	-	-
F [o+s]	0.49	0.33	0.16	0.64	0.39	0.25	0.79	0.61	0.48	0.80	0.64	0.50	0.75	0.52	0.38
G [s]	0.24	0.09	0.02	0.31	0.12	0.04	0.71	0.47	0.33	-	-	-	-	-	-
H [o]	0.54	0.36	0.19	0.46	0.41	0.19	0.68	0.37	0.25	-	-	-	-	-	-
I [o]	0.59	0.28	0.16	0.63	0.33	0.21	0.66	0.33	0.22	0.76	0.56	0.42	0.82	0.68	0.55
J [s]	0.19	0.11	0.02	0.43	0.37	0.16	0.73	0.55	0.40	0.79	0.63	0.49	0.75	0.55	0.41
K [o+s]	0.38	0.27	0.10	0.33	0.24	0.08	0.55	0.29	0.16	-	-	-	-	-	-
L [o]	0.19	0.10	0.02	0.50	0.23	0.12	0.67	0.41	0.27	0.46	0.21	0.09	-	-	-
M [o]	0.47	0.28	0.13	0.53	0.31	0.16	0.77	0.59	0.45	0.77	0.55	0.42	0.67	0.40	0.26
N [o+s]	0.74	0.57	0.42	0.83	0.69	0.57	0.84	0.73	0.61	0.79	0.60	0.47	0.85	0.73	0.62
O [o+s]	0.69	0.52	0.35	0.80	0.64	0.51	0.79	0.64	0.50	0.80	0.65	0.51	0.80	0.64	0.51