

# Supplementary Materials for

## GCI30: a global dataset of 30 m cropping intensity using multi-source remote sensing imagery

**Table S1.** Data sources for generating the global 30 m cropland extent.

Product name	Description	Type	Spatial coverage	Epoch used	Website
FROM-GLC	Finer resolution observation and monitoring of global land cover	Land cover	Global	2017	<a href="http://data.ess.tsinghua.edu.cn/">http://data.ess.tsinghua.edu.cn/</a>
GFSAD30	Global food security support analysis data at 30 m	Cropland layer	Global	2015	<a href="https://lpdaac.usgs.gov/tools/data-pool/">https://lpdaac.usgs.gov/tools/data-pool/</a>
CDL	USDA NASS cropland data layer	Cropland layer	Contiguous U.S.	2017	<a href="https://www.nass.usda.gov/index.php">https://www.nass.usda.gov/index.php</a>
AAFC ACI	Canada AAFC annual crop inventory	Cropland layer	Canada	2017	<a href="https://www.agr.gc.ca/atlas/aci/">https://www.agr.gc.ca/atlas/aci/</a>
ChinaCover	China 30m cropland extent	Cropland	China	2010	<a href="http://www.geodata.cn/data/datadetails.html?dataguid=1471197&amp;docId=12230">http://www.geodata.cn/data/datadetails.html?dataguid=1471197&amp;docId=12230</a>
SERVIR	Regional land cover monitoring system for the Lower Mekong	Land cover	Lower Mekong basin	2018	<a href="https://servir.adpc.net/">https://servir.adpc.net/</a>
NLCD	USGS national land cover database	Land cover	U.S.	2016	<a href="https://www.mrlc.gov/">https://www.mrlc.gov/</a>
MapBio mass	Brazilian annual land use and land cover mapping project	Land cover	Brazil	2018	<a href="https://mapbiomas.org/en/products">https://mapbiomas.org/en/products</a>
CLUM	Catchment scale land use of Australia	Land cover	Australia	2018	<a href="https://www.agriculture.gov.au/">https://www.agriculture.gov.au/</a>
INTA	National cropland map of Argentina	Cropland layer	Argentina	2018-2019	<a href="http://www.geointa.inta.gob.ar/">http://www.geointa.inta.gob.ar/</a>

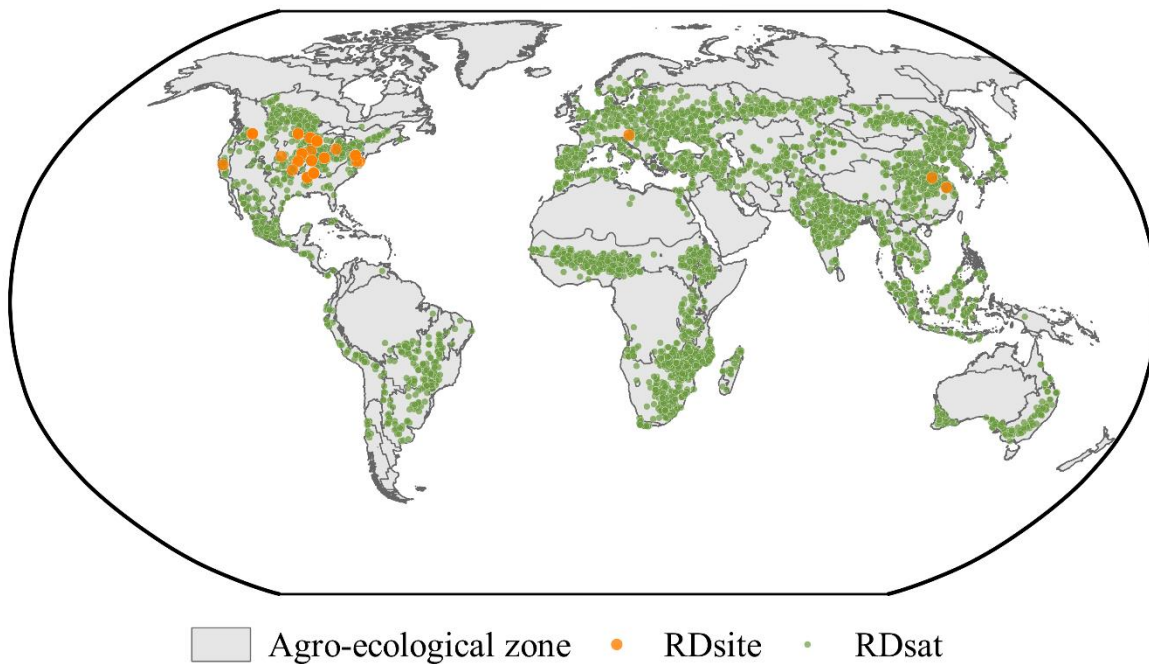
**Table S2.** Meta information of global agro-ecological zones.

Full name	Code ID	Cropland percentage (%)	Category
Equatorial central Africa	C01	2.72	VL
East African highlands	C02	12.88	L
Gulf of Guinea	C03	17.35	M
Horn of Africa	C04	4.72	L
Madagascar(main)	C05	2.4	VL
SW Madagascar	C06	1.32	VL
North Africa Mediterranean	C07	15.26	M
Sahel	C08	6.95	L
Southern Africa	C09	3.41	VL
S. Africa Western Cape	C10	18.42	M
British Columbia To Colorado	C11	5.45	L
America northern great plains	C12	64.5	H
America corn belt	C13	27.71	M
America cotton belt-Mexican coastal plain	C14	18.34	M
Sub-boreal North America	C15	5.67	L
America West Coast	C16	14.27	L
Sierra Madre	C17	5.42	L
SW Mexico and N. Mexico highlands	C18	5.62	L
Northern South and Central America	C19	13.83	L
Caribbean	C20	27.76	M
Central-Northern Andes	C21	2.57	VL
Brazil Nordeste	C22	10.5	L
Central-Eastern Brazil	C23	12.71	L
Amazon	C24	1.19	VL
Central-North Argentina	C25	13.62	L
SE Brazil-Concepcion-Bahia Blanca	C26	40.35	H
SW Southern Cone	C27	3.06	VL
Semi-arid Southern Cone	C28	3.4	VL
Caucasus	C29	28.38	M
Central Asia Pamir mountains	C30	16.79	M
Western Asia	C31	12.53	L
China Gansu-Xinjiang	C32	10.09	L
China Hainan	C33	35.77	M
China Huang Huaihai	C34	95.27	H
China Inner Mongolia	C35	24.27	M
China Loess region	C36	46.44	H
China Lower Yangtze	C37	40.97	H
North East China	C38	44.1	H
China Qinghai-Tibet	C39	1.21	VL
Southern China	C40	20.16	M
South-West China	C41	25.85	M
Taiwan	C42	19.37	M
East Asia	C43	14.24	L
Southern Himalayas	C44	43.26	H
Southern Asia	C45	71.36	H
Southern Japan and Korea	C46	11.32	L
Mongolia region	C47	0.4	VL
S. Asia Punjab to Gujarat	C48	64.98	H

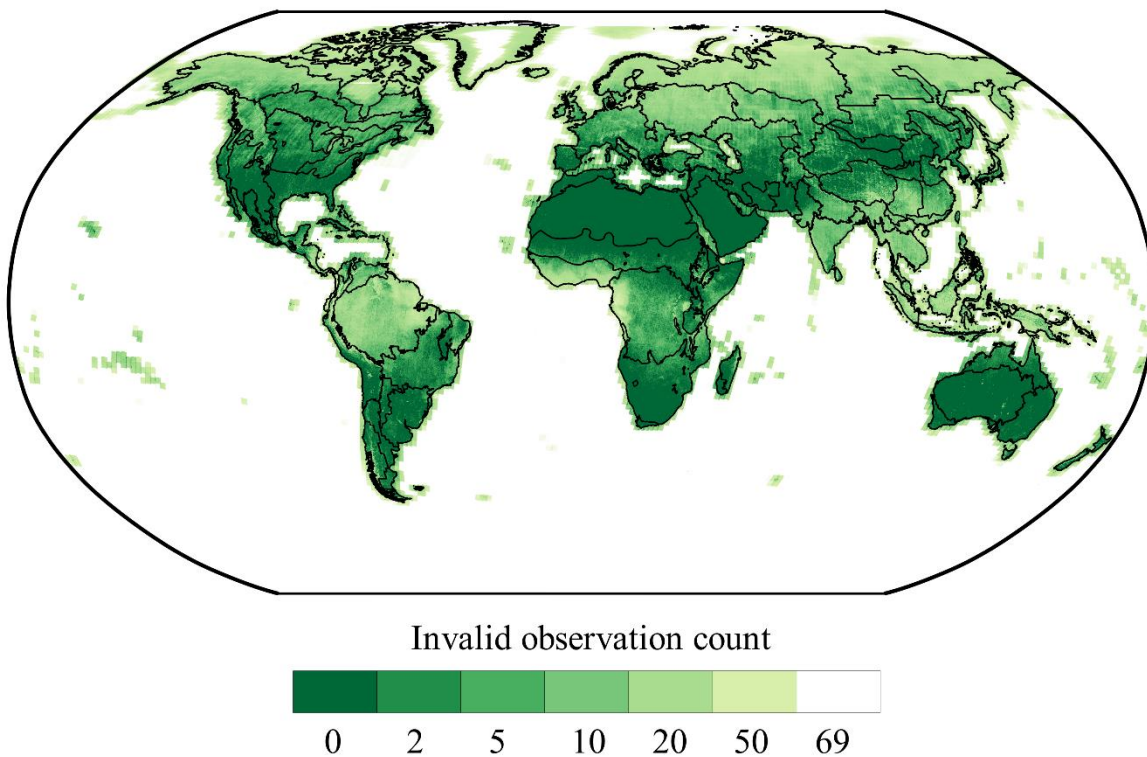
SE Asia islands	C49	9.4	L
SE Asia mainland	C50	37.06	M
Eastern Siberia	C51	0.13	VL
Eastern Central Asia	C52	3.71	VL
North Australia	C53	3.86	VL
Australia Queensland to Victoria	C54	24.14	M
Australia Nullarbor-Darling	C55	48.92	H
New Zealand	C56	4	L
Boreal Eurasia	C57	1.14	VL
Ukraine to URAL Mountains	C58	51.75	H
Mediterranean Europe and Turkey	C59	26.7	M
W. Europe(non-Mediterranean)	C60	50.57	H
Boreal North America	C61	0.33	VL
URAL to Altai Mountains	C62	32.93	M
Australian Desert	C63	0.28	VL
Old World Deserts	C64	0.63	VL
Sub Arctic America	C65	0	VL

**Table S3.** Meta information of PhenoCam sites used in this study.

Site ID	Latitude	Longitude	Elevation (m)	Data start date	Data last date
arsbrooks10	41.9749	-93.6905	312	2019-07-10	2020-09-27
arsltarmdcr	39.0587	-75.8513	17	2017-05-10	2020-09-26
arsltarucbec1	40.7537	-78.0057	400	2019-05-16	2020-09-26
arsmnswanlake1	45.6845	-95.7997	370	2015-10-02	2020-09-27
arsmorris1	45.6167	-96.1269	341	2017-07-25	2020-09-20
arsope3ltar	39.0309	-76.8442	41	2017-04-10	2020-09-26
ashbottoms	38.8668	-96.9028	374	2015-08-18	2017-01-15
bouldincorn	38.109	-121.535	10	2017-07-12	2020-09-23
burdetterice1	35.8284	-89.9879	10	2019-07-23	2020-09-27
burdettericea	35.8089	-90.0327	-5	2015-06-18	2017-05-22
burdettericec	35.8089	-90.0284	70	2015-07-02	2017-05-22
cafboydnorthltar01	46.7551	-117.1261	73	2017-09-14	2020-09-26
cafcookeastltar01	46.7815	-117.0821	70	2017-05-09	2020-09-26
cafcookwestltar01	46.784	-117.0908	795	2017-06-26	2020-09-26
goodwater	39.2285	-92.1194	794	2015-09-25	2020-09-27
goodwaterbau	39.2312	-92.1522	807	2018-06-06	2020-09-27
hawbeckereddy	40.6608	-77.8488	264	2015-09-24	2018-04-24
humnokericea	34.5852	-91.7517	274	2015-06-24	2020-09-27
humnokericec	34.5889	-91.7517	310	2015-06-24	2020-09-27
jurong	31.8068	119.2173	61	2017-10-21	2020-09-27
kelloggcorn	42.4375	-85.3225	70	2014-05-24	2019-11-18
keplerltar	40.7231	-77.9245	15	2018-04-25	2019-05-15
mandanh5	46.7754	-100.9511	288	2015-09-16	2020-09-26
mandani2	46.7614	-100.9257	378	2016-04-22	2020-09-26
manilacotton	35.8872	-90.1371	593	2016-06-05	2020-09-26
mead1	41.1651	-96.4766	590	2016-07-12	2020-09-27
mead3	41.1797	-96.4397	73	2016-07-12	2020-09-27
NEON.D06.KONA.DP1.00033	39.1104	-96.6129	361	2016-05-06	2020-09-27
NEON.D10.STER.DP1.00033	40.4619	-103.0293	363	2016-12-18	2020-09-27
rosemountc6	44.7288	-93.0888	443	2015-10-22	2017-01-01
rosemountcons	44.6946	-93.0578	1366	2017-01-09	2020-09-27
rosemountconv	44.691	-93.0576	288	2017-01-13	2020-09-27
rosemountg21	44.7143	-93.0898	283	2015-10-26	2017-01-01
shangqiu	34.5155	115.595	283	2018-01-24	2020-09-27
silverton	44.9986	-122.6948	290	2013-07-22	2020-09-26
slovenia3moskanjci	46.4098	15.9963	55	2019-04-03	2020-09-27
southerngreatplains	36.6058	-97.4888	16	2012-05-16	2020-09-26
uiefmaize2	40.0628	-88.1961	224	2018-08-08	2020-09-26
uiefsorghum	40.0065	-88.2032	224	2018-08-15	2020-07-10
usof6	35.7333	-90.0403	70	2018-05-18	2020-09-27



**Figure S1.** Global distribution of Agro-ecological zone (AEZ) boundaries, RDsat and RD site.



**Figure S2.** Invalid observation count of the 16-day harmonized TOA reflectance composite from 2016 to 2018.