Table S1. Ground-based water chemistry samples, corresponding images (Landsat Product ID), and source summary. H-OWT indicates the optical water type (OWT) the sample was classified as using the guided unsupervised hierarchical clustering. Q-OWT indicates the optical water type (OWT) the sample was classified as using the quadratic discriminative analysis (QDA) method. EMS = The Government of British Columbia Environmental Monitoring System (EMS) Surface water monitoring. USGS = National Water System Information (NWIS) and Storage and Retrieval (STORET). SLU = Swedish University of Agricultural Sciences Miljödata MVM Environmental Data.

Chl-*a* (µg L^{-1})	Turbidity (NTU)	Sample Date	Image Date	Landsat Product ID	Lag (Days)	Lake Area (Ha)	Ecoregion	Country	Longitude	Latitude	H-OWT	Q-OWT	Source
5.0	9.0	7/23/2003	7/23/2003	LT05_L1TP_039034_20030723_20160915_01_T1	0	25.57	TPD	USA	-114.2	38.02	A	A	USGS
4.0	5.0	9/2/1999	8/31/1999	LT05_L1TP_037032_19990831_20160919_01_T1	2	16.12	TPD	USA	-109.55	40.78	A	A	USGS
4.4	28.0	9/29/2001	10/1/2001	LT05_L1TP_043029_20011001_20160918_01_T1	-2	95.21	TPD	USA	-118.16	43.92	A	A	USGS
3.7	10.0	10/12/1999	10/12/1999	LT05_L1TP_043029_19991012_20160923_01_T1	0	417.42	TPD	USA	-118.16	43.93	A	A	USGS
4.4	5.0	7/24/2001	7/27/2001	LT05_L1TP_045029_20010727_20160917_01_T1	-3	208.81	TPD	USA	-120.7	44.3	A	A	USGS
3.0	12.0	8/22/2001	8/24/2001	LT05_L1TP_033032_20010824_20160917_01_T1	-2	331.97	TPS	USA	-104.86	39.64	A	A	USGS
27.2	78.0	10/14/2003	10/17/2003	LT05_L1TP_033032_20031017_20160914_01_T1	-3	336.59	TPS	USA	-104.64	40.23	A	A	USGS
5.7	8.0	7/7/1999	7/6/1999	LE07_L1TP_037032_19990706_20161003_01_T1	1	10.84	TPD	USA	-109.81	40.86	A	A	USGS
27.7	8.0	9/13/1999	9/10/1999	LT05_L1TP_043029_19990910_20160919_01_T1	3	467.45	TPD	USA	-118.16	43.93	B	A	USGS
15.4	14.0	9/12/2000	9/12/2000	LT05_L1TP_043029_20000912_20160918_01_T1	0	313.53	TPD	USA	-118.16	43.92	C	A	USGS
3.9	7.5	8/8/2000	8/11/2000	LT05_L1TP_043029_20000811_20160918_01_T1	-3	414.03	TPD	USA	-118.16	43.93	A	B	USGS
1.5	0.4	8/17/1989	8/16/1989	LT05_L1TP_048023_19890816_20170202_01_T1	1	29.51	TCF	CAN	-121.67	52.55	B	B	EMS
80.0	39.0	8/12/2009	8/15/2009	LT05_L1TP_193018_20090815_20161026_01_T1	-3	29.41	TCF	SWE	16.97	59.93	B	B	SLU
14.0	3.0	7/21/2014	7/20/2014	LC08_L1TP_016041_20140720_20170304_01_T1	1	61.03	SHF	USA	-81.45	27.43	B	B	USGS
49.9	6.0	8/18/2014	8/21/2014	LC08_L1TP_016041_20140821_20170304_01_T1	-3	8.83	SHF	USA	-81.91	27.98	B	B	USGS
7.59	2.0	9/13/2011	9/14/2011	LT05_L1TP_016041_20110914_20160830_01_T1	-1	20.37	SHF	USA	-81.69	28.00	B	B	USGS
38.7	10.0	9/12/2011	9/14/2011	LT05_L1TP_016041_20110914_20160830_01_T1	-2	229.51	SHF	USA	-81.74	28.02	B	B	USGS
44.9	8.0	9/12/2011	9/14/2011	LT05_L1TP_016041_20110914_20160830_01_T1	-2	119.96	SHF	USA	-81.75	28.04	B	B	USGS
36.3	6.0	9/12/2011	9/14/2011	LT05_L1TP_016041_20110914_20160830_01_T1	-2	158.55	SHF	USA	-81.74	28.06	B	B	USGS
27.7	4.0	9/12/2011	9/14/2011	LT05_L1TP_016041_20110914_20160830_01_T1	-2	73.99	SHF	USA	-81.76	28.06	B	B	USGS
30.9	6.0	9/9/2015	9/9/2015	LC08_L1TP_016041_20150909_20170225_01_T1	0	345.49	SHF	USA	-81.8	28.08	B	B	USGS
87.6	12.5	9/10/2015	9/9/2015	LC08_L1TP_016041_20150909_20170225_01_T1	1	12.93	SHF	USA	-81.95	28.09	B	B	USGS
27.7	10.0	10/13/2010	10/13/2010	LT05_L1TP_016041_20101013_20160831_01_T1	0	219.8	SHF	USA	-81.74	28.1	B	B	USGS
171.0	35.0	9/10/2015	9/9/2015	LC08_L1TP_016041_20150909_20170225_01_T1	1	172.93	SHF	USA	-81.96	28.11	B	B	USGS
4.5	1.0	7/7/2015	7/7/2015	LC08_L1TP_016040_20150707_20170226_01_T1	0	42.42	SHF	USA	-81.24	28.39	B	B	USGS
23.6	3.0	9/8/2010	9/11/2010	LT05_L1TP_016040_20100911_20160831_01_T1	-3	121.43	SHF	USA	-81.41	28.52	B	B	USGS
19.3	4.0	9/8/2010	9/11/2010	LT05_L1TP_016040_20100911_20160831_01_T1	-3	91.45	SHF	USA	-81.43	28.54	B	B	USGS
7.76	3.0	7/13/2011	7/12/2011	LT05_L1TP_016040_20110712_20160831_01_T1	1	110.92	SHF	USA	-81.82	28.6	B	B	USGS
49.41	17.5	9/14/2010	9/11/2010	LT05_L1TP_016040_20100911_20160831_01_T1	3	12304.63	SHF	USA	-81.63	28.62	B	B	USGS
73.5	9.0	9/13/2010	9/11/2010	LT05_L1TP_016040_20100911_20160831_01_T1	2	139.89	SHF	USA	-81.66	28.76	B	B	USGS
69.63	23.5	8/19/2014	8/21/2014	LC08_L1TP_016040_20140821_20170304_01_T1	-2	87.38	SHF	USA	-81.91	28.77	B	B	USGS
3.43	1.0	7/14/2011	7/12/2011	LT05_L1TP_016040_20110712_20160831_01_T1	2	17.32	SHF	USA	-81.34	29.18	B	B	USGS
4.24	2.0	9/14/2011	9/14/2011	LT05_L1TP_016040_20110914_20160830_01_T1	0	18.21	SHF	USA	-81.33	29.18	B	B	USGS
80.29	10.0	8/16/2011	8/13/2011	LT05_L1TP_016040_20110813_20160831_01_T1	3	19376.97	SHF	USA	-81.61	29.30	B	B	USGS
49.79	10.0	9/12/2011	9/14/2011	LT05_L1TP_016040_20110914_20160830_01_T1	-2	6784.88	SHF	USA	-81.5	29.46	B	B	USGS
46.27	9.0	8/11/2011	8/13/2011	LT05_L1TP_016040_20110813_20160831_01_T1	-2	6929.03	SHF	USA	-81.5	29.46	B	B	USGS
16.0	3.0	8/13/2007	8/15/2007	LT05_L1TP_027033_20070815_20160910_01_T1	-2	20.11	TPS	USA	-94.69	38.19	B	B	USGS

Chl-*a* (µg L^{-1})	Turbidity (NTU)	Sample Date	Image Date	Landsat Product ID	Lag (Days)	Lake Area (Ha)	Ecoregion	Country	Longitude	Latitude	H-OWT	Q-OWT	Source
18.5	2.0	7/26/1999	7/24/1999	LT05_L1TP_027033_19990724_20160919_01_T1	2	111.02	TPS	USA	-95.63	39.00	B	B	USGS
41.0	15.5	7/28/1989	7/28/1989	LT05_L1TP_027033_19890728_20161001_01_T1	0	32.18	TPS	USA	-95.16	38.80	B	B	USGS
18.4	4.0	10/21/2010	10/22/2010	LT05_L1TP_015042_20101022_20160831_01_T1	-1	36.54	TMF	USA	-80.08	26.60	B	B	USGS
39.5	9.0	9/8/2015	9/9/2015	LC08_L1TP_016041_20150909_20170225_01_T1	-1	223.56	SHF	USA	-81.74	28.10	B	B	USGS
4.8	1.0	8/6/2014	8/5/2014	LC08_L1TP_016040_20140805_20170304_01_T1	1	14.88	SHF	USA	-81.57	28.47	B	B	USGS
47.9	7.33	8/20/2014	8/21/2014	LC08_L1TP_016040_20140821_20170304_01_T1	-1	697.28	SHF	USA	-81.25	28.71	B	B	USGS
43.1	9.0	9/13/2010	9/11/2010	LT05_L1TP_016040_20100911_20160831_01_T1	2	2094.84	SHF	USA	-81.67	28.80	B	B	USGS
4.8	1.0	8/19/2014	8/21/2014	LC08_L1TP_016040_20140821_20170304_01_T1	-2	34.07	SHF	USA	-81.52	28.49	E	B	USGS
16.2	5.0	10/7/2014	10/8/2014	LC08_L1TP_016040_20141008_20170303_01_T1	-1	2110.53	SHF	USA	-81.94	29.01	F	B	USGS
92.3	13.5	7/7/2010	7/9/2010	LT05_L1TP_016041_20100709_20160901_01_T1	-2	75.6	SHF	USA	-81.9	27.98	C	C	USGS
57.3	9.0	7/8/2010	7/9/2010	LT05_L1TP_016041_20100709_20160901_01_T1	-1	29.46	SHF	USA	-81.97	28.03	C	C	USGS
17.3	2.0	7/6/2010	7/9/2010	LT05_L1TP_016040_20100709_20160901_01_T1	-3	21.33	SHF	USA	-80.79	28.07	C	C	USGS
8.3	2.0	7/12/2010	7/9/2010	LT05_L1TP_016041_20100709_20160901_01_T1	3	22.4	SHF	USA	-81.73	28.08	C	C	USGS
8.4	5.0	7/12/2010	7/9/2010	LT05_L1TP_016041_20100709_20160901_01_T1	3	219.09	SHF	USA	-81.74	28.10	C	C	USGS
9.0	2.0	7/12/2010	7/9/2010	LT05_L1TP_016041_20100709_20160901_01_T1	3	20.97	SHF	USA	-81.73	28.10	C	C	USGS
32.9	5.0	7/6/2010	7/9/2010	LT05_L1TP_016041_20100709_20160901_01_T1	-3	170.07	SHF	USA	-81.96	28.11	C	C	USGS
37.0	4.0	9/8/2015	9/9/2015	LC08_L1TP_016040_20150909_20170225_01_T1	-1	28.87	SHF	USA	-81.57	28.52	C	C	USGS
82.2	14.0	7/7/2010	7/9/2010	LT05_L1TP_016040_20100709_20160901_01_T1	-2	87.89	SHF	USA	-81.91	28.77	C	C	USGS
37..	10.0	7/8/2010	7/9/2010	LT05_L1TP_016040_20100709_20160901_01_T1	-1	6948.51	SHF	USA	-81.54	29.51	C	C	USGS
20.0	12.5	7/21/1998	7/21/1998	LT05_L1TP_027033_19980721_20160922_01_T1	0	34.66	TPS	USA	-95.52	39.68	C	C	USGS
21.5	1.0	9/3/1987	8/31/1987	LT05_L1TP_028027_19870831_20161002_01_T1	3	13.5	TCF	USA	-93.53	46.64	C	C	USGS
20.2	1.0	9/3/1987	8/31/1987	LT05_L1TP_028027_19870831_20161002_01_T1	3	104.37	TCF	USA	-93.52	46.65	C	C	USGS
91.7	39.0	9/14/2011	9/14/2011	LT05_L1TP_016040_20110914_20160830_01_T1	0	89.96	SHF	USA	-81.91	28.77	C	C	USGS
16.0	3.0	8/9/2000	8/11/2000	LT05_L1TP_027033_20000811_20160918_01_T1	-2	2750.03	TPS	USA	-95.39	38.9	C	C	USGS
39.0	34.5	8/23/2010	8/23/2010	LT05_L1TP_027033_20100823_20160901_01_T1	0	52.57	TPS	USA	-96.15	39.71	C	C	USGS
1.5	3.0	8/28/1996	8/31/1996	LT05_L1TP_036032_19960831_20160925_01_T1	-3	27.65	TPD	USA	-109.7	40.25	C	C	USGS
10.6	15.0	9/28/2000	9/28/2000	LT05_L1TP_043029_20000928_20160918_01_T1	0	286.96	TPD	USA	-118.16	43.92	C	C	USGS
0.6	0.5	7/2/1985	7/4/1985	LT05_L1TP_048026_19850704_20161004_01_T1	-2	44.65	TCF	CAN	-124.11	48.81	D	D	EMS
1.3	1.3	7/16/1985	7/16/1985	LT05_L1TP_052022_19850716_20170219_01_T1	0	328.93	TCF	CAN	-127.04	54.71	D	D	EMS
2.4	2.5	7/23/2002	7/23/2002	LE07_L1TP_052022_20020723_20170128_01_T1	0	112.94	TCF	CAN	-127.21	54.82	D	D	EMS
2.4	2.0	7/18/1997	7/15/1997	LT05_L1TP_038032_19970715_20160923_01_T1	3	212.47	TPD	USA	-111.59	40.91	D	D	USGS
1.4	1.0	7/2/1998	7/2/1998	LT05_L1TP_038032_19980702_20160923_01_T1	0	497.98	TPD	USA	-111.41	40.96	D	D	USGS
3.1	3.0	8/16/1999	8/17/1999	LE07_L1TP_043028_19990817_20161002_01_T1	0	266.72	TPD	USA	-118.79	45.59	D	D	USGS
0.5	2.8	8/1/2007	8/2/2007	LT05_L1TP_048026_20070802_20160908_01_T1	-1	191.15	TCF	CAN	-123.4	48.53	D	D	EMS
0.7	0.5	7/3/1985	7/4/1985	LT05_L1TP_048026_19850704_20161004_01_T1	-1	9.7	TCF	CAN	-123.83	48.96	D	D	EMS
0.6	0.5	8/8/1985	8/5/1985	LT05_L1TP_048026_19850805_20161004_01_T1	3	10.86	TCF	CAN	-123.83	48.96	D	D	EMS
0.7	0.4	7/9/2002	7/6/2002	LE07_L1TP_045026_20020706_20160929_01_T1	3	53.79	TCF	CAN	-118.61	49.17	D	D	EMS
2.5	0.7	8/8/1985	8/5/1985	LT05_L1TP_048026_19850805_20161004_01_T1	3	45.4	TCF	CAN	-124	49.16	E	D	EMS
4.0	0.9	8/15/1984	8/16/1984	LT05_L1TP_050022_19840816_20170220_01_T1	-1	172.77	TCF	CAN	-126.36	54.18	E	D	EMS
3.1	1.3	7/16/1985	7/16/1985	LT05_L1TP_052022_19850716_20170219_01_T1	0	110.76	TCF	CAN	-127.21	54.82	F	D	EMS
2.2	1.0	7/27/1995	7/26/1995	LT05_L1TP_038032_19950726_20160926_01_T1	1	211.98	TPD	USA	-111.59	40.91	G	D	USGS
66.0	7.0	8/12/2009	8/15/2009	LT05_L1TP_193018_20090815_20161026_01_T1	-3	21.94	TCF	SWE	16.87	60.16	G	D	SLU
1.4	2.0	9/28/2015	9/25/2015	LC08_L1TP_016040_20150925_20170225_01_T1	3	82.05	SHF	USA	-81.9	29.23	A	E	USGS
2.7	5.0	9/14/2011	9/14/2011	LT05_L1TP_016040_20110914_20160830_01_T1	0	678.14	SHF	USA	-81.4	29.28	A	E	USGS

Chl-*a* (µg L^{-1})	Turbidity (NTU)	Sample Date	Image Date	Landsat Product ID	Lag (Days)	Lake Area (Ha)	Ecoregion	Country	Longitude	Latitude	H-OWT	Q-OWT	Source
1.1	2.0	7/6/1999	7/7/1999	LT05_L1TP_036032_19990707_20160919_01_T1	-1	271.87	TPD	USA	-109.53	40.52	A	E	USGS
4.4	4.6	8/14/2015	8/16/2015	LC08_L1TP_193018_20150816_20170406_01_T1	-2	11463.91	TCF	SWE	17.5	59.29	D	E	SLU
7.0	6.6	7/11/2013	7/9/2013	LC08_L1TP_193018_20130709_20170504_01_T1	2	4628.74	TCF	SWE	17.53	59.72	D	E	SLU
1.2	1.0	7/14/1998	7/11/1998	LT05_L1TP_037032_19980711_20160923_01_T1	3	39.5	TPD	USA	-110.85	40.31	D	E	USGS
1.3	2.0	8/4/1999	8/7/1999	LE07_L1TP_037032_19990807_20161003_01_T1	-3	61.38	TPD	USA	-111.1	40.76	D	E	USGS
33.3	2.5	8/24/1989	8/27/1989	LT04_L1TP_037032_19890827_20161001_01_T1	-3	4447.85	TPD	USA	-111.12	40.17	E	E	USGS
6.7	1.0	9/26/1995	9/28/1995	LT05_L1TP_038032_19950928_20160926_01_T1	-2	178.8	TPD	USA	-111.59	40.91	E	E	USGS
69.1	4.0	8/26/2015	8/24/2015	LC08_L1TP_016041_20150824_20170225_01_T1	2	195.91	SHF	USA	-82.28	28.06	E	E	USGS
7.5	1.8	10/28/2009	10/26/2009	LT05_L1TP_048026_20091026_20160903_01_T1	2	52.1	TCF	CAN	-123.53	48.45	E	E	EMS
23.0	2.0	8/29/1994	8/30/1994	LT05_L1TP_048024_19940830_20170112_01_T1	-1	641.67	TCF	CAN	-122.05	52.11	E	E	EMS
16.0	4.7	8/28/2013	8/26/2013	LC08_L1TP_193018_20130826_20170502_01_T1	2	4491.8	TCF	SWE	17.53	59.72	E	E	SLU
53.3	4.0	10/31/2013	10/30/2013	LC08_L1TP_015042_20131030_20170308_01_T1	1	24.77	TMF	USA	-80.08	26.48	E	E	USGS
26.1	4.0	10/21/2010	10/22/2010	LT05_L1TP_015042_20101022_20160831_01_T1	-1	26.21	TMF	USA	-80.08	26.48	E	E	USGS
64.4	4.0	1/8/2001	1/6/2001	LE07_L1TP_015042_20010106_20161001_01_T1	2	22.32	TMF	USA	-80.08	26.58	E	E	USGS
17.6	4.0	1/8/2001	1/6/2001	LE07_L1TP_015042_20010106_20161001_01_T1	2	35.48	TMF	USA	-80.08	26.6	E	E	USGS
27.9	3.0	1/8/2001	1/6/2001	LE07_L1TP_015042_20010106_20161001_01_T1	2	26	TMF	USA	-80.08	26.61	E	E	USGS
14.1	2.0	9/14/2010	9/11/2010	LT05_L1TP_016041_20100911_20160831_01_T1	3	462.29	SHF	USA	-81.55	27.74	E	E	USGS
5.8	1.0	8/5/2013	8/2/2013	LC08_L1TP_016041_20130802_20170309_01_T1	3	16.94	SHF	USA	-81.77	28.01	E	E	USGS
43.0	3.0	9/10/2015	9/9/2015	LC08_L1TP_016041_20150909_20170225_01_T1	1	14.88	SHF	USA	-81.93	28.11	E	E	USGS
37.0	5.0	9/9/2015	9/9/2015	LC08_L1TP_016041_20150909_20170225_01_T1	0	351.74	SHF	USA	-81.8	28.13	E	E	USGS
8.1	2.0	10/14/2010	10/13/2010	LT05_L1TP_016041_20101013_20160831_01_T1	1	35.45	SHF	USA	-81.81	28.14	E	E	USGS
12.0	1.0	9/9/2015	9/9/2015	LC08_L1TP_016041_20150909_20170225_01_T1	0	35.73	SHF	USA	-81.81	28.14	E	E	USGS
4.5	1.0	9/22/2015	9/25/2015	LC08_L1TP_016040_20150925_20170225_01_T1	-3	33.4	SHF	USA	-81.48	28.42	E	E	USGS
4.8	1.0	8/19/2014	8/21/2014	LC08_L1TP_016040_20140821_20170304_01_T1	-2	22.4	SHF	USA	-81.55	28.46	E	E	USGS
8.2	1.5	10/12/2010	10/13/2010	LT05_L1TP_016040_20101013_20160831_01_T1	-1	85.05	SHF	USA	-81.39	28.48	E	E	USGS
20.9	3.0	10/12/2010	10/13/2010	LT05_L1TP_016040_20101013_20160831_01_T1	-1	8.82	SHF	USA	-81.37	28.5	E	E	USGS
14.5	3.0	10/12/2010	10/13/2010	LT05_L1TP_016040_20101013_20160831_01_T1	-1	18.56	SHF	USA	-81.37	28.51	E	E	USGS
19.7	1.0	9/8/2015	9/9/2015	LC08_L1TP_016040_20150909_20170225_01_T1	-1	160.49	SHF	USA	-81.66	28.53	E	E	USGS
3.2	1.0	10/26/2010	10/29/2010	LT05_L1TP_016040_20101029_20160831_01_T1	-3	24.75	SHF	USA	-81.17	28.6	E	E	USGS
32.1	5.0	9/14/2010	9/11/2010	LT05_L1TP_016040_20100911_20160831_01_T1	3	6898.61	SHF	USA	-81.5	29.46	E	E	USGS
4.0	1.0	8/25/1999	8/27/1999	LT05_L1TP_025028_19990827_20160919_01_T1	-2	56.11	TCF	USA	-89.89	45.96	E	E	USGS
18.4	1.5	9/5/1995	9/2/1995	LT05_L1TP_048024_19950902_20170106_01_T1	3	642.23	TCF	CAN	-122.05	52.11	E	E	EMS
7.6	1.4	7/25/2002	7/25/2002	LE07_L1TP_050022_20020725_20170130_01_T1	0	562.98	TCF	CAN	-125.88	54.32	E	E	EMS
200.0	10.0	8/22/2017	8/21/2017	LC08_L1TP_193018_20170821_20170911_01_T1	1	166.26	TCF	SWE	18.04	59.20	E	E	SLU
31.0	3.4	8/22/2017	8/21/2017	LC08_L1TP_193018_20170821_20170911_01_T1	1	45.08	TCF	SWE	18.09	59.23	E	E	SLU
18.0	4.7	8/29/2013	8/26/2013	LC08_L1TP_193018_20130826_20170502_01_T1	3	2297.75	TCF	SWE	17.73	59.6	E	E	SLU
54.1	2.0	10/31/2013	10/30/2013	LC08_L1TP_015042_20131030_20170308_01_T1	1	22.39	TMF	USA	-80.08	26.61	E	E	USGS
9.7	1.0	10/30/2013	10/30/2013	LC08_L1TP_015042_20131030_20170308_01_T1	0	32.34	TMF	USA	-80.07	26.71	E	E	USGS
95.8	15.0	10/27/2014	10/24/2014	LC08_L1TP_016041_20141024_20170303_01_T1	3	212.47	SHF	USA	-80.67	27.69	E	E	USGS
9.1	2.0	8/19/2014	8/21/2014	LC08_L1TP_016041_20140821_20170304_01_T1	-2	2288.22	SHF	USA	-80.76	27.71	E	E	USGS
6.35	1.0	10/21/2013	10/21/2013	LC08_L1TP_016041_20131021_20170308_01_T1	0	44.22	SHF	USA	-80.77	28.08	E	E	USGS
16.2	2.0	9/8/2015	9/9/2015	LC08_L1TP_016041_20150909_20170225_01_T1	-1	19.1	SHF	USA	-81.73	28.10	E	E	USGS
9.1	1.0	8/19/2014	8/21/2014	LC08_L1TP_016040_20140821_20170304_01_T1	-2	871.89	SHF	USA	-80.75	28.15	E	E	USGS
17.0	3.0	10/8/2014	10/8/2014	LC08_L1TP_016040_20141008_20170303_01_T1	0	107.37	SHF	USA	-81.82	28.17	E	E	USGS

Chl-*a* (µg L^{-1})	Turbidity (NTU)	Sample Date	Image Date	Landsat Product ID	Lag (Days)	Lake Area (Ha)	Ecoregion	Country	Longitude	Latitude	H-OWT	Q-OWT	Source
4.0	1.0	10/11/2010	10/13/2010	LT05_L1TP_016040_20101013_20160831_01_T1	-2	230.62	SHF	USA	-81.36	28.48	E	E	USGS
4.6	1.0	10/11/2010	10/13/2010	LT05_L1TP_016040_20101013_20160831_01_T1	-2	82.51	SHF	USA	-81.39	28.51	E	E	USGS
6.0	1.0	10/26/2010	10/29/2010	LT05_L1TP_016040_20101029_20160831_01_T1	-3	31.35	SHF	USA	-81.13	28.58	E	E	USGS
10.7	1.0	10/8/2013	10/5/2013	LC08_L1TP_016040_20131005_20170308_01_T1	3	26.12	SHF	USA	-81.27	28.59	E	E	USGS
6.8	1.0	10/26/2010	10/29/2010	LT05_L1TP_016040_20101029_20160831_01_T1	-3	11.61	SHF	USA	-81.1	28.59	E	E	USGS
8.4	2.0	8/19/2014	8/21/2014	LC08_L1TP_016040_20140821_20170304_01_T1	-2	122.47	SHF	USA	-81.81	28.60	E	E	USGS
14.0	2.0	9/28/2011	9/30/2011	LT05_L1TP_016040_20110930_20160830_01_T1	-2	3106.47	SHF	USA	-81.27	28.84	E	E	USGS
30.2	1.0	8/29/1996	8/29/1996	LT05_L1TP_038032_19960829_20160925_01_T1	0	5412.63	TPD	USA	-111.12	40.17	E	E	USGS
26.3	1.0	9/3/1997	9/1/1997	LT05_L1TP_038032_19970901_20160924_01_T1	2	5380.07	TPD	USA	-111.13	40.17	E	E	USGS
10.7	1.0	9/3/1997	9/1/1997	LT05_L1TP_038032_19970901_20160924_01_T1	2	85.79	TPD	USA	-111.06	40.34	E	E	USGS
3.7	1.0	9/28/1995	9/28/1995	LT05_L1TP_038032_19950928_20160926_01_T1	0	22.76	TPD	USA	-110.93	40.83	E	E	USGS
11.2	1.0	9/16/1986	9/13/1986	LT05_L1TP_028027_19860913_20161003_01_T1	3	141.53	TCF	USA	-94.47	47.55	E	E	USGS
0.6	0.3	7/16/2008	7/19/2008	LT05_L1TP_048026_20080719_20160908_01_T1	-3	5900.76	TCF	CAN	-124.26	48.87	F	E	EMS
1.8	0.8	7/22/2008	7/19/2008	LT05_L1TP_048026_20080719_20160908_01_T1	3	6.74	TCF	CAN	-124.01	49.2	F	E	EMS
9.8	4.3	9/21/2016	9/19/2016	LC08_L1TP_193018_20160919_20170321_01_T1	2	2316.29	TCF	SWE	17.73	59.6	F	E	SLU
2.4	2.0	7/12/2011	7/12/2011	LT05_L1TP_016040_20110712_20160831_01_T1	0	14.5	SHF	USA	-81.15	28.58	F	E	USGS
1.4	1.0	8/13/1997	8/16/1997	LT05_L1TP_038032_19970816_20160925_01_T1	-3	50.02	TPD	USA	-111.24	39.58	F	E	USGS
7.8	3.0	9/14/2010	9/11/2010	LT05_L1TP_016040_20100911_20160831_01_T1	3	409.58	SHF	USA	-81.64	28.53	F	E	USGS
3.3	1.0	10/26/2010	10/29/2010	LT05_L1TP_016040_20101029_20160831_01_T1	-3	249.49	SHF	USA	-81.11	28.6	F	E	USGS
4.8	2.0	8/16/1989	8/19/1989	LT05_L1TP_037032_19890819_20161002_01_T1	-3	74.72	TPD	USA	-111.06	40.34	F	E	USGS
4.2	2.0	9/22/1987	9/22/1987	LT05_L1TP_038032_19870922_20161002_01_T1	0	634.95	TPD	USA	-111.5	40.44	F	E	USGS
2.5	1.0	9/29/1998	9/29/1998	LT05_L1TP_037032_19980929_20160924_01_T1	0	9.74	TPD	USA	-110.95	40.68	F	E	USGS
7.3	2.0	8/10/1995	8/11/1995	LT05_L1TP_038032_19950811_20160926_01_T1	-1	216.12	TPD	USA	-111.59	40.91	F	E	USGS
7.6	2.0	7/20/1999	7/21/1999	LT05_L1TP_038032_19990721_20160923_01_T1	-1	213.61	TPD	USA	-111.59	40.91	F	E	USGS
8.4	2.0	9/28/1994	9/25/1994	LT05_L1TP_038032_19940925_20160927_01_T1	3	145.21	TPD	USA	-111.59	40.91	F	E	USGS
4.6	2.0	10/27/1999	10/25/1999	LT05_L1TP_038032_19991025_20160919_01_T1	2	172.44	TPD	USA	-111.59	40.91	G	E	USGS
24.9	25.0	8/9/2001	8/10/2001	LT05_L1TP_015042_20010810_20160917_01_T1	-1	48589.89	TMF	USA	-80.81	26.83	D	F	USGS
1.3	1.2	9/11/2002	9/8/2002	LE07_L1TP_045026_20020908_20160928_01_T1	3	16.06	TCF	CAN	-119.73	49.32	D	F	EMS
46.4	7.0	8/19/2014	8/21/2014	LC08_L1TP_016041_20140821_20170304_01_T1	-2	1760.15	SHF	USA	-81.84	27.97	E	F	USGS
7.6	2.0	7/29/2003	7/26/2003	LT05_L1TP_044028_20030726_20160915_01_T1	3	277.87	TPD	USA	-119.16	45.86	E	F	USGS
58.7	2.6	8/4/2011	8/5/2011	LT05_L1TP_193018_20110805_20161009_01_T1	-1	6.58	TCF	SWE	18.03	59.21	E	F	SLU
9.0	2.0	9/14/2010	9/11/2010	LT05_L1TP_016040_20100911_20160831_01_T1	3	78.8	SHF	USA	-81.6	28.53	E	F	USGS
3.6	1.9	8/4/2011	8/5/2011	LT05_L1TP_193018_20110805_20161009_01_T1	-1	6.53	TCF	SWE	18.2	59.18	F	F	SLU
1.4	1.0	8/6/1999	8/6/1999	LT05_L1TP_038032_19990806_20160923_01_T1	0	863.77	TPD	USA	-111.49	40.44	F	F	USGS
1.0	0.5	7/3/1985	7/4/1985	LT05_L1TP_048026_19850704_20161004_01_T1	-1	44.02	TCF	CAN	-124	49.16	F	F	EMS
1.2	0.5	7/22/2008	7/19/2008	LT05_L1TP_048026_20080719_20160908_01_T1	3	7.46	TCF	CAN	-124.06	49.23	F	F	EMS
1.3	0.7	9/29/2004	9/26/2004	LT05_L1TP_048026_20040926_20160913_01_T1	3	24.28	TCF	CAN	-124.63	49.35	F	F	EMS
0.5	0.2	8/12/1992	8/15/1992	LT05_L1TP_049025_19920815_20170122_01_T1	-3	52.04	TCF	CAN	-125.48	49.92	F	F	EMS
0.5	0.2	8/19/2010	8/17/2010	LT05_L1TP_049025_20100817_20161014_01_T1	2	262.63	TCF	CAN	-125.35	50.04	F	F	EMS
11.02	6.6	7/11/2013	7/9/2013	LC08_L1TP_193018_20130709_20170504_01_T1	2	86661.9	TCF	SWE	17.24	59.43	F	F	SLU
31.42	12.0	10/22/2002	10/24/2002	LE07_L1TP_015042_20021024_20160928_01_T1	-2	42994.63	TMF	USA	-80.82	26.82	F	F	USGS
2.6	1.0	10/11/2010	10/13/2010	LT05_L1TP_016040_20101013_20160831_01_T1	-2	119.24	SHF	USA	-81.35	28.46	F	F	USGS
2.5	1.0	10/11/2010	10/13/2010	LT05_L1TP_016040_20101013_20160831_01_T1	-2	266.42	SHF	USA	-81.35	28.47	F	F	USGS
2.9	1.0	9/13/2010	9/11/2010	LT05_L1TP_016040_20100911_20160831_01_T1	2	153.6	SHF	USA	-81.63	28.75	F	F	USGS

Chl-*a* (µg L^{-1})	Turbidity (NTU)	Sample Date	Image Date	Landsat Product ID	Lag (Days)	Lake Area (Ha)	Ecoregion	Country	Longitude	Latitude	H-OWT	Q-OWT	Source
28.6	7.0	10/27/2014	10/24/2014	LC08_L1TP_016040_20141024_20170303_01_T1	3	1472.24	SHF	USA	-81.74	28.92	F	F	USGS
13.5	0.6	10/7/1996	10/6/1996	LT05_L1TP_048024_19961006_20170103_01_T1	1	668.78	TCF	CAN	-122.05	52.11	E	G	EMS
18.0	1.6	8/22/2017	8/21/2017	LC08_L1TP_193018_20170821_20170911_01_T1	1	192.47	TCF	SWE	18.18	59.21	E	G	SLU
3.0	0.5	10/8/1985	10/8/1985	LT05_L1TP_048026_19851008_20161004_01_T1	0	16.06	TCF	CAN	-123.67	48.50	G	G	EMS
0.7	0.4	7/23/2003	7/22/2003	LT05_L1TP_048026_20030722_20160915_01_T1	1	429.5	TCF	CAN	-123.63	48.61	G	G	EMS
1.2	0.6	10/7/1985	10/8/1985	LT05_L1TP_048026_19851008_20161004_01_T1	-1	45.58	TCF	CAN	-124.11	48.81	G	G	EMS
0.8	0.5	8/8/1985	8/5/1985	LT05_L1TP_048026_19850805_20161004_01_T1	3	44.66	TCF	CAN	-124.11	48.81	G	G	EMS
0.7	0.4	10/7/1985	10/8/1985	LT05_L1TP_048026_19851008_20161004_01_T1	-1	11.66	TCF	CAN	-123.83	48.96	G	G	EMS
0.7	0.3	8/16/1994	8/18/1994	LT05_L1TP_044026_19940818_20160927_01_T1	-2	2411.75	TCF	CAN	-118.26	49.13	G	G	EMS
3.8	0.7	10/7/1985	10/8/1985	LT05_L1TP_048026_19851008_20161004_01_T1	-1	45.41	TCF	CAN	-124	49.16	G	G	EMS
1.0	0.4	9/27/2006	9/27/2006	LT05_L1TP_045026_20060927_20160910_01_T1	0	55.87	TCF	CAN	-118.6	49.18	G	G	EMS
0.6	0.2	8/18/2016	8/17/2016	LC08_L1TP_049025_20160817_20170322_01_T1	1	3219.44	TCF	CAN	-125.57	49.73	G	G	EMS
0.8	0.3	10/8/2009	10/10/2009	LT05_L1TP_048025_20091010_20161019_01_T1	-2	84.41	TCF	CAN	-122.98	50.11	G	G	EMS
1.5	0.4	9/10/2008	9/7/2008	LT05_L1TP_046024_20080907_20161029_01_T1	3	1126.69	TCF	CAN	-121.11	51.59	G	G	EMS
1.5	0.5	9/10/2015	9/11/2015	LC08_L1TP_046024_20150911_20170225_01_T1	-1	1118.1	TCF	CAN	-121.11	51.59	G	G	EMS
18.7	3.9	10/3/1989	10/3/1989	LT05_L1TP_048024_19891003_20170201_01_T1	0	641.32	TCF	CAN	-122.07	52.12	G	G	EMS
1.9	0.6	7/16/1985	7/18/1985	LT05_L1TP_050022_19850718_20170219_01_T1	-2	187.91	TCF	CAN	-126.36	54.18	G	G	EMS
12.8	3.0	8/26/2002	8/26/2002	LE07_L1TP_050022_20020826_20170128_01_T1	0	564.7	TCF	CAN	-125.75	54.21	G	G	EMS
12.7	2.0	8/26/2002	8/26/2002	LE07_L1TP_050022_20020826_20170128_01_T1	0	187.7	TCF	CAN	-125.84	54.29	G	G	EMS
16.8	3.3	7/23/2002	7/23/2002	LE07_L1TP_052022_20020723_20170128_01_T1	0	324.33	TCF	CAN	-127.04	54.71	G	G	EMS
3.6	1.4	7/23/2002	7/23/2002	LE07_L1TP_052022_20020723_20170128_01_T1	0	58.02	TCF	CAN	-127.16	54.74	G	G	EMS
4.5	2.2	8/28/2013	8/26/2013	LC08_L1TP_193018_20130826_20170502_01_T1	2	5.34	TCF	SWE	18.2	59.18	G	G	SLU
2.9	1.0	10/27/2014	10/24/2014	LC08_L1TP_016041_20141024_20170303_01_T1	3	2055.39	SHF	USA	-80.76	27.73	G	G	USGS
108.5	7.0	10/27/2014	10/24/2014	LC08_L1TP_016041_20141024_20170303_01_T1	3	308.9	SHF	USA	-82.28	28.06	G	G	USGS
4.8	2.0	10/7/2014	10/8/2014	LC08_L1TP_016040_20141008_20170303_01_T1	-1	292.94	SHF	USA	-81.18	28.37	G	G	USGS
2.41	1.0	10/21/2014	10/24/2014	LC08_L1TP_016040_20141024_20170303_01_T1	-3	1114.79	SHF	USA	-81.26	28.83	G	G	USGS
2.67	1.0	10/28/2008	10/29/2008	LT05_L1TP_042033_20081029_20160907_01_T1	-1	12583.78	TPD	USA	-118.72	38.7	G	G	USGS
5.0	1.0	10/13/1999	10/10/1999	LE07_L1TP_037032_19991010_20161003_01_T1	3	5742.79	TPD	USA	-111.12	40.17	G	G	USGS
2.6	1.0	7/15/1997	7/15/1997	LT05_L1TP_038032_19970715_20160923_01_T1	1	5925.21	TPD	USA	-111.12	40.17	G	G	USGS
5.0	1.0	9/29/1999	10/2/1999	LT05_L1TP_037032_19991002_20160919_01_T1	-3	14.76	TPD	USA	-110.89	40.7	G	G	USGS
4.0	1.0	10/6/1999	10/6/1999	LE07_L1TP_025028_19991006_20161003_01_T1	0	178.52	TCF	USA	-89.5	46.06	G	G	USGS
6.0	2.0	10/6/1999	10/6/1999	LE07_L1TP_025028_19991006_20161003_01_T1	0	32.84	TCF	USA	-89.52	46.06	G	G	USGS
1.0	0.5	10/8/2009	10/10/2009	LT05_L1TP_048025_20091010_20161019_01_T1	-2	6.2	TCF	CAN	-122.99	50.1	G	G	EMS
3.2	1.0	8/20/2014	8/21/2014	LC08_L1TP_016040_20140821_20170304_01_T1	-1	2913.71	SHF	USA	-81.27	28.84	G	G	USGS
5.0	9.0	7/23/2003	7/23/2003	LT05_L1TP_039034_20030723_20160915_01_T1	0	25.57	TPD	USA	-114.2	38.02	A	A	USGS

EMS = The Government of British Columbia (2021) Environmental Monitoring System (EMS) Surface water monitoring. Last accessed 03/11/2021 at URL https://www2.gov.bc.ca/gov/content/environment/research-monitoring-reporting/monitoring/environmental-monitoring-system

USGS = U.S. Geological Survey (2021), Environmental Protection Agency: Storage and Retrieval (STORET). Data available on the World Wide Web (USGS Water Data for the Nation). Last accessed 03/11/2021, at URL https://www.waterqualitydata.us/portal AND U.S. Geological Survey (2021), National Water Information System (NWIS). Data available on the World Wide Web (USGS Water Data for the Nation). Last accessed 03/11/2021, at URL https://www.waterqualitydata.us/portal/

SLU = Swedish University of Agricultural Sciences (SLU) (2021). Miljödata MVM Environmental Data. Last accessed at 03/11/2021 at URL http://miljodata.slu.se/mvm

Table S2a. Chl-*a* retrieval algorithm results summary for OWT-A_h after outlier removal. Parameters displayed are coefficient of determination (r^2), p-value (p), root mean square error (RMSE; (μg L^{-1})), root mean square log error (RMSLE), normalized root mean square error, mean absolute error (MAE, (μg L^{-1})), median absolute percentage error (MAPE %), bias (μg L^{-1}), Breusch-Pagan constant variance (CV), and Shapiro-Wilks normality (NM). Filled boxes indicate that the assumptions of linear regressions have been met (r^2 $p < 0.05$, CV and NM $p \geq 0.05$), empty boxes indicate that the assumptions have not been met.

Algorithm	r^2	Adj. r^2	RMSE	RMLSE	NRMSE	MAE	MAPE	Bias	p	CV	NM	n
B	0.09	-0.09	NA	NA	NA	NA	0.11	-0.06	□	■	■	7
G	0.77	0.71	NA	NA	NA	NA	0.07	-0.02	■	■	■	6
R	0.80	0.76	NA	NA	NA	NA	0.05	-0.03	■	■	■	7
N	0.02	-0.08	2.73	0.38	0.39	2.22	1.10	-1.03	□	■	■	12
B×G	0.27	0.15	NA	NA	NA	NA	0.11	-0.05	□	■	■	8
B×R	0.06	-0.88	NA	NA	NA	NA	0.07	-0.03	□	■	■	3
B×N	0.69	0.53	NA	NA	NA	NA	0.04	-0.01	□	■	■	4
G×R	0.40	0.27	NA	NA	NA	NA	0.11	-0.07	□	■	□	7
G×N	0.07	-0.06	NA	NA	NA	NA	0.13	-0.09	□	■	■	9
R×N	0.59	0.51	NA	NA	NA	NA	0.11	-0.05	■	■	■	7
B/G	0.67	0.51	NA	NA	NA	NA	0.02	0.00	□	■	■	4
B/R	0.91	0.90	NA	NA	NA	NA	0.06	-0.02	■	■	■	9
B/N	0.18	0.07	0.95	0.24	0.73	0.95	1.21	-0.24	□	■	■	10
G/B	0.82	0.79	NA	NA	NA	NA	0.03	-0.01	■	■	■	7
G/R	0.46	0.36	NA	NA	NA	NA	0.10	-0.04	□	■	■	7
G/N	0.05	-0.04	2.59	0.34	0.37	2.15	1.46	-0.70	□	■	□	12
R/B	0.40	0.25	NA	NA	NA	NA	0.07	-0.03	□	■	■	6
R/G	0.47	0.36	NA	NA	NA	NA	0.10	-0.04	□	■	■	7
R/N	0.00	-0.16	NA	NA	NA	NA	0.10	-0.07	□	■	■	8
N/B	0.87	0.81	NA	NA	NA	NA	0.04	-0.01	□	■	■	4
N/G	0.10	0.01	2.68	0.37	0.39	2.19	1.53	-0.60	□	■	□	12
N/R	0.00	-0.16	NA	NA	NA	NA	0.10	-0.07	□	■	■	8
B×G×R[1]	0.73	0.67	NA	NA	NA	NA	0.08	-0.02	■	■	■	6
B×G×N[1]	0.00	-0.12	0.96	0.21	0.78	0.96	0.41	-0.23	□	■	■	10
B×R×N[1]	0.01	-0.13	NA	NA	NA	NA	0.44	-0.24	□	■	■	9
G×R×N[1]	0.56	0.47	NA	NA	NA	NA	0.08	-0.05	□	■	■	7
Avg(B;G)[1,2]	0.29	0.17	NA	NA	NA	NA	0.11	-0.05	□	■	■	8
Avg(B;R)[1,2]	0.29	0.18	NA	NA	NA	NA	0.11	-0.05	□	■	■	8
Avg(B;N)[1,2]	0.03	-0.22	NA	NA	NA	NA	0.06	-0.02	□	■	■	6
Avg(G;R)[1,2]	0.17	-0.25	NA	NA	NA	NA	0.05	-0.02	□	■	■	4
Avg(G;N)[1,2]	0.80	0.75	NA	NA	NA	NA	0.07	-0.02	■	■	■	6
Avg(R;N)[1,2]	0.40	0.20	NA	NA	NA	NA	0.05	-0.03	□	■	■	5
N-R[3,4]	0.75	0.67	NA	NA	NA	NA	0.04	-0.01	□	■	■	5
Kab1[5,6]	0.66	0.57	NA	NA	NA	NA	0.03	-0.01	□	■	■	6
NDVI	0.00	-0.16	NA	NA	NA	NA	0.10	-0.07	□	■	■	8
NRVI	0.00	-0.16	NA	NA	NA	NA	0.10	-0.07	□	■	■	8
OC2[7]	0.82	0.79	NA	NA	NA	NA	0.03	-0.01	■	■	■	7
SABI[5,8]	0.19	0.02	NA	NA	NA	NA	0.11	-0.06	□	■	■	7
(B-R)/G[4,9]	0.39	0.33	0.87	0.21	0.61	0.86	1.26	-0.28	■	■	□	11
(N/G)+(N/B)[10]	0.41	0.34	0.76	0.20	0.59	0.76	1.07	-0.16	■	■	■	10
G×(B+G+R)	1.00	1.00	NA	NA	NA	NA	0.01	0.00	■	■	■	4

Algorithm	r^2	Adj. r^2	RMSE	RMLSE	NRMSE	MAE	MAPE	Bias	p	CV	NM	n
[(1/B)-(1/G)]×N[10]	0.80	0.74	NA	NA	NA	NA	0.02	0.00	■	■	■	5
[(1/R)-(1/G)]×N[10]	0.81	0.77	NA	NA	NA	NA	0.05	-0.02	■	■	■	7
[(1/R)-(1/B)]×N[10]	0.89	0.83	NA	NA	NA	NA	0.03	0.00	□	■	■	4
[(1/R)-(0.2363×(1/G))]×N[11]	0.42	0.22	NA	NA	NA	NA	0.06	-0.03	□	■	■	5
[(1/R)-(1/B)]/N[12]	0.63	0.54	NA	NA	NA	NA	0.06	-0.02	□	■	■	6
(B/R)×N	0.60	0.46	NA	NA	NA	NA	0.04	-0.01	□	■	■	5
(G/R)×N	0.01	-0.24	NA	NA	NA	NA	0.10	-0.05	□	■	■	6
(R/B)×N	0.53	0.41	NA	NA	NA	NA	0.11	-0.04	□	■	■	6
(R/G)×N	0.06	-0.05	0.89	0.20	0.72	0.89	0.41	-0.21	□	■	□	10
(R×N)/B[13]	0.53	0.41	NA	NA	NA	NA	0.11	-0.04	□	■	■	6
(B/G)×(B/R)	0.07	-0.11	NA	NA	NA	NA	0.07	-0.04	□	■	■	7
(B/G)×(B/N)	0.23	0.14	0.95	0.22	0.67	0.94	0.81	-0.43	□	■	□	11
(B/G)×(R/G)	0.05	-0.09	NA	NA	NA	NA	1.49	-0.28	□	■	□	9
(B/G)×(R/N)	0.22	0.09	NA	NA	NA	NA	0.11	-0.05	□	■	■	8
(B/G)×(N/B)	0.10	0.01	3.43	0.43	0.49	3.41	1.57	-1.90	□	■	□	12
(B/G)×(N/G)	0.38	0.31	0.85	0.20	0.60	0.81	0.72	-0.33	■	■	■	11
(B/G)×(N/R)	0.03	-0.13	NA	NA	NA	NA	0.10	-0.07	□	■	■	8
(B/R)×(B/N)	0.38	0.31	0.82	0.21	0.58	0.81	1.29	-0.13	■	■	□	11
(B/R)×(G/R)	0.07	-0.39	NA	NA	NA	NA	0.04	-0.01	□	■	■	4
(B/R)×(G/N)	0.00	-0.12	1.11	0.28	0.85	1.11	1.44	-0.31	□	■	□	10
(B/R)×(N/R)	0.34	0.22	NA	NA	NA	NA	0.10	-0.05	□	■	■	8
(B/N)×(G/N)	0.34	0.26	0.86	0.22	0.66	0.86	1.10	-0.18	□	■	■	10
(B/N)×(R/N)	0.21	0.12	1.01	0.24	0.71	1.00	1.23	-0.27	□	■	■	11
(G/B)×(G/R)	0.12	-0.10	NA	NA	NA	NA	0.05	-0.02	□	■	■	6
(G/B)×(G/N)	0.16	0.08	3.51	0.43	0.50	3.50	1.36	-1.92	□	■	□	12
(G/B)×(R/B)	0.07	-0.11	NA	NA	NA	NA	0.07	-0.04	□	■	■	7
(G/B)×(R/N)	0.03	-0.14	NA	NA	NA	NA	0.10	-0.07	□	■	■	8
(G/B)×(N/B)	0.09	-0.02	1.08	0.27	0.83	1.08	1.44	-0.28	□	■	□	10
(G/B)×(N/R)	0.26	0.13	NA	NA	NA	NA	0.11	-0.05	□	■	■	8
(G/R)×(G/N)	0.02	-0.07	2.59	0.37	0.37	2.21	1.69	-0.65	□	■	■	12
(G/R)×(N/R)	0.60	0.54	NA	NA	NA	NA	0.08	-0.04	■	■	■	9
(G/N)×(R/N)	0.05	-0.13	NA	NA	NA	NA	0.09	-0.04	□	■	■	7
(R/B)×(R/G)	0.06	-0.41	NA	NA	NA	NA	0.04	-0.01	□	■	■	4
(R/B)×(R/N)	0.45	0.34	NA	NA	NA	NA	0.09	-0.04	□	■	■	7
(R/B)×(N/B)	0.26	0.17	0.94	0.24	0.73	0.94	1.30	-0.22	□	■	■	10
(R/B)×(N/G)	0.00	-0.12	1.12	0.28	0.86	1.12	1.45	-0.31	□	■	□	10
(R/G)×(R/N)	0.79	0.75	NA	NA	NA	NA	0.08	-0.03	■	■	■	7
(R/G)×(N/G)	0.11	0.01	3.28	0.41	0.45	3.28	1.56	-1.84	□	■	□	11
(N/B)×(N/G)	0.00	-0.10	3.33	0.41	0.48	3.28	1.10	-2.17	□	■	■	12
(N/B)×(N/R)	0.15	-0.28	NA	NA	NA	NA	0.05	-0.01	□	■	■	4
(N/G)×(N/R)	0.17	0.09	3.30	0.39	0.48	3.30	1.40	-1.93	□	■	□	12

(1) Fadel et al., 2016; (2) Patra et al., 2015; (3) Tucker, 1979; (4) Ho et al., 2017; (5) Boucher et al., 2018; (6) Kabbara et al., 2008; (7) Trinh et al., 2017; (8) Alawadi et al., 2010; (9) Mayo et al., 1995; (10) Keith et al., 2018; (11) Chenet et al., 2013; (12) Singh et al., 2014; (13) Guan, 2009.

Kab1 = 1.67-3.94×ln(B)+3.78×ln(G)

NDVI = (N-R)/(N+R)

NRVI = [(R/NIR)-1]/[(R/NIR)+1)

SABI = (N-R)/(B+G)

$$\boldsymbol{OC2} = \mathbf{0.1977}+(-\mathbf{1.8117}(\boldsymbol{log}\mathbf{10}(\boldsymbol{BG})))\mathbf{1}+(\mathbf{1.9743}(\boldsymbol{log}\mathbf{10}(\boldsymbol{BG})))\mathbf{2}+(\mathbf{2.5635}(\boldsymbol{log}\mathbf{10}(\boldsymbol{BG})))\mathbf{3}+(-\mathbf{0.7218}(\boldsymbol{log}\mathbf{10}(\boldsymbol{BG})))\mathbf{4}$$

Table S2b. Chl-*a* retrieval algorithm results summary for OWT-B_h after outlier removal. Parameters displayed are coefficient of determination (r^2), p-value (p), root mean square error (RMSE; (μg L^{-1})), root mean square log error (RMSLE), normalized root mean square error, mean absolute error (MAE, (μg L^{-1})), median absolute percentage error (MAPE %), bias (μg L^{-1}), Breusch-Pagan constant variance (CV), and Shapiro-Wilks normality (NM). Filled boxes indicate that the assumptions of linear regressions have been met (r^2 $p < 0.05$, CV and NM $p \geq 0.05$), empty boxes indicate that the assumptions have not been met.

Algorithm	r^2	Adj. r^2	RMSE	RMLSE	NRMSE	MAE	MAPE	Bias	p	CV	NM	n
B	0.05	0.02	21.10	0.68	0.91	18.72	0.18	-7.75	□	■	□	30
G	0.11	0.08	23.75	0.77	0.99	18.84	0.20	-6.45	□	□	■	32
R	0.05	0.02	22.29	0.78	0.93	18.43	0.29	-7.49	□	■	■	32
N	0.07	0.04	26.01	0.70	0.79	20.46	0.24	-8.98	□	■	■	31
B×G	0.01	-0.02	22.55	0.79	0.98	18.94	0.21	-9.39	□	■	□	31
B×R	0.01	-0.03	23.28	0.70	1.00	18.79	0.18	-8.20	□	■	□	30
B×N	0.07	0.03	21.09	0.61	0.92	17.88	0.13	-6.18	□	■	■	29
G×R	0.08	0.05	21.62	0.77	0.89	18.62	0.26	-7.45	□	■	■	31
G×N	0.02	-0.02	22.85	0.78	0.94	19.64	0.17	-8.38	□	■	□	31
R×N	0.04	0.01	21.09	0.73	0.91	17.90	0.18	-8.09	□	■	□	29
B/G	0.82	0.81	11.74	0.31	0.55	10.16	0.09	-2.27	■	■	■	23
B/R	0.09	0.05	22.43	0.46	0.70	18.24	0.11	-6.69	□	■	■	26
B/N	0.03	-0.01	26.06	0.74	0.79	21.20	0.19	-8.24	□	■	■	31
G/B	0.00	-0.04	23.08	0.43	0.71	19.61	0.11	-7.82	□	■	■	25
G/R	0.14	0.10	23.10	0.45	0.70	18.10	0.10	-7.66	□	■	■	24
G/N	0.27	0.25	26.29	0.73	0.78	22.00	0.19	-6.83	■	■	■	31
R/B	0.20	0.17	28.19	0.78	0.84	21.84	0.19	-9.02	■	□	■	33
R/G	0.15	0.11	23.50	0.44	0.71	19.76	0.11	-4.06	□	■	■	24
R/N	0.20	0.18	26.85	0.75	0.79	21.77	0.17	-9.81	■	■	■	32
N/B	0.03	-0.01	28.30	0.80	0.86	21.88	0.17	-11.65	□	■	■	31
N/G	0.34	0.32	26.65	0.69	0.79	22.07	0.18	-8.17	■	■	■	30
N/R	0.12	0.06	14.02	0.35	0.81	13.00	0.09	-1.91	□	■	■	19
B×G×R[1]	0.01	-0.02	20.77	0.71	0.86	18.91	0.24	-10.24	□	■	□	32
B×G×N[1]	0.07	0.03	21.19	0.58	0.90	18.63	0.18	-5.07	□	■	■	25
B×R×N[1]	0.04	0.00	21.29	0.58	0.94	18.97	0.16	-7.91	□	■	■	27
G×R×N[1]	0.00	-0.03	24.32	0.80	1.01	20.48	0.21	-11.24	□	■	□	32
Avg(B;G)[1,2]	0.02	-0.01	19.36	0.54	0.91	16.21	0.11	-6.86	□	■	■	27
Avg(B;R)[1,2]	0.00	-0.03	22.25	0.68	0.95	19.05	0.13	-8.25	□	■	□	30
Avg(B;N)[1,2]	0.07	0.03	21.28	0.63	0.93	18.84	0.14	-7.36	□	■	■	29
Avg(G;R)[1,2]	0.09	0.06	21.90	0.73	0.91	18.80	0.20	-11.80	□	■	■	32
Avg(G;N)[1,2]	0.01	-0.03	23.04	0.78	0.97	19.88	0.16	-12.28	□	■	□	31
Avg(R;N)[1,2]	0.02	-0.01	22.32	0.78	0.93	19.60	0.25	-11.47	□	■	□	32
N-R[3,4]	0.20	0.17	26.34	0.76	0.79	20.67	0.22	-9.04	■	■	■	33
Kab1[5,6]	0.00	-0.04	23.67	0.45	0.73	19.91	0.12	-5.00	□	■	■	25
NDVI	0.19	0.17	27.42	0.73	0.82	20.74	0.14	-7.05	■	■	■	33
NRVI	0.19	0.17	27.69	0.77	0.83	22.31	0.16	-10.93	■	■	■	33
OC2[7]	0.07	0.03	23.80	0.49	0.74	19.99	0.12	-5.84	□	■	■	27
SABI[5,8]	0.24	0.22	24.70	0.72	0.75	19.49	0.19	-9.28	■	■	■	32
(B-R)/G[4,9]	0.52	0.49	12.25	0.29	0.65	11.15	0.08	-2.20	■	■	■	20
(N/G)+(N/B)[10]	0.19	0.16	25.01	0.74	0.75	20.36	0.23	-7.02	■	■	■	32
G×(B+G+R)	0.06	0.03	22.42	0.78	0.93	19.42	0.28	-11.60	□	■	■	32

Algorithm	r^2	Adj. r^2	RMSE	RMLSE	NRMSE	MAE	MAPE	Bias	p	CV	NM	n
[(1/B)-(1/G)]×N[10]	0.01	-0.04	25.90	0.49	0.80	21.38	0.12	-8.02	□	■	■	25
[(1/R)-(1/G)]×N[10]	0.01	-0.02	26.26	0.78	0.80	21.30	0.19	-12.45	□	■	■	31
[(1/R)-(1/B)]×N[10]	0.28	0.25	15.20	0.38	0.78	12.69	0.09	-2.93	■	■	■	25
[(1/R)-(0.2363×(1/G))]×N[11]	0.19	0.16	23.99	0.73	0.72	20.35	0.17	-10.12	■	■	■	33
[(1/R)-(1/B)]/N[12]	0.06	0.03	25.73	0.76	0.77	21.11	0.24	-10.00	□	■	■	33
(B/R)×N	0.01	-0.04	15.51	0.41	0.80	13.99	0.11	-1.88	□	■	■	23
(G/R)×N	0.03	0.00	28.30	0.80	0.85	22.44	0.21	-10.80	□	■	■	33
(R/B)×N	0.00	-0.03	28.87	0.87	0.87	22.86	0.17	-11.50	□	■	■	32
(R/G)×N	0.07	0.04	26.56	0.62	0.81	20.94	0.18	-8.99	□	■	■	29
(R×N)/B[13]	0.00	-0.03	26.70	0.84	0.81	23.10	0.20	-12.49	□	■	■	32
(B/G)×(B/R)	0.00	-0.04	24.57	0.48	0.76	19.78	0.10	-9.17	□	■	■	25
(B/G)×(B/N)	0.01	-0.02	25.69	0.66	0.78	21.22	0.13	-9.71	□	■	■	29
(B/G)×(R/G)	0.06	0.02	25.95	0.58	0.80	20.70	0.15	-6.07	□	■	■	28
(B/G)×(R/N)	0.01	-0.03	27.75	0.79	0.84	22.62	0.19	-12.52	□	■	■	32
(B/G)×(N/B)	0.34	0.32	28.27	0.71	0.84	22.07	0.18	-8.17	■	■	■	30
(B/G)×(N/G)	0.09	0.05	15.81	0.33	0.81	14.06	0.08	-2.39	□	■	■	22
(B/G)×(N/R)	0.00	-0.05	14.87	0.32	0.84	13.39	0.08	-2.54	□	■	■	21
(B/R)×(B/N)	0.02	-0.02	28.38	0.82	0.86	22.49	0.15	-13.88	□	■	■	31
(B/R)×(G/R)	0.03	0.00	26.81	0.76	0.80	22.15	0.15	-9.29	□	■	■	32
(B/R)×(G/N)	0.06	0.03	27.38	0.75	0.83	20.99	0.15	-15.43	□	■	■	31
(B/R)×(N/R)	0.52	0.51	25.99	0.55	0.78	20.92	0.16	-4.05	■	■	■	29
(B/N)×(G/N)	0.16	0.13	28.83	0.81	0.87	22.13	0.15	-9.63	■	■	■	32
(B/N)×(R/N)	0.14	0.11	27.51	0.77	0.83	21.15	0.20	-7.85	■	■	■	32
(G/B)×(G/R)	0.06	0.02	23.06	0.55	0.71	20.86	0.15	-7.22	□	■	■	28
(G/B)×(G/N)	0.28	0.25	29.41	0.77	0.87	22.32	0.16	-8.36	■	□	■	32
(G/B)×(R/B)	0.07	0.03	24.62	0.50	0.76	20.20	0.12	-8.54	□	■	■	27
(G/B)×(R/N)	0.32	0.29	29.89	0.74	0.87	22.49	0.18	-5.76	■	■	■	31
(G/B)×(N/B)	0.00	-0.04	26.76	0.66	0.82	21.49	0.15	-10.02	□	■	■	29
(G/B)×(N/R)	0.01	-0.02	28.58	0.83	0.86	22.48	0.26	-16.89	□	■	■	32
(G/R)×(G/N)	0.27	0.24	27.70	0.71	0.82	21.42	0.23	-8.64	■	■	■	31
(G/R)×(N/R)	0.19	0.16	25.43	0.75	0.78	19.74	0.13	-7.50	■	■	■	32
(G/N)×(R/N)	0.28	0.25	27.40	0.71	0.80	22.39	0.18	-8.62	■	■	■	30
(R/B)×(R/G)	0.00	-0.04	26.87	0.78	0.81	21.94	0.24	-11.20	□	■	■	30
(R/B)×(R/N)	0.77	0.76	18.02	0.42	0.46	15.33	0.15	-3.27	■	■	■	21
(R/B)×(N/B)	0.00	-0.03	26.56	0.86	0.80	22.43	0.19	-11.89	□	■	■	32
(R/B)×(N/G)	0.05	0.02	26.95	0.79	0.81	21.10	0.13	-13.48	□	■	■	31
(R/G)×(R/N)	0.15	0.12	27.70	0.80	0.82	21.32	0.21	-8.16	■	■	■	32
(R/G)×(N/G)	0.38	0.36	25.35	0.62	0.74	21.04	0.17	-6.87	■	■	■	28
(N/B)×(N/G)	0.11	0.08	26.78	0.74	0.80	21.05	0.17	-10.55	□	■	■	30
(N/B)×(N/R)	0.09	0.06	24.73	0.75	0.75	19.62	0.17	-8.41	□	■	■	31
(N/G)×(N/R)	0.00	-0.06	13.75	0.32	0.84	12.09	0.08	-2.76	□	■	■	20

(1) Fadel et al., 2016; (2) Patra et al., 2015; (3) Tucker, 1979; (4) Ho et al., 2017; (5) Boucher et al., 2018; (6) Kabbara et al., 2008; (7) Trinh et al., 2017; (8) Alawadi et al., 2010; (9) Mayo et al., 1995; (10) Keith et al., 2018; (11) Chenet et al., 2013; (12) Singh et al., 2014; (13) Guan, 2009.

Kab1 = 1.67-3.94×ln(B)+3.78×ln(G)

NDVI = (N-R)/(N+R)

NRVI = [(R/NIR)-1]/[(R/NIR)+1)

SABI = (N-R)/(B+G)

$$\boldsymbol{OC2}=\mathbf{0.1977}+(-\mathbf{1.8117}(\boldsymbol{log}\mathbf{10}(\boldsymbol{BG})))\mathbf{1}+(\mathbf{1.9743}(\boldsymbol{log}\mathbf{10}(\boldsymbol{BG})))\mathbf{2}+(\mathbf{2.5635}(\boldsymbol{log}\mathbf{10}(\boldsymbol{BG})))\mathbf{3}+(-\mathbf{0.7218}(\boldsymbol{log}\mathbf{10}(\boldsymbol{BG})))\mathbf{4}$$

Table S2c. Chl-*a* retrieval algorithm results summary for OWT-C_h after outlier removal. Parameters displayed are coefficient of determination (r^2), p-value (p), root mean square error (RMSE; (μg L^{-1})), root mean square log error (RMSLE), normalized root mean square error, mean absolute error (MAE, (μg L^{-1})), median absolute percentage error (MAPE %), bias (μg L^{-1}), Breusch-Pagan constant variance (CV), and Shapiro-Wilks normality (NM). Filled boxes indicate that the assumptions of linear regressions have been met (r^2 $p < 0.05$, CV and NM $p \geq 0.05$), empty boxes indicate that the assumptions have not been met.

Algorithm	r^2	Adj. r^2	RMSE	RMLSE	NRMSE	MAE	MAPE	Bias	p	CV	NM	n
B	0.01	-0.05	24.07	0.69	0.85	22.92	0.22	-11.95	□	■	■	18
G	0.00	-0.07	20.91	0.67	0.83	19.26	0.22	-9.01	□	■	■	17
R	0.00	-0.06	24.67	0.71	0.87	21.90	0.22	-11.33	□	■	■	18
N	0.00	-0.06	23.37	0.78	0.82	19.68	0.52	-9.90	□	■	■	19
B×G	0.08	0.02	20.06	0.58	0.69	17.31	0.20	-6.64	□	■	■	16
B×R	0.06	0.00	20.38	0.62	0.70	18.80	0.21	-7.03	□	■	■	16
B×N	0.05	-0.01	23.37	0.69	0.81	20.61	0.22	-9.11	□	■	■	17
G×R	0.06	-0.02	16.81	0.53	0.65	15.31	0.19	-4.83	□	■	■	15
G×N	0.07	0.00	20.67	0.63	0.72	19.83	0.21	-9.38	□	■	■	17
R×N	0.02	-0.05	22.00	0.69	0.76	19.95	0.24	-5.80	□	■	■	17
B/G	0.16	0.09	17.26	0.59	0.65	15.40	0.21	-5.08	□	■	■	15
B/R	0.01	-0.05	24.29	0.70	0.86	22.09	0.22	-10.45	□	■	■	18
B/N	0.00	-0.07	24.84	0.72	0.86	23.27	0.25	-9.66	□	■	■	17
G/B	0.16	0.10	17.45	0.54	0.66	15.97	0.18	-6.91	□	■	■	15
G/R	0.15	0.10	21.41	0.60	0.75	19.68	0.20	-8.11	□	■	■	17
G/N	0.00	-0.07	23.09	0.69	0.90	22.56	0.21	-13.98	□	■	■	16
R/B	0.01	-0.06	20.42	0.67	0.72	19.91	0.23	-6.98	□	■	■	18
R/G	0.07	0.01	20.49	0.63	0.72	18.67	0.22	-6.61	□	□	■	18
R/N	0.08	0.02	21.38	0.65	0.74	18.68	0.22	-4.49	□	■	■	16
N/B	0.01	-0.06	24.10	0.68	0.85	22.17	0.22	-11.29	□	■	■	18
N/G	0.05	-0.02	22.09	0.62	0.77	20.08	0.20	-10.37	□	■	■	17
N/R	0.00	-0.06	22.09	0.68	0.78	19.44	0.21	-7.31	□	■	■	18
B×G×R[1]	0.11	0.05	22.17	0.60	0.76	20.72	0.19	-11.45	□	■	■	16
B×G×N[1]	0.02	-0.04	23.39	0.65	0.81	20.85	0.21	-10.65	□	□	■	17
B×R×N[1]	0.14	0.07	18.42	0.49	0.63	16.14	0.17	-4.81	□	■	■	15
G×R×N[1]	0.16	0.10	19.55	0.55	0.67	18.93	0.18	-10.31	□	■	■	16
Avg(B;G)[1,2]	0.02	-0.04	24.60	0.72	0.85	21.29	0.23	-9.97	□	□	■	17
Avg(B;R)[1,2]	0.00	-0.06	20.83	0.64	0.74	19.62	0.21	-7.94	□	■	■	18
Avg(B;N)[1,2]	0.06	-0.01	22.51	0.63	0.78	19.90	0.21	-8.47	□	■	■	17
Avg(G;R)[1,2]	0.06	-0.02	18.07	0.52	0.70	17.08	0.18	-8.43	□	■	■	15
Avg(G;N)[1,2]	0.06	0.00	23.23	0.65	0.81	21.44	0.21	-11.78	□	■	■	17
Avg(R;N)[1,2]	0.01	-0.05	25.65	0.74	0.89	23.23	0.23	-11.91	□	■	■	17
N-R[3,4]	0.00	-0.06	24.62	0.69	0.87	22.72	0.22	-12.13	□	■	■	18
Kab1[5,6]	0.17	0.11	20.05	0.61	0.76	19.50	0.19	-10.37	□	■	■	15
NDVI	0.09	0.02	24.73	0.65	0.85	22.89	0.19	-12.11	□	■	■	16
NRVI	0.09	0.02	21.49	0.61	0.74	20.08	0.20	-8.98	□	■	■	16
OC2[7]	0.16	0.10	20.07	0.60	0.76	19.73	0.19	-11.24	□	■	■	15
SABI[5,8]	0.08	0.01	18.68	0.57	0.64	17.81	0.20	-6.19	□	■	■	16
(B-R)/G[4,9]	0.17	0.11	17.59	0.59	0.66	15.95	0.20	-5.03	□	■	■	15
(N/G)+(N/B)[10]	0.00	-0.06	21.56	0.66	0.76	19.24	0.21	-7.49	□	■	■	18
G×(B+G+R)	0.05	-0.02	17.93	0.59	0.69	15.37	0.21	-4.23	□	■	■	15

Algorithm	r^2	Adj. r^2	RMSE	RMLSE	NRMSE	MAE	MAPE	Bias	p	CV	NM	n
[(1/B)-(1/G)]×N[10]	0.04	-0.02	18.51	0.63	0.74	16.40	0.22	-4.70	□	■	■	17
[(1/R)-(1/G)]×N[10]	0.02	-0.04	26.36	0.73	0.93	24.77	0.22	-14.42	□	□	■	18
[(1/R)-(1/B)]×N[10]	0.01	-0.05	26.29	0.73	0.93	24.98	0.23	-14.26	□	■	■	18
[(1/R)-(0.2363×(1/G))]×N[11]	0.00	-0.06	21.98	0.67	0.78	21.71	0.22	-10.76	□	■	■	18
[(1/R)-(1/B)]/N[12]	0.00	-0.06	22.70	0.66	0.80	19.67	0.21	-8.49	□	■	■	18
(B/R)×N	0.00	-0.06	23.00	0.69	0.81	20.02	0.23	-7.86	□	□	■	18
(G/R)×N	0.01	-0.05	25.81	0.72	0.91	23.49	0.22	-12.90	□	■	■	18
(R/B)×N	0.01	-0.05	24.65	0.70	0.87	22.72	0.22	-10.96	□	■	■	18
(R/G)×N	0.04	-0.02	23.23	0.78	0.80	21.64	0.53	-12.96	□	■	■	18
(R×N)/B[13]	0.01	-0.05	23.67	0.69	0.84	21.16	0.22	-10.31	□	■	■	18
(B/G)×(B/R)	0.00	-0.06	20.50	0.67	0.82	18.01	0.22	-6.92	□	■	■	17
(B/G)×(B/N)	0.14	0.08	22.15	0.69	0.75	21.11	0.24	-3.98	□	■	□	16
(B/G)×(R/G)	0.26	0.19	8.43	0.41	0.73	8.33	0.15	-2.54	□	■	■	13
(B/G)×(R/N)	0.02	-0.04	24.74	0.70	0.86	22.75	0.22	-11.17	□	■	■	17
(B/G)×(N/B)	0.05	-0.02	23.31	0.65	0.81	20.66	0.20	-11.17	□	■	■	17
(B/G)×(N/G)	0.00	-0.07	18.20	0.61	0.72	16.00	0.20	-5.35	□	■	■	17
(B/G)×(N/R)	0.16	0.10	22.32	0.64	0.77	20.53	0.22	-6.73	□	■	■	16
(B/R)×(B/N)	0.04	-0.02	23.23	0.70	0.82	20.44	0.23	-7.58	□	■	■	18
(B/R)×(G/R)	0.00	-0.06	26.38	0.74	0.93	25.33	0.23	-14.77	□	■	■	18
(B/R)×(G/N)	0.01	-0.06	21.62	0.63	0.75	18.59	0.20	-6.94	□	□	■	17
(B/R)×(N/R)	0.01	-0.06	22.68	0.66	0.80	19.53	0.21	-8.38	□	■	■	18
(B/N)×(G/N)	0.01	-0.05	22.73	0.65	0.79	19.94	0.21	-9.70	□	■	■	17
(B/N)×(R/N)	0.04	-0.03	23.68	0.68	0.82	20.67	0.21	-8.64	□	■	■	16
(G/B)×(G/R)	0.23	0.18	18.21	0.58	0.64	16.70	0.19	-6.98	■	■	■	18
(G/B)×(G/N)	0.09	0.02	19.71	0.66	0.76	17.47	0.24	-4.86	□	■	■	15
(G/B)×(R/B)	0.00	-0.07	18.54	0.58	0.74	16.12	0.19	-6.71	□	■	■	17
(G/B)×(R/N)	0.06	-0.01	21.09	0.67	0.81	19.71	0.23	-7.26	□	■	■	15
(G/B)×(N/B)	0.08	0.03	22.43	0.67	0.79	20.15	0.22	-6.58	□	■	■	18
(G/B)×(N/R)	0.04	-0.03	21.72	0.68	0.77	20.17	0.23	-6.62	□	■	■	18
(G/R)×(G/N)	0.02	-0.05	19.91	0.67	0.78	18.03	0.23	-6.71	□	□	■	16
(G/R)×(N/R)	0.02	-0.04	22.65	0.69	0.79	20.13	0.24	-6.92	□	■	■	17
(G/N)×(R/N)	0.03	-0.04	20.27	0.62	0.78	19.21	0.20	-9.97	□	■	■	15
(R/B)×(R/G)	0.00	-0.06	23.04	0.68	0.81	19.62	0.21	-8.47	□	■	■	18
(R/B)×(R/N)	0.01	-0.07	19.54	0.58	0.73	18.43	0.19	-8.86	□	■	■	14
(R/B)×(N/B)	0.02	-0.04	22.48	0.67	0.79	20.42	0.21	-9.20	□	■	■	18
(R/B)×(N/G)	0.00	-0.06	22.73	0.67	0.80	19.62	0.21	-8.21	□	■	■	18
(R/G)×(R/N)	0.03	-0.03	26.71	0.69	0.92	26.36	0.21	-16.23	□	■	■	16
(R/G)×(N/G)	0.02	-0.04	22.52	0.64	0.80	19.59	0.21	-7.77	□	□	■	18
(N/B)×(N/G)	0.00	-0.06	24.78	0.71	0.88	22.65	0.24	-10.57	□	■	■	18
(N/B)×(N/R)	0.00	-0.06	24.85	0.74	0.88	22.32	0.24	-10.10	□	■	■	18
(N/G)×(N/R)	0.01	-0.05	23.03	0.69	0.81	19.73	0.23	-7.90	□	■	■	18

(1) Fadel et al., 2016; (2) Patra et al., 2015; (3) Tucker, 1979; (4) Ho et al., 2017; (5) Boucher et al., 2018; (6) Kabbara et al., 2008; (7) Trinh et al., 2017; (8) Alawadi et al., 2010; (9) Mayo et al., 1995; (10) Keith et al., 2018; (11) Chenet et al., 2013; (12) Singh et al., 2014; (13) Guan, 2009.

Kab1 = 1.67-3.94×ln(B)+3.78×ln(G)

NDVI = (N-R)/(N+R)

NRVI = [(R/NIR)-1]/[(R/NIR)+1)

SABI = (N-R)/(B+G)

$$\boldsymbol{OC2}=\mathbf{0.1977}+(-\mathbf{1.8117}(\boldsymbol{log}\mathbf{10}(\boldsymbol{BG})))\mathbf{1}+(\mathbf{1.9743}(\boldsymbol{log}\mathbf{10}(\boldsymbol{BG})))\mathbf{2}+(\mathbf{2.5635}(\boldsymbol{log}\mathbf{10}(\boldsymbol{BG})))\mathbf{3}+(-\mathbf{0.7218}(\boldsymbol{log}\mathbf{10}(\boldsymbol{BG})))\mathbf{4}$$

Table S2d. Chl-*a* retrieval algorithm results summary for OWT-D_h after outlier removal. Parameters displayed are coefficient of determination (r^2), p-value (p), root mean square error (RMSE; (μg L^{-1})), root mean square log error (RMSLE), normalized root mean square error, mean absolute error (MAE, (μg L^{-1})), median absolute percentage error (MAPE %), bias (μg L^{-1}), Breusch-Pagan constant variance (CV), and Shapiro-Wilks normality (NM). Filled boxes indicate that the assumptions of linear regressions have been met (r^2 $p < 0.05$, CV and NM $p \geq 0.05$), empty boxes indicate that the assumptions have not been met.

Algorithm	r^2	Adj. r^2	RMSE	RMLSE	NRMSE	MAE	MAPE	Bias	p	CV	NM	n
B	0.36	0.29	0.39	0.17	0.57	0.39	0.60	-0.10	■	■	■	11
G	0.17	0.10	1.28	0.39	0.71	1.27	1.04	-0.66	□	■	■	14
R	0.05	-0.04	0.72	0.29	0.67	0.66	0.98	-0.10	□	■	■	13
N	0.74	0.72	0.37	0.13	0.32	0.35	0.41	-0.16	■	■	■	14
B×G	0.12	0.01	0.48	0.21	0.70	0.48	0.85	-0.14	□	■	■	10
B×R	0.03	-0.07	0.51	0.23	0.78	0.50	0.99	-0.12	□	■	■	12
B×N	0.26	0.21	0.95	0.29	0.54	0.79	0.79	-0.25	□	■	■	15
G×R	0.22	0.15	1.02	0.32	0.57	0.95	1.09	-0.39	□	■	■	14
G×N	0.43	0.37	0.31	0.15	0.47	0.31	0.70	-0.04	■	■	■	11
R×N	0.57	0.52	0.28	0.14	0.40	0.28	0.77	-0.07	■	■	■	10
B/G	0.05	-0.02	0.97	0.32	0.54	0.92	0.89	-0.36	□	■	■	15
B/R	0.05	-0.02	2.89	0.55	0.48	2.36	1.27	-1.45	□	■	■	16
B/N	0.48	0.43	0.36	0.17	0.55	0.35	0.80	-0.08	■	■	■	12
G/B	0.03	-0.04	1.01	0.33	0.57	0.97	0.90	-0.41	□	■	■	15
G/R	0.19	0.11	0.87	0.31	0.74	0.85	0.82	-0.42	□	■	■	13
G/N	0.91	0.91	0.24	0.08	0.21	0.23	0.33	0.04	■	■	■	13
R/B	0.03	-0.04	2.93	0.57	0.49	2.35	1.41	-1.33	□	■	■	16
R/G	0.18	0.11	0.78	0.30	0.67	0.69	0.85	-0.16	□	■	■	13
R/N	0.65	0.62	0.24	0.12	0.37	0.24	0.62	-0.03	■	■	■	12
N/B	0.71	0.69	0.37	0.15	0.33	0.35	0.66	-0.12	■	■	■	14
N/G	0.97	0.97	NA	NA	NA	NA	0.22	-0.02	■	■	□	9
N/R	0.72	0.70	0.37	0.14	0.33	0.34	0.61	-0.07	■	■	■	14
B×G×R[1]	0.17	0.10	1.33	0.41	0.73	1.31	1.19	-0.67	□	■	■	14
B×G×N[1]	0.26	0.20	1.10	0.32	0.60	1.08	0.86	-0.70	□	■	■	14
B×R×N[1]	0.36	0.29	0.34	0.16	0.51	0.34	0.73	-0.05	■	■	■	11
G×R×N[1]	0.14	0.07	1.09	0.34	0.60	1.05	0.89	-0.56	□	■	■	14
Avg(B;G)[1,2]	0.01	-0.08	0.90	0.32	0.52	0.76	0.91	-0.22	□	■	■	13
Avg(B;R)[1,2]	0.16	0.06	0.39	0.18	0.57	0.38	0.74	-0.11	□	■	■	11
Avg(B;N)[1,2]	0.29	0.23	1.05	0.31	0.58	0.98	0.76	-0.54	■	■	■	14
Avg(G;R)[1,2]	0.22	0.16	1.25	0.38	0.69	1.19	1.15	-0.50	□	■	■	14
Avg(G;N)[1,2]	0.42	0.36	0.35	0.16	0.54	0.34	0.77	-0.15	■	■	■	12
Avg(R;N)[1,2]	0.22	0.16	1.04	0.30	0.59	0.98	0.65	-0.56	□	■	■	15
N-R[3,4]	0.61	0.57	0.25	0.11	0.38	0.25	0.54	-0.09	■	■	■	12
Kab1[5,6]	0.03	-0.04	1.11	0.36	0.63	0.98	0.96	-0.39	□	■	■	15
NDVI	0.79	0.77	0.31	0.12	0.27	0.29	0.50	0.00	■	■	■	14
NRVI	0.79	0.77	0.30	0.11	0.27	0.28	0.43	-0.05	■	■	■	14
OC2[7]	0.03	-0.04	1.38	0.43	0.78	1.32	0.99	-0.72	□	■	■	15
SABI[5,8]	0.74	0.72	0.39	0.14	0.34	0.38	0.59	-0.11	■	■	■	14
(B-R)/G[4,9]	0.06	-0.02	1.25	0.38	0.70	1.14	0.97	-0.62	□	■	■	15
(N/G)+(N/B)[10]	0.90	0.89	0.17	0.07	0.20	0.16	0.44	-0.01	■	■	■	12
G×(B+G+R)	0.18	0.11	1.11	0.34	0.61	1.01	1.16	-0.39	□	■	■	14

Algorithm	r^2	Adj. r^2	RMSE	RMLSE	NRMSE	MAE	MAPE	Bias	p	CV	NM	n
[(1/B)-(1/G)]×N[10]	0.16	0.10	1.24	0.36	0.70	1.18	0.82	-0.66	□	■	■	15
[(1/R)-(1/G)]×N[10]	0.67	0.63	0.49	0.18	0.40	0.49	0.66	-0.20	■	■	□	12
[(1/R)-(1/B)]×N[10]	0.45	0.41	0.91	0.28	0.51	0.78	0.89	-0.26	■	■	■	15
[(1/R)-(0.2363×(1/G))]×N[11]	0.71	0.68	0.39	0.15	0.34	0.34	0.64	-0.14	■	■	■	14
[(1/R)-(1/B)]/N[12]	0.03	-0.06	0.60	0.25	0.76	0.59	0.91	-0.24	□	■	■	12
(B/R)×N	0.19	0.12	0.80	0.31	0.71	0.78	1.10	-0.21	□	■	■	14
(G/R)×N	0.73	0.71	0.37	0.14	0.33	0.35	0.63	-0.03	■	■	■	14
(R/B)×N	0.31	0.26	0.87	0.28	0.49	0.78	0.90	-0.28	■	■	■	15
(R/G)×N	0.68	0.65	0.41	0.14	0.35	0.40	0.48	-0.19	■	■	■	12
(R×N)/B[13]	0.31	0.26	1.05	0.32	0.59	1.00	0.88	-0.53	■	■	■	15
(B/G)×(B/R)	0.08	0.01	1.25	0.39	0.70	1.13	1.05	-0.48	□	■	■	15
(B/G)×(B/N)	0.19	0.09	0.39	0.18	0.66	0.39	0.88	-0.10	□	■	■	10
(B/G)×(R/G)	0.20	0.14	0.80	0.28	0.71	0.75	0.84	-0.30	□	■	■	14
(B/G)×(R/N)	0.39	0.33	0.38	0.18	0.59	0.37	0.91	-0.10	■	■	■	12
(B/G)×(N/B)	0.97	0.97	NA	NA	NA	NA	0.22	-0.02	■	■	□	9
(B/G)×(N/G)	0.43	0.39	0.86	0.25	0.48	0.73	0.69	-0.23	■	■	■	15
(B/G)×(N/R)	0.49	0.46	0.99	0.27	0.56	0.98	0.71	-0.63	■	■	■	15
(B/R)×(B/N)	0.18	0.11	0.79	0.26	0.46	0.68	0.86	-0.26	□	■	■	14
(B/R)×(G/R)	0.00	-0.08	0.73	0.29	0.65	0.71	0.84	-0.17	□	■	■	14
(B/R)×(G/N)	0.59	0.55	0.38	0.17	0.46	0.37	0.75	-0.10	■	■	■	13
(B/R)×(N/R)	0.56	0.52	0.54	0.20	0.48	0.50	0.82	-0.18	■	■	■	14
(B/N)×(G/N)	0.54	0.48	0.23	0.11	0.41	0.23	0.66	-0.05	■	■	■	11
(B/N)×(R/N)	0.54	0.49	0.23	0.11	0.41	0.23	0.62	-0.06	■	■	■	11
(G/B)×(G/R)	0.16	0.09	0.74	0.27	0.66	0.72	0.82	-0.29	□	■	■	14
(G/B)×(G/N)	0.78	0.76	0.45	0.16	0.40	0.43	0.62	-0.03	■	■	■	14
(G/B)×(R/B)	0.04	-0.04	1.28	0.41	0.72	1.16	1.03	-0.54	□	■	■	15
(G/B)×(R/N)	0.77	0.75	0.38	0.13	0.33	0.38	0.54	-0.16	■	■	■	14
(G/B)×(N/B)	0.30	0.25	0.94	0.31	0.53	0.83	1.08	-0.33	■	■	■	15
(G/B)×(N/R)	0.65	0.62	0.39	0.16	0.35	0.37	0.88	-0.07	■	■	■	14
(G/R)×(G/N)	0.91	0.91	0.16	0.07	0.14	0.16	0.41	-0.01	■	■	■	13
(G/R)×(N/R)	0.72	0.69	0.38	0.14	0.33	0.35	0.52	-0.08	■	■	■	13
(G/N)×(R/N)	0.70	0.67	0.19	0.10	0.29	0.19	0.55	-0.03	■	■	■	12
(R/B)×(R/G)	0.00	-0.09	0.89	0.32	0.76	0.88	0.79	-0.50	□	■	■	13
(R/B)×(R/N)	0.70	0.67	0.48	0.17	0.43	0.47	0.68	-0.22	■	■	■	14
(R/B)×(N/B)	0.25	0.20	0.95	0.32	0.54	0.82	1.09	-0.26	□	■	■	15
(R/B)×(N/G)	0.65	0.62	0.39	0.16	0.35	0.39	0.67	-0.10	■	■	□	14
(R/G)×(R/N)	0.55	0.50	0.28	0.13	0.41	0.27	0.63	-0.06	■	■	■	11
(R/G)×(N/G)	0.85	0.83	0.24	0.10	0.30	0.23	0.53	-0.05	■	■	□	12
(N/B)×(N/G)	0.88	0.87	0.22	0.09	0.27	0.22	0.49	-0.04	■	■	■	11
(N/B)×(N/R)	0.86	0.85	0.23	0.10	0.28	0.22	0.53	-0.03	■	■	■	12
(N/G)×(N/R)	0.65	0.62	0.49	0.17	0.42	0.48	0.58	-0.25	■	■	■	13

(1) Fadel et al., 2016; (2) Patra et al., 2015; (3) Tucker, 1979; (4) Ho et al., 2017; (5) Boucher et al., 2018; (6) Kabbara et al., 2008; (7) Trinh et al., 2017; (8) Alawadi et al., 2010; (9) Mayo et al., 1995; (10) Keith et al., 2018; (11) Chenet et al., 2013; (12) Singh et al., 2014; (13) Guan, 2009.

Kab1 = 1.67-3.94×ln(B)+3.78×ln(G)

NDVI = (N-R)/(N+R)

NRVI = [(R/NIR)-1]/[(R/NIR)+1)

SABI = (N-R)/(B+G)

$$\boldsymbol{OC2}=\mathbf{0.1977}+(-\mathbf{1.8117}(\boldsymbol{log}\mathbf{10}(\boldsymbol{BG})))\mathbf{1}+(\mathbf{1.9743}(\boldsymbol{log}\mathbf{10}(\boldsymbol{BG})))\mathbf{2}+(\mathbf{2.5635}(\boldsymbol{log}\mathbf{10}(\boldsymbol{BG})))\mathbf{3}+(-\mathbf{0.7218}(\boldsymbol{log}\mathbf{10}(\boldsymbol{BG})))\mathbf{4}$$

Table S2e. Chl-*a* retrieval algorithm results summary for OWT-E_h after outlier removal. Parameters displayed are coefficient of determination (r^2), p-value (p), root mean square error (RMSE; (μg L^{-1})), root mean square log error (RMSLE), normalized root mean square error, mean absolute error (MAE, (μg L^{-1})), median absolute percentage error (MAPE %), bias (μg L^{-1}), Breusch-Pagan constant variance (CV), and Shapiro-Wilks normality (NM). Filled boxes indicate that the assumptions of linear regressions have been met (r^2 $p < 0.05$, CV and NM $p \geq 0.05$), empty boxes indicate that the assumptions have not been met.

Algorithm	r^2	Adj. r^2	RMSE	RMLSE	NRMSE	MAE	MAPE	Bias	p	CV	NM	n
B	0.02	-0.01	10.97	0.60	0.84	8.82	0.23	-4.43	□	■	■	47
G	0.11	0.09	11.55	0.56	0.85	8.94	0.20	-3.65	■	■	■	47
R	0.13	0.11	12.67	0.62	0.89	9.37	0.22	-3.62	■	■	■	49
N	0.10	0.08	10.36	0.63	0.91	7.86	0.19	-2.76	■	■	■	53
B×G	0.13	0.10	10.35	0.56	0.78	8.61	0.17	-3.46	■	■	■	43
B×R	0.38	0.37	8.29	0.49	0.69	6.40	0.15	-1.76	■	■	■	43
B×N	0.04	0.02	12.27	0.68	0.96	9.01	0.22	-3.62	□	■	■	54
G×R	0.20	0.19	10.68	0.59	0.78	8.70	0.17	-3.19	■	■	■	49
G×N	0.01	-0.01	13.83	0.68	0.96	9.99	0.20	-4.21	□	■	■	51
R×N	0.01	-0.01	12.54	0.65	0.87	9.66	0.22	-4.00	□	■	■	51
B/G	0.01	0.00	16.86	0.75	0.91	11.83	0.27	-6.38	□	■	■	58
B/R	0.06	0.04	17.37	0.75	0.94	11.63	0.23	-6.17	□	■	■	57
B/N	0.77	0.77	5.83	0.29	0.54	4.27	0.11	-0.63	■	■	■	36
G/B	0.02	0.00	16.67	0.76	0.87	12.83	0.26	-6.87	□	■	■	59
G/R	0.07	0.06	18.11	0.75	0.93	12.48	0.24	-6.40	■	■	■	55
G/N	0.19	0.17	11.96	0.63	0.84	9.01	0.23	-3.31	■	■	■	55
R/B	0.06	0.04	18.17	0.77	0.94	12.24	0.26	-5.69	□	■	■	57
R/G	0.07	0.05	17.86	0.74	0.91	12.37	0.25	-6.25	□	■	■	55
R/N	0.35	0.34	10.28	0.54	0.71	8.08	0.20	-3.34	■	■	■	54
N/B	0.77	0.76	4.47	0.27	0.41	3.59	0.10	-0.58	■	■	■	35
N/G	0.22	0.21	12.40	0.62	0.87	8.84	0.17	-3.14	■	■	■	55
N/R	0.34	0.33	11.38	0.57	0.80	8.31	0.20	-3.10	■	■	■	55
B×G×R[1]	0.29	0.28	9.94	0.53	0.72	7.60	0.17	-2.70	■	■	■	46
B×G×N[1]	0.03	0.01	11.58	0.63	0.91	8.66	0.22	-4.01	□	■	■	47
B×R×N[1]	0.07	0.05	10.01	0.58	0.78	8.02	0.21	-3.33	□	■	■	46
G×R×N[1]	0.03	0.01	12.82	0.66	0.89	9.77	0.20	-3.49	□	■	■	51
Avg(B;G)[1,2]	0.00	-0.02	10.56	0.61	0.94	8.05	0.21	-3.37	□	□	■	47
Avg(B;R)[1,2]	0.31	0.30	8.54	0.50	0.71	6.88	0.16	-2.55	■	■	■	42
Avg(B;N)[1,2]	0.11	0.09	12.09	0.62	0.88	9.08	0.23	-3.06	■	■	■	52
Avg(G;R)[1,2]	0.20	0.18	11.21	0.55	0.82	8.47	0.16	-3.34	■	■	■	47
Avg(G;N)[1,2]	0.01	-0.01	13.15	0.67	0.92	9.95	0.23	-3.75	□	■	■	51
Avg(R;N)[1,2]	0.00	-0.02	11.79	0.65	0.89	9.27	0.20	-3.89	□	■	■	50
N-R[3,4]	0.32	0.31	11.17	0.57	0.78	8.42	0.20	-3.57	■	■	■	55
Kab1[5,6]	0.02	0.00	16.80	0.77	0.91	12.21	0.24	-6.56	□	■	■	58
NDVI	0.36	0.35	10.74	0.58	0.75	8.23	0.19	-3.45	■	■	■	54
NRVI	0.36	0.35	11.38	0.57	0.79	8.21	0.19	-2.53	■	■	■	54
OC2[7]	0.01	-0.01	16.31	0.75	0.88	11.55	0.23	-5.55	□	■	■	57
SABI[5,8]	0.34	0.33	11.57	0.58	0.81	8.40	0.18	-3.21	■	■	■	55
(B-R)/G[4,9]	0.02	0.01	16.92	0.76	0.92	11.74	0.27	-6.26	□	■	■	58
(N/G)+(N/B)[10]	0.16	0.15	14.02	0.67	0.88	10.45	0.20	-4.30	■	■	■	56
G×(B+G+R)	0.11	0.09	11.52	0.59	0.85	9.08	0.18	-3.42	■	■	■	47

Algorithm	r^2	Adj. r^2	RMSE	RMLSE	NRMSE	MAE	MAPE	Bias	p	CV	NM	n
[(1/B)-(1/G)]×N[10]	0.04	0.02	17.25	0.77	0.93	11.76	0.26	-5.57	□	■	■	58
[(1/R)-(1/G)]×N[10]	0.34	0.32	12.09	0.60	0.76	9.44	0.21	-3.80	■	■	■	55
[(1/R)-(1/B)]×N[10]	0.29	0.27	12.52	0.59	0.84	9.06	0.18	-3.89	■	■	■	51
[(1/R)-(0.2363×(1/G))]×N[11]	0.36	0.34	11.15	0.56	0.78	8.15	0.17	-3.19	■	■	■	55
[(1/R)-(1/B)]/N[12]	0.03	0.02	14.30	0.71	0.89	10.74	0.24	-5.27	□	■	■	55
(B/R)×N	0.11	0.09	14.47	0.68	0.94	10.34	0.20	-3.75	■	■	■	52
(G/R)×N	0.16	0.14	11.21	0.61	0.85	8.63	0.21	-3.84	■	■	■	53
(R/B)×N	0.05	0.03	14.33	0.69	0.93	10.45	0.23	-5.66	□	■	■	51
(R/G)×N	0.05	0.04	10.63	0.62	0.93	8.00	0.23	-3.64	□	■	■	53
(R×N)/B[13]	0.05	0.03	13.50	0.67	0.88	10.51	0.22	-3.82	□	■	■	51
(B/G)×(B/R)	0.02	0.00	16.77	0.75	0.91	11.87	0.25	-6.68	□	■	■	58
(B/G)×(B/N)	0.30	0.28	7.46	0.50	0.74	5.88	0.20	-2.11	■	■	■	38
(B/G)×(R/G)	0.04	0.02	15.07	0.74	0.95	10.38	0.29	-4.56	□	■	■	53
(B/G)×(R/N)	0.65	0.64	6.22	0.39	0.53	5.20	0.14	-0.89	■	■	■	43
(B/G)×(N/B)	0.22	0.21	12.07	0.61	0.84	8.58	0.21	-3.22	■	■	■	55
(B/G)×(N/G)	0.12	0.10	12.75	0.66	0.87	9.46	0.22	-4.33	■	■	■	56
(B/G)×(N/R)	0.18	0.16	12.96	0.66	0.89	9.36	0.21	-4.60	■	■	■	56
(B/R)×(B/N)	0.01	0.00	16.98	0.77	0.92	11.86	0.25	-5.44	□	■	■	55
(B/R)×(G/R)	0.06	0.04	17.94	0.74	0.93	12.40	0.25	-6.07	□	■	■	57
(B/R)×(G/N)	0.21	0.20	13.51	0.64	0.86	9.81	0.21	-3.81	■	■	■	48
(B/R)×(N/R)	0.30	0.28	11.98	0.58	0.81	8.61	0.17	-3.03	■	■	■	52
(B/N)×(G/N)	0.28	0.27	13.32	0.62	0.82	9.69	0.20	-4.27	■	■	■	51
(B/N)×(R/N)	0.39	0.37	11.36	0.56	0.74	8.25	0.18	-2.95	■	■	■	49
(G/B)×(G/R)	0.03	0.01	16.55	0.77	0.87	12.00	0.21	-5.10	□	■	■	54
(G/B)×(G/N)	0.13	0.11	12.96	0.67	0.87	9.67	0.28	-5.32	■	■	■	53
(G/B)×(R/B)	0.02	0.01	17.24	0.78	0.90	12.49	0.25	-7.01	□	■	■	59
(G/B)×(R/N)	0.21	0.19	12.76	0.65	0.85	9.28	0.21	-3.17	■	■	■	52
(G/B)×(N/B)	0.33	0.32	16.47	0.65	0.82	11.13	0.20	-4.57	■	■	■	48
(G/B)×(N/R)	0.67	0.66	6.87	0.39	0.53	5.49	0.13	-0.80	■	■	■	43
(G/R)×(G/N)	0.08	0.06	13.09	0.69	0.90	9.59	0.23	-4.32	■	■	■	56
(G/R)×(N/R)	0.42	0.41	11.50	0.54	0.73	8.37	0.18	-2.92	■	■	■	54
(G/N)×(R/N)	0.28	0.27	11.46	0.60	0.79	8.60	0.21	-2.84	■	■	■	53
(R/B)×(R/G)	0.11	0.10	17.22	0.74	0.88	12.01	0.23	-5.44	■	■	■	56
(R/B)×(R/N)	0.20	0.19	13.06	0.64	0.89	9.20	0.21	-3.76	■	■	■	55
(R/B)×(N/B)	0.10	0.08	16.71	0.70	0.86	12.03	0.25	-6.22	■	■	■	51
(R/B)×(N/G)	0.06	0.05	16.78	0.74	0.90	12.09	0.24	-5.98	□	■	■	58
(R/G)×(R/N)	0.56	0.55	7.61	0.45	0.60	6.09	0.17	-1.70	■	■	■	50
(R/G)×(N/G)	0.11	0.09	13.18	0.67	0.90	9.55	0.22	-4.38	■	■	■	56
(N/B)×(N/G)	0.16	0.15	14.44	0.68	0.91	10.13	0.21	-4.42	■	■	■	57
(N/B)×(N/R)	0.41	0.40	11.44	0.54	0.71	8.82	0.16	-3.26	■	■	■	49
(N/G)×(N/R)	0.28	0.27	11.90	0.61	0.83	8.43	0.18	-3.19	■	■	■	55

(1) Fadel et al., 2016; (2) Patra et al., 2015; (3) Tucker, 1979; (4) Ho et al., 2017; (5) Boucher et al., 2018; (6) Kabbara et al., 2008; (7) Trinh et al., 2017; (8) Alawadi et al., 2010; (9) Mayo et al., 1995; (10) Keith et al., 2018; (11) Chenet et al., 2013; (12) Singh et al., 2014; (13) Guan, 2009.

Kab1 = 1.67-3.94×ln(B)+3.78×ln(G)

NDVI = (N-R)/(N+R)

NRVI = [(R/NIR)-1]/[(R/NIR)+1)

SABI = (N-R)/(B+G)

$$\boldsymbol{OC2}=\mathbf{0.1977}+(-\mathbf{1.8117}(\boldsymbol{log}\mathbf{10}(\boldsymbol{BG})))\mathbf{1}+(\mathbf{1.9743}(\boldsymbol{log}\mathbf{10}(\boldsymbol{BG})))\mathbf{2}+(\mathbf{2.5635}(\boldsymbol{log}\mathbf{10}(\boldsymbol{BG})))\mathbf{3}+(-\mathbf{0.7218}(\boldsymbol{log}\mathbf{10}(\boldsymbol{BG})))\mathbf{4}$$

Table S2f. Chl-*a* retrieval algorithm results summary for OWT-F_h after outlier removal. Parameters displayed are coefficient of determination (r^2), p-value (p), root mean square error (RMSE; (μg L^{-1})), root mean square log error (RMSLE), normalized root mean square error, mean absolute error (MAE, (μg L^{-1})), median absolute percentage error (MAPE %), bias (μg L^{-1}), Breusch-Pagan constant variance (CV), and Shapiro-Wilks normality (NM). Filled boxes indicate that the assumptions of linear regressions have been met (r^2 $p < 0.05$, CV and NM $p \geq 0.05$), empty boxes indicate that the assumptions have not been met.

Algorithm	r^2	Adj. r^2	RMSE	RMLSE	NRMSE	MAE	MAPE	Bias	p	CV	NM	n
B	0.07	0.03	3.73	0.59	0.65	2.76	0.95	-1.57	□	■	■	25
G	0.18	0.15	5.08	0.66	0.66	3.71	1.13	-1.94	■	■	■	28
R	0.31	0.28	4.88	0.60	0.62	3.53	0.57	-1.66	■	■	■	26
N	0.73	0.72	1.73	0.33	0.28	1.52	0.59	-0.46	■	■	■	25
B×G	0.17	0.14	5.22	0.69	0.67	3.94	0.66	-2.20	■	■	■	27
B×R	0.19	0.15	5.79	0.71	0.74	4.57	0.91	-2.91	■	■	■	27
B×N	0.78	0.77	2.14	0.32	0.33	1.87	0.39	-0.62	■	■	■	23
G×R	0.19	0.16	5.07	0.65	0.66	3.75	0.54	-2.23	■	■	■	28
G×N	0.46	0.44	2.96	0.49	0.47	2.49	0.91	-1.41	■	■	■	24
R×N	0.19	0.15	2.28	0.46	0.79	1.93	0.64	-0.79	■	■	■	23
B/G	0.16	0.13	4.12	0.59	0.68	2.99	0.78	-1.66	■	■	■	27
B/R	0.08	0.04	4.60	0.67	0.75	3.40	1.26	-2.11	□	■	■	26
B/N	0.49	0.47	3.90	0.56	0.50	3.13	0.74	-0.72	■	■	■	28
G/B	0.16	0.13	4.61	0.66	0.76	3.48	0.75	-2.63	■	■	■	27
G/R	0.01	-0.03	5.99	0.74	0.78	4.72	0.87	-2.10	□	■	■	26
G/N	0.45	0.42	1.92	0.41	0.62	1.63	0.67	-0.60	■	■	■	25
R/B	0.11	0.08	4.32	0.63	0.71	3.20	0.93	-1.75	□	■	■	27
R/G	0.03	0.00	5.15	0.70	0.67	3.92	0.99	-2.41	□	■	■	27
R/N	0.44	0.42	1.45	0.35	0.56	1.22	0.65	-0.37	■	■	■	23
N/B	0.46	0.44	4.04	0.54	0.52	3.40	0.78	-1.62	■	■	■	28
N/G	0.61	0.59	2.45	0.42	0.41	1.97	0.74	-0.90	■	■	■	27
N/R	0.67	0.66	2.03	0.38	0.34	1.57	0.79	-0.52	■	■	■	27
B×G×R[1]	0.24	0.21	5.09	0.67	0.65	3.68	1.27	-1.72	■	■	■	27
B×G×N[1]	0.33	0.30	2.93	0.52	0.76	2.46	0.68	-1.48	■	■	■	24
B×R×N[1]	0.28	0.24	2.80	0.50	0.72	2.36	0.85	-0.74	■	■	■	24
G×R×N[1]	0.08	0.04	3.09	0.57	0.81	2.61	0.92	-1.42	□	■	■	24
Avg(B;G)[1,2]	0.17	0.13	5.16	0.68	0.66	4.00	0.88	-2.23	■	■	■	27
Avg(B;R)[1,2]	0.09	0.05	4.11	0.67	0.67	3.45	1.18	-1.83	□	■	■	26
Avg(B;N)[1,2]	0.54	0.52	4.58	0.50	0.57	3.48	0.71	-1.52	■	■	■	26
Avg(G;R)[1,2]	0.20	0.17	5.12	0.65	0.66	3.78	0.52	-2.27	■	■	■	28
Avg(G;N)[1,2]	0.08	0.04	3.27	0.60	0.84	2.86	0.91	-1.98	□	■	■	26
Avg(R;N)[1,2]	0.30	0.26	2.71	0.50	0.70	2.16	0.89	-0.97	■	■	■	24
N-R[3,4]	0.73	0.72	1.99	0.35	0.32	1.69	0.37	0.06	■	■	■	26
Kab1[5,6]	0.16	0.12	4.11	0.60	0.68	3.09	0.82	-1.97	■	■	■	27
NDVI	0.67	0.66	2.12	0.36	0.35	1.64	0.45	-0.22	■	■	■	27
NRVI	0.67	0.66	2.18	0.39	0.36	1.70	0.54	-0.38	■	■	■	27
OC2[7]	0.16	0.12	3.88	0.59	0.64	2.99	0.82	-1.56	■	■	■	27
SABI[5,8]	0.71	0.70	1.88	0.36	0.31	1.54	0.52	-0.51	■	■	■	26
(B-R)/G[4,9]	0.18	0.15	4.50	0.65	0.74	3.46	0.71	-2.60	■	■	■	27
(N/G)+(N/B)[10]	0.60	0.59	3.51	0.48	0.45	2.72	0.47	-1.32	■	■	■	28
G×(B+G+R)	0.19	0.15	5.37	0.70	0.69	4.13	0.65	-2.05	■	■	■	28

Algorithm	r^2	Adj. r^2	RMSE	RMLSE	NRMSE	MAE	MAPE	Bias	p	CV	NM	n
[(1/B)-(1/G)]×N[10]	0.21	0.17	5.27	0.67	0.67	3.93	0.84	-2.23	■	■	■	27
[(1/R)-(1/G)]×N[10]	0.62	0.60	3.82	0.47	0.48	3.08	0.34	-1.16	■	■	■	26
[(1/R)-(1/B)]×N[10]	0.54	0.52	4.96	0.55	0.63	3.67	0.53	-1.33	■	■	■	26
[(1/R)-(0.2363×(1/G))]×N[11]	0.67	0.66	2.02	0.35	0.33	1.67	0.60	-0.79	■	■	■	27
[(1/R)-(1/B)]/N[12]	0.05	0.01	2.29	0.51	0.75	2.06	1.11	-0.77	□	■	■	23
(B/R)×N	0.02	-0.02	5.41	0.72	0.71	3.89	0.93	-2.14	□	■	■	27
(G/R)×N	0.78	0.77	3.00	0.38	0.38	2.27	0.40	-0.51	■	■	■	27
(R/B)×N	0.02	-0.02	2.79	0.57	0.90	2.18	1.00	-1.27	□	■	■	25
(R/G)×N	0.41	0.39	4.33	0.56	0.56	3.31	0.46	-1.83	■	■	■	28
(R×N)/B[13]	0.02	-0.02	2.37	0.51	0.77	2.05	1.05	-0.91	□	■	■	25
(B/G)×(B/R)	0.15	0.12	4.43	0.66	0.73	3.43	1.10	-1.90	■	■	■	27
(B/G)×(B/N)	0.31	0.28	3.99	0.59	0.52	3.29	0.53	-1.73	■	■	■	28
(B/G)×(R/G)	0.17	0.14	4.17	0.63	0.68	3.17	0.88	-2.14	■	■	■	26
(B/G)×(R/N)	0.48	0.46	2.39	0.49	0.37	1.99	0.94	-0.42	■	■	■	27
(B/G)×(N/B)	0.61	0.59	2.18	0.38	0.36	1.91	0.70	-0.86	■	■	■	27
(B/G)×(N/G)	0.51	0.49	4.61	0.54	0.60	3.37	0.75	-1.32	■	■	■	28
(B/G)×(N/R)	0.59	0.57	1.93	0.37	0.50	1.52	0.49	-0.52	■	■	■	25
(B/R)×(B/N)	0.00	-0.04	2.94	0.60	0.95	2.33	1.04	-1.43	□	■	■	25
(B/R)×(G/R)	0.02	-0.02	5.83	0.73	0.75	4.23	0.98	-2.17	□	■	■	27
(B/R)×(G/N)	0.08	0.04	2.71	0.55	0.87	2.36	0.71	-1.26	□	■	■	25
(B/R)×(N/R)	0.52	0.50	4.03	0.50	0.52	3.04	0.43	-1.60	■	■	■	28
(B/N)×(G/N)	0.36	0.33	2.07	0.46	0.67	1.72	0.68	-0.41	■	■	■	25
(B/N)×(R/N)	0.46	0.43	1.50	0.37	0.55	1.28	0.61	-0.62	■	■	■	21
(G/B)×(G/R)	0.15	0.11	4.11	0.61	0.68	3.06	0.56	-1.91	■	■	■	27
(G/B)×(G/N)	0.43	0.41	3.80	0.55	0.50	2.72	0.71	-1.38	■	■	■	27
(G/B)×(R/B)	0.14	0.10	4.45	0.66	0.74	3.46	0.72	-2.59	□	■	■	27
(G/B)×(R/N)	0.51	0.49	3.80	0.48	0.49	2.82	0.53	-1.20	■	■	■	28
(G/B)×(N/B)	0.01	-0.03	2.59	0.55	0.84	2.09	1.06	-1.29	□	■	■	24
(G/B)×(N/R)	0.52	0.51	3.42	0.52	0.44	2.77	1.03	-1.47	■	■	■	28
(G/R)×(G/N)	0.30	0.27	2.16	0.46	0.70	1.79	0.90	-0.71	■	■	■	25
(G/R)×(N/R)	0.64	0.63	3.32	0.45	0.43	2.49	0.71	-1.35	■	■	■	28
(G/N)×(R/N)	0.58	0.56	2.59	0.41	0.42	2.07	0.74	-0.84	■	■	■	26
(R/B)×(R/G)	0.03	0.00	5.73	0.75	0.74	4.18	0.82	-2.41	□	■	■	28
(R/B)×(R/N)	0.56	0.55	1.58	0.38	0.40	1.29	0.66	-0.43	■	■	■	25
(R/B)×(N/B)	0.00	-0.04	2.79	0.58	0.90	2.18	0.94	-1.23	□	■	■	25
(R/B)×(N/G)	0.22	0.19	3.00	0.58	0.76	2.66	0.91	-1.17	■	■	■	25
(R/G)×(R/N)	0.60	0.58	2.30	0.43	0.35	2.02	0.66	-0.54	■	■	■	26
(R/G)×(N/G)	0.51	0.49	3.99	0.53	0.51	3.09	0.77	-1.35	■	■	■	27
(N/B)×(N/G)	0.54	0.53	3.73	0.50	0.48	2.99	0.60	-1.33	■	■	■	28
(N/B)×(N/R)	0.71	0.69	3.18	0.40	0.39	2.60	0.43	-0.56	■	■	■	25
(N/G)×(N/R)	0.63	0.61	1.86	0.37	0.46	1.61	0.81	-0.51	■	■	■	23

(1) Fadel et al., 2016; (2) Patra et al., 2015; (3) Tucker, 1979; (4) Ho et al., 2017; (5) Boucher et al., 2018; (6) Kabbara et al., 2008; (7) Trinh et al., 2017; (8) Alawadi et al., 2010; (9) Mayo et al., 1995; (10) Keith et al., 2018; (11) Chenet et al., 2013; (12) Singh et al., 2014; (13) Guan, 2009.

Kab1 = 1.67-3.94×ln(B)+3.78×ln(G)

NDVI = (N-R)/(N+R)

NRVI = [(R/NIR)-1]/[(R/NIR)+1)

SABI = (N-R)/(B+G)

$$\boldsymbol{OC2}=\mathbf{0.1977}+(-\mathbf{1.8117}(\boldsymbol{log}\mathbf{10}(\boldsymbol{BG})))\mathbf{1}+(\mathbf{1.9743}(\boldsymbol{log}\mathbf{10}(\boldsymbol{BG})))\mathbf{2}+(\mathbf{2.5635}(\boldsymbol{log}\mathbf{10}(\boldsymbol{BG})))\mathbf{3}+(-\mathbf{0.7218}(\boldsymbol{log}\mathbf{10}(\boldsymbol{BG})))\mathbf{4}$$

Table S2g. Chl-*a* retrieval algorithm results summary for OWT-G_h after outlier removal. Parameters displayed are coefficient of determination (r^2), p-value (p), root mean square error (RMSE; (μg L^{-1})), root mean square log error (RMSLE), normalized root mean square error, mean absolute error (MAE, (μg L^{-1})), median absolute percentage error (MAPE %), bias (μg L^{-1}), Breusch-Pagan constant variance (CV), and Shapiro-Wilks normality (NM). Filled boxes indicate that the assumptions of linear regressions have been met (r^2 $p < 0.05$, CV and NM $p \geq 0.05$), empty boxes indicate that the assumptions have not been met.

Algorithm	r^2	Adj. r^2	RMSE	RMLSE	NRMSE	MAE	MAPE	Bias	p	CV	NM	n
B	0.01	-0.03	3.79	0.65	0.82	2.76	1.62	-1.58	□	■	■	32
G	0.00	-0.03	2.49	0.55	0.83	1.97	0.81	-0.95	□	■	■	30
R	0.05	0.01	2.46	0.54	0.82	1.90	1.12	-0.91	□	■	■	30
N	0.56	0.54	3.47	0.48	0.69	2.88	0.73	-0.73	■	■	■	25
B×G	0.01	-0.03	2.48	0.54	0.82	1.96	0.78	-0.95	□	■	■	30
B×R	0.03	0.00	2.45	0.53	0.81	1.93	1.02	-0.92	□	■	■	30
B×N	0.06	0.03	3.56	0.61	0.77	2.83	0.68	-1.72	□	■	■	31
G×R	0.02	-0.02	2.40	0.54	0.80	1.95	1.51	-0.94	□	■	■	30
G×N	0.07	0.03	3.42	0.59	0.74	2.71	1.17	-1.64	□	■	■	31
R×N	0.02	-0.02	3.21	0.58	0.79	2.43	0.85	-1.25	□	■	■	30
B/G	0.05	0.02	2.82	0.58	0.73	2.35	1.50	-1.20	□	■	■	30
B/R	0.01	-0.02	2.48	0.52	0.82	1.98	1.12	-0.77	□	■	■	28
B/N	0.47	0.45	3.96	0.55	0.76	3.19	1.60	-2.04	■	■	■	24
G/B	0.00	-0.03	3.08	0.60	0.80	2.42	0.51	-1.07	□	■	■	31
G/R	0.19	0.16	2.76	0.50	0.67	2.15	0.71	-1.10	■	■	■	30
G/N	0.12	0.08	2.95	0.54	0.75	2.24	0.58	-1.10	□	■	■	28
R/B	0.03	0.00	3.01	0.58	0.74	2.30	1.59	-1.60	□	■	■	31
R/G	0.19	0.16	2.67	0.51	0.64	2.16	1.23	-1.15	■	■	■	29
R/N	0.47	0.45	2.13	0.42	0.63	1.77	1.02	-0.57	■	■	■	23
N/B	0.49	0.46	3.51	0.52	0.66	3.12	1.70	-1.48	■	■	■	22
N/G	0.06	0.02	3.01	0.55	0.77	2.29	1.00	-1.09	□	■	■	28
N/R	0.35	0.33	2.22	0.45	0.71	1.75	0.96	-0.66	■	■	■	27
B×G×R[1]	0.02	-0.02	2.41	0.54	0.80	1.95	0.78	-0.94	□	■	■	30
B×G×N[1]	0.03	0.00	3.80	0.63	0.82	2.83	0.89	-1.20	□	■	■	31
B×R×N[1]	0.00	-0.04	2.99	0.58	0.73	2.42	1.45	-1.29	□	■	■	29
G×R×N[1]	0.02	-0.02	2.44	0.53	0.81	1.98	1.97	-0.83	□	■	■	29
Avg(B;G)[1,2]	0.03	0.00	2.43	0.53	0.80	1.91	1.43	-0.96	□	■	■	29
Avg(B;R)[1,2]	0.04	0.01	3.04	0.56	0.75	2.34	1.10	-1.19	□	■	■	31
Avg(B;N)[1,2]	0.02	-0.01	3.87	0.64	0.84	2.84	1.51	-1.55	□	■	■	31
Avg(G;R)[1,2]	0.02	-0.02	2.29	0.53	0.76	1.95	0.90	-0.94	□	■	■	30
Avg(G;N)[1,2]	0.15	0.11	2.29	0.49	0.74	1.88	0.94	-0.84	■	■	■	27
Avg(R;N)[1,2]	0.11	0.07	2.82	0.54	0.68	2.37	1.29	-1.16	□	■	■	28
N-R[3,4]	0.24	0.22	3.03	0.53	0.78	2.27	0.90	-1.07	■	■	■	29
Kab1[5,6]	0.03	0.00	3.04	0.58	0.78	2.36	1.05	-1.22	□	■	■	30
NDVI	0.43	0.40	2.23	0.45	0.69	1.87	1.02	-0.54	■	■	■	25
NRVI	0.43	0.40	2.28	0.44	0.71	1.85	1.12	-0.83	■	■	■	25
OC2[7]	0.02	-0.02	3.07	0.59	0.80	2.34	1.29	-0.94	□	■	■	31
SABI[5,8]	0.14	0.11	3.04	0.56	0.79	2.29	0.82	-1.08	■	■	■	30
(B-R)/G[4,9]	0.01	-0.03	2.19	0.50	0.72	1.97	0.89	-0.97	□	■	■	29
(N/G)+(N/B)[10]	0.23	0.20	3.77	0.59	0.79	2.90	0.47	-1.75	■	■	■	29
G×(B+G+R)	0.01	-0.03	2.46	0.54	0.82	1.96	0.96	-0.95	□	■	■	30

Algorithm	r^2	Adj. r^2	RMSE	RMLSE	NRMSE	MAE	MAPE	Bias	p	CV	NM	n
[(1/B)-(1/G)]×N[10]	0.00	-0.03	3.00	0.58	0.78	2.28	1.62	-0.79	□	■	■	31
[(1/R)-(1/G)]×N[10]	0.31	0.28	2.21	0.47	0.73	1.72	0.55	-0.81	■	■	■	29
[(1/R)-(1/B)]×N[10]	0.17	0.14	2.30	0.49	0.75	1.82	0.75	-0.82	■	■	■	29
[(1/R)-(0.2363×(1/G))]×N[11]	0.37	0.35	2.31	0.43	0.74	1.84	1.05	-0.52	■	■	■	27
[(1/R)-(1/B)]/N[12]	0.02	-0.01	3.28	0.58	0.79	2.48	0.85	-1.27	□	■	■	28
(B/R)×N	0.03	-0.01	3.69	0.61	0.80	2.78	0.85	-1.44	□	■	■	31
(G/R)×N	0.33	0.30	3.52	0.52	0.74	2.60	1.99	-1.23	■	■	■	29
(R/B)×N	0.16	0.13	3.94	0.63	0.82	3.03	4.02	-1.66	■	■	■	28
(R/G)×N	0.22	0.19	3.76	0.58	0.80	2.89	0.71	-1.25	■	■	■	29
(R×N)/B[13]	0.16	0.13	3.77	0.61	0.78	2.75	0.88	-1.29	■	■	■	28
(B/G)×(B/R)	0.01	-0.03	2.34	0.51	0.77	1.97	1.21	-0.85	□	■	■	29
(B/G)×(B/N)	0.39	0.37	3.80	0.56	0.75	2.85	1.18	-1.44	■	■	■	25
(B/G)×(R/G)	0.02	-0.01	2.16	0.49	0.70	1.73	1.84	-0.80	□	■	■	28
(B/G)×(R/N)	0.69	0.68	1.61	0.33	0.46	1.35	1.10	-0.26	■	■	■	21
(B/G)×(N/B)	0.06	0.02	3.04	0.57	0.78	2.32	0.78	-1.00	□	■	■	28
(B/G)×(N/G)	0.17	0.13	2.05	0.47	0.79	1.81	1.67	-0.94	■	■	■	24
(B/G)×(N/R)	0.12	0.09	2.31	0.49	0.75	1.85	0.96	-0.83	□	■	■	29
(B/R)×(B/N)	0.18	0.15	3.71	0.58	0.77	2.70	1.19	-1.21	■	■	■	28
(B/R)×(G/R)	0.07	0.04	3.15	0.57	0.77	2.33	1.69	-1.12	□	■	■	29
(B/R)×(G/N)	0.20	0.17	3.37	0.57	0.70	2.80	1.40	-1.35	■	■	■	28
(B/R)×(N/R)	0.21	0.18	2.29	0.48	0.75	1.75	1.12	-0.82	■	■	■	29
(B/N)×(G/N)	0.27	0.24	2.87	0.52	0.69	2.48	0.99	-1.25	■	■	■	25
(B/N)×(R/N)	0.26	0.23	3.03	0.54	0.74	2.32	1.11	-1.19	■	■	■	26
(G/B)×(G/R)	0.00	-0.03	2.21	0.51	0.72	1.83	1.12	-0.79	□	■	■	29
(G/B)×(G/N)	0.07	0.03	2.34	0.51	0.77	1.93	0.95	-0.92	□	■	■	28
(G/B)×(R/B)	0.01	-0.03	3.80	0.64	0.82	2.78	1.50	-1.55	□	■	■	32
(G/B)×(R/N)	0.05	0.02	2.46	0.53	0.82	1.93	1.18	-0.91	□	■	■	30
(G/B)×(N/B)	0.28	0.25	3.85	0.57	0.78	2.88	1.00	-1.19	■	■	■	27
(G/B)×(N/R)	0.63	0.61	1.88	0.36	0.55	1.53	1.03	-0.31	■	■	■	22
(G/R)×(G/N)	0.05	0.02	3.03	0.57	0.78	2.34	0.86	-1.16	□	■	■	29
(G/R)×(N/R)	0.30	0.27	2.05	0.44	0.67	1.71	1.02	-0.68	■	■	■	29
(G/N)×(R/N)	0.26	0.23	2.34	0.47	0.74	1.84	0.85	-0.67	■	■	■	26
(R/B)×(R/G)	0.05	0.01	2.78	0.53	0.67	2.37	2.24	-1.11	□	■	■	28
(R/B)×(R/N)	0.14	0.11	2.35	0.51	0.78	1.82	1.01	-0.82	■	■	■	30
(R/B)×(N/B)	0.01	-0.03	3.77	0.62	0.80	2.83	0.84	-1.56	□	■	■	30
(R/B)×(N/G)	0.14	0.10	3.78	0.60	0.78	2.97	1.06	-1.27	□	■	■	27
(R/G)×(R/N)	0.26	0.23	2.25	0.48	0.75	1.81	0.81	-0.73	■	■	■	30
(R/G)×(N/G)	0.02	-0.02	2.98	0.55	0.76	2.26	1.84	-1.15	□	■	■	28
(N/B)×(N/G)	0.24	0.21	3.49	0.57	0.71	2.97	1.73	-1.09	■	■	■	26
(N/B)×(N/R)	0.24	0.21	3.74	0.59	0.78	2.90	1.14	-1.32	■	■	■	29
(N/G)×(N/R)	0.11	0.08	3.00	0.54	0.78	2.30	1.19	-1.11	□	■	■	30

(1) Fadel et al., 2016; (2) Patra et al., 2015; (3) Tucker, 1979; (4) Ho et al., 2017; (5) Boucher et al., 2018; (6) Kabbara et al., 2008; (7) Trinh et al., 2017; (8) Alawadi et al., 2010; (9) Mayo et al., 1995; (10) Keith et al., 2018; (11) Chenet et al., 2013; (12) Singh et al., 2014; (13) Guan, 2009.

Kab1 = 1.67-3.94×ln(B)+3.78×ln(G)

NDVI = (N-R)/(N+R)

NRVI = [(R/NIR)-1]/[(R/NIR)+1)

SABI = (N-R)/(B+G)

$$\boldsymbol{OC2}=\mathbf{0.1977}+(-\mathbf{1.8117}(\boldsymbol{log}\mathbf{10}(\boldsymbol{BG})))\mathbf{1}+(\mathbf{1.9743}(\boldsymbol{log}\mathbf{10}(\boldsymbol{BG})))\mathbf{2}+(\mathbf{2.5635}(\boldsymbol{log}\mathbf{10}(\boldsymbol{BG})))\mathbf{3}+(-\mathbf{0.7218}(\boldsymbol{log}\mathbf{10}(\boldsymbol{BG})))\mathbf{4}$$

Table S3a. Chl-*a* retrieval algorithm results summary for OWT-A_q after outlier removal. Parameters displayed are coefficient of determination (r^2), p-value (p), root mean square error (RMSE; (μg L^{-1})), root mean square log error (RMSLE), normalized root mean square error, mean absolute error (MAE, (μg L^{-1})), median absolute percentage error (MAPE %), bias (μg L^{-1}), Breusch-Pagan constant variance (CV), and Shapiro-Wilks normality (NM). Filled boxes indicate that the assumptions of linear regressions have been met (r^2 $p < 0.05$, CV and NM $p \geq 0.05$), empty boxes indicate that the assumptions have not been met.

Algorithm	r^2	Adj. r^2	RMSE	RMLSE	NRMSE	MAE	MAPE	Bias	p	CV	NM	n
B	0.01	-0.12	6.82	0.62	0.69	6.82	0.37	-3.03	□	■	□	10
G	0.01	-0.11	6.82	0.62	0.69	6.82	0.37	-3.03	□	■	□	10
R	0.20	0.08	NA	NA	NA	NA	0.34	-2.71	□	■	■	9
N	0.66	0.59	NA	NA	NA	NA	0.24	-1.55	■	■	■	7
B×G	0.01	-0.11	6.81	0.62	0.69	6.81	0.37	-3.02	□	■	□	10
B×R	0.03	-0.09	6.75	0.61	0.69	6.75	0.37	-2.98	□	■	□	10
B×N	0.49	0.40	NA	NA	NA	NA	0.27	-2.18	□	■	■	8
G×R	0.03	-0.09	6.74	0.61	0.69	6.74	0.37	-2.98	□	■	■	10
G×N	0.62	0.53	NA	NA	NA	NA	0.20	-1.30	□	■	■	6
R×N	0.62	0.56	NA	NA	NA	NA	0.20	-1.42	■	■	■	8
B/G	0.00	-0.12	6.82	0.62	0.69	6.82	0.37	-3.04	□	■	□	10
B/R	0.04	-0.08	6.74	0.61	0.69	6.74	0.38	-2.96	□	■	■	10
B/N	0.01	-0.12	6.73	0.61	0.68	6.73	0.37	-3.03	□	■	□	10
G/B	0.00	-0.12	6.81	0.62	0.69	6.81	0.37	-3.05	□	■	□	10
G/R	0.37	0.27	NA	NA	NA	NA	0.33	-2.47	□	■	■	8
G/N	0.01	-0.12	6.73	0.61	0.68	6.73	0.37	-3.03	□	■	□	10
R/B	0.03	-0.09	6.77	0.62	0.69	6.77	0.38	-2.98	□	■	■	10
R/G	0.06	-0.06	6.72	0.61	0.68	6.72	0.38	-2.93	□	□	■	10
R/N	0.00	-0.16	NA	NA	NA	NA	0.23	-1.88	□	■	□	8
N/B	0.00	-0.12	6.77	0.61	0.69	6.77	0.37	-3.04	□	■	□	10
N/G	0.00	-0.12	6.75	0.61	0.69	6.75	0.37	-3.04	□	■	□	10
N/R	0.00	-0.17	NA	NA	NA	NA	0.23	-1.88	□	■	□	8
B×G×R[1]	0.03	-0.09	6.76	0.61	0.69	6.76	0.37	-2.99	□	■	□	10
B×G×N[1]	0.04	-0.08	6.71	0.60	0.68	6.71	0.36	-2.95	□	■	■	10
B×R×N[1]	0.26	0.13	NA	NA	NA	NA	0.31	-2.69	□	■	■	8
G×R×N[1]	0.06	-0.05	6.64	0.59	0.68	6.64	0.36	-2.92	□	■	■	10
Avg(B;G)[1,2]	0.01	-0.12	6.82	0.62	0.69	6.82	0.37	-3.03	□	■	□	10
Avg(B;R)[1,2]	0.03	-0.09	6.75	0.61	0.69	6.75	0.37	-2.98	□	■	□	10
Avg(B;N)[1,2]	0.44	0.34	NA	NA	NA	NA	0.28	-2.24	□	■	■	8
Avg(G;R)[1,2]	0.03	-0.09	6.75	0.61	0.69	6.75	0.37	-2.99	□	■	□	10
Avg(G;N)[1,2]	0.17	0.05	NA	NA	NA	NA	0.33	-2.75	□	■	■	9
Avg(R;N)[1,2]	0.82	0.78	NA	NA	NA	NA	0.17	-0.91	■	■	■	7
N-R[3,4]	0.14	-0.01	NA	NA	NA	NA	0.27	-2.10	□	■	■	8
Kab1[5,6]	0.00	-0.12	6.82	0.62	0.69	6.82	0.37	-3.04	□	■	□	10
NDVI	0.00	-0.17	NA	NA	NA	NA	0.23	-1.88	□	■	□	8
NRVI	0.00	-0.17	NA	NA	NA	NA	0.23	-1.88	□	■	□	8
OC2[7]	0.00	-0.12	6.81	0.62	0.69	6.81	0.37	-3.05	□	■	□	10
SABI[5,8]	0.58	0.44	NA	NA	NA	NA	0.09	-0.05	□	■	■	5
(B-R)/G[4,9]	0.01	-0.16	NA	NA	NA	NA	0.29	-2.20	□	■	□	8
(N/G)+(N/B)[10]	0.00	-0.12	6.76	0.61	0.69	6.76	0.37	-3.04	□	■	□	10
G×(B+G+R)	0.02	-0.10	6.79	0.62	0.69	6.79	0.37	-3.01	□	■	□	10

Algorithm	r^2	Adj. r^2	RMSE	RMLSE	NRMSE	MAE	MAPE	Bias	p	CV	NM	n
[(1/B)-(1/G)]×N[10]	0.00	-0.12	6.81	0.62	0.69	6.81	0.37	-3.05	□	■	□	10
[(1/R)-(1/G)]×N[10]	0.68	0.51	NA	NA	NA	NA	0.04	-0.01	□	■	■	4
[(1/R)-(1/B)]×N[10]	0.13	-0.04	NA	NA	NA	NA	0.31	-2.37	□	■	■	7
[(1/R)-(0.2363×(1/G))]×N[11]	0.00	-0.17	NA	NA	NA	NA	0.23	-1.88	□	■	□	8
[(1/R)-(1/B)]/N[12]	0.18	0.02	NA	NA	NA	NA	0.29	-2.27	□	■	■	7
(B/R)×N	0.00	-0.12	6.77	0.61	0.69	6.77	0.37	-3.04	□	■	□	10
(G/R)×N	0.07	-0.07	NA	NA	NA	NA	0.27	-2.02	□	■	□	9
(R/B)×N	0.06	-0.06	6.68	0.61	0.68	6.68	0.38	-2.93	□	■	■	10
(R/G)×N	0.91	0.87	NA	NA	NA	NA	0.11	-0.39	■	■	■	5
(R×N)/B[13]	0.06	-0.06	6.68	0.61	0.68	6.68	0.38	-2.93	□	■	■	10
(B/G)×(B/R)	0.02	-0.12	NA	NA	NA	NA	0.29	-2.05	□	■	□	9
(B/G)×(B/N)	0.24	0.11	NA	NA	NA	NA	0.26	-1.99	□	■	■	8
(B/G)×(R/G)	0.01	-0.19	NA	NA	NA	NA	0.19	-0.73	□	■	□	7
(B/G)×(R/N)	0.00	-0.17	NA	NA	NA	NA	0.23	-1.88	□	■	□	8
(B/G)×(N/B)	0.00	-0.12	6.75	0.61	0.69	6.75	0.37	-3.04	□	■	□	10
(B/G)×(N/G)	0.01	-0.12	6.72	0.61	0.68	6.72	0.37	-3.03	□	■	□	10
(B/G)×(N/R)	0.03	-0.11	NA	NA	NA	NA	0.28	-2.08	□	■	□	9
(B/R)×(B/N)	0.02	-0.10	6.67	0.60	0.68	6.67	0.37	-3.00	□	■	■	10
(B/R)×(G/R)	0.06	-0.06	6.69	0.61	0.68	6.69	0.38	-2.92	□	□	■	10
(B/R)×(G/N)	0.03	-0.10	6.67	0.60	0.68	6.67	0.37	-2.99	□	■	■	10
(B/R)×(N/R)	0.84	0.78	NA	NA	NA	NA	0.05	-0.01	■	■	□	5
(B/N)×(G/N)	0.01	-0.12	6.70	0.61	0.68	6.70	0.37	-3.03	□	■	□	10
(B/N)×(R/N)	0.00	-0.17	NA	NA	NA	NA	0.24	-1.88	□	■	□	8
(G/B)×(G/R)	0.55	0.10	NA	NA	NA	NA	0.03	0.00	□	■	■	3
(G/B)×(G/N)	0.00	-0.12	6.74	0.61	0.69	6.74	0.37	-3.04	□	■	□	10
(G/B)×(R/B)	0.02	-0.10	6.76	0.61	0.69	6.76	0.37	-3.01	□	■	■	10
(G/B)×(R/N)	0.09	-0.04	NA	NA	NA	NA	0.34	-2.86	□	■	■	9
(G/B)×(N/B)	0.00	-0.12	6.79	0.62	0.69	6.79	0.37	-3.04	□	■	□	10
(G/B)×(N/R)	0.09	-0.04	NA	NA	NA	NA	0.29	-1.99	□	■	■	9
(G/R)×(G/N)	0.03	-0.09	6.66	0.60	0.68	6.66	0.37	-2.98	□	■	■	10
(G/R)×(N/R)	0.65	0.57	NA	NA	NA	NA	0.08	-0.03	□	■	■	6
(G/N)×(R/N)	0.06	-0.07	NA	NA	NA	NA	0.32	-2.92	□	■	□	9
(R/B)×(R/G)	0.06	-0.07	NA	NA	NA	NA	0.39	-3.22	□	□	■	9
(R/B)×(R/N)	0.02	-0.10	6.72	0.61	0.68	6.72	0.37	-3.00	□	■	■	10
(R/B)×(N/B)	0.01	-0.11	6.73	0.61	0.68	6.73	0.37	-3.02	□	■	□	10
(R/B)×(N/G)	0.02	-0.11	6.74	0.61	0.69	6.74	0.37	-3.01	□	■	□	10
(R/G)×(R/N)	0.65	0.56	NA	NA	NA	NA	0.08	-0.03	□	■	■	6
(R/G)×(N/G)	0.02	-0.10	6.74	0.61	0.69	6.74	0.37	-3.00	□	■	■	10
(N/B)×(N/G)	0.00	-0.12	6.77	0.61	0.69	6.77	0.37	-3.04	□	■	□	10
(N/B)×(N/R)	0.07	-0.07	NA	NA	NA	NA	0.31	-2.03	□	■	■	9
(N/G)×(N/R)	0.06	-0.07	NA	NA	NA	NA	0.30	-2.03	□	■	■	9

(1) Fadel et al., 2016; (2) Patra et al., 2015; (3) Tucker, 1979; (4) Ho et al., 2017; (5) Boucher et al., 2018; (6) Kabbara et al., 2008; (7) Trinh et al., 2017; (8) Alawadi et al., 2010; (9) Mayo et al., 1995; (10) Keith et al., 2018; (11) Chenet et al., 2013; (12) Singh et al., 2014; (13) Guan, 2009.

Kab1 = 1.67-3.94×ln(B)+3.78×ln(G)

NDVI = (N-R)/(N+R)

NRVI = [(R/NIR)-1]/[(R/NIR)+1)

SABI = (N-R)/(B+G)

$$\boldsymbol{OC2}=\mathbf{0.1977}+(-\mathbf{1.8117}(\boldsymbol{log}\mathbf{10}(\boldsymbol{BG})))\mathbf{1}+(\mathbf{1.9743}(\boldsymbol{log}\mathbf{10}(\boldsymbol{BG})))\mathbf{2}+(\mathbf{2.5635}(\boldsymbol{log}\mathbf{10}(\boldsymbol{BG})))\mathbf{3}+(-\mathbf{0.7218}(\boldsymbol{log}\mathbf{10}(\boldsymbol{BG})))\mathbf{4}$$

Table S3b. Chl-*a* retrieval algorithm results summary for OWT-B_q after outlier removal. Parameters displayed are coefficient of determination (r^2), p-value (p), root mean square error (RMSE; (μg L^{-1})), root mean square log error (RMSLE), normalized root mean square error, mean absolute error (MAE, (μg L^{-1})), median absolute percentage error (MAPE %), bias (μg L^{-1}), Breusch-Pagan constant variance (CV), and Shapiro-Wilks normality (NM). Filled boxes indicate that the assumptions of linear regressions have been met (r^2 $p < 0.05$, CV and NM $p \geq 0.05$), empty boxes indicate that the assumptions have not been met.

Algorithm	r^2	Adj. r^2	RMSE	RMLSE	NRMSE	MAE	MAPE	Bias	p	CV	NM	n
B	0.00	-0.03	23.24	0.82	1.01	19.54	0.16	-7.17	□	■	□	31
G	0.10	0.08	23.50	0.83	0.96	19.48	0.24	-12.25	□	■	■	34
R	0.08	0.05	23.25	0.80	0.95	19.10	0.18	-9.70	□	■	■	33
N	0.13	0.10	27.04	0.82	0.80	21.33	0.24	-8.92	■	■	■	32
B×G	0.02	-0.01	21.87	0.83	0.93	18.55	0.25	-9.32	□	■	□	33
B×R	0.00	-0.03	25.40	0.96	1.02	21.69	0.40	-10.52	□	■	□	35
B×N	0.23	0.20	22.77	0.76	0.93	19.19	0.22	-6.74	■	■	■	32
G×R	0.11	0.08	22.12	0.79	0.90	18.84	0.20	-8.17	□	■	■	34
G×N	0.00	-0.03	23.96	0.87	0.97	20.56	0.28	-10.46	□	■	□	34
R×N	0.00	-0.03	23.87	0.88	0.97	20.85	0.31	-9.00	□	■	□	34
B/G	0.85	0.84	11.83	0.34	0.53	10.07	0.12	-1.55	■	■	■	26
B/R	0.27	0.25	24.20	0.71	0.72	21.12	0.22	-10.97	■	□	■	34
B/N	0.08	0.05	26.94	0.79	0.80	21.84	0.25	-14.14	□	■	■	32
G/B	0.34	0.32	25.52	0.73	0.76	20.17	0.22	-8.78	■	□	■	34
G/R	0.34	0.32	19.94	0.67	0.59	17.09	0.19	-8.16	■	■	■	31
G/N	0.34	0.32	26.89	0.72	0.79	21.19	0.20	-6.98	■	■	■	31
R/B	0.23	0.21	27.42	0.77	0.82	20.67	0.19	-7.62	■	□	■	34
R/G	0.36	0.33	25.10	0.74	0.74	18.40	0.18	-9.24	■	■	■	31
R/N	0.26	0.23	27.01	0.78	0.79	21.89	0.16	-10.74	■	■	■	32
N/B	0.08	0.05	28.19	0.85	0.84	22.22	0.25	-9.97	□	■	■	32
N/G	0.42	0.40	27.46	0.69	0.80	21.84	0.23	-7.75	■	■	■	30
N/R	0.27	0.24	24.23	0.73	0.71	21.23	0.17	-8.16	■	■	■	33
B×G×R[1]	0.02	-0.01	23.74	0.93	0.96	19.48	0.32	-11.28	□	■	□	35
B×G×N[1]	0.02	-0.01	25.50	0.95	1.01	21.36	0.35	-9.93	□	■	□	34
B×R×N[1]	0.04	0.01	23.64	0.82	0.95	20.53	0.26	-10.98	□	■	□	33
G×R×N[1]	0.02	-0.01	24.19	0.89	0.98	21.15	0.28	-11.34	□	■	□	34
Avg(B;G)[1,2]	0.02	-0.01	22.50	0.82	0.96	18.86	0.25	-10.61	□	■	□	33
Avg(B;R)[1,2]	0.00	-0.03	24.33	0.89	0.99	20.59	0.20	-9.01	□	■	□	33
Avg(B;N)[1,2]	0.22	0.19	22.69	0.78	0.92	19.51	0.23	-6.43	■	■	■	32
Avg(G;R)[1,2]	0.13	0.10	23.52	0.78	0.96	18.80	0.18	-8.91	■	■	■	33
Avg(G;N)[1,2]	0.01	-0.03	24.08	0.88	0.98	19.93	0.21	-8.30	□	■	□	34
Avg(R;N)[1,2]	0.00	-0.03	23.82	0.87	0.97	20.21	0.31	-9.55	□	■	□	34
N-R[3,4]	0.34	0.32	24.10	0.72	0.71	19.21	0.19	-8.24	■	■	■	31
Kab1[5,6]	0.84	0.84	12.11	0.33	0.53	9.92	0.12	-1.28	■	■	■	25
NDVI	0.26	0.24	27.03	0.77	0.80	21.47	0.19	-8.07	■	■	■	33
NRVI	0.26	0.24	25.94	0.74	0.77	20.46	0.19	-8.55	■	■	■	33
OC2[7]	0.33	0.31	25.84	0.72	0.77	20.27	0.19	-7.27	■	□	■	34
SABI[5,8]	0.47	0.45	25.20	0.64	0.74	19.92	0.15	-5.00	■	■	■	28
(B-R)/G[4,9]	0.83	0.82	12.68	0.35	0.57	10.47	0.12	-2.02	■	■	■	26
(N/G)+(N/B)[10]	0.23	0.20	23.72	0.76	0.71	19.31	0.21	-7.27	■	■	■	32
G×(B+G+R)	0.06	0.03	22.44	0.83	0.91	19.08	0.25	-8.21	□	■	■	34

Algorithm	r^2	Adj. r^2	RMSE	RMLSE	NRMSE	MAE	MAPE	Bias	p	CV	NM	n
[(1/B)-(1/G)]×N[10]	0.41	0.40	23.75	0.66	0.71	18.62	0.20	-6.57	■	□	□	34
[(1/R)-(1/G)]×N[10]	0.03	-0.02	20.87	0.48	0.65	17.40	0.13	-6.94	□	■	■	24
[(1/R)-(1/B)]×N[10]	0.46	0.44	24.56	0.62	0.75	19.56	0.19	-5.15	■	■	■	33
[(1/R)-(0.2363×(1/G))]×N[11]	0.26	0.24	25.53	0.74	0.75	19.66	0.19	-9.92	■	■	■	33
[(1/R)-(1/B)]/N[12]	0.08	0.05	28.73	0.86	0.85	23.56	0.29	-10.34	□	■	■	33
(B/R)×N	0.02	-0.01	21.59	0.79	0.96	18.10	0.17	-8.52	□	■	□	30
(G/R)×N	0.05	0.01	27.56	0.82	0.81	22.63	0.24	-10.77	□	■	■	33
(R/B)×N	0.00	-0.03	29.15	0.92	0.88	23.76	0.26	-12.43	□	■	□	34
(R/G)×N	0.18	0.16	28.23	0.81	0.84	22.11	0.19	-14.87	■	■	■	32
(R×N)/B[13]	0.00	-0.03	28.94	0.94	0.87	23.88	0.32	-14.80	□	■	□	34
(B/G)×(B/R)	0.75	0.74	12.78	0.42	0.58	10.96	0.16	-0.78	■	■	■	28
(B/G)×(B/N)	0.06	0.03	27.24	0.84	0.81	22.48	0.28	-11.20	□	■	□	35
(B/G)×(R/G)	0.26	0.24	23.71	0.76	0.71	19.89	0.20	-9.08	■	■	■	35
(B/G)×(R/N)	0.05	0.02	26.54	0.81	0.79	21.61	0.15	-8.42	□	■	■	31
(B/G)×(N/B)	0.42	0.40	26.02	0.70	0.76	21.84	0.17	-7.75	■	■	■	30
(B/G)×(N/G)	0.46	0.44	26.35	0.67	0.77	21.26	0.17	-7.51	■	■	■	32
(B/G)×(N/R)	0.57	0.55	25.60	0.59	0.76	19.90	0.15	-4.96	■	■	■	31
(B/R)×(B/N)	0.02	-0.01	30.90	0.94	0.92	24.61	0.27	-13.22	□	■	□	35
(B/R)×(G/R)	0.05	0.02	28.66	0.85	0.86	23.04	0.20	-15.47	□	■	■	33
(B/R)×(G/N)	0.13	0.10	28.22	0.83	0.84	21.93	0.27	-9.99	■	■	■	32
(B/R)×(N/R)	0.56	0.55	26.25	0.58	0.78	20.94	0.15	-7.11	■	■	■	31
(B/N)×(G/N)	0.26	0.23	28.49	0.80	0.81	22.58	0.21	-9.78	■	■	■	29
(B/N)×(R/N)	0.19	0.17	25.07	0.76	0.75	21.08	0.22	-11.48	■	■	■	32
(G/B)×(G/R)	0.28	0.25	27.57	0.80	0.81	21.18	0.20	-12.28	■	□	■	34
(G/B)×(G/N)	0.34	0.32	27.68	0.74	0.81	21.17	0.18	-5.46	■	□	■	32
(G/B)×(R/B)	0.29	0.27	27.52	0.75	0.82	22.16	0.21	-9.55	■	□	■	34
(G/B)×(R/N)	0.35	0.33	29.00	0.72	0.84	22.65	0.20	-6.63	■	■	■	32
(G/B)×(N/B)	0.08	0.05	27.85	0.87	0.83	22.53	0.29	-13.28	□	■	■	35
(G/B)×(N/R)	0.01	-0.02	28.53	0.87	0.86	22.63	0.19	-10.04	□	■	■	33
(G/R)×(G/N)	0.31	0.29	26.15	0.74	0.77	22.30	0.21	-6.80	■	■	■	31
(G/R)×(N/R)	0.27	0.24	25.24	0.73	0.76	19.04	0.16	-8.26	■	■	■	32
(G/N)×(R/N)	0.37	0.35	27.69	0.72	0.79	21.09	0.20	-8.88	■	■	■	29
(R/B)×(R/G)	0.02	-0.01	25.88	0.85	0.78	21.06	0.19	-10.63	□	■	■	32
(R/B)×(R/N)	0.75	0.74	17.03	0.43	0.44	13.81	0.14	-3.04	■	■	■	23
(R/B)×(N/B)	0.01	-0.02	29.91	0.92	0.90	23.94	0.39	-9.92	□	■	□	34
(R/B)×(N/G)	0.04	0.01	25.94	0.82	0.78	21.77	0.31	-12.63	□	■	■	34
(R/G)×(R/N)	0.19	0.16	26.85	0.80	0.79	21.66	0.16	-9.87	■	■	■	33
(R/G)×(N/G)	0.46	0.44	26.41	0.65	0.76	20.84	0.18	-7.26	■	■	■	29
(N/B)×(N/G)	0.17	0.14	26.30	0.77	0.79	20.46	0.23	-8.29	■	■	■	33
(N/B)×(N/R)	0.15	0.12	27.74	0.83	0.83	21.51	0.22	-12.78	■	■	■	33
(N/G)×(N/R)	0.53	0.51	23.58	0.61	0.69	18.94	0.16	-7.57	■	■	■	28

(1) Fadel et al., 2016; (2) Patra et al., 2015; (3) Tucker, 1979; (4) Ho et al., 2017; (5) Boucher et al., 2018; (6) Kabbara et al., 2008; (7) Trinh et al., 2017; (8) Alawadi et al., 2010; (9) Mayo et al., 1995; (10) Keith et al., 2018; (11) Chenet et al., 2013; (12) Singh et al., 2014; (13) Guan, 2009.

Kab1 = 1.67-3.94×ln(B)+3.78×ln(G)

NDVI = (N-R)/(N+R)

NRVI = [(R/NIR)-1]/[(R/NIR)+1)

SABI = (N-R)/(B+G)

$$\boldsymbol{OC2}=\mathbf{0.1977}+(-\mathbf{1.8117}(\boldsymbol{log}\mathbf{10}(\boldsymbol{BG})))\mathbf{1}+(\mathbf{1.9743}(\boldsymbol{log}\mathbf{10}(\boldsymbol{BG})))\mathbf{2}+(\mathbf{2.5635}(\boldsymbol{log}\mathbf{10}(\boldsymbol{BG})))\mathbf{3}+(-\mathbf{0.7218}(\boldsymbol{log}\mathbf{10}(\boldsymbol{BG})))\mathbf{4}$$

Table S3c. Chl-*a* retrieval algorithm results summary for OWT-C_q after outlier removal. Parameters displayed are coefficient of determination (r^2), p-value (p), root mean square error (RMSE; (μg L^{-1})), root mean square log error (RMSLE), normalized root mean square error, mean absolute error (MAE, (μg L^{-1})), median absolute percentage error (MAPE %), bias (μg L^{-1}), Breusch-Pagan constant variance (CV), and Shapiro-Wilks normality (NM). Filled boxes indicate that the assumptions of linear regressions have been met (r^2 $p < 0.05$, CV and NM $p \geq 0.05$), empty boxes indicate that the assumptions have not been met.

Algorithm	r^2	Adj. r^2	RMSE	RMLSE	NRMSE	MAE	MAPE	Bias	p	CV	NM	n
B	0.01	-0.06	25.42	0.73	0.87	23.48	0.24	-10.16	□	■	■	16
G	0.00	-0.07	19.16	0.64	0.75	17.17	0.23	-5.14	□	■	■	16
R	0.00	-0.07	21.43	0.64	0.74	19.52	0.21	-7.78	□	■	■	17
N	0.03	-0.03	22.26	0.63	0.77	20.71	0.20	-11.36	□	■	■	17
B×G	0.01	-0.06	20.92	0.64	0.71	18.85	0.22	-6.86	□	□	■	16
B×R	0.05	-0.02	19.81	0.59	0.67	18.10	0.22	-5.06	□	■	■	15
B×N	0.59	0.54	17.45	0.43	0.55	17.45	0.14	-5.39	■	■	■	10
G×R	0.06	-0.01	18.14	0.55	0.69	16.98	0.19	-7.29	□	■	■	14
G×N	0.04	-0.03	21.92	0.71	0.75	19.84	0.25	-5.72	□	■	■	16
R×N	0.04	-0.04	20.03	0.64	0.68	19.65	0.24	-4.24	□	■	■	15
B/G	0.16	0.09	20.26	0.60	0.76	19.25	0.19	-10.42	□	■	■	15
B/R	0.11	0.04	26.03	0.69	0.90	24.71	0.21	-12.96	□	■	■	16
B/N	0.00	-0.07	24.10	0.68	0.84	22.25	0.22	-11.80	□	■	■	17
G/B	0.16	0.10	19.40	0.62	0.73	17.72	0.21	-7.12	□	■	■	15
G/R	0.06	0.00	21.88	0.65	0.76	18.64	0.20	-8.27	□	□	■	17
G/N	0.00	-0.07	21.46	0.69	0.84	19.72	0.22	-9.08	□	■	■	16
R/B	0.10	0.03	22.69	0.63	0.78	21.09	0.21	-8.27	□	■	■	16
R/G	0.06	0.00	23.21	0.68	0.81	20.85	0.23	-9.09	□	□	■	17
R/N	0.01	-0.08	20.57	0.64	0.77	19.28	0.21	-8.81	□	■	■	14
N/B	0.00	-0.07	22.54	0.67	0.78	19.71	0.21	-7.67	□	■	■	17
N/G	0.05	-0.02	22.87	0.69	0.80	19.54	0.22	-6.66	□	■	■	17
N/R	0.08	0.02	19.62	0.60	0.68	18.35	0.21	-4.44	□	■	■	16
B×G×R[1]	0.10	0.03	21.81	0.58	0.74	19.21	0.18	-9.26	□	■	■	15
B×G×N[1]	0.00	-0.07	22.69	0.63	0.78	21.14	0.21	-10.43	□	□	■	16
B×R×N[1]	0.09	0.01	22.73	0.63	0.77	20.52	0.22	-6.03	□	■	■	14
G×R×N[1]	0.13	0.06	21.57	0.63	0.73	21.21	0.21	-9.19	□	■	■	15
Avg(B;G)[1,2]	0.02	-0.06	22.13	0.68	0.76	19.93	0.24	-6.68	□	□	■	16
Avg(B;R)[1,2]	0.01	-0.06	21.50	0.68	0.75	20.12	0.23	-7.18	□	■	■	17
Avg(B;N)[1,2]	0.27	0.21	20.70	0.59	0.73	19.18	0.19	-10.02	□	■	■	14
Avg(G;R)[1,2]	0.06	-0.01	17.79	0.55	0.67	16.76	0.19	-7.41	□	■	■	14
Avg(G;N)[1,2]	0.03	-0.04	26.94	0.78	0.92	25.48	0.26	-11.81	□	■	■	16
Avg(R;N)[1,2]	0.01	-0.05	23.61	0.69	0.82	20.12	0.21	-9.74	□	■	■	17
N-R[3,4]	0.09	0.02	24.43	0.71	0.84	21.71	0.24	-7.78	□	■	■	16
Kab1[5,6]	0.17	0.11	18.71	0.57	0.71	18.02	0.19	-9.95	□	■	■	15
NDVI	0.09	0.02	24.94	0.69	0.86	23.15	0.21	-12.55	□	■	■	16
NRVI	0.09	0.02	18.79	0.58	0.65	17.72	0.19	-5.75	□	■	■	16
OC2[7]	0.16	0.10	18.13	0.62	0.68	16.09	0.21	-4.10	□	■	■	15
SABI[5,8]	0.08	0.01	21.29	0.59	0.73	19.32	0.18	-9.76	□	■	■	16
(B-R)/G[4,9]	0.17	0.11	17.64	0.59	0.67	15.67	0.20	-5.30	□	■	■	15
(N/G)+(N/B)[10]	0.02	-0.05	21.48	0.64	0.75	18.68	0.22	-7.15	□	■	■	17
G×(B+G+R)	0.05	-0.03	20.39	0.64	0.77	19.31	0.23	-7.89	□	■	■	14

Algorithm	r^2	Adj. r^2	RMSE	RMLSE	NRMSE	MAE	MAPE	Bias	p	CV	NM	n
[(1/B)-(1/G)]×N[10]	0.08	0.01	19.89	0.64	0.78	17.65	0.20	-8.30	□	■	■	16
[(1/R)-(1/G)]×N[10]	0.01	-0.06	26.05	0.73	0.91	24.60	0.23	-13.23	□	■	■	17
[(1/R)-(1/B)]×N[10]	0.11	0.04	20.90	0.58	0.72	18.69	0.19	-7.52	□	■	■	16
[(1/R)-(0.2363×(1/G))]×N[11]	0.07	0.01	21.33	0.62	0.74	19.32	0.22	-6.50	□	■	■	16
[(1/R)-(1/B)]/N[12]	0.01	-0.05	23.39	0.73	0.81	20.21	0.25	-6.03	□	■	■	17
(B/R)×N	0.00	-0.07	22.06	0.69	0.77	19.91	0.22	-7.08	□	■	■	17
(G/R)×N	0.00	-0.07	23.60	0.68	0.82	21.78	0.22	-10.70	□	■	■	17
(R/B)×N	0.00	-0.06	21.51	0.72	0.74	19.31	0.52	-9.79	□	■	■	18
(R/G)×N	0.04	-0.02	22.04	0.75	0.76	19.60	0.53	-10.92	□	■	■	18
(R×N)/B[13]	0.00	-0.06	24.49	0.89	0.84	20.63	0.86	-8.46	□	■	■	18
(B/G)×(B/R)	0.02	-0.05	18.42	0.62	0.72	16.91	0.21	-5.21	□	■	■	16
(B/G)×(B/N)	0.14	0.08	22.64	0.70	0.76	20.55	0.24	-4.54	□	■	□	16
(B/G)×(R/G)	0.33	0.28	16.70	0.56	0.56	16.27	0.20	-7.98	■	■	■	16
(B/G)×(R/N)	0.06	-0.01	22.84	0.69	0.77	20.43	0.23	-6.71	□	■	■	16
(B/G)×(N/B)	0.05	-0.02	20.76	0.62	0.72	18.11	0.20	-6.69	□	■	■	17
(B/G)×(N/G)	0.02	-0.05	19.51	0.62	0.76	17.93	0.21	-8.03	□	■	■	16
(B/G)×(N/R)	0.07	0.00	17.75	0.58	0.69	16.00	0.20	-5.35	□	■	■	15
(B/R)×(B/N)	0.02	-0.04	22.88	0.68	0.80	20.30	0.22	-7.38	□	■	■	17
(B/R)×(G/R)	0.00	-0.06	24.74	0.70	0.86	22.57	0.22	-11.48	□	■	■	17
(B/R)×(G/N)	0.01	-0.06	24.05	0.68	0.84	21.45	0.21	-11.50	□	□	■	17
(B/R)×(N/R)	0.12	0.05	21.46	0.65	0.74	19.10	0.22	-6.08	□	■	■	16
(B/N)×(G/N)	0.01	-0.05	21.20	0.64	0.74	18.91	0.22	-7.14	□	■	■	17
(B/N)×(R/N)	0.04	-0.03	23.20	0.65	0.80	20.51	0.21	-9.38	□	■	■	16
(G/B)×(G/R)	0.29	0.24	18.34	0.59	0.64	17.35	0.20	-7.31	■	■	■	17
(G/B)×(G/N)	0.09	0.02	21.01	0.67	0.81	18.95	0.23	-7.68	□	■	■	15
(G/B)×(R/B)	0.01	-0.06	21.75	0.70	0.85	20.44	0.24	-8.98	□	■	■	16
(G/B)×(R/N)	0.06	-0.01	18.32	0.56	0.71	16.62	0.19	-6.64	□	■	■	15
(G/B)×(N/B)	0.06	0.00	24.05	0.72	0.84	22.18	0.24	-7.89	□	■	□	17
(G/B)×(N/R)	0.05	-0.02	23.12	0.71	0.79	22.90	0.24	-9.57	□	■	■	16
(G/R)×(G/N)	0.02	-0.05	17.04	0.57	0.66	16.45	0.19	-8.24	□	□	■	16
(G/R)×(N/R)	0.09	0.02	16.38	0.51	0.62	16.37	0.17	-7.33	□	■	■	14
(G/N)×(R/N)	0.03	-0.04	19.23	0.59	0.74	18.12	0.19	-8.74	□	■	■	15
(R/B)×(R/G)	0.00	-0.07	24.86	0.72	0.86	22.77	0.23	-11.06	□	■	■	17
(R/B)×(R/N)	0.01	-0.07	22.94	0.71	0.86	22.14	0.24	-10.36	□	■	■	14
(R/B)×(N/B)	0.01	-0.06	21.18	0.65	0.74	20.26	0.21	-8.47	□	■	■	17
(R/B)×(N/G)	0.01	-0.05	20.95	0.61	0.73	18.48	0.20	-6.90	□	□	■	17
(R/G)×(R/N)	0.03	-0.05	22.80	0.65	0.76	21.99	0.22	-9.30	□	■	■	15
(R/G)×(N/G)	0.06	0.00	20.75	0.60	0.72	18.05	0.20	-8.45	□	□	■	17
(N/B)×(N/G)	0.02	-0.05	22.11	0.63	0.77	19.35	0.20	-9.82	□	■	■	17
(N/B)×(N/R)	0.01	-0.06	24.10	0.73	0.84	20.54	0.23	-7.98	□	■	■	17
(N/G)×(N/R)	0.03	-0.03	23.76	0.68	0.83	20.89	0.21	-9.58	□	■	■	17

(1) Fadel et al., 2016; (2) Patra et al., 2015; (3) Tucker, 1979; (4) Ho et al., 2017; (5) Boucher et al., 2018; (6) Kabbara et al., 2008; (7) Trinh et al., 2017; (8) Alawadi et al., 2010; (9) Mayo et al., 1995; (10) Keith et al., 2018; (11) Chenet et al., 2013; (12) Singh et al., 2014; (13) Guan, 2009.

Kab1 = 1.67-3.94×ln(B)+3.78×ln(G)

NDVI = (N-R)/(N+R)

NRVI = [(R/NIR)-1]/[(R/NIR)+1)

SABI = (N-R)/(B+G)

$$\boldsymbol{OC2}=\mathbf{0.1977}+(-\mathbf{1.8117}(\boldsymbol{log}\mathbf{10}(\boldsymbol{BG})))\mathbf{1}+(\mathbf{1.9743}(\boldsymbol{log}\mathbf{10}(\boldsymbol{BG})))\mathbf{2}+(\mathbf{2.5635}(\boldsymbol{log}\mathbf{10}(\boldsymbol{BG})))\mathbf{3}+(-\mathbf{0.7218}(\boldsymbol{log}\mathbf{10}(\boldsymbol{BG})))\mathbf{4}$$

Table S3d. Chl-*a* retrieval algorithm results summary for OWT-D_q after outlier removal. Parameters displayed are coefficient of determination (r^2), p-value (p), root mean square error (RMSE; (μg L^{-1})), root mean square log error (RMSLE), normalized root mean square error, mean absolute error (MAE, (μg L^{-1})), median absolute percentage error (MAPE %), bias (μg L^{-1}), Breusch-Pagan constant variance (CV), and Shapiro-Wilks normality (NM). Filled boxes indicate that the assumptions of linear regressions have been met (r^2 $p < 0.05$, CV and NM $p \geq 0.05$), empty boxes indicate that the assumptions have not been met.

Algorithm	r^2	Adj. r^2	RMSE	RMLSE	NRMSE	MAE	MAPE	Bias	p	CV	NM	n
B	0.08	-0.01	0.83	0.33	0.73	0.80	0.99	-0.17	□	■	■	13
G	0.24	0.16	0.83	0.29	0.74	0.81	0.76	-0.32	□	■	■	12
R	0.56	0.50	0.66	0.23	0.57	0.66	0.71	-0.15	■	■	■	10
N	0.37	0.31	0.59	0.23	0.59	0.56	0.55	-0.15	■	■	■	13
B×G	0.01	-0.08	0.97	0.37	0.85	0.95	1.06	-0.26	□	■	■	13
B×R	0.02	-0.06	1.03	0.39	0.91	0.99	1.06	-0.33	□	■	■	13
B×N	0.09	0.01	0.93	0.33	0.81	0.88	0.86	-0.35	□	■	■	14
G×R	0.52	0.47	0.75	0.25	0.68	0.75	0.75	-0.24	■	■	■	11
G×N	0.05	-0.03	0.99	0.36	0.86	0.92	0.92	-0.30	□	■	■	14
R×N	0.03	-0.05	1.06	0.39	0.92	1.05	0.96	-0.48	□	■	■	14
B/G	0.12	0.04	0.95	0.36	0.82	0.89	0.97	-0.21	□	■	■	14
B/R	0.11	0.03	0.98	0.37	0.85	0.92	1.09	-0.12	□	■	■	14
B/N	0.15	0.08	0.91	0.34	0.79	0.89	0.81	-0.38	□	■	■	14
G/B	0.10	0.03	1.06	0.38	0.92	1.03	0.85	-0.57	□	■	■	14
G/R	0.13	0.06	0.82	0.32	0.82	0.81	0.82	-0.31	□	■	■	13
G/N	0.21	0.14	0.74	0.27	0.64	0.67	0.65	-0.25	□	■	■	14
R/B	0.09	0.02	1.04	0.38	0.90	0.98	1.01	-0.34	□	■	■	14
R/G	0.06	-0.04	0.80	0.30	0.79	0.79	0.83	-0.31	□	■	■	12
R/N	0.21	0.14	0.86	0.32	0.75	0.81	0.81	-0.17	□	■	■	14
N/B	0.14	0.07	0.78	0.28	0.67	0.70	0.62	-0.37	□	■	■	14
N/G	0.41	0.36	0.59	0.23	0.58	0.57	0.59	-0.21	■	■	■	13
N/R	0.26	0.20	0.69	0.26	0.60	0.62	0.72	-0.08	□	■	■	14
B×G×R[1]	0.42	0.35	0.67	0.24	0.57	0.67	0.81	-0.21	■	■	■	10
B×G×N[1]	0.12	0.04	0.82	0.31	0.72	0.78	0.82	-0.27	□	■	■	13
B×R×N[1]	0.24	0.17	0.65	0.26	0.68	0.62	0.75	-0.16	□	■	■	12
G×R×N[1]	0.05	-0.03	0.96	0.35	0.84	0.94	0.89	-0.40	□	■	■	13
Avg(B;G)[1,2]	0.01	-0.08	0.87	0.34	0.77	0.85	1.00	-0.21	□	■	■	13
Avg(B;R)[1,2]	0.04	-0.05	1.00	0.37	0.88	0.96	1.02	-0.33	□	■	■	13
Avg(B;N)[1,2]	0.14	0.06	0.74	0.28	0.65	0.69	0.76	-0.24	□	■	■	13
Avg(G;R)[1,2]	0.51	0.46	0.78	0.25	0.70	0.77	0.73	-0.14	■	■	■	11
Avg(G;N)[1,2]	0.12	0.04	0.84	0.32	0.74	0.83	0.87	-0.24	□	■	■	13
Avg(R;N)[1,2]	0.05	-0.02	0.98	0.36	0.85	0.94	0.99	-0.23	□	■	■	14
N-R[3,4]	0.23	0.17	0.89	0.32	0.77	0.87	0.73	-0.46	□	■	■	14
Kab1[5,6]	0.10	0.03	0.86	0.34	0.75	0.84	0.94	-0.17	□	■	■	14
NDVI	0.23	0.17	0.78	0.30	0.68	0.68	0.84	-0.06	□	■	■	14
NRVI	0.23	0.17	0.90	0.32	0.78	0.87	0.72	-0.45	□	■	■	14
OC2[7]	0.11	0.03	1.01	0.36	0.88	0.96	0.87	-0.44	□	■	■	14
SABI[5,8]	0.23	0.17	0.78	0.29	0.68	0.72	0.75	-0.28	□	■	■	14
(B-R)/G[4,9]	0.12	0.05	0.87	0.33	0.75	0.80	0.90	-0.15	□	■	■	14
(N/G)+(N/B)[10]	0.20	0.13	0.70	0.26	0.61	0.63	0.65	-0.21	□	■	■	14
G×(B+G+R)	0.36	0.29	0.71	0.25	0.63	0.70	0.74	-0.20	□	■	■	11

Algorithm	r^2	Adj. r^2	RMSE	RMLSE	NRMSE	MAE	MAPE	Bias	p	CV	NM	n
[(1/B)-(1/G)]×N[10]	0.16	0.09	0.88	0.32	0.76	0.81	0.81	-0.31	□	■	■	14
[(1/R)-(1/G)]×N[10]	0.24	0.18	0.78	0.30	0.68	0.74	0.93	-0.22	□	■	■	14
[(1/R)-(1/B)]×N[10]	0.25	0.19	0.87	0.32	0.76	0.86	0.86	-0.29	□	■	■	14
[(1/R)-(0.2363×(1/G))]×N[11]	0.26	0.20	0.77	0.28	0.66	0.70	0.74	-0.28	□	■	■	14
[(1/R)-(1/B)]/N[12]	0.47	0.40	0.88	0.30	0.68	0.88	0.80	-0.24	■	■	■	10
(B/R)×N	0.34	0.27	0.76	0.28	0.64	0.72	0.85	-0.15	□	■	■	11
(G/R)×N	0.25	0.19	0.71	0.26	0.61	0.69	0.71	-0.18	□	■	■	14
(R/B)×N	0.06	-0.02	0.89	0.33	0.77	0.84	0.87	-0.24	□	■	■	14
(R/G)×N	0.33	0.27	0.65	0.24	0.64	0.61	0.57	-0.32	■	■	■	13
(R×N)/B[13]	0.06	-0.02	0.83	0.31	0.72	0.78	0.86	-0.20	□	■	■	14
(B/G)×(B/R)	0.13	0.06	0.93	0.33	0.81	0.90	0.83	-0.40	□	■	■	14
(B/G)×(B/N)	0.08	0.00	0.92	0.34	0.79	0.89	0.85	-0.41	□	■	■	14
(B/G)×(R/G)	0.26	0.19	0.80	0.30	0.80	0.80	0.74	-0.32	□	■	■	13
(B/G)×(R/N)	0.08	0.00	0.91	0.35	0.80	0.84	0.97	-0.24	□	■	■	13
(B/G)×(N/B)	0.41	0.36	0.58	0.23	0.57	0.54	0.62	-0.11	■	■	■	13
(B/G)×(N/G)	0.41	0.36	0.64	0.24	0.64	0.62	0.58	-0.29	■	■	■	13
(B/G)×(N/R)	0.25	0.19	0.70	0.25	0.61	0.64	0.64	-0.21	□	■	■	14
(B/R)×(B/N)	0.08	0.01	0.98	0.37	0.85	0.96	0.98	-0.35	□	■	■	14
(B/R)×(G/R)	0.06	-0.02	1.02	0.37	0.89	0.95	1.00	-0.37	□	■	■	14
(B/R)×(G/N)	0.15	0.08	0.93	0.34	0.81	0.89	0.81	-0.44	□	■	■	14
(B/R)×(N/R)	0.27	0.21	0.81	0.30	0.70	0.78	0.80	-0.25	□	■	■	14
(B/N)×(G/N)	0.11	0.03	0.84	0.33	0.74	0.80	0.94	-0.16	□	■	■	13
(B/N)×(R/N)	0.11	0.03	0.89	0.33	0.78	0.87	0.82	-0.42	□	■	■	13
(G/B)×(G/R)	0.22	0.15	0.77	0.30	0.76	0.73	0.78	-0.21	□	■	■	13
(G/B)×(G/N)	0.21	0.14	0.82	0.30	0.72	0.79	0.72	-0.36	□	■	■	14
(G/B)×(R/B)	0.09	0.02	1.06	0.38	0.92	1.03	0.86	-0.53	□	■	■	14
(G/B)×(R/N)	0.22	0.15	0.75	0.29	0.65	0.66	0.79	-0.09	□	■	■	14
(G/B)×(N/B)	0.01	-0.09	1.00	0.38	0.86	0.99	1.00	-0.46	□	■	■	12
(G/B)×(N/R)	0.15	0.08	0.83	0.31	0.72	0.75	0.84	-0.27	□	■	■	14
(G/R)×(G/N)	0.36	0.31	0.66	0.27	0.65	0.65	0.68	-0.27	■	■	■	13
(G/R)×(N/R)	0.27	0.21	0.81	0.30	0.70	0.77	0.78	-0.28	□	■	■	14
(G/N)×(R/N)	0.13	0.05	0.85	0.32	0.75	0.80	0.82	-0.31	□	■	■	13
(R/B)×(R/G)	0.44	0.37	0.72	0.27	0.56	0.72	0.82	-0.23	■	■	■	10
(R/B)×(R/N)	0.23	0.16	0.87	0.31	0.75	0.86	0.73	-0.42	□	■	■	14
(R/B)×(N/B)	0.08	-0.01	0.92	0.35	0.78	0.90	0.99	-0.25	□	■	■	13
(R/B)×(N/G)	0.28	0.21	0.61	0.24	0.61	0.60	0.58	-0.33	□	■	■	13
(R/G)×(R/N)	0.16	0.09	0.76	0.30	0.67	0.73	0.93	-0.12	□	■	■	13
(R/G)×(N/G)	0.40	0.35	0.60	0.23	0.60	0.59	0.51	-0.26	■	■	■	13
(N/B)×(N/G)	0.38	0.32	0.52	0.20	0.52	0.49	0.49	-0.22	■	■	■	13
(N/B)×(N/R)	0.23	0.16	0.72	0.27	0.63	0.64	0.68	-0.19	□	■	■	14
(N/G)×(N/R)	0.25	0.19	0.81	0.30	0.71	0.73	0.72	-0.19	□	■	■	14

(1) Fadel et al., 2016; (2) Patra et al., 2015; (3) Tucker, 1979; (4) Ho et al., 2017; (5) Boucher et al., 2018; (6) Kabbara et al., 2008; (7) Trinh et al., 2017; (8) Alawadi et al., 2010; (9) Mayo et al., 1995; (10) Keith et al., 2018; (11) Chenet et al., 2013; (12) Singh et al., 2014; (13) Guan, 2009.

Kab1 = 1.67-3.94×ln(B)+3.78×ln(G)

NDVI = (N-R)/(N+R)

NRVI = [(R/NIR)-1]/[(R/NIR)+1)

SABI = (N-R)/(B+G)

$$\boldsymbol{OC2}=\mathbf{0.1977}+(-\mathbf{1.8117}(\boldsymbol{log}\mathbf{10}(\boldsymbol{BG})))\mathbf{1}+(\mathbf{1.9743}(\boldsymbol{log}\mathbf{10}(\boldsymbol{BG})))\mathbf{2}+(\mathbf{2.5635}(\boldsymbol{log}\mathbf{10}(\boldsymbol{BG})))\mathbf{3}+(-\mathbf{0.7218}(\boldsymbol{log}\mathbf{10}(\boldsymbol{BG})))\mathbf{4}$$

Table S3e. Chl-*a* retrieval algorithm results summary for OWT-E_q after outlier removal. Parameters displayed are coefficient of determination (r^2), p-value (p), root mean square error (RMSE; (μg L^{-1})), root mean square log error (RMSLE), normalized root mean square error, mean absolute error (MAE, (μg L^{-1})), median absolute percentage error (MAPE %), bias (μg L^{-1}), Breusch-Pagan constant variance (CV), and Shapiro-Wilks normality (NM). Filled boxes indicate that the assumptions of linear regressions have been met (r^2 $p < 0.05$, CV and NM $p \geq 0.05$), empty boxes indicate that the assumptions have not been met.

Algorithm	r^2	Adj. r^2	RMSE	RMLSE	NRMSE	MAE	MAPE	Bias	p	CV	NM	n
B	0.15	0.14	10.17	0.65	0.85	7.19	0.25	-2.98	■	■	■	57
G	0.09	0.08	10.87	0.66	0.85	8.16	0.22	-3.16	■	■	■	61
R	0.09	0.07	11.40	0.70	0.89	8.10	0.24	-3.33	■	■	■	61
N	0.08	0.06	9.91	0.67	0.94	7.35	0.25	-3.11	■	■	■	58
B×G	0.30	0.28	10.10	0.61	0.78	7.15	0.18	-2.81	■	■	■	55
B×R	0.29	0.27	8.45	0.56	0.76	5.90	0.19	-2.36	■	■	■	54
B×N	0.00	-0.02	9.26	0.68	0.91	6.75	0.27	-3.23	□	■	■	59
G×R	0.16	0.15	10.95	0.65	0.85	7.99	0.24	-3.27	■	■	■	58
G×N	0.04	0.02	11.07	0.65	0.89	8.11	0.24	-3.90	□	■	■	56
R×N	0.03	0.01	9.98	0.62	0.95	7.41	0.22	-3.50	□	■	■	55
B/G	0.05	0.03	14.47	0.76	0.83	9.84	0.28	-6.06	□	■	■	61
B/R	0.07	0.05	15.36	0.86	0.86	10.17	0.31	-5.83	■	■	■	68
B/N	0.47	0.46	8.93	0.58	0.61	6.40	0.21	-2.75	■	■	■	56
G/B	0.04	0.02	16.29	0.85	0.90	10.22	0.28	-5.65	□	■	■	65
G/R	0.00	-0.01	16.42	0.87	0.91	10.70	0.27	-6.16	□	■	■	65
G/N	0.11	0.10	11.75	0.78	0.85	8.71	0.31	-4.56	■	■	■	67
R/B	0.07	0.05	15.54	0.85	0.86	10.26	0.32	-5.70	■	■	■	66
R/G	0.00	-0.01	17.09	0.88	0.95	10.92	0.28	-7.04	□	■	■	68
R/N	0.18	0.17	10.67	0.70	0.84	8.10	0.29	-3.34	■	■	■	63
N/B	0.36	0.35	11.14	0.67	0.72	7.87	0.23	-4.19	■	■	■	61
N/G	0.17	0.16	11.69	0.73	0.86	8.50	0.29	-4.35	■	■	■	65
N/R	0.20	0.19	10.80	0.71	0.80	8.53	0.29	-3.96	■	■	■	65
B×G×R[1]	0.33	0.32	9.16	0.56	0.71	6.92	0.18	-2.70	■	■	■	54
B×G×N[1]	0.03	0.02	9.08	0.64	0.89	6.77	0.25	-2.64	□	■	■	56
B×R×N[1]	0.19	0.17	7.69	0.51	0.79	5.46	0.20	-2.82	■	■	■	47
G×R×N[1]	0.07	0.05	10.75	0.63	0.87	7.83	0.22	-3.24	■	■	■	56
Avg(B;G)[1,2]	0.22	0.21	8.79	0.60	0.80	6.52	0.20	-2.69	■	■	■	56
Avg(B;R)[1,2]	0.32	0.31	8.00	0.56	0.73	5.55	0.20	-2.59	■	■	■	53
Avg(B;N)[1,2]	0.03	0.01	9.22	0.67	0.93	6.45	0.25	-3.40	□	■	■	57
Avg(G;R)[1,2]	0.09	0.07	10.50	0.67	0.82	7.99	0.26	-2.78	■	■	■	61
Avg(G;N)[1,2]	0.05	0.03	10.97	0.66	0.88	8.26	0.22	-3.38	□	■	■	56
Avg(R;N)[1,2]	0.01	-0.01	9.97	0.61	0.95	7.45	0.22	-2.87	□	■	■	54
N-R[3,4]	0.24	0.23	11.23	0.69	0.83	8.44	0.29	-3.20	■	■	■	64
Kab1[5,6]	0.05	0.03	13.91	0.76	0.80	9.71	0.31	-5.48	□	■	■	61
NDVI	0.20	0.19	10.98	0.72	0.81	8.39	0.30	-4.80	■	■	■	65
NRVI	0.20	0.19	10.85	0.71	0.80	8.47	0.31	-4.09	■	■	■	65
OC2[7]	0.03	0.01	14.45	0.82	0.84	9.67	0.26	-5.17	□	■	■	64
SABI[5,8]	0.23	0.22	11.53	0.71	0.85	8.41	0.31	-3.75	■	■	■	65
(B-R)/G[4,9]	0.04	0.03	15.31	0.78	0.88	9.78	0.28	-4.59	□	■	■	61
(N/G)+(N/B)[10]	0.16	0.15	13.80	0.79	0.91	9.43	0.30	-4.34	■	■	■	68
G×(B+G+R)	0.22	0.20	10.66	0.63	0.82	7.82	0.24	-3.04	■	■	■	57

Algorithm	r^2	Adj. r^2	RMSE	RMLSE	NRMSE	MAE	MAPE	Bias	p	CV	NM	n
[(1/B)-(1/G)]×N[10]	0.01	-0.01	15.18	0.78	0.88	9.95	0.30	-4.47	□	■	■	62
[(1/R)-(1/G)]×N[10]	0.06	0.05	14.41	0.78	0.95	9.72	0.23	-4.26	■	■	■	64
[(1/R)-(1/B)]×N[10]	0.02	0.00	14.50	0.77	0.85	10.31	0.28	-5.24	□	■	■	64
[(1/R)-(0.2363×(1/G))]×N[11]	0.24	0.22	10.58	0.68	0.78	8.52	0.28	-3.50	■	■	■	64
[(1/R)-(1/B)]/N[12]	0.00	-0.01	13.96	0.85	0.97	9.21	0.29	-5.75	□	■	■	67
(B/R)×N	0.03	0.01	12.86	0.74	0.95	8.82	0.25	-4.50	□	■	■	61
(G/R)×N	0.05	0.04	11.43	0.74	0.92	8.22	0.27	-3.70	□	■	■	61
(R/B)×N	0.10	0.09	11.25	0.73	0.91	7.77	0.29	-3.73	■	■	■	60
(R/G)×N	0.11	0.09	9.72	0.71	0.92	7.27	0.32	-3.03	■	■	■	63
(R×N)/B[13]	0.10	0.09	10.26	0.71	0.83	7.77	0.27	-3.73	■	■	■	60
(B/G)×(B/R)	0.01	-0.01	9.22	0.66	0.88	6.82	0.24	-2.88	□	■	■	57
(B/G)×(B/N)	0.32	0.31	14.72	0.76	0.79	9.61	0.27	-4.04	■	■	■	62
(B/G)×(R/G)	0.02	0.01	14.93	0.82	0.87	9.87	0.27	-5.59	□	■	■	64
(B/G)×(R/N)	0.41	0.40	6.63	0.56	0.64	5.17	0.24	-1.93	■	■	□	56
(B/G)×(N/B)	0.17	0.16	11.74	0.73	0.87	8.48	0.33	-4.39	■	■	■	65
(B/G)×(N/G)	0.02	0.01	12.25	0.76	0.88	9.04	0.30	-4.58	□	■	■	65
(B/G)×(N/R)	0.02	0.00	12.46	0.77	0.90	8.94	0.27	-4.32	□	■	■	65
(B/R)×(B/N)	0.47	0.46	11.40	0.61	0.75	7.72	0.23	-2.88	■	■	■	53
(B/R)×(G/R)	0.00	-0.02	16.50	0.85	0.92	11.12	0.28	-7.24	□	■	■	67
(B/R)×(G/N)	0.31	0.29	11.70	0.70	0.78	8.51	0.23	-4.82	■	■	■	59
(B/R)×(N/R)	0.03	0.02	12.63	0.73	0.91	9.07	0.29	-3.75	□	■	■	63
(B/N)×(G/N)	0.22	0.21	12.43	0.76	0.80	8.73	0.25	-4.46	■	■	■	64
(B/N)×(R/N)	0.37	0.36	11.14	0.66	0.76	7.62	0.23	-2.83	■	■	■	58
(G/B)×(G/R)	0.04	0.02	16.34	0.86	0.90	10.19	0.28	-6.61	□	■	■	66
(G/B)×(G/N)	0.02	0.00	12.87	0.78	0.93	8.77	0.28	-4.83	□	■	■	63
(G/B)×(R/B)	0.04	0.02	16.01	0.84	0.87	10.33	0.27	-6.49	□	■	■	63
(G/B)×(R/N)	0.00	-0.02	13.20	0.82	0.96	8.48	0.30	-4.75	□	■	■	63
(G/B)×(N/B)	0.15	0.13	15.26	0.81	0.84	10.51	0.28	-5.00	■	■	■	64
(G/B)×(N/R)	0.42	0.41	9.64	0.61	0.63	6.92	0.21	-3.60	■	■	□	57
(G/R)×(G/N)	0.09	0.08	13.46	0.82	0.79	10.35	0.30	-5.42	■	■	■	68
(G/R)×(N/R)	0.15	0.13	12.87	0.74	0.87	9.10	0.28	-5.03	■	■	■	64
(G/N)×(R/N)	0.16	0.15	10.96	0.72	0.86	8.28	0.31	-3.68	■	■	■	63
(R/B)×(R/G)	0.00	-0.02	17.10	0.85	0.95	11.43	0.26	-6.27	□	■	■	65
(R/B)×(R/N)	0.02	0.01	14.75	0.83	0.87	10.02	0.29	-5.51	□	■	■	68
(R/B)×(N/B)	0.14	0.13	15.43	0.81	0.85	10.37	0.28	-6.30	■	■	■	65
(R/B)×(N/G)	0.18	0.17	15.65	0.83	0.87	10.46	0.27	-5.78	■	■	■	69
(R/G)×(R/N)	0.09	0.08	11.68	0.72	0.88	8.12	0.25	-3.83	■	■	■	62
(R/G)×(N/G)	0.09	0.08	12.35	0.79	0.89	8.83	0.31	-4.19	■	■	■	67
(N/B)×(N/G)	0.23	0.22	12.72	0.74	0.85	8.82	0.27	-4.06	■	■	■	66
(N/B)×(N/R)	0.38	0.37	11.96	0.68	0.78	8.07	0.25	-3.49	■	■	■	61
(N/G)×(N/R)	0.21	0.19	11.75	0.72	0.86	8.37	0.32	-3.67	■	■	■	64

(1) Fadel et al., 2016; (2) Patra et al., 2015; (3) Tucker, 1979; (4) Ho et al., 2017; (5) Boucher et al., 2018; (6) Kabbara et al., 2008; (7) Trinh et al., 2017; (8) Alawadi et al., 2010; (9) Mayo et al., 1995; (10) Keith et al., 2018; (11) Chenet et al., 2013; (12) Singh et al., 2014; (13) Guan, 2009.

Kab1 = 1.67-3.94×ln(B)+3.78×ln(G)

NDVI = (N-R)/(N+R)

NRVI = [(R/NIR)-1]/[(R/NIR)+1)

SABI = (N-R)/(B+G)

$$\boldsymbol{OC2}=\mathbf{0.1977}+(-\mathbf{1.8117}(\boldsymbol{log}\mathbf{10}(\boldsymbol{BG})))\mathbf{1}+(\mathbf{1.9743}(\boldsymbol{log}\mathbf{10}(\boldsymbol{BG})))\mathbf{2}+(\mathbf{2.5635}(\boldsymbol{log}\mathbf{10}(\boldsymbol{BG})))\mathbf{3}+(-\mathbf{0.7218}(\boldsymbol{log}\mathbf{10}(\boldsymbol{BG})))\mathbf{4}$$

Table S3f. Chl-*a* retrieval algorithm results summary for OWT-F_q after outlier removal. Parameters displayed are coefficient of determination (r^2), p-value (p), root mean square error (RMSE; (μg L^{-1})), root mean square log error (RMSLE), normalized root mean square error, mean absolute error (MAE, (μg L^{-1})), median absolute percentage error (MAPE %), bias (μg L^{-1}), Breusch-Pagan constant variance (CV), and Shapiro-Wilks normality (NM). Filled boxes indicate that the assumptions of linear regressions have been met (r^2 $p < 0.05$, CV and NM $p \geq 0.05$), empty boxes indicate that the assumptions have not been met.

Algorithm	r^2	Adj. r^2	RMSE	RMLSE	NRMSE	MAE	MAPE	Bias	p	CV	NM	n
B	0.56	0.53	7.04	0.68	0.54	5.68	1.11	-2.54	■	■	■	17
G	0.37	0.33	10.25	0.86	0.76	8.42	1.13	-5.19	■	■	■	18
R	0.54	0.50	11.29	0.80	0.62	10.27	1.14	-5.60	■	■	■	17
N	0.53	0.50	8.23	0.69	0.59	6.79	1.09	-3.32	■	■	■	17
B×G	0.57	0.54	7.75	0.67	0.57	7.07	0.71	-3.49	■	■	□	18
B×R	0.62	0.59	7.59	0.55	0.56	5.77	0.83	-1.73	■	■	■	18
B×N	0.25	0.20	7.42	0.78	0.55	7.12	1.23	-5.19	■	■	■	18
G×R	0.48	0.44	10.99	0.77	0.61	10.11	0.85	-6.14	■	■	□	17
G×N	0.08	0.03	12.06	1.05	0.70	10.17	1.83	-7.01	□	■	■	19
R×N	0.07	0.01	11.95	1.02	0.70	10.68	1.88	-8.00	□	■	■	17
B/G	0.12	0.06	11.79	0.99	0.67	9.92	1.37	-6.86	□	■	■	17
B/R	0.29	0.24	13.42	0.93	0.76	12.27	1.19	-8.42	■	■	■	18
B/N	0.51	0.47	7.36	0.64	0.56	6.32	1.00	-1.31	■	■	■	17
G/B	0.12	0.07	12.51	1.04	0.72	10.18	1.31	-6.56	□	■	■	17
G/R	0.45	0.42	10.83	0.83	0.62	8.88	1.97	-4.97	■	■	■	18
G/N	0.59	0.56	5.91	0.55	0.45	4.64	0.89	-2.15	■	■	■	17
R/B	0.27	0.23	12.82	0.94	0.73	10.43	1.17	-6.11	■	■	■	18
R/G	0.48	0.45	11.32	0.80	0.64	9.35	1.40	-5.81	■	■	■	18
R/N	0.93	0.92	1.55	0.18	0.15	1.54	0.51	-0.11	■	■	■	13
N/B	0.54	0.51	6.73	0.63	0.50	5.61	1.12	-3.52	■	■	■	18
N/G	0.60	0.57	7.62	0.67	0.56	6.23	1.24	-3.42	■	■	■	18
N/R	0.72	0.70	7.32	0.54	0.54	6.65	0.97	-3.91	■	■	■	18
B×G×R[1]	0.55	0.52	7.99	0.62	0.59	6.46	0.80	-2.89	■	■	■	18
B×G×N[1]	0.03	-0.04	7.34	0.82	0.49	6.16	1.79	-4.00	□	■	■	16
B×R×N[1]	0.13	0.07	9.46	0.91	0.64	9.16	1.17	-7.07	□	■	■	16
G×R×N[1]	0.01	-0.05	13.37	1.10	0.77	10.70	2.12	-7.37	□	■	■	19
Avg(B;G)[1,2]	0.58	0.55	8.34	0.68	0.61	7.54	0.72	-3.12	■	■	□	18
Avg(B;R)[1,2]	0.64	0.61	5.83	0.50	0.43	5.02	0.85	-2.82	■	■	■	17
Avg(B;N)[1,2]	0.06	-0.01	11.91	1.02	0.67	10.85	1.50	-8.38	□	■	■	16
Avg(G;R)[1,2]	0.94	0.94	2.22	0.20	0.16	2.06	0.32	-1.22	■	■	■	13
Avg(G;N)[1,2]	0.06	0.01	13.18	1.07	0.76	10.40	1.73	-7.44	□	■	■	19
Avg(R;N)[1,2]	0.01	-0.06	7.09	0.87	0.58	5.59	1.53	-3.60	□	■	■	16
N-R[3,4]	0.72	0.70	6.91	0.49	0.51	5.57	0.86	-2.20	■	■	■	18
Kab1[5,6]	0.11	0.05	10.87	0.94	0.62	9.12	1.42	-5.75	□	■	■	17
NDVI	0.84	0.83	2.87	0.30	0.30	2.43	0.52	-0.42	■	■	■	15
NRVI	0.84	0.83	2.96	0.32	0.31	2.49	0.72	-0.25	■	■	■	15
OC2[7]	0.12	0.06	10.51	0.99	0.60	9.96	1.55	-6.83	□	■	■	17
SABI[5,8]	0.70	0.69	7.13	0.54	0.53	5.85	0.89	-2.51	■	■	■	18
(B-R)/G[4,9]	0.19	0.14	11.62	0.92	0.66	9.77	0.95	-7.14	□	■	■	17
(N/G)+(N/B)[10]	0.59	0.56	6.51	0.64	0.48	5.38	0.80	-2.90	■	■	■	18
G×(B+G+R)	0.98	0.98	0.88	0.10	0.07	0.87	0.34	-0.29	■	■	■	13

Algorithm	r^2	Adj. r^2	RMSE	RMLSE	NRMSE	MAE	MAPE	Bias	p	CV	NM	n
[(1/B)-(1/G)]×N[10]	0.21	0.16	13.41	1.03	0.76	11.79	1.32	-7.98	□	■	■	18
[(1/R)-(1/G)]×N[10]	0.80	0.78	5.46	0.38	0.40	4.71	0.27	-2.40	■	■	■	17
[(1/R)-(1/B)]×N[10]	0.56	0.54	10.68	0.70	0.61	8.73	0.91	-4.22	■	■	□	18
[(1/R)-(0.2363×(1/G))]×N[11]	0.73	0.71	5.97	0.47	0.44	4.75	0.92	-2.12	■	■	■	18
[(1/R)-(1/B)]/N[12]	0.06	0.00	11.47	0.96	0.67	9.03	1.68	-6.21	□	■	■	18
(B/R)×N	0.04	-0.02	13.39	1.08	0.77	11.45	1.72	-8.55	□	■	■	19
(G/R)×N	0.68	0.66	6.95	0.54	0.51	5.49	0.96	-1.38	■	■	□	18
(R/B)×N	0.11	0.05	9.27	0.98	0.68	8.05	2.10	-4.66	□	■	■	18
(R/G)×N	0.18	0.13	10.58	0.97	0.78	9.54	1.30	-6.83	□	■	■	18
(R×N)/B[13]	0.11	0.05	9.66	0.97	0.71	7.83	1.90	-4.88	□	■	■	18
(B/G)×(B/R)	0.18	0.12	13.45	1.00	0.76	10.83	1.43	-7.13	□	■	■	18
(B/G)×(B/N)	0.44	0.41	6.89	0.70	0.51	5.57	1.30	-2.58	■	■	■	18
(B/G)×(R/G)	0.24	0.19	11.58	0.96	0.67	9.52	1.51	-7.30	■	■	■	19
(B/G)×(R/N)	0.68	0.66	1.92	0.38	0.30	1.85	0.75	-0.71	■	■	□	15
(B/G)×(N/B)	0.60	0.57	6.50	0.62	0.48	5.49	1.03	-2.66	■	■	■	18
(B/G)×(N/G)	0.63	0.61	7.47	0.56	0.53	6.28	0.96	-3.70	■	■	■	17
(B/G)×(N/R)	0.86	0.84	0.46	0.15	0.14	0.45	0.29	-0.14	■	■	■	12
(B/R)×(B/N)	0.24	0.19	9.08	0.87	0.67	7.69	1.36	-5.28	■	■	■	18
(B/R)×(G/R)	0.37	0.33	13.43	0.90	0.76	11.81	1.17	-7.99	■	■	■	18
(B/R)×(G/N)	0.30	0.26	7.36	0.81	0.54	6.74	1.32	-3.41	■	■	■	18
(B/R)×(N/R)	0.85	0.84	0.50	0.16	0.16	0.50	0.41	-0.19	■	■	■	12
(B/N)×(G/N)	0.36	0.30	2.12	0.48	0.63	2.03	0.86	-1.10	■	■	■	14
(B/N)×(R/N)	0.58	0.55	1.71	0.39	0.27	1.63	0.71	-0.79	■	■	■	14
(G/B)×(G/R)	0.22	0.18	11.10	0.93	0.64	9.11	2.00	-5.97	■	■	■	19
(G/B)×(G/N)	0.29	0.21	0.70	0.26	0.68	0.66	0.82	-0.09	□	■	■	11
(G/B)×(R/B)	0.17	0.12	12.51	0.98	0.71	10.25	1.26	-6.15	□	■	■	18
(G/B)×(R/N)	0.91	0.90	1.01	0.21	0.10	1.00	0.48	-0.43	■	■	■	12
(G/B)×(N/B)	0.38	0.34	7.85	0.79	0.58	6.91	1.44	-4.37	■	■	■	18
(G/B)×(N/R)	0.92	0.91	1.86	0.23	0.17	1.68	0.63	-0.13	■	■	■	14
(G/R)×(G/N)	0.26	0.22	7.96	0.77	0.61	6.51	1.26	-3.80	■	■	■	17
(G/R)×(N/R)	0.74	0.72	5.52	0.43	0.41	4.43	0.80	-2.25	■	■	■	18
(G/N)×(R/N)	0.90	0.89	0.67	0.15	0.10	0.66	0.45	-0.29	■	■	■	12
(R/B)×(R/G)	0.36	0.32	12.56	0.89	0.71	10.42	1.21	-4.79	■	■	■	18
(R/B)×(R/N)	0.92	0.91	0.99	0.17	0.07	0.86	0.46	0.10	■	■	■	12
(R/B)×(N/B)	0.19	0.14	10.29	0.97	0.76	8.67	1.58	-5.56	□	■	■	18
(R/B)×(N/G)	0.30	0.25	9.39	0.86	0.69	7.98	1.36	-5.01	■	■	■	18
(R/G)×(R/N)	0.83	0.81	1.32	0.27	0.14	1.24	0.76	-0.40	■	■	■	14
(R/G)×(N/G)	0.38	0.34	9.10	0.85	0.67	7.58	1.37	-4.77	■	■	■	18
(N/B)×(N/G)	0.60	0.57	6.84	0.64	0.48	5.42	1.35	-3.25	■	■	■	16
(N/B)×(N/R)	0.71	0.69	5.95	0.46	0.42	4.92	0.89	-2.36	■	■	■	16
(N/G)×(N/R)	0.61	0.58	6.27	0.58	0.46	5.31	1.17	-2.51	■	■	■	17

(1) Fadel et al., 2016; (2) Patra et al., 2015; (3) Tucker, 1979; (4) Ho et al., 2017; (5) Boucher et al., 2018; (6) Kabbara et al., 2008; (7) Trinh et al., 2017; (8) Alawadi et al., 2010; (9) Mayo et al., 1995; (10) Keith et al., 2018; (11) Chenet et al., 2013; (12) Singh et al., 2014; (13) Guan, 2009.

Kab1 = 1.67-3.94×ln(B)+3.78×ln(G)

NDVI = (N-R)/(N+R)

NRVI = [(R/NIR)-1]/[(R/NIR)+1)

SABI = (N-R)/(B+G)

$$\boldsymbol{OC2}=\mathbf{0.1977}+(-\mathbf{1.8117}(\boldsymbol{log}\mathbf{10}(\boldsymbol{BG})))\mathbf{1}+(\mathbf{1.9743}(\boldsymbol{log}\mathbf{10}(\boldsymbol{BG})))\mathbf{2}+(\mathbf{2.5635}(\boldsymbol{log}\mathbf{10}(\boldsymbol{BG})))\mathbf{3}+(-\mathbf{0.7218}(\boldsymbol{log}\mathbf{10}(\boldsymbol{BG})))\mathbf{4}$$

Table S3g. Chl-*a* retrieval algorithm results summary for OWT-G_q after outlier removal. Parameters displayed are coefficient of determination (r^2), p-value (p), root mean square error (RMSE; (μg L^{-1})), root mean square log error (RMSLE), normalized root mean square error, mean absolute error (MAE, (μg L^{-1})), median absolute percentage error (MAPE %), bias (μg L^{-1}), Breusch-Pagan constant variance (CV), and Shapiro-Wilks normality (NM). Filled boxes indicate that the assumptions of linear regressions have been met (r^2 $p < 0.05$, CV and NM $p \geq 0.05$), empty boxes indicate that the assumptions have not been met.

Algorithm	r^2	Adj. r^2	RMSE	RMLSE	NRMSE	MAE	MAPE	Bias	p	CV	NM	n
B	0.04	0.01	4.27	0.69	0.85	3.15	1.16	-1.77	□	■	■	30
G	0.01	-0.03	2.45	0.55	0.78	1.97	1.28	-0.87	□	■	■	27
R	0.18	0.15	4.02	0.64	0.79	3.02	1.50	-1.65	■	■	■	31
N	0.28	0.25	4.38	0.60	0.79	3.54	0.83	-1.52	■	■	■	29
B×G	0.00	-0.03	2.49	0.54	0.80	1.99	1.81	-0.89	□	■	■	28
B×R	0.02	-0.01	2.56	0.57	0.82	1.99	1.32	-0.81	□	■	■	28
B×N	0.01	-0.02	4.93	0.73	0.90	3.54	1.39	-1.78	□	■	■	31
G×R	0.01	-0.03	2.33	0.54	0.75	2.03	0.96	-1.07	□	■	■	28
G×N	0.05	0.01	4.47	0.67	0.84	3.30	1.54	-1.83	□	■	■	30
R×N	0.01	-0.02	3.45	0.60	0.70	2.91	1.23	-1.64	□	■	■	29
B/G	0.08	0.05	4.02	0.66	0.80	3.18	1.33	-1.61	□	■	■	29
B/R	0.05	0.01	4.32	0.68	0.84	3.18	1.25	-1.61	□	■	■	29
B/N	0.51	0.49	4.28	0.57	0.72	3.35	1.09	-1.30	■	■	■	25
G/B	0.14	0.11	3.65	0.62	0.75	3.04	1.22	-1.67	■	■	■	28
G/R	0.11	0.08	4.14	0.65	0.81	3.13	1.19	-1.91	□	■	■	29
G/N	0.30	0.28	3.60	0.61	0.64	3.23	0.68	-1.39	■	■	■	28
R/B	0.01	-0.02	4.07	0.68	0.75	3.25	1.21	-1.77	□	■	■	32
R/G	0.19	0.16	4.06	0.63	0.78	3.03	1.09	-1.46	■	■	■	29
R/N	0.64	0.62	2.52	0.43	0.46	2.22	0.80	-0.99	■	■	■	25
N/B	0.47	0.45	4.12	0.56	0.69	3.40	0.97	-1.38	■	■	■	24
N/G	0.21	0.18	4.15	0.65	0.75	3.48	1.09	-1.75	■	■	■	30
N/R	0.60	0.58	3.27	0.48	0.60	2.79	0.86	-1.23	■	■	■	25
B×G×R[1]	0.01	-0.03	2.61	0.56	0.84	2.10	1.60	-1.23	□	■	■	28
B×G×N[1]	0.01	-0.02	3.77	0.63	0.79	2.91	0.96	-1.61	□	■	■	30
B×R×N[1]	0.00	-0.03	2.96	0.58	0.70	2.47	1.35	-1.41	□	■	■	28
G×R×N[1]	0.01	-0.04	2.55	0.51	0.80	2.19	1.95	-1.14	□	■	■	24
Avg(B;G)[1,2]	0.02	-0.02	4.39	0.71	0.89	3.17	1.48	-1.65	□	■	■	31
Avg(B;R)[1,2]	0.07	0.03	3.35	0.62	0.75	2.76	1.45	-1.46	□	■	■	30
Avg(B;N)[1,2]	0.00	-0.03	5.03	0.76	0.93	3.51	3.21	-2.09	□	■	■	32
Avg(G;R)[1,2]	0.01	-0.03	2.46	0.55	0.79	2.04	1.30	-1.01	□	■	■	28
Avg(G;N)[1,2]	0.20	0.17	2.19	0.46	0.69	1.82	1.23	-0.62	■	■	■	25
Avg(R;N)[1,2]	0.09	0.05	3.52	0.60	0.70	2.80	0.93	-1.43	□	■	■	27
N-R[3,4]	0.49	0.47	3.26	0.52	0.58	2.81	2.95	-1.15	■	■	■	28
Kab1[5,6]	0.10	0.07	4.24	0.67	0.84	3.17	0.95	-1.76	□	■	■	29
NDVI	0.66	0.65	2.37	0.40	0.43	2.09	0.62	-0.93	■	■	■	24
NRVI	0.66	0.65	2.55	0.43	0.46	2.15	1.01	-0.72	■	■	■	24
OC2[7]	0.15	0.12	3.07	0.58	0.62	2.80	1.45	-1.32	■	■	■	27
SABI[5,8]	0.29	0.27	4.52	0.63	0.82	3.35	0.87	-1.60	■	■	■	30
(B-R)/G[4,9]	0.01	-0.03	3.56	0.64	0.80	3.02	3.05	-1.77	□	■	■	29
(N/G)+(N/B)[10]	0.26	0.24	4.63	0.64	0.83	3.43	0.90	-1.75	■	■	■	29
G×(B+G+R)	0.00	-0.04	2.61	0.57	0.84	2.16	1.43	-0.93	□	■	■	28

Algorithm	r^2	Adj. r^2	RMSE	RMLSE	NRMSE	MAE	MAPE	Bias	p	CV	NM	n
[(1/B)-(1/G)]×N[10]	0.01	-0.02	4.74	0.74	0.87	3.56	1.56	-1.59	□	■	■	32
[(1/R)-(1/G)]×N[10]	0.36	0.34	3.76	0.56	0.74	2.96	1.06	-1.30	■	■	■	30
[(1/R)-(1/B)]×N[10]	0.26	0.24	4.28	0.64	0.82	3.23	1.00	-1.45	■	■	■	29
[(1/R)-(0.2363×(1/G))]×N[11]	0.61	0.59	2.98	0.45	0.55	2.50	0.76	-1.01	■	■	■	25
[(1/R)-(1/B)]/N[12]	0.01	-0.03	4.15	0.68	0.80	3.16	1.24	-1.68	□	■	■	28
(B/R)×N	0.02	-0.02	4.27	0.68	0.86	3.16	1.36	-1.76	□	■	■	30
(G/R)×N	0.25	0.22	4.34	0.60	0.79	3.40	0.84	-1.67	■	■	■	30
(R/B)×N	0.13	0.10	4.61	0.70	0.82	3.66	1.51	-2.17	■	■	■	29
(R/G)×N	0.17	0.14	4.84	0.68	0.87	3.59	0.98	-1.70	■	■	■	29
(R×N)/B[13]	0.13	0.10	4.74	0.70	0.85	3.61	1.35	-2.14	■	■	■	29
(B/G)×(B/R)	0.00	-0.03	3.75	0.65	0.85	2.75	2.64	-1.51	□	■	■	29
(B/G)×(B/N)	0.45	0.43	4.51	0.59	0.77	3.48	0.75	-1.50	■	■	■	26
(B/G)×(R/G)	0.12	0.09	4.03	0.64	0.82	3.06	1.77	-1.59	□	■	■	30
(B/G)×(R/N)	0.68	0.67	2.84	0.43	0.51	2.40	1.04	-1.16	■	■	■	24
(B/G)×(N/B)	0.21	0.18	4.25	0.65	0.77	3.48	1.49	-1.75	■	■	■	30
(B/G)×(N/G)	0.18	0.15	4.70	0.68	0.84	3.69	0.71	-1.76	■	■	■	29
(B/G)×(N/R)	0.23	0.20	3.96	0.63	0.77	3.02	1.76	-1.56	■	■	■	30
(B/R)×(B/N)	0.33	0.30	4.41	0.64	0.75	3.62	0.85	-1.93	■	■	■	26
(B/R)×(G/R)	0.09	0.05	4.11	0.62	0.80	3.11	1.25	-1.64	□	■	■	29
(B/R)×(G/N)	0.24	0.21	4.30	0.63	0.76	3.53	0.99	-1.62	■	■	□	28
(B/R)×(N/R)	0.33	0.30	3.78	0.60	0.74	2.91	1.12	-1.43	■	■	■	30
(B/N)×(G/N)	0.36	0.34	3.91	0.58	0.68	3.13	1.25	-1.58	■	■	■	27
(B/N)×(R/N)	0.43	0.40	3.71	0.56	0.65	3.03	0.90	-1.24	■	■	■	27
(G/B)×(G/R)	0.14	0.10	4.30	0.67	0.86	3.19	1.66	-1.53	■	■	■	29
(G/B)×(G/N)	0.04	0.00	3.32	0.61	0.77	2.74	1.09	-1.35	□	■	■	28
(G/B)×(R/B)	0.00	-0.03	4.77	0.74	0.88	3.57	1.14	-2.16	□	■	■	32
(G/B)×(R/N)	0.30	0.28	3.59	0.59	0.69	2.88	1.03	-1.66	■	■	■	29
(G/B)×(N/B)	0.36	0.33	4.74	0.64	0.82	3.70	1.10	-1.08	■	■	■	26
(G/B)×(N/R)	0.61	0.60	3.59	0.47	0.65	2.75	1.22	-1.50	■	■	■	25
(G/R)×(G/N)	0.13	0.09	4.29	0.67	0.78	3.62	0.97	-1.85	□	■	□	30
(G/R)×(N/R)	0.38	0.36	3.60	0.56	0.70	2.88	0.94	-1.36	■	■	■	30
(G/N)×(R/N)	0.46	0.44	2.89	0.53	0.55	2.28	1.28	-0.82	■	■	■	27
(R/B)×(R/G)	0.26	0.23	3.86	0.59	0.73	2.99	1.63	-1.37	■	■	■	27
(R/B)×(R/N)	0.39	0.37	3.24	0.56	0.62	2.55	0.93	-1.29	■	■	■	29
(R/B)×(N/B)	0.25	0.22	4.52	0.65	0.78	3.45	2.24	-1.37	■	■	■	26
(R/B)×(N/G)	0.14	0.11	4.37	0.67	0.79	3.50	1.35	-1.90	■	■	□	30
(R/G)×(R/N)	0.44	0.42	3.30	0.53	0.64	2.68	0.77	-1.17	■	■	■	30
(R/G)×(N/G)	0.17	0.14	4.72	0.66	0.84	3.47	1.01	-1.86	■	■	□	29
(N/B)×(N/G)	0.21	0.18	4.59	0.65	0.83	3.45	1.75	-1.81	■	■	■	30
(N/B)×(N/R)	0.28	0.25	4.07	0.62	0.72	3.42	1.12	-1.77	■	■	■	29
(N/G)×(N/R)	0.23	0.20	4.03	0.61	0.73	3.47	1.42	-1.75	■	■	■	30

(1) Fadel et al., 2016; (2) Patra et al., 2015; (3) Tucker, 1979; (4) Ho et al., 2017; (5) Boucher et al., 2018; (6) Kabbara et al., 2008; (7) Trinh et al., 2017; (8) Alawadi et al., 2010; (9) Mayo et al., 1995; (10) Keith et al., 2018; (11) Chenet et al., 2013; (12) Singh et al., 2014; (13) Guan, 2009.

Kab1 = 1.67-3.94×ln(B)+3.78×ln(G)

NDVI = (N-R)/(N+R)

NRVI = [(R/NIR)-1]/[(R/NIR)+1)

SABI = (N-R)/(B+G)

$$\boldsymbol{OC2}=\mathbf{0.1977}+(-\mathbf{1.8117}(\boldsymbol{log}\mathbf{10}(\boldsymbol{BG})))\mathbf{1}+(\mathbf{1.9743}(\boldsymbol{log}\mathbf{10}(\boldsymbol{BG})))\mathbf{2}+(\mathbf{2.5635}(\boldsymbol{log}\mathbf{10}(\boldsymbol{BG})))\mathbf{3}+(-\mathbf{0.7218}(\boldsymbol{log}\mathbf{10}(\boldsymbol{BG})))\mathbf{4}$$

OWT	A_h	B_h	C_h	D_h	E_h	F_h	G_h	Global
A_h	1.00							
B_h	-0.02	1.00						
C_h	0.02	0.05	1.00					
D_h	-0.36	0.33	-0.30	1.00				
E_h	-0.05	0.02	-0.22	0.43	1.00			
F_h	-0.20	0.29	-0.20	0.75	0.51	1.00		
G_h	-0.16	-0.02	-0.21	0.49	0.73	0.51	1.00	
Global	0.16	0.17	-0.17	0.07	0.25	0.27	0.00	1.00

Figure S1. Pearson correlation (r) matrix of chl-*a* retrieval algorithms performance results (r^2) for each identified OWT using hierarchical clustering and for all lakes ("global"). The results indicate whether OWTs were found to have similar performances amongst the tested algorithms.

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