

Table S1. Ground truthing site names and their locations in Lake Burullus, Egypt. Latitude (N) and longitude (E) are presented in decimal degrees.

Basin	Direction	Site name	Latitude (N)	Longitude (E)	Elevation m asl
East	North	Burg El-Boghas	31.57667	30.98294	3
			31.57521	30.98225	3
			31.57493	30.98243	0
	Middle	El-Zawya	31.52855	30.95941	-1
			31.53082	30.96239	2
		El-Medawara	31.49028	30.94149	8
	South	Drain 7	31.46035	30.95786	2
			31.46106	30.95671	2
			31.4622	30.95412	5
			31.46278	30.94648	6
Middle	North	El-Hanafy	31.52971	30.84392	2
			31.53111	30.84472	3
			31.53135	30.84446	2
	Middle	Besak	31.48186	30.85881	7
			31.48022	30.85827	5
			31.47841	30.8596	2
	South	El-Kom El-Akhdar	31.45047	30.82456	3
			31.44916	30.82435	0
West	North	El-Maksaba	31.46839	30.78438	2
			31.49332	30.75717	2
			31.48842	30.75842	2
	South	Shakhloba	31.40536	30.076006	5
			31.40595	30.76107	3
			31.40628	30.76171	3

Table S2. Spectral and spatial characteristics for Landsat 5TM and 8OLI-TIRS images.

Satellite	Sensor	Bands	Wavelength λ (μm)	Spatial resolution (m)
Landsat 5	Thematic Mapper (TM)	Band 1 - Blue	0.45 - 0.52	30
		Band 2 - Green	0.52 - 0.60	30
		Band 3 - Red	0.63 - 0.69	30
		Band 4 - Near-Infrared	0.76 - 0.90	30
		Band 5 - Near-Infrared	1.55 - 1.75	30
		Band 6 - Thermal	10.40 - 12.50	120
		Band 7 - Mid-Infrared	2.08 - 2.35	30
Landsat 8	Operational Land Imager (OLI)	Band 1 - Coastal aerosol	0.43 - 0.45	30
		Band 2 - Blue	0.450 - 0.51	30
		Band 3 - Green	0.53 - 0.59	30
		Band 4 - Red	0.64 - 0.67	30
		Band 5 - Near-Infrared	0.85 - 0.88	30
		Band 6 - ShortWave InfraRed (SWIR) 1	1.57 - 1.65	30
		Band 7 - ShortWave InfraRed (SWIR) 2	2.11 - 2.29	30
		Band 8 - Panchromatic (PAN)	0.50 - 0.68	15
		Band 9 - Cirrus	1.36 - 1.38	30
	Thermal Infrared Sensor (TIRS)	Band 10 - TIRS 1	10.6 - 11.19	100
		Band 11 - TIRS 2	11.5 - 12.51	100

Table S3. List of Landsat 5TM and 8OLI datasets downloaded from the GLOVIS website (<http://glovis.usgs.gov/>).

Landsat	Date (MM/DD/ YYYY)	Time of satellite overpass (Central time)	Scene ID	Temper ature (°C)	Dew point (°C)	Relative humidity (%)	Atmospheric correction module	Path/ Row	Data analyses usage
5 TM	7/28/1985	7:59:28	LT51770381985209XXX07				T	177/3 8	Long term
5 TM	7/21/2000	8:06:44	LT51770382000203FUI00	27	20	66	T	177/3 8	Long term
8 OLI	5/22/2013	8:31:41	LC81770382013142LGN01	23	19	78	MLS	177/3 8	Seasonal
8 OLI	6/7/2013	8:31:41	LC81770382013158LGN00	27	18	58	T	177/3 8	Seasonal
8 OLI	6/23/2013	8:31:34	LC81770382013174LGN00	26	21	74	MLS	177/3 8	Seasonal
8 OLI	7/25/2013	8:31:37	LC81770382013206LGN00	28	19.5	60	T	177/3 8	Seasonal
8 OLI	8/10/2013	8:31:39	LC81770382013222LGN00	28	23	74	T	177/3 8	Seasonal
8 OLI	9/11/2013	8:31:39	LC81770382013254LGN00	28	20	62	T	177/3 8	Seasonal
8 OLI	9/27/2013	8:31:30	LC81770382013270LGN00	25	19	69	MLS	177/3 8	Seasonal
8 OLI	11/14/2013	8:31:21	LC81770382013318LGN00	15	15	100	US	177/3 8	Seasonal
8 OLI	7/28/2020	8:29:35	LC81770382020210LGN00	28	22	70	T	177/3 8	Long term

Temperature, dew point, and relative humidity were obtained from EL-Nouzha Airport Weather Station, Egypt.
ENVI atmospheric correction module used as follows: MLS: Mid-Latitude Summer; T: Tropical; and US: US standard.