

Supplementary Table 1

Sample details and data for lakes.

Sample Property	05-05	05-18	30-05	31-06	07-02	07-13	02-09
Latitude	-43.168	-43.528	-42.383	-43.325	-42.949	-42.138	-45.118
Longitude	-71.735	-71.204	-71.109	-70.896	-71.217	-71.018	-69.12
Ash thickness (<i>T</i> /mm)	15	9.5	3.5	3.5	2	0.4	0.1
Number of samples	2	1	2	2	2	1	1
Morphometry (m)	60×20×2	50×5×0.75	250×250×5	100×20×0.3	50×40×2	100×20×1	100×50×3
As	11	3	1.5	1.3	3.3	12	3.2
B	24	6.1	7.1	15	18	12	19
Ba	5.5	8.5	5.5	3.3	3.1	21	16
Ca	7400	10000	9400	15000	43000	32000	13000
Cd	0.0065	0.006	0.002	0	0	0	0
Co	0.044	0.045	0.055	0.084	0.19	0.41	0.1
Cs	0.079	0.041	0.017	0.048	0.019	0.063	0.009
Cu	0.89	0.47	0.27	0.07	0.29	0.73	0.21
Fe	23	18	14	28	60	66	19
K	3800	2000	1400	2700	5300	6100	970
Mg	1800	2600	2500	11000	9300	27000	420
Mn	6.6	3.4	1.8	1	1.9	8.9	4.8
Mo	0.33	0.55	0.48	0.45	0.56	2.8	0.77
Na	3700	4800	5200	19000	15000	36000	14000
Ni	1.9	1.1	0.74	0.6	1.2	3.1	0.77
Rb	5.7	2.8	1.4	1.2	1.3	6	0.43
Sr	26	37	40	88	97	140	20
Tl	0.006	0.006	0.0025	0.001	0.0025	0.01	0.002
Zn	19	7.1	1.9	1.7	2.4	8.3	0.27
Cl ⁻	5200	2300	2300	2400	3700	10000	5300
F ⁻	100	100	130	380	480	1200	200
SO ₄ ²⁻	3600	3000	2600	600	20000	15000	16000

Ash thickness (in mm) was measured as described in Watt et al., (2009). Lake morphometry was estimated and given as length × width × depth (in m). Element concentrations (determined by ICP-MS or IC) are given in units of ppb by mass.