

Supplementary material

Table S1. Physiochemical parameters and chemical species in bulk water of the reservoir San Marcos.

		Surface		Deep	
		mean	range	mean	range
pH		7.14	7-7.3	7.12	7.1-7.2
T	(°C)	17.4	16-20	16.4	16-17
ORP	(mV)	83.8	80-88	84	62-93
TDS	(mg L ⁻¹)	60	60-70	60	60-70
Alkalinity	(mg CaCO ₃ L ⁻¹)	15	14-17	35	34-36
Hardness	(mS cm ⁻¹)	38	33-47	40	33-54
Cl ⁻	(mg L ⁻¹)	5.04	4-7.5	5.98	5.7-6.2
SO ₄ ²⁻	(mg L ⁻¹)	10	9-11	12	11-13
NO ₂ ⁻	(mg L ⁻¹)	1.14	0.4-1.8	0.64	0.2-1.1
Ca ²⁺	(mg L ⁻¹)	0.8	0.7-1	1.56	1.4-1.9
Mg ²⁺	(mg L ⁻¹)	0.98	0.9-1.1	0.9	0.8-1
Na ⁺	(mg L ⁻¹)	7.84	7.5-8.6	6.78	6.4-7.4
K ⁺	(mg L ⁻¹)	3.22	3.1-3.3	3.02	2.8-3.1

Table S2. Mean contents of major (% weight) and trace (mg kg⁻¹) elements and their range in suspended sediments and dissolved phase.

	Surface level					Deep level				
	Coarse _B	Coarse _{sum} *	Fine _B	Fine _{sum} *	Dissolved ₁	Coarse _B	Coarse _{sum} *	Fine _B	Fine _{sum} *	Dissolved ¹
Major										
Fe	5.0 3.7-5.9	4.5 3.3-5.3	4.3 3.7-5.5	3.7 3.2-4.7	50.2 12.4-112	1.3 0.1-2.2	1.2 0.1-1.9	21.2 8.0-36.7	18.3 6.9-31.7	46.5 6.9-68.4
Mg	0.6 0.5-0.8	0.7 0.5-7.6	0.9 0.8-1.1	1.0 0.8-1.2	490 340-700	0.2 0.02-0.4	0.2 0.1-0.4	3.0 0.7-7.9	3.1 0.7-8.1	334.5 88-740
Ca	2.3 1.9-3.3	3.2 2.7-4.6	6.3 5.7-7.8	8.6 7.8-10.7	3275 2400-5500	1.2 0.1-2.0	1.7 0.2-2.7	8.3 2.3-20.9	11.3 3.3-28.6	3025 1400-5300
Mn	1.3 1.1-1.5	1.2 1.0-1.4	0.6 0.3-0.9	0.6 0.3-0.9	1.1 0.5-1.6	0.3 0.03-0.6	0.3 0.1-0.5	4.3 2.8-5.7	4.1 2.0-5.5	0.4 0.1-1
Ti	0.04 0.03-0.05	0.04 0.03-0.05	0.4 0.004-0.5	0.02 0.3-0.04	<DL ^a	0.01 0.001-0.03	0.01 0.001-0.02	0.2 0.05-0.4	0.2 0.05-0.3	<DL
Trace										
Pb	146 126-172	130 112-153	506 300-803	438 260-695	2.5 1.1-5	70.6 4.5-331	63 4-117	667 191-1574	578 166-1364	4.6 2.7-6.9
V	122 110-152	95 86-118	161 127-230	136 98-178	0.6 0.4-0.8	32.0 2.6-50.4	25 2-39	475 127-1046	401 106-883	0.5 0.3-0.8
Ni	212 44-397	168 35-315	178 21-437	152 19-389	0.7 0.2-1.7	164.9 24.0-314	125 18-237	526 326-904	449 279-773	0.8 0.06-3
Sr	238 202-280	293 248-344	775 494-1227	922 589-1464	28.3 14-38	100.5 10.6-176	124 13-216	725 208-1741	863 248-2072	42.5 20-88
Cu	195 149-288	316 241-467	824 393-1388	1341 639-2259	4.5 1.8-8.7	8.5 0.7-18	138 11-292	320 130-570	522 207-912	3.9 1.6-7.6
Li	155 91-331	223 132-478	717 251-1145	1010 362-1651	3.3 2-4.3	51.9 3.5-132	75 5-190	257 87-438	362 123-617	3.0 1-5.3
Zn	448 359-668	724 580-1078	1690 1183-2593	2459 1791-2926	16.8 3.7-41.2	90.4 7.6-242	368 31-987	381 192-555	1529 770-2229	11.6 4.1-15.8

*The total concentration was obtained from the sum of the element concentration in every fraction and averaging the mean from each sampling point.

¹ The concentration of elements is given in mg L⁻¹.^a DL under detection limit.

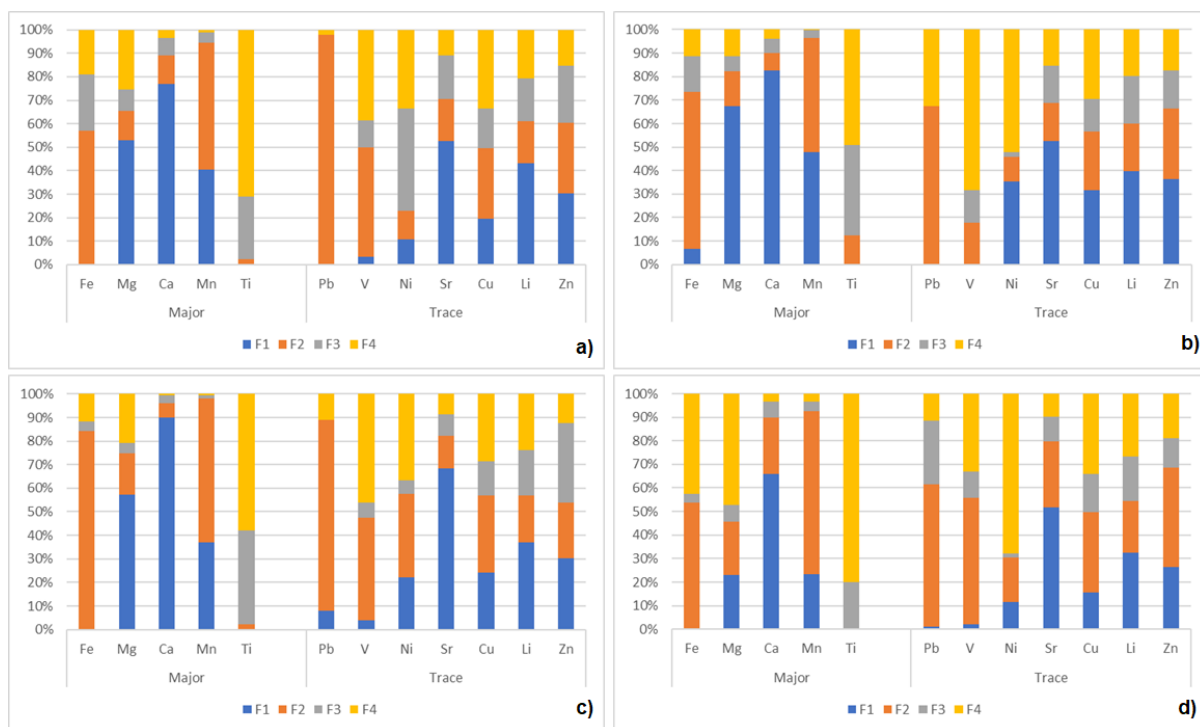


Figure S2. The metal percent by particle fractions: a) Coarse particles at surface level, b) Fine particles at the surface, c) Coarse particles at deep level, and d) Fine particles at a deep level. F1 (bioavailable fraction); F2 reduced fraction; F3 oxidized fraction; F4 residual fraction.

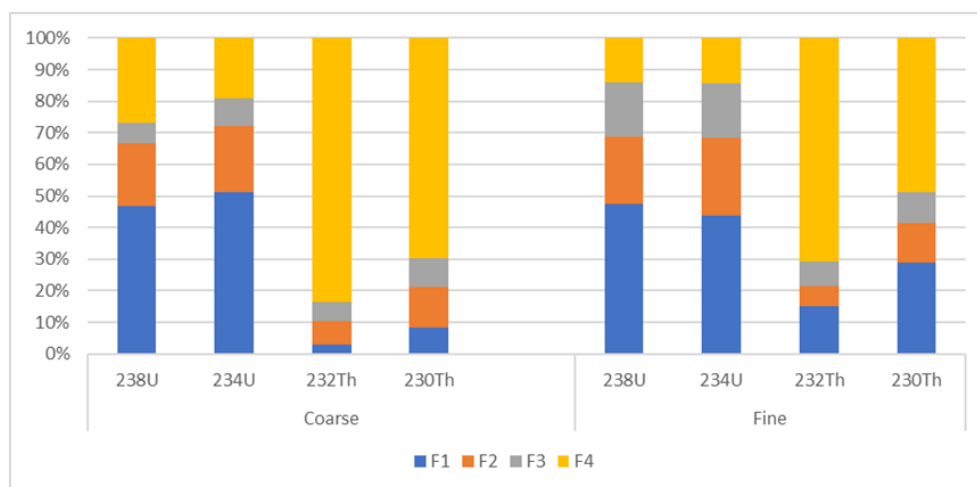


Figure S3. Isotopic U and Th percent by fractions of coarse and fine particles at a deep level. F1 (bioavailable fraction); F2 reduced fraction; F3 oxidized fraction; F4 residual fraction.