

Electronic Supplementary Material

ESM1. Values of ^{210}Pb and ^{137}Cs activities, chronology and sedimentation rate for the Paineiras core (PI13).

z (cm)	$^{210}\text{Pb}_{\text{xs}}$ (Bq kg ⁻¹)		^{137}Cs (Bq kg ⁻¹)		^{226}Ra (Bq kg ⁻¹)	Chronology		Sedimentation rate (cm a ⁻¹)
	Value	Error	Value	Error		Year	Error	
4	113.04	8.11	2.50	0.06	74.99	2001	1	0.36
6	99.34	7.79	4.66	0.11	72.81	1995	1	0.36
8	73.99	6.71			32.32	1990	2	0.36
10	80.24	6.38	6.21	0.14	60.12	1984	3	0.36
14	73.08	6.05	5.97	0.14	62.26	1973	4	0.36
16		7.17	5.70	0.13	64.67	1967	4	0.36
18	66.06	5.90			76.33	1962	5	0.36
20		4.79	10.68	0.25	66.95	1956	6	0.36
22	74.33	6.12			59.89	1950	6	0.36
24	56.32	5.19	8.08	0.19	61.99	1945	7	0.36
28	66.82	5.73	6.09	0.14	63.47	1934	7	0.42
30	71.73	5.82	3.98	0.09	70.66	1928	8	0.42
32	63.71	5.94	4.71	0.11	76.45	1922	9	0.42
34	127.15	9.71			76.72	1917	8	0.42
36	87.36	7.07	5.36	0.12	57.16	1911	9	0.42
38	69.29	5.95	2.86	0.07	61.75	1906	10	0.42
44	59.56	5.12	6.10	0.14	66.55	1889	12	0.42
54	70.28	5.42	6.73	0.15	70.03	1861	13	0.42
59	59.83	4.81	6.18	0.14	64.27	1847	15	0.42
69	57.95	5.45	6.59	0.15	55.70	1819	20	0.42

ESM2. Values of ^{210}Pb and ^{137}Cs activities, chronology and sedimentation rate for the Itupararanga core (IT13).

z (cm)	$^{210}\text{Pb}_{\text{xs}}$ (Bq kg ⁻¹)		^{137}Cs (Bq kg ⁻¹)		^{226}Ra (Bq kg ⁻¹)	Chronology		Sedimentation rate (cm a ⁻¹)
	Value	Error	(Bq kg ⁻¹)	Error		year	Error	
0	62.99	5.92	9.21	0.21	39.20	2012	0	0.24
2			6.66	0.15	35.99	2004	1	0.24
4	61.51	5.63	9.45	0.22	42.73	1995	2	0.24
6	44.39	4.85			39.79	1987	3	0.24
8	40.39	4.63	8.24	0.19	37.09	1979	4	0.24
10	63.85	5.29	8.74	0.20	40.46	1976	4	0.63
12	51.12	4.95	7.89	0.18	27.63	1972	5	0.63
14	64.91	5.51	9.74	0.22	32.56	1969	5	0.63
16	60.54	5.19	7.08	0.16	31.48	1966	5	0.63
18	47.05	4.51	9.10	0.21	35.12	1963	6	0.63
20	53.81	5.31	8.59	0.20	29.55	1960	6	0.63
22	49.06	5.04			39.84	1957	7	0.63
24			7.22	0.17	40.30	1954	7	0.63
26			7.81	0.18	35.94	1950	7	0.63
28	33.39	3.98	12.32	0.28	21.19	1947	9	0.63
30	28.91	3.69	7.67	0.18	30.34	1944	10	0.63
34	37.18	4.12	8.56	0.20	29.27	1938	10	0.63
38	34.98	4.13	6.32	0.14	36.94	1931	11	0.63
49			6.31	0.14	23.10	1914	15	0.54

ESM3. Values of ^{210}Pb and ^{137}C activities, chronology and sedimentation rate for the Salto Grande core (SG13).

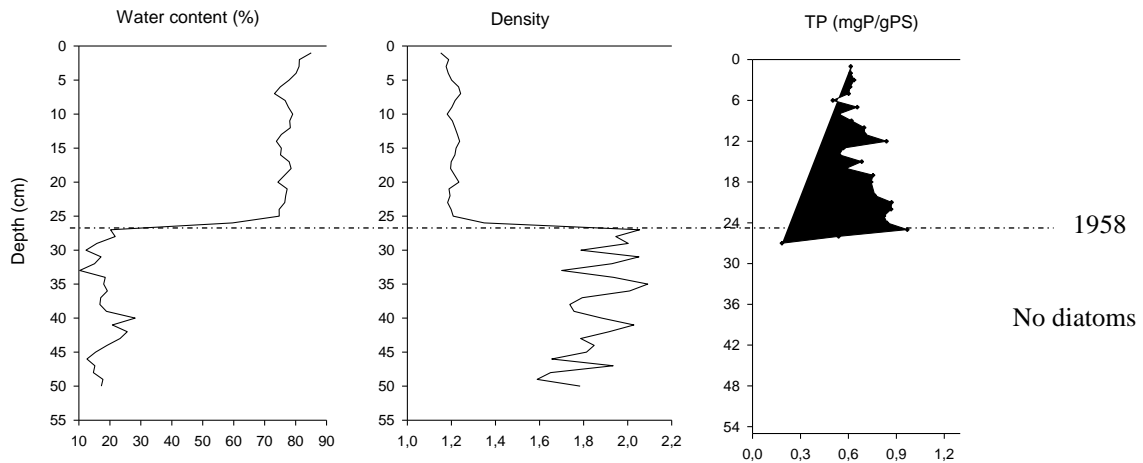
z (cm)	$^{210}\text{Pb}_{\text{xs}}$ (Bq kg ⁻¹)		^{137}Cs (Bq kg ⁻¹)		^{226}Ra (Bq kg ⁻¹)	Chronology		Sedimentation rate (cm a ⁻¹)
	Value	Error	Value	Error		Year	Error	
0	63.47	3.27	2.94	0.07	25.26	2012	0	0.04
2	71.91	3.42	2.49	0.06	36.49	2004	1	0.03
4	70.97	3.22	1.78	0.04	35.55	1995	2	0.03
6	51.09	2.64	6.14	0.14	25.80	1986	2	0.03
8	40.17	2.26	6.41	0.15	30.78	1981	3	0.06
10	37.64	2.11			36.93	1981	3	0.81
12					25.15	1979	3	0.21
14	38.24	2.20			45.60	1979	3	0.80
16	37.52	2.22	8.08	0.19	36.22	1978	3	0.39
18			3.67	0.08	52.61	1968	4	0.03
20	34.83	2.10			42.12	1968	4	
22			4.07	0.09	43.60	1958	4	0.03
24	41.42	2.40			39.99	1955	5	0.18
26			5.44	0.13	46.71	1955	5	
28	43.29	2.44			52.96	1944	5	0.03
30	38.73	2.24	3.58	0.08	32.23	1921	7	0.01

ESM4. Values of ^{210}Pb and ^{137}Cs activities, chronology and sedimentation rate for the Rio Grande core (RG12).

z (cm)	$^{210}\text{Pb}_{\text{xs}}$ (Bq kg ⁻¹)		^{137}Cs (Bq kg ⁻¹)		^{226}Ra (Bq kg ⁻¹)	Chronology		Sedimentation rate (cm a ⁻¹)
	Value	Error	Value	Error		Year	Error	
0						2012	0	
6						1995	6	
8						1990	8	
10			3.02	0.16		1984	9	
12			4.20	0.22		1978	9	
16			9.06	0.48		1967	10	
20			7.57	0.40		1956	10	
24			6.13	0.32		1945	14	
26			3.59	0.19		1939	14	
28			6.63	0.35		1934	15	
32	106.19	10.70	2.42	0.13	48.37	1931	1	0.16
34	101.71	10.44			58.04	1929	1	0.16
36	84.92	8.03	1.78	0.09	64.91	1922	2	0.18
40	64.45	5.95	1.71	0.09	53.17	1914	3	0.25
44	46.65	4.36			48.48	1911	4	0.67
48	40.08	4.02	2.58	0.14	62.80	1910	4	
52	46.46	4.42	0.72	0.04	52.75	1906	5	0.59
54	45.58	4.20	1.55	0.08	57.46	1904	5	0.60
56	41.00	4.12	1.44	0.08	55.35	1902	6	

ESM5. Macroscopic lithology description of RC13 (color and texture). The slice where abrupt changes occur in the lithological pattern, possibly corresponding to the change of the river phase – dam phase, is highlighted.

Prof. (cm)	Macroscopic description of sediments
0-4	Unconsolidated layer, as muddy appearance with a light brown color
4-18	A bit more consolidated, brown and slightly darker than the upper layer
18-26	More consolidated, darker brown than the upper layers
26-27	Sharp change of pattern to dark and fine sand
27-31	Grains of coarse sand with light color
31-35	Grains of fine sand with light color
35-38	Grains of coarse sand with light color
38-43	Coarse sand grains with dark color
43-50,5	Grains of fine sand with light color
50,5-52	Grains of fine sand with a dark color
52-53	Grains of fine sand with light color
53-56	Grains of fine sand with a dark color
56-59	Grains of fine sand with mixed light/dark color
59-72	Grains of coarse sand with very light color, whitish appearance



ESM6. Analysis of water content, density and total phosphorus for the Ribeirão do Campo reservoir (RC13). Dashed line indicates abrupt change at 26-27 cm. Below this line there were no diatoms. Depth assumed to be the year of construction of the dam (1958): 26 cm.

ESM7. Explanation of codes and full names for diatoms species.

Codes	Diatom full names and authorities
AAMB	<i>Aulacoseira ambigua</i> (Grunow) Simonsen
AAMJ	<i>Aulacoseira ambigua f. japonica</i> Tuji & D.M. Williams
AUGA	<i>Aulacoseira granulata</i> (Ehrenberg) Simonsen
AGAA	<i>Aulacoseira granulata</i> var. <i>angustissima</i> (Otto Müller) Simonsen
AHER	<i>Aulacoseira herzogii</i> (Lemmermann) Simonsen
AUPU	<i>Aulacoseira pusilla</i> (Meister) Tuji & Houki
AUTL	<i>Aulacoseira tenella</i> (Nygaard) Simonsen
AUL1	<i>Aulacoseira</i> sp.1
AUL7	<i>Aulacoseira</i> sp.7
ADCF	<i>Achnantheidium</i> cf. <i>catenatum</i>
ADCM	<i>Achnantheidium tropicocatenatum</i> Marquardt et al.
ADCT	<i>Achnantheidium macrocephalum</i> (Hustedt) Round & Bukhtiyarova
ADMI	<i>Achnantheidium minutissimum</i> (Kützing) Czarnecki
ADSA	<i>Achnantheidium saprophilum</i> (Kobayasi & Mayama) Round & Bukhtiyarova
SCH2	<i>Achnantheidium</i> sp.2
AST1	<i>Asterionella formosa</i> Hassal
BBRE	<i>Brachysira brebissoni</i> Ross
BMIC	<i>Brachysira microcephala</i> (Grunow) Compère
BSER	<i>Brachysira serians</i> (Brébisson) Round & D.G.Mann
CBNA	<i>Cymbopleura naviculiformis</i> (Auerswald) Krammer
CBRA	<i>Chamaepinnularia brasilianopsis</i> Metzeltin & Lange-Bertalot
CMEN	<i>Cyclotella meneghiniana</i> Kützing
DCONF	<i>Diadesmis confervaceae</i> Kützing
DPST	<i>Discostella pseudostelligera</i> (Hustedt) Houk and Klee
DSTE	<i>Discostella stelligera</i> (Cleve and Grunow) Houk & Klee
EBIL	<i>Eunotia bilunaris</i> (Ehrenberg) Schaarschmidt
ENAE	<i>Eunotia naegelii</i> Migula
ERAB	<i>Eunotia rabenhorstii</i> Cleve & Grunow
EPAL	<i>Eunotia paludosa</i> Grunow
EVEN	<i>Eunotia veneris</i> (Kützing) De Toni
EWAI	<i>Eunotia waimiriorum</i> C.E. Wetzel
EUN5	<i>Eunotia</i> sp. 5
EBOT	<i>Eunotia botulitropica</i> Costa et al.
ELON	<i>Eunotia longicamelus</i> Costa et al.
ENC1	<i>Encyonopsis</i> sp.
NEO	<i>Encyonema neogracile</i> Krammer
ESAL	<i>Encyonema salesopolensis</i> Marquardt et al.
ESAN	<i>Encyonopsis sanctipaulensis</i> Wengrat et al.
FLON	<i>Fragilaria longifusiformis</i> (Hains & Sebring) Siver et al.
FSEP	<i>Fragilaria sepes</i> Ehrenberg
FFUS	<i>Fragilaria</i> cf. <i>fusa</i>
FLON	<i>Fragilaria longifusiformis</i> (Hains & Sebring) Siver et al.
FRA3	<i>Fragilaria</i> sp.3
FRA4	<i>Fragilaria</i> sp. 4

FRA5 *Fragilaria* sp. 5
FRA6 *Fragilaria* sp. 6
FCRS *Frustulia crassinervia* (Brébisson) Lange-Bertalot
FSAX *Frustulia* cf. *saxonica*
HCON *Humidophila contenta* (Grunow) Lowe et al.
HLAC *Humidophila* cf. *lacunosa*
KPAR *Kobayasiella parasubtilissima* (Kobayasi & Nagumo) Lange-Bertalot
KSUB *Kobayasiella subtilissima* (Cleve) Lange-Bertalot
KVEN *Kobayasiella venezuelensis* Lange-Bertalot
LMUT *Luticola* cf. *mutica*
LUT3 *Luticola* sp.3
LUT6 *Luticola* sp.6
NAMP *Nitzschia amphibia* Grunow
NCRC *Navicula cryptocephala* Kützing
NNOT *Navicula notha* Wallace
NPAL *Nitzschia palea* (Kützing) Smith
NIT3 *Nitzschia* sp. 3
NIT5 *Nitzschia* sp.5
NIT6 *Nitzschia* sp.6
PIN2 *Pinnularia* sp.2
PROS *Planothidium rostratum* (Østrup) Lange-Bertalot
PSE1 *Pseudostaurosira* sp.1
SCUR *Stenopterobia curvula* (W.Smith) Krammer
SDEL *Stenopterobia delicatissima* (Lewis) Brébisson ex Van Heurck
SRUD *Spicaticribra rudis* (Tremarin et al.) Tuji et al.
