The ACER pollen and charcoal database: a global resource to document vegetation and fire response to abrupt climate changes during the last glacial period

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Supplementary Information

Taxa defining the pollen percentages of the main biomes in South Africa, Kenya, Australia and New Zealand not included in the QSR special issue (Sánchez Goñi and Harrison, 2010).

Mfabeni Peatland (South Africa)

Temperate savannah: Anacardiaceae, Ericaceae, Euphorbiaceae, Fabaceae, Fabaceae (*Acacia*), Proteaceae.

Warm-temperate mixed forest: Apocynaceae, Celastraceae, Combretaceae, Cyanthaceae, Erythroxylaceae, Flacourtiaceae, Moraceae, Myricaceae, Myrtaceae, Podocarpaceae, Rosaceae, Rubiaceae.

Rumuiku Swamp (Kenya)

Temperate forest : *Ilex, Celtis, Lannea*, Malvaceae, Rubiaceae, *Rhus, Rubus, Stoebe, Merrema*, Tiliaceae, *Oenostachys, Commelina, Abutilon, Clematis, Cissampelos, Cardamine*, Amaranthaceae/Chenopodiaceae, Acanthaceae, *Cleome, Cocculus, Plectranthus*, Cucurbitaceae, Caryophyllaceae, *Cuscuta, Kedrostis, Ranunculus, Gynandropsis*, Iridaceae, *Hygrophila, Heliotropium, Leucas*, Lamiaceae, Liliaceae, Fabaceae, *Trema*, *Valeriana*, *Ipomoea, Solanum*, Urticaceae, Ericaceae, Asteraceae, Brassicaceae, Apiaceae, *Artemisia*, Poaceae

Warm temperate forest: *Dombeya, Myrica, Nuxia, Olea*, Moraceae, *Podocarpus, Polyscias, Protea, Schefflera, Hagenia, Alchornea, Ilex, Macaranga, Afrocrania, Celtis, Croton, Juniperus*, Rubiaceae, *Rapanea, Lasianthus, Syzygium,* Capparidaceae, *Allophylus, Apodytes, Hypericum, Acalypha, Albizia, Antidesma, Acacia, Bosquea, Canthium, Cliffortia, Neoboutonia, Clausena, Combretum, Clerodendron, Cordia, Drypetes, Dracaena, Phyllanathus, Elatine, Ekebergia, Euclea, Faurea, Gunnera, Gnidia, Ziziphus, Lannea*, Malvaceae, *Maesa, Phyllanthus, Prunus, Ruelia*, Rutaceae, Rubiaceae, *Rhus, Rubus*, Sapindaceae, Sapotaceae, *Tapinanthus, Merremia*, Tiliaceae, *Oenostachys, Commelina, Abutilon, Clematis, Cissampelos, Cardamine*, Amaranthaceae/Chenopodiaceae, *Ricinus*, Acanthaceae, *Cleome, Cocculus, Plectranthus*, Cucurbitaceae, Caryophyllaceae, *Cuscuta, Chlorophytum, Corchorus, Kohautia, Vernonia, Pavetta, Anthospermum, Ranunculus, Galium, Gynandropsis*, Iridaceae, *Hyptis, Hygrophila, Leucas*, Lamiaceae, *Hypoestes*, Fabaceae, *Trema, Valeriana, Ipomoea, Indigofera, Solanum*, Urticaceae, Ericaceae , Asteraceae, Brassicaceae, Apiaceae, *Artemisia*, Poaceae.

Tropical forest: *Dombeya, Myrica, Nuxia, Olea*, Moraceae, *Podocarpus, Polyscias, Protea, Schefflera, Hagenia, Alchornea, Ilex, Macaranga, Afrocrania, Celtis, Croton, Juniperus*, Rubiaceae, *Rapanea, Lasianthus, Syzygium,* Capparidaceae, *Allophylus, Apodytes, Hypericum, Acalypha, Albizia, Antidesma, Acacia, Bosquea, Canthium, Cliffortia, Neoboutonia, Clausena, Combretum, Clerodendron, Cordia, Drypetes, Dracaena, Phyllanathus, Elatine, Ekebergia, Euclea, Faurea, Gunnera, Gnidia, Ziziphus, Lannea*, Malvaceae, *Maesa, Phyllanthus, Prunus, Ruelia*, Rutaceae, Rubiaceae, *Rhus, Rubus*, Sapindaceae, Sapotaceae, *Tapinanthus, Merremia*, Tiliaceae, *Oenostachys, Commelina, Abutilon, Clematis, Cissampelos, Cardamine*, Amaranthaceae/Chenopodiaceae, *Ricinus*, Acanthaceae, *Cleome, Cocculus, Plectranthus,* Cucurbitaceae, Caryophyllaceae, *Cuscuta, Chlorophytum, Corchorus, Kohautia, Vernonia, Pavetta, Anthospermum, Galium, Gynandropsis*, Iridaceae, *Hyptis, Hygrophila,* Lamiaceae, *Hypoestes*, Fabaceae, *Ipomoea, Indigofera,* Ericaceae, Asteraceae, Brassicaceae, Apiaceae, Poaceae.

Caledonia Fen and Wagoom (Australia)

Warm temperate forest: *Podocarpus*, *Phylloclades.*

Savannah: *Eucalyptus, Casuarina,* Poaceae, Asteraceae, Apiaceae, *Banksia, Pomaderris, Acacia, Dodonaea, Plantago*.

Kohuora (New Zealand)

Warm temperate forest: *Agathis, Alectryon, Ascarina, Dacrydium, Dacrycarpus*, Dodonaea, *Elaeocarpus,Griselinia, Knightia, Laurelia, Leucopogon fasciculatus, Libocedrus plumosa, Metrosideros, Metrosideros excelesa type, Neomyrtus, Nestegis, Phyllocladus trichomanoides, Plagianthus, Podocarpus, Prumnopitys taxifolia, Prumnopitys ferruginea, Pseudopanax, Weinmannia, Cyathea dealbata* type, *Cyathea smithii* type.

Temperate forest: *Fuscospora, Griselinia, Halocarpus bidwillii, Hoheria, Lagarostrobos, Lepidothamnus, Libocedrus bidwillii, Muehlenbeckia, Nothofagus menziesii, Phyllocladus alpinus, Plagianthus, Podocarpus, Quintinia.*

Table S1 – List of the applied and selected age models for the sites included in the ACER database.

LI: Liner interpolation; LR: Linear regression; PR2: Polynomial regression-order 2; PR3: Polynomial regression-order 3; PR4: Polynomial regression-order 4; CS: Cubic spline; SS0.3: Smooth spline (smoothing 0.3); SS0.6: Smooth spline (smoothing 0.6); LW0.75: Locally weighted spline (smoothing 0.75). Green cells indicate the selected age model.

No new age model for the following sites: Bear Lake; Lago Grande di Monticchio (too many major inversions in the 14C dates); Okarito Pakihi (lack of dating information); EW9504-17PC; F2-92-P29; ODP 1234; Wonderkrater (Borehole 3); Huiñamarca (Lake Titicaca, lacking dating uncertainties for tephra and U/Th dates).

Site id	Site Name	LI	LR	PR2	PR3	PR4	CS	SS0.3	SS0.6	LW0.75	Outliers (depth cm)	Dating control points
1	Abric Romaní				x	x			x	x		14 URTH
2	Walker Lake	x			x	x		x				14 AMS0, 3 EVNT
3	Valle di Castiglione							x		x		8 C14U, 1 EVNT, 1 TEPH
4	Toushe Basin	x						x	x			3 AMS0, 28 C14U, 2 EVNT
6	Bear Lake (BL00-1E)											
7	Fargher Lake			x	x				x		866.5	9 AMS0
8	Füramoos	x					x					2 AMS0, 2 EVNT
9	Iwaya	x						x				7 C14U, 1 OTHE
10	Joe Lake								x			5 AMS0, 13 C14U
11	Kamiyoshi Basin (KY01)	x			x			x				4 AMS0, 1 EVNT, 1 TEPH
12	Kashiru Bog	x					x	x			86.25,162.25,333,815, 518.5	23 C14U
13	Kenbuchi Basin	x						x				5 C14U
14	Khoe	x						x				4 AMS0, 4 C14U
15	Kohuora	x									40, 100, 200, 300,950,444, 480, 871	20 C14U
16	Kurota Lowland							x				6 AMS0, 1 C14U, 1 EVNT, 1 TEPH
17	KW31				x				x			2 C14C, 10 C14U
18	Lagaccione	x			x	x				x	2000	10 AMS0, 3 C14U, 6 EVNT, 1 TEPH
19	Lake Banyoles	x			x	x			x			2 C14U, 9 URTH
20	Lake Malawi			x			x				660	3 AMS0, 2 C14U
21	Lake Masoko							x				18 AMS0
23	Lake Tanganyika	x					x	x		x		6 AMS0
24	Lake Tulane								x		1644, 1684,1707	53 AMS0
25	Lake Xinias	x						x				5 C14U
26	Lake Biwa (BIW95-4)					x		x				10 AMS0, 3 C14U, 1 OTHE
27	Little Lake			x	x						1813	14 AMS0, 13 C14U, 1 TEPH
28	Lynchs Crater				x	x				x		10 AMS0, 8 C14U, 2 EVNT
29	MD01-2421					x		x				13 AMS0, 3 EVNT
30	MD03-2622 Cariaco Basin							x				18 EVNT
31	MD04-2845								x	x		18 AMS0, 11 EVNT
32	MD95-2039	x				x		x		x		15 EVNT
33	MD95-2042				x	x			x	x		35 AMS0, 7 EVNT
34	MD95-2043	x						x				21 AMS0, 2 EVNT
35	MD99-2331					x				x		49 AMS0, 7 EVNT
36	Megali Limni					x		x	x			8 AMS0, 1 C14U, 1 TEPH
37	Lago Grande di Monticchio											544 ANNL
38	ODP1078C								x	x		19 AMS0
39	Potato Lake	x										7 AMS0
40	Stracciacappa	x						x				5 AMS0, 3 C14U
41	Camel Lake	x										3 AMS0, 4 C14U
42	Carp Lake			x		x			x		1400,1630	14 AMS0, 1 EVNT, 5 LSC0, 2 TEPH
43	Fuquene					x						12 AMS0, 2 EVNT
44	GeoB3104	x					x	x				12 AMS0
45	GeoB3910-2	x				x		x		x		7 AMS0
46	Navarrés							x				5 AMS0, 9 C14U
47	ODP893A			x					x	x		32 AMS0, 1 EVNT
48	ODP site 976							x				15 AMS0, 8 EVNT
49	Siberia	x				x		x				10 C14U
50	Okarito Pakihi											
51	Lake Wangoom LW87 core		x	x				x	x			5 AMS0, 3 URTH
52	Caledonia Fen				x				x		1676.5,304,305	11 AMS0, 1 EVNT, 3 OSL0, 2 URTH
53	F2-92-P3	x						x				22 AMS0
54	Hanging Lake				x							21 C14U
55	ODP1019							x	x			11 AMS0, 1 EVNT
56	Tyrrendara Swamp	x									303	4 AMS0
57	W8709-13 PC				x				x			22 AMS0, 1 EVNT
58	EW9504-17 PC											
59	F2-92-P29											8 AMS0
60	Caço				X			x				17 C14U
61	Colônia	x					x	x				6 C14U, 2 EVNT
62	La Laguna	x						x				9 AMS0, 3 C14U
63	Tagua Tagua - DIGI	x			x							12 C14U
64	MD84-629	x		x				x	x			4 EVNT
66	Fundo Nueva	x						x				6 C14U
67	GeoB1023	x				x		x		x		9 AMS0
68	ODP 1233 C	x			x	x	x	x		x		19 AMS0
69	ODP 1234											
70	Taiquemo								x			24 C14U
71	Tswaing Crater	x						x				7 C14U, 1 OTHE
72	Wonderkrater (Borehole 3)											1 AMS0, 17 C14U
73	Les Echets G - DIGI							x			350	2 C14C, 8 C14U, 2 EVNT
74	Kalaloch								x	x		12 C14U, 1 OTHE
75	Core Trident 163 31B							x				21 AMS0
76	Lac du Bouchet								x	x	1064	13 C14U, 1 EVNT
77	Rumuiku Swamp	x									1465	9 AMS0
79	Azzano Decimo	x									3233, 3342, 3464	5 AMS0, 3 EVNT, 6 LSC0
80	Pacucha	x						x			1124, 1182	18 AMS0
81	Cambara do Sul	x										7 AMS0
82	Hay Lake	x						x				6 C14C
83	Laguna Bella Vista		x								148	14 AMS0, 1 OTHE
84	Laguna Chaplin	x						x			285.5, 296.5	14 AMS0
85	Lake Consuelo	x						x		x	790	22 AMS0
86	Lake Nojiri	x				x		x				6 AMS0, 2 EVNT
87	Mfabeni Peatland	x										5 C14C
88	Nakafurano	x						x				5 C14U
89	Native Companion Lagoon								x		162.3	19 AMS0
90	Rice Lake (Rice Lake 79)	x										5 C14C
91	W8709-8 PC			x					x			9 AMS0, 3 EVNT
92	Ioannina	x										8 AMS0, 2 EVNT
93	Huiñamarca (Lake Titicaca)											5 AMS0, 1 EVNT
94	Lake Billyakh	x									842	10 AMS0
95	ODP 820	x										8 AMS0, 4 EVNT
96	MD02-2579				x						249	22 AMS0
97	Wonderkrater (Borehole 4)	x						x			705	9 C14U
98	Rice Lake (Rice Lake 81)	x						x				4 C14C
99	SU 81-18				x				x		551, 691	28 AMS