**Title**: ACER2: The Abrupt Climate Changes and Environmental Responses Database (Version 2)

**Overview**

The Abrupt Climate Changes and Environmental Responses (ACER) database (Sánchez Goñi et al., 2017) was originally created to provide a source of pollen and charcoal data for Marine Isotope Stage 3 (MIS3: 27.8 to 59.4 ka). This global data set is publicly available for use under a CC-BY-NC-ND3.0 licence and is available for download from the PANGAEA repository ([**https://doi.org/10.1594/PANGAEA.870867**](https://doi.org/10.1594/PANGAEA.870867)).

There have been many more pollen records generated since the ACER data base was published and it has not been updated. Here we provide a data set, ACER2, which includes these new pollen data.

There are now three synthetic pollen databases available for Siberia (Cao et al., 2019; Cao et al., 2020) and China (Zhou et al., 2023) and the global Legacy 2 data set (Li et al., 2025). We extracted records from these data sets that cover some part of MIS3, after checking that these were not included in the ACER database or duplicated between these data sets. We used the age models provided by each database for these records. We then conducted a literature search to identify other records covering MIS3. Some of these records are archived in public repositories (e.g. PANGAEA) or were available from online sources. Other records were provided directly by the authors. All of the extracted records (Table 1) were cleaned to correct spelling mistakes, remove duplicates created by the inclusion of unnecessary spaces, and to correct synonyms, using Plants of the World Online as a reference (https://powo.science.kew.org/). We removed non-pollen (e.g. fungi), obligate aquatics, mangroves and carnivorous plants. We then standardised the taxon names to match the terminology used in the version 3 of the SPECIAL Modern Pollen Database (SMPDSv3), specifically preserving three levels of taxonomic harmonisation (CLEAN, INTERMEDIATE, AMALGAMATED).

**Usage and Citation Information**

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**Citation**: Harrison S.P., Egbudom M., Liu, M., 2025. ACER2: The Abrupt Climate Changes and Environmental Responses Database (version 2). University of Reading. (https://doi.org/10.17864/1947.001449)

**Intended use cases**: The ACER2 dataset has been used in combination with the ACER dataset for the reconstruction of climate changes during the Dansgaard-Oeschger warming events during Marine Isotope Stage (MIS) 3 (Liu et al., 2024). The combined data sets can be used to make climate and vegetation reconstructions. Note that the original ACER records are not included in ACER2 and the user should combine the two sets of records to obtain a comprehensive data set, and should cite both datasets accordingly.

**Contents**

The ACER database contained 95 unique sites with 19592 samples. The ACER2 data set contains a further 233 unique sites with 15480 samples. The table below (Table 1) summarises both the sites in the ACER database and the additional sites included in ACER2.

Table 1. Summary of sites included in the ACER and ACER2 data sets.

| **Site name** | **Latitude** | **Longitude** | **Elevation** | **Source** | **References** |
| --- | --- | --- | --- | --- | --- |
| Abric Romani | 41.53 | 1.68 | 350 | ACER | Burjachs et al. (1994); Sánchez Goñi et al. (2017) |
| Walker Lake | 35.38 | -111.71 | 2500 | ACER | Adam et al. (1985); Berry et al. (1982); Hevly (1985); Jacobs et al. (n.d.); Sánchez Goñi et al. (2017) |
| Valle di Castiglione | 41.9 | 12.76 | 44 | ACER | Alessio et al. (1986); Follieri et al. (1988); Follieri et al. (1989); Magri (2008); Magri et al. (2000); Narcisi (1999); Narcisi et al. (1992); Sánchez Goñi et al. (2017) |
| Toushe Basin | 23.82 | 120.88 | 650 | ACER | Liew et al. (2006); Sánchez Goñi et al. (2017) |
| Bear Lake (BL00-1E) | 41.9517 | -111.308 | 1805 | ACER | Jiménez-Moreno et al. (2007); Sánchez Goñi et al. (2017) |
| Fargher Lake | 45.88 | -122.58 | 200 | ACER | Grigg and Whitlock (2002); Sánchez Goñi et al. (2017) |
| Furamoos | 47.98 | 9.88 | 662 | ACER | Müller et al. (2003); Sánchez Goñi et al. (2017) |
| Iwaya | 35.531 | 135.889 | 20 | ACER | Takahara and Takeoka (1992); Sánchez Goñi et al. (2017) |
| Joe Lake | 66.76667 | -157.217 | 183 | ACER | Anderson (1988); Anderson et al. (1994); Sánchez Goñi et al. (2017) |
| Kamiyoshi Basin (KY01) | 35.102 | 135.586 | 335 | ACER | Hayashi et al. (2009); Takahara et al. (2007); Takahara et al. (2000); Sánchez Goñi et al. (2017) |
| Kashiru Bog | -3.47 | 29.57 | 2240 | ACER | Bonnefille et al. (1992); Bonnefille and Riollet (1988); Sánchez Goñi et al. (2017) |
| Kenbuchi Basin | 44.05 | 142.383 | 135 | ACER | Igarashi (1996); Igarashi et al. (1993); Sánchez Goñi et al. (2017) |
| Khoe  | 51.341 | 142.14 | 15 | ACER | Igarashi et al. (2002); Sánchez Goñi et al. (2017) |
| Kohuora | -36.95 | 174.8667 | 5 | ACER | Newnham et al. (2007a); Sánchez Goñi et al. (2017) |
| Kurota Lowland | 35.517 | 135.879 | 20 | ACER | Takahara and Kitagawa (2000); Sánchez Goñi et al. (2017) |
| KW31 | 3.52 | 5.57 | -1181 | ACER | Lézine and Cazet (2005); Lézine et al. (2005); Sánchez Goñi et al. (2017) |
| Lagaccione | 42.57 | 11.8 | 355 | ACER | Magri (1999); Magri (2008); Sánchez Goñi et al. (2017) |
| Lake Banyoles | 42.13 | 2.75 | 173 | ACER | Pérez-Obiol et al. (1994); Sánchez Goñi et al. (2017) |
| Lake Malawi | -11.22 | 34.42 | 470 | ACER | DeBusk (1998); Sánchez Goñi et al. (2017) |
| Lake Masoko | -9.33 | 33.75 | 840 | ACER | Vincens et al. (2007); Sánchez Goñi et al. (2017) |
| Lake Tanganyika (MPU12TAN) | -8.5 | 30.85 | 773 | ACER | Vincens (1991); Sánchez Goñi et al. (2017) |
| Lake Tulane | 29.83 | -81.95 | 36 | ACER | Grimm et al. (1993); Grimm et al. (2006); Sánchez Goñi et al. (2017) |
| Lake Xinias | 39.05 | 22.27 | 500 | ACER | Bottema (1979); Sánchez Goñi et al. (2017) |
| Lake Biwa (BIW95-4) | 35.245 | 136.054 | 84 | ACER | Hayashi et al. (2010); Hayashida et al. (2007); Takemura et al. (2000); Sánchez Goñi et al. (2017) |
| Little Lake | 44.16 | -123.58 | 217 | ACER | Grigg et al. (2001); Sánchez Goñi et al. (2017) |
| Lynchs Crater | -17.3667 | 145.7 | 760 | ACER | Kershaw et al. (2007a); Sánchez Goñi et al. (2017) |
| MD01-2421 | 36.02 | 141.77 | -2224 | ACER | Aoki et al. (2008); Igarashi and Oba (2006); Oba et al. (2006); Sánchez Goñi et al. (2017) |
| MD03-2622 Cariaco Basin | 10.7061 | -65.1691 | -877 | ACER | González and Dupont (2009); González et al. (2008); Sánchez Goñi et al. (2017) |
| MD04-2845 | 45.35 | -5.22 | -4100 | ACER | Daniau et al. (2009); Sánchez Goñi et al. (2008); Sánchez Goñi et al. (2017) |
| MD95-2039 | 40.58 | -10.35 | -3381 | ACER | Roucoux et al. (2001); Roucoux et al. (2005); Sánchez Goñi et al. (2017) |
| MD95-2042 | 37.8 | -10.17 | -3148 | ACER | Daniau et al. (2007); Sánchez Goñi et al. (1999); Sánchez Goñi et al. (2009); Sánchez Goñi et al. (2008); Sánchez Goñi et al. (2000); Sánchez Goñi et al. (2017) |
| MD95-2043 | 36.14 | -2.621 | -1841 | ACER | Fletcher and Sánchez Goñi (2008); Sánchez Goñi et al. (2002); Sánchez Goñi et al. (2017) |
| MD99-2331 | 41.15 | -9.68 | -2110 | ACER | Naughton et al. (2006); Naughton et al. (2009); Sánchez Goñi et al. (2008); Sánchez Goñi et al. (2005); Sánchez Goñi et al. (2017) |
| Megali Limni | 39.1025 | 26.3208 | 323 | ACER | Margari et al. (2009); Margari et al. (2007); Sánchez Goñi et al. (2017) |
| Lago Grande di Monticchio | 40.94 | 15.61 | 656 | ACER | Allen et al. (1999); Allen and Huntley (2000); Allen et al. (2000); Brauer et al. (2007); Huntley et al. (1999); Sánchez Goñi et al. (2017) |
| ODP1078C | -11.92 | 13.4 | -426 | ACER | Dupont and Behling (2006); Dupont et al. (2008); Sánchez Goñi et al. (2017) |
| Potato Lake | 34.45 | -111.33 | 2222 | ACER | Anderson (1993); Sánchez Goñi et al. (2017) |
| Stracciacappa | 42.13 | 12.32 | 220 | ACER | Giardini (2007); Sánchez Goñi et al. (2017) |
| Camel Lake | 30.26 | -85.01 | 20 | ACER | Watts et al. (1992); Sánchez Goñi et al. (2017) |
| Carp Lake | 45.91 | -120.88 | 720 | ACER | Whitlock and Bartlein (1997); Whitlock et al. (2000); Sánchez Goñi et al. (2017) |
| Fuquene | 5.45 | -73.46 | 2540 | ACER | Mommersteeg (1998); van Geel and van der Hammen (1973); Sánchez Goñi et al. (2017) |
| GeoB3104 | -3.67 | -37.72 | -767 | ACER | Behling et al. (2000); Sánchez Goñi et al. (2017) |
| GeoB3910-2 | -4.25 | -36.35 | -2362 | ACER | Dupont et al. (2010); Sánchez Goñi et al. (2017) |
| Navarres | 39.1 | -0.68 | 225 | ACER | Carrión and van Geel (1999); Sánchez Goñi et al. (2017) |
| ODP893A | 34.28 | -120.03 | -577 | ACER | Heusser (1998, 2000); Sánchez Goñi et al. (2017) |
| ODP site 976 | 36.2 | -4.3 | -1108 | ACER | Combourieu Nebout et al. (2002); Masson-Delmotte et al. (2005); Sánchez Goñi et al. (2017) |
| Siberia | -17.09 | -64.72 | 2920 | ACER | Mourguiart and Ledru (2003); Sánchez Goñi et al. (2017) |
| Okarito Pakihi | -43.2417 | 170.2167 | 70 | ACER | Newnham et al. (2007b); Sánchez Goñi et al. (2017) |
| Lake Wangoom LW87 core | -38.35 | 142.6 | 100 | ACER | Harle et al. (2002); Sánchez Goñi et al. (2017) |
| Caledonia Fen | -37.3333 | 146.7333 | 1280 | ACER | Kershaw et al. (2007b); Sánchez Goñi et al. (2017) |
| F2-92-P3 | 35.61 | -121.6 | -799 | ACER | Heusser (1998); Zheng et al. (2000); van Geen et al. (1996); Sánchez Goñi et al. (2017) |
| Hanging Lake | 66.38333 | -138.383 | 500 | ACER | Cwynar (1982); Sánchez Goñi et al. (2017) |
| ODP1019 | 41.66 | -124.91 | 989 | ACER | Mix et al. (1999); Pisias et al. (2001); Sánchez Goñi et al. (2017) |
| Tyrrendara Swamp | -38.1986 | 141.7626 | 13 | ACER | Builth et al. (2008); Sánchez Goñi et al. (2017) |
| W8709-13 PC | 42.11 | -125.75 | -2712 | ACER | Pisias et al. (2001); Sánchez Goñi et al. (2017) |
| EW9504-17 PC | 42.23 | -125.81 | -2671 | ACER | Pisias et al. (2001); Sánchez Goñi et al. (2017) |
| F2-92-P29 | 32.9 | -119.73 | -1475 | ACER | Gardner et al. (1997); Heusser (1998); Sánchez Goñi et al. (2017) |
| Caco | -2.97 | -43.42 | 120 | ACER | Ledru et al. (2006); Ledru et al. (2001); Ledru et al. (2002); Sánchez Goñi et al. (2017) |
| Colonia | -23.87 | -46.71 | 900 | ACER | Ledru et al. (2009); Ledru et al. (2005); Sánchez Goñi et al. (2017) |
| La Laguna | 4.92 | -74.03 | 2900 | ACER | Helmens et al. (1996); Sánchez Goñi et al. (2017) |
| Tagua Tagua - DIGI | -34.5 | -71.16 | 200 | ACER | Heusser (1990); Sánchez Goñi et al. (2017) |
| MD84-629 | 32.07 | 34.35 | -745 | ACER | Cheddadi and Rossignol-Strick (1995); Sánchez Goñi et al. (2017) |
| Fundo Nueva | -41.28 | -73.83 | 66 | ACER | Heusser et al. (2000); Sánchez Goñi et al. (2017) |
| GeoB1023 | -17.15 | 11.02 | -1978 | ACER | Shi et al. (1998); Sánchez Goñi et al. (2017) |
| ODP 1233 C | -41 | -74.45 | -838 | ACER | Heusser et al. (2006); Lamy et al. (2004); Sánchez Goñi et al. (2017) |
| ODP 1234 | -36.22 | -73.68 | -1015 | ACER | Heusser et al. (2006a); Heusser et al. (2006b); Sánchez Goñi et al. (2017) |
| Taiquemo | -42.17 | -73.6 | 170 | ACER | Heusser and Heusser (2006); Heusser et al. (1999); Sánchez Goñi et al. (2017) |
| Tswaing Crater | -25.4 | 28.08 | 1100 | ACER | Partridge et al. (1997); Scott et al. (2008); Sánchez Goñi et al. (2017) |
| Wonderkrater (borehole 3) | -24.5 | 28.75 | 1100 | ACER | McCarthy et al. (2010); Scott (2002); Scott et al. (2003); Scott et al. (2008); Sánchez Goñi et al. (2017) |
| Les Echets G - DIGI | 45.9 | 4.93 | 267 | ACER | de Beaulieu and Reille (1984); Sánchez Goñi et al. (2017) |
| Core Trident 163 31B | -3.61 | -83.96 | -3210 | ACER | Heusser and Shackleton (1994); Sánchez Goñi et al. (2017) |
| Lac du Bouchet - DIGI | 44.83 | 3.82 | 1200 | ACER | Reille and de Beaulieu (1990); Sánchez Goñi et al. (2017) |
| Rumuiku Swamp | 0.16 | 37.33 | 2154 | ACER | Rucina et al. (2009); Sánchez Goñi et al. (2017) |
| Azzano Decimo | 45.8833 | 12.7165 | 10 | ACER | Pini et al. (2009); Sánchez Goñi et al. (2017) |
| Pacucha | -13.6072 | -73.3283 | 3095 | ACER | Valencia et al. (2010); Sánchez Goñi et al. (2017) |
| Cambara do Sul | -29.05 | -50.1 | 1040 | ACER | Behling et al. (2004); Sánchez Goñi et al. (2017) |
| Hay Lake | 34 | -109.425 | 2780 | ACER | Jacobs (1985); Sánchez Goñi et al. (2017) |
| Laguna Bella Vista | -13.6167 | -61.55 | 600 | ACER | Burbridge et al. (2004); Sánchez Goñi et al. (2017) |
| Laguna Chaplin | -14.4667 | -61.0667 | 600 | ACER | Burbridge et al. (2004); Sánchez Goñi et al. (2017) |
| Lake Consuelo (CON1) | -13.95 | -68.991 | 1360 | ACER | Urrego et al. (2010); Urrego et al. (2005); Sánchez Goñi et al. (2017) |
| Lake Nojiri | 36.831 | 138.216 | 657 | ACER | Kumon et al. (2012); Sánchez Goñi et al. (2017) |
| Mfabeni Peatland | -28.1487 | 32.51867 | 11 | ACER | Finch and Hill (2008); Sánchez Goñi et al. (2017) |
| Nakafurano | 43.367 | 142.433 | 173 | ACER | Igarashi et al. (1993); Sánchez Goñi et al. (2017) |
| Native Companion Lagoon | -27.68 | 153.41 | 20 | ACER | Petherick et al. (2008a); Petherick et al. (2008b); Sánchez Goñi et al. (2017) |
| Rice Lake (Rice Lake 79) | 40.3 | -123.22 | 1100 | ACER | Heusser (n.d.); Sánchez Goñi et al. (2017) |
| W8709-8 PC | 42.26 | -127.68 | -3111 | ACER | Heusser (1998); Lyle et al. (1992); Sánchez Goñi et al. (2017) |
| Ioannina | 39.75 | 20.85 | 470 | ACER | Tzedakis et al. (2004); Tzedakis et al. (2002); Sánchez Goñi et al. (2017) |
| Huinamarca (Lake Titicaca) | -16.2333 | -68.7667 | 3810 | ACER | Gosling et al. (2008); Gosling et al. (2009); Sánchez Goñi et al. (2017) |
| Lake Billyakh | 65.2833 | 126.7833 | 340 | ACER | Müller et al. (2010); Sánchez Goñi et al. (2017) |
| ODP 820 | -16.63 | 146.3 | -280 | ACER | Moss and Kershaw (2000); Moss and Kershaw (2007); Sánchez Goñi et al. (2017) |
| MD02-2579 | 27.7873 | -82.5178 | -9.14 | ACER | Willard et al. (2007); Sánchez Goñi et al. (2017) |
| Wonderkrater (borehole 4) | -24.5 | 28.75 | 1100 | ACER | McCarthy et al. (2010); Scott (2002); Scott et al. (2008); Scott et al. (2003); Sánchez Goñi et al. (2017) |
| Rice Lake (Rice Lake 81) | 40.3 | -123.22 | 1100 | ACER | Heusser (unpublished data); Sánchez Goñi et al. (2017) |
| SU81-18 | 37.77 | -9.82 | -3135 | ACER | Bard et al. (1989); Lézine and Denèfle (1997); Turon et al. (2003); Vogelsang et al. (2001); Sánchez Goñi et al. (2017) |
| Lake Consuelo (CON2) | -13.95 | -68.991 | 1360 | ACER | Bush et al. (2004); Urrego et al. (2010); Urrego et al. (2005); Sánchez Goñi et al. (2017) |
| Aueler Maar\_ELSA\_AU3 | 50.28246 | 6.595058 | 456 | Pangaea | Sirocko et al. (2025) |
| Aueler Maar\_ELSA\_AU4 | 50.28211 | 6.594933 | 457 | Pangaea | Sirocko et al. (2025) |
| Holzmaar\_ELSA\_HM4 | 50.11934 | 6.879159 | 448 | Pangaea | Sirocko et al. (2025) |
| Dead Sea | 31.50805 | 35.471 | -428 | Pangaea | Miebach et al. (2019) |
| Sihailongwan Maar Lake | 42.2833 | 126.6 | 797 | Pangaea | Mingram et al. (2018) |
| IODP Site 353-U1446A | 19.0835 | 85.7348 | -1430.2 | Pangaea | Zorzi et al. (2022) |
| IODP Site 353-U1446C | 19.0837 | 85.7346 | -1430 | Pangaea | Zorzi et al. (2022) |
| Alut Lake | 60.14 | 152.31 | 480 | Cao et al. (2019, 2020) | Anderson et al. (1998a); Cao et al. (2019); Cao et al. (2020) |
| Berelyekh River | 63.28 | 147.75 | 800 | Cao et al. (2019, 2020) | Lozhkin and Postolenko (1989); Cao et al. (2019); Cao et al. (2020) |
| Billyakh Lake | 65.3 | 126.78 | 340 | Cao et al. (2019, 2020) | Müller et al. (2010); Cao et al. (2019); Cao et al. (2020) |
| Cheremushka Bog | 52.75 | 108.08 | 1500 | Cao et al. (2019, 2020) | Shichi et al. (2009); Cao et al. (2019); Cao et al. (2020) |
| Demyanskoye | 59.5 | 69.5 | 65 | Cao et al. (2019, 2020) | Bakhareva (1983); Cao et al. (2019); Cao et al. (2020) |
| Dikikh Olyenyeii Lake | 67.75 | -178.83 | 300 | Cao et al. (2019, 2020) | Anderson and Lozhkin (2002); Cao et al. (2019); Cao et al. (2020) |
| Elikchan 4 Lake | 60.75 | 151.88 | 810 | Cao et al. (2019, 2020) | Lozhkin and Anderson (1996); Cao et al. (2019); Cao et al. (2020) |
| Enmynveem River1 | 68.17 | 165.93 | 400 | Cao et al. (2019, 2020) | Anderson and Lozhkin (2002); Cao et al. (2019); Cao et al. (2020) |
| Gytgykai Lake | 63.42 | 176.57 | 102 | Cao et al. (2019, 2020) | Lozhkin (1998); Cao et al. (2019); Cao et al. (2020) |
| Indigirka lowlands | 70.58 | 145 | 20 | Cao et al. (2019, 2020) | Lozhkin (1998); Cao et al. (2019); Cao et al. (2020) |
| Julietta Lake | 61.34 | 154.56 | 880 | Cao et al. (2019, 2020) | Anderson et al. (2010); Cao et al. (2019); Cao et al. (2020) |
| Kalistratikha | 53.33 | 83.25 | 190 | Cao et al. (2019, 2020) | Zudin and Votakh (1977); Cao et al. (2019); Cao et al. (2020) |
| Khoe, Sakhalin Island | 51.34 | 142.14 | 15 | Cao et al. (2019, 2020) | Leipe et al. (2015); Cao et al. (2019); Cao et al. (2020) |
| Kirgirlakh Stream\_2 | 62.67 | 147.98 | 700 | Cao et al. (2019, 2020) | Shilo et al. (1983); Cao et al. (2019); Cao et al. (2020) |
| Levinson Lessing Lake PG1228 | 74.47 | 98.64 | 47 | Cao et al. (2019, 2020) | Andreev et al. (2003); Cao et al. (2019); Cao et al. (2020) |
| Mamontovy Khayata | 71.77 | 129.45 | 0 | Cao et al. (2019, 2020) | Andreev et al. (2002a); Cao et al. (2019); Cao et al. (2020) |
| Melkoye Lake | 64.86 | 175.23 | 36 | Cao et al. (2019, 2020) | Lozhkin and Anderson (2013); Cao et al. (2019); Cao et al. (2020) |
| Mereya River | 46.62 | 142.92 | 4 | Cao et al. (2019, 2020) | Anderson and Lozhkin (2002); Cao et al. (2019); Cao et al. (2020) |
| Ovrazhnyi Stream-2 | 43.25 | 134.57 | 10 | Cao et al. (2019, 2020) | Korotky and Karaulova (1975); Cao et al. (2019); Cao et al. (2020) |
| Paramonovskii Stream | 43.2 | 133.75 | 120 | Cao et al. (2019, 2020) | Korotky et al. (1993); Cao et al. (2019); Cao et al. (2020) |
| Tanon River | 59.67 | 151.2 | 40 | Cao et al. (2019, 2020) | Lozhkin and Glushkova (1997a); Cao et al. (2019); Cao et al. (2020) |
| Taymyr Lake SAO1 | 74.55 | 100.53 | 47 | Cao et al. (2019, 2020) | Andreev et al. (2003); Cao et al. (2019); Cao et al. (2020) |
| Taymyr Lake SAO4 | 74.53 | 100.53 | 47 | Cao et al. (2019, 2020) | Andreev et al. (2003); Cao et al. (2019); Cao et al. (2020) |
| Changping CHZK1 | 40.18 | 116.22 | 49 | Zhou et al. (2023) | Zhao et al. (2008); Zhou et al. (2023) |
| Daxing DZK1 | 39.72 | 116.32 | 49 | Zhou et al. (2023) | Zhao et al. (2008); Zhou et al. (2023) |
| Shunyi GZK1 | 40.15 | 116.53 | 50 | Zhou et al. (2023) | Zhao et al. (2008); Zhou et al. (2023) |
| Gantang SZY | 26.77 | 119.03 | 1007 | Zhou et al. (2023) | Yue et al. (2012); Zhou et al. (2023) |
| Feng Suancigou Feng | 35.51 | 105.81 | 1840 | Zhou et al. (2023) | Feng et al. (2007); Zhou et al. (2023) |
| Yabulai Mt | 39.62 | 103.92 | 1266 | Zhou et al. (2023) | Ma et al. (1998); Zhou et al. (2023) |
| Chenghai CH2 | 23.48 | 116.8 | 5 | Zhou et al. (2023) | Zheng (1990, 1991); Zhou et al. (2023) |
| Guangzhou GZ-2 | 22.71 | 113.51 | 1 | Zhou et al. (2023) | Wang et al. (2010); Zhou et al. (2023) |
| Guangzhou GZ-4 | 23.27 | 113.21 | 4 | Zhou et al. (2023) | Wang et al. (2010); Zhou et al. (2023) |
| Huguangyan Maar Lake B | 21.15 | 110.28 | 88 | Zhou et al. (2023) | Lu et al. (2003); Zhou et al. (2023) |
| Sanshui K5 | 22.78 | 112.63 | 12 | Zhou et al. (2023) | Huang et al. (1982); Zhou et al. (2023) |
| Tianyang TY1 | 20.35 | 110.35 | 90 | Zhou et al. (2023) | Lei and Zheng (1993); Zhou et al. (2023) |
| Tianyang Maar Lake TYC | 20.52 | 110.3 | 108 | Zhou et al. (2023) | Yang et al. (2012); Zhou et al. (2023) |
| Zhongshan PK19 | 21.8 | 113.3 | 6 | Zhou et al. (2023) | Huang et al. (1982); Zhou et al. (2023) |
| Yangerzhuang | 38.35 | 117.35 | 5 | Zhou et al. (2023) | Xu et al. (1993); Zhou et al. (2023) |
| Yangyuan-Caocun | 40.1 | 114.4 | 875 | Zhou et al. (2023) | Wang et al. (2003); Zhou et al. (2023) |
| Yangjiapo | 40.02 | 118.68 | 70 | Zhou et al. (2023) | Xu et al. (2002); Zhou et al. (2023) |
| Dajiu Lake DJH-1 | 31.49 | 110 | 1751 | Zhou et al. (2023) | Li et al. (2013a); Li et al. (2013b); Zhou et al. (2023) |
| Erlongwan Maar Lake | 42.3 | 126.37 | 724 | Zhou et al. (2023) | Liu et al. (2008); Zhou et al. (2023) |
| Dalai Nur Lake-Haiyan | 43.28 | 116.58 | 1200 | Zhou et al. (2023) | Li et al. (1990); Zhou et al. (2023) |
| Daihai Lake-Wajianggou | 40.58 | 112.67 | 1500 | Zhou et al. (2023) | Li et al. (1990); Zhou et al. (2023) |
| Ulan Buh Desert WL10ZK-1 | 40.04 | 105.78 | 1026 | Zhou et al. (2023) | Chen et al. (2013); Zhou et al. (2023) |
| Shuidonggou SDG2 | 38.28 | 106.5 | 1200 | Zhou et al. (2023) | Liu et al. (2011); Zhou et al. (2023) |
| Ngoring Lake CK6 | 34.92 | 97.73 | 4272 | Zhou et al. (2023) | Wang and Li (1992); Zhou et al. (2023) |
| Kuhai Lake | 35.52 | 99.31 | 4150 | Zhou et al. (2023) | Wischnewski et al. (2011); Mischke et al. (2010); Zhou et al. (2023) |
| Luanhaizi Lake LH2 | 37.59 | 101.35 | 3200 | Zhou et al. (2023) | Herzschuh et al. (2005); Herzschuh et al. (2006); Zhou et al. (2023) |
| Wenquangou | 35.92 | 94.2 | 4700 | Zhou et al. (2023) | Zhao et al. (2006); Zhou et al. (2023) |
| Xijir Ulan Lake | 35.23 | 90.33 | 4500 | Zhou et al. (2023) | Zhao et al. (2006); Zhou et al. (2023) |
| Ximen Co | 33.38 | 101.1 | 4000 | Zhou et al. (2023) | Herzschuh et al. (2014); Zhou et al. (2023) |
| Xining ZK2 | 35.97 | 101.67 | 4363 | Zhou et al. (2023) | Zhao et al. (2007); Zhou et al. (2023) |
| Yaxi Co Lake | 34.28 | 92.67 | 4000 | Zhou et al. (2023) | Zhao et al. (2006); Zhou et al. (2023) |
| Ershilipu | 36.93 | 116.65 | 50 | Zhou et al. (2023) | Xu et al. (1991); Zhou et al. (2023) |
| Qingdao ZK2 | 36.29 | 120.46 | 31 | Zhou et al. (2023) | Song et al. (2009); Zhou et al. (2023) |
| Qingdao ZK3 | 36.26 | 120.64 | 7 | Zhou et al. (2023) | Song et al. (2009); Zhou et al. (2023) |
| Sangluoshu | 37.5 | 117.73 | 50 | Zhou et al. (2023) | Xu et al. (1991); Zhou et al. (2023) |
| Jiangcun | 34.4 | 109.5 | 650 | Zhou et al. (2023) | Sun et al. (1995); Zhou et al. (2023) |
| Luochuan | 35.75 | 109.42 | 1068 | Zhou et al. (2023) | Sun et al. (1998); Zhou et al. (2023) |
| Diexi Lake | 32.04 | 103.68 | 2334 | Zhou et al. (2023) | Wang and Wang (2013); Zhou et al. (2023) |
| Toushe Lake 2013 | 23.82 | 120.88 | 650 | Zhou et al. (2023) | Li et al. (2013); Zhou et al. (2023) |
| Milin | 29.31 | 94.35 | 2982 | Zhou et al. (2023) | Pan et al. (2013); Zhou et al. (2023) |
| Daluoba | 47.83 | 88.2 | 2020 | Zhou et al. (2023) | Yan and Xu (1992); Zhou et al. (2023) |
| Lop Nur K1 | 40.28 | 90.25 | 780 | Zhou et al. (2023) | Yan et al. (1998); Yan et al. (2000); Zhou et al. (2023) |
| Tianshuihai TS95 | 35.35 | 79.52 | 4900 | Zhou et al. (2023) | Liu et al. (1998); Zhou et al. (2023) |
| Kunming Basin KZ2-3 | 25 | 102.62 | 1890 | Zhou et al. (2023) | Xu et al. (2009); Zhou et al. (2023) |
| Hangzhou HQB7 | 30.47 | 120.21 | 2 | Zhou et al. (2023) | Gu (2009); Zhou et al. (2023) |
| Rusaka Swamp | -3.43333 | 29.61667 | 2070 | Legacy2 | Bonnefille et al. (1995); Li et al. (2025) |
| Dar Fatma | 36.81825 | 8.77474 | 780 | Legacy2 | Stambouli-Essassi et al. (2007); Li et al. (2025) |
| Bambili 2 | 5.925715 | 10.24339 | 2323 | Legacy2 | Lezine et al. (2019); Li et al. (2025) |
| Deva-Deva | -7.1222 | 37.62053 | 2600 | Legacy2 | Finch and Marchant (2011); Finch et al. (2009); Li et al. (2025) |
| Rietvlei-Still Bay | -34.3542 | 21.53545 | 17 | Legacy2 | Quick et al. (2015); Li et al. (2025) |
| Lake Tritrivakely | -19.7783 | 46.91939 | 1778 | Legacy2 | Gasse and Van Campo (1998, 2001); Li et al. (2025) |
| Lake Tanganyika (KH3) | -8.5 | 30.75 | 773 | Legacy2 | Ivory and Russell (2016); Ivory and Russell (2018); Li et al. (2025) |
| Lake Tanganyika (KH4) | -8.5 | 30.75 | 773 | Legacy2 | Ivory and Russell (2016); Ivory and Russell (2018); Li et al. (2025) |
| Lake Tanganyika [north basin] (SD24TAN) | -4.19 | 29.31026 | 773 | Legacy2 | Vincens (1993); Li et al. (2025) |
| Hayla Cave | 10.76 | 47.3 | 1800 | Legacy2 | Brook et al. (1990); Li et al. (2025) |
| Elands Bay Cave | -32.3139 | 18.36278 | 44 | Legacy2 | Baxter (1996); Li et al. (2025) |
| Pretoria Saltpan | -25.4089 | 28.0829 | 1150 | Legacy2 | Scott (1999a); Scott (1999b); Li et al. (2025) |
| Lake Tanganyika [north basin] (SD14TAN) | -4.19 | 29.31026 | 773 | Legacy2 | Vincens (1993); Li et al. (2025) |
| Ngamakala Pound (GAMA4) | -4.075 | 15.38333 | 400 | Legacy2 | Elenga (1992); Elenga et al. (1994); Li et al. (2025) |
| Lake Albert (Lake Mobutu Sese Seko) | 1.83333 | 31.16667 | 619 | Legacy2 | Harvey (1976); Sowunmi (1991); Li et al. (2025) |
| Eastern Niger Delta | 4.55 | 6.43333 | 0 | Legacy2 | Sowunmi (1981a, 1981b, 1981c, 1987); Li et al. (2025) |
| Voordrag | -27.7417 | 31.325 | 940 | Legacy2 | Botha et al. (1992); Li et al. (2025) |
| Sacred Lake | 0.04793 | 37.52887 | 2345 | Legacy2 | Coetzee (1964); Coetzee (1967); Li et al. (2025) |
| Ngamakala Pound (GAMA2) | -4.075 | 15.38333 | 400 | Legacy2 | Elenga (1992); Elenga et al. (1994); Li et al. (2025) |
| Esambu | -2.71191 | 37.55435 | 1196 | Legacy2 | Githumbi et al. (2018); Li et al. (2025) |
| Akulinin Exposure P1282 | 47.11667 | 138.55 | 20 | Legacy2 | Anderson and Lozhkin (2002); Kind (1974); Korotkii et al. (1980); Korotky et al. (1989); Korotky et al. (1988); Li et al. (2025) |
| Bolotnyii Stream Exposure 117 | 42.85 | 132.7833 | 4 | Legacy2 | Anderson and Lozhkin (2002); Li et al. (2025) |
| Byllatskoye Exposure, Byllat River, Indigirka Basin | 69.16528 | 140.0625 | 316 | Legacy2 | Anderson and Lozhkin (2002); Li et al. (2025) |
| Kalistratikha Exposure | 53.33333 | 83.25 | 190 | Legacy2 | Anderson and Lozhkin (2002); Panychev and Orlova (1973); Zudin and Votakh (1977); Li et al. (2025) |
| Ledovyi Obryv Exposure, Northern Section | 64.1 | 171.1833 | 57 | Legacy2 | Anderson and Lozhkin (2002); Kind (1974); Kotov et al. (1989); Kotov and Ryabchun (1986); Lozhkin et al. (2000); Li et al. (2025) |
| Enmynveem River (mammoth site) | 68.16667 | 165.9333 | 400 | Legacy2 | Anderson and Lozhkin (2002); Lozhkin et al. (1988); Li et al. (2025) |
| Northern Coast of Onemen Gulf | 64.78333 | 176.1667 | 18 | Legacy2 | Anderson and Lozhkin (2002); Korotky (1991); Korotky and Brazhnik (1991); Korotky et al. (1985); Li et al. (2025) |
| Headwaters Opasnaya River | 48.23333 | 138.4833 | 1320 | Legacy2 | Anderson and Lozhkin (2002); Korotky et al. (1988); Li et al. (2025) |
| Ovrazhnyii-1 Stream Exposure | 43.25 | 134.5667 | 8 | Legacy2 | Anderson and Lozhkin (2002); Korotky and Karaulova (1975); Korotky et al. (1980); Korotky et al. (1989); Shilo (1987); Li et al. (2025) |
| Ovrazhnyii-2 Exposure 667-842 | 43.25 | 134.5667 | 10 | Legacy2 | Anderson and Lozhkin (2002); Korotky and Karaulova (1975); Pushkar (1979); Li et al. (2025) |
| Paramonovskii Stream Exposure 4980 | 43.2 | 133.75 | 120 | Legacy2 | Anderson and Lozhkin (2002); Korotky et al. (1980); Korotky et al. (1993); Shilo (1987); Li et al. (2025) |
| Pavlovka Exposure 988 | 44.31667 | 134 | 300 | Legacy2 | Anderson and Lozhkin (2002); Korotky et al. (1980); Li et al. (2025) |
| Peschanka Exposure 155 | 43.3 | 132.1167 | 12 | Legacy2 | Anderson and Lozhkin (2002); Li et al. (2025) |
| Siluyanov Yar-2 Exposure | 46.13333 | 137.8333 | 25 | Legacy2 | Anderson and Lozhkin (2002); Korotky and Lobanova (1984); Korotky et al. (1988); Li et al. (2025) |
| Tanon River [Quarry Site] | 59.66667 | 151.2 | 40 | Legacy2 | Anderson and Lozhkin (2002); Lozhkin and Glushkova (1997); Li et al. (2025) |
| Tikhangou Exposure | 42.83333 | 132.7833 | 4 | Legacy2 | Anderson and Lozhkin (2002); Korotkii et al. (1980); Troitskaya et al. (1971); Pushkar and Korotky (1975); Li et al. (2025) |
| Kirgirlakh Stream, Berelyekh River Basin (DIMA1) | 62.66667 | 147.9833 | 700 | Legacy2 | Anderson and Lozhkin (2002); Shilo et al. (1983); Li et al. (2025) |
| Kirgirlakh Stream, Berelyekh River Basin (DIMA2) | 62.66667 | 147.9833 | 700 | Legacy2 | Anderson and Lozhkin (2002); Shilo et al. (1983); Li et al. (2025) |
| Kirgirlakh Stream, Berelyekh River Basin (DIMA3) | 62.66667 | 147.9833 | 700 | Legacy2 | Anderson and Lozhkin (2002); Shilo et al. (1983); Li et al. (2025) |
| Kirgirlakh Stream, Berelyekh River Basin (DIMA4) | 62.66667 | 147.9833 | 700 | Legacy2 | Anderson and Lozhkin (2002); Shilo et al. (1983); Li et al. (2025) |
| Lake Zeribar | 35.53333 | 46.11667 | 1288 | Legacy2 | Bottema (1987); van Zeist and Bottema (1977); Li et al. (2025) |
| Iwaya site | 35.51763 | 135.8867 | 20 | Legacy2 | Takahara and Takeoka (1992); Takahara et al. (1988); Li et al. (2025) |
| Hachihama | 34.55226 | 133.9505 | 6 | Legacy2 | Miyoshi (1994); Li et al. (2025) |
| Hosoike Moor | 35.35 | 134.1333 | 970 | Legacy2 | Miyoshi (1989); Li et al. (2025) |
| Ubuka Basin | 34.49028 | 131.5861 | 390 | Legacy2 | Hatanaka and Miyoshi (1980); Li et al. (2025) |
| Faddeyevskiy | 75.33333 | 143.8333 | 30 | Legacy2 | Andreev et al. (2001); Li et al. (2025) |
| Bolshoy Lyakhovsky Island | 73.33333 | 141.5 | 7 | Legacy2 | Andreev et al. (2009); Li et al. (2025) |
| Mamontovy Klyk | 73.60722 | 117.125 | 25 | Legacy2 | Schirrmeister et al. (2008); Li et al. (2025) |
| Labaz lake (LAO6-95) | 72.29167 | 99.60778 | 42 | Legacy2 | Andreev et al. (2002b); Bolshiyanov and Hubberten (1996); Siegert et al. (1999); Kienel et al. (1999); Li et al. (2025) |
| Labaz lake (LAO13-94) | 72.29167 | 99.60778 | 42 | Legacy2 | Andreev et al. (2002b); Bolshiyanov and Hubberten (1996); Siegert et al. (1999); Kienel et al. (1999); Li et al. (2025) |
| Labaz lake (LAB2-94) | 72.29167 | 99.60778 | 42 | Legacy2 | Andreev et al. (2002b); Bolshiyanov and Hubberten (1996); Siegert et al. (1999); Kienel et al. (1999); Li et al. (2025) |
| Lake Yamozero | 65.01667 | 50.23333 | 213 | Legacy2 | Henriksen et al. (2008); Li et al. (2025) |
| Shaamar | 50.2 | 105.2 | 650 | Legacy2 | Ma et al. (2013); Li et al. (2025) |
| Balikun Lake | 43.675 | 92.8 | 1575 | Legacy2 | An et al. (2013); Li et al. (2025) |
| Malyi Krechet Lake | 64.8 | 175.5333 | 32 | Legacy2 | Lozhkin and Anderson (2013); Li et al. (2025) |
| Bolshoe Toko PG2133 | 56.04 | 130.87 | 903 | Legacy2 | Courtin et al. (2021); Li et al. (2025) |
| Emanda | 65.294 | 135.7592 | 671 | Legacy2 | Baumer et al. (2021); Li et al. (2025) |
| Kupena (KUPENA) | 41.98333 | 24.33333 | 1356 | Legacy2 | Huttunen et al. (1992); Li et al. (2025) |
| Kupena (KUPENA1) | 41.98333 | 24.33333 | 1356 | Legacy2 | Huttunen et al. (1992); Li et al. (2025) |
| Lake Nero (NERO2) | 57.18333 | 39.45139 | 93 | Legacy2 | Aleshinskaya et al. (1973); Gunova (1975); Li et al. (2025) |
| Lake Nero (NERO2P) | 57.18333 | 39.45139 | 93 | Legacy2 | Aleshinskaya et al. (1973); Gunova (1975); Li et al. (2025) |
| Plesheevo Lake | 56.76882 | 38.77603 | 148 | Legacy2 | Sudakova et al. (1984); Li et al. (2025) |
| Reenadinna Wood | 52.00749 | -9.53339 | 20 | Legacy2 | Mitchell (1990); Li et al. (2025) |
| Straldzha mire (STRALDZA) | 42.63045 | 26.78014 | 137 | Legacy2 | Tonkov et al. (2009); Tonkov et al. (2008); Li et al. (2025) |
| Straldzha mire (QUARRY) | 42.63045 | 26.78014 | 137 | Legacy2 | Tonkov et al. (2009); Tonkov et al. (2008); Li et al. (2025) |
| Straldzha mire (CANAL) | 42.63045 | 26.78014 | 137 | Legacy2 | Tonkov et al. (2009); Tonkov et al. (2008); Li et al. (2025) |
| Kupena (KUPENA3) | 41.98333 | 24.33333 | 1356 | Legacy2 | Huttunen et al. (1992); Li et al. (2025) |
| Labsky dul | 50.7624 | 15.55231 | 1199 | Legacy2 | Engel et al. (2010); Vlasta and Jankovska (2004); Treml et al. (2008); Li et al. (2025) |
| Nachtigall | 51.80851 | 9.40223 | 95 | Legacy2 | Kleinmann et al. (2011); Waas et al. (2011); Li et al. (2025) |
| Bay of Biscay | 45.35 | -5.21667 | -4100 | Legacy2 | Sanchez-Goni et al. (2008); Sánchez-Goñi et al. (2013); Sánchez-Goñi et al. (2012); Daniau et al. (2009); Li et al. (2025) |
| Bajondillo | 36.61972 | -4.49639 | 20 | Legacy2 | Lopez-Saez et al. (2007); Cortes-Sanchez et al. (2008); Cortes-Sanchez et al. (2011); Li et al. (2025) |
| Lake Iznik | 40.43389 | 29.53306 | 88 | Legacy2 | Miebach et al. (2016); Roeser et al. (2012); Li et al. (2025) |
| Correo | 44.555 | 5.99556 | 1100 | Legacy2 | Nakagawa (1998); Li et al. (2025) |
| Moershoofd | 51.24716 | 3.51839 | 2 | Legacy2 | Zagwijn (1961); Vogel and Zagwijn (1967); Li et al. (2025) |
| Levantine Basin | 32.03333 | 34.28333 | 0 | Legacy2 | Almogi-Labin et al. (2009); Langgut et al. (2011); Li et al. (2025) |
| Saint-Ursin | 48.51944 | -0.25333 | 234 | Legacy2 | Barbier (1999); Barbier and Visset (2000); Li et al. (2025) |
| Noordzee T121 | 54.1 | 4.21 | 0 | Legacy2 | Hoek (1997a); Hoek (1997b); Zagwijn and De Jong (1969); Li et al. (2025) |
| Lake George | -35.0897 | 149.4293 | 673 | Legacy2 | Singh et al. (1981); Singh and Geissler (1985); Li et al. (2025) |
| Komanimambuno Mire | -5.82037 | 145.089 | 2740 | Legacy2 | Hope and Peterson (1975); Hope (1976); Li et al. (2025) |
| Lac Suprin | -22.2872 | 166.9916 | 235 | Legacy2 | Hope (1996); Hope and Pask (1998); Li et al. (2025) |
| Lake Hordorli | -2.54085 | 140.5899 | 798 | Legacy2 | Hope (2015); Hope and Tulip (1994); Li et al. (2025) |
| Bandung DPDR-II | -6.99042 | 107.7291 | 662 | Legacy2 | Dam (1994); Van Der Kaars and Dam (1997); Van der Kaars and Dam (1995); Li et al. (2025) |
| Tortoise Lagoon | -27.5164 | 153.4731 | 39 | Legacy2 | Moss et al. (2013); Li et al. (2025) |
| Crystal Lagoon | -40.4771 | 148.3508 | 8 | Legacy2 | Adeleye et al. (2021); Li et al. (2025) |
| Sirunki Wabag | -5.44388 | 143.5328 | 2550 | Legacy2 | Walker and Flenley (1979); Flenley (1984); Li et al. (2025) |
| Xere Wapo | -22.2977 | 166.9594 | 235 | Legacy2 | Hope and Pask (1998); Stevenson and Hope (2005); Li et al. (2025) |
| Lac Emeric | -22.3 | 166.9694 | 230 | Legacy2 | Hope and Pask (1998); Li et al. (2025) |
| Lake Selina | -41.879 | 145.6093 | 516 | Legacy2 | Colhoun et al. (1999); Li et al. (2025) |
| Lake Carpentaria | -12.5217 | 140.3539 | -60 | Legacy2 | Torgersen et al. (1988); Li et al. (2025) |
| Anderson Pond (ANDERSON) | 36.03 | -85.5 | 303 | Legacy2 | Delcourt (1979); Li et al. (2025) |
| Arrington Marsh | 39.495 | -95.5267 | 280 | Legacy2 | Gruger (1973); Li et al. (2025) |
| Biggsville [Cessford Quarry] | 40.85556 | -90.88 | 198 | Legacy2 | Baker et al. (1989); Sullivan (1986); Li et al. (2025) |
| Goshen Springs | 31.72111 | -86.1342 | 105 | Legacy2 | Delcourt et al. (1980); Li et al. (2025) |
| Jackson Pond (JACKSON\_neotoma) | 37.43255 | -85.7246 | 260 | Legacy2 | Wilkins (1985); Wilkins et al. (1991); Li et al. (2025) |
| Lake Annie | 27.20731 | -81.3509 | 34 | Legacy2 | Watts (1975); Li et al. (2025) |
| Mud Lake (MUDLAKE) | 29.29993 | -81.866 | 9 | Legacy2 | Bradley (1966); Watts (1969); Watts (1971); Li et al. (2025) |
| Mud Lake (MUDLKMN2) | 46.85894 | -94.7554 | 424 | Legacy2 | Almendinger (1992); Almendinger (1985); Li et al. (2025) |
| Muscotah Marsh | 39.53 | -95.5133 | 280 | Legacy2 | Gruger (1973); Li et al. (2025) |
| Lake Patzcuaro | 19.58333 | -101.583 | 2044 | Legacy2 | Deevey (1944); Hutchinson et al. (1956); Watts and Bradbury (1982); Saporito (1975); Li et al. (2025) |
| Lake Quexil | 16.91667 | -89.8167 | 110 | Legacy2 | Leyden (1984); Leyden et al. (1994); Leyden et al. (1993); Li et al. (2025) |
| Boney Spring | 38.11194 | -93.3669 | 210 | Legacy2 | King (1973); Li et al. (2025) |
| Pittsburg Basin | 38.90363 | -89.1898 | 162 | Legacy2 | Coleman (1972); Coleman (1973); Gruger (1972a); Gruger (1972b); Kim (1970); Li et al. (2025) |
| Rockyhock Bay | 36.16667 | -76.6833 | 6 | Legacy2 | Whitehead (1981); Li et al. (2025) |
| White Pond (WHITEPND) | 34.16759 | -80.7762 | 90 | Legacy2 | Watts (1980); Li et al. (2025) |
| Jackson Pond (JACKSN07) | 37.43255 | -85.7246 | 260 | Legacy2 | Wilkins (1985); Wilkins et al. (1991); Li et al. (2025) |
| Anderson Pond (ANDERS07) | 36.03015 | -85.5013 | 303 | Legacy2 | Delcourt (1979); Li et al. (2025) |
| Fog Lake | 67.18238 | -63.2495 | 422 | Legacy2 | Frechette et al. (2008); Frechette et al. (2006); Miller et al. (2002); Wolfe et al. (2000); Li et al. (2025) |
| Sandy Run Creek | 32.572 | -83.0795 | 80 | Legacy2 | LaMoreaux (1999); LaMoreaux et al. (2009); Li et al. (2025) |
| Lake Peten-Itza | 16.99263 | -89.8171 | 110 | Legacy2 | Correa-Metrio et al. (2012a); Correa-Metrio et al. (2012b); Li et al. (2025) |
| White Pond (WHITESC) | 34.16759 | -80.7762 | 90 | Legacy2 | Watts (1980); Li et al. (2025) |
| St. Catherines Island (Northwest Marsh) | 31.68721 | -81.1522 | 0 | Legacy2 | Rich et al. (2015); Li et al. (2025) |
| Davis Lake | 46.59167 | -122.25 | 282 | Legacy2 | Barnosky (1981); Li et al. (2025) |
| Toadlena Lake [Dead Man Lake] (DEAD5826) | 36.2372 | -108.953 | 2759 | Legacy2 | Bent (1960); Wright (1964); Wright et al. (1973); Li et al. (2025) |
| Kaiyak Lake | 68.14 | -161.44 | 190 | Legacy2 | Anderson (1985); Li et al. (2025) |
| Ranger Lake | 67.13883 | -153.637 | 820 | Legacy2 | Brubaker et al. (1983); Li et al. (2025) |
| San Agustin Plains (SAPAUG) | 33.86667 | -108.25 | 2069 | Legacy2 | Markgraf et al. (1984); Li et al. (2025) |
| Toadlena Lake [Dead Man Lake] (DEAD6101) | 36.2372 | -108.953 | 2759 | Legacy2 | Bent (1960); Wright (1964); Wright et al. (1973); Li et al. (2025) |
| San Agustin Plains (SAPBHM) | 33.86667 | -108.25 | 2069 | Legacy2 | Markgraf et al. (1984); Li et al. (2025) |
| Tulare Lake | 36.052 | -119.78 | 55 | Legacy2 | Davis (1999); Li et al. (2025) |
| Grass Lake | 41.6496 | -122.167 | 1537 | Legacy2 | Hakala and Adam (2004); Li et al. (2025) |
| Grays Lake (GRAYSGL1) | 43.07 | -111.44 | 1195 | Legacy2 | Beiswenger (1987); Beiswenger (1991); Li et al. (2025) |
| Grays Lake (GRAYSGL6) | 43.07 | -111.44 | 1195 | Legacy2 | Beiswenger (1987); Beiswenger (1991); Li et al. (2025) |
| Ruby Marsh | 41.13395 | -115.505 | 1818 | Legacy2 | Thompson (1984); Thompson (1992); Korotky et al. (1988); Li et al. (2025) |
| Tukuto Lake | 68.4988 | -157.03 | 505 | Legacy2 | Oswald et al. (1999); Li et al. (2025) |
| Middle Butte Cave | 43.36667 | -112.617 | 1590 | Legacy2 | Davis et al. (1986); McDonald et al. (1980); Li et al. (2025) |
| Oil Lake | 70.29222 | -151.167 | 745 | Legacy2 | Eisner and Colinvaux (1992); Li et al. (2025) |
| Zagoskin Lake | 63.44847 | -162.108 | 7 | Legacy2 | Ager (2003); Li et al. (2025) |
| Peloncillo Mountains | 32.28908 | -109.094 | 1400 | Legacy2 | Holmgren et al. (2006); Li et al. (2025) |
| Lake Elsinore | 33.66066 | -117.353 | 376 | Legacy2 | Heusser et al. (2015); Kirby et al. (2018); Li et al. (2025) |
| Baldwin Lake | 34.27645 | -116.806 | 2060 | Legacy2 | Glover et al. (2020); Glover et al. (2017); Li et al. (2025) |
| Kalaloch | 47.6342 | -124.383 | 24 | Legacy2 | Heusser (1972); Sánchez Goñi et al. (2017); Li et al. (2025) |
| Lake E5 | 68.64167 | -149.457 | 803 | Legacy2 | Vachula et al. (2019); Li et al. (2025) |
| Cala Conto | -17.5667 | -65.9333 | 2700 | Legacy2 | Graf (1992); Graf (1989); Li et al. (2025) |
| Lagoa das Patas | 0.266667 | -66.6833 | 300 | Legacy2 | Colinvaux et al. (1996); Li et al. (2025) |
| Morro de Itapeva | -22.7833 | -45.5333 | 1850 | Legacy2 | Behling (1997); Li et al. (2025) |
| Laguna Junin | -11 | -76.1667 | 4100 | Legacy2 | Hansen et al. (1984); Li et al. (2025) |
| Rahue | -39.3667 | -70.9333 | 1000 | Legacy2 | Markgraf et al. (1986); Li et al. (2025) |
| Lagoa Campestre de Salitre (SALILC3) | -19 | -46.7667 | 980 | Legacy2 | Ledru (1992); Ledru (1993); Ledru et al. (1994); Li et al. (2025) |
| Lagoa Campestre de Salitre (SALILC91) | -19 | -46.7667 | 980 | Legacy2 | Ledru (1992); Ledru (1993); Ledru et al. (1994); Li et al. (2025) |
| Rio Timbio | 2.36575 | -76.7094 | 1750 | Legacy2 | Wille (2001); Wille et al. (2001); Wille et al. (2000); Li et al. (2025) |
| Laguna Ciega | 6.478435 | -72.3906 | 3510 | Legacy2 | van der Hammen et al. (1980); Li et al. (2025) |
| Vinillos | -0.60078 | -77.8469 | 2090 | Legacy2 | Loughlin (2018); Loughlin et al. (2018); Li et al. (2025) |
| Colonia CO3 | -23.8675 | -46.7056 | 900 | Legacy2 | Rodríguez-Zorro et al. (2020); Ledru et al. (2009); Ledru et al. (2005); Li et al. (2025) |
| GeoB2107-3 | -27.18 | -46.45 | -1048 | Legacy2 | Gu et al. (2017); Li et al. (2025) |
| Siberia1 | -17.09 | -64.72 | 2920 | Legacy2 | Sánchez Goñi et al. (2017); Mourguiart and Ledru (2003); Li et al. (2025) |
| Auel\_AU2 | 50.28211 | 6.594933 | 457 | AUTHOR | Sirocko et al. (2016) |
| Lake Baikal\_BDP99 | 52.08972222222222 | 105.84 | 456 | Pangaea | Shichi et al. (2023) |
| Padul | 37.01083 | -3.60389 | 726 | AUTHOR | Camuera et al. (2018); Camuera et al. (2022) |
| Villarquemado | 40.81667 | -1.48333 | 985 | AUTHOR | Wei et al. (2021) |
| Lake Chalco CHA08 | 19.25 | -98.9667 | 2250 | AUTHOR | Lozano-García et al. (2022) |
| Kai Iwa | -35.815 | 173.6537 | 70 | AUTHOR | Newnham et al. (2017) |
| Poutu | -36.3839 | 174.1303 | 82 | AUTHOR | Newnham et al. (2017) |
| Stoneman Lake\_STL | 34.77806 | -111.518 | 2048 | AUTHOR | Jiménez-Moreno et al. (2023) |
| Balikun Lake BLK11A | 43.675 | 92.8 | 1575 | AUTHOR | Zhao et al. (2017) |
| Girraween Lagoon | -12.5177 | 131.0808 | 25 | AUTHOR | Rowe et al. (2024); Bird et al. (2024) |
| Wulagai Lake | 45.41667 | 117.4833 | 822 | AUTHOR | Li et al. (2019) |
| Lake Ailike | 46.54167 | 86.3625 | 278 | AUTHOR | Chen et al. (2022) |
| Lake Fimon | 45.4667 | 11.5333 | 23 | AUTHOR | Pini et al. (2010), Pini et al. (2022) |

**Structure**

The data set consists of five csv files. The first provides the metadata (as summarised in Table 2), the second provides the sample information for each site (as summarised in Table 3) linked by site id. The remaining tables provide the CLEAN, INTERMEDIATE, and AMALGAMATED pollen counts for each sample (linked by sample id).

Table 2. Summary of contents of metadata file

|  |  |  |
| --- | --- | --- |
| **Field** | **Description** | **Data type** |
| siteID | unique identifier for each site | integer |
| site\_name | site name; this may include an indication of the core where there are multiple records from the same actual site | string |
| latitude | Latitude of the site, given in decimal degrees, where N is positive and S is negative | float |
| longitude | longitude of the site, given in decimal degrees, where E is positive and W is negative | float |
| elevation | elevation of site, in meters above or below sea level | float |
| Site\_type | type of site indicating whether the site is terrestrial (TERR) or marine (MARI) | string |
| source | indicates source of pollen data, including whether taken from an existing database (e.g. ACER) or obtained directly from the author (AUTHOR) | string |
| references | publications giving information about the site | string |

Table 3. Summary of contents of sample table

|  |  |  |
| --- | --- | --- |
| **Field** | **Description** | **Data type** |
| siteID | unique identifier for each site, to allow sample table to be linked to metadata table | integer |
| sampleID | unique identifier for each site | integer |
| sample\_depth\_cm | depth of sample in core or section, in centimeters below top | float |
| age\_mean | mean age of the sample, according to the age model given in the source, where missing data is given as -9999 | integer |
| age\_median | median age of the sample, according to the age model given in the source, where missing data is given as -9999 | integer |
| age\_youngest | youngest possible age of the sample, according to the age model given in the source, where missing data is given as -9999 | integer |
| age\_oldest | oldest possible age of the sample, according to the age model given in the source, where missing data is given as -9999 | integer |
| count\_type | indicates whether data are raw counts (COUNT), expressed as percentages of the terrestrial pollen sum (PERCENTAGE) or have been digitized from a published paper (DIGITIZED) | string |

The remaining tables provide the CLEAN, INTERMEDIATE, and AMALGAMATED pollen counts for each sample (linked by sample id). All possible taxon names in each class are listed and counts given for those taxa that are present in a given sample.

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