**Supplemental Information**

**Multi-proxy record of Holocene Paleohydrology from alpine lake sediment on the Wasatch Plateau of central Utah, USA**

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Table S1: Utah High Plateau surface water d18O, d2H, and *d-excess*

Figure S1: Emerald Lake core D07 terrestrial macrofossil data

Figure S2: Emerald Lake core D07 aquatic macrofossil data

Figure S3: Emerald Lake core A/C LOI and Age data

Figure S4: Emerald Lake core D07 ternary plot of mineralogy

Figure S5: Emerald Lake core D07 dolomite-normalized carbonate isotope data

Table S1: Utah High Plateau surface water d18O, d2H, and *d-excess*

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Site | Date | Lat ˚N | Long ˚W | Elevation (m a.s.l.) | d18O | d2H | *d-excess* |
|  |  |  |  |  |  |  |  |
| Blue Lake North (WP) | 8/08/2006 | 39.33539 | 111.33680 | 2800 | -15.9 | -116 | 10.8 |
| Blue Lake North Inflow (WP) | 8/08/2006 | 39.05388 | 111.50542 | 2800 | -16.6 | -122 | 11.30 |
| Independence (Mary's) Pond (WP) | 8/08/2006 | 39.27404 | 111.30779 | 2670 | -13.6 | -107 | 1.9 |
| Emerald Lake (WP) | 8/10/2006 | 39.07447 | 111.49684 | 3050 | -12.1 | -98 | -1.5 |
| Blue Lake South (WP) | 8/11/2006 | 39.05536 | 111.50451 | 3065 | -15.2 | -113 | 8.8 |
| Blue Lake South Inflow (WP) | 8/11/2006 | 39.05388 | 111.50542 | 3107 | -16.8 | -120 | 14.41 |
| Upper Deep Creek Spring (1000 Lakes Mtn, UT) | 8/08/2007 | 38.43893 | 111.46294 | 3183 | -15.1 | -108 | 12.92 |
| Upper Deep Creek Lake (1000 Lakes Mtn) | 8/08/2007 | 38.43515 | 111.46554 | 3209 | -14.0 | -102 | 9.7 |
| Deep Creek Lake (1000 Lakes Mtn) | 8/08/2007 | 38.43297 | 111.46429 | 3214 | -12.0 | -94 | 1.9 |
| Snow Lake (1000 Lakes Mtn) | 8/09/2007 | 38.42583 | 111.45959 | 3191 | 2.3 | -21 | -39.1 |
| Purple Lake (Aquarius) | 8/10/07 | 38.07837 | 111.57275 | 3188 | -6.2 | -64 | -13.9 |
| Purple Lake Spring (Aquarius) | 8/10/2007 | 38.07687 | 111.56995 | 3195 | -13.7 | -100 | 9.66 |
| Blue Lake (Aquarius) | 8/10/2007 | 38.08324 | 111.57014 | 3194 | -9.2 | -81 | -7.5 |
| Banana Lake (Aquarius) | 8/11/2007 | 38.06646 | 111.58663 | 3101 | -5.4 | -62 | -19.3 |
| Emerald Lake (WP) | 8/12/2007 | 39.07447 | 111.49684 | 3050 | -11.1 | -94 | -5.2 |
| Morris Pond (Markagunt) | 8/10/2009 | 37.67374 | 112.78045 | 3124 | -5.9 | -69 | -22.4 |
| Lowder Creek Meadow Lake (Markagunt) | 8/11/2009 | 37.67020 | 112.78809 | 3127 | -15.3 | -108 | 13.7 |
| Lowder Creek Meadow Spring (Markagunt) | 8/11/09 | 37.67055 | 112.78974 | 3137 | -14.9 | -107 | 12.05 |
| Lowder Creek Moraine Lake (Markagunt) | 8/11/09 | 37.67247 | 112.78368 | 3127 | -8.8 | -81 | -10.3 |
| Puffer Lake (Tushars) | 8/12/09 | 38.31421 | 112.36643 | 2958 | -14.1 | -104 | 9.0 |
| Mirror Lake (Tushars) | 8/12/09 | 38.31042 | 112.36813 | 2928 | -14.0 | -104 | 7.6 |
| Spring btwn Mirror and Otter Lks (Tushars) | 08/12/09 | 38.30961 | 112.36886 | 2923 | -14.3 | -106 | 7.79 |
| Otter Lake (Tushars) | 8/12/09 | 38.30869 | 112.36996 | 2915 | -14.1 | -107 | 6.1 |
| Blayney's Reservoir (Tushars) | 8/13/09 | 38.31069 | 112.36993 | 2917 | -14.0 | -106 | 5.8 |
| Lake Creek Spring from Otter L. (Tushars) | 08/14/09 | 38.30946 | 112.37139 | 2902 | -14.1 | -106 | 6.70 |
|  |  |  |  |  |  |  |  |

Fig S1: Emerald Lake core D07 terrestrial macrofossil data

Fig S1: Emerald Lake core D07 aquatic macrofossil data

Figure S3: Emerald Lake core A/C LOI and Age data





Figure S5: Emerald Lake core D07 dolomite-normalized carbonate isotope data

