SM Table 2a. Serially sampled mammoth stable isotope data.

| **Specimen Description** | **Marine Isotope Stage** | **Sample ID** | **δ13C (VPDB)** | **δ13C diet** | **δ18O (VPBD)** | **δ18O (VSMOW)** | **δ18Op**  **(Fox Fisher, 2001)** | **δ18Ow**  **(Daux et al., 2008)** | **87/86Sr** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Principia College Mammoth | 2 | ISM09.13-2 | -11.3 | -25.4 | -6.7 | 24.0 | 16.9 | -7.7 |  |
| ISM09.13-3 | -11.3 | -25.4 | -8.1 | 22.5 | 15.6 | -9.7 |  |
| ISM09.13-4 | -11.1 | -25.2 | -7.3 | 23.4 | 16.4 | -8.5 |  |
| ISM09.13-5 | -11.2 | -25.3 | -7.7 | 23.0 | 16.0 | -9.1 |  |
| ISM09.13-6 | -11.2 | -25.3 | -8.7 | 21.9 | 15.0 | -10.6 |  |
| ISM09.13-7 | -11.3 | -25.4 | -8.3 | 22.4 | 15.4 | -9.9 |  |
| ISM09.13-8 | -10.6 | -24.7 | -8.6 | 22.0 | 15.1 | -10.4 |  |
| ISM09.13-9 | -11.0 | -25.1 | -8.2 | 22.5 | 15.5 | -9.8 |  |
| ISM09.13-10 | -10.8 | -24.9 | -8.1 | 22.6 | 15.7 | -9.6 |  |
| ISM09.13-11 | -10.6 | -24.7 | -8.7 | 21.9 | 15.0 | -10.6 |  |
| ISM09.13-12 | -10.0 | -24.1 | -7.4 | 23.3 | 16.3 | -8.6 |  |
| ISM09.13-13 | -10.0 | -24.1 | -7.1 | 23.6 | 16.6 | -8.2 |  |
| Brookings Mammoth, Brookings Co. SD, plate VII | 2 | ISM09.57-2 | -10.1 | -24.2 | -9.0 | 21.7 | 14.8 | -10.9 |  |
| ISM09.57-3 | -9.4 | -23.5 | -10.0 | 20.6 | 13.9 | -12.4 |  |
| ISM09.57-4 | -9.9 | -24.0 | -9.3 | 21.3 | 14.5 | -11.4 |  |
| ISM09.57-5 | -9.7 | -23.8 | -9.7 | 20.9 | 14.1 | -12.0 |  |
| ISM09.57-6 | -10.0 | -24.1 | -8.8 | 21.9 | 15.0 | -10.6 |  |
| ISM09.57-7 | -9.9 | -24.0 | -10.0 | 20.6 | 13.8 | -12.4 |  |
| ISM09.57-8 | -10.0 | -24.1 | -8.6 | 22.0 | 15.1 | -10.4 |  |
| ISM09.57-9 | -9.7 | -23.8 | -9.1 | 21.5 | 14.7 | -11.1 |  |
| ISM09.57-10 | -10.4 | -24.5 | -7.8 | 22.8 | 15.9 | -9.3 |  |
| ISM09.57-11 | -9.6 | -23.7 | -9.4 | 21.3 | 14.4 | -11.5 |  |
| ISM09.57-12 | -10.5 | -24.6 | -9.4 | 21.2 | 14.4 | -11.5 |  |
| ISM09.57-13 |  | -14.1 |  | 30.9 | 23.2 | 2.0 |  |
| Schaefer Mammoth, M3-R, Plate 10; 92-6-362A | 2 | ISM10.26-2 | -9.3 | -23.4 | -7.2 | 23.5 | 16.5 | -8.3 |  |
| ISM10.26-3 | -7.6 | -21.7 | -7.9 | 22.8 | 15.8 | -9.3 |  |
| ISM10.26-4 | -9.0 | -23.1 | -7.8 | 22.8 | 15.9 | -9.3 |  |
| ISM10.26-5 | -9.6 | -23.7 | -8.8 | 21.8 | 14.9 | -10.7 |  |
| ISM10.26-6 | -10.0 | -24.1 | -8.3 | 22.4 | 15.4 | -9.9 |  |
| ISM10.26-7 | -9.6 | -23.7 | -8.0 | 22.6 | 15.7 | -9.6 |  |
| ISM10.26-8 | -9.4 | -23.5 | -8.1 | 22.5 | 15.6 | -9.7 |  |
| ISM10.26-9 | -9.6 | -23.7 | -7.8 | 22.8 | 15.9 | -9.3 |  |
| ISM10.26-10 | -9.2 | -23.3 | -8.6 | 22.0 | 15.1 | -10.4 |  |
| ISM10.26-11 | -8.8 | -22.9 | -9.1 | 21.5 | 14.6 | -11.2 |  |
| ISM10.26-12 | -8.9 | -23.0 | -8.7 | 22.0 | 15.1 | -10.5 |  |
| ISM10.26-13 | -8.5 | -22.6 | -9.0 | 21.7 | 14.8 | -10.9 |  |
| ISM10.26-14 | -8.7 | -22.8 | -9.0 | 21.6 | 14.7 | -11.0 |  |
| ISM10.26-15 | -8.8 | -22.9 | -9.9 | 20.7 | 13.9 | -12.2 |  |
| ISM10.26-16 | -9.4 | -23.5 | -8.3 | 22.4 | 15.5 | -9.9 |  |
| ISM10.26-17 | -7.0 | -21.1 | -6.6 | 24.1 | 17.0 | -7.6 |  |
| Jones Sp. Mammoth, 243JS75 | 4 | ISM09.59-4 | -1.9 | -16.0 | -4.5 | 26.3 | 19.0 | -4.4 |  |
| ISM09.59-5 | -1.5 | -15.6 | -3.7 | 27.1 | 19.7 | -3.4 |  |
| ISM09.59-6 | -1.9 | -16.0 | -3.7 | 27.1 | 19.7 | -3.4 |  |
| ISM09.59-7 | -2.3 | -16.4 | -4.1 | 26.7 | 19.4 | -3.9 |  |
| ISM09.59-8 | -2.0 | -16.1 | -3.7 | 27.1 | 19.7 | -3.4 |  |
| Jones Sp. Mammoth, 243JS75  (cont’d) | ISM09.59-9 | -1.5 | -15.6 | -2.2 | 28.6 | 21.1 | -1.3 |  |
| ISM09.59-10 | -1.5 | -15.6 | -3.3 | 27.5 | 20.1 | -2.8 |  |
| ISM09.59-11 | -1.6 | -15.7 | -3.6 | 27.2 | 19.8 | -3.2 |  |
| ISM09.59-12 | -1.7 | -15.8 | -3.9 | 26.9 | 19.6 | -3.6 |  |
| ISM09.59-13 | -0.2 | -14.3 | -2.3 | 28.6 | 21.1 | -1.3 |  |
| ISM09.59-14 | -1.8 | -15.9 | -4.3 | 26.5 | 19.2 | -4.1 |  |
| ISM09.59-15 | -1.8 | -15.9 | -3.7 | 27.1 | 19.7 | -3.3 |  |
| ISM09.59-16 | -2.3 | -16.4 | -1.8 | 29.0 | 21.5 | -0.7 |  |
| ISM09.59-17 | -2.0 | -16.1 | -4.5 | 26.3 | 19.0 | -4.5 |  |
| ISM09.59-18 | -2.0 | -16.1 | -1.6 | 29.3 | 21.7 | -0.3 |  |
| Jones Sp. Mammoth, 232JS77 | 5 | ISM09.58-2 | -3.1 | -17.2 | 3.6 | 34.6 | 26.5 | 7.1 | 0.715828963 |
| ISM09.58-3 | -2.6 | -16.7 | 0.4 | 31.3 | 23.5 | 2.5 | 0.715380889 |
| ISM09.58-4 | -2.9 | -17.0 | -1.2 | 29.7 | 22.1 | 0.3 | 0.717717379 |
| ISM09.58-5 | -3.3 | -17.4 | -1.3 | 29.6 | 21.9 | 0.1 | 0.717008203 |
| ISM09.58-6 | -3.8 | -17.9 | -1.4 | 29.5 | 21.9 | -0.1 | 0.717384061 |
| ISM09.58-7 | -2.5 | -16.6 | -0.8 | 30.1 | 22.5 | 0.9 | 0.716303603 |
| ISM09.58-8 | -2.6 | -16.7 | 0.1 | 31.0 | 23.3 | 2.1 | 0.715351161 |
| ISM09.58-9 | -3.2 | -17.3 | -0.4 | 30.5 | 22.8 | 1.4 | 0.716239446 |
| ISM09.58-10 | -2.8 | -16.9 | 1.1 | 32.0 | 24.2 | 3.5 | 0.714649772 |
| ISM09.58-11 | -3.0 | -17.1 | 1.8 | 32.8 | 24.9 | 4.6 | 0.715641649 |
| ISM09.59-2 | -2.7 | -16.8 | -4.6 | 26.1 | 18.9 | -4.7 |  |
| ISM09.59-3 | -1.3 | -15.4 | -2.9 | 27.9 | 20.5 | -2.2 |  |

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SM Table 2b. Micro-sampled mammoth stable isotope data.

| **Specimen ID** | **Sample ID** | **Series ID** | **δ13C (VPDB)** | **δ13C diet** | **δ18O (VPBD)** | **δ18O (SMOW)** | **δ18Op**  **(Fox Fisher 2001)** | **δ18Ow**  **(Dauxe et al 2008)** | **87/86Sr** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Jones Spring, MIS 4, 305JS77 | 2015-29 | 1 |  |  |  |  |  |  | 0.710800506 |
| 2015-30 | 2 | -3.3 | -17.4 | -4.3 | 26.4 | 19.2 | -4.2 |  |
| 2015-31 | 3 | -2.0 | -16.1 | -4.5 | 26.2 | 18.9 | -4.6 |  |
| 2015-32 | 4 | -2.4 | -16.5 | -3.7 | 27.0 | 19.7 | -3.4 |  |
| 2015-33 | 5 | -2.6 | -16.7 | -4.0 | 26.7 | 19.4 | -3.8 |  |
| 2016-8 | 6 | -1.2 | -15.3 | -3.4 | 27.4 | 20.0 | -2.9 |  |
| 2016-9 | 7 | -0.2 | -14.3 | -3.1 | 27.7 | 20.3 | -2.4 |  |
| 2016-10 | 8 |  |  |  |  |  |  | 0.711838367 |
| 2016-11 | 9 | -1.4 | -15.5 | -4.1 | 26.6 | 19.3 | -4.0 |  |
| 2016-12 | 10 |  |  |  |  |  |  | 0.710769476 |
| 2014-10 | 11 |  |  |  |  |  |  | 0.710938 |
| 2014-11 | 12 | -3.5 | -17.6 | -4.8 | 25.9 | 18.7 | -4.9 |  |
| 2014-12 | 13 |  |  |  |  |  |  | 0.711001 |
| 2014-13 | 14 | -2.8 | -16.9 | -4.9 | 25.8 | 18.6 | -5.1 |  |
| 2014-14 | 15 |  |  |  |  |  |  | 0.710869 |
| 2014-35 | 16 | -3.1 | -17.2 | -4.9 | 25.8 | 18.6 | -5.1 |  |
| 2014-36 | 17 |  |  |  |  |  |  | 0.710703 |
| 2014-37 | 18 | -2.7 | -16.8 | -3.3 | 27.5 | 20.1 | -2.7 |  |
| 2014-38 | 19 |  |  |  |  |  |  | 0.710903 |
| 2014-39 | 20 | -2.5 | -16.6 | -2.9 | 27.8 | 20.4 | -2.2 |  |
| 2014-40 | 21 |  |  |  |  |  |  | 0.710712 |
| 2014-41 | 22 | -2.9 | -17.0 | -3.4 | 27.4 | 20.0 | -2.9 |  |
| 2014-42 | 23 |  |  |  |  |  |  |  |
| 2014-43 | 24 | -2.8 | -16.9 | -4.9 | 25.8 | 18.6 | -5.1 |  |
| 2014-44 | 25 |  |  |  |  |  |  | 0.710716639 |
| 2014-45 | 26 | -2.2 | -16.3 | -3.9 | 26.8 | 19.5 | -3.7 |  |
| 2014-46 | 27 |  |  |  |  |  |  | 0.710617188 |
| 2014-47 | 28 | -2.7 | -16.8 | -3.3 | 27.5 | 20.1 | -2.7 |  |
| 2014-48 | 29 |  |  |  |  |  |  | 0.710777531 |
| 2014-49 | 30 | -2.5 | -16.6 | -2.9 | 27.8 | 20.4 | -2.2 |  |
| Jones Spring, MIS 3, 64JS73 | 2013-56 | 3 | -2.5 | -16.6 | -2.1 | 28.7 | 21.3 | -1.0 |  |
| 2013-57 | 6 | -3.1 | -17.2 | -8.7 | 21.9 | 15.1 | -10.5 |  |
| 2013-58 | 7 | -2.6 | -16.7 | -2.6 | 28.1 | 20.7 | -1.8 |  |
| 2013-59 | 8 | -2.4 | -16.5 | -2.8 | 28.0 | 20.6 | -2.0 |  |
| 2013-62 | 9 |  | -14.1 |  |  |  |  | 0.716438 |
| 2013-63 | 10 | -2.6 | -16.7 | -4.2 | 26.5 | 19.2 | -4.1 |  |
| 2013-75 | 11 |  |  |  |  |  |  | 0.716168 |
| 2013-76 | 12 | -1.8 | -15.9 | -12.0 | 18.5 | 12.0 | -15.3 |  |
| 2013-77 | 13 |  |  |  |  |  |  | 0.715486 |
| 2013-78 | 14 | -3.0 | -17.1 | -5.0 | 25.7 | 18.5 | -5.2 |  |
| 2013-79 | 15 |  |  |  |  |  |  | 0.715435 |
| 2013-80 | 16 | -4.0 | -18.1 | -5.9 | 24.8 | 17.7 | -6.5 |  |
| 2013-64 | 21 |  |  |  |  |  |  | 0.715609 |
| 2013-65 | 22 | -2.7 | -16.8 | -4.8 | 25.9 | 18.7 | -4.9 |  |
| 2013-66 | 23 |  |  |  |  |  |  | 0.715753 |
| 2013-67 | 24 | -2.8 | -16.9 | -11.4 | 19.1 | 12.5 | -14.4 |  |
| 2013-69 | 25 |  |  |  |  |  |  | 0.714923 |
| Jones Spring, MIS 3, 64JS73  (cont’d) | 2013-70 | 26 | -3.1 | -17.2 | -5.9 | 24.8 | 17.7 | -6.4 |  |
| 2013-71 | 27 |  |  |  |  |  |  | 0.715536 |
| 2013-72 | 28 | -3.2 | -17.3 | -3.7 | 27.0 | 19.7 | -3.4 |  |
| 2013-73 | 29 |  | -14.1 |  |  |  |  | 0.715924 |
| 2013-74 | 30 | -4.0 | -18.1 | -3.8 | 26.9 | 19.6 | -3.5 |  |
| 2013-81 | 31 |  |  |  |  |  |  | 0.714724 |
| 2013-82 | 32 | -3.3 | -17.4 | -4.3 | 26.4 | 19.2 | -4.2 |  |
| 2013-83 | 33 |  | -14.1 |  |  |  |  | 0.71447 |
| 2013-84 | 34 | -4.2 | -18.3 | -6.0 | 24.7 | 17.6 | -6.6 |  |
| 2013-85 | 35 |  |  |  |  |  |  | 0.713985 |
| 2013-86 | 36 | -2.2 | -16.3 | -3.9 | 26.8 | 19.5 | -3.7 |  |
| 2013-87 | 37 |  | -14.1 |  |  |  |  | 0.714023 |
| 2013-88 | 38 | -2.2 | -16.3 | -0.4 | 30.5 | 22.8 | 1.5 |  |
| 2013-89 | 39 |  | -14.1 |  |  |  |  | 0.715323 |
| 2013-90 | 40 | -1.7 | -15.8 | -4.3 | 26.4 | 19.1 | -4.3 |  |
| 2013-91 | 41 |  |  |  |  |  |  | 0.714859 |
| 2013-94 | 42 | -1.9 | -16.0 | -0.8 | 30.0 | 22.4 | 0.8 |  |