This **Supplemental Material** accompanies McGregor, M., McFarlane, C.R.M., and Spray, J.G., 2021, U-Pb geochronology of apatite crystallized within a terrestrial impact melt sheet: Manicouagan as a geochronometer test site, *in* Reimold, W.U., and Koeberl, C., eds., Large Meteorite Impacts and Planetary Evolution VI: Geological Society of America Special Paper 550, https://doi.org/10.1130/2021.2550(22).

**Table S1.** LA-ICP-MS U-Pb data from melt-grown zircon.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|   | **Concentrations (ppm)** | **Age (Ma)** | **Isotope ratios** |   |
| **Comments** | **U**  | **Th** | **206Pb/238U** | **2σ** | **238U/206Pb** | **2σ** | **207Pb/206Pb** | **2σ** | **err.corr.** | **%conc** |
| Zr\_0608-162 - 1 | 109.3 | 253.1 | 288 | 13 | 21.8818 | 0.9576 | 0.3120 | 0.0180 | 0.2351 | 26.134 |
| Zr\_0608-163 - 5 | 2605 | 15340 | 249.3 | 5.6 | 25.3550 | 0.5850 | 0.0585 | 0.0013 | 0.2725 | 88.909 |
| Zr\_0608-163A - 3 | 143.5 | 517 | 239.6 | 6.8 | 26.4061 | 0.7670 | 0.2114 | 0.0091 | 0.0895 | 32.204 |
| Zr\_0608-165 - 15 | 203.1 | 643 | 237.3 | 6.3 | 26.6667 | 0.7111 | 0.2140 | 0.0074 | 0.4601 | 31.514 |
| Zr\_0608-165 - 14 | 116.6 | 356.9 | 237 | 10 | 26.6667 | 1.2089 | 0.1700 | 0.0120 | 0.1770 | 37.559 |
| Zr\_0608-165 - 6 | 157.5 | 325 | 232.6 | 7.8 | 27.2480 | 0.9652 | 0.1171 | 0.0060 | 0.0780 | 49.489 |
| Zr\_0608-165 - 5 | 206.1 | 403.9 | 224.7 | 6.5 | 28.1928 | 0.7948 | 0.1190 | 0.0100 | 0.2395 | 49.276 |
| Zr\_0608-163 - 2 | 312.2 | 1150 | 224.6 | 5.6 | 28.2087 | 0.7082 | 0.0529 | 0.0030 | 0.3010 | 97.652 |
| Zr\_0608-165 - 9 | 169.3 | 298.3 | 223.7 | 7.8 | 28.3286 | 1.0433 | 0.1250 | 0.0110 | 0.1954 | 47.194 |
| Zr\_0512A - 2 | 389.2 | 515 | 223.3 | 5 | 28.3608 | 0.6435 | 0.0508 | 0.0018 | 0.1460 | 99.732 |
| Zr\_0608-165 - 3 | 883.4 | 4756 | 218.8 | 4.6 | 28.9687 | 0.6210 | 0.0610 | 0.0021 | 0.1776 | 84.938 |
| Zr\_0608-163 - 9 | 758.2 | 2462 | 218 | 4.6 | 29.0698 | 0.6253 | 0.0512 | 0.0015 | 0.2154 | 98.821 |
| Zr\_0608-165 - 2 | 417.5 | 2172 | 217.5 | 4.9 | 29.1375 | 0.6622 | 0.0524 | 0.0017 | 0.2764 | 96.667 |
| Zr\_0608-163 - 10 | 807 | 3210 | 216 | 5 | 29.3513 | 0.6978 | 0.0515 | 0.0015 | 0.0765 | 98.226 |
| Zr\_0608-163 - 8 | 806 | 2679 | 215 | 4.8 | 29.4811 | 0.6692 | 0.0541 | 0.0022 | 0.0058 | 93.927 |
| Zr\_0608-163 - 7 | 973.6 | 3747 | 214.1 | 4.5 | 29.6121 | 0.6314 | 0.0501 | 0.0015 | 0.4447 | 100.375 |
| Zr\_0608-165 - 1 | 1905 | 5472 | 213.5 | 4.9 | 29.7000 | 0.6880 | 0.0577 | 0.0018 | 0.0670 | 88.333 |
| Zr\_0608-162 - 5 | 215 | 809 | 213 | 5.2 | 29.7708 | 0.7445 | 0.0833 | 0.0040 | 0.1699 | 65.138 |
| Zr\_0512A - 1 | 655 | 2292 | 212 | 5.1 | 29.9043 | 0.7333 | 0.0614 | 0.0027 | 0.1280 | 84.127 |
| Zr\_0608-165 - 7 | 326.6 | 437.9 | 212 | 5.2 | 29.9043 | 0.7422 | 0.0563 | 0.0024 | 0.3295 | 90.598 |
| Zr\_0608-163 - 11 | 51.22 | 93.8 | 212 | 10 | 29.9401 | 1.5239 | 0.0609 | 0.0096 | 0.2792 | 85.484 |
| Zr\_0608-163 - 3 | 501.5 | 3515 | 211.3 | 4.7 | 30.0120 | 0.6845 | 0.0547 | 0.0019 | 0.2991 | 93.496 |
| Zr\_0608-165 - 11 | 242 | 667.9 | 211.1 | 5 | 30.0391 | 0.7219 | 0.0913 | 0.0040 | -0.0974 | 59.633 |
| Zr\_0608-163 - 6 | 423.1 | 2032 | 210.5 | 4.9 | 30.1296 | 0.7081 | 0.0582 | 0.0025 | 0.0805 | 88.075 |
| Zr\_0608-162 - 4 | 1151 | 2145 | 207.5 | 4.3 | 30.5624 | 0.6445 | 0.0527 | 0.0012 | 0.1685 | 96.243 |
| Zr\_0608-165 - 12 | 246.6 | 295 | 206.4 | 6.1 | 30.7314 | 0.9161 | 0.0559 | 0.0033 | 0.1244 | 91.327 |
| Zr\_0608-165 - 8 | 219.6 | 251.7 | 204.3 | 5 | 31.0559 | 0.7716 | 0.0721 | 0.0041 | 0.2689 | 73.226 |
| Zr\_0608-162 - 2 | 81 | 235.9 | 203.5 | 8.3 | 31.1527 | 1.2616 | 0.0564 | 0.0071 | 0.4594 | 92.081 |
| Zr\_0608-162 - 3 | 1276 | 1973 | 204 | 4.8 | 31.1818 | 0.7001 | 0.0549 | 0.0017 | 0.3271 | 92.727 |
| Zr\_0608-165 - 10 | 234.8 | 589 | 202.8 | 5.1 | 31.2891 | 0.8028 | 0.0618 | 0.0032 | 0.1129 | 83.802 |
| Highlighted rows used for final age calculation. All data uncorrected for common Pb |

**Table S2.** LA-ICP-MS U-Pb data from melt-grown apatite.

|  |  |  |
| --- | --- | --- |
|  | **Concentration (ppm)** | **Isotope ratios** |
| **Comments** | **204Pb** | **Th** | **U** | **238U/206Pb** | **2σ** | **207Pb/206Pb** | **2σ** | **err.corr** |
|  0512A - 7 | 10.1 | 7.8 | 1.4 | 0.5000 | 0.0350 | 0.9530 | 0.0310 | 0.1939 |
|  0512B - 3 | 4.9 | 32.3 | 1.7 | 1.1274 | 0.0788 | 0.8980 | 0.0260 | 0.4684 |
|  0512B - 4 | 3.6 | 7.4 | 1.4 | 1.3158 | 0.1125 | 0.9270 | 0.0480 | 0.3003 |
|  0608-163B - 10 | 39.6 | 9.7 | 1.7 | 0.1631 | 0.0152 | 0.9430 | 0.0140 | -0.1511 |
|  0608-163B - 11 | 1.7 | 4.5 | 0.8 | 1.9608 | 0.1000 | 0.8980 | 0.0350 | 0.5011 |
|  0608-163B - 13 | 40.9 | 3.1 | 1.7 | 0.1383 | 0.0151 | 0.8740 | 0.0180 | 0.1884 |
|  0608-163B - 14 | 3.4 | 5.5 | 1.3 | 1.2019 | 0.1069 | 0.8750 | 0.0310 | 0.0675 |
|  **0608-163B - 16** | **3.1** | **4.3** | **0.7** | **0.8418** | **0.0709** | **0.9130** | **0.0240** | **0.2570** |
|  0608-163B - 17 | 48.5 | 2.9 | 1.9 | 0.1387 | 0.0106 | 0.8710 | 0.0260 | 0.2219 |
|  0608-163B - 2 | 2.6 | 6.3 | 1.2 | 1.4970 | 0.8964 | 0.9190 | 0.0600 | 0.3657 |
|  0608-163B - 20 | 4.7 | 14.5 | 2.1 | 1.5723 | 0.2719 | 0.9120 | 0.0310 | 0.1645 |
|  0608-163B - 21 | 41.9 | 6.3 | 2.3 | 0.1799 | 0.0142 | 0.8730 | 0.0220 | 0.2616 |
|  0608-163B - 22 | 1.7 | 7.0 | 1.5 | 2.9499 | 0.1392 | 0.8970 | 0.0300 | 0.6332 |
|  0608-163B - 25 | 1.8 | 6.3 | 1.2 | 2.3256 | 0.1244 | 0.8850 | 0.0310 | 0.4845 |
|  0608-163B - 26 | 1.3 | 5.5 | 1.1 | 2.1322 | 0.7729 | 0.8190 | 0.0200 | 0.4188 |
|  **0608-163B - 27** | **1.5** | **6.2** | **1.2** | **2.8490** | **0.1299** | **0.8640** | **0.0350** | **0.4986** |
|  0608-163B - 28 | 1.4 | 6.2 | 1.3 | 2.8409 | 0.1695 | 0.8540 | 0.0390 | 0.5086 |
|  **0608-163B - 29** | **1.7** | **7.7** | **1.5** | **2.9412** | **0.1298** | **0.8500** | **0.0280** | **0.5112** |
|  **0608-163B - 3** | **1.5** | **4.1** | **0.7** | **1.7953** | **0.0967** | **0.8880** | **0.0330** | **0.4880** |
|  0608-163B - 30 | 1.6 | 5.8 | 1.1 | 2.6954 | 0.1090 | 0.9120 | 0.0300 | 0.6464 |
|  **0608-163B - 31** | **2.5** | **5.8** | **1.1** | **1.6103** | **0.0674** | **0.8930** | **0.0250** | **0.3329** |
|  0608-163B - 35 | 2.2 | 5.4 | 1.3 | 2.4155 | 0.0934 | 0.8830 | 0.0260 | 0.5712 |
|  0608-163B - 36 | 15.0 | 6.4 | 1.2 | 0.5556 | 0.1265 | 0.9350 | 0.0220 | 0.2490 |
|  0608-163B - 37 | 2.6 | 5.1 | 1.1 | 1.6077 | 0.0620 | 0.9170 | 0.4000 | 0.5879 |
|  0608-163B - 38 | 2.0 | 5.6 | 1.2 | 2.3148 | 0.7502 | 0.9070 | 0.0300 | 0.4620 |
|  0608-163B - 4 | 1.4 | 3.2 | 0.4 | 0.8993 | 0.0526 | 0.9230 | 0.0330 | 0.3020 |
|  0608-163B - 40 | 2.6 | 6.2 | 1.3 | 1.8282 | 0.0869 | 0.9140 | 0.0290 | 0.6433 |
|  0608-163B - 42 | 40.9 | 4.1 | 1.7 | 0.1295 | 0.0114 | 0.8830 | 0.0240 | 0.4591 |
|  **0608-163B - 43** | **1.7** | **9.8** | **1.8** | **3.6232** | **0.1707** | **0.8420** | **0.0340** | **0.4222** |
|  0608-163B - 44 | 1.8 | 6.8 | 1.3 | 2.7174 | 0.1034 | 0.8880 | 0.0330 | 0.4884 |
|  **0608-163B - 45** | **1.4** | **5.6** | **1.2** | **2.6954** | **0.1162** | **0.8550** | **0.0300** | **0.5841** |
|  **0608-163B - 46** | **1.1** | **6.4** | **1.3** | **3.0395** | **0.1386** | **0.8600** | **0.0380** | **0.5043** |
|  0608-163B - 47 | 1.4 | 5.4 | 0.9 | 2.2989 | 0.1057 | 0.9180 | 0.0320 | 0.5146 |
|  0608-163B - 48 | 1.6 | 4.9 | 0.7 | 1.7921 | 0.0996 | 0.9000 | 0.0350 | 0.4053 |
|  **0608-163B - 49** | **1.5** | **7.1** | **1.4** | **3.3784** | **0.1370** | **0.8450** | **0.0310** | **0.4169** |
|  **0608-163B - 50** | **1.7** | **7.6** | **1.5** | **2.8090** | **0.1341** | **0.8830** | **0.0320** | **0.4513** |
|  **0608-163B - 51** | **1.3** | **5.4** | **0.9** | **2.1322** | **0.1273** | **0.8930** | **0.0320** | **0.6064** |
|  0608-163B - 8 | 1.5 | 4.9 | 0.9 | 1.9841 | 0.1417 | 0.9070 | 0.0380 | 0.2571 |
|  0608-163B - 9 | 3.8 | 3.9 | 0.5 | 0.5110 | 0.0245 | 0.9270 | 0.0250 | 0.2422 |
|  **0608-163C - 1** | **2.4** | **5.9** | **1.1** | **1.6000** | **0.0973** | **0.9020** | **0.0690** | **0.3718** |
|  0608-163C - 10 | 2.9 | 6.6 | 1.3 | 1.7036 | 0.1857 | 0.9080 | 0.0300 | 0.3900 |
|  0608-163C - 11 | 45.9 | 2.7 | 1.5 | 0.0991 | 0.0088 | 0.8420 | 0.0190 | 0.2326 |
|  0608-163C - 12 | 35.7 | 4.0 | 2.0 | 0.1664 | 0.0183 | 0.8560 | 0.0560 | 0.1685 |
|  0608-163C - 13 | 3.8 | 7.8 | 1.4 | 1.3699 | 0.4128 | 0.9080 | 0.0340 | 0.2276 |
|  0608-163C - 14 | 2.1 | 5.4 | 1.0 | 1.9724 | 0.1867 | 0.9080 | 0.0270 | 0.5170 |
|  0608-163C - 15 | 1.9 | 5.1 | 1.0 | 1.8657 | 0.0870 | 0.9130 | 0.0450 | 0.1048 |
|  0608-163C - 17 | 3.0 | 4.9 | 1.0 | 1.0707 | 0.0871 | 0.8900 | 0.0260 | 0.2793 |
|  0608-163C - 19 | 6.2 | 5.5 | 1.4 | 0.8091 | 0.5302 | 0.8790 | 0.0560 | 0.3551 |
|  0608-163C - 2 | 1.7 | 6.1 | 1.2 | 2.2075 | 0.2193 | 0.8820 | 0.0260 | 0.5499 |
|  **0608-163C - 25** | **1.9** | **8.4** | **1.6** | **2.6810** | **0.1006** | **0.8590** | **0.0260** | **0.5636** |
|  0608-163C - 26 | 1.5 | 6.8 | 1.4 | 2.8818 | 0.1246 | 0.8760 | 0.0300 | 0.6427 |
|  0608-163C - 27 | 2.1 | 5.7 | 0.9 | 1.3263 | 0.1038 | 0.9240 | 0.0330 | 0.1303 |
|  **0608-163C - 28** | **1.5** | **6.6** | **1.3** | **2.4691** | **0.0914** | **0.8670** | **0.0290** | **0.5353** |
|  0608-163C - 29 | 1.2 | 7.0 | 1.4 | 2.8818 | 0.1080 | 0.8710 | 0.0310 | 0.1381 |
|  0608-163C - 3 | 2.4 | 5.9 | 1.2 | 1.8553 | 0.0826 | 0.9040 | 0.0310 | 0.3857 |
|  **0608-163C - 30** | **1.6** | **6.9** | **1.4** | **2.7322** | **0.1045** | **0.8400** | **0.0320** | **0.4677** |
|  **0608-163C - 34** | **8.3** | **6.2** | **1.2** | **0.5181** | **0.1208** | **0.8880** | **0.0210** | **0.0121** |
|  0608-163C - 35 | 5.7 | 6.4 | 1.4 | 0.7463 | 0.2562 | 0.8780 | 0.0320 | 0.3927 |
|  **0608-163C - 36** | **2.5** | **5.1** | **0.9** | **1.2837** | **0.0791** | **0.8990** | **0.0250** | **0.1708** |
|  0608-163C - 4 | 47.3 | 2.9 | 1.8 | 0.1239 | 0.0115 | 0.8630 | 0.0200 | 0.0526 |
|  **0608-163C - 40** | **7.1** | **5.5** | **1.4** | **0.7407** | **0.1043** | **0.8950** | **0.0250** | **-0.2614** |
|  0608-163C - 5 | 60.9 | 2.9 | 1.9 | 0.1129 | 0.0166 | 0.8720 | 0.0280 | 0.1823 |
|  0608-163C - 7 | 3.0 | 4.7 | 0.6 | 0.8688 | 0.3699 | 0.9260 | 0.0270 | 0.2798 |
|  0608-163C - 8 | 5.1 | 5.5 | 1.2 | 0.7225 | 0.1357 | 0.8630 | 0.0230 | 0.5547 |
|  0608-163C - 9 | 2.8 | 6.4 | 1.2 | 1.7301 | 0.0688 | 0.9140 | 0.0220 | 0.2905 |
|  0608-165A - 1 | 2.0 | 6.3 | 1.2 | 2.2831 | 1.3553 | 0.9470 | 0.7000 | 0.4783 |
|  0608-165A - 10 | 3.4 | 6.6 | 1.3 | 1.4903 | 0.3332 | 0.9340 | 0.0630 | -0.0998 |
|  **0608-165A - 11** | **9.5** | **8.4** | **1.7** | **0.6494** | **0.1644** | **0.8620** | **0.0240** | **0.4644** |
|  **0608-165A - 12** | **1.7** | **6.8** | **1.3** | **2.6954** | **0.1380** | **0.8590** | **0.0300** | **0.1330** |
|  0608-165A - 14 | 1.8 | 6.9 | 1.3 | 2.6455 | 0.1120 | 0.8830 | 0.0280 | 0.4793 |
|  **0608-165A - 15** | **1.4** | **7.4** | **1.0** | **2.0576** | **0.1058** | **0.8800** | **0.0290** | **0.1058** |
|  0608-165A - 18 | 1.6 | 6.3 | 1.1 | 2.1930 | 0.1058 | 0.9030 | 0.0330 | 0.3688 |
|  0608-165A - 19 | 2.2 | 5.9 | 1.0 | 1.6639 | 0.0720 | 0.9380 | 0.0280 | 0.4983 |
|  **0608-165A - 2** | **2.1** | **11.5** | **1.4** | **2.5316** | **0.1730** | **0.8780** | **0.0380** | **-0.0198** |
|  0608-165A - 20 | 2.2 | 6.1 | 1.1 | 1.5748 | 0.3720 | 0.9080 | 0.0240 | 0.1848 |
|  **0608-165A - 21** | **1.4** | **6.5** | **1.2** | **2.6738** | **0.1144** | **0.8370** | **0.0260** | **0.5351** |
|  0608-165A - 22 | 1.8 | 5.8 | 1.2 | 2.8653 | 0.1724 | 0.9040 | 0.4000 | 0.6038 |
|  **0608-165A - 23** | **1.4** | **9.2** | **1.7** | **3.9698** | **0.1513** | **0.8200** | **0.0280** | **0.6218** |
|  **0608-165A - 24** | **1.4** | **9.2** | **1.8** | **4.2176** | **0.1743** | **0.7990** | **0.0270** | **0.5795** |
|  0608-165A - 25 | 1.6 | 9.1 | 1.8 | 3.8911 | 0.2422 | 0.8480 | 0.0380 | -0.0239 |
|  **0608-165A - 27** | **1.9** | **17.5** | **1.4** | **2.4450** | **0.0956** | **0.8770** | **0.0300** | **0.3585** |
|  0608-165A - 28 | 1.8 | 6.2 | 1.0 | 2.0921 | 0.1050 | 0.8560 | 0.0280 | 0.4943 |
|  0608-165A - 29 | 1.5 | 6.5 | 1.2 | 2.7027 | 0.1023 | 0.8780 | 0.0360 | 0.3218 |
|  **0608-165A - 3** | **2.1** | **6.5** | **1.3** | **2.1552** | **0.5109** | **0.9030** | **0.0280** | **0.4163** |
|  0608-165A - 30 | 1.8 | 6.1 | 1.2 | 2.7701 | 0.3223 | 0.9130 | 0.0320 | -0.0027 |
|  **0608-165A - 31** | **1.9** | **7.4** | **1.3** | **2.3923** | **0.0801** | **0.8660** | **0.0270** | **0.4226** |
|  **0608-165A - 32** | **2.8** | **5.9** | **1.1** | **1.3106** | **0.0790** | **0.9110** | **0.0260** | **0.3418** |
|  0608-165A - 33 | 1.7 | 6.4 | 1.2 | 2.4510 | 0.0961 | 0.8990 | 0.0300 | 0.5693 |
|  **0608-165A - 34** | **2.3** | **7.2** | **1.4** | **2.2779** | **0.1193** | **0.8830** | **0.0260** | **0.4574** |
|  0608-165A - 36 | 1.4 | 6.0 | 1.2 | 2.5445 | 0.1101 | 0.8970 | 0.0300 | 0.4817 |
|  0608-165A - 37 | 1.9 | 6.8 | 1.3 | 2.4510 | 0.0961 | 0.8810 | 0.0300 | 0.5418 |
|  0608-165A - 38 | 1.7 | 7.2 | 1.3 | 2.7248 | 0.1262 | 0.8880 | 0.0310 | 0.5415 |
|  0608-165A - 39 | 1.3 | 5.7 | 1.1 | 2.5575 | 0.1308 | 0.9110 | 0.0390 | 0.1661 |
|  0608-165A - 4 | 1.5 | 6.2 | 1.3 | 2.4876 | 0.3527 | 0.9010 | 0.0510 | 0.5609 |
|  0608-165A - 40 | 1.9 | 5.9 | 1.3 | 2.5840 | 0.1269 | 0.9320 | 0.0500 | 0.0457 |
|  0608-165A - 42 | 1.3 | 8.2 | 1.3 | 3.4843 | 0.8013 | 0.8800 | 0.0530 | 0.2598 |
|  0608-165A - 43 | 70.0 | 4.5 | 2.2 | 0.1272 | 0.0133 | 0.8580 | 0.0250 | 0.0892 |
|  0608-165A - 44 | 2.4 | 7.5 | 1.4 | 1.9608 | 0.0923 | 0.8950 | 0.0240 | 0.2435 |
|  **0608-165A - 45** | **2.1** | **10.0** | **2.0** | **3.3223** | **0.1545** | **0.8580** | **0.0360** | **0.0743** |
|  0608-165A - 46 | 2.5 | 4.6 | 0.8 | 1.0152 | 0.6803 | 0.9360 | 0.0660 | 0.5544 |
|  0608-165A - 48 | 2.0 | 7.0 | 1.3 | 2.4876 | 0.1238 | 0.8570 | 0.0310 | 0.4478 |
|  **0608-165A - 5** | **3.1** | **6.1** | **1.2** | **1.3793** | **0.0723** | **0.9010** | **0.0270** | **0.1961** |
|  0608-165A - 6 | 1.6 | 6.2 | 1.2 | 2.1097 | 0.2003 | 0.8970 | 0.0220 | 0.5409 |
|  0608-165A - 7 | 22.4 | 5.4 | 1.2 | 0.1969 | 0.3294 | 0.9170 | 0.0140 | -0.0466 |
|  0608-165A - 9 | 2.0 | 7.4 | 1.4 | 2.5840 | 0.1002 | 0.9180 | 0.0400 | 0.0896 |
|  0608-165A - 8 | 16.7 | 7.0 | 1.2 | 0.2899 | 0.0622 | 0.9360 | 0.0120 | 0.1853 |
| 0608-163Br - 10 | 1.9 | 5.1 | 1.1 | 1.9608 | 0.2268 | 0.9100 | 0.1100 | 0.8452 |
| 0608-163Br – 11a | 4.0 | 2.5 | 0.9 | 1.0020 | 0.0683 | 0.9530 | 0.0410 | 0.1616 |
| 0608-163Br – 11b | 1.1 | 6.8 | 1.4 | 3.0211 | 0.1643 | 0.8520 | 0.0420 | 0.5246 |
| 0608-163Br - 12 | 2.5 | 4.4 | 1.0 | 1.4556 | 0.0890 | 0.8960 | 0.0340 | 0.4235 |
| 0608-163Br - 13 | 2.9 | 5.8 | 1.3 | 1.5361 | 0.0873 | 0.9250 | 0.0310 | 0.4765 |
| 0608-163Br - 14 | 2.3 | 7.0 | 1.3 | 1.6051 | 0.0850 | 0.8930 | 0.0360 | 0.4219 |
| 0608-163Br - 15 | 2.0 | 4.9 | 1.1 | 1.7391 | 0.1240 | 0.9040 | 0.0440 | 0.5451 |
| 0608-163Br - 16 | 1.4 | 6.4 | 1.3 | 2.5974 | 0.1349 | 0.8510 | 0.0330 | 0.3403 |
| 0608-163Br - 17 | 1.9 | 5.7 | 1.1 | 2.6667 | 0.1209 | 0.9380 | 0.0440 | 0.5600 |
| 0608-163Br - 18 | 1.9 | 4.7 | 0.9 | 2.0747 | 0.1248 | 0.8760 | 0.0440 | 0.2813 |
| 0608-163Br - 2 | 1.9 | 6.5 | 1.3 | 2.4038 | 0.1445 | 0.8510 | 0.0380 | 0.5826 |
| 0608-163Br - 21 | 5.0 | 5.8 | 1.1 | 0.8065 | 0.0911 | 0.8960 | 0.0330 | 0.2435 |
| 0608-163Br - 22 | 0.9 | 8.1 | 1.6 | 4.0650 | 0.2313 | 0.8320 | 0.0480 | 0.5725 |
| 0608-163Br - 24 | 1.9 | 5.9 | 1.2 | 2.0833 | 0.1085 | 0.8630 | 0.0370 | 0.6782 |
| 0608-163Br - 25 | 1.8 | 5.4 | 1.1 | 2.1552 | 0.1254 | 0.9240 | 0.0440 | 0.5234 |
| 0608-163Br - 27 | 2.1 | 5.9 | 1.2 | 2.4570 | 0.1570 | 0.8580 | 0.0450 | 0.4755 |
| 0608-163Br - 28 | 1.6 | 5.7 | 1.1 | 2.5381 | 0.1353 | 0.8610 | 0.0470 | 0.4821 |
| 0608-163Br - 29 | 1.5 | 4.5 | 1.0 | 2.4876 | 0.1733 | 0.9370 | 0.0560 | 0.6714 |
| 0608-163Br - 3 | 2.0 | 6.0 | 1.2 | 2.3095 | 0.1173 | 0.9370 | 0.0420 | 0.5320 |
| 0608-163Br - 30 | 2.0 | 6.9 | 1.3 | 3.3333 | 0.1889 | 0.8970 | 0.0480 | 0.5326 |
| 0608-163Br - 31 | 1.8 | 5.7 | 1.1 | 2.7100 | 0.1763 | 0.9290 | 0.0550 | 0.4871 |
| 0608-163Br - 4 | 1.7 | 6.4 | 1.3 | 2.9586 | 0.1488 | 0.8480 | 0.0380 | 0.4739 |
| 0608-163Br - 5 | 1.7 | 4.1 | 0.8 | 2.2779 | 0.1557 | 0.8920 | 0.0500 | 0.7085 |
| 0608-163Br - 7 | 1.8 | 7.6 | 1.6 | 2.7548 | 0.1442 | 0.8790 | 0.0390 | 0.5772 |
| 0608-163Br - 8 | 2.3 | 6.0 | 1.3 | 2.3641 | 0.1230 | 0.8160 | 0.0360 | 0.3331 |
| 0608-163Br - 9 | 2.3 | 6.2 | 1.3 | 2.1834 | 0.1049 | 0.8810 | 0.0330 | 0.4790 |
| 0608-163Br- 1 | 2.6 | 6.5 | 1.4 | 2.2936 | 0.1157 | 0.9090 | 0.0390 | 0.6317 |
| 0608-163Br- 20 | 1.4 | 6.5 | 1.2 | 2.6882 | 0.1445 | 0.9010 | 0.0480 | 0.4541 |
| 0608-163Br- 23 | 0.9 | 5.3 | 1.0 | 2.0284 | 0.1152 | 0.8770 | 0.0390 | 0.4726 |
| 0608-163Br- 6 | 47.4 | 8.4 | 1.5 | 0.1031 | 0.0138 | 0.9310 | 0.0280 | 0.2331 |
| 0608-163Br - 19 | 1.3 | 5.7 | 1.1 | 2.4450 | 0.1136 | 0.8820 | 0.0460 | 0.4126 |
| 0608-165B - 1 | 1.6 | 6.7 | 1.2 | 2.5641 | 0.1183 | 0.8890 | 0.0290 | 0.6356 |
| 0608-165B - 11 | 1.9 | 7.6 | 1.4 | 2.4213 | 0.1700 | 0.8870 | 0.1300 | 0.5006 |
| 0608-165B - 12 | 2.1 | 7.1 | 1.4 | 2.5000 | 0.1000 | 0.8800 | 0.0250 | 0.4613 |
| **0608-165B - 13** | **2.0** | **6.3** | **1.2** | **1.9493** | **0.0722** | **0.8930** | **0.0240** | **0.4453** |
| **0608-165B - 14** | **2.3** | **6.3** | **1.2** | **1.9048** | **0.0798** | **0.8790** | **0.0260** | **0.1758** |
| **0608-165B - 2** | **1.8** | **5.7** | **1.3** | **2.4938** | **0.0995** | **0.8750** | **0.0350** | **0.6521** |
| **0608-165B - 3** | **1.8** | **6.6** | **1.3** | **2.4390** | **0.0833** | **0.8690** | **0.0290** | **0.3871** |
| **0608-165B - 4** | **2.0** | **6.8** | **1.3** | **2.3923** | **0.1030** | **0.8760** | **0.0290** | **0.6304** |
| **0608-165B - 6** | **2.5** | **9.0** | **1.7** | **2.4272** | **0.1002** | **0.8650** | **0.0250** | **0.4778** |
| 0608-165B - 7 | 2.3 | 5.8 | 1.1 | 2.2727 | 0.1498 | 0.8950 | 0.0530 | 0.1433 |
| 0608-165B - 8 | 1.5 | 7.6 | 1.9 | 4.3290 | 0.2249 | 0.8360 | 0.0330 | 0.5884 |
| 0608-165B - 9 | 2.0 | 7.1 | 1.4 | 2.4450 | 0.0956 | 0.9150 | 0.0300 | 0.6686 |
| 0608-165B - 1 | 1.3 | 9.1 | 1.4 | 2.6738 | 0.1144 | 0.8870 | 0.0280 | 0.5840 |
| **0608-165B - 10** | **1.1** | **5.3** | **0.8** | **2.0121** | **0.1012** | **0.8860** | **0.0390** | **0.5276** |
| 0608-165B - 11 | 3.5 | 6.9 | 1.3 | 1.3569 | 0.9205 | 0.8910 | 0.0540 | 0.5863 |
| **0608-165B - 15- 1** | **1.4** | **8.1** | **1.3** | **2.9155** | **0.1700** | **0.8500** | **0.0250** | **0.3625** |
| 0608-165B – 15-2 | 39.8 | 3.3 | 1.7 | 0.1499 | 0.0128 | 0.8460 | 0.0290 | 0.2210 |
| 0608-165B - 15- 3 | 2.0 | 6.3 | 1.3 | 2.0576 | 0.1355 | 0.8460 | 0.0670 | 0.5524 |
| **0608\_165B - 15-4** | **1.7** | **5.6** | **1.1** | **2.3095** | **0.1067** | **0.8810** | **0.0310** | **0.6197** |
| 0608\_165B - 16- 1 | 1.8 | 8.1 | 1.4 | 2.4155 | 0.1109 | 0.8850 | 0.0310 | 0.6282 |
| 0608\_165B – 16-2 | 1.6 | 10.9 | 1.2 | 2.7397 | 0.9007 | 0.8590 | 0.2500 | 0.5727 |
| 0608\_165B – 17 - 1 | 1.8 | 6.9 | 1.3 | 2.7100 | 0.1175 | 0.8780 | 0.0260 | 0.5802 |
| 0608\_165B – 17-2 | 4.3 | 11.3 | 1.6 | 1.2484 | 0.1294 | 0.9320 | 0.0250 | 0.5175 |
| **0608\_165B - 18 - 1** | **1.5** | **7.5** | **1.3** | **2.5510** | **0.9111** | **0.8690** | **0.0320** | **0.3225** |
| 0608\_165B – 18-2 | 1.4 | 6.1 | 1.2 | 2.3148 | 0.0911 | 0.8780 | 0.0290 | 0.6825 |
| 0608\_165B – 19 - 1 | 44.5 | 2.7 | 1.9 | 0.1269 | 0.0225 | 0.8500 | 0.0210 | 0.0804 |
| 0608\_165B – 19 – 2 | 2.9 | 6.3 | 1.1 | 1.4493 | 0.7561 | 0.9100 | 0.0240 | 0.0700 |
| ~~0608\_165B - 20~~ | ~~2.4~~ | ~~10.3~~ | ~~2.0~~ | 2.9155 | 1.0200 | 0.8510 | 0.0490 | 0.3240 |
| **0608\_165B - 21** | **1.9** | **59.8** | **4.6** | **7.4460** | **0.2495** | **0.7280** | **0.0250** | **0.3690** |
| 0608\_165B - 22 | 3.3 | 6.4 | 1.1 | 1.2610 | 0.2226 | 0.8540 | 0.0500 | 0.3839 |
| 0608\_165B - 23 | 46.3 | 2.9 | 1.7 | 0.1076 | 0.0107 | 0.8590 | 0.0200 | 0.0998 |
| 0608\_165B - 24 | 3.9 | 6.7 | 1.4 | 1.1249 | 0.0886 | 0.8490 | 0.0700 | 0.4602 |
| 0608\_165B - 25 | 45.9 | 2.9 | 1.9 | 0.1147 | 0.0096 | 0.8600 | 0.0180 | 0.2544 |
| 0608\_165B - 26 | 5.4 | 6.8 | 1.4 | 0.8547 | 0.4091 | 0.9090 | 0.0220 | 0.7702 |
| 0608\_165B - 28 | 38.4 | 20.4 | 2.6 | 0.2208 | 0.0258 | 0.9460 | 0.0240 | 0.3672 |
| 0608\_165B - 29 | 1.7 | 6.6 | 1.3 | 2.5510 | 0.2798 | 0.8780 | 0.1800 | 0.4593 |
| 0608\_165B - 32 | 2.0 | 9.3 | 2.1 | 3.3898 | 0.2068 | 0.8440 | 0.0260 | -0.0285 |
| **0608\_165B - 33** | **1.9** | **7.8** | **1.5** | **2.6042** | **0.1221** | **0.8530** | **0.0240** | **0.5617** |
| **0608\_165B - 34** | **2.0** | **7.5** | **1.4** | **2.8329** | **0.1124** | **0.8620** | **0.0290** | **0.4793** |
| **0608\_165B - 35** | **1.7** | **10.5** | **1.8** | **3.7313** | **0.1532** | **0.8070** | **0.0300** | **0.3298** |
| **0608\_165B - 36** | **1.1** | **12.6** | **2.3** | **6.0976** | **0.4462** | **0.7610** | **0.0330** | **-0.1446** |
| **0608\_165B - 37** | **2.0** | **8.5** | **1.4** | **2.3310** | **0.0924** | **0.8810** | **0.0260** | **0.4293** |
| 0608\_165B - 4 | 1.4 | 6.7 | 1.1 | 2.2779 | 0.1090 | 0.9410 | 0.0820 | -0.0653 |
| 0608\_165B - 40 | 2.4 | 5.9 | 0.9 | 1.4124 | 0.0898 | 0.9200 | 0.0310 | 0.2893 |
| 0608\_165B - 42 | 0.9 | 4.6 | 0.8 | 2.8169 | 0.1349 | 0.9010 | 0.0350 | 0.2261 |
| 0608\_165B - 44 | 1.5 | 7.1 | 1.1 | 2.5510 | 0.1041 | 0.8830 | 0.0280 | 0.4557 |
| 0608\_165B - 46 | 37.7 | 3.2 | 1.7 | 0.1513 | 0.0119 | 0.8480 | 0.0220 | 0.0840 |
| 0608\_165B - 48 | 49.7 | 4.2 | 2.0 | 0.1429 | 0.0120 | 0.8490 | 0.0200 | 0.3033 |
| **0608\_165B - 49** | **1.4** | **13.2** | **1.8** | **3.6697** | **0.1481** | **0.8420** | **0.0320** | **0.4137** |
| 0608\_165B - 5\_1 | 1.6 | 6.5 | 1.3 | 2.4331 | 0.0829 | 0.9170 | 0.0290 | 0.4845 |
| **0608\_165B - 5 - 1** | **2.3** | **67.8** | **3.8** | **4.4484** | **0.1484** | **0.8240** | **0.0210** | **0.4837** |
| **0608\_165B - 50** | **1.7** | **5.8** | **1.3** | **2.3641** | **0.1453** | **0.8750** | **0.0320** | **0.4012** |
| 0608\_165B - 51 | 1.4 | 6.3 | 1.1 | 2.9674 | 0.1321 | 0.8700 | 0.0330 | 0.5456 |
| 0608\_165B - 52 | 1.1 | 5.4 | 0.9 | 3.1447 | 0.1384 | 0.8710 | 0.0340 | 0.5507 |
| **0608\_165B - 6** | **5.4** | **11.0** | **2.0** | **1.1947** | **0.0528** | **0.8800** | **0.0180** | **0.1091** |
| 0608\_165B - 7 | 1.4 | 12.4 | 1.1 | 2.2573 | 0.0917 | 0.8990 | 0.0310 | 0.5907 |
| **0608\_162A - 1 - 1** | **3.7** | **20.5** | **2.1** | **1.8248** | **0.0699** | **0.8910** | **0.0230** | **0.3287** |
| 0608\_162A -\_2 - 1 | 2.4 | 6.0 | 1.2 | 1.0101 | 0.2143 | 0.8900 | 0.1500 | 0.5980 |
| **0608\_162A - \_3 - 1** | **3.0** | **5.0** | **0.8** | **0.4587** | **0.1620** | **0.8990** | **0.0460** | **0.1884** |
| **0608\_162A - 2** | **1.8** | **6.6** | **1.2** | **2.6385** | **0.1253** | **0.8550** | **0.0390** | **0.8260** |
| **0608\_162A - 9** | **6.2** | **9.0** | **1.5** | **1.6260** | **0.1639** | **0.9000** | **0.0390** | **-0.0020** |
| **0608\_163A - 2** | **1.4** | **4.6** | **0.8** | **0.9690** | **0.0657** | **0.9040** | **0.0220** | **0.0624** |
| **0608\_163A- 3** | **2.7** | **7.5** | **1.5** | **2.1786** | **0.0570** | **0.8820** | **0.0210** | **0.5510** |
| Manic\_16A – 5 | 97.4 | 0.1 | 0.0 | 2.2472 | 0.0808 | 0.8730 | 0.0230 | 0.3786 |
| **0608\_163A - 6** | **3.0** | **8.9** | **1.8** | **1.4970** | **0.0403** | **0.8920** | **0.0240** | **0.4532** |
| Manic\_163A - 7 | 99.2 | 12.0 | 2.0 | 2.0877 | 0.0872 | 0.8750 | 0.0260 | 0.4314 |
| **0608\_163A – 9** | **2.3** | **6.3** | **1.2** | **2.0747** | **0.0473** | **0.8780** | **0.0190** | **0.5640** |
| **0608\_16A - 3b**  | **2.3** | **15.7** | **2.2** | **1.7921** | **0.0578** | **0.8840** | **0.0230** | **0.5009** |
| 0608\_163A – 1b  | 3.4 | 4.5 | 0.9 | 2.5445 | 0.0842 | 0.8700 | 0.0300 | 0.5899 |
| **0608\_165A - 10a**  | **2.2** | **11.7** | **2.1** | **2.2422** | **0.0754** | **0.8820** | **0.0250** | **0.3475** |
| 0608\_165A - 10b | 74.1 | 3.0 | 2.3 | 0.8621 | 0.0966 | 0.8990 | 0.0510 | 0.1530 |
| 0608\_165A - 11a | 71.2 | 3.0 | 1.7 | 2.9674 | 0.1673 | 0.8580 | 0.0390 | 0.6141 |
| **0608\_165A - 11b** | **2.3** | **6.6** | **1.3** | **1.9724** | **0.0700** | **0.8770** | **0.0250** | **0.2876** |
| **0608\_165A – 13** | **1.7** | **6.9** | **12.4** | **13.0548** | **0.4602** | **0.5530** | **0.0210** | **0.5695** |
| **0608\_165A- 15a** | **4.5** | **6.5** | **1.4** | **2.2831** | **0.0678** | **0.8640** | **0.0200** | **0.4268** |
| **0608\_165A - 15b** | **6.5** | **6.3** | **1.1** | **2.5000** | **0.0938** | **0.8630** | **0.0240** | **0.4669** |
| **0608\_165A - 16a** | **2.3** | **9.9** | **1.2** | **2.2124** | **0.0587** | **0.8740** | **0.0220** | **0.5259** |
| **0608\_165A – 4b** | **1.9** | **98.3** | **9.1** | **4.6860** | **0.1932** | **0.7770** | **0.0370** | **0.5189** |
| **0608\_165A - 4a** | **4.4** | **5.6** | **0.9** | **0.5747** | **0.0661** | **0.9000** | **0.0690** | **0.1282** |
| **0608\_165A - 6** | **1.9** | **8.1** | **1.3** | **2.5806** | **0.0733** | **0.8700** | **0.0170** | **0.4786** |
| **0608\_165A - 8** | **2.0** | **7.0** | **1.4** | **2.2831** | **0.0782** | **0.8590** | **0.0200** | **0.3234** |
| 0608\_165A - 9 | 13.8 | 6.0 | 1.3 | 0.4386 | 0.0231 | 0.9180 | 0.0300 | 0.5788 |
| **0608\_165A – 1c** | **2.2** | **6.4** | **1.3** | **2.4038** | **0.1098** | **0.8420** | **0.0420** | **0.5818** |
| 0608\_165A - 1a | 21.7 | 7.6 | 2.6 | 2.6882 | 0.1156 | 0.8700 | 0.0380 | 0.0274 |
| **0608\_165A - 20** | **2.3** | **5.8** | **1.2** | **1.2903** | **0.0466** | **0.9010** | **0.0260** | **0.2902** |
| *Data rows bold and highlighted grey used for final age calculation. All data uncorrected for common Pb.* |