|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Supplementary Table 1 Zircon U-Pb dating and zircon in-situ Hf isotope analysis for the studied felsic lava | | | | | | | | | | | | | | |  |  |  |  |  |
| Spot no. | Th | U | Th/U | Ratios | | | | | |  | Age | | | |  |  |  |  |  |
| (ppm) | (ppm) | 207Pb/206Pb | ±1sigma | 207Pb/235U | ±1sigma | 206Pb/238U | ±1sigma |  | 207Pb/235U | ±1sigma | 206Pb/238U | ±1sigma | 176Lu/177Hf | 2σ | 176Hf/177Hf | 2σ | εHf(t) |
| 10KMZ01-6-01 | 47.0 | 96.7 | 0.5 | 0.0760 | 0.0023 | 1.8250 | 0.0563 | 0.1747 | 0.0023 |  | 1054 | 20 | 1038 | 13 |  |  |  |  |  |
| 10KMZ01-6-02 | 162 | 172 | 0.9 | 0.0761 | 0.0017 | 1.7880 | 0.0417 | 0.1707 | 0.0022 |  | 1041 | 15 | 1016 | 12 |  |  |  |  |  |
| 10KMZ01-6-03 | 47.0 | 89.1 | 0.5 | 0.0744 | 0.0020 | 1.7910 | 0.0484 | 0.1747 | 0.0024 |  | 1042 | 18 | 1038 | 13 |  |  |  |  |  |
| 10KMZ01-6-04 | 123 | 206 | 0.6 | 0.0740 | 0.0015 | 1.7413 | 0.0383 | 0.1703 | 0.0021 |  | 1024 | 14 | 1014 | 11 | 0.001314 | 0.000013 | 0.282298 | 0.000007 | 5.1 |
| 10KMZ01-6-06 | 107 | 155 | 0.7 | 0.0750 | 0.0018 | 1.7823 | 0.0440 | 0.1724 | 0.0026 |  | 1039 | 16 | 1026 | 14 | 0.001010 | 0.000007 | 0.282367 | 0.000009 | 7.7 |
| 10KMZ01-6-08 | 539 | 627 | 0.9 | 0.0751 | 0.0014 | 1.8199 | 0.0331 | 0.1753 | 0.0019 |  | 1053 | 12 | 1041 | 10 |  |  |  |  |  |
| 10KMZ01-6-11 | 106 | 158 | 0.7 | 0.0732 | 0.0017 | 1.7427 | 0.0441 | 0.1716 | 0.0022 |  | 1024 | 16 | 1021 | 12 | 0.001798 | 0.000029 | 0.282358 | 0.000007 | 6.8 |
| 10KMZ01-6-12 | 133 | 217 | 0.6 | 0.0722 | 0.0015 | 1.7327 | 0.0377 | 0.1736 | 0.0022 |  | 1021 | 14 | 1032 | 12 | 0.001150 | 0.000007 | 0.282317 | 0.000008 | 5.9 |
| 10KMZ01-6-13 | 67.9 | 133 | 0.5 | 0.0718 | 0.0020 | 1.7349 | 0.0449 | 0.1757 | 0.0024 |  | 1022 | 17 | 1044 | 13 |  |  |  |  |  |
| 10KMZ01-6-14 | 303 | 387 | 0.8 | 0.0733 | 0.0013 | 1.7820 | 0.0327 | 0.1758 | 0.0021 |  | 1039 | 12 | 1044 | 12 |  |  |  |  |  |
| 10KMZ01-6-15 | 148 | 230 | 0.6 | 0.0704 | 0.0014 | 1.6667 | 0.0340 | 0.1712 | 0.0021 |  | 996 | 13 | 1019 | 12 |  |  |  |  |  |
| 10KMZ01-6-16 | 170 | 256 | 0.7 | 0.0710 | 0.0014 | 1.6950 | 0.0342 | 0.1723 | 0.0020 |  | 1007 | 13 | 1025 | 11 |  |  |  |  |  |
| 10KMZ01-6-17 | 63.0 | 133 | 0.5 | 0.0727 | 0.0018 | 1.7186 | 0.0406 | 0.1720 | 0.0022 |  | 1016 | 15 | 1023 | 12 | 0.001792 | 0.000032 | 0.282369 | 0.000007 | 7.2 |
| 10KMZ01-6-18 | 181 | 234 | 0.8 | 0.0724 | 0.0016 | 1.7174 | 0.0378 | 0.1717 | 0.0021 |  | 1015 | 14 | 1022 | 12 |  |  |  |  |  |
| 10KMZ01-6-19 | 113 | 201 | 0.6 | 0.0711 | 0.0016 | 1.7049 | 0.0388 | 0.1738 | 0.0022 |  | 1010 | 15 | 1033 | 12 | 0.000950 | 0.000002 | 0.282293 | 0.000007 | 5.1 |
| 10KMZ01-6-20 | 133 | 203 | 0.7 | 0.0735 | 0.0017 | 1.6973 | 0.0410 | 0.1670 | 0.0019 |  | 1008 | 15 | 996 | 10 |  |  |  |  |  |
| 10KMZ01-6-21 | 87.0 | 167 | 0.5 | 0.0714 | 0.0015 | 1.7221 | 0.0372 | 0.1749 | 0.0022 |  | 1017 | 14 | 1039 | 12 | 0.000951 | 0.000009 | 0.282347 | 0.000008 | 7.1 |
| 10KMZ01-6-22 | 240 | 295 | 0.8 | 0.0754 | 0.0015 | 1.7157 | 0.0336 | 0.1652 | 0.0019 |  | 1014 | 13 | 986 | 11 | 0.001339 | 0.000021 | 0.282339 | 0.000009 | 6.5 |
| 10KMZ01-6-23 | 101 | 144 | 0.7 | 0.0742 | 0.0021 | 1.7985 | 0.0499 | 0.1762 | 0.0027 |  | 1045 | 18 | 1046 | 15 | 0.001841 | 0.000012 | 0.282328 | 0.000009 | 5.8 |
| 10KMZ01-6-24 | 69.7 | 145 | 0.5 | 0.0727 | 0.0017 | 1.7586 | 0.0407 | 0.1755 | 0.0023 |  | 1030 | 15 | 1043 | 12 | 0.001373 | 0.000003 | 0.282347 | 0.000007 | 6.7 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 10WDH01-1-01 | 239 | 368 | 0.6 | 0.0977 | 0.0023 | 3.5064 | 0.0858 | 0.2588 | 0.0028 |  | 1529 | 19 | 1484 | 14 |  |  |  |  |  |
| 10WDH01-1-02 | 101 | 284 | 0.4 | 0.1275 | 0.0027 | 5.8968 | 0.1287 | 0.3337 | 0.0034 |  | 1961 | 19 | 1857 | 16 |  |  |  |  |  |
| 10WDH01-1-03 | 73.4 | 133 | 0.6 | 0.0838 | 0.0032 | 1.9897 | 0.0685 | 0.1737 | 0.0023 |  | 1112 | 23 | 1032 | 12 |  |  |  |  |  |
| 10WDH01-1-05 | 75.9 | 256 | 0.3 | 0.0754 | 0.0025 | 1.8052 | 0.0620 | 0.1733 | 0.0025 |  | 1047 | 22 | 1030 | 14 |  |  |  |  |  |
| 10WDH01-1-06 | 88.6 | 144 | 0.6 | 0.0761 | 0.0030 | 1.7910 | 0.0727 | 0.1693 | 0.0024 |  | 1042 | 26 | 1008 | 13 |  |  |  |  |  |
| 10WDH01-1-07 | 67.6 | 137 | 0.5 | 0.0885 | 0.0039 | 2.1381 | 0.0928 | 0.1747 | 0.0029 |  | 1161 | 30 | 1038 | 16 |  |  |  |  |  |
| 10WDH01-1-08 | 221 | 283 | 0.8 | 0.0985 | 0.0026 | 3.9675 | 0.1063 | 0.2909 | 0.0033 |  | 1628 | 22 | 1646 | 17 |  |  |  |  |  |
| 10WDH01-1-09 | 65.3 | 122 | 0.5 | 0.0771 | 0.0030 | 1.8278 | 0.0702 | 0.1723 | 0.0023 |  | 1055 | 25 | 1025 | 13 |  |  |  |  |  |
| 10WDH01-1-10 | 105 | 342 | 0.3 | 0.1037 | 0.0024 | 4.5639 | 0.1101 | 0.3186 | 0.0042 |  | 1743 | 20 | 1783 | 21 |  |  |  |  |  |
| 10WDH01-1-11 | 53.1 | 113 | 0.5 | 0.0769 | 0.0029 | 1.8322 | 0.0684 | 0.1730 | 0.0025 |  | 1057 | 25 | 1029 | 14 |  |  |  |  |  |
| 10WDH01-1-12 | 423 | 381 | 1.1 | 0.0832 | 0.0022 | 2.6123 | 0.0724 | 0.2272 | 0.0027 |  | 1304 | 20 | 1320 | 14 |  |  |  |  |  |
| 10WDH01-1-15 | 111 | 215 | 0.5 | 0.1062 | 0.0026 | 4.5517 | 0.1170 | 0.3091 | 0.0035 |  | 1740 | 21 | 1736 | 17 |  |  |  |  |  |
| 10WDH01-1-16 | 41.7 | 104 | 0.4 | 0.0684 | 0.0029 | 1.6026 | 0.0643 | 0.1712 | 0.0023 |  | 971 | 25 | 1019 | 13 |  |  |  |  |  |
| 10WDH01-1-17 | 509 | 282 | 1.8 | 0.0996 | 0.0027 | 3.7220 | 0.1012 | 0.2694 | 0.0033 |  | 1576 | 22 | 1538 | 17 |  |  |  |  |  |
| 10WDH01-1-18 | 133 | 327 | 0.4 | 0.0897 | 0.0026 | 3.0552 | 0.0895 | 0.2454 | 0.0034 |  | 1422 | 22 | 1415 | 18 |  |  |  |  |  |
| 10WDH01-1-19 | 215 | 257 | 0.8 | 0.0816 | 0.0025 | 2.1373 | 0.0650 | 0.1888 | 0.0021 |  | 1161 | 21 | 1115 | 12 |  |  |  |  |  |
| 10WDH01-1-20 | 40.5 | 87.6 | 0.5 | 0.0827 | 0.0030 | 1.9518 | 0.0728 | 0.1703 | 0.0025 |  | 1099 | 25 | 1014 | 14 |  |  |  |  |  |
| 10WDH01-1-21 | 124 | 135 | 0.9 | 0.1020 | 0.0028 | 3.9217 | 0.1092 | 0.2773 | 0.0032 |  | 1618 | 23 | 1578 | 16 |  |  |  |  |  |
| 10WDH01-1-22 | 45.4 | 110 | 0.4 | 0.0836 | 0.0031 | 2.0159 | 0.0779 | 0.1743 | 0.0026 |  | 1121 | 26 | 1036 | 14 |  |  |  |  |  |
| 10WDH01-1-24 | 30.0 | 79.8 | 0.4 | 0.0813 | 0.0041 | 1.8869 | 0.0937 | 0.1697 | 0.0030 |  | 1076 | 33 | 1011 | 17 |  |  |  |  |  |
| 10WDH01-1-25 | 70.0 | 137 | 0.5 | 0.0695 | 0.0026 | 1.7186 | 0.0653 | 0.1796 | 0.0027 |  | 1015 | 24 | 1065 | 15 |  |  |  |  |  |
| 10WDH01-1-26 | 126 | 231 | 0.5 | 0.0979 | 0.0026 | 3.4440 | 0.0953 | 0.2548 | 0.0037 |  | 1514 | 22 | 1463 | 19 |  |  |  |  |  |
| 10WDH01-1-27 | 163 | 194 | 0.8 | 0.0991 | 0.0025 | 3.7085 | 0.1039 | 0.2688 | 0.0033 |  | 1573 | 22 | 1535 | 17 |  |  |  |  |  |
| 10WDH01-1-29 | 27.7 | 78.3 | 0.4 | 0.0837 | 0.0037 | 2.0358 | 0.0909 | 0.1763 | 0.0026 |  | 1128 | 30 | 1047 | 14 |  |  |  |  |  |
| 10WDH01-1-30 | 47.8 | 115 | 0.4 | 0.0763 | 0.0032 | 1.7918 | 0.0710 | 0.1707 | 0.0022 |  | 1042 | 26 | 1016 | 12 |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 10HCQ1-1-1 | 142 | 190 | 0.7 | 0.0876 | 0.0028 | 2.6722 | 0.0867 | 0.2205 | 0.0045 |  | 1321 | 24 | 1285 | 24 |  |  |  |  |  |
| 10HCQ1-1-6 | 123 | 236 | 0.5 | 0.0941 | 0.0031 | 3.3459 | 0.1184 | 0.2575 | 0.0062 |  | 1492 | 28 | 1477 | 32 |  |  |  |  |  |
| 10HCQ1-1-11 | 44.0 | 244 | 0.2 | 0.1086 | 0.0018 | 4.6628 | 0.1136 | 0.3087 | 0.0066 |  | 1761 | 20 | 1734 | 33 | 0.000767 | 0.000007 | 0.281676 | 0.000010 | -0.1 |
| 10HCQ1-1-12 | 34.4 | 89.6 | 0.4 | 0.0739 | 0.0031 | 1.7352 | 0.0731 | 0.1720 | 0.0037 |  | 1022 | 27 | 1023 | 20 |  |  |  |  |  |
| 10HCQ1-1-13 | 41.6 | 102 | 0.4 | 0.0771 | 0.0030 | 1.8124 | 0.0681 | 0.1702 | 0.0025 |  | 1050 | 25 | 1013 | 14 |  |  |  |  |  |
| 10HCQ1-1-14 | 68.7 | 262 | 0.3 | 0.0758 | 0.0018 | 1.8116 | 0.0466 | 0.1718 | 0.0018 |  | 1050 | 17 | 1022 | 10 |  |  |  |  |  |
| 10HCQ1-1-15 | 93.4 | 255 | 0.4 | 0.0721 | 0.0018 | 1.7018 | 0.0423 | 0.1701 | 0.0017 |  | 1009 | 16 | 1013 | 9 |  |  |  |  |  |
| 10HCQ1-1-16 | 48.1 | 132 | 0.4 | 0.1166 | 0.0028 | 5.3757 | 0.1285 | 0.3327 | 0.0040 |  | 1881 | 20 | 1852 | 19 |  |  |  |  |  |
| 10HCQ1-1-18 | 108 | 169 | 0.6 | 0.0971 | 0.0028 | 3.2537 | 0.0990 | 0.2429 | 0.0046 |  | 1470 | 24 | 1402 | 24 |  |  |  |  |  |
| 10HCQ1-1-19 | 86.9 | 260 | 0.3 | 0.0736 | 0.0024 | 1.7468 | 0.0572 | 0.1713 | 0.0023 |  | 1026 | 21 | 1019 | 13 |  |  |  |  |  |
| 10HCQ1-1-20 | 71.1 | 142 | 0.5 | 0.0851 | 0.0038 | 2.0224 | 0.0936 | 0.1708 | 0.0024 |  | 1123 | 31 | 1017 | 13 |  |  |  |  |  |
| 10HCQ1-1-21 | 95.9 | 201 | 0.5 | 0.1040 | 0.0024 | 4.6274 | 0.1157 | 0.3200 | 0.0037 |  | 1754 | 21 | 1790 | 18 |  |  |  |  |  |
| 10HCQ1-1-22 | 43.8 | 116 | 0.4 | 0.0710 | 0.0032 | 1.6732 | 0.0773 | 0.1705 | 0.0027 |  | 998 | 29 | 1015 | 15 |  |  |  |  |  |
| 10HCQ1-1-23 | 50.9 | 126 | 0.4 | 0.0714 | 0.0025 | 1.7051 | 0.0608 | 0.1735 | 0.0029 |  | 1010 | 23 | 1031 | 16 |  |  |  |  |  |
| 10HCQ1-1-24 | 43.8 | 104 | 0.4 | 0.0769 | 0.0035 | 1.7901 | 0.0801 | 0.1706 | 0.0027 |  | 1042 | 29 | 1016 | 15 | 0.000837 | 0.000002 | 0.281971 | 0.000007 | -6.4 |
| 10HCQ1-1-25 | 58.7 | 159 | 0.4 | 0.0722 | 0.0026 | 1.7892 | 0.0652 | 0.1787 | 0.0025 |  | 1042 | 24 | 1060 | 14 |  |  |  |  |  |
| 10HCQ1-1-26 | 37.1 | 97.7 | 0.4 | 0.0749 | 0.0032 | 1.7454 | 0.0749 | 0.1699 | 0.0026 |  | 1025 | 28 | 1011 | 14 |  |  |  |  |  |
| 10HCQ1-1-27 | 48.7 | 123 | 0.4 | 0.0784 | 0.0031 | 1.8509 | 0.0740 | 0.1705 | 0.0022 |  | 1064 | 26 | 1015 | 12 |  |  |  |  |  |
| 10HCQ1-1-28 | 143 | 86.7 | 1.7 | 0.1007 | 0.0033 | 3.9457 | 0.1295 | 0.2843 | 0.0040 |  | 1623 | 27 | 1613 | 20 |  |  |  |  |  |
| 10HCQ1-1-29 | 85.2 | 278 | 0.3 | 0.0723 | 0.0019 | 1.6971 | 0.0467 | 0.1694 | 0.0018 |  | 1007 | 18 | 1009 | 10 | 0.000256 | 0.000010 | 0.282171 | 0.000007 | 0.9 |
| 10HCQ1-1-30 | 36.3 | 92.9 | 0.4 | 0.0723 | 0.0031 | 1.6961 | 0.0745 | 0.1707 | 0.0024 |  | 1007 | 28 | 1016 | 13 | 0.000868 | 0.000004 | 0.282068 | 0.000008 | -3.0 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 10XSX-02-4-01 | 498 | 524 | 1.0 | 0.0698 | 0.0011 | 1.6387 | 0.0267 | 0.1701 | 0.0011 |  | 985 | 10 | 1013 | 6 | 0.002914 | 0.000005 | 0.282605 | 0.000010 | 14.7 |
| 10XSX-02-4-02 | 93.1 | 184 | 0.5 | 0.0721 | 0.0014 | 1.7099 | 0.0353 | 0.1718 | 0.0014 |  | 1012 | 13 | 1022 | 7 | 0.001447 | 0.000018 | 0.282491 | 0.000009 | 11.7 |
| 10XSX-02-4-03 | 388 | 420 | 0.9 | 0.0707 | 0.0011 | 1.6677 | 0.0279 | 0.1707 | 0.0012 |  | 996 | 11 | 1016 | 7 | 0.003231 | 0.000016 | 0.282613 | 0.000009 | 14.8 |
| 10XSX-02-4-04 | 133 | 162 | 0.8 | 0.0716 | 0.0016 | 1.6857 | 0.0384 | 0.1707 | 0.0014 |  | 1003 | 15 | 1016 | 8 | 0.002286 | 0.000007 | 0.282551 | 0.000011 | 13.2 |
| 10XSX-02-4-05 | 335 | 593 | 0.6 | 0.0712 | 0.0012 | 1.6642 | 0.0286 | 0.1691 | 0.0012 |  | 995 | 11 | 1007 | 7 | 0.002471 | 0.000003 | 0.282537 | 0.000010 | 12.6 |
| 10XSX-02-4-06 | 497 | 426 | 1.2 | 0.0721 | 0.0013 | 1.7072 | 0.0296 | 0.1717 | 0.0013 |  | 1011 | 11 | 1022 | 7 | 0.002096 | 0.000029 | 0.282542 | 0.000010 | 13.0 |
| 10XSX-02-4-08 | 593 | 499 | 1.2 | 0.0723 | 0.0011 | 1.6872 | 0.0269 | 0.1689 | 0.0011 |  | 1004 | 10 | 1006 | 6 | 0.002446 | 0.000004 | 0.282543 | 0.000010 | 12.8 |
| 10XSX-02-4-09 | 150 | 314 | 0.5 | 0.0753 | 0.0013 | 1.7728 | 0.0310 | 0.1705 | 0.0013 |  | 1036 | 11 | 1015 | 7 | 0.002035 | 0.000007 | 0.282548 | 0.000010 | 13.3 |
| 10XSX-02-4-10 | 104 | 223 | 0.5 | 0.0745 | 0.0014 | 1.7256 | 0.0344 | 0.1680 | 0.0015 |  | 1018 | 13 | 1001 | 8 |  |  |  |  |  |
| 10XSX-02-4-11 | 46.1 | 83.2 | 0.6 | 0.0754 | 0.0021 | 1.7633 | 0.0458 | 0.1704 | 0.0017 |  | 1032 | 17 | 1015 | 9 | 0.000981 | 0.000005 | 0.282469 | 0.000012 | 11.2 |
| 10XSX-02-4-12 | 812 | 556 | 1.5 | 0.0745 | 0.0012 | 1.7753 | 0.0290 | 0.1725 | 0.0012 |  | 1036 | 11 | 1026 | 6 |  |  |  |  |  |
| 10XSX-02-4-13 | 860 | 630 | 1.4 | 0.0751 | 0.0012 | 1.8184 | 0.0308 | 0.1750 | 0.0015 |  | 1052 | 11 | 1040 | 8 |  |  |  |  |  |
| 10XSX-02-4-14 | 417 | 458 | 0.9 | 0.0733 | 0.0011 | 1.7370 | 0.0276 | 0.1714 | 0.0011 |  | 1022 | 10 | 1020 | 6 |  |  |  |  |  |
| 10XSX-02-4-15 | 41.6 | 87.7 | 0.5 | 0.0734 | 0.0021 | 1.7478 | 0.0479 | 0.1734 | 0.0018 |  | 1026 | 18 | 1031 | 10 |  |  |  |  |  |
| 10XSX-02-4-16 | 67.7 | 132 | 0.5 | 0.0729 | 0.0018 | 1.7590 | 0.0451 | 0.1751 | 0.0019 |  | 1030 | 17 | 1040 | 10 |  |  |  |  |  |
| 10XSX-02-4-17 | 192 | 290 | 0.7 | 0.0722 | 0.0012 | 1.7442 | 0.0316 | 0.1747 | 0.0015 |  | 1025 | 12 | 1038 | 8 |  |  |  |  |  |
| 10XSX-02-4-18 | 315 | 337 | 0.9 | 0.0715 | 0.0013 | 1.6770 | 0.0317 | 0.1696 | 0.0013 |  | 1000 | 12 | 1010 | 7 |  |  |  |  |  |
| 10XSX-02-4-19 | 324 | 292 | 1.1 | 0.0712 | 0.0013 | 1.6810 | 0.0324 | 0.1709 | 0.0014 |  | 1001 | 12 | 1017 | 8 |  |  |  |  |  |
| 10XSX-02-4-20 | 187 | 349 | 0.5 | 0.0703 | 0.0012 | 1.6511 | 0.0275 | 0.1699 | 0.0013 |  | 990 | 11 | 1012 | 7 |  |  |  |  |  |
| 10XSX-02-4-21 | 550 | 435 | 1.3 | 0.0710 | 0.0010 | 1.7167 | 0.0264 | 0.1748 | 0.0013 |  | 1015 | 10 | 1038 | 7 |  |  |  |  |  |
| 10XSX-02-4-22 | 210 | 197 | 1.1 | 0.0708 | 0.0013 | 1.6826 | 0.0323 | 0.1717 | 0.0013 |  | 1002 | 12 | 1021 | 7 |  |  |  |  |  |
| 10XSX-02-4-23 | 246 | 247 | 1.0 | 0.0708 | 0.0012 | 1.6672 | 0.0296 | 0.1701 | 0.0014 |  | 996 | 11 | 1013 | 8 |  |  |  |  |  |
| 10XSX-02-4-24 | 209 | 381 | 0.5 | 0.0717 | 0.0012 | 1.7087 | 0.0283 | 0.1723 | 0.0012 |  | 1012 | 11 | 1025 | 7 |  |  |  |  |  |