**Supplementary Data**

***Ezzoura Errami, Ulf Linnemann, Mandy Hofmann, Andreas Gärtner, Johannes Zieger, Katja Mende, Jamal El Kabouri, Dominique Gasquet, Nasser Ennih:***

***From Pan-African transpression to Cadomian transtension at the West African margin: New U-Pb zircon ages from the Eastern Saghro inlier (Anti-Atlas, Morocco)***

**U-Pb ages of detrital and magmatic zircon**

**Sample 1-MZ10, black turbiditic sandstone, n=120, Saghro Group, Iknioun, Eastern Saghro massif, Anti-Atlas, Morocco.**

**coordinates: N 31°,12´,5.5”; W 5°, 44´, 35.5”; elev 1948 m.**

**For the calculation of the maximum despositional age (MDA = 607 ± 6 Ma) grains a4, a24, a57, b34, b46, and b54 were used.**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 207Pba | Ub | Pbb | Thb | 206Pbc | 206Pbc | 2  | 207Pbc | 2  | 207Pbc | 2  | rhod | 206Pb | 2  | 207Pb | 2  | 207Pb | 2  |  |
| Number | (cps) | (ppm) | (ppm) | U | 204Pb | 238U | % | 235U | % | 206Pb | % |  | 238U | (Ma) | 235U | (Ma) | 206Pb | (Ma) | conc % |
| a1 | 31451 | 364 | 38 | 0.52 | 4611 | 0.10045 | 1.5 | 0.83687 | 3.2 | 0.06042 | 2.9 | 0.45 | 617 | 9 | 617 | 15 | 619 | 62 | **100** |
| a2 | 4587 | 31 | 5 | 0.55 | 6776 | 0.14488 | 2.0 | 1.36065 | 3.5 | 0.06811 | 2.9 | 0.56 | 872 | 16 | 872 | 21 | 872 | 61 | **100** |
| a3 | 20694 | 176 | 29 | 0.78 | 30652 | 0.14305 | 2.0 | 1.34508 | 2.7 | 0.06819 | 1.9 | 0.73 | 862 | 16 | 865 | 16 | 874 | 39 | **99** |
| a4 | 6514 | 92 | 10 | 0.64 | 10868 | 0.09848 | 1.8 | 0.82012 | 3.1 | 0.06040 | 2.5 | 0.59 | 606 | 11 | 608 | 14 | 618 | 54 | **98** |
| a5 | 13348 | 140 | 18 | 0.94 | 21737 | 0.10856 | 1.7 | 0.92519 | 2.3 | 0.06181 | 1.7 | 0.71 | 664 | 11 | 665 | 12 | 668 | 35 | **100** |
| a6 | 3964 | 36 | 5 | 0.91 | 1756 | 0.12071 | 2.0 | 1.06505 | 4.2 | 0.06399 | 3.7 | 0.48 | 735 | 14 | 736 | 22 | 741 | 78 | **99** |
| a7 | 79526 | 47 | 32 | 0.69 | 26607 | 0.56805 | 1.4 | 16.42257 | 1.8 | 0.20968 | 1.1 | 0.79 | 2900 | 34 | 2902 | 18 | 2903 | 18 | **100** |
| a8 | 21897 | 310 | 28 | 0.42 | 24852 | 0.08800 | 3.2 | 0.73146 | 3.8 | 0.06029 | 2.1 | 0.83 | 544 | 17 | 557 | 17 | 614 | 46 | 89 |
| a9 | 5336 | 63 | 7 | 0.76 | 3906 | 0.10357 | 1.7 | 0.87309 | 2.9 | 0.06114 | 2.4 | 0.58 | 635 | 10 | 637 | 14 | 644 | 51 | **99** |
| a10 | 73734 | 73 | 38 | 0.51 | 27971 | 0.46616 | 1.9 | 10.45777 | 2.3 | 0.16271 | 1.2 | 0.85 | 2467 | 40 | 2476 | 21 | 2484 | 20 | **99** |
| a11 | 7829 | 91 | 9 | 0.26 | 12917 | 0.10431 | 2.2 | 0.87909 | 3.4 | 0.06113 | 2.6 | 0.65 | 640 | 14 | 640 | 16 | 644 | 56 | **99** |
| a12 | 6680 | 83 | 9 | 0.63 | 2275 | 0.10236 | 2.3 | 0.85813 | 3.1 | 0.06080 | 2.1 | 0.74 | 628 | 14 | 629 | 15 | 632 | 46 | **99** |
| a13 | 22655 | 311 | 34 | 0.83 | 4367 | 0.09965 | 2.6 | 0.83438 | 4.8 | 0.06073 | 4.0 | 0.55 | 612 | 15 | 616 | 22 | 630 | 86 | **97** |
| a14 | 882 | 7 | 1 | 1.35 | 1297 | 0.14918 | 6.3 | 1.42121 | 16.1 | 0.06909 | 14.8 | 0.39 | 896 | 53 | 898 | 101 | 902 | 306 | **99** |
| a15 | 64786 | 104 | 43 | 0.47 | 25864 | 0.38076 | 2.0 | 6.78788 | 2.3 | 0.12929 | 1.2 | 0.85 | 2080 | 35 | 2084 | 21 | 2088 | 22 | **100** |
| a16 | 6463 | 79 | 9 | 0.68 | 10729 | 0.10258 | 1.8 | 0.85928 | 3.2 | 0.06075 | 2.7 | 0.57 | 630 | 11 | 630 | 15 | 631 | 57 | **100** |
| a17 | 8388 | 104 | 12 | 0.81 | 4666 | 0.10411 | 2.4 | 0.87459 | 3.5 | 0.06093 | 2.6 | 0.68 | 638 | 15 | 638 | 17 | 637 | 56 | **100** |
| a18 | 20356 | 283 | 32 | 0.97 | 2592 | 0.09051 | 2.0 | 0.76989 | 2.9 | 0.06169 | 2.1 | 0.68 | 559 | 10 | 580 | 13 | 663 | 45 | 84 |
| a19 | 19188 | 37 | 18 | 1.42 | 15473 | 0.36792 | 2.7 | 6.34038 | 3.2 | 0.12499 | 1.8 | 0.84 | 2020 | 47 | 2024 | 29 | 2029 | 31 | **100** |
| a20 | 9017 | 130 | 19 | 2.23 | 8525 | 0.09984 | 1.7 | 0.84182 | 4.2 | 0.06115 | 3.8 | 0.41 | 613 | 10 | 620 | 20 | 645 | 82 | **95** |
| a21 | 11008 | 169 | 19 | 0.75 | 18388 | 0.10025 | 4.0 | 0.83339 | 5.8 | 0.06029 | 4.3 | 0.68 | 616 | 23 | 615 | 27 | 614 | 92 | **100** |
| a22 | 30058 | 390 | 46 | 0.63 | 48994 | 0.10969 | 1.8 | 0.93507 | 2.4 | 0.06183 | 1.6 | 0.76 | 671 | 12 | 670 | 12 | 668 | 34 | **100** |
| a23 | 13034 | 138 | 18 | 0.62 | 14701 | 0.11451 | 2.2 | 0.98970 | 3.3 | 0.06269 | 2.5 | 0.65 | 699 | 14 | 699 | 17 | 698 | 54 | **100** |
| a24 | 8548 | 128 | 13 | 0.52 | 4607 | 0.09842 | 1.7 | 0.81494 | 3.0 | 0.06006 | 2.5 | 0.55 | 605 | 10 | 605 | 14 | 606 | 55 | **100** |
| a25 | 7823 | 109 | 11 | 0.41 | 12973 | 0.10247 | 1.6 | 0.86000 | 3.3 | 0.06087 | 2.8 | 0.50 | 629 | 10 | 630 | 15 | 635 | 61 | **99** |
| a26 | 18124 | 36 | 17 | 1.31 | 14774 | 0.36745 | 2.1 | 6.25849 | 2.4 | 0.12353 | 1.3 | 0.85 | 2017 | 36 | 2013 | 21 | 2008 | 23 | **100** |
| a27 | 5182 | 79 | 8 | 0.54 | 8569 | 0.10170 | 2.1 | 0.85482 | 4.8 | 0.06096 | 4.3 | 0.43 | 624 | 12 | 627 | 23 | 638 | 93 | **98** |
| a28 | 6533 | 91 | 11 | 0.97 | 10881 | 0.10035 | 2.4 | 0.83655 | 3.3 | 0.06046 | 2.3 | 0.72 | 616 | 14 | 617 | 15 | 620 | 49 | **99** |
| a29 | 86409 | 147 | 87 | 2.25 | 15801 | 0.36814 | 1.8 | 6.39583 | 2.1 | 0.12601 | 1.1 | 0.85 | 2021 | 31 | 2032 | 19 | 2043 | 20 | **99** |
| a30 | 14542 | 251 | 25 | 1.12 | 9222 | 0.07882 | 5.1 | 0.63784 | 5.7 | 0.05869 | 2.5 | 0.90 | 489 | 24 | 501 | 23 | 556 | 55 | 88 |
| a31 | 261250 | 119 | 108 | 1.00 | 93433 | 0.68638 | 2.5 | 26.69715 | 2.7 | 0.28210 | 1.2 | 0.90 | 3369 | 65 | 3372 | 27 | 3375 | 18 | **100** |
| a32 | 9255 | 152 | 16 | 0.80 | 7357 | 0.09058 | 2.5 | 0.75888 | 3.9 | 0.06077 | 3.0 | 0.63 | 559 | 13 | 573 | 17 | 631 | 65 | 89 |
| a33 | 78032 | 156 | 65 | 0.78 | 63421 | 0.36400 | 2.7 | 6.21536 | 2.9 | 0.12384 | 1.2 | 0.92 | 2001 | 47 | 2007 | 26 | 2012 | 21 | **99** |
| a34 | 2990 | 39 | 5 | 0.87 | 1898 | 0.11660 | 3.0 | 1.01619 | 6.6 | 0.06321 | 5.8 | 0.46 | 711 | 20 | 712 | 34 | 715 | 124 | **99** |
| a35 | 93203 | 218 | 87 | 0.58 | 35236 | 0.36165 | 2.5 | 6.12929 | 2.7 | 0.12292 | 1.2 | 0.90 | 1990 | 42 | 1994 | 24 | 1999 | 21 | **100** |
| a36 | 4169 | 69 | 8 | 0.68 | 3333 | 0.10297 | 2.6 | 0.86361 | 3.7 | 0.06083 | 2.5 | 0.72 | 632 | 16 | 632 | 17 | 633 | 55 | **100** |
| a37 | 11181 | 156 | 21 | 0.89 | 17883 | 0.11646 | 1.8 | 1.01232 | 2.6 | 0.06305 | 1.9 | 0.68 | 710 | 12 | 710 | 14 | 710 | 41 | **100** |
| a38 | 18410 | 219 | 31 | 0.48 | 27984 | 0.13468 | 1.6 | 1.23053 | 2.4 | 0.06627 | 1.9 | 0.64 | 815 | 12 | 815 | 14 | 815 | 39 | **100** |
| a39 | 10151 | 199 | 18 | 0.91 | 3724 | 0.08482 | 2.9 | 0.74283 | 4.1 | 0.06352 | 2.9 | 0.70 | 525 | 14 | 564 | 18 | 726 | 62 | 72 |
| a40 | 74438 | 119 | 55 | 0.50 | 51856 | 0.41650 | 2.1 | 8.31933 | 2.8 | 0.14487 | 1.9 | 0.74 | 2245 | 39 | 2266 | 26 | 2286 | 32 | **98** |
| a41 | 20042 | 47 | 21 | 0.97 | 16270 | 0.36731 | 2.3 | 6.29810 | 3.0 | 0.12436 | 2.0 | 0.74 | 2017 | 39 | 2018 | 27 | 2020 | 36 | **100** |
| a42 | 65081 | 113 | 46 | 0.55 | 5601 | 0.38217 | 4.0 | 7.63099 | 6.2 | 0.14482 | 4.7 | 0.65 | 2086 | 72 | 2189 | 57 | 2286 | 82 | **91** |
| a43 | 5387 | 100 | 12 | 0.94 | 8942 | 0.10087 | 2.4 | 0.84609 | 3.5 | 0.06083 | 2.6 | 0.69 | 620 | 14 | 623 | 17 | 633 | 55 | **98** |
| a44 | 2347 | 45 | 7 | 2.26 | 2443 | 0.10352 | 2.2 | 0.87118 | 4.1 | 0.06103 | 3.4 | 0.54 | 635 | 13 | 636 | 20 | 640 | 74 | **99** |
| a45 | 4112 | 68 | 8 | 0.81 | 6639 | 0.11046 | 1.7 | 0.95037 | 2.9 | 0.06240 | 2.3 | 0.60 | 675 | 11 | 678 | 14 | 688 | 49 | **98** |
| a46 | 3466 | 53 | 8 | 1.20 | 5505 | 0.11652 | 2.3 | 1.01984 | 4.8 | 0.06348 | 4.2 | 0.48 | 711 | 15 | 714 | 25 | 724 | 90 | **98** |
| a47 | 3142 | 61 | 8 | 1.07 | 5115 | 0.10790 | 2.5 | 0.92043 | 4.4 | 0.06187 | 3.6 | 0.56 | 661 | 15 | 663 | 22 | 669 | 77 | **99** |
| a48 | 39918 | 114 | 44 | 0.40 | 8864 | 0.36773 | 2.7 | 6.33460 | 3.3 | 0.12494 | 2.0 | 0.80 | 2019 | 47 | 2023 | 30 | 2028 | 35 | **100** |
| a49 | 4178 | 77 | 9 | 0.46 | 6711 | 0.11434 | 2.1 | 0.98994 | 4.2 | 0.06279 | 3.6 | 0.51 | 698 | 14 | 699 | 21 | 701 | 76 | **100** |
| a50 | 74163 | 189 | 76 | 0.25 | 56737 | 0.39156 | 2.2 | 7.10496 | 2.8 | 0.13160 | 1.7 | 0.78 | 2130 | 39 | 2125 | 25 | 2119 | 31 | **100** |
| a51 | 6373 | 147 | 19 | 0.69 | 1721 | 0.12008 | 1.4 | 1.07339 | 4.0 | 0.06483 | 3.7 | 0.34 | 731 | 9 | 740 | 21 | 769 | 79 | **95** |
| a52 | 8354 | 194 | 21 | 0.53 | 13673 | 0.10104 | 1.7 | 0.85688 | 6.3 | 0.06150 | 6.1 | 0.27 | 621 | 10 | 628 | 30 | 657 | 131 | **94** |
| a53 | 32409 | 631 | 83 | 0.88 | 9286 | 0.11586 | 2.2 | 1.01573 | 3.0 | 0.06358 | 2.0 | 0.75 | 707 | 15 | 712 | 15 | 728 | 42 | **97** |
| a54 | 64495 | 196 | 75 | 0.26 | 52717 | 0.36623 | 2.0 | 6.22753 | 2.4 | 0.12333 | 1.4 | 0.82 | 2012 | 34 | 2008 | 21 | 2005 | 24 | **100** |
| a55 | 19262 | 254 | 44 | 1.01 | 4921 | 0.15078 | 1.7 | 1.45157 | 2.3 | 0.06982 | 1.5 | 0.74 | 905 | 15 | 911 | 14 | 923 | 32 | **98** |
| a56 | 52304 | 44 | 35 | 0.78 | 16184 | 0.63553 | 2.0 | 22.01917 | 2.4 | 0.25128 | 1.4 | 0.83 | 3171 | 50 | 3185 | 24 | 3193 | 21 | **99** |
| a57 | 13539 | 340 | 34 | 0.36 | 22623 | 0.09914 | 2.8 | 0.82505 | 3.7 | 0.06036 | 2.3 | 0.77 | 609 | 16 | 611 | 17 | 616 | 50 | **99** |
| a58 | 52308 | 98 | 50 | 0.69 | 35191 | 0.44092 | 2.3 | 9.13143 | 3.5 | 0.15020 | 2.7 | 0.64 | 2355 | 45 | 2351 | 33 | 2348 | 46 | **100** |
| a59 | 2634 | 62 | 7 | 0.52 | 4360 | 0.10272 | 2.2 | 0.86190 | 5.6 | 0.06086 | 5.2 | 0.38 | 630 | 13 | 631 | 27 | 634 | 112 | **99** |
| a60 | 34123 | 911 | 81 | 0.07 | 6262 | 0.09493 | 2.2 | 0.83077 | 3.1 | 0.06347 | 2.2 | 0.71 | 585 | 12 | 614 | 14 | 724 | 46 | 81 |
| b1 | 5840 | 88 | 10 | 0.68 | 2101 | 0.10499 | 3.9 | 0.88973 | 6.3 | 0.06146 | 4.9 | 0.63 | 644 | 24 | 646 | 30 | 655 | 105 | **98** |
| b2 | 122482 | 172 | 84 | 0.22 | 7044 | 0.46520 | 4.3 | 10.20561 | 4.5 | 0.15911 | 1.4 | 0.95 | 2462 | 89 | 2454 | 43 | 2446 | 24 | **101** |
| b3 | 65179 | 149 | 59 | 0.54 | 13962 | 0.36449 | 3.5 | 6.19630 | 3.6 | 0.12330 | 0.9 | 0.97 | 2003 | 61 | 2004 | 32 | 2004 | 16 | **100** |
| b4 | 4078 | 62 | 8 | 1.12 | 6613 | 0.10957 | 3.3 | 0.93976 | 5.2 | 0.06220 | 4.0 | 0.64 | 670 | 21 | 673 | 26 | 681 | 86 | **98** |
| b5 | 12119 | 200 | 22 | 0.56 | 7248 | 0.10453 | 4.1 | 0.88176 | 5.0 | 0.06118 | 2.9 | 0.81 | 641 | 25 | 642 | 24 | 646 | 63 | **99** |
| b6 | 48362 | 71 | 37 | 0.68 | 31748 | 0.44875 | 3.6 | 9.51103 | 4.0 | 0.15372 | 1.7 | 0.90 | 2390 | 72 | 2389 | 37 | 2388 | 29 | **100** |
| b7 | 5538 | 106 | 13 | 1.09 | 5807 | 0.10197 | 3.7 | 0.85293 | 4.4 | 0.06067 | 2.4 | 0.84 | 626 | 22 | 626 | 21 | 627 | 51 | **100** |
| b8 | 34336 | 421 | 74 | 0.91 | 6869 | 0.15897 | 3.3 | 1.55111 | 3.6 | 0.07077 | 1.6 | 0.90 | 951 | 29 | 951 | 23 | 951 | 33 | **100** |
| b9 | 3070 | 36 | 5 | 1.25 | 4770 | 0.12388 | 3.7 | 1.11286 | 5.4 | 0.06516 | 3.9 | 0.69 | 753 | 26 | 760 | 29 | 779 | 81 | **97** |
| b10 | 82019 | 192 | 71 | 0.14 | 13670 | 0.36926 | 3.2 | 6.52537 | 3.4 | 0.12817 | 1.2 | 0.94 | 2026 | 56 | 2049 | 31 | 2073 | 22 | **98** |
| b11 | 77553 | 157 | 58 | 0.34 | 18513 | 0.35849 | 3.3 | 5.90741 | 3.6 | 0.11951 | 1.6 | 0.90 | 1975 | 56 | 1962 | 32 | 1949 | 29 | **101** |
| b12 | 6628 | 95 | 10 | 0.64 | 3985 | 0.10028 | 3.6 | 0.83564 | 4.3 | 0.06044 | 2.3 | 0.84 | 616 | 21 | 617 | 20 | 619 | 50 | **99** |
| b13 | 39792 | 45 | 22 | 0.25 | 24704 | 0.45721 | 3.2 | 10.23129 | 3.6 | 0.16230 | 1.6 | 0.89 | 2427 | 65 | 2456 | 34 | 2480 | 27 | **98** |
| b14 | 4192 | 50 | 6 | 0.69 | 6925 | 0.10545 | 3.2 | 0.89030 | 4.8 | 0.06124 | 3.6 | 0.67 | 646 | 20 | 647 | 23 | 648 | 77 | **100** |
| b15 | 9001 | 94 | 12 | 0.92 | 14723 | 0.10832 | 3.3 | 0.92289 | 4.4 | 0.06179 | 2.8 | 0.76 | 663 | 21 | 664 | 21 | 667 | 61 | **99** |
| b16 | 5995 | 99 | 11 | 0.71 | 4018 | 0.10204 | 3.3 | 0.86108 | 4.6 | 0.06120 | 3.2 | 0.72 | 626 | 20 | 631 | 22 | 646 | 69 | **97** |
| b17 | 7536 | 119 | 15 | 0.73 | 12293 | 0.11131 | 3.3 | 0.95335 | 4.5 | 0.06212 | 3.1 | 0.72 | 680 | 21 | 680 | 23 | 678 | 67 | **100** |
| b18 | 4472 | 66 | 8 | 0.55 | 6574 | 0.11382 | 3.0 | 1.00016 | 5.0 | 0.06373 | 4.0 | 0.60 | 695 | 20 | 704 | 26 | 733 | 85 | **95** |
| b19 | 1632 | 28 | 4 | 1.55 | 2682 | 0.10666 | 3.6 | 0.90114 | 7.1 | 0.06128 | 6.1 | 0.52 | 653 | 23 | 652 | 35 | 649 | 130 | **101** |
| b20 | 49903 | 129 | 57 | 0.98 | 39518 | 0.36512 | 3.3 | 6.41188 | 3.5 | 0.12736 | 1.3 | 0.94 | 2006 | 57 | 2034 | 32 | 2062 | 22 | **97** |
| b21 | 18433 | 56 | 22 | 1.00 | 16468 | 0.33071 | 3.7 | 5.15665 | 4.5 | 0.11309 | 2.5 | 0.83 | 1842 | 60 | 1845 | 39 | 1850 | 46 | **100** |
| b22 | 4828 | 89 | 10 | 0.49 | 7942 | 0.10504 | 4.0 | 0.88727 | 4.8 | 0.06127 | 2.6 | 0.84 | 644 | 25 | 645 | 23 | 649 | 56 | **99** |
| b23 | 7841 | 141 | 19 | 1.36 | 12902 | 0.10159 | 3.6 | 0.86132 | 5.1 | 0.06149 | 3.7 | 0.69 | 624 | 21 | 631 | 24 | 657 | 79 | **95** |
| b24 | 81245 | 189 | 82 | 0.63 | 62240 | 0.38220 | 3.2 | 6.95518 | 3.5 | 0.13198 | 1.3 | 0.92 | 2087 | 58 | 2106 | 31 | 2125 | 24 | **98** |
| b25 | 12090 | 213 | 31 | 1.51 | 19703 | 0.10985 | 3.2 | 0.93941 | 4.0 | 0.06202 | 2.4 | 0.80 | 672 | 20 | 673 | 20 | 675 | 52 | **100** |
| b26 | 69189 | 172 | 72 | 0.72 | 55971 | 0.36427 | 3.2 | 6.27448 | 3.4 | 0.12493 | 1.2 | 0.93 | 2002 | 55 | 2015 | 30 | 2028 | 22 | **99** |
| b27 | 8983 | 193 | 23 | 0.62 | 3931 | 0.11736 | 5.1 | 1.03471 | 5.9 | 0.06394 | 3.0 | 0.86 | 715 | 34 | 721 | 31 | 740 | 63 | **97** |
| b28 | 24007 | 36 | 20 | 0.55 | 9800 | 0.48108 | 3.2 | 11.30698 | 3.8 | 0.17046 | 2.1 | 0.83 | 2532 | 66 | 2549 | 36 | 2562 | 35 | **99** |
| b29 | 4799 | 69 | 12 | 1.23 | 4981 | 0.15806 | 3.6 | 1.53704 | 5.8 | 0.07053 | 4.6 | 0.61 | 946 | 32 | 945 | 37 | 944 | 95 | **100** |
| b30 | 12407 | 20 | 11 | 0.55 | 7387 | 0.48755 | 2.7 | 11.42229 | 4.6 | 0.16992 | 3.7 | 0.60 | 2560 | 58 | 2558 | 44 | 2557 | 62 | **100** |
| b31 | 13449 | 271 | 34 | 0.56 | 5452 | 0.12106 | 4.1 | 1.06507 | 5.1 | 0.06381 | 3.0 | 0.81 | 737 | 29 | 736 | 27 | 735 | 64 | **100** |
| b32 | 7658 | 78 | 10 | 0.79 | 8459 | 0.10993 | 4.0 | 0.94192 | 4.8 | 0.06214 | 2.8 | 0.82 | 672 | 25 | 674 | 24 | 679 | 59 | **99** |
| b33 | 63169 | 60 | 42 | 0.75 | 29420 | 0.57228 | 3.6 | 17.10759 | 4.1 | 0.21681 | 2.0 | 0.87 | 2917 | 85 | 2941 | 40 | 2957 | 32 | **99** |
| b34 | 4835 | 90 | 10 | 0.65 | 3179 | 0.09885 | 4.3 | 0.82034 | 5.3 | 0.06019 | 3.1 | 0.81 | 608 | 25 | 608 | 24 | 610 | 66 | **100** |
| b35 | 3651 | 81 | 9 | 0.54 | 6068 | 0.10297 | 2.9 | 0.86224 | 4.5 | 0.06073 | 3.5 | 0.64 | 632 | 18 | 631 | 22 | 630 | 75 | **100** |
| b36 | 6175 | 119 | 14 | 0.52 | 10034 | 0.10864 | 3.1 | 0.92955 | 4.4 | 0.06206 | 3.1 | 0.71 | 665 | 20 | 667 | 22 | 676 | 67 | **98** |
| b37 | 2377 | 45 | 6 | 0.99 | 3351 | 0.11321 | 3.2 | 0.97855 | 6.1 | 0.06269 | 5.2 | 0.53 | 691 | 21 | 693 | 31 | 698 | 110 | **99** |
| b38 | 168696 | 188 | 124 | 0.81 | 14037 | 0.54698 | 3.4 | 14.91893 | 3.5 | 0.19782 | 0.8 | 0.97 | 2813 | 78 | 2810 | 34 | 2808 | 14 | **100** |
| b39 | 16319 | 50 | 22 | 0.60 | 12606 | 0.38760 | 4.2 | 7.00184 | 4.7 | 0.13102 | 2.0 | 0.90 | 2112 | 76 | 2112 | 42 | 2112 | 36 | **100** |
| b40 | 62649 | 122 | 63 | 0.33 | 36949 | 0.46973 | 4.4 | 11.06750 | 5.0 | 0.17088 | 2.2 | 0.89 | 2482 | 92 | 2529 | 47 | 2566 | 37 | **97** |
| b41 | 16075 | 49 | 24 | 1.71 | 5252 | 0.36829 | 3.4 | 6.33630 | 3.7 | 0.12478 | 1.4 | 0.92 | 2021 | 60 | 2023 | 33 | 2026 | 26 | **100** |
| b42 | 8614 | 201 | 22 | 1.36 | 2132 | 0.08431 | 3.5 | 0.76441 | 3.9 | 0.06576 | 1.8 | 0.89 | 522 | 18 | 577 | 17 | 799 | 37 | 65 |
| b43 | 13539 | 226 | 37 | 1.35 | 20866 | 0.12666 | 3.0 | 1.14485 | 3.5 | 0.06556 | 1.9 | 0.85 | 769 | 22 | 775 | 19 | 792 | 39 | **97** |
| b44 | 80224 | 250 | 105 | 0.30 | 13942 | 0.39368 | 3.7 | 7.90274 | 6.0 | 0.14559 | 4.8 | 0.61 | 2140 | 67 | 2220 | 56 | 2295 | 82 | **93** |
| b45 | 17558 | 376 | 43 | 0.62 | 8620 | 0.10605 | 3.6 | 0.90894 | 4.2 | 0.06216 | 2.1 | 0.86 | 650 | 23 | 656 | 21 | 680 | 46 | **96** |
| b46 | 5257 | 122 | 13 | 0.65 | 8752 | 0.09854 | 3.4 | 0.82615 | 4.0 | 0.06081 | 2.2 | 0.84 | 606 | 20 | 611 | 19 | 632 | 48 | **96** |
| b47 | 105414 | 171 | 100 | 0.65 | 34321 | 0.50246 | 3.1 | 12.23437 | 3.4 | 0.17660 | 1.3 | 0.92 | 2624 | 68 | 2623 | 33 | 2621 | 22 | **100** |
| b48 | 45217 | 602 | 57 | 0.56 | 2080 | 0.09556 | 4.0 | 1.30906 | 4.4 | 0.09935 | 1.8 | 0.91 | 588 | 23 | 850 | 26 | 1612 | 33 | 36 |
| b49 | 3836 | 69 | 8 | 0.52 | 6049 | 0.11638 | 3.1 | 1.02975 | 4.7 | 0.06417 | 3.5 | 0.67 | 710 | 21 | 719 | 24 | 747 | 74 | **95** |
| b50 | 2461 | 55 | 7 | 0.78 | 3996 | 0.11046 | 2.9 | 0.94782 | 4.4 | 0.06224 | 3.3 | 0.66 | 675 | 19 | 677 | 22 | 682 | 71 | **99** |
| b51 | 7953 | 186 | 22 | 0.91 | 7287 | 0.10521 | 3.1 | 0.89095 | 4.0 | 0.06142 | 2.5 | 0.78 | 645 | 19 | 647 | 19 | 654 | 54 | **99** |
| b52 | 62441 | 75 | 45 | 0.04 | 28747 | 0.56734 | 3.2 | 17.15074 | 4.1 | 0.21925 | 2.6 | 0.79 | 2897 | 76 | 2943 | 40 | 2975 | 41 | **97** |
| b53 | 11626 | 90 | 14 | 0.40 | 664 | 0.12495 | 10.6 | 2.09123 | 11.3 | 0.12138 | 4.1 | 0.93 | 759 | 76 | 1146 | 81 | 1977 | 72 | 38 |
| b54 | 14394 | 457 | 49 | 0.62 | 7462 | 0.09928 | 3.5 | 0.82605 | 3.9 | 0.06034 | 1.9 | 0.88 | 610 | 20 | 611 | 18 | 616 | 41 | **99** |
| b55 | 48864 | 171 | 20 | 0.55 | 41622 | 0.08025 | 7.4 | 1.31713 | 8.0 | 0.11904 | 3.1 | 0.92 | 498 | 36 | 853 | 47 | 1942 | 55 | 26 |
| b56 | 4194 | 62 | 7 | 0.47 | 6681 | 0.11326 | 3.3 | 0.98816 | 4.8 | 0.06328 | 3.5 | 0.68 | 692 | 22 | 698 | 25 | 718 | 74 | **96** |
| b57 | 3866 | 89 | 11 | 1.10 | 1806 | 0.10497 | 2.9 | 0.90487 | 4.1 | 0.06252 | 2.9 | 0.70 | 643 | 18 | 654 | 20 | 692 | 63 | **93** |
| b58 | 4628 | 105 | 13 | 0.75 | 7518 | 0.10981 | 2.8 | 0.94335 | 4.5 | 0.06230 | 3.5 | 0.62 | 672 | 18 | 675 | 22 | 685 | 75 | **98** |
| b59 | 7981 | 198 | 24 | 1.02 | 13262 | 0.10179 | 3.2 | 0.85380 | 4.0 | 0.06084 | 2.4 | 0.80 | 625 | 19 | 627 | 19 | 633 | 51 | **99** |
| b60 | 12304 | 48 | 18 | 0.48 | 9655 | 0.34248 | 2.7 | 5.74694 | 3.6 | 0.12170 | 2.3 | 0.77 | 1899 | 45 | 1938 | 31 | 1981 | 41 | **96** |

**Sample 2-MZ11, Iknioun granodiorite, n=40, granodiorite intrusive against the Saghro Group and covered by the Ouarzazate Group, Iknioun, Eastern Saghro massif, Anti-Atlas, Morocco.**

**coordinates: N 31°, 11´, 34.2”; W 5°, 44´, 27.0”; elev 1961 m.**

**For the calculation of the age of intrusion (= 600 ± 3 Ma) a3, a4, a9, a13, a14, a21, a22, a27, a30, a31, a32, a35, a36, a39, and a40 were used.**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 207Pba | Ub | Pbb | Thb | 206Pbc | 206Pbc | 2  | 207Pbc | 2  | 207Pbc | 2  | rhod | 206Pb | 2  | 207Pb | 2  | 207Pb | 2  |  |
| Number | (cps) | (ppm) | (ppm) | U | 204Pb | 238U | % | 235U | % | 206Pb | % |  | 238U | (Ma) | 235U | (Ma) | 206Pb | (Ma) | conc % |
| a1 | 8127 | 81 | 9 | 0.17 | 14118 | 0.10649 | 2.4 | 0.85820 | 3.3 | 0.05845 | 2.3 | 0.72 | 652 | 15 | 629 | 16 | 547 | 50 | 119 |
| a2 | 9611 | 102 | 10 | 0.16 | 17024 | 0.09685 | 4.1 | 0.76532 | 5.3 | 0.05731 | 3.4 | 0.76 | 596 | 23 | 577 | 24 | 504 | 76 | 118 |
| a3 | 32710 | 228 | 23 | 0.13 | 653 | 0.09733 | 1.8 | 0.80665 | 4.9 | 0.06011 | 4.6 | 0.36 | 599 | 10 | 601 | 23 | 607 | 100 | **99** |
| a4 | 7877 | 79 | 8 | 0.17 | 13386 | 0.09771 | 2.4 | 0.80652 | 4.1 | 0.05986 | 3.4 | 0.58 | 601 | 14 | 601 | 19 | 599 | 73 | **100** |
| a5 | 6026 | 51 | 5 | 0.18 | 1017 | 0.10202 | 2.3 | 1.01446 | 3.5 | 0.07212 | 2.7 | 0.65 | 626 | 14 | 711 | 18 | 989 | 54 | 63 |
| a6 | 7924 | 88 | 9 | 0.17 | 14083 | 0.10202 | 2.8 | 0.80536 | 4.7 | 0.05725 | 3.8 | 0.59 | 626 | 16 | 600 | 21 | 501 | 83 | 125 |
| a7 | 5357 | 56 | 6 | 0.17 | 9986 | 0.10538 | 2.4 | 0.79032 | 3.8 | 0.05439 | 3.0 | 0.62 | 646 | 15 | 591 | 17 | 387 | 67 | 167 |
| a8 | 6179 | 67 | 7 | 0.20 | 11369 | 0.10571 | 2.9 | 0.80301 | 5.5 | 0.05509 | 4.7 | 0.52 | 648 | 18 | 599 | 25 | 416 | 106 | 156 |
| a9 | 8875 | 99 | 10 | 0.23 | 15023 | 0.09721 | 2.4 | 0.80390 | 3.5 | 0.05998 | 2.5 | 0.69 | 598 | 14 | 599 | 16 | 603 | 55 | **99** |
| a10 | 7598 | 85 | 8 | 0.24 | 13276 | 0.09371 | 2.2 | 0.74998 | 3.1 | 0.05804 | 2.1 | 0.72 | 577 | 12 | 568 | 13 | 531 | 46 | **109** |
| a11 | 5882 | 71 | 7 | 0.18 | 2836 | 0.09821 | 2.0 | 0.78247 | 3.8 | 0.05778 | 3.2 | 0.52 | 604 | 11 | 587 | 17 | 521 | 71 | 116 |
| a12 | 6982 | 81 | 8 | 0.12 | 10782 | 0.09717 | 2.8 | 0.75995 | 4.1 | 0.05672 | 3.0 | 0.68 | 598 | 16 | 574 | 18 | 481 | 66 | 124 |
| a13 | 8420 | 95 | 10 | 0.25 | 14250 | 0.09803 | 2.5 | 0.81133 | 3.3 | 0.06002 | 2.1 | 0.76 | 603 | 14 | 603 | 15 | 604 | 46 | **100** |
| a14 | 6992 | 78 | 8 | 0.28 | 11860 | 0.09697 | 2.1 | 0.79925 | 3.6 | 0.05978 | 2.9 | 0.58 | 597 | 12 | 596 | 16 | 595 | 64 | **100** |
| a15 | 3834 | 36 | 4 | 0.18 | 1779 | 0.11557 | 1.9 | 1.00275 | 6.1 | 0.06293 | 5.8 | 0.32 | 705 | 13 | 705 | 31 | 706 | 122 | **100** |
| a16 | 6156 | 70 | 7 | 0.19 | 10414 | 0.10654 | 2.3 | 0.88095 | 3.8 | 0.05997 | 3.0 | 0.60 | 653 | 14 | 641 | 18 | 602 | 65 | **108** |
| a17 | 4410 | 54 | 6 | 0.18 | 5577 | 0.10533 | 2.3 | 0.82488 | 4.5 | 0.05680 | 3.9 | 0.50 | 646 | 14 | 611 | 21 | 484 | 86 | 133 |
| a18 | 4725 | 58 | 6 | 0.18 | 8131 | 0.10548 | 2.1 | 0.81948 | 4.1 | 0.05635 | 3.5 | 0.53 | 646 | 13 | 608 | 19 | 466 | 77 | 139 |
| a19 | 5020 | 58 | 6 | 0.21 | 9090 | 0.10680 | 2.4 | 0.82298 | 3.6 | 0.05589 | 2.7 | 0.65 | 654 | 15 | 610 | 17 | 448 | 61 | 146 |
| a20 | 7555 | 98 | 9 | 0.20 | 13414 | 0.09660 | 3.7 | 0.76123 | 6.3 | 0.05715 | 5.1 | 0.59 | 594 | 21 | 575 | 28 | 497 | 113 | 120 |
| a21 | 5014 | 65 | 6 | 0.18 | 2464 | 0.09751 | 2.7 | 0.80532 | 5.2 | 0.05990 | 4.4 | 0.52 | 600 | 15 | 600 | 24 | 600 | 96 | **100** |
| a22 | 7263 | 90 | 9 | 0.16 | 12231 | 0.09768 | 2.4 | 0.80738 | 3.4 | 0.05995 | 2.4 | 0.70 | 601 | 14 | 601 | 16 | 602 | 53 | **100** |
| a23 | 5174 | 67 | 7 | 0.18 | 9186 | 0.10338 | 2.5 | 0.81763 | 4.0 | 0.05736 | 3.2 | 0.61 | 634 | 15 | 607 | 18 | 505 | 70 | 125 |
| a24 | 7731 | 101 | 11 | 0.25 | 13432 | 0.10307 | 2.9 | 0.83203 | 4.4 | 0.05855 | 3.3 | 0.66 | 632 | 17 | 615 | 20 | 550 | 72 | 115 |
| a25 | 3967 | 53 | 5 | 0.20 | 2946 | 0.09812 | 3.2 | 0.76612 | 5.6 | 0.05663 | 4.5 | 0.58 | 603 | 19 | 578 | 25 | 477 | 100 | 126 |
| a26 | 4324 | 53 | 5 | 0.19 | 7246 | 0.10220 | 2.7 | 0.84858 | 5.0 | 0.06022 | 4.2 | 0.54 | 627 | 16 | 624 | 23 | 611 | 91 | **103** |
| a27 | 4845 | 56 | 6 | 0.21 | 8170 | 0.09812 | 2.0 | 0.81471 | 3.7 | 0.06022 | 3.2 | 0.53 | 603 | 11 | 605 | 17 | 612 | 68 | **99** |
| a28 | 42867 | 472 | 37 | 0.13 | 1709 | 0.07536 | 3.6 | 0.64797 | 6.3 | 0.06236 | 5.2 | 0.57 | 468 | 16 | 507 | 26 | 687 | 111 | 68 |
| a29 | 11611 | 155 | 14 | 0.13 | 2198 | 0.09348 | 2.7 | 0.84901 | 4.6 | 0.06587 | 3.8 | 0.58 | 576 | 15 | 624 | 22 | 802 | 79 | 72 |
| a30 | 31136 | 446 | 42 | 0.11 | 52699 | 0.09788 | 2.8 | 0.80924 | 3.1 | 0.05996 | 1.4 | 0.89 | 602 | 16 | 602 | 14 | 602 | 31 | **100** |
| a31 | 6507 | 88 | 9 | 0.23 | 8787 | 0.09805 | 2.4 | 0.81344 | 3.0 | 0.06017 | 1.7 | 0.82 | 603 | 14 | 604 | 14 | 610 | 36 | **99** |
| a32 | 13024 | 196 | 20 | 0.28 | 18700 | 0.09748 | 2.0 | 0.80595 | 2.6 | 0.05997 | 1.7 | 0.77 | 600 | 11 | 600 | 12 | 602 | 36 | **100** |
| a33 | 4623 | 68 | 7 | 0.19 | 7988 | 0.10358 | 2.2 | 0.83992 | 4.9 | 0.05881 | 4.4 | 0.44 | 635 | 13 | 619 | 23 | 560 | 95 | 113 |
| a34 | 7689 | 119 | 13 | 0.26 | 7499 | 0.10725 | 2.0 | 0.86749 | 3.1 | 0.05866 | 2.4 | 0.64 | 657 | 13 | 634 | 15 | 555 | 52 | 118 |
| a35 | 5027 | 73 | 7 | 0.20 | 8532 | 0.09754 | 2.2 | 0.80529 | 3.1 | 0.05988 | 2.2 | 0.72 | 600 | 13 | 600 | 14 | 599 | 47 | **100** |
| a36 | 7608 | 115 | 11 | 0.20 | 12894 | 0.09739 | 2.1 | 0.80357 | 3.2 | 0.05984 | 2.4 | 0.66 | 599 | 12 | 599 | 14 | 598 | 52 | **100** |
| a37 | 6595 | 101 | 10 | 0.18 | 11402 | 0.10613 | 2.1 | 0.85753 | 4.1 | 0.05860 | 3.5 | 0.51 | 650 | 13 | 629 | 19 | 552 | 77 | 118 |
| a38 | 6852 | 96 | 9 | 0.17 | 10770 | 0.09329 | 2.3 | 0.83247 | 3.6 | 0.06472 | 2.8 | 0.64 | 575 | 13 | 615 | 17 | 765 | 59 | 75 |
| a39 | 8251 | 109 | 10 | 0.14 | 13910 | 0.09739 | 3.2 | 0.80786 | 3.8 | 0.06016 | 2.2 | 0.82 | 599 | 18 | 601 | 18 | 609 | 47 | **98** |
| a40 | 5223 | 65 | 6 | 0.20 | 8799 | 0.09814 | 2.7 | 0.81167 | 4.1 | 0.05999 | 3.1 | 0.67 | 603 | 16 | 603 | 19 | 603 | 66 | **100** |

**Sample 3-MZ12, Oussilkane Charnockite, n=3, charnockite intrusive against the Saghro Group and covered by the Ouarzazate Group, Outaaoui, Eastern Saghro massif, Anti-Atlas, Morocco.**

**coordinates: N 31°, 13´, 54.8”; W 5°, 37´, 0.5”; elev 1848 m.**

**For the calculation of the age of intrusion (= 580 ± 19 Ma) grains a20, a21, and a24 were used.**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 207Pba | Ub | Pbb | Thb | 206Pbc | 206Pbc | 2  | 207Pbc | 2  | 207Pbc | 2  | rhod | 206Pb | 2  | 207Pb | 2  | 207Pb | 2  |  |
| Number | (cps) | (ppm) | (ppm) | U | 204Pb | 238U | % | 235U | % | 206Pb | % |  | 238U | (Ma) | 235U | (Ma) | 206Pb | (Ma) | conc % |
| a20 | 77959 | 2278 | 202 | 0.10 | 11307 | 0.08661 | 2.5 | 0.71322 | 2.8 | 0.05972 | 1.3 | 0.88 | 535 | 13 | 547 | 12 | 594 | 28 | 90 |
| a21 | 51259 | 1564 | 139 | 0.23 | 24607 | 0.08657 | 2.6 | 0.70258 | 3.0 | 0.05886 | 1.3 | 0.89 | 535 | 14 | 540 | 13 | 562 | 29 | 95 |
| a24 | 20814 | 625 | 57 | 0.22 | 14550 | 0.09076 | 2.9 | 0.74698 | 3.6 | 0.05969 | 2.3 | 0.78 | 560 | 15 | 566 | 16 | 592 | 49 | 95 |

**Sample 4-MZ1, black turbiditic sandstone, n=120, Saghro Group, Imiter, Eastern Saghro massif, Anti-Atlas, Morocco.**

**coordinates: N 31°, 21´, 1.8”; W 5°, 47´, 40.9”; elev 1462 m.**

**For the calculation of the maximum despositional age (MDA = 604 ± 5 Ma) grains a2, a5, a11, and a27 were used.**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 207Pba | Ub | Pbb | Thb | 206Pbc | 206Pbc | 2  | 207Pbc | 2  | 207Pbc | 2  | rhod | 206Pb | 2  | 207Pb | 2  | 207Pb | 2  |  |
| Number | (cps) | (ppm) | (ppm) | U | 204Pb | 238U | % | 235U | % | 206Pb | % |  | 238U | (Ma) | 235U | (Ma) | 206Pb | (Ma) | conc % |
| a01 | 13394 | 32 | 10 | 0.59 | 10049 | 0.28859 | 2.6 | 4.2307 | 3.3 | 0.10632 | 2.1 | 0.78 | 1634 | 37 | 1680 | 28 | 1737 | 38 | **94** |
| a02 | 33692 | 456 | 46 | 0.41 | 1630 | 0.09877 | 2.2 | 0.8320 | 3.6 | 0.06109 | 2.8 | 0.62 | 607 | 13 | 615 | 17 | 643 | 60 | **95** |
| a03 | 5848 | 71 | 9 | 1.02 | 9694 | 0.10182 | 1.2 | 0.8564 | 2.8 | 0.06100 | 2.5 | 0.43 | 625 | 7 | 628 | 13 | 639 | 53 | **98** |
| a04 | 22324 | 35 | 16 | 0.93 | 12357 | 0.37731 | 1.5 | 6.4919 | 2.1 | 0.12479 | 1.5 | 0.72 | 2064 | 27 | 2045 | 19 | 2026 | 26 | **102** |
| a05 | 8736 | 110 | 12 | 0.85 | 5501 | 0.09750 | 1.8 | 0.8146 | 2.8 | 0.06059 | 2.1 | 0.66 | 600 | 10 | 605 | 13 | 625 | 44 | **96** |
| a06 | 6917 | 91 | 10 | 0.58 | 11623 | 0.10186 | 1.7 | 0.8434 | 3.3 | 0.06005 | 2.8 | 0.52 | 625 | 10 | 621 | 15 | 605 | 60 | **103** |
| a07 | 110743 | 93 | 57 | 0.92 | 5216 | 0.49567 | 4.1 | 15.2071 | 4.5 | 0.22251 | 1.8 | 0.92 | 2595 | 89 | 2828 | 44 | 2999 | 28 | 87 |
| a08 | 14906 | 181 | 20 | 1.04 | 4055 | 0.09196 | 1.6 | 0.8457 | 2.4 | 0.06669 | 1.8 | 0.67 | 567 | 9 | 622 | 11 | 828 | 37 | 68 |
| a09 | 36265 | 427 | 46 | 0.48 | 3096 | 0.10375 | 3.8 | 0.8759 | 4.5 | 0.06123 | 2.5 | 0.84 | 636 | 23 | 639 | 22 | 647 | 54 | **98** |
| a10 | 9204 | 16 | 4 | 0.03 | 56 | 0.15381 | 2.7 | 6.5570 | 3.4 | 0.30919 | 2.0 | 0.80 | 922 | 23 | 2054 | 30 | 3517 | 31 | 26 |
| a11 | 14664 | 184 | 20 | 0.74 | 24602 | 0.09930 | 1.6 | 0.8262 | 2.6 | 0.06034 | 2.0 | 0.62 | 610 | 9 | 612 | 12 | 616 | 44 | **99** |
| a12 | 60460 | 95 | 39 | 0.39 | 48058 | 0.38482 | 1.4 | 6.7579 | 1.8 | 0.12737 | 1.2 | 0.77 | 2099 | 25 | 2080 | 16 | 2062 | 20 | **102** |
| a13 | 5919 | 8 | 2 | 0.02 | 53 | 0.15881 | 2.9 | 7.6017 | 3.9 | 0.34717 | 2.6 | 0.74 | 950 | 25 | 2185 | 35 | 3695 | 40 | 26 |
| a14 | 50134 | 622 | 60 | 0.90 | 862 | 0.07963 | 1.3 | 0.8506 | 2.5 | 0.07747 | 2.1 | 0.52 | 494 | 6 | 625 | 12 | 1133 | 42 | 44 |
| a15 | 2264 | 26 | 4 | 1.94 | 1994 | 0.10218 | 1.9 | 0.8415 | 4.5 | 0.05973 | 4.1 | 0.43 | 627 | 12 | 620 | 21 | 594 | 89 | **106** |
| a16 | 12494 | 133 | 16 | 0.92 | 2581 | 0.10365 | 1.4 | 0.8963 | 3.2 | 0.06272 | 2.9 | 0.42 | 636 | 8 | 650 | 16 | 699 | 62 | **91** |
| a17 | 9573 | 15 | 4 | 0.53 | 59 | 0.16833 | 2.2 | 7.7954 | 3.9 | 0.33587 | 3.2 | 0.57 | 1003 | 21 | 2208 | 36 | 3644 | 49 | 28 |
| a18 | 10827 | 129 | 17 | 1.17 | 6306 | 0.10328 | 2.4 | 0.9504 | 3.9 | 0.06674 | 3.1 | 0.61 | 634 | 14 | 678 | 20 | 830 | 65 | 76 |
| a19 | 90241 | 155 | 63 | 0.56 | 73612 | 0.37111 | 1.6 | 6.3367 | 1.9 | 0.12384 | 0.9 | 0.86 | 2035 | 28 | 2024 | 17 | 2012 | 17 | **101** |
| a20 | 6953 | 85 | 9 | 0.54 | 4178 | 0.09998 | 1.5 | 0.8379 | 2.7 | 0.06078 | 2.3 | 0.54 | 614 | 9 | 618 | 13 | 631 | 49 | **97** |
| a21 | 12308 | 116 | 16 | 0.77 | 3396 | 0.12565 | 1.6 | 1.1084 | 2.4 | 0.06398 | 1.9 | 0.64 | 763 | 11 | 757 | 13 | 741 | 40 | **103** |
| a22 | 3537 | 36 | 5 | 0.91 | 5840 | 0.13097 | 1.7 | 1.1071 | 4.3 | 0.06131 | 4.0 | 0.39 | 793 | 13 | 757 | 23 | 650 | 86 | 122 |
| a23 | 4575 | 51 | 6 | 0.86 | 1971 | 0.11232 | 1.5 | 0.9570 | 3.3 | 0.06180 | 2.9 | 0.47 | 686 | 10 | 682 | 16 | 667 | 62 | **103** |
| a24 | 4781 | 51 | 7 | 0.74 | 7781 | 0.11634 | 1.7 | 0.9972 | 3.9 | 0.06216 | 3.5 | 0.45 | 709 | 12 | 702 | 20 | 680 | 74 | **104** |
| a25 | 14866 | 188 | 17 | 0.36 | 2180 | 0.09040 | 2.8 | 0.8131 | 3.7 | 0.06523 | 2.5 | 0.75 | 558 | 15 | 604 | 17 | 782 | 52 | 71 |
| a26 | 6335 | 61 | 8 | 0.64 | 3731 | 0.12659 | 1.6 | 1.0997 | 3.1 | 0.06300 | 2.6 | 0.52 | 768 | 11 | 753 | 16 | 708 | 56 | **108** |
| a27 | 9948 | 130 | 14 | 0.73 | 15281 | 0.09757 | 1.4 | 0.8019 | 2.5 | 0.05960 | 2.1 | 0.55 | 600 | 8 | 598 | 11 | 589 | 45 | **102** |
| a28 | 30832 | 385 | 43 | 1.11 | 2383 | 0.09544 | 1.6 | 0.8682 | 2.5 | 0.06598 | 2.0 | 0.62 | 588 | 9 | 635 | 12 | 806 | 42 | 73 |
| a29 | 20946 | 290 | 35 | 1.49 | 34453 | 0.08929 | 4.0 | 0.7558 | 4.4 | 0.06139 | 1.9 | 0.91 | 551 | 21 | 572 | 19 | 653 | 40 | 84 |
| a30 | 17404 | 226 | 26 | 0.84 | 28809 | 0.09983 | 1.7 | 0.8380 | 2.6 | 0.06088 | 2.0 | 0.64 | 613 | 10 | 618 | 12 | 635 | 43 | **97** |
| a31 | 40062 | 54 | 24 | 0.73 | 28797 | 0.38853 | 1.3 | 7.6184 | 2.9 | 0.14221 | 2.5 | 0.46 | 2116 | 24 | 2187 | 26 | 2254 | 44 | **94** |
| a32 | 144911 | 250 | 89 | 0.04 | 4176 | 0.36085 | 1.7 | 6.3276 | 2.1 | 0.12718 | 1.2 | 0.82 | 1986 | 30 | 2022 | 19 | 2059 | 22 | **96** |
| a33 | 36354 | 63 | 27 | 0.81 | 29620 | 0.36504 | 1.5 | 6.2127 | 2.0 | 0.12344 | 1.3 | 0.74 | 2006 | 25 | 2006 | 17 | 2006 | 24 | **100** |
| a34 | 16589 | 418 | 18 | 0.80 | 1343 | 0.03548 | 6.9 | 0.3370 | 7.3 | 0.06890 | 2.5 | 0.94 | 225 | 15 | 295 | 19 | 896 | 51 | 25 |
| a35 | 26701 | 165 | 14 | 0.85 | 1906 | 0.05481 | 6.0 | 0.7009 | 6.3 | 0.09274 | 2.0 | 0.95 | 344 | 20 | 539 | 27 | 1483 | 39 | 23 |
| a36 | 7981 | 105 | 17 | 2.52 | 13390 | 0.10394 | 1.6 | 0.8646 | 2.8 | 0.06033 | 2.4 | 0.55 | 637 | 10 | 633 | 13 | 615 | 51 | **104** |
| a37 | 81378 | 123 | 46 | 0.25 | 54365 | 0.34980 | 2.2 | 7.3121 | 3.0 | 0.15161 | 2.0 | 0.73 | 1934 | 37 | 2150 | 27 | 2364 | 35 | 82 |
| a38 | 28860 | 231 | 42 | 1.08 | 42933 | 0.15287 | 1.8 | 1.4343 | 2.3 | 0.06805 | 1.5 | 0.76 | 917 | 15 | 903 | 14 | 870 | 31 | **105** |
| a39 | 7994 | 94 | 12 | 1.05 | 12994 | 0.10956 | 2.0 | 0.9410 | 3.0 | 0.06230 | 2.2 | 0.67 | 670 | 13 | 673 | 15 | 684 | 47 | **98** |
| a40 | 5875 | 83 | 10 | 1.60 | 5090 | 0.08751 | 1.3 | 0.7900 | 2.7 | 0.06547 | 2.4 | 0.49 | 541 | 7 | 591 | 12 | 790 | 50 | 68 |
| a41 | 82034 | 168 | 51 | 0.40 | 9446 | 0.27689 | 1.5 | 4.8746 | 1.8 | 0.12768 | 1.0 | 0.84 | 1576 | 21 | 1798 | 15 | 2066 | 17 | 76 |
| a42 | 2726 | 31 | 4 | 0.79 | 3812 | 0.11348 | 1.9 | 0.9572 | 4.1 | 0.06117 | 3.7 | 0.46 | 693 | 13 | 682 | 21 | 645 | 79 | **107** |
| a43 | 5765 | 77 | 7 | 0.41 | 2116 | 0.10182 | 2.1 | 0.8507 | 3.4 | 0.06059 | 2.7 | 0.62 | 625 | 13 | 625 | 16 | 625 | 58 | **100** |
| a44 | 18034 | 223 | 25 | 0.65 | 5522 | 0.10141 | 1.9 | 0.8836 | 2.7 | 0.06320 | 1.9 | 0.71 | 623 | 11 | 643 | 13 | 715 | 40 | 87 |
| a45 | 8130 | 106 | 12 | 0.77 | 8818 | 0.10303 | 1.8 | 0.8605 | 3.4 | 0.06057 | 2.8 | 0.55 | 632 | 11 | 630 | 16 | 624 | 60 | **101** |
| a46 | 7252 | 33 | 5 | 0.03 | 150 | 0.11832 | 1.6 | 2.6214 | 3.1 | 0.16069 | 2.6 | 0.53 | 721 | 11 | 1307 | 23 | 2463 | 44 | 29 |
| a47 | 18392 | 249 | 33 | 0.94 | 1038 | 0.10196 | 3.5 | 0.8347 | 5.2 | 0.05938 | 3.8 | 0.68 | 626 | 21 | 616 | 24 | 581 | 83 | **108** |
| a48 | 6789 | 79 | 9 | 0.38 | 11161 | 0.11331 | 1.6 | 0.9665 | 3.2 | 0.06187 | 2.7 | 0.51 | 692 | 11 | 687 | 16 | 669 | 59 | **103** |
| a49 | 21636 | 250 | 28 | 0.74 | 4105 | 0.10026 | 2.2 | 0.8621 | 2.9 | 0.06237 | 1.9 | 0.76 | 616 | 13 | 631 | 14 | 687 | 40 | 90 |
| a50 | 9064 | 118 | 13 | 0.47 | 1978 | 0.10726 | 1.7 | 0.9137 | 3.4 | 0.06178 | 2.9 | 0.51 | 657 | 11 | 659 | 16 | 666 | 62 | **99** |
| a51 | 18937 | 240 | 31 | 1.52 | 3898 | 0.09624 | 2.0 | 0.8446 | 2.8 | 0.06365 | 1.9 | 0.73 | 592 | 11 | 622 | 13 | 730 | 40 | 81 |
| a52 | 3294 | 39 | 5 | 0.96 | 1866 | 0.10829 | 1.7 | 0.9091 | 4.2 | 0.06089 | 3.9 | 0.39 | 663 | 10 | 657 | 21 | 635 | 83 | **104** |
| a53 | 32510 | 112 | 28 | 0.39 | 29286 | 0.23075 | 1.8 | 3.5517 | 2.7 | 0.11163 | 2.0 | 0.67 | 1338 | 22 | 1539 | 21 | 1826 | 36 | 73 |
| a55 | 76569 | 54 | 40 | 1.11 | 21779 | 0.56906 | 1.8 | 16.4486 | 2.5 | 0.20964 | 1.7 | 0.71 | 2904 | 41 | 2903 | 24 | 2903 | 28 | **100** |
| a56 | 4775 | 4 | 2 | 0.07 | 62 | 0.20133 | 3.0 | 12.4006 | 4.5 | 0.44672 | 3.4 | 0.65 | 1182 | 32 | 2635 | 44 | 4074 | 51 | 29 |
| a57 | 7465 | 94 | 13 | 1.32 | 12419 | 0.10740 | 1.6 | 0.8985 | 2.7 | 0.06067 | 2.2 | 0.60 | 658 | 10 | 651 | 13 | 628 | 46 | **105** |
| a58 | 46246 | 113 | 34 | 0.54 | 22043 | 0.26865 | 3.6 | 3.9863 | 3.7 | 0.10762 | 1.0 | 0.96 | 1534 | 49 | 1631 | 31 | 1759 | 18 | 87 |
| a59 | 19638 | 256 | 30 | 0.81 | 32411 | 0.10276 | 1.8 | 0.8670 | 2.6 | 0.06119 | 1.9 | 0.69 | 631 | 11 | 634 | 12 | 646 | 41 | **98** |
| b01 | 3361 | 42 | 5 | 0.70 | 1701 | 0.11571 | 1.9 | 0.9588 | 4.4 | 0.06010 | 3.9 | 0.43 | 706 | 13 | 683 | 22 | 607 | 85 | 116 |
| b02 | 8854 | 86 | 13 | 0.77 | 3325 | 0.13378 | 1.8 | 1.1793 | 2.7 | 0.06393 | 2.0 | 0.66 | 809 | 14 | 791 | 15 | 739 | 43 | **109** |
| b03 | 8975 | 106 | 13 | 0.75 | 14721 | 0.11455 | 1.8 | 0.9723 | 3.0 | 0.06157 | 2.4 | 0.60 | 699 | 12 | 690 | 15 | 659 | 51 | **106** |
| b04 | 9125 | 41 | 7 | 0.08 | 133 | 0.13658 | 2.3 | 3.0049 | 4.5 | 0.15957 | 3.9 | 0.50 | 825 | 17 | 1409 | 35 | 2451 | 66 | 34 |
| b05 | 8679 | 102 | 12 | 0.59 | 14166 | 0.11192 | 1.6 | 0.9686 | 4.4 | 0.06277 | 4.1 | 0.37 | 684 | 11 | 688 | 22 | 700 | 87 | **98** |
| b06 | 5692 | 70 | 9 | 0.70 | 9528 | 0.11391 | 1.2 | 0.9487 | 2.9 | 0.06040 | 2.7 | 0.40 | 695 | 8 | 677 | 15 | 618 | 58 | 113 |
| b07 | 20518 | 261 | 31 | 0.57 | 33697 | 0.11044 | 1.9 | 0.9346 | 2.4 | 0.06137 | 1.4 | 0.82 | 675 | 12 | 670 | 12 | 652 | 29 | **104** |
| b08 | 357900 | 487 | 150 | 0.38 | 2996 | 0.26979 | 5.7 | 6.8176 | 5.9 | 0.18327 | 1.7 | 0.96 | 1540 | 78 | 2088 | 54 | 2683 | 29 | 57 |
| b09 | 119523 | 103 | 65 | 0.42 | 67733 | 0.57046 | 1.5 | 14.0296 | 1.9 | 0.17837 | 1.2 | 0.78 | 2910 | 36 | 2752 | 19 | 2638 | 20 | 110 |
| b10 | 25353 | 331 | 34 | 0.18 | 42233 | 0.10740 | 1.7 | 0.8941 | 2.3 | 0.06038 | 1.6 | 0.71 | 658 | 10 | 649 | 11 | 617 | 36 | **107** |
| b11 | 10269 | 49 | 8 | 0.10 | 156 | 0.12685 | 2.3 | 2.6179 | 3.5 | 0.14968 | 2.6 | 0.67 | 770 | 17 | 1306 | 26 | 2342 | 44 | 33 |
| b12 | 2387 | 28 | 4 | 1.32 | 3854 | 0.11243 | 2.3 | 0.9544 | 13.8 | 0.06157 | 13.6 | 0.17 | 687 | 15 | 680 | 71 | 659 | 291 | **104** |
| b13 | 20261 | 300 | 21 | 0.80 | 1174 | 0.05568 | 4.1 | 0.4570 | 4.8 | 0.05954 | 2.6 | 0.85 | 349 | 14 | 382 | 16 | 587 | 56 | 60 |
| b14 | 12019 | 132 | 19 | 1.21 | 945 | 0.11984 | 1.8 | 1.1836 | 4.1 | 0.07163 | 3.7 | 0.44 | 730 | 13 | 793 | 23 | 976 | 75 | 75 |
| b15 | 11875 | 157 | 16 | 0.36 | 7676 | 0.10341 | 1.5 | 0.8692 | 3.9 | 0.06097 | 3.6 | 0.39 | 634 | 9 | 635 | 18 | 638 | 77 | **99** |
| b16 | 7340 | 71 | 12 | 1.42 | 3782 | 0.13499 | 1.8 | 1.2423 | 4.5 | 0.06674 | 4.1 | 0.41 | 816 | 14 | 820 | 25 | 830 | 85 | **98** |
| b17 | 20589 | 346 | 39 | 0.85 | 33123 | 0.09965 | 1.8 | 0.8627 | 3.2 | 0.06279 | 2.6 | 0.57 | 612 | 11 | 632 | 15 | 701 | 56 | 87 |
| b18 | 21500 | 275 | 31 | 0.62 | 8913 | 0.10542 | 1.8 | 0.8911 | 2.8 | 0.06131 | 2.2 | 0.65 | 646 | 11 | 647 | 14 | 650 | 46 | **99** |
| b19 | 16611 | 215 | 27 | 0.94 | 10337 | 0.10714 | 1.9 | 0.8889 | 2.4 | 0.06017 | 1.5 | 0.79 | 656 | 12 | 646 | 11 | 610 | 32 | **108** |
| b20 | 11070 | 16 | 6 | 0.09 | 54 | 0.18753 | 2.1 | 9.1677 | 3.0 | 0.35457 | 2.1 | 0.72 | 1108 | 22 | 2355 | 28 | 3727 | 32 | 30 |
| b21 | 13578 | 158 | 22 | 1.24 | 2081 | 0.10788 | 2.5 | 0.9727 | 3.7 | 0.06539 | 2.8 | 0.66 | 660 | 15 | 690 | 19 | 787 | 58 | 84 |
| b22 | 8989 | 41 | 7 | 0.04 | 160 | 0.12967 | 1.1 | 2.7742 | 3.4 | 0.15516 | 3.2 | 0.31 | 786 | 8 | 1349 | 25 | 2404 | 54 | 33 |
| b23 | 2057 | 29 | 4 | 1.07 | 1487 | 0.10893 | 2.0 | 0.8494 | 18.4 | 0.05655 | 18.3 | 0.11 | 667 | 13 | 624 | 90 | 474 | 405 | 141 |
| b24 | 3700 | 4 | 2 | 1.13 | 96 | 0.22840 | 3.2 | 12.2149 | 8.4 | 0.38788 | 7.8 | 0.38 | 1326 | 38 | 2621 | 82 | 3863 | 117 | 34 |
| b25 | 10168 | 137 | 15 | 0.36 | 5682 | 0.10616 | 1.3 | 0.9337 | 2.6 | 0.06379 | 2.3 | 0.51 | 650 | 8 | 670 | 13 | 735 | 48 | 89 |
| b26 | 25919 | 375 | 47 | 1.47 | 1232 | 0.10769 | 1.9 | 0.9030 | 3.4 | 0.06081 | 2.9 | 0.55 | 659 | 12 | 653 | 17 | 633 | 62 | **104** |
| b27 | 8572 | 104 | 13 | 0.82 | 13720 | 0.11224 | 1.8 | 0.9609 | 4.0 | 0.06209 | 3.5 | 0.46 | 686 | 12 | 684 | 20 | 677 | 75 | **101** |
| b28 | 16167 | 219 | 22 | 0.10 | 12378 | 0.10711 | 1.8 | 0.9326 | 2.7 | 0.06315 | 2.0 | 0.66 | 656 | 11 | 669 | 13 | 713 | 43 | **92** |
| b29 | 11997 | 140 | 21 | 1.81 | 2554 | 0.10818 | 3.4 | 0.9840 | 4.3 | 0.06597 | 2.5 | 0.80 | 662 | 21 | 696 | 22 | 806 | 53 | 82 |
| b30 | 16877 | 228 | 24 | 0.50 | 15153 | 0.10190 | 1.5 | 0.8369 | 2.1 | 0.05957 | 1.5 | 0.71 | 626 | 9 | 617 | 10 | 588 | 32 | **106** |
| b31 | 5064 | 71 | 8 | 0.55 | 8375 | 0.10606 | 1.6 | 0.8956 | 4.9 | 0.06124 | 4.6 | 0.33 | 650 | 10 | 649 | 24 | 648 | 99 | **100** |
| b32 | 30754 | 440 | 46 | 1.26 | 458 | 0.08812 | 2.5 | 1.1241 | 3.5 | 0.09252 | 2.4 | 0.71 | 544 | 13 | 765 | 19 | 1478 | 46 | 37 |
| b34 | 9522 | 56 | 8 | 0.08 | 229 | 0.12286 | 2.1 | 2.1599 | 2.8 | 0.12751 | 1.9 | 0.74 | 747 | 15 | 1168 | 20 | 2064 | 34 | 36 |
| b35 | 8080 | 17 | 4 | 0.04 | 74 | 0.15054 | 2.5 | 5.5797 | 3.5 | 0.26882 | 2.4 | 0.72 | 904 | 21 | 1913 | 30 | 3299 | 38 | 27 |
| b36 | 20300 | 276 | 28 | 0.18 | 34164 | 0.10450 | 1.7 | 0.8640 | 2.5 | 0.05997 | 1.9 | 0.66 | 641 | 10 | 632 | 12 | 602 | 41 | **106** |
| b37 | 25297 | 326 | 35 | 0.69 | 3133 | 0.09638 | 1.7 | 0.8759 | 2.4 | 0.06591 | 1.7 | 0.71 | 593 | 10 | 639 | 11 | 804 | 35 | 74 |
| b38 | 9244 | 122 | 14 | 0.79 | 11071 | 0.10483 | 4.0 | 0.8772 | 4.5 | 0.06069 | 2.0 | 0.89 | 643 | 25 | 639 | 22 | 628 | 44 | **102** |
| b39 | 188366 | 321 | 141 | 0.44 | 133394 | 0.40494 | 1.3 | 7.1114 | 1.8 | 0.12737 | 1.2 | 0.74 | 2192 | 24 | 2125 | 16 | 2062 | 21 | **106** |
| b40 | 5541 | 72 | 8 | 0.63 | 1642 | 0.10457 | 2.2 | 0.9985 | 4.5 | 0.06925 | 3.9 | 0.50 | 641 | 14 | 703 | 23 | 906 | 80 | 71 |
| b41 | 5479 | 75 | 8 | 0.60 | 9215 | 0.10171 | 1.9 | 0.8420 | 3.7 | 0.06004 | 3.2 | 0.52 | 624 | 11 | 620 | 17 | 605 | 68 | **103** |
| b42 | 6658 | 84 | 11 | 1.26 | 2618 | 0.11690 | 1.4 | 1.0149 | 3.2 | 0.06297 | 2.9 | 0.43 | 713 | 9 | 711 | 16 | 707 | 61 | **101** |
| b43 | 10897 | 132 | 18 | 1.34 | 6195 | 0.10651 | 1.7 | 0.8932 | 2.9 | 0.06083 | 2.3 | 0.60 | 652 | 11 | 648 | 14 | 633 | 50 | **103** |
| b44 | 22392 | 41 | 17 | 0.68 | 17403 | 0.36479 | 2.2 | 6.3886 | 3.6 | 0.12702 | 2.8 | 0.60 | 2005 | 37 | 2031 | 32 | 2057 | 50 | **97** |
| b45 | 4992 | 69 | 8 | 0.66 | 7707 | 0.10586 | 1.8 | 0.8823 | 3.5 | 0.06045 | 3.1 | 0.50 | 649 | 11 | 642 | 17 | 620 | 66 | **105** |
| b46 | 61080 | 113 | 44 | 0.50 | 25925 | 0.34942 | 2.5 | 6.1629 | 2.8 | 0.12792 | 1.2 | 0.90 | 1932 | 41 | 1999 | 24 | 2070 | 21 | **93** |
| b47 | 13871 | 181 | 20 | 1.13 | 2031 | 0.09096 | 1.7 | 0.8324 | 2.6 | 0.06637 | 1.9 | 0.68 | 561 | 9 | 615 | 12 | 818 | 39 | 69 |
| b48 | 57593 | 112 | 58 | 2.20 | 30554 | 0.34451 | 1.8 | 5.9916 | 2.2 | 0.12613 | 1.3 | 0.81 | 1908 | 29 | 1975 | 19 | 2045 | 22 | **93** |
| b49 | 6536 | 86 | 10 | 0.70 | 11035 | 0.10538 | 2.1 | 0.8689 | 3.2 | 0.05980 | 2.5 | 0.65 | 646 | 13 | 635 | 15 | 596 | 53 | **108** |
| b50 | 17038 | 234 | 26 | 0.62 | 4101 | 0.10371 | 2.3 | 0.8642 | 4.9 | 0.06044 | 4.4 | 0.46 | 636 | 14 | 632 | 24 | 619 | 94 | **103** |
| b51 | 4219 | 46 | 6 | 0.81 | 2857 | 0.12461 | 1.3 | 1.0558 | 3.4 | 0.06145 | 3.1 | 0.39 | 757 | 9 | 732 | 18 | 655 | 67 | 116 |
| b52 | 4745 | 65 | 9 | 1.83 | 7997 | 0.10396 | 1.6 | 0.8592 | 3.6 | 0.05994 | 3.2 | 0.45 | 638 | 10 | 630 | 17 | 601 | 70 | **106** |
| b53 | 35111 | 500 | 47 | 0.61 | 1823 | 0.08445 | 2.2 | 0.7062 | 3.0 | 0.06065 | 2.0 | 0.74 | 523 | 11 | 543 | 13 | 627 | 43 | 83 |
| b54 | 71903 | 126 | 57 | 0.83 | 57525 | 0.38457 | 1.4 | 6.6945 | 1.7 | 0.12625 | 1.1 | 0.79 | 2098 | 25 | 2072 | 15 | 2046 | 19 | **102** |
| b55 | 7075 | 98 | 11 | 0.70 | 11729 | 0.10363 | 1.9 | 0.8700 | 3.1 | 0.06089 | 2.4 | 0.61 | 636 | 11 | 636 | 15 | 635 | 52 | **100** |
| b56 | 13705 | 173 | 23 | 1.27 | 1969 | 0.10577 | 2.2 | 0.9606 | 3.7 | 0.06587 | 3.0 | 0.60 | 648 | 14 | 684 | 19 | 802 | 62 | 81 |
| b57 | 13615 | 175 | 23 | 1.24 | 2082 | 0.10409 | 2.1 | 0.9422 | 3.5 | 0.06565 | 2.7 | 0.61 | 638 | 13 | 674 | 17 | 795 | 58 | 80 |
| b58 | 13077 | 182 | 26 | 1.74 | 4053 | 0.10469 | 1.8 | 0.8694 | 2.8 | 0.06023 | 2.1 | 0.64 | 642 | 11 | 635 | 13 | 612 | 46 | **105** |
| b59 | 12729 | 150 | 19 | 0.91 | 4896 | 0.11251 | 2.4 | 0.9731 | 3.4 | 0.06273 | 2.5 | 0.69 | 687 | 16 | 690 | 17 | 699 | 53 | **98** |
| b60 | 188020 | 165 | 128 | 1.16 | 13903 | 0.62269 | 1.4 | 16.9089 | 2.2 | 0.19694 | 1.7 | 0.64 | 3121 | 35 | 2930 | 21 | 2801 | 28 | 111 |

**Sample 5-MZ2, Imiter Granodiorite, n=80, granodiorite intrusive against the Saghro Group, Imiter, Eastern Saghro massif, Anti-Atlas, Morocco.**

**coordinates: N 31°, 20´, 18.5”; W 5°, 47´, 24.5”; elev 1514 m.**

**For the calculation of the age of intrusion (= 603 ± 6 Ma) grains a22, b4, b17, and b18 were used.**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 207Pba | Ub | Pbb | Thb | 206Pbc | 206Pbc | 2  | 207Pbc | 2  | 207Pbc | 2  | rhod | 206Pb | 2  | 207Pb | 2  | 207Pb | 2  |  |
| Number | (cps) | (ppm) | (ppm) | U | 204Pb | 238U | % | 235U | % | 206Pb | % |  | 238U | (Ma) | 235U | (Ma) | 206Pb | (Ma) | conc % |
| a1 | 7295 | 55 | 5 | 0.11 | 2955 | 0.10218 | 2.5 | 0.85607 | 4.4 | 0.06076 | 3.7 | 0.57 | 627 | 15 | 628 | 21 | 631 | 79 | **99** |
| a2 | 2607 | 19 | 2 | 0.30 | 4412 | 0.11499 | 1.9 | 0.94665 | 4.5 | 0.05971 | 4.1 | 0.42 | 702 | 12 | 676 | 22 | 593 | 89 | 118 |
| a3 | 5243 | 38 | 5 | 0.44 | 8678 | 0.10937 | 1.9 | 0.91635 | 3.5 | 0.06076 | 3.0 | 0.54 | 669 | 12 | 660 | 17 | 631 | 64 | **106** |
| a4 | 5146 | 39 | 5 | 0.40 | 8665 | 0.11078 | 2.0 | 0.91284 | 3.8 | 0.05977 | 3.2 | 0.53 | 677 | 13 | 659 | 18 | 595 | 70 | 114 |
| a5 | 8010 | 34 | 5 | 0.42 | 331 | 0.13421 | 2.0 | 1.08591 | 14.1 | 0.05868 | 14.0 | 0.14 | 812 | 16 | 747 | 78 | 555 | 305 | 146 |
| a6 | 6983 | 5 | 2 | 0.69 | 41 | 0.20710 | 3.0 | 11.05334 | 4.2 | 0.38709 | 3.0 | 0.70 | 1213 | 33 | 2528 | 40 | 3860 | 45 | 31 |
| a7 | 106920 | 73 | 24 | 0.19 | 42 | 0.14072 | 3.1 | 8.27181 | 4.6 | 0.42634 | 3.4 | 0.68 | 849 | 25 | 2261 | 42 | 4005 | 50 | 21 |
| a8 | 93222 | 108 | 32 | 0.17 | 63 | 0.18192 | 2.5 | 7.28827 | 8.0 | 0.29056 | 7.6 | 0.31 | 1077 | 25 | 2147 | 74 | 3421 | 119 | 31 |
| a9 | 4159 | 31 | 4 | 0.23 | 3787 | 0.11611 | 2.1 | 0.96936 | 4.1 | 0.06055 | 3.6 | 0.52 | 708 | 14 | 688 | 21 | 623 | 77 | 114 |
| a10 | 4014 | 32 | 4 | 0.33 | 6910 | 0.10751 | 2.0 | 0.87672 | 4.4 | 0.05914 | 3.9 | 0.46 | 658 | 13 | 639 | 21 | 572 | 85 | 115 |
| a11 | 103809 | 80 | 29 | 0.20 | 56 | 0.18711 | 2.7 | 8.66170 | 6.4 | 0.33574 | 5.8 | 0.41 | 1106 | 27 | 2303 | 60 | 3643 | 89 | 30 |
| a12 | 5519 | 43 | 5 | 0.37 | 2162 | 0.11110 | 2.0 | 0.92655 | 3.6 | 0.06049 | 3.0 | 0.56 | 679 | 13 | 666 | 18 | 621 | 65 | **109** |
| a13 | 65775 | 209 | 29 | 0.19 | 170 | 0.10810 | 2.4 | 2.15871 | 6.2 | 0.14483 | 5.7 | 0.39 | 662 | 15 | 1168 | 44 | 2286 | 98 | 29 |
| a14 | 5682 | 43 | 5 | 0.38 | 8983 | 0.11046 | 1.9 | 0.96355 | 4.6 | 0.06326 | 4.2 | 0.40 | 675 | 12 | 685 | 23 | 717 | 89 | **94** |
| a15 | 6361 | 53 | 6 | 0.25 | 10573 | 0.11268 | 2.7 | 0.94383 | 7.9 | 0.06075 | 7.5 | 0.34 | 688 | 18 | 675 | 40 | 630 | 161 | **109** |
| a16 | 4872 | 38 | 4 | 0.32 | 1552 | 0.11152 | 2.2 | 0.95644 | 4.4 | 0.06220 | 3.8 | 0.50 | 682 | 14 | 681 | 22 | 681 | 80 | **100** |
| a17 | 41912 | 71 | 16 | 0.42 | 81 | 0.16077 | 2.1 | 1.40535 | 11.0 | 0.06340 | 10.8 | 0.19 | 961 | 19 | 891 | 68 | 722 | 229 | 133 |
| a18 | 4616 | 39 | 5 | 0.40 | 7840 | 0.10838 | 2.3 | 0.88598 | 5.2 | 0.05929 | 4.6 | 0.44 | 663 | 14 | 644 | 25 | 578 | 101 | 115 |
| a19 | 2728 | 21 | 2 | 0.34 | 4479 | 0.10874 | 1.9 | 0.92002 | 4.2 | 0.06136 | 3.8 | 0.45 | 665 | 12 | 662 | 21 | 652 | 81 | **102** |
| a20 | 4064 | 34 | 4 | 0.30 | 2051 | 0.10817 | 1.9 | 0.89932 | 3.6 | 0.06030 | 3.1 | 0.53 | 662 | 12 | 651 | 18 | 614 | 67 | **108** |
| a21 | 108392 | 64 | 28 | 0.19 | 33 | 0.17289 | 2.9 | 11.74197 | 3.3 | 0.49257 | 1.7 | 0.86 | 1028 | 27 | 2584 | 32 | 4219 | 25 | 24 |
| a22 | 6878 | 64 | 7 | 0.37 | 11518 | 0.09879 | 2.1 | 0.81857 | 3.4 | 0.06010 | 2.6 | 0.62 | 607 | 12 | 607 | 16 | 607 | 57 | **100** |
| a23 | 55140 | 142 | 33 | 0.35 | 2726 | 0.19658 | 2.7 | 3.12605 | 3.9 | 0.11533 | 2.8 | 0.69 | 1157 | 28 | 1439 | 30 | 1885 | 51 | 61 |
| a24 | 4037 | 31 | 3 | 0.30 | 2374 | 0.10669 | 2.2 | 0.99171 | 8.9 | 0.06741 | 8.7 | 0.24 | 654 | 13 | 700 | 46 | 851 | 180 | 77 |
| a25 | 5128 | 24 | 3 | 0.31 | 262 | 0.12187 | 2.5 | 1.71464 | 11.4 | 0.10204 | 11.1 | 0.22 | 741 | 18 | 1014 | 76 | 1662 | 206 | 45 |
| a26 | 3521 | 32 | 3 | 0.29 | 6031 | 0.10580 | 2.1 | 0.85797 | 4.3 | 0.05882 | 3.8 | 0.49 | 648 | 13 | 629 | 20 | 560 | 82 | 116 |
| a27 | 82161 | 81 | 15 | 0.29 | 42 | 0.05932 | 10.3 | 0.61105 | 18.2 | 0.07471 | 15.0 | 0.56 | 371 | 37 | 484 | 73 | 1061 | 303 | 35 |
| a28 | 44137 | 37 | 13 | 0.25 | 44 | 0.14947 | 2.8 | 8.24150 | 4.7 | 0.39989 | 3.7 | 0.61 | 898 | 24 | 2258 | 43 | 3909 | 56 | 23 |
| a29 | 4687 | 44 | 5 | 0.40 | 8292 | 0.10958 | 1.9 | 0.85772 | 3.8 | 0.05677 | 3.3 | 0.50 | 670 | 12 | 629 | 18 | 483 | 72 | 139 |
| a30 | 6895 | 42 | 5 | 0.41 | 555 | 0.11563 | 2.2 | 1.00707 | 9.3 | 0.06317 | 9.0 | 0.24 | 705 | 15 | 707 | 48 | 714 | 191 | **99** |
| a31 | 38415 | 147 | 22 | 0.21 | 468 | 0.13568 | 2.0 | 2.02910 | 4.7 | 0.10846 | 4.3 | 0.41 | 820 | 15 | 1125 | 33 | 1774 | 78 | 46 |
| a32 | 4844 | 42 | 5 | 0.24 | 2144 | 0.11264 | 2.2 | 1.01008 | 5.2 | 0.06504 | 4.7 | 0.43 | 688 | 15 | 709 | 27 | 776 | 98 | 89 |
| a33 | 21190 | 41 | 11 | 0.32 | 89 | 0.15828 | 8.5 | 5.99968 | 19.0 | 0.27492 | 17.0 | 0.45 | 947 | 76 | 1976 | 181 | 3334 | 266 | 28 |
| a34 | 5297 | 44 | 5 | 0.25 | 1047 | 0.11832 | 2.0 | 1.09055 | 5.1 | 0.06685 | 4.7 | 0.39 | 721 | 14 | 749 | 28 | 833 | 99 | 87 |
| a35 | 7544 | 52 | 3 | 0.20 | 723 | 0.04565 | 3.7 | 0.51727 | 38.8 | 0.08218 | 38.6 | 0.10 | 288 | 10 | 423 | 144 | 1250 | 756 | 23 |
| a36 | 16355 | 119 | 14 | 0.26 | 769 | 0.10677 | 2.1 | 1.18925 | 7.2 | 0.08079 | 6.9 | 0.29 | 654 | 13 | 796 | 41 | 1216 | 136 | 54 |
| a37 | 19826 | 135 | 14 | 0.18 | 686 | 0.09643 | 2.4 | 1.13450 | 3.8 | 0.08533 | 3.0 | 0.63 | 593 | 14 | 770 | 21 | 1323 | 58 | 45 |
| a38 | 6000 | 35 | 5 | 0.35 | 600 | 0.11323 | 3.1 | 1.34470 | 9.2 | 0.08613 | 8.6 | 0.34 | 691 | 20 | 865 | 55 | 1341 | 167 | 52 |
| a39 | 3426 | 29 | 3 | 0.26 | 1903 | 0.10419 | 2.4 | 0.87517 | 5.8 | 0.06092 | 5.3 | 0.41 | 639 | 14 | 638 | 28 | 636 | 115 | **100** |
| a40 | 13161 | 49 | 7 | 0.44 | 257 | 0.11371 | 2.3 | 1.92658 | 7.6 | 0.12288 | 7.3 | 0.30 | 694 | 15 | 1090 | 52 | 1998 | 129 | 35 |
| a41 | 27821 | 30 | 9 | 0.19 | 47 | 0.16349 | 2.4 | 8.46467 | 5.7 | 0.37550 | 5.2 | 0.42 | 976 | 22 | 2282 | 53 | 3814 | 78 | 26 |
| a42 | 35126 | 71 | 13 | 0.18 | 107 | 0.14555 | 2.1 | 1.13387 | 19.5 | 0.05650 | 19.3 | 0.11 | 876 | 18 | 770 | 111 | 472 | 428 | 186 |
| a43 | 28720 | 62 | 11 | 0.18 | 123 | 0.14159 | 2.0 | 1.08805 | 16.4 | 0.05574 | 16.2 | 0.13 | 854 | 16 | 748 | 90 | 442 | 361 | 193 |
| a44 | 5472 | 40 | 4 | 0.35 | 2129 | 0.10172 | 3.5 | 0.84316 | 6.9 | 0.06012 | 5.9 | 0.50 | 624 | 21 | 621 | 32 | 608 | 129 | **103** |
| a45 | 31961 | 30 | 10 | 0.32 | 63 | 0.20014 | 2.7 | 8.07324 | 7.0 | 0.29256 | 6.5 | 0.39 | 1176 | 29 | 2239 | 66 | 3431 | 101 | 34 |
| a46 | 3298 | 22 | 2 | 0.36 | 5645 | 0.10167 | 1.7 | 0.82481 | 5.2 | 0.05884 | 4.9 | 0.32 | 624 | 10 | 611 | 24 | 561 | 107 | 111 |
| a47 | 59626 | 132 | 18 | 0.32 | 159 | 0.10485 | 2.5 | 0.92854 | 5.3 | 0.06423 | 4.7 | 0.46 | 643 | 15 | 667 | 26 | 749 | 100 | 86 |
| a48 | 6606 | 21 | 3 | 0.24 | 286 | 0.11343 | 2.9 | 1.59904 | 12.1 | 0.10224 | 11.8 | 0.24 | 693 | 19 | 970 | 79 | 1665 | 218 | 42 |
| a49 | 13028 | 31 | 5 | 0.26 | 239 | 0.13384 | 3.1 | 1.27168 | 10.7 | 0.06891 | 10.3 | 0.29 | 810 | 24 | 833 | 63 | 896 | 212 | **90** |
| a50 | 5030 | 27 | 3 | 0.29 | 8287 | 0.10238 | 2.6 | 0.86369 | 4.9 | 0.06119 | 4.1 | 0.53 | 628 | 16 | 632 | 23 | 646 | 89 | **97** |
| a51 | 42119 | 119 | 18 | 0.80 | 298 | 0.10777 | 2.8 | 1.61750 | 5.8 | 0.10885 | 5.0 | 0.49 | 660 | 18 | 977 | 37 | 1780 | 91 | 37 |
| a52 | 43052 | 154 | 18 | 0.21 | 659 | 0.11369 | 1.9 | 0.92330 | 3.0 | 0.05890 | 2.3 | 0.65 | 694 | 13 | 664 | 15 | 563 | 49 | 123 |
| a53 | 2998 | 15 | 2 | 0.29 | 5024 | 0.10601 | 2.3 | 0.87695 | 4.6 | 0.05999 | 4.0 | 0.51 | 650 | 14 | 639 | 22 | 603 | 86 | **108** |
| a54 | 158664 | 63 | 24 | 0.28 | 36 | 0.16589 | 5.0 | 10.28299 | 7.6 | 0.44957 | 5.7 | 0.66 | 989 | 46 | 2461 | 73 | 4084 | 85 | 24 |
| a55 | 70381 | 226 | 22 | 0.18 | 379 | 0.08925 | 3.5 | 0.73174 | 6.7 | 0.05946 | 5.7 | 0.52 | 551 | 18 | 558 | 29 | 584 | 123 | **94** |
| a56 | 6826 | 27 | 3 | 0.21 | 1194 | 0.10085 | 2.6 | 0.82540 | 12.4 | 0.05936 | 12.2 | 0.21 | 619 | 15 | 611 | 59 | 580 | 265 | **107** |
| a57 | 174732 | 52 | 30 | 0.51 | 2663 | 0.48285 | 1.9 | 11.22083 | 2.3 | 0.16854 | 1.3 | 0.83 | 2540 | 40 | 2542 | 22 | 2543 | 21 | **100** |
| a58 | 20378 | 21 | 4 | 0.23 | 96 | 0.13051 | 2.2 | 3.68481 | 9.4 | 0.20477 | 9.2 | 0.24 | 791 | 17 | 1568 | 78 | 2865 | 149 | 28 |
| a59 | 63484 | 64 | 13 | 0.30 | 96 | 0.15519 | 2.8 | 1.39680 | 14.4 | 0.06528 | 14.1 | 0.20 | 930 | 25 | 888 | 89 | 783 | 296 | 119 |
| a60 | 16495 | 20 | 3 | 0.28 | 127 | 0.11053 | 1.9 | 2.74021 | 5.3 | 0.17980 | 4.9 | 0.37 | 676 | 12 | 1339 | 40 | 2651 | 82 | 25 |
| b1 | 4591 | 60 | 7 | 0.31 | 2321 | 0.10643 | 3.0 | 0.93876 | 7.3 | 0.06397 | 6.7 | 0.41 | 652 | 19 | 672 | 37 | 741 | 142 | 88 |
| b2 | 3321 | 49 | 5 | 0.42 | 5548 | 0.10168 | 2.8 | 0.85070 | 5.8 | 0.06068 | 5.1 | 0.48 | 624 | 17 | 625 | 27 | 628 | 109 | **99** |
| b3 | 4303 | 59 | 6 | 0.30 | 7023 | 0.09949 | 2.8 | 0.84892 | 5.2 | 0.06189 | 4.4 | 0.53 | 611 | 16 | 624 | 25 | 670 | 94 | **91** |
| b4 | 4324 | 65 | 7 | 0.46 | 2485 | 0.09775 | 2.8 | 0.80782 | 5.1 | 0.05994 | 4.2 | 0.56 | 601 | 16 | 601 | 23 | 601 | 92 | **100** |
| b5 | 14179 | 101 | 11 | 0.20 | 17675 | 0.10411 | 3.8 | 1.16612 | 6.0 | 0.08124 | 4.6 | 0.64 | 638 | 23 | 785 | 33 | 1227 | 91 | 52 |
| b6 | 34981 | 412 | 43 | 0.22 | 1070 | 0.10175 | 3.3 | 0.86228 | 4.9 | 0.06147 | 3.7 | 0.66 | 625 | 20 | 631 | 24 | 656 | 79 | **95** |
| b7 | 69715 | 111 | 35 | 0.17 | 46 | 0.16234 | 3.9 | 9.10035 | 12.3 | 0.40657 | 11.7 | 0.32 | 970 | 35 | 2348 | 119 | 3934 | 175 | 25 |
| b8 | 45370 | 239 | 39 | 0.52 | 145 | 0.11819 | 2.6 | 2.52881 | 6.9 | 0.15518 | 6.4 | 0.38 | 720 | 18 | 1280 | 51 | 2404 | 108 | 30 |
| b9 | 6639 | 93 | 11 | 0.48 | 6805 | 0.10694 | 3.4 | 0.90668 | 4.9 | 0.06149 | 3.6 | 0.69 | 655 | 21 | 655 | 24 | 656 | 76 | **100** |
| b10 | 41581 | 143 | 27 | 0.31 | 93 | 0.12244 | 3.2 | 3.73245 | 9.3 | 0.22108 | 8.7 | 0.34 | 745 | 22 | 1578 | 77 | 2989 | 140 | 25 |
| b11 | 6002 | 72 | 8 | 0.36 | 1118 | 0.10537 | 2.4 | 1.07029 | 5.6 | 0.07367 | 5.1 | 0.42 | 646 | 15 | 739 | 30 | 1032 | 103 | 63 |
| b12 | 57215 | 116 | 23 | 0.16 | 42 | 0.08073 | 13.5 | 4.59439 | 13.7 | 0.41275 | 2.7 | 0.98 | 500 | 65 | 1748 | 121 | 3956 | 40 | 13 |
| b13 | 5804 | 87 | 11 | 0.82 | 1549 | 0.10235 | 3.5 | 0.84980 | 4.9 | 0.06022 | 3.5 | 0.71 | 628 | 21 | 625 | 23 | 611 | 75 | **103** |
| b14 | 42566 | 271 | 35 | 0.30 | 179 | 0.10229 | 2.7 | 2.04212 | 7.2 | 0.14479 | 6.7 | 0.38 | 628 | 16 | 1130 | 50 | 2285 | 115 | 27 |
| b15 | 5592 | 4 | 3 | 0.77 | 37 | 0.25132 | 6.4 | 17.40799 | 8.2 | 0.50236 | 5.1 | 0.78 | 1445 | 84 | 2958 | 82 | 4248 | 76 | 34 |
| b16 | 8737 | 32 | 6 | 0.23 | 100 | 0.12933 | 3.0 | 3.78491 | 9.2 | 0.21226 | 8.7 | 0.33 | 784 | 22 | 1590 | 76 | 2923 | 140 | 27 |
| b17 | 4551 | 72 | 8 | 0.47 | 3994 | 0.09862 | 2.6 | 0.81797 | 4.4 | 0.06015 | 3.6 | 0.59 | 606 | 15 | 607 | 20 | 609 | 77 | **100** |
| b18 | 2251 | 33 | 3 | 0.37 | 1698 | 0.09717 | 2.0 | 0.80155 | 4.8 | 0.05983 | 4.4 | 0.42 | 598 | 12 | 598 | 22 | 597 | 95 | **100** |
| b19 | 2666 | 41 | 5 | 0.62 | 2419 | 0.11275 | 3.8 | 0.89136 | 7.9 | 0.05734 | 7.0 | 0.48 | 689 | 25 | 647 | 39 | 505 | 153 | 137 |
| b20 | 5286 | 54 | 7 | 0.46 | 513 | 0.11995 | 3.2 | 1.41882 | 12.9 | 0.08579 | 12.5 | 0.25 | 730 | 22 | 897 | 80 | 1333 | 241 | 55 |

**Sample 6-MZ6, tuffitic sandstone (tuffite), n=80, M´Gouna Group, Imiter, Eastern Saghro massif, Anti-Atlas, Morocco.**

**coordinates: N 31°, 20´, 17.4”; W 5°, 47´, 10.1”; elev 1541 m.**

**For the calculation of the maximum depositional age (MDA = 571 ± 4 Ma) grains a8, a13, a28, a30, a36, a45, b13, and b19 were used.**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 207Pba | Ub | Pbb | Thb | 206Pbc | 206Pbc | 2  | 207Pbc | 2  | 207Pbc | 2  | rhod | 206Pb | 2  | 207Pb | 2  | 207Pb | 2  |  |
| Number | (cps) | (ppm) | (ppm) | U | 204Pb | 238U | % | 235U | % | 206Pb | % |  | 238U | (Ma) | 235U | (Ma) | 206Pb | (Ma) | conc % |
| a01 | 16099 | 159 | 30 | 0.13 | 4579 | 0.19125 | 1.2 | 2.21385 | 6.4 | 0.08396 | 6.3 | 0.18 | 1128 | 12 | 1185 | 46 | 1292 | 123 | 87 |
| a03 | 40908 | 514 | 61 | 0.44 | 184 | 0.10002 | 3.2 | 0.82868 | 5.3 | 0.06009 | 4.3 | 0.60 | 615 | 19 | 613 | 25 | 607 | 92 | **101** |
| a04 | 20987 | 342 | 38 | 0.51 | 834 | 0.09735 | 2.1 | 0.79857 | 3.8 | 0.05949 | 3.2 | 0.56 | 599 | 12 | 596 | 17 | 585 | 69 | **102** |
| a05 | 128218 | 289 | 94 | 0.15 | 1650 | 0.30558 | 2.2 | 6.54186 | 2.4 | 0.15527 | 0.8 | 0.93 | 1719 | 34 | 2052 | 21 | 2405 | 14 | 71 |
| a06 | 9828 | 194 | 16 | 0.09 | 16295 | 0.08481 | 3.1 | 0.71146 | 4.7 | 0.06084 | 3.5 | 0.67 | 525 | 16 | 546 | 20 | 634 | 75 | 83 |
| a07 | 5483 | 119 | 12 | 0.24 | 2961 | 0.09862 | 1.7 | 0.82834 | 4.4 | 0.06092 | 4.1 | 0.37 | 606 | 10 | 613 | 21 | 636 | 88 | **95** |
| a08 | 32037 | 548 | 58 | 0.42 | 261 | 0.09241 | 2.3 | 0.75601 | 3.8 | 0.05933 | 3.0 | 0.61 | 570 | 13 | 572 | 17 | 579 | 66 | **98** |
| a09 | 102262 | 280 | 64 | 0.12 | 63548 | 0.21428 | 2.8 | 4.75376 | 4.5 | 0.16090 | 3.5 | 0.63 | 1252 | 32 | 1777 | 39 | 2465 | 60 | 51 |
| a10 | 47040 | 381 | 48 | 0.33 | 125 | 0.09868 | 1.4 | 0.81813 | 7.5 | 0.06013 | 7.4 | 0.18 | 607 | 8 | 607 | 35 | 608 | 160 | **100** |
| a11 | 83443 | 677 | 65 | 0.15 | 80 | 0.05798 | 3.3 | 1.94090 | 4.8 | 0.24278 | 3.4 | 0.69 | 363 | 12 | 1095 | 32 | 3138 | 54 | 12 |
| a12 | 62015 | 831 | 77 | 0.16 | 297 | 0.08173 | 2.1 | 0.68428 | 4.2 | 0.06072 | 3.6 | 0.50 | 506 | 10 | 529 | 17 | 629 | 77 | 80 |
| a13 | 11009 | 277 | 26 | 0.26 | 18877 | 0.09337 | 1.4 | 0.75816 | 2.9 | 0.05889 | 2.5 | 0.49 | 575 | 8 | 573 | 13 | 563 | 54 | **102** |
| a14 | 3702 | 78 | 8 | 0.44 | 5115 | 0.10054 | 2.3 | 0.84572 | 4.1 | 0.06101 | 3.4 | 0.56 | 618 | 13 | 622 | 19 | 640 | 73 | **97** |
| a15 | 65214 | 747 | 77 | 0.28 | 58 | 0.08331 | 2.6 | 0.68382 | 5.9 | 0.05953 | 5.3 | 0.44 | 516 | 13 | 529 | 25 | 587 | 116 | 88 |
| a16 | 10099 | 197 | 19 | 0.22 | 1673 | 0.09551 | 1.7 | 0.87970 | 4.6 | 0.06680 | 4.3 | 0.37 | 588 | 9 | 641 | 22 | 832 | 89 | 71 |
| a17 | 39603 | 476 | 51 | 0.23 | 216 | 0.08746 | 1.1 | 1.64550 | 4.8 | 0.13645 | 4.7 | 0.24 | 541 | 6 | 988 | 31 | 2183 | 82 | 25 |
| a18 | 25481 | 348 | 43 | 0.40 | 420 | 0.10671 | 1.5 | 0.90160 | 4.7 | 0.06128 | 4.5 | 0.31 | 654 | 9 | 653 | 23 | 649 | 96 | **101** |
| a19 | 13215 | 273 | 25 | 0.21 | 1610 | 0.08944 | 1.9 | 0.84891 | 3.7 | 0.06883 | 3.2 | 0.51 | 552 | 10 | 624 | 18 | 894 | 66 | 62 |
| a20 | 7329 | 130 | 19 | 0.66 | 2261 | 0.12392 | 1.6 | 1.13810 | 3.1 | 0.06661 | 2.7 | 0.50 | 753 | 11 | 772 | 17 | 826 | 56 | **91** |
| a21 | 126033 | 914 | 92 | 0.10 | 75 | 0.06650 | 3.3 | 0.58662 | 7.3 | 0.06398 | 6.5 | 0.45 | 415 | 13 | 469 | 28 | 741 | 138 | 56 |
| a22 | 192518 | 1377 | 150 | 0.10 | 55 | 0.05804 | 1.3 | 2.74950 | 2.6 | 0.34356 | 2.3 | 0.48 | 364 | 4 | 1342 | 20 | 3679 | 35 | 10 |
| a23 | 200644 | 1546 | 157 | 0.13 | 56 | 0.05430 | 2.4 | 2.51606 | 2.9 | 0.33607 | 1.7 | 0.83 | 341 | 8 | 1277 | 22 | 3645 | 25 | 9 |
| a24 | 8023 | 197 | 19 | 0.22 | 13486 | 0.09395 | 1.9 | 0.77605 | 3.1 | 0.05991 | 2.4 | 0.62 | 579 | 10 | 583 | 14 | 600 | 52 | **96** |
| a25 | 7459 | 138 | 18 | 0.47 | 2090 | 0.12061 | 1.4 | 1.11115 | 3.2 | 0.06682 | 2.9 | 0.44 | 734 | 10 | 759 | 17 | 832 | 60 | 88 |
| a26 | 24785 | 619 | 59 | 0.35 | 41666 | 0.09055 | 1.5 | 0.74899 | 2.1 | 0.05999 | 1.6 | 0.69 | 559 | 8 | 568 | 9 | 603 | 34 | **93** |
| a27 | 15997 | 400 | 37 | 0.29 | 14559 | 0.08907 | 1.5 | 0.74416 | 2.2 | 0.06059 | 1.7 | 0.67 | 550 | 8 | 565 | 10 | 625 | 36 | 88 |
| a28 | 10837 | 271 | 27 | 0.38 | 1491 | 0.09220 | 2.2 | 0.76677 | 3.1 | 0.06031 | 2.2 | 0.69 | 569 | 12 | 578 | 14 | 615 | 48 | **92** |
| a29 | 5996 | 149 | 15 | 0.33 | 10304 | 0.09583 | 1.6 | 0.77673 | 3.1 | 0.05879 | 2.6 | 0.54 | 590 | 9 | 584 | 14 | 559 | 56 | **105** |
| a30 | 14916 | 373 | 39 | 0.57 | 25281 | 0.09249 | 1.7 | 0.75753 | 2.5 | 0.05941 | 1.9 | 0.67 | 570 | 9 | 573 | 11 | 582 | 41 | **98** |
| a31 | 12126 | 77 | 14 | 0.12 | 11523 | 0.18498 | 4.1 | 2.72042 | 5.3 | 0.10666 | 3.3 | 0.78 | 1094 | 42 | 1334 | 40 | 1743 | 61 | 63 |
| a32 | 7547 | 196 | 19 | 0.23 | 12705 | 0.09681 | 1.1 | 0.79737 | 2.8 | 0.05974 | 2.5 | 0.41 | 596 | 6 | 595 | 13 | 594 | 54 | **100** |
| a33 | 10450 | 274 | 26 | 0.23 | 17563 | 0.09647 | 1.5 | 0.79754 | 2.7 | 0.05996 | 2.2 | 0.57 | 594 | 9 | 595 | 12 | 602 | 48 | **99** |
| a34 | 10440 | 276 | 26 | 0.22 | 14406 | 0.09470 | 1.8 | 0.78646 | 2.8 | 0.06023 | 2.1 | 0.65 | 583 | 10 | 589 | 12 | 612 | 45 | **95** |
| a35 | 17628 | 424 | 38 | 0.09 | 2858 | 0.09187 | 1.8 | 0.77521 | 3.6 | 0.06120 | 3.1 | 0.50 | 567 | 10 | 583 | 16 | 646 | 66 | 88 |
| a36 | 12690 | 337 | 32 | 0.25 | 21552 | 0.09272 | 1.6 | 0.76020 | 2.6 | 0.05946 | 2.0 | 0.63 | 572 | 9 | 574 | 11 | 584 | 43 | **98** |
| a37 | 16486 | 446 | 45 | 0.56 | 27673 | 0.08933 | 1.8 | 0.73960 | 2.5 | 0.06005 | 1.8 | 0.71 | 552 | 9 | 562 | 11 | 605 | 38 | **91** |
| a40 | 17841 | 398 | 39 | 0.22 | 1183 | 0.09663 | 1.6 | 0.78596 | 2.5 | 0.05899 | 2.0 | 0.62 | 595 | 9 | 589 | 11 | 567 | 43 | **105** |
| a41 | 8510 | 219 | 22 | 0.26 | 14209 | 0.09990 | 1.5 | 0.82634 | 3.4 | 0.05999 | 3.0 | 0.44 | 614 | 9 | 612 | 16 | 603 | 65 | **102** |
| a42 | 7197 | 191 | 19 | 0.30 | 6929 | 0.09805 | 1.3 | 0.80045 | 2.7 | 0.05921 | 2.4 | 0.47 | 603 | 7 | 597 | 12 | 575 | 53 | **105** |
| a43 | 9441 | 224 | 21 | 0.30 | 11924 | 0.09187 | 1.6 | 0.79447 | 3.4 | 0.06272 | 3.0 | 0.48 | 567 | 9 | 594 | 15 | 699 | 64 | 81 |
| a44 | 9510 | 277 | 25 | 0.21 | 7240 | 0.09102 | 3.5 | 0.74537 | 5.6 | 0.05939 | 4.3 | 0.63 | 562 | 19 | 566 | 24 | 582 | 93 | **97** |
| a45 | 14222 | 291 | 30 | 0.47 | 723 | 0.09185 | 1.8 | 0.75416 | 4.4 | 0.05955 | 4.1 | 0.41 | 566 | 10 | 571 | 20 | 587 | 88 | **96** |
| a46 | 8039 | 231 | 23 | 0.41 | 13071 | 0.09515 | 1.6 | 0.79188 | 3.0 | 0.06036 | 2.5 | 0.55 | 586 | 9 | 592 | 14 | 617 | 54 | **95** |
| a47 | 116056 | 890 | 104 | 0.23 | 71 | 0.06435 | 5.4 | 2.45207 | 6.9 | 0.27638 | 4.4 | 0.78 | 402 | 21 | 1258 | 51 | 3343 | 68 | 12 |
| a48 | 6872 | 177 | 17 | 0.16 | 6930 | 0.09796 | 1.7 | 0.83124 | 3.1 | 0.06155 | 2.5 | 0.56 | 602 | 10 | 614 | 14 | 658 | 54 | **92** |
| a50 | 806 | 20 | 3 | 1.00 | 1346 | 0.10148 | 2.3 | 0.84938 | 9.3 | 0.06071 | 9.0 | 0.24 | 623 | 13 | 624 | 44 | 629 | 194 | **99** |
| a51 | 5726 | 164 | 16 | 0.32 | 9751 | 0.09618 | 2.0 | 0.78406 | 3.5 | 0.05912 | 2.9 | 0.56 | 592 | 11 | 588 | 16 | 572 | 63 | **104** |
| a52 | 6334 | 160 | 19 | 0.22 | 9883 | 0.11681 | 2.3 | 1.03135 | 4.2 | 0.06404 | 3.5 | 0.56 | 712 | 16 | 720 | 22 | 743 | 73 | **96** |
| a53 | 12662 | 371 | 33 | 0.20 | 5980 | 0.08989 | 2.1 | 0.76581 | 3.0 | 0.06179 | 2.1 | 0.71 | 555 | 11 | 577 | 13 | 667 | 45 | 83 |
| a54 | 4776 | 134 | 14 | 0.28 | 8220 | 0.10171 | 1.3 | 0.82236 | 3.0 | 0.05864 | 2.7 | 0.42 | 624 | 8 | 609 | 14 | 554 | 59 | 113 |
| a55 | 8363 | 215 | 21 | 0.27 | 1525 | 0.09552 | 1.9 | 0.89563 | 4.8 | 0.06801 | 4.5 | 0.39 | 588 | 11 | 649 | 24 | 869 | 92 | 68 |
| a56 | 142278 | 1147 | 122 | 0.28 | 63 | 0.06122 | 3.4 | 0.58236 | 9.0 | 0.06899 | 8.3 | 0.38 | 383 | 13 | 466 | 34 | 899 | 171 | 43 |
| a57 | 194427 | 1692 | 216 | 0.15 | 46 | 0.09047 | 4.9 | 0.75197 | 12.8 | 0.06028 | 11.8 | 0.38 | 558 | 26 | 569 | 57 | 614 | 255 | **91** |
| a58 | 14907 | 374 | 40 | 0.35 | 2964 | 0.10180 | 2.2 | 0.87174 | 3.9 | 0.06211 | 3.2 | 0.57 | 625 | 13 | 637 | 18 | 678 | 68 | **92** |
| a59 | 14913 | 392 | 39 | 0.29 | 3094 | 0.09543 | 1.5 | 0.78717 | 3.4 | 0.05983 | 3.1 | 0.43 | 588 | 8 | 590 | 15 | 597 | 67 | **98** |
| a60 | 3835 | 110 | 10 | 0.19 | 3113 | 0.09095 | 1.9 | 0.78232 | 3.3 | 0.06239 | 2.7 | 0.57 | 561 | 10 | 587 | 15 | 687 | 57 | 82 |
| b01 | 15733 | 276 | 31 | 0.29 | 347 | 0.10142 | 2.7 | 0.85455 | 7.7 | 0.06111 | 7.2 | 0.35 | 623 | 16 | 627 | 37 | 643 | 155 | **97** |
| b02 | 12453 | 318 | 31 | 0.17 | 1407 | 0.09803 | 1.4 | 0.82027 | 4.3 | 0.06069 | 4.0 | 0.33 | 603 | 8 | 608 | 20 | 628 | 87 | **96** |
| b03 | 20597 | 465 | 49 | 0.20 | 628 | 0.10031 | 1.5 | 1.16130 | 2.6 | 0.08396 | 2.1 | 0.56 | 616 | 9 | 783 | 14 | 1292 | 42 | 48 |
| b04 | 9818 | 307 | 30 | 0.29 | 16610 | 0.09356 | 1.9 | 0.76930 | 3.4 | 0.05964 | 2.8 | 0.57 | 577 | 11 | 579 | 15 | 590 | 60 | **98** |
| b05 | 12304 | 379 | 36 | 0.21 | 6291 | 0.09434 | 1.4 | 0.79591 | 2.6 | 0.06119 | 2.2 | 0.53 | 581 | 8 | 595 | 12 | 646 | 47 | 90 |
| b06 | 6083 | 188 | 23 | 0.89 | 6006 | 0.09817 | 2.4 | 0.81118 | 3.6 | 0.05993 | 2.7 | 0.66 | 604 | 14 | 603 | 17 | 601 | 59 | **100** |
| b07 | 5198 | 24 | 6 | 0.82 | 66 | 0.13845 | 2.5 | 5.66854 | 4.7 | 0.29694 | 3.9 | 0.54 | 836 | 20 | 1927 | 41 | 3454 | 61 | 24 |
| b08 | 7096 | 218 | 20 | 0.19 | 8894 | 0.09426 | 1.4 | 0.78902 | 3.0 | 0.06071 | 2.6 | 0.47 | 581 | 8 | 591 | 13 | 629 | 56 | **92** |
| b09 | 8690 | 198 | 24 | 0.96 | 833 | 0.09593 | 1.8 | 0.78707 | 3.8 | 0.05950 | 3.4 | 0.46 | 591 | 10 | 590 | 17 | 586 | 73 | **101** |
| b10 | 7337 | 225 | 23 | 0.40 | 10789 | 0.09712 | 1.7 | 0.79610 | 3.4 | 0.05945 | 2.9 | 0.51 | 597 | 10 | 595 | 15 | 584 | 63 | **102** |
| b11 | 146797 | 1457 | 160 | 0.08 | 61 | 0.06436 | 2.0 | 2.75204 | 4.7 | 0.31011 | 4.2 | 0.43 | 402 | 8 | 1343 | 36 | 3521 | 66 | 11 |
| b12 | 6256 | 199 | 18 | 0.21 | 5422 | 0.09154 | 1.7 | 0.75810 | 3.0 | 0.06006 | 2.4 | 0.56 | 565 | 9 | 573 | 13 | 606 | 53 | **93** |
| b13 | 3104 | 98 | 9 | 0.27 | 5280 | 0.09192 | 2.0 | 0.75166 | 4.4 | 0.05931 | 3.9 | 0.45 | 567 | 11 | 569 | 19 | 579 | 86 | **98** |
| b14 | 227045 | 1877 | 263 | 0.02 | 120 | 0.11281 | 3.9 | 1.49004 | 4.2 | 0.09579 | 1.5 | 0.93 | 689 | 26 | 926 | 26 | 1544 | 29 | 45 |
| b15 | 86447 | 1037 | 109 | 0.18 | 95 | 0.07013 | 3.5 | 2.16165 | 7.9 | 0.22354 | 7.1 | 0.44 | 437 | 15 | 1169 | 56 | 3006 | 114 | 15 |
| b16 | 8586 | 262 | 25 | 0.30 | 14500 | 0.09381 | 1.7 | 0.77247 | 2.5 | 0.05972 | 1.9 | 0.68 | 578 | 10 | 581 | 11 | 594 | 41 | **97** |
| b17 | 75705 | 1055 | 104 | 0.08 | 83 | 0.07119 | 3.3 | 2.01936 | 5.1 | 0.20574 | 3.9 | 0.64 | 443 | 14 | 1122 | 35 | 2872 | 63 | 15 |
| b18 | 17982 | 523 | 45 | 0.13 | 1493 | 0.08708 | 2.2 | 0.74012 | 3.8 | 0.06164 | 3.2 | 0.56 | 538 | 11 | 562 | 17 | 662 | 68 | 81 |
| b19 | 11092 | 327 | 31 | 0.21 | 1288 | 0.09231 | 2.1 | 0.75642 | 3.2 | 0.05943 | 2.4 | 0.66 | 569 | 12 | 572 | 14 | 583 | 52 | **98** |
| b20 | 9260 | 239 | 25 | 0.17 | 3225 | 0.10421 | 4.0 | 1.03441 | 8.0 | 0.07199 | 6.9 | 0.50 | 639 | 24 | 721 | 42 | 986 | 140 | 65 |

**Sample 7-MZ5, grey sandstone, n=120, M´Gouna Group, Imiter, Eastern Saghro massif, Anti-Atlas, Morocco.**

**coordinates: N 31°, 20´, 17.8”; W 5°, 47´, 9.3”; elev 1542 m.**

**For the calculation of the maximum despositional age (MDA = 570 ± 3 Ma) grains a17, a20, a38, a44, a49, b23, and b42 were used.**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 207Pba | Ub | Pbb | Thb | 206Pbc | 206Pbc | 2  | 207Pbc | 2  | 207Pbc | 2  | rhod | 206Pb | 2  | 207Pb | 2  | 207Pb | 2  |  |
| Number | (cps) | (ppm) | (ppm) | U | 204Pb | 238U | % | 235U | % | 206Pb | % |  | 238U | (Ma) | 235U | (Ma) | 206Pb | (Ma) | conc % |
| a01 | 13020 | 179 | 22 | 0.51 | 612 | 0.10528 | 1.5 | 1.1099 | 6.4 | 0.07646 | 6.2 | 0.24 | 645 | 10 | 758 | 35 | 1107 | 123 | 58 |
| a02 | 13216 | 219 | 26 | 0.69 | 4891 | 0.10022 | 2.0 | 0.8593 | 3.0 | 0.06219 | 2.2 | 0.67 | 616 | 12 | 630 | 14 | 681 | 47 | **90** |
| a03 | 93095 | 904 | 84 | 0.14 | 19839 | 0.07210 | 3.9 | 1.6850 | 10.6 | 0.16950 | 9.8 | 0.37 | 449 | 17 | 1003 | 70 | 2553 | 164 | 18 |
| a04 | 9603 | 160 | 20 | 0.87 | 7015 | 0.09867 | 1.8 | 0.8185 | 2.8 | 0.06017 | 2.2 | 0.62 | 607 | 10 | 607 | 13 | 610 | 48 | **100** |
| a05 | 7485 | 130 | 13 | 0.20 | 12511 | 0.09716 | 1.4 | 0.8032 | 2.9 | 0.05996 | 2.6 | 0.47 | 598 | 8 | 599 | 13 | 602 | 56 | **99** |
| a06 | 131924 | 640 | 77 | 0.27 | 93 | 0.07889 | 1.9 | 0.7033 | 4.0 | 0.06465 | 3.5 | 0.48 | 490 | 9 | 541 | 17 | 763 | 73 | 64 |
| a07 | 42951 | 332 | 35 | 0.33 | 204 | 0.08551 | 1.4 | 0.7307 | 8.7 | 0.06197 | 8.6 | 0.16 | 529 | 7 | 557 | 38 | 673 | 184 | 79 |
| a08 | 22451 | 365 | 34 | 0.24 | 1097 | 0.08886 | 1.3 | 0.8514 | 2.8 | 0.06949 | 2.5 | 0.47 | 549 | 7 | 625 | 13 | 913 | 52 | 60 |
| a09 | 16498 | 237 | 20 | 0.20 | 903 | 0.08089 | 2.2 | 0.7017 | 5.1 | 0.06291 | 4.5 | 0.44 | 501 | 11 | 540 | 21 | 705 | 97 | 71 |
| a10 | 133760 | 645 | 90 | 0.14 | 54 | 0.08444 | 1.6 | 3.4055 | 2.3 | 0.29251 | 1.6 | 0.71 | 523 | 8 | 1506 | 18 | 3431 | 25 | 15 |
| a11 | 56714 | 604 | 61 | 0.16 | 267 | 0.08714 | 1.9 | 1.3826 | 5.5 | 0.11507 | 5.2 | 0.34 | 539 | 10 | 882 | 33 | 1881 | 93 | 29 |
| a12 | 35841 | 577 | 47 | 0.14 | 841 | 0.08046 | 2.5 | 0.6466 | 3.5 | 0.05829 | 2.5 | 0.71 | 499 | 12 | 506 | 14 | 541 | 54 | **92** |
| a13 | 10460 | 186 | 18 | 0.25 | 4171 | 0.09551 | 1.6 | 0.7871 | 2.6 | 0.05977 | 2.0 | 0.63 | 588 | 9 | 590 | 12 | 595 | 43 | **99** |
| a14 | 12061 | 216 | 20 | 0.22 | 20400 | 0.09403 | 1.5 | 0.7673 | 2.7 | 0.05918 | 2.2 | 0.58 | 579 | 8 | 578 | 12 | 574 | 47 | **101** |
| a15 | 83645 | 777 | 80 | 0.10 | 182 | 0.08305 | 1.4 | 1.6749 | 2.3 | 0.14627 | 1.8 | 0.61 | 514 | 7 | 999 | 14 | 2303 | 31 | 22 |
| a16 | 78821 | 634 | 60 | 0.11 | 234 | 0.07941 | 1.7 | 0.6650 | 3.6 | 0.06073 | 3.1 | 0.47 | 493 | 8 | 518 | 15 | 630 | 68 | 78 |
| a17 | 31349 | 641 | 60 | 0.24 | 33122 | 0.09262 | 2.5 | 0.7564 | 3.4 | 0.05923 | 2.4 | 0.72 | 571 | 14 | 572 | 15 | 576 | 52 | **99** |
| a18 | 16239 | 295 | 30 | 0.40 | 26722 | 0.09224 | 1.8 | 0.7719 | 2.7 | 0.06069 | 2.0 | 0.67 | 569 | 10 | 581 | 12 | 628 | 43 | **91** |
| a19 | 32100 | 248 | 26 | 0.14 | 505 | 0.09074 | 3.9 | 1.4540 | 4.2 | 0.11622 | 1.6 | 0.93 | 560 | 21 | 912 | 26 | 1899 | 29 | 29 |
| a20 | 16711 | 312 | 30 | 0.32 | 7387 | 0.09225 | 2.0 | 0.7531 | 2.8 | 0.05921 | 2.0 | 0.70 | 569 | 11 | 570 | 12 | 575 | 44 | **99** |
| a21 | 15975 | 258 | 28 | 0.49 | 2011 | 0.09493 | 1.4 | 0.7849 | 2.3 | 0.05997 | 1.9 | 0.61 | 585 | 8 | 588 | 10 | 602 | 40 | **97** |
| a22 | 15513 | 250 | 34 | 0.26 | 2315 | 0.13441 | 4.6 | 1.2235 | 5.4 | 0.06602 | 2.8 | 0.85 | 813 | 35 | 811 | 30 | 807 | 59 | **101** |
| a23 | 9549 | 164 | 16 | 0.21 | 16072 | 0.09690 | 1.5 | 0.7933 | 2.9 | 0.05938 | 2.5 | 0.51 | 596 | 9 | 593 | 13 | 581 | 55 | **103** |
| a24 | 7946 | 138 | 14 | 0.28 | 13414 | 0.09859 | 1.6 | 0.8074 | 2.8 | 0.05939 | 2.3 | 0.58 | 606 | 9 | 601 | 13 | 582 | 49 | **104** |
| a25 | 27402 | 455 | 55 | 0.77 | 2925 | 0.09699 | 1.8 | 0.7970 | 3.0 | 0.05960 | 2.4 | 0.59 | 597 | 10 | 595 | 14 | 589 | 53 | **101** |
| a26 | 10740 | 187 | 19 | 0.23 | 2795 | 0.09780 | 1.8 | 0.8277 | 3.1 | 0.06138 | 2.5 | 0.58 | 602 | 10 | 612 | 14 | 653 | 55 | **92** |
| a27 | 15624 | 280 | 27 | 0.27 | 6123 | 0.09458 | 1.9 | 0.7897 | 2.7 | 0.06056 | 1.9 | 0.71 | 583 | 11 | 591 | 12 | 623 | 41 | **93** |
| a28 | 16816 | 387 | 37 | 0.57 | 2607 | 0.08513 | 2.3 | 0.7010 | 2.8 | 0.05972 | 1.6 | 0.83 | 527 | 12 | 539 | 12 | 593 | 34 | 89 |
| a29 | 17570 | 221 | 32 | 0.28 | 3397 | 0.14314 | 1.6 | 1.2745 | 3.8 | 0.06458 | 3.5 | 0.41 | 862 | 13 | 834 | 22 | 761 | 74 | 113 |
| a30 | 72665 | 397 | 64 | 0.18 | 4478 | 0.15605 | 4.2 | 2.4047 | 4.5 | 0.11176 | 1.7 | 0.93 | 935 | 36 | 1244 | 33 | 1828 | 31 | 51 |
| a31 | 51652 | 774 | 45 | 0.37 | 161 | 0.04295 | 5.6 | 0.8899 | 7.0 | 0.15029 | 4.3 | 0.79 | 271 | 15 | 646 | 34 | 2349 | 73 | 12 |
| a32 | 166053 | 965 | 125 | 0.16 | 83 | 0.10164 | 3.2 | 0.8585 | 6.3 | 0.06126 | 5.4 | 0.50 | 624 | 19 | 629 | 30 | 648 | 117 | **96** |
| a33 | 8279 | 143 | 16 | 0.56 | 3434 | 0.09940 | 1.3 | 0.8374 | 2.6 | 0.06110 | 2.3 | 0.50 | 611 | 8 | 618 | 12 | 643 | 49 | **95** |
| a34 | 55845 | 240 | 45 | 0.25 | 129 | 0.13741 | 3.4 | 3.3590 | 4.8 | 0.17729 | 3.4 | 0.71 | 830 | 27 | 1495 | 39 | 2628 | 57 | 32 |
| a35 | 12140 | 215 | 22 | 0.29 | 4824 | 0.09734 | 1.5 | 0.8123 | 2.8 | 0.06053 | 2.3 | 0.56 | 599 | 9 | 604 | 13 | 622 | 50 | **96** |
| a36 | 18044 | 224 | 28 | 0.83 | 600 | 0.09929 | 1.7 | 0.9082 | 4.7 | 0.06634 | 4.4 | 0.35 | 610 | 10 | 656 | 23 | 817 | 93 | 75 |
| a37 | 33790 | 459 | 47 | 0.23 | 607 | 0.09750 | 2.5 | 0.8142 | 3.9 | 0.06056 | 3.0 | 0.65 | 600 | 15 | 605 | 18 | 624 | 64 | **96** |
| a38 | 67763 | 803 | 81 | 0.27 | 327 | 0.09225 | 1.9 | 0.7543 | 3.1 | 0.05931 | 2.4 | 0.62 | 569 | 11 | 571 | 14 | 578 | 53 | **98** |
| a39 | 10900 | 204 | 20 | 0.21 | 2752 | 0.09580 | 2.6 | 0.8006 | 3.5 | 0.06062 | 2.3 | 0.74 | 590 | 15 | 597 | 16 | 626 | 50 | **94** |
| a40 | 17946 | 273 | 28 | 0.22 | 1559 | 0.09689 | 1.3 | 0.9565 | 2.7 | 0.07160 | 2.4 | 0.48 | 596 | 7 | 682 | 14 | 975 | 49 | 61 |
| a41 | 47229 | 382 | 41 | 0.23 | 185 | 0.08458 | 2.5 | 1.4994 | 14.9 | 0.12856 | 14.6 | 0.16 | 523 | 12 | 930 | 95 | 2078 | 258 | 25 |
| a42 | 16350 | 301 | 28 | 0.20 | 5233 | 0.09141 | 1.6 | 0.7707 | 2.8 | 0.06115 | 2.2 | 0.59 | 564 | 9 | 580 | 12 | 644 | 48 | 87 |
| a43 | 28214 | 358 | 40 | 0.22 | 501 | 0.10544 | 2.7 | 0.8925 | 5.3 | 0.06139 | 4.5 | 0.52 | 646 | 17 | 648 | 26 | 653 | 98 | **99** |
| a44 | 18546 | 318 | 29 | 0.18 | 1842 | 0.09159 | 2.6 | 0.7471 | 4.3 | 0.05916 | 3.4 | 0.62 | 565 | 14 | 567 | 19 | 573 | 74 | **99** |
| a45 | 58963 | 253 | 46 | 0.30 | 65 | 0.11992 | 1.8 | 4.3811 | 14.7 | 0.26497 | 14.6 | 0.12 | 730 | 13 | 1709 | 130 | 3276 | 230 | 22 |
| a46 | 24677 | 427 | 40 | 0.21 | 3382 | 0.09222 | 1.8 | 0.8116 | 2.7 | 0.06383 | 2.1 | 0.65 | 569 | 10 | 603 | 12 | 736 | 44 | 77 |
| a48 | 19071 | 341 | 33 | 0.28 | 4002 | 0.09459 | 1.4 | 0.8109 | 2.0 | 0.06218 | 1.5 | 0.68 | 583 | 8 | 603 | 9 | 680 | 31 | 86 |
| a49 | 30234 | 515 | 48 | 0.20 | 51170 | 0.09250 | 1.9 | 0.7539 | 2.4 | 0.05911 | 1.5 | 0.78 | 570 | 10 | 571 | 10 | 571 | 32 | **100** |
| a50 | 67076 | 1145 | 64 | 0.21 | 275 | 0.04997 | 6.2 | 0.4216 | 7.1 | 0.06118 | 3.5 | 0.87 | 314 | 19 | 357 | 22 | 646 | 75 | 49 |
| a51 | 25214 | 450 | 43 | 0.22 | 13013 | 0.09539 | 2.4 | 0.7726 | 3.1 | 0.05874 | 2.1 | 0.75 | 587 | 13 | 581 | 14 | 558 | 45 | **105** |
| a52 | 18778 | 295 | 28 | 0.24 | 1054 | 0.09162 | 3.1 | 0.7619 | 4.5 | 0.06031 | 3.3 | 0.69 | 565 | 17 | 575 | 20 | 615 | 71 | **92** |
| a53 | 47127 | 105 | 53 | 0.98 | 16250 | 0.38189 | 1.8 | 6.5277 | 2.4 | 0.12397 | 1.6 | 0.75 | 2085 | 32 | 2050 | 21 | 2014 | 27 | **104** |
| a54 | 190568 | 1344 | 106 | 0.15 | 64 | 0.04051 | ## | 1.7117 | 13.4 | 0.30642 | 8.3 | 0.78 | 256 | 26 | 1013 | 90 | 3503 | 129 | 7 |
| a55 | 48601 | 382 | 45 | 0.38 | 185 | 0.08686 | 2.1 | 1.6687 | 4.1 | 0.13934 | 3.5 | 0.51 | 537 | 11 | 997 | 26 | 2219 | 61 | 24 |
| a56 | 79347 | 235 | 109 | 0.12 | 677 | 0.43895 | 3.4 | 9.1345 | 5.1 | 0.15093 | 3.8 | 0.66 | 2346 | 67 | 2352 | 48 | 2356 | 65 | **100** |
| a57 | 20820 | 204 | 26 | 0.46 | 317 | 0.10108 | 2.6 | 1.5181 | 5.7 | 0.10893 | 5.1 | 0.46 | 621 | 16 | 938 | 36 | 1782 | 93 | 35 |
| a58 | 17973 | 337 | 29 | 0.40 | 1459 | 0.07704 | 2.6 | 0.7217 | 3.7 | 0.06793 | 2.6 | 0.70 | 478 | 12 | 552 | 16 | 867 | 54 | 55 |
| a59 | 20295 | 314 | 34 | 0.34 | 1415 | 0.10013 | 2.9 | 0.82313 | 4.5 | 0.05962 | 3.4 | 0.64 | 615 | 17 | 610 | 21 | 590 | 74 | **104** |
| a60 | 11005 | 186 | 21 | 0.32 | 4840 | 0.10628 | 1.4 | 0.89558 | 2.5 | 0.06111 | 2.1 | 0.55 | 651 | 9 | 649 | 12 | 643 | 45 | **101** |
| b01 | 10630 | 187 | 21 | 0.59 | 17886 | 0.09855 | 1.7 | 0.81266 | 2.9 | 0.05980 | 2.4 | 0.58 | 606 | 10 | 604 | 13 | 597 | 51 | **102** |
| b02 | 372206 | 1122 | 191 | 0.11 | 48 | 0.10508 | 2.1 | 0.96919 | 9.9 | 0.06690 | 9.6 | 0.22 | 644 | 13 | 688 | 50 | 835 | 200 | 77 |
| b03 | 23101 | 363 | 37 | 0.20 | 1886 | 0.10069 | 2.2 | 0.83553 | 3.5 | 0.06018 | 2.8 | 0.62 | 618 | 13 | 617 | 17 | 610 | 60 | **101** |
| b04 | 10396 | 178 | 18 | 0.27 | 14304 | 0.09920 | 1.5 | 0.81515 | 2.5 | 0.05960 | 1.9 | 0.62 | 610 | 9 | 605 | 11 | 589 | 42 | **104** |
| b05 | 69636 | 740 | 76 | 0.14 | 411 | 0.09605 | 1.8 | 0.78519 | 3.2 | 0.05929 | 2.6 | 0.57 | 591 | 10 | 588 | 14 | 578 | 57 | **102** |
| b06 | 20878 | 254 | 31 | 0.56 | 491 | 0.10117 | 2.9 | 1.26022 | 5.0 | 0.09034 | 4.0 | 0.59 | 621 | 17 | 828 | 29 | 1433 | 77 | 43 |
| b07 | 22311 | 431 | 45 | 0.31 | 242 | 0.10031 | 2.9 | 0.82066 | 3.9 | 0.05934 | 2.6 | 0.74 | 616 | 17 | 608 | 18 | 579 | 58 | **106** |
| b08 | 19892 | 327 | 33 | 0.28 | 2686 | 0.09584 | 1.6 | 0.84967 | 2.5 | 0.06430 | 2.0 | 0.63 | 590 | 9 | 624 | 12 | 752 | 41 | 78 |
| b09 | 20459 | 337 | 34 | 0.33 | 1544 | 0.09690 | 2.0 | 0.80771 | 2.7 | 0.06045 | 1.9 | 0.73 | 596 | 11 | 601 | 13 | 620 | 41 | **96** |
| b10 | 136179 | 404 | 160 | 0.52 | 15851 | 0.33938 | 2.1 | 5.44579 | 2.4 | 0.11638 | 1.1 | 0.88 | 1884 | 34 | 1892 | 21 | 1901 | 21 | **99** |
| b11 | 17502 | 252 | 27 | 0.19 | 1567 | 0.10391 | 3.2 | 0.87294 | 4.3 | 0.06093 | 2.9 | 0.74 | 637 | 19 | 637 | 21 | 637 | 62 | **100** |
| b12 | 14005 | 184 | 23 | 0.55 | 700 | 0.11195 | 3.5 | 0.96517 | 5.6 | 0.06253 | 4.4 | 0.62 | 684 | 22 | 686 | 28 | 692 | 93 | **99** |
| b13 | 48222 | 104 | 50 | 0.68 | 38521 | 0.39661 | 1.4 | 6.88066 | 1.8 | 0.12582 | 1.1 | 0.77 | 2153 | 26 | 2096 | 16 | 2040 | 20 | **106** |
| b14 | 70652 | 423 | 66 | 0.17 | 119 | 0.13501 | 1.6 | 1.22039 | 5.4 | 0.06556 | 5.1 | 0.30 | 816 | 12 | 810 | 30 | 792 | 108 | **103** |
| b15 | 12001 | 222 | 22 | 0.26 | 3875 | 0.09563 | 1.0 | 0.78931 | 2.1 | 0.05986 | 1.9 | 0.47 | 589 | 6 | 591 | 10 | 599 | 41 | **98** |
| b16 | 21718 | 398 | 38 | 0.15 | 37125 | 0.09859 | 2.1 | 0.79998 | 2.6 | 0.05885 | 1.6 | 0.80 | 606 | 12 | 597 | 12 | 561 | 34 | **108** |
| b17 | 9623 | 140 | 18 | 0.59 | 3697 | 0.11229 | 1.6 | 0.96854 | 5.0 | 0.06255 | 4.7 | 0.32 | 686 | 10 | 688 | 25 | 693 | 100 | **99** |
| b18 | 24507 | 410 | 40 | 0.10 | 1574 | 0.09944 | 3.7 | 0.95628 | 4.1 | 0.06974 | 1.7 | 0.91 | 611 | 21 | 681 | 20 | 921 | 36 | 66 |
| b19 | 24497 | 466 | 43 | 0.14 | 41250 | 0.09388 | 1.5 | 0.77182 | 2.1 | 0.05963 | 1.4 | 0.73 | 578 | 8 | 581 | 9 | 590 | 31 | **98** |
| b20 | 8435 | 153 | 15 | 0.23 | 5184 | 0.09808 | 2.0 | 0.80605 | 3.0 | 0.05960 | 2.3 | 0.66 | 603 | 11 | 600 | 14 | 589 | 49 | **102** |
| b21 | 41322 | 409 | 43 | 0.17 | 314 | 0.09490 | 2.0 | 0.78031 | 4.5 | 0.05964 | 4.0 | 0.44 | 584 | 11 | 586 | 20 | 590 | 87 | **99** |
| b22 | 7509 | 96 | 14 | 0.56 | 11740 | 0.12318 | 1.7 | 1.09294 | 2.8 | 0.06435 | 2.3 | 0.59 | 749 | 12 | 750 | 15 | 753 | 48 | **99** |
| b23 | 10666 | 202 | 22 | 0.71 | 18149 | 0.09128 | 1.6 | 0.74400 | 2.5 | 0.05912 | 1.9 | 0.63 | 563 | 8 | 565 | 11 | 571 | 42 | **99** |
| b24 | 33696 | 584 | 36 | 0.21 | 759 | 0.05658 | 4.8 | 0.45660 | 5.5 | 0.05853 | 2.6 | 0.88 | 355 | 17 | 382 | 18 | 550 | 56 | 65 |
| b25 | 7123 | 111 | 15 | 0.65 | 11476 | 0.11368 | 1.6 | 0.97728 | 3.3 | 0.06235 | 3.0 | 0.46 | 694 | 10 | 692 | 17 | 686 | 63 | **101** |
| b26 | 34570 | 92 | 42 | 0.90 | 28956 | 0.34208 | 1.6 | 5.65474 | 2.0 | 0.11989 | 1.2 | 0.80 | 1897 | 26 | 1924 | 17 | 1955 | 21 | **97** |
| b27 | 17128 | 272 | 30 | 0.30 | 2222 | 0.10627 | 1.4 | 0.89920 | 4.3 | 0.06137 | 4.1 | 0.33 | 651 | 9 | 651 | 21 | 652 | 88 | **100** |
| b28 | 32940 | 461 | 46 | 0.15 | 763 | 0.09609 | 2.2 | 0.79381 | 3.4 | 0.05991 | 2.6 | 0.64 | 591 | 12 | 593 | 15 | 600 | 56 | **98** |
| b29 | 52669 | 350 | 46 | 0.56 | 138 | 0.09558 | 2.1 | 0.78659 | 9.6 | 0.05969 | 9.3 | 0.22 | 588 | 12 | 589 | 44 | 592 | 203 | **99** |
| b30 | 27113 | 473 | 49 | 0.19 | 5939 | 0.10515 | 1.7 | 0.87745 | 2.5 | 0.06052 | 1.8 | 0.69 | 645 | 10 | 640 | 12 | 622 | 39 | **104** |
| b31 | 14804 | 268 | 31 | 0.57 | 9987 | 0.10077 | 1.8 | 0.84392 | 2.6 | 0.06074 | 1.9 | 0.70 | 619 | 11 | 621 | 12 | 630 | 40 | **98** |
| b32 | 15498 | 279 | 26 | 0.24 | 2777 | 0.09106 | 2.6 | 0.84969 | 7.9 | 0.06767 | 7.5 | 0.33 | 562 | 14 | 624 | 38 | 859 | 156 | 65 |
| b33 | 26448 | 528 | 48 | 0.14 | 14142 | 0.09209 | 1.9 | 0.76490 | 2.6 | 0.06024 | 1.7 | 0.74 | 568 | 10 | 577 | 11 | 612 | 37 | **93** |
| b34 | 47584 | 1013 | 56 | 0.13 | 495 | 0.05141 | 2.2 | 0.64039 | 3.8 | 0.09035 | 3.1 | 0.58 | 323 | 7 | 503 | 15 | 1433 | 59 | 23 |
| b35 | 49420 | 564 | 62 | 0.58 | 250 | 0.07864 | 2.6 | 1.36350 | 5.4 | 0.12575 | 4.7 | 0.48 | 488 | 12 | 873 | 32 | 2039 | 84 | 24 |
| b36 | 5899 | 109 | 13 | 0.64 | 2517 | 0.10162 | 2.0 | 0.84255 | 3.6 | 0.06013 | 3.0 | 0.56 | 624 | 12 | 621 | 17 | 608 | 64 | **103** |
| b37 | 8035 | 156 | 18 | 0.43 | 1705 | 0.10362 | 1.3 | 0.92090 | 3.2 | 0.06446 | 2.9 | 0.41 | 636 | 8 | 663 | 16 | 757 | 62 | 84 |
| b38 | 23492 | 385 | 38 | 0.13 | 680 | 0.09539 | 2.2 | 1.05836 | 3.8 | 0.08047 | 3.1 | 0.59 | 587 | 13 | 733 | 20 | 1209 | 60 | 49 |
| b39 | 10476 | 182 | 19 | 0.25 | 5537 | 0.10389 | 1.6 | 0.87834 | 3.8 | 0.06132 | 3.5 | 0.43 | 637 | 10 | 640 | 18 | 650 | 74 | **98** |
| b40 | 56772 | 389 | 46 | 0.50 | 105 | 0.07962 | 8.0 | 0.71407 | 9.8 | 0.06504 | 5.6 | 0.82 | 494 | 38 | 547 | 42 | 776 | 118 | 64 |
| b41 | 16261 | 202 | 15 | 0.25 | 3509 | 0.06438 | 4.5 | 0.64214 | 7.4 | 0.07233 | 5.9 | 0.61 | 402 | 18 | 504 | 30 | 995 | 119 | 40 |
| b42 | 15197 | 288 | 27 | 0.25 | 7763 | 0.09053 | 1.5 | 0.74660 | 2.3 | 0.05981 | 1.8 | 0.64 | 559 | 8 | 566 | 10 | 597 | 39 | **94** |
| b43 | 46804 | 385 | 56 | 0.74 | 216 | 0.10025 | 1.2 | 1.86692 | 2.5 | 0.13506 | 2.2 | 0.49 | 616 | 7 | 1069 | 16 | 2165 | 37 | 28 |
| b44 | 11099 | 119 | 14 | 0.39 | 388 | 0.10104 | 1.7 | 0.84883 | 7.7 | 0.06093 | 7.5 | 0.23 | 620 | 10 | 624 | 36 | 637 | 161 | **97** |
| b45 | 38153 | 351 | 54 | 0.27 | 640 | 0.14240 | 3.1 | 1.88648 | 4.3 | 0.09608 | 3.0 | 0.72 | 858 | 25 | 1076 | 29 | 1549 | 57 | 55 |
| b46 | 43610 | 416 | 95 | 0.21 | 1109 | 0.21966 | 2.1 | 3.03906 | 6.8 | 0.10034 | 6.5 | 0.30 | 1280 | 24 | 1417 | 53 | 1630 | 121 | 79 |
| b47 | 13710 | 267 | 27 | 0.28 | 22767 | 0.09968 | 1.2 | 0.83264 | 2.1 | 0.06058 | 1.7 | 0.57 | 613 | 7 | 615 | 10 | 624 | 37 | **98** |
| b48 | 25204 | 345 | 38 | 0.26 | 451 | 0.10415 | 2.8 | 0.88148 | 4.2 | 0.06139 | 3.1 | 0.67 | 639 | 17 | 642 | 20 | 653 | 67 | **98** |
| b49 | 39207 | 710 | 72 | 0.10 | 1387 | 0.10390 | 1.2 | 0.87598 | 2.8 | 0.06115 | 2.5 | 0.43 | 637 | 7 | 639 | 13 | 644 | 54 | **99** |
| b50 | 19694 | 291 | 30 | 0.27 | 850 | 0.09752 | 1.4 | 0.80040 | 3.8 | 0.05952 | 3.6 | 0.36 | 600 | 8 | 597 | 17 | 586 | 77 | **102** |
| b51 | 8239 | 156 | 16 | 0.28 | 7607 | 0.10129 | 1.9 | 0.85029 | 3.0 | 0.06088 | 2.4 | 0.62 | 622 | 11 | 625 | 14 | 635 | 52 | **98** |
| b52 | 9098 | 170 | 20 | 0.58 | 3162 | 0.10203 | 1.4 | 0.85370 | 3.1 | 0.06069 | 2.7 | 0.46 | 626 | 9 | 627 | 15 | 628 | 59 | **100** |
| b53 | 7536 | 145 | 16 | 0.48 | 12674 | 0.10121 | 1.9 | 0.84029 | 3.5 | 0.06022 | 2.9 | 0.54 | 621 | 11 | 619 | 16 | 611 | 64 | **102** |
| b54 | 10984 | 217 | 23 | 0.27 | 18313 | 0.10307 | 1.6 | 0.85838 | 2.9 | 0.06040 | 2.4 | 0.56 | 632 | 10 | 629 | 14 | 618 | 52 | **102** |
| b55 | 5420 | 107 | 11 | 0.22 | 8966 | 0.10149 | 1.7 | 0.85028 | 3.6 | 0.06076 | 3.2 | 0.47 | 623 | 10 | 625 | 17 | 631 | 68 | **99** |
| b56 | 8808 | 172 | 18 | 0.27 | 3079 | 0.10125 | 1.5 | 0.85631 | 3.3 | 0.06134 | 3.0 | 0.45 | 622 | 9 | 628 | 16 | 651 | 64 | **96** |
| b57 | 8369 | 143 | 17 | 0.27 | 3716 | 0.11296 | 2.0 | 0.99803 | 3.1 | 0.06408 | 2.3 | 0.65 | 690 | 13 | 703 | 16 | 744 | 50 | **93** |
| b58 | 9788 | 163 | 19 | 0.12 | 15384 | 0.11788 | 1.7 | 1.03759 | 2.9 | 0.06384 | 2.4 | 0.58 | 718 | 11 | 723 | 15 | 736 | 50 | **98** |
| b59 | 101522 | 1836 | 92 | 0.10 | 109 | 0.03583 | 3.3 | 1.03282 | 3.8 | 0.20906 | 1.8 | 0.87 | 227 | 7 | 720 | 20 | 2898 | 30 | 8 |
| b60 | 7615 | 155 | 16 | 0.22 | 12750 | 0.10059 | 1.8 | 0.8334 | 2.9 | 0.06009 | 2.2 | 0.63 | 618 | 11 | 616 | 13 | 607 | 49 | **102** |

**Sample 8-MZ9, pyroclastic sandstone n=120, upper part of the M´Gouna Group, Imiter, Eastern Saghro massif, Anti-Atlas, Morocco.**

**coordinates: N 31°, 20´, 26.5”; W 5°, 47´, 4.8”; elev 1585 m.**

**For the calculation of the maximum despositional age (MDA = 569 ± 4 Ma) grains a24, a32, a37, a60, b04, b24, and b60 were used.**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 207Pba | Ub | Pbb | Thb | 206Pbc | 206Pbc | 2  | 207Pbc | 2  | 207Pbc | 2  | rhod | 206Pb | 2  | 207Pb | 2  | 207Pb | 2  |  |
| Number | (cps) | (ppm) | (ppm) | U | 204Pb | 238U | % | 235U | % | 206Pb | % |  | 238U | (Ma) | 235U | (Ma) | 206Pb | (Ma) | conc % |
| a01 | 22999 | 454 | 29 | 0.18 | 23501 | 0.06605 | 4.5 | 0.54850 | 5.3 | 0.06023 | 2.8 | 0.85 | 412 | 18 | 444 | 19 | 612 | 60 | 67 |
| a02 | 20190 | 502 | 25 | 0.12 | 8136 | 0.05238 | 4.0 | 0.43651 | 4.3 | 0.06045 | 1.5 | 0.94 | 329 | 13 | 368 | 13 | 620 | 31 | 53 |
| a03 | 29973 | 640 | 52 | 0.22 | 8898 | 0.08425 | 3.8 | 0.72956 | 4.0 | 0.06280 | 1.0 | 0.96 | 521 | 19 | 556 | 17 | 702 | 22 | 74 |
| a04 | 38227 | 679 | 62 | 0.18 | 64750 | 0.09371 | 1.8 | 0.76874 | 2.3 | 0.05950 | 1.5 | 0.75 | 577 | 10 | 579 | 10 | 585 | 33 | **99** |
| a05 | 9297 | 122 | 12 | 0.30 | 766 | 0.09024 | 1.6 | 0.73143 | 7.4 | 0.05878 | 7.3 | 0.21 | 557 | 8 | 557 | 32 | 559 | 158 | **100** |
| a06 | 10930 | 177 | 17 | 0.39 | 2044 | 0.09201 | 1.9 | 0.78907 | 2.9 | 0.06220 | 2.3 | 0.64 | 567 | 10 | 591 | 13 | 681 | 48 | 83 |
| a07 | 11565 | 165 | 19 | 0.45 | 18857 | 0.11130 | 1.8 | 0.94879 | 2.8 | 0.06182 | 2.1 | 0.66 | 680 | 12 | 677 | 14 | 668 | 45 | **102** |
| a08 | 30928 | 775 | 54 | 0.17 | 20982 | 0.07160 | 3.0 | 0.60596 | 3.3 | 0.06138 | 1.2 | 0.93 | 446 | 13 | 481 | 13 | 653 | 27 | 68 |
| a09 | 5651 | 10 | 3 | 0.90 | 71 | 0.16938 | 2.4 | 8.19503 | 3.1 | 0.35090 | 2.1 | 0.75 | 1009 | 22 | 2253 | 29 | 3711 | 31 | 27 |
| a10 | 20660 | 357 | 34 | 0.12 | 6711 | 0.09905 | 2.4 | 0.81890 | 3.3 | 0.05996 | 2.3 | 0.71 | 609 | 14 | 607 | 15 | 602 | 50 | **101** |
| a11 | 6003 | 16 | 4 | 0.78 | 72 | 0.16320 | 1.4 | 6.10668 | 3.8 | 0.27138 | 3.5 | 0.38 | 975 | 13 | 1991 | 34 | 3314 | 55 | 29 |
| a12 | 6917 | 13 | 4 | 0.74 | 58 | 0.16714 | 2.3 | 8.01170 | 5.2 | 0.34765 | 4.6 | 0.45 | 996 | 22 | 2232 | 48 | 3697 | 70 | 27 |
| a13 | 14513 | 249 | 24 | 0.17 | 6028 | 0.09955 | 1.5 | 0.82732 | 2.3 | 0.06027 | 1.7 | 0.66 | 612 | 9 | 612 | 11 | 613 | 37 | **100** |
| a14 | 25807 | 605 | 53 | 0.19 | 5568 | 0.09135 | 1.3 | 0.80633 | 2.0 | 0.06402 | 1.5 | 0.64 | 564 | 7 | 600 | 9 | 742 | 32 | 76 |
| a15 | 29397 | 860 | 60 | 0.21 | 3445 | 0.07266 | 7.5 | 0.60882 | 7.7 | 0.06077 | 2.1 | 0.96 | 452 | 33 | 483 | 30 | 631 | 45 | 72 |
| a16 | 16718 | 292 | 28 | 0.08 | 12762 | 0.10270 | 1.2 | 0.84532 | 2.0 | 0.05970 | 1.6 | 0.61 | 630 | 7 | 622 | 9 | 593 | 35 | **106** |
| a17 | 21161 | 251 | 27 | 0.10 | 28306 | 0.10939 | 3.5 | 1.14013 | 4.0 | 0.07560 | 1.8 | 0.89 | 669 | 23 | 773 | 22 | 1084 | 37 | 62 |
| a18 | 39401 | 1447 | 48 | 0.11 | 1365 | 0.03365 | 2.7 | 0.33333 | 3.2 | 0.07185 | 1.7 | 0.84 | 213 | 6 | 292 | 8 | 982 | 35 | 22 |
| a19 | 23048 | 411 | 39 | 0.14 | 9834 | 0.09820 | 1.8 | 0.83518 | 2.6 | 0.06168 | 1.8 | 0.71 | 604 | 10 | 616 | 12 | 663 | 39 | **91** |
| a20 | 17690 | 368 | 43 | 0.25 | 5311 | 0.11968 | 1.4 | 1.02865 | 3.9 | 0.06233 | 3.6 | 0.35 | 729 | 9 | 718 | 20 | 686 | 77 | **106** |
| a21 | 5542 | 9 | 3 | 0.79 | 47 | 0.17093 | 3.4 | 8.88149 | 5.2 | 0.37684 | 3.9 | 0.66 | 1017 | 32 | 2326 | 48 | 3819 | 59 | 27 |
| a22 | 33850 | 1120 | 67 | 0.19 | 2891 | 0.06210 | 4.7 | 0.52012 | 5.1 | 0.06075 | 1.9 | 0.93 | 388 | 18 | 425 | 18 | 630 | 41 | 62 |
| a23 | 4253 | 72 | 7 | 0.26 | 7039 | 0.10184 | 1.4 | 0.85063 | 3.9 | 0.06058 | 3.6 | 0.37 | 625 | 9 | 625 | 18 | 624 | 78 | **100** |
| a24 | 29368 | 532 | 47 | 0.12 | 49112 | 0.09309 | 1.6 | 0.75901 | 2.3 | 0.05913 | 1.6 | 0.71 | 574 | 9 | 573 | 10 | 572 | 36 | **100** |
| a25 | 29902 | 556 | 50 | 0.25 | 1478 | 0.09025 | 2.2 | 0.84915 | 3.3 | 0.06824 | 2.4 | 0.69 | 557 | 12 | 624 | 15 | 876 | 49 | 64 |
| a26 | 7072 | 24 | 5 | 0.77 | 88 | 0.12517 | 2.5 | 4.11900 | 7.0 | 0.23867 | 6.6 | 0.35 | 760 | 18 | 1658 | 59 | 3111 | 105 | 24 |
| a27 | 5583 | 13 | 4 | 0.69 | 70 | 0.15713 | 3.1 | 6.52105 | 4.7 | 0.30099 | 3.5 | 0.66 | 941 | 27 | 2049 | 42 | 3475 | 55 | 27 |
| a28 | 14297 | 265 | 23 | 0.06 | 17241 | 0.09483 | 1.6 | 0.77581 | 2.6 | 0.05934 | 2.1 | 0.61 | 584 | 9 | 583 | 12 | 580 | 45 | **101** |
| a29 | 28861 | 519 | 49 | 0.15 | 12701 | 0.09765 | 1.7 | 0.80706 | 2.5 | 0.05994 | 1.8 | 0.70 | 601 | 10 | 601 | 11 | 601 | 38 | **100** |
| a30 | 24337 | 514 | 36 | 0.19 | 5097 | 0.07223 | 2.5 | 0.61413 | 3.2 | 0.06166 | 2.0 | 0.79 | 450 | 11 | 486 | 12 | 662 | 42 | 68 |
| a31 | 31537 | 673 | 54 | 0.16 | 9089 | 0.08395 | 1.8 | 0.70345 | 2.3 | 0.06078 | 1.4 | 0.78 | 520 | 9 | 541 | 10 | 631 | 31 | 82 |
| a32 | 28670 | 569 | 49 | 0.11 | 13658 | 0.09036 | 1.6 | 0.74363 | 2.0 | 0.05968 | 1.2 | 0.80 | 558 | 9 | 565 | 9 | 592 | 26 | **94** |
| a33 | 33067 | 752 | 47 | 0.22 | 3661 | 0.06320 | 2.3 | 0.56410 | 3.0 | 0.06474 | 1.9 | 0.77 | 395 | 9 | 454 | 11 | 766 | 40 | 52 |
| a34 | 17009 | 332 | 33 | 0.47 | 8887 | 0.09420 | 1.3 | 0.77469 | 2.3 | 0.05964 | 1.9 | 0.58 | 580 | 7 | 582 | 10 | 591 | 42 | **98** |
| a35 | 103909 | 401 | 69 | 0.41 | 91564 | 0.14985 | 4.6 | 2.35836 | 4.7 | 0.11414 | 1.0 | 0.98 | 900 | 39 | 1230 | 34 | 1866 | 19 | 48 |
| a36 | 25696 | 623 | 56 | 0.42 | 4271 | 0.08884 | 4.5 | 0.77310 | 5.0 | 0.06311 | 2.3 | 0.89 | 549 | 24 | 582 | 23 | 712 | 48 | 77 |
| a37 | 15018 | 285 | 25 | 0.14 | 25567 | 0.09327 | 1.5 | 0.76004 | 2.2 | 0.05910 | 1.7 | 0.66 | 575 | 8 | 574 | 10 | 571 | 36 | **101** |
| a38 | 28748 | 588 | 49 | 0.20 | 18282 | 0.08479 | 1.8 | 0.70418 | 2.2 | 0.06024 | 1.3 | 0.81 | 525 | 9 | 541 | 9 | 612 | 28 | 86 |
| a39 | 26249 | 533 | 59 | 0.36 | 11815 | 0.10841 | 3.0 | 0.92895 | 3.3 | 0.06215 | 1.3 | 0.92 | 664 | 19 | 667 | 16 | 679 | 28 | **98** |
| a40 | 32498 | 778 | 56 | 0.16 | 6634 | 0.07414 | 4.1 | 0.64744 | 4.6 | 0.06334 | 2.2 | 0.88 | 461 | 18 | 507 | 19 | 720 | 46 | 64 |
| a41 | 29708 | 980 | 27 | 0.12 | 3371 | 0.02833 | 2.8 | 0.25914 | 3.8 | 0.06633 | 2.6 | 0.73 | 180 | 5 | 234 | 8 | 817 | 54 | 22 |
| a42 | 17949 | 951 | 14 | 0.21 | 2144 | 0.01131 | 21.7 | 0.10920 | 21.9 | 0.07002 | 3.0 | 0.99 | 72 | 16 | 105 | 22 | 929 | 61 | 8 |
| a43 | 304751 | 238 | 163 | 0.06 | 122547 | 0.62623 | 1.8 | 21.40435 | 2.4 | 0.24789 | 1.6 | 0.74 | 3135 | 44 | 3157 | 23 | 3171 | 25 | **99** |
| a44 | 11396 | 201 | 22 | 0.48 | 18682 | 0.10608 | 1.7 | 0.90182 | 2.7 | 0.06166 | 2.1 | 0.62 | 650 | 10 | 653 | 13 | 662 | 45 | **98** |
| a45 | 24693 | 536 | 44 | 0.27 | 16495 | 0.08296 | 1.5 | 0.69350 | 2.4 | 0.06063 | 1.9 | 0.61 | 514 | 7 | 535 | 10 | 626 | 42 | 82 |
| a46 | 25967 | 619 | 55 | 0.20 | 6483 | 0.09307 | 1.5 | 0.79300 | 2.1 | 0.06180 | 1.5 | 0.70 | 574 | 8 | 593 | 9 | 667 | 32 | 86 |
| a47 | 24672 | 632 | 35 | 0.16 | 40892 | 0.05642 | 5.9 | 0.47239 | 6.1 | 0.06072 | 1.8 | 0.96 | 354 | 20 | 393 | 20 | 629 | 38 | 56 |
| a48 | 13921 | 274 | 26 | 0.33 | 9604 | 0.09388 | 1.4 | 0.76163 | 3.2 | 0.05884 | 2.9 | 0.44 | 578 | 8 | 575 | 14 | 561 | 62 | **103** |
| a49 | 24994 | 759 | 47 | 0.18 | 5066 | 0.06412 | 1.9 | 0.55952 | 2.5 | 0.06329 | 1.6 | 0.78 | 401 | 7 | 451 | 9 | 718 | 33 | 56 |
| a51 | 28629 | 656 | 50 | 0.21 | 6661 | 0.07792 | 3.8 | 0.66477 | 4.3 | 0.06188 | 2.0 | 0.89 | 484 | 18 | 518 | 17 | 670 | 42 | 72 |
| a52 | 22074 | 690 | 54 | 0.70 | 3536 | 0.07582 | 2.0 | 0.68734 | 2.7 | 0.06575 | 1.8 | 0.75 | 471 | 9 | 531 | 11 | 799 | 37 | 59 |
| a53 | 18073 | 350 | 33 | 0.17 | 30706 | 0.09715 | 2.3 | 0.79382 | 3.0 | 0.05926 | 1.9 | 0.76 | 598 | 13 | 593 | 13 | 577 | 42 | **104** |
| a54 | 6816 | 138 | 13 | 0.34 | 4149 | 0.09395 | 1.8 | 0.76620 | 3.1 | 0.05915 | 2.5 | 0.59 | 579 | 10 | 578 | 14 | 573 | 55 | **101** |
| a55 | 15840 | 301 | 29 | 0.09 | 8615 | 0.10105 | 1.6 | 0.84144 | 2.5 | 0.06039 | 1.9 | 0.64 | 621 | 10 | 620 | 12 | 618 | 42 | **100** |
| a56 | 25881 | 498 | 46 | 0.08 | 43700 | 0.09847 | 1.2 | 0.80990 | 2.1 | 0.05965 | 1.7 | 0.60 | 605 | 7 | 602 | 10 | 591 | 36 | **102** |
| a57 | 36947 | 1111 | 62 | 0.08 | 2801 | 0.05812 | 2.2 | 0.53119 | 2.6 | 0.06629 | 1.5 | 0.83 | 364 | 8 | 433 | 9 | 815 | 30 | 45 |
| a58 | 26290 | 600 | 49 | 0.14 | 7812 | 0.08601 | 2.8 | 0.73513 | 3.3 | 0.06199 | 1.8 | 0.84 | 532 | 14 | 560 | 14 | 674 | 38 | 79 |
| a59 | 25279 | 508 | 47 | 0.17 | 42810 | 0.09624 | 2.0 | 0.78813 | 2.8 | 0.05940 | 2.0 | 0.71 | 592 | 11 | 590 | 13 | 582 | 43 | **102** |
| a60 | 14688 | 323 | 28 | 0.15 | 11326 | 0.09067 | 1.9 | 0.73461 | 2.3 | 0.05876 | 1.3 | 0.82 | 559 | 10 | 559 | 10 | 558 | 29 | **100** |
| b01 | 6400 | 133 | 13 | 0.27 | 7408 | 0.10244 | 1.7 | 0.84342 | 4.1 | 0.05972 | 3.8 | 0.41 | 629 | 10 | 621 | 19 | 593 | 81 | **106** |
| b02 | 29092 | 842 | 81 | 0.75 | 4082 | 0.08859 | 1.8 | 0.77886 | 2.6 | 0.06376 | 1.9 | 0.70 | 547 | 10 | 585 | 12 | 734 | 40 | 75 |
| b03 | 31349 | 1865 | 147 | 0.13 | 1868 | 0.08435 | 8.3 | 0.71408 | 8.8 | 0.06140 | 2.9 | 0.94 | 522 | 42 | 547 | 38 | 653 | 62 | 80 |
| b04 | 26031 | 559 | 49 | 0.12 | 43759 | 0.09226 | 1.3 | 0.75998 | 2.2 | 0.05974 | 1.8 | 0.61 | 569 | 7 | 574 | 10 | 594 | 38 | **96** |
| b05 | 30795 | 1301 | 114 | 0.07 | 1529 | 0.09348 | 3.8 | 0.76780 | 4.6 | 0.05957 | 2.5 | 0.83 | 576 | 21 | 579 | 20 | 588 | 55 | **98** |
| b06 | 38786 | 1392 | 72 | 0.10 | 1451 | 0.05362 | 1.6 | 0.51934 | 2.3 | 0.07025 | 1.7 | 0.70 | 337 | 5 | 425 | 8 | 936 | 34 | 36 |
| b07 | 33162 | 1089 | 52 | 0.17 | 2860 | 0.04885 | 1.8 | 0.44297 | 2.3 | 0.06576 | 1.5 | 0.76 | 307 | 5 | 372 | 7 | 799 | 32 | 38 |
| b08 | 24771 | 547 | 44 | 0.16 | 11746 | 0.08295 | 1.8 | 0.68502 | 2.4 | 0.05990 | 1.5 | 0.77 | 514 | 9 | 530 | 10 | 600 | 33 | 86 |
| b09 | 22655 | 619 | 44 | 0.24 | 8199 | 0.07311 | 3.1 | 0.62643 | 3.8 | 0.06214 | 2.2 | 0.81 | 455 | 13 | 494 | 15 | 679 | 48 | 67 |
| b10 | 7213 | 146 | 22 | 2.14 | 12300 | 0.09952 | 1.8 | 0.82158 | 4.5 | 0.05987 | 4.2 | 0.40 | 612 | 11 | 609 | 21 | 599 | 90 | **102** |
| b11 | 37100 | 945 | 73 | 0.17 | 7326 | 0.08063 | 2.1 | 0.68344 | 2.6 | 0.06147 | 1.5 | 0.83 | 500 | 10 | 529 | 11 | 656 | 31 | 76 |
| b12 | 17800 | 218 | 33 | 0.63 | 6501 | 0.13654 | 1.5 | 1.28239 | 2.2 | 0.06812 | 1.6 | 0.68 | 825 | 12 | 838 | 13 | 872 | 34 | **95** |
| b13 | 14111 | 285 | 29 | 0.36 | 7263 | 0.10193 | 3.4 | 0.84620 | 3.9 | 0.06021 | 1.9 | 0.87 | 626 | 20 | 623 | 18 | 611 | 41 | **102** |
| b14 | 21966 | 561 | 56 | 0.19 | 6429 | 0.10475 | 3.0 | 0.89033 | 3.6 | 0.06165 | 2.1 | 0.82 | 642 | 18 | 647 | 18 | 662 | 44 | **97** |
| b15 | 28590 | 713 | 51 | 0.17 | 5904 | 0.07310 | 4.1 | 0.61389 | 4.3 | 0.06091 | 1.3 | 0.96 | 455 | 18 | 486 | 17 | 636 | 27 | 72 |
| b16 | 25787 | 605 | 22 | 0.18 | 12995 | 0.03731 | 3.6 | 0.30704 | 3.9 | 0.05969 | 1.4 | 0.93 | 236 | 8 | 272 | 9 | 592 | 31 | 40 |
| b18 | 14872 | 408 | 19 | 0.36 | 7504 | 0.04292 | 7.7 | 0.36741 | 7.9 | 0.06209 | 1.8 | 0.97 | 271 | 21 | 318 | 22 | 677 | 38 | 40 |
| b19 | 26335 | 585 | 54 | 0.13 | 16950 | 0.09796 | 4.1 | 0.81318 | 4.2 | 0.06021 | 1.0 | 0.97 | 602 | 24 | 604 | 20 | 611 | 22 | **99** |
| b20 | 23468 | 471 | 43 | 0.16 | 39982 | 0.09487 | 1.2 | 0.77241 | 2.1 | 0.05905 | 1.8 | 0.57 | 584 | 7 | 581 | 9 | 569 | 38 | **103** |
| b21 | 23310 | 311 | 31 | 0.18 | 607 | 0.09656 | 1.8 | 0.79950 | 5.8 | 0.06005 | 5.5 | 0.30 | 594 | 10 | 597 | 27 | 605 | 120 | **98** |
| b22 | 20333 | 384 | 45 | 0.82 | 33989 | 0.10109 | 1.7 | 0.83888 | 2.5 | 0.06018 | 1.8 | 0.67 | 621 | 10 | 619 | 11 | 610 | 39 | **102** |
| b23 | 8865 | 169 | 17 | 0.37 | 14847 | 0.09711 | 1.8 | 0.80361 | 3.3 | 0.06002 | 2.8 | 0.53 | 597 | 10 | 599 | 15 | 604 | 61 | **99** |
| b24 | 21050 | 473 | 42 | 0.16 | 23877 | 0.09295 | 3.5 | 0.76407 | 3.8 | 0.05962 | 1.5 | 0.92 | 573 | 19 | 576 | 17 | 590 | 32 | **97** |
| b25 | 14148 | 275 | 25 | 0.21 | 24131 | 0.09462 | 1.4 | 0.76933 | 2.4 | 0.05897 | 2.0 | 0.58 | 583 | 8 | 579 | 11 | 566 | 43 | **103** |
| b26 | 23236 | 488 | 50 | 0.17 | 4594 | 0.10811 | 3.5 | 0.90726 | 4.3 | 0.06086 | 2.6 | 0.80 | 662 | 22 | 656 | 21 | 634 | 56 | **104** |
| b27 | 36451 | 2208 | 61 | 0.16 | 1409 | 0.02827 | 4.0 | 0.28751 | 4.4 | 0.07375 | 1.7 | 0.92 | 180 | 7 | 257 | 10 | 1035 | 34 | 17 |
| b28 | 27441 | 586 | 46 | 0.17 | 9593 | 0.08039 | 2.7 | 0.66706 | 3.1 | 0.06018 | 1.5 | 0.88 | 498 | 13 | 519 | 13 | 610 | 32 | 82 |
| b29 | 25019 | 653 | 50 | 0.37 | 4225 | 0.07465 | 2.7 | 0.65747 | 3.3 | 0.06388 | 2.0 | 0.80 | 464 | 12 | 513 | 14 | 738 | 43 | 63 |
| b30 | 26766 | 773 | 65 | 0.16 | 4638 | 0.08810 | 5.4 | 0.75714 | 5.8 | 0.06233 | 2.3 | 0.92 | 544 | 28 | 572 | 26 | 686 | 50 | 79 |
| b31 | 25993 | 593 | 35 | 0.14 | 1338 | 0.06079 | 4.2 | 0.52145 | 4.8 | 0.06221 | 2.3 | 0.87 | 380 | 16 | 426 | 17 | 681 | 50 | 56 |
| b32 | 21514 | 504 | 55 | 0.24 | 15618 | 0.11503 | 5.5 | 0.99063 | 5.8 | 0.06246 | 1.8 | 0.95 | 702 | 36 | 699 | 30 | 690 | 39 | **102** |
| b33 | 16285 | 275 | 27 | 0.18 | 7461 | 0.09926 | 1.7 | 0.82571 | 2.5 | 0.06033 | 1.8 | 0.69 | 610 | 10 | 611 | 11 | 615 | 38 | **99** |
| b34 | 37727 | 1705 | 91 | 0.10 | 1118 | 0.05559 | 3.3 | 0.57456 | 4.0 | 0.07496 | 2.3 | 0.82 | 349 | 11 | 461 | 15 | 1067 | 46 | 33 |
| b35 | 32483 | 736 | 56 | 0.20 | 2699 | 0.07836 | 6.4 | 0.67332 | 8.3 | 0.06232 | 5.3 | 0.77 | 486 | 30 | 523 | 35 | 685 | 114 | 71 |
| b36 | 38833 | 134 | 43 | 0.69 | 37543 | 0.27853 | 1.6 | 3.99357 | 2.2 | 0.10399 | 1.5 | 0.73 | 1584 | 22 | 1633 | 18 | 1696 | 27 | **93** |
| b37 | 28612 | 542 | 50 | 0.14 | 26115 | 0.09581 | 1.7 | 0.79100 | 2.4 | 0.05988 | 1.8 | 0.69 | 590 | 9 | 592 | 11 | 599 | 38 | **98** |
| b38 | 32058 | 955 | 52 | 0.16 | 3401 | 0.05661 | 1.9 | 0.51150 | 2.6 | 0.06553 | 1.7 | 0.75 | 355 | 7 | 419 | 9 | 791 | 36 | 45 |
| b40 | 20192 | 368 | 35 | 0.16 | 33743 | 0.09880 | 1.9 | 0.81900 | 2.5 | 0.06012 | 1.7 | 0.74 | 607 | 11 | 607 | 12 | 608 | 37 | **100** |
| b41 | 37589 | 1887 | 39 | 0.15 | 1485 | 0.02070 | 14.8 | 0.20309 | 15.0 | 0.07116 | 2.5 | 0.99 | 132 | 19 | 188 | 26 | 962 | 50 | 14 |
| b42 | 23935 | 438 | 42 | 0.22 | 40782 | 0.09829 | 1.6 | 0.79921 | 2.0 | 0.05897 | 1.2 | 0.81 | 604 | 9 | 596 | 9 | 566 | 26 | **107** |
| b43 | 30918 | 725 | 61 | 0.20 | 6588 | 0.08737 | 2.5 | 0.73225 | 2.9 | 0.06078 | 1.4 | 0.87 | 540 | 13 | 558 | 13 | 632 | 31 | 86 |
| b44 | 29715 | 1557 | 82 | 0.23 | 3220 | 0.05112 | 4.2 | 0.45657 | 4.6 | 0.06477 | 2.0 | 0.91 | 321 | 13 | 382 | 15 | 767 | 41 | 42 |
| b45 | 24321 | 556 | 39 | 0.18 | 6002 | 0.07292 | 3.3 | 0.63596 | 3.8 | 0.06325 | 1.9 | 0.87 | 454 | 15 | 500 | 15 | 717 | 40 | 63 |
| b46 | 29344 | 589 | 54 | 0.19 | 19303 | 0.09476 | 1.6 | 0.78320 | 2.2 | 0.05994 | 1.5 | 0.73 | 584 | 9 | 587 | 10 | 601 | 33 | **97** |
| b47 | 25612 | 498 | 40 | 0.17 | 43281 | 0.08201 | 1.8 | 0.67347 | 2.3 | 0.05956 | 1.5 | 0.78 | 508 | 9 | 523 | 9 | 588 | 32 | 86 |
| b48 | 27684 | 561 | 53 | 0.20 | 7117 | 0.09888 | 1.7 | 0.85192 | 2.1 | 0.06249 | 1.3 | 0.80 | 608 | 10 | 626 | 10 | 691 | 27 | 88 |
| b49 | 19766 | 408 | 37 | 0.17 | 17065 | 0.09556 | 2.9 | 0.77361 | 3.7 | 0.05871 | 2.2 | 0.80 | 588 | 17 | 582 | 16 | 557 | 47 | **106** |
| b51 | 24600 | 426 | 33 | 0.13 | 25008 | 0.08132 | 2.3 | 0.66244 | 2.6 | 0.05908 | 1.3 | 0.87 | 504 | 11 | 516 | 11 | 570 | 28 | 88 |
| b53 | 43909 | 270 | 35 | 0.16 | 15772 | 0.12666 | 8.3 | 1.81022 | 8.9 | 0.10366 | 3.1 | 0.93 | 769 | 60 | 1049 | 60 | 1691 | 58 | 45 |
| b54 | 8420 | 146 | 15 | 0.35 | 14169 | 0.09866 | 1.3 | 0.81303 | 3.3 | 0.05977 | 3.0 | 0.40 | 607 | 8 | 604 | 15 | 595 | 66 | **102** |
| b55 | 26977 | 483 | 44 | 0.18 | 45502 | 0.09381 | 1.6 | 0.77098 | 2.3 | 0.05961 | 1.6 | 0.71 | 578 | 9 | 580 | 10 | 589 | 35 | **98** |
| b56 | 18308 | 357 | 28 | 0.17 | 30781 | 0.08203 | 2.0 | 0.67630 | 2.5 | 0.05980 | 1.6 | 0.77 | 508 | 10 | 525 | 10 | 596 | 35 | 85 |
| b57 | 20818 | 378 | 35 | 0.21 | 26296 | 0.09388 | 1.8 | 0.77048 | 2.5 | 0.05952 | 1.6 | 0.75 | 578 | 10 | 580 | 11 | 586 | 36 | **99** |
| b58 | 28348 | 621 | 41 | 0.12 | 11667 | 0.06907 | 2.1 | 0.56127 | 2.5 | 0.05894 | 1.4 | 0.84 | 431 | 9 | 452 | 9 | 565 | 30 | 76 |
| b59 | 18678 | 324 | 30 | 0.15 | 31707 | 0.09535 | 1.5 | 0.77810 | 2.4 | 0.05919 | 1.9 | 0.60 | 587 | 8 | 584 | 11 | 574 | 42 | **102** |
| b60 | 9517 | 164 | 15 | 0.31 | 15953 | 0.09310 | 1.8 | 0.76795 | 2.6 | 0.05983 | 2.0 | 0.67 | 574 | 10 | 579 | 12 | 597 | 42 | **96** |

**Sample 9-MZ8, ignimbrite, n=60, Ouarzazate Group, Imiter, Eastern Saghro massif, Anti-Atlas, Morocco.**

**coordinates: N 31°, 20´, 16.1”; W 5°, 47´, 0.9”; elev 1604 m.**

**For the calculation of the age of extrusion (= 567 ± 4 Ma) grains a6, a18, a26, a33, a42, and a44 were used.**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 207Pba | Ub | Pbb | Thb | 206Pbc | 206Pbc | 2  | 207Pbc | 2  | 207Pbc | 2  | rhod | 206Pb | 2  | 207Pb | 2  | 207Pb | 2  |  |
| Number | (cps) | (ppm) | (ppm) | U | 204Pb | 238U | % | 235U | % | 206Pb | % |  | 238U | (Ma) | 235U | (Ma) | 206Pb | (Ma) | conc % |
| a02 | 21070 | 390 | 35 | 0.27 | 4009 | 0.08863 | 2.1 | 0.78886 | 3.0 | 0.06456 | 2.1 | 0.71 | 547 | 11 | 591 | 14 | 760 | 45 | 72 |
| a03 | 19877 | 331 | 33 | 0.29 | 2787 | 0.09257 | 1.9 | 0.82250 | 3.3 | 0.06444 | 2.7 | 0.58 | 571 | 11 | 609 | 15 | 756 | 57 | 75 |
| a04 | 94945 | 1656 | 129 | 0.07 | 1080 | 0.06348 | 4.4 | 0.51523 | 4.6 | 0.05887 | 1.4 | 0.95 | 397 | 17 | 422 | 16 | 562 | 30 | 71 |
| a05 | 33295 | 433 | 39 | 0.35 | 474 | 0.07600 | 2.4 | 1.05824 | 9.3 | 0.10099 | 9.0 | 0.26 | 472 | 11 | 733 | 50 | 1642 | 167 | 29 |
| a06 | 20953 | 422 | 38 | 0.13 | 35762 | 0.09162 | 2.2 | 0.74530 | 2.9 | 0.05900 | 2.0 | 0.74 | 565 | 12 | 565 | 13 | 567 | 43 | **100** |
| a08 | 43499 | 836 | 81 | 0.27 | 3434 | 0.09363 | 2.4 | 0.75696 | 2.8 | 0.05864 | 1.6 | 0.84 | 577 | 13 | 572 | 12 | 554 | 34 | **104** |
| a09 | 26810 | 446 | 48 | 0.35 | 3102 | 0.09876 | 1.9 | 0.87723 | 2.6 | 0.06442 | 1.7 | 0.75 | 607 | 11 | 639 | 12 | 755 | 36 | 80 |
| a10 | 17602 | 325 | 32 | 0.25 | 1585 | 0.09420 | 1.9 | 0.76877 | 4.0 | 0.05919 | 3.5 | 0.48 | 580 | 11 | 579 | 18 | 574 | 75 | **101** |
| a11 | 11941 | 233 | 23 | 0.29 | 20477 | 0.09501 | 2.2 | 0.77874 | 3.4 | 0.05945 | 2.7 | 0.63 | 585 | 12 | 585 | 15 | 584 | 58 | **100** |
| a15 | 25342 | 482 | 47 | 0.41 | 2558 | 0.08779 | 1.9 | 0.79111 | 3.3 | 0.06536 | 2.8 | 0.57 | 542 | 10 | 592 | 15 | 786 | 58 | 69 |
| a16 | 21957 | 382 | 39 | 0.30 | 1834 | 0.09479 | 1.7 | 0.87011 | 3.5 | 0.06657 | 3.0 | 0.48 | 584 | 9 | 636 | 17 | 824 | 63 | 71 |
| a17 | 8277 | 153 | 17 | 0.59 | 13811 | 0.09514 | 2.2 | 0.78593 | 3.3 | 0.05991 | 2.4 | 0.68 | 586 | 12 | 589 | 15 | 600 | 52 | **98** |
| a18 | 25393 | 527 | 50 | 0.28 | 13716 | 0.09203 | 1.8 | 0.74919 | 2.2 | 0.05904 | 1.3 | 0.81 | 568 | 10 | 568 | 9 | 569 | 28 | **100** |
| a19 | 42587 | 496 | 58 | 0.36 | 292 | 0.10071 | 1.9 | 1.41130 | 2.7 | 0.10164 | 2.0 | 0.70 | 619 | 11 | 894 | 16 | 1654 | 36 | 37 |
| a22 | 91477 | 505 | 62 | 0.43 | 116 | 0.07965 | 4.0 | 0.70696 | 5.0 | 0.06437 | 3.0 | 0.80 | 494 | 19 | 543 | 21 | 754 | 63 | 66 |
| a24 | 18735 | 242 | 27 | 0.37 | 384 | 0.09647 | 2.0 | 1.07691 | 10.1 | 0.08096 | 9.9 | 0.19 | 594 | 11 | 742 | 55 | 1220 | 195 | 49 |
| a26 | 14568 | 291 | 27 | 0.22 | 9559 | 0.09196 | 2.3 | 0.75263 | 3.4 | 0.05936 | 2.4 | 0.70 | 567 | 13 | 570 | 15 | 580 | 52 | **98** |
| a27 | 4729 | 71 | 9 | 0.57 | 991 | 0.10861 | 2.5 | 0.99516 | 5.2 | 0.06646 | 4.5 | 0.49 | 665 | 16 | 701 | 27 | 821 | 94 | 81 |
| a28 | 29092 | 337 | 38 | 0.23 | 361 | 0.09984 | 2.5 | 1.39676 | 4.0 | 0.10146 | 3.1 | 0.63 | 613 | 15 | 888 | 24 | 1651 | 58 | 37 |
| a29 | 21933 | 330 | 35 | 0.29 | 539 | 0.09878 | 2.2 | 0.80849 | 4.0 | 0.05936 | 3.4 | 0.54 | 607 | 12 | 602 | 18 | 580 | 74 | **105** |
| a30 | 53480 | 908 | 91 | 0.38 | 1297 | 0.08497 | 1.6 | 0.70307 | 2.4 | 0.06001 | 1.8 | 0.66 | 526 | 8 | 541 | 10 | 604 | 39 | 87 |
| a31 | 12093 | 231 | 22 | 0.22 | 20500 | 0.09388 | 2.0 | 0.76654 | 2.9 | 0.05922 | 2.2 | 0.68 | 578 | 11 | 578 | 13 | 575 | 47 | **101** |
| a33 | 12143 | 270 | 25 | 0.25 | 20722 | 0.09126 | 1.9 | 0.74236 | 2.8 | 0.05900 | 2.1 | 0.66 | 563 | 10 | 564 | 12 | 567 | 47 | **99** |
| a34 | 26085 | 461 | 45 | 0.44 | 1917 | 0.08694 | 2.6 | 0.79656 | 3.6 | 0.06645 | 2.5 | 0.71 | 537 | 13 | 595 | 16 | 820 | 52 | 66 |
| a35 | 13374 | 259 | 25 | 0.22 | 22742 | 0.09683 | 1.7 | 0.78904 | 2.7 | 0.05910 | 2.1 | 0.64 | 596 | 10 | 591 | 12 | 571 | 45 | **104** |
| a36 | 74054 | 998 | 81 | 0.20 | 230 | 0.06753 | 2.8 | 1.18154 | 3.4 | 0.12690 | 2.0 | 0.82 | 421 | 11 | 792 | 19 | 2055 | 35 | 20 |
| a37 | 25736 | 523 | 49 | 0.22 | 7782 | 0.09292 | 1.9 | 0.77020 | 2.5 | 0.06012 | 1.7 | 0.75 | 573 | 10 | 580 | 11 | 608 | 36 | **94** |
| a38 | 9454 | 177 | 19 | 0.37 | 15817 | 0.09751 | 1.8 | 0.80936 | 2.6 | 0.06020 | 1.9 | 0.68 | 600 | 10 | 602 | 12 | 611 | 42 | **98** |
| a39 | 33158 | 630 | 64 | 0.40 | 5824 | 0.09321 | 1.7 | 0.76398 | 2.7 | 0.05944 | 2.1 | 0.64 | 575 | 10 | 576 | 12 | 583 | 45 | **98** |
| a40 | 21942 | 422 | 39 | 0.20 | 7449 | 0.09181 | 2.0 | 0.78240 | 2.6 | 0.06181 | 1.6 | 0.78 | 566 | 11 | 587 | 12 | 667 | 35 | 85 |
| a41 | 19571 | 335 | 32 | 0.26 | 6462 | 0.09241 | 1.4 | 0.79745 | 2.6 | 0.06259 | 2.1 | 0.55 | 570 | 8 | 595 | 12 | 694 | 46 | 82 |
| a42 | 51870 | 1064 | 105 | 0.32 | 88184 | 0.09229 | 2.7 | 0.75345 | 3.5 | 0.05921 | 2.2 | 0.78 | 569 | 15 | 570 | 15 | 575 | 48 | **99** |
| a43 | 76009 | 1614 | 142 | 0.22 | 9014 | 0.08362 | 1.9 | 0.69919 | 2.3 | 0.06064 | 1.3 | 0.83 | 518 | 9 | 538 | 10 | 627 | 28 | 83 |
| a44 | 24948 | 522 | 51 | 0.35 | 32218 | 0.09193 | 2.1 | 0.74904 | 2.7 | 0.05909 | 1.7 | 0.78 | 567 | 12 | 568 | 12 | 570 | 37 | **99** |
| a45 | 20887 | 355 | 36 | 0.26 | 1562 | 0.09557 | 1.8 | 0.89293 | 3.2 | 0.06776 | 2.7 | 0.56 | 588 | 10 | 648 | 16 | 861 | 55 | 68 |
| a46 | 17717 | 354 | 36 | 0.34 | 29995 | 0.09513 | 1.9 | 0.78095 | 2.8 | 0.05954 | 2.1 | 0.66 | 586 | 10 | 586 | 13 | 587 | 46 | **100** |
| a48 | 15561 | 267 | 28 | 0.37 | 1440 | 0.09695 | 2.0 | 0.93801 | 2.8 | 0.07017 | 1.9 | 0.72 | 597 | 11 | 672 | 14 | 933 | 40 | 64 |
| a49 | 22834 | 395 | 44 | 0.39 | 951 | 0.10411 | 2.5 | 1.06697 | 4.5 | 0.07433 | 3.8 | 0.55 | 638 | 15 | 737 | 24 | 1051 | 76 | 61 |
| a50 | 17032 | 317 | 32 | 0.27 | 19694 | 0.09579 | 2.2 | 0.79807 | 3.0 | 0.06042 | 2.0 | 0.74 | 590 | 12 | 596 | 13 | 619 | 43 | **95** |
| a51 | 32567 | 649 | 63 | 0.20 | 21257 | 0.09697 | 2.3 | 0.80909 | 2.8 | 0.06051 | 1.6 | 0.82 | 597 | 13 | 602 | 13 | 622 | 34 | **96** |
| a52 | 47828 | 872 | 95 | 0.41 | 3463 | 0.09785 | 2.1 | 0.84899 | 2.5 | 0.06292 | 1.5 | 0.81 | 602 | 12 | 624 | 12 | 706 | 32 | 85 |
| a54 | 87730 | 1393 | 117 | 0.15 | 489 | 0.06913 | 2.3 | 0.54449 | 3.4 | 0.05713 | 2.5 | 0.66 | 431 | 9 | 441 | 12 | 496 | 56 | 87 |
| a55 | 10726 | 195 | 20 | 0.35 | 18138 | 0.09589 | 1.8 | 0.78696 | 2.6 | 0.05952 | 1.8 | 0.71 | 590 | 10 | 589 | 12 | 586 | 39 | **101** |
| a56 | 20349 | 400 | 41 | 0.32 | 11970 | 0.09675 | 2.3 | 0.79483 | 3.9 | 0.05958 | 3.1 | 0.61 | 595 | 13 | 594 | 18 | 588 | 67 | **101** |
| a57 | 17695 | 316 | 34 | 0.27 | 3770 | 0.10527 | 1.8 | 0.93258 | 3.0 | 0.06425 | 2.4 | 0.59 | 645 | 11 | 669 | 15 | 750 | 51 | 86 |
| a58 | 50032 | 938 | 93 | 0.31 | 2772 | 0.09263 | 1.7 | 0.75505 | 2.3 | 0.05912 | 1.6 | 0.74 | 571 | 9 | 571 | 10 | 571 | 34 | **100** |
| a59 | 56134 | 791 | 62 | 0.37 | 293 | 0.06635 | 4.0 | 0.55531 | 4.5 | 0.06070 | 2.0 | 0.89 | 414 | 16 | 448 | 16 | 629 | 44 | 66 |
| a60 | 114862 | 1294 | 149 | 0.18 | 313 | 0.09541 | 1.8 | 0.78154 | 3.5 | 0.05941 | 3.0 | 0.52 | 587 | 10 | 586 | 15 | 582 | 64 | **101** |

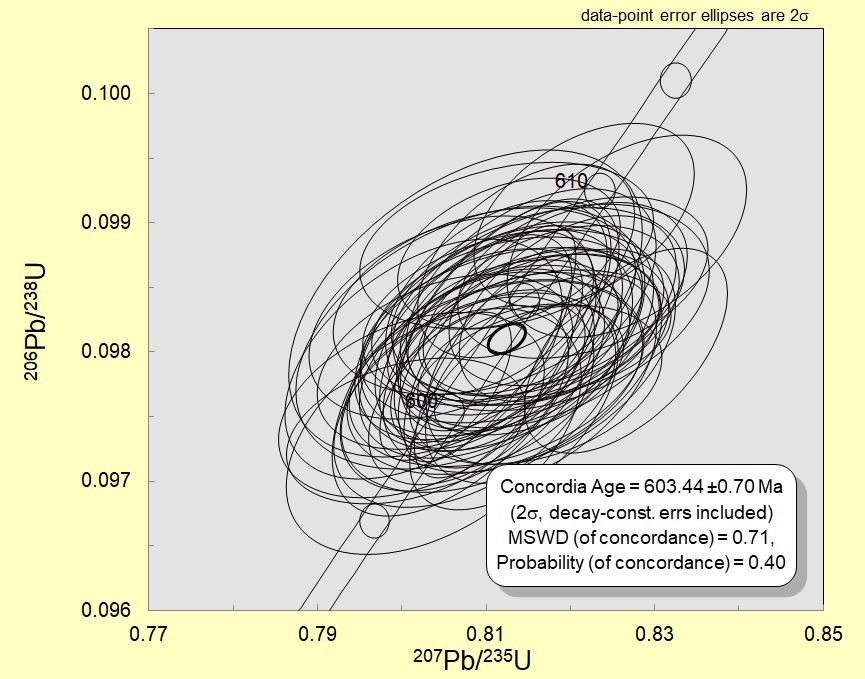
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| a within-run background-corrected mean 207Pb signal in counts per second |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| b U and Pb content and Th/U ratio were calculated relative to GJ-1 and are accurate to approximately 10%. |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| c corrected for background, mass bias, laser induced U-Pb fractionation and common Pb (if detectable, see analytical method) using Stacey & Kramers (1975) model Pb composition. |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 207Pb/235U calculated using 207Pb/206Pb/(238U/206Pb × 1/137.88). Errors are propagated by quadratic addition of within-run errors (2SE) and the reproducibility of GJ-1 (2SD). |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| d Rho is the error correlation defined as err206Pb/238U/err207Pb/235U. |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| e bold: 89-111% concordance |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

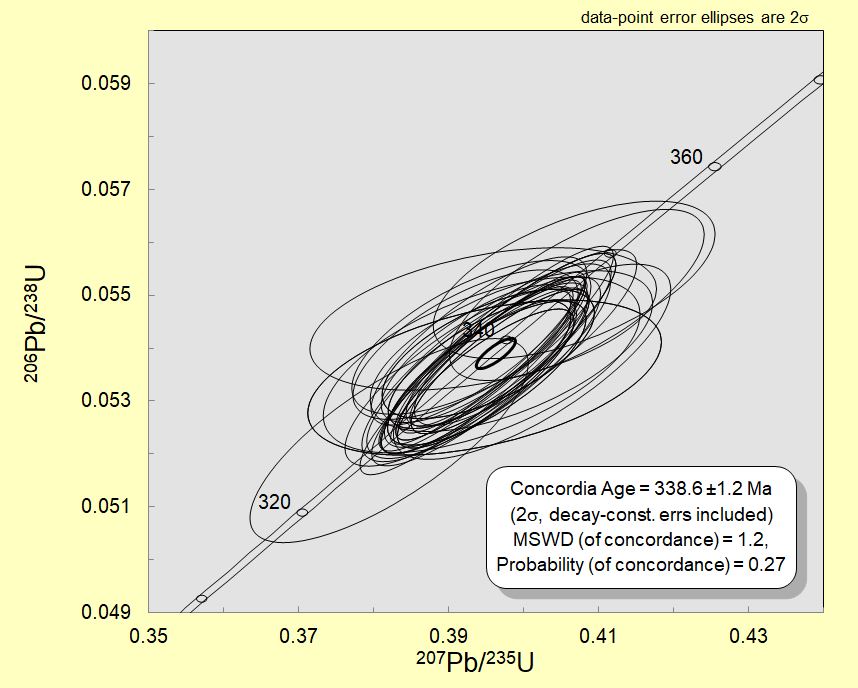
**U-Th-Pb isotope data the primary and secondary standard zircon**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Primary standard GJ1** | | |  |  |  |  |  |  |  | **age** |  | **age** |  | **age** |  |  |
|  | 207/206 | ±1s% | 206/238 | ±1s% | **7/35r** | **±2s%** | **6/38r** | **±2s%** | **corr** | **207/235** | **±2s** | **206/238** | **±2s** | **207/206** | **±2s** | conc% |
| GJ1 | 0.0589 | 0.76 | 0.0864 | 0.32 | 0.8091 | 2 | 0.0977 | 0.6 | 0.39 | 602 | 7 | **601** | **4** | 606 | 33 | 99 |
| GJ1 | 0.0592 | 0.72 | 0.0868 | 0.21 | 0.8170 | 1 | 0.0981 | 0.4 | 0.27 | 606 | 7 | **604** | **2** | 617 | 31 | 98 |
| GJ1 | 0.0590 | 0.58 | 0.0877 | 0.29 | 0.8216 | 1 | 0.0991 | 0.6 | 0.45 | 609 | 6 | **609** | **3** | 609 | 25 | 100 |
| GJ1 | 0.0589 | 0.66 | 0.0869 | 0.24 | 0.8122 | 1 | 0.0981 | 0.5 | 0.35 | 604 | 6 | **603** | **3** | 605 | 28 | 100 |
| GJ1 | 0.0589 | 0.85 | 0.0872 | 0.28 | 0.8132 | 2 | 0.0983 | 0.6 | 0.32 | 604 | 8 | **604** | **3** | 604 | 37 | 100 |
| GJ1 | 0.0594 | 0.73 | 0.0865 | 0.19 | 0.8139 | 2 | 0.0975 | 0.4 | 0.25 | 605 | 7 | **600** | **2** | 624 | 31 | 96 |
| GJ1 | 0.0591 | 0.60 | 0.0871 | 0.36 | 0.8135 | 1 | 0.0980 | 0.7 | 0.51 | 604 | 6 | **602** | **4** | 612 | 26 | 98 |
| GJ1 | 0.0590 | 0.35 | 0.0871 | 0.36 | 0.8115 | 1 | 0.0979 | 0.7 | 0.71 | 603 | 5 | **602** | **4** | 608 | 15 | 99 |
| GJ1 | 0.0589 | 0.66 | 0.0878 | 0.34 | 0.8153 | 1 | 0.0984 | 0.7 | 0.46 | 605 | 7 | **605** | **4** | 606 | 29 | 100 |
| GJ1 | 0.0590 | 0.83 | 0.0873 | 0.30 | 0.8112 | 2 | 0.0978 | 0.6 | 0.34 | 603 | 8 | **602** | **3** | 609 | 36 | 99 |
| GJ1 | 0.0586 | 0.58 | 0.0881 | 0.31 | 0.8112 | 1 | 0.0984 | 0.6 | 0.47 | 603 | 6 | **605** | **4** | 596 | 25 | 102 |
| GJ1 | 0.0586 | 0.32 | 0.0875 | 0.24 | 0.8052 | 1 | 0.0977 | 0.5 | 0.60 | 600 | 4 | **601** | **3** | 595 | 14 | 101 |
| GJ1 | 0.0597 | 0.61 | 0.0883 | 0.23 | 0.8259 | 1 | 0.0984 | 0.5 | 0.36 | 611 | 6 | **605** | **3** | 636 | 26 | 95 |
| GJ1 | 0.0588 | 0.66 | 0.0881 | 0.34 | 0.8115 | 1 | 0.0981 | 0.7 | 0.46 | 603 | 7 | **603** | **4** | 603 | 28 | 100 |
| GJ1 | 0.0591 | 0.71 | 0.0885 | 0.24 | 0.8157 | 2 | 0.0982 | 0.5 | 0.32 | 606 | 7 | **604** | **3** | 613 | 31 | 98 |
| GJ1 | 0.0590 | 0.83 | 0.0882 | 0.31 | 0.8110 | 2 | 0.0978 | 0.6 | 0.35 | 603 | 8 | **602** | **4** | 609 | 36 | 99 |
| GJ1 | 0.0583 | 0.79 | 0.0889 | 0.33 | 0.8059 | 2 | 0.0983 | 0.7 | 0.38 | 600 | 8 | **604** | **4** | 585 | 34 | 103 |
| GJ1 | 0.0593 | 0.57 | 0.0889 | 0.30 | 0.8197 | 1 | 0.0983 | 0.6 | 0.47 | 608 | 6 | **605** | **3** | 620 | 25 | 98 |
| GJ1 | 0.0589 | 0.61 | 0.0891 | 0.22 | 0.8127 | 1 | 0.0982 | 0.4 | 0.33 | 604 | 6 | **604** | **2** | 605 | 27 | 100 |
| GJ1 | 0.0584 | 0.75 | 0.0885 | 0.30 | 0.8011 | 2 | 0.0976 | 0.6 | 0.37 | 597 | 7 | **600** | **3** | 587 | 32 | 102 |
| GJ1 | 0.0592 | 0.70 | 0.0894 | 0.29 | 0.8177 | 2 | 0.0983 | 0.6 | 0.38 | 607 | 7 | **604** | **3** | 616 | 30 | 98 |
| GJ1 | 0.0592 | 0.64 | 0.0896 | 0.29 | 0.8197 | 1 | 0.0984 | 0.6 | 0.42 | 608 | 6 | **605** | **3** | 618 | 28 | 98 |
| GJ1 | 0.0594 | 0.60 | 0.0891 | 0.34 | 0.8165 | 1 | 0.0978 | 0.7 | 0.49 | 606 | 6 | **601** | **4** | 624 | 26 | 96 |
| GJ1 | 0.0592 | 0.57 | 0.0892 | 0.21 | 0.8141 | 1 | 0.0979 | 0.4 | 0.35 | 605 | 6 | **602** | **2** | 615 | 25 | 98 |
| GJ1 | 0.0579 | 0.47 | 0.0897 | 0.32 | 0.8010 | 1 | 0.0984 | 0.6 | 0.56 | 597 | 5 | **605** | **4** | 570 | 21 | 106 |
| GJ1 | 0.0579 | 0.47 | 0.0894 | 0.25 | 0.7971 | 1 | 0.0980 | 0.5 | 0.47 | 595 | 5 | **602** | **3** | 567 | 20 | 106 |
| GJ1 | 0.0589 | 0.68 | 0.0893 | 0.35 | 0.8177 | 1 | 0.0980 | 0.7 | 0.47 | 607 | 7 | **602** | **4** | 623 | 28 | 97 |
| GJ1 | 0.0590 | 0.64 | 0.0893 | 0.26 | 0.8133 | 1 | 0.0980 | 0.5 | 0.37 | 604 | 6 | **603** | **3** | 610 | 28 | 99 |
| GJ1 | 0.0589 | 0.85 | 0.0893 | 0.28 | 0.8128 | 2 | 0.0981 | 0.6 | 0.32 | 604 | 8 | **603** | **3** | 606 | 37 | 100 |
| GJ1 | 0.0593 | 0.69 | 0.0897 | 0.26 | 0.8215 | 1 | 0.0986 | 0.5 | 0.35 | 609 | 7 | **606** | **3** | 619 | 30 | 98 |
| GJ1 | 0.0589 | 0.52 | 0.0887 | 0.26 | 0.8102 | 1 | 0.0979 | 0.5 | 0.45 | 603 | 5 | **602** | **3** | 605 | 22 | 99 |
| GJ1 | 0.0589 | 0.79 | 0.0889 | 0.29 | 0.8155 | 2 | 0.0981 | 0.6 | 0.35 | 606 | 7 | **603** | **3** | 614 | 33 | 98 |
| GJ1 | 0.0590 | 0.76 | 0.0883 | 0.26 | 0.8125 | 2 | 0.0983 | 0.5 | 0.33 | 604 | 7 | **604** | **3** | 602 | 33 | 100 |
| GJ1 | 0.0587 | 0.72 | 0.0880 | 0.28 | 0.8051 | 2 | 0.0979 | 0.6 | 0.37 | 600 | 7 | **602** | **3** | 590 | 31 | 102 |
| GJ1 | 0.0587 | 0.68 | 0.0875 | 0.24 | 0.8005 | 1 | 0.0974 | 0.5 | 0.33 | 597 | 7 | **599** | **3** | 590 | 30 | 102 |
| GJ1 | 0.0597 | 0.62 | 0.0889 | 0.32 | 0.8267 | 1 | 0.0989 | 0.6 | 0.46 | 612 | 6 | **608** | **4** | 626 | 27 | 97 |
| GJ1 | 0.0596 | 0.70 | 0.0877 | 0.26 | 0.8159 | 1 | 0.0977 | 0.5 | 0.34 | 606 | 7 | **601** | **3** | 623 | 30 | 97 |
| GJ1 | 0.0587 | 0.85 | 0.0883 | 0.30 | 0.8098 | 2 | 0.0984 | 0.6 | 0.33 | 602 | 8 | **605** | **3** | 592 | 37 | 102 |
| GJ1 | 0.0588 | 0.47 | 0.0880 | 0.34 | 0.8088 | 1 | 0.0981 | 0.7 | 0.58 | 602 | 5 | **603** | **4** | 596 | 20 | 101 |
| GJ1 | 0.0602 | 0.49 | 0.0880 | 0.33 | 0.8266 | 1 | 0.0980 | 0.7 | 0.56 | 612 | 5 | **603** | **4** | 645 | 21 | 93 |
| GJ1 | 0.0587 | 0.72 | 0.0884 | 0.28 | 0.8094 | 2 | 0.0984 | 0.6 | 0.36 | 602 | 7 | **605** | **3** | 592 | 31 | 102 |
| GJ1 | 0.0586 | 0.58 | 0.0881 | 0.41 | 0.8045 | 1 | 0.0980 | 0.8 | 0.58 | 599 | 6 | **603** | **5** | 587 | 25 | 103 |
| GJ1 | 0.0597 | 0.79 | 0.0884 | 0.28 | 0.8201 | 2 | 0.0981 | 0.6 | 0.33 | 608 | 8 | **603** | **3** | 626 | 34 | 96 |
| GJ1 | 0.0597 | 0.55 | 0.0883 | 0.22 | 0.8206 | 1 | 0.0980 | 0.4 | 0.37 | 608 | 5 | **603** | **2** | 629 | 24 | 96 |
| GJ1 | 0.0593 | 0.71 | 0.0884 | 0.38 | 0.8142 | 2 | 0.0980 | 0.8 | 0.47 | 605 | 7 | **602** | **4** | 614 | 31 | 98 |
| GJ1 | 0.0583 | 0.70 | 0.0886 | 0.27 | 0.8028 | 1 | 0.0982 | 0.5 | 0.36 | 598 | 7 | **604** | **3** | 577 | 30 | 105 |
| GJ1 | 0.0596 | 0.82 | 0.0875 | 0.30 | 0.8161 | 2 | 0.0984 | 0.6 | 0.35 | 606 | 8 | **605** | **3** | 609 | 35 | 99 |
| GJ1 | 0.0593 | 0.65 | 0.0870 | 0.46 | 0.8074 | 2 | 0.0978 | 0.9 | 0.58 | 601 | 7 | **602** | **5** | 598 | 28 | 101 |
| GJ1 | 0.0606 | 0.86 | 0.0875 | 0.47 | 0.8312 | 2 | 0.0985 | 0.9 | 0.48 | 614 | 9 | **606** | **5** | 647 | 37 | 94 |
| GJ1 | 0.0608 | 0.77 | 0.0872 | 0.37 | 0.8310 | 2 | 0.0982 | 0.7 | 0.43 | 614 | 8 | **604** | **4** | 653 | 33 | 92 |
| GJ1 | 0.0599 | 0.52 | 0.0867 | 0.33 | 0.8133 | 1 | 0.0976 | 0.7 | 0.54 | 604 | 6 | **600** | **4** | 620 | 23 | 97 |
| GJ1 | 0.0593 | 0.80 | 0.0866 | 0.40 | 0.8038 | 2 | 0.0974 | 0.8 | 0.45 | 599 | 8 | **599** | **5** | 599 | 34 | 100 |
| GJ1 | 0.0593 | 0.68 | 0.0871 | 0.35 | 0.8078 | 2 | 0.0978 | 0.7 | 0.46 | 601 | 7 | **601** | **4** | 601 | 29 | 100 |
| GJ1 | 0.0584 | 0.71 | 0.0880 | 0.35 | 0.8039 | 2 | 0.0988 | 0.7 | 0.44 | 599 | 7 | **608** | **4** | 567 | 31 | 107 |
| GJ1 | 0.0593 | 0.57 | 0.0881 | 0.31 | 0.8148 | 1 | 0.0987 | 0.6 | 0.48 | 605 | 6 | **607** | **4** | 599 | 25 | 101 |
| GJ1 | 0.0592 | 0.67 | 0.0875 | 0.31 | 0.8090 | 1 | 0.0981 | 0.6 | 0.42 | 602 | 7 | **603** | **4** | 598 | 29 | 101 |
| GJ1 | 0.0594 | 0.77 | 0.0878 | 0.34 | 0.8119 | 2 | 0.0982 | 0.7 | 0.40 | 603 | 8 | **604** | **4** | 603 | 33 | 100 |
| GJ1 | 0.0594 | 0.54 | 0.0879 | 0.40 | 0.8124 | 1 | 0.0982 | 0.8 | 0.60 | 604 | 6 | **604** | **5** | 603 | 23 | 100 |
| GJ1 | 0.0600 | 0.52 | 0.0876 | 0.29 | 0.8079 | 1 | 0.0977 | 0.6 | 0.48 | 601 | 5 | **601** | **3** | 603 | 23 | 100 |
| GJ1 | 0.0597 | 0.88 | 0.0882 | 0.33 | 0.8177 | 2 | 0.0983 | 0.7 | 0.35 | 607 | 9 | **605** | **4** | 614 | 38 | 98 |
| GJ1 | 0.0594 | 0.51 | 0.0883 | 0.37 | 0.8123 | 1 | 0.0983 | 0.7 | 0.59 | 604 | 6 | **604** | **4** | 602 | 22 | 100 |
| GJ1 | 0.0596 | 0.78 | 0.0878 | 0.31 | 0.8183 | 1 | 0.0978 | 0.6 | 0.42 | 607 | 7 | **601** | **4** | 629 | 29 | 96 |
| GJ1 | 0.0590 | 0.77 | 0.0881 | 0.40 | 0.8048 | 2 | 0.0979 | 0.8 | 0.46 | 600 | 8 | **602** | **5** | 589 | 34 | 102 |
| GJ1 | 0.0593 | 0.34 | 0.0882 | 0.38 | 0.8105 | 1 | 0.0981 | 0.8 | 0.74 | 603 | 5 | **603** | **4** | 601 | 15 | 100 |
| GJ1 | 0.0591 | 0.62 | 0.0889 | 0.24 | 0.8127 | 1 | 0.0988 | 0.5 | 0.36 | 604 | 6 | **607** | **3** | 592 | 27 | 103 |
| GJ1 | 0.0604 | 0.73 | 0.0878 | 0.38 | 0.8205 | 2 | 0.0976 | 0.8 | 0.46 | 608 | 8 | **600** | **4** | 639 | 31 | 94 |
| GJ1 | 0.0588 | 0.74 | 0.0882 | 0.39 | 0.8026 | 2 | 0.0979 | 0.8 | 0.46 | 598 | 8 | **602** | **4** | 583 | 32 | 103 |
| GJ1 | 0.0597 | 0.75 | 0.0882 | 0.35 | 0.8143 | 2 | 0.0979 | 0.7 | 0.43 | 605 | 8 | **602** | **4** | 615 | 32 | 98 |
| GJ1 | 0.0589 | 0.94 | 0.0887 | 0.49 | 0.8076 | 2 | 0.0984 | 1.0 | 0.46 | 601 | 10 | **605** | **6** | 587 | 41 | 103 |
| GJ1 | 0.0594 | 0.80 | 0.0884 | 0.37 | 0.8124 | 2 | 0.0981 | 0.7 | 0.42 | 604 | 8 | **603** | **4** | 605 | 35 | 100 |
| GJ1 | 0.0590 | 0.84 | 0.0891 | 0.27 | 0.8124 | 2 | 0.0988 | 0.5 | 0.30 | 604 | 8 | **608** | **3** | 590 | 36 | 103 |
| GJ1 | 0.0593 | 0.76 | 0.0883 | 0.31 | 0.8095 | 1 | 0.0979 | 0.6 | 0.42 | 602 | 7 | **602** | **4** | 602 | 29 | 100 |
| GJ1 | 0.0603 | 0.66 | 0.0881 | 0.34 | 0.8074 | 2 | 0.0976 | 0.7 | 0.44 | 601 | 7 | **600** | **4** | 603 | 30 | 100 |
| GJ1 | 0.0591 | 0.96 | 0.0886 | 0.42 | 0.8081 | 2 | 0.0981 | 0.8 | 0.41 | 601 | 10 | **603** | **5** | 594 | 41 | 102 |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Secondary Standard Plesovice** | | | | |  |  |  |  |  |  |  | **age** | |  | | **age** | |  | | **age** | |  | |  | |
|  | 207/206 | | ±1s% | | 206/238 | ±1s% | **7/35r** | **±2s%** | **6/38r** | **±2s%** | **corr** | **207/235** | | **±2s** | | **206/238** | | **±2s** | | **207/206** | | **±2s** | | conc% | |
| Pleso | | 0.0535 | 1.2 | 0.0500 | | 0.70 | 0.3963 | 3.2 | 0.05384 | 2.8 | 0.87 | 339 | 9 | | **338** | | **9** | | 345 | | 35 | | 98 | |
| Pleso | | 0.0510 | 1.4 | 0.0496 | | 0.77 | 0.3933 | 3.1 | 0.05348 | 2.9 | 0.91 | 337 | 9 | | **336** | | **9** | | 343 | | 30 | | 98 | |
| Pleso | | 0.0531 | 1.7 | 0.0498 | | 0.40 | 0.3944 | 4.4 | 0.05368 | 2.5 | 0.58 | 338 | 13 | | **337** | | **8** | | 341 | | 81 | | 99 | |
| Pleso | | 0.0539 | 1.2 | 0.0498 | | 0.73 | 0.4011 | 3.8 | 0.05374 | 2.8 | 0.74 | 342 | 11 | | **337** | | **9** | | 377 | | 57 | | 90 | |
| Pleso | | 0.0519 | 1.2 | 0.0495 | | 0.44 | 0.3915 | 3.2 | 0.05344 | 2.6 | 0.80 | 335 | 9 | | **336** | | **8** | | 335 | | 44 | | 100 | |
| Pleso | | 0.0528 | 1.2 | 0.0483 | | 0.91 | 0.3821 | 4.0 | 0.05225 | 3.0 | 0.76 | 329 | 11 | | **328** | | **10** | | 330 | | 59 | | 99 | |
| Pleso | | 0.0530 | 1.4 | 0.0497 | | 0.76 | 0.3950 | 3.4 | 0.05373 | 2.8 | 0.83 | 338 | 10 | | **337** | | **9** | | 343 | | 44 | | 98 | |
| Pleso | | 0.0519 | 1.0 | 0.0496 | | 0.52 | 0.3947 | 3.2 | 0.05364 | 2.6 | 0.81 | 338 | 9 | | **337** | | **9** | | 345 | | 43 | | 98 | |
| Pleso | | 0.0518 | 1.5 | 0.0500 | | 0.00 | 0.3940 | 3.0 | 0.05414 | 2.4 | 0.80 | 337 | 9 | | **340** | | **8** | | 320 | | 40 | | 106 | |
| Pleso | | 0.0535 | 0.9 | 0.0493 | | 0.46 | 0.3941 | 3.0 | 0.05346 | 2.6 | 0.86 | 337 | 9 | | **336** | | **8** | | 349 | | 34 | | 96 | |
| Pleso | | 0.0516 | 1.5 | 0.0498 | | 0.84 | 0.3963 | 3.2 | 0.05399 | 2.9 | 0.91 | 339 | 9 | | **339** | | **10** | | 339 | | 31 | | 100 | |
| Pleso | | 0.0522 | 1.6 | 0.0500 | | 0.36 | 0.4003 | 3.0 | 0.05420 | 2.5 | 0.83 | 342 | 9 | | **340** | | **8** | | 353 | | 39 | | 97 | |
| Pleso | | 0.0529 | 0.5 | 0.0498 | | 0.63 | 0.3950 | 2.4 | 0.05378 | 2.1 | 0.88 | 338 | 7 | | **338** | | **7** | | 340 | | 26 | | 99 | |
| Pleso | | 0.0524 | 1.0 | 0.0501 | | 0.60 | 0.3969 | 2.4 | 0.05375 | 2.1 | 0.85 | 339 | 7 | | **337** | | **7** | | 352 | | 30 | | 96 | |
| Pleso | | 0.0522 | 1.0 | 0.0501 | | 0.55 | 0.3949 | 2.4 | 0.05343 | 2.0 | 0.82 | 338 | 7 | | **336** | | **7** | | 355 | | 31 | | 95 | |
| Pleso | | 0.0534 | 1.1 | 0.0505 | | 0.61 | 0.3951 | 2.7 | 0.05353 | 2.1 | 0.76 | 338 | 8 | | **336** | | **7** | | 351 | | 40 | | 96 | |
| Pleso | | 0.0532 | 1.2 | 0.0511 | | 1.16 | 0.3967 | 3.2 | 0.05390 | 2.9 | 0.89 | 339 | 9 | | **338** | | **9** | | 345 | | 33 | | 98 | |
| Pleso | | 0.0531 | 0.8 | 0.0514 | | 0.39 | 0.3953 | 2.9 | 0.05389 | 1.9 | 0.63 | 338 | 8 | | **338** | | **6** | | 337 | | 51 | | 100 | |
| Pleso | | 0.0530 | 0.5 | 0.0516 | | 0.82 | 0.3956 | 2.6 | 0.05381 | 2.4 | 0.90 | 338 | 8 | | **338** | | **8** | | 342 | | 26 | | 99 | |
| Pleso | | 0.0529 | 0.8 | 0.0518 | | 0.37 | 0.3941 | 2.5 | 0.05369 | 1.8 | 0.73 | 337 | 7 | | **337** | | **6** | | 339 | | 39 | | 99 | |
| Pleso | | 0.0533 | 2.1 | 0.0519 | | 0.74 | 0.3948 | 4.9 | 0.05345 | 2.2 | 0.46 | 338 | 14 | | **336** | | **7** | | 353 | | 98 | | 95 | |
| Pleso | | 0.0521 | 1.2 | 0.0526 | | 0.51 | 0.3937 | 2.6 | 0.05390 | 2.0 | 0.75 | 337 | 8 | | **338** | | **7** | | 328 | | 39 | | 103 | |
| Pleso | | 0.0536 | 0.3 | 0.0526 | | 0.65 | 0.3942 | 2.7 | 0.05352 | 2.1 | 0.80 | 337 | 8 | | **336** | | **7** | | 347 | | 36 | | 97 | |
| Pleso | | 0.0529 | 0.7 | 0.0532 | | 0.59 | 0.3965 | 2.5 | 0.05388 | 2.1 | 0.82 | 339 | 7 | | **338** | | **7** | | 344 | | 32 | | 98 | |
| Pleso | | 0.0523 | 0.9 | 0.0535 | | 0.90 | 0.3952 | 2.7 | 0.05381 | 2.5 | 0.92 | 338 | 8 | | **338** | | **8** | | 340 | | 24 | | 99 | |
| Pleso | | 0.0516 | 0.9 | 0.0539 | | 0.62 | 0.3963 | 2.4 | 0.05391 | 2.1 | 0.89 | 339 | 7 | | **338** | | **7** | | 342 | | 25 | | 99 | |
| Pleso | | 0.0493 | 1.6 | 0.0134 | | 0.39 | 0.4107 | 2.8 | 0.05709 | 2.0 | 0.73 | 349 | 8 | | **358** | | **7** | | 293 | | 44 | | 122 | |
| Pleso | | 0.0509 | 1.0 | 0.0127 | | 0.55 | 0.3930 | 3.3 | 0.05421 | 2.2 | 0.66 | 337 | 10 | | **340** | | **7** | | 311 | | 57 | | 109 | |
| Pleso | | 0.0518 | 1.5 | 0.0127 | | 0.49 | 0.3923 | 3.1 | 0.05407 | 2.1 | 0.68 | 336 | 9 | | **339** | | **7** | | 312 | | 52 | | 109 | |
| Pleso | | 0.0513 | 2.3 | 0.0128 | | 0.34 | 0.3946 | 4.8 | 0.05455 | 2.0 | 0.42 | 338 | 14 | | **342** | | **7** | | 306 | | 99 | | 112 | |
| Pleso | | 0.0531 | 2.0 | 0.0127 | | 0.65 | 0.3984 | 3.9 | 0.05395 | 2.3 | 0.60 | 340 | 11 | | **339** | | **8** | | 353 | | 70 | | 96 | |
| Pleso | | 0.0526 | 2.7 | 0.0130 | | 0.56 | 0.4068 | 3.8 | 0.05529 | 2.2 | 0.58 | 347 | 11 | | **347** | | **7** | | 344 | | 70 | | 101 | |
| Pleso | | 0.0505 | 1.9 | 0.0130 | | 0.74 | 0.4071 | 3.4 | 0.05501 | 2.4 | 0.70 | 347 | 10 | | **345** | | **8** | | 357 | | 55 | | 97 | |
| Pleso | | 0.0524 | 1.0 | 0.0501 | | 0.60 | 0.3969 | 2.4 | 0.05375 | 2.1 | 0.85 | 339 | 7 | | **337** | | **7** | | 352 | | 30 | | 96 | |
| Pleso | | 0.0522 | 1.0 | 0.0501 | | 0.55 | 0.3949 | 2.4 | 0.05343 | 2.0 | 0.82 | 338 | 7 | | **336** | | **7** | | 355 | | 31 | | 95 | |
| Pleso | | 0.0534 | 1.1 | 0.0505 | | 0.61 | 0.3951 | 2.7 | 0.05353 | 2.1 | 0.76 | 338 | 8 | | **336** | | **7** | | 351 | | 40 | | 96 | |
| Pleso | | 0.0532 | 1.2 | 0.0511 | | 1.16 | 0.3967 | 3.2 | 0.05390 | 2.9 | 0.89 | 339 | 9 | | **338** | | **9** | | 345 | | 33 | | 98 | |
| Pleso | | 0.0531 | 0.8 | 0.0514 | | 0.39 | 0.3953 | 2.9 | 0.05389 | 1.9 | 0.63 | 338 | 8 | | **338** | | **6** | | 337 | | 51 | | 100 | |
| Pleso | | 0.0530 | 0.5 | 0.0516 | | 0.82 | 0.3956 | 2.6 | 0.05381 | 2.4 | 0.90 | 338 | 8 | | **338** | | **8** | | 342 | | 26 | | 99 | |
| Pleso | | 0.0529 | 0.8 | 0.0518 | | 0.37 | 0.3941 | 2.5 | 0.05369 | 1.8 | 0.73 | 337 | 7 | | **337** | | **6** | | 339 | | 39 | | 99 | |
| Pleso | | 0.0533 | 2.1 | 0.0519 | | 0.74 | 0.3948 | 4.9 | 0.05345 | 2.2 | 0.46 | 338 | 14 | | **336** | | **7** | | 353 | | 98 | | 95 | |



Concordia diagram of U-Pb isotope data of the primary standard zircon (GJ1).



Concordia diagram of U-Pb isotope data of the secondary standard zircon (Plesovice).