**Table S5 The reported Sr- Nd isotopes of C2- P1 granitoids, mafic - intermediate dykes and enclaves in west Junggar**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Data Source | Locality | Sample ID | rock | Age | Rb | Sr | 87Rb/86Sr | 87Sr/86Sr | 2σ | (87Sr/86Sr)o | Sm | Nd | 147Sm/144Nd | 143Nd/144Nd | 2σ | εNd(t) | TDM1 | TDM2 | ƒSm/Nd |
| He and Chen,2011 | Karamay | KL22 | granodiorite | 315 | 53.03 | 338.10 | 0.453900 | 0.705818 | 0.000004 | 0.703784 | 2.76 | 13.65 | 0.122500 | 0.512850 | 0.000004 | 7.1 | 504 | 495 | -0.38 |
| Karamay | KL211 | granodiorite | 315 | 42.86 | 368.80 | 0.336200 | 0.705141 | 0.000003 | 0.703633 | 3.44 | 15.99 | 0.130400 | 0.512860 | 0.000004 | 7.0 | 534 | 505 | -0.34 |
| Karamay | KL212 | granodiorite | 315 | 35.08 | 375.70 | 0.270200 | 0.704898 | 0.000003 | 0.703687 | 3.18 | 14.72 | 0.130600 | 0.512881 | 0.000005 | 7.4 | 497 | 473 | -0.34 |
| Karamay | KL213 | granodiorite | 315 | 57.76 | 429.70 | 0.389000 | 0.705456 | 0.000003 | 0.703712 | 4.08 | 18.99 | 0.130100 | 0.512858 | 0.000004 | 7.0 | 536 | 508 | -0.34 |
| Karamay | KL217 | granodiorite | 315 | 70.12 | 269.00 | 0.754300 | 0.707204 | 0.000007 | 0.703822 | 3.10 | 14.43 | 0.129800 | 0.512868 | 0.000004 | 7.2 | 516 | 491 | -0.34 |
| Karamay | KL218 | granodiorite | 315 | 83.28 | 279.60 | 0.862000 | 0.707510 | 0.000003 | 0.703646 | 2.50 | 11.62 | 0.130400 | 0.512872 | 0.000003 | 7.2 | 512 | 486 | -0.34 |
| Karamay | KL219 | granodiorite | 315 | 25.55 | 534.90 | 0.138200 | 0.704357 | 0.000004 | 0.703737 | 3.40 | 14.54 | 0.141600 | 0.512880 | 0.000005 | 6.9 | 574 | 510 | -0.28 |
| Karamay | KL24 | diorite | 315 | 32.16 | 374.40 | 0.252100 | 0.705011 | 0.000004 | 0.703881 | 3.45 | 15.56 | 0.134300 | 0.512782 | 0.000009 | 5.3 | 710 | 643 | -0.32 |
| Karamay | KL25 | diorite | 315 | 41.20 | 399.50 | 0.298500 | 0.704856 | 0.000003 | 0.703518 | 3.24 | 14.55 | 0.135000 | 0.512874 | 0.000003 | 7.1 | 538 | 498 | -0.31 |
| Karamay | KL26 | diorite | 315 | 41.06 | 379.70 | 0.312900 | 0.704996 | 0.000003 | 0.703594 | 3.17 | 14.21 | 0.134900 | 0.512881 | 0.000004 | 7.2 | 524 | 487 | -0.31 |
| Chen and Arakawa, 2005 | Karamay | KM-6 | granite | 300 | 51.80 | 472.63 | 0.317000 | 0.705113 | 0.000018 | 0.703759 | 3.90 | 16.04 | 0.147000 | 0.512924 | 0.000009 | 7.5 | 520 | 453 | -0.25 |
| Karamay | KM-14 | granite | 300 | 37.90 | 481.03 | 0.228000 | 0.704857 | 0.000017 | 0.703884 | 3.24 | 13.84 | 0.141500 | 0.512923 | 0.000009 | 7.7 | 483 | 438 | -0.28 |
| Karamay | KM-15 | granite | 300 | 27.40 | 494.74 | 0.160000 | 0.705269 | 0.000019 | 0.704585 | 5.05 | 22.38 | 0.136300 | 0.512872 | 0.000016 | 6.9 | 551 | 503 | -0.31 |
| Karamay | KM-17 | granite | 300 | 89.30 | 234.91 | 1.100000 | 0.708622 | 0.000015 | 0.703926 | 2.70 | 12.91 | 0.126600 | 0.512904 | 0.000009 | 7.9 | 433 | 421 | -0.36 |
| Karamay | KM-28 | granite | 300 | 48.50 | 398.27 | 0.352000 | 0.705280 | 0.000011 | 0.703776 | 4.31 | 19.13 | 0.136200 | 0.512892 | 0.000010 | 7.3 | 511 | 471 | -0.31 |
| Karamay | KM-29 | granite | 300 | 31.10 | 484.95 | 0.185000 | 0.705021 | 0.000017 | 0.704229 | 4.46 | 18.37 | 0.147000 | 0.512905 | 0.000010 | 7.1 | 564 | 484 | -0.25 |
| Karamay | KM-36 | granite | 300 | 50.40 | 398.98 | 0.365000 | 0.705626 | 0.000019 | 0.704066 | 4.58 | 20.15 | 0.137500 | 0.512899 | 0.000011 | 7.4 | 505 | 464 | -0.30 |
| Karamay | KM-39 | granite | 300 | 48.10 | 373.71 | 0.372000 | 0.705631 | 0.000019 | 0.704041 | 3.54 | 15.56 | 0.137700 | 0.512911 | 0.000009 | 7.6 | 483 | 445 | -0.30 |
| Karamay | KM-45 | granite | 300 | 18.90 | 649.70 | 0.084000 | 0.704206 | 0.000018 | 0.703847 | 2.61 | 10.69 | 0.147700 | 0.512907 | 0.000012 | 7.1 | 565 | 483 | -0.25 |
| Hongshan | KM-50 | granite | 300 | 18.70 | 303.96 | 0.177000 | 0.704785 | 0.000019 | 0.704025 | 6.56 | 25.85 | 0.153500 | 0.512925 | 0.000011 | 7.3 | 574 | 472 | -0.22 |
| Hongshan | KM-52 | granite | 300 | 30.90 | 461.89 | 0.193000 | 0.704426 | 0.000019 | 0.703600 | 4.72 | 19.29 | 0.141800 | 0.512938 | 0.000015 | 7.7 | 453 | 415 | -0.28 |
| Hongshan | KM-54 | granite | 300 | 28.40 | 463.43 | 0.178000 | 0.704430 | 0.000018 | 0.703673 | 3.58 | 15.52 | 0.139400 | 0.512907 | 0.000015 | 7.4 | 502 | 457 | -0.29 |
| Hongshan | KM-66 | granite | 300 | 84.90 | 257.29 | 0.955000 | 0.707984 | 0.000018 | 0.703908 | 3.12 | 15.10 | 0.124900 | 0.512967 | 0.000010 | 9.2 | 317 | 316 | -0.37 |
| Chen and Arakawa, 2005 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Hongshan | KM-67 | granite | 300 | 24.30 | 529.93 | 0.133000 | 0.704468 | 0.000018 | 0.703902 | 4.65 | 19.66 | 0.142900 | 0.512912 | 0.000013 | 7.4 | 516 | 460 | -0.27 |
| Yijiaren | KM-20 | granite | 300 | 45.00 | 393.72 | 0.330000 | 0.705181 | 0.000018 | 0.703769 | 4.05 | 17.50 | 0.139900 | 0.512876 | 0.000015 | 6.8 | 569 | 508 | -0.29 |
| Yijiaren | KM-70 | granite | 300 | 28.90 | 482.12 | 0.173000 | 0.704505 | 0.000018 | 0.703765 | 3.34 | 13.60 | 0.148500 | 0.512987 | 0.000010 | 8.7 | 385 | 358 | -0.25 |
| Yijiaren | KM-71 | granite | 300 | 20.80 | 606.50 | 0.099000 | 0.704152 | 0.000015 | 0.703728 | 2.83 | 11.40 | 0.150400 | 0.512949 | 0.000012 | 7.8 | 488 | 424 | -0.24 |
| Yijiaren | KM-72 | granite | 300 | 30.00 | 596.27 | 0.145000 | 0.704432 | 0.000018 | 0.703810 | 3.03 | 12.17 | 0.150300 | 0.512974 | 0.000012 | 8.3 | 427 | 384 | -0.24 |
| Yijiaren | KM-74 | granite | 300 | 60.60 | 319.63 | 0.548000 | 0.706360 | 0.000018 | 0.704018 | 3.02 | 14.11 | 0.129500 | 0.512904 | 0.000008 | 7.8 | 448 | 431 | -0.34 |
| Miaoergou | MG-4 | granite | 300 | 108.40 | 74.65 | 4.208000 | 0.722315 | 0.000018 | 0.704377 | 8.17 | 34.85 | 0.141700 | 0.512893 | 0.000015 | 7.1 | 548 | 486 | -0.28 |
| Miaoergou | MG-7 | granite | 300 | 53.00 | 340.96 | 0.450000 | 0.706113 | 0.000018 | 0.704193 | 8.31 | 34.05 | 0.147600 | 0.512894 | 0.000014 | 6.9 | 594 | 503 | -0.25 |
| Miaoergou | MG-12 | granite | 300 | 64.60 | 240.93 | 0.776000 | 0.707420 | 0.000018 | 0.704108 | 7.81 | 31.85 | 0.148300 | 0.512883 | 0.000012 | 6.6 | 626 | 523 | -0.25 |
| Miaoergou | MG-13 | granite | 300 | 111.90 | 160.06 | 2.024000 | 0.712899 | 0.000019 | 0.704263 | 1.78 | 7.92 | 0.136200 | 0.512898 | 0.000012 | 7.4 | 499 | 461 | -0.31 |
| Miaoergou | MG-16 | granite | 300 | 131.80 | 60.50 | 6.315000 | 0.731020 | 0.000025 | 0.704109 | 7.88 | 42.40 | 0.112400 | 0.512903 | 0.000015 | 8.4 | 374 | 379 | -0.43 |
| Miaoergou | MG-18 | granite | 300 | 55.10 | 219.86 | 0.725000 | 0.707350 | 0.000015 | 0.704254 | 9.27 | 38.10 | 0.147200 | 0.512885 | 0.000009 | 6.7 | 611 | 516 | -0.25 |
| Miaoergou | MG-19 | granite | 300 | 115.10 | 54.44 | 6.130000 | 0.730644 | 0.000018 | 0.704527 | 8.42 | 36.62 | 0.139000 | 0.512913 | 0.000014 | 7.6 | 487 | 446 | -0.29 |
| Miaoergou | MG-24 | granite | 300 | 107.60 | 85.17 | 3.661000 | 0.719055 | 0.000020 | 0.703449 | 6.63 | 30.51 | 0.131400 | 0.512890 | 0.000015 | 7.4 | 485 | 459 | -0.33 |
| Miaoergou | MG-26 | granite | 300 | 130.10 | 128.19 | 2.939000 | 0.716483 | 0.000013 | 0.703946 | 5.83 | 28.07 | 0.125700 | 0.512911 | 0.000015 | 8.0 | 417 | 408 | -0.36 |
| Akbastaw | AT-6 | granite | 300 | 133.10 | 86.65 | 4.453000 | 0.726401 | 0.000020 | 0.707426 | 10.09 | 42.96 | 0.142000 | 0.512873 | 0.000011 | 6.7 | 593 | 519 | -0.28 |
| Akbastaw | AT-19 | granite | 300 | 157.90 | 76.52 | 5.983000 | 0.730079 | 0.000017 | 0.704588 | 7.24 | 26.60 | 0.164600 | 0.512964 | 0.000007 | 7.6 | 582 | 445 | -0.16 |
| Akbastaw | AT-22 | granite | 300 | 70.60 | 50.43 | 4.058000 | 0.720834 | 0.000022 | 0.703540 | 3.58 | 13.26 | 0.163200 | 0.512919 | 0.000010 | 6.8 | 702 | 512 | -0.17 |
| Wei and Zhu, 2015 | Baogutu | 07HT95 | quartz diorite | 315 | 46.63 | 425.20 | 0.308800 | 0.705129 | 0.000012 | 0.703706 | 3.08 | 14.90 | 0.125800 | 0.512869 | 0.000012 | 7.3 | 490 | 476 | -0.36 |
| Baogutu | 07HT96 | quartz diorite | 315 | 41.09 | 421.30 | 0.315700 | 0.705034 | 0.000014 | 0.703769 | 2.89 | 14.74 | 0.119300 | 0.512818 | 0.000020 | 6.6 | 539 | 536 | -0.39 |
| Baogutu | 07HT97 | quartz diorite | 315 | 65.57 | 415.40 | 0.498800 | 0.705956 | 0.000011 | 0.703908 | 2.36 | 11.04 | 0.130000 | 0.512875 | 0.000012 | 7.3 | 504 | 480 | -0.34 |
| Baogutu | 07HT112 | granodiorite | 319 | 22.96 | 877.80 | 0.070100 | 0.703985 | 0.000009 | 0.703641 | 2.84 | 11.75 | 0.144900 | 0.512955 | 0.000021 | 8.3 | 436 | 403 | -0.26 |
| Geng et al., 2009  Geng et al., 2009 | Karamay | KM9802-11 | dioritic enclave | 306 | 59.70 | 456.00 | 0.380000 | 0.705100 | 0.000017 | 0.703500 | 5.49 | 26.70 | 0.120000 | 0.512830 | 0.000008 | 6.6 | 523 | 519 | -0.39 |
| Karamay | KM-11 | dioritic enclave | 306 | 84.70 | 258.00 | 0.950000 | 0.707940 | 0.000018 | 0.703800 | 10.11 | 35.90 | 0.170000 | 0.512939 | 0.000007 | 6.9 | 742 | 505 | -0.14 |
| Karamay | KM9818-3 | alkali-feldspar granite | 296 | 118.10 | 144.00 | 2.380000 | 0.713890 | 0.000025 | 0.703600 | 5.43 | 25.60 | 0.130000 | 0.512957 | 0.000009 | 8.9 | 354 | 347 | -0.34 |
| Miaoergou | MG123-2 | charnockite | 305 | 47.50 | 367.00 | 0.380000 | 0.705510 | 0.000015 | 0.703900 | 8.17 | 33.40 | 0.150000 | 0.512952 | 0.000009 | 8.0 | 478 | 420 | -0.24 |
| Miaoergou | MG9803-2 | charnockite | 300 | 60.50 | 320.00 | 0.550000 | 0.706080 | 0.000012 | 0.703700 | 7.28 | 30.70 | 0.140000 | 0.512855 | 0.000008 | 6.3 | 614 | 542 | -0.29 |
| Miaoergou | MG129-4 | dioritic enclave | 300 | 71.30 | 336.00 | 0.610000 | 0.706460 | 0.000014 | 0.703800 | 9.96 | 39.30 | 0.150000 | 0.512954 | 0.000007 | 7.9 | 473 | 415 | -0.24 |
| Miaoergou | MG5-1 | dioritic enclave | 300 | 16.00 | 568.00 | 0.080000 | 0.704560 | 0.000020 | 0.704200 | 4.41 | 19.20 | 0.140000 | 0.512894 | 0.000010 | 7.2 | 533 | 479 | -0.29 |
| Miaoergou | MG136-1 | alkali-feldspar granite | 308 | 71.30 | 336.00 | 0.610000 | 0.706460 | 0.000014 | 0.703800 | 9.96 | 39.30 | 0.150000 | 0.512954 | 0.000007 | 7.9 | 473 | 418 | -0.24 |
| Akbastaw | AK6 | dioritic enclave | 304 | 39.40 | 489.00 | 0.230000 | 0.704900 | 0.000018 | 0.703900 | 3.18 | 13.80 | 0.140000 | 0.512752 | 0.000007 | 4.5 | 827 | 707 | -0.29 |
| Akbastaw | AK154-2\* | alkali-feldspar granite | 305 | 99.80 | 45.00 | 6.410000 | 0.731560 | 0.000030 | 0.703700 | 3.77 | 19.90 | 0.110000 | 0.512911 | 0.000009 | 8.5 | 354 | 358 | -0.44 |
| Honghshan | HONG1 | alkali-feldspar granite | 300 | 85.30 | 72.00 | 3.450000 | 0.718290 | 0.000030 | 0.703300 | 7.53 | 45.70 | 0.100000 | 0.512838 | 0.000009 | 7.7 | 421 | 443 | -0.49 |
| Hatu | Hatu\* | alkali-feldspar granite | 300 | 113.80 | 33.00 | 9.980000 | 0.745750 | 0.000020 | 0.702400 | 10.29 | 45.30 | 0.140000 | 0.512935 | 0.000007 | 8.1 | 448 | 414 | -0.29 |
| Geng et al., 2011 | Hebukesaier | HB01 | basalt | 331 | 9.20 | 334.00 | 0.079800 | 0.704600 | 0.000011 | 0.704200 | 3.10 | 17.80 | 0.104805 | 0.512811 | 0.000013 | 7.3 | 477 | 497 | -0.47 |
| Hebukesaier | HB06 | basalt | 331 | 10.70 | 488.00 | 0.063500 | 0.704350 | 0.000012 | 0.704100 | 4.47 | 24.10 | 0.112423 | 0.512849 | 0.000014 | 7.7 | 456 | 463 | -0.43 |
| Miaoergou | MG36 | andesite | 344 | 17.30 | 432.00 | 0.115700 | 0.704867 | 0.000011 | 0.704300 | 11.40 | 48.90 | 0.140921 | 0.512858 | 0.000012 | 6.7 | 615 | 550 | -0.28 |
| Miaoergou | MG40 | andesite | 344 | 34.90 | 375.00 | 0.269000 | 0.704749 | 0.000011 | 0.703400 | 4.61 | 18.20 | 0.153383 | 0.512898 | 0.000012 | 7.0 | 641 | 531 | -0.22 |
| Karamay | FYD1 | andesite | 344 | 68.00 | 707.00 | 0.278400 | 0.705397 | 0.000012 | 0.704000 | 5.85 | 26.30 | 0.134753 | 0.512756 | 0.000011 | 5.0 | 764 | 691 | -0.31 |
| Miaoergou | MG6\* | andesite | 344 | 110.00 | 358.00 | 0.887700 | 0.708269 | 0.000010 | 0.704100 | 5.63 | 28.00 | 0.121519 | 0.512685 | 0.000014 | 4.2 | 772 | 756 | -0.38 |
| Hongshan | HS13 | dacite | 336 | 76.30 | 356.00 | 0.620800 | 0.707542 | 0.000011 | 0.704500 | 5.36 | 24.20 | 0.134033 | 0.512733 | 0.000013 | 4.6 | 801 | 723 | -0.32 |
| Hongshan | HS27 | dacite | 336 | 69.00 | 275.00 | 0.726800 | 0.707791 | 0.000012 | 0.704300 | 3.99 | 17.40 | 0.138620 | 0.512734 | 0.000014 | 4.4 | 848 | 738 | -0.30 |
| Hongshan | HS28 | dacite | 336 | 4.38 | 218.00 | 0.058300 | 0.705726 | 0.000011 | 0.705400 | 4.28 | 15.30 | 0.169520 | 0.512850 | 0.000011 | 5.3 | 1041 | 661 | -0.14 |
| Miaoergou | MG59\* | dacite | 336 | 80.80 | 340.00 | 0.688400 | 0.707359 | 0.000010 | 0.704000 | 5.22 | 24.60 | 0.128540 | 0.512733 | 0.000010 | 4.8 | 750 | 704 | -0.35 |
| Xu et al., 2013  Xu et al., 2013 | W-Karamay | YM-4 | mafic dike | 250 | 62.67 | 492.78 | 0.367900 | 0.705304 | 0.000018 | 0.703996 | 4.31 | 17.49 | 0.149200 | 0.512975 | 0.000011 | 8.1 | 417 | 363 | -0.24 |
| W-Karamay | YM-8 | mafic dike | 250 | 33.00 | 274.39 | 0.347900 | 0.705280 | 0.000019 | 0.704043 | 7.72 | 34.51 | 0.135300 | 0.512901 | 0.000010 | 7.1 | 487 | 444 | -0.31 |
| W-Karamay | YM-12 | mafic dike | 250 | 48.35 | 529.09 | 0.264300 | 0.704950 | 0.000019 | 0.704010 | 2.08 | 9.62 | 0.130900 | 0.512919 | 0.000011 | 7.6 | 428 | 404 | -0.33 |
| W-Karamay | YM-16 | mafic dike | 250 | 51.36 | 670.54 | 0.221500 | 0.704901 | 0.000020 | 0.704113 | 2.34 | 11.75 | 0.120200 | 0.512880 | 0.000011 | 7.2 | 443 | 439 | -0.39 |
| W-Karamay | YM-24 | mafic dike | 250 | 54.24 | 634.70 | 0.247200 | 0.704450 | 0.000018 | 0.703571 | 4.10 | 17.64 | 0.140600 | 0.512961 | 0.000008 | 8.1 | 397 | 363 | -0.29 |
| W-Karamay | YM-31 | mafic dike | 250 | 18.30 | 655.10 | 0.080800 | 0.704005 | 0.000018 | 0.703718 | 2.92 | 13.39 | 0.132100 | 0.512923 | 0.000009 | 7.6 | 427 | 401 | -0.33 |
| W-Karamay | YM-39 | mafic dike | 250 | 33.33 | 546.87 | 0.176300 | 0.704510 | 0.000019 | 0.703883 | 3.44 | 15.40 | 0.135300 | 0.512949 | 0.000011 | 8.0 | 394 | 368 | -0.31 |
| Ma et al., 2012 | Baogutu | MAC10-17 | dioritic dyke | 300 | 21.8 | 1052 | 0.06 | 0.703917 | 0.000011 | 0.70366 | 2.2 | 9.7 | 0.1369 | 0.512914 | 0.000013 | 7.7 | 470 |  | -0.3 |
| Baogutu | MAC10-18 | dioritic dyke | 300 | 21.6 | 777 | 0.0803 | 0.704061 | 0.000016 | 0.70372 | 1.81 | 8.4 | 0.1306 | 0.512873 | 0.000015 | 7.1 | 508 |  | -0.3 |
| Baogutu | MAC10-19 | dioritic dyke | 300 | 16.1 | 746 | 0.0623 | 0.703964 | 0.000012 | 0.7037 | 2.37 | 10.7 | 0.1344 | 0.512886 | 0.000015 | 7.2 | 507 |  | -0.3 |
| Baogutu | MAC10-21 | dioritic dyke | 300 | 21.9 | 708 | 0.0896 | 0.704195 | 0.000015 | 0.70381 | 3.14 | 13.2 | 0.1438 | 0.512919 | 0.000015 | 7.5 | 504 |  | -0.3 |
| Karamay | MAC10-24 | dioritic dyke | 300 | 39 | 692 | 0.1633 | 0.704942 | 0.000012 | 0.70424 | 3.44 | 15.1 | 0.1376 | 0.512901 | 0.000013 | 7.4 | 499 |  | -0.3 |
| Karamay | MAC10-34 | dioritic dyke | 300 | 22.5 | 694 | 0.0939 | 0.704092 | 0.00001 | 0.70369 | 4.29 | 23.4 | 0.111 | 0.51281 | 0.000011 | 6.6 | 506 |  | -0.4 |
| Karamay | MAC10-35 | dioritic dyke | 300 | 26.2 | 741 | 0.1025 | 0.704238 | 0.000011 | 0.7038 | 1.9 | 7.5 | 0.1543 | 0.512983 | 0.000012 | 8.4 | 430 |  | -0.2 |
| Tang et al., 2012a  Tang et al., 2012a | north karamay | 06XJ118 | dioritic dyke | 309 | 28.6 | 381 | 0.2113 | 0.704473 | 0.000015 | 0.703571 | 7.17 | 33.7 | 0.1295 | 0.512949 | 0.000007 | 8.7 |  |  |  |
| C1 strata | 06XJ122 | mafic dyke | 309 | 17.3 | 712 | 0.0686 | 0.704039 | 0.000014 | 0.703746 | 2.65 | 10.9 | 0.1485 | 0.512921 | 0.000008 | 7.4 |  |  |  |
| west Karamay(Xiaerpu) | 06XJ125 | dioritic dyke | 309 | 22.7 | 575 | 0.1112 | 0.704086 | 0.000017 | 0.703588 | 3.07 | 14.1 | 0.1327 | 0.512909 | 0.000009 | 7.9 |  |  |  |
| west Karamay(Xiaerpu) | 06XJ129 | dioritic dyke | 309 | 15.3 | 606 | 0.0711 | 0.703979 | 0.000015 | 0.70366 | 2.36 | 10 | 0.1439 | 0.512906 | 0.000008 | 7.4 |  |  |  |
| west Karamay(Xiaerpu) | 06XJ134 | dioritic dyke | 309 | 25.2 | 497 | 0.1431 | 0.704379 | 0.00001 | 0.703738 | 2.91 | 11.9 | 0.1485 | 0.512939 | 0.000007 | 7.8 |  |  |  |
| East Karamay(Karamay) | 06XJ173 | dioritic dyke | 309 | 9.14 | 307 | 0.0838 | 0.704733 | 0.000016 | 0.704357 | 4.51 | 17.7 | 0.1551 | 0.512987 | 0.000007 | 8.5 |  |  |  |
| East Karamay(Karamay) | 06XJ176 | dioritic dyke | 309 | 41.1 | 693 | 0.1674 | 0.704311 | 0.000017 | 0.703561 | 2.82 | 13.5 | 0.1271 | 0.512881 | 0.000014 | 7.6 |  |  |  |
| East Karamay(Karamay) | 06XJ178 | dioritic dyke | 309 | 41.7 | 642 | 0.1833 | 0.704562 | 0.000014 | 0.70374 | 2.1 | 10.6 | 0.1201 | 0.512863 | 0.000011 | 7.5 |  |  |  |
| East Karamay(Karamay) | 06XJ181 | dioritic dyke | 309 | 34 | 602 | 0.1594 | 0.704227 | 0.000015 | 0.703513 | 2.96 | 12 | 0.1496 | 0.512965 | 0.000009 | 8.3 |  |  |  |
| west Karamay(Xiaerpu) | 06XJ167 | mafic enclave | 309 | 36 | 673 | 0.1507 | 0.707899 | 0.000013 |  | 3.18 | 13.8 | 0.1400 | 0.512969 | 0.000007 | 8.7 |  |  |  |
| north karamay | 06XJ123 | granitic dyke | 305 | 172 | 14.1 | 34.3456 | 0.718521 | 0.000017 |  | 12.6 | 37.8 | 0.2024 | 0.513014 | 0.000006 | 7.1 |  |  |  |
| north karamay | 06XJ121-1-2 | monzonitic enclave | 309 | 98.1 | 81 | 3.4164 | 0.719489 | 0.000013 | 0.704904 | 12.4 | 44.3 | 0.1711 | 0.513015 | 0.000007 | 8.3 |  |  |  |
| Tang et al., 2012b | north karamay | 06XJ120 | granite | 304 | 112 | 79.4 | 3.9729 | 0.72188 | 0.000013 | 0.704919 | 7.37 | 35.6 | 0.1258 | 0.512929 | 0.000006 | 8.4 | 386 |  |  |
| north karamay | 06XJ121-1-1 | granite | 304 | 101 | 88.7 | 3.2129 | 0.718282 | 0.000011 | 0.704566 | 6.29 | 32.8 | 0.1167 | 0.512884 | 0.000008 | 7.9 | 421 |  |  |
| west Karamay(Xiaerpu) | 06XJ127 | granodiorite | 316 | 41.9 | 424 | 0.2791 | 0.704975 | 0.000014 | 0.703724 | 3.11 | 15 | 0.1266 | 0.512898 | 0.000006 | 7.9 | 444 |  |  |
| west Karamay(Xiaerpu) | 06XJ131 | granite | 311 | 123 | 190 | 1.8207 | 0.712751 | 0.000016 | 0.704589 | 1.97 | 12.5 | 0.0964 | 0.512819 | 0.000006 | 7.6 | 433 |  |  |
| west Karamay(Xiaerpu) | 06XJ136 | diorite | 314 | 20.1 | 502 | 0.1131 | 0.704211 | 0.000013 | 0.703704 | 4.43 | 19.8 | 0.1362 | 0.5129 | 0.000006 | 7.6 | 495 |  |  |
| East Karamay(Karamay) | 06XJ170 | diorite | 314 | 39.5 | 453 | 0.2458 | 0.704118 | 0.000013 | 0.703016 | 3.55 | 16 | 0.1350 | 0.512917 | 0.000007 | 7.9 | 454 |  |  |
| East Karamay(Karamay) | 06XJ174 | granite | 311 | 71.8 | 242 | 0.8360 | 0.704177 | 0.000011 | 0.700429 | 2.64 | 13.2 | 0.1218 | 0.512852 | 0.00001 | 7.2 | 497 |  |  |
| East Karamay(Karamay) | 06XJ179 | granodiorite | 316 | 52.9 | 397 | 0.3754 | 0.70546 | 0.00002 | 0.703777 | 3.08 | 16 | 0.1168 | 0.512889 | 0.000009 | 8.1 | 413 |  |  |
| East Karamay(Karamay) | 06XJ182 | granodiorite | 316 | 50.9 | 356 | 0.4033 | 0.705426 | 0.000018 | 0.703618 | 3.43 | 16.3 | 0.1285 | 0.512922 | 0.000007 | 8.3 | 411 |  |  |
| Yin et al., 2012 | Bieluagaxi | TK02-1 | dioritic dyke | 292 | 30.10 | 273.00 | 0.319400 | 0.705561 | 0.000009 | 0.704234 | 2.64 | 11.30 | 0.141100 | 0.512813 | 0.000007 | 5.5 | 711 | 610 | -0.28 |
| Bieluagaxi | TK02-4 | dioritic dyke | 292 | 39.40 | 263.00 | 0.432700 | 0.706068 | 0.000004 | 0.704270 | 2.50 | 11.00 | 0.136900 | 0.512810 | 0.000007 | 5.6 | 678 | 602 | -0.30 |
| Bieluagaxi | TK02-5 | dioritic dyke | 292 | 33.20 | 264.00 | 0.364600 | 0.705800 | 0.000005 | 0.704285 | 2.60 | 11.10 | 0.141100 | 0.512816 | 0.000008 | 5.5 | 705 | 605 | -0.28 |
| Yin et al., 2013 | W-Karamay | M01-1\* | dioritic dyke | 305 | 55.10 | 563.00 | 0.283206 | 0.705025 | 0.000005 | 0.703797 | 4.82 | 23.10 | 0.126226 | 0.512818 | 0.000007 | 6.3 | 582 | 558 | -0.36 |
| W-Karamay | TM01-1 | dioritic dyke | 305 | 26.10 | 390.00 | 0.193889 | 0.705532 | 0.000003 | 0.704690 | 5.61 | 24.50 | 0.138528 | 0.512789 | 0.000006 | 5.2 | 736 | 643 | -0.30 |
| W-Karamay | TM01-2 | dioritic dyke | 305 | 51.50 | 279.00 | 0.534488 | 0.705507 | 0.000004 | 0.703187 | 5.86 | 25.10 | 0.141394 | 0.512893 | 0.000007 | 7.1 | 545 | 487 | -0.28 |
| Yin et al., 2013 | W-Karamay | TM01-4 | dioritic dyke | 305 | 27.40 | 427.00 | 0.185575 | 0.704226 | 0.000011 | 0.703421 | 5.45 | 21.50 | 0.153412 | 0.512959 | 0.000006 | 8.0 | 487 | 420 | -0.22 |
| W-Karamay | TM03-1 | dioritic dyke | 305 | 46.00 | 355.00 | 0.374314 | 0.705184 | 0.000005 | 0.703559 | 5.28 | 21.20 | 0.150761 | 0.512905 | 0.000007 | 7.0 | 597 | 497 | -0.23 |
| W-Karamay | TM04-1 | dioritic dyke | 305 | 29.90 | 377.00 | 0.229837 | 0.704256 | 0.000005 | 0.703258 | 7.33 | 30.50 | 0.145481 | 0.512914 | 0.000006 | 7.4 | 531 | 466 | -0.26 |
| W-Karamay | H01-2 | dioritic dyke | 284 | 159.00 | 444.00 | 1.038425 | 0.708518 | 0.000005 | 0.704322 | 3.31 | 13.70 | 0.145806 | 0.512908 | 0.000007 | 7.1 | 549 | 471 | -0.26 |
| W-Karamay | H02-1 | dioritic dyke | 284 | 10.60 | 819.00 | 0.037463 | 0.706935 | 0.000005 | 0.706784 | 3.05 | 13.50 | 0.136359 | 0.512882 | 0.000006 | 6.9 | 533 | 485 | -0.31 |
| W-Karamay | L01-2\* | dioritic dyke | 305 | 21.10 | 357.00 | 0.170902 | 0.705065 | 0.000005 | 0.704323 | 2.97 | 12.00 | 0.149615 | 0.512850 | 0.000008 | 6.0 | 718 | 581 | -0.24 |
| W-Karamay | L01-3\* | dioritic dyke | 305 | 7.37 | 1088.00 | 0.019596 | 0.704206 | 0.000008 | 0.704121 | 2.18 | 9.10 | 0.145062 | 0.512880 | 0.000007 | 6.7 | 603 | 519 | -0.26 |
| W-Karamay | KT02-5\* | dioritic dyke | 305 | 34.50 | 422.00 | 0.236554 | 0.704159 | 0.000010 | 0.703078 | 4.88 | 20.50 | 0.143948 | 0.512924 | 0.000012 | 7.7 | 498 | 445 | -0.27 |
| W-Karamay | KMD04-1 | dioritic dyke | 305 | 26.30 | 895.00 | 0.085027 | 0.704100 | 0.000010 | 0.703731 | 1.78 | 7.26 | 0.148260 | 0.512950 | 0.000012 | 8.0 | 470 | 418 | -0.25 |
| W-Karamay | KMD04-5 | dioritic dyke | 305 | 36.40 | 611.00 | 0.172379 | 0.704469 | 0.000010 | 0.703721 | 2.95 | 13.50 | 0.132138 | 0.512861 | 0.000012 | 6.9 | 543 | 508 | -0.33 |
| W-Karamay | KMD04-8 | dioritic dyke | 305 | 39.00 | 556.00 | 0.202961 | 0.704587 | 0.000011 | 0.703706 | 2.22 | 9.85 | 0.136288 | 0.512910 | 0.000020 | 7.7 | 476 | 443 | -0.31 |
| W-Karamay | KMD04-10 | dioritic dyke | 305 | 41.20 | 541.00 | 0.220355 | 0.704624 | 0.000013 | 0.703668 | 2.23 | 10.50 | 0.128427 | 0.512873 | 0.000013 | 7.2 | 498 | 477 | -0.35 |
| W-Karamay | TCL04-3\* | dioritic dyke | 305 | 20.70 | 696.00 | 0.086057 | 0.704164 | 0.000011 | 0.703790 | 2.33 | 10.20 | 0.138132 | 0.512892 | 0.000015 | 7.2 | 524 | 478 | -0.30 |
| W-Karamay | TCL04-8\* | dioritic dyke | 305 | 20.70 | 709.00 | 0.084479 | 0.704107 | 0.000010 | 0.703740 | 2.15 | 9.58 | 0.135710 | 0.512891 | 0.000011 | 7.3 | 510 | 472 | -0.31 |
| W-Karamay | TCL04-10\* | dioritic dyke | 305 | 19.60 | 743.00 | 0.076329 | 0.704125 | 0.000010 | 0.703794 | 2.14 | 10.00 | 0.129406 | 0.512897 | 0.000013 | 7.7 | 461 | 442 | -0.34 |
| W-Karamay | TCL09-2\* | dioritic dyke | 305 | 26.10 | 654.00 | 0.115475 | 0.704152 | 0.000011 | 0.703651 | 2.12 | 10.40 | 0.123266 | 0.512867 | 0.000012 | 7.3 | 480 | 470 | -0.37 |
| W-Karamay | TCL10-1\* | dioritic dyke | 305 | 10.40 | 866.00 | 0.034749 | 0.703874 | 0.000010 | 0.703723 | 2.38 | 10.40 | 0.138383 | 0.512910 | 0.000011 | 7.6 | 489 | 450 | -0.30 |
|  | W-Karamay | TCL08-3\* | dioritic dyke | 305 | 14.80 | 697.00 | 0.061440 | 0.704187 | 0.000009 | 0.703920 | 2.07 | 8.22 | 0.152278 | 0.512906 | 0.000012 | 7.0 | 610 | 501 | -0.23 |
| Gao et al., 2014 | Bieluagaxi | HTP7-17-1 | granodiorite | 319 | 47.9 | 357.0 | 0.388200 | 0.706200 | 0.000008 | 0.704438 | 2.87 | 13.7 | 0.126700 | 0.5128 | 0.000004 | 5.7 | 639 | 592 | -0.36 |
| Bieluagaxi | HTP7-67-1 | granodiorite | 319 | 51.8 | 348.0 | 0.430600 | 0.706300 | 0.000005 | 0.704345 | 2.99 | 14.9 | 0.121300 | 0.5128 | 0.000005 | 6.5 | 557 | 572 | -0.38 |
| Chen and Zhu, 2015 | Baikouquan | J-44 | diorite | 317 | 9.00 | 513.70 | 0.051000 | 0.704030 | 0.000012 | 0.703802 | 3.35 | 13.30 | 0.152000 | 0.512907 | 0.000015 | 7.1 | 604 | 502 | -0.23 |
| Baikouquan | J-46 | diorite | 317 | 26.80 | 566.10 | 0.137000 | 0.704527 | 0.000016 | 0.703909 | 2.79 | 11.30 | 0.149100 | 0.512881 | 0.000013 | 6.7 | 639 | 534 | -0.24 |
| Baikouquan | J-47 | diorite | 317 | 22.60 | 560.90 | 0.117000 | 0.704266 | 0.000014 | 0.703741 | 2.87 | 12.60 | 0.137400 | 0.512882 | 0.000014 | 7.2 | 539 | 494 | -0.30 |
| Baikouquan | J-96 | diorite | 317 | 16.50 | 492.80 | 0.097000 | 0.704257 | 0.000010 | 0.703821 | 5.30 | 22.70 | 0.141200 | 0.512888 | 0.000015 | 7.1 | 554 | 497 | -0.28 |
| Baikouquan | J-98 | diorite | 317 | 22.20 | 563.20 | 0.114000 | 0.704261 | 0.000009 | 0.703747 | 2.32 | 9.33 | 0.150500 | 0.512899 | 0.000013 | 7.0 | 609 | 510 | -0.23 |
| Li et al., 2015 | Karamay | AG-1 | granite | 300.7 | 65.00 | 258.00 | 0.728864 | 0.706553 | 0.000012 | 0.703441 | 3.11 | 14.50 | 0.129675 | 0.512880 | 0.000014 | 7.3 | 493 |  |  |
| Karamay | AG-2 | granite | 300.7 | 69.70 | 272.00 | 0.741341 | 0.706586 | 0.000013 | 0.703421 | 3.00 | 14.70 | 0.123387 | 0.512911 | 0.000013 | 8.1 | 406 |  |  |
| Karamay | AG-10 | granite | 300.7 | 44.10 | 370.00 | 0.344765 | 0.704998 | 0.000012 | 0.703526 | 4.20 | 18.70 | 0.135792 | 0.512891 | 0.000011 | 7.3 | 510 |  |  |
| Karamay | ABG-1 | enclave | 300 | 50.60 | 318.00 | 0.460290 | 0.705500 | 0.000014 | 0.703535 | 4.18 | 17.20 | 0.146933 | 0.512965 | 0.000011 | 8.3 | 426 |  |  |
| Karamay | ABG-2 | enclave | 300 | 47.30 | 299.00 | 0.457613 | 0.705513 | 0.000012 | 0.703559 | 4.15 | 17.50 | 0.143375 | 0.512884 | 0.000014 | 6.9 | 580 |  |  |
| Karamay | AGM-1 | dyke | 298 | 81.90 | 418.00 | 0.566793 | 0.705707 | 0.000015 | 0.703303 | 3.38 | 15.60 | 0.130995 | 0.512863 | 0.000014 | 6.9 | 532 |  |  |
| Yin et al., 2015 | Bieluagaxi | WJ1112-1 | dioritic dyke | 296.7 |  |  |  |  |  |  | 2.973 | 13.89 | 0.129322 | 0.51277 | 0.000013 | 5.2 |  | 667 |  |
| Bieluagaxi | WJ1113-1 | dioritic dyke | 296.7 | 17.8 | 434.6 | 0.041000 | 0.703679 | 0.000013 | 0.7031784 |  |  |  |  |  |  |  |  |  |
| Bieluagaxi | WJ1114-1 | dioritic dyke | 296.7 | 37.95 | 385.1 | 0.098500 | 0.705583 | 0.000015 | 0.704366 | 2.984 | 14.57 | 0.123742 | 0.512758 | 0.000008 | 5.1 |  | 654 |  |
| Bieluagaxi | WJ1115-1 | diorite | 299.3 | 49.11 | 365.4 | 0.134400 | 0.705916 | 0.000015 | 0.7042562 | 3.424 | 15.25 | 0.135657 | 0.512798 | 0.000006 | 5.5 |  | 680 |  |
| Bieluagaxi | WJ1115-2 | diorite | 299.3 | 53.08 | 378.7 | 0.140200 | 0.705981 | 0.000015 | 0.70425 | 3.465 | 15.45 | 0.135504 | 0.512789 | 0.000015 | 5.3 |  | 679 |  |
| Zhan et al., 2015 | Xiaerpu | K-2 | pyroxene dioritic dyke | 286.9 | 30.94 | 596.77 |  | 0.707291 | 0.000013 | 0.706750 | 4.60 | 19.61 |  | 0.512795 | 0.000011 | 4.8 |  |  |  |
| Xiaerpu | K-3 | pyroxene dioritic dyke | 285.9 | 37.16 | 612.33 |  | 0.704733 | 0.000010 | 0.704110 | 3.68 | 15.76 |  | 0.512882 | 0.000008 | 6.5 |  |  |  |
| Xiaerpu | K-4 | pyroxene dioritic dyke | 272.6 | 48.55 | 623.66 |  | 0.705827 | 0.000006 | 0.705010 | 3.57 | 16.10 |  | 0.512858 | 0.000006 | 6.3 |  |  |  |
| Xiaerpu | K-6 | dioritic dyke | 261.2 | 33.96 | 732.86 |  | 0.704386 | 0.000005 | 0.703890 | 2.89 | 11.54 |  | 0.512921 | 0.000011 | 7.0 |  |  |  |
| Xiaerpu | K-7 | pyroxene dioritic dyke | 283.4 | 22.76 | 677.06 |  | 0.704116 | 0.000009 | 0.703790 | 3.07 | 12.25 |  | 0.512939 | 0.000006 | 7.2 |  |  |  |
| Xiaerpu | K-10 | dioritic dyke | 269.7 | 41.30 | 519.09 |  | 0.704837 | 0.000007 | 0.704020 | 3.45 | 13.62 |  | 0.512829 | 0.000007 | 5.1 |  |  |  |
| Xiaerpu | K-11 | dioritic dyke | 254.5 | 15.74 | 379.59 |  | 0.705495 | 0.000024 | 0.705080 | 3.66 | 14.58 |  | 0.512980 | 0.000007 | 8.1 |  |  |  |
| Karamay | K-14 | pyroxene dioritic dyke | 278 | 58.90 | 500.42 |  | 0.705668 | 0.000011 | 0.704350 | 2.42 | 11.61 |  | 0.512814 | 0.000010 | 5.8 |  |  |  |
| Liu , 2017  Liu , 2017 | Barleik | ALT-47 | diorite | 324 | 41.70 | 378.80 | 0.318540 | 0.705533 | 0.000009 | 0.704065 | 10.08 | 39.30 | 0.155073 | 0.512926 | 0.000011 | 7.3 | 587 | 485 | -0.21 |
| Barleik | ALT-48 | diorite | 324 | 49.60 | 463.70 | 0.309515 | 0.705246 | 0.000010 | 0.703819 | 9.99 | 36.90 | 0.163684 | 0.512902 | 0.000012 | 6.5 | 761 | 552 | -0.17 |
| Barleik | ALT-85 | diorite | 321 | 54.80 | 376.20 | 0.421502 | 0.705738 | 0.000007 | 0.703811 | 7.73 | 32.10 | 0.145594 | 0.512894 | 0.000013 | 7.1 | 577 | 503 | -0.26 |
| Barleik | ALT-86 | diorite | 321 | 48.60 | 304.00 | 0.462594 | 0.705839 | 0.000010 | 0.703724 | 6.73 | 32.00 | 0.127155 | 0.512880 | 0.000016 | 7.6 | 479 | 464 | -0.35 |
| Barleik | ALT-50 | diorite | 320 | 84.60 | 220.00 | 1.112718 | 0.708806 | 0.000010 | 0.703740 | 8.55 | 36.50 | 0.141625 | 0.512886 | 0.000013 | 7.1 | 562 | 502 | -0.28 |
| Barleik | ALT-51 | diorite | 320 | 85.50 | 248.70 | 0.994782 | 0.708532 | 0.000009 | 0.704003 | 9.32 | 39.00 | 0.144484 | 0.512887 | 0.000014 | 7.0 | 583 | 510 | -0.27 |
| Barleik | ALT-72 | quartz syenite | 314 | 107.20 | 232.80 | 1.332445 | 0.709770 | 0.000009 | 0.703825 | 10.37 | 43.80 | 0.143144 | 0.512899 | 0.000012 | 7.2 | 546 | 485 | -0.27 |
| Barleik | ALT-73 | quartz syenite | 314 | 98.90 | 243.00 | 1.177681 | 0.709161 | 0.000009 | 0.703907 | 10.24 | 44.20 | 0.140070 | 0.512825 | 0.000015 | 5.9 | 677 | 593 | -0.29 |
| Barleik | ALT-132 | quartz syenite | 282 | 82.60 | 133.80 | 1.786329 | 0.710895 | 0.000008 | 0.703727 | 14.13 | 78.70 | 0.108551 | 0.512822 | 0.000015 | 6.8 | 478 | 498 | -0.45 |
| Barleik | ALT-133 | quartz syenite | 282 | 75.80 | 130.00 | 1.687188 | 0.710476 | 0.000012 | 0.703706 | 11.71 | 75.50 | 0.093773 | 0.512845 | 0.000013 | 7.7 | 390 | 418 | -0.52 |
| Barleik | ALT-35 | quartz syenite | 272 | 68.60 | 330.80 | 0.600062 | 0.706553 | 0.000009 | 0.704233 | 10.57 | 57.00 | 0.112116 | 0.512835 | 0.000013 | 6.8 | 476 | 488 | -0.43 |
| Barleik | ALT-38 | quartz syenite | 272 | 64.80 | 290.80 | 0.644790 | 0.706773 | 0.000010 | 0.704280 | 10.39 | 60.30 | 0.104176 | 0.512828 | 0.000014 | 6.9 | 451 | 477 | -0.47 |
| Barleik | ALT-99 | granite | 274 | 89.90 | 46.50 | 5.594281 | 0.724356 | 0.000010 | 0.702539 | 11.38 | 54.10 | 0.127178 | 0.512804 | 0.000015 | 5.7 | 613 | 581 | -0.35 |
| Barleik | ALT-100 | granite | 274 | 102.60 | 28.50 | 10.420000 | 0.743033 | 0.000011 | 0.702409 | 9.12 | 49.20 | 0.112072 | 0.512839 | 0.000015 | 6.9 | 469 | 481 | -0.43 |
| Barleik | ALT-82 | granite | 259 | 73.60 | 17.70 | 12.030000 | 0.748279 | 0.000011 | 0.703912 | 5.65 | 27.60 | 0.123768 | 0.512845 | 0.000015 | 6.5 | 520 | 504 | -0.37 |
| Barleik | ALT-83 | granite | 259 | 66.80 | 20.00 | 9.664602 | 0.741486 | 0.000010 | 0.705849 | 6.09 | 28.80 | 0.127848 | 0.512839 | 0.000012 | 6.2 | 556 | 525 | -0.35 |
| Barleik | ALT-125\* | andesite | 323 | 9.70 | 301.50 | 0.093094 | 0.704505 | 0.000011 | 0.704077 | 3.85 | 18.20 | 0.127896 | 0.512824 | 0.000012 | 6.5 | 583 | 556 | -0.35 |
| Barleik | ALT-126\* | andesite | 323 | 9.90 | 380.30 | 0.075326 | 0.704454 | 0.000010 | 0.704108 | 4.09 | 18.50 | 0.133665 | 0.512782 | 0.000013 | 5.4 | 705 | 642 | -0.32 |
| Barleik | 13ALT-118-1\* | andesite | 323 | 11.90 | 321.40 | 0.107137 | 0.704601 | 0.000010 | 0.704108 | 3.15 | 15.00 | 0.126966 | 0.512814 | 0.000013 | 6.3 | 594 | 569 | -0.35 |
| Barleik | 13ALT-118-2\* | andesite | 323 | 14.60 | 359.60 | 0.117482 | 0.704613 | 0.000012 | 0.704073 | 3.14 | 15.30 | 0.124081 | 0.512791 | 0.000014 | 6.0 | 614 | 595 | -0.37 |
| Barleik | 12ALT-154 | dacite | 292 | 99.90 | 287.20 | 1.006511 | 0.708852 | 0.000008 | 0.704663 | 4.64 | 21.50 | 0.130481 | 0.512737 | 0.000014 | 4.4 | 760 | 699 | -0.34 |
| Barleik | 12ALT-155 | dacite | 292 | 97.10 | 219.80 | 1.278289 | 0.710142 | 0.000011 | 0.704822 | 4.68 | 22.10 | 0.128033 | 0.512718 | 0.000015 | 4.1 | 772 | 722 | -0.35 |
| Duan et al., 2019 | Bieluagaxi | BSW1-2 | quartz dioritic porphyritic dyke | 318.6 | 32.30 | 295.00 | 0.317000 | 0.706214 | 0.000016 | 0.704793 | 1.73 | 7.05 | 0.149400 | 0.512798 | 0.000010 | 5.0 | 830 | 682 | -0.24 |
| Bieluagaxi | BHW1-5 | quartz dioritic dyke | 315 | 37.90 | 365.00 | 0.300700 | 0.704881 | 0.000020 | 0.703533 | 3.45 | 15.00 | 0.140000 | 0.512911 | 0.000010 | 7.6 | 490 | 459 | -0.29 |
| Ma et al., 2020 | Hongshan | XH20170930-2 | circular dioritic dyke | 319.1 | 110.00 | 416.00 | 0.321853 | 0.705081 | 0.000014 | 0.703620 | 3.05 | 13.50 | 0.135691 | 0.512901 | 0.000013 | 7.6 | 490 | 461 | -0.31 |
| Hongshan | XH20170930-3 | linear dioritic dyke | 295 | 91.30 | 537.00 | 0.764953 | 0.706506 | 0.000011 | 0.703295 | 2.83 | 12.00 | 0.136596 | 0.512881 | 0.000013 | 7.0 | 535 | 492 | -0.31 |
| Hongshan | XH20170930-4 | linear dioritic dyke | 295 | 117.00 | 509.00 | 0.491801 | 0.705500 | 0.000014 | 0.703436 | 2.78 | 10.50 | 0.142587 | 0.512887 | 0.000014 | 6.9 | 567 | 503 | -0.28 |
| Hongshan | XH20170930-6 | circular dioritic dyke | 313.3 | 46.40 | 417.00 | 0.492965 | 0.705574 | 0.000017 | 0.703376 | 2.94 | 13.10 | 0.137045 | 0.512895 | 0.000012 | 7.4 | 510 | 474 | -0.30 |
| Hongshan | XH20170930-9 | linear dioritic dyke | 295 | 89.30 | 524.00 | 0.664974 | 0.706533 | 0.000011 | 0.703568 | 2.38 | 10.50 | 0.160079 | 0.512944 | 0.000012 | 7.5 | 590 | 471 | -0.19 |
| Tang et al., 2010 | Wudehe-No.2 | 06XJ-137 | quartz dioritic porphyry | 315 | 32.5 | 623.3 | 0.15097 | 0.703976 | 18 | 0.703299 | 2.490 | 9.75 | 0.15545 | 0.512978 | 8 | 8.3 |  | 402 | -0.21 |
| Wudehe-No.2 | 06XJ-138-2 | quartz dioritic porphyry | 315 | 33.7 | 613.6 | 0.15902 | 0.704403 | 11 | 0.703690 | 2.658 | 10.98 | 0.14734 | 0.512872 | 8 | 6.5 |  | 546 | -0.25 |
| Wudehe-No.2 | 06XJ-140 | quartz dioritic porphyry | 315 | 42.0 | 507.6 | 0.23941 | 0.705051 | 18 | 0.703978 | 2.588 | 10.83 | 0.14544 | 0.512873 | 10 | 6.6 |  | 538 | -0.26 |
| Wudehe-No.2 | 06XJ-141 | quartz dioritic porphyry | 315 | 38.5 | 486.8 | 0.22896 | 0.704566 | 14 | 0.703540 | 2.093 | 9.38 | 0.13576 | 0.512830 | 16 | 6.2 |  | 574 | -0.31 |
| Wudehe-No.2 | 06XJ-143 | quartz dioritic porphyry | 315 | 30.4 | 445.4 | 0.19731 | 0.704297 | 15 | 0.703412 | 3.211 | 12.07 | 0.16191 | 0.512965 | 15 | 7.8 |  | 445 | -0.18 |
| Wudehe-No.5 | 06XJ-145 | quartz dioritic porphyry | 315 | 15.8 | 715.7 | 0.06386 | 0.704146 | 17 | 0.703864 | 3.171 | 14.83 | 0.13014 | 0.512810 | 7 | 6.0 |  | 587 | -0.34 |
| Wudehe-No.5 | 06XJ-147 | quartz dioritic porphyry | 310 | 38.1 | 560.7 | 0.19641 | 0.704536 | 14 | 0.703670 | 3.274 | 15.27 | 0.13049 | 0.512824 | 9 | 6.3 |  | 566 | -0.34 |
| Wudehe-No.5 | 06XJ-148 | quartz dioritic porphyry | 310 | 81.2 | 540.3 | 0.43463 | 0.705599 | 17 | 0.703663 | 3.415 | 15.13 | 0.13737 | 0.512830 | 11 | 6.1 |  | 580 | -0.30 |
| East Kuogeshaye | 06XJ-153 | dioritic porphyry dyke | 314 | 25.6 | 769.4 | 0.09606 | 0.704171 | 17 | 0.703743 | 2.622 | 12.28 | 0.02021 | 0.512798 | 11 | 5.8 |  | 606 | -0.34 |
| East Kuogeshaye | 06XJ-154 | dioritic porphyry dyke | 314 | 27.9 | 522.8 | 0.15438 | 0.704669 | 14 | 0.703992 | 2.349 | 10.09 | 0.03248 | 0.512848 | 9 | 6.3 |  | 564 | -0.28 |
| East Kuogeshaye | 06XJ-156 | dioritic porphyry | 307 | 34.9 | 346.1 | 0.29145 | 0.705185 | 14 | 0.703908 | 1.894 | 9.97 | 0.06132 | 0.512828 | 8 | 6.9 |  | 512 | -0.41 |
| East Kuogeshaye | 06XJ-158 | dioritic porphyry | 307 | 40.0 | 637.4 | 0.18167 | 0.704943 | 18 | 0.704147 | 2.212 | 10.59 | 0.03822 | 0.512862 | 8 | 7.1 |  | 493 | -0.35 |
| Zhang et al., 2006 | Baogutu | BGT23\* | granitic porphyrite | 315 | 45.6 | 514.7 | 0.25612 | 0.703952 |  | 0.703952 | 3.290 | 19.70 | 0.09880 | 0.512800 |  | 7.1 |  | 500 | -0.50 |
| Baogutu | BGT39\* | granitic porphyrite | 315 | 113.7 | 467.4 | 0.70386 | 0.703445 |  | 0.703445 | 2.560 | 11.88 | 0.12300 | 0.512800 |  | 6.1 |  | 580 | -0.37 |
| Baogutu | BGT40\* | granitic porphyrite | 315 | 48.9 | 357.2 | 0.39566 | 0.705426 |  | 0.705426 | 1.350 | 5.02 | 0.14520 | 0.512900 |  | 7.2 |  | 493 | -0.26 |
| Baogutu | BGT48\* | granitic porphyrite | 315 | 49.0 | 481.5 | 0.29427 | 0.704081 |  | 0.704081 | 3.210 | 15.75 | 0.11750 | 0.512800 |  | 6.4 |  | 562 | -0.40 |
| Zheng et al., 2020  Zheng et al., 2020  Zheng et al., 2020 |  | STB-4 | diorite | 321 | 32.6 | 380.6 | 0.2478 | 0.705552 | 5 | 0.704420 | 2.73 | 12.8 | 0.1289 | 0.512746911 | 4 | 4.9 | 728 | 682 | -0.34 |
|  | STB-5 | diorite | 321 | 27.2 | 384.6 | 0.2046 | 0.705409 | 8 | 0.704474 | 2.67 | 12.8 | 0.1261 | 0.512746363 | 4 | 5.0 | 706 | 673 | -0.36 |
|  | STB-1 | granodiorite | 311 | 53.2 | 287.7 | 0.5351 | 0.707605 | 6 | 0.705237 | 2.52 | 12.3 | 0.1239 | 0.512746723 | 4 | 5.0 | 687 | 664 | -0.37 |
|  | STB-2 | granodiorite | 311 | 72.4 | 272.4 | 0.7691 | 0.707726 | 10 | 0.704323 | 2.45 | 13.6 | 0.1089 | 0.512723519 | 3 | 5.2 | 623 | 653 | -0.45 |
|  | KK-1 | granodiorite | 316 | 94.3 | 395.7 | 0.6896 | 0.707530 | 5 | 0.704429 | 4.08 | 20.2 | 0.1221 | 0.512779632 | 5 | 5.8 | 619 | 606 | -0.38 |
|  | KK-2 | granodiorite | 316 | 46.7 | 424.4 | 0.3184 | 0.705484 | 7 | 0.704052 | 3.69 | 19.4 | 0.1150 | 0.51277875 | 5 | 6.0 | 576 | 584 | -0.42 |
|  | DY-1 | granodiorite | 317 | 51.5 | 432.2 | 0.3448 | 0.705583 | 8 | 0.704028 | 3.54 | 18.5 | 0.1157 | 0.512789164 | 5 | 6.2 | 564 | 570 | -0.41 |
|  | DY-2 | granodiorite | 317 | 74.2 | 390.1 | 0.5504 | 0.706617 | 9 | 0.704134 | 3.48 | 19.7 | 0.1068 | 0.51277366 | 4 | 6.3 | 539 | 565 | -0.46 |
|  | BB-1 | granodiorite | 307 | 86.5 | 284.4 | 0.8801 | 0.707944 | 10 | 0.704099 | 8.29 | 36.7 | 0.1366 | 0.51287097 | 5 | 6.9 | 555 | 507 | -0.31 |
|  | BB-2 | granodiorite | 307 | 84.8 | 292.8 | 0.8380 | 0.707798 | 10 | 0.704137 | 8.74 | 37.6 | 0.1405 | 0.512873443 | 6 | 6.8 | 580 | 516 | -0.29 |
|  | SBY-1 | quartz diorite | 312 | 20.6 | 967.0 | 0.0616 | 0.703953 | 12 | 0.703679 | 2.47 | 10.9 | 0.1370 | 0.512880941 | 6 | 7.1 | 538 | 493 | -0.30 |
|  | SBY-2 | quartz diorite | 312 | 22.4 | 930.5 | 0.0697 | 0.703986 | 12 | 0.703677 | 2.61 | 11.9 | 0.1326 | 0.512895385 | 5 | 7.6 | 482 | 456 | -0.33 |
|  | MEG-1 | granite | 303 | 128.3 | 68.6 | 5.4118 | 0.729143 | 6 | 0.705808 | 8.60 | 39.7 | 0.1310 | 0.512839569 | 5 | 6.5 | 575 | 538 | -0.33 |
|  | MEG-2 | granite | 303 | 136.7 | 43.7 | 9.0516 | 0.744726 | 5 | 0.705697 | 9.06 | 41.7 | 0.1314 | 0.512850235 | 4 | 6.7 | 558 | 523 | -0.33 |
|  | DYD-1 | granite | 310 | 75.8 | 111.0 | 1.9760 | 0.713380 | 11 | 0.704663 | 8.09 | 36.7 | 0.1333 | 0.512869696 | 4 | 7.0 | 535 | 499 | -0.32 |
|  | DYD-2 | granite | 310 | 80.9 | 102.3 | 2.2883 | 0.714807 | 13 | 0.704712 | 7.51 | 38.8 | 0.1170 | 0.512833409 | 4 | 7.0 | 502 | 504 | -0.41 |
|  | MLB-3 | granite | 312 | 182.4 | 7.4 | 71.3232 | 1.050953 | 9 | 0.734262 | 9.22 | 21.3 | 0.2617 | 0.513121038 | 8 | 6.8 | -95 | 517 | 0.33 |
|  | KYD-1 | granite | 304 | 88.2 | 24.9 | 10.2496 | 0.747604 | 12 | 0.703263 | 9.87 | 48.3 | 0.1235 | 0.512814203 | 7 | 6.3 | 571 | 555 | -0.37 |
|  | KYD-2 | granite | 304 | 85.3 | 25.9 | 9.5299 | 0.746373 | 13 | 0.705145 | 9.39 | 48.1 | 0.1180 | 0.512820751 | 8 | 6.6 | 527 | 527 | -0.40 |
|  | BTQN-1 | granite | 304 | 80.4 | 269.3 | 0.8639 | 0.707897 | 9 | 0.704160 | 5.79 | 26.1 | 0.1341 | 0.512839936 | 4 | 6.4 | 597 | 548 | -0.32 |
|  | BTQN-2 | granite | 304 | 80.8 | 229.5 | 1.0187 | 0.708398 | 9 | 0.703991 | 5.47 | 25.1 | 0.1318 | 0.512845005 | 6 | 6.6 | 571 | 532 | -0.33 |
|  | AKT-1 | granite | 317 | 94.5 | 72.3 | 3.7821 | 0.720836 | 9 | 0.703773 | 2.50 | 14.5 | 0.1042 | 0.512719644 | 6 | 5.3 | 602 | 643 | -0.47 |
|  | AKT-2 | granite | 317 | 97.6 | 57.4 | 4.9201 | 0.726021 | 7 | 0.703824 | 2.75 | 16.1 | 0.1033 | 0.512724143 | 8 | 5.5 | 590 | 633 | -0.47 |
|  | 09JBL-4 | granodiorite | 311 | 85.6 | 138.5 | 1.7892 | 0.711432 | 11 | 0.703513 | 3.54 | 18.3 | 0.1171 | 0.512804 | 8 | 6.4 | 549 | 551 | -0.40 |
|  | 09JBL-5 | granodiorite | 311 | 83.1 | 158.2 | 1.5196 | 0.710505 | 12 | 0.703779 | 4.66 | 23.3 | 0.1208 | 0.512799 | 9 | 6.2 | 579 | 571 | -0.39 |
|  | QE-2 | granodiorite | 311 | 42.9 | 660.4 | 0.1881 | 0.704696 | 12 | 0.703863 | 2.66 | 13.6 | 0.1179 | 0.512778 | 9 | 5.9 | 595 | 595 | -0.40 |
|  | QE-3 | granodiorite | 311 | 36.2 | 687.8 | 0.1522 | 0.704539 | 34 | 0.703865 | 2.11 | 10.4 | 0.1227 | 0.512792 | 10 | 5.9 | 602 | 588 | -0.38 |
|  | QE-4 | granodiorite | 311 | 36.9 | 626.0 | 0.1705 | 0.704638 | 12 | 0.703883 | 2.26 | 10.5 | 0.1299 | 0.512796 | 9 | 5.7 | 647 | 605 | -0.34 |
|  | TST-1 | granite | 277 | 95.9 | 330.2 | 0.8404 | 0.706948 | 10 | 0.703636 | 6.27 | 33.0 | 0.1150 | 0.512814 | 9 | 6.3 | 522 | 529 | -0.42 |
|  | TST-3 | granite | 277 | 114.2 | 349.8 | 0.9447 | 0.707676 | 11 | 0.703953 | 5.52 | 29.8 | 0.1121 | 0.512814 | 8 | 6.4 | 507 | 521 | -0.43 |
|  | 09JBL-1 | granite | 309 | 128.5 | 46.4 | 8.0135 | 0.737481 | 12 | 0.702242 | 9.72 | 42.1 | 0.1397 | 0.512839 | 8 | 6.2 | 644 | 568 | -0.29 |
|  | 09JBL-3 | granite | 309 | 108.0 | 46.4 | 6.7293 | 0.731843 | 13 | 0.702251 | 8.21 | 37.8 | 0.1313 | 0.512835 | 7 | 6.4 | 586 | 547 | -0.33 |

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**Table S6 The geochemical data of zircons and temperatures of dykes in west Junggar**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | U/Yb | SiO2 | Ti | Y | Nb | La | Ce | Pr | Nd | Sm | Eu | Gd | Tb | Dy | Ho | Er | Tm | Yb | Lu | Hf | Ta | Hg | Pb | Pb | Th | U | T |
| *sample* |  | wt% | ppm | ppm | ppm | ppm | ppm | ppm | ppm | ppm | ppm | ppm | ppm | ppm | ppm | ppm | ppm | ppm | ppm | ppm | ppm | ppm | ppm | ppm | ppm | ppm | ℃ |
| *KM1510N* |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| KM1510N-01 | 0.29 | 96.53 | 39.82 | 3448.24 | 8.83 | 122.07 | 309.63 | 39.44 | 207.93 | 52.79 | 2.27 | 121.93 | 34.93 | 373.64 | 146.75 | 592.70 | 135.66 | 1115.47 | 220.81 | 21696.67 | 3.10 | 0.00 | 13.85 | 34.23 | 160.34 | 318.96 | 940 |
| KM1510N-02 | 0.43 | 96.07 | 7.03 | 3410.07 | 14.21 | 2.61 | 61.29 | 1.34 | 5.76 | 16.44 | 1.21 | 83.62 | 28.93 | 331.19 | 142.35 | 611.35 | 142.69 | 1142.12 | 236.39 | 26011.92 | 4.60 | 0.00 | 0.00 | 65.01 | 242.07 | 492.34 | 746 |
| KM1510N-03 | 0.33 | 96.29 | 26.57 | 3666.29 | 9.55 | 11.87 | 72.13 | 3.96 | 22.73 | 14.59 | 1.29 | 88.85 | 31.86 | 379.51 | 154.14 | 652.82 | 152.94 | 1272.63 | 254.27 | 23636.12 | 4.60 | 0.00 | 30.87 | 45.58 | 215.65 | 415.67 | 889 |
| KM1510N-04 | 0.35 | 96.05 | 12.21 | 3638.21 | 13.11 | 7.33 | 65.39 | 2.86 | 19.83 | 15.18 | 0.60 | 81.11 | 31.43 | 370.39 | 151.46 | 646.82 | 153.59 | 1277.19 | 258.17 | 25827.66 | 5.20 | 0.00 | 0.00 | 46.45 | 199.91 | 441.40 | 801 |
| KM1510N-05 | 0.35 | 96.19 | 27.47 | 3352.43 | 11.49 | 0.02 | 49.62 | 0.07 | 5.84 | 10.23 | 0.00 | 72.68 | 28.58 | 336.37 | 139.58 | 595.25 | 137.18 | 1158.58 | 229.91 | 25227.40 | 4.40 | 0.00 | 61.85 | 42.96 | 194.64 | 409.46 | 893 |
| KM1510N-06 | 0.37 | 95.84 | 34.23 | 3537.09 | 12.07 | 0.36 | 56.09 | 0.03 | 4.93 | 12.79 | 0.15 | 81.67 | 28.84 | 359.05 | 147.17 | 619.44 | 148.28 | 1217.97 | 241.90 | 27806.05 | 5.46 | 0.00 | 41.30 | 45.73 | 209.82 | 448.05 | 921 |
| KM1510N-07 | 0.37 | 95.90 | 13.15 | 3485.92 | 11.26 | 77.55 | 225.94 | 25.49 | 128.36 | 40.79 | 0.01 | 94.69 | 29.87 | 363.67 | 148.89 | 616.85 | 145.51 | 1202.22 | 241.30 | 26945.51 | 4.49 | 0.00 | 0.00 | 46.17 | 218.55 | 445.57 | 809 |
| KM1510N-08 | 0.44 | 94.91 | 11.57 | 4868.35 | 16.97 | 481.72 | 1206.85 | 165.54 | 808.13 | 175.35 | 1.52 | 256.20 | 57.29 | 545.12 | 204.62 | 848.64 | 191.32 | 1575.59 | 308.12 | 29936.16 | 6.52 | 0.00 | 22.80 | 77.35 | 348.00 | 690.37 | 795 |
| KM1510N-09 | 0.38 | 96.36 | 6.87 | 3467.11 | 9.51 | 8.52 | 65.44 | 3.28 | 20.73 | 8.80 | 0.56 | 86.95 | 31.26 | 367.69 | 148.69 | 611.17 | 142.92 | 1200.47 | 231.86 | 23450.24 | 3.81 | 0.00 | 0.00 | 51.00 | 234.69 | 455.17 | 744 |
| KM1510N-10 | 0.46 | 95.43 | 12.55 | 3587.39 | 16.40 | 103.05 | 297.03 | 35.33 | 180.77 | 50.15 | 0.73 | 111.90 | 32.74 | 378.24 | 152.08 | 646.44 | 155.65 | 1270.51 | 252.19 | 30304.21 | 6.58 | 0.00 | 0.00 | 58.64 | 262.09 | 588.19 | 804 |
| KM1510N-11 | 0.21 | 96.42 | 21.82 | 3220.40 | 8.05 | 0.00 | 35.21 | 0.00 | 5.49 | 10.12 | 0.60 | 74.09 | 25.75 | 332.22 | 138.33 | 583.23 | 141.71 | 1221.45 | 241.41 | 23705.41 | 3.45 | 0.00 | 0.00 | 25.59 | 114.81 | 259.68 | 865 |
| KM1510N-12 | 0.38 | 95.79 | 16.27 | 3670.93 | 13.51 | 19.23 | 100.07 | 6.21 | 33.64 | 12.94 | 0.14 | 87.91 | 30.53 | 373.67 | 152.91 | 660.81 | 157.05 | 1310.72 | 257.72 | 27767.08 | 4.70 | 0.00 | 4.11 | 51.83 | 225.86 | 494.72 | 832 |
| KM1510N-13 | 0.29 | 96.16 | 11.69 | 3077.08 | 11.37 | 0.53 | 39.48 | 0.67 | 3.07 | 10.52 | 0.21 | 58.71 | 24.78 | 307.65 | 128.88 | 555.09 | 132.65 | 1110.90 | 224.94 | 26195.79 | 4.50 | 0.00 | 0.00 | 30.27 | 127.47 | 320.14 | 796 |
| KM1510N-14 | 0.34 | 95.78 | 29.40 | 3408.18 | 14.08 | 34.64 | 131.55 | 12.15 | 64.26 | 25.69 | 0.00 | 76.91 | 27.10 | 342.85 | 140.01 | 612.85 | 147.24 | 1207.97 | 248.31 | 28344.97 | 6.30 | 0.00 | 5.57 | 41.00 | 173.68 | 412.73 | 901 |
| KM1510N-15 | 0.29 | 96.03 | 11.09 | 2626.84 | 9.22 | 0.00 | 34.08 | 0.35 | 1.51 | 2.88 | 0.64 | 54.87 | 19.77 | 253.54 | 109.33 | 472.22 | 114.24 | 952.58 | 196.74 | 28210.78 | 4.92 | 0.00 | 31.85 | 24.88 | 111.31 | 280.45 | 791 |
| KM1510N-16 | 0.43 | 95.26 | 14.92 | 3931.16 | 16.99 | 0.00 | 68.59 | 0.00 | 5.57 | 10.51 | 0.37 | 79.88 | 30.66 | 382.46 | 162.85 | 718.67 | 170.23 | 1428.89 | 283.02 | 31663.01 | 5.81 | 0.00 | 0.00 | 64.15 | 262.86 | 608.78 | 822 |
| KM1510N-17 | 0.35 | 95.88 | 20.25 | 3771.11 | 14.12 | 33.21 | 136.52 | 11.74 | 67.76 | 28.64 | 0.89 | 98.36 | 33.31 | 384.08 | 157.79 | 665.21 | 157.30 | 1305.33 | 255.52 | 26773.34 | 5.18 | 0.00 | 59.43 | 50.81 | 219.41 | 460.25 | 856 |
| KM1510N-18 | 0.34 | 95.90 | 11.08 | 3053.85 | 16.09 | 23.73 | 98.48 | 9.07 | 38.47 | 11.03 | 0.29 | 58.32 | 24.91 | 299.35 | 130.16 | 564.87 | 134.99 | 1157.95 | 229.81 | 28130.30 | 6.22 | 0.00 | 0.00 | 40.52 | 152.37 | 398.92 | 791 |
| KM1510N-19 | 0.39 | 95.62 | 18.53 | 3600.31 | 15.32 | 0.72 | 60.30 | 0.00 | 3.26 | 13.68 | 0.81 | 73.43 | 28.78 | 364.72 | 153.04 | 650.78 | 152.35 | 1266.60 | 257.60 | 29343.14 | 5.03 | 0.00 | 100.91 | 51.18 | 225.98 | 491.83 | 846 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| *XP-1505N* |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| XP1505N-01 | 0.27 | 95.92 | 45.19 | 3006.02 | 1.99 | 0.63 | 29.89 | 0.67 | 5.50 | 13.03 | 2.76 | 77.45 | 27.41 | 303.25 | 129.50 | 528.38 | 125.50 | 1034.00 | 218.51 | 28096.46 | 1.30 | 0.00 | 227.91 | 39.23 | 205.28 | 284.22 | 957 |
| XP1505N-02 | 0.30 | 95.18 | 25.57 | 3814.34 | 3.26 | 91.72 | 256.95 | 32.12 | 171.69 | 55.08 | 9.47 | 120.09 | 34.87 | 379.05 | 155.64 | 677.16 | 171.16 | 1511.07 | 336.58 | 31870.17 | 1.45 | 0.00 | 0.00 | 63.03 | 347.01 | 460.60 | 884 |
| XP1505N-03 | 0.34 | 95.61 | 15.46 | 2439.64 | 0.70 | 91.74 | 216.81 | 22.50 | 88.91 | 22.23 | 3.69 | 60.50 | 21.60 | 239.37 | 98.44 | 423.29 | 104.14 | 880.80 | 191.93 | 31579.09 | 1.56 | 0.00 | 0.00 | 42.57 | 216.34 | 299.10 | 826 |
| XP1505N-04 | 0.37 | 95.43 | 7.14 | 2977.89 | 3.10 | 9.28 | 58.98 | 2.77 | 19.49 | 13.74 | 2.59 | 59.66 | 21.87 | 258.76 | 115.03 | 516.33 | 135.41 | 1211.73 | 278.32 | 32060.39 | 1.57 | 0.00 | 32.89 | 54.28 | 280.20 | 448.32 | 748 |
| XP1505N-05 | 0.30 | 95.75 | 45.58 | 4051.44 | 3.29 | 0.30 | 35.23 | 0.33 | 9.00 | 19.50 | 2.60 | 100.12 | 35.84 | 408.46 | 168.19 | 690.15 | 164.34 | 1331.53 | 278.67 | 27556.48 | 1.60 | 0.00 | 62.96 | 57.98 | 313.02 | 403.83 | 959 |
| XP1505N-06 | 0.76 | 95.91 | 2.79 | 2798.87 | 5.22 | 0.33 | 7.21 | 0.56 | 6.43 | 9.53 | 0.87 | 46.08 | 18.54 | 233.89 | 108.70 | 509.62 | 134.85 | 1223.11 | 296.82 | 27645.64 | 2.68 | 0.00 | 0.00 | 82.77 | 322.56 | 929.90 | 666 |
| XP1505N-07 | 0.49 | 95.45 | 43.00 | 2392.73 | 2.90 | 14.85 | 71.43 | 5.25 | 27.25 | 8.92 | 1.64 | 53.21 | 18.28 | 212.34 | 94.18 | 419.52 | 105.44 | 941.16 | 210.69 | 32973.47 | 1.31 | 0.00 | 15.78 | 55.79 | 291.69 | 458.87 | 951 |
| XP1505N-08 | 0.36 | 95.40 | 31.46 | 4435.06 | 1.85 | 2.62 | 51.15 | 1.64 | 13.83 | 20.48 | 4.22 | 110.14 | 38.93 | 446.92 | 177.79 | 749.44 | 179.52 | 1450.88 | 319.90 | 29592.76 | 1.49 | 0.00 | 0.00 | 77.27 | 441.55 | 528.36 | 910 |
| XP1505N-09 | 0.38 | 95.16 | 14.17 | 4273.93 | 4.98 | 16.31 | 94.30 | 5.91 | 30.83 | 15.43 | 3.57 | 95.49 | 32.62 | 384.21 | 163.90 | 730.28 | 184.89 | 1627.82 | 380.37 | 31419.13 | 1.99 | 0.00 | 15.60 | 88.52 | 521.63 | 616.50 | 817 |
| XP1505N-10 | 0.28 | 95.80 | 50.29 | 2634.85 | 1.52 | 2.87 | 105.02 | 2.01 | 17.57 | 17.42 | 3.89 | 73.72 | 24.07 | 267.18 | 105.48 | 443.52 | 104.94 | 854.52 | 187.94 | 29951.07 | 0.92 | 0.00 | 51.84 | 33.37 | 203.86 | 242.47 | 972 |
| XP1505N-11 | 0.48 | 95.52 | 2.58 | 2012.11 | 2.65 | 0.27 | 33.63 | 0.43 | 0.07 | 6.61 | 1.59 | 37.07 | 14.93 | 171.30 | 74.89 | 349.28 | 94.48 | 846.62 | 203.98 | 33305.33 | 1.59 | 0.00 | 0.00 | 44.60 | 215.93 | 404.66 | 660 |
| XP1505N-12 | 0.29 | 95.18 | 30.52 | 2747.50 | 1.55 | 0.86 | 29.79 | 0.03 | 1.95 | 4.32 | 1.62 | 44.65 | 14.32 | 197.75 | 97.34 | 508.30 | 152.93 | 1545.29 | 421.17 | 34139.44 | 1.15 | 0.00 | 0.00 | 54.91 | 239.65 | 452.79 | 906 |
| XP1505N-13 | 0.29 | 95.84 | 63.66 | 3090.63 | 1.21 | 1.10 | 28.78 | 0.59 | 7.39 | 15.27 | 2.78 | 77.86 | 26.01 | 306.39 | 125.17 | 527.19 | 122.52 | 992.31 | 221.45 | 28868.30 | 1.05 | 0.00 | 3.46 | 39.59 | 206.03 | 290.30 | 1006 |
| XP1505N-14 | 0.35 | 95.35 | 18.60 | 2481.59 | 2.32 | 0.02 | 30.74 | 0.00 | 2.54 | 10.41 | 3.18 | 56.86 | 20.24 | 240.30 | 100.98 | 424.44 | 107.87 | 925.91 | 217.66 | 34018.89 | 1.22 | 0.00 | 0.00 | 42.53 | 249.86 | 321.16 | 847 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| *LSG1501N* |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| LSG1501N-01 | 0.20 | 96.64 | 54.14 | 1598.34 | 1.42 | 0.33 | 30.82 | 0.14 | 4.42 | 9.29 | 2.25 | 49.16 | 16.00 | 167.69 | 66.03 | 262.72 | 62.17 | 497.24 | 104.97 | 25193.86 | 0.66 | 0.00 | 41.70 | 15.03 | 85.12 | 100.10 | 983 |
| LSG1501N-02 | 0.22 | 96.50 | 22.14 | 2347.86 | 2.11 | 0.11 | 41.30 | 0.20 | 10.26 | 22.40 | 3.87 | 74.93 | 26.41 | 268.14 | 99.82 | 382.61 | 86.05 | 676.38 | 137.36 | 24911.25 | 0.87 | 0.00 | 66.92 | 24.68 | 149.52 | 148.46 | 867 |
| LSG1501N-03 | 0.20 | 96.22 | 52.54 | 3533.42 | 1.62 | 0.50 | 48.13 | 0.54 | 13.04 | 25.40 | 5.46 | 125.83 | 39.23 | 405.51 | 151.17 | 563.99 | 131.69 | 999.12 | 204.27 | 24993.43 | 0.74 | 0.00 | 0.00 | 36.65 | 232.62 | 196.76 | 978 |
| LSG1501N-04 | 0.29 | 96.56 | 68.84 | 1468.00 | 0.90 | 0.13 | 34.23 | 0.03 | 1.31 | 7.47 | 1.30 | 39.58 | 13.70 | 150.94 | 59.58 | 244.50 | 58.44 | 488.26 | 100.60 | 26037.73 | 0.85 | 0.00 | 47.00 | 18.18 | 102.00 | 142.23 | 1018 |
| LSG1501N-05 | 0.17 | 96.31 | 49.77 | 2953.25 | 2.09 | 0.00 | 37.25 | 0.45 | 10.26 | 18.23 | 5.40 | 92.92 | 30.29 | 327.48 | 124.71 | 482.37 | 111.18 | 875.92 | 170.35 | 25442.42 | 0.68 | 0.00 | 67.60 | 24.44 | 143.15 | 147.49 | 971 |
| LSG1501N-06 | 0.20 | 96.64 | 31.27 | 2045.59 | 0.53 | 0.00 | 32.54 | 0.48 | 3.50 | 9.44 | 2.55 | 57.69 | 19.78 | 218.73 | 86.68 | 339.42 | 84.78 | 691.31 | 142.50 | 24358.97 | 0.82 | 0.00 | 0.00 | 18.84 | 103.92 | 140.74 | 909 |
| LSG1501N-07 | 0.19 | 96.34 | 38.31 | 2018.58 | 0.91 | 0.22 | 26.46 | 0.00 | 3.88 | 12.25 | 3.39 | 68.12 | 21.82 | 229.52 | 83.09 | 344.43 | 77.41 | 607.97 | 121.22 | 26994.44 | 0.52 | 0.00 | 10.45 | 19.20 | 99.53 | 117.10 | 935 |
| LSG1501N-08 | 0.20 | 96.28 | 68.48 | 3545.41 | 1.08 | 0.31 | 41.25 | 1.18 | 16.16 | 27.03 | 6.51 | 118.21 | 38.09 | 393.17 | 153.58 | 581.40 | 135.12 | 1040.61 | 210.12 | 24446.08 | 1.11 | 0.00 | 0.00 | 35.59 | 205.23 | 209.41 | 1017 |
| LSG1501N-09 | 0.19 | 96.41 | 26.01 | 2751.60 | 1.86 | 0.00 | 35.01 | 0.71 | 11.16 | 26.59 | 3.68 | 90.95 | 28.76 | 302.74 | 114.66 | 449.32 | 104.89 | 813.31 | 166.26 | 24966.75 | 1.04 | 0.00 | 24.56 | 26.38 | 156.92 | 155.00 | 886 |
| LSG1501N-10 | 0.22 | 96.33 | 21.04 | 2301.44 | 0.59 | 0.36 | 29.36 | 0.61 | 7.39 | 14.68 | 3.97 | 65.95 | 22.25 | 248.22 | 96.86 | 392.29 | 91.87 | 724.17 | 151.03 | 26514.92 | 0.68 | 0.00 | 0.00 | 23.47 | 132.28 | 156.79 | 861 |
| LSG1501N-11 | 0.27 | 96.38 | 46.11 | 2058.70 | 1.81 | 0.22 | 41.01 | 0.25 | 5.54 | 8.37 | 3.47 | 53.36 | 19.84 | 213.91 | 85.52 | 344.13 | 82.28 | 675.89 | 144.67 | 26352.50 | 0.51 | 0.00 | 17.66 | 26.85 | 150.99 | 180.57 | 960 |
| LSG1501N-12 | 0.19 | 96.48 | 123.38 | 2524.37 | 1.00 | 0.00 | 31.68 | 0.19 | 7.05 | 19.37 | 4.31 | 92.70 | 27.22 | 270.86 | 108.13 | 425.66 | 97.31 | 734.46 | 156.34 | 24465.39 | 0.70 | 0.00 | 258.15 | 29.24 | 142.93 | 137.18 | 1112 |
| LSG1501N-13 | 0.22 | 96.13 | 34.09 | 3793.84 | 0.91 | 0.10 | 33.52 | 1.38 | 13.06 | 24.01 | 6.25 | 118.30 | 39.57 | 432.94 | 161.67 | 630.08 | 139.62 | 1078.57 | 219.17 | 25129.40 | 1.01 | 0.00 | 171.51 | 41.21 | 241.78 | 233.71 | 920 |
| LSG1501N-14 | 0.24 | 95.95 | 2.88 | 3253.62 | 1.74 | 0.00 | 43.29 | 0.23 | 10.75 | 25.73 | 5.93 | 109.26 | 33.30 | 355.65 | 137.39 | 542.07 | 125.88 | 1018.12 | 203.37 | 27704.98 | 0.89 | 0.00 | 50.79 | 39.46 | 233.55 | 241.26 | 669 |
| LSG1501N-15 | 0.18 | 96.16 | 40.96 | 3494.12 | 0.55 | 0.00 | 36.72 | 0.46 | 10.93 | 24.22 | 5.90 | 120.88 | 39.71 | 404.48 | 151.38 | 572.12 | 129.49 | 1011.29 | 201.07 | 25469.04 | 0.18 | 0.00 | 153.39 | 35.13 | 201.30 | 185.63 | 944 |
| LSG1501N-16 | 0.18 | 96.54 | 27.60 | 2345.38 | 2.54 | 0.04 | 30.97 | 0.03 | 2.94 | 12.82 | 2.66 | 57.03 | 20.41 | 234.26 | 95.16 | 409.08 | 102.01 | 864.85 | 186.27 | 24487.52 | 1.04 | 0.00 | 0.00 | 18.67 | 87.28 | 158.22 | 893 |
| LSG1501N-17 | 0.27 | 96.26 | 9.14 | 3051.69 | 1.70 | 0.00 | 33.50 | 0.28 | 6.36 | 17.87 | 4.96 | 89.79 | 27.43 | 312.24 | 127.22 | 534.01 | 131.00 | 1089.34 | 222.59 | 25240.04 | 0.75 | 0.00 | 18.05 | 42.86 | 242.30 | 290.43 | 772 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| *BLG1505N* |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| BLG1505N-01 | 0.36 | 96.90 | 4.66 | 2647.18 | 3.11 | 32.89 | 115.90 | 10.06 | 58.60 | 25.41 | 2.86 | 79.08 | 24.01 | 289.31 | 112.07 | 459.76 | 121.39 | 1129.04 | 175.13 | 20079.57 | 1.52 | 0.00 | 0.00 | 63.15 | 262.93 | 401.27 | 709 |
| BLG1505N-02 | 0.45 | 96.94 | 33.39 | 2847.27 | 4.29 | 9.85 | 80.47 | 3.29 | 23.48 | 15.81 | 2.64 | 67.14 | 26.36 | 305.23 | 118.63 | 495.36 | 127.53 | 1208.78 | 181.79 | 19037.35 | 2.11 | 0.00 | 66.19 | 91.15 | 409.95 | 549.89 | 917 |
| BLG1505N-03 | 0.45 | 96.85 | 59.30 | 2736.51 | 3.45 | 6.45 | 71.35 | 2.18 | 14.75 | 14.44 | 1.70 | 67.49 | 25.53 | 272.12 | 116.99 | 495.74 | 129.19 | 1282.66 | 202.44 | 19775.98 | 2.52 | 0.00 | 87.27 | 99.03 | 375.92 | 582.06 | 996 |
| BLG1505N-04 | 0.37 | 97.11 | 15.39 | 2304.07 | 3.80 | 0.00 | 40.54 | 0.29 | 5.25 | 10.76 | 2.56 | 51.91 | 19.73 | 244.36 | 96.21 | 411.31 | 108.30 | 1072.29 | 165.78 | 19038.68 | 1.44 | 0.00 | 0.00 | 61.30 | 236.22 | 399.89 | 826 |
| BLG1505N-05 | 0.39 | 97.05 | 36.52 | 1818.25 | 2.62 | 0.57 | 39.64 | 0.54 | 4.42 | 9.07 | 0.50 | 46.92 | 15.28 | 183.62 | 77.43 | 328.92 | 83.11 | 796.30 | 132.48 | 20727.39 | 1.89 | 0.00 | 0.00 | 43.46 | 185.77 | 307.33 | 929 |
| BLG1505N-06 | 0.40 | 96.87 | 34.93 | 1866.45 | 3.75 | 4.08 | 50.45 | 1.85 | 5.58 | 8.93 | 0.91 | 45.06 | 15.30 | 190.02 | 73.79 | 322.56 | 85.72 | 809.13 | 135.29 | 22163.98 | 1.28 | 0.00 | 13.61 | 41.07 | 193.97 | 323.38 | 923 |
| BLG1505N-07 | 0.35 | 96.57 | 1.14 | 2500.47 | 1.00 | 0.38 | 38.93 | 0.63 | 0.00 | 8.18 | 1.54 | 59.10 | 20.29 | 236.25 | 103.21 | 432.45 | 110.47 | 989.94 | 180.97 | 23580.61 | 1.21 | 0.00 | 4.21 | 57.66 | 228.44 | 341.67 | 600 |
| BLG1505N-08 | 0.33 | 96.64 | 66.73 | 2381.29 | 2.63 | 32.47 | 111.62 | 10.52 | 61.25 | 22.93 | 1.11 | 64.58 | 21.26 | 250.93 | 93.73 | 401.23 | 104.13 | 987.23 | 158.07 | 22919.09 | 1.65 | 0.00 | 51.40 | 39.43 | 197.84 | 326.14 | 1013 |
| BLG1505N-09 | 0.32 | 96.46 | 57.80 | 2792.66 | 2.68 | 72.66 | 215.83 | 25.70 | 130.80 | 34.46 | 4.98 | 84.49 | 25.61 | 283.36 | 112.50 | 472.40 | 120.05 | 1132.24 | 185.19 | 23299.23 | 1.05 | 0.00 | 99.47 | 50.33 | 243.30 | 361.10 | 992 |
| BLG1505N-10 | 0.41 | 96.75 | 39.66 | 2250.55 | 3.12 | 8.93 | 55.49 | 2.92 | 15.56 | 12.11 | 1.23 | 53.15 | 19.20 | 231.49 | 88.44 | 381.87 | 95.82 | 929.31 | 142.59 | 22392.29 | 1.49 | 0.00 | 0.00 | 49.54 | 198.65 | 377.44 | 940 |
| BLG1505N-11 | 0.33 | 96.59 | 5.18 | 2886.02 | 2.58 | 241.48 | 615.36 | 73.39 | 312.78 | 72.87 | 4.16 | 109.61 | 29.26 | 305.20 | 112.98 | 462.05 | 116.19 | 1114.81 | 169.44 | 21396.12 | 1.54 | 0.00 | 44.88 | 52.94 | 219.07 | 367.97 | 718 |
| BLG1505N-12 | 0.32 | 96.65 | 9.21 | 2621.83 | 3.46 | 20.39 | 83.60 | 6.50 | 31.22 | 16.61 | 3.12 | 62.21 | 21.98 | 269.55 | 100.05 | 427.82 | 110.22 | 1046.64 | 167.92 | 22623.82 | 1.32 | 0.00 | 0.00 | 42.12 | 220.14 | 339.01 | 772 |
| BLG1505N-13 | 0.23 | 97.05 | 40.63 | 2265.54 | 1.03 | 1.72 | 30.80 | 0.50 | 6.38 | 14.40 | 2.17 | 62.11 | 20.49 | 250.16 | 91.34 | 380.22 | 89.96 | 860.30 | 124.12 | 20162.58 | 0.70 | 0.00 | 72.91 | 27.04 | 119.36 | 196.57 | 943 |

Notes: The temperatures are calculated by using the Ti-in-zircon thermometry (Ferry and Watson, 2007) with defining an intermediate αSiO2=1and αTiO2=0.7, log(ppm Ti-in-zircon)=(5.711±0.072)-(4800±86)/T(K)-logαSiO2+logαTiO2.

**References:**

Ferry, JM, Watson, EB (2007) New thermodynamic models and revised calibrations for the Ti-in-zircon and Zr-in-rutile thermometers. Contributions to Mineralogy and Petrology 154, 429–437.

**Table S7 Collected geochemical data of Carboniferous-Permian granitoids in west Junggar**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| No. | Name of granite | Source | Sample Number | (La/Yb)N | Sr/Rb | SiO2 | TiO2 | Al2O3 | FeO\* | Fe2O3 | FeO | MnO | MgO | CaO | Na2O | K2O | P2O5 | Total | Co | Ni | V | Cr | Ga | Rb | Sr | Y |
| West Junggar | | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1 | Xiaoxihu | Gao et al., 2006 | 202 | 5.11 | 7.00 | 64.66 | 0.68 | 15.15 | 5.36 | 2.95 | 2.71 | 0.09 | 2.17 | 4.06 | 4.01 | 2.41 | 0.15 | 100.2 | 10.63 | 13.77 |  | 17.35 | 17 | 47.6 | 333 | 19.22 |
| 2 |  |  | 203 | 5.50 | 7.40 | 63.96 | 0.71 | 15.61 | 5.52 | 2.93 | 2.89 | 0.09 | 2.16 | 4.06 | 4.22 | 2.33 | 0.16 | 100.2 | 11.03 | 15.02 |  | 15.99 | 17.96 | 45.87 | 339.5 | 18.93 |
| 3 |  |  | 204 | 5.52 | 13.07 | 62.35 | 0.71 | 16.43 | 5.23 | 3 | 2.54 | 0.09 | 2.23 | 4.67 | 4.57 | 1.83 | 0.17 | 99.92 | 11.22 | 14.9 |  | 16.91 | 18.59 | 33.21 | 434.2 | 17.15 |
| 4 |  |  | 205 | 5.52 | 9.21 | 63.14 | 0.7 | 15.96 | 5.35 | 2.94 | 2.71 | 0.06 | 2.25 | 4.31 | 4.53 | 2.19 | 0.16 | 99.97 | 11.23 | 15.53 |  | 17.4 | 18.3 | 42.85 | 394.7 | 19.14 |
| 5 |  |  | 206 | 5.50 | 9.51 | 62.37 | 0.72 | 16.03 | 5.71 | 3.26 | 2.78 | 0.11 | 2.5 | 4.57 | 4.14 | 2.18 | 0.15 | 99.93 | 12.69 | 23.24 |  | 30.69 | 18.14 | 43.38 | 412.8 | 18.06 |
| 6 |  |  | 207 | 5.54 | 9.76 | 61.86 | 0.76 | 16.16 | 6.05 | 2.96 | 3.39 | 0.11 | 2.75 | 4.76 | 4.1 | 2.06 | 0.17 | 100.3 | 13.59 | 28.96 |  | 30.48 | 17.89 | 41.27 | 402.7 | 18.51 |
| 7 |  |  | 208 | 5.28 | 7.66 | 61.43 | 0.78 | 15.92 | 6.20 | 2.84 | 3.65 | 0.1 | 3 | 5.05 | 4.05 | 2.16 | 0.16 | 100.2 | 14.32 | 31.79 |  | 33.13 | 18.02 | 47.75 | 365.7 | 18.65 |
| 8 |  |  | 209 | 5.74 | 7.60 | 61.77 | 0.77 | 15.49 | 6.19 | 3.21 | 3.31 | 0.1 | 2.99 | 4.82 | 4 | 2.26 | 0.16 | 99.91 | 14.96 | 31.56 |  | 39.27 | 17.96 | 50.59 | 384.3 | 19.35 |
| 9 |  |  | 210 | 7.11 | 4.07 | 66.19 | 0.52 | 15.72 | 4.17 | 2.24 | 2.16 | 0.07 | 1.55 | 3.45 | 4.05 | 3.06 | 0.11 | 100.1 | 8.18 | 20.82 |  | 11.88 | 17.35 | 79.12 | 322.1 | 15.36 |
| 10 |  |  | 211 | 5.97 | 4.11 | 66.7 | 0.55 | 15.1 | 4.37 | 2.41 | 2.21 | 0.07 | 1.61 | 3.43 | 3.84 | 2.93 | 0.11 | 99.88 | 8.468 | 12.67 |  | 13.77 | 16.69 | 69.02 | 283.8 | 15.3 |
| 11 |  | Su et al., 2006 | K5 | 5.46 | 0.79 | 73.51 | 0.41 | 11.7 | 3.08 | 1.37 | 1.85 | 0.01 | 0.32 | 1.91 | 2.61 | 3.2 | 0.34 | 99.42 |  | 34.6 |  | 19.9 | 19.2 | 115 | 90.9 | 38.9 |
| 12 |  |  | K9 | 10.09 | 0.11 | 78.81 | 0.41 | 9.96 | 2.14 | 1.58 | 0.72 | 0.01 | 0.01 | 0.58 | 2.86 | 4.17 | 0.21 | 99.5 |  | 6.02 |  | 15.9 | 21.6 | 80.3 | 8.94 | 22.5 |
| 13 |  |  | K10 | 5.38 | 1.43 | 73.5 | 0.75 | 11.64 | 4.41 | 2.26 | 2.38 | 0.06 | 0.14 | 0.46 | 3.37 | 3.82 | 0.26 | 99.45 |  | 3.74 |  | 9.37 | 21 | 68.7 | 98.5 | 47 |
| 14 |  |  | KS6 | 5.43 | 10.21 | 62.74 | 0.95 | 15.24 | 5.48 | 3.48 | 2.35 | 0.11 | 2.41 | 5.74 | 3.47 | 1.68 | 0.28 | 99.88 |  | 120 |  | 65.7 | 17.9 | 38.7 | 395 | 18.6 |
| 15 |  |  | KS11 | 3.66 | 5.03 | 68.84 | 0.71 | 14.68 | 2.87 | 1.22 | 1.77 | 0.02 | 1.51 | 3.22 | 3.58 | 1.99 | 0.3 | 99.69 |  | 16.8 |  | 39.8 | 17.1 | 62 | 312 | 15.6 |
| 16 |  | Gao et al., 2014 | Hkp201-6 | 5.89 | 2.57 | 56.61 | 0.77 | 16.59 | 0.64 | 0.71 | 5.97 | 0.14 | 4.33 | 6.45 | 4.17 | 1.64 | 0.16 | 99.8 | 9.00 | 12.9 | 65.3 | 7.33 |  | 88.3 | 226 | 18.7 |
| 17 |  |  | hKP201-8 | 4.25 | 8.35 | 62.23 | 0.77 | 16.16 | 1.85 | 2.05 | 3.23 | 0.10 | 2.78 | 5.30 | 4.02 | 1.75 | 0.17 | 99.8 | 24.0 | 64.4 | 143 | 78.2 |  | 39.1 | 326 | 36.3 |
| 18 |  |  | hKP203-4 | 5.33 | 13.53 | 68.84 | 0.46 | 13.82 | 1.81 | 2.01 | 1.37 | 0.06 | 1.54 | 3.20 | 3.56 | 3.38 | 0.11 | 99.8 | 20.2 | 30.5 | 119 | 40.4 |  | 31.7 | 428 | 18.0 |
| 19 | Xiaerpu | Gao et al., 2014 | hKP202-25-2 | 3.59 | 10.03 | 59.98 | 0.96 | 14.40 | 1.76 | 1.96 | 4.85 | 0.12 | 4.31 | 6.01 | 3.84 | 1.49 | 0.25 | 99.8 | 16.6 | 31.1 | 155 | 99.0 |  | 45.7 | 458 | 26.3 |
| 20 | Miaoergou | Geng et al., 2009 | MG123-2 | 4.95 | 7.68 | 61.8 | 1.29 | 14.9 | 7.46 | 8.31 |  | 0.14 | 1.96 | 4.25 | 4.56 | 1.87 | 0.42 | 100 |  | 7.76 |  | 20.4 |  | 46.6 | 358 | 50.4 |
| 21 |  | MG9811-1 | 4.80 | 6.74 | 60.6 | 1.26 | 15.7 | 7.09 | 7.9 |  | 0.15 | 1.85 | 4.25 | 4.92 | 2.24 | 0.39 | 99.6 |  | 3.59 |  | 8.52 |  | 50.3 | 339 | 50.3 |
| 22 |  |  | MG164-2 | 4.36 | 7.13 | 60.3 | 1.28 | 15.9 | 7.18 | 8 |  | 0.15 | 1.93 | 4.47 | 5.44 | 2.12 | 0.4 | 100.3 |  | 5.4 |  | 11.8 |  | 48 | 342 | 59.3 |
| 23 |  | Geng et al., 2009 | MG9803-2 | 4.40 | 6.75 | 62.2 | 1.11 | 15.3 | 5.65 | 6.29 |  | 0.13 | 1.56 | 4.15 | 4.88 | 2.23 | 0.35 | 99.4 |  | 10 |  | 83 |  | 47.7 | 322 | 40.6 |
| 24 |  |  | MG9808-4 | 5.78 | 2.63 | 65.3 | 0.77 | 15.5 | 4.39 | 4.89 |  | 0.09 | 0.75 | 2.62 | 5.45 | 2.96 | 0.17 | 99.8 |  | 3 |  | 52 |  | 187 | 491 | 41.3 |
| 25 |  | Zhang et al., 2004 | MG134 | 5.16 | 17.73 | 61.3 | 0.61 | 16.8 | 4.65 | 5.18 |  | 0.08 | 0.99 | 2.95 | 3.91 | 3.18 | 0.17 | 99.7 |  |  |  |  |  | 24.2 | 429 | 16.7 |
| 26 |  |  | MG271 | 3.84 | 7.40 | 61.4 | 1.24 | 15.7 | 7.18 | 8 |  | 0.18 | 1.65 | 4.21 | 4.18 | 2.16 | 0.36 | 99.6 |  |  |  |  |  | 36.1 | 267 | 33.3 |
| 27 | Miaoergou | Chen and Arakawa, 2005 | MG7 | 3.91 | 6.08 | 60 | 1.26 | 15.6 | 7.59 | 8.45 |  | 0.15 | 1.84 | 4.33 | 4.61 | 2.5 | 0.39 | 99.8 |  | 4.8 |  | 9.8 |  | 59 | 359 | 47.3 |
| 28 |  |  | MG12 | 3.49 | 3.81 | 64.4 | 0.81 | 15.7 | 5.95 | 6.63 |  | 0.12 | 0.85 | 2.7 | 5.27 | 3.21 | 0.19 | 99.4 |  | 2.3 |  | 7.5 |  | 68 | 259 | 47.6 |
| 29 |  |  | MG18 | 3.76 | 4.00 | 63.5 | 0.88 | 15.7 | 5.94 | 6.62 |  | 0.11 | 0.72 | 2.64 | 5.57 | 3.18 | 0.16 | 99.5 |  | 2.6 |  | 9.5 |  | 58 | 232 | 48.7 |
| 30 |  |  | MG9942-1 | 5.75 | 1.00 | 74.3 | 0.26 | 12.7 | 2.04 | 2.27 |  | 0.04 | 0.38 | 1.28 | 4.08 | 3.98 | 0.08 | 99.9 |  | 4.02 |  | 15.9 |  | 119 | 119 | 40.4 |
| 31 |  |  | MG9918-3 | 7.20 | 0.24 | 76.4 | 0.15 | 11.7 | 1.52 | 1.69 |  | 0.04 | 0.04 | 0.41 | 3.99 | 4.55 | 0.03 | 99.4 |  | 2.7 |  | 11.7 |  | 126 | 30 | 33.1 |
| 32 |  |  | MG106-2 | 6.58 | 1.21 | 76.9 | 0.13 | 11.7 | 1.12 | 1.25 |  | 0.03 | 0.08 | 0.59 | 3.36 | 4.82 | 0.03 | 99.3 |  | 2.84 |  | 7.4 |  | 128 | 155 | 40 |
| 33 |  |  | MG4 | 3.74 | 0.73 | 74.4 | 0.29 | 13.1 | 2.03 | 2.26 |  | 0.04 | 0.19 | 0.84 | 3.95 | 4.97 | 0.05 | 100 |  | 2 |  | 6.6 |  | 119 | 87 | 54.8 |
| 34 |  |  | MG13 | 3.62 | 1.44 | 71.4 | 0.27 | 14.8 | 1.68 | 1.87 |  | 0.05 | 0.16 | 0.7 | 3.94 | 6.29 | 0.04 | 99.5 |  | 1.2 |  | 3.9 |  | 119 | 171 | 15.3 |
| 35 |  |  | MG16 | 4.13 | 0.47 | 74.4 | 0.25 | 12.9 | 1.80 | 2.01 |  | 0.04 | 0.24 | 0.82 | 4.06 | 4.89 | 0.04 | 99.5 |  | 1.2 |  | 4.4 |  | 137 | 65 | 48.8 |
| 36 |  |  | MG19 | 3.90 | 0.48 | 72.5 | 0.3 | 13.7 | 2.16 | 2.41 |  | 0.04 | 0.13 | 0.83 | 4.47 | 5.15 | 0.04 | 99.9 |  | 0.8 |  | 6 |  | 111 | 53 | 46.3 |
| 37 |  |  | MG24 | 4.88 | 0.81 | 73.3 | 0.23 | 13.6 | 1.69 | 1.88 |  | 0.04 | 0.26 | 1.71 | 4.11 | 4.69 | 0.05 | 99.8 |  | 3.2 |  | 7 |  | 105 | 85 | 39.4 |
| 38 |  |  | MG26 | 5.03 | 1.01 | 73.5 | 0.19 | 14.1 | 1.43 | 1.59 |  | 0.04 | 0.34 | 1.33 | 3.92 | 4.77 | 0.05 | 99.9 |  | 2.8 |  | 4.5 |  | 126 | 127 | 35.7 |
| 39 | Akebastal | Chen and Arakawa, 2005 | AS1 | 7.17 | 0.13 | 77.87 | 0.58 | 10.5 | 2.57 | 1.9 | 0.86 | 0.01 | 0.17 | 0.6 | 2.78 | 3.83 | 0.22 | 99.67 |  | 6.24 |  | 15.5 | 21.6 | 102 | 13.5 | 60.4 |
| 40 |  |  | AS3 | 4.53 | 0.42 | 75.51 | 0.58 | 11.92 | 2.49 | 1.06 | 1.54 | 0.01 | 0.31 | 0.94 | 3.28 | 3.64 | 0.19 | 99.53 |  | 9.49 |  | 24.2 | 21.7 | 55.8 | 23.5 | 53.3 |
| 41 |  |  | AK2-1 | 3.97 | 0.56 | 71.5 | 0.26 | 11.7 | 2.29 | 2.55 |  | 0.04 | 0.45 | 1.05 | 4.27 | 4.56 | 0.08 | 98.9 |  | 5.91 |  | 34.6 |  | 153 | 85 | 80.4 |
| 42 |  |  | AK2-2 | 3.96 | 0.54 | 73 | 0.26 | 14.3 | 2.37 | 2.64 |  | 0.04 | 0.44 | 1.07 | 4.79 | 4.16 | 0.07 | 100.6 |  | 6.31 |  | 16.3 |  | 142 | 77 | 69.6 |
| 43 |  |  | AK8 | 3.96 | 0.39 | 75.2 | 0.19 | 12.6 | 1.96 | 2.18 |  | 0.03 | 0.26 | 0.78 | 4.12 | 4.53 | 0.04 | 100.5 |  | 3.73 |  | 16.3 |  | 127 | 50 | 78.6 |
| 44 |  |  | AK1-3 | 6.90 | 0.24 | 74.1 | 0.16 | 14.9 | 1.64 | 1.83 |  | 0.02 | 0.13 | 0.56 | 4.34 | 4.87 | 0.02 | 99.6 |  | 4.26 |  | 19.2 |  | 106 | 25 | 50.9 |
| 45 |  |  | AK154-2 | 5.01 | 0.43 | 76.5 | 0.14 | 12.5 | 1.35 | 1.5 |  | 0.03 | 0.02 | 0.55 | 3.88 | 4.79 | 0.03 | 99.1 |  | 3.44 |  | 8.74 |  | 136 | 59 | 64.1 |
| 46  47 |  |  | AT6  AT14 | 2.83  3.26 | 0.64  0.24 | 73  76.5 | 0.23  0.14 | 14.4  11 | 1.58  1.07 | 1.76  1.19 |  | 0.04  0.02 | 0.29  0.03 | 1.07  0.38 | 4.16  3.85 | 4.66  5.06 | 0.09  0.03 | 99.8  99.7 |  | 3.4  1.1 |  | 8.2  4.4 |  | 144  96 | 92  23 | 57.1  33.8 |
| 48 | Akebastal | Chen and Arakawa, 2005 | AT19 | 2.34 | 0.47 | 71.6 | 0.22 | 15.4 | 1.53 | 1.7 |  | 0.03 | 0.26 | 0.96 | 4.24 | 5.67 | 0.07 | 99.7 |  | 1.6 |  | 6.4 |  | 161 | 76 | 53.8 |
| 49 |  |  | AT20 | 2.05 | 0.21 | 76.8 | 0.12 | 15.4 | 0.84 | 0.93 |  | 0.02 | 0.01 | 0.42 | 3.8 | 4.98 | 0.02 | 99.8 |  | 0.4 |  | 3.8 |  | 107 | 23 | 39.6 |
| 50 |  |  | AT22 | 2.37 | 0.75 | 72.8 | 0.15 | 13.4 | 1.26 | 1.4 |  | 0.02 | 0.08 | 0.61 | 4.79 | 5.34 | 0.04 | 99.7 |  | 0.9 |  | 2.9 |  | 71 | 53 | 21.7 |
| 51 | Hongshan | Chen and Arakawa, 2005 | H1 | 5.42 | 0.72 | 75.03 | 0.73 | 10.93 | 3.16 | 1.21 | 2.07 | 0.01 | 0.17 | 1.2 | 3.94 | 3.45 | 0.25 | 99.45 |  | 5.17 |  | 14.9 | 20.9 | 86.6 | 62.2 | 34 |
| 52 |  |  | H3 | 3.68 | 0.70 | 73.41 | 0.63 | 12.66 | 2.99 | 1.04 | 2.06 | 0.07 | 0.19 | 1.35 | 4.12 | 3.36 | 0.38 | 99.48 |  | 85.4 |  | 181 | 20.3 | 90.7 | 63.7 | 32.7 |
| 53 |  |  | H7 | 6.83 | 0.85 | 74.22 | 0.59 | 12.32 | 2.99 | 2.08 | 1.12 | 0.16 | 0.26 | 1.44 | 4.08 | 3.17 | 0.29 | 99.87 |  | 7.59 |  | 17.3 | 19.9 | 78.8 | 66.6 | 33.3 |
| 54 |  | Geng et al., 2009 | HONG4 | 7.06 | 0.59 | 72.3 | 0.27 | 12.9 | 2.67 | 2.97 |  | 0.07 | 0.33 | 0.87 | 4.6 | 3.81 | 0.07 | 98.4 |  | 2.59 |  | 8.25 |  | 103 | 61 | 30.1 |
| 55 |  |  | HONG5 | 6.93 | 0.88 | 73.5 | 0.3 | 13.4 | 2.51 | 2.79 |  | 0.07 | 0.26 | 0.95 | 4.8 | 3.82 | 0.07 | 101.1 |  | 3.33 |  | 1 |  | 86.6 | 76 | 44.3 |
| 56 |  |  | HONG2 | 5.41 | 0.98 | 74 | 0.24 | 13.8 | 2.41 | 2.68 |  | 0.06 | 0.32 | 0.92 | 4.91 | 3.93 | 0.06 | 101.1 |  | 4.66 |  | 5.05 |  | 86.8 | 85 | 36.8 |
| 57 |  |  | HONG1 | 3.73 | 9.47 | 75.2 | 0.22 | 12 | 1.93 | 2.15 |  | 0.06 | 0.24 | 0.86 | 4.63 | 3.88 | 0.06 | 99.3 |  | 3.94 |  | 14 |  | 30.4 | 288 | 75.9 |
| 58 |  |  | HONG3 | 1.47 | 0.04 | 76.4 | 0.08 | 12.9 | 1.41 | 1.57 |  | 0.02 | 0.03 | 0.19 | 4.06 | 4.62 | 0.02 | 99.9 |  | 2.53 |  | 4.77 |  | 229 | 9 | 65.7 |
| 59 | Karamay | Geng et al., 2009 | KM1 | 4.17 | 0.72 | 74.8 | 0.18 | 12.2 | 2.05 | 2.28 |  | 0.06 | 0.36 | 1.13 | 3.82 | 3.78 | 0.07 | 99.5 |  | 4.01 |  | 10 |  | 83.5 | 60 | 16.3 |
| 60 |  |  | KM2 | 7.75 | 0.06 | 77.9 | 0.08 | 11.1 | 0.95 | 1.06 |  | 0.02 | 0.02 | 0.39 | 3.69 | 4.55 | 0.02 | 99 |  | 2.92 |  | 7.88 |  | 124 | 7 | 33.3 |
| 61 |  |  | KM9918-3 | 4.25 | 1.09 | 70 | 0.42 | 13.6 | 3.06 | 3.4 |  | 0.06 | 0.23 | 1.24 | 4.86 | 4.18 | 0.07 | 98.7 |  | 3.05 |  | 8.75 |  | 88.7 | 97 | 49.2 |
| 62 |  |  | KM9951-1 | 7.12 | 0.31 | 78.4 | 0.08 | 10.7 | 0.94 | 1.04 |  | 0.02 | 0.01 | 0.46 | 3.66 | 4.28 | 0.02 | 99.2 |  | 3.25 |  | 6.25 |  | 196 | 60 | 33.9 |
| 63 |  |  | KM136-1 | 4.91 | 4.61 | 73.1 | 0.17 | 14.4 | 1.51 | 1.68 |  | 0.03 | 0.23 | 1.7 | 5.14 | 3.21 | 0.06 | 100.2 |  | 3.55 |  | 8.21 |  | 76.2 | 351 | 62.8 |
| 64 |  |  | KM39 | 5.55 | 7.51 | 63.8 | 0.69 | 15.5 | 4.69 | 5.21 |  | 0.09 | 2.44 | 4.41 | 3.88 | 2.37 | 0.15 | 99.6 |  | 21.9 |  | 34.7 |  | 49 | 368 | 18.3 |
| 65 |  | Gao et al., 2014 | h2576-1 | 4.03 | 0.87 | 70.40 | 0.38 | 14.26 | 2.84 | 1.05 | 1.90 | 0.05 | 0.80 | 1.61 | 3.91 | 3.72 | 0.09 | 99.9 | 4.27 | 3.39 | 28.1 | 18.5 |  | 114 | 99.5 | 70.6 |
| 66 | Bieluagaxi | Gao et al., 2014 | HTP7-5-1 | 5.96 | 9.61 | 64.18 | 0.48 | 15.64 | 4.10 | 0.50 | 3.65 | 0.09 | 3.34 | 4.61 | 3.52 | 1.70 | 0.11 | 99.8 | 14.2 | 41.9 | 84.1 | 102 |  | 33.1 | 319 | 14.0 |

**Table S7（Continued）**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| No. | Name of granite | Source | Sample Number | Zr | Nb | Ba | Hf | Ta | Th | U | La | Ce | Pr | Nd | Sm | Eu | Gd | Tb | Dy | Ho | Er | Tm | Yb | Lu |
| West Junggar | | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1 | Xiaoxihu | Gao et al., 2006 | 202 | 172.2 | 5.117 | 640.2 | 5.317 | 0.464 | 5.394 | 1.354 | 17.4 | 39.5 | 5.025 | 20.28 | 4.433 | 1.033 | 3.969 | 0.643 | 3.788 | 0.794 | 2.35 | 0.348 | 2.443 | 0.382 |
| 2 |  |  | 203 | 185.9 | 4.504 | 656.5 | 5.358 | 0.312 | 4.883 | 1.231 | 17.37 | 38.92 | 4.928 | 19.99 | 4.323 | 1.105 | 3.934 | 0.642 | 3.446 | 0.771 | 2.271 | 0.383 | 2.266 | 0.4 |
| 3 |  |  | 204 | 150.4 | 4.631 | 674.5 | 4.365 | 0.415 | 4.141 | 0.911 | 16.64 | 36.65 | 4.613 | 18.67 | 4.048 | 1.192 | 3.577 | 0.583 | 3.259 | 0.678 | 2.037 | 0.324 | 2.161 | 0.332 |
| 4 |  |  | 205 | 220.3 | 5.115 | 653.2 | 6.037 | 0.49 | 4.966 | 1.142 | 18.42 | 40.37 | 5.112 | 20.95 | 4.339 | 1.167 | 3.935 | 0.652 | 3.499 | 0.739 | 2.264 | 0.332 | 2.394 | 0.363 |
| 5 |  |  | 206 | 160.3 | 4.956 | 641.4 | 4.803 | 0.438 | 4.518 | 1.107 | 16.45 | 36.71 | 4.791 | 18.89 | 4.299 | 1.193 | 3.552 | 0.599 | 3.49 | 0.699 | 2.013 | 0.327 | 2.145 | 0.331 |
| 6 |  |  | 207 | 161.7 | 4.839 | 609 | 4.741 | 0.473 | 4.839 | 1.029 | 16.9 | 38.04 | 4.758 | 20.15 | 4.251 | 1.187 | 3.992 | 0.601 | 3.533 | 0.689 | 2.098 | 0.319 | 2.188 | 0.355 |
| 7 |  |  | 208 | 146 | 4.706 | 605.6 | 4.407 | 0.394 | 4.553 | 1.126 | 15.98 | 37.94 | 4.742 | 19.5 | 4.41 | 1.106 | 3.919 | 0.65 | 3.609 | 0.725 | 2.159 | 0.327 | 2.172 | 0.344 |
| 8 |  |  | 209 | 145.2 | 4.942 | 611.6 | 4.244 | 0.468 | 5.389 | 1.116 | 18.27 | 40.25 | 5.17 | 21.54 | 4.624 | 1.206 | 4.086 | 0.671 | 3.782 | 0.785 | 2.209 | 0.335 | 2.284 | 0.347 |
| 9 |  |  | 210 | 177.6 | 4.441 | 730.5 | 4.986 | 0.47 | 8.112 | 1.23 | 18.58 | 39.56 | 4.718 | 18.19 | 3.568 | 1.015 | 3.102 | 0.508 | 2.89 | 0.595 | 1.698 | 0.283 | 1.875 | 0.302 |
| 10 |  |  | 211 | 186.5 | 4.762 | 669.4 | 6.241 | 0.525 | 7.4 | 1.282 | 17.04 | 36.54 | 4.46 | 16.74 | 3.417 | 0.88 | 3.147 | 0.512 | 2.964 | 0.618 | 1.995 | 0.288 | 2.046 | 0.354 |
| 11 |  | Su et al., 2006 | K5 | 168 | 7.59 | 420 | 5.76 | 0.83 | 10.7 | 2.94 | 31 | 68.9 | 8.19 | 33.1 | 6.79 | 0.55 | 6.97 | 1.09 | 6.39 | 1.37 | 4.08 | 0.63 | 4.07 | 0.64 |
| 12 |  |  | K9 | 121 | 2.64 | 39.9 | 4.97 | 0.28 | 6.52 | 1.18 | 31.5 | 73.1 | 8.71 | 34.4 | 6.26 | 0.11 | 5.04 | 0.75 | 4.27 | 0.87 | 2.46 | 0.34 | 2.24 | 0.36 |
| 13 |  |  | K10 | 518 | 11 | 400 | 11.1 | 0.72 | 6.74 | 1.39 | 38.1 | 88.1 | 10.8 | 45.6 | 9.75 | 0.88 | 9.6 | 1.46 | 8.74 | 1.83 | 5.18 | 0.76 | 5.08 | 0.79 |
| 14 |  |  | KS6 | 180 | 4.95 | 571 | 4.73 | 0.4 | 3.95 | 0.98 | 14 | 31 | 3.75 | 15.5 | 3.39 | 0.93 | 3.59 | 0.52 | 3.18 | 0.68 | 1.94 | 0.29 | 1.85 | 0.29 |
| 15 |  |  | KS11 | 105 | 4.02 | 668 | 3.39 | 0.36 | 4.39 | 1.14 | 8.16 | 16.4 | 2.15 | 9.55 | 2.3 | 0.87 | 2.65 | 0.4 | 2.5 | 0.53 | 1.53 | 0.23 | 1.6 | 0.23 |
| 16 |  | Gao et al., 2014 | Hkp201-6 | 242 | 4.40 | 714 | 7.43 | 0.40 | 10.7 | 2.16 | 16.8 | 36.3 | 4.58 | 17.4 | 3.72 | 0.690 | 3.55 | 0.529 | 3.18 | 0.670 | 1.96 | 0.301 | 2.04 | 0.326 |
| 17 |  |  | hKP201-8 | 91.7 | 5.35 | 337 | 3.44 | 0.39 | 8.46 | 1.05 | 21.4 | 51.1 | 7.00 | 29.7 | 7.13 | 1.11 | 6.67 | 1.09 | 6.75 | 1.31 | 3.71 | 0.546 | 3.62 | 0.532 |
| 18 |  |  | hKP203-4 | 136 | 4.41 | 529 | 3.97 | 0.29 | 3.65 | 0.84 | 13.8 | 33.3 | 3.90 | 16.1 | 3.67 | 0.998 | 3.38 | 0.535 | 3.29 | 0.665 | 1.95 | 0.283 | 1.86 | 0.288 |
| 19 | Xiaerpu | Gao et al., 2014 | hKP202-25-2 | 184 | 4.26 | 457 | 5.35 | 0.26 | 2.44 | 1.11 | 13.0 | 32.6 | 4.69 | 20.7 | 5.15 | 1.23 | 4.77 | 0.791 | 4.68 | 0.950 | 2.74 | 0.424 | 2.60 | 0.406 |
| 20 | Miaoergou | Geng et al., 2009 | MG123-2 | 114 | 12.3 | 498 | 3.32 | 0.63 | 3.93 | 0.9 | 25 | 60.4 | 8.64 | 36.6 | 8.52 | 2.14 | 7.53 | 1.19 | 8.9 | 1.72 | 4.23 | 0.6 | 3.62 | 0.48 |
| 21 |  | MG9811-1 | 136 | 12.5 | 551 | 3.88 | 0.82 | 4.16 | 1.45 | 25.7 | 59.7 | 8.63 | 36.1 | 8.26 | 2 | 7.36 | 1.19 | 8.99 | 1.76 | 4.44 | 0.66 | 3.84 | 0.49 |
| 22 |  |  | MG164-2 | 151 | 13.2 | 504 | 4.27 | 0.86 | 4.01 | 1.44 | 26.8 | 64.5 | 9.51 | 40.9 | 9.64 | 2.02 | 8.63 | 1.41 | 10.6 | 2.06 | 5.15 | 0.77 | 4.41 | 0.55 |
| 23 |  | Geng et al., 2009 | MG9803-2 | 42 | 0.71 | 509 | 1.65 | 13.5 | 5.31 | 1.14 | 23.5 | 47.5 | 7.29 | 34 | 8.03 | 2.09 | 7.73 | 1.23 | 7.35 | 1.58 | 4.65 | 0.65 | 3.83 | 0.63 |
| 24 |  |  | MG9808-4 | 402 | 0.93 | 3773 | 9.41 | 28 | 15.2 | 2.74 | 24 | 60.2 | 7.82 | 34 | 8.31 | 1.57 | 7.98 | 1.13 | 6.53 | 1.32 | 3.62 | 0.5 | 2.98 | 0.45 |
| 25 |  | Zhang et al., 2004 | MG134 | 22 | 4.24 | 277 |  |  | 3.05 | 0.5 | 11.5 | 26.6 | 3.51 | 14.5 | 3.31 | 0.77 | 3.22 | 0.5 | 2.99 | 0.68 | 1.88 | 0.27 | 1.6 | 0.25 |
| 26 | Miaoergou |  | MG271 | 190 | 9.84 | 450 |  |  | 4.01 | 1.06 | 19.8 | 45.9 | 5.87 | 26 | 6.3 | 1.82 | 6.25 | 0.98 | 5.97 | 1.3 | 3.81 | 0.56 | 3.7 | 0.59 |
| 27 |  | Chen and Arakawa, 2005 | MG7 | 218 | 5.8 | 456 | 5.6 |  | 4 | 1.2 | 24.4 | 58.7 | 7.82 | 36.2 | 8.13 | 1.98 | 8.54 | 1.45 | 8.35 | 1.75 | 4.78 | 0.72 | 4.48 | 0.68 |
| 28 |  |  | MG12 | 809 | 11.1 | 861 | 16.3 |  | 6.7 | 0.8 | 25.1 | 59.6 | 7.79 | 32 | 8.2 | 1.96 | 8.51 | 1.43 | 8.28 | 1.78 | 5.09 | 0.76 | 5.16 | 0.84 |
| 29 |  |  | MG18 | 1383 | 5.1 | 1362 | 23 |  | 3.5 | 1 | 27.2 | 63.5 | 8.31 | 40.3 | 8.91 | 2.4 | 9.03 | 1.54 | 9.06 | 1.8 | 5.2 | 0.77 | 5.19 | 0.82 |
| 30 |  |  | MG9942-1 | 226 | 7.96 | 568 | 6.69 | 0.58 | 9.88 | 1.84 | 25.9 | 57.9 | 7.53 | 28 | 6.03 | 0.69 | 5.08 | 0.86 | 6.63 | 1.33 | 3.45 | 0.52 | 3.23 | 0.45 |
| 31 |  |  | MG9918-3 | 311 | 8.56 | 514 | 9.71 | 0.59 | 9.07 | 2 | 26 | 57.4 | 7.82 | 29.4 | 6.06 | 0.39 | 5 | 0.82 | 6.19 | 1.21 | 3.02 | 0.43 | 2.59 | 0.35 |
| 32 |  |  | MG106-2 | 193 | 6.68 | 534 | 6.26 | 0.53 | 10.8 | 2.97 | 29.1 | 63.9 | 8.31 | 30 | 6.08 | 0.58 | 5 | 0.83 | 6.36 | 1.27 | 3.3 | 0.5 | 3.17 | 0.45 |
| 33 |  |  | MG4 | 395 | 11.2 | 565 | 10.8 |  | 10.4 | 1.4 | 31.2 | 73.7 | 9.18 | 36.6 | 8.15 | 0.77 | 8.51 | 1.59 | 9.41 | 2.08 | 5.82 | 0.9 | 5.99 | 0.9 |
| 34 |  |  | MG13 | 178 | 5.5 | 1613 | 5.2 |  | 5.9 | 1.1 | 10.6 | 20.7 | 2.29 | 8.71 | 1.81 | 1.74 | 1.91 | 0.34 | 2.18 | 0.53 | 1.63 | 0.3 | 2.1 | 0.32 |
| 35 |  |  | MG16 | 317 | 9.9 | 515 | 8.9 |  | 11.8 | 1.9 | 31.1 | 73.2 | 8.6 | 41.7 | 7.99 | 0.66 | 7.82 | 1.38 | 8.4 | 1.8 | 5.34 | 0.82 | 5.4 | 0.84 |
| 36 |  |  | MG19 | 436 | 10.5 | 593 | 11.7 |  | 8 | 1.3 | 27.6 | 64.9 | 7.96 | 36.3 | 7.68 | 0.75 | 7.85 | 1.4 | 8.4 | 1.71 | 4.91 | 0.77 | 5.08 | 0.76 |
| 37 |  |  | MG24 | 196 | 7.9 | 328 | 6.9 |  | 8.8 | 1.7 | 31.3 | 73.4 | 8.89 | 31.8 | 7.08 | 0.57 | 7.31 | 1.25 | 7.48 | 1.57 | 4.74 | 0.73 | 4.6 | 0.72 |
| 38 |  |  | MG26 | 153 | 7.8 | 524 | 5.8 |  | 11.7 | 2.3 | 29.5 | 64.5 | 7.65 | 29.5 | 6.04 | 0.75 | 5.93 | 1.04 | 7.48 | 1.31 | 3.88 | 0.66 | 4.21 | 0.76 |
| 39 | Akebastal | Chen and Arakawa, 2005 | AS1 | 104 | 10.3 | 56.7 | 5.09 | 0.91 | 13.9 | 2.08 | 62.4 | 136 | 15.69 | 61.4 | 11.7 | 0.1 | 10.7 | 1.69 | 10.1 | 2.18 | 6.37 | 0.91 | 6.24 | 0.91 |
| 40 |  |  | AS3 | 444 | 10 | 143 | 11.2 | 0.58 | 6.69 | 0.96 | 33.5 | 77.6 | 9.89 | 43.7 | 10.3 | 0.22 | 11.6 | 1.73 | 10.3 | 2.1 | 5.79 | 0.81 | 5.31 | 0.81 |
| 41 |  |  | AK2-1 | 230 | 11.8 | 418 | 8.23 | 0.94 | 10.9 | 3.05 | 36.3 | 86.2 | 12 | 46.2 | 10.9 | 0.47 | 9.07 | 1.65 | 12.8 | 2.61 | 6.91 | 1.1 | 6.56 | 0.86 |
| 42 |  |  | AK2-2 | 209 | 12.6 | 391 | 7.77 | 1.01 | 9.87 | 2.19 | 30.1 | 69.4 | 9.62 | 36.8 | 8.28 | 0.45 | 7.25 | 1.29 | 10.4 | 2.15 | 5.8 | 0.9 | 5.45 | 0.73 |
| 43 |  |  | AK8 | 198 | 7.31 | 283 | 6.34 | 0.42 | 9.88 | 2.09 | 30.6 | 73.1 | 10.5 | 43.3 | 11.3 | 0.35 | 10.37 | 1.92 | 14.9 | 2.89 | 7.19 | 1.03 | 5.54 | 0.63 |
| 44 |  |  | AK1-3 | 231 | 9.27 | 147 | 7.23 | 0.63 | 9.4 | 2.03 | 41.1 | 94.8 | 13 | 49.2 | 9.85 | 0.22 | 7.64 | 1.25 | 9 | 1.79 | 4.61 | 0.71 | 4.27 | 0.57 |
| 45 |  |  | AK154-2 | 344 | 10.6 | 590 | 10.6 | 0.78 | 11.2 | 2.25 | 34.1 | 73.5 | 10.6 | 40.6 | 9.03 | 0.63 | 7.87 | 1.32 | 10.3 | 2.05 | 5.26 | 0.78 | 4.88 | 0.68 |
| 46 |  |  | AT6 | 191 | 8.7 | 415 | 6.6 |  | 9.7 | 2 | 24.7 | 59.2 | 7.47 | 41.4 | 9.96 | 0.54 | 8.02 | 1.45 | 5.67 | 2 | 6.11 | 0.94 | 6.27 | 0.89 |
| 47 |  |  | AT14 | 233 | 7.4 | 146 | 6.9 |  | 5.2 | 0.9 | 17.2 | 37.2 | 5.33 | 24.8 | 5.62 | 0.24 | 5.82 | 1 | 9.34 | 1.2 | 3.52 | 0.56 | 3.78 | 0.58 |
| 48 |  |  | AT19 | 221 | 9.5 | 398 | 8.1 |  | 7.4 | 1.6 | 18.6 | 45.9 | 5.52 | 25.6 | 6.64 | 0.51 | 7.26 | 1.43 | 5.75 | 1.99 | 5.59 | 0.89 | 5.71 | 0.91 |
| 49 | Akebastal | Chen and Arakawa, 2005 | AT20 | 208 | 6.8 | 140 | 6.6 |  | 3.9 | 1.2 | 11.7 | 30.1 | 4.38 | 21.3 | 5.63 | 0.21 | 6.33 | 1.1 | 9.09 | 1.57 | 4.44 | 0.66 | 4.1 | 0.61 |
| 50 |  |  | AT22 | 259 | 4.8 | 326 | 6.6 |  | 2.4 | 0.8 | 8.04 | 19.5 | 2.73 | 13 | 3.15 | 0.49 | 3.64 | 0.65 | 7.28 | 0.81 | 2.35 | 0.38 | 2.43 | 0.42 |
| 51 | Hongshan | Chen and Arakawa, 2005 | H1 | 305 | 11.2 | 528 | 7.72 | 0.77 | 7.78 | 1.26 | 27.3 | 59.8 | 6.94 | 27.9 | 5.89 | 0.58 | 6.08 | 0.95 | 5.77 | 1.26 | 3.62 | 0.55 | 3.61 | 0.55 |
| 52 |  |  | H3 | 317 | 12.4 | 538 | 8.37 | 0.91 | 6.84 | 1.53 | 19.1 | 44.6 | 5.64 | 24 | 5.35 | 0.54 | 5.64 | 0.91 | 5.73 | 1.24 | 3.6 | 0.58 | 3.72 | 0.58 |
| 53 |  |  | H7 | 41.5 | 9.92 | 505 | 1.68 | 0.71 | 6.41 | 1.17 | 31.8 | 68 | 7.53 | 29.2 | 6.05 | 0.56 | 6.14 | 0.98 | 5.94 | 1.24 | 3.51 | 0.48 | 3.34 | 0.48 |
| 54 |  | Geng et al., 2009 | HONG4 | 113 | 5.38 | 276 | 4.02 | 0.53 | 10.8 | 1.4 | 25.7 | 56.9 | 7.34 | 26 | 4.75 | 0.2 | 3.79 | 0.64 | 4.72 | 0.96 | 2.53 | 0.42 | 2.61 | 0.36 |
| 55 |  |  | HONG5 | 241 | 12.5 | 555 | 6.61 | 0.98 | 9.73 | 1.53 | 37.1 | 81 | 10.4 | 37 | 7.26 | 0.61 | 5.7 | 0.97 | 7.16 | 1.45 | 3.82 | 0.63 | 3.84 | 0.52 |
| 56 |  |  | HONG2 | 270 | 11.3 | 600 | 7.28 | 0.88 | 7.59 | 1.56 | 24.6 | 54.3 | 7.34 | 27 | 5.58 | 0.61 | 4.59 | 0.79 | 5.93 | 1.21 | 3.18 | 0.53 | 3.26 | 0.45 |
| 57 |  |  | HONG1 | 45 | 11.3 | 280 | 2 | 0.61 | 3.69 | 0.72 | 28.7 | 76.3 | 11.6 | 47.4 | 11.2 | 1.31 | 9.5 | 1.64 | 12.8 | 2.52 | 6.33 | 0.93 | 5.52 | 0.72 |
| 58 |  |  | HONG3 | 96 | 3.36 | 27 | 4.45 | 0.74 | 38.9 | 4.29 | 13 | 19.4 | 6.03 | 24 | 6.98 | 0.08 | 5.79 | 1.23 | 10.1 | 2.13 | 5.9 | 1.03 | 6.34 | 0.87 |
| 59 | Karamay | Geng et al., 2009 | KM1 | 131 | 9.05 | 507 | 4.88 | 1.73 | 23 | 3.67 | 11.4 | 23.9 | 3.1 | 11.1 | 2.34 | 0.43 | 1.86 | 0.34 | 2.82 | 0.6 | 1.64 | 0.28 | 1.96 | 0.31 |
| 60 |  |  | KM2 | 144 | 9.95 | 20 | 6.27 | 0.71 | 9.61 | 2.62 | 25.6 | 64.1 | 7.95 | 29.2 | 6.1 | 0.04 | 4.96 | 0.81 | 6.08 | 1.18 | 2.92 | 0.4 | 2.37 | 0.31 |
| 61 |  |  | KM9918-3 | 375 | 11.6 | 288 | 11.1 | 0.66 | 8.52 | 7.56 | 24.3 | 54.9 | 7.49 | 30.2 | 6.94 | 1.4 | 6.11 | 1.04 | 8.07 | 1.62 | 4.2 | 0.65 | 4.1 | 0.58 |
| 62 |  |  | KM9951-1 | 132 | 6.6 | 454 | 5.02 | 0.61 | 22.2 | 5.08 | 26.2 | 54.3 | 6.75 | 23.2 | 4.61 | 0.34 | 3.87 | 0.66 | 5.16 | 1.05 | 2.78 | 0.43 | 2.64 | 0.36 |
| 63 |  |  | KM136-1 | 127 | 13.7 | 532 | 3.76 | 0.72 | 3.16 | 0.94 | 29.2 | 71.7 | 10.5 | 45.1 | 10.7 | 2.11 | 9.51 | 1.5 | 11.37 | 2.16 | 5.21 | 0.73 | 4.27 | 0.55 |
| 64 |  |  | KM39 | 145 | 5.1 | 592 | 4.4 |  | 4.7 | 1.4 | 15 | 32.6 | 3.95 | 16.7 | 3.71 | 1.02 | 3.8 | 0.59 | 3.41 | 0.7 | 2.05 | 1.94 | 1.94 | 0.34 |
| 65 |  | Gao et al., 2014 | h2576-1 | 323 | 12.3 | 318 | 12.5 | 1.10 | 15.4 | 2.29 | 43.3 | 95.6 | 12.8 | 52.9 | 13.4 | 0.709 | 12.8 | 2.15 | 13.6 | 2.62 | 7.80 | 1.18 | 7.69 | 1.12 |
| 66 | Bieluagaxi | Gao et al., 2014 | HTP7-5-1 | 103 | 4.23 | 480 | 3.50 | 0.53 | 3.65 | 0.66 | 13.0 | 27.2 | 3.30 | 12.3 | 2.79 | 0.889 | 2.56 | 0.414 | 2.56 | 0.541 | 1.49 | 0.237 | 1.56 | 0.246 |

The references are noted in the Gao Rui, Xiao Long, Franco Pirajno, Wang Guocan, He Xinxing, Yang Gang, Yan Shengwu, 2014. Carboniferous–Permian extensive magmatism in the West Junggar, Xinjiang, northwestern China: its geochemistry, geochronology, and petrogenesis. Lithos 204, 125-143.

**Table S8 The occurrence and paleo-stress tensors of dykes in west Junggar**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Karamay dykes | | | | | | | Xiaerpu dykes | | | | | | | Liushugou dykes | | | | |
| Attitude No. | | Dip | Dip Direction | | | | Attitude No. | | Dip | | Dip Direction | | | Attitude No. | | Dip | | Dip Direction |
| KM01 | | 77 | 80 | | | | XP01 | | 50 | | 320 | | | LSG01 | | 72 | | 338 |
| KM02 | | 87 | 357 | | | | XP02 | | 50 | | 10 | | | LSG02 | | 70 | | 348 |
| KM03 | | 85 | 0 | | | | XP03 | | 65 | | 20 | | | LSG03 | | 67 | | 0 |
| KM04 | | 80 | 358 | | | | XP04 | | 60 | | 23 | | | LSG04 | | 75 | | 342 |
| KM05 | | 86 | 6 | | | | XP05 | | 85 | | 197 | | | LSG05 | | 57 | | 358 |
| KM06 | | 82 | 350 | | | | XP06 | | 85 | | 180 | | | LSG06 | | 59 | | 353 |
| KM07 | | 84 | 2 | | | | XP07 | | 80 | | 175 | | | LSG07 | | 65 | | 10 |
| KM08 | | 85 | 0 | | | | XP08 | | 80 | | 200 | | | LSG08 | | 32 | | 14 |
| KM09 | | 90 | 355 | | | | XP09 | | 85 | | 0 | | | LSG09 | | 61 | | 0 |
| KM10 | | 87 | 298 | | | | XP10 | | 70 | | 0 | | | LSG10 | | 70 | | 5 |
| KM11 | | 75 | 328 | | | | XP11 | | 86 | | 0 | | | LSG11 | | 78 | | 358 |
| KM12 | | 90 | 266 | | | | XP12 | | 85 | | 14 | | | LSG12 | | 73 | | 183 |
| KM13 | | 85 | 280 | | | | XP13 | | 80 | | 10 | | | LSG13 | | 57 | | 21 |
| KM14 | | 69 | 215 | | | | XP14 | | 80 | | 0 | | | LSG14 | | 77 | | 198 |
| KM15 | | 77 | 180 | | | | XP15 | | 80 | | 10 | | | LSG15 | | 85 | | 349 |
| KM16 | | 70 | 180 | | | | XP16 | | 82 | | 185 | | | LSG16 | | 84 | | 351 |
| KM17 | | 75 | 180 | | | | XP17 | | 75 | | 10 | | | LSG17 | | 78 | | 348 |
| KM18 | | 80 | 280 | | | | XP18 | | 80 | | 0 | | | LSG18 | | 66 | | 348 |
| KM19 | | 70 | 180 | | | | XP19 | | 80 | | 210 | | | LSG19 | | 60 | | 160 |
| KM20 | | 72 | 23 | | | | XP20 | | 60 | | 325 | | | LSG20 | | 42 | | 340 |
| KM21 | | 79 | 200 | | | | XP21 | | 60 | | 18 | | | LSG21 | | 76 | | 338 |
| KM22 | | 73 | 173 | | | | XP22 | | 74 | | 5 | | | LSG22 | | 76 | | 170 |
| KM23 | | 87 | 215 | | | | XP23 | | 81 | | 25 | | | LSG23 | | 70 | | 345 |
| KM24 | | 68 | 355 | | | | XP24 | | 78 | | 10 | | | LSG24 | | 58 | | 170 |
| KM25 | | 86 | 170 | | | | XP25 | | 64 | | 28 | | | LSG25 | | 54 | | 344 |
| KM26 | | 90 | 210 | | | | XP26 | | 68 | | 17 | | | LSG26 | | 73 | | 340 |
| KM27 | | 90 | 215 | | | | XP27 | | 79 | | 14 | | | LSG27 | | 73 | | 341 |
| KM28 | | 75 | 215 | | | | XP28 | | 70 | | 21 | | | LSG28 | | 79 | | 340 |
| KM29 | | 78 | 180 | | | | XP29 | | 74 | | 29 | | | LSG29 | | 80 | | 343 |
| KM30 | | 66 | 185 | | | | XP30 | | 64 | | 357 | | | LSG30 | | 65 | | 345 |
| KM31 | | 63 | 162 | | | |  | |  | |  | | | LSG31 | | 79 | | 344 |
| KM32 | | 90 | 135 | | | | Bieluagaxi dykes | | | | | | | LSG32 | | 81 | | 333 |
| KM33 | | 89 | 196 | | | | Attitude No. | | Dip | | Dip Direction | | | LSG33 | | 67 | | 340 |
| KM34 | | 80 | 15 | | | | BLG01 | | 72 | | 165 | | | LSG34 | | 77 | | 161 |
| KM35 | | 90 | 215 | | | | BLG02 | | 68 | | 165 | | | LSG35 | | 54 | | 339 |
| KM36 | | 83 | 200 | | | | BLG03 | | 78 | | 124 | | | LSG36 | | 24 | | 341 |
| KM37 | | 80 | 152 | | | | BLG04 | | 75 | | 169 | | | LSG37 | | 62 | | 335 |
| KM38 | | 77 | 180 | | | | BLG05 | | 75 | | 178 | | | LSG38 | | 79 | | 337 |
| KM39 | | 90 | 149 | | | | BLG06 | | 70 | | 164 | | | LSG39 | | 72 | | 332 |
| KM40 | | 83 | 180 | | | | BLG07 | | 69 | | 171 | | | LSG40 | | 80 | | 330 |
| KM41 | | 90 | 133 | | | | BLG08 | | 72 | | 166 | | | LSG41 | | 75 | | 330 |
| Karamay dykes | | | | | | | Bieluagaxi dykes | | | | | | | Liushugou dykes | | | | |
| Attitude No. | | Dip | Dip Direction | | | | Attitude No. | | Dip | | Dip Direction | | | Attitude No. | | Dip | | Dip Direction |
| KM42 | | 82 | 180 | | | | BLG09 | | 58 | | 163 | | | LSG42 | | 68 | | 335 |
| KM43 | | 90 | 101 | | | | BLG10 | | 59 | | 146 | | | LSG43 | | 65 | | 334 |
| KM44 | | 78 | 190 | | | | BLG11 | | 64 | | 160 | | | LSG44 | | 65 | | 332 |
| KM45 | | 80 | 111 | | | | BLG12 | | 72 | | 176 | | | LSG45 | | 85 | | 346 |
| KM46 | | 85 | 205 | | | | BLG13 | | 68 | | 175 | | | LSG46 | | 75 | | 331 |
| KM47 | | 80 | 139 | | | | BLG14 | | 55 | | 157 | | | LSG47 | | 75 | | 340 |
| KM48 | | 80 | 0 | | | | BLG15 | | 78 | | 159 | | | LSG48 | | 80 | | 330 |
| KM49 | | 90 | 193 | | | | BLG16 | | 68 | | 179 | | | LSG49 | | 74 | | 325 |
| KM50 | | 81 | 355 | | | | BLG17 | | 67 | | 178 | | | LSG50 | | 58 | | 145 |
| KM51 | | 90 | 350 | | | | BLG18 | | 79 | | 165 | | | LSG51 | | 68 | | 149 |
| KM52 | | 89 | 175 | | | | BLG19 | | 65 | | 163 | | | LSG52 | | 63 | | 155 |
| KM53 | | 86 | 327 | | | | BLG20 | | 56 | | 149 | | | LSG53 | | 76 | | 310 |
| KM54 | | 67 | 110 | | | | BLG21 | | 68 | | 151 | | |  | |  | |  |
| KM55 | | 80 | 180 | | | |  | |  | |  | | |  | |  | |  |
| KM56 | | 80 | 196 | | | |  | |  | |  | | |  | |  | |  |
| KM57 | | 65 | 130 | | | |  | |  | |  | | |  | |  | |  |
| KM58 | | 75 | 213 | | | |  | |  | |  | | |  | |  | |  |
| KM59 | | 80 | 295 | | | |  | |  | |  | | |  | |  | |  |
| KM60 | | 70 | 20 | | | |  | |  | |  | | |  | |  | |  |
| KM61 | | 75 | 102 | | | |  | |  | |  | | |  | |  | |  |
| KM62 | | 66 | 65 | | | |  | |  | |  | | |  | |  | |  |
| KM63 | | 72 | 310 | | | |  | |  | |  | | |  | |  | |  |
| KM64 | | 72 | 315 | | | |  | |  | |  | | |  | |  | |  |
| KM65 | | 81 | 290 | | | |  | |  | |  | | |  | |  | |  |
| KM66 | | 78 | 200 | | | |  | |  | |  | | |  | |  | |  |
| KM67 | | 26 | 150 | | | |  | |  | |  | | |  | |  | |  |
| KM68 | | 80 | 20 | | | |  | |  | |  | | |  | |  | |  |
| No. | Location | | | n | nt | σ1 | | σ2 | | σ3 | | R | R' | | Stress Regime | |
| a | Karamay dykes | | | 68 | 68 | 84/142 | | 4/278 | | 04/008 | | 0.64 | 0.64 | | Pure EXTENSIONAL | |
| b | Xiaerpu dykes | | | 30 | 30 | 40/295 | | 48/92 | | 12/195 | | 0.94 | 1.06 | | Oblique EXTENSIVE | |
| c | Liushugou dykes | | | 53 | 53 | 10/70 | | 67/316 | | 21/164 | | 0.89 | 1.11 | | Extensional STRIKE-SLIP | |
| d | Bieluagaxi dykes | | | 21 | 21 | 65/171 | | 3/74 | | 25/343 | | 0.98 | 0.98 | | Strike-slip EXTENSIONAL | |

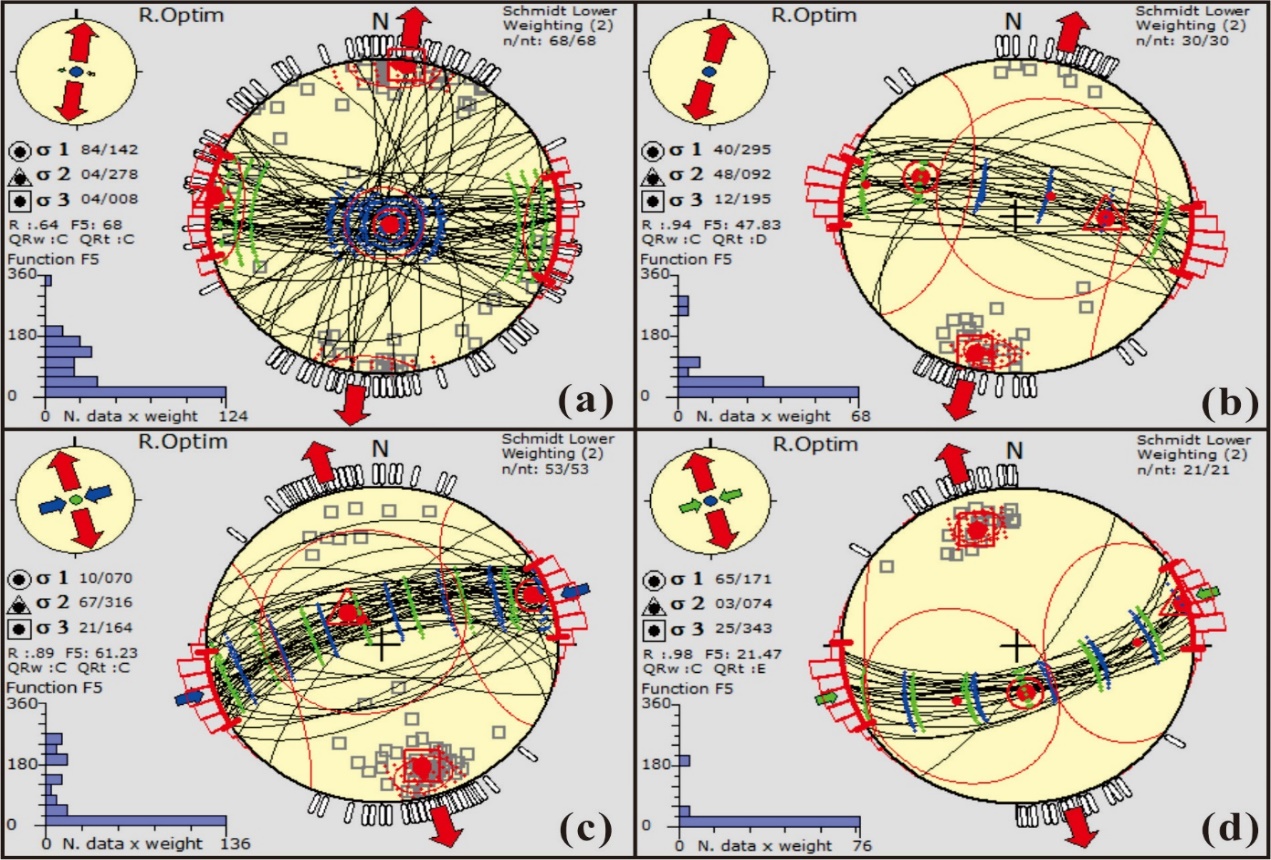


Fig. S2 The lower hemisphere equal area projections of Carboniferous dykes in Karamay, Xiaerpu, Liushugou and Bieluagaxi areas（Delvaux and Sperner, 2003). Stress inversion results are represented by the orientation of the three principal stress axes, solid dot surrounded by a circle for σ1, a triangle for σ2 and a square for σ3. The related horizontal principle stress axes (Shmax) and horizontal minimum stress axes (Shmin) are marked by large arrows outside the stereogram. Their type, length and color indicate the horizontal deviatoric stress magnitude relative to the isotopic stress (σ1) and are a function of the stress regime and the stress ratio R=(σ2-σ3)/(σ1-σ3). Red arrows when σ3 is sub-horizontal (Shmin), blue arrows when σ2 is sub-horizontal (either Shmin or Shmax), and the green arrows when σ1 is sub-horizontal (always Shmax). Outward arrows indicate extensional deviatoric stress (<σ1) and inward arrows indicate compressional deriatoric stress (>σ1). The vertical stress (σV) is expressed in the small circle with stress arrows in the upper left corner of the figures by a solid circle for an extensional regim, and an open circl for a strike-slip regimee.

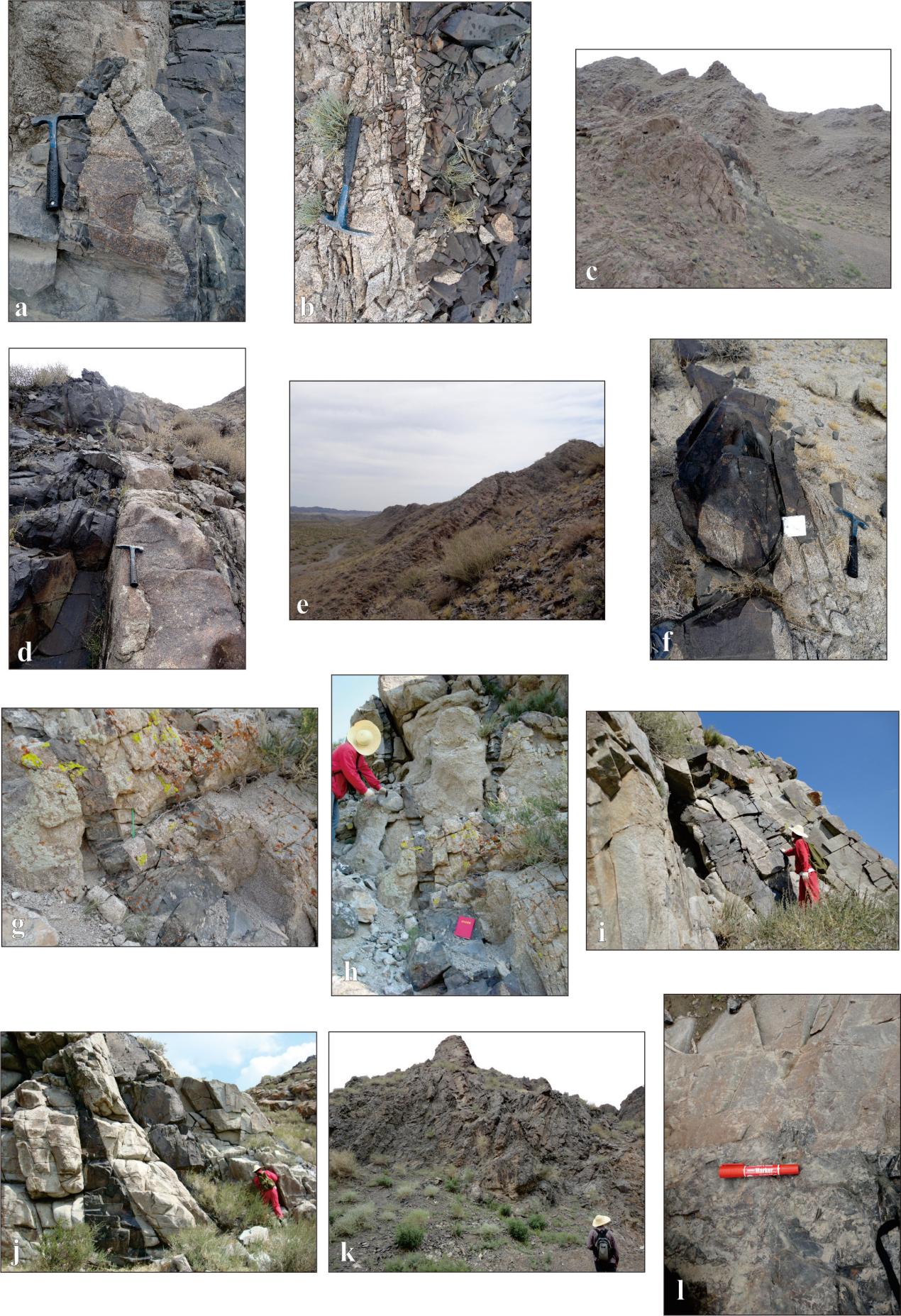


Fig. S3 Field photographs and examples of segmentation structures in dykes. Photographs taken on sub-vertical outcrops except for (b), (f) and (i). (a) Rafts of host rock due to dyke coalescence from Karamay area. (b) Examples of fracture patterns around dykes from Karamay area. (c) View of the dyke swarm exploiting pre-existing joints in the Karamay host granite. (d) Sub-vertical dyke with dyke-parallel joint in the Xiaerpu granitoid. (e) View of the dyke swarm exploiting pre-existing joints in the Xiaerpu host granite. (f) Rafts of host rock due to dyke coalescence in Xiaerpu dyke. (g) Dyke with right-stepping continuous and right-stepping discontinuous offsets from Bieluagaxi area. (h) Dyke with small left- and right-stepping continuous, and right-stepping discontinuous offsets from Bieluagaxi area. (i) and (j)View of the dyke swarm which shows small right-stepping offsets or pinch-out, exploiting pre-existing joints in the Bieluagaxi host granitoid. (k) View of the Liushugou dyke swarm exploiting pre-existing fractures in the Lower Carboniferous strata. (l) Distinct but curved contacting boundary between the Lower Carboniferous carbonaceous mudstone and Liushugou dyke.