**Supplement 4**

*Ledneva G.V., Bazylev B.A., Layer P., Kuzmin D.V., Kononkova N.N.* **“**Mesozoic island-arc massif of cumulative dunite-wehrlite-olivine clinopyroxenite-gabbro, Eastern Chukotka”

***Geotectonics.*** no.4 (Supplement 4) (2020).

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**Table 4.** Results of 40Ar/39Ar dating of magnesiohornblende from gabbro (sample LU9-39).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Laser |  | 40Ar/39Ar | ± | 37Ar/39Ar | ± | 36Ar/39Ar | ± | %  atm. | ± | Ca/K | ± | Cl/K | ± | 40Ar\*/39ArK | ± | Age, | ± |
| (mW) Σ39Ar meas. meas. meas. 40Ar Ma | | | | | | | | | | | | | | | | | |
| 400 | 0.0087 | 8572.957 | 2301.495 | 159.8234 | 42.8658 | 27.7546 | 7.4393 | 95.5 | 3.2 | 330.565 | 99.940 | 1.2021 | 0.3277 | 433.5462 | 346.2438 | 1726.9 | 887,2 |
| 800 | 0.0287 | 4992.496 | 754.430 | 77.3377 | 11.7362 | 16.0247 | 2.4279 | 94.7 | 2.6 | 150.102 | 24.094 | 0.7957 | 0.1235 | 278.7594 | 149.3624 | 1279.0 | 490,7 |
| 1200 | 0.0965 | 533.325 | 26.816 | 63.0697 | 2.8735 | 1.6925 | 0.0938 | 92.8 | 5.1 | 121.119 | 5.776 | 0.8436 | 0.0396 | 40.1478 | 29.4293 | 250.0 | 171,1 |
| 1500 | 0.2002 | 213.853 | 12.205 | 57.8897 | 2.4471 | 0.6491 | 0.0378 | 87.5 | 5.9 | 110.747 | 4.881 | 0.7980 | 0.0375 | 27.9423 | 14.1501 | 177.6 | 85,7 |
| 1750 | 0.3129 | 154.324 | 10.268 | 54.6890 | 2.8956 | 0.4493 | 0.0294 | 83.1 | 6.1 | 104.378 | 5.748 | 0.7280 | 0.0416 | 27.0707 | 10.8034 | 172.3 | 65,6 |
| 2000 | 0.4092 | 119.340 | 9.885 | 52.2936 | 3.2032 | 0.3460 | 0.0319 | 82.1 | 8.7 | 99.631 | 6.337 | 0.7109 | 0.0454 | 22.1996 | 11.8736 | 142.5 | 73,3 |
| 3000 | 0.7170 | 111.963 | 6.331 | 41.3038 | 1.9364 | 0.3197 | 0.0162 | 81.4 | 4.9 | 78.064 | 3.770 | 0.5707 | 0.0279 | 21.4969 | 6.4163 | 138.2 | 39,7 |
| 5000 | 0.9205 | 110.215 | 7.714 | 54.8408 | 3.1048 | 0.3148 | 0.0212 | 80.3 | 6.4 | 104.680 | 6.165 | 0.7257 | 0.0428 | 22.5528 | 8.3124 | 144.7 | 51,3 |
| 9000 | 1.0000 | 70.463 | 9.138 | 82.2965 | 5.6961 | 0.1904 | 0.0307 | 70.2 | 14.7 | 160.320 | 11.781 | 0.6781 | 0.0489 | 22.2553 | 12.7324 | 142.9 | 78,6 |
| Integra | ted | 331.966 | 6.827 | 55.0028 | 1.1757 | 1.0309 | 0.0212 | 90.4 | 1.6 | 105.001 | 2.335 | 0.6941 | 0.0157 | 33.1292 | 5.7259 | 208.8 | 34.1 |

Note. Weighted average of J from standards – 3.707e-03 ± 1.398e-05 (1σ).

36Ar/39Ar value from Cа – 0.0002789.

39Ar/37Ar value from Cа – 0.0007062.

40Ar/39Ar value from K – 0.0297.

The monitor mineral MMhb-1 [82] with an age of 523.5 Ma [80] was used to monitor neutron flux (and calculate the irradiation parameter, J). The samples and standards were wrapped in aluminum foil and loaded into aluminum cans of 2.5 cm diameter and 6 cm height. The samples were irradiated in position 5c of the uranium enriched research reactor of McMaster University in Hamilton (Ontario, Canada) for 20 megawatt-hours. Upon their return from the reactor, the samples and monitors were loaded into 2 mm diameter holes in a copper tray that was then loaded in a ultra-high vacuum extraction line. The monitors were fused, and samples heated, using a 6-watt argon-ion laser following the technique described in [60, 61, 95].

Argon purification was achieved using a liquid nitrogen cold trap and a SAES Zr-Al getter at 400oC. The samples were analyzed in a VG-3600 mass

spectrometer at the Geophysical Institute, University of Alaska Fairbanks. The argon isotopes measured were corrected for system blank and mass discrimination, as well as calcium, potassium and chlorine interference reactions following procedures outlined in [65]. System blanks generally were

2x10-16 mol 40Ar and 2x10-18 mol 36Ar which are 10 to 50 times smaller than fraction volumes. Mass discrimination was monitored by running both

calibrated air shots and a zero-age glass sample. These measurements were made on a weekly to monthly basis to check for changes in mass discrimination. 40Ar/39Ar ages are quoted to ±1σ level and calculated using the constants of Renne et al. [80]. The integrated age is the age given by the total gas measured. The spectrum provides a plateau age if three or more consecutive gas fractions represent at least 50% of the total gas release and are within two standard deviations of each other (Mean Square Weighted Deviation less than ~2.5).