**Supplement 3**

*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”

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**Table 3**. Bulk-rock geochemistry and calculated modal composition.

|  |  |
| --- | --- |
| Sample | LU9-31 LU9-38 LU9-37 LU9-26 LU9-28 LU9-39 LU9-24 LU9-33 |
| SiO2, wt. % TiO2  Al2O3  FeO MnO MgO CaO Na2O K2O P2O5  Cr2O3  LOI Total | 39.70 41.70 38.26 45.61 47.43 47.62 47.41 45.98  0.024 0.013 0.036 0.184 0.225 0.096 0.142 0.475  0.74 0.69 2.05 2.63 3.08 26.64 24.04 18.72  6.55 9.19 11.69 9.04 7.05 2.72 4.02 7.30  0.127 0.202 0.143 0.164 0.154 0.073 0.077 0.146  40.16 39.21 34.31 27.70 24.13 3.75 5.45 8.92  2.42 2.02 4.71 10.66 15.11 14.47 14.75 14.61  0.02 0.09 0.10 0.22 0.25 2.13 1.97 1.39  0.01 0.01 0.01 0.01 0.00 0.11 0.12 0.09  0.012 0.014 0.012 0.014 0.024 0.017 0.014 0.073  0.876 0.558 0.500 0.214 0.377 0.019 0.013 0.028  9.08 5.57 7.35 2.82 1.75 1.94 1.21 1.73  99.71 99.27 99.17 99.25 99.57 99.59 99.21 99.46 |
| Mg# rock | 91.6 88.4 84.0 84.5 85.9 71.0 70.7 68.5 |
| Ol, wt. mode  Opx Cpx Hbl Pl | - - - 0.40 0.28 0 0 -  - - - 0.13 0.05 0.1 0.15 -  - - - 0.41 0.63 0.05 0.12 -  - - - 0.06 0.04 0.04 0.03 -  - - - 0 0 0.81 0.70 - |
| S, ppm  Li Sc Ti V Co Ni Cu Zn Rb Sr Y Zr Nb Ba La Ce Pr Nd Sm Eu | 420 700 3050 820 280 190 180 160  1.1 1.9 1.1 1.6 2.3 12.8 16.1 9.2  17.4 2.2 10.1 60.9 62.8 15.3 23.0 42.4  177 90 211 931 1110 600 798 2807  44 26 57 144 171 47 72 218  157 143 162 103 74 15 23 38  1286 1487 1537 698 547 34 46 66  1.6 4.0 66 2.2 1.1 2.5 16.6 6.3  11 75 78 33 41 24 22 10  0.042 0.175 0.631 0.208 0.161 3.080 6.990 1.145  1.98 0.93 4.56 8.13 17.00 893.60 705.87 569.44  0.904 0.139 0.38 2.579 2.724 1.360 2.236 5.142  1.45 0.94 0.55 0.96 1.03 1.62 2.63 3.02  0.168 b.d.l. 0.058 0.023 0.020 0.033 0.048 0.039  2.94 16.5 1.95 2.2 3.9 106 75 77  0.164 0.098 0.093 0.169 0.177 0.741 0.850 1.003  0.339 0.200 0.228 0.536 0.606 1.644 1.878 2.890  0.048 0.019 0.029 0.121 0.125 0.224 0.278 0.528  0.252 0.074 0.153 0.803 0.871 1.105 1.432 3.099  0.084 0.014 0.054 0.323 0.379 0.314 0.422 1.097  0.050 0.056 0.025 0.118 0.163 0.243 0.308 0.509 |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Gd | 0.130 | 0.028 | 0.068 | 0.464 | 0.514 | 0.331 | 0.419 | 1.120 |
| Tb | 0.025 | 0.002 | 0.011 | 0.092 | 0.090 | 0.058 | 0.072 | 0.182 |
| Dy | 0.164 | 0.018 | 0.072 | 0.526 | 0.559 | 0.335 | 0.479 | 1.083 |
| Ho | 0.034 | 0.005 | 0.014 | 0.105 | 0.102 | 0.060 | 0.106 | 0.221 |
| Er | 0.102 | 0.014 | 0.042 | 0.326 | 0.323 | 0.181 | 0.291 | 0.564 |
| Tm | 0.014 | 0.0017 | 0.008 | 0.040 | 0.038 | 0.024 | 0.034 | 0.073 |
| Yb | 0.092 | 0.034 | 0.051 | 0.298 | 0.251 | 0.175 | 0.215 | 0.457 |
| Lu | 0.013 | 0.003 | 0.008 | 0.037 | 0.031 | 0.022 | 0.041 | 0.069 |
| Hf | 0.032 | b.d.l. | 0.013 | 0.048 | 0.071 | 0.080 | 0.114 | 0.152 |
| Ta | 0.0084 | 0.0088 | 0.004 | b.d.l. | b.d.l. | 0.0041 | 0.0084 | 0.0048 |
| W | 0.793 | b.d.l. | b.d.l. | 0.112 | 0.148 | 0.152 | 0.117 | 0.173 |
| Pb | 0.036 | 8.87 | 8.77 | 0.64 | 0.77 | 2.49 | 1.84 | 0.08 |
| Th | 0.019 | 0.006 | 0.009 | 0.007 | 0.005 | 0.015 | 0.021 | 0.011 |
| U | 0.007 | 0.007 | 0.004 | 0.008 | 0.005 | 0.006 | 0.005 | 0.003 |

Note. b.d.l. – below detection limit; " - " – not calculated. Mg#rock=100Mg/(Mg+Fetotal).

The contents of major elements and sulfur were determined in pressed powders by X-ray fluorescence using a PANalitical AXIOS Advanced spectrometer (Netherlands) with a scanning channel at the Vernadsky Institute. The instrument was calibrated using international, Russian and internal standards. Trace elements were analyzed in glasses, which were obtained by welding rock powders, by laser-ablation mass spectrometry with inductively coupled plasma on an ELEMENT-2, Thermo Scientific mass spectrometer (GB) with a UP-213 New Wave Research solid-phase laser (GB) at the Max Planck Institute for Chemistry (Mainz, Germany), with reference to the KL-2G and NIST 612 standard samples and normalization to Ca. The analytical accuracy was ±5 % (2σ) relative at a component content of 1 ppm and ±10 % relative at a component content of ~0.1 ppm. Details of the method are presented in [56]. Trace element contents are recalculated to real water contents in rocks.