**Supplement 1**

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protoliths,” ***Geotectonics.*** no5 (Supplement 1) (2020).

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**Table 1.** Selected chemical analyses of the observed rock types of the bekturgan and baladjezdy series. Major elements are in wt%, trace elements are in ppm.

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| Elements | U160  2 | U160  3 | U160  4 | U163  0 | U163  8 | U1627/  1 | U1627/  2 | U162  8 | U163  1 | U160  7 | U162  9 | U160  8 | U161  3 | U161  2 | U1618/  1 | U161  1 | U161  5 | U161  6 | U161  8 |
| Bekturgan series | | | | | | | | | | | | | | | | | | |
| Artashinskaya suite | | | | | | | | | | | Savinskaya suite | | | | | | | |
|  | para-rocks | | | | | orthorocks | | | | | | para-rocks | | orthorocks | | | | | |
| SiO2 | 70.11 | 69.66 | 64.18 | 61.41 | 75.28 | 72.39 | 71.86 | 71.09 | 72.46 | 43.6 | 46.33 | 70.55 | 66.27 | 72.52 | 69.74 | 46.67 | 48.13 | 45.11 | 46.72 |
| TiO2 | 0.63 | 0.55 | 0.55 | 0.67 | 0.51 | 0.35 | 0.24 | 0.37 | 0.47 | 2.65 | 1.84 | 0.53 | 0.7 | 0.53 | 0.53 | 2.09 | 1.91 | 1.83 | 1.96 |
| Al2O3 | 13.63 | 13.35 | 14.44 | 18.09 | 14.08 | 13.58 | 14.53 | 13.96 | 12.92 | 13.84 | 12.53 | 15.24 | 14.92 | 13.49 | 13.98 | 14.75 | 11.61 | 10.99 | 12.97 |
| FeO | 2.1 | 1.55 | 2.21 | 2.23 | 0.15 | 0.71 | 0.63 | 0.68 | 0.23 | 8.44 | 9.27 | 0.85 | 1.84 | 1.7 | 2.2 | 7.46 | 5.4 | 9.14 | 9.89 |
| Fe2O3 | 2.62 | 3.33 | 3.12 | 3.71 | 0.9 | 2.24 | 1.95 | 2.7 | 3.14 | 7.92 | 8.28 | 2.43 | 2.71 | 2.11 | 2.11 | 6.56 | 8.22 | 5.98 | 6.16 |
| MnO | 0.06 | 0.07 | 0.11 | 0.11 | 0.02 | 0.08 | 0.08 | 0.09 | 0.09 | 0.23 | 0.27 | 0.04 | 0.13 | 0.06 | 0.12 | 0.2 | 0.18 | 0.21 | 0.29 |
| MgO | 2.09 | 2.09 | 2.29 | 2.37 | 0.73 | 0.66 | 0.72 | 1.04 | 0.82 | 6.86 | 5.82 | 1.23 | 2.22 | 1.03 | 1.46 | 6.27 | 6.64 | 12.4 | 6.83 |
| CaO | 0.88 | 1.42 | 3.32 | 2.26 | 0.12 | 0.72 | 0.37 | 0.61 | 1.8 | 9.71 | 9.41 | 0.33 | 1.64 | 0.26 | 0.96 | 8.19 | 13.14 | 9 | 8.12 |
| K2O | 3.56 | 3.44 | 3.91 | 4.99 | 2.35 | 4.17 | 4.36 | 4.42 | 1.81 | 0.84 | 0.18 | 3.71 | 4.61 | 1.03 | 3.64 | 1.4 | 0.49 | 0.43 | 0.79 |
| Na2O | 1.68 | 1.74 | 1.77 | 1.36 | 4.82 | 3.65 | 4.22 | 3.42 | 5.31 | 2.17 | 2.72 | 3.4 | 3.52 | 5.45 | 3.48 | 2.74 | 2.07 | 1.84 | 2.81 |

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| Elements | U160  2 | U160  3 | U160  4 | U163  0 | U163  8 | U1627/  1 | U1627/  2 | U162  8 | U163  1 | U160  7 | U162  9 | U160  8 | U161  3 | U161  2 | U1618/  1 | U161  1 | U161  5 | U161  6 | U161  8 |
| Bekturgan series | | | | | | | | | | | | | | | | | | |
| Artashinskaya suite | | | | | | | | | | | Savinskaya suite | | | | | | | |
|  | para-rocks | | | | | orthorocks | | | | | | para-rocks | | orthorocks | | | | | |
| P2O5 | 0.13 | 0.14 | 0.19 | 0.1 | 0.04 | 0.18 | 0.09 | 0.15 | 0.09 | 0.29 | 0.26 | 0.11 | 0.11 | 0.1 | 0.13 | 0.24 | 0.16 | 0.18 | 0.33 |
| П.п.п. | 2.28 | 2.49 | 3.66 | 2.47 | 1.01 | 1.17 | 0.88 | 1.39 | 0.84 | 3.01 | 2.07 | 1.48 | 1.14 | 1.52 | 1.42 | 3.01 | 1.45 | 1.88 | 2.04 |
| Сумма | 99.76 | 99.83 | 99.75 | 99.75 | 99.99 | 99.91 | 99.94 | 99.92 | 99.97 | 99.55 | 98.97 | 99.91 | 99.8 | 99.81 | 99.76 | 99.56 | 99.4 | 98.99 | 98.89 |
| K2O/Na2O | 2.12 | 1.98 | 2.21 | 3.67 | 0.49 | 1.14 | 1.03 | 1.29 | 0.34 | 0.39 | 0.07 | 1.09 | 1.31 | 0.19 | 1.05 | 0.51 | 0.24 | 0.23 | 0.28 |
| Na2O+K2O | 5.24 | 5.18 | 5.68 | 6.35 | 7.17 | 7.82 | 8.58 | 7.84 | 7.12 | 3.01 | 2.9 | 7.11 | 8.13 | 6.48 | 7.12 | 4.14 | 2.56 | 2.27 | 3.6 |
| CIA | 69.0 | 66.9 | 65.9 | 70 | 65.9 | 61.4 | 61.9 | 62.3 | 59.2 | 52.1 | 50.4 | 67.2 | 60.4 | 66.7 | 63.4 | 54.5 | 42.5 | 49.4 | 52.5 |
| log(SiO2/Al2O3) | 0.7 | 0.7 | 0.6 | 0.5 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.5 | 0.6 | 0.7 | 0.6 | 0.7 | 0.7 | 0.5 | 0.6 | 0.6 | 0.6 |
| Log(Fe2O3\*/K2  O) | 0.1 | 0.1 | 0.1 | 0.0 | -0.4 | -0.2 | -0.3 | -0.2 | 0.2 | 1.3 | 2.0 | -0.1 | 0.0 | 0.5 | 0.1 | 1.0 | 1.4 | 1.5 | 1.3 |
| DF | -2.9 | -2.5 | -0.4 | -0.6 | 2.0 | 1.7 | 2.6 | 1.2 | 3.1 | -1.5 | -1.1 | 0.6 | 1.5 | 1.7 | 0.6 | -0.5 | 0.2 | -8.0 | -2.0 |
| FeO\* | — | — | — | — | — | 2.73 | 2.39 | 3.11 | 3.06 | 15.57 | 16.72 | — | — | 3.60 | 4.10 | 13.36 | 12.80 | 14.52 | 15.43 |
| ASI | — | — | — | — | — | 1.17 | 1.19 | 1.23 | 0.93 | — | — | — | — | 1.29 | 1.24 | — | — | — | — |
| MALI | — | — | — | — | — | 7.10 | 8.21 | 7.23 | 5.32 | — | — | — | — | 6.22 | 6.16 | — | — | — | — |
| FeO\*/FeO+Mg  O | — | — | — | — | — | 0.81 | 0.77 | 0.75 | 0.79 | 0.69 | 0.74 | — | — | 0.78 | 0.74 | 0.68 | 0.66 | 0.54 | 0.69 |
| Na2O+K2O/Al2  O3 | 0.38 | 0.39 | 0.39 | 0.35 | 0.51 | 0.58 | 0.59 | 0.56 | 0.55 | 0.22 | 0.23 | 0.47 | 0.54 | 0.48 | 0.51 | 0.28 | 0.22 | 0.21 | 0.28 |
| Q | 41.5 | 41.4 | 34.0 | 27.8 | 36.0 | 32.7 | 28.4 | 31.3 | 31.9 | 15.4 | 18.5 | 32.7 | 23.6 | 34.4 | 31.6 | 15.0 | 21.6 | 20.0 | 17.0 |
| F | 21.2 | 21.6 | 22.8 | 17.4 | 46.7 | 52.9 | 57.0 | 50.6 | 58.7 | 18.1 | 22.6 | 38.9 | 52.4 | 45.4 | 46.5 | 23.0 | 16.9 | 15.0 | 23.2 |
| P | 30.7 | 28.7 | 28.8 | 43.0 | 16.2 | 10.6 | 11.6 | 13.9 | 2.6 | 37.4 | 28.8 | 24.8 | 15.5 | 15.5 | 16.0 | 33.6 | 31.2 | 29.6 | 28.0 |

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| Elements | U160  2 | U160  3 | U160  4 | U163  0 | U163  8 | U1627/  1 | U1627/  2 | U162  8 | U163  1 | U160  7 | U162  9 | U160  8 | U161  3 | U161  2 | U1618/  1 | U161  1 | U161  5 | U161  6 | U161  8 |
| Bekturgan series | | | | | | | | | | | | | | | | | | |
| Artashinskaya suite | | | | | | | | | | | Savinskaya suite | | | | | | | |
|  | para-rocks | | | | | orthorocks | | | | | | para-rocks | | orthorocks | | | | | |
| Pl | 15.8 | 16.2 | 16.2 | 12.3 | 41.3 | 33.4 | 37.1 | 31.2 | 49.3 | 18.1 | 22.6 | 29.8 | 32.6 | 47.0 | 32.6 | 23.0 | 16.9 | 15.0 | 23.2 |
| Or | 5.4 | 5.3 | 6.7 | 5.0 | 5.4 | 19.4 | 20.0 | 19.5 | 9.4 | 0.0 | 0.0 | 9.1 | 19.8 | -1.7 | 13.8 | 0.0 | 0.0 | 0.0 | 0.0 |
| ILL | 28.4 | 27.0 | 28.8 | 42.8 | 15.4 | 9.7 | 10.6 | 12.4 | 2.1 | 8.1 | 1.7 | 23.3 | 13.0 | 14.1 | 14.0 | 13.4 | 4.6 | 4.0 | 7.4 |
| MM | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| CHL | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 29.3 | 27.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.2 | 26.6 | 23.4 | 20.6 |
| SRP | 2.3 | 1.6 | 0.0 | 0.3 | 0.8 | 0.9 | 1.0 | 1.5 | 0.5 | 0.0 | 0.0 | 1.4 | 2.5 | 1.4 | 2.0 | 0.0 | 0.0 | 2.2 | 0.0 |
| Gt | 4.3 | 4.4 | 4.2 | 4.8 | 0.5 | 3.0 | 2.5 | 3.3 | 3.7 | 0.0 | 0.0 | 2.7 | 4.7 | 3.9 | 4.5 | 0.0 | 0.0 | 9.0 | 0.0 |
| PRL | 0.1 | 0.1 | 0.1 | 0.1 | 0.0 | 0.1 | 0.1 | 0.1 | 0.1 | 0.0 | 0.0 | 0.1 | 0.2 | 0.1 | 0.1 | 0.0 | 0.0 | 0.2 | 0.0 |
| Car | 1.3 | 3.0 | 9.0 | 6.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.3 | 26.1 | 28.0 | 0.0 | 2.8 | 0.0 | 0.5 | 23.9 | 28.3 | 24.2 | 22.5 |
| SM | 0.9 | 0.9 | 1.0 | 0.9 | 0.6 | 0.8 | 0.4 | 0.7 | 0.7 | 3.0 | 2.2 | 0.8 | 1.0 | 0.8 | 0.8 | 2.4 | 2.0 | 2.0 | 2.4 |
| Li | 22.4 | 23.3 | 20.9 | 43.8 | 14.9 | 8.3 | 9.5 | 14.1 | 8.2 | 30.8 | 13.7 | 34.8 | 33.7 | 39.7 | 18.4 | 48.5 | 7.8 | 15.0 | 23.5 |
| Be | 2.2 | 2.0 | 2.4 | 2.5 | 1.2 | 2.1 | 1.5 | 2.1 | 1.4 | 1.2 | 0.91 | 1.6 | 3.0 | 0.69 | 1.1 | 1.3 | 0.67 | 0.85 | 1.4 |
| Sc | 9.5 | 9.3 | 10.7 | 14.6 | 7.3 | 6.0 | 7.8 | 7.8 | 9.5 | 32.7 | 41.8 | 12.1 | 10.1 | 8.0 | 9.9 | 32.2 | 27.1 | 30.2 | 41.8 |
| V | 68.6 | 70.1 | 68.4 | 70.7 | 28.7 | 19.9 | 8.0 | 24.5 | 32.0 | 408 | 463 | 46.8 | 36.8 | 42.7 | 40.4 | 267 | 273 | 249 | 402 |
| Cr | 57.1 | 45.8 | 38.8 | 19.3 | 20.4 | 8.9 | 2.7 | 6.7 | 5.9 | 123 | 51.1 | 20.3 | 34.3 | 24.1 | 16.9 | 120 | 334 | 630 | 105 |
| Co | 8.2 | 7.3 | 11.9 | 5.4 | 0.26 | 3.0 | 2.9 | 3.6 | 3.3 | 37.5 | 45.1 | 2.2 | 5.8 | 1.8 | 5.2 | 27.6 | 38.8 | 62.9 | 43.7 |
| Ni | 27.8 | 27.8 | 35.0 | 16.0 | 4.9 | 9.5 | 5.4 | 8.4 | 7.3 | 52.8 | 37.1 | 4.2 | 34.3 | 6.3 | 9.9 | 53.0 | 111 | 261 | 45.8 |
| Cu | 13.3 | 12.4 | 15.7 | 26.8 | 2.4 | 2.3 | 2.4 | 6.3 | 3.9 | 122 | 139 | 3.2 | 3.5 | 3.8 | 5.8 | 57.2 | 85.8 | 106 | 94.0 |
| Zn | 51.1 | 64.0 | 67.0 | 277 | 27.9 | 67.7 | 75.0 | 69.0 | 57.6 | 120 | 126 | 53.9 | 89.2 | 54.5 | 54.8 | 105 | 74.6 | 107 | 114 |

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| Elements | U160  2 | U160  3 | U160  4 | U163  0 | U163  8 | U1627/  1 | U1627/  2 | U162  8 | U163  1 | U160  7 | U162  9 | U160  8 | U161  3 | U161  2 | U1618/  1 | U161  1 | U161  5 | U161  6 | U161  8 |
| Bekturgan series | | | | | | | | | | | | | | | | | | |
| Artashinskaya suite | | | | | | | | | | | Savinskaya suite | | | | | | | |
|  | para-rocks | | | | | orthorocks | | | | | | para-rocks | | orthorocks | | | | | |
| Ga | 13.4 | 13.9 | 14.7 | 18.8 | 11.1 | 11.8 | 13.3 | 16.5 | 13.4 | 20.7 | 21.3 | 14.8 | 18.1 | 11.6 | 13.1 | 18.8 | 19.8 | 16.9 | 20.6 |
| Rb | 103 | 107 | 111 | 109 | 45.9 | 86.9 | 92.0 | 126 | 33.9 | 13.4 | 3.0 | 80.7 | 108 | 20.4 | 70.2 | 25.5 | 12.7 | 15.0 | 18.1 |
| Sr | 41.5 | 85.4 | 141 | 234 | 70.3 | 27.8 | 45.9 | 76.6 | 91.8 | 465 | 214 | 51.3 | 214 | 81.0 | 77.6 | 374 | 454 | 139 | 354 |
| Y | 24.5 | 28.2 | 30.8 | 45.9 | 7.6 | 32.4 | 30.2 | 36.6 | 45.7 | 31.4 | 39.1 | 22.7 | 36.1 | 27.3 | 24.1 | 26.0 | 20.3 | 21.6 | 33.7 |
| Zr | 199 | 220 | 222 | 209 | 137 | 194 | 135 | 216 | 206 | 27.1 | 40.6 | 149 | 301 | 181 | 140 | 12.3 | 5.7 | 4.0 | 17.5 |
| Nb | 12.2 | 11.2 | 12.2 | 13.8 | 9.5 | 13.6 | 4.2 | 9.8 | 6.8 | 21.1 | 10.0 | 9.0 | 13.4 | 10.8 | 9.5 | 17.7 | 9.7 | 12.0 | 11.3 |
| Mo | 0.17 | 0.18 | 0.57 | 0.13 | 0.53 | 0.22 | 0.15 | 0.21 | 0.21 | 0.67 | 0.14 | 2.6 | 0.75 | 0.35 | 0.45 | 0.69 | 0.17 | 0.21 | 0.56 |
| Cs | 3.8 | 3.9 | 3.5 | 5.8 | 1.6 | 1.1 | 1.9 | 0.89 | 0.33 | 0.53 | 0.081 | 2.3 | 2.4 | 0.79 | 0.74 | 1.2 | 0.17 | 0.17 | 0.32 |
| Ba | 553 | 482 | 473 | 1824 | 702 | 756 | 854 | 931 | 343 | 206 | 21.7 | 729 | 1325 | 198 | 849 | 463 | 63.5 | 96.3 | 348 |
| La | 34.3 | 34.6 | 36.3 | 36.6 | 5.2 | 50.8 | 25.3 | 17.7 | 27.9 | 18.8 | 13.0 | 30.9 | 45.5 | 22.5 | 30.9 | 17.3 | 7.6 | 11.3 | 18.8 |
| Ce | 67.8 | 70.5 | 68.0 | 76.0 | 10.4 | 96.0 | 50.9 | 41.6 | 58.1 | 43.9 | 31.7 | 63.5 | 97.1 | 45.3 | 63.9 | 40.9 | 18.9 | 27.8 | 43.8 |
| Pr | 7.4 | 7.7 | 7.6 | 8.8 | 1.1 | 9.9 | 5.7 | 4.8 | 6.8 | 5.7 | 4.4 | 7.3 | 11.0 | 5.3 | 6.6 | 5.3 | 2.6 | 3.6 | 5.5 |
| Nd | 27.5 | 28.9 | 29.6 | 37.6 | 4.7 | 37.5 | 23.7 | 20.5 | 29.8 | 25.0 | 20.5 | 28.0 | 41.4 | 21.2 | 26.5 | 23.6 | 12.0 | 16.8 | 24.5 |
| Sm | 5.3 | 5.4 | 5.6 | 8.1 | 0.88 | 6.8 | 5.2 | 4.5 | 6.7 | 6.2 | 5.7 | 5.0 | 7.2 | 4.5 | 5.1 | 5.7 | 3.4 | 4.4 | 6.0 |
| Eu | 1.0 | 1.0 | 1.1 | 1.6 | 0.19 | 0.86 | 1.0 | 0.81 | 1.3 | 2.1 | 1.9 | 1.4 | 1.7 | 1.1 | 1.4 | 1.8 | 1.3 | 1.5 | 2.1 |
| Gd | 4.7 | 5.0 | 5.4 | 7.7 | 0.90 | 5.5 | 5.1 | 4.4 | 6.6 | 6.4 | 6.6 | 4.0 | 5.8 | 4.3 | 4.5 | 5.7 | 3.9 | 4.6 | 6.3 |
| Tb | 0.71 | 0.76 | 0.84 | 1.2 | 0.15 | 0.89 | 0.88 | 0.83 | 1.1 | 1.00 | 1.1 | 0.60 | 0.92 | 0.72 | 0.71 | 0.89 | 0.64 | 0.72 | 1.0 |
| Dy | 4.2 | 4.6 | 4.9 | 7.4 | 1.1 | 5.5 | 5.5 | 5.7 | 7.2 | 6.1 | 7.0 | 3.6 | 5.5 | 4.4 | 4.2 | 5.3 | 3.9 | 4.4 | 6.2 |
| Ho | 0.82 | 0.93 | 1.00 | 1.5 | 0.25 | 1.1 | 1.1 | 1.3 | 1.5 | 1.1 | 1.4 | 0.75 | 1.14 | 0.88 | 0.84 | 0.98 | 0.74 | 0.81 | 1.2 |

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| Elements | U160  2 | | U160  3 | | U160  4 | | U163  0 | | U163  8 | | U1627/  1 | | U1627/  2 | | U162  8 | | U163  1 | U160  7 | U162  9 | U160  8 | U161  3 | U161  2 | U1618/  1 | U161  1 | U161  5 | U161  6 | U161  8 |
| Bekturgan series | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Artashinskaya suite | | | | | | | | | | | | | | | | | | | Savinskaya suite | | | | | | | |
|  | para-rocks | | | | | | | | | | orthorocks | | | | | | | | | para-rocks | | orthorocks | | | | | |
| Er | 2.4 | | 2.8 | | 3.0 | | 4.7 | | 0.99 | | 3.6 | | 3.6 | | 4.1 | | 4.8 | 3.2 | 4.0 | 2.4 | 3.6 | 2.6 | 2.6 | 2.6 | 2.1 | 2.2 | 3.5 |
| Tm | 0.35 | | 0.40 | | 0.42 | | 0.67 | | 0.18 | | 0.54 | | 0.54 | | 0.62 | | 0.70 | 0.37 | 0.52 | 0.35 | 0.53 | 0.37 | 0.37 | 0.32 | 0.25 | 0.27 | 0.46 |
| Yb | 2.3 | | 2.8 | | 2.9 | | 4.3 | | 1.5 | | 3.6 | | 3.6 | | 4.3 | | 4.8 | 2.3 | 3.4 | 2.4 | 3.6 | 2.6 | 2.5 | 2.1 | 1.6 | 1.6 | 3.0 |
| Lu | 0.35 | | 0.39 | | 0.42 | | 0.62 | | 0.27 | | 0.54 | | 0.58 | | 0.64 | | 0.71 | 0.27 | 0.44 | 0.35 | 0.55 | 0.35 | 0.36 | 0.25 | 0.21 | 0.20 | 0.40 |
| Hf | 5.6 | | 6.3 | | 6.2 | | 5.3 | | 3.8 | | 5.8 | | 4.0 | | 6.1 | | 5.5 | 0.76 | 1.2 | 4.4 | 8.0 | 4.9 | 3.9 | 0.43 | 0.28 | 0.24 | 0.51 |
| Ta | 0.86 | | 0.85 | | 0.95 | | 0.81 | | 0.56 | | 0.76 | | 0.22 | | 0.60 | | 0.40 | 1.3 | 0.62 | 0.54 | 0.66 | 0.62 | 0.59 | 1.1 | 0.64 | 0.76 | 0.68 |
| Pb | 11.4 | | 34.1 | | 12.3 | | 228.7 | | 81.6 | | 24.5 | | 4.5 | | 4.7 | | 10.0 | 3.2 | 4.0 | 15.7 | 20.0 | 4.6 | 12.3 | 2.3 | 3.2 | 0.82 | 4.9 |
| Bi | 0.24 | | 0.18 | | 0.27 | | 0.10 | | 0.074 | | 0.12 | | 0.052 | | 0.12 | | 0.069 | 0.017 | 0.026 | 0.11 | 0.044 | 0.036 | 0.062 | < ПО | 0.088 | < ПО | 0.056 |
| Th | 16.9 | | 16.0 | | 16.2 | | 9.3 | | 8.2 | | 11.3 | | 3.3 | | 9.4 | | 5.9 | 1.7 | 1.3 | 8.0 | 9.6 | 5.8 | 7.0 | 1.5 | 0.77 | 1.1 | 1.9 |
| U | 2.2 | | 1.8 | | 2.9 | | 1.6 | | 1.7 | | 1.6 | | 0.85 | | 1.6 | | 1.3 | 0.56 | 0.27 | 3.9 | 1.6 | 1.7 | 1.2 | 0.44 | 0.17 | 0.27 | 0.44 |
| P | 567 | | 611 | | 829 | | 436 | | 175 | | 786 | | 393 | | 655 | | 393 | 1266 | 1135 | 480 | 480 | 436 | 567 | 1047 | 698 | 786 | 1440 |
| Ti | 3776 | | 3296 | | 3296 | | 4015 | | 3056 | | 2098 | | 1438 | | 2217 | | 2817 | 15881 | 11027 | 3176 | 4195 | 3176 | 3176 | 12525 | 11447 | 10967 | 11746 |
| K | 29552 | | 28555 | | 32457 | | 41422 | | 19507 | | 34615 | | 36192 | | 36690 | | 15025 | 6973 | 1494 | 30797 | 38268 | 8550 | 30216 | 11621 | 4067 | 3569 | 6558 |
| (La/Yb)n | 9.93 | | 8.43 | | 8.46 | | 5.72 | | 2.33 | | 9.59 | | 4.68 | | 2.77 | | 3.90 | 5.53 | 2.61 | 8.77 | 8.45 | 5.92 | 8.42 | 5.48 | 3.13 | 4.74 | 4.25 |
| Eu/Eu\* | 0.61 | | 0.59 | | 0.61 | | 0.63 | | 0.65 | | 0.43 | | 0.59 | | 0.56 | | 0.61 | 1.02 | 0.96 | 0.96 | 0.79 | 0.79 | 0.87 | 0.97 | 1.08 | 1.01 | 1.03 |
| (Gd/Yb)n | — | | — | | — | | — | | — | | — | | — | | — | | — | 2.26 | 1.60 | — | — | — | — | 2.16 | 1.95 | 2.33 | 1.70 |
| Th/U | 7.80 | | 9.04 | | 5.57 | | 5.96 | | 4.84 | | — | | — | | — | | — | — | — | 2.07 | 5.89 | — | — | — | — | — | — |
| Th/Sc | 1.78 | | 1.72 | | 1.52 | | 0.64 | | 1.12 | | — | | — | | — | | — | — | — | 0.66 | 0.95 | — | — | — | — | — | — |
| Component | | U1677 | | U1675 | | U1678/1 | | U1678 | | 23-09 | | 24-09 | | 25-09 | |  | | | | | | | | | | | |

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|  | Baladjezdy series | | | | | | |
| Kaikankarasu suite | | | | Urnek suite | | |
|  | para-rocks | orthorocks | | | para-rocks | | |
| SiO2 | 68.49 | 70.06 | 63.67 | 44.97 | 72.34 | 73.36 | 68.69 |
| TiO2 | 0.68 | 0.49 | 0.91 | 2.2 | 0.68 | 0.8 | 0.76 |
| Al2O3 | 13.1 | 14.06 | 14.42 | 14.32 | 12.55 | 11.45 | 13.4 |
| FeO | 1.5 | 0.67 | 1.66 | 8.16 | 3.24 | 3.42 | 3.44 |
| Fe2O3 | 3.04 | 2.65 | 4.84 | 6.18 | 0.95 | 1.69 | 2.15 |
| MnO | 0.14 | 0.1 | 0.18 | 0.28 | 0.03 | 0.05 | 0.07 |
| MgO | 1.35 | 1.13 | 1.72 | 8.13 | 2.13 | 1.87 | 2.17 |
| CaO | 2.07 | 3.11 | 3.45 | 8.31 | 0.5 | 0.71 | 1.4 |
| K2O | 4.99 | 3.3 | 3.68 | 0.22 | 3.1 | 2.37 | 2.96 |
| Na2O | 2.8 | 3.06 | 3.26 | 3.2 | 1.88 | 1.85 | 2.4 |
| P2O5 | 0.56 | 0.09 | 0.39 | 0.24 | 0.17 | 0.14 | 0.14 |
| П.п.п. | 1.11 | 1.21 | 1.61 | 3.27 | 2.38 | 2.44 | 2.36 |
| Сумма | 99.83 | 99.93 | 99.81 | 99.49 | 99.95 | 100.15 | 99.94 |
| K2O/Na2O | 1.78 | 1.08 | 1.13 | 0.07 | 1.65 | 1.28 | 1.23 |
| Na2O+K2O | 7.79 | 6.36 | 6.94 | 3.42 | 4.98 | 4.22 | 5.36 |
| CIA | 57.0 | 59.7 | 58.5 | 55.0 | 69.6 | 69.9 | 66.5 |
| log(SiO2/Al2O3) | 0.72 | 0.70 | 0.64 | 0.50 | 0.76 | 0.81 | 0.71 |
| Log(Fe2O3\*/K2O) | -0.07 | -0.03 | 0.21 | 1.79 | 0.12 | 0.32 | 0.26 |
| DF | 1.31 | 1.61 | 2.11 | -2.00 | -3.46 | -4.01 | -1.96 |
| FeO\* | — | 3.06 | 6.02 | 13.72 | — | — | — |

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| --- | --- | --- | --- | --- | --- | --- | --- |
| Component | U1677 | U1675 | U1678/1 | U1678 | 23-09 | 24-09 | 25-09 |
| Baladjezdy series | | | | | | |
| Kaikankarasu suite | | | | Urnek suite | | |
|  | para-rocks | orthorocks | | | para-rocks | | |
| ASI | — | 0.99 | 0.95 |  | — | — | — |
| MALI | — | 3.25 | 3.49 |  | — | — | — |
| FeO\*/FeO+MgO | — | 0.73 | 0.78 | 0.63 | — | — | — |
| Na2O+K2O/Al2O3 | 0.59 | 0.45 | 0.48 | 0.24 | 0.40 | 0.37 | 0.40 |
| Q | 30.0 | 34.9 | 26.4 | 12.8 | 44.76 | 38.25 | 48.94 |
| F | 49.9 | 36.1 | 41.2 | 27.4 | 22.2 | 26.54 | 18.68 |
| P | 10.5 | 18.9 | 17.0 | 36.1 | 27.89 | 25.92 | 25.45 |
| Pl | 25.9 | 27.7 | 29.5 | 27.4 | 17.42 | 22.32 | 17.37 |
| Or | 24.0 | 8.4 | 11.7 | 0.0 | 4.78 | 4.22 | 1.31 |
| ILL | 9.4 | 18.9 | 17.0 | 2.2 | 24.79 | 23.82 | 23.05 |
| MM | 0.0 | 0.0 | 0.0 | 0.0 | 0 | 0 | 0 |
| CHL | 0.0 | 0.0 | 0.0 | 33.9 | 0 | 0 | 0 |
| SRP | 1.1 | 0.0 | 0.0 | 0.0 | 3.1 | 2.1 | 2.4 |
| Gt | 4.8 | 0.0 | 5.8 | 0.0 | 4.01 | 5.55 | 5.11 |
| PRL | 0.2 | 0.0 | 0.2 | 0.0 | 0.04 | 0.09 | 0.06 |
| Car | 2.7 | 8.7 | 7.7 | 21.1 | 0 | 2.55 | 0.63 |
| SM | 2.0 | 0.7 | 1.8 | 2.5 | 1.1 | 1.09 | 1.13 |
| Li | 12.8 | 9.1 | 16.6 | 27.1 |  |  |  |
| Be | 1.8 | 1.9 | 2.3 | 1.5 | 1.8 | 2 | 3.3 |

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| Component | U1677 | U1675 | U1678/1 | U1678 | 23-09 | 24-09 | 25-09 |
| Baladjezdy series | | | | | | |
| Kaikankarasu suite | | | | Urnek suite | | |
|  | para-rocks | orthorocks | | | para-rocks | | |
| Sc | 13.1 | 8.4 | 11.5 | 33.4 | 13 | 13 | 19 |
| V | 57.8 | 31.0 | 85.3 | 291 | 87 | 86 | 140 |
| Cr | 8.8 | 5.3 | 3.0 | 256 | 69 | 77 | 86 |
| Co | 6.9 | 3.0 | 9.3 | 39.5 | 9.5 | 11 | 13 |
| Ni | 10.2 | 3.6 | 5.6 | 73.6 | 38 | 32 | 42 |
| Cu | 19.8 | 5.5 | 9.6 | 52.7 | 22 | 26 | 42 |
| Zn | 60.5 | 61.6 | 91.1 | 106 | 49 | 64 | 74 |
| Ga | 16.2 | 17.4 | 17.2 | 21.9 | — | — | — |
| Rb | 105 | 47.0 | 90.2 | 3.5 | 140 | 100 | 140 |
| Sr | 162 | 531 | 286 | 278 | 32 | 65 | 150 |
| Y | 43.9 | 38.8 | 51.3 | 22.9 | 30 | 37 | 31 |
| Zr | 133 | 170 | 192 | 14.4 | 240 | 340 | 220 |
| Nb | 4.9 | 6.9 | 6.4 | 15.7 | 13.2 | 13.0 | 11.4 |
| Mo | 0.39 | 0.16 | 0.64 | 0.17 | — | — | — |
| Cs | 1.1 | 0.34 | 1.9 | 0.054 | 2.9 | 3.2 | 5.1 |
| Ba | 992 | 486 | 876 | 22.2 | 558 | 417 | 565 |
| La | 31.3 | 30.7 | 44.9 | 15.9 | 44 | 35 | 36 |
| Ce | 49.2 | 62.6 | 82.6 | 34.7 | 91 | 68 | 54 |
| Pr | 6.7 | 6.9 | 8.9 | 4.5 | 9.2 | 8.1 | 8.5 |

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| Component | U1677 | U1675 | U1678/1 | U1678 | 23-09 | 24-09 | 25-09 |
| Baladjezdy series | | | | | | |
| Kaikankarasu suite | | | | Urnek suite | | |
|  | para-rocks | orthorocks | | | para-rocks | | |
| Nd | 29.9 | 29.8 | 38.2 | 19.5 | 35 | 30 | 30 |
| Sm | 6.5 | 6.4 | 7.8 | 4.7 | 7.1 | 5.5 | 5.9 |
| Eu | 1.6 | 1.4 | 1.9 | 1.7 | 1.43 | 1.02 | 1.13 |
| Gd | 7.0 | 6.4 | 8.1 | 4.9 | 5.6 | 5.5 | 5.7 |
| Tb | 1.1 | 1.1 | 1.4 | 0.75 | 0.85 | 0.93 | 0.78 |
| Dy | 6.6 | 6.8 | 8.2 | 4.4 | 5.2 | 5.4 | 4.8 |
| Ho | 1.3 | 1.4 | 1.7 | 0.82 | 1.04 | 1.07 | 0.94 |
| Er | 4.1 | 4.3 | 5.3 | 2.3 | 2.7 | 3.1 | 2.7 |
| Tm | 0.55 | 0.62 | 0.72 | 0.28 | 0.43 | 0.52 | 0.42 |
| Yb | 3.5 | 4.1 | 4.7 | 1.7 | 2.6 | 3.1 | 2.7 |
| Lu | 0.51 | 0.60 | 0.71 | 0.20 | 0.41 | 0.43 | 0.37 |
| Hf | 3.6 | 4.9 | 5.3 | 0.45 | 7.1 | 8.5 | 5.4 |
| Ta | 0.24 | 0.39 | 0.36 | 0.97 | 1.12 | 1.17 | 0.98 |
| Pb | 6.3 | 11.6 | 15.2 | 6.7 | — | — | — |
| Bi | 0.15 | 0.074 | 0.083 | 0.021 | — | — | — |
| Th | 3.3 | 5.6 | 3.3 | 1.5 | 18.9 | 22 | 14.7 |
| U | 0.78 | 1.2 | 1.0 | 0.48 | 1.48 | 1.89 | 1.77 |
| P | 2444 | 393 | 1702 | 1047 | 742 | 611 | 611 |
| Ti | 4075 | 2937 | 5454 | 13185 | 4075 | 4794 | 4555 |

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| Component | U1677 | U1675 | U1678/1 | U1678 | 23-09 | 24-09 | 25-09 |
| Baladjezdy series | | | | | | |
| Kaikankarasu suite | | | | Urnek suite | | |
|  | para-rocks | orthorocks | | | para-rocks | | |
| K | 41422 | 27393 | 30548 | 1826 | 25733 | 19673 | 24571 |
| (La/Yb)n | 6.00 | 5.06 | 6.49 | 6.39 | 9.93 | 8.43 | 8.46 |
| Eu/Eu\* | 0.74 | 0.66 | 1.08 | 0.72 | 0.69 | 0.57 | 0.60 |
| (Gd/Yb)n | — | — | — | 2.38 | — | — | — |
| Th/U | 4.21 | — | — | — | 12.77 | 11.45 | 8.28 |
| Th/Sc | 0.25 | — | — | — | 1.45 | 1.66 | 0.77 |