

Table 1. Zircon LA-ICP-MS U-Pb data of the metamorphic rocks from the north-eastern part of the Ereendavaa terrane.

| Spot | Th/ Ratio | Isotopic ratios | | | | | | Ages (Ma) | | | | | | Discordance |
|-------------------------|--------------|-----------------------------------|---------|----------------------------------|---------|----------------------------------|---------|-----------------------------------|----|----------------------------------|----|----------------------------------|----|-------------|
| | | $^{207}\text{Pb}/^{206}\text{Pb}$ | | $^{207}\text{Pb}/^{235}\text{U}$ | | $^{206}\text{Pb}/^{238}\text{U}$ | | $^{207}\text{Pb}/^{206}\text{Pb}$ | | $^{207}\text{Pb}/^{235}\text{U}$ | | $^{206}\text{Pb}/^{238}\text{U}$ | | |
| | | Ratio | 1σ | Ratio | 1σ | Ratio | 1σ | Age | 1σ | Age | 1σ | Age | 1σ | |
| Black schist sample 320 | | | | | | | | | | | | | | |
| 320-01 | 0.32 | 0.05916 | 0.00157 | 0.67401 | 0.01765 | 0.08278 | 0.00101 | 573 | 57 | 523 | 11 | 513 | 6 | 10 |
| 320-02 | 0.26 | 0.05871 | 0.00154 | 0.81445 | 0.02107 | 0.10078 | 0.00123 | 557 | 56 | 605 | 12 | 619 | 7 | -11 |
| 320-03 | 0.31 | 0.05974 | 0.00222 | 0.79297 | 0.02888 | 0.09644 | 0.00135 | 594 | 79 | 593 | 16 | 594 | 8 | 0 |
| 320-04 | 0.56 | 0.05606 | 0.00147 | 0.60541 | 0.0157 | 0.07847 | 0.00095 | 454 | 57 | 481 | 10 | 487 | 6 | -7 |
| 320-7 | 0.80 | 0.05305 | 0.00118 | 0.36624 | 0.00805 | 0.05015 | 0.00057 | 331 | 49 | 317 | 6 | 315 | 4 | 5 |
| 320-8 | 0.49 | 0.05713 | 0.00127 | 0.68419 | 0.01505 | 0.087 | 0.00101 | 496 | 49 | 529 | 9 | 538 | 6 | -8 |
| 320-9 | 0.53 | 0.05636 | 0.00182 | 0.66843 | 0.0212 | 0.08615 | 0.00112 | 466 | 70 | 520 | 13 | 533 | 7 | -14 |
| 320-10 | 0.26 | 0.0849 | 0.00146 | 1.91348 | 0.03289 | 0.16373 | 0.00186 | 1313 | 33 | 1086 | 11 | 978 | 10 | 26 |
| 320-11 | 0.28 | 0.07015 | 0.00132 | 1.36813 | 0.0256 | 0.14167 | 0.00162 | 933 | 38 | 875 | 11 | 854 | 9 | 8 |
| 320-12 | 0.69 | 0.05821 | 0.00118 | 0.68203 | 0.01375 | 0.08511 | 0.00097 | 537 | 44 | 528 | 8 | 527 | 6 | 2 |
| 320-13 | 0.63 | 0.05629 | 0.00131 | 0.60676 | 0.01396 | 0.07831 | 0.00091 | 463 | 51 | 482 | 9 | 486 | 5 | -5 |
| 320-14 | 1.28 | 0.05388 | 0.00176 | 0.47386 | 0.01522 | 0.06389 | 0.00082 | 366 | 72 | 394 | 10 | 399 | 5 | -9 |
| 320-15 | 1.20 | 0.05383 | 0.00163 | 0.3471 | 0.01035 | 0.04684 | 0.00058 | 364 | 67 | 303 | 8 | 295 | 4 | 19 |
| 320-16 | 0.77 | 0.05527 | 0.00158 | 0.37136 | 0.01048 | 0.0488 | 0.0006 | 423 | 62 | 321 | 8 | 307 | 4 | 27 |
| 320-17 | 1.32 | 0.05474 | 0.00201 | 0.49993 | 0.018 | 0.06634 | 0.00089 | 402 | 79 | 412 | 12 | 414 | 5 | -3 |
| 320-18 | 0.79 | 0.05487 | 0.00096 | 0.49794 | 0.00871 | 0.06592 | 0.00073 | 407 | 38 | 410 | 6 | 412 | 4 | -1 |
| 320-19 | 0.92 | 0.05897 | 0.00127 | 0.48566 | 0.01038 | 0.05982 | 0.00069 | 566 | 46 | 402 | 7 | 375 | 4 | 34 |
| 320-20 | 0.78 | 0.05243 | 0.00113 | 0.33865 | 0.00725 | 0.04692 | 0.00053 | 304 | 48 | 296 | 6 | 296 | 3 | 3 |
| 320-21 | 0.91 | 0.05759 | 0.00122 | 0.62707 | 0.01312 | 0.07909 | 0.0009 | 514 | 46 | 494 | 8 | 491 | 5 | 4 |
| 320-22 | 0.78 | 0.08341 | 0.00166 | 1.9115 | 0.03766 | 0.16645 | 0.00196 | 1279 | 38 | 1085 | 13 | 993 | 11 | 22 |
| 320-23 | 0.54 | 0.06045 | 0.00123 | 0.744 | 0.01506 | 0.08938 | 0.00102 | 620 | 43 | 565 | 9 | 552 | 6 | 11 |
| 320-24 | 0.66 | 0.46074 | 0.00527 | 6.31588 | 0.07239 | 0.09956 | 0.00109 | 4120 | 17 | 2021 | 10 | 612 | 6 | 85 |
| 320-25 | 0.94 | 0.05832 | 0.00209 | 0.69414 | 0.0244 | 0.08644 | 0.00118 | 541 | 77 | 535 | 15 | 535 | 7 | 1 |
| 320-26 | 0.39 | 0.05775 | 0.0011 | 0.67452 | 0.01283 | 0.08482 | 0.00095 | 520 | 42 | 524 | 8 | 525 | 6 | -1 |
| 320-27 | 0.57 | 0.06046 | 0.00142 | 0.70252 | 0.01632 | 0.08438 | 0.001 | 620 | 50 | 540 | 10 | 522 | 6 | 16 |
| 320-28 | 0.62 | 0.05936 | 0.00117 | 0.73791 | 0.01445 | 0.09027 | 0.00102 | 581 | 42 | 561 | 8 | 557 | 6 | 4 |
| 320-29 | 1.05 | 0.17412 | 0.00363 | 1.17784 | 0.02351 | 0.04913 | 0.00063 | 2598 | 34 | 790 | 11 | 309 | 4 | 88 |
| 320-30 | 0.17 | 0.05849 | 0.00105 | 0.69035 | 0.01234 | 0.08571 | 0.00095 | 548 | 39 | 533 | 7 | 530 | 6 | 3 |
| 320-31 | 0.95 | 0.05565 | 0.0016 | 0.56322 | 0.01599 | 0.07349 | 0.00091 | 438 | 63 | 454 | 10 | 457 | 5 | -4 |
| 320-32 | 1.64 | 0.06975 | 0.00162 | 1.46915 | 0.03383 | 0.15295 | 0.00185 | 921 | 47 | 918 | 14 | 918 | 10 | 0 |
| 320-33 | 0.84 | 0.05234 | 0.0011 | 0.33327 | 0.00692 | 0.04623 | 0.00052 | 300 | 47 | 292 | 5 | 291 | 3 | 3 |
| 320-34 | 0.16 | 0.11959 | 0.00134 | 3.48535 | 0.04015 | 0.21162 | 0.00225 | 1950 | 20 | 1524 | 9 | 1237 | 12 | 37 |
| 320-35 | 0.93 | 0.34428 | 0.00409 | 3.35391 | 0.03972 | 0.07074 | 0.00078 | 3682 | 18 | 1494 | 9 | 441 | 5 | 88 |
| 320-36 | 0.89 | 0.05801 | 0.0022 | 0.58239 | 0.02162 | 0.07289 | 0.00101 | 530 | 81 | 466 | 14 | 454 | 6 | 14 |
| 320-37 | 0.70 | 0.05207 | 0.00187 | 0.34037 | 0.012 | 0.04746 | 0.00062 | 289 | 80 | 298 | 9 | 299 | 4 | -4 |
| 320-39 | 0.66 | 0.06368 | 0.00181 | 1.07136 | 0.03006 | 0.12215 | 0.00155 | 731 | 59 | 739 | 15 | 743 | 9 | -2 |
| 320-40 | 1.31 | 0.10138 | 0.00175 | 4.01139 | 0.06909 | 0.28728 | 0.00336 | 1650 | 32 | 1637 | 14 | 1628 | 17 | 1 |
| 320-41 | 0.22 | 0.05722 | 0.00116 | 0.66508 | 0.01338 | 0.08439 | 0.00096 | 500 | 45 | 518 | 8 | 522 | 6 | -5 |
| 320-42 | 0.68 | 0.12944 | 0.0017 | 4.55219 | 0.06056 | 0.25533 | 0.00281 | 2090 | 23 | 1741 | 11 | 1466 | 14 | 30 |
| 320-43 | 0.71 | 0.11038 | 0.00251 | 4.8296 | 0.10914 | 0.31766 | 0.00421 | 1806 | 41 | 1790 | 19 | 1778 | 21 | 2 |
| 320-44 | 0.93 | 0.05309 | 0.00139 | 0.37077 | 0.00961 | 0.0507 | 0.0006 | 333 | 59 | 320 | 7 | 319 | 4 | 4 |
| 320-45 | 1.16 | 0.0916 | 0.00241 | 3.17605 | 0.08267 | 0.25173 | 0.00341 | 1459 | 49 | 1451 | 20 | 1447 | 18 | 1 |
| 320-46 | 0.55 | 0.06379 | 0.00091 | 0.76772 | 0.01102 | 0.08736 | 0.00094 | 735 | 30 | 579 | 6 | 540 | 6 | 27 |
| 320-47 | 0.68 | 0.05566 | 0.00223 | 0.56196 | 0.02212 | 0.07329 | 0.00104 | 439 | 87 | 453 | 14 | 456 | 6 | -4 |
| 320-48 | 0.74 | 0.05854 | 0.00208 | 0.73772 | 0.02578 | 0.09149 | 0.00124 | 550 | 76 | 561 | 15 | 564 | 7 | -3 |
| 320-49 | 2.20 | 0.11577 | 0.00175 | 5.38245 | 0.08208 | 0.33749 | 0.00386 | 1892 | 27 | 1882 | 13 | 1875 | 19 | 1 |
| 320-50 | 0.77 | 0.05291 | 0.00142 | 0.34224 | 0.00906 | 0.04696 | 0.00056 | 325 | 60 | 299 | 7 | 296 | 3 | 9 |
| 320-51 | 0.80 | 0.05228 | 0.00099 | 0.34054 | 0.00643 | 0.04728 | 0.00052 | 298 | 43 | 298 | 5 | 298 | 3 | 0 |
| 320-52 | 0.52 | 0.05545 | 0.00155 | 0.54738 | 0.01507 | 0.07166 | 0.00088 | 430 | 61 | 443 | 10 | 446 | 5 | -4 |
| 320-53 | 1.83 | 0.05608 | 0.00179 | 0.50976 | 0.01599 | 0.06598 | 0.00084 | 455 | 69 | 418 | 11 | 412 | 5 | 9 |
| 320-54 | 1.05 | 0.05585 | 0.00204 | 0.50845 | 0.01821 | 0.06608 | 0.00089 | 446 | 79 | 417 | 12 | 413 | 5 | 8 |
| 320-55 | 0.58 | 0.05723 | 0.00133 | 0.68389 | 0.01567 | 0.08674 | 0.00101 | 500 | 51 | 529 | 9 | 536 | 6 | -7 |
| 320-56 | 0.57 | 0.05145 | 0.00164 | 0.32776 | 0.0103 | 0.04623 | 0.00058 | 261 | 72 | 288 | 8 | 291 | 4 | -12 |
| 320-57 | 0.87 | 0.05798 | 0.0009 | 0.67318 | 0.01053 | 0.08427 | 0.00091 | 529 | 34 | 523 | 6 | 522 | 5 | 1 |
| 320-58 | 0.37 | 0.0581 | 0.00154 | 0.65085 | 0.01705 | 0.0813 | 0.00099 | 533 | 58 | 509 | 10 | 504 | 6 | 5 |
| 320-59 | 0.47 | 0.05769 | 0.0011 | 0.73047 | 0.01383 | 0.09189 | 0.00103 | 518 | 42 | 557 | 8 | 567 | 6 | -9 |
| 320-60 | 1.25 | 0.0523 | 0.00103 | 0.33961 | 0.00662 | 0.04713 | 0.00052 | 299 | 44 | 297 | 5 | 297 | 3 | 1 |
| 320-61 | 0.91 | 0.05509 | 0.00211 | 0.31601 | 0.01185 | 0.04163 | 0.00057 | 416 | 83 | 279 | 9 | 263 | 4 | 37 |
| 320-62 | 0.38 | 0.05787 | 0.00132 | 0.67321 | 0.01517 | 0.08443 | 0.00098 | 525 | 49 | 523 | 9 | 523 | 6 | 0 |
| 320-63 | 0.58 | 0.05363 | 0.00138 | 0.35475 | 0.00899 | 0.04801 | 0.00057 | 355 | 57 | 308 | 7 | 302 | 3 | 15 |

Table 2. Major and trace element composition of Early Permian mafic and felsic schists

| Sample | E6 | E7 | O42 | O40 | AO1 | 324/1 | 329 | 321 | AO2 | 323 | AO3 | 324 | 319 |
|----------------------------------|-------|-------|-------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Major oxides (wt %) | | | | | | | | | | | | | |
| SiO ₂ | 43.8 | 46.5 | 46.6 | 49.1 | 52.5 | 65.6 | 67.2 | 67.4 | 69.3 | 72.4 | 73.0 | 76.8 | 78.2 |
| TiO ₂ | 2.79 | 1.79 | 0.47 | 0.39 | 0.90 | 0.69 | 0.47 | 0.40 | 0.28 | 0.13 | 0.19 | 0.18 | 0.11 |
| Al ₂ O ₃ | 14.6 | 14.4 | 12.5 | 13.3 | 17.4 | 14.6 | 15.5 | 12.9 | 17.0 | 15.3 | 14.4 | 12.0 | 12.0 |
| Fe ₂ O ₃ T | 18.9 | 14.3 | 12.27 | 9.62 | 11.2 | 7.30 | 4.8 | 4.64 | 3.62 | 2.51 | 4.02 | 2.31 | 1.06 |
| MnO | 0.016 | 0.019 | 0.37 | 0.20 | 0.013 | 0.06 | 0.006 | 0.06 | 0.002 | 0.002 | 0.003 | 0.001 | 0.001 |
| MgO | 9.03 | 7.28 | 10.6 | 9.61 | 4.89 | 2.56 | 1.78 | 5.87 | 0.81 | 1.61 | 1.08 | 0.31 | 0.37 |
| CaO | 2.49 | 10.3 | 13.8 | 14.6 | 7.27 | 0.48 | 0.82 | 0.08 | 0.13 | 0.11 | 0.04 | 0.08 | 0.15 |
| Na ₂ O | 1.57 | 1.86 | 0.89 | 0.90 | 3.18 | 5.08 | 7.07 | 0.06 | 1.65 | 1.44 | 0.65 | 1.49 | 1.22 |
| K ₂ O | 0.02 | 0.05 | 0.62 | 0.42 | 0.64 | 0.25 | 0.39 | 2.79 | 4.53 | 3.78 | 3.77 | 4.99 | 4.07 |
| P ₂ O ₅ | 0.24 | 0.14 | 0.01 | 0.10 | 0.18 | 0.17 | 0.11 | 0.08 | 0.06 | 0.04 | 0.03 | 0.05 | 0.03 |
| L.O.I | 6.80 | 3.51 | 1.30 | 1.40 | 2.00 | 3.10 | 1.93 | 5.30 | 2.81 | 2.88 | 2.99 | 1.76 | 2.25 |
| Total | 100.3 | 100.2 | 99.5 | 99.6 | 100.2 | 99.9 | 100.1 | 99.6 | 100.2 | 100.1 | 100.2 | 99.9 | 99.5 |
| Na ₂ O+K | 1.59 | 1.91 | 1.51 | 1.32 | 3.82 | 5.33 | 7.46 | 2.85 | 6.18 | 5.22 | 4.42 | 6.48 | 5.29 |
| A/CNK | 2.05 | 0.66 | 0.46 | 0.47 | 0.91 | 1.54 | 1.14 | 3.95 | 2.17 | 2.29 | 2.76 | 1.50 | 1.80 |
| A/NK | 5.61 | 4.63 | 5.86 | 6.87 | 2.94 | 1.70 | 1.29 | 4.14 | 2.23 | 2.36 | 2.80 | 1.53 | 1.88 |
| Mg# | 49 | 50 | 63 | 66 | 46 | 41 | 42 | | 31 | 56 | 35 | 21 | 41 |
| Trace element (ppm) | | | | | | | | | | | | | |
| Sc | 31.3 | 25.2 | 4.00 | 4.05 | 0.54 | <1 | 10.6 | 12.9 | 17.0 | 15.0 | 11.8 | 9.33 | 9.87 |
| V | 256 | 177 | 6.00 | 14.0 | 2.62 | | 126 | 110 | 174 | 160 | 85.8 | 57.5 | 59.2 |
| Cr | 86.0 | 138 | 110 | 197 | 154 | | 22.9 | 29.3 | 70.0 | 140 | 79.2 | 51.5 | 66.4 |
| Co | 30.4 | 29.7 | 1.00 | 1.12 | 0.67 | 0.80 | 15.9 | 18.3 | 21.0 | 16.0 | 9.90 | 3.31 | 5.00 |
| Ni | 32.4 | 49.5 | < 20 | 5.82 | 6.64 | 0.80 | 22.6 | 6.13 | < 20 | < 20 | 24.0 | 4.19 | 5.69 |
| Cu | 31.8 | 29.2 | < 10 | 5.18 | 6.37 | 2.20 | 58.2 | 15.6 | 10.0 | 50.0 | 5.08 | 28.4 | 5.41 |
| Zn | 117 | 102 | 70.0 | 54.6 | 35.0 | 76.0 | 78.2 | 89.8 | 100 | 40.0 | 50.4 | 29.8 | 82.0 |
| Ga | 21.4 | 20.0 | 22.0 | 24.2 | 22.2 | 25.7 | 20.0 | 15.3 | 20.0 | 17.0 | 19.6 | 21.8 | 22.7 |
| Rb | 76.1 | 67.3 | 160 | 191 | 212 | 228 | 34.8 | 24.9 | 16.0 | 30.0 | 7.37 | 110 | 143 |
| Sr | 413 | 301 | 45.0 | 58.8 | 5.13 | 28.8 | 2109 | 383 | 707 | 678 | 566 | 575 | 667 |
| Y | 34.7 | 36.5 | 38.4 | 40.1 | 5.93 | 126 | 19.5 | 15.6 | 25.0 | 19.0 | 17.5 | 20.9 | 22.0 |
| Zr | 191 | 247 | 180 | 332 | 276 | 662 | 143 | 93.5 | 120 | 106 | 174 | 187 | 215 |
| Nb | 7.41 | 9.43 | 9.00 | 18.2 | 21.1 | 29.4 | 4.96 | 3.15 | 4.10 | 4.10 | 6.52 | 9.69 | 10.7 |
| Cs | 2.2 | 1.2 | 6.8 | 10.0 | 3.1 | 1.8 | 1.6 | 1.2 | 0.8 | 0.9 | 0.2 | 2.9 | 2.0 |
| Ba | 724 | 402 | 383 | 573 | 9.67 | 40.0 | 390 | 240 | 391 | 542 | 163 | 1014 | 1046 |
| La | 24.2 | 33.4 | 22.1 | 51.5 | 24.0 | 44.9 | 25.8 | 21.9 | 18.8 | 19.6 | 27.0 | 38.6 | 41.8 |
| Ce | 58.4 | 77.0 | 78.8 | 111 | 46.6 | 90.3 | 60.8 | 47.5 | 41.6 | 42.1 | 59.8 | 80.9 | 85.2 |
| Pr | 8.14 | 9.87 | 6.11 | 14.6 | 5.21 | 13.1 | 8.29 | 6.09 | 5.73 | 5.47 | 7.67 | 9.68 | 9.98 |
| Nd | 34.7 | 40.0 | 23.7 | 57.2 | 16.9 | 52.9 | 34.5 | 24.1 | 23.5 | 23.5 | 30.5 | 36.7 | 36.6 |
| Sm | 7.50 | 8.29 | 4.90 | 11.1 | 2.66 | 15.3 | 6.61 | 4.52 | 4.68 | 5.19 | 5.63 | 6.92 | 6.65 |
| Eu | 2.31 | 2.02 | 0.38 | 0.71 | 0.04 | 0.23 | 1.81 | 1.39 | 1.61 | 1.39 | 1.62 | 1.68 | 1.60 |
| Gd | 7.03 | 7.72 | 4.16 | 9.24 | 2.18 | 17.3 | 5.35 | 3.77 | 4.48 | 4.38 | 4.74 | 5.72 | 5.66 |
| Tb | 1.07 | 1.17 | 0.91 | 1.42 | 0.27 | 3.39 | 0.70 | 0.50 | 0.75 | 0.60 | 0.64 | 0.76 | 0.77 |
| Dy | 6.48 | 7.03 | 6.33 | 7.93 | 1.51 | 20.6 | 3.91 | 2.91 | 4.36 | 3.58 | 3.63 | 4.26 | 4.36 |
| Ho | 1.33 | 1.45 | 1.36 | 1.63 | 0.31 | 4.25 | 0.78 | 0.61 | 0.85 | 0.73 | 0.71 | 0.82 | 0.87 |
| Er | 3.59 | 3.99 | 4.06 | 4.64 | 0.90 | 13.0 | 2.10 | 1.73 | 2.53 | 2.25 | 1.89 | 2.21 | 2.38 |
| Tm | 0.51 | 0.58 | 0.65 | 0.67 | 0.15 | 2.01 | 0.31 | 0.27 | 0.40 | 0.34 | 0.27 | 0.32 | 0.35 |
| Yb | 3.22 | 3.73 | 4.41 | 4.44 | 0.99 | 13.0 | 2.04 | 1.81 | 2.81 | 2.24 | 1.78 | 2.04 | 2.27 |
| Lu | 0.48 | 0.57 | 0.66 | 0.67 | 0.15 | 1.90 | 0.32 | 0.30 | 0.46 | 0.34 | 0.27 | 0.31 | 0.35 |
| Hf | 4.60 | 6.00 | 5.50 | 10.7 | 9.90 | 20.8 | 3.75 | 2.65 | 3.10 | 2.70 | 4.78 | 5.18 | 5.88 |
| Ta | 0.45 | 0.53 | 0.85 | 1.11 | 1.48 | 1.90 | 0.35 | 0.23 | 0.19 | 0.26 | 0.40 | 0.75 | 0.79 |
| Pb | 5.69 | 7.28 | 9.00 | 15.6 | 35.8 | 27.9 | 24.1 | 6.07 | 5.00 | 6.00 | 7.69 | 13.0 | 20.3 |
| Th | 0.98 | 5.03 | 15.7 | 13.0 | 6.24 | 22.2 | 4.34 | 2.66 | 2.66 | 3.33 | 4.46 | 12.4 | 13.5 |
| U | 0.38 | 1.20 | 2.31 | 5.45 | 4.89 | 5.70 | 1.42 | 0.86 | 1.11 | 1.34 | 1.25 | 2.70 | 3.42 |
| Lan/Ybn | 1.24 | 1.68 | 3.68 | 3.44 | 4.13 | 2.22 | 3.94 | 3.92 | 9.14 | 2.58 | 9.64 | 10.76 | 8.26 |
| Lan/Smn | 0.65 | 1.03 | 2.69 | 3.18 | 2.44 | 2.12 | 2.86 | 3.00 | 4.91 | 2.90 | 4.42 | 4.77 | 4.71 |
| Eu/Eu* | 1.01 | 0.99 | 0.92 | 0.90 | 0.90 | 0.91 | 0.59 | 0.21 | 0.47 | 0.29 | 0.56 | 0.52 | 0.30 |
| Ba/Th | 30.7 | 45.9 | 43.6 | 27.7 | 232.8 | 59.3 | 56.0 | 283.9 | 87.7 | 145.2 | 43.3 | 77.0 | 54.9 |
| NB/U | 8.50 | 38.74 | 4.00 | 4.75 | 8.08 | 3.22 | 5.39 | 1.82 | 2.59 | 3.99 | 2.91 | 2.22 | 2.03 |
| Ce/Pb | 7.69 | 9.44 | 0.55 | 0.27 | 5.70 | 6.95 | 2.41 | 0.02 | 2.22 | 2.12 | 4.94 | 3.36 | 6.94 |
| Th/U | 0.62 | 3.30 | 2.00 | 3.25 | 2.81 | 1.56 | 3.48 | 1.50 | 5.27 | 2.70 | 6.47 | 4.27 | 4.08 |
| Ba/Cs | 50.6 | 267 | 76.3 | 16.4 | 144 | 104 | 188 | 625 | 703 | 310 | 306 | 890 | 494 |
| Rb/Cs | 6.59 | 11.77 | 5.38 | 3.86 | 8.86 | 11.25 | 10.21 | 44.2 | 49.41 | 34.68 | 40.36 | 75.54 | 69.44 |

Table 3. Major and trace element composition of Early Permian black schist and Middle Permian psammitic schists

| Samp+ | A04 | 320 | O35 | O36 | O37 | O38 | O42/1 | O37/2 | O38/1 | O43 | O45 | O37/3 | O46 | O47/1 | O46/1 | E5 | E2 | E4 | E3 |
|----------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Major oxides (wt %) | | | | | | | | | | | | | | | | | | | |
| SiO ₂ | 69.9 | 76.6 | 77.6 | 69.8 | 76.8 | 76.5 | 76.2 | 74.5 | 64.1 | 71.0 | 72.4 | 61.5 | 70.6 | 76.8 | 70.2 | 64.1 | 65.1 | 76.3 | 80.7 |
| TiO ₂ | 0.41 | 0.25 | 0.07 | 0.49 | 0.06 | 0.06 | 0.2 | 0.12 | 0.63 | 0.52 | 0.22 | 0.61 | 0.69 | 0.17 | 0.54 | 0.28 | 0.31 | 0.46 | 0.35 |
| Al ₂ O ₃ | 14.5 | 13.1 | 12.3 | 14.1 | 12.2 | 12.6 | 11.1 | 11.8 | 15.4 | 15.1 | 13.2 | 18.6 | 15.7 | 13.1 | 17.8 | 5.7 | 6.0 | 11.2 | 10.8 |
| Fe ₂ O ₃ T | 5.59 | 2.11 | 1.21 | 4.11 | 1.12 | 1.18 | 3.05 | 2.82 | 5.9 | 2.95 | 2.94 | 6.03 | 2.35 | 1.83 | 1.73 | 3.21 | 4.2 | 3.32 | 0.94 |
| MnO | 0.003 | 0.01 | 0.03 | 0.06 | 0.05 | 0.003 | 0.004 | 0.008 | 0.017 | 0.07 | 0.005 | 0.023 | 0.05 | 0.002 | 0.01 | 0.009 | 0.011 | 0.002 | 0.001 |
| MgO | 1.62 | 0.50 | 0.10 | 1.14 | 0.18 | 0.19 | 1.47 | 0.83 | 1.86 | 1.35 | 1.14 | 1.67 | 0.61 | 0.48 | 0.55 | 1.42 | 1.86 | 1.01 | 0.4 |
| CaO | 0.07 | 0.04 | 0.65 | 1.36 | 0.53 | 1.11 | 1.6 | 0.79 | 1.06 | 1.73 | 1.13 | 0.9 | 2.08 | 1.71 | 0.10 | 12.59 | 11.02 | 0.22 | 0.17 |
| Na ₂ O | 0.01 | 0.07 | 4.28 | 3.53 | 2.49 | 5.38 | 3.23 | 2.28 | 2.89 | 2.40 | 2.48 | 1.86 | 3.16 | 2.52 | 0.17 | 0.01 | 0.01 | 1.29 | 2.79 |
| K ₂ O | 4.25 | 4.29 | 2.94 | 4.10 | 5.54 | 1.18 | 1.54 | 4.61 | 5.93 | 3.08 | 5.09 | 6.6 | 2.88 | 1.98 | 5.57 | 1.42 | 1.26 | 2.8 | 2.31 |
| P ₂ O ₅ | 0.13 | 0.03 | 0.02 | 0.05 | 0.03 | 0.03 | 0.01 | 0.03 | 0.39 | 0.14 | 0.04 | 0.15 | 0.10 | 0.03 | 0.07 | 0.1 | 0.17 | 0.08 | 0.01 |
| L.OI | 3.92 | 2.9 | 0.6 | 1.2 | 0.8 | 0.7 | 1.89 | 0.93 | 1.49 | 1.4 | 0.9 | 2.07 | 1.6 | 1.26 | 3.1 | 11.41 | 10.49 | 3.33 | 1.64 |
| Total | 100 | 99.8 | 99.8 | 99.9 | 99.8 | 98.8 | 100 | 98.7 | 99.7 | 99.7 | 99.6 | 100 | 99.8 | 99.9 | 99.8 | 100 | 100 | 99.9 | 100 |
| CIA | 76.6 | 73.3 | 52.0 | 52.8 | 52.6 | 51.0 | 53.0 | 53.9 | 55.9 | 59.9 | 53.4 | 61.8 | 56.9 | 58.4 | 73.4 | 19.0 | 22.1 | 67.5 | 59.3 |
| ICV | 0.87 | 0.59 | 1.02 | 1.34 | 1.01 | 1.07 | 1.42 | 1.20 | 1.39 | 1.07 | 1.25 | 1.10 | 1.01 | 0.91 | 0.54 | 5.31 | 4.84 | 0.95 | 0.88 |
| Trace elements, ppm | | | | | | | | | | | | | | | | | | | |
| Sc | 6.95 | 7.00 | 2.00 | 9.00 | 3.00 | 3.45 | 8.71 | 4.09 | 15.4 | 6.00 | 5.19 | 17.1 | 6.00 | 6.68 | 8.00 | 6.24 | 7.27 | 11.0 | 6.89 |
| V | 99.55 | 45.0 | 7.00 | 55.0 | 7.00 | 4.92 | 33.1 | 17.8 | 75.6 | 34.0 | 13.2 | 61.9 | 54.0 | 6.36 | 54.0 | 35.6 | 49.2 | 92.7 | 31.0 |
| Cr | 51.81 | 0.01 | 0.009 | 0.014 | 0.007 | 112 | 345 | 91.2 | 100 | 0.01 | 61.6 | 82.5 | 0.02 | 157 | 0.01 | 62.7 | 116 | 142 | 73.8 |
| Co | 5.62 | 0.7 | 1.1 | 4.8 | 1.3 | 0.92 | 5.08 | 3.48 | 8.35 | 2.8 | 1.87 | 8.43 | 3.6 | 0.98 | 2.8 | 6.74 | 6.38 | 10.4 | 0.82 |
| Ni | 16.3 | <20 | <20 | <20 | <20 | 2.78 | 10.5 | 9.72 | 7.56 | <20 | 2.32 | 12.0 | <20 | 4.05 | <20 | 17.8 | 22.0 | 17.2 | 6.65 |
| Cu | 5.80 | 9.80 | 4.30 | 4.20 | 42.2 | 11.8 | 56.7 | 57.3 | 5.92 | 9.10 | 64.2 | 5.55 | 3.30 | 11.8 | 2.90 | 15.5 | 16.4 | 15.8 | 3.84 |
| Zn | 122 | 9.00 | 20.0 | 72.0 | 190 | 49.0 | 53.4 | 201 | 216 | 44.0 | 53.0 | 332 | 32.0 | 45.9 | 9.00 | 45.8 | 49.6 | 82.5 | 28.7 |
| Ga | 12.5 | 20.1 | 12.2 | 14.2 | 9.5 | 7.79 | 8.06 | 12.1 | 19.2 | 18.4 | 10.8 | 22.7 | 14.2 | 12.9 | 18.2 | 6.03 | 7.12 | 17.9 | 11.8 |
| Rb | 100 | 171 | 63.6 | 120 | 123 | 21.6 | 57.1 | 86.2 | 146 | 117 | 93.0 | 210 | 103 | 50.6 | 174 | 39.3 | 36.9 | 100 | 72.6 |
| Sr | 16.4 | 18.2 | 130 | 220 | 126 | 112 | 117 | 78.1 | 106 | 234 | 176 | 75.8 | 213 | 155 | 18.1 | 175 | 330.5 | 92.0 | 76.5 |
| Y | 21.7 | 25.5 | 25.5 | 27.3 | 32.5 | 23.5 | 21.6 | 21.5 | 33.0 | 26.2 | 21.7 | 39.9 | 19.6 | 15.7 | 13.5 | 15.8 | 19.2 | 25.3 | 15.7 |
| Zr | 122 | 153 | 101 | 185 | 89.6 | 67.2 | 127 | 86.2 | 206 | 302 | 183 | 215 | 175 | 138 | 272 | 36.7 | 79.7 | 178 | 135 |
| Nb | 7.95 | 8.80 | 10.5 | 8.00 | 8.90 | 7.76 | 4.60 | 7.13 | 10.5 | 14.0 | 8.53 | 14.87 | 9.80 | 6.65 | 14.7 | 3.37 | 4.09 | 9.79 | 6.27 |
| Cs | 4.22 | 4.10 | 4.00 | 8.10 | 0.90 | 1.29 | 22.54 | 3.59 | 22.8 | 21.3 | 5.03 | 9.38 | 7.60 | 2.90 | 4.90 | 2.17 | 2.27 | 5.37 | 5.79 |
| Ba | 470 | 737 | 1145 | 451 | 934 | 559 | 349 | 689 | 1079 | 1323 | 672 | 1121 | 563 | 941 | 813 | 230 | 271 | 818 | 368 |
| La | 25.5 | 27.6 | 12.3 | 35.0 | 15.9 | 9.95 | 16.0 | 9.63 | 31.3 | 72.0 | 18.0 | 35.4 | 41.5 | 22.9 | 3.90 | 17.2 | 13.7 | 40.5 | 14.1 |
| Ce | 50.8 | 52.9 | 40.5 | 72.0 | 39.1 | 28.1 | 46.0 | 20.4 | 61.8 | 130 | 49.0 | 68.4 | 81.3 | 44.2 | 45.5 | 33.3 | 27.5 | 79.3 | 30.6 |
| Pr | 5.88 | 6.24 | 3.03 | 8.42 | 3.28 | 2.34 | 4.02 | 2.33 | 7.14 | 14.2 | 4.52 | 8.15 | 8.20 | 4.67 | 0.95 | 4.08 | 3.27 | 9.59 | 3.71 |
| Nd | 22.4 | 21.8 | 10.6 | 31.8 | 11.4 | 8.56 | 14.1 | 8.70 | 27.2 | 52.2 | 17.3 | 31.2 | 31.2 | 16.7 | 3.40 | 15.8 | 13.2 | 36.5 | 14.0 |
| Sm | 4.24 | 4.69 | 2.29 | 6.16 | 2.88 | 2.14 | 3.06 | 2.07 | 5.33 | 8.49 | 3.35 | 6.22 | 4.76 | 3.14 | 0.71 | 3.11 | 2.76 | 6.71 | 2.80 |
| Eu | 0.77 | 0.66 | 0.38 | 1.40 | 0.29 | 0.26 | 0.62 | 0.39 | 0.93 | 1.24 | 0.74 | 0.71 | 1.28 | 0.67 | 0.13 | 0.70 | 0.69 | 1.28 | 0.57 |
| Gd | 3.92 | 4.23 | 2.42 | 5.43 | 3.34 | 2.58 | 2.90 | 2.36 | 5.13 | 7.07 | 3.17 | 6.09 | 4.31 | 2.98 | 1.14 | 2.83 | 2.88 | 5.75 | 2.53 |
| Tb | 0.61 | 0.67 | 0.51 | 0.83 | 0.72 | 0.52 | 0.53 | 0.48 | 0.85 | 0.95 | 0.54 | 1.01 | 0.64 | 0.47 | 0.28 | 0.44 | 0.49 | 0.85 | 0.44 |
| Dy | 3.50 | 4.32 | 3.49 | 4.62 | 4.61 | 3.51 | 3.49 | 3.18 | 5.24 | 4.84 | 3.51 | 6.16 | 3.64 | 2.75 | 2.03 | 2.60 | 2.99 | 4.57 | 2.69 |
| Ho | 0.76 | 0.92 | 0.90 | 1.03 | 1.20 | 0.79 | 0.80 | 0.76 | 1.17 | 0.91 | 0.82 | 1.37 | 0.83 | 0.57 | 0.50 | 0.57 | 0.68 | 0.92 | 0.59 |
| Er | 2.24 | 2.87 | 2.87 | 3.36 | 4.01 | 2.41 | 2.36 | 2.29 | 3.36 | 2.87 | 2.54 | 4.03 | 2.39 | 1.60 | 1.88 | 1.69 | 2.07 | 2.51 | 1.65 |
| Tm | 0.34 | 0.42 | 0.47 | 0.45 | 0.57 | 0.38 | 0.36 | 0.38 | 0.50 | 0.42 | 0.41 | 0.64 | 0.32 | 0.25 | 0.36 | 0.27 | 0.32 | 0.38 | 0.25 |
| Yb | 2.37 | 2.99 | 3.73 | 3.54 | 4.08 | 2.54 | 2.32 | 2.58 | 3.36 | 2.57 | 2.78 | 4.27 | 2.09 | 1.73 | 2.78 | 1.88 | 2.22 | 2.49 | 1.71 |
| Lu | 0.38 | 0.44 | 0.55 | 0.52 | 0.63 | 0.41 | 0.37 | 0.42 | 0.54 | 0.36 | 0.44 | 0.65 | 0.26 | 0.28 | 0.52 | 0.30 | 0.37 | 0.39 | 0.27 |
| Hf | 3.72 | 4.30 | 4.40 | 5.00 | 3.50 | 2.65 | 3.86 | 3.41 | 5.88 | 7.80 | 5.11 | 6.23 | 4.20 | 3.84 | 7.40 | 1.03 | 2.15 | 5.13 | 3.95 |
| Ta | 0.55 | 0.70 | 1.10 | 0.60 | 0.80 | 0.62 | 0.40 | 0.46 | 0.78 | 0.90 | 0.61 | 1.39 | 0.50 | 0.53 | 1.00 | 0.18 | 0.27 | 0.68 | 0.46 |
| Pb | 90.8 | 23.5 | 1.40 | 1.60 | 45.80 | 54.6 | 38.7 | 594 | 70.3 | 3.50 | 58.7 | 82.6 | 5.80 | 8.41 | 2.70 | 14.6 | 14.2 | 20.7 | 9.74 |
| Th | 8.95 | 12.00 | 13.7 | 11.1 | 12.7 | 9.16 | 8.68 | 8.94 | 10.1 | 28.2 | 8.70 | 12.3 | 7.20 | 10.1 | 9.90 | 2.96 | 3.24 | 9.60 | 6.56 |
| U | 1.85 | 5.20 | 3.80 | 2.40 | 2.90 | 2.02 | 1.70 | 1.95 | 2.16 | 8.20 | 2.77 | 2.57 | 1.90 | 2.61 | 2.60 | 0.86 | 0.58 | 5.09 | 1.83 |
| Eu/Eu* | 0.58 | 0.45 | 0.49 | 0.74 | 0.29 | 0.33 | 0.63 | 0.54 | 0.54 | 0.49 | 0.69 | 0.35 | 0.86 | 0.67 | 0.44 | 0.72 | 0.75 | 0.63 | 0.66 |
| Lan/Ybn | 7.73 | 6.62 | 2.37 | 7.09 | 2.80 | 2.80 | 4.94 | 2.68 | 6.67 | 20.10 | 4.63 | 5.95 | 14.24 | 9.49 | 1.01 | 6.57 | 4.43 | 11.69 | 5.93 |
| Lan/Sm | 3.88 | 3.80 | 3.47 | 3.67 | 3.56 | 3.00 | 3.36 | 3.01 | 3.79 | 5.47 | 3.46 | 3.68 | 5.63 | 4.71 | 3.55 | 3.58 | 3.20 | 3.90 | 3.25 |