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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Supplementary Table 1. Major (wt. %) and trace (ppm) elements data of the Early Cretaceous igneous rocks from the Erlian Basin. | | | | | | | | | | | | | | | | | | | | |
|  | Basic-intermediate volcanic rocks | | | | | | | Intermediate-felsic volcanic rocks | | | | | | | | dikes | | | Standard analysed | |
| sample | NM14-13 | NM14-14 | NM14-15 | NM14-16 | NM14-17 | NM14-18 | NM14-19 | NM14-04 | NM14-05 | NM14-06 | NM14-07 | NM14-08 | NM14-09 | NM14-10 | NM12-187 | NM14-44 | NM14-45 | NM16-26 | Measured | Recommended |
| Major elements (wt.%) | | | | | | | | | | | | | | | | | | | | |
| SiO2 | 56.94 | 55.94 | 54.46 | 49.96 | 53.93 | 58.2 | 58.34 | 66.3 | 66.44 | 65.67 | 64.38 | 58.26 | 58.99 | 64.38 | 80.28 | 65.77 | 67.2 | 58.45 | 60.85 | 60.62 |
| TiO2 | 0.776 | 0.787 | 0.718 | 0.715 | 0.751 | 0.71 | 0.651 | 1.312 | 1.321 | 1.227 | 1.188 | 1.234 | 1.243 | 1.325 | 0.09 | 0.908 | 0.832 | 1.285 | 0.50 | 0.52 |
| Al2O3 | 13.76 | 14.33 | 13.36 | 13.42 | 12.92 | 14.12 | 14.8 | 13.1 | 13.13 | 15.22 | 12.3 | 15.46 | 15.86 | 14.86 | 10.21 | 13.12 | 13.44 | 15.45 | 16.16 | 16.17 |
| Fe2O3 | 7.76 | 7.48 | 7.33 | 8.11 | 7.5 | 7.51 | 6.69 | 4.41 | 4.55 | 3.94 | 5.49 | 5.68 | 5.71 | 4.61 | 0.25 | 5.96 | 4.95 | 6.54 | 4.85 | 4.90 |
| MnO | 0.092 | 0.087 | 0.11 | 0.184 | 0.102 | 0.092 | 0.085 | 0.029 | 0.028 | 0.028 | 0.079 | 0.07 | 0.081 | 0.038 | 0.00 | 0.114 | 0.151 | 0.084 | 0.08 | 0.08 |
| MgO | 4.29 | 3.74 | 4.09 | 2.44 | 4.4 | 3.02 | 1.94 | 0.83 | 0.89 | 1.18 | 1.48 | 2.97 | 3.13 | 1.72 | 0.04 | 1.14 | 1.35 | 2.66 | 1.72 | 1.72 |
| CaO | 4.93 | 5.32 | 6.45 | 13.44 | 7 | 5.22 | 9.13 | 3.61 | 3.68 | 3.48 | 4.64 | 4.45 | 4.75 | 3.73 | 0.10 | 5.72 | 3.8 | 3.44 | 5.24 | 5.20 |
| Na2O | 3.67 | 3.95 | 3.81 | 4.57 | 3.47 | 4.12 | 4.52 | 4.17 | 3.77 | 4.04 | 2.9 | 4.3 | 4.16 | 4.11 | 0.83 | 4.19 | 4.71 | 4.1 | 3.86 | 3.86 |
| K2O | 0.37 | 0.65 | 1.26 | 0.14 | 1.14 | 2.37 | 0.8 | 4.4 | 4.39 | 3.65 | 2.37 | 1.66 | 1.9 | 3.31 | 6.97 | 1.28 | 1.68 | 3.48 | 1.89 | 1.89 |
| P2O5 | 0.141 | 0.15 | 0.136 | 0.15 | 0.159 | 0.171 | 0.141 | 0.635 | 0.646 | 0.591 | 0.574 | 0.522 | 0.558 | 0.644 | 0.02 | 0.329 | 0.283 | 0.64 | 0.24 | 0.24 |
| LOI | 7.15 | 7.44 | 8.14 | 6.74 | 8.52 | 4.31 | 2.79 | 0.95 | 0.91 | 0.78 | 3.35 | 5.21 | 3.44 | 1.11 | 1.05 | 1.36 | 1.41 | 3.57 | 4.44 | 4.44 |
| Total | 99.88 | 99.86 | 99.87 | 99.87 | 99.89 | 99.83 | 99.88 | 99.75 | 99.75 | 99.8 | 99.75 | 99.82 | 99.82 | 99.83 | 99.84 | 99.88 | 99.81 | 99.71 | 99.84 | 99.63 |
| Mg# | 53.37 | 50.86 | 53.60 | 38.38 | 54.84 | 45.43 | 37.51 | 28.04 | 28.82 | 38.27 | 43.32 | 51.98 | 53.20 | 43.58 | 24.88 | 28.36 | 36.08 | 45.71 | - | - |
| Trace elements (ppm) | | | | | | | | | | | | | | | | | | | | |
| V | 215 | 201 | 186 | 214 | 178 | 152 | 137 | 106 | 112 | 96.8 | 99.7 | 104 | 103 | 107 | 16.00 | 86 | 79.9 | 117 | 94.00 | 98.54 |
| Go | 25.98 | 24.31 | 24.24 | 22.82 | 25.26 | 21.36 | 17.85 | 11.15 | 11.21 | 8.03 | 14.87 | 12.85 | 12.86 | 10.70 | 0.35 | 7.63 | 7.58 | 16.80 | 12.72 | 13.20 |
| Sc | 24.4 | 24.6 | 25.4 | 31.6 | 23.8 | 19.3 | 19.7 | 12.8 | 12 | 9.57 | 12 | 11.9 | 11.8 | 8.54 | 2.44 | 18.5 | 13.5 | 11 | 9.50 | 8.89 |
| Cu | 26.9 | 7.37 | 54.6 | 38.2 | 43.9 | 40.1 | 97.3 | 13.1 | 11.5 | 10.8 | 13.9 | 16.6 | 16.6 | 11.5 | 3.74 | 4.6 | 93.1 | 15.3 | 55.00 | 57.83 |
| Ga | 15.7 | 15.3 | 15.4 | 16.5 | 16 | 16.5 | 17.7 | 22 | 22.3 | 20.9 | 19.9 | 19.5 | 20 | 21.5 | 19.10 | 19.8 | 18 | 22.4 | 18.10 | 17.10 |
| Rb | 12.8 | 17.8 | 40.8 | 4.15 | 43.9 | 56.1 | 15.9 | 166 | 175 | 164 | 139 | 176 | 117 | 167 | 401.00 | 14 | 33.6 | 117 | 38.00 | 37.90 |
| Sr | 529 | 550 | 393 | 857 | 354 | 599 | 585 | 828 | 826 | 791 | 858 | 992 | 845 | 778 | 67 | 702 | 589 | 796 | 790 | 783 |
| Y | 15.3 | 14.8 | 13.3 | 16.2 | 13.1 | 13.6 | 14.9 | 20.3 | 20.9 | 19.5 | 25.6 | 21.2 | 25.7 | 20.2 | 23.20 | 31.1 | 28.5 | 22.9 | 9.30 | 7.79 |
| Zr | 88 | 87 | 86 | 70 | 99 | 98 | 99 | 394 | 394 | 359 | 363 | 354 | 345 | 375 | 111 | 189 | 196 | 438 | 99 | 95 |
| Nb | 6.2 | 4.35 | 4.32 | 3.35 | 5.04 | 5.24 | 4.74 | 29.7 | 30.4 | 27.1 | 27.7 | 27.1 | 25.5 | 28 | 14.50 | 6.25 | 6.45 | 24.9 | 6.80 | 5.72 |
| Ba | 322 | 402 | 303 | 128 | 204 | 651 | 317 | 1449 | 1441 | 1354 | 1320 | 1134 | 1275 | 1371 | 182.00 | 467 | 834 | 1353 | 1020.00 | 1019.30 |
| La | 11.1 | 10.6 | 10.9 | 11 | 13.3 | 14.4 | 13.2 | 76.1 | 78 | 71.7 | 74.6 | 70.5 | 77.2 | 76.8 | 44.70 | 19.5 | 21.4 | 75 | 22.00 | 19.63 |
| Ce | 25 | 24 | 25.5 | 24.9 | 30.8 | 29.7 | 29.4 | 153 | 158 | 145 | 150 | 142 | 150 | 151 | 66.60 | 46 | 50.8 | 151 | 40.00 | 38.31 |
| Pr | 2.5 | 2.38 | 2.62 | 2.67 | 3.12 | 2.86 | 3.19 | 17.3 | 17.8 | 16.3 | 17.1 | 16.3 | 17.2 | 17.6 | 11.90 | 5.67 | 5.87 | 17.4 | 4.90 | 3.87 |
| Nd | 11 | 10.3 | 11.3 | 11.6 | 12.7 | 11.8 | 13.2 | 62.1 | 62.8 | 57.9 | 61.5 | 58.6 | 60.6 | 61.9 | 34.40 | 24.7 | 24.7 | 65.1 | 19.00 | 15.47 |
| Sm | 2.62 | 2.51 | 2.65 | 2.81 | 2.79 | 2.73 | 2.78 | 9.45 | 9.73 | 8.96 | 9.62 | 9.25 | 9.69 | 9.64 | 6.08 | 5.69 | 5.59 | 9.7 | 3.40 | 2.91 |
| Eu | 0.81 | 0.76 | 0.92 | 0.9 | 0.87 | 0.97 | 0.91 | 2.53 | 2.57 | 2.41 | 2.4 | 2.27 | 2.41 | 2.45 | 0.34 | 1.78 | 1.73 | 2.39 | 1.02 | 1.11 |
| Gd | 2.77 | 2.65 | 2.67 | 2.95 | 2.72 | 2.75 | 2.84 | 7.82 | 8.08 | 7.51 | 8.25 | 7.7 | 8.3 | 7.94 | 5.74 | 5.73 | 5.42 | 8.43 | 2.70 | 2.54 |
| Tb | 0.45 | 0.42 | 0.42 | 0.46 | 0.42 | 0.43 | 0.45 | 0.91 | 0.95 | 0.88 | 1.03 | 0.94 | 1.03 | 0.94 | 0.96 | 0.93 | 0.86 | 1 | 0.41 | 0.32 |
| Dy | 2.63 | 2.51 | 2.45 | 2.7 | 2.35 | 2.44 | 2.61 | 4.08 | 4.25 | 3.95 | 4.85 | 4.35 | 4.86 | 4.23 | 4.97 | 5.42 | 4.85 | 4.61 | 1.85 | 1.52 |
| Ho | 0.58 | 0.56 | 0.53 | 0.59 | 0.51 | 0.53 | 0.56 | 0.74 | 0.77 | 0.7 | 0.92 | 0.79 | 0.91 | 0.76 | 0.85 | 1.15 | 1.02 | 0.84 | 0.34 | 0.29 |
| Er | 1.68 | 1.62 | 1.53 | 1.68 | 1.45 | 1.55 | 1.63 | 1.84 | 1.94 | 1.78 | 2.4 | 2.06 | 2.41 | 1.92 | 2.71 | 3.31 | 2.93 | 2.12 | 0.85 | 0.77 |
| Tm | 0.27 | 0.25 | 0.24 | 0.26 | 0.22 | 0.24 | 0.26 | 0.27 | 0.28 | 0.26 | 0.36 | 0.31 | 0.36 | 0.28 | 0.44 | 0.51 | 0.45 | 0.31 | 0.15 | 0.11 |
| Yb | 1.69 | 1.61 | 1.56 | 1.64 | 1.43 | 1.57 | 1.66 | 1.62 | 1.69 | 1.54 | 2.25 | 1.91 | 2.18 | 1.67 | 2.90 | 3.32 | 2.9 | 1.93 | 0.89 | 0.71 |
| Lu | 0.26 | 0.25 | 0.24 | 0.25 | 0.22 | 0.25 | 0.26 | 0.23 | 0.25 | 0.23 | 0.34 | 0.28 | 0.33 | 0.24 | 0.41 | 0.52 | 0.46 | 0.28 | 0.12 | 0.11 |
| Hf | 2.42 | 2.39 | 2.34 | 1.96 | 2.67 | 2.68 | 2.62 | 9.3 | 9.4 | 8.74 | 8.55 | 8.33 | 8.26 | 8.95 | 4.05 | 4.87 | 5.07 | 9.81 | 2.90 | 2.56 |
| Ta | 0.91 | 0.41 | 0.45 | 0.26 | 0.38 | 0.63 | 0.38 | 1.72 | 1.83 | 1.64 | 1.73 | 1.93 | 1.6 | 1.72 | 1.09 | 0.57 | 0.35 | 1.44 | 0.40 | 0.38 |
| Th | 3.16 | 3.01 | 3.03 | 2.38 | 3.69 | 3.69 | 3.71 | 20.8 | 21.1 | 18.9 | 18.2 | 17.9 | 22.5 | 19.7 | 14.00 | 2.61 | 3.37 | 13.7 | 2.60 | 2.34 |
| U | 1.09 | 1.06 | 1.35 | 0.57 | 1.25 | 0.84 | 1.06 | 4.1 | 4.29 | 4.16 | 5.23 | 4.97 | 5.36 | 4.36 | 2.94 | 0.95 | 1.02 | 3.15 | 0.90 | 0.77 |
| Eu/Eu\* | 0.91 | 0.89 | 1.05 | 0.95 | 0.95 | 1.07 | 0.98 | 0.87 | 0.86 | 0.87 | 0.80 | 0.80 | 0.80 | 0.83 | 0.17 | 0.94 | 0.95 | 0.22 | - | - |
| (La/Yb)N | 4.71 | 4.72 | 5.01 | 4.81 | 6.67 | 6.58 | 5.70 | 33.69 | 33.10 | 33.39 | 23.78 | 26.47 | 25.40 | 32.98 | 11.06 | 4.21 | 5.29 | 24.85 | - | - |
| ∑REE | 63.36 | 60.42 | 63.53 | 64.41 | 72.90 | 72.22 | 72.95 | 337.99 | 347.11 | 319.12 | 335.62 | 317.26 | 337.48 | 337.37 | 183.01 | 124.23 | 128.98 | 340.11 | - | - |
| Zr/Hf | 36.4 | 36.5 | 36.9 | 35.8 | 37.1 | 36.7 | 37.6 | 42.4 | 41.9 | 41.1 | 42.5 | 42.5 | 41.8 | 41.9 | 27.4 | 38.8 | 38.7 | 44.0 |  |  |
| Nb/Ta | 6.8 | 10.6 | 9.6 | 12.9 | 13.3 | 8.3 | 12.5 | 17.3 | 16.6 | 16.5 | 16.0 | 14.0 | 15.9 | 16.3 | 13.3 | 11.0 | 18.4 | 17.3 |  |  |