附表1 乌拉盖复式岩体古生代侵入岩LA-ICP-MS锆石U-Pb年龄数据

Table 1 LA-ICP-MS Zircon U-Pb isotopic data for Paleozoic intrusions of the Wulagai pluton

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 点号 | Th | U | Th/U | 同位素比值 | | | | | | 同位素年龄(Ma) | | | | | |
| (×10-6) | | 207Pb/206Pb | 1σ | 207Pb/235U | 1σ | 206Pb/238U | 1σ | 207Pb/206Pb | 1σ | 207Pb/235U | 1σ | 206Pb/238U | 1σ |
| 22WLG-6.6 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 22WLG-6.6-1 | 138 | 216 | 0.64 | 0.05601 | 0.00182 | 0.58586 | 0.01920 | 0.07592 | 0.00066 | 421.6 | 74.2 | 466.9 | 12.3 | 471.7 | 4.0 |
| 22WLG-6.6-2 | 114 | 183 | 0.62 | 0.05502 | 0.00199 | 0.58049 | 0.02136 | 0.07666 | 0.00120 | 373.7 | 83.9 | 463.1 | 13.8 | 476.1 | 7.2 |
| 22WLG-6.6-3 | 298 | 437 | 0.68 | 0.05834 | 0.00144 | 0.61213 | 0.01270 | 0.07632 | 0.00101 | 525.0 | 54.0 | 484.3 | 8.0 | 474.0 | 6.0 |
| 22WLG-6.6-4 | 117 | 291 | 0.40 | 0.05421 | 0.00167 | 0.58477 | 0.01791 | 0.07838 | 0.00121 | 350.4 | 69.6 | 466.3 | 11.4 | 486.4 | 7.2 |
| 22WLG-6.6-5 | 117 | 311 | 0.38 | 0.05351 | 0.00094 | 0.57785 | 0.01113 | 0.07840 | 0.00095 | 340.9 | 39.6 | 462.6 | 7.2 | 486.5 | 5.7 |
| 22WLG-6.6-6 | 154 | 249 | 0.62 | 0.05888 | 0.00260 | 0.60114 | 0.02336 | 0.07447 | 0.00112 | 512.7 | 91.6 | 476.0 | 14.7 | 463.0 | 6.7 |
| 22WLG-6.6-7 | 78 | 172 | 0.45 | 0.05460 | 0.00180 | 0.57964 | 0.01735 | 0.07735 | 0.00115 | 364.4 | 74.3 | 463.1 | 11.0 | 480.2 | 6.9 |
| 22WLG-6.6-8 | 50 | 135 | 0.37 | 0.05526 | 0.00317 | 0.55338 | 0.03161 | 0.07302 | 0.00146 | 321.1 | 138.3 | 443.4 | 20.7 | 454.2 | 8.8 |
| 22WLG-6.6-9 | 51 | 132 | 0.39 | 0.05260 | 0.00211 | 0.56599 | 0.03340 | 0.07487 | 0.00152 | 333.4 | 111.7 | 451.5 | 20.6 | 465.3 | 9.1 |
| 22WLG-6.6-10 | 115 | 368 | 0.31 | 0.05440 | 0.00142 | 0.57129 | 0.01391 | 0.07640 | 0.00094 | 368.0 | 57.2 | 458.1 | 9.0 | 474.6 | 5.6 |
| 22WLG-6.6-11 | 92 | 157 | 0.58 | 0.05410 | 0.00284 | 0.56383 | 0.02995 | 0.07571 | 0.00110 | 276.3 | 136.9 | 450.4 | 19.8 | 470.4 | 6.6 |
| 22WLG-6.6-12 | 67 | 195 | 0.34 | 0.05702 | 0.00227 | 0.60336 | 0.02780 | 0.07663 | 0.00142 | 447.0 | 90.1 | 476.6 | 17.7 | 475.9 | 8.5 |
| 22WLG-6.6-13 | 87 | 277 | 0.32 | 0.05725 | 0.00223 | 0.60600 | 0.02349 | 0.07702 | 0.00115 | 459.7 | 84.7 | 479.1 | 14.7 | 478.2 | 6.9 |
| 22WLG-6.6-14 | 270 | 402 | 0.67 | 0.05745 | 0.00135 | 0.60356 | 0.01253 | 0.07641 | 0.00075 | 492.6 | 52.5 | 478.9 | 8.0 | 474.6 | 4.5 |
| 22WLG-6.6N-1 | 56 | 158 | 0.36 | 0.05688 | 0.00259 | 0.62463 | 0.02230 | 0.08037 | 0.00195 | 429.6 | 100.6 | 491.0 | 13.9 | 498.2 | 11.7 |
| 22WLG-6.6N-2 | 109 | 175 | 0.62 | 0.05665 | 0.00215 | 0.61088 | 0.02417 | 0.07820 | 0.00161 | 435.1 | 88.3 | 482.1 | 15.2 | 485.2 | 9.7 |
| 22WLG-6.6N-3 | 92 | 257 | 0.36 | 0.05507 | 0.00137 | 0.58773 | 0.01523 | 0.07718 | 0.00092 | 396.9 | 55.3 | 468.6 | 9.8 | 479.2 | 5.5 |
| 22WLG-6.6N-4 | 176 | 281 | 0.63 | 0.05635 | 0.00199 | 0.61612 | 0.02241 | 0.07913 | 0.00117 | 428.0 | 83.9 | 485.6 | 14.2 | 490.9 | 7.0 |
| 22WLG-6.6N-5 | 159 | 247 | 0.64 | 0.05901 | 0.00193 | 0.64445 | 0.02165 | 0.07902 | 0.00107 | 538.9 | 69.4 | 503.5 | 13.2 | 490.2 | 6.4 |
| 22WLG-6.6N-6 | 69 | 124 | 0.55 | 0.05949 | 0.00303 | 0.63717 | 0.02913 | 0.07797 | 0.00126 | 507.6 | 121.2 | 497.6 | 18.2 | 483.9 | 7.5 |
| 22WLG-6.6N-7 | 57 | 149 | 0.38 | 0.05508 | 0.00152 | 0.61104 | 0.02129 | 0.07994 | 0.00100 | 392.7 | 63.2 | 482.6 | 13.5 | 495.7 | 6.0 |
| 22WLG-6.6N-8 | 89 | 175 | 0.51 | 0.05564 | 0.00214 | 0.62011 | 0.02221 | 0.08080 | 0.00114 | 391.1 | 93.9 | 488.2 | 14.2 | 500.8 | 6.8 |
| 22WLG-6.6N-9 | 160 | 374 | 0.43 | 0.05777 | 0.00153 | 0.64470 | 0.01565 | 0.08087 | 0.00106 | 548.9 | 43.0 | 511.6 | 6.9 | 501.3 | 6.4 |
| 22WLG-6.6N-10 | 64 | 109 | 0.59 | 0.05849 | 0.00302 | 0.62284 | 0.02811 | 0.07748 | 0.00125 | 476.3 | 112.3 | 488.9 | 17.5 | 481.0 | 7.5 |
| 22WLG-6.7 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 22WLG-6.7-1 | 103 | 395 | 0.26 | 0.05635 | 0.00148 | 0.61299 | 0.01567 | 0.07871 | 0.00092 | 446.2 | 58.3 | 484.6 | 9.9 | 488.4 | 5.5 |
| 22WLG-6.7-2 | 142 | 229 | 0.62 | 0.06120 | 0.00168 | 0.65308 | 0.01808 | 0.07731 | 0.00138 | 625.8 | 58.2 | 509.3 | 11.0 | 479.9 | 8.3 |
| 22WLG-6.7-3 | 143 | 223 | 0.64 | 0.05656 | 0.00214 | 0.60309 | 0.02494 | 0.07698 | 0.00111 | 430.8 | 90.2 | 477.0 | 15.8 | 478.0 | 6.6 |
| 22WLG-6.7-4 | 70 | 190 | 0.37 | 0.05950 | 0.00192 | 0.61971 | 0.02119 | 0.07531 | 0.00106 | 556.1 | 71.2 | 488.1 | 13.1 | 468.0 | 6.4 |
| 22WLG-6.7-5 | 84 | 217 | 0.39 | 0.05684 | 0.00179 | 0.60423 | 0.02034 | 0.07682 | 0.00105 | 456.1 | 71.8 | 478.4 | 12.9 | 477.0 | 6.3 |
| 22WLG-6.7-6 | 77 | 151 | 0.51 | 0.05678 | 0.00196 | 0.60298 | 0.01868 | 0.07683 | 0.00103 | 505.3 | 95.0 | 489.2 | 16.2 | 477.1 | 6.1 |
| 22WLG-6.7-7 | 225 | 329 | 0.68 | 0.06020 | 0.00248 | 0.65633 | 0.02622 | 0.07889 | 0.00099 | 566.5 | 87.0 | 510.1 | 15.9 | 489.4 | 5.9 |
| 22WLG-6.7-8 | 61 | 120 | 0.51 | 0.05520 | 0.00219 | 0.58339 | 0.02468 | 0.07630 | 0.00120 | 377.2 | 86.0 | 464.4 | 15.8 | 473.9 | 7.2 |
| 22WLG-6.7-9 | 87 | 216 | 0.40 | 0.05531 | 0.00230 | 0.59743 | 0.02353 | 0.07832 | 0.00123 | 379.1 | 87.1 | 473.7 | 14.5 | 486.0 | 7.4 |
| 22WLG-6.7-10 | 123 | 188 | 0.65 | 0.05805 | 0.00223 | 0.60566 | 0.02547 | 0.07527 | 0.00094 | 485.7 | 92.8 | 478.5 | 16.2 | 467.8 | 5.6 |
| 22WLG-6.7-11 | 98 | 306 | 0.32 | 0.05798 | 0.00221 | 0.62248 | 0.02107 | 0.07777 | 0.00079 | 486.9 | 86.6 | 489.8 | 13.3 | 482.8 | 4.7 |
| 22WLG-6.7-12 | 49 | 139 | 0.35 | 0.05545 | 0.00223 | 0.58367 | 0.02528 | 0.07597 | 0.00119 | 381.1 | 95.6 | 464.5 | 16.3 | 472.0 | 7.1 |
| 22WLG-6.7-13 | 50 | 124 | 0.41 | 0.06198 | 0.00260 | 0.64438 | 0.02527 | 0.07533 | 0.00126 | 624.1 | 93.8 | 502.8 | 15.9 | 468.1 | 7.6 |
| 22WLG-6.7-14 | 134 | 353 | 0.38 | 0.05584 | 0.00133 | 0.59530 | 0.01491 | 0.07706 | 0.00105 | 427.5 | 57.5 | 473.4 | 9.6 | 478.5 | 6.3 |
| 22WLG-6.7-15 | 84 | 247 | 0.34 | 0.05854 | 0.00182 | 0.62956 | 0.01897 | 0.07766 | 0.00086 | 522.2 | 66.6 | 494.5 | 11.8 | 482.1 | 5.1 |
| 22WLG-6.7-16 | 200 | 281 | 0.71 | 0.05494 | 0.00172 | 0.58153 | 0.01936 | 0.07642 | 0.00094 | 382.0 | 68.8 | 464.1 | 12.3 | 474.7 | 5.6 |
| 22WLG-6.7-17 | 162 | 244 | 0.67 | 0.05794 | 0.00231 | 0.61434 | 0.02276 | 0.07680 | 0.00100 | 484.7 | 85.9 | 484.5 | 14.1 | 476.9 | 6.0 |
| 22WLG-6.7-18 | 79 | 183 | 0.43 | 0.05593 | 0.00288 | 0.61131 | 0.03013 | 0.07910 | 0.00105 | 380.1 | 109.2 | 481.3 | 18.7 | 490.7 | 6.3 |
| 22WLG-6.7-19 | 104 | 338 | 0.31 | 0.05815 | 0.00161 | 0.63808 | 0.01849 | 0.07918 | 0.00057 | 512.7 | 62.9 | 499.9 | 11.5 | 491.2 | 3.4 |
| 22WLG-6.7-21 | 162 | 250 | 0.65 | 0.05546 | 0.00166 | 0.58673 | 0.01553 | 0.07662 | 0.00117 | 404.5 | 67.8 | 467.9 | 10.0 | 475.9 | 7.0 |
| 22WLG-6.7-22 | 218 | 317 | 0.69 | 0.05517 | 0.00158 | 0.59579 | 0.01606 | 0.07813 | 0.00118 | 393.6 | 68.0 | 473.6 | 10.4 | 484.9 | 7.1 |
| 22WLG-6.7-23 | 139 | 205 | 0.68 | 0.06188 | 0.00197 | 0.64493 | 0.02083 | 0.07530 | 0.00100 | 642.8 | 67.4 | 503.9 | 12.7 | 468.0 | 6.0 |
| 22WLG-6.7-24 | 360 | 510 | 0.71 | 0.05811 | 0.00156 | 0.62217 | 0.01484 | 0.07741 | 0.00070 | 512.5 | 61.5 | 490.4 | 9.3 | 480.6 | 4.2 |
| 22WLG-6.7-25 | 273 | 530 | 0.51 | 0.05604 | 0.00120 | 0.59587 | 0.01472 | 0.07677 | 0.00123 | 440.3 | 47.6 | 473.8 | 9.4 | 476.8 | 7.4 |
| 22WLG-1.1 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 22WLG-1.1-1 | 138 | 284 | 0.49 | 0.05834 | 0.00273 | 0.44657 | 0.01895 | 0.05611 | 0.00077 | 500.7 | 106.1 | 373.8 | 13.3 | 351.9 | 4.7 |
| 22WLG-1.1-2 | 107 | 246 | 0.44 | 0.05525 | 0.00399 | 0.42739 | 0.02618 | 0.05692 | 0.00097 | 360.5 | 153.6 | 360.0 | 18.4 | 356.8 | 5.9 |
| 22WLG-1.1-4 | 259 | 428 | 0.61 | 0.05513 | 0.00237 | 0.42521 | 0.01379 | 0.05607 | 0.00105 | 383.9 | 92.2 | 359.2 | 9.8 | 351.6 | 6.4 |
| 22WLG-1.1-6 | 104 | 233 | 0.45 | 0.05788 | 0.00285 | 0.44413 | 0.02699 | 0.05514 | 0.00138 | 491.4 | 119.3 | 371.7 | 19.4 | 346.0 | 8.5 |
| 22WLG-1.1-7 | 105 | 226 | 0.46 | 0.05908 | 0.00264 | 0.45497 | 0.02399 | 0.05533 | 0.00114 | 535.3 | 93.6 | 379.1 | 16.6 | 347.1 | 7.0 |
| 22WLG-1.1-8 | 136 | 258 | 0.53 | 0.05603 | 0.00290 | 0.42963 | 0.02315 | 0.05489 | 0.00100 | 379.7 | 114.5 | 360.6 | 16.1 | 344.4 | 6.1 |
| 22WLG-1.1-9 | 182 | 328 | 0.56 | 0.05501 | 0.00238 | 0.41627 | 0.01938 | 0.05434 | 0.00103 | 378.2 | 99.8 | 352.3 | 13.9 | 341.0 | 6.3 |
| 22WLG-1.1-11 | 158 | 321 | 0.49 | 0.05721 | 0.00211 | 0.44699 | 0.01744 | 0.05602 | 0.00126 | 474.0 | 86.6 | 374.3 | 12.7 | 351.4 | 7.7 |
| 22WLG-1.1-13 | 70 | 165 | 0.43 | 0.05402 | 0.00384 | 0.42330 | 0.03219 | 0.05584 | 0.00127 | 247.5 | 167.9 | 354.7 | 22.2 | 350.2 | 7.7 |
| 22WLG-1.1-14 | 215 | 378 | 0.57 | 0.05453 | 0.00236 | 0.42136 | 0.01904 | 0.05504 | 0.00073 | 336.8 | 101.0 | 355.4 | 13.5 | 345.4 | 4.5 |
| 22WLG-1.1-15 | 140 | 292 | 0.48 | 0.05638 | 0.00211 | 0.43102 | 0.01593 | 0.05453 | 0.00066 | 425.5 | 87.1 | 362.8 | 11.3 | 342.2 | 4.0 |
| 22WLG-1.1-16 | 101 | 238 | 0.42 | 0.05700 | 0.00258 | 0.43996 | 0.01647 | 0.05535 | 0.00073 | 427.3 | 106.3 | 369.0 | 11.7 | 347.3 | 4.4 |
| 22WLG-1.1-17 | 96 | 231 | 0.41 | 0.05682 | 0.00344 | 0.44734 | 0.02525 | 0.05631 | 0.00085 | 419.5 | 129.6 | 373.6 | 17.6 | 353.1 | 5.2 |
| 22WLG-1.1-19 | 348 | 508 | 0.69 | 0.05406 | 0.00218 | 0.41286 | 0.01527 | 0.05476 | 0.00090 | 340.2 | 89.5 | 350.2 | 10.9 | 343.7 | 5.5 |
| 22WLG-1.1-20 | 99 | 224 | 0.44 | 0.05169 | 0.00359 | 0.39391 | 0.02543 | 0.05507 | 0.00078 | 141.7 | 184.7 | 334.8 | 18.7 | 345.5 | 4.8 |
| 22WLG-1.1-21 | 71 | 179 | 0.40 | 0.05257 | 0.00321 | 0.40356 | 0.02504 | 0.05536 | 0.00084 | 236.0 | 142.6 | 342.3 | 17.8 | 347.3 | 5.1 |
| 22WLG-6.3 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 22WLG-6.3-3 | 57 | 74 | 0.77 | 0.05322 | 0.00362 | 0.39426 | 0.02043 | 0.05416 | 0.00141 | 265.9 | 131.2 | 336.2 | 14.3 | 339.9 | 8.6 |
| 22WLG-6.3-5 | 51 | 68 | 0.75 | 0.05583 | 0.00313 | 0.43016 | 0.02073 | 0.05620 | 0.00127 | 350.6 | 133.6 | 361.4 | 14.7 | 352.4 | 7.7 |
| 22WLG-6.3-9 | 102 | 101 | 1.01 | 0.05904 | 0.00515 | 0.43951 | 0.03784 | 0.05397 | 0.00130 | 447.7 | 172.4 | 365.9 | 25.8 | 338.8 | 7.9 |
| 22WLG-6.3-11 | 60 | 79 | 0.77 | 0.05598 | 0.00600 | 0.42788 | 0.04538 | 0.05515 | 0.00121 | 241.2 | 335.2 | 357.4 | 33.0 | 346.0 | 7.4 |
| 22WLG-6.3-12 | 113 | 91 | 1.24 | 0.05534 | 0.00404 | 0.43574 | 0.03460 | 0.05662 | 0.00154 | 280.3 | 178.5 | 362.7 | 24.0 | 354.9 | 9.4 |
| 22WLG-6.3-20 | 44 | 58 | 0.77 | 0.05767 | 0.00506 | 0.46164 | 0.04367 | 0.05735 | 0.00125 | 390.4 | 182.5 | 380.3 | 28.8 | 359.5 | 7.6 |
| 22WLG-6.3-22 | 31 | 50 | 0.61 | 0.05784 | 0.00474 | 0.42955 | 0.03294 | 0.05441 | 0.00144 | 284.3 | 228.7 | 358.0 | 23.3 | 341.4 | 8.8 |
| 22WLG-6.3-24 | 74 | 85 | 0.87 | 0.05436 | 0.00387 | 0.41615 | 0.02588 | 0.05583 | 0.00146 | 250.0 | 156.7 | 350.3 | 18.4 | 350.1 | 8.9 |
| 22WLG-6.4 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 22WLG-6.4-1 | 53 | 70 | 0.75 | 0.05696 | 0.00361 | 0.42523 | 0.02662 | 0.05423 | 0.00089 | 348.6 | 175.6 | 356.5 | 19.3 | 340.4 | 5.4 |
| 22WLG-6.4-2 | 43 | 56 | 0.77 | 0.05089 | 0.00473 | 0.38804 | 0.03445 | 0.05567 | 0.00156 | 164.8 | 193.2 | 327.1 | 26.1 | 349.1 | 9.5 |
| 22WLG-6.4-3 | 51 | 74 | 0.69 | 0.04850 | 0.00444 | 0.36886 | 0.03548 | 0.05470 | 0.00138 | -248.9 | 307.4 | 312.6 | 26.7 | 343.2 | 8.4 |
| 22WLG-6.4-4 | 66 | 90 | 0.74 | 0.06041 | 0.00452 | 0.45668 | 0.03520 | 0.05467 | 0.00099 | 420.0 | 211.9 | 376.6 | 24.7 | 343.1 | 6.1 |
| 22WLG-6.4-6 | 86 | 116 | 0.74 | 0.05769 | 0.00375 | 0.44678 | 0.03365 | 0.05571 | 0.00104 | 398.8 | 149.1 | 370.3 | 22.9 | 349.4 | 6.4 |
| 22WLG-6.4-7 | 69 | 86 | 0.80 | 0.05092 | 0.00404 | 0.37692 | 0.02892 | 0.05399 | 0.00101 | 8.1 | 222.0 | 320.7 | 21.4 | 338.9 | 6.1 |
| 22WLG-6.4-10 | 38 | 62 | 0.61 | 0.05875 | 0.00615 | 0.44916 | 0.04948 | 0.05542 | 0.00139 | 253.7 | 242.8 | 366.8 | 32.7 | 347.6 | 8.5 |
| 22WLG-6.4-12 | 61 | 84 | 0.73 | 0.05275 | 0.00293 | 0.38288 | 0.02250 | 0.05267 | 0.00122 | 213.8 | 144.8 | 326.7 | 16.6 | 330.8 | 7.4 |
| 22WLG-6.4-13 | 52 | 70 | 0.75 | 0.05912 | 0.00459 | 0.45163 | 0.03480 | 0.05585 | 0.00118 | 358.8 | 213.2 | 373.2 | 24.4 | 350.3 | 7.2 |
| 22WLG-6.4-14 | 60 | 78 | 0.77 | 0.05439 | 0.00295 | 0.40228 | 0.02027 | 0.05389 | 0.00092 | 297.4 | 129.2 | 341.4 | 14.8 | 338.3 | 5.6 |
| 22WLG-6.4-15 | 55 | 74 | 0.74 | 0.05001 | 0.00371 | 0.37512 | 0.02668 | 0.05495 | 0.00136 | 141.0 | 166.6 | 319.9 | 20.0 | 344.7 | 8.3 |
| 22WLG-6.4-16 | 95 | 104 | 0.91 | 0.05347 | 0.00385 | 0.39836 | 0.02408 | 0.05488 | 0.00121 | 188.9 | 175.7 | 337.7 | 17.6 | 344.3 | 7.4 |
| 22WLG-6.4-17 | 57 | 72 | 0.79 | 0.05525 | 0.00303 | 0.41192 | 0.02321 | 0.05408 | 0.00092 | 321.0 | 144.0 | 347.8 | 16.9 | 339.5 | 5.6 |
| 22WLG-6.4-18 | 51 | 69 | 0.73 | 0.04957 | 0.00335 | 0.38746 | 0.02627 | 0.05698 | 0.00132 | 44.2 | 152.8 | 329.4 | 18.6 | 357.2 | 8.0 |
| 22WLG-6.4-20 | 63 | 85 | 0.74 | 0.04928 | 0.00355 | 0.36735 | 0.02274 | 0.05477 | 0.00109 | -13.8 | 187.2 | 315.1 | 17.0 | 343.7 | 6.6 |
| 22WLG-6.4-21 | 63 | 72 | 0.88 | 0.05357 | 0.00362 | 0.41998 | 0.02805 | 0.05710 | 0.00083 | 195.4 | 183.2 | 352.5 | 19.9 | 357.9 | 5.0 |
| 22WLG-6.4-23 | 89 | 108 | 0.82 | 0.05562 | 0.00339 | 0.41799 | 0.02417 | 0.05471 | 0.00112 | 336.8 | 133.9 | 351.9 | 17.3 | 343.3 | 6.9 |
| 22WLG-6.4-25 | 34 | 55 | 0.63 | 0.05363 | 0.00521 | 0.39259 | 0.03795 | 0.05342 | 0.00126 | 55.3 | 246.2 | 329.6 | 27.2 | 335.4 | 7.7 |
| 19HLH-1 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 19HLH-1-01 | 54 | 70 | 0.78 | 0.05343 | 0.00200 | 0.41159 | 0.01586 | 0.05588 | 0.00082 | 347.2 | 84.7 | 350.0 | 11.4 | 350.5 | 5.0 |
| 19HLH-1-02 | 96 | 99 | 0.97 | 0.05413 | 0.00157 | 0.41314 | 0.01173 | 0.05550 | 0.00080 | 376.5 | 65.4 | 351.1 | 8.4 | 348.2 | 4.9 |
| 19HLH-1-03 | 177 | 230 | 0.77 | 0.05407 | 0.00098 | 0.41499 | 0.00721 | 0.05574 | 0.00064 | 373.8 | 40.6 | 352.5 | 5.2 | 349.7 | 3.9 |
| 19HLH-1-04 | 91 | 139 | 0.65 | 0.05419 | 0.00123 | 0.40800 | 0.00874 | 0.05478 | 0.00059 | 378.8 | 50.9 | 347.4 | 6.3 | 343.8 | 3.6 |
| 19HLH-1-06 | 102 | 162 | 0.63 | 0.05343 | 0.00120 | 0.41078 | 0.00964 | 0.05567 | 0.00068 | 347.1 | 50.8 | 349.4 | 6.9 | 349.2 | 4.1 |
| 19HLH-1-09 | 332 | 610 | 0.54 | 0.05403 | 0.00060 | 0.41490 | 0.00504 | 0.05567 | 0.00050 | 372.3 | 25.0 | 352.4 | 3.6 | 349.2 | 3.0 |
| 19HLH-1-05 | 235 | 382 | 0.62 | 0.05220 | 0.00130 | 0.41196 | 0.00874 | 0.05737 | 0.00075 | 294.1 | 56.7 | 350.3 | 6.3 | 359.6 | 4.6 |
| 19HLH-1-07 | 90 | 168 | 0.53 | 0.05394 | 0.00101 | 0.43277 | 0.00858 | 0.05818 | 0.00060 | 368.6 | 42.4 | 365.1 | 6.1 | 364.5 | 3.6 |
| 19HLH-1-08 | 196 | 372 | 0.53 | 0.05371 | 0.00072 | 0.42132 | 0.00653 | 0.05679 | 0.00053 | 358.9 | 30.1 | 357.0 | 4.7 | 356.1 | 3.2 |
| 19HLH-1-10 | 141 | 305 | 0.46 | 0.05327 | 0.00071 | 0.41827 | 0.00614 | 0.05687 | 0.00046 | 340.3 | 30.4 | 354.8 | 4.4 | 356.6 | 2.8 |
| 19HLH-1-11 | 260 | 453 | 0.57 | 0.05373 | 0.00071 | 0.42131 | 0.00529 | 0.05696 | 0.00050 | 359.7 | 29.8 | 357.0 | 3.8 | 357.1 | 3.1 |
| 19HLH-1-12 | 146 | 232 | 0.63 | 0.05448 | 0.00117 | 0.42787 | 0.00897 | 0.05714 | 0.00070 | 391.1 | 48.0 | 361.7 | 6.4 | 358.2 | 4.3 |
| 19HLH-1-13 | 164 | 153 | 1.07 | 0.05273 | 0.00162 | 0.41746 | 0.01283 | 0.05739 | 0.00075 | 317.2 | 69.7 | 354.2 | 9.2 | 359.7 | 4.5 |
| 19HLH-1-14 | 118 | 227 | 0.52 | 0.05392 | 0.00097 | 0.42249 | 0.00722 | 0.05695 | 0.00062 | 367.8 | 40.6 | 357.8 | 5.2 | 357.0 | 3.8 |
| 19HLH-1-15 | 144 | 286 | 0.50 | 0.05378 | 0.00100 | 0.42259 | 0.00834 | 0.05695 | 0.00055 | 361.8 | 41.9 | 357.9 | 5.9 | 357.0 | 3.4 |
| 19HLH-1-16 | 184 | 211 | 0.87 | 0.05415 | 0.00121 | 0.42872 | 0.00867 | 0.05753 | 0.00064 | 377.4 | 50.4 | 362.3 | 6.2 | 360.6 | 3.9 |
| 19HLH-1-17 | 68 | 79 | 0.86 | 0.05401 | 0.00141 | 0.42599 | 0.01051 | 0.05744 | 0.00060 | 371.5 | 58.7 | 360.3 | 7.5 | 360.0 | 3.7 |
| 19HLH-1-18 | 116 | 123 | 0.94 | 0.05315 | 0.00109 | 0.41594 | 0.00888 | 0.05678 | 0.00058 | 335.4 | 46.4 | 353.1 | 6.4 | 356.0 | 3.5 |
| 19HLH-1-19 | 143 | 308 | 0.46 | 0.05368 | 0.00088 | 0.42309 | 0.00733 | 0.05715 | 0.00055 | 357.7 | 36.8 | 358.3 | 5.2 | 358.3 | 3.4 |
| 19HLH-1-20 | 98 | 176 | 0.56 | 0.05287 | 0.00096 | 0.41092 | 0.00789 | 0.05634 | 0.00048 | 323.2 | 41.3 | 349.5 | 5.7 | 353.4 | 3.0 |
| 19HLH-1-21 | 130 | 222 | 0.59 | 0.05325 | 0.00090 | 0.41872 | 0.00772 | 0.05706 | 0.00056 | 339.6 | 38.2 | 355.1 | 5.5 | 357.7 | 3.4 |
| 19HLH-1-22 | 123 | 205 | 0.60 | 0.05441 | 0.00160 | 0.43180 | 0.01283 | 0.05753 | 0.00079 | 387.9 | 65.9 | 364.5 | 9.1 | 360.6 | 4.8 |
| 19HLH-1-23 | 155 | 331 | 0.47 | 0.05400 | 0.00097 | 0.42205 | 0.00740 | 0.05673 | 0.00062 | 370.9 | 40.3 | 357.5 | 5.3 | 355.7 | 3.8 |
| 19HLH-1-24 | 106 | 256 | 0.41 | 0.05296 | 0.00083 | 0.41282 | 0.00762 | 0.05648 | 0.00061 | 327.1 | 35.6 | 350.9 | 5.5 | 354.2 | 3.7 |
| 19HLH-1-25 | 254 | 294 | 0.86 | 0.05266 | 0.00126 | 0.41391 | 0.01096 | 0.05678 | 0.00062 | 314.4 | 54.4 | 351.7 | 7.9 | 356.0 | 3.8 |
| 19HLH-14 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 19HLH-14-01 | 74 | 90 | 0.82 | 0.05259 | 0.00130 | 0.40253 | 0.00988 | 0.05551 | 0.00047 | 311.3 | 56.2 | 343.5 | 7.2 | 348.2 | 2.9 |
| 19HLH-14-02 | 57 | 67 | 0.85 | 0.05352 | 0.00149 | 0.40969 | 0.01128 | 0.05556 | 0.00052 | 350.7 | 62.7 | 348.7 | 8.1 | 348.6 | 3.2 |
| 19HLH-14-03 | 68 | 86 | 0.79 | 0.05325 | 0.00187 | 0.41144 | 0.01496 | 0.05606 | 0.00071 | 339.3 | 79.6 | 349.9 | 10.8 | 351.6 | 4.3 |
| 19HLH-14-04 | 88 | 112 | 0.78 | 0.05429 | 0.00151 | 0.41638 | 0.01159 | 0.05566 | 0.00055 | 382.9 | 62.5 | 353.5 | 8.3 | 349.2 | 3.3 |
| 19HLH-14-05 | 74 | 92 | 0.81 | 0.05434 | 0.00148 | 0.41143 | 0.01023 | 0.05509 | 0.00074 | 385.1 | 61.2 | 349.9 | 7.4 | 345.7 | 4.5 |
| 19HLH-14-06 | 34 | 53 | 0.65 | 0.05397 | 0.00155 | 0.41207 | 0.01242 | 0.05545 | 0.00062 | 369.9 | 64.6 | 350.4 | 8.9 | 347.9 | 3.8 |
| 19HLH-14-07 | 38 | 54 | 0.70 | 0.05272 | 0.00168 | 0.40616 | 0.01307 | 0.05596 | 0.00060 | 316.9 | 72.3 | 346.1 | 9.4 | 351.0 | 3.7 |
| 19HLH-14-08 | 62 | 59 | 1.05 | 0.05364 | 0.00249 | 0.40826 | 0.01870 | 0.05530 | 0.00082 | 356.1 | 104.9 | 347.6 | 13.5 | 347.0 | 5.0 |
| 19HLH-14-10 | 61 | 86 | 0.71 | 0.05331 | 0.00129 | 0.40723 | 0.00995 | 0.05563 | 0.00061 | 341.9 | 54.7 | 346.9 | 7.2 | 349.0 | 3.7 |
| 19HLH-14-11 | 58 | 77 | 0.76 | 0.05382 | 0.00172 | 0.40595 | 0.01258 | 0.05497 | 0.00063 | 363.7 | 72.2 | 346.0 | 9.1 | 345.0 | 3.8 |
| 19HLH-14-13 | 35 | 56 | 0.62 | 0.05426 | 0.00197 | 0.41013 | 0.01478 | 0.05496 | 0.00064 | 381.8 | 81.8 | 349.0 | 10.6 | 344.9 | 3.9 |
| 19HLH-14-14 | 40 | 60 | 0.66 | 0.05308 | 0.00194 | 0.40168 | 0.01362 | 0.05533 | 0.00086 | 332.3 | 82.9 | 342.9 | 9.9 | 347.2 | 5.2 |
| 19HLH-14-15 | 137 | 167 | 0.82 | 0.05239 | 0.00128 | 0.40143 | 0.00950 | 0.05570 | 0.00064 | 302.6 | 55.8 | 342.7 | 6.9 | 349.4 | 3.9 |
| 19HLH-14-16 | 42 | 57 | 0.74 | 0.05376 | 0.00201 | 0.40423 | 0.01342 | 0.05504 | 0.00083 | 361.1 | 84.4 | 344.7 | 9.7 | 345.4 | 5.1 |
| 19HLH-14-17 | 47 | 69 | 0.69 | 0.05384 | 0.00210 | 0.40813 | 0.01686 | 0.05500 | 0.00078 | 364.3 | 88.0 | 347.5 | 12.2 | 345.1 | 4.7 |
| 19HLH-14-18 | 48 | 65 | 0.74 | 0.05446 | 0.00151 | 0.41183 | 0.01141 | 0.05499 | 0.00058 | 389.9 | 62.1 | 350.2 | 8.2 | 345.1 | 3.6 |
| 19HLH-14-19 | 82 | 111 | 0.74 | 0.05213 | 0.00164 | 0.40529 | 0.01307 | 0.05637 | 0.00060 | 291.2 | 71.7 | 345.5 | 9.4 | 353.5 | 3.7 |
| 19HLH-14-21 | 54 | 70 | 0.78 | 0.05346 | 0.00154 | 0.41084 | 0.01292 | 0.05574 | 0.00064 | 348.5 | 65.2 | 349.5 | 9.3 | 349.7 | 3.9 |
| 19HLH-14-22 | 68 | 93 | 0.74 | 0.05435 | 0.00159 | 0.41699 | 0.01107 | 0.05606 | 0.00083 | 385.5 | 65.7 | 353.9 | 7.9 | 351.6 | 5.0 |
| 19HLH-14-23 | 107 | 139 | 0.77 | 0.05449 | 0.00138 | 0.41546 | 0.01167 | 0.05525 | 0.00068 | 391.3 | 56.9 | 352.8 | 8.4 | 346.7 | 4.1 |
| 19HLH-14-24 | 40 | 56 | 0.71 | 0.05470 | 0.00249 | 0.41303 | 0.01783 | 0.05542 | 0.00112 | 399.9 | 102.0 | 351.1 | 12.8 | 347.7 | 6.8 |
| 19HLH-14-25 | 78 | 101 | 0.78 | 0.05324 | 0.00128 | 0.40360 | 0.01018 | 0.05518 | 0.00064 | 338.9 | 54.5 | 344.3 | 7.4 | 346.2 | 3.9 |
| 19HLH-14-26 | 45 | 62 | 0.72 | 0.05235 | 0.00179 | 0.39847 | 0.01391 | 0.05532 | 0.00067 | 300.5 | 78.2 | 340.5 | 10.1 | 347.1 | 4.1 |
| 19HLH-14-27 | 55 | 64 | 0.87 | 0.05238 | 0.00221 | 0.39923 | 0.01636 | 0.05547 | 0.00069 | 302.0 | 96.2 | 341.1 | 11.9 | 348.0 | 4.2 |

附表2 乌拉盖复式岩体古生代侵入岩主量和微量元素分析结果

Table 2 Major(wt.%) and trace(×10-6) element compositions for Paleozoic intrusions of the Wulagai pluton

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 样品号 | 22WLG  -6.6 | 22WLG  -6.7 | 22WLG  -6.8 | 22WLG  -6.9 | 22WLG  -6.10 | 22WLG  -1.1 | 22WLG  -1.2 | 22WLG  -2.1 | 22WLG  -3.1 | 22WLG  -3.2 | 22WLG  -4.1 | 22WLG  -6.3 | 22WLG  -6.4 | 22WLG  -6.5 | 19HLH  -1 | 19HLH  -7 | 19HLH  -8 | 19HLH  -14.1 | 19HLH  -14.2 |
| 岩性 | 辉长闪长岩 | | | | | 正长花岗岩 | | | | | | 花岗斑岩 | | | 黑云母二长花岗岩 | | | | |
| SiO2 | 53.39 | 52.70 | 52.20 | 53.13 | 51.27 | 77.45 | 77.52 | 77.48 | 77.03 | 77.19 | 76.19 | 72.06 | 72.12 | 71.62 | 76.42 | 72.54 | 75.29 | 70.67 | 71.32 |
| TiO2 | 0.76 | 0.62 | 1.97 | 0.74 | 1.21 | 0.12 | 0.18 | 0.18 | 0.24 | 0.24 | 0.27 | 0.34 | 0.35 | 0.39 | 0.18 | 0.32 | 0.16 | 0.40 | 0.38 |
| Al2O3 | 17.63 | 18.26 | 17.42 | 18.30 | 17.06 | 11.52 | 11.19 | 10.92 | 10.70 | 10.87 | 10.44 | 14.69 | 14.72 | 14.78 | 12.68 | 13.61 | 12.49 | 15.12 | 14.99 |
| TFe2O3 | 6.96 | 6.92 | 8.96 | 7.01 | 9.88 | 2.19 | 2.94 | 2.93 | 3.04 | 3.08 | 4.51 | 1.94 | 2.07 | 2.04 | 1.08 | 1.81 | 1.14 | 2.16 | 1.95 |
| FeO | 4.56 | 4.20 | 4.85 | 4.89 | 6.04 | 0.68 | 0.83 | 0.29 | 0.47 | 0.36 | 0.32 | 0.54 | 0.57 | 0.68 |  |  |  |  |  |
| MnO | 0.13 | 0.14 | 0.16 | 0.13 | 0.16 | 0.05 | 0.04 | 0.03 | 0.05 | 0.04 | 0.01 | 0.04 | 0.04 | 0.10 | 0.03 | 0.03 | 0.02 | 0.11 | 0.10 |
| MgO | 5.57 | 6.44 | 4.99 | 5.84 | 6.36 | 0.08 | 0.03 | 0.06 | 0.05 | 0.07 | 0.11 | 0.32 | 0.36 | 0.39 | 0.34 | 0.57 | 0.44 | 0.52 | 0.45 |
| CaO | 8.40 | 10.03 | 7.27 | 9.73 | 8.52 | 0.09 | 0.07 | 0.11 | 0.09 | 0.09 | 0.14 | 0.66 | 0.48 | 0.92 | 0.99 | 0.77 | 0.51 | 1.32 | 1.24 |
| Na2O | 4.64 | 3.53 | 4.17 | 3.50 | 3.71 | 3.65 | 3.83 | 3.43 | 3.13 | 2.75 | 2.17 | 6.06 | 5.62 | 5.81 | 4.32 | 3.82 | 3.17 | 5.40 | 5.31 |
| K2O | 0.83 | 0.40 | 0.83 | 0.52 | 0.91 | 4.15 | 3.95 | 4.45 | 4.58 | 4.59 | 4.76 | 3.63 | 4.08 | 3.64 | 3.68 | 4.35 | 4.84 | 3.63 | 3.67 |
| P2O5 | 0.08 | 0.08 | 0.08 | 0.09 | 0.11 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.06 | 0.07 | 0.08 | 0.05 | 0.07 | 0.04 | 0.12 | 0.10 |
| Mg# | 61.37 | 64.90 | 52.53 | 62.29 | 56.12 | 7.12 | 2.06 | 3.68 | 3.18 | 4.58 | 4.57 | 24.88 | 25.55 | 27.80 | 38.96 | 38.71 | 43.60 | 32.48 | 31.58 |
| LOI | 2.02 | 1.36 | 1.41 | 1.27 | 1.46 | 0.74 | 0.58 | 0.64 | 0.52 | 0.85 | 1.18 | 0.67 | 0.77 | 0.64 | 0.72 | 1.28 | 1.02 | 0.86 | 0.82 |
| Li | 13.8 | 9.83 | 15 | 8.95 | 12.4 | 9.59 | 3.73 | 5.26 | 13.4 | 5.75 | 18.8 | 5.62 | 6.59 | 7.14 | 5.23 | 13.2 | 12.4 | 11.9 | 10.7 |
| Sc | 28.1 | 32.1 | 28.3 | 29.1 | 34.4 | 2.13 | 2.31 | 2.06 | 4.79 | 5.01 | 5.62 | 3.01 | 3.92 | 4.12 | 2.17 | 4.19 | 2.39 | 4.77 | 3.89 |
| V | 174 | 161 | 285 | 173 | 422 | 6.15 | 7.23 | 0.957 | 0.878 | 1.89 | 1.7 | 11.5 | 11.9 | 13.6 | 10.2 | 23.4 | 12 | 17.7 | 16.1 |
| Cr | 27.5 | 53.5 | 42.9 | 37.5 | 31.6 | 3.31 | 1.35 | 4.14 | 4.09 | 3.01 | 1.9 | 1.2 | 1.55 | 2.32 | 0.427 | 1.81 | 1.77 | 0.634 | 0.637 |
| Co | 28.5 | 29.7 | 31.1 | 28.7 | 39.3 | 0.126 | 0.132 | 0.134 | 0.196 | 0.127 | 0.468 | 1.62 | 1.87 | 0.946 | 1.12 | 2.88 | 1.8 | 1.45 | 1.33 |
| Ni | 15.3 | 23.5 | 19.9 | 15.8 | 23.5 | 1.95 | 1.03 | 1.24 | 1.23 | 1.43 | 2.34 | 1.61 | 1.88 | 1.51 | 0.84 | 2.62 | 2.21 | 1.65 | 1.7 |
| Cu | 16.7 | 36.2 | 33.9 | 24.2 | 82.7 | 4.21 | 5.26 | 1.97 | 1.2 | 1.28 | 1.78 | 9.13 | 5.33 | 1.52 | 3.38 | 1.58 | 4.13 | 1.92 | 2.1 |
| Zn | 69.3 | 58.2 | 62.7 | 66.3 | 74.8 | 91.9 | 92 | 65.7 | 83 | 97 | 143 | 26.2 | 27.4 | 53.1 | 16.3 | 22.2 | 16 | 56.7 | 57 |
| Ga | 15.4 | 16.3 | 17.8 | 17 | 17.1 | 24.2 | 23.1 | 23.2 | 27.3 | 29.8 | 32.9 | 18.4 | 18.8 | 20.3 | 13.5 | 14.8 | 12.6 | 21.4 | 20.7 |
| Rb | 26.9 | 9.68 | 28.3 | 11.4 | 22.1 | 96.7 | 101 | 107 | 124 | 123 | 146 | 55.6 | 71.9 | 73.5 | 89.2 | 111 | 99 | 82.5 | 81.8 |
| Sr | 366 | 328 | 501 | 323 | 377 | 17.4 | 9.9 | 11 | 9.8 | 8.82 | 9.65 | 93.8 | 101 | 157 | 179 | 118 | 86.5 | 241 | 241 |
| Y | 16.5 | 16.7 | 17.3 | 17.5 | 19 | 51.4 | 65.2 | 52.1 | 58.1 | 87.2 | 120 | 28.3 | 28.3 | 31.7 | 13.4 | 15 | 10.7 | 28.3 | 26.2 |
| Zr | 62.5 | 52.5 | 80.2 | 65.7 | 75.2 | 758 | 701 | 705 | 562 | 917 | 1360 | 277 | 273 | 291 | 118 | 248 | 108 | 258 | 254 |
| Nb | 2.55 | 1.87 | 3.9 | 2.55 | 2.54 | 16.9 | 18.7 | 20.2 | 25.1 | 27.5 | 30.2 | 11 | 10.7 | 10.8 | 8.41 | 7.31 | 4.74 | 10.8 | 10.5 |
| Cs | 2.1 | 0.924 | 2.2 | 1.11 | 1.61 | 2.21 | 1.77 | 1.51 | 2.86 | 4.24 | 2.87 | 1.35 | 1.97 | 1.43 | 1.8 | 2.82 | 3.2 | 1.99 | 1.85 |
| Ba | 124 | 106 | 210 | 124 | 150 | 84.6 | 55.2 | 22.6 | 23.5 | 35.2 | 54 | 824 | 1090 | 799 | 509 | 521 | 437 | 783 | 741 |
| La | 7.16 | 6.02 | 7.92 | 7.79 | 7.33 | 32 | 41.9 | 30.3 | 35 | 71.8 | 54.5 | 25 | 32.8 | 29.2 | 16.8 | 17.7 | 13.9 | 31.8 | 30.9 |
| Ce | 15.9 | 14 | 17.7 | 17.5 | 17 | 70.8 | 67.8 | 69 | 85.4 | 150 | 143 | 52.2 | 74.3 | 66.3 | 36.3 | 44.4 | 36.9 | 64.1 | 63.7 |
| Pr | 2.13 | 1.95 | 2.36 | 2.32 | 2.35 | 9.38 | 12.2 | 9.01 | 10.8 | 21 | 17 | 7.25 | 8.6 | 8.41 | 4.14 | 3.76 | 2.57 | 8.03 | 7.99 |
| Nd | 9.4 | 8.87 | 10.4 | 10.2 | 10.5 | 38.1 | 50.2 | 36.7 | 43.3 | 84.9 | 67.3 | 28.7 | 32.2 | 33.2 | 14.8 | 12.8 | 8.16 | 30.3 | 30.2 |
| Sm | 2.44 | 2.42 | 2.63 | 2.62 | 2.82 | 8.39 | 11.1 | 8.1 | 9.35 | 17.9 | 15.1 | 5.78 | 6 | 6.64 | 2.78 | 2.44 | 1.51 | 5.82 | 5.68 |
| Eu | 0.906 | 0.911 | 1.05 | 0.948 | 0.924 | 0.399 | 0.6 | 0.435 | 0.867 | 1.63 | 0.869 | 1.17 | 1.24 | 1.43 | 0.575 | 0.526 | 0.377 | 1.33 | 1.3 |
| Gd | 2.73 | 2.71 | 2.92 | 2.89 | 3.17 | 8.36 | 11.1 | 8.13 | 8.52 | 16.1 | 14.8 | 5.24 | 5.2 | 5.98 | 2.57 | 2.68 | 1.79 | 5.21 | 5.02 |
| Tb | 0.465 | 0.469 | 0.495 | 0.491 | 0.537 | 1.45 | 1.89 | 1.43 | 1.45 | 2.66 | 2.9 | 0.828 | 0.815 | 0.922 | 0.382 | 0.397 | 0.267 | 0.786 | 0.746 |
| Dy | 2.85 | 2.89 | 3.02 | 3.04 | 3.31 | 9.06 | 11.5 | 9.21 | 9.52 | 16 | 19.7 | 4.84 | 4.75 | 5.33 | 2.18 | 2.38 | 1.64 | 4.58 | 4.29 |
| Ho | 0.602 | 0.609 | 0.637 | 0.636 | 0.699 | 1.97 | 2.45 | 2.04 | 2.16 | 3.47 | 4.53 | 1.03 | 1.02 | 1.11 | 0.451 | 0.51 | 0.354 | 0.957 | 0.902 |
| Er | 1.71 | 1.71 | 1.81 | 1.8 | 1.97 | 5.83 | 7.04 | 6.05 | 7.08 | 10.7 | 14.1 | 3.06 | 3.07 | 3.3 | 1.35 | 1.52 | 1.12 | 2.86 | 2.71 |
| Tm | 0.257 | 0.262 | 0.276 | 0.272 | 0.298 | 0.919 | 1.1 | 0.959 | 1.22 | 1.78 | 2.38 | 0.495 | 0.507 | 0.53 | 0.223 | 0.241 | 0.194 | 0.464 | 0.439 |
| Yb | 1.62 | 1.62 | 1.74 | 1.72 | 1.85 | 5.82 | 6.92 | 6.07 | 8.57 | 11.6 | 15.7 | 3.25 | 3.37 | 3.45 | 1.52 | 1.58 | 1.35 | 3.05 | 2.9 |
| Lu | 0.248 | 0.245 | 0.269 | 0.26 | 0.285 | 0.894 | 1.08 | 0.955 | 1.34 | 1.79 | 2.46 | 0.517 | 0.54 | 0.542 | 0.238 | 0.259 | 0.218 | 0.483 | 0.461 |
| Ta | 0.197 | 0.146 | 0.314 | 0.201 | 0.196 | 0.533 | 0.623 | 0.936 | 1.83 | 1.59 | 1.37 | 0.814 | 0.779 | 0.787 | 0.755 | 0.512 | 0.617 | 0.81 | 0.825 |
| Hf | 1.7 | 1.47 | 2.13 | 1.8 | 1.99 | 17.9 | 16.8 | 17 | 14 | 22.3 | 32.7 | 7.38 | 7.15 | 7.42 | 3.45 | 6.72 | 3.7 | 6.82 | 6.74 |
| Pb | 7.08 | 5.36 | 5.84 | 8.74 | 5.26 | 14.2 | 21.4 | 30.5 | 19.1 | 34.6 | 30 | 11.1 | 10.1 | 12.2 | 9.48 | 23.9 | 20.6 | 14.9 | 15 |
| Th | 2.13 | 1.72 | 2.2 | 2.38 | 2.19 | 9.87 | 10.5 | 9.22 | 14.9 | 16.4 | 19.5 | 7.72 | 9.08 | 8.58 | 7.63 | 16.5 | 17.6 | 8.88 | 9.17 |
| U | 0.498 | 0.377 | 0.497 | 0.443 | 0.498 | 4.21 | 3.8 | 3.55 | 3.81 | 5.37 | 8.17 | 2.12 | 2.32 | 1.93 | 1.54 | 2.59 | 2.83 | 1.26 | 1.45 |
| (La/Yb)N | 3.17 | 2.67 | 3.26 | 3.25 | 2.84 | 3.94 | 4.34 | 3.58 | 2.93 | 4.44 | 2.49 | 5.52 | 6.98 | 6.07 | 7.93 | 8.04 | 7.39 | 7.48 | 7.64 |
| *δ*Eu | 1.07 | 1.08 | 1.15 | 1.05 | 0.94 | 0.14 | 0.16 | 0.16 | 0.29 | 0.29 | 0.18 | 0.64 | 0.66 | 0.68 | 0.65 | 0.63 | 0.70 | 0.72 | 0.73 |

附表3 乌拉盖复式岩体古生代侵入岩全岩Sr-Nd同位素组成

Table 3 Whole rock Sr-Nd isotopic compositions for Paleozoic intrusions of the Wulagai pluton

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 样品号 | t  (Ma) | Rb  (ppm) | Sr  (ppm) | 87Rb/  86Sr | 87Sr/  86Sr | 2σ | (87Sr/  86Sr)i | Sm  (ppm) | Nd  (ppm) | 147Sm/  144Nd | 143Nd/  144Nd | 2σ | *f*Sm/Nd | *ε*Nd(*t*) | *t*DM  (Ma) |
| 22WLG  -6.6 | 480.1 | 26.9 | 366 | 0.2126 | 0.706483 | 0.000008 | 0.705029 | 2.44 | 9.4 | 0.156930 | 0.512681 | 0.000008 | -0.20 | 3.3 | 1264 |
| 22WLG  -6.7 | 480.1 | 9.68 | 328 | 0.0854 | 0.705002 | 0.000010 | 0.704418 | 2.42 | 8.87 | 0.164945 | 0.512715 | 0.000005 | -0.16 | 3.5 | 1364 |
| 22WLG  -1.1 | 347.4 | 96.7 | 17.4 | 16.1360 | 0.743484 | 0.000009 | \*0.663687 | 8.39 | 38.1 | 0.133135 | 0.512791 | 0.000004 | -0.32 | 5.8 | 683 |
| 22WLG  -3.1 | 347.4 | 124 | 9.8 | 37.1344 | 0.854191 | 0.000012 | \*0.670552 | 9.35 | 43.3 | 0.130551 | 0.512811 | 0.000004 | -0.34 | 6.3 | 625 |
| 22WLG  -4.1 | 347.4 | 146 | 9.65 | 44.4966 | 0.876191 | 0.000014 | \*0.656144 | 15.1 | 67.3 | 0.135650 | 0.512811 | 0.000005 | -0.31 | 6.1 | 665 |
| 22WLG  -6.3 | 348.0 | 55.6 | 93.8 | 1.7156 | 0.711249 | 0.000008 | 0.702750 | 5.78 | 28.7 | 0.121757 | 0.512723 | 0.000005 | -0.38 | 5.0 | 711 |
| 22WLG  -6.4 | 344.3 | 71.9 | 101 | 2.0607 | 0.712565 | 0.000009 | 0.702466 | 6.00 | 32.2 | 0.112653 | 0.51271 | 0.000005 | -0.43 | 5.1 | 666 |
| 19HLH  -1 | 348.3 | 89.2 | 179 | 1.4422 | 0.710452 | 0.000010 | 0.703301 | 2.78 | 14.8 | 0.113561 | 0.512697 | 0.000007 | -0.42 | 4.9 | 692 |

\*无效数据

附表4 乌拉盖复式岩体古生代侵入岩锆石Hf同位素组成

Table 4 Zircon Hf isotopic compositions for Paleozoic intrusions of the Wulagai pluton

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 点号 | 年龄  (Ma) | 176Yb/177Hf | 176Lu/177Hf | 176Hf/177Hf | 2σ | *ε*Hf(0) | *ε*Hf(*t*) | 2σ | *t*DM1  (Ma) | *t*DM2  (Ma) | *f*Lu/Hf |
| 22WLG-1.1 |  |  |  |  |  |  |  |  |  |  |  |
| 22WLG-1.1-5 | 347.4 | 0.194503 | 0.005614 | 0.283021 | 0.000040 | 8.8 | 15.2 | 1.4 | 372 | 382 | -0.83 |
| 22WLG-1.1-7 | 347.4 | 0.213223 | 0.006310 | 0.283001 | 0.000053 | 8.1 | 14.3 | 1.9 | 415 | 440 | -0.81 |
| 22WLG-1.1-9 | 347.4 | 0.184360 | 0.004984 | 0.282923 | 0.000042 | 5.3 | 11.8 | 1.5 | 522 | 596 | -0.85 |
| 22WLG-1.1-10 | 347.4 | 0.181570 | 0.004509 | 0.283004 | 0.000038 | 8.2 | 14.8 | 1.3 | 387 | 405 | -0.86 |
| 22WLG-1.1-11 | 347.4 | 0.142438 | 0.003255 | 0.282949 | 0.000032 | 6.3 | 13.2 | 1.1 | 456 | 511 | -0.90 |
| 22WLG-1.1-12 | 347.4 | 0.155711 | 0.003849 | 0.282975 | 0.000037 | 7.2 | 14.0 | 1.3 | 424 | 460 | -0.88 |
| 22WLG-1.1-13 | 347.4 | 0.132086 | 0.002956 | 0.283013 | 0.000033 | 8.5 | 15.5 | 1.2 | 357 | 361 | -0.91 |
| 22WLG-1.1-16 | 347.4 | 0.093461 | 0.002030 | 0.282915 | 0.000030 | 5.1 | 12.2 | 1.1 | 491 | 571 | -0.94 |
| 22WLG-1.1-17 | 347.4 | 0.120652 | 0.003045 | 0.282999 | 0.000036 | 8.0 | 15.0 | 1.3 | 379 | 396 | -0.91 |
| 22WLG-1.1-18 | 347.4 | 0.160539 | 0.004413 | 0.282921 | 0.000040 | 5.3 | 11.9 | 1.4 | 515 | 591 | -0.87 |
| 22WLG-6.4 |  |  |  |  |  |  |  |  |  |  |  |
| 22WLG-6.4-1 | 344.3 | 0.084346 | 0.002566 | 0.283010 | 0.000040 | 8.4 | 15.4 | 1.4 | 357 | 364 | -0.92 |
| 22WLG-6.4-4 | 344.3 | 0.075894 | 0.001721 | 0.282931 | 0.000037 | 5.6 | 12.8 | 1.3 | 463 | 531 | -0.95 |
| 22WLG-6.4-5 | 344.3 | 0.079561 | 0.002170 | 0.282935 | 0.000038 | 5.8 | 12.9 | 1.3 | 463 | 528 | -0.93 |
| 22WLG-6.4-6 | 344.3 | 0.110545 | 0.003096 | 0.282963 | 0.000037 | 6.8 | 13.6 | 1.3 | 433 | 479 | -0.91 |
| 22WLG-6.4-7 | 344.3 | 0.058375 | 0.001362 | 0.282994 | 0.000031 | 7.9 | 15.1 | 1.1 | 368 | 382 | -0.96 |
| 22WLG-6.4-8 | 344.3 | 0.077601 | 0.001960 | 0.282978 | 0.000041 | 7.3 | 14.4 | 1.5 | 399 | 429 | -0.94 |
| 22WLG-6.4-10 | 344.3 | 0.059442 | 0.001687 | 0.282924 | 0.000031 | 5.4 | 12.6 | 1.1 | 474 | 547 | -0.95 |
| 22WLG-6.4-11 | 344.3 | 0.040155 | 0.001065 | 0.282977 | 0.000029 | 7.2 | 14.6 | 1.0 | 391 | 418 | -0.97 |
| 22WLG-6.4-12 | 344.3 | 0.062758 | 0.001708 | 0.282942 | 0.000032 | 6.0 | 13.2 | 1.1 | 448 | 508 | -0.95 |
| 22WLG-6.4-13 | 344.3 | 0.068883 | 0.001948 | 0.282902 | 0.000030 | 4.6 | 11.7 | 1.1 | 509 | 601 | -0.94 |
| 22WLG-6.4-15 | 344.3 | 0.053155 | 0.001708 | 0.282941 | 0.000029 | 6.0 | 13.2 | 1.0 | 449 | 509 | -0.95 |
| 22WLG-6.4-16 | 344.3 | 0.062315 | 0.001958 | 0.282909 | 0.000031 | 4.9 | 12.0 | 1.1 | 499 | 585 | -0.94 |
| 22WLG-6.4-18 | 344.3 | 0.070375 | 0.001955 | 0.282979 | 0.000031 | 7.3 | 14.4 | 1.1 | 397 | 427 | -0.94 |
| 22WLG-6.4-20 | 344.3 | 0.046370 | 0.001346 | 0.282983 | 0.000028 | 7.5 | 14.7 | 1.0 | 385 | 409 | -0.96 |
| 22WLG-6.4-22 | 344.3 | 0.055548 | 0.001615 | 0.282993 | 0.000024 | 7.8 | 15.0 | 0.9 | 373 | 389 | -0.95 |
| 22WLG-6.4-23 | 344.3 | 0.048239 | 0.001275 | 0.282975 | 0.000024 | 7.2 | 14.5 | 0.9 | 395 | 425 | -0.96 |
| 22WLG-6.4-24 | 344.3 | 0.101721 | 0.002850 | 0.282905 | 0.000031 | 4.7 | 11.6 | 1.1 | 518 | 608 | -0.91 |
| 22WLG-6.7 |  |  |  |  |  |  |  |  |  |  |  |
| 22WLG-6.7-1 | 480.1 | 0.071996 | 0.001851 | 0.282696 | 0.000032 | -2.7 | 7.3 | 1.1 | 805 | 988 | -0.94 |
| 22WLG-6.7-2 | 480.1 | 0.037467 | 0.001000 | 0.282764 | 0.000032 | -0.3 | 10.0 | 1.1 | 692 | 819 | -0.97 |
| 22WLG-6.7-3 | 480.1 | 0.028898 | 0.000809 | 0.282758 | 0.000026 | -0.5 | 9.8 | 0.9 | 697 | 828 | -0.98 |
| 22WLG-6.7-4 | 480.1 | 0.037796 | 0.001069 | 0.282764 | 0.000026 | -0.3 | 10.0 | 0.9 | 693 | 819 | -0.97 |
| 22WLG-6.7-5 | 480.1 | 0.021594 | 0.000696 | 0.282741 | 0.000030 | -1.1 | 9.3 | 1.0 | 718 | 864 | -0.98 |
| 22WLG-6.7-6 | 480.1 | 0.017254 | 0.000506 | 0.282720 | 0.000026 | -1.9 | 8.6 | 0.9 | 745 | 909 | -0.98 |
| 22WLG-6.7-7 | 480.1 | 0.037620 | 0.001118 | 0.282820 | 0.000031 | 1.7 | 11.9 | 1.1 | 615 | 695 | -0.97 |
| 22WLG-6.7-8 | 480.1 | 0.022109 | 0.000553 | 0.282735 | 0.000026 | -1.3 | 9.1 | 0.9 | 724 | 875 | -0.98 |
| 22WLG-6.7-9 | 480.1 | 0.021931 | 0.000654 | 0.282781 | 0.000028 | 0.3 | 10.7 | 1.0 | 662 | 773 | -0.98 |
| 22WLG-6.7-10 | 480.1 | 0.032661 | 0.000876 | 0.282720 | 0.000030 | -1.8 | 8.5 | 1.0 | 751 | 915 | -0.97 |
| 22WLG-6.7-11 | 480.1 | 0.048546 | 0.001336 | 0.282784 | 0.000036 | 0.4 | 10.6 | 1.3 | 669 | 779 | -0.96 |
| 22WLG-6.7-12 | 480.1 | 0.044483 | 0.001159 | 0.282728 | 0.000032 | -1.6 | 8.7 | 1.1 | 746 | 903 | -0.97 |
| 22WLG-6.7-13 | 480.1 | 0.018896 | 0.000560 | 0.282777 | 0.000033 | 0.2 | 10.6 | 1.2 | 666 | 781 | -0.98 |
| 22WLG-6.7-14 | 480.1 | 0.038165 | 0.001125 | 0.282772 | 0.000027 | 0.0 | 10.2 | 1.0 | 683 | 803 | -0.97 |
| 22WLG-6.7-15 | 480.1 | 0.043288 | 0.001289 | 0.282723 | 0.000027 | -1.7 | 8.4 | 1.0 | 756 | 917 | -0.96 |
| 22WLG-6.7-16 | 480.1 | 0.048431 | 0.001366 | 0.282703 | 0.000028 | -2.4 | 7.7 | 1.0 | 785 | 964 | -0.96 |
| 22WLG-6.7-17 | 480.1 | 0.030473 | 0.000932 | 0.282732 | 0.000025 | -1.4 | 8.9 | 0.9 | 736 | 890 | -0.97 |
| 22WLG-6.7-18 | 480.1 | 0.021483 | 0.000712 | 0.282700 | 0.000021 | -2.5 | 7.8 | 0.7 | 775 | 956 | -0.98 |
| 22WLG-6.7-19 | 480.1 | 0.054386 | 0.001702 | 0.282805 | 0.000025 | 1.1 | 11.2 | 0.9 | 646 | 741 | -0.95 |
| 22WLG-6.7-20 | 480.1 | 0.026661 | 0.000945 | 0.282777 | 0.000022 | 0.2 | 10.5 | 0.8 | 672 | 788 | -0.97 |
| 22WLG-6.7-21 | 480.1 | 0.028843 | 0.000946 | 0.282794 | 0.000025 | 0.8 | 11.1 | 0.9 | 649 | 750 | -0.97 |
| 22WLG-6.7-22 | 480.1 | 0.036294 | 0.001165 | 0.282740 | 0.000023 | -1.1 | 9.1 | 0.8 | 729 | 875 | -0.96 |
| 22WLG-6.7-23 | 480.1 | 0.051174 | 0.001683 | 0.282865 | 0.000024 | 3.3 | 13.3 | 0.8 | 559 | 603 | -0.95 |
| 22WLG-6.7-24 | 480.1 | 0.039186 | 0.001401 | 0.282752 | 0.000023 | -0.7 | 9.4 | 0.8 | 716 | 853 | -0.96 |
| 22WLG-6.7-25 | 480.1 | 0.036460 | 0.001230 | 0.282726 | 0.000022 | -1.6 | 8.6 | 0.8 | 749 | 908 | -0.96 |