Geochronology analysis data of samples from Middle and Late Jurassic pyroclastic and volcanic rocks in the Yanshan belt.

Table S1. Geochronology analysis data of XS-15-17

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | | | |  | **Radiogenic isotopic ratio** | | | | **Isotopic age (Ma)** | | | |
| **Sample/** | **[U]** | **[Th]** | **[Pb]** | **Th/U** | ***f*206** | **207Pb** | **±** | **206Pb** | **±** | **207Pb** | **±** | **206Pb** | **±** |
| **spot #** | **ppm** | **ppm** | **ppm** |  | **%** | **235U** | **%** | **238U** | **%** | **235U** |  | **238U** |  |
| XS-15-17@01 | 159 | 199 | 6 | 1.25 | 0.00 | 0.17437 | 2.75 | 0.0259 | 1.56 | 163.2 | 4.2 | 164.8 | 2.5 |
| XS-15-17@02 | 80 | 73 | 3 | 0.91 | >1e6 | 0.18966 | 3.42 | 0.0264 | 1.54 | 176.3 | 5.5 | 168.1 | 2.6 |
| XS-15-17@03 | 126 | 76 | 4 | 0.60 | 0.00 | 0.16639 | 3.01 | 0.0252 | 1.56 | 156.3 | 4.4 | 160.2 | 2.5 |
| XS-15-17@04 | 131 | 88 | 4 | 0.68 | 0.43 | 0.16992 | 3.55 | 0.0259 | 1.54 | 159.4 | 5.2 | 164.9 | 2.5 |
| XS-15-17@05 | 295 | 42 | 8 | 0.14 | 0.27 | 0.17093 | 2.26 | 0.0252 | 1.50 | 160.2 | 3.4 | 160.2 | 2.4 |
| XS-15-17@06 | 181 | 196 | 6 | 1.09 | 0.16 | 0.17109 | 3.17 | 0.0252 | 1.56 | 160.4 | 4.7 | 160.3 | 2.5 |
| XS-15-17@07 | 98 | 88 | 4 | 0.89 | 0.23 | 0.22692 | 2.97 | 0.0332 | 1.56 | 207.7 | 5.6 | 210.5 | 3.2 |
| XS-15-17@08 | 251 | 42 | 7 | 0.17 | 0.11 | 0.16921 | 2.59 | 0.0248 | 1.55 | 158.7 | 3.8 | 157.8 | 2.4 |
| XS-15-17@09 | 200 | 220 | 7 | 1.10 | 0.20 | 0.17093 | 3.31 | 0.0250 | 1.55 | 160.2 | 4.9 | 158.9 | 2.4 |
| ~~XS-15-17@10~~ | ~~160~~ | ~~95~~ | ~~5~~ | ~~0.59~~ | 0.11 | ~~0.17872~~ | ~~12.21~~ | ~~0.0255~~ | ~~11.83~~ | ~~167.0~~ | ~~19.0~~ | ~~162.4~~ | ~~19.0~~ |
| XS-15-17@11 | 139 | 150 | 5 | 1.08 | 0.06 | 0.17050 | 4.48 | 0.0253 | 1.65 | 159.9 | 6.7 | 161.3 | 2.6 |
| XS-15-17@12 | 234 | 93 | 7 | 0.40 | 0.21 | 0.17858 | 2.52 | 0.0261 | 1.63 | 166.8 | 3.9 | 165.8 | 2.7 |
| XS-15-17@13 | 175 | 115 | 5 | 0.66 | 0.23 | 0.16683 | 3.21 | 0.0248 | 1.60 | 156.7 | 4.7 | 157.8 | 2.5 |
| XS-15-17@14 | 172 | 159 | 6 | 0.92 | 0.64 | 0.16823 | 4.11 | 0.0249 | 1.60 | 157.9 | 6.0 | 158.5 | 2.5 |
| XS-15-17@15 | 99 | 169 | 4 | 1.70 | 0.49 | 0.16440 | 4.65 | 0.0237 | 1.58 | 154.6 | 6.7 | 150.9 | 2.4 |
| XS-15-17@16 | 224 | 107 | 7 | 0.48 | 0.35 | 0.17648 | 2.41 | 0.0254 | 1.51 | 165.0 | 3.7 | 161.4 | 2.4 |
| XS-15-17@17 | 171 | 189 | 6 | 1.10 | 0.24 | 0.16494 | 2.82 | 0.0251 | 1.73 | 155.0 | 4.1 | 159.9 | 2.7 |
| XS-15-17@18 | 337 | 52 | 9 | 0.16 | 0.03 | 0.17115 | 2.23 | 0.0251 | 1.56 | 160.4 | 3.3 | 159.6 | 2.5 |
| \****f206***: the proportion of common 206Pb in total measured 206Pb. | | | | | | | | | | | | | |

Table S2. Geochronology analysis data of XS-15-13

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | | | |  | **Radiogenic isotopic ratio** | | | | **Isotopic age (Ma)** | | | |
| **Sample/** | **[U]** | **[Th]** | **[Pb]** | **Th/U** | ***f*206** | **207Pb** | **±** | **206Pb** | **±** | **207Pb** | **±** | **206Pb** | **±** |
| **spot #** | **ppm** | **ppm** | **ppm** |  | **%** | **235U** | **%** | **238U** | **%** | **235U** |  | **238U** |  |
| XS-15-13@1 | 248 | 21 | 7 | 0.085 | >1e6 | 0.18405 | 2.65 | 0.0267 | 1.55 | 171.5 | 4.2 | 170.0 | 2.6 |
| ~~XS-15-13@2~~ | ~~142~~ | ~~137~~ | ~~6~~ | ~~0.967~~ | ~~0.85~~ | ~~0.22371~~ | ~~2.99~~ | ~~0.0331~~ | ~~1.51~~ | ~~205.0~~ | ~~5.6~~ | ~~210.2~~ | ~~3.1~~ |
| XS-15-13@3 | 314 | 65 | 9 | 0.207 | >1e6 | 0.18453 | 2.44 | 0.0269 | 1.52 | 172.0 | 3.9 | 171.3 | 2.6 |
| XS-15-13@4 | 398 | 76 | 12 | 0.191 | 0.10 | 0.18179 | 2.41 | 0.0267 | 1.51 | 169.6 | 3.8 | 170.1 | 2.5 |
| XS-15-13@5 | 607 | 223 | 18 | 0.367 | >1e6 | 0.17508 | 2.17 | 0.0256 | 1.54 | 163.8 | 3.3 | 162.7 | 2.5 |
| XS-15-13@6 | 633 | 86 | 19 | 0.136 | 0.20 | 0.18834 | 2.36 | 0.0275 | 1.51 | 175.2 | 3.8 | 174.9 | 2.6 |
| XS-15-13@7 | 221 | 39 | 6 | 0.175 | 0.26 | 0.17749 | 3.64 | 0.0261 | 1.51 | 165.9 | 5.6 | 165.9 | 2.5 |
| XS-15-13@8 | 301 | 123 | 10 | 0.409 | 0.53 | 0.17960 | 4.56 | 0.0272 | 1.56 | 167.7 | 7.1 | 172.8 | 2.7 |
| XS-15-13@9 | 288 | 92 | 9 | 0.321 | >1e6 | 0.17985 | 2.58 | 0.0257 | 1.53 | 167.9 | 4.0 | 163.7 | 2.5 |
| XS-15-13@10 | 445 | 51 | 13 | 0.115 | 0.28 | 0.19059 | 2.17 | 0.0273 | 1.52 | 177.1 | 3.5 | 173.8 | 2.6 |
| XS-15-13@11 | 356 | 74 | 11 | 0.209 | 0.24 | 0.18752 | 2.31 | 0.0277 | 1.50 | 174.5 | 3.7 | 175.9 | 2.6 |
| XS-15-13@12 | 158 | 58 | 5 | 0.370 | 0.20 | 0.18974 | 2.97 | 0.0274 | 1.50 | 176.4 | 4.8 | 174.3 | 2.6 |
| XS-15-13@13 | 574 | 214 | 17 | 0.374 | 0.00 | 0.17533 | 2.21 | 0.0258 | 1.52 | 164.0 | 3.4 | 164.2 | 2.5 |
| XS-15-13@14 | 413 | 45 | 12 | 0.110 | 0.21 | 0.18795 | 2.25 | 0.0272 | 1.51 | 174.9 | 3.6 | 172.9 | 2.6 |
| ~~XS-15-13@15~~ | ~~318~~ | ~~186~~ | ~~13~~ | ~~0.584~~ | ~~0.13~~ | ~~0.22845~~ | ~~2.26~~ | ~~0.0331~~ | ~~1.56~~ | ~~208.9~~ | ~~4.3~~ | ~~209.7~~ | ~~3.2~~ |
| XS-15-13@16 | 215 | 64 | 7 | 0.295 | >1e6 | 0.18802 | 3.42 | 0.0269 | 1.52 | 174.9 | 5.5 | 171.3 | 2.6 |
| XS-15-13@17 | 602 | 298 | 19 | 0.495 | 0.00 | 0.17070 | 2.03 | 0.0256 | 1.50 | 160.0 | 3.0 | 163.0 | 2.4 |
| XS-15-13@18 | 444 | 48 | 13 | 0.108 | 0.07 | 0.18632 | 2.13 | 0.0276 | 1.50 | 173.5 | 3.4 | 175.5 | 2.6 |
| \****f206***: the proportion of common 206Pb in total measured 206Pb. | | | | | | | | | | | | | |

Table S3. Geochronology analysis data of CD-16-14

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | | | |  | **Radiogenic isotopic ratio** | | | | **Isotopic age (Ma)** | | | |
| **Sample/** | **[U]** | **[Th]** | **[Pb]** | **Th/U** | ***f*206** | **207Pb** | **±** | **206Pb** | **±** | **207Pb** | **±** | **206Pb** | **±** |
| **spot #** | **ppm** | **ppm** | **ppm** |  | **%** | **235U** | **%** | **238U** | **%** | **235U** |  | **238U** |  |
| CD-16-14@01 | 128 | 88 | 4 | 0.690 | 0.38 | 0.16941 | 2.50 | 0.0250 | 1.54 | 158.9 | 3.7 | 159.2 | 2.4 |
| CD-16-14@02 | 846 | 632 | 28 | 0.747 | 0.08 | 0.17518 | 1.83 | 0.0255 | 1.58 | 163.9 | 2.8 | 162.5 | 2.5 |
| CD-16-14@03 | 985 | 1566 | 39 | 1.590 | 0.16 | 0.17342 | 1.83 | 0.0253 | 1.51 | 162.4 | 2.7 | 160.9 | 2.4 |
| ~~CD-16-14@04~~ | ~~252~~ | ~~151~~ | ~~161~~ | ~~0.599~~ | ~~0.01~~ | ~~11.02722~~ | ~~1.63~~ | ~~0.4799~~ | ~~1.56~~ | ~~2525.4~~ | ~~15.3~~ | ~~2526.8~~ | ~~32.7~~ |
| CD-16-14@05 | 178 | 225 | 6 | 1.266 | 0.19 | 0.16964 | 2.74 | 0.0248 | 1.78 | 159.1 | 4.0 | 157.7 | 2.8 |
| CD-16-14@06 | 563 | 627 | 19 | 1.113 | 0.16 | 0.16571 | 1.86 | 0.0246 | 1.50 | 155.7 | 2.7 | 156.9 | 2.3 |
| CD-16-14@07 | 324 | 592 | 12 | 1.829 | 1.52 | 0.15651 | 4.70 | 0.0239 | 1.58 | 147.6 | 6.5 | 152.1 | 2.4 |
| CD-16-14@08 | 194 | 320 | 8 | 1.647 | 0.04 | 0.17131 | 2.25 | 0.0251 | 1.54 | 160.6 | 3.3 | 159.8 | 2.4 |
| CD-16-14@09 | 182 | 253 | 7 | 1.393 | 0.19 | 0.16896 | 2.89 | 0.0251 | 2.05 | 158.5 | 4.3 | 159.8 | 3.2 |
| ~~CD-16-14@10~~ | ~~57~~ | ~~26~~ | ~~30~~ | ~~0.456~~ | ~~0.03~~ | ~~8.27224~~ | ~~1.62~~ | ~~0.4082~~ | ~~1.54~~ | ~~2261.3~~ | ~~14.8~~ | ~~2206.8~~ | ~~28.9~~ |
| CD-16-14@11 | 180 | 191 | 6 | 1.063 | 0.18 | 0.16362 | 2.94 | 0.0244 | 2.11 | 153.9 | 4.2 | 155.4 | 3.2 |
| CD-16-14@12 | 576 | 402 | 19 | 0.699 | 0.10 | 0.17324 | 1.80 | 0.0255 | 1.55 | 162.2 | 2.7 | 162.5 | 2.5 |
| CD-16-14@13 | 220 | 277 | 8 | 1.259 | 0.24 | 0.16581 | 2.71 | 0.0246 | 1.74 | 155.8 | 3.9 | 156.7 | 2.7 |
| CD-16-14@14 | 710 | 669 | 25 | 0.943 | 0.38 | 0.17089 | 2.29 | 0.0257 | 1.51 | 160.2 | 3.4 | 163.3 | 2.4 |
| CD-16-14@15 | 427 | 790 | 17 | 1.851 | 0.09 | 0.17117 | 1.99 | 0.0251 | 1.54 | 160.4 | 3.0 | 159.6 | 2.4 |
| CD-16-14@16 | 372 | 562 | 14 | 1.510 | 0.18 | 0.16884 | 1.93 | 0.0246 | 1.52 | 158.4 | 2.8 | 156.4 | 2.3 |
| CD-16-14@17 | 80 | 179 | 3 | 2.251 | 0.74 | 0.16922 | 3.04 | 0.0253 | 1.52 | 158.7 | 4.5 | 161.1 | 2.4 |
| CD-16-14@18 | 633 | 590 | 21 | 0.933 | 0.06 | 0.16999 | 1.85 | 0.0251 | 1.52 | 159.4 | 2.7 | 159.6 | 2.4 |
| \****f206***: the proportion of common 206Pb in total measured 206Pb. | | | | | | | | | | | | | |

Table S4. Geochronology analysis data of LY-17-08B

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | | | |  | **Radiogenic isotopic ratio** | | | | **Isotopic age (Ma)** | | | |
| **Sample/** | **[U]** | **[Th]** | **[Pb]** | **Th/U** | ***f*206** | **207Pb** | **±** | **206Pb** | **±** | **207Pb** | **±** | **206Pb** | **±** |
| **spot #** | **ppm** | **ppm** | **ppm** |  | **%** | **235U** | **%** | **238U** | **%** | **235U** |  | **238U** |  |
| LY-17-08B@01 | 2962 | 529 | 89 | 0.179 | 0.02 | 0.18490 | 1.56 | 0.0271 | 1.50 | 172.3 | 2.5 | 172.1 | 2.5 |
| LY-17-08B@02 | 2103 | 290 | 63 | 0.138 | 0.12 | 0.17573 | 5.97 | 0.0275 | 1.70 | 164.4 | 9.1 | 175.0 | 2.9 |
| LY-17-08B@04 | 2600 | 340 | 78 | 0.131 | 0.04 | 0.18752 | 1.64 | 0.0275 | 1.51 | 174.5 | 2.6 | 174.9 | 2.6 |
| ~~LY-17-08B@05~~ | 1736 | ~~417~~ | ~~8~~ | ~~0.240~~ | ~~3.62~~ | ~~0.01757~~ | ~~99.17~~ | ~~0.0046~~ | ~~10.52~~ | ~~17.7~~ | ~~17.5~~ | ~~29.6~~ | ~~3.1~~ |
| LY-17-08B@06 | 3017 | 506 | 92 | 0.168 | 0.05 | 0.18843 | 1.56 | 0.0277 | 1.50 | 175.3 | 2.5 | 175.9 | 2.6 |
| LY-17-08B@07 | 2740 | 412 | 82 | 0.150 | 0.02 | 0.18504 | 1.59 | 0.0271 | 1.51 | 172.4 | 2.5 | 172.2 | 2.6 |
| LY-17-08B@08 | 2924 | 451 | 87 | 0.154 | 0.04 | 0.18499 | 1.57 | 0.0271 | 1.50 | 172.3 | 2.5 | 172.3 | 2.6 |
| LY-17-08B@09 | 2474 | 380 | 73 | 0.154 | 0.03 | 0.18282 | 1.69 | 0.0267 | 1.62 | 170.5 | 2.7 | 170.0 | 2.7 |
| LY-17-08B@10 | 2678 | 413 | 80 | 0.154 | 0.02 | 0.18474 | 1.57 | 0.0270 | 1.50 | 172.1 | 2.5 | 172.0 | 2.5 |
| LY-17-08B@11 | 2790 | 451 | 82 | 0.162 | 0.02 | 0.18122 | 1.73 | 0.0268 | 1.57 | 169.1 | 2.7 | 170.3 | 2.6 |
| LY-17-08B@12 | 2988 | 489 | 87 | 0.164 | 0.04 | 0.18029 | 1.61 | 0.0266 | 1.55 | 168.3 | 2.5 | 169.1 | 2.6 |
| LY-17-08B@13 | 3311 | 523 | 95 | 0.158 | 0.30 | 0.17761 | 1.62 | 0.0260 | 1.50 | 166.0 | 2.5 | 165.7 | 2.5 |
| LY-17-08B@14 | 2827 | 450 | 83 | 0.159 | 0.61 | 0.18261 | 1.68 | 0.0266 | 1.52 | 170.3 | 2.6 | 169.1 | 2.5 |
| LY-17-08B@15 | 2079 | 426 | 63 | 0.205 | 0.03 | 0.18435 | 1.59 | 0.0270 | 1.52 | 171.8 | 2.5 | 171.8 | 2.6 |
| LY-17-08B@16 | 2664 | 441 | 78 | 0.166 | 0.06 | 0.18030 | 1.57 | 0.0265 | 1.50 | 168.3 | 2.4 | 168.4 | 2.5 |
| LY-17-08B@17 | 2788 | 472 | 84 | 0.169 | 0.01 | 0.18589 | 1.64 | 0.0272 | 1.50 | 173.1 | 2.6 | 173.2 | 2.6 |
| ~~LY-17-08B@18~~ | 5529 | ~~1488~~ | ~~129~~ | ~~0.269~~ | ~~31.20~~ | ~~0.14773~~ | ~~70.90~~ | ~~0.0213~~ | ~~3.27~~ | ~~139.9~~ | ~~97.2~~ | ~~135.9~~ | ~~4.4~~ |
| \****f206***: the proportion of common 206Pb in total measured 206Pb. | | | | | | | | | | | | | |