**Table S1**

U-Pb data for analyzed zircon from the volcanic ash beds of the Nanpanjiang Basin, South China. Sample numbers below are same as those shown in column 95 of the stratigraphic data table for Guandao section above.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Composition | Ratios | Age (Ma) |  |
| *Sample* | Pbc‡ | Pb\*‡  | Th | 206Pb§ | 208Pb# | 206Pb†† | err | 207Pb†† | err | 207Pb†† | err | 206Pb | err | 207Pb | 207Pb | corr. |
| Fractions† | (pg) | Pbc | U | 204Pb | 206Pb | 238U | (2σ%) | 235U | (2σ%) | 206Pb | (2σ%) | 238U | (2σ) | 235U | 206Pb | coef. |
|  |
| **Guandao section, Great Bank of Guizhou** |
| ***PGD Tuff-1: weighted mean 206Pb/238U date = 247.458 ± 0.053/0.12/0.29 Ma1. MSWD = 0.55*** |
| **z5**  | 0.9 | 39.8 | 0.33 | 2498 | 0.104 | 0.039141 | (.06) | 0.27663 | (.41) | 0.05128 | (.39) | **247.51** | **0.15** | 247.98 | 252.4 | 0.346 |
| **z3**  | 0.2 | 109.6 | 0.41 | 6702 | 0.129 | 0.039141 | (.05) | 0.27642 | (.18) | 0.05124 | (.15) | **247.51** | **0.12** | 247.82 | 250.8 | 0.559 |
| **z2**  | 0.3 | 89.5 | 0.42 | 5466 | 0.131 | 0.039139 | (.05) | 0.27622 | (.21) | 0.05121 | (.19) | **247.50** | **0.13** | 247.65 | 249.1 | 0.489 |
| **z7**  | 0.5 | 77.0 | 0.99 | 4078 | 0.313 | 0.039129 | (.05) | 0.27640 | (.26) | 0.05125 | (.24) | **247.43** | **0.13** | 247.80 | 251.3 | 0.418 |
| **z6**  | 0.2 | 90.1 | 0.42 | 5500 | 0.133 | 0.039126 | (.05) | 0.27594 | (.22) | 0.05117 | (.20) | **247.41** | **0.13** | 247.43 | 247.6 | 0.446 |
| **z4**  | 0.2 | 259.6 | 0.64 | 14918 | 0.202 | 0.039125 | (.05) | 0.27616 | (.12) | 0.05121 | (.09) | **247.41** | **0.12** | 247.60 | 249.5 | 0.696 |
| ***GDGB Tuff-110: weighted mean 206Pb/238U date = 246.939 ± 0.090/0.13/0.29 Ma. MSWD = 0.37*** |
| z2a  | 0.8 | 43.3 | 0.18 | 2832 | 0.058 | 0.039166 | (.09) | 0.27684 | (.40) | 0.05129 | (.36) | 247.66 | 0.21 | 248.15 | 252.8 | 0.446 |
| **z6a**  | 1.1 | 21.6 | 0.43 | 1325 | 0.137 | 0.039060 | (.11) | 0.27591 | (.78) | 0.05125 | (.75) | **247.00** | **0.26** | 247.4 | 251 | 0.302 |
| **z1a**  | 0.7 | 26.2 | 0.54 | 1562 | 0.172 | 0.039056 | (.08) | 0.27617 | (.62) | 0.05131 | (.60) | **246.98** | **0.21** | 247.6 | 254 | 0.297 |
| **z2**  | 0.2 | 19.6 | 0.53 | 1176 | 0.167 | 0.039056 | (.11) | 0.27825 | (.92) | 0.05169 | (.89) | **246.98** | **0.26** | 249.3 | 271 | 0.367 |
| **z3a**  | 1.4 | 22.9 | 0.51 | 1377 | 0.160 | 0.039054 | (.09) | 0.27612 | (.71) | 0.05130 | (.69) | **246.96** | **0.23** | 247.6 | 253 | 0.293 |
| **z4a**  | 1.0 | 28.0 | 0.62 | 1636 | 0.195 | 0.039050 | (.09) | 0.27616 | (.61) | 0.05131 | (.59) | **246.94** | **0.22** | 247.6 | 254 | 0.326 |
| **z4**  | 0.3 | 29.5 | 0.49 | 1778 | 0.154 | 0.039033 | (.08) | 0.27775 | (.57) | 0.05163 | (.55) | **246.84** | **0.18** | 248.9 | 268 | 0.393 |
| z5  | 0.3 | 52.1 | 0.64 | 3010 | 0.202 | 0.038991 | (.06) | 0.27551 | (.37) | 0.05127 | (.34) | 246.57 | 0.15 | 247.09 | 252.0 | 0.419 |
| z5a  | 0.8 | 49.6 | 0.56 | 2924 | 0.177 | 0.038963 | (.07) | 0.27490 | (.35) | 0.05119 | (.33) | 246.40 | 0.17 | 246.61 | 248.5 | 0.380 |
|  |
| **Taiping section, Pingguo Platform** |
| ***TP Tuff-3: weighted mean 206Pb/238U date = 252.001 ± 0.082/0.14/0.30 Ma. MSWD = 1.3*** |
| **z3**  | 0.4 | 62.9 | 0.76 | 3521 | 0.241 | 0.039886 | (.07) | 0.28244 | (.36) | 0.05138 | (.34) | **252.13** | **0.18** | 252.59 | 256.9 | 0.442 |
| **z1**  | 0.2 | 92.1 | 0.62 | 5333 | 0.195 | 0.039863 | (.05) | 0.28225 | (.22) | 0.05138 | (.20) | **251.98** | **0.13** | 252.44 | 256.7 | 0.473 |
| **z2**  | 0.2 | 99.3 | 0.84 | 5438 | 0.267 | 0.039858 | (.05) | 0.28213 | (.22) | 0.05136 | (.20) | **251.95** | **0.13** | 252.34 | 256.0 | 0.429 |
| ***TP Tuff-4: weighted mean 206Pb/238U date = 251.818 ± 0.076/0.13/0.30 Ma. MSWD = 1.2*** |
| **z2**  | 0.3 | 106.0 | 0.69 | 6027 | 0.218 | 0.039850 | (.06) | 0.28172 | (.22) | 0.05130 | (.19) | **251.90** | **0.14** | 252.02 | 253.2 | 0.560 |
| **z1**  | 0.2 | 112.0 | 0.70 | 6345 | 0.223 | 0.039834 | (.05) | 0.28178 | (.19) | 0.05133 | (.17) | **251.80** | **0.13** | 252.07 | 254.5 | 0.527 |
| **z3**  | 0.2 | 168.6 | 0.69 | 9575 | 0.218 | 0.039827 | (.05) | 0.28142 | (.15) | 0.05127 | (.13) | **251.76** | **0.13** | 251.78 | 252.0 | 0.600 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

*Notes:* Corr. coef. = correlation coefficient. Age calculations are based on the decay constants of Jaffey et al. (1971).

† All analyses are single zircon grains and pre-treated by the thermal annealing and acid leaching (CA-TIMS) technique. Data used in age calculations are in bold.

‡ Pbc is total common Pb in analysis. Pb\* is radiogenic Pb concentration.

§ Measured ratio corrected for spike and fractionation only.

# Radiogenic Pb ratio.

†† Corrected for fractionation, spike, blank, and initial Th/U disequilibrium in magma. Mass fractionation correction of 0.25%/amu ± 0.04%/amu (atomic mass unit) was applied to single-collector Daly analyses. All common Pb is assumed to be blank. Total procedural blank was less than 0.1pg for U. Blank isotopic composition: 206Pb/204Pb = 18.42 ± 0.35, 207Pb/204Pb =15.36 ± 0.23, 208Pb/204Pb = 37.46 ± 0.74.

1 Weighted mean date uncertainties are reported in the form of ± X/Y/Z: X = internal (analytical) uncertainty in the absence of all external or systematic errors; Y = incorporates the U-Pb tracer calibration error; Z = includes X and Y as well as the decay constant errors.

Jaffey, A.H., Flynn, K.F., Glendenin, L.E., Bentley, W.C., Essling, A.M., 1971. Precision Measurement of Half-Lives and Specific Activities of 235U and 238U. Physical Review C 4, 1889-1906.