|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Sample** | **Stratigraphy** | **Lab Code** | **238U**  **[ppm]** | **232Th**  **[ppb]** | **δ234U**  **[‰]** | **(230Th/238U)** | **(230Th/232Th)** | **U/Th age**  **(yrs)** | **δ234Ui**  **[‰]** | **Corrected age**  **(yrs BP)** |
| NM-9 | overlying | NNU-507 | 2.821±0.012 | 13.010±0.070 | 106.1±4.3 | 0.00185±0.00004 | 1.25±0.02 | 183±4 | 106.1±4.4 | 0.6±57 |
| NM-19 | overlying | NNU-512 | 2.853±0.010 | 13.835±0.102 | 29.9±3.7 | 0.00598±0.00008 | 3.81±0.03 | 635 ±9 | 30.0±3.7 | 434±69 |
| NM-21 | overlying | NNU-641 | 2.307±0.015 | 6.938±0.048 | 119.0±6.6 | 0.01822±0.00022 | 19.09 ±0.14 | 1790±24 | 119.6±6.6 | 1650±44 |
| NM-26 | overlying | NNU-632 | 3.055±0.010 | 6.137±0.031 | 159.7±3.9 | 0.00249±0.00005 | 3.84±0.06 | 234±5 | 159.8±3.9 | 120±26 |
| HS-N1 | overlying | NNU-639 | 2.488±0.003 | 4.795±0.011 | 280.3±2.2 | 0.00671±0.00004 | 10.95±0.06 | 573±4 | 280.7±2.2 | 466±22 |
| HS-N12 | overlying | NNU-638 | 2.787±0.017 | 2.532±0.015 | 354.6±6.2 | 0.01249±0.00015 | 42.65±0.36 | 1010±13 | 355.6±6.2 | 926±16 |
| HS-S7 | overlying | NNU-640 | 0.260 ±0.001 | 1.517±0.017 | 116.9±5.1 | 0.01968±0.00092 | 10.48±0.38 | 1939 ±91 | 117.5±5.1 | 1725±119 |
| NM-4 | underlying | NNU-505 | 0.403±0.001 | 2.729±0.017 | 130.5±3.0 | 0.12737±0.00102 | 58.96±0.39 | 13007±118 | 135.4±3.1 | 12774±145 |
| NM-8 | underlying | NNU-506 | 0.886±0.001 | 27.261±0.134 | 38.3±1.1 | 0.07932±0.00150 | 8.11±0.12 | 8664±170 | 39.1±1.2 | 7759±457 |
| NM-12 | underlying | NNU-508 | 0.362±0.002 | 13.443±0.130 | 126.0±7.6 | 0.06500±0.00082 | 5.46±0.05 | 6478 ±96 | 128.3±7.7 | 5471±494 |
| NM-13 | underlying | NNU-509 | 0.911±0.005 | 8.686±0.067 | 143.1±7.4 | 0.04848±0.00054 | 15.95±0.13 | 4722 ±62 | 145.0±7.5 | 4422±131 |
| NM-15 | underlying | NNU-510 | 0.686±0.003 | 14.663±0.100 | 91.0±4.1 | 0.03969±0.00042 | 5.88±0.05 | 4038 ±46 | 92.1±4.2 | 3423±280 |
| NM-17 | underlying | NNU-511 | 1.475±0.006 | 12.066±0.077 | 74.3±4.0 | 0.02479±0.00025 | 9.43±0.07 | 2545 ±28 | 74.9±4.0 | 2263±115 |
| NM-24 | underlying | NNU-514 | 0.691±0.003 | 21.799±0.137 | 132.2±6.9 | 0.24980±0.00167 | 24.54±0.09 | 27048 ±280 | 142.7±7.5 | 26187±491 |
| NM-27 | underlying | NNU-633 | 0.661±0.001 | 4.478±0.026 | 152.4±1.3 | 0.03034±0.00056 | 14.13±0.18 | 2907±55 | 153.6±1.3 | 2678±101 |
| NM-28 | underlying | NNU-634 | 1.257±0.005 | 9.656±0.066 | 170.6±4.2 | 0.15184±0.00120 | 62.25±0.24 | 15101 ±141 | 178.1±4.3 | 14852±168 |
| NM-29 | underlying | NNU-635 | 3.495 ±0.013 | 0.901±0.006 | 455.7±5.2 | 0.02522±0.00017 | 305.23±1.01 | 1904±15 | 458.1±5.2 | 1835±15 |
| NM-34 | underlying | NNU-636 | 1.059±0.005 | 16.130±0.100 | 155.4±4.9 | 0.10265±0.00085 | 21.22±0.10 | 10127±99 | 159.9±5.1 | 9692±214 |
| HS-S6 | underlying | NNU-637 | 2.961±0.005 | 10.549±0.212 | 40.6±2.0 | 0.02846±0.00015 | 24.41±0.51 | 3023 ±18 | 40.9 ±2.0 | 2859±73 |

Supplementary Table 2. U-series replicate analyses on the secondary carbonates from Mt. Huashan rock art site.

The analytical errors were given at 2σ level. U/Th ages were calculated with the decay constants of λ230 = 9.1705×10−6/year and λ234 = 2.82206×10−6/year (Cheng et al., 2013). The U/Th ages were corrected with assumption of the initial 230Th/232Th atomic ratio of 4.4 ±2.2×10-6, a value for a material at secular equilibrium, with the bulk earth 232Th/238U value of 3.8 and with an assumed error of 50%. The corrected age are given at “BP” scale, before 1950 AD.