Table S1. 40Ar/39Ar age data of plagioclase, amphibole and basalt groundmass separates.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Sample #** | **Sample type** | **Material** | **Lab. ID #** | **Age type** | **Age ± 2σ/ 95%*conf.* (Ma)** | **MSWD** | **P (%)** | **% 39Ar** | **Steps** | **Inverse isochron age ± 95% conf. (Ma)** | **Initial 40Ar/36Ar** | **MSWD** | **P (%)** | **SF (%)** | **Steps** |
| SO199-DR6-2 | basalt | matrix | 6-2mxs | Plateau | **83.0 ± 1.8** | 0.98 | 46 | 63.4 | 9-20 | 78.6 ± 8.7 | 297.6 ± 4.0 | 0.97 | 47 | 7.1 | 9-20 |
| SO199-DR6-6 | basalt | amphibole | 6-6hbs | Medium-T WMA | **87.5 ± 1.9** | 1.6 | 20 | 32.7 | 4-5 | No isochron (2 points) | - | - | - | - | - |
| SO199-DR8-5 | alkali basalt | plagioclase | 8-5fss | Plateau | **65.5 ± 3.5** | 1.3 | 28 | 63.9 | 5-13 | 72.5 ± 9.2 | 278 ± 17 | 0.88 | 50 | 17.6 | 5-13 |
| SO199-DR10-2 | gabbro | amphibole | 10-2hbs | Higher-T WMA | 92.6 ± 3.6 | 0.86 | 46 | 14.4 | 10-13 | 86 ± 27 | 335 ± 110 | 1.0 | 37 | 13.1 | 10-13 |
| SO199-DR10-2 | gabbro | plagioclase | 10-2fss | High-T WMA | 94.0 ± 2.7 | 1.2 | 29 | 26.2 | 13-19 | No isochron (7 of 7 points are clustered) | - | - | - | - | - |
| SO199-DR10-2 | gabbro | amphibole & plagioclase | 10-2hbs & fss | Combined 40Ar\*/39Ar age | ***93.5 ± 2.1*** | 1.0 | 41 | - | n=11 | - | - | - | - | - | - |
| SO199-DR23-14 | gabbro | plagioclase | 23-14fss | Pseudo-plateau | 100.3 ± 2.5 | 0.53 | 66 | 48.3 | 11-14 | 100.6 ± 5.6 | 295 ± 20 | 0.79 | 45 | 30.0 | 11-14 |
| SO199-DR23-14 | gabbro | plagioclase | 23-14fs2 | High-T WMA | 99.3 ± 3.5 | 0.93 | 47 | 26.4 | 13-19 | 96 ± 22 | 314 ± 110 | 1.1 | 37 | 14.3 | 13-19 |
| SO199-DR23-14 | gabbro | plagioclase | 23-14fss & fs2 | Combined 40Ar\*/39Ar age | ***100.0 ± 2.0*** | 0.74 | 69 | - | n=11 | - | - | - | - | - | - |
| SO199-DR29-1 | gabbro | plagioclase | 29-1fs2 | Plateau | **64.1 ± 1.4** | 1.6 | 12 | 60.1 | 2-10 | 64.2 ± 1.8 | 295.2 ± 3.9 | 1.8 | 7.8 | 49.7 | 2-10 |
| Abbreviations: Lab. = Laboratory, atmos. = atmospheric, MSWD = Mean Square Weighted Deviation, P = probability, WMA = weighted mean age, high-T = high-temperature steps | | | | | | | | | | | | | |  |  |
| Combined 40Ar\*/39Ar age includes the analytical and J value errors (after Heath et al., 2018). | | | | | |  |  |  |  |  |  |  |  |  |  |
| Recommended ages are in bold. | | | | | |  |  |  |  |  |  |  |  |  |  |