Table S7. TIMS Sr-Nd-Pb and MC-ICP-MS Hf isotope data of whole rock and glass samples.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Sample** | **87Sr/86Sr** | **±2σ** | **143Nd/144Nd** | **±2σ** | **εNd** | **176Hf/177Hf** | **±2σ** | **εHf** | **87Sr/86Sri** | **143Nd/144Ndi** | **εNdi** | **176Hf/177Hfi** | **εHfi** |
| **Whole rock samples** | | | | | | | | | | | | | | |
| **Investigator Ridge volcanic rocks** | | | | | | | | | | | | | | |
| SO199-DR2-4 | 0.703475 | 5 | 0.513026 | 2 | 7.57 | 0.283178 | 5 | 13.88 | 0.70328 | 0.51287 | 7.13 | 0.28311 | 13.61 |
| SO199-DR5-1 | 0.703502 | 5 | 0.513000 | 3 | 7.06 | 0.283138 | 4 | 12.48 | 0.70336 | 0.51287 | 7.09 | 0.28308 | 12.83 |
| SO199-DR6-2 | 0.705150 | 9 | 0.513069 | 2 | 8.41 |  |  |  | 0.70491 | 0.51291 | 7.74 |  |  |
| SO199-DR8-1 | 0.703304 | 5 | 0.512947 | 3 | 6.03 | 0.283121 | 6 | 11.87 | 0.70315 | 0.51283 | 6.24 | 0.28307 | 12.28 |
| SO199-DR8-5 | 0.703290 | 5 | 0.512958 | 3 | 6.23 | 0.283103 | 5 | 11.23 | 0.70311 | 0.51283 | 6.35 | 0.28305 | 11.49 |
| SO199-DR9-1 | 0.703791 | 5 | 0.512870 | 3 | 4.52 | 0.283018 | 3 | 8.25 | 0.70354 | 0.51276 | 4.83 | 0.28297 | 8.74 |
| SO199-DR9-1\*\* |  |  |  |  |  | 0.283016 | 5 | 8.18 |  |  |  | 0.28297 | 8.67 |
| SO199-DR10-16 | 0.703822 | 6 | 0.512991 | 3 | 6.88 | 0.283202 | 5 | 14.76 | 0.70322 | 0.51287 | 7.09 | 0.28315 | 15.34 |
| SO199-DR30-6 | 0.703945 | 6 | 0.512964 | 2 | 6.37 |  |  |  | 0.70358 | 0.51286 | 6.77 |  |  |
| **Investigator Ridge plutonic rocks** | | | | | | | | | | | | | | |
| SO199-DR6-8 | 0.705877 | 6 | 0.512868 | 3 | 4.48 | 0.283178 | 11 | 13.91 | 0.70586 | 0.51272 | 4.20 | 0.28307 | 12.18 |
| SO199-DR11-4 | 0.705404 | 5 | 0.512740 | 3 | 1.98 | 0.283133 | 10 | 12.31 | 0.70538 | 0.51263 | 2.30 | 0.28304 | 11.32 |
| SO199-DR23-14 | 0.704341 | 5 | 0.512956 | 3 | 6.21 | 0.283294 | 14 | 18.01 | 0.70429 | 0.51282 | 6.06 | 0.28317 | 15.97 |
| SO199-DR23-14\*\* | 0.704484 | 5 | 0.512943 | 7 | 5.95 | 0.283298 | 6 | 18.15 | 0.70443 | 0.51281 | 5.80 | 0.28318 | 16.11 |
| SO199-DR23-15 | 0.704853 | 5 | 0.512959 | 4 | 6.26 | 0.283302 | 13 | 18.27 | 0.70482 | 0.51283 | 6.19 | 0.28319 | 16.60 |
| SO199-DR29-1 | 0.703655 | 6 | 0.512952 | 3 | 6.13 | 0.283230 | 5 | 15.74 | 0.70362 | 0.51282 | 6.15 | 0.28316 | 15.53 |
| **Glass samples** | | | | | | | | | | | | | | |
| **Outsider Seamount** | | | | | | | | | | | | | | |
| SO199-DR1-10 | 0.704481 | 5 | 0.512856 | 4 | 4.25 | 0.283069 | 3 | 10.04 | 0.70415 | 0.51274 | 4.55 | 0.28301 | 10.39 |
| SO199-DR1-18 | 0.704486 | 5 | 0.512850 | 5 | 4.14 | 0.283073 | 4 | 10.18 | 0.70415 | 0.51274 | 4.48 | 0.28302 | 10.53 |
| **Investigator Ridge** | | | | | | | | | | | | | | |
| SO199-DR10-13 | 0.703618 | 5 | 0.512947 | 5 | 6.02 | 0.283189 | 3 | 14.29 | 0.70343 | 0.51283 | 6.25 | 0.28313 | 14.55 |
| SO199-DR10-15 | 0.703696 | 7 | 0.512952 | 3 | 6.12 |  |  |  | 0.70348 | 0.51283 | 6.28 |  |  |
| SO199-DR22-1A | 0.703814 | 5 | 0.512910 | 5 | 5.31 | 0.283106 | 3 | 11.35 | 0.70340 | 0.51280 | 5.65 | 0.28306 | 12.00 |
| SO199-DR22-1B | 0.703813 | 5 | 0.512907 | 4 | 5.24 | 0.283104 | 3 | 11.29 | 0.70339 | 0.51279 | 5.54 | 0.28306 | 11.95 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Sample** | **206Pb/204Pb** | **±2σ** | **207Pb/204Pb** | **±2σ** | **208Pb/204Pb** | **±2σ** | **206Pb/204Pbi** | **207Pb/204Pbi** | **208Pb/204Pbi** |
| **Whole rock samples** | | | | | | | | | |
| **Investigator Ridge volcanic rocks** | | | | | | | | | |
| SO199-DR2-4 | 18.0023 | 19 | 15.4876 | 17 | 37.9008 | 43 | 17.88 | 15.48 | 37.83 |
| SO199-DR5-1 | 18.4466 | 8 | 15.5252 | 9 | 38.4032 | 29 | 18.14 | 15.51 | 38.15 |
| SO199-DR6-2 | 19.0318 | 21 | 15.5545 | 18 | 38.6448 | 48 | 18.46 | 15.53 | 38.45 |
| SO199-DR8-1 | 18.4987 | 12 | 15.5179 | 12 | 38.5080 | 36 | 18.21 | 15.50 | 38.23 |
| SO199-DR8-5 | 18.3848 | 7 | 15.5045 | 7 | 38.4039 | 19 | 18.11 | 15.49 | 38.07 |
| SO199-DR9-1 | 19.0619 | 11 | 15.5926 | 10 | 39.3136 | 25 | 18.72 | 15.58 | 38.89 |
| SO199-DR10-16 | 18.8155 | 10 | 15.5544 | 8 | 38.6886 | 22 | 18.21 | 15.53 | 38.32 |
| SO199-DR30-6 | 18.5317 | 14 | 15.5409 | 12 | 38.5605 | 31 | 18.01 | 15.52 | 38.14 |
| **Investigator Ridge plutonic rocks** | | | | | | | | | |
| SO199-DR6-8 | 17.8372 | 11 | 15.5279 | 10 | 37.9181 | 28 | 17.75 | 15.52 | 37.83 |
| SO199-DR10-2 | 18.0634 | 12 | 15.5364 | 11 | 37.9771 | 31 | 17.78 | 15.52 | 37.82 |
| SO199-DR11-4 | 17.6878 | 11 | 15.5420 | 11 | 37.8906 | 32 | 17.62 | 15.54 | 37.82 |
| SO199-DR23-14 | 17.9677 | 17 | 15.5191 | 15 | 37.9075 | 40 | 17.83 | 15.51 | 37.85 |
| SO199-DR23-14\*\* | 17.9506 | 16 | 15.5116 | 14 | 37.8615 | 35 | 17.81 | 15.51 | 37.81 |
| SO199-DR23-15 | 17.9170 | 30 | 15.5154 | 26 | 37.9051 | 66 | 17.80 | 15.51 | 37.83 |
| SO199-DR29-1 | 18.6053 | 16 | 15.5423 | 15 | 38.7635 | 39 | 18.25 | 15.53 | 38.32 |
| **Glass samples** | | | | | | | | | |
| **Outsider Seamount** | | | | | | | | | |
| SO199-DR1-10 | 18.5765 | 7 | 15.6301 | 8 | 39.0144 | 27 | 18.40 | 15.62 | 38.73 |
| SO199-DR1-18 | 18.5767 | 12 | 15.6309 | 14 | 39.0149 | 44 | 18.40 | 15.62 | 38.73 |
| **Investigator Ridge** | | | | | | | | | |
| SO199-DR10-13 | 18.7112 | 15 | 15.5527 | 13 | 38.8967 | 33 | 18.45 | 15.54 | 38.53 |
| SO199-DR10-15 | 18.5799 | 23 | 15.5425 | 19 | 38.7674 | 47 | 18.36 | 15.53 | 38.48 |
| SO199-DR22-1A | 18.5984 | 10 | 15.5589 | 10 | 38.7780 | 26 | 18.39 | 15.55 | 38.46 |
| SO199-DR22-1B | 18.5981 | 9 | 15.5571 | 9 | 38.7732 | 27 | 18.38 | 15.55 | 38.47 |
| \*\*Replicate analysis on separate sample dissolution. | | | | | | | | | |
| Initial (i) isotope ratios were calculated using measured Sr-Nd-Pb-Hf isotope ratios from the sample dissolution of chips or powder and determined 40Ar/39Ar ages and were then projected to 100 Ma. | | | | | | | | | |
|  |
| ±2σ internal errors are shown for the last significant digit(s). | | | | | | | | | |  |