Table S2. XRF major oxide contents in g/100g (≃wt.%) of whole rock samples.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Sample** | **Lat (°S)** | **Long (°E)** | **SiO2** | **TiO2** | **Al2O3** | **Fe2O3** | **MnO** | **MgO** | **CaO** | **Na2O** | **K2O** | **P2O5** | **L.O.I.** | **Total** |
| **Outsider Seamount volcanic rocks** | | |  |  |  |  |  |  |  |  |  |  |  |  |
| SO199-DR1-1 | 6.23 | 97.37 | 50.64 | 1.61 | 15.87 | 8.55 | 0.11 | 5.61 | 10.87 | 3.2 | 1.39 | 0.43 | 1.70 | 99.98 |
| SO199-DR1-10 | 6.23 | 97.37 | 49.45 | 1.58 | 15.92 | 8.41 | 0.11 | 5.60 | 11.00 | 3.07 | 1.20 | 0.49 | 2.9 | 99.73 |
| **Investigator Ridge volcanic rocks** | | |  |  |  |  |  |  |  |  |  |  |  |  |
| SO199-DR2-3 | 7.01 | 98.11 | 48.08 | 0.94 | 18.31 | 8.96 | 0.12 | 6.15 | 11.81 | 2.57 | 0.33 | 0.08 | 2.4 | 99.75 |
| SO199-DR2-4 | 7.01 | 98.11 | 48.36 | 0.97 | 18.4 | 9.21 | 0.12 | 6.29 | 12.1 | 2.57 | 0.31 | 0.1 | 2.42 | 100.85 |
| SO199-DR5-1 | 8.16 | 98.60 | 47.81 | 1.43 | 16.94 | 8.59 | 0.12 | 7.85 | 9.41 | 3.54 | 0.53 | 0.2 | 3.89 | 100.31 |
| SO199-DR6-2 | 9.04 | 98.07 | 49.83 | 0.66 | 14.48 | 10.89 | 0.2 | 8.87 | 10.9 | 1.91 | 0.43 | 0.06 | 2.64 | 100.87 |
| SO199-DR8-1 | 9.95 | 98.07 | 45.62 | 1.78 | 16.28 | 9.94 | 0.14 | 10.33 | 6.25 | 3.26 | 1.07 | 0.34 | 5.61 | 100.62 |
| SO199-DR8-5 | 9.95 | 98.07 | 46.21 | 1.61 | 15.98 | 10.42 | 0.13 | 8.07 | 7.16 | 3.39 | 0.81 | 0.26 | 5.6 | 99.64 |
| SO199-DR9-1 | 10.89 | 98.08 | 46.37 | 2.33 | 15.56 | 8.08 | 0.11 | 4.2 | 13.51 | 3.23 | 1.88 | 0.43 | 4.58 | 100.28 |
| SO199-DR10-9 | 10.99 | 98.13 | 47.89 | 1.15 | 15.52 | 10.96 | 0.15 | 6.93 | 10.68 | 2.58 | 0.73 | 0.12 | 3.0 | 99.71 |
| SO199-DR10-15 | 10.99 | 98.13 | 47.42 | 1.42 | 16.25 | 12.89 | 0.11 | 4.46 | 9.54 | 2.47 | 1.31 | 0.19 | 3.7 | 99.76 |
| SO199-DR10-16 | 10.99 | 98.13 | 46.52 | 2.54 | 15.19 | 15.61 | 0.13 | 3.81 | 8.85 | 3.09 | 0.91 | 0.36 | 2.7 | 99.71 |
| SO199-DR30-6 | 16.78 | 98.79 | 48.20 | 0.74 | 16.27 | 9.17 | 0.13 | 8.16 | 12.25 | 1.91 | 0.24 | 0.06 | 2.50 | 99.63 |
| **Investigator Ridge plutonic rocks** | | |  |  |  |  |  |  |  |  |  |  |  |  |
| SO199-DR10-1 | 10.99 | 98.13 | 50.45 | 0.2 | 12.67 | 6.26 | 0.12 | 12.29 | 12.41 | 1.85 | 0.75 | 0.02 | 3.37 | 100.39 |
| SO199-DR10-2 | 10.99 | 98.13 | 50.27 | 0.29 | 16.22 | 4.27 | 0.10 | 10.80 | 13.22 | 2.21 | 0.21 | 0.01 | 2.0 | 99.60 |
| SO199-DR11-4 | 11.94 | 98.19 | 51.67 | 0.25 | 18.48 | 3.54 | 0.06 | 8.1 | 11.82 | 3.47 | 0.22 | 0.02 | 1.91 | 99.54 |
| SO199-DR23-1A | 13.90 | 98.37 | 52.28 | 0.23 | 17.41 | 5.00 | 0.10 | 9.04 | 11.79 | 2.78 | 0.14 | 0.01 | 0.9 | 99.68 |
| SO199-DR23-14 | 13.90 | 98.37 | 47.66 | 0.27 | 17.99 | 4.21 | 0.1 | 10.56 | 11.83 | 2.15 | 0.37 | 0.02 | 4.69 | 99.85 |
| SO199-DR23-15 | 13.90 | 98.37 | 46.89 | 0.42 | 18.51 | 3.9 | 0.08 | 10.06 | 13.51 | 1.86 | 0.25 | 0.03 | 4.43 | 99.94 |
| SO199-DR23-19 | 13.90 | 98.37 | 45.29 | 0.21 | 18.21 | 3.92 | 0.11 | 10.09 | 15.72 | 0.58 | 0.39 | 0.02 | 6.00 | 100.54 |
| SO199-DR29-1 | 16.57 | 98.84 | 48.71 | 1.1 | 16.24 | 9.49 | 0.13 | 10.03 | 10.07 | 2.14 | 0.19 | 0.15 | 2.69 | 100.94 |