Table S3: Major element concentrations (%) in the Sparta fault scarp at Anogia, measured using FUS-ICP-MS.

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Element** | **CaO** | **SiO2** | **Al2O3** | **MgO** | **Fe2O3** | **P2O5** | **K2O** | **MnO** | **Na2O** | **TiO2** | **LOI**a | **Total** |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
| Detection Limit | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.001 | 0.01 | 0.001 | 0.01 |  |
| Height (m) |  |  |  |  |  |  |  |  |  |  |  |  |
| *6.8b* | 48.28 | 12.42 | 0.31 | 0.17 | 0.12 | 0.08 | 0.09 | 0.02 | <0.01 | 0.01 | 38.49 | 100.00 |
| 6.8 | 48.29 | 12.48 | 0.31 | 0.17 | 0.12 | 0.08 | 0.09 | 0.02 | 0.00 | 0.01 | 38.41 | 100.00 |
| 6.6 | 43.83 | 20.82 | 0.28 | 0.15 | 0.12 | 0.07 | 0.09 | 0.02 | 0.00 | 0.01 | 34.60 | 100.00 |
| 6.4 | 48.63 | 11.86 | 0.37 | 0.18 | 0.13 | 0.07 | 0.12 | 0.02 | 0.00 | 0.01 | 38.60 | 100.00 |
| 6.2 | 48.03 | 13.57 | 0.23 | 0.15 | 0.09 | 0.06 | 0.06 | 0.02 | 0.00 | 0.01 | 37.78 | 100.00 |
| 6.0 | 46.77 | 15.43 | 0.26 | 0.17 | 0.07 | 0.09 | 0.06 | 0.02 | 0.00 | 0.01 | 37.11 | 100.00 |
| *5.8b* | 55.25 | 4.78 | 0.26 | 0.18 | 0.09 | 0.06 | 0.06 | 0.03 | 0.02 | 0.01 | 39.26 | 100.00 |
| 5.8 | 53.30 | 4.65 | 0.25 | 0.17 | 0.09 | 0.06 | 0.06 | 0.03 | 0.02 | 0.01 | 41.37 | 100.00 |
| 5.6 | 54.06 | 3.86 | 0.12 | 0.15 | 0.05 | 0.05 | 0.03 | 0.02 | 0.02 | 0.01 | 41.64 | 100.00 |
| 5.4 | 56.57 | 0.18 | 0.03 | 0.12 | 0.05 | 0.05 | 0.00 | 0.01 | 0.02 | 0.00 | 42.97 | 100.00 |
| 5.2 | 56.64 | 0.10 | 0.02 | 0.13 | 0.03 | 0.06 | 0.00 | 0.01 | 0.02 | 0.00 | 42.99 | 100.00 |
| 5.0 | 52.04 | 5.97 | 0.25 | 0.16 | 0.11 | 0.05 | 0.08 | 0.02 | 0.02 | 0.01 | 41.28 | 100.00 |
| 4.8 | 48.10 | 13.68 | 0.25 | 0.16 | 0.08 | 0.05 | 0.06 | 0.02 | 0.02 | 0.01 | 37.56 | 100.00 |
| 4.6 | 53.44 | 4.38 | 0.15 | 0.14 | 0.06 | 0.05 | 0.04 | 0.02 | 0.00 | 0.01 | 41.71 | 100.00 |
| 4.4 | 51.50 | 8.19 | 0.28 | 0.18 | 0.10 | 0.07 | 0.07 | 0.02 | 0.02 | 0.01 | 39.55 | 100.00 |
| 4.2 | 53.24 | 4.98 | 0.28 | 0.16 | 0.10 | 0.06 | 0.07 | 0.03 | 0.02 | 0.01 | 41.05 | 100.00 |
| 4.0 | 51.89 | 7.85 | 0.31 | 0.17 | 0.11 | 0.05 | 0.08 | 0.03 | 0.02 | 0.01 | 39.49 | 100.00 |
| 3.8 | 51.98 | 7.24 | 0.27 | 0.17 | 0.08 | 0.07 | 0.07 | 0.02 | 0.02 | 0.01 | 40.07 | 100.00 |
| 3.6 | 54.20 | 1.69 | 0.24 | 0.20 | 0.08 | 0.07 | 0.06 | 0.03 | 0.02 | 0.01 | 43.40 | 100.00 |
| 3.4 | 54.43 | 3.30 | 0.22 | 0.17 | 0.07 | 0.07 | 0.06 | 0.03 | 0.02 | 0.01 | 41.63 | 100.00 |
| 3.2 | 54.97 | 2.41 | 0.16 | 0.16 | 0.06 | 0.06 | 0.04 | 0.02 | 0.02 | 0.01 | 42.09 | 100.00 |
| 3.0 | 55.45 | 1.41 | 0.11 | 0.15 | 0.05 | 0.06 | 0.02 | 0.02 | 0.02 | 0.00 | 42.70 | 100.00 |
| *2.8b* | 55.54 | 2.08 | 0.15 | 0.19 | 0.07 | 0.06 | 0.04 | 0.03 | 0.02 | 0.01 | 41.80 | 100.00 |
| 2.8 | 54.97 | 2.06 | 0.15 | 0.19 | 0.07 | 0.06 | 0.04 | 0.03 | 0.02 | 0.01 | 42.39 | 100.00 |
| 2.6 | 55.07 | 1.76 | 0.19 | 0.17 | 0.10 | 0.05 | 0.06 | 0.03 | 0.02 | 0.01 | 42.54 | 100.00 |
| 2.4 | 54.79 | 2.07 | 0.10 | 0.15 | 0.09 | 0.07 | 0.02 | 0.02 | 0.02 | 0.00 | 42.66 | 100.00 |
| 2.2 | 54.28 | 3.33 | 0.12 | 0.16 | 0.07 | 0.07 | 0.03 | 0.02 | 0.02 | 0.01 | 41.89 | 100.00 |
| 2.0 | 54.54 | 3.39 | 0.14 | 0.16 | 0.08 | 0.07 | 0.03 | 0.02 | 0.02 | 0.01 | 41.54 | 100.00 |
| 1.8 | 52.20 | 6.82 | 0.16 | 0.16 | 0.07 | 0.07 | 0.03 | 0.02 | 0.02 | 0.01 | 40.44 | 100.00 |
| 1.6 | 51.25 | 9.09 | 0.27 | 0.18 | 0.09 | 0.06 | 0.06 | 0.02 | 0.02 | 0.01 | 38.94 | 100.00 |
| 1.4 | 51.89 | 8.05 | 0.26 | 0.16 | 0.08 | 0.07 | 0.06 | 0.03 | 0.02 | 0.01 | 39.38 | 100.00 |
| 1.2 | 46.92 | 15.45 | 0.26 | 0.13 | 0.09 | 0.07 | 0.07 | 0.03 | 0.00 | 0.01 | 36.97 | 100.00 |
| 1.0 | 48.38 | 14.01 | 0.33 | 0.16 | 0.11 | 0.07 | 0.09 | 0.03 | 0.02 | 0.01 | 36.80 | 100.00 |
| 0.8 | 49.30 | 11.41 | 0.40 | 0.18 | 0.24 | 0.07 | 0.11 | 0.03 | 0.02 | 0.02 | 38.22 | 100.00 |
| 0.6 | 49.24 | 12.02 | 0.33 | 0.17 | 0.12 | 0.07 | 0.09 | 0.03 | 0.02 | 0.01 | 37.90 | 100.00 |
| 0.4 | 51.96 | 7.56 | 0.20 | 0.16 | 0.13 | 0.09 | 0.04 | 0.03 | 0.02 | 0.01 | 39.80 | 100.00 |
| 0.2 | 51.38 | 8.92 | 0.22 | 0.16 | 0.08 | 0.08 | 0.05 | 0.03 | 0.02 | 0.01 | 39.07 | 100.00 |
| 0.0 | 54.99 | 2.29 | 0.08 | 0.15 | 0.05 | 0.07 | 0.02 | 0.02 | 0.02 | 0.00 | 42.31 | 100.00 |
| -0.2 | 53.61 | 4.81 | 0.14 | 0.15 | 0.06 | 0.09 | 0.03 | 0.02 | 0.02 | 0.01 | 41.06 | 100.00 |
| -0.4 | 50.56 | 9.23 | 0.21 | 0.16 | 0.08 | 0.06 | 0.05 | 0.03 | 0.02 | 0.01 | 39.58 | 100.00 |
| *-0.6*b | 55.54 | 2.08 | 0.15 | 0.19 | 0.07 | 0.06 | 0.04 | 0.03 | 0.02 | 0.01 | 41.80 | 100.00 |
| -0.6 | 53.12 | 5.48 | 0.18 | 0.18 | 0.07 | 0.08 | 0.04 | 0.02 | 0.02 | 0.01 | 40.79 | 100.00 |
| -0.8 | 54.91 | 2.35 | 0.07 | 0.15 | 0.07 | 0.07 | 0.01 | 0.04 | 0.02 | 0.00 | 42.30 | 100.00 |
| Meanc | 52.22 | 6.87 | 0.21 | 0.16 | 0.09 | 0.07 | 0.05 | 0.02 | 0.02 | 0.01 | 40.28 | 100.00 |
| *Standards* |  |  |  |  |  |  |  |  |  |  |  |  |
| *BIR-1a Measured* | *13.51* | *47.92* | *15.50* | *9.56* | *11.17* | *0.02* | *0.02* | *0.172* | *1.83* | *0.975* |  |  |
| *BIR-1a Certified* | *13.30* | *47.96* | *15.50* | *9.70* | *11.30* | *0.02* | *0.03* | *0.175* | *1.82* | *0.960* |  |  |
| *NIST 694 Measured* | *42.76* | *11.85* | *1.90* | *0.34* | *0.74* | *30.17* | *0.55* | *0.013* | *0.88* | *0.118* |  |  |
| *NIST 694 Certified* | *43.60* | *11.20* | *1.80* | *0.33* | *0.79* | *30.20* | *0.51* | *0.012* | *0.86* | *0.110* |  |  |
|  | | | | | | | | | | | | |

aLOI = loss on ignition.

bDuplicate

cMeasurement concentrations below detection limit are counted as 0 ppm when calculating the mean for the individual element and duplicates are excluded.