Table S6: Trace element concentrations (in ppm) from the Sparta fault scarp, Anogia, measured using FUS-ICP-MS.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Element** | **V** | **Cu** | **Ga** | **Ge** | **Rb** | **Sr** | **Yb** | **Zr** | **Nb** | **Ag** | **Cs** | **Ba** | **La** | **Ce** | **Pr** | **Nd** |
| Detection Limita | 5 | 10 | 1 | 0.5 | 1 | 2 | 0.5 | 1 | 0.2 | 0.5 | 0.1 | 3 | 0.05 | 0.05 | 0.01 | 0.05 |
| Height (m) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| *6.8b* | 13 | 10 | < 1 | < 0.5 | 4 | 215 | 8.3 | 6 | 0.3 | < 0.5 | 0.6 | 34 | 7.75 | 3.49 | 1.40 | 5.69 |
| 6.8 | 13 | 10 | < 1 | < 0.5 | 4 | 216 | 8.3 | 6 | < 0.2 | < 0.5 | 0.6 | 33 | 7.94 | 3.56 | 1.38 | 5.87 |
| 6.6 | 12 | 10 | < 1 | < 0.5 | 3 | 211 | 7.3 | 6 | < 0.2 | < 0.5 | 0.4 | 39 | 6.77 | 3.20 | 1.16 | 4.87 |
| 6.4 | 10 | 20 | < 1 | 1.3 | 5 | 276 | 9.2 | 6 | < 0.2 | < 0.5 | 0.6 | 40 | 8.70 | 4.17 | 1.54 | 6.71 |
| 6.2 | 8 | < 10 | < 1 | < 0.5 | 3 | 155 | 7.0 | 6 | < 0.2 | < 0.5 | < 0.1 | 43 | 7.40 | 3.18 | 1.22 | 4.92 |
| 6.0 | 12 | < 10 | < 1 | 0.6 | 3 | 166 | 7.1 | 6 | < 0.2 | < 0.5 | 0.2 | 53 | 6.82 | 3.42 | 1.16 | 5.12 |
| *5.8b* | 12 | 10 | < 1 | 0.6 | 3 | 214 | 7.6 | 6 | < 0.2 | < 0.5 | 0.2 | 70 | 6.64 | 3.16 | 1.14 | 4.74 |
| 5.8 | 12 | 10 | < 1 | < 0.5 | 2 | 216 | 7.6 | 6 | < 0.2 | < 0.5 | 0.2 | 70 | 6.58 | 3.10 | 1.11 | 4.66 |
| 5.6 | 12 | 10 | < 1 | 0.5 | 1 | 225 | 4.5 | 7 | < 0.2 | < 0.5 | < 0.1 | 44 | 3.49 | 1.29 | 0.50 | 2.18 |
| 5.4 | 10 | 10 | < 1 | < 0.5 | < 1 | 136 | 1.6 | 3 | < 0.2 | < 0.5 | < 0.1 | 12 | 0.91 | 0.40 | 0.12 | 0.48 |
| 5.2 | 10 | < 10 | < 1 | 0.5 | < 1 | 210 | 1.2 | 3 | < 0.2 | < 0.5 | < 0.1 | 19 | 0.71 | 0.30 | 0.11 | 0.36 |
| 5.0 | 11 | 10 | < 1 | 0.8 | 3 | 275 | 7.2 | 6 | 0.3 | < 0.5 | 0.2 | 34 | 6.31 | 2.83 | 1.06 | 4.39 |
| 4.8 | 11 | 10 | < 1 | 0.6 | 3 | 170 | 6.9 | 6 | 0.4 | < 0.5 | 0.3 | 47 | 5.89 | 2.80 | 0.99 | 3.96 |
| 4.6 | 8 | < 10 | < 1 | < 0.5 | 2 | 174 | 5.9 | 4 | < 0.2 | < 0.5 | < 0.1 | 49 | 5.19 | 2.14 | 0.73 | 3.01 |
| 4.4 | 12 | 20 | < 1 | 0.7 | 3 | 228 | 7.6 | 6 | 0.2 | < 0.5 | 0.3 | 58 | 6.98 | 3.36 | 1.20 | 4.91 |
| 4.2 | 12 | 10 | < 1 | 0.7 | 3 | 200 | 7.5 | 6 | 0.2 | < 0.5 | 0.3 | 37 | 6.32 | 3.05 | 1.06 | 4.11 |
| 4.0 | 14 | 30 | 1 | 0.7 | 3 | 291 | 9.1 | 7 | 0.3 | < 0.5 | 0.2 | 61 | 7.87 | 3.67 | 1.40 | 5.70 |
| 3.8 | 12 | < 10 | < 1 | 0.7 | 3 | 249 | 9.0 | 6 | 0.4 | 0.6 | 0.2 | 39 | 6.79 | 3.11 | 1.17 | 4.80 |
| 3.6 | 14 | 10 | < 1 | 0.8 | 2 | 272 | 5.4 | 6 | 0.3 | < 0.5 | 0.1 | 45 | 4.81 | 2.21 | 0.77 | 3.17 |
| 3.4 | 12 | 20 | < 1 | < 0.5 | 2 | 268 | 6.3 | 6 | 0.2 | < 0.5 | 0.1 | 37 | 4.62 | 2.12 | 0.77 | 3.21 |
| 3.2 | 12 | < 10 | < 1 | 0.6 | 1 | 257 | 4.9 | 5 | < 0.2 | < 0.5 | < 0.1 | 40 | 3.62 | 1.58 | 0.58 | 2.18 |
| 3.0 | 12 | < 10 | 1 | 0.6 | < 1 | 231 | 3.8 | 4 | < 0.2 | < 0.5 | < 0.1 | 39 | 2.66 | 1.11 | 0.41 | 1.76 |
| *2.8b* | 14 | 10 | 1 | < 0.5 | 1 | 317 | 5.0 | 5 | 0.3 | < 0.5 | < 0.1 | 52 | 3.76 | 1.61 | 0.57 | 2.40 |
| 2.8 | 13 | 10 | 1 | < 0.5 | 1 | 319 | 5.0 | 5 | 0.3 | < 0.5 | < 0.1 | 52 | 3.79 | 1.63 | 0.59 | 2.54 |
| 2.6 | 11 | 10 | 1 | 0.7 | 2 | 338 | 5.7 | 5 | 0.4 | < 0.5 | 0.1 | 38 | 4.89 | 2.09 | 0.79 | 3.29 |
| 2.4 | 14 | 10 | 1 | 0.7 | < 1 | 236 | 3.3 | 4 | 0.2 | < 0.5 | < 0.1 | 46 | 2.39 | 0.92 | 0.36 | 1.49 |
| 2.2 | 12 | 10 | 1 | 0.8 | 1 | 226 | 3.1 | 5 | 0.3 | < 0.5 | 0.1 | 42 | 2.22 | 0.93 | 0.36 | 1.38 |
| 2.0 | 12 | 10 | 2 | 0.9 | 1 | 235 | 4.3 | 4 | 0.5 | 0.6 | < 0.1 | 45 | 3.45 | 1.43 | 0.57 | 2.27 |
| 1.8 | 13 | < 10 | 2 | < 0.5 | 1 | 202 | 5.4 | 5 | 0.5 | < 0.5 | 0.1 | 42 | 3.69 | 1.58 | 0.61 | 2.74 |
| 1.6 | 11 | 20 | 2 | < 0.5 | 3 | 234 | 8.6 | 6 | 0.5 | < 0.5 | 0.2 | 42 | 6.46 | 2.90 | 1.10 | 4.52 |
| 1.4 | 12 | 10 | 2 | 0.6 | 3 | 196 | 8.6 | 6 | 0.4 | < 0.5 | 0.2 | 38 | 6.88 | 3.11 | 1.21 | 5.16 |
| 1.2 | 9 | < 10 | < 1 | < 0.5 | 2 | 198 | 8.6 | 5 | < 0.2 | 0.7 | < 0.1 | 48 | 7.85 | 3.60 | 1.29 | 5.44 |
| 1.0 | 10 | 10 | 3 | 0.6 | 3 | 220 | 11.1 | 6 | 0.7 | 0.5 | 0.2 | 39 | 7.34 | 3.62 | 1.32 | 5.69 |
| 0.8 | 14 | 20 | 4 | 0.8 | 4 | 256 | 9.9 | 7 | 0.7 | < 0.5 | 0.3 | 45 | 8.52 | 4.14 | 1.57 | 6.17 |
| 0.6 | 12 | 10 | 4 | 0.7 | 3 | 209 | 7.3 | 6 | 0.7 | 0.6 | 0.3 | 37 | 6.27 | 3.09 | 1.13 | 4.41 |
| 0.4 | 13 | 20 | 5 | 0.7 | 2 | 202 | 4.9 | 5 | 0.7 | 0.5 | 0.2 | 34 | 3.85 | 1.84 | 0.64 | 2.80 |
| 0.2 | 12 | 10 | 5 | 0.7 | 2 | 200 | 5.8 | 6 | 0.5 | < 0.5 | 0.2 | 36 | 4.27 | 1.92 | 0.71 | 2.96 |
| 0.0 | 11 | 10 | 6 | 0.6 | < 1 | 202 | 3.7 | 4 | 0.6 | 0.5 | < 0.1 | 22 | 1.86 | 0.75 | 0.30 | 1.40 |
| -0.2 | 11 | < 10 | 8 | 0.6 | 1 | 194 | 4.4 | 5 | 0.6 | < 0.5 | 0.1 | 33 | 2.66 | 1.19 | 0.42 | 1.90 |
| -0.4 | 12 | 10 | 10 | 0.7 | 2 | 208 | 7.4 | 6 | 0.7 | 0.9 | 0.2 | 28 | 4.25 | 2.07 | 0.73 | 3.23 |
| *-0.6c* | 12 | 10 | 12 | 0.6 | 2 | 235 | 6.2 | 5 | 0.8 | 1.1 | 0.2 | 32 | 3.66 | 1.75 | 0.62 | 2.85 |
| -0.6 | 11 | < 10 | 14 | 0.7 | 2 | 237 | 6.4 | 5 | 0.9 | 1.2 | 0.2 | 33 | 3.72 | 1.72 | 0.62 | 2.76 |
| -0.8 | 10 | < 10 | 18 | 0.7 | < 1 | 206 | 3.5 | 4 | 0.8 | 0.8 | < 0.1 | 22 | 1.90 | 0.79 | 0.31 | 1.41 |
| Meand | 12 | 9 | 2 | 0.5 | 2 | 224 | 6.3 | 5 | 0.3 | 0.2 | 0.2 | 40 | 5.04 | 2.31 | 0.85 | 3.54 |
| *Standards* |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| *BIR-1a Measured* | *341* | *120* | *15* |  |  | *110* |  | *14* |  |  |  | *7* |  |  |  | *2.45* |
| *BIR-1a Certified* | *310* | *125* | *16* |  |  | *110* |  | *18* |  |  |  | *6* |  |  |  | *2.50* |
| *JR-1 Measured* |  |  | *17* |  | *250* |  |  |  | *14.7* | *< 0.5* | *21.0* |  | *20.4* | *48.3* | *5.81* | *23.5* |
| *JR-1 Certified* |  |  | *16* |  | *257* |  |  |  | *15.2* | *0.031* | *20.8* |  | *19.7* | *47.2* | *5.58* | *23.3* |

aThe following elements were below detection limits: Be, Cr, Co, Ni, Zn, As, Mo, In, Sn, Sb, Hf, Pb, Bi.

bREY elements are shaded grey.

cDuplicate.

dMeasurement concentrations below detection limit are counted as 0 ppm when calculating mean values and duplicates are excluded.

Table S.5 continued.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Element** | **Sm** | **Eu** | **Gd** | **Tb** | **Dy** | **Ho** | **Er** | **Tm** | **Yb** | **Lu** | **Ta** | **W** | **Tl** | **Th** | **U** |
| Detection Limit | 0.01 | 0.005 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.005 | 0.01 | 0.002 | 0.01 | 0.5 | 0.05 | 0.05 | 0.01 |
| Height (m) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| *6.8 Duplicate* | 1.33 | 0.242 | 1.10 | 0.19 | 1.15 | 0.22 | 0.59 | 0.084 | 0.54 | 0.082 | < 0.01 | < 0.5 | 0.10 | 0.22 | 0.26 |
| 6.8 | 1.29 | 0.261 | 1.10 | 0.18 | 1.10 | 0.21 | 0.61 | 0.085 | 0.54 | 0.085 | < 0.01 | < 0.5 | 0.09 | 0.23 | 0.27 |
| 6.6 | 1.00 | 0.243 | 0.98 | 0.17 | 0.93 | 0.18 | 0.49 | 0.075 | 0.49 | 0.077 | 0.03 | < 0.5 | 0.07 | 0.20 | 0.37 |
| 6.4 | 1.35 | 0.352 | 1.29 | 0.21 | 1.27 | 0.24 | 0.66 | 0.090 | 0.59 | 0.098 | 0.02 | < 0.5 | 0.11 | 0.24 | 0.23 |
| 6.2 | 0.89 | 0.239 | 1.02 | 0.14 | 0.81 | 0.17 | 0.55 | 0.071 | 0.41 | 0.064 | 0.02 | < 0.5 | 0.16 | 0.17 | 0.37 |
| 6.0 | 1.18 | 0.262 | 0.90 | 0.15 | 0.88 | 0.17 | 0.50 | 0.067 | 0.49 | 0.082 | 0.01 | < 0.5 | 0.07 | 0.21 | 0.45 |
| *5.8 Duplicate* | 1.07 | 0.213 | 0.98 | 0.16 | 0.92 | 0.18 | 0.51 | 0.065 | 0.41 | 0.059 | 0.02 | < 0.5 | 0.06 | 0.16 | 0.31 |
| 5.8 | 1.01 | 0.216 | 0.99 | 0.16 | 0.92 | 0.19 | 0.52 | 0.066 | 0.39 | 0.059 | 0.02 | < 0.5 | 0.06 | 0.16 | 0.31 |
| 5.6 | 0.50 | 0.099 | 0.47 | 0.07 | 0.45 | 0.10 | 0.30 | 0.043 | 0.28 | 0.046 | < 0.01 | < 0.5 | < 0.05 | 0.05 | 0.52 |
| 5.4 | 0.11 | 0.025 | 0.13 | 0.02 | 0.12 | 0.02 | 0.07 | 0.012 | 0.08 | 0.012 | < 0.01 | < 0.5 | < 0.05 | < 0.05 | 0.24 |
| 5.2 | 0.08 | 0.017 | 0.11 | 0.01 | 0.08 | 0.02 | 0.07 | 0.009 | 0.06 | 0.008 | 0.05 | 0.50 | < 0.05 | < 0.05 | 0.46 |
| 5.0 | 0.96 | 0.212 | 0.95 | 0.15 | 0.91 | 0.18 | 0.50 | 0.070 | 0.40 | 0.061 | 0.02 | 1.40 | 0.07 | 0.16 | 0.18 |
| 4.8 | 0.85 | 0.200 | 0.83 | 0.16 | 0.86 | 0.18 | 0.52 | 0.068 | 0.44 | 0.072 | 0.02 | 0.50 | 0.08 | 0.18 | 0.33 |
| 4.6 | 0.59 | 0.132 | 0.64 | 0.10 | 0.62 | 0.15 | 0.43 | 0.062 | 0.39 | 0.054 | 0.22 | < 0.5 | 0.18 | 0.09 | 0.31 |
| 4.4 | 1.04 | 0.240 | 1.03 | 0.17 | 0.93 | 0.19 | 0.53 | 0.076 | 0.47 | 0.070 | 0.03 | 1.00 | < 0.05 | 0.18 | 0.3 |
| 4.2 | 0.98 | 0.215 | 0.96 | 0.16 | 0.92 | 0.18 | 0.51 | 0.072 | 0.45 | 0.067 | 0.03 | 0.50 | < 0.05 | 0.18 | 0.32 |
| 4.0 | 1.30 | 0.266 | 1.21 | 0.20 | 1.16 | 0.23 | 0.64 | 0.089 | 0.55 | 0.082 | 0.03 | 1.10 | 0.07 | 0.20 | 0.39 |
| 3.8 | 1.00 | 0.231 | 1.02 | 0.16 | 0.94 | 0.20 | 0.59 | 0.080 | 0.49 | 0.074 | 0.04 | < 0.5 | 0.08 | 0.21 | 0.36 |
| 3.6 | 0.72 | 0.147 | 0.64 | 0.11 | 0.66 | 0.13 | 0.36 | 0.051 | 0.34 | 0.050 | 0.07 | < 0.5 | < 0.05 | 0.12 | 0.64 |
| 3.4 | 0.71 | 0.155 | 0.72 | 0.11 | 0.63 | 0.14 | 0.41 | 0.054 | 0.33 | 0.048 | 3.16 | 0.50 | 0.06 | 0.13 | 0.43 |
| 3.2 | 0.53 | 0.127 | 0.53 | 0.09 | 0.54 | 0.11 | 0.33 | 0.046 | 0.28 | 0.043 | 0.10 | 0.60 | < 0.05 | 0.09 | 0.38 |
| 3.0 | 0.40 | 0.083 | 0.41 | 0.07 | 0.39 | 0.08 | 0.25 | 0.039 | 0.26 | 0.039 | < 0.01 | 14.40 | < 0.05 | < 0.05 | 0.42 |
| *2.8 Duplicate* | 0.54 | 0.126 | 0.61 | 0.09 | 0.50 | 0.10 | 0.31 | 0.044 | 0.26 | 0.035 | 0.02 | 0.60 | 0.05 | 0.10 | 0.56 |
| 2.8 | 0.54 | 0.124 | 0.58 | 0.09 | 0.53 | 0.11 | 0.30 | 0.041 | 0.25 | 0.035 | 0.03 | 0.80 | < 0.05 | 0.09 | 0.56 |
| 2.6 | 0.68 | 0.158 | 0.71 | 0.12 | 0.67 | 0.13 | 0.38 | 0.056 | 0.38 | 0.057 | 0.02 | < 0.5 | < 0.05 | 0.11 | 0.46 |
| 2.4 | 0.30 | 0.079 | 0.32 | 0.05 | 0.33 | 0.07 | 0.22 | 0.031 | 0.19 | 0.030 | 0.09 | 0.90 | < 0.05 | 0.05 | 0.45 |
| 2.2 | 0.29 | 0.048 | 0.32 | 0.05 | 0.32 | 0.06 | 0.18 | 0.025 | 0.15 | 0.023 | 0.11 | < 0.5 | < 0.05 | 0.06 | 0.53 |
| 2.0 | 0.48 | 0.114 | 0.53 | 0.08 | 0.46 | 0.10 | 0.32 | 0.043 | 0.25 | 0.037 | 0.05 | 0.80 | 0.05 | 0.08 | 0.53 |
| 1.8 | 0.57 | 0.132 | 0.59 | 0.09 | 0.52 | 0.11 | 0.32 | 0.046 | 0.29 | 0.048 | 0.04 | 0.70 | 0.06 | 0.09 | 0.52 |
| 1.6 | 1.01 | 0.246 | 1.00 | 0.16 | 0.98 | 0.21 | 0.58 | 0.076 | 0.46 | 0.070 | 0.03 | 0.70 | 0.07 | 0.19 | 0.41 |
| 1.4 | 1.05 | 0.228 | 1.08 | 0.17 | 0.97 | 0.21 | 0.59 | 0.080 | 0.51 | 0.073 | 0.02 | 0.60 | 0.07 | 0.21 | 0.39 |
| 1.2 | 1.12 | 0.220 | 1.00 | 0.18 | 1.12 | 0.23 | 0.61 | 0.088 | 0.55 | 0.076 | 0.16 | < 0.5 | 0.28 | 0.18 | 0.29 |
| 1.0 | 1.25 | 0.286 | 1.17 | 0.20 | 1.18 | 0.26 | 0.73 | 0.104 | 0.63 | 0.090 | 0.02 | 1.10 | 0.10 | 0.23 | 0.41 |
| 0.8 | 1.31 | 0.298 | 1.26 | 0.21 | 1.21 | 0.24 | 0.70 | 0.098 | 0.64 | 0.103 | 0.02 | 1.00 | 0.09 | 0.27 | 0.34 |
| 0.6 | 1.07 | 0.241 | 0.97 | 0.16 | 0.90 | 0.17 | 0.47 | 0.064 | 0.41 | 0.063 | 0.02 | 1.20 | 0.10 | 0.21 | 0.37 |
| 0.4 | 0.61 | 0.136 | 0.55 | 0.09 | 0.53 | 0.11 | 0.30 | 0.039 | 0.24 | 0.040 | 0.03 | 8.10 | 0.11 | 0.11 | 0.42 |
| 0.2 | 0.67 | 0.148 | 0.69 | 0.10 | 0.57 | 0.12 | 0.38 | 0.052 | 0.33 | 0.052 | 0.02 | 0.50 | 0.12 | 0.13 | 0.48 |
| 0.0 | 0.25 | 0.063 | 0.29 | 0.05 | 0.33 | 0.07 | 0.19 | 0.027 | 0.18 | 0.029 | 0.07 | 1.30 | 0.09 | < 0.05 | 0.36 |
| -0.2 | 0.41 | 0.099 | 0.39 | 0.07 | 0.42 | 0.09 | 0.27 | 0.036 | 0.24 | 0.042 | 0.04 | 0.80 | 0.15 | 0.07 | 0.39 |
| -0.4 | 0.71 | 0.152 | 0.76 | 0.13 | 0.74 | 0.16 | 0.46 | 0.061 | 0.38 | 0.059 | 0.03 | 0.80 | 0.18 | 0.15 | 0.33 |
| *-0.6 Duplicate* | 0.59 | 0.141 | 0.69 | 0.11 | 0.62 | 0.13 | 0.42 | 0.058 | 0.37 | 0.057 | 0.05 | 0.90 | 0.26 | 0.10 | 0.42 |
| -0.6 | 0.63 | 0.149 | 0.68 | 0.11 | 0.63 | 0.14 | 0.41 | 0.056 | 0.35 | 0.056 | 0.04 | 1.00 | 0.35 | 0.10 | 0.43 |
| -0.8 | 0.25 | 0.084 | 0.38 | 0.06 | 0.37 | 0.08 | 0.20 | 0.030 | 0.21 | 0.034 | 0.03 | 1.30 | 0.71 | < 0.05 | 0.38 |
| Mean | 0.76 | 0.172 | 0.75 | 0.12 | 0.72 | 0.15 | 0.42 | 0.058 | 0.37 | 0.057 | 0.12 | 1.08 | 0.09 | 0.13 | 0.39 |
| *Standards* |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| *BIR-1a Measured* | *1.07* | *0.508* | *1.81* |  |  |  |  |  | *1.66* |  |  |  |  |  |  |
| *BIR-1a Certified* | *1.10* | *0.550* | *2.00* |  |  |  |  |  | *1.70* |  |  |  |  |  |  |
| *JR-1 Measured* | *5.88* | *0.280* | *5.49* | *1.07* | *6.07* |  |  | *0.664* | *4.77* | *0.697* | *1.88* |  | *1.61* | *27.10* | *8.96* |
| *JR-1 Certified* | *6.03* | *0.300* | *5.06* | *1.01* | *5.69* |  |  | *0.670* | *4.55* | *0.710* | *1.86* |  | *1.56* | *26.70* | *8.88* |