**Table 2** Major oxides, and trace, REE and PGE concentration of Anjar intertrappean layers

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Sample No.** | **SMU-01** | **SMU-02** | **SMU-03** | **SMU-04** | **SMU-05** | **SMU-06** | **SMU-07** | **SMU-08** | **SMU-09** | **SMU-10** | **SMU-11** | **SMU-13** | **SMU-14** | **SMU-17** | **SMU-18** | **SMU-19** | **SMU-A** | **SMU-B** |
| Major Oxide (wt%) | | | | | | | | | | | | | | | | | | |
| SiO2 | 53.01 | 52.91 | 50.90 | 50.70 | 50.58 | 48.40 | 50.06 | 53.84 | 51.29 | 52.08 | 51.06 | 52.54 | 55.10 | 54.08 | 54.33 | 51.59 | 54.88 | 53.09 |
| Al2O3 | 20.99 | 19.82 | 18.28 | 18.48 | 16.17 | 16.58 | 16.35 | 17.92 | 17.01 | 18.46 | 17.31 | 17.09 | 17.21 | 17.02 | 17.08 | 16.70 | 18.86 | 17.36 |
| Fe2O3 | 4.81 | 4.62 | 4.75 | 5.06 | 4.75 | 3.23 | 3.25 | 3.79 | 3.68 | 9.32 | 5.39 | 5.44 | 4.26 | 6.20 | 6.54 | 6.21 | 8.18 | 13.42 |
| MnO | 0.04 | 0.03 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.01 | 0.03 | 0.03 | 0.02 | 0.02 | 0.03 | 0.07 | 0.04 | 0.05 | 0.02 | 0.01 |
| MgO | 1.76 | 1.38 | 1.72 | 1.93 | 1.83 | 1.85 | 1.65 | 1.40 | 1.07 | 1.60 | 2.12 | 1.96 | 1.90 | 1.30 | 1.75 | 2.18 | 1.52 | 1.27 |
| CaO | 3.31 | 5.57 | 5.10 | 4.87 | 11.66 | 14.07 | 14.42 | 6.19 | 11.55 | 0.90 | 5.50 | 6.63 | 5.60 | 6.05 | 6.02 | 8.06 | 0.06 | 0.09 |
| Na2O | 0.26 | 0.59 | 0.44 | 0.29 | 0.33 | 0.34 | 0.27 | 0.47 | 0.51 | 0.27 | 0.69 | 0.76 | 0.99 | 0.73 | 0.41 | 0.31 | 0.09 | 0.08 |
| K2O | 4.38 | 3.93 | 4.20 | 4.18 | 3.79 | 2.95 | 3.33 | 3.97 | 3.65 | 4.41 | 4.57 | 4.69 | 4.37 | 3.06 | 3.36 | 3.28 | 4.89 | 4.31 |
| TiO2 | 1.00 | 0.94 | 0.86 | 0.90 | 0.71 | 0.51 | 0.68 | 0.95 | 0.67 | 1.16 | 0.96 | 0.92 | 0.97 | 1.08 | 1.30 | 1.35 | 0.86 | 0.84 |
| P2O5 | 0.08 | 0.05 | 0.05 | 0.06 | 0.06 | 0.06 | 0.07 | 0.05 | 0.09 | 0.06 | 0.09 | 0.09 | 0.11 | 0.14 | 0.13 | 0.13 | 0.05 | 0.06 |
| LOI | 9.88 | 9.20 | 13.20 | 12.58 | 10.00 | 11.42 | 9.05 | 11.10 | 10.57 | 11.13 | 11.48 | 9.50 | 8.69 | 10.36 | 9.11 | 9.24 | 9.78 | 9.54 |
| Trace and Rare Earth Elements (ppm) | | | | | | | | | | | | | | | | | | |
| Sc(45) | 1.19 | 0.95 | 1.03 | 1.16 | 1.06 | 0.78 | 0.95 | 0.91 | 0.83 | 1.55 | 0.99 | 0.91 | 0.91 | 1.31 | 1.46 | 1.34 | 0.89 | 1.10 |
| V(51) | 70.49 | 60.72 | 59.94 | 61.71 | 53.23 | 42.58 | 51.82 | 55.40 | 42.69 | 82.39 | 53.41 | 49.55 | 53.78 | 50.92 | 85.45 | 81.94 | 49.59 | 49.83 |
| Cr(53) | 30.98 | 83.79 | 31.63 | 33.19 | 30.52 | 21.60 | 26.27 | 26.53 | 23.89 | 35.41 | 31.95 | 36.77 | 45.22 | 40.83 | 48.46 | 47.22 | 33.87 | 33.22 |
| Co(59) | 2.97 | 2.13 | 1.59 | 1.29 | 1.35 | 1.02 | 1.10 | 3.90 | 2.07 | 3.67 | 1.69 | 2.00 | 1.78 | 2.39 | 2.62 | 2.58 | 0.70 | 0.74 |
| Ni(60) | 4.89 | 5.92 | 3.19 | 4.15 | 3.83 | 2.82 | 2.93 | 3.18 | 4.36 | 5.52 | 3.72 | 4.04 | 3.71 | 3.60 | 4.57 | 3.65 | 3.41 | 3.34 |
| Cu(63) | 1.54 | 1.52 | 0.97 | 1.95 | 1.33 | 0.83 | 0.87 | 1.29 | 1.49 | 2.46 | 1.04 | 1.14 | 0.94 | 1.64 | 1.43 | 0.84 | 1.79 | 1.11 |
| Zn(66) | 34.66 | 35.78 | 24.56 | 40.29 | 36.05 | 18.64 | 21.24 | 19.88 | 24.89 | 28.68 | 29.09 | 34.73 | 26.79 | 28.41 | 33.24 | 31.00 | 33.33 | 25.83 |
| Ga(71) | 6.96 | 7.48 | 6.60 | 7.17 | 6.63 | 4.81 | 5.88 | 6.66 | 5.23 | 9.35 | 6.76 | 6.31 | 6.19 | 6.04 | 6.81 | 6.48 | 7.51 | 6.89 |
| Rb(85) | 133.60 | 123.34 | 132.35 | 136.97 | 128.23 | 88.95 | 110.95 | 119.25 | 114.88 | 175.31 | 151.41 | 145.69 | 132.32 | 113.06 | 101.95 | 112.47 | 131.11 | 116.27 |
| Sr(88) | 115.77 | 141.25 | 148.43 | 220.76 | 195.36 | 231.65 | 172.53 | 121.75 | 356.52 | 109.83 | 185.82 | 197.06 | 1586.67 | 128.15 | 177.36 | 131.28 | 82.99 | 65.72 |
| Y(89) | 108.47 | 117.81 | 80.21 | 85.96 | 84.44 | 61.74 | 67.82 | 74.02 | 60.29 | 63.10 | 65.48 | 82.27 | 81.27 | 100.64 | 167.17 | 119.31 | 196.25 | 125.73 |
| Zr(90) | 230.91 | 361.12 | 268.77 | 267.72 | 239.97 | 175.19 | 214.60 | 308.52 | 208.11 | 208.86 | 340.81 | 431.48 | 446.24 | 490.55 | 950.23 | 776.50 | 399.54 | 289.12 |
| Nb(93) | 49.06 | 54.59 | 51.43 | 57.21 | 48.27 | 37.79 | 47.68 | 53.77 | 40.53 | 57.83 | 51.28 | 51.22 | 42.45 | 39.21 | 57.22 | 54.66 | 49.56 | 44.92 |
| Cs(133) | 1.13 | 0.77 | 1.04 | 1.09 | 1.04 | 0.78 | 1.05 | 0.93 | 1.12 | 2.04 | 1.45 | 1.20 | 1.17 | 1.04 | 0.84 | 0.98 | 0.91 | 0.83 |
| Ba(137) | 659.66 | 658.14 | 691.05 | 640.71 | 595.76 | 555.91 | 495.71 | 619.59 | 583.18 | 592.61 | 815.98 | 816.67 | 1132.45 | 676.10 | 476.41 | 521.24 | 937.24 | 698.52 |
| La(139) | 114.38 | 108.56 | 92.95 | 92.90 | 96.58 | 77.29 | 90.21 | 85.74 | 75.98 | 113.60 | 81.79 | 87.32 | 91.07 | 111.97 | 224.52 | 170.83 | 230.75 | 157.10 |
| Ce(140) | 147.41 | 136.33 | 133.90 | 130.43 | 133.08 | 104.02 | 115.57 | 111.36 | 102.54 | 154.75 | 102.95 | 113.55 | 117.51 | 141.33 | 297.97 | 225.88 | 260.88 | 194.82 |
| Pr(141) | 23.59 | 20.87 | 19.59 | 18.98 | 19.59 | 15.48 | 17.52 | 16.73 | 15.59 | 21.55 | 15.93 | 17.02 | 17.27 | 21.88 | 44.47 | 33.53 | 47.55 | 31.65 |
| Nd(146) | 92.62 | 83.03 | 73.83 | 73.45 | 75.41 | 59.15 | 65.65 | 63.80 | 59.59 | 73.29 | 57.04 | 61.22 | 62.84 | 84.85 | 169.96 | 128.97 | 180.65 | 121.31 |
| Sm(147) | 17.57 | 15.93 | 13.51 | 13.77 | 14.07 | 10.96 | 11.96 | 11.81 | 11.05 | 12.09 | 9.94 | 10.72 | 11.13 | 15.93 | 31.51 | 24.04 | 33.31 | 22.54 |
| Eu(153) | 2.92 | 2.72 | 2.19 | 2.29 | 2.31 | 1.95 | 2.05 | 1.92 | 1.98 | 2.07 | 1.84 | 1.95 | 2.08 | 2.92 | 3.69 | 3.26 | 7.32 | 4.62 |
| Gd(157) | 14.43 | 13.72 | 11.12 | 11.64 | 11.45 | 8.98 | 9.78 | 9.78 | 8.74 | 9.79 | 8.45 | 9.48 | 9.83 | 13.48 | 25.02 | 19.12 | 27.45 | 18.22 |
| Tb(159) | 2.31 | 2.30 | 1.78 | 1.92 | 1.82 | 1.43 | 1.56 | 1.58 | 1.34 | 1.54 | 1.40 | 1.63 | 1.69 | 2.23 | 3.87 | 2.96 | 4.42 | 2.87 |
| Dy(163) | 13.59 | 14.08 | 10.74 | 10.85 | 11.14 | 8.61 | 9.52 | 9.87 | 8.07 | 8.97 | 8.30 | 9.99 | 10.22 | 13.41 | 22.58 | 17.22 | 25.86 | 16.50 |
| Ho(165) | 3.17 | 3.41 | 2.56 | 2.44 | 2.70 | 2.05 | 2.30 | 2.43 | 1.92 | 2.07 | 1.95 | 2.42 | 2.45 | 3.20 | 5.25 | 3.98 | 6.02 | 3.77 |
| Er(166) | 8.84 | 9.86 | 7.50 | 7.35 | 7.97 | 5.92 | 6.67 | 7.17 | 5.57 | 5.98 | 5.68 | 7.25 | 7.23 | 9.17 | 14.76 | 11.18 | 16.48 | 10.41 |
| Tm(169) | 1.17 | 1.36 | 1.04 | 1.05 | 1.12 | 0.81 | 0.92 | 1.00 | 0.77 | 0.82 | 0.78 | 1.03 | 1.02 | 1.25 | 1.97 | 1.49 | 2.14 | 1.36 |
| Yb(172) | 7.81 | 9.28 | 7.00 | 7.20 | 7.55 | 5.36 | 6.15 | 6.83 | 5.06 | 5.70 | 5.37 | 7.15 | 6.92 | 8.46 | 13.56 | 10.31 | 13.97 | 9.02 |
| Lu(175) | 1.14 | 1.39 | 1.03 | 1.08 | 1.12 | 0.77 | 0.90 | 1.02 | 0.73 | 0.87 | 0.80 | 1.09 | 1.03 | 1.26 | 2.04 | 1.56 | 1.99 | 1.31 |
| Hf(178) | 4.16 | 6.18 | 4.55 | 4.67 | 4.19 | 3.09 | 3.77 | 5.59 | 3.66 | 3.30 | 5.30 | 6.92 | 7.16 | 8.48 | 15.96 | 13.21 | 6.83 | 4.57 |
| Ta(181) | 0.11 | 0.13 | 0.11 | 0.16 | 0.11 | 0.11 | 0.12 | 0.14 | 0.12 | 0.13 | 0.12 | 0.12 | 0.11 | 0.11 | 0.14 | 0.14 | 0.11 | 0.10 |
| Pb(208) | 4.18 | 5.95 | 3.90 | 4.44 | 4.22 | 3.42 | 3.66 | 4.07 | 4.14 | 4.76 | 3.69 | 4.00 | 4.08 | 4.32 | 4.87 | 4.06 | 6.36 | 5.01 |
| Th(232) | 1.92 | 2.38 | 2.04 | 2.12 | 2.10 | 1.62 | 1.87 | 2.55 | 1.80 | 2.45 | 1.83 | 2.08 | 2.08 | 2.37 | 5.41 | 4.20 | 2.76 | 2.10 |
| U(238) | 3.45 | 4.49 | 3.31 | 3.44 | 3.50 | 2.63 | 3.03 | 4.50 | 3.43 | 6.56 | 3.38 | 3.83 | 5.01 | 4.77 | 9.60 | 6.90 | 5.84 | 5.12 |
| Platinum Group of Elements (ppb) | | | | | | | | | | | | | | | | | | |
| Ru(101) | 2.62 | 28.77 |  |  |  | 23.07 | 28.82 | 22.55 | 7.19 |  | 3.05 | 4.35 | 8.89 |  | 8.39 | 10.51 | 2.24 |  |
| Rh(103) | 0.47 | 1.70 |  |  |  | 2.48 | 2.59 | 1.64 | 0.42 |  | 0.82 | 1.83 | 3.17 |  | 2.90 | 0.68 | 1.07 |  |
| Pd(105) | 5.87 | 8.05 |  |  |  | 6.41 | 7.31 | 7.24 | 7.01 |  | 6.23 | 6.18 | 17.08 |  | 3.85 | 15.82 | 4.97 |  |
| Os(189) | 0.91 | 0.50 |  |  |  | 0.88 | 12.78 | 0.66 | 0.83 |  | 0.40 | 0.73 | 0.88 |  | 0.30 | 1.67 | 0.40 |  |
| Ir(193) | 0.36 | 0.73 |  |  |  | 1.19 | 7.00 | 0.56 | 0.35 |  | 0.64 | 0.33 | 3.17 |  | 0.33 | 1.36 | 0.81 |  |
| Pt(195) | 2.60 | 7.73 |  |  |  | 6.74 | 7.01 | 5.94 | 2.47 |  | 4.11 | 2.40 | 24.43 |  | 5.55 | 8.13 | 6.62 |  |
| Au(197) | 10.50 | 26.84 |  |  |  | 23.50 | 8.53 | 68.05 | 8.30 |  | 20.95 | 18.85 | 22.67 |  | 7.36 | 11.94 | 16.43 |  |