**Table S1: Fission-track Data**

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Sample | Latitude | Longitude | Description | Mineral | No. of  Crystals | Track Density (x 106 tracks.cm-2) | | | Age  Dispersion | Central Age  (Ma) | Apatite Mean  Track Length | Standard  Deviation |
|  |  |  |  |  |  | ρs  (Ns) | ρi  (Ni) | ρd  (Nd) | (Pχ2) | (±1σ) | (µm ± 1 s.e.)  (no. of tracks) | (µm) |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
| 11CAT01 | 37.78716°N | 34.98259°E | Burç  Formation | Apatite | 40 | 0.8128  (811) | 2.775  (2769) | 1.329  (4251) | 44.7%  (2.9%) | **71.1±4.2** | **-** | **-** |
|  |  |  |  | Zircon | 9 | 8.181  (822) | 4.041  (406) | 0.4926  (3153) | 97.8%  (<0.01%) | **60.1±4.2** | **-** | **-** |
| 11CAT02 | 37.78992°N | 34.98825°E | Burç  Formation | Apatite | 4 | 0.04018  (9) | 0.1652  (37) | 1.317  (4213) | 25.4%  (0.6%) | **58.7±22.0** | **-** | **-** |
| 11CAT03 | 37.79303°N | 34.97564°E | Çukurbag  Formation | Apatite | 42 | 0.3220  (482) | 1.432  (2143) | 1.305  (4175) | >99.9%  (<0.01%) | **53.8±4.0** | **-** | **-** |
|  |  |  |  | Zircon | 60 | 7.763  (6653) | 4.201  (3600) | 0.4902  (3137) | 0.46%  (12.4%) | **52.7±1.8** | **-** | **-** |
| 11CAT04 | 37.82790°N | 34.95514°E | Çamardı  Formation | Apatite | 20 | 0.4848  (215) | 5.869  (2603) | 1.293  (4137) | 99.9%  (<0.01%) | **19.6±1.6** | **14.32±0.60**  **(24)** | **1.37** |
|  |  |  |  | Zircon | 23 | 5.963  (1557) | 3.676  (960) | 4.878  (3122) | 62.3%  (4.1%) | **47.7±2.6** | **-** | **-** |
| 11CAT05 | 37.79498°N | 34.97799°E | Ulukişla  Formation | Apatite | 39 | 0.4843  (345) | 3.110  (2215) | 1.281  (4098) | 41.8%  (19.0%) | **37.1±3.1** | **13.52±0.21**  **(69)** | **1.74** |
|  |  |  |  | Zircon | 28 | 9.516  (2844) | 4.236  (1266) | 0.4854  (3106) | 78.1%  (4.9%) | **65.6±3.2** | **-** | **-** |
| 11CAT06 | 37.87114°N | 34.99717°E | Çamardı  Formation | Apatite | 20 | 0.3297  (161) | 4.079  (1992) | 1.269  (4060) | >99.9%  (<0.01%) | **19.0±1.8** | **14.31±0.25**  **(21)** | **1.13** |
|  |  |  |  | Zircon | 25 | 4.534  (1770) | 1.949  (761) | 0.4805  (3075) | >99.9%  (<0.01%) | **67.3±3.7** | **-** | **-** |
| 11CAT07 | 37.86568°N | 34.99656°E | Çamardı  Formation | Apatite | 20 | 0.3770  (145) | 4.547  (1749) | 1.257  (4022) | >99.9%  (<0.01%) | **19.2±1.9** | **14.35±0.43**  **(8)** | **1.14** |
|  |  |  |  | Zircon | 25 | 0.6559  (2380) | 2.830  (1027) | 0.4781  (3060) | 99.6%  (<0.01%) | **66.7±3.4** | **-** | **-** |
| 11CAT08 | 37.83774°N | 35.10138°E | Çukurbag  Formation | Apatite | 6 | 0.1974  (3984) | 1.235  (219) | 1.245  (3984) | 19.0%  (10.7%) | **36.5±7.1** | **-** | **-** |
|  |  |  |  | Zircon | 7 | 10.05  (688) | 1.636  (112) | 0.4757  (3044) | 8.6%  (15.6%) | **175±22** | **-** | **-** |
| 11CAT09 | 37.89443°N | 35.10092°E | Çukurbag  Formation | Apatite | 31 | 0.2707  (267) | 1.355  (1336) | 1.233  (3945) | >99.9%  (<0.01%) | **45.2±3.6** | **-** | **-** |
|  |  |  |  | Zircon | 37 | 11.24  (5242) | 3.922  (1830) | 0.4732  (3029) | <0.01%  (55.5%) | **79.1±7.8** | **-** | **-** |
| 11CAT10 | 38.14688°N | 35.13848°E | Çukurbag  Formation | Apatite | 20 | 0.2701  (224) | 1.297  (1076) | 1.221  (3907) | 99.2%  (<0.01%) | **46.6±4.0** | **-** | **-** |
|  |  |  |  | Zircon | 20 | 5.893  (1833) | 2.768  (861) | 0.4708  (3013) | 17.6%  (10.8%) | **59.8±3.6** | **-** | **-** |
| 11CAT11 | 37.83387°N | 35.11545°E | Çukurbag  Formation | Apatite | 9 | 0.2553  (91) | 0.8724  (311) | 1.209  (3869) | 54.7%  (2.8%) | **64.8±8.3** | **-** | **-** |
|  |  |  |  | Zircon | 20 | 10.47  (2728) | 1.655  (431) | 0.4659  (2982) | 5.0%  (14.5%) | **173±12** | **-** | **-** |
| 11CAT12 | 37.83834°N | 34.97974°E | Çamardı  Formation | Apatite | 20 | 0.5000  (144) | 5.948  (1713) | 1.197  (3831) | >99.9%  (<0.01%) | **18.5±1.8** | **-** | **-** |
|  |  |  |  | Zircon | 20 | 10.38  (1621) | 5.309  (829) | 0.4611  (2951) | 85.4%  (0.1%) | **54.4±3.0** | **-** | **-** |
| 11CAT13 | 37.91344°N | 35.13664°E | Çukurbag  Formation | Apatite | 36 | 0.2190  (199) | 1.429  (1299) | 1.185  (3792) | 91.6%  (0.6%) | **33.3±2.9** | **13.65±0.51**  **(27)** | **2.61** |
|  |  |  |  | Zircon | 28 | 8.081  (2229) | 3.277  (904) | 0.4562  (2920) | <0.01%  (51.3%) | **70.1±7.8** | **-** | **-** |
| 11CAT14 | 37.82684°N | 35.10864°E | Çukurbag  Formation | Apatite | 5 | 0.2927  (59) | 0.6349  (128) | 1.173  (3754) | 55.8%  (0.1%) | **98.8±16.1** | **-** | **-** |
|  |  |  |  | Zircon | 18 | 8.729  (1514) | 2.756  (478) | 0.4538  (2904) | <0.01%  (56.4%) | **85.7±12.6** | **-** | **-** |
| 11CAT15 | 37.79485°N | 34.87634°E | Ovacık  Formation | Apatite | 30 | 0.5863  (471) | 3.171  (2539) | 1.161  (3716) | 98.6%  (<0.01%) | **39.5±2.6** | **13.99±0.10**  **(103)** | **1.05** |
|  |  |  |  | Zircon | 20 | 10.49  (2966) | 3.938  (1114) | 0.4489  (2873) | 84.9%  (0.1%) | **72.0±3.5** | **-** | **-** |
| 11CAT16 | 37.79264°N | 34.85197°E | Ovacık  Formation | Apatite | 28 | 0.4238  (335) | 2.396  (1893) | 1.149  (3678) | 99.7%  (<0.01%) | **37.3±2.8** | **14.75±0.14**  **(70)** | **1.19** |
|  |  |  |  | Zircon | 20 | 9.395  (1864) | 3.377  (670) | 0.4465  (2858) | 90.8%  (0.1%) | **74.8±4.2** | **-** | **-** |
| 11CAT17 | 37.79779°N | 34.77112°E | Ovacık  Formation | Apatite | 25 | 0.5403  (268) | 4.141  (2064) | 1.137  (3639) | 79.8%  (4.1%) | **27.2±2.2** | **14.84±0.18**  **(63)** | **1.42** |
|  |  |  |  | Zircon | 20 | 9.568  (2229) | 3.679  (857) | 0.4417  (2827) | 98.4%  (<0.01%) | **69.2±3.7** | **-** | **-** |
| UK25 | 37.58076°N | 34.77878°E | Elmalı Syenite | Apatite | 11 | 0.1940  (108) | 0.9411  (524) | 1.483  (4746) | 99.4%  (<0.01%) | **53.6±5.7†** | **-** | **-** |
| EL13 | 37.57327°N | 34.77850°E | Elmalı Syenite | Zircon | 15 | 15.81  (2519) | 9.042  (1441) | 0.5150  (3296) | 92.7%  (<0.01%) | **52.0±2.0†** | **-** | **-** |
|  |  |  |  |  |  |  |  |  |  |  |  |  |

Notes:

(i). Analyses by external detector method using 0.5 for the 4π/2π geometry correction factor;

(ii). Ages calculated using dosimeter glass: IRMM540R with ζ540R = 368.1±14.9 (apatite); IRMM541 with ζ541 = 121.5±3.5 (zircon);

† ζ540R = 351.9±3.8 (apatite); IRMM541 with ζ541 = 121.5±3.5 (zircon);

(iii). Pχ2 is the probability of obtaining a χ2 value for v degrees of freedom where v = no. of crystals - 1;

(iv). s.e. = Standard Error.