**Table S5.** *Discarded $^{40}Ar/^{39}Ar$ ages*. Compilation of $^{40}Ar/^{39}Ar$ ages from the Deccan Traps relative to not well intercalibrated or not homogeneous standards (Spell & McDougall 2003; Onstott *et al.* 1991; Jourdan & Renne 2007)

| reference (standard) | sample | plateau age | | | | |
|---|---|---|---|---|---|---|
| | | Age (Ma) | 2σ | %$^{39}$Ar | $^{40}Ar/^{36}Ar$ intercept | 2σ |
| Courtillot et al., 1988 (LP6bt= 128.5 Ma) | DK01-03A | 66.4 | 1.9 | 93 | | |
| | 86NA03 | 63.6 | 0.2 | 68.5 | | |
| | 86NA18 | 63.6 | 0.5 | 79.8 | | |
| | 86NA16 | 67.6 | 1.8 | 71 | | |
| | 86NA17 | 65.1 | 0.6 | 98.3 | | |
| Duncan and Pyle, 1988 (MMhb-1= 519.5 Ma) | MAP 057 | 68.5 | 2.4 | 89 | 305 | 22 |
| | MAP 056 | 64.7 | 2.8 | 65 | 289 | 38 |
| | CAT 034 | 64.4 | 1.8 | 94 | 286 | 24 |
| | CAT021 | 66.6 | 2.0 | 76 | 289 | 30 |
| | JEB 023 | 67.8 | 3.6 | 67 | 299 | 6 |
| | JEB 311 | 60.8 | 4.2 | 63 | 295 | 4 |
| | TEM 004 | 66.8 | 1.4 | 70 | 295 | 4 |
| | JEB 334B | 62.7 | 4.2 | 60 | 288 | 8 |
| | IGA 004 | 37.5 | 1.2 | 91 | 279 | 40 |
| Venkatesan et al., 1993 (MMhb-1= 520.4 Ma) | MB81-24 | 62.4 | 0.8 | 75.2 | 290 | 14 |
| | AM83-7 | 62.1 | 1 | 77.6 | 331 | 24 |
| | MB81-10 | 64.1 | 1 | 54.3 | 262 | 36 |
| | MB-81-4 | 66.1 | 0.8 | 73.0 | 495 | 298 |
| | MB81-3b | 67.5 | 0.8 | 66.0 | 126 | 1028 |
| | MB81-3a | 67.0 | 0.8 | 65.1 | 165 | 170 |
| | IG82-39 | 66.8 | 0.6 | 98.7 | 363 | 24 |
| | IG82-34 | 67.5 | 0.6 | 70.0 | 272 | 36 |
| | IG82-27 | 66.5 | 0.8 | 54.2 | 269 | 30 |
| | IG82-4 | 66.8 | 0.6 | 81.4 | 218 | 82 |
| Baksi, 1994 (SB3bt= 162.8 Ma) | IGA009 | 65.6 | 1.2 | 61 | 294 | 8 |
| | JEB339 | 66.3 | 1.4 | 52 | 487 | 140 |
| | JEB013 | 65.1 | 1.2 | 43 | 236 | 84 |
| | KOP-021 | | | 46 | 264 | 22 |
| | BSH-008 | | | 33 | 246 | 26 |
| | MAP052 | 64.9 | 1.0 | 57 | 271 | 24 |
| | D-907 | | | 27 | 306 | 14 |
| | D-921 | | | 32 | 349 | 60 |
| | D-949 | 64.5 | 1.0 | 44 | 278 | 50 |
| | D-961 | | | 31 | 275 | 150 |
| Venkatesan et al., 1996 (MMhb-1= 520.4 Ma) | Z199 | 65.7 | 0.7 | 63 | | |
| | F lower | 65.2 | 0.6 | 76 | 289 | 8 |
| | Z200 | 64.9 | 0.8 | 79 | 278 | 12 |
| Seth et al., 2001 (MMhb-1= 520.4 Ma) | MnTr | 60.4 | 0.6 | 99.6 | 292 | 10 |
| | SnTr | 61.8 | 0.6 | 99.6 | 312 | 18 |
| Pande et al., 2004 (MMhb-1= 523.2 Ma) | JEB127.1 | 66.5 | 0.9 | 80.8 | 291 | 56 |
| | JEB127.4 | 66.7 | 0.7 | 73.2 | 314 | 12 |
| Cucciniello et al., 2015 (MMhb=523.1 Ma) | CSD5 | 65.6 | 0.2 | 95.4 | 296.6 | 1.7 |
| | CSD8 | 66.6 | 0.3 | 77.9 | 296 | 1.6 |
| | CSD11 | 62.4 | 0.3 | 70.4 | 295 | 2 |