**Supplementary material: Table S1:** Whole-rock analyses of Closepet granite

|  |
| --- |
| Sample name |
|  | enclave | cpx. monzo. | porph. gr. | porph. monzogr. | anatec. |
|  | BH100F | BH 152b | BH80k | BH296A | BH97A | BH258B | J1 | J11 | BH76A | BH75 | BH76B | BH99 | J3 | J10 | BH296B | BH96 | BH80C | BH80D | BH96 | PSN | BH171B | J36 | CG3 | BH111 | BH258A | BH293 | BH296C | BH300A | BH306B | BH335 | BH340 | BH342 |
| Wt % |
| SiO2 | 56.92 | 46.44 | 48.10 | 60.39 | 55.69 | 58.62 | 57.74 | 52.30 | 60.44 | 60.96 | 61.41 | 69.32 | 62.50 | 64.11 | 66.26 | 69.33 | 65.68 | 66.80 | 70.15 | 65.33 | 72.53 | 68.31 | 73.71 | 74.35 | 72.90 | 71.26 | 69.81 | 72.24 | 68.99 | 73.02 | 72.48 | 72.61 |
| Al2O3 | 12.90 | 8.78 | 11.88 | 17.15 | 15.84 | 16.43 | 16.53 | 17.03 | 16.61 | 16.95 | 16.16 | 14.61 | 16.43 | 16.16 | 15.44 | 15.67 | 15.78 | 15.24 | 15.02 | 14.67 | 14.44 | 15.29 | 13.85 | 14.00 | 14.28 | 14.99 | 15.23 | 14.58 | 15.68 | 14.35 | 14.09 | 14.07 |
| Fe2O3 | 9.25 | 15.30 | 10.65 | 6.52 | 9.39 | 7.58 | 7.87 | 10.15 | 6.66 | 5.71 | 6.27 | 3.37 | 5.49 | 4.95 | 4.35 | 2.35 | 4.63 | 3.42 | 2.49 | 5.44 | 1.81 | 2.91 | 1.50 | 0.88 | 1.55 | 2.15 | 2.64 | 2.03 | 3.00 | 1.98 | 2.13 | 2.24 |
| MgO | 6.43 | 12.00 | 12.39 | 2.03 | 3.52 | 2.66 | 2.83 | 3.60 | 1.91 | 1.68 | 2.00 | 0.88 | 1.55 | 1.38 | 1.40 | 0.42 | 1.31 | 0.90 | 0.55 | 1.49 | 0.39 | 0.54 | 0.25 | 0.25 | 0.25 | 0.47 | 0.54 | 0.34 | 0.65 | 0.40 | 0.35 | 0.39 |
| CaO | 4.90 | 12.00 | 9.63 | 4.93 | 5.79 | 4.38 | 4.83 | 6.36 | 4.09 | 3.64 | 3.49 | 2.06 | 3.40 | 2.90 | 2.61 | 1.46 | 3.32 | 2.59 | 1.72 | 2.77 | 1.43 | 2.23 | 1.23 | 1.10 | 1.20 | 1.57 | 1.65 | 1.76 | 2.30 | 1.76 | 1.46 | 1.62 |
| Na2O | 2.63 | 1.05 | 2.07 | 5.39 | 4.52 | 4.11 | 4.21 | 4.27 | 4.65 | 4.23 | 3.92 | 3.95 | 4.36 | 4.25 | 3.89 | 3.70 | 4.45 | 3.43 | 4.09 | 3.52 | 3.84 | 4.43 | 3.28 | 3.68 | 3.27 | 3.81 | 3.74 | 4.11 | 4.48 | 3.96 | 3.81 | 3.67 |
| K2O | 4.37 | 1.43 | 2.70 | 1.76 | 2.69 | 4.24 | 3.21 | 3.42 | 3.34 | 4.73 | 4.45 | 4.11 | 4.00 | 4.58 | 4.58 | 6.00 | 3.22 | 5.97 | 4.82 | 4.87 | 4.51 | 3.87 | 5.18 | 4.86 | 5.63 | 4.77 | 5.34 | 3.92 | 3.23 | 3.70 | 4.43 | 4.16 |
| TiO2 | 0.79 | 0.67 | 0.75 | 0.81 | 1.24 | 1.02 | 0.97 | 1.21 | 0.91 | 0.76 | 0.83 | 0.44 | 0.69 | 0.61 | 0.58 | 0.28 | 0.63 | 0.59 | 0.33 | 0.65 | 0.26 | 0.44 | 0.19 | 0.12 | 0.13 | 0.28 | 0.35 | 0.17 | 0.47 | 0.19 | 0.26 | 0.24 |
| P2O5 | 0.52 | 0.37 | 0.13 | 0.23 | 0.67 | 0.87 | 0.80 | 0.88 | 0.45 | 0.47 | 0.40 | 0.17 | 0.41 | 0.41 | 0.24 | 0.07 | 0.23 | 0.16 | 0.09 | 0.26 | 0.07 | 0.13 | 0.05 | 0.04 | 0.06 | 0.08 | 0.09 | 0.06 | 0.11 | 0.06 | 0.05 | 0.07 |
| MnO | 0.15 | 0.36 | 0.20 | 0.10 | 0.13 | 0.10 | 0.09 | 0.14 | 0.09 | 0.07 | 0.09 | 0.09 | 0.07 | 0.05 | 0.08 | 0.02 | 0.08 | 0.07 | 0.04 | 0.09 | 0.02 | 0.05 | 0.02 | 0.00 | 0.00 | 0.02 | 0.03 | 0.02 | 0.03 | 0.00 | 0.03 | 0.00 |
| ppm |
| Ba | 838 | 98 | 183 | 371 | 896 | 2945 | 985 | 1731 | 861 | 1352 | 1141 | 833 | 1333 | 1362 | 804 | 865 | 629 | 1169 | 659 | 722 | 672 | 395 | 689 | 891 | 636 | 705 | 978 | 580 | 777 | 767 | 544 | 954 |
| Co | 36 | 67 | 58 | 56 | 46 | 66 | 48 | 43 | 15 | 12 | 14 | 66 | 60 | 93 | 85 | 89 | 11 | 8 | 5 | 11 | 3 | 77 | 2 | 93 | 94 | 40 | 48 | 43 | 57 | 73 | 95 | 143 |
| Nb | 14 | 0 | 0 | 7 | 13 | 13 | 0 | 0 | 18 | 10 | 14 | 37 | 0 | 0 | 22 | 6 | 18 | 32 | 9 | 21 | 7 | 0 | 5 | 3 | 2 | 6 | 13 | 5 | 13 | 8 | 18 | 5 |
| Rb | 185 | 0 | 0 | 73 | 88 | 133 | 117 | 92 | 81 | 126 | 113 | 291 | 120 | 127 | 173 | 205 | 128 | 152 | 167 | 162 | 137 | 166 | 199 | 141 | 172 | 168 | 175 | 133 | 146 | 214 | 187 | 156 |
| Sr | 722 | 51 | 161 | 594 | 917 | 1829 | 935 | 1506 | 886 | 1073 | 800 | 510 | 906 | 807 | 463 | 262 | 562 | 537 | 275 | 444 | 257 | 278 | 196 | 287 | 224 | 320 | 496 | 270 | 266 | 203 | 159 | 243 |
| Th | 13 | 0 | 0 | 7 | 8 | 23 | 14 | 7 | 8 | 14 | 11 | 53 | 15 | 12 | 22 | 28 | 16 | 25 | 31 | 39 | 13 | 22 | 47 | 45 | 28 | 27 | 40 | 19 | 35 | 26 | 41 | 30 |
| V | 105 | 230 | 96 | 92 | 142 | 98 | 108 | 135 | 108 | 83 | 92 | 40 | 62 | 52 | 44 | 24 | 65 | 51 | 26 | 68 | 19 | 32 | 11 | 5 | 17 | 22 | 30 | 15 | 34 | 16 | 13 | 20 |
| Zr | 274 | 35 | 170 | 258 | 279 | 288 | 238 | 326 | 288 | 316 | 314 | 275 | 302 | 284 | 319 | 200 | 250 | 357 | 227 | 331 | 192 | 246 | 159 | 182 | 117 | 204 | 317 | 148 | 299 | 159 | 217 | 240 |
| Y | 25 | 28 | 7 | 17 | 26 | 26 | 39 | 33 | 44 | 29 | 39 | 59 | 23 | 24 | 49 | 6 | 24 | 46 | 9 | 49 | 10 | 26 | 4 | 6 | 9 | 11 | 25 | 8 | 11 | 11 | 32 | 5 |
| La | 73 | 21 | 9 | 46 | 81 | 209 | 103 | 141 | 85 | 132 | 93 | 122 | 97 | 82 | 103 | 76 | 65 | 63 | 75 | 98 | 53 | 66 | 52 | 88 | 41 | 75 | 178 | 36 | 101 | 36 | 65 | 66 |
| Ce | 148 | 53 | 23 | 80 | 167 | 374 | 224 | 292 | 178 | 235 | 192 | 232 | 184 | 163 | 192 | 133 | 122 | 146 | 134 | 210 | 92 | 135 | 88 | 152 | 78 | 134 | 320 | 65 | 173 | 61 | 119 | 117 |
| Nd | 68 | 28 | 13 | 38 | 76 | 155 | 94 | 123 | 88 | 83 | 88 | 88 | 65 | 59 | 72 | 37 | 47 | 68 | 44 | 97 | 35 | 45 | 30 | 44 | 27 | 42 | 92 | 20 | 50 | 19 | 40 | 34 |
| Sm | 11 | 6 | 3 | 6 | 13 | 21 | 15 | 19 | 15 | 11 | 14 | 14 | 9 | 9 | 13 | 4 | 8 | 13 | 6 | 17 | 5 | 7 | 5 | 6 | 4 | 6 | 12 | 3 | 6 | 3 | 8 | 4 |
| Eu | 2 | 1 | 1 | 2 | 3 | 5 | 3 | 4 | 3 | 2 | 3 | 2 | 2 | 2 | 2 | 1 | 2 | 2 | 1 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 1 | 1 | 1 | 1 | 1 |
| Gd | 8 | 5 | 2 | 5 | 10 | 13 | 9 | 12 | 11 | 8 | 11 | 11 | 6 | 6 | 11 | 3 | 6 | 10 | 3 | 13 | 3 | 6 | 4 | 3 | 3 | 4 | 8 | 2 | 5 | 3 | 7 | 3 |
| Dy | 5 | 5 | 2 | 3 | 6 | 6 | 7 | 7 | 8 | 6 | 8 | 9 | 4 | 4 | 9 | 1 | 5 | 8 | 2 | 9 | 2 | 4 | 2 | 2 | 2 | 2 | 5 | 2 | 3 | 2 | 5 | 1 |
| Er | 2 | 3 | 1 | 2 | 2 | 2 | 3 | 3 | 4 | 2 | 4 | 5 | 2 | 2 | 4 | 1 | 2 | 4 | 1 | 4 | 1 | 2 | 1 | 1 | 1 | 1 | 2 | 1 | 1 | 1 | 3 | 1 |
| Yb | 2 | 2 | 1 | 1 | 2 | 2 | 3 | 3 | 4 | 2 | 3 | 6 | 2 | 1 | 4 | 1 | 2 | 4 | 1 | 4 | 1 | 2 | 1 | 0 | 1 | 1 | 2 | 1 | 1 | 1 | 2 | 1 |
| Ni | 154 | 172 | 211 | 16 | 39 | 25 | 19 | 24 | 10 | 9 | 13 | 6 | 7 | 10 | 15 | 4 | 10 | 9 | 3 | 11 | 2 | 5 | 3 | 3 | 3 | 4 | 4 | 3 | 2 | 4 | 3 | 3 |

Abbreviations: cpx. monzo. – cpx-bearing quartz – monzonite, porph. gr. – porphyritic granite, porph. monzogr. – porphyritic monzogranite, anatec. – anatectic granite.