**Supplementary sheet-2**

Tables with vein orientation data and numerically derived parameters normal stress (in MPa), shear stress (in MPa), slip tendency, and dilation tendency.

**Table S1:** Vein girdle

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Sl. No. | Strike | Dip | Dip quadrant | Normal stress(σn) in MPa | Shear stress (σs)in MPa | Slip tendency (σs/σn) | Dilation tendency (σ1-σn)/(σ1-σ3) |
| 1 | 270 | 25 | S | 63.22016 | 3.403713 | 0.053839 | 0.006714 |
| 2 | 270 | 25 | S | 63.22016 | 3.403713 | 0.053839 | 0.006714 |
| 3 | 270 | 25 | S | 63.22016 | 3.403713 | 0.053839 | 0.006714 |
| 4 | 270 | 25 | S | 63.22016 | 3.403713 | 0.053839 | 0.006714 |
| 5 | 345 | 86 | NE | 21.82813 | 0.581887 | 0.026658 | 0.999805 |
| 6 | 345 | 86 | NE | 21.82813 | 0.581887 | 0.026658 | 0.999805 |
| 7 | 345 | 86 | NE | 21.82813 | 0.581887 | 0.026658 | 0.999805 |
| 8 | 325 | 81 | NE | 21.94988 | 2.323013 | 0.105833 | 0.996884 |
| 9 | 350 | 85 | NE | 21.84488 | 1.018029 | 0.046603 | 0.999403 |
| 10 | 345 | 73 | NE | 23.2568 | 7.604032 | 0.32696 | 0.965528 |
| 11 | 345 | 73 | NE | 23.2568 | 7.604032 | 0.32696 | 0.965528 |
| 12 | 345 | 73 | NE | 23.2568 | 7.604032 | 0.32696 | 0.965528 |
| 13 | 345 | 73 | NE | 23.2568 | 7.604032 | 0.32696 | 0.965528 |
| 14 | 345 | 73 | NE | 23.2568 | 7.604032 | 0.32696 | 0.965528 |
| 15 | 345 | 73 | NE | 23.2568 | 7.604032 | 0.32696 | 0.965528 |
| 16 | 345 | 73 | NE | 23.2568 | 7.604032 | 0.32696 | 0.965528 |
| 17 | 345 | 73 | NE | 23.2568 | 7.604032 | 0.32696 | 0.965528 |
| 18 | 345 | 73 | NE | 23.2568 | 7.604032 | 0.32696 | 0.965528 |
| 19 | 344 | 73 | NE | 23.39246 | 7.941507 | 0.33949 | 0.962273 |
| 20 | 345 | 73 | NE | 23.2568 | 7.604032 | 0.32696 | 0.965528 |
| 21 | 345 | 73 | NE | 23.2568 | 7.604032 | 0.32696 | 0.965528 |
| 22 | 345 | 73 | NE | 23.2568 | 7.604032 | 0.32696 | 0.965528 |
| 23 | 345 | 73 | NE | 23.2568 | 7.604032 | 0.32696 | 0.965528 |
| 24 | 345 | 73 | NE | 23.2568 | 7.604032 | 0.32696 | 0.965528 |
| 25 | 346 | 73 | NE | 23.4203 | 8.008715 | 0.341956 | 0.961605 |
| 26 | 345 | 73 | NE | 23.2568 | 7.604032 | 0.32696 | 0.965528 |
| 27 | 345 | 73 | NE | 23.2568 | 7.604032 | 0.32696 | 0.965528 |
| 28 | 345 | 73 | NE | 23.2568 | 7.604032 | 0.32696 | 0.965528 |
| 29 | 345 | 73 | NE | 23.2568 | 7.604032 | 0.32696 | 0.965528 |
| 30 | 347 | 73 | NE | 23.83449 | 8.939008 | 0.375045 | 0.951668 |
| 31 | 345 | 73 | NE | 23.2568 | 7.604032 | 0.32696 | 0.965528 |
| 32 | 345 | 73 | NE | 23.2568 | 7.604032 | 0.32696 | 0.965528 |
| 33 | 345 | 73 | NE | 23.2568 | 7.604032 | 0.32696 | 0.965528 |
| 34 | 345 | 73 | NE | 23.2568 | 7.604032 | 0.32696 | 0.965528 |
| 35 | 345 | 73 | NE | 23.2568 | 7.604032 | 0.32696 | 0.965528 |
| 36 | 345 | 73 | NE | 23.2568 | 7.604032 | 0.32696 | 0.965528 |
| 37 | 345 | 73 | NE | 23.2568 | 7.604032 | 0.32696 | 0.965528 |
| 38 | 345 | 73 | NE | 23.2568 | 7.604032 | 0.32696 | 0.965528 |
| 39 | 345 | 73 | NE | 23.2568 | 7.604032 | 0.32696 | 0.965528 |
| 40 | 345 | 73 | NE | 23.2568 | 7.604032 | 0.32696 | 0.965528 |
| 41 | 345 | 73 | NE | 23.2568 | 7.604032 | 0.32696 | 0.965528 |
| 42 | 345 | 73 | NE | 23.2568 | 7.604032 | 0.32696 | 0.965528 |
| 43 | 345 | 73 | NE | 23.2568 | 7.604032 | 0.32696 | 0.965528 |
| 44 | 345 | 73 | NE | 23.2568 | 7.604032 | 0.32696 | 0.965528 |
| 45 | 345 | 73 | NE | 23.2568 | 7.604032 | 0.32696 | 0.965528 |
| 46 | 345 | 73 | NE | 23.2568 | 7.604032 | 0.32696 | 0.965528 |
| 47 | 342 | 73 | NE | 23.15252 | 7.33238 | 0.316699 | 0.96803 |
| 48 | 345 | 73 | NE | 23.2568 | 7.604032 | 0.32696 | 0.965528 |
| 49 | 345 | 73 | NE | 23.2568 | 7.604032 | 0.32696 | 0.965528 |
| 50 | 345 | 75 | NE | 22.88542 | 6.578126 | 0.287437 | 0.974438 |
| 51 | 345 | 73 | NE | 23.2568 | 7.604032 | 0.32696 | 0.965528 |
| 52 | 345 | 73 | NE | 23.2568 | 7.604032 | 0.32696 | 0.965528 |
| 53 | 345 | 73 | NE | 23.2568 | 7.604032 | 0.32696 | 0.965528 |
| 54 | 345 | 73 | NE | 23.2568 | 7.604032 | 0.32696 | 0.965528 |
| 55 | 345 | 73 | NE | 23.2568 | 7.604032 | 0.32696 | 0.965528 |
| 56 | 345 | 73 | NE | 23.2568 | 7.604032 | 0.32696 | 0.965528 |
| 57 | 345 | 71 | NE | 23.92913 | 9.135655 | 0.38178 | 0.949397 |
| 58 | 345 | 73 | NE | 23.2568 | 7.604032 | 0.32696 | 0.965528 |
| 59 | 345 | 73 | NE | 23.2568 | 7.604032 | 0.32696 | 0.965528 |
| 60 | 345 | 73 | NE | 23.2568 | 7.604032 | 0.32696 | 0.965528 |
| 61 | 345 | 73 | NE | 23.2568 | 7.604032 | 0.32696 | 0.965528 |
| 62 | 345 | 73 | NE | 23.2568 | 7.604032 | 0.32696 | 0.965528 |
| 63 | 345 | 73 | NE | 23.2568 | 7.604032 | 0.32696 | 0.965528 |
| 64 | 345 | 73 | NE | 23.2568 | 7.604032 | 0.32696 | 0.965528 |
| 65 | 344 | 72 | NE | 23.563 | 8.343274 | 0.354084 | 0.958181 |
| 66 | 345 | 73 | NE | 23.2568 | 7.604032 | 0.32696 | 0.965528 |
| 67 | 345 | 73 | NE | 23.2568 | 7.604032 | 0.32696 | 0.965528 |
| 68 | 345 | 73 | NE | 23.2568 | 7.604032 | 0.32696 | 0.965528 |
| 69 | 345 | 73 | NE | 23.2568 | 7.604032 | 0.32696 | 0.965528 |
| 70 | 345 | 73 | NE | 23.2568 | 7.604032 | 0.32696 | 0.965528 |
| 71 | 345 | 73 | NE | 23.2568 | 7.604032 | 0.32696 | 0.965528 |
| 72 | 345 | 73 | NE | 23.2568 | 7.604032 | 0.32696 | 0.965528 |
| 73 | 345 | 73 | NE | 23.2568 | 7.604032 | 0.32696 | 0.965528 |
| 74 | 345 | 73 | NE | 23.2568 | 7.604032 | 0.32696 | 0.965528 |
| 75 | 345 | 73 | NE | 23.2568 | 7.604032 | 0.32696 | 0.965528 |
| 76 | 345 | 73 | NE | 23.2568 | 7.604032 | 0.32696 | 0.965528 |
| 77 | 345 | 73 | NE | 23.2568 | 7.604032 | 0.32696 | 0.965528 |
| 78 | 345 | 73 | NE | 23.2568 | 7.604032 | 0.32696 | 0.965528 |
| 79 | 345 | 73 | NE | 23.2568 | 7.604032 | 0.32696 | 0.965528 |
| 80 | 345 | 73 | NE | 23.2568 | 7.604032 | 0.32696 | 0.965528 |
| 81 | 345 | 73 | NE | 23.2568 | 7.604032 | 0.32696 | 0.965528 |
| 82 | 345 | 73 | NE | 23.2568 | 7.604032 | 0.32696 | 0.965528 |
| 83 | 345 | 73 | NE | 23.2568 | 7.604032 | 0.32696 | 0.965528 |
| 84 | 345 | 73 | NE | 23.2568 | 7.604032 | 0.32696 | 0.965528 |
| 85 | 345 | 73 | NE | 23.2568 | 7.604032 | 0.32696 | 0.965528 |
| 86 | 345 | 73 | NE | 23.2568 | 7.604032 | 0.32696 | 0.965528 |
| 87 | 345 | 73 | NE | 23.2568 | 7.604032 | 0.32696 | 0.965528 |
| 88 | 345 | 73 | NE | 23.2568 | 7.604032 | 0.32696 | 0.965528 |
| 89 | 345 | 73 | NE | 23.2568 | 7.604032 | 0.32696 | 0.965528 |
| 90 | 345 | 73 | NE | 23.2568 | 7.604032 | 0.32696 | 0.965528 |
| 91 | 330 | 86 | NE | 22.24565 | 4.190464 | 0.188372 | 0.989788 |
| 92 | 330 | 86 | NE | 22.24565 | 4.190464 | 0.188372 | 0.989788 |
| 93 | 330 | 86 | NE | 22.24565 | 4.190464 | 0.188372 | 0.989788 |
| 94 | 330 | 86 | NE | 22.24565 | 4.190464 | 0.188372 | 0.989788 |
| 95 | 330 | 86 | NE | 22.24565 | 4.190464 | 0.188372 | 0.989788 |
| 96 | 330 | 86 | NE | 22.24565 | 4.190464 | 0.188372 | 0.989788 |
| 97 | 330 | 86 | NE | 22.24565 | 4.190464 | 0.188372 | 0.989788 |
| 98 | 330 | 86 | NE | 22.24565 | 4.190464 | 0.188372 | 0.989788 |
| 99 | 330 | 86 | NE | 22.24565 | 4.190464 | 0.188372 | 0.989788 |
| 100 | 330 | 86 | NE | 22.24565 | 4.190464 | 0.188372 | 0.989788 |
| 101 | 330 | 86 | NE | 22.24565 | 4.190464 | 0.188372 | 0.989788 |
| 102 | 350 | 60 | NE | 29.20866 | 15.91751 | 0.544959 | 0.822729 |
| 103 | 350 | 60 | NE | 29.20866 | 15.91751 | 0.544959 | 0.822729 |
| 104 | 30 | 42 | SE | 50.19626 | 19.42963 | 0.387073 | 0.319188 |
| 105 | 50 | 70 | SE | 35.5323 | 19.58319 | 0.551138 | 0.67101 |
| 106 | 230 | 62 | NW | 23.563 | 8.343274 | 0.354084 | 0.958181 |
| 107 | 348 | 52 | NE | 33.26371 | 18.60149 | 0.559213 | 0.725439 |
| 108 | 340 | 60 | NE | 27.41859 | 14.21285 | 0.518365 | 0.865677 |
| 109 | 340 | 60 | NE | 27.41859 | 14.21285 | 0.518365 | 0.865677 |
| 110 | 45 | 89 | NW | 24.32812 | 9.912009 | 0.40743 | 0.939824 |
| 111 | 215 | 80 | NW | 21.92669 | 2.106013 | 0.096048 | 0.99744 |
| 112 | 245 | 65 | NW | 22.16237 | 3.762019 | 0.169748 | 0.991786 |
| 113 | 205 | 68 | NW | 23.47668 | 8.142837 | 0.346848 | 0.960252 |
| 114 | 44 | 75 | NW | 21.82114 | 0.218232 | 0.010001 | 0.999973 |
| 115 | 240 | 68 | NW | 21.94189 | 2.250707 | 0.102576 | 0.997075 |
| 116 | 240 | 68 | NW | 21.94189 | 2.250707 | 0.102576 | 0.997075 |
| 117 | 240 | 68 | NW | 21.94189 | 2.250707 | 0.102576 | 0.997075 |
| 118 | 240 | 68 | NW | 21.94189 | 2.250707 | 0.102576 | 0.997075 |
| 119 | 48 | 60 | N | 23.99337 | 9.266197 | 0.386198 | 0.947856 |
| 120 | 118 | 65 | SW | 40.98865 | 20.77287 | 0.506796 | 0.540099 |
| 121 | 320 | 42 | NE | 34.31673 | 19.097 | 0.556492 | 0.700175 |
| 122 | 20 | 40 | NW | 38.46954 | 20.41435 | 0.530663 | 0.600539 |
| 123 | 290 | 55 | NE | 24.75928 | 10.67097 | 0.430989 | 0.92948 |
| 124 | 330 | 70 | NE | 22.88542 | 6.578126 | 0.287437 | 0.974438 |
| 125 | 255 | 2 | SE | 58.80984 | 13.17149 | 0.223967 | 0.112528 |
| 126 | 320 | 88 | NE | 23.2568 | 7.604032 | 0.32696 | 0.965528 |
| 127 | 320 | 88 | NE | 23.2568 | 7.604032 | 0.32696 | 0.965528 |
| 128 | 330 | 88 | NE | 22.47473 | 5.182697 | 0.230601 | 0.984292 |
| 129 | 350 | 48 | NE | 35.66919 | 19.63248 | 0.550404 | 0.667726 |
| 130 | 270 | 86 | N | 25.26177 | 11.47202 | 0.454126 | 0.917424 |
| 131 | 270 | 86 | N | 25.26177 | 11.47202 | 0.454126 | 0.917424 |
| 132 | 270 | 86 | N | 25.26177 | 11.47202 | 0.454126 | 0.917424 |
| 133 | 265 | 80 | NW | 23.36486 | 7.874202 | 0.33701 | 0.962935 |
| 134 | 265 | 80 | NW | 23.36486 | 7.874202 | 0.33701 | 0.962935 |
| 135 | 60 | 80 | NW | 22.62731 | 5.744282 | 0.253865 | 0.980631 |
| 136 | 310 | 85 | NE | 23.05204 | 7.059298 | 0.306233 | 0.97044 |
| 137 | 100 | 86 | S | 28.71532 | 15.48714 | 0.539334 | 0.834565 |
| 138 | 295 | 60 | SW | 44.76601 | 20.73331 | 0.463149 | 0.449472 |
| 139 | 185 | 82 | W | 22.08808 | 3.331924 | 0.150847 | 0.993568 |
| 140 | 185 | 82 | W | 22.08808 | 3.331924 | 0.150847 | 0.993568 |
| 141 | 210 | 85 | SE | 24.72214 | 10.60842 | 0.429106 | 0.930371 |
| 142 | 40 | 72 | SE | 32.74799 | 18.33188 | 0.559786 | 0.737812 |
| 143 | 345 | 85 | NE | 21.82051 | 0.145489 | 0.006668 | 0.999988 |
| 144 | 345 | 85 | NE | 21.82051 | 0.145489 | 0.006668 | 0.999988 |
| 145 | 345 | 85 | NE | 21.82051 | 0.145489 | 0.006668 | 0.999988 |
| 146 | 345 | 59 | NE | 29.09787 | 15.82321 | 0.543793 | 0.825387 |
| 147 | 240 | 40 | SE | 56.7661 | 15.34026 | 0.270236 | 0.161562 |
| 148 | 280 | 65 | N | 22.14936 | 3.690446 | 0.166616 | 0.992098 |
| 149 | 260 | 70 | S | 39.39991 | 20.58343 | 0.522423 | 0.578217 |
| 150 | 10 | 50 | NW | 34.58418 | 19.21163 | 0.555503 | 0.693758 |
| 151 | 140 | 89 | SW | 23.8034 | 8.87324 | 0.372772 | 0.952414 |
| 152 | 140 | 89 | SW | 23.8034 | 8.87324 | 0.372772 | 0.952414 |
| 153 | 140 | 89 | SW | 23.8034 | 8.87324 | 0.372772 | 0.952414 |
| 154 | 140 | 89 | SW | 23.8034 | 8.87324 | 0.372772 | 0.952414 |
| 155 | 140 | 89 | SW | 23.8034 | 8.87324 | 0.372772 | 0.952414 |
| 156 | 350 | 12 | SW | 57.65104 | 14.47668 | 0.251109 | 0.14033 |
| 157 | 350 | 12 | SW | 57.65104 | 14.47668 | 0.251109 | 0.14033 |
| 158 | 355 | 40 | NE | 42.80549 | 20.83949 | 0.486842 | 0.496509 |
| 159 | 355 | 40 | NE | 42.80549 | 20.83949 | 0.486842 | 0.496509 |
| 160 | 355 | 40 | NE | 42.80549 | 20.83949 | 0.486842 | 0.496509 |
| 161 | 355 | 40 | NE | 42.80549 | 20.83949 | 0.486842 | 0.496509 |
| 162 | 165 | 85 | SW | 22.88542 | 6.578126 | 0.287437 | 0.974438 |
| 163 | 285 | 80 | NE | 23.02752 | 6.990811 | 0.303585 | 0.971029 |
| 164 | 240 | 65 | NW | 22.33789 | 4.617071 | 0.206692 | 0.987575 |
| 165 | 330 | 70 | NE | 22.90851 | 6.647112 | 0.290159 | 0.973884 |
| 166 | 350 | 80 | SW | 23.62171 | 8.476392 | 0.358839 | 0.956773 |
| 167 | 175 | 48 | E | 37.05571 | 20.07231 | 0.541679 | 0.63446 |
| 168 | 155 | 48 | SW | 43.89594 | 20.80332 | 0.473923 | 0.470347 |
| 169 | 155 | 48 | SW | 43.89594 | 20.80332 | 0.473923 | 0.470347 |
| 170 | 155 | 48 | SW | 43.89594 | 20.80332 | 0.473923 | 0.470347 |
| 171 | 155 | 48 | SW | 43.89594 | 20.80332 | 0.473923 | 0.470347 |
| 172 | 155 | 48 | SW | 43.89594 | 20.80332 | 0.473923 | 0.470347 |
| 173 | 155 | 48 | SW | 43.89594 | 20.80332 | 0.473923 | 0.470347 |
| 174 | 155 | 48 | SW | 43.89594 | 20.80332 | 0.473923 | 0.470347 |
| 175 | 155 | 48 | SW | 43.89594 | 20.80332 | 0.473923 | 0.470347 |
| 176 | 320 | 50 | SW | 46.56503 | 20.47087 | 0.439619 | 0.406309 |
| 177 | 350 | 75 | NE | 23.39246 | 7.941507 | 0.33949 | 0.962273 |
| 178 | 240 | 89 | N | 25.6307 | 12.01285 | 0.46869 | 0.908572 |
| 179 | 165 | 83 | SW | 23.47668 | 8.142837 | 0.346848 | 0.960252 |
| 180 | 12 | 72 | SE | 27.56826 | 14.37167 | 0.521312 | 0.862086 |
| 181 | 12 | 72 | SE | 27.56826 | 14.37167 | 0.521312 | 0.862086 |
| 182 | 250 | 70 | NW | 21.83028 | 0.6546 | 0.029986 | 0.999753 |
| 183 | 252 | 60 | NW | 23.12704 | 7.264241 | 0.314102 | 0.968641 |
| 184 | 178 | 44 | W | 40.69878 | 20.74751 | 0.509782 | 0.547054 |
| 185 | 70 | 81 | NW | 23.33749 | 7.806801 | 0.334518 | 0.963592 |
| 186 | 70 | 81 | NW | 23.33749 | 7.806801 | 0.334518 | 0.963592 |
| 187 | 70 | 81 | NW | 23.33749 | 7.806801 | 0.334518 | 0.963592 |
| 188 | 70 | 81 | NW | 23.33749 | 7.806801 | 0.334518 | 0.963592 |
| 189 | 70 | 75 | NW | 22.1241 | 3.547166 | 0.16033 | 0.992704 |
| 190 | 90 | 60 | N | 22.86258 | 6.50906 | 0.284704 | 0.974986 |
| 191 | 110 | 48 | NE | 27.71958 | 14.52892 | 0.524139 | 0.858455 |
| 192 | 70 | 65 | NW | 22.21689 | 4.047844 | 0.182197 | 0.990478 |
| 193 | 40 | 57 | NW | 25.84295 | 12.30822 | 0.47627 | 0.90348 |
| 194 | 170 | 80 | NE | 22.2754 | 4.33288 | 0.194514 | 0.989074 |
| 195 | 80 | 55 | NW | 24.25937 | 9.783787 | 0.403299 | 0.941474 |
| 196 | 55 | 55 | NW | 25.30192 | 11.53268 | 0.455803 | 0.916461 |
| 197 | 240 | 45 | NW | 30.06015 | 16.59968 | 0.552216 | 0.8023 |
| 198 | 95 | 70 | N | 21.8327 | 0.727306 | 0.033313 | 0.999695 |
| 199 | 95 | 70 | N | 21.8327 | 0.727306 | 0.033313 | 0.999695 |
| 200 | 60 | 47 | NW | 28.66134 | 15.43837 | 0.538648 | 0.83586 |
| 201 | 60 | 70 | NW | 21.84856 | 1.090681 | 0.04992 | 0.999315 |
| 202 | 280 | 72 | NNE | 21.93416 | 2.178373 | 0.099314 | 0.997261 |
| 203 | 85 | 65 | NW | 22.07657 | 3.260094 | 0.147672 | 0.993844 |
| 204 | 65 | 65 | NW | 22.24565 | 4.190464 | 0.188372 | 0.989788 |
| 205 | 250 | 60 | NW | 22.9792 | 6.853581 | 0.298252 | 0.972188 |
| 206 | 70 | 68 | NW | 21.85668 | 1.235945 | 0.056548 | 0.99912 |
| 207 | 75 | 65 | NW | 22.16237 | 3.762019 | 0.169748 | 0.991786 |
| 208 | 90 | 50 | N | 26.32783 | 12.94472 | 0.491674 | 0.891847 |
| 209 | 55 | 70 | NW | 21.86112 | 1.308554 | 0.059858 | 0.999013 |
| 210 | 65 | 89 | NW | 26.37311 | 13.00165 | 0.492989 | 0.89076 |
| 211 | 225 | 75 | NW | 21.82203 | 0.290972 | 0.013334 | 0.999951 |
| 212 | 235 | 58 | NW | 24.09142 | 9.461162 | 0.392719 | 0.945503 |
| 213 | 275 | 60 | NE | 22.9792 | 6.853581 | 0.298252 | 0.972188 |
| 214 | 85 | 67 | NW | 21.88142 | 1.598825 | 0.073068 | 0.998526 |
| 215 | 265 | 55 | NW | 24.43293 | 10.10343 | 0.413517 | 0.93731 |
| 216 | 60 | 65 | NW | 22.35413 | 4.68798 | 0.209714 | 0.987185 |
| 217 | 265 | 70 | NW | 21.8327 | 0.727306 | 0.033313 | 0.999695 |
| 218 | 270 | 68 | N | 21.83536 | 0.800002 | 0.036638 | 0.999631 |
| 219 | 250 | 85 | NW | 24.32812 | 9.912009 | 0.40743 | 0.939824 |
| 220 | 265 | 65 | NW | 22.05432 | 3.116317 | 0.141302 | 0.994378 |
| 221 | 255 | 65 | NW | 22.11184 | 3.475461 | 0.157176 | 0.992998 |
| 222 | 350 | 75 | NE | 23.33749 | 7.806801 | 0.334518 | 0.963592 |
| 223 | 250 | 55 | NW | 24.75928 | 10.67097 | 0.430989 | 0.92948 |
| 224 | 80 | 85 | NW | 24.94824 | 10.98176 | 0.440182 | 0.924946 |
| 225 | 270 | 65 | N | 22.05432 | 3.116317 | 0.141302 | 0.994378 |
| 226 | 270 | 65 | N | 22.05432 | 3.116317 | 0.141302 | 0.994378 |
| 227 | 270 | 65 | N | 22.05432 | 3.116317 | 0.141302 | 0.994378 |
| 228 | 270 | 65 | N | 22.05432 | 3.116317 | 0.141302 | 0.994378 |
| 229 | 80 | 60 | NW | 23.05204 | 7.059298 | 0.306233 | 0.97044 |
| 230 | 125 | 89 | SW | 25.22183 | 11.41122 | 0.452434 | 0.918382 |
| 231 | 240 | 62 | NW | 22.88542 | 6.578126 | 0.287437 | 0.974438 |
| 232 | 50 | 75 | NW | 21.85668 | 1.235945 | 0.056548 | 0.99912 |
| 233 | 140 | 72 | NE | 22.02281 | 2.900367 | 0.131698 | 0.995134 |
| 234 | 232 | 50 | NW | 28.07902 | 14.88961 | 0.530275 | 0.849832 |
| 235 | 36 | 80 | NW | 21.97534 | 2.539757 | 0.115573 | 0.996273 |
| 236 | 180 | 69 | E | 28.71532 | 15.48714 | 0.539334 | 0.834565 |
| 237 | 175 | 65 | E | 29.82961 | 16.42214 | 0.550532 | 0.807831 |
| 238 | 30 | 60 | W | 25.58887 | 11.95333 | 0.46713 | 0.909576 |
| 239 | 50 | 80 | SE | 29.94457 | 16.51132 | 0.551396 | 0.805073 |
| 240 | 260 | 75 | N | 22.37062 | 4.758832 | 0.212727 | 0.986789 |
| 241 | 50 | 80 | SE | 29.82961 | 16.42214 | 0.550532 | 0.807831 |
| 242 | 50 | 80 | SE | 29.82961 | 16.42214 | 0.550532 | 0.807831 |
| 243 | 290 | 85 | N | 24.36283 | 9.975938 | 0.409474 | 0.938991 |
| 244 | 155 | 82 | NE | 21.82114 | 0.218232 | 0.010001 | 0.999973 |
| 245 | 27 | 40 | E | 50.66871 | 19.2397 | 0.379716 | 0.307852 |
| 246 | 165 | 82 | E | 21.9666 | 2.467539 | 0.112331 | 0.996483 |
| 247 | 345 | 55 | W | 36.49744 | 19.908 | 0.545463 | 0.647854 |
| 248 | 335 | 75 | E | 22.2604 | 4.261698 | 0.191447 | 0.989434 |
| 249 | 30 | 65 | W | 23.92913 | 9.135655 | 0.38178 | 0.949397 |
| 250 | 215 | 60 | W | 24.94824 | 10.98176 | 0.440182 | 0.924946 |
| 251 | 245 | 80 | N | 22.6679 | 5.883996 | 0.259574 | 0.979657 |
| 252 | 212 | 70 | W | 22.56825 | 5.534189 | 0.24522 | 0.982048 |
| 253 | 245 | 89 | N | 26.46428 | 13.11504 | 0.495575 | 0.888573 |
| 254 | 225 | 88 | NW | 24.61203 | 10.42 | 0.42337 | 0.933013 |
| 255 | 135 | 70 | W | 34.71849 | 19.26754 | 0.554965 | 0.690535 |
| 256 | 245 | 89 | N | 26.46428 | 13.11504 | 0.495575 | 0.888573 |
| 257 | 220 | 65 | NW | 23.12704 | 7.264241 | 0.314102 | 0.968641 |
| 258 | 210 | 65 | W | 23.92913 | 9.135655 | 0.38178 | 0.949397 |
| 259 | 175 | 88 | W | 21.84145 | 0.945365 | 0.043283 | 0.999485 |
| 260 | 200 | 70 | SE | 30.23467 | 16.73072 | 0.553362 | 0.798112 |
| 261 | 225 | 62 | NW | 23.47668 | 8.142837 | 0.346848 | 0.960252 |
| 262 | 150 | 65 | SW | 34.45025 | 19.15478 | 0.556013 | 0.696971 |
| 263 | 240 | 80 | N | 22.68856 | 5.953746 | 0.262412 | 0.979161 |
| 264 | 275 | 58 | N | 23.33749 | 7.806801 | 0.334518 | 0.963592 |
| 265 | 225 | 75 | NW | 21.82203 | 0.290972 | 0.013334 | 0.999951 |
| 266 | 235 | 85 | NW | 23.65142 | 8.542796 | 0.361196 | 0.95606 |
| 267 | 55 | 60 | N | 23.62171 | 8.476392 | 0.358839 | 0.956773 |
| 268 | 265 | 75 | N | 22.20289 | 3.976459 | 0.179096 | 0.990814 |
| 269 | 258 | 65 | N | 22.07657 | 3.260094 | 0.147672 | 0.993844 |
| 270 | 70 | 70 | N | 21.82457 | 0.43644 | 0.019998 | 0.99989 |
| 271 | 250 | 60 | N | 23.02752 | 6.990811 | 0.303585 | 0.971029 |
| 272 | 65 | 72 | N | 21.84856 | 1.090681 | 0.04992 | 0.999315 |
| 273 | 278 | 52 | N | 25.54725 | 11.89367 | 0.465556 | 0.910575 |
| 274 | 55 | 85 | N | 23.74192 | 8.741381 | 0.368183 | 0.953889 |
| 275 | 50 | 85 | N | 23.33749 | 7.806801 | 0.334518 | 0.963592 |
| 276 | 225 | 80 | NW | 22.08808 | 3.331924 | 0.150847 | 0.993568 |
| 277 | 272 | 58 | S | 48.05379 | 20.12989 | 0.418903 | 0.37059 |
| 278 | 135 | 85 | NE | 23.02752 | 6.990811 | 0.303585 | 0.971029 |
| 279 | 135 | 75 | NE | 21.82622 | 0.509167 | 0.023328 | 0.999851 |
| 280 | 185 | 65 | E | 29.54496 | 16.19572 | 0.548172 | 0.81466 |
| 281 | 325 | 75 | SW | 29.88702 | 16.46683 | 0.550969 | 0.806454 |
| 282 | 135 | 70 | SW | 34.38344 | 19.12601 | 0.556256 | 0.698574 |
| 283 | 302 | 79 | SW | 30.94618 | 17.23636 | 0.556979 | 0.781042 |
| 284 | 145 | 65 | W | 35.80642 | 19.6808 | 0.549645 | 0.664433 |
| 285 | 298 | 72 | S | 35.87516 | 19.70461 | 0.549255 | 0.662784 |
| 286 | 285 | 82 | S | 31.0668 | 17.31772 | 0.557435 | 0.778148 |
| 287 | 95 | 60 | S | 46.9217 | 20.3996 | 0.434758 | 0.397752 |
| 288 | 225 | 79 | NW | 22.05432 | 3.116317 | 0.141302 | 0.994378 |
| 289 | 50 | 75 | NW | 21.85668 | 1.235945 | 0.056548 | 0.99912 |
| 290 | 255 | 75 | S | 35.25957 | 19.48177 | 0.552524 | 0.677553 |
| 291 | 195 | 80 | W | 21.93416 | 2.178373 | 0.099314 | 0.997261 |
| 292 | 190 | 80 | W | 22.11184 | 3.475461 | 0.157176 | 0.992998 |
| 293 | 30 | 25 | SE | 57.60042 | 14.52892 | 0.252236 | 0.141545 |
| 294 | 350 | 85 | W | 22.54906 | 5.464022 | 0.242317 | 0.982508 |
| 295 | 338 | 85 | SW | 23.4203 | 8.008715 | 0.341956 | 0.961605 |
| 296 | 345 | 52 | W | 38.96955 | 20.51064 | 0.526325 | 0.588542 |
| 297 | 175 | 70 | E | 25.71498 | 12.13144 | 0.471766 | 0.90655 |
| 298 | 155 | 85 | SW | 23.83449 | 8.939008 | 0.375045 | 0.951668 |
| 299 | 135 | 69 | SW | 35.19161 | 19.45582 | 0.552854 | 0.679184 |
| 300 | 325 | 65 | SW | 35.66919 | 19.63248 | 0.550404 | 0.667726 |
| 301 | 330 | 70 | SW | 30.88609 | 17.19537 | 0.556735 | 0.782484 |
| 302 | 335 | 70 | SW | 30.35178 | 16.81705 | 0.554071 | 0.795303 |
| 303 | 335 | 55 | SW | 39.18454 | 20.54816 | 0.524395 | 0.583384 |
| 304 | 325 | 55 | SW | 41.93269 | 20.8273 | 0.496684 | 0.51745 |
| 305 | 255 | 56 | NW | 24.05851 | 9.396288 | 0.39056 | 0.946293 |
| 306 | 165 | 75 | W | 26.06032 | 12.59985 | 0.483488 | 0.898265 |
| 307 | 155 | 52 | SW | 41.06118 | 20.77858 | 0.50604 | 0.53836 |
| 308 | 285 | 35 | S | 60.33332 | 11.04352 | 0.183042 | 0.075976 |
| 309 | 345 | 55 | W | 36.56697 | 19.92939 | 0.545011 | 0.646186 |
| 310 | 240 | 40 | N | 32.62025 | 18.26223 | 0.559843 | 0.740877 |
| 311 | 265 | 85 | N | 25.06421 | 11.16663 | 0.445521 | 0.922164 |
| 312 | 5 | 85 | E | 22.43904 | 5.041652 | 0.224682 | 0.985148 |
| 313 | 10 | 80 | E | 24.02583 | 9.331299 | 0.388386 | 0.947077 |
| 314 | 318 | 89 | SW | 24.09142 | 9.461162 | 0.392719 | 0.945503 |
| 315 | 25 | 49 | NW | 31.74013 | 17.74999 | 0.559229 | 0.761993 |
| 316 | 10 | 86 | W | 21.82203 | 0.290972 | 0.013334 | 0.999951 |
| 317 | 85 | 75 | S | 36.28931 | 19.84238 | 0.546783 | 0.652848 |
| 318 | 335 | 64 | SW | 33.98471 | 18.94848 | 0.557559 | 0.70814 |
| 319 | 350 | 82 | E | 22.07657 | 3.260094 | 0.147672 | 0.993844 |
| 320 | 272 | 72 | S | 38.18492 | 20.35385 | 0.533034 | 0.607368 |
| 321 | 360 | 89 | E | 21.85249 | 1.16332 | 0.053235 | 0.99922 |
| 322 | 10 | 55 | E | 36.98568 | 20.05262 | 0.542173 | 0.63614 |
| 323 | 340 | 70 | W | 29.37608 | 16.0575 | 0.546618 | 0.818712 |
| 324 | 320 | 55 | SW | 43.24189 | 20.83187 | 0.481752 | 0.486039 |
| 325 | 350 | 48 | W | 39.90378 | 20.65693 | 0.517669 | 0.566128 |
| 326 | 330 | 65 | W | 34.31673 | 19.097 | 0.556492 | 0.700175 |
| 327 | 355 | 75 | W | 24.68522 | 10.54574 | 0.427209 | 0.931257 |
| 328 | 330 | 65 | W | 34.45025 | 19.15478 | 0.556013 | 0.696971 |
| 329 | 330 | 65 | W | 34.45025 | 19.15478 | 0.556013 | 0.696971 |
| 330 | 335 | 52 | W | 41.64197 | 20.81512 | 0.499859 | 0.524425 |
| 331 | 350 | 80 | W | 23.62171 | 8.476392 | 0.358839 | 0.956773 |
| 332 | 10 | 40 | W | 40.40929 | 20.71811 | 0.512706 | 0.554 |
| 333 | 340 | 45 | W | 44.40385 | 20.76691 | 0.467683 | 0.458161 |
| 334 | 345 | 52 | W | 38.68354 | 20.45711 | 0.528832 | 0.595404 |
| 335 | 335 | 80 | E | 21.86112 | 1.308554 | 0.059858 | 0.999013 |
| 336 | 320 | 53 | SW | 44.91071 | 20.71811 | 0.461318 | 0.446 |
| 337 | 325 | 75 | SW | 29.48851 | 16.14984 | 0.547666 | 0.816015 |
| 338 | 300 | 60 | SW | 44.04115 | 20.79418 | 0.472154 | 0.466863 |
| 339 | 305 | 62 | SW | 42.0054 | 20.82972 | 0.495882 | 0.515705 |
| 340 | 325 | 75 | SW | 29.77237 | 16.37726 | 0.550082 | 0.809204 |
| 341 | 300 | 70 | SW | 37.05571 | 20.07231 | 0.541679 | 0.63446 |
| 342 | 300 | 70 | SW | 37.05571 | 20.07231 | 0.541679 | 0.63446 |
| 343 | 300 | 80 | SW | 30.94618 | 17.23636 | 0.556979 | 0.781042 |
| 344 | 12 | 28 | W | 47.77221 | 20.20324 | 0.422908 | 0.377346 |
| 345 | 310 | 70 | SW | 35.73776 | 19.65676 | 0.550028 | 0.666081 |
| 346 | 310 | 70 | SW | 35.73776 | 19.65676 | 0.550028 | 0.666081 |
| 347 | 295 | 60 | S | 44.91071 | 20.71811 | 0.461318 | 0.446 |
| 348 | 335 | 88 | SW | 22.79551 | 6.301389 | 0.276431 | 0.976595 |
| 349 | 135 | 75 | W | 31.55486 | 17.63467 | 0.558857 | 0.766438 |
| 350 | 305 | 72 | SW | 34.8532 | 19.32251 | 0.554397 | 0.687303 |
| 351 | 135 | 75 | W | 31.24878 | 17.43817 | 0.558043 | 0.773782 |
| 352 | 280 | 80 | S | 33.06944 | 18.50207 | 0.559492 | 0.7301 |
| 353 | 295 | 68 | S | 40.04806 | 20.67567 | 0.516272 | 0.562667 |
| 354 | 205 | 70 | N | 22.90851 | 6.647112 | 0.290159 | 0.973884 |
| 355 | 205 | 70 | N | 22.90851 | 6.647112 | 0.290159 | 0.973884 |
| 356 | 205 | 70 | N | 22.90851 | 6.647112 | 0.290159 | 0.973884 |
| 357 | 25 | 65 | NW | 24.39777 | 10.03975 | 0.411503 | 0.938153 |
| 358 | 205 | 70 | NW | 22.90851 | 6.647112 | 0.290159 | 0.973884 |
| 359 | 225 | 55 | NW | 26.06032 | 12.59985 | 0.483488 | 0.898265 |
| 360 | 35 | 75 | NW | 21.88142 | 1.598825 | 0.073068 | 0.998526 |
| 361 | 210 | 75 | W | 21.94988 | 2.323013 | 0.105833 | 0.996884 |
| 362 | 35 | 85 | NW | 22.47473 | 5.182697 | 0.230601 | 0.984292 |
| 363 | 220 | 52 | NW | 27.77039 | 14.58098 | 0.525055 | 0.857236 |
| 364 | 78 | 70 | NW | 21.82457 | 0.43644 | 0.019998 | 0.99989 |
| 365 | 14 | 41 | E | 46.56503 | 20.47087 | 0.439619 | 0.406309 |
| 366 | 32 | 30 | E | 56.16682 | 15.87046 | 0.282559 | 0.17594 |
| 367 | 342 | 28 | E | 46.63646 | 20.45711 | 0.438651 | 0.404596 |
| 368 | 297 | 31 | NE | 38.75497 | 20.47087 | 0.528213 | 0.593691 |
| 369 | 326 | 21 | NE | 48.61375 | 19.97144 | 0.410819 | 0.357156 |
| 370 | 14 | 40 | E | 46.85046 | 20.41435 | 0.435734 | 0.399461 |
| 371 | 32 | 30 | E | 56.11134 | 15.91751 | 0.283677 | 0.177271 |
| 372 | 343 | 28 | E | 46.9217 | 20.3996 | 0.434758 | 0.397752 |
| 373 | 299 | 31 | NE | 38.75497 | 20.47087 | 0.528213 | 0.593691 |
| 374 | 325 | 25 | NE | 45.77632 | 20.60568 | 0.450139 | 0.425232 |
| 375 | 12 | 35 | E | 49.16906 | 19.79742 | 0.40264 | 0.343833 |
| 376 | 12 | 35 | E | 49.16906 | 19.79742 | 0.40264 | 0.343833 |
| 377 | 306 | 66 | NE | 22.40433 | 4.900362 | 0.218724 | 0.985981 |
| 378 | 297 | 79 | N | 22.45676 | 5.112206 | 0.227647 | 0.984723 |

**Table S2:** WSW cluster

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Sl. No. | Strike | Dip | Dip quadrant | Normal stress(σn) in MPa | Shear stress (σs)in MPa | Slip tendency (σs/σn) | Dilation tendency (σ1-σn)/(σ1-σ3) |
| 1 | 350 | 75 | E | 21.93416 | 2.178373 | 0.099314 | 0.997261 |
| 2 | 350 | 85 | E | 22.29065 | 4.404009 | 0.197572 | 0.988708 |
| 3 | 350 | 82 | E | 22.20289 | 3.976459 | 0.179096 | 0.990814 |
| 4 | 350 | 80 | E | 22.11184 | 3.475461 | 0.157176 | 0.992998 |
| 5 | 0 | 89 | E | 25.50584 | 11.83386 | 0.463967 | 0.911568 |
| 6 | 345 | 86 | E | 21.85249 | 1.16332 | 0.053235 | 0.99922 |
| 7 | 345 | 82 | E | 21.82813 | 0.581887 | 0.026658 | 0.999805 |
| 8 | 345 | 85 | E | 21.85668 | 1.235945 | 0.056548 | 0.99912 |
| 9 | 0 | 69 | E | 22.64748 | 5.814175 | 0.256725 | 0.980147 |
| 10 | 355 | 70 | E | 22.1241 | 3.547166 | 0.16033 | 0.992704 |
| 11 | 355 | 65 | E | 21.8993 | 1.816326 | 0.08294 | 0.998097 |
| 12 | 5 | 65 | E | 23.28346 | 7.671716 | 0.329492 | 0.964888 |
| 13 | 5 | 85 | E | 26.88422 | 13.61729 | 0.506516 | 0.878498 |
| 14 | 347 | 73 | E | 21.83028 | 0.6546 | 0.029986 | 0.999753 |
| 15 | 345 | 73 | E | 21.93416 | 2.178373 | 0.099314 | 0.997261 |
| 16 | 345 | 75 | E | 21.86112 | 1.308554 | 0.059858 | 0.999013 |
| 17 | 344 | 72 | E | 21.99357 | 2.6841 | 0.12204 | 0.995836 |
| 18 | 345 | 71 | E | 22.00307 | 2.756223 | 0.125265 | 0.995608 |
| 19 | 342 | 73 | E | 22.13661 | 3.618828 | 0.163477 | 0.992404 |
| 20 | 350 | 60 | E | 21.98433 | 2.611945 | 0.118809 | 0.996057 |
| 21 | 348 | 52 | E | 22.70946 | 6.023423 | 0.265238 | 0.97866 |
| 22 | 345 | 59 | E | 22.70946 | 6.023423 | 0.265238 | 0.97866 |
| 23 | 340 | 60 | E | 23.53399 | 8.276562 | 0.351685 | 0.958877 |
| 24 | 335 | 75 | E | 23.20418 | 7.468388 | 0.321855 | 0.96679 |
| 25 | 335 | 80 | E | 22.88542 | 6.578126 | 0.287437 | 0.974438 |
| 26 | 335 | 82 | E | 22.6679 | 5.883996 | 0.259574 | 0.979657 |
| 27 | 330 | 88 | E | 23.12704 | 7.264241 | 0.314102 | 0.968641 |
| 28 | 330 | 86 | E | 23.31036 | 7.739306 | 0.332011 | 0.964243 |
| 29 | 325 | 81 | E | 25.50584 | 11.83386 | 0.463967 | 0.911568 |
| 30 | 175 | 89 | W | 24.15793 | 9.590564 | 0.396994 | 0.943908 |
| 31 | 170 | 85 | W | 23.31036 | 7.739306 | 0.332011 | 0.964243 |
| 32 | 165 | 85 | W | 22.21689 | 4.047844 | 0.182197 | 0.990478 |
| 33 | 155 | 89 | W | 22.09984 | 3.403713 | 0.154015 | 0.993286 |

**Table S3:** NE cluster

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Sl. No. | Strike | Dip | Dip quadrant | Normal stress(σn) in MPa | Shear stress (σs)in MPa | Slip tendency (σs/σn) | Dilation tendency (σ1-σn)/(σ1-σ3) |
| 1 | 118 | 65 | S | 22.62731 | 5.744282 | 0.253865 | 0.980631 |
| 2 | 115 | 60 | S | 24.05851 | 9.396288 | 0.39056 | 0.946293 |
| 3 | 140 | 89 | SW | 27.66896 | 14.47668 | 0.52321 | 0.85967 |
| 4 | 140 | 89 | SW | 27.66896 | 14.47668 | 0.52321 | 0.85967 |
| 5 | 140 | 89 | SW | 27.66896 | 14.47668 | 0.52321 | 0.85967 |
| 6 | 140 | 89 | SW | 27.66896 | 14.47668 | 0.52321 | 0.85967 |
| 7 | 140 | 89 | SW | 27.66896 | 14.47668 | 0.52321 | 0.85967 |
| 8 | 165 | 85 | W | 27.27059 | 14.05246 | 0.515297 | 0.869228 |
| 9 | 170 | 80 | W | 24.91001 | 10.91987 | 0.438373 | 0.925863 |
| 10 | 155 | 48 | W | 25.18211 | 11.35028 | 0.450728 | 0.919335 |
| 11 | 155 | 48 | W | 25.18211 | 11.35028 | 0.450728 | 0.919335 |
| 12 | 155 | 48 | W | 25.18211 | 11.35028 | 0.450728 | 0.919335 |
| 13 | 155 | 48 | W | 25.18211 | 11.35028 | 0.450728 | 0.919335 |
| 14 | 155 | 48 | W | 25.18211 | 11.35028 | 0.450728 | 0.919335 |
| 15 | 155 | 48 | W | 25.18211 | 11.35028 | 0.450728 | 0.919335 |
| 16 | 155 | 48 | W | 25.18211 | 11.35028 | 0.450728 | 0.919335 |
| 17 | 155 | 48 | W | 25.18211 | 11.35028 | 0.450728 | 0.919335 |
| 18 | 140 | 50 | SW | 25.26177 | 11.47202 | 0.454126 | 0.917424 |
| 19 | 165 | 83 | W | 25.84295 | 12.30822 | 0.47627 | 0.90348 |
| 20 | 178 | 44 | W | 26.6025 | 13.28392 | 0.499348 | 0.885257 |
| 21 | 125 | 89 | S | 25.80009 | 12.24944 | 0.474783 | 0.904508 |
| 22 | 165 | 55 | W | 22.90851 | 6.647112 | 0.290159 | 0.973884 |
| 23 | 135 | 70 | S | 21.85249 | 1.16332 | 0.053235 | 0.99922 |
| 24 | 175 | 89 | W | 29.26431 | 15.96437 | 0.545523 | 0.821394 |
| 25 | 150 | 65 | W | 21.82813 | 0.581887 | 0.026658 | 0.999805 |
| 26 | 145 | 75 | W | 22.86258 | 6.50906 | 0.284704 | 0.974986 |
| 27 | 135 | 70 | S | 21.82051 | 0.145489 | 0.006668 | 0.999988 |
| 28 | 122 | 79 | S | 22.38735 | 4.829626 | 0.21573 | 0.986388 |
| 29 | 145 | 65 | W | 21.85249 | 1.16332 | 0.053235 | 0.99922 |
| 30 | 118 | 72 | S | 21.84145 | 0.945365 | 0.043283 | 0.999485 |
| 31 | 105 | 82 | S | 22.07657 | 3.260094 | 0.147672 | 0.993844 |
| 32 | 95 | 60 | S | 26.78954 | 13.50682 | 0.504183 | 0.880769 |
| 33 | 170 | 85 | W | 26.51016 | 13.17149 | 0.496847 | 0.887472 |
| 34 | 158 | 85 | W | 26.93185 | 13.67227 | 0.507662 | 0.877355 |
| 35 | 165 | 52 | W | 23.77255 | 8.807365 | 0.370485 | 0.953154 |
| 36 | 155 | 85 | W | 26.51016 | 13.17149 | 0.496847 | 0.887472 |
| 37 | 135 | 69 | SW | 21.82051 | 0.145489 | 0.006668 | 0.999988 |
| 38 | 145 | 65 | W | 21.85249 | 1.16332 | 0.053235 | 0.99922 |
| 39 | 150 | 70 | W | 22.08808 | 3.331924 | 0.150847 | 0.993568 |
| 40 | 155 | 70 | W | 22.08808 | 3.331924 | 0.150847 | 0.993568 |
| 41 | 155 | 55 | W | 23.2568 | 7.604032 | 0.32696 | 0.965528 |
| 42 | 145 | 55 | W | 23.47668 | 8.142837 | 0.346848 | 0.960252 |
| 43 | 165 | 75 | W | 23.31036 | 7.739306 | 0.332011 | 0.964243 |
| 44 | 155 | 52 | W | 24.02583 | 9.331299 | 0.388386 | 0.947077 |
| 45 | 105 | 35 | S | 37.90117 | 20.28938 | 0.535323 | 0.614175 |
| 46 | 165 | 55 | W | 22.90851 | 6.647112 | 0.290159 | 0.973884 |
| 47 | 138 | 88 | SW | 27.36907 | 14.15956 | 0.517356 | 0.866865 |
| 48 | 155 | 64 | W | 21.82813 | 0.581887 | 0.026658 | 0.999805 |
| 49 | 160 | 70 | W | 22.18913 | 3.905027 | 0.175988 | 0.991144 |
| 50 | 140 | 55 | SW | 23.65142 | 8.542796 | 0.361196 | 0.95606 |
| 51 | 170 | 48 | W | 25.42364 | 11.71382 | 0.460745 | 0.91354 |
| 52 | 150 | 65 | W | 21.82813 | 0.581887 | 0.026658 | 0.999805 |
| 53 | 175 | 75 | W | 23.10181 | 7.196014 | 0.311491 | 0.969247 |
| 54 | 150 | 65 | W | 21.82813 | 0.581887 | 0.026658 | 0.999805 |
| 55 | 150 | 65 | W | 21.82813 | 0.581887 | 0.026658 | 0.999805 |
| 56 | 155 | 52 | W | 23.96114 | 9.200982 | 0.383996 | 0.948629 |
| 57 | 170 | 80 | W | 24.98668 | 11.04352 | 0.441976 | 0.924024 |
| 58 | 160 | 45 | W | 26.64897 | 13.33989 | 0.500578 | 0.884142 |
| 59 | 165 | 52 | W | 23.96114 | 9.200982 | 0.383996 | 0.948629 |
| 60 | 140 | 53 | SW | 24.22533 | 9.719498 | 0.401212 | 0.94229 |
| 61 | 145 | 75 | W | 22.86258 | 6.50906 | 0.284704 | 0.974986 |
| 62 | 120 | 60 | S | 23.74192 | 8.741381 | 0.368183 | 0.953889 |
| 63 | 125 | 62 | S | 22.70946 | 6.023423 | 0.265238 | 0.97866 |
| 64 | 145 | 75 | W | 22.86258 | 6.50906 | 0.284704 | 0.974986 |
| 65 | 120 | 70 | S | 21.88713 | 1.671346 | 0.076362 | 0.998389 |
| 66 | 120 | 70 | S | 21.88713 | 1.671346 | 0.076362 | 0.998389 |
| 67 | 120 | 80 | S | 22.42156 | 4.971037 | 0.221708 | 0.985567 |
| 68 | 130 | 70 | S | 21.83828 | 0.872689 | 0.039961 | 0.999561 |
| 69 | 130 | 70 | S | 21.83828 | 0.872689 | 0.039961 | 0.999561 |
| 70 | 115 | 60 | S | 23.92913 | 9.135655 | 0.38178 | 0.949397 |
| 71 | 155 | 89 | W | 28.66134 | 15.43837 | 0.538648 | 0.83586 |
| 72 | 135 | 75 | S | 22.45676 | 5.112206 | 0.227647 | 0.984723 |
| 73 | 125 | 72 | S | 21.82622 | 0.509167 | 0.023328 | 0.999851 |
| 74 | 135 | 75 | S | 22.38735 | 4.829626 | 0.21573 | 0.986388 |
| 75 | 100 | 80 | S | 21.82457 | 0.43644 | 0.019998 | 0.99989 |
| 76 | 115 | 68 | S | 22.2604 | 4.261698 | 0.191447 | 0.989434 |

**Table S4**: SE cluster

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Sl. No. | Strike | Dip | Dip quadrant | Normal stress(σn) in MPa | Shear stress (σs)in MPa | Slip tendency (σs/σn) | Dilation tendency (σ1-σn)/(σ1-σ3) |
| 1 | 230 | 62 | N | 22.30615 | 4.475084 | 0.200621 | 0.988336 |
| 2 | 225 | 89 | W | 26.46428 | 13.11504 | 0.495575 | 0.888573 |
| 3 | 215 | 80 | W | 23.00324 | 6.922238 | 0.300924 | 0.971611 |
| 4 | 245 | 65 | N | 21.93416 | 2.178373 | 0.099314 | 0.997261 |
| 5 | 205 | 68 | W | 22.14936 | 3.690446 | 0.166616 | 0.992098 |
| 6 | 224 | 75 | W | 22.13661 | 3.618828 | 0.163477 | 0.992404 |
| 7 | 240 | 68 | N | 21.82013 | 0.072745 | 0.003334 | 0.999997 |
| 8 | 240 | 68 | N | 21.82013 | 0.072745 | 0.003334 | 0.999997 |
| 9 | 240 | 68 | N | 21.82013 | 0.072745 | 0.003334 | 0.999997 |
| 10 | 240 | 68 | N | 21.82013 | 0.072745 | 0.003334 | 0.999997 |
| 11 | 228 | 60 | N | 22.88542 | 6.578126 | 0.287437 | 0.974438 |
| 12 | 270 | 86 | N | 24.83421 | 10.79568 | 0.43471 | 0.927682 |
| 13 | 270 | 86 | N | 24.83421 | 10.79568 | 0.43471 | 0.927682 |
| 14 | 270 | 86 | N | 24.83421 | 10.79568 | 0.43471 | 0.927682 |
| 15 | 265 | 80 | N | 23.20418 | 7.468388 | 0.321855 | 0.96679 |
| 16 | 265 | 80 | N | 23.20418 | 7.468388 | 0.321855 | 0.96679 |
| 17 | 240 | 80 | N | 23.563 | 8.343274 | 0.354084 | 0.958181 |
| 18 | 280 | 65 | N | 22.40433 | 4.900362 | 0.218724 | 0.985981 |
| 19 | 285 | 80 | N | 22.42156 | 4.971037 | 0.221708 | 0.985567 |
| 20 | 240 | 65 | N | 21.95811 | 2.39529 | 0.109085 | 0.996686 |
| 21 | 240 | 89 | N | 27.12428 | 13.89054 | 0.512107 | 0.872738 |
| 22 | 250 | 70 | N | 21.85249 | 1.16332 | 0.053235 | 0.99922 |
| 23 | 252 | 60 | N | 22.62731 | 5.744282 | 0.253865 | 0.980631 |
| 24 | 250 | 81 | N | 23.86581 | 9.004667 | 0.377304 | 0.950916 |
| 25 | 250 | 81 | N | 23.86581 | 9.004667 | 0.377304 | 0.950916 |
| 26 | 250 | 81 | N | 23.86581 | 9.004667 | 0.377304 | 0.950916 |
| 27 | 250 | 81 | N | 23.86581 | 9.004667 | 0.377304 | 0.950916 |
| 28 | 250 | 75 | N | 22.60738 | 5.67432 | 0.250994 | 0.981109 |
| 29 | 270 | 60 | N | 22.93183 | 6.716017 | 0.292869 | 0.973325 |
| 30 | 250 | 65 | N | 21.9666 | 2.467539 | 0.112331 | 0.996483 |
| 31 | 220 | 57 | W | 23.77255 | 8.807365 | 0.370485 | 0.953154 |
| 32 | 260 | 55 | N | 24.25937 | 9.783787 | 0.403299 | 0.941474 |
| 33 | 235 | 55 | N | 24.29364 | 9.847958 | 0.405372 | 0.940652 |
| 34 | 240 | 45 | N | 28.44715 | 15.24141 | 0.53578 | 0.840999 |
| 35 | 275 | 70 | N | 21.82813 | 0.581887 | 0.026658 | 0.999805 |
| 36 | 275 | 70 | N | 21.82813 | 0.581887 | 0.026658 | 0.999805 |
| 37 | 240 | 47 | N | 27.22163 | 13.99866 | 0.514248 | 0.870402 |
| 38 | 240 | 70 | N | 21.87077 | 1.453725 | 0.066469 | 0.998782 |
| 39 | 280 | 72 | N | 21.82013 | 0.072745 | 0.003334 | 0.999997 |
| 40 | 265 | 65 | N | 22.09984 | 3.403713 | 0.154015 | 0.993286 |
| 41 | 245 | 65 | N | 21.9666 | 2.467539 | 0.112331 | 0.996483 |
| 42 | 250 | 60 | N | 22.752 | 6.162556 | 0.270858 | 0.977639 |
| 43 | 250 | 68 | N | 21.82 | 2.55E-15 | 1.17E-16 | 1 |
| 44 | 255 | 65 | N | 21.99357 | 2.6841 | 0.12204 | 0.995836 |
| 45 | 270 | 50 | N | 26.46428 | 13.11504 | 0.495575 | 0.888573 |
| 46 | 235 | 70 | N | 21.83028 | 0.6546 | 0.029986 | 0.999753 |
| 47 | 225 | 75 | W | 22.18913 | 3.905027 | 0.175988 | 0.991144 |
| 48 | 235 | 58 | N | 23.33749 | 7.806801 | 0.334518 | 0.963592 |
| 49 | 275 | 60 | N | 23.23037 | 7.536256 | 0.324414 | 0.966162 |
| 50 | 265 | 67 | N | 21.87597 | 1.526284 | 0.06977 | 0.998657 |
| 51 | 265 | 55 | N | 24.43293 | 10.10343 | 0.413517 | 0.93731 |
| 52 | 240 | 65 | N | 21.94988 | 2.323013 | 0.105833 | 0.996884 |
| 53 | 265 | 70 | N | 21.82317 | 0.363708 | 0.016666 | 0.999924 |
| 54 | 270 | 68 | N | 21.85668 | 1.235945 | 0.056548 | 0.99912 |
| 55 | 250 | 85 | N | 25.18211 | 11.35028 | 0.450728 | 0.919335 |
| 56 | 265 | 65 | N | 22.03306 | 2.972387 | 0.134906 | 0.994888 |
| 57 | 255 | 65 | N | 21.99357 | 2.6841 | 0.12204 | 0.995836 |
| 58 | 250 | 55 | N | 23.99337 | 9.266197 | 0.386198 | 0.947856 |
| 59 | 260 | 85 | N | 25.26177 | 11.47202 | 0.454126 | 0.917424 |
| 60 | 270 | 65 | N | 22.05432 | 3.116317 | 0.141302 | 0.994378 |
| 61 | 270 | 65 | N | 22.05432 | 3.116317 | 0.141302 | 0.994378 |
| 62 | 270 | 65 | N | 22.05432 | 3.116317 | 0.141302 | 0.994378 |
| 63 | 270 | 65 | N | 22.05432 | 3.116317 | 0.141302 | 0.994378 |
| 64 | 260 | 60 | N | 22.79551 | 6.301389 | 0.276431 | 0.976595 |
| 65 | 240 | 62 | N | 22.38735 | 4.829626 | 0.21573 | 0.986388 |
| 66 | 230 | 75 | N | 22.2604 | 4.261698 | 0.191447 | 0.989434 |
| 67 | 232 | 50 | N | 25.92928 | 12.42533 | 0.479201 | 0.901409 |
| 68 | 216 | 80 | W | 22.752 | 6.162556 | 0.270858 | 0.977639 |
| 69 | 210 | 60 | W | 23.65142 | 8.542796 | 0.361196 | 0.95606 |
| 70 | 260 | 75 | N | 22.30615 | 4.475084 | 0.200621 | 0.988336 |
| 71 | 210 | 65 | W | 22.5114 | 5.32349 | 0.23648 | 0.983412 |
| 72 | 215 | 60 | W | 23.23037 | 7.536256 | 0.324414 | 0.966162 |
| 73 | 245 | 80 | N | 23.563 | 8.343274 | 0.354084 | 0.958181 |
| 74 | 212 | 70 | W | 21.86582 | 1.381148 | 0.063165 | 0.998901 |
| 75 | 245 | 90 | N | 27.51818 | 14.3189 | 0.520343 | 0.863287 |
| 76 | 225 | 90 | W | 26.46428 | 13.11504 | 0.495575 | 0.888573 |
| 77 | 245 | 90 | N | 27.51818 | 14.3189 | 0.520343 | 0.863287 |
| 78 | 220 | 65 | W | 22.20289 | 3.976459 | 0.179096 | 0.990814 |
| 79 | 210 | 65 | W | 22.43904 | 5.041652 | 0.224682 | 0.985148 |
| 80 | 225 | 62 | W | 22.58769 | 5.604289 | 0.248113 | 0.981581 |
| 81 | 240 | 80 | N | 23.563 | 8.343274 | 0.354084 | 0.958181 |
| 82 | 275 | 58 | N | 23.77255 | 8.807365 | 0.370485 | 0.953154 |
| 83 | 225 | 75 | W | 22.20289 | 3.976459 | 0.179096 | 0.990814 |
| 84 | 235 | 85 | N | 25.30192 | 11.53268 | 0.455803 | 0.916461 |
| 85 | 235 | 60 | N | 22.77363 | 6.23201 | 0.27365 | 0.97712 |
| 86 | 265 | 75 | N | 22.29065 | 4.404009 | 0.197572 | 0.988708 |
| 87 | 258 | 65 | N | 21.97534 | 2.539757 | 0.115573 | 0.996273 |
| 88 | 250 | 70 | N | 21.85249 | 1.16332 | 0.053235 | 0.99922 |
| 89 | 250 | 60 | N | 22.752 | 6.162556 | 0.270858 | 0.977639 |
| 90 | 245 | 72 | N | 22.00307 | 2.756223 | 0.125265 | 0.995608 |
| 91 | 278 | 52 | N | 26.19317 | 12.77298 | 0.487646 | 0.895078 |
| 92 | 235 | 85 | N | 25.14259 | 11.2892 | 0.449007 | 0.920283 |
| 93 | 230 | 85 | N | 25.02533 | 11.10514 | 0.443756 | 0.923097 |
| 94 | 225 | 80 | W | 23.20418 | 7.468388 | 0.321855 | 0.96679 |
| 95 | 225 | 79 | W | 22.83998 | 6.439914 | 0.281958 | 0.975528 |
| 96 | 230 | 75 | N | 22.2604 | 4.261698 | 0.191447 | 0.989434 |
| 97 | 255 | 56 | N | 23.71152 | 8.675292 | 0.365868 | 0.954618 |
| 98 | 240 | 40 | N | 31.24878 | 17.43817 | 0.558043 | 0.773782 |
| 99 | 265 | 85 | N | 24.83421 | 10.79568 | 0.43471 | 0.927682 |
| 100 | 205 | 70 | W | 21.93416 | 2.178373 | 0.099314 | 0.997261 |
| 101 | 205 | 70 | W | 21.93416 | 2.178373 | 0.099314 | 0.997261 |
| 102 | 205 | 70 | W | 21.93416 | 2.178373 | 0.099314 | 0.997261 |
| 103 | 205 | 65 | W | 22.70946 | 6.023423 | 0.265238 | 0.97866 |
| 104 | 205 | 70 | W | 21.93416 | 2.178373 | 0.099314 | 0.997261 |
| 105 | 225 | 55 | W | 24.4683 | 10.167 | 0.415517 | 0.936461 |
| 106 | 215 | 75 | W | 21.99357 | 2.6841 | 0.12204 | 0.995836 |
| 107 | 210 | 75 | W | 21.92669 | 2.106013 | 0.096048 | 0.99744 |
| 108 | 215 | 85 | W | 24.25937 | 9.783787 | 0.403299 | 0.941474 |
| 109 | 220 | 52 | W | 25.67274 | 12.07222 | 0.470235 | 0.907564 |
| 110 | 258 | 70 | N | 21.83828 | 0.872689 | 0.039961 | 0.999561 |