**Supplemental Data Table S1.** Axial ratios for the best-fit vacancy field (with statistics) from the three mutually perpendicular cuts.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Sample** | **Lat.** | **Long.** | **Province** | **Interval** | **Fm** | **“A-Cut”** | **“B-Cut”** | **“C-Cut”** |
| **Dip, Dip Dir** | **Long Axis ±**  | **Short Axis** | **Angle**  | **Dip, Dip Dir** | **Long Axis ±**  | **Short Axis** | **Angle**  | **Dip, Dip Dir** | **Long Axis ±**  | **Short Axis** | **Angle**  |
| 15-19 | 38.9739 | -78.346 | GV | 16 | Om | 90, 325 | 0.841 ± 0.009 | 0.748 ± 0.010 | 7.05 ± 4.71 | 90, 235 | 0.856 ± 0.009 | 0.774 ± 0.008 | 31.55 ± 8.55 | 00, 235 | 0.856 ± 0.013 | 0.740 ± 0.010 | 6.24 ± 4.63 |
| 15-15 | 39.0792 | -78.381 | V&R | 16 | Db | 90, 144 | 0.869 ± 0.012 | 0.788 ± 0.009 | 21.67 ± 6.76 | 90, 054 | 0.917 ± 0.011 | 0.786 ± 0.008 | 28.38 ± 3.21 | 00, 054 | 0.860 ± 0.009 | 0.812 ± 0.009 | 23.34 ± 11.42 |
| 15-13 | 39.0824 | -78.426 | V&R | 16 | Dmt | 90, 144 | 0.753 ± 0.008 | 0.705 ± 0.007 | -33.93 ± 7.76 | 90, 054 | 0.752 ± 0.008 | 0.700 ± 0.008 | -18.49 ± 7.76 | 00, 054 | 0.719 ± 0.010 | 0.675 ± 0.006 | 27.17 ± 14.20 |
| 15-12 | 39.0984 | -78.472 | V&R | 16 | Ojo | 90, 336 | 0.794 ± 0.010 | 0.720 ± 0.008 | 20.76 ± 5.91 | 90, 046 | 0.749 ± 0.008 | 0.702 ± 0.009 | -16.77 ± 8.36 | 00, 046 | 0.759 ± 0.007 | 0.748 ± 0.008 | 23.73 ± 24.98 |
| 15-11 | 39.0854 | -78.511 | V&R | 16 | Ojo | 90, 135 | 0.732 ± 0.010 | 0.705 ± 0.008 | 3.77 ± 18.07 | 90, 045 | 0.774 ± 0.008 | 0.700 ± 0.009 | -14.59 ± 4.98 | 00, 045 | 0.754 ± 0.008 | 0.733 ± 0.007 | 34.60 ± 29.30 |
| 15-20 | 39.0919 | -78.521 | V&R | 16 | Dmt | 90, 153 | 0.769 ± 0.008 | 0.722 ± 0.008 | 42.49 ± 37.79 | 90, 063 | 0.784 ± 0.010 | 0.703 ± 0.007 | -2.04 ± 5.83 | 00, 063 | 0.786 ± 0.012 | 0.685 ± 0.009 | -28.77 ± 6.64 |
| 15-25 | 39.0644 | -78.678 | V&R | 15 | DSkt | 90, 140 | 0.774 ± 0.010 | 0.726 ± 0.009 | 39.60 ± 33.43 | 90, 050 | 0.805 ± 0.008 | 0.749 ± 0.009 | 39.23 ± 19.91 | 00, 050 | 0.831 ± 0.009 | 0.786 ± 0.007 | 32.09 ± 19.91 |
| 15-26 | 39.0429 | -78.715 | V&R | 15 | St | 90, 038 | 0.836 ± 0.010 | 0.767 ± 0.010 | -15.73 ± 6.82 | 90, 128 | 0.758 ± 0.010 | 0.713 ± 0.007 | -4.22 ± 8.34 | 00, 128 | 0.844 ± 0.009 | 0.791 ± 0.009 | -41.66 ± 35.93 |
| 15-27 | 39.0447 | -78.719 | V&R | 15 | St | 90, 321 | 0.765 ± 0.008 | 0.662 ± 0.007 | 1.56 ± 4.16 | 90, 231 | 0.743 ± 0.009 | 0.702 ± 0.011 | -31.92 ± 24.52 | 00, 231 | 0.738 ± 0.008 | 0.689 ± 0.009 | -33.36 ± 19.26 |
| 15-29 | 39.0493 | -78.751 | V&R | 14 | Dch | 90, 302 | 0.791 ± 0.012 | 0.700 ± 0.009 | 10.51 ± 4.57 | 90, 212 | 0.754 ± 0.010 | 0.706 ± 0.012 | 15.66 ± 13.51 | 00, 212 | 0.710 ± 0.010 | 0.698 ± 0.011 | 14.66 ± 26.38 |
| 15-30 | 39.0519 | -78.768 | V&R | 14 | Dhs | 90, 295 | 0.791 ± 0.012 | 0.700 ± 0.009 | -10.51 ± 4.57 | 90, 205 | 0.754 ± 0.010 | 0.706 ± 0.013 | -15.66 ± 13.51 | 00, 205 | 0.710 ± 0.010 | 0.698 ± 0.011 | -14.66 ± 26.38 |
| 15-32 | 39.0720 | -78.803 | V&R | 14 | Dch | 90, 125 | 0.812 ± 0.011 | 0.753 ± 0.009 | -5.34 ± 8.38 | 90, 035 | 0.795 ± 0.013 | 0.746 ± 0.011 | -32.16 ± 23.12 | 00, 035 | 0.774 ± 0.011 | 0.748 ± 0.010 | -43.38 ± 32.12 |
| 15-33 | 39.0720 | -78.803 | V&R | 14 | Dch | 90, 307 | 0.909 ± 0.011 | 0.760 ± 0.008 | -24.15 ± 3.10 | 90, 217 | 0.786 ± 0.012 | 0.702 ± 0.008 | 7.72 ± 6.57 | 00, 217 | 0.749 ± 0.014 | 0.701 ± 0.008 | -12.04 ± -12.21 |
| 15-34 | 39.0722 | -78.803 | V&R | 14 | Dch | 90, 306 | 0.880 ± 0.010 | 0.827 ± 0.008 | 24.32 ± 11.04 | 90, 216 | 0.819 ± 0.008 | 0.745 ± 0.009 | 19.27 ± 6.34 | 00, 216 | 0.796 ± 0.012 | 0.752 ± 0.007 | -28.74 ± 17.96 |
| 15-10 | 39.0939 | -78.807 | V&R | 14 | Dhs | 90, 102 | 0.774 ± 0.010 | 0.726 ± 0.007 | 0.00 ± 9.58 | 90, 012 | 0.751 ± 0.009 | 0.712 ± 0.007 | 17.28 ± 13.72 | 00, 012 | 0.772 ± 0.009 | 0.762 ± 0.009 | 28.07 ± 28.39 |
| 15-9 | 39.1004 | -78.821 | V&R | 14 | Dhs | 90, 145 | 0.834 ± 0.008 | 0.678 ± 0.012 | 13.95 ± 2.43 | 90, 055 | 0.764 ± 0.014 | 0.688 ± 0.010 | -29.43 ± 11.52 | 00, 055 | 0.776 ± 0.007 | 0.726 ± 0.010 | -40.56 ± 34.67 |
| 15-8 | 39.0989 | -78.832 | V&R | 14 | Dhs | 90, 155 | 0.790 ± 0.009 | 0.707 ± 0.008 | -13.81 ± 5.07 | 90, 065 | 0.744 ± 0.012 | 0.706 ± 0.011 | -22.08 ± 20.37 | 00, 065 | 0.765 ± 0.009 | 0.729 ± 0.009 | -24.17 ± 18.96 |
| 15-7 | 39.1021 | -78.846 | V&R | 14 | Dch | 90, 204 | 0.800 ± 0.010 | 0.674 ± 0.010 | -2.23 ± 4.02 | 90, 144 | 0.80 ± 0.013 | 0.685 ± 0.010 | 18.24 ± 5.33 | 00, 114 | 0.768 ± 0.010 | 0.765 ± 0.011 | 10.09 ± 23.77 |
| 15-4 | 39.1025 | -78.847 | V&R | 14 | Dhs | 90, 195 | 0.751 ± 0.008 | 0.729 ± 0.009 | 13.78 ± 21.39 | 90, 105 | 0.821 ± 0.009 | 0.778 ± 0.008 | -0.994 ± 10.67 | 00, 105 | 0.781 ± 0.013 | 0.689 ± 0.007 | 16.09 ± 4.78 |
| 15-5 | 39.1450 | -78.847 | V&R | 14 | Dhs | 90, 308 | 0.807 ± 0.010 | 0.735 ± 0.008 | 19.56 ± 6.89 | 90, 218 | 0.741 ± 0.009 | 0.697 ± 0.007 | -3.06 ± 10.42 | 00, 218 | 0.752 ± 0.008 | 0.683 ± 0.008 | -17.15 ± 6.40 |
| 15-2 | 39.0990 | -78.870 | V&R | 14 | Dch | 90, 045 | 0.855 ± 0.010 | 0.820 ± 0.019 | -17.53 ± 17.20 | 90, 315 | 0.809 ± 0.008 | 0.730 ± 0.011 | -3.04 ± 5.25 | 00, 315 | 0.761 ± 0.010 | 0.721 ± 0.009 | -16.81 ± 13.36 |
| 13-24 | 39.0794 | -78.909 | V&R | 14 | Dhs | 90, 130 | 0.804 ± 0.009 | 0.719 ± 0.008 | 9.87 ± 4.30 | 90, 040 | 0.815 ± 0.010 | 0.728 ± 0.007 | 7.67 ± 4.76 | 00, 130 | 0.800 ± 0.011 | 0.750 ± 0.007 | 40.32 ± 34.07 |
| 13-20 | 38.9991 | -79.095 | V&R | 14 | Dm | 90, 305 | 0.846 ± 0.017 | 0.739 ± 0.008 | -2.12 ± 5.37 | 90, 215 | 0.797 ± 0.011 | 0.743 ± 0.008 | -30.43 ± 21.003 | 00, 215 | 0.780 ± 0.010 | 0.688 ± 0.011 | 27.31 ± 4.83 |
| 13-9 | 38.9856 | -79.236 | AP | 13 | St | 90, 130 | 0.724 ± 0.013 | 0.664 ± 0.009 | 14.05 ± 8.33 | 90, 040 | 0.754 ± 0.009 | 0.681 ± 0.008 | -16.73 ± 6.03 | 00, 040 | 0.736 ± 0.010 | 0.694 ±0.010 | -44.61 ± 36.05 |
| 13-11 | 38.9859 | -79.260 | AP | 13 | St | 90, 113 | 0.748 ± 0.007 | 0.726 ± 0.007 | -39.29 ± 33.19 | 90, 023 | 0.738 ±0.008 | 0.722 ± 0.009 | 14.61 ± 22.03 | 00, 113 | 0.704 ± 0.008 | 0.667 ± 0.008 | 9.18 ± 11.64 |
| 13-19 | 38.8420 | -79.408 | AP | 13 | Mp | 90, 340 | 0.766 ± 0.010 | 0.734 ± 0.009 | -12.88 ± 15.86 | 90, 250 | 0.789 ± 0.009 | 0.734 ± 0.012 | -9.89 ± 9.06  | 00, 250 | 0.800 ± 0.012 | 0.709 ± 0.010 | 40.54 ± 31.65 |
| **Sample** | **Lat.** | **Long.** | **Province** | **Interval** | **Fm** | **“A-Cut”** | **“B-Cut”** | **“C-Cut”** |
| **Dip, Dip Dir** | **Long Axis ±**  | **Short Axis** | **Angle**  | **Dip, Dip Dir** | **Long Axis ±**  | **Short Axis** | **Angle**  | **Dip, Dip Dir** | **Long Axis ±**  | **Short Axis** | **Angle**  |
| 13-5 | 38.896 | -79.650 | AP | 12 | Dhs | 90, 295 | 0.946 ± 0.009 | 0.774 ± 0.009 | 6.33 ± 2.37 | 90, 205 | 0.930 ± 0.016 | 0.762 ± 0.10 | -6.93 ± 3.57 | 00, 205 | 0.776 ± 0.012 | 0.700 ± 0.010 | 38.16 ± 31.46 |
| 13-4 | 38.9068 | -79.653 | AP | 11 | Mg | 90, 290 | 0.810 ± 0.009 | 0.712 ± 0.006 | -9.04 ± 3.91 | 90, 200 | 0.814 ± 0.009 | 0.691 ± 0.006 | 1.77 ± 3.04 | 00, 200 | 0.764 ± 0.008 | 0.717 ± 0.009 | 30.45 ± 19.50  |
| 13-3 | 38.9075 | -79.766 | AP | 11 | Dhs | 90, 305 | 0.777 ± 0.010 | 0.701 ± 0.007 | 11.20 ± 5.55 | 90, 215 | 0.845 ± 0.010 | 0.731 ± 0.008 | -4.55 ± 3.62 | 00, 215 | 0.741 ± 0.009 | 0.705 ± 0.009 | -18.69 ± 14.88 |
| 13-2 | 38.9154 | -78.804 | AP | 10 | Dch | 90, 115 | 0.765 ± 0.010 | 0.664 ±0.009 | 1.31 ± 4.50 | 90, 025 | 0.784 ± 0.011 | 0.653 ± 0.007 | 7.02 ± 3.05 | 00, 115 | 0.746 ± 0.007 | 0.716 ± 0.007 | 19.84 ± 16.86 |
| 13-8 | 38.9345 | -79.894 | AP | 10 | Dch | 90, 290 | 0.802 ± 0.011 | 0.668 ± 0.010 | -2.89 ± 3.46 | 90, 200 | 0.804 ± 0.009 | 0.679 ± 0.009 | -6.83 ± 3.84 | 00, 200 | 0.819 ± 0.010  | 0.743 ± 0.010 | 37.65 ± 24.16 |
| 15-42 | 38.9408 | -79.941 | AP | 9 | \*pv | 90, 078 | 0.749 ± 0.008 | 0.696 ± 0.007 | -28.54 ± 9.01 | 90, 348 | 0.751 ± 0.007 | 0.707 ± 0.010 | -12.83 ± 9.75 | 00, 348 | 0.756 ± 0.010 | 0.723 ± 0.012 | -18.63 ± 16.10 |
| 15-43 | 38.9626 | -80.035 | AP | 8 | \*c | 90, 131 | 0.749 ± 0.008 | 0.682 ± 0.008 | 30.57 ± 5.64 | 90, 041 | 0.734 ± 0.012 | 0.683 ± 0.006 | -7.45 ± 9.31 | 00, 041 | 0.758 ± 0.010 | 0.716 ± 0.009 | 37.74 ± 32.16 |
| 15-47 | 39.0129 | -80.320 | AP | 7 | \*m | 90, 179 | 0.780 ± 0.009 | 0.713 ± 0.009 | 15.56 ± 7.58 | 90, 089 | 0.795 ± 0.008 | 0.721 ± 0.008 | 0.45 ± 6.72 | 00, 089  | 0.772 ± 0.013 | 0.718 ± 0.011 | -36.50 ± 29.81 |
| 15-46 | 38.9792 | -80.448 | AP | 6 | \*m | 90, 051 | 0.773 ±0.010 | 0.703 ± 0.008 | -44.98 ± 38.89 | 90, 321 | 0.727 ± 0.008 | 0.703 ± 0.010 | 29.74 ± 26.52 | 00, 321 | 0.741 ± 0.011 | 0.709 ± 0.009 | -7.07 ± 17.52 |
| 15-48 | 39.0484 | -80.493 | AP | 5 | \*c | 90, 055 | 0.790 ± 0.010 | 0.707 ± 0.010 | -26.14 ± 8.04 | 90, 145 | 0.821 ± 0.013 | 0.673 ± 0.008 | 18.19 ± 3.11 | 00, 145 | 0.844 ± 0.010 | 0.793 ± 0.008 | -8.23 ± 7.55 |
| 15-51 | 39.0351 | -80.646 | AP | 4 | \*c | 90, 088 | 0.784 ± 0.008 | 0.717 ± 0.009 | 38.95 ± 28.45 | 90, 178 | 0.757 ± 0.007 | 0.715 ± 0.008 | 31.01 ± 18.05 | 00, 178 | 0.756 ± 0.011 | 0.720 ± 0.009 | -11.50 ± 14.79 |
| 15-52 | 39.0573 | -80.857 | AP | 3 | \*m | 90, 058 | 0.704 ± 0.011 | 0.633 ± 0.006 | 1.21 ± 5.56 | 90, 148 | 0.795 ± 0.009 | 0.659 ± 0.007 | -0.15 ± 3.24 | 00, 148 | 0.768 ± 0.010 | 0.676 ± 0.008 | 1.44 ± 4.45 |
| 15-53 | 39.0496 | -80.995 | AP | 2 | \*m | 90, 175 | 0.685 ± 0.12 | 0.643 ± 0.008 | -1.25 ± 12.89 | 90, 085 | 0.757 ± 0.014 | 0.657 ± 0.008 | -12.48 ± 5.20 | 00, 085 | 0.803 ± 0.013 | 0.644 ± 0.009 | 9.68 ± 3.27 |
| 15-55 | 39.0882 | -81.419 | AP | 1 | Pd | 90, 060 | 0.784 ± 0.010 | 0.680 ± 0.011 | -30.50 ± 5.60 | 90, 150 | 0.753 ± 0.011 | 0.708 ± 0.010 | 12.01 ± 13.15 | 00, 150 | 0.758 ± 0.010 | 0.722 ± 0.009 | 21.97 ± 19.02 |