|  |  |  |  |
| --- | --- | --- | --- |
| Supplementary Table. Magnetic parameters for samples in Figures 4 and 5. |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Sample | Site**b** | D**50** | NRM | *K* | *Q* | χ**P** | *J***S** | *J***RS** | *H***C** | *H***CR** | *J***RS/*J*S** | *H***CR/*H*C** | *S***-ratio** |
| code**a** |  | (μm) | (A/m) | (**SI)** |  |  | (Am**2/kg)** | (Am**2/kg)** | (mT) | (mT) |  |  |  |
| MAH001 | NC | 22.60 | 0.0845 | 8.45E-08 | 7.09 | 0.0000000567 | 0.000035760 | 0.000006475 | 18.460 | 65.430 | 0.181 | 3.545 | 0.976 |
| MAH002 | NC | 43.29 | 0.0607 | 6.07E-08 | 4.30 | 0.0000000425 | 0.000037920 | 0.000005515 | 14.250 | 54.690 | 0.145 | 3.839 | 0.976 |
| MAH003 | NC | 12.19 | 0.1480 | 0.000000148 | 13.50 | 0.0000000618 | 0.000035900 | 0.000007983 | 22.570 | 68.230 | 0.222 | 3.022 | 0.977 |
| MAH004 | NC | 6.68 | 0.1250 | 0.000000125 | 11.41 | 0.0000000685 | 0.000022520 | 0.000005649 | 25.030 | 75.880 | 0.251 | 3.032 | 0.969 |
| MAH015 | NC | 4.89 | 0.1280 | 0.000000128 | 12.30 | 0.0000000697 | 0.000020320 | 0.000005415 | 25.800 | 75.650 | 0.266 | 2.932 | 0.972 |
| MAH005 | NC | 5.14 | 0.1310 | 0.000000131 | 14.64 | 0.0000000715 | 0.000018430 | 0.000005279 | 27.520 | 77.020 | 0.286 | 2.798 | 0.970 |
| MAH006 | NC | 2.57 | 0.0630 | 0.000000063 | 8.17 | 0.0000000732 | 0.000007704 | 0.000002543 | 29.280 | 94.040 | 0.330 | 3.211 | 0.942 |
| MAH007 | NC | 2.30 | 0.0694 | 6.94E-08 | 9.11 | 0.0000000722 | 0.000007330 | 0.000002324 | 29.100 | 99.740 | 0.317 | 3.427 | 0.938 |
| MAH008 | NC | 2.54 | 0.0734 | 7.34E-08 | 9.82 | 0.0000000701 | 0.000007944 | 0.000002386 | 27.020 | 87.320 | 0.300 | 3.232 | 0.947 |
| MAH009 | NC | 2.01 | 0.0624 | 6.24E-08 | 9.50 | 0.0000000699 | 0.000005760 | 0.000001772 | 29.750 | 119.800 | 0.308 | 4.027 | 0.923 |
| MAH010 | NC | 2.54 | 0.0647 | 6.47E-08 | 8.66 | 0.0000000719 | 0.000006771 | 0.000002049 | 25.880 | 92.650 | 0.303 | 3.580 | 0.936 |
| MAH011 | NC | 2.21 | 0.0634 | 6.34E-08 | 10.13 | 0.0000000738 | 0.000005294 | 0.000001801 | 29.800 | 124.300 | 0.340 | 4.171 | 0.920 |
| MAH012 | NC | 2.46 | 0.0877 | 8.77E-08 | 11.62 | 0.0000000709 | 0.000006778 | 0.000002044 | 27.390 | 100.400 | 0.302 | 3.667 | 0.930 |
| MAH013 | NC | 2.41 | 0.0731 | 7.31E-08 | 10.21 | 0.0000000739 | 0.000005906 | 0.000002010 | 31.050 | 107.500 | 0.340 | 3.462 | 0.926 |
| MAH014 | NC | 2.67 | 0.0850 | 0.000000085 | 12.03 | 0.0000000729 | 0.000006269 | 0.000002135 | 29.120 | 98.390 | 0.341 | 3.379 | 0.932 |
| MAH000 | NC | 2.75 | 0.0933 | 9.33E-08 | 12.12 | 0.0000000732 | 0.000006303 | 0.000002030 | 29.360 | 102.700 | 0.322 | 3.497 | 0.929 |
| MAH016 | NC | 8.67 | 0.0591 | 5.91E-08 | 5.50 | 0.0000000661 | 0.000025540 | 0.000005893 | 21.840 | 68.800 | 0.231 | 3.150 | 0.972 |
| MAH017 | NC | 17.60 | 0.0389 | 3.89E-08 | 2.40 | 0.0000000957 | 0.000066660 | 0.000012410 | 18.290 | 62.490 | 0.186 | 3.416 | 0.980 |
| MAH018 | NC | 15.53 | 0.0483 | 4.83E-08 | 2.83 | 0.0000000684 | 0.000049440 | 0.000009113 | 18.250 | 62.130 | 0.184 | 3.404 | 0.981 |
| MAH019 | NC | 17.96 | 0.0795 | 7.95E-08 | 4.10 | 0.0000000624 | 0.000051650 | 0.000009471 | 18.250 | 61.710 | 0.183 | 3.381 | 0.981 |
| MAH030 | NC | 7.35 | 0.1480 | 0.000000148 | 12.03 | 0.0000000660 | 0.000027450 | 0.000005983 | 20.910 | 69.200 | 0.218 | 3.308 | 0.971 |
| MAH020 | NC | 6.25 | 0.1260 | 0.000000126 | 11.74 | 0.0000000682 | 0.000021300 | 0.000005346 | 24.520 | 73.700 | 0.251 | 3.006 | 0.968 |
| MAH021 | NC | 8.55 | 0.1430 | 0.000000143 | 10.72 | 0.0000000718 | 0.000035020 | 0.000008313 | 22.320 | 67.090 | 0.237 | 3.006 | 0.979 |
| MAH022 | NC | 7.45 | 0.2050 | 0.000000205 | 15.95 | 0.0000000689 | 0.000031310 | 0.000008128 | 25.540 | 72.470 | 0.260 | 2.838 | 0.978 |
| MAH023 | NC | 2.84 | 0.0669 | 6.69E-08 | 9.01 | 0.0000000714 | 0.000008349 | 0.000002804 | 32.970 | 96.100 | 0.336 | 2.915 | 0.948 |
| MAH024 | NC | 1.92 | 0.0457 | 4.57E-08 | 7.35 | 0.0000000751 | 0.000005531 | 0.000001919 | 30.890 | 115.700 | 0.347 | 3.745 | 0.929 |
| MAH025 | NC | 2.06 | 0.0531 | 5.31E-08 | 7.31 | 0.0000000712 | 0.000006217 | 0.000002026 | 29.950 | 109.100 | 0.326 | 3.642 | 0.933 |
| MAH026 | NC | 2.24 | 0.0483 | 4.83E-08 | 7.14 | 0.0000000717 | 0.000005297 | 0.000001807 | 29.980 | 114.700 | 0.341 | 3.827 | 0.925 |
| MAH027 | NC | 2.18 | 0.0696 | 6.96E-08 | 8.64 | 0.0000000741 | 0.000006735 | 0.000002059 | 26.480 | 97.290 | 0.306 | 3.674 | 0.934 |
| MAH028 | NC | 2.31 | 0.0630 | 0.000000063 | 8.26 | 0.0000000745 | 0.000006432 | 0.000002067 | 27.900 | 110.900 | 0.321 | 3.973 | 0.926 |
| MAH029 | NC | 2.49 | 0.0792 | 7.92E-08 | 11.76 | 0.0000000726 | 0.000005364 | 0.000001903 | 31.820 | 121.100 | 0.355 | 3.807 | 0.920 |
| MAH031 | NC | 6.80 | 0.1130 | 0.000000113 | 11.37 | 0.0000000684 | 0.000021170 | 0.000005451 | 24.370 | 72.820 | 0.257 | 2.988 | 0.966 |
| MAH032 | NC | 9.85 | 0.1450 | 0.000000145 | 11.57 | 0.0000000607 | 0.000032630 | 0.000007421 | 23.330 | 70.940 | 0.228 | 3.040 | 0.975 |
| MAH033 | NC | 6.10 | 0.1120 | 0.000000112 | 10.34 | 0.0000000688 | 0.000024220 | 0.000005455 | 23.570 | 79.410 | 0.225 | 3.368 | 0.969 |
| MAH034 | NC | 5.92 | 0.1720 | 0.000000172 | 14.64 | 0.0000000736 | 0.000028300 | 0.000007458 | 27.010 | 78.270 | 0.264 | 2.897 | 0.976 |
| MAH035 | NC | 2.86 | 0.0617 | 6.17E-08 | 8.88 | 0.0000000721 | 0.000007264 | 0.000002179 | 30.630 | 99.870 | 0.300 | 3.260 | 0.939 |
| MAH036 | NC | 2.10 | 0.0566 | 5.66E-08 | 7.59 | 0.0000000744 | 0.000006324 | 0.000002050 | 30.590 | 109.200 | 0.324 | 3.569 | 0.933 |
| MAH037 | NC | 2.35 | 0.0688 | 6.88E-08 | 9.96 | 0.0000000708 | 0.000006492 | 0.000002155 | 29.960 | 104.100 | 0.332 | 3.475 | 0.934 |
| MAH038 | NC | 2.11 | 0.0606 | 6.06E-08 | 8.00 | 0.0000000722 | 0.000006781 | 0.000001987 | 27.670 | 104.900 | 0.293 | 3.793 | 0.932 |
| MAH039 | NC | 2.28 | 0.0630 | 0.000000063 | 9.00 | 0.0000000724 | 0.000006165 | 0.000001897 | 30.380 | 116.900 | 0.308 | 3.847 | 0.924 |
| MAH040 | NC | 2.75 | 0.0703 | 7.03E-08 | 10.81 | 0.0000000724 | 0.000005200 | 0.000001830 | 32.390 | 118.200 | 0.352 | 3.648 | 0.923 |
| MAH041 | NC | 2.52 | 0.0833 | 8.33E-08 | 10.66 | 0.0000000723 | 0.000006784 | 0.000002171 | 27.370 | 97.240 | 0.320 | 3.552 | 0.931 |
| MAH042 | NC | 4.47 | 0.1130 | 0.000000113 | 15.36 | 0.0000000727 | 0.000009229 | 0.000002640 | 25.910 | 83.620 | 0.286 | 3.228 | 0.940 |
| MAH043 | NC | 8.13 | 0.0618 | 6.18E-08 | 3.97 | 0.0000000696 | 0.000037800 | 0.000008420 | 22.790 | 69.630 | 0.223 | 3.055 | 0.977 |
| MAH044 | MC | 2.40 | 0.2400 | 0.00000024 | 5.22 | 0.0000000989 | 0.000109500 | 0.000027770 | 23.430 | 58.900 | 0.254 | 2.514 | 0.994 |
| MAH045 | MC | 2.55 | 0.3970 | 0.000000397 | 5.72 | 0.0000000959 | 0.000115300 | 0.000028000 | 23.140 | 59.330 | 0.243 | 2.564 | 0.993 |
| MAH046 | MC | 2.26 | 0.2600 | 0.00000026 | 6.17 | 0.0000001041 | 0.000093270 | 0.000022910 | 23.660 | 60.660 | 0.246 | 2.564 | 0.992 |
| MAH047 | MC | 3.66 | 0.0884 | 8.84E-08 | 2.49 | 0.0000000928 | 0.000081630 | 0.000014790 | 19.270 | 62.690 | 0.181 | 3.253 | 0.992 |
| MAH048 | MC | 2.40 | 0.1330 | 0.000000133 | 6.37 | 0.0000000995 | 0.000075360 | 0.000018180 | 21.810 | 56.850 | 0.241 | 2.606 | 0.993 |
| MAH049 | MC | 23.96 | 0.0550 | 0.000000055 | 1.40 | 0.0000000852 | 0.000119900 | 0.000015940 | 15.860 | 64.490 | 0.133 | 4.067 | 0.995 |
| MAH050 | MC | 47.67 | 0.0395 | 3.95E-08 | 0.80 | 0.0000000845 | 0.000149600 | 0.000016070 | 11.900 | 58.860 | 0.107 | 4.948 | 0.995 |
| MAH051 | MC | 41.62 | 0.0384 | 3.84E-08 | 0.70 | 0.0000000867 | 0.000171900 | 0.000016490 | 10.910 | 56.900 | 0.096 | 5.216 | 0.995 |
| MAH052 | MC | 44.22 | 0.0371 | 3.71E-08 | 0.90 | 0.0000000775 | 0.000111300 | 0.000012490 | 12.860 | 58.290 | 0.112 | 4.534 | 0.995 |
| MAH053 | MC | 54.97 | 0.0506 | 5.06E-08 | 1.13 | 0.0000000820 | 0.000141300 | 0.000013630 | 10.750 | 55.370 | 0.096 | 5.152 | 0.993 |
| MAH067 | MC | 28.35 | 0.0459 | 4.59E-08 | 1.80 | 0.0000000820 | 0.000103900 | 0.000011820 | 13.440 | 60.420 | 0.114 | 4.496 | 0.993 |
| MAH054 | MC | 10.16 | 0.0372 | 3.72E-08 | 1.87 | 0.0000000817 | 0.000051240 | 0.000007770 | 17.750 | 66.630 | 0.152 | 3.755 | 0.992 |
| MAH055 | MC | 7.34 | 0.0354 | 3.54E-08 | 2.33 | 0.0000000744 | 0.000034620 | 0.000005187 | 17.500 | 67.450 | 0.150 | 3.854 | 0.990 |
| MAH056 | MC | 6.93 | 0.0292 | 2.92E-08 | 2.11 | 0.0000000744 | 0.000024020 | 0.000003649 | 17.190 | 66.500 | 0.152 | 3.868 | 0.987 |
| MAH057 | MC | 3.46 | 0.0263 | 2.63E-08 | 2.25 | 0.0000000825 | 0.000017140 | 0.000004021 | 23.730 | 68.970 | 0.235 | 2.906 | 0.988 |
| MAH058 | MC | 4.51 | 0.2730 | 0.000000273 | 3.46 | 0.0000001093 | 0.000199600 | 0.000044110 | 22.390 | 59.710 | 0.221 | 2.666 | 0.994 |
| MAH059 | MC | 3.79 | 0.3100 | 0.00000031 | 6.06 | 0.0000001017 | 0.000120600 | 0.000026480 | 21.700 | 59.780 | 0.220 | 2.755 | 0.994 |
| MAH060 | MC | 3.95 | 0.3830 | 0.000000383 | 5.64 | 0.0000001089 | 0.000187900 | 0.000042490 | 21.970 | 59.490 | 0.226 | 2.707 | 0.993 |
| MAH061 | MC | 3.77 | 0.3880 | 0.000000388 | 5.50 | 0.0000001022 | 0.000168000 | 0.000038240 | 21.760 | 58.610 | 0.228 | 2.694 | 0.993 |
| MAH062 | MC | 4.63 | 0.4700 | 0.00000047 | 4.54 | 0.0000001193 | 0.000266700 | 0.000051370 | 19.290 | 56.840 | 0.193 | 2.947 | 0.995 |
| MAH063 | MC | 4.40 | 0.4390 | 0.000000439 | 5.48 | 0.0000001162 | 0.000245700 | 0.000052640 | 21.100 | 58.490 | 0.214 | 2.771 | 0.995 |
| MAH064 | MC | 4.47 | 0.3840 | 0.000000384 | 4.05 | 0.0000001152 | 0.000248300 | 0.000053660 | 20.790 | 57.710 | 0.216 | 2.776 | 0.995 |
| MAH065 | MC | 3.12 | 0.3450 | 0.000000345 | 5.32 | 0.0000001051 | 0.000161300 | 0.000036390 | 21.730 | 58.270 | 0.226 | 2.681 | 0.995 |
| MAH066 | MC | 1.37 | 0.0662 | 6.62E-08 | 4.82 | 0.0000001051 | 0.000021770 | 0.000005762 | 19.350 | 49.860 | 0.265 | 2.577 | 0.988 |
| MAH068 | MC | 77.93 | 0.0284 | 2.84E-08 | 0.38 | 0.0000000909 | 0.000201300 | 0.000014920 | 8.581 | 52.650 | 0.074 | 6.136 | 0.995 |
| MAH069 | MC | 50.90 | 0.0336 | 3.36E-08 | 0.57 | 0.0000000830 | 0.000191200 | 0.000017690 | 10.250 | 53.350 | 0.093 | 5.207 | 0.995 |
| MAH070 | MC | 28.85 | 0.0564 | 5.64E-08 | 1.44 | 0.0000000898 | 0.000126300 | 0.000015730 | 13.830 | 60.100 | 0.125 | 4.346 | 0.994 |
| MAH071 | MC | 36.37 | 0.0436 | 4.36E-08 | 1.00 | 0.0000000861 | 0.000142900 | 0.000016690 | 13.120 | 57.360 | 0.117 | 4.371 | 0.994 |
| MAH087 | MC | 45.42 | 0.0437 | 4.37E-08 | 0.67 | 0.0000000787 | 0.000232800 | 0.000019680 | 9.664 | 49.470 | 0.085 | 5.119 | 0.996 |
| MAH072 | MC | 15.14 | 0.0760 | 0.000000076 | 2.02 | 0.0000000894 | 0.000115600 | 0.000015390 | 15.470 | 62.260 | 0.133 | 4.025 | 0.994 |
| MAH073 | MC | 10.27 | 0.0647 | 6.47E-08 | 2.22 | 0.0000000878 | 0.000083380 | 0.000012300 | 16.850 | 65.070 | 0.148 | 3.863 | 0.993 |
| MAH074 | MC | 9.05 | 0.0284 | 2.84E-08 | 1.49 | 0.0000000803 | 0.000055770 | 0.000006508 | 14.160 | 63.280 | 0.117 | 4.470 | 0.992 |
| MAH075 | MC | 10.95 | 0.0142 | 1.42E-08 | 0.88 | 0.0000000811 | 0.000045010 | 0.000004497 | 11.640 | 59.810 | 0.100 | 5.136 | 0.990 |
| MAH076 | MC | 6.74 | 0.0102 | 1.02E-08 | 0.66 | 0.0000000780 | 0.000034270 | 0.000002937 | 9.890 | 54.870 | 0.086 | 5.547 | 0.987 |
| MAH088 | MC | 7.14 | 0.0077 | 7.69E-09 | 0.64 | 0.0000000763 | 0.000021470 | 0.000001878 | 9.802 | 52.380 | 0.087 | 5.344 | 0.983 |
| MAH077 | MC | 6.16 | 0.0079 | 7.93E-09 | 0.65 | 0.0000000785 | 0.000023180 | 0.000002400 | 12.050 | 56.740 | 0.104 | 4.711 | 0.985 |
| MAH078 | MC | 7.68 | 0.0743 | 7.43E-08 | 1.31 | 0.0000000950 | 0.000157500 | 0.000022410 | 16.030 | 55.460 | 0.142 | 3.459 | 0.995 |
| MAH079 | MC | 8.01 | 0.5000 | 0.0000005 | 3.03 | 0.0000001413 | 0.000503200 | 0.000084120 | 17.530 | 56.350 | 0.167 | 3.214 | 0.996 |
| MAH080 | MC | 3.88 | 0.4820 | 0.000000482 | 4.82 | 0.0000001140 | 0.000219800 | 0.000047670 | 21.420 | 59.640 | 0.217 | 2.784 | 0.995 |
| MAH081 | MC | 8.11 | 0.5840 | 0.000000584 | 4.04 | 0.0000001440 | 0.000482700 | 0.000078750 | 17.420 | 55.980 | 0.163 | 3.213 | 0.996 |
| MAH082 | MC | 6.66 | 0.5610 | 0.000000561 | 3.93 | 0.0000001405 | 0.000453100 | 0.000079800 | 18.170 | 56.580 | 0.176 | 3.114 | 0.996 |
| MAH083 | MC | 4.45 | 0.5660 | 0.000000566 | 4.70 | 0.0000001266 | 0.000307900 | 0.000063430 | 20.570 | 59.040 | 0.206 | 2.870 | 0.995 |
| MAH084 | MC | 4.49 | 0.5400 | 0.00000054 | 4.68 | 0.0000001262 | 0.000309500 | 0.000065090 | 20.800 | 58.550 | 0.210 | 2.815 | 0.995 |
| MAH085 | MC | 4.01 | 0.4400 | 0.00000044 | 5.26 | 0.0000001203 | 0.000252700 | 0.000054230 | 21.600 | 58.510 | 0.215 | 2.709 | 0.994 |
| MAH086 | MC | 2.93 | 0.3470 | 0.000000347 | 4.76 | 0.0000001096 | 0.000158100 | 0.000037020 | 22.790 | 59.520 | 0.234 | 2.611 | 0.994 |
| MAH089 | MC | 25.66 | 0.0483 | 4.83E-08 | 0.97 | 0.0000000769 | 0.000153300 | 0.000014930 | 11.490 | 58.560 | 0.097 | 5.099 | 0.995 |
| MAH091 | MC | 22.81 | 0.0442 | 4.42E-08 | 1.07 | 0.0000000793 | 0.000133800 | 0.000014110 | 12.240 | 60.330 | 0.105 | 4.931 | 0.994 |
| MAH092 | MC | 23.80 | 0.0761 | 7.61E-08 | 1.85 | 0.0000000788 | 0.000125900 | 0.000015110 | 14.080 | 61.060 | 0.120 | 4.336 | 0.995 |
| MAH093 | MC | 62.78 | 0.0387 | 3.87E-08 | 0.51 | 0.0000000917 | 0.000190100 | 0.000014900 | 8.782 | 55.420 | 0.078 | 6.311 | 0.995 |
| a Samples are grouped by dataset and are in stratigraphic order. |  |  |  |  |  |
| b NC = Ninemile Creek; MC = Manila Creek |  |  |  |  |  |  |  |