

Appendix 2 Correlation Coefficients of Elements

CORRELATION COEFFICIENTS / PROB > IRI UNDER HO:RHO=0 / NUMBER OF OBSERVATIONS

	AL	SB	AS	BA	BE	BI	B	BR	CD	CA	C	CE	CS
AL	1.0000 0.0000 1009	0.10035 0.0020 942	0.04851 0.1624 831	-0.24936 0.0001 1009	0.12942 0.0089 408	-0.18534 0.0289 139	0.52423 0.4758 4		-0.42609 0.0001 969	-0.71816 0.0001 1005	-0.68460 0.0001 1007	-0.47053 0.0001 1007	-0.26860 0.0001 909
SB	0.10035 0.0020 942	1.00000 0.0000 944	-0.12201 0.0907 770	-0.03554 0.2700 944	0.04807 0.3457 387	-0.25358 0.0031 134	-0.79218 0.4179 3		-0.08477 0.0108 904	-0.07838 0.0162 941	-0.05648 0.0831 942	-0.05288 0.1048 942	-0.07898 0.0218 844
AS	0.04851 0.1624 831	-0.12201 0.0000 770	1.00000 0.0000 833	-0.05940 0.0866 833	0.19289 0.0002 364	0.11865 0.1912 123	0.60887 0.5911 4		0.19243 0.0001 802	-0.10135 0.0035 829	-0.10141 0.0034 831	0.05157 0.1374 831	0.05968 0.1029 748
BA	-0.24936 0.0001 1009	-0.03594 0.2700 944	-0.05940 0.0866 833	1.00000 0.0000 1012	-0.00638 0.8974 411	0.31301 0.0002 139	-0.14444 0.8556 4		0.31621 0.0001 972	0.40077 0.0001 1008	0.42220 0.0001 1010	0.62603 0.0001 1010	0.31828 0.0001 912
BE	0.12942 0.0089 408	0.04807 0.3457 387	0.19289 0.0002 364	-0.00638 0.8974 411	1.00000 0.0000 411	0.09512 0.4547 64	1.00000 2		0.04535 0.3593 394	-0.06467 0.1918 409	-0.06956 0.1603 409	0.05961 0.2279 411	-0.00530 0.9194 367
BI	-0.18534 0.0289 139	0.25358 0.0031 134	0.11865 0.1912 123	0.31301 0.0002 139	0.09512 0.4547 64	1.00000 0.0000 139	0		0.10767 0.2209 131	0.11517 0.1770 139	0.12241 0.1526 138	0.33760 0.0001 139	0.10596 0.2377 126
B	0.52423 0.4758 4	-0.79218 0.4179 3	0.40887 0.5911 4	-0.14444 0.8556 4	1.00000 0.0000 2	0.00000 0.0000 4			0.76195 0.2381 4	-0.45128 0.5487 4	-0.51486 0.4851 4	-0.87574 0.1243 4	0.08522 0.9148 4
BR	0	0	0	0	0	0	0	0	0	0	0	0	0
CD	-0.42609 0.0001 969	-0.08477 0.0108 904	0.19243 0.0001 802	0.31621 0.0001 972	0.04535 0.3693 394	0.10767 0.2209 131	0.76195 0.2381 4		1.00000 0.0000 972	0.45386 0.0001 968	0.43032 0.0001 970	0.44846 0.0001 970	0.22215 0.0001 887
CA	-0.71816 0.0001 1005	-0.07838 0.0162 941	-0.10135 0.0035 829	0.40077 0.0001 1008	-0.06467 0.1918 409	0.11517 0.1770 139	-0.45128 0.5487 4		0.45386 0.0001 968	1.00000 0.0000 1008	0.90499 0.0001 1006	0.54618 0.0001 1006	0.32413 0.0001 909
C	-0.68460 0.0001 1007	-0.05648 0.0831 942	-0.10141 0.0034 831	0.42220 0.0001 1010	-0.06956 0.1603 409	0.12241 0.1526 138	-0.51486 0.4851 4		0.43032 0.0001 970	0.90499 0.0001 1006	1.00000 0.0000 1010	0.62848 0.0001 1008	0.34189 0.0001 910

GEOCHEMICAL ANALYSIS OF THE CHILWA ALKALINE AREA, MALAWI
CORRELATION COEFFICIENTS / PROB > |R| UNDER H0:RHO=0 / NUMBER OF OBSERVATIONS

	AL	SB	AS	BA	BE	BI	B	BR	CD	CA	C	CE	CS
CE	-0.47053 0.0001 1007	-0.05288 0.1048 942	0.05157 0.1374 831	0.62603 0.0001 1010	0.05961 0.2279 411	0.33760 0.0001 139	-0.87574 0.1243 4	0	0.44846 0.0001 970	0.56618 0.0001 1006	0.62848 0.0001 1008	1.00000 0.0000 1010	0.41635 0.0001 911
CS	-0.26860 0.0001 909	-0.07898 0.0218 844	0.05968 0.1029 748	0.31828 0.0001 912	-0.00530 0.9194 367	0.10596 0.2377 126	0.08522 0.9148 4	0	0.22215 0.0001 887	0.32413 0.0001 909	0.34189 0.0001 910	0.41635 0.0001 911	1.00000 0.0000 912
CR	0.55833 0.0001 1003	0.04624 0.1569 939	-0.05087 0.1436 828	-0.29939 0.0001 1005	0.01226 0.8059 404	-0.10718 0.2092 139	0.69250 0.3075 4	0	-0.45315 0.0001 965	-0.57665 0.0001 1001	-0.58850 0.0001 1003	-0.51672 0.0001 1003	-0.32173 0.0001 905
CD	0.17648 0.0001 993	0.05088 0.1204 933	0.01271 0.7158 823	0.15730 0.0001 995	0.18045 0.0003 405	0.12298 0.1538 136	0.22558 0.7744 4	0	-0.09562 0.0031 935	-0.03751 0.2381 991	0.01843 0.5619 993	0.16195 0.0001 993	0.09940 0.0029 898
CU	0.29788 0.0001 1009	0.04963 0.1275 944	0.06614 0.0564 833	-0.19050 0.0001 1012	0.12775 0.0095 411	0.00897 0.9165 139	0.62895 0.3711 4	0	-0.21320 0.0001 972	-0.30458 0.0001 1008	-0.27498 0.0001 1010	-0.26008 0.0001 1010	-0.10190 0.0021 972
DY	-0.15255 0.0003 571	0.02690 0.5457 507	0.08686 0.0486 516	0.22947 0.0001 574	0.01036 0.8640 276	0.02081 0.8405 96	0.46685 0.8332 4	0	0.26123 0.0001 589	0.24502 0.0001 570	0.22772 0.0001 574	0.32937 0.0001 574	0.08052 0.0652 533
EU	-0.40624 0.0001 880	0.01389 0.6913 820	-0.05729 0.1240 722	0.57384 0.0001 883	0.17886 0.0006 365	0.34613 0.0001 124	0.43408 0.5659 4	0	0.39300 0.0001 855	0.51902 0.0001 879	0.55843 0.0001 883	0.74722 0.0001 882	0.33607 0.0001 806
F	-0.29209 0.0001 1009	-0.04480 0.1690 944	0.02813 0.4175 833	0.50532 0.0001 1012	-0.00148 0.9761 411	0.24222 0.0041 139	-0.51262 0.4874 4	0	0.38630 0.0001 972	0.47916 0.0001 1008	0.49472 0.0001 1010	0.64612 0.0001 1010	0.22240 0.0001 912
GA	0.65191 0.0001 1008	0.11576 0.0004 943	0.07181 0.0385 831	-0.24650 0.0001 1010	0.15872 0.0013 410	-0.20732 0.0143 139	0.23552 0.7645 4	0	-0.37313 0.0001 970	-0.53698 0.0001 1006	-0.49420 0.0001 1008	-0.43195 0.0001 1008	-0.23799 0.0001 910
GE	0.43101 0.0001 860	0.16266 0.0001 818	-0.06181 0.1025 699	-0.16924 0.0001 861	0.15130 0.0037 366	-0.17575 0.0729 105	0.48286 0.6792 3	0	-0.30913 0.0001 822	-0.34396 0.0001 857	-0.30621 0.0001 859	-0.19288 0.0001 859	-0.15443 0.0001 771
AU	-0.03709 0.6231 178	0.08706 0.2561 172	0.03828 0.6244 166	0.07795 0.2997 179	0.17242 0.1475 72	0.49396 0.0088 27	0	-0.05551 0.4696 172	0.04657 0.5359 179	-0.01332 0.8596 179	-0.04140 0.5822 179	-0.06062 0.4421 163	
HF	0	0	0	0	0	0	0	0	0	0	0	0	0
FE	-0.02219 0.4813 1009	0.02370 0.4670 944	0.12191 0.0004 833	0.45558 0.0001 1012	0.23429 0.0001 411	0.37145 0.0001 139	0.14526 0.8547 4	0	0.19133 0.0001 972	0.21228 0.0001 1008	0.25098 0.0001 1010	0.56951 0.0001 1010	0.31025 0.0001 912

GEOCHEMICAL ANALYSIS OF THE CHILWA ALKALINE AREA, MALAWI

CORRELATION COEFFICIENTS / PROB > IRI UNDER HO:RHO=0 / NUMBER OF OBSERVATIONS

	AL	SB	AS	BA	BE	BI	B	BR	CD	CA	C	CE	CS
LA	-0.4438 0.0001 999	0.09011 0.0059 934	0.12503 0.0003 827	0.59026 0.0001 1002	0.05852 0.2377 409	0.38343 0.0001 139	-0.96513 0.0349 4	0	0.52166 0.0001 966	0.51152 0.0001 998	0.53884 0.0001 1000	0.85814 0.0001 1002	0.34524 0.0001 904
PB	-0.21607 0.0001 1001	0.05595 0.0861 942	0.12339 0.0004 825	0.33830 0.0001 1004	0.10836 0.0290 406	0.46776 0.0001 139	0.89333 0.1067 4	0	0.22957 0.0001 964	0.22659 0.0001 1000	0.21867 0.0001 1002	0.24934 0.0001 1002	0.13184 0.0001 905
LI	0.28923 0.0001 933	0.05515 0.1034 873	-0.01642 0.6509 762	-0.10564 0.0012 936	0.02483 0.6312 376	-0.20036 0.0263 123	1.00000 2	0	-0.16263 0.0001 900	-0.28675 0.0001 932	-0.18083 0.0001 934	-0.07557 0.0208 936	-0.16620 0.0001 843
LU	0.06792 0.4390 132	0.17766 0.0586 114	0.14541 0.1178 117	0.00997 0.9097 132	0.28545 0.0020 115	0.07298 0.8042 14	-0.00937 0.9940 3	0	-0.07089 0.4265 128	-0.10083 0.2500 132	-0.15239 0.0811 132	0.04739 0.5895 132	0.24075 0.0078 121
MG	-0.11153 0.0004 1009	0.02257 0.4886 944	-0.17290 0.0001 833	0.48432 0.0001 1012	0.03226 0.6527 411	0.26569 0.0016 139	-0.78232 0.2177 4	0	0.13826 0.0001 972	0.31596 0.0001 1008	0.43313 0.0001 1010	0.55371 0.0001 1010	0.18086 0.0001 912
MN	-0.50891 0.0001 1009	-0.02770 0.3953 944	0.03342 0.3354 833	0.55866 0.0001 1012	0.11189 0.0233 411	0.38428 0.0001 139	-0.88915 0.1108 4	0	0.40436 0.0001 972	0.63139 0.0001 1008	0.64213 0.0001 1010	0.81499 0.0001 1010	0.41040 0.0001 912
HG	-0.13678 0.0001 903	-0.30685 0.0001 838	0.33898 0.0001 767	0.04360 0.1898 906	0.06203 0.2314 374	0.33701 0.0001 129	-0.88283 0.1172 4	0	0.26202 0.0001 875	0.09169 0.0059 902	0.02059 0.5362 905	0.08998 0.0068 905	0.11917 0.0006 822
MD	-0.16503 0.0001 749	-0.01181 0.7573 687	-0.08393 0.0356 627	0.52792 0.0001 751	0.08485 0.1342 313	0.49451 0.0001 98	0.25960 0.7404 4	0	0.18062 0.0001 737	0.23706 0.0001 748	0.31067 0.0001 749	0.57279 0.0001 749	0.24273 0.0001 696
ND	-0.46192 0.0001 962	-0.03364 0.3134 900	-0.05759 0.1042 797	0.68355 0.0001 965	0.08810 0.0859 381	0.35084 0.0001 133	-0.49890 0.5011 4	0	0.39522 0.0001 931	0.57300 0.0001 962	0.63561 0.0001 964	0.87158 0.0001 965	0.36820 0.0001 881
NI	0.46958 0.0001 1008	-0.02504 0.4425 943	0.04305 0.2148 832	-0.06732 0.0323 1011	0.16134 0.0010 410	0.07408 0.3861 139	0.79349 0.2045 4	0	-0.33874 0.0001 971	-0.41715 0.0001 1007	-0.36014 0.0001 1009	-0.22934 0.0001 1009	-0.09460 0.0043 911
NB	-0.11804 0.0002 972	0.00408 0.9023 907	0.01829 0.6048 803	0.36368 0.0001 975	0.07231 0.1541 390	0.05595 0.5240 132	-0.16715 0.8329 4	0	0.26433 0.0001 945	0.22710 0.0001 971	0.28909 0.0001 973	0.46450 0.0001 973	0.16708 0.0001 884
P	-0.24336 0.0001 1009	-0.08990 0.0057 944	-0.03102 0.3713 833	0.43863 0.0001 1012	0.03073 0.5345 411	0.08853 0.3000 139	-0.20082 0.7992 4	0	0.19647 0.0001 972	0.37944 0.0001 1008	0.40163 0.0001 1010	0.57355 0.0001 1010	0.17621 0.0001 912
K	0.63318 0.0001 1004	0.04569 0.1618 939	0.04522 0.1931 830	-0.33020 0.0001 1007	0.19270 0.0001 410	-0.27143 0.0012 139	0.41616 0.5838 4	0	-0.28779 0.0001 967	-0.54900 0.0001 1003	-0.60434 0.0001 1005	-0.59275 0.0001 1005	-0.28685 0.0001 907

GEOCHEMICAL ANALYSIS OF THE CHILWA ALKALINE AREA, MALAWI

CORRELATION COEFFICIENTS / PROB > IRI UNDER HO:RHO=0 / NUMBER OF OBSERVATIONS

	AL	SB	AS	BA	BE	BI	B	BR	CD	CA	C	CE	CS
RB	0.59833 0.0001 814	0.09672 0.0072 771	0.00116 0.9761 669	-0.33745 0.0001 815	0.14028 0.0093 343	-0.07794 0.4294 105	-0.57319 0.6114 3	0	-0.40684 0.0001 776	-0.55825 0.0001 812	-0.59061 0.0001 813	-0.53847 0.0001 813	-0.22498 0.0001 719
SM	-0.33461 0.0001 846	0.04486 0.2087 787	-0.16487 0.0001 701	0.53866 0.0001 849	0.03694 0.5004 355	0.18744 0.0379 123	-0.81375 0.3948 3	0	0.32835 0.0001 831	0.44768 0.0001 845	0.48050 0.0001 849	0.75228 0.0001 849	0.33040 0.0001 783
SC	0.14847 0.0001 813	0.05922 0.1008 769	-0.07553 0.0510 668	0.03370 0.3370 814	0.14008 0.0110 329	0.21022 0.0290 108	-0.16168 0.8383 4	0	-0.15030 0.0001 780	-0.07495 0.0327 812	-0.04894 0.1633 813	0.01865 0.5953 814	-0.03227 0.4930 738
SE	-0.16424 0.0974 103	-0.17620 0.1253 77	-0.05162 0.6137 98	-0.32713 0.0007 104	0.01988 0.8844 56	-0.35270 0.1386 19	0.00000 0.0000 2	0	-0.14862 0.1341 103	0.14766 0.1386 102	0.09986 0.3132 104	0.10234 0.3012 104	0.12106 0.2425 95
SI	0.85346 0.0001 1009	0.03850 0.2373 944	0.02660 0.4433 833	-0.25800 0.0001 1012	0.06022 0.2231 411	-0.12485 0.1431 139	0.48043 0.5196 4	0	-0.45035 0.0001 972	-0.76001 0.0001 1008	-0.72050 0.0001 1010	-0.65607 0.0001 1010	-0.27142 0.0001 912
AG	-0.23380 0.0001 695	0.01072 0.7843 655	-0.03447 0.4127 567	0.37028 0.0001 696	-0.12100 0.0398 289	0.11306 0.2859 91	1.00000 0.0000 2	0	0.21348 0.0001 679	0.27689 0.0001 693	0.28362 0.0001 695	0.48085 0.0001 696	0.13376 0.0007 636
NA	0.24368 0.0001 985	-0.09865 0.0026 928	-0.02168 0.5373 812	-0.13936 0.0001 988	0.10734 0.0310 404	0.16197 0.0635 132	0.58589 0.4141 4	0	-0.11112 0.0006 948	-0.22413 0.0001 984	-0.29499 0.0001 986	-0.31841 0.0001 986	-0.10657 0.0015 888
SR	-0.52715 0.0001 1009	-0.07848 0.0159 944	-0.02219 0.5235 533	0.52860 0.0001 1012	-0.11558 0.0191 411	0.16357 0.0543 139	-0.70953 0.2905 4	0	0.41261 0.0001 972	0.58945 0.0001 1008	0.61626 0.0001 1010	0.69881 0.0001 1010	0.27318 0.0001 912
S	-0.07358 0.0209 986	-0.16264 0.0001 923	0.12440 0.0004 815	0.39879 0.0001 989	0.03859 0.4404 402	0.39843 0.0001 133	0.04596 0.9540 4	0	0.20053 0.0001 952	0.17198 0.0001 985	0.20019 0.0001 987	0.33262 0.0001 987	0.21192 0.0001 892
TA	0.04767 0.7643 42	0.01232 0.9383 42	0.20263 0.2324 38	0.21645 0.1686 42	0.39217 0.0149 38	0.91081 0.0315 5		0	0.05019 0.7523 42	-0.03103 0.8453 42	-0.10434 0.5162 41	0.42169 0.0054 42	0.18169 0.2683 39
TE	0.17925 0.0072 224	-0.20983 0.0026 204	0.47575 0.0001 191	-0.42365 0.0001 224	0.26714 0.0064 103	-0.24736 0.2332 25		0	0.10734 0.1157 216	-0.35908 0.0001 220	-0.42601 0.0001 224	-0.33637 0.0001 224	-0.25304 0.0003 205
TB	-0.21755 0.0001 618	0.08600 0.8869 564	0.14801 0.0007 518	0.21252 0.0001 620	0.20849 0.0012 239	0.21835 0.0345 94	-0.95799 0.0420 4	0	0.20873 0.0001 613	0.32259 0.0001 618	0.19889 0.0001 620	0.29983 0.0001 620	0.06445 0.1207 581
TL	-0.30654 0.2314 17	0.00000 1.0000 10	-0.36167 0.1687 16	-0.43087 0.0842 17	-0.27255 0.4780 9	0.00000 0.0000 1	0.00000 0.0000 1	0	0.21103 0.4162 17	0.19679 0.4490 17	0.18610 0.4745 17	0.00139 0.9958 17	-0.01282 0.9611 17

GEOCHEMICAL ANALYSIS OF THE CHILWA ALKALINE AREA, MALAWI

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	AL	SB	AS	BA	BE	BI	B	BR	CD	CA	C	CE	CS
TH	-0.08815 0.0057 981	-0.13248 0.0001 916	0.27996 0.0001 815	0.31021 0.0001 984	0.23229 0.0001 408	0.39451 0.0001 135	-0.15564 0.8444 4	0	0.2194 0.0001 944	0.14270 0.0001 930	0.15597 0.0001 982	0.30835 0.0001 983	0.18981 0.0001 888
SN	0.04958 0.1680 775	0.05922 0.1121 721	-0.03241 0.47171 629	0.66808 0.0580 776	0.17315 0.0019 319	0.05968 0.5395 108	-1.00000 2	0	-0.02306 0.5291 747	0.02463 0.4945 772	0.05419 0.1317 775	0.20363 0.0001 776	0.03500 0.3517 710
TI	0.49530 0.0001 1008	0.08329 0.0105 944	0.01920 0.5803 832	-0.20191 0.0001 1011	0.17981 0.0003 410	-0.04736 0.5798 139	-0.29987 0.7001 4	0	-0.27480 0.0001 971	-0.34373 0.0001 1007	-0.30943 0.0001 1009	-0.25448 0.0001 1009	-0.12816 0.0001 911
W	0.00007 0.9988 498	0.20072 0.0001 458	-0.14987 0.0028 396	0.39660 0.0001 498	-0.05287 0.4482 208	-0.08735 0.5106 59	-1.00000 2	0	-0.00066 0.9883 497	0.15048 0.0008 495	0.21998 0.0001 498	0.51314 0.0001 498	0.09307 0.0437 470
U	-0.25372 0.0001 887	-0.15278 0.0001 823	0.26003 0.0001 750	0.34803 0.0001 889	0.12983 0.0161 343	0.28237 0.0019 119	0.24714 0.7529 4	0	0.29514 0.0001 858	0.32416 0.0001 885	0.30142 0.0001 888	0.47478 0.0001 887	0.24164 0.0001 814
V	0.03315 0.3047 961	-0.05361 0.1070 905	0.25821 0.0001 796	0.05304 0.1001 962	0.17483 0.0005 393	0.11248 0.2082 128	-0.08296 0.9170 4	0	0.09495 0.0039 923	0.07796 0.0158 958	0.09319 0.0039 960	0.14070 0.0001 960	0.02061 0.5438 870
YB	-0.26163 0.0001 834	-0.02430 0.4998 773	0.16146 0.0001 731	0.14162 0.0001 837	0.20969 0.0001 376	0.14636 0.0993 128	-0.67654 0.3235 4	0	0.31165 0.0001 818	0.28671 0.0001 833	0.25709 0.0001 835	0.28720 0.0001 837	0.13792 0.0001 762
Y	-0.38548 0.0001 1009	-0.08518 0.0088 944	0.21646 0.0001 833	0.39950 0.0001 1012	0.19134 0.0001 411	0.27561 0.0010 139	-0.60122 0.3988 4	0	0.42879 0.0001 972	0.47926 0.0008 1008	0.46107 0.0001 1010	0.52373 0.0001 1010	0.24929 0.0001 912
ZN	-0.27606 0.0001 1009	-0.07696 0.0180 944	0.10697 0.0020 833	0.61790 0.0001 1012	0.11196 0.0232 411	0.45863 0.0001 139	-0.01907 0.9809 4	0	0.37920 0.0001 972	0.40336 0.0001 1008	0.46078 0.0001 1010	0.70443 0.0001 1010	0.31969 0.0001 912
ZR	0.26191 0.0001 277	0.17907 0.0041 255	-0.00729 0.9096 245	-0.36140 0.0001 277	0.23202 0.0060 139	0.02130 0.9127 29	-0.41158 0.7300 3	0	-0.39869 0.0001 267	-0.19045 0.0015 275	-0.23147 0.0001 277	-0.25376 0.0001 277	-0.02336 0.7132 250
AL	0.55833 0.0001 1003	0.17648 0.0001 993	0.29788 0.0001 1009	-0.15255 0.0003 571	-0.40824 0.0001 880	-0.29209 0.0001 1009	0.65191 0.0001 1008	0.43101 0.0001 860	0.03709 0.6231 178	-0.02219 0.4813 0	-0.44438 0.0001 999	-0.21607 0.0001 999	0.0001 1001
SB	0.04624 0.1569 939	0.05088 0.1204 933	0.04963 0.1275 944	0.02690 0.5457 507	0.01389 0.6913 820	-0.04480 0.1690 944	0.11576 0.0004 943	0.16266 0.0001 818	0.08706 0.2561 172	0.02370 0.4670 944	-0.09011 0.0059 934	-0.05595 0.0861 942	
AS	-0.05087 0.1436 828	0.01271 0.7158 823	0.06614 0.0564 833	0.08686 0.0486 516	-0.05729 0.1240 722	0.02813 0.4175 833	0.07181 0.0385 831	-0.06181 0.1025 699	0.03828 0.6244 166	0.12191 0.0004 833	0.12503 0.0003 827	0.12339 0.0004 825	

GEOCHEMICAL ANALYSIS OF THE CHILWA ALKALINE AREA, MALAWI
CORRELATION COEFFICIENTS / PROB > IRI UNDER HO:RHO=0 / NUMBER OF OBSERVATIONS

	CR	CD	CU	DY	EU	F	GA	GE	AU	HF	FE	LA	PB
BA	-0.29939 0.0001 1005	0.15730 0.0001 995	-0.19050 0.0001 1012	0.22947 0.0001 574	0.57384 0.0001 883	0.50532 0.0001 1012	-0.24650 0.0001 1010	-0.16924 0.0001 861	0.07795 0.2997 179	0	0.45558 0.0001 1012	0.59026 0.0001 1002	0.33830 0.0001 1004
BE	0.01226 0.8059 404	0.18045 0.0003 405	0.12775 0.0095 411	0.01036 0.8640 276	0.17886 0.0006 365	-0.00148 0.9761 411	0.15872 0.0013 410	0.15130 0.0037 366	0.17242 0.1475 72	0	0.23429 0.0001 411	0.05852 0.2377 409	0.10836 0.0290 406
BI	-0.10716 0.2092 139	0.12298 0.1538 136	0.00897 0.9165 139	0.02081 0.8405 96	0.34613 0.0001 124	0.24222 0.0041 139	-0.20732 0.0143 139	-0.17575 0.0729 105	0.49396 0.0088 27	0	0.37145 0.0001 139	0.38343 0.0001 139	0.46776 0.0001 139
B	0.69250 0.3075 4	0.22558 0.7744 4	0.62895 0.3711 4	0.46685 0.5332 4	0.43408 0.5659 4	-0.51262 0.4874 4	0.23552 0.7645 4	0.48286 0.6792 3	0	0	0.14526 0.8547 4	-0.96513 0.0349 4	0.89333 0.1067 4
BR	0	0	0	0	0	0	0	0	0	0	0	0	0
CD	-0.45315 0.0001 965	-0.09562 0.0031 955	-0.21320 0.0001 972	0.26123 0.0001 569	0.39300 0.0001 855	0.38630 0.0001 972	-0.37313 0.0001 970	-0.30913 0.0001 822	-0.05531 0.4696 172	0	0.19133 0.0001 972	0.52166 0.0001 966	0.22937 0.0001 964
CA	-0.57665 0.0001 1001	-0.03751 0.2381 991	-0.30458 0.0001 1008	0.24502 0.0001 570	0.51902 0.0001 879	0.47916 0.0001 1008	-0.53698 0.0001 1006	-0.34596 0.0001 857	0.04657 0.5359 179	0	0.21228 0.0001 1008	0.51152 0.0001 998	0.22859 0.0001 1000
C	-0.58850 0.0001 1003	0.01843 0.5619 993	-0.27498 0.0001 1010	0.22772 0.0001 574	0.55843 0.0001 883	0.49472 0.0001 1010	-0.49420 0.0001 1008	-0.30421 0.0001 859	-0.01332 0.8596 179	0	0.25098 0.0001 1010	0.53884 0.0001 1000	0.21867 0.0001 1002
CE	-0.51672 0.0001 1003	0.16195 0.0001 993	-0.26008 0.0001 1010	0.32937 0.0001 574	0.74722 0.0001 882	0.64612 0.0001 1010	-0.43195 0.0001 1008	-0.19288 0.0001 859	-0.04140 0.5822 179	0	0.56951 0.0001 1010	0.85814 0.0001 1002	0.24934 0.0001 1002
CS	-0.32173 0.0001 905	0.09940 0.0029 898	-0.10190 0.0021 912	0.08052 0.0632 533	0.33207 0.0001 806	0.22240 0.0001 912	-0.23799 0.0001 910	-0.15443 0.0001 771	-0.06062 0.4421 163	0	0.31085 0.0001 912	0.34524 0.0001 904	0.13184 0.0001 905
CR	1.00000 0.0000 1005	0.15301 0.0001 989	0.33918 0.0001 1005	-0.29269 0.0001 567	-0.44437 0.0001 876	-0.37663 0.0001 1005	0.36820 0.0001 1003	0.36178 0.0001 859	-0.00712 0.9246 179	0	-0.18692 0.0001 1005	-0.44940 0.0001 995	-0.22461 0.0001 998
CO	0.15301 0.0001 989	1.00000 0.0000 995	0.29965 0.0001 995	-0.13895 0.0010 560	0.08595 0.0113 869	0.22361 0.0001 995	0.18691 0.0001 993	0.23820 0.0001 848	0.06205 0.4106 178	0	0.37408 0.0001 995	0.06582 0.0389 985	-0.11481 0.0003 987
CU	0.33918 0.0001 1005	0.29965 0.0000 995	1.00000 0.0000 1012	-0.13626 0.0011 574	-0.21451 0.0001 883	-0.15380 0.0001 1012	0.26802 0.0001 1010	0.20896 0.0001 861	-0.03182 0.6724 179	0	0.03795 0.2277 1012	-0.33920 0.0001 1002	-0.15496 0.0001 1004

GEOCHEMICAL ANALYSIS OF THE CHILWA ALKALINE AREA, MALAWI

CORRELATION COEFFICIENTS / PROB > IRI UNDER H0:RHO=0 / NUMBER OF OBSERVATIONS

	CR	CD	CU	DY	EU	F	GA	GE	AU	HF	FE	LA	PB
DY	-0.29269 0.0001 567	-0.13895 0.0010 560	-0.13626 0.0011 574	1.00000 0.0000 574	0.36917 0.0001 540	0.21046 0.0001 574	-0.13692 0.0010 572	-0.16060 0.0006 452	-0.01715 0.8544 117	0	0.11871 0.0044 574	0.31268 0.0001 574	0.28219 0.0001 566
EU	-0.44437 0.0001 876	0.08595 0.0113 869	-0.21451 0.0001 883	1.00000 0.0000 883	0.49454 0.0001 883	-0.41969 0.0001 881	-0.20812 0.0001 742	-0.00126 0.9873 163	0	0.43249 0.0001 883	0.71745 0.0001 876	0.33675 0.0001 875	
F	-0.37663 0.0001 1005	0.22361 0.0001 995	-0.15380 0.0001 1012	1.00000 0.0001 1012	0.49454 0.0001 883	0.21046 0.0001 574	-0.17920 0.0001 1010	-0.18352 0.0001 861	0.12219 0.1032 179	0	0.51781 0.0001 1012	0.58551 0.0001 1002	0.26252 0.0001 1004
GA	0.36820 0.0001 1003	0.18691 0.0001 993	0.26802 0.0001 1010	-0.13692 0.0010 572	-0.41969 0.0001 881	0.17920 0.0001 1010	1.00000 0.0000 1010	0.34129 0.0001 860	0.04104 0.5855 179	0	0.01918 0.5427 1010	-0.44397 0.0001 1000	-0.15545 0.0001 1002
GE	0.36178 0.0001 859	0.23820 0.0001 848	0.20896 0.0001 861	-0.16060 0.0006 452	-0.20812 0.0001 742	0.34129 0.0001 860	1.00000 0.0000 861	-0.13451 0.0000 861	0.13451 0.1157 138	0	-0.05250 0.3409 861	-0.19336 0.0001 851	-0.23814 0.0001 857
AU	-0.00712 0.9246 179	0.06205 0.4106 178	-0.03182 0.6724 179	-0.01715 0.8544 117	-0.00126 0.9873 163	0.12219 0.1032 179	0.04104 0.5855 179	-0.13451 0.1157 138	1.00000 0.0000 179	0	0.11300 0.1321 179	-0.03039 0.6864 179	0.06040 0.4219 179
HF	0	0	0	0	0	0	0	0	0	0	0	0	0
FE	-0.18692 0.0001 1005	0.37408 0.0001 995	0.03795 0.2277 1012	0.11871 0.0044 574	0.43249 0.0001 883	0.51781 0.0001 1012	0.01918 0.5427 1010	-0.03250 0.3409 861	0.11300 0.1321 179	0	1.00000 0.0000 1012	0.48276 0.0001 1002	0.16853 0.0001 1004
LA	-0.44840 0.0001 995	0.06582 0.0359 985	-0.33920 0.0001 1002	0.31268 0.0001 574	0.71745 0.0001 876	-0.44397 0.0001 1000	-0.19336 0.0001 851	-0.03039 0.6864 179	0.03039 0.6864 179	0	0.48276 0.0001 1002	1.00000 0.0000 1002	0.23177 0.0001 994
PB	-0.22461 0.0001 998	-0.11481 0.0003 987	-0.15496 0.0001 1004	0.28219 0.0001 566	0.33675 0.0001 875	0.26252 0.0001 1004	-0.15545 0.0001 1002	-0.23814 0.0001 857	0.06040 0.4219 179	0	0.16853 0.0001 1004	0.23177 0.0001 994	1.00000 0.0000 1004
LI	0.27020 0.0001 930	0.09363 0.0045 920	0.14486 0.0001 936	-0.09727 0.0271 516	-0.20096 0.0001 815	0.02323 0.3717 936	0.33380 0.0001 934	0.20645 0.0001 794	0.03947 0.6115 168	0	0.03139 0.3374 936	-0.11436 0.0005 929	-0.04356 0.1844 930
LU	0.13419 0.1326 127	0.22689 0.0094 130	0.25556 0.0031 132	0.17185 0.0890 99	0.11401 0.2210 117	-0.00813 0.9263 132	0.05691 0.5169 132	0.08385 0.3772 113	0.18699 0.5046 15	0	0.20393 0.0190 132	0.00232 0.9790 132	0.10066 0.2602 127
MG	-0.16420 0.0001 1005	0.33723 0.0001 995	-0.06380 0.0425 1012	-0.01542 0.7125 574	0.33974 0.0001 883	0.47950 0.0001 1012	-0.09044 0.0040 1010	0.09140 0.0073 861	-0.15613 0.0369 179	0	0.47133 0.0001 1012	0.46649 0.0001 1002	0.07027 0.0260 1004

GEOCHEMICAL ANALYSIS OF THE CHILWA ALKALINE AREA, MALAWI

CORRELATION COEFFICIENTS / PROB > IRI UNDER HO:RHO=0 / NUMBER OF OBSERVATIONS

	CR	CD	CU	DY	EU	F	GA	GE	AU	HF	FE	LA	PB
MN	-0.51459 0.0001 1005	0.15988 0.0001 995	-0.23549 0.0001 1012	0.26690 0.0001 574	0.65632 0.0001 883	0.61943 0.0001 1012	-0.38224 0.0001 1010	-0.20889 0.0001 861	0.08881 0.2371 179	0	0.66821 0.0001 1012	0.74503 0.0001 1002	0.30416 0.0001 1004
HG	-0.11755 0.0004 899	-0.07154 0.0327 891	-0.04323 0.1936 906	0.09092 0.0330 550	0.03179 0.3683 803	0.08931 0.0071 906	-0.17727 0.0001 904	-0.28367 0.0001 757	0.09305 0.2234 173	0	0.04723 0.1554 906	0.12896 0.0001 897	0.17163 0.0001 898
MD	-0.20545 0.0001 746	0.25744 0.0001 741	-0.16244 0.0001 751	0.02123 0.6472 467	0.41101 0.0001 694	0.34832 0.0001 751	-0.11496 0.0016 749	0.03394 0.3876 650	0.05558 0.5381 125	0	0.47041 0.0001 751	0.60290 0.0001 746	0.12872 0.0004 744
ND	-0.47433 0.0001 958	0.14139 0.0001 951	-0.25746 0.0001 965	0.32996 0.0001 564	0.77712 0.0001 855	0.58526 0.0001 965	-0.41987 0.0001 963	-0.18093 0.0001 814	0.04103 0.5898 175	0	0.52182 0.0001 965	0.83356 0.0001 957	0.28042 0.0001 958
NI	0.50195 0.0001 1004	0.42400 0.0001 994	0.42081 0.0001 1011	-0.28173 0.0001 573	-0.26001 0.0001 882	-0.13736 0.0001 1011	0.41032 0.0001 1009	0.40210 0.0001 860	-0.07973 0.2887 179	0	0.11146 0.0004 1011	-0.29785 0.0001 1001	-0.23049 0.0001 1003
NB	-0.27620 0.0001 968	0.09433 0.0035 959	-0.09556 0.0028 975	0.12215 0.0035 568	0.40905 0.0001 857	0.38841 0.0001 975	-0.02328 0.4682 973	-0.05339 0.1257 824	-0.07961 0.2936 176	0	0.41931 0.0001 975	0.43019 0.0001 966	0.08503 0.0082 967
P	-0.25286 0.0001 1005	0.31363 0.0001 995	-0.12208 0.0001 1012	0.07473 0.0736 574	0.36863 0.0001 883	0.55251 0.0001 1012	-0.16778 0.0001 1010	-0.03953 0.2466 861	-0.01736 0.8176 179	0	0.43840 0.0001 1012	0.53474 0.0001 1002	0.01551 0.6255 1004
K	0.44776 0.0001 1000	0.03221 0.3111 991	0.31823 0.0001 1007	-0.17497 0.0001 572	-0.44110 0.0001 878	-0.30067 0.0001 1007	0.49266 0.0001 1005	0.24824 0.0001 856	-0.02491 0.7414 178	0	-0.20309 0.0001 1007	-0.57262 0.0001 997	-0.09854 0.0018 999
RB	0.46735 0.0001 814	-0.02316 0.5107 809	0.24994 0.0001 815	-0.16751 0.0004 436	-0.49979 0.0001 694	-0.38024 0.0001 815	0.49885 0.0001 815	0.31465 0.0001 719	0.02002 0.8184 134	0	-0.25493 0.0001 815	-0.57413 0.0001 805	-0.17144 0.0001 810
SM	-0.35010 0.0001 842	0.08780 0.0110 838	-0.22797 0.0001 849	0.25703 0.0001 539	0.73569 0.0001 801	0.44938 0.0001 849	-0.38753 0.0001 847	-0.15605 0.0001 709	-0.09999 0.2158 155	0	0.38260 0.0001 849	0.71072 0.0001 846	0.17514 0.0001 842
SC	0.09807 0.0052 812	0.37043 0.0001 808	0.35117 0.0001 814	-0.04461 0.3418 456	0.02844 0.4423 732	0.14911 0.0001 814	0.19170 0.0001 813	0.20261 0.0001 708	0.14103 0.1015 136	0	0.25062 0.0001 814	-0.09196 0.0089 809	-0.16934 0.0001 811
SE	-0.24549 0.0129 102	-0.09007 0.3680 102	0.19181 0.0511 104	0.15724 0.1482 86	0.04124 0.6947 93	-0.26598 0.0064 104	-0.30653 0.0016 103	0.13328 0.2297 83	0.13008 0.5640 22	0	-0.18577 0.0590 104	0.00076 0.9939 104	-0.19502 0.0484 103
SI	0.66595 0.0001 1005	0.22733 0.0001 995	0.29225 0.0001 1012	-0.26331 0.0001 574	-0.44648 0.0001 883	-0.29770 0.0001 1012	0.57380 0.0001 1010	0.45903 0.0001 861	-0.03510 0.6409 179	0	-0.04750 0.1310 1012	-0.41630 0.0001 1002	-0.27850 0.0001 1004

GEOCHEMICAL ANALYSIS OF THE CHILWA ALKALINE AREA, MALAWI

CORRELATION COEFFICIENTS / PROB > IRI UNDER HO:RHO=0 / NUMBER OF OBSERVATIONS

	CR	CO	CU	DY	EU	F	GA	GE	AU	HF	FE	LA	PB
AG	-0.12933 0.0006 695	0.12952 0.0007 689	-0.18639 0.0001 696	-0.07050 0.1625 394	0.25803 0.0001 623	0.23482 0.0001 696	-0.23800 0.0001 696	-0.06171 0.1257 617	0.25350 0.0032 133	0	0.30265 0.0001 696	0.468766 0.0001 696	-0.03541 0.3519 693
NA	0.21619 0.0001 982	-0.02806 0.3811 976	0.11998 0.0002 988	-0.01728 0.6858 551	-0.20035 0.0001 862	-0.11550 0.0003 988	0.20636 0.0001 986	0.06507 0.0584 847	-0.02590 0.7563 171	0	-0.09515 0.0028 988	-0.29004 0.0001 978	0.07834 0.0141 982
SR	-0.49149 0.0001 1005	0.04306 0.1747 995	-0.32537 0.0001 1012	0.17315 0.0001 574	0.48926 0.0001 883	-0.50275 0.0001 1012	-0.40264 0.0001 1010	-0.22899 0.0001 861	0.03770 0.6163 179	0	0.31676 0.0001 1012	0.72129 0.0001 1002	0.12289 0.0001 1004
S	-0.09310 0.0035 982	0.17109 0.0001 974	-0.04821 0.1297 989	-0.03919 0.3529 564	0.26316 0.0001 870	0.40148 0.0001 989	-0.05486 0.0849 987	-0.07106 0.0394 841	0.15199 0.0434 177	0	0.36300 0.0001 989	0.32934 0.0001 979	0.20580 0.0001 982
TA	0.10248 0.5184 42	0.25313 0.1058 42	0.04741 0.7656 42	0.11186 0.5562 30	0.32973 0.0404 39	0.09088 0.5670 42	0.41547 0.0062 42	0.25818 0.1176 38	0.44941 0.1926 10	0	0.47087 0.0017 42	0.37446 0.0146 42	0.06086 0.7018 42
TE	0.17217 0.0098 224	-0.12602 0.0597 224	0.06084 0.3648 224	-0.06482 0.4818 120	-0.26355 0.0001 204	-0.05439 0.4179 224	0.21445 0.0012 224	-0.03481 0.6229 202	0.10182 0.5857 31	0	-0.16611 0.0128 224	-0.12408 0.0656 221	-0.01115 0.8682 224
TB	-0.23572 0.0001 616	-0.12395 0.0022 610	-0.11736 0.0034 620	0.55009 0.0001 436	0.34488 0.0001 584	0.24946 0.0001 620	-0.21402 0.0001 618	-0.17492 0.0001 516	0.10258 0.2796 113	0	0.11759 0.0034 620	0.33541 0.0001 619	0.40134 0.0001 613
TL	0.00000 1.0000 14	-0.67892 0.0038 16	-0.05570 0.8318 17	-0.25238 0.3445 16	0.13578 0.6161 16	-0.11582 0.6580 17	-0.47298 0.0552 17	0.00000 1.0000 10	0.00000 0.0000 2	0	-0.54473 0.0238 17	0.01821 0.9447 17	-0.50130 0.0679 16
TH	-0.25690 0.0001 978	-0.00097 0.9759 967	-0.09948 0.0018 984	0.45389 0.0001 562	0.34624 0.0001 856	0.31766 0.0001 984	-0.05981 0.0610 982	-0.21492 0.0001 844	-0.02479 0.7440 176	0	0.32576 0.0001 984	0.25263 0.0001 975	0.46075 0.0001 977
SN	-0.04017 0.2647 773	0.20624 0.0001 774	-0.02295 0.5232 776	-0.13807 0.0033 450	0.12526 0.0009 698	0.19487 0.0001 776	0.07668 0.0327 776	0.11405 0.0027 689	0.00700 0.9393 121	0	0.22237 0.0001 776	0.18226 0.0001 769	-0.07542 0.0367 768
TI	0.25929 0.0001 1004	0.29739 0.0001 994	0.35641 0.0001 1011	-0.13493 0.0012 573	-0.29203 0.0001 882	0.02140 0.4968 1011	0.50926 0.0001 1009	0.28916 0.0001 861	0.00374 0.9604 179	0	0.12549 0.0001 1011	-0.33921 0.0001 1001	-0.15636 0.0001 1004
W	-0.06943 0.1233 494	0.28111 0.0001 495	-0.09699 0.0305 498	-0.16364 0.0036 314	0.21480 0.0001 473	0.15424 0.0006 498	-0.00416 0.9264 497	0.20276 0.0001 456	-0.03100 0.7862 79	0	0.29272 0.0001 498	0.58529 0.0001 498	-0.27627 0.0001 496
U	-0.24926 0.0001 884	0.01817 0.5905 879	-0.17630 0.0001 889	0.28604 0.0001 537	0.39872 0.0001 797	0.34867 0.0001 889	-0.21147 0.0001 887	-0.20711 0.0001 755	0.17914 0.0248 157	0	0.27939 0.0001 889	0.49423 0.0001 879	0.36049 0.0001 882

GEOCHEMICAL ANALYSIS OF THE CHILWA ALKALINE AREA, MALAWI
CORRELATION COEFFICIENTS / PROB > (R) UNDER HO:RHO=0 / NUMBER OF OBSERVATIONS

	CR	CO	CU	DY	EU	F	GA	GE	AU	HF	FE	LA	PB
V	-0.13056 0.0001 956	0.24747 0.0001 949	0.19606 0.0001 962	0.10772 0.0121 542	0.05732 0.0955 847	0.32193 0.0001 962	0.13227 0.0001 961	-0.06513 0.1953 825	0.02948 0.7019 171	0	0.31080 0.0001 962	0.05110 0.1151 952	0.00262 0.9356 957
YB	-0.35220 0.0001 830	-0.04442 0.2038 820	-0.05784 0.0945 837	0.41033 0.0001 560	0.40488 0.0001 751	0.25732 0.0001 837	-0.23210 0.0001 835	-0.17942 0.0001 689	0.03310 0.6787 159	0	0.14846 0.0001 837	0.27581 0.0001 836	0.28061 0.0001 831
Y	-0.49790 0.0001 1005	0.07973 0.0119 995	-0.10330 0.0010 1012	0.52109 0.0001 574	0.58408 0.0001 883	0.50774 0.0001 1012	-0.28997 0.0001 1010	-0.24882 0.0001 861	-0.01278 0.8452 179	0	0.36883 0.0001 1012	0.48870 0.0001 1002	0.49409 0.0001 1004
ZN	-0.37245 0.0001 1005	0.21453 0.0001 995	-0.23215 0.0001 1012	0.16722 0.0001 574	0.52240 0.0001 883	0.54603 0.0001 1012	-0.17971 0.0001 1010	0.11626 0.0006 861	0.07345 0.3285 179	0	0.55720 0.0001 1012	0.70089 0.0001 1002	0.28876 0.0001 1004
ZR	0.15097 0.0119 277	0.20288 0.0007 277	0.25488 0.0001 277	-0.08982 0.2572 161	-0.26674 0.0001 249	-0.30143 0.0001 277	0.37285 0.0001 277	0.39035 0.0001 259	0.45124 0.0019 45	0	0.03586 0.5523 277	-0.36781 0.0001 275	-0.18163 0.0025 275
AL	0.28923 0.0001 933	0.06792 0.4390 132	-0.11153 0.0004 1009	-0.50891 0.0001 1009	-0.13678 0.0001 903	-0.16503 0.0001 749	-0.46192 0.0001 962	0.46958 0.0001 1008	-0.11804 0.0002 972	-0.24386 0.0001 1009	0.63318 0.0001 1004	0.59833 0.0001 814	-0.33461 0.0001 846
SB	0.05515 0.1034 873	0.17766 0.0586 114	0.02257 0.4886 944	-0.02770 0.3953 944	-0.30685 0.0001 838	-0.01181 0.7573 687	-0.03364 0.3134 900	-0.02504 0.4425 943	0.00408 0.9023 907	-0.08990 0.0057 944	0.04569 0.1618 939	0.09672 0.0072 771	0.04486 0.2087 787
AS	-0.01642 0.6509 762	0.14541 0.1178 117	-0.17290 0.0001 833	0.03342 0.3354 833	0.33898 0.0001 767	-0.08393 0.0356 627	-0.05759 0.1042 797	0.04305 0.2148 832	0.01829 0.6048 803	-0.03102 0.3713 833	0.04522 0.1931 830	0.00116 0.9761 669	-0.16487 0.0001 701
BA	-0.10564 0.0012 936	0.00997 0.9097 132	0.48432 0.0001 1012	0.55866 0.0001 1012	0.04360 0.1898 906	0.52792 0.0001 751	0.68355 0.0001 965	-0.06732 0.0323 1011	0.36368 0.0001 975	0.43863 0.0001 1012	-0.33020 0.0001 1007	-0.33745 0.0001 815	0.53886 0.0001 849
BE	0.02483 0.6312 376	0.28545 0.0020 115	0.02226 0.6527 411	0.11189 0.0233 411	0.06203 0.2314 374	0.08485 0.1342 313	0.08010 0.0859 381	0.16134 0.0010 410	0.07231 0.1541 390	0.03073 0.5345 411	0.19270 0.0001 410	0.14028 0.0093 343	0.03694 0.5004 335
BI	-0.20036 0.0263 123	0.07298 0.8042 14	0.26569 0.0016 139	0.38428 0.0001 139	0.33701 0.0001 129	0.49451 0.0001 98	0.35084 0.0001 133	0.07408 0.3861 139	0.05595 0.5240 132	-0.08853 0.3000 139	-0.27143 0.0012 139	-0.07794 0.4294 105	0.18744 0.0379 123
B	1.00000 0.9940 2	-0.00937 0.2177 3	-0.78232 0.0000 4	-0.88915 0.1108 4	-0.88283 0.1172 4	0.25960 0.7404 4	-0.49890 0.5011 4	0.79549 0.2045 4	-0.16715 0.8329 4	-0.20082 0.7992 4	0.41616 0.5838 4	-0.57319 0.6114 3	-0.81375 0.3948 3
BR	0	0	0	0	0	0	0	0	0	0	0	0	0

GEOCHEMICAL ANALYSIS OF THE CHILWA ALKALINE AREA, MALAWI

CORRELATION COEFFICIENTS / PROB > IRI UNDER HO:RHO=0 / NUMBER OF OBSERVATIONS

	LI	LU	MG	MN	HG	MO	ND	NI	NB	P	K	RB	SM
CD	-0.16263 0.0001 900	-0.07089 0.4265 128	0.13826 0.0001 972	0.40436 0.0001 972	0.26202 0.0001 875	0.18062 0.0001 737	0.39522 0.0001 931	-0.33874 0.0001 971	0.26433 0.0001 945	0.19647 0.0001 972	-0.28779 0.0001 967	-0.40684 0.0001 776	0.32885 0.0001 831
CA	-0.28675 0.0001 932	-0.10083 0.2500 132	0.31596 0.0001 1008	0.63139 0.0001 1008	0.09169 0.0059 902	0.23706 0.0001 748	0.57300 0.0001 962	-0.41715 0.0001 1007	0.22710 0.0001 971	0.37944 0.0001 1008	-0.54900 0.0001 1003	-0.55825 0.0001 812	0.44768 0.0001 845
C	-0.18085 0.0001 934	-0.15239 0.0811 132	0.43313 0.0001 1010	0.64213 0.0001 1010	0.02059 0.5362 905	0.31067 0.0001 749	0.63561 0.0001 964	-0.36014 0.0001 1009	0.28909 0.0001 973	0.40163 0.0001 1010	-0.60434 0.0001 1005	-0.59061 0.0001 813	0.48050 0.0001 849
CE	-0.07557 0.0208 936	0.04739 0.5895 132	0.55371 0.0001 1010	0.81499 0.0001 1010	0.08998 0.0068 905	0.57279 0.0001 749	0.87158 0.0001 965	-0.22934 0.0001 1009	0.46450 0.0001 973	0.57355 0.0001 1010	-0.59275 0.0001 1005	-0.53847 0.0001 813	0.75228 0.0001 849
CS	-0.16620 0.0001 843	0.24075 0.0078 121	0.18086 0.0001 912	0.41040 0.0001 912	0.11917 0.0006 822	0.24273 0.0001 696	0.36820 0.0001 881	-0.09460 0.0043 911	0.16708 0.0001 884	0.17621 0.0001 912	-0.28685 0.0001 907	-0.22498 0.0001 719	0.33040 0.0001 783
CR	0.27020 0.0001 930	0.13419 0.1326 127	-0.16420 0.0001 1005	-0.51459 0.0001 1005	-0.11755 0.0004 899	-0.20545 0.0001 746	-0.47433 0.0001 958	0.50195 0.0001 1004	-0.27620 0.0001 968	0.25286 0.0001 1005	0.44776 0.0001 1000	0.46735 0.0001 814	-0.35010 0.0001 842
CO	0.09363 0.0045 920	0.22689 0.0094 130	0.33723 0.0001 995	0.15988 0.0001 995	-0.07154 0.0327 891	0.25744 0.0001 741	0.14139 0.0001 951	0.42400 0.0001 994	0.09433 0.0035 959	0.31363 0.0001 995	0.03221 0.0001 991	-0.02316 0.5107 809	0.08780 0.0110 838
CU	0.14486 0.0001 936	0.25356 0.0031 132	-0.06380 0.0425 1012	-0.23549 0.0001 1012	-0.04323 0.1936 906	-0.18244 0.0001 751	-0.25146 0.0001 965	0.42081 0.0001 1011	-0.09556 0.0028 975	0.12208 0.0001 1012	0.31823 0.0001 1007	0.24994 0.0001 815	-0.22797 0.0001 849
DY	-0.09727 0.0271 516	0.17185 0.0890 99	-0.01542 0.7125 574	0.26690 0.0001 574	0.09092 0.0330 550	0.02123 0.6472 467	0.32996 0.0001 564	-0.28173 0.0001 573	0.12215 0.0035 568	0.07473 0.0736 574	-0.17497 0.0001 572	-0.16751 0.0004 436	0.25703 0.0001 559
EU	-0.20096 0.0001 815	0.11401 0.2210 117	0.33974 0.0001 883	0.65632 0.0001 883	0.03179 0.3683 803	0.41101 0.0001 694	0.77712 0.0001 855	-0.26001 0.0001 882	0.40905 0.0001 857	0.34863 0.0001 883	-0.44110 0.0001 878	-0.49979 0.0001 694	0.73569 0.0001 801
F	0.03923 0.3717 936	-0.00813 0.9263 132	0.47950 0.0001 1012	0.61943 0.0001 1012	0.08931 0.0071 906	0.34832 0.0001 751	0.58526 0.0001 965	-0.13736 0.0001 1011	0.38841 0.0001 975	0.55251 0.0001 1012	-0.30067 0.0001 1007	-0.38024 0.0001 815	0.44938 0.0001 849
GA	0.33380 0.0001 934	0.05691 0.5169 132	-0.09044 0.0040 1010	-0.38224 0.0001 1010	-0.17727 0.0001 904	-0.11496 0.0016 749	-0.41987 0.0001 963	0.41032 0.0001 1009	-0.02328 0.4682 973	0.16778 0.0001 1010	0.49266 0.0001 1005	0.49885 0.0001 815	-0.38753 0.0001 847
GE	0.20645 0.0001 794	0.08385 0.3772 113	0.09140 0.0073 861	-0.20889 0.0001 861	-0.28387 0.0001 757	0.03394 0.3876 650	-0.18093 0.0001 814	0.40210 0.0001 860	-0.05339 0.1257 824	0.03953 0.2466 861	0.24824 0.0001 856	0.31465 0.0001 719	-0.15605 0.0001 709

GEOCHEMICAL ANALYSIS OF THE CHILWA ALKALINE AREA, MALAWI

CORRELATION COEFFICIENTS / PROB > IRI UNDER HO:RHO=0 / NUMBER OF OBSERVATIONS

	LI	LU	MG	MN	HG	MO	ND	NI	NB	P	K	RB	SM
AU	0.03947 0.6115 168	0.18699 0.5046 15	0.15613 0.0369 179	0.08881 0.2571 179	0.09305 0.2234 173	0.05558 0.5381 125	0.04103 0.5898 175	-0.07973 0.2887 179	-0.07961 0.2936 176	-0.01736 0.8176 179	-0.02491 0.7414 178	0.02002 0.8184 134	-0.09999 0.2152 155
HF	0	0	0	0	0	0	0	0	0	0	0	0	0
FE	0.03139 0.3374 936	0.20393 0.0190 132	0.47133 0.0001 1012	0.66821 0.0001 1012	0.04723 0.1554 906	0.47041 0.0001 751	0.52182 0.0001 965	0.11146 0.0004 1011	0.41931 0.0001 975	0.43840 0.0001 1012	-0.20309 0.0001 1007	-0.25493 0.0001 815	0.38260 0.0001 849
LA	-0.11456 0.0005 929	0.00232 0.9790 132	0.46649 0.0001 1002	0.74503 0.0001 1002	0.12896 0.0001 897	0.60290 0.0001 746	0.83356 0.0001 957	-0.29785 0.0001 1001	0.43019 0.0001 966	0.53474 0.0001 1002	-0.57262 0.0001 997	-0.57413 0.0001 805	0.71072 0.0001 846
PB	-0.04356 0.1844 930	0.10066 0.2602 127	0.07027 0.0260 1004	0.30416 0.0001 1004	0.17163 0.0001 898	0.12872 0.0004 744	0.28042 0.0001 958	-0.23049 0.0001 1003	0.08503 0.0082 967	0.01351 0.6235 1004	-0.09854 0.0018 999	-0.17144 0.0001 810	0.17514 0.0001 842
LI	1.00000 0.0000 936	-0.03430 0.7111 119	0.14087 0.0001 936	-0.11302 0.0004 936	-0.11739 0.0007 833	-0.07951 0.0372 687	0.10416 0.0018 894	0.18918 0.0001 935	0.03085 0.0680 900	-0.01458 0.6559 936	0.27120 0.0001 932	0.27101 0.0001 753	-0.16150 0.0001 781
LU	-0.03430 0.7111 119	1.00000 0.0000 132	-0.15657 0.0730 132	-0.02568 0.7701 132	0.10695 0.2410 122	0.25666 0.0096 101	0.08361 0.3681 118	0.11589 0.1857 132	0.04698 0.6014 126	0.03913 0.6560 132	0.02086 0.8123 132	0.07809 0.4353 102	0.08804 0.3538 113
MG	0.14087 0.0001 936	-0.15657 0.0730 132	1.00000 0.0000 1012	0.50095 0.0001 1012	-0.26076 0.0001 906	0.47683 0.0001 751	0.54846 0.0001 965	0.17384 0.0001 1011	0.32450 0.0001 975	0.47967 0.0001 1012	-0.31439 0.0001 1007	-0.32924 0.0001 815	0.34695 0.0001 849
MN	-0.11502 0.0004 936	-0.02568 0.7701 132	0.50095 0.0000 1012	1.00000 0.0001 1012	0.10192 0.0021 906	0.54148 0.0001 751	0.77529 0.0001 965	-0.27449 0.0001 1011	0.44976 0.0001 975	0.52363 0.0001 1012	-0.55518 0.0001 1007	-0.50908 0.0001 815	0.61556 0.0001 849
HG	-0.11739 0.0007 833	0.10695 0.2410 122	-0.26016 0.0001 906	0.10192 0.0021 906	1.00000 0.0000 906	-0.04166 0.2798 675	0.01884 0.5772 878	-0.09382 0.0047 905	-0.03559 0.2913 881	0.06218 0.0614 906	0.00445 0.8938 902	-0.02374 0.5248 720	-0.01834 0.6082 784
MO	-0.07951 0.0372 687	0.25666 0.0096 101	0.47683 0.0001 751	0.54148 0.0001 751	-0.04166 0.2798 675	1.00000 0.0000 751	0.56614 0.0001 727	0.04023 0.2712 750	0.33332 0.0001 739	0.40151 0.0001 751	-0.42767 0.0001 747	-0.35995 0.0001 597	0.39370 0.0001 676
ND	-0.10416 0.0018 894	0.08361 0.3681 118	0.54846 0.0001 965	0.77529 0.0001 965	0.01884 0.5772 878	0.56614 0.0001 727	1.00000 0.0000 965	-0.21851 0.0001 964	0.42577 0.0001 937	0.51766 0.0001 945	-0.56625 0.0001 960	-0.56611 0.0001 770	0.75269 0.0001 833
NI	0.18918 0.0001 935	0.11589 0.1857 132	0.17384 0.0001 1011	-0.27449 0.0001 1011	-0.09382 0.0047 905	0.04023 0.2712 750	-0.21851 0.0001 964	1.00000 0.0000 1011	-0.08280 0.0097 974	-0.02526 0.4224 1011	0.31951 0.0001 1006	0.32288 0.0001 815	-0.25004 0.0001 848

GEOCHEMICAL ANALYSIS OF THE CHILWA ALKALINE AREA, MALAWI

CORRELATION COEFFICIENTS / PROB > |R| UNDER HO:RHO=0 / NUMBER OF OBSERVATIONS

	LI	LU	MG	MN	HG	MO	ND	NI	NB	P	K	RB	SM
NB	0.06085 0.0680 900	0.04698 0.6014 126	0.32450 0.0001 975	0.44976 0.0001 975	-0.03559 0.2913 881	0.33332 0.0001 739	0.42577 0.0001 937	-0.08280 0.0097 974	1.00000 0.0000 975	0.36904 0.0001 975	-0.12141 0.0002 970	-0.15926 0.0001 778	0.33771 0.0001 831
P	-0.01458 0.6559 936	0.03913 0.6560 132	0.47967 0.0001 1012	0.52363 0.0001 1012	0.06218 0.0614 906	0.40151 0.0001 751	0.51766 0.0001 965	-0.02526 0.4224 1011	0.36904 0.0001 975	1.00000 0.0000 1012	-0.32501 0.0001 1007	-0.33045 0.0001 815	0.33882 0.0001 849
K	0.27120 0.0001 932	0.02086 0.8123 132	-0.31439 0.0001 1007	-0.55518 0.0001 1007	0.09445 0.8938 902	-0.42767 0.0001 747	-0.56625 0.0001 960	0.31951 0.0001 1006	-0.12141 0.0002 970	-0.32501 0.0001 1007	1.00000 0.0000 1007	0.69096 0.0001 815	-0.42594 0.0001 844
RB	0.27101 0.0001 753	0.07809 0.4353 102	-0.32924 0.0001 815	-0.50908 0.0001 815	-0.02374 0.5248 720	-0.35995 0.0001 597	-0.56611 0.0001 770	0.32288 0.0001 815	-0.15926 0.0001 778	-0.33045 0.0001 815	0.69096 0.0001 815	1.00000 0.0000 815	-0.46447 0.0001 662
SM	-0.16150 0.0001 781	0.08804 0.3538 113	0.34695 0.0001 849	0.61556 0.0001 849	-0.01834 0.6082 784	0.39370 0.0001 676	0.75269 0.0001 833	-0.25004 0.0001 848	0.33771 0.0001 831	0.33882 0.0001 849	-0.42594 0.0001 844	-0.46447 0.0001 662	1.00000 0.0000 849
SC	0.19015 0.0001 761	0.03705 0.7116 102	0.27945 0.0001 814	0.03268 0.3518 814	-0.15715 0.0001 728	0.04068 0.3046 639	-0.00580 0.8711 785	0.35315 0.0001 813	0.15443 0.0001 791	0.10483 0.0027 814	0.11389 0.0012 810	0.14374 0.0002 657	0.01339 0.7218 710
SE	-0.08306 0.4390 89	0.03900 0.8532 25	-0.05007 0.6137 104	0.00600 0.9518 104	0.03568 0.3991 99	-0.18909 0.0831 85	0.05761 0.5792 95	-0.14668 0.1393 103	-0.39704 0.0001 98	-0.04614 0.6418 104	-0.17381 0.0776 104	0.04234 0.7004 85	0.08818 0.3904 97
SI	0.31314 0.0001 936	0.09913 0.2531 132	-0.07256 0.0210 1012	-0.50208 0.0001 1012	-0.11618 0.0005 906	-0.14638 0.0001 751	-0.44712 0.0001 965	0.55525 0.0001 1011	-0.15680 0.0001 975	-0.18014 0.0001 1012	0.52236 0.0001 1007	0.55911 0.0001 815	-0.35043 0.0001 849
AG	0.02688 0.4962 643	0.15564 0.1626 82	0.35602 0.0001 696	0.44795 0.0001 696	-0.03114 0.0436 619	0.30904 0.0001 550	0.43741 0.0001 666	-0.08280 0.0291 695	0.24807 0.0001 669	0.33355 0.0001 696	-0.39905 0.0001 693	-0.28433 0.0001 567	0.36937 0.0001 606
NA	0.06623 0.0451 916	0.12697 0.1532 128	-0.17553 0.0001 988	-0.26953 0.0001 988	0.16264 0.0001 882	-0.17279 0.0001 733	-0.34376 0.0001 942	0.26671 0.0001 987	-0.08385 0.0097 951	-0.13917 0.0001 988	0.40867 0.0001 984	0.37195 0.0001 809	-0.23986 0.0001 828
SR	-0.16572 0.0001 936	-0.16401 0.0602 132	0.40860 0.0001 1012	0.64832 0.0001 1012	0.03615 0.2770 906	0.47372 0.0001 751	0.69431 0.0001 965	-0.29506 0.0001 1011	0.32012 0.0001 975	0.56567 0.0001 1012	-0.60562 0.0001 1007	-0.55168 0.0001 815	0.48943 0.0001 849
S	0.04664 0.1587 915	0.07162 0.4217 128	0.30755 0.0001 989	0.33972 0.0001 989	0.11207 0.0008 888	0.29235 0.0001 739	0.29321 0.0001 946	0.07675 0.0158 988	0.15430 0.0001 955	0.24528 0.0001 989	-0.08967 0.0049 985	-0.17104 0.0001 795	0.18427 0.0001 835
TA	0.05195 0.7535 39	0.14322 0.6570 12	0.07194 0.6507 42	0.36995 0.0159 42	0.0002 0.9999 41	0.35769 0.0322 36	0.41220 0.0074 41	0.14175 0.3705 42	0.61993 0.0001 42	0.28773 0.0646 42	-0.22081 0.1599 42	0.07102 0.6806 36	0.17349 0.2909 39

GEOCHEMICAL ANALYSIS OF THE CHILWA ALKALINE AREA, MALAWI

CORRELATION COEFFICIENTS / PROB > |R| UNDER H0:RHO=0 / NUMBER OF OBSERVATIONS

	LI	LU	MG	MN	HG	MO	ND	NI	NB	P	K	RB	SM
TE	0.02155 0.7580 207	0.17271 0.4421 22	-0.45412 0.0001 224	-0.19197 0.0039 224	0.39548 0.0001 205	-0.40699 0.0001 200	-0.35149 0.0001 215	-0.09931 0.1384 224	-0.18046 0.0074 219	-0.09624 0.1511 224	0.36904 0.0001 221	0.41499 0.0001 181	-0.29547 0.0001 207
TB	-0.14625 0.0004 575	0.20080 0.0654 85	-0.11941 0.0029 620	0.27856 0.0001 620	0.21394 0.0001 588	-0.03382 0.4397 524	0.31930 0.0001 614	-0.28954 0.0001 619	0.09127 0.0234 617	0.04920 0.2212 620	-0.08526 0.0345 615	-0.16600 0.0003 482	0.23318 0.0001 584
TL	-0.06633 0.8143 15	-0.17888 0.5967 11	-0.24593 0.3414 17	-0.23665 0.3605 17	0.05903 0.8219 17	-0.42981 0.1427 13	0.08005 0.7682 16	-0.11792 0.6522 17	-0.17739 0.4958 17	-0.01131 0.9656 17	-0.16978 0.5148 17	-0.40365 0.2474 10	0.12897 0.6218 17
TH	-0.02655 0.4237 910	0.12036 0.1709 131	0.07060 0.0268 984	0.30934 0.0001 984	0.20365 0.0001 880	0.09655 0.0090 731	0.24838 0.0001 938	-0.13930 0.0001 983	0.26553 0.0001 947	0.11456 0.0003 984	-0.03073 0.3366 980	-0.08817 0.0129 795	0.19869 0.0001 823
SN	-0.00649 0.8623 717	0.25494 0.0094 103	0.18664 0.0001 776	0.19383 0.0001 776	-0.12126 0.0014 692	0.20604 0.0001 617	0.17817 0.0001 747	0.04051 0.2600 775	0.27829 0.0001 756	0.30122 0.0001 776	-0.10028 0.0053 772	-0.04983 0.2084 639	0.13616 0.0004 675
TI	0.30386 0.0001 935	0.00419 0.9621 131	0.03541 0.2607 1011	-0.23190 0.0001 1011	-0.08648 0.0077 905	-0.15585 0.0001 750	-0.35959 0.0001 964	0.38152 0.0001 1010	0.16370 0.0001 974	0.02647 0.4005 1011	0.51838 0.0001 1006	0.45087 0.0001 815	-0.28077 0.0001 848
W	0.00897 0.8490 453	0.05824 0.6295 71	0.43806 0.0001 498	0.36506 0.0001 498	-0.35980 0.0001 456	0.44602 0.0001 470	0.55834 0.0001 493	0.15916 0.0004 497	0.24142 0.0001 498	0.36146 0.0001 498	-0.42680 0.0001 494	-0.32506 0.0001 395	0.42298 0.0001 477
U	-0.08541 0.0144 820	0.24200 0.0116 108	0.06881 0.0402 889	0.47334 0.0001 889	0.27732 0.0001 810	0.22091 0.0001 710	0.43548 0.0001 870	-0.25021 0.0001 888	0.26695 0.0001 872	0.24406 0.0001 889	-0.27680 0.0001 884	-0.24877 0.0001 717	0.30182 0.0001 785
V	0.17406 0.0001 890	0.07209 0.4187 128	0.12627 0.0001 962	0.10948 0.0007 962	0.12247 0.0003 864	-0.03888 0.2952 727	0.01316 0.6898 922	0.14461 0.0001 961	0.30204 0.0001 932	0.26081 0.0001 962	0.13824 0.0001 957	0.01906 0.5949 781	-0.04129 0.2396 813
YB	-0.11439 0.0015 765	0.20121 0.0263 122	-0.08387 0.0152 837	0.30351 0.0001 837	0.18324 0.0001 781	0.02682 0.5050 620	0.29179 0.0001 811	-0.25626 0.0001 836	0.28899 0.0001 819	0.07720 0.0255 837	-0.16510 0.0001 834	-0.16589 0.0001 662	0.26493 0.0001 734
Y	-0.09896 0.0024 936	0.14318 0.1015 132	0.13879 0.0001 1012	0.54684 0.0001 1012	0.25378 0.0001 906	0.08189 0.0248 751	0.51135 0.0001 965	-0.32756 0.0001 1011	0.35610 0.0001 975	0.30195 0.0001 1012	-0.23021 0.0001 1007	-0.33788 0.0001 815	0.37807 0.0001 849
ZN	-0.08759 0.0073 936	0.10396 0.2355 132	0.56106 0.0001 1012	0.67956 0.0001 1012	0.06841 0.0395 906	0.69409 0.0001 751	0.71612 0.0001 965	-0.07634 0.0152 1011	0.42989 0.0001 975	0.47055 0.0001 1012	-0.46942 0.0001 1007	-0.47204 0.0001 815	0.50691 0.0001 849
ZR	0.18705 0.0026 257	0.55243 0.0003 39	-0.16766 0.0051 277	-0.07898 0.1900 277	-0.06442 0.2998 261	-0.19337 0.0037 224	-0.26601 0.0001 270	0.27839 0.0001 276	0.04513 0.4594 271	-0.15933 0.0079 277	0.18714 0.0018 276	0.39383 0.0001 252	-0.39136 0.0001 243

GEOCHEMICAL ANALYSIS OF THE CHILWA ALKALINE AREA, MALAWI
CORRELATION COEFFICIENTS / PROB > IRI UNDER HQ:RH0=0 / NUMBER OF OBSERVATIONS

	SC	SE	SI	AG	NA	SR	S	TA	TE	TB	TL	TH	SN
AL	0.14847 0.0001 813	-0.16424 0.0974 103	0.85346 0.0001 1009	0.23380 0.0001 695	0.24368 0.0001 985	-0.52715 0.0001 1009	-0.07358 0.0209 986	0.04767 0.7643 42	0.17925 0.0072 224	-0.21755 0.0001 618	-0.30654 0.2314 17	-0.08815 0.0057 981	0.04958 0.1680 775
SB	0.05922 0.1008 769	-0.17620 0.1253 77	0.03850 0.2373 944	0.01072 0.7843 655	-0.09865 0.0026 928	-0.07848 0.0159 944	-0.16264 0.0001 923	0.01232 0.9383 42	-0.20983 0.0026 204	0.00600 0.8869 564	0.00000 1.0000 10	-0.13248 0.0001 916	0.05922 0.1121 721
AS	-0.07553 0.0510 668	-0.05162 0.6137 98	0.02660 0.4433 833	-0.03447 0.4127 567	-0.02168 0.5373 812	-0.02219 0.5225 833	0.12440 0.0004 815	0.20263 0.2224 58	0.47575 0.0001 191	0.14801 0.0007 518	-0.36167 0.1687 16	0.27996 0.0001 815	-0.03241 0.4171 629
BA	0.03370 0.3370 814	-0.32713 0.0007 104	0.25800 0.0001 1012	0.37028 0.0001 696	-0.13936 0.0001 988	0.52860 0.0001 1012	0.39879 0.0001 989	0.21645 0.1686 42	-0.42365 0.0001 224	0.21252 0.0001 620	-0.43087 0.0842 17	0.31021 0.0001 984	0.06808 0.0580 776
BE	0.14008 0.0110 329	0.01988 0.8844 56	0.06022 0.2331 411	-0.12100 0.0358 289	0.10734 0.0310 404	-0.11558 0.0191 411	0.03859 0.4404 402	0.32217 0.0149 38	0.26714 0.0064 103	0.20849 0.0012 239	-0.27255 0.4780 9	0.23229 0.0001 408	0.17315 0.0019 319
BI	0.21022 0.0290 108	-0.35270 0.1386 19	0.12485 0.1451 139	0.11306 0.2859 91	0.16197 0.0635 132	0.16357 0.0543 139	0.39843 0.0001 133	0.91081 0.0315 5	-0.24736 0.2332 25	0.21835 0.0345 94	0.00000 0.0000 1	0.39451 0.0001 135	0.05968 0.5395 108
B	-0.16168 0.8383 4	0.00000 0.5196 2	0.48043 0.5196 4	1.00000 0.5196 2	0.58589 0.4141 4	-0.70953 0.2905 4	0.04596 0.9540 4	0	0	-0.95799 0.0420 4	0.00000 0.0000 1	-0.15564 0.8444 4	-1.00000 0.0000 2
BR	0	0	0	0	0	0	0	0	0	0	0	0	0
CD	-0.15030 0.0001 780	-0.14862 0.1341 103	0.45035 0.0001 972	0.21348 0.0001 679	-0.11112 0.0006 948	0.41261 0.0001 972	0.20053 0.0001 952	0.05019 0.7523 42	0.10734 0.1157 216	0.20873 0.0001 613	0.21103 0.4162 17	0.22194 0.0001 944	-0.02306 0.5291 747
CA	-0.07495 0.0327 812	0.14766 0.1386 102	-0.76001 0.0001 1008	0.27689 0.0001 693	-0.22473 0.0001 984	0.58945 0.0001 1008	0.17198 0.0001 985	-0.03103 0.8453 42	-0.35908 0.0001 220	0.32259 0.0001 618	0.19679 0.4490 17	0.14270 0.0001 980	0.02463 0.4945 772
C	-0.04894 0.1633 813	0.05986 0.3132 104	-0.72050 0.0001 1010	0.28362 0.0001 695	-0.29499 0.0001 986	0.61626 0.0001 1010	0.20019 0.0001 987	-0.10434 0.5162 41	-0.42301 0.0001 224	0.19889 0.0001 620	0.18610 0.4745 17	0.15597 0.0001 982	0.05419 0.1317 775
CE	0.01865 0.5953 814	0.10234 0.3012 104	-0.45607 0.0001 1010	0.48085 0.0001 696	-0.31841 0.0001 986	0.69881 0.0001 1010	0.33262 0.0001 987	0.42169 0.0054 42	-0.35637 0.0001 224	0.29883 0.0001 620	0.00139 0.9958 17	0.30835 0.0001 983	0.20363 0.0001 776
CS	-0.02527 0.4930 738	0.12106 0.2425 95	-0.27142 0.0001 912	0.13376 0.0007 636	-0.10657 0.0015 888	0.27318 0.0001 912	0.21192 0.0001 892	0.18169 0.2683 39	-0.25204 0.0003 205	0.06445 0.1207 581	-0.01282 0.9611 17	0.18981 0.0001 888	0.03500 0.3517 710

GEOCHEMICAL ANALYSIS OF THE CHILWA ALKALINE AREA, MALAWI

CORRELATION COEFFICIENTS / PROB > IRI UNDER HO:RHO=0 / NUMBER OF OBSERVATIONS

	SC	SE	SI	AG	NA	SR	S	TA	TE	TB	TL	TH	SN
CR	0.09807	-0.24349	0.66595	-0.12933	0.21619	-0.49149	-0.09310	0.10248	0.17217	-0.23572	0.00000	-0.25690	-0.04017
	0.0052	0.0129	0.0001	0.0006	0.0001	0.0001	0.0035	0.5184	0.0098	0.0001	1.0000	0.0001	0.2647
	812	102	1005	695	982	1005	982	42	224	616	14	978	773
CD	0.37043	-0.09007	0.22733	0.12952	-0.02806	0.04306	0.17109	0.25313	-0.12602	-0.12395	-0.67852	-0.00097	0.20624
	0.0001	0.3680	0.0001	0.0007	0.3811	0.1747	0.0001	0.1058	0.0597	0.0022	0.0036	0.9759	0.0001
	808	102	995	689	976	995	974	42	224	610	16	967	774
CU	0.35117	0.19181	0.29225	-0.18639	0.11928	-0.32537	-0.04821	0.04741	0.06084	-0.11736	-0.05570	-0.09948	-0.02295
	0.0001	0.0511	0.0001	0.0001	0.0002	0.0001	0.1297	0.7656	0.3648	0.0034	0.8318	0.0018	0.5232
	814	104	1012	696	988	1012	989	42	224	620	17	984	776
DY	-0.04461	0.15724	-0.26331	-0.07050	-0.01728	0.17315	-0.03919	0.11186	-0.06482	0.55009	-0.25298	0.45389	-0.13807
	0.3418	0.1482	0.0001	0.1625	0.6858	0.0001	0.3529	0.5562	0.4818	0.0001	0.3445	0.0001	0.0033
	456	86	374	394	551	574	564	30	120	436	16	562	450
EU	0.02844	0.04124	-0.44648	0.25803	-0.20035	0.48926	0.26316	0.32973	-0.26355	0.34488	0.13578	0.34624	0.12526
	0.4423	0.6947	0.0001	0.0001	0.0001	0.0001	0.0001	0.0404	0.0001	0.0001	0.6161	0.0001	0.0009
	732	93	883	623	862	883	870	39	204	584	16	856	698
F	0.14911	-0.26598	-0.29770	0.23482	-0.11550	0.50275	0.40148	0.09088	-0.05439	0.24946	-0.11582	0.31766	0.19487
	0.0001	0.0064	0.0001	0.0001	0.0003	0.0001	0.0001	0.5670	0.4179	0.0001	0.6580	0.0001	0.0001
	814	104	1012	696	988	1012	989	42	224	620	17	984	776
GA	0.19170	-0.30653	0.57380	-0.23800	0.20636	-0.40264	-0.05486	0.41547	0.21445	-0.21402	-0.47298	-0.05981	0.07668
	0.0001	0.0016	0.0001	0.0001	0.0001	0.0001	0.0849	0.0062	0.0012	0.0001	0.0552	0.0610	0.0327
	813	103	1010	696	986	1010	987	42	224	618	17	982	776
GE	0.20261	0.13328	0.45903	-0.06171	0.06507	-0.22899	-0.07106	0.25818	-0.03481	-0.17492	0.00000	-0.21492	0.11405
	0.0001	0.2297	0.0001	0.1257	0.0584	0.0001	0.0394	0.1176	0.6229	0.0001	1.0000	0.0001	0.0027
	708	83	861	617	847	861	841	38	202	516	10	844	689
AU	0.14103	0.13008	-0.03510	0.25350	-0.02390	0.03770	0.15199	0.44941	0.10182	0.10258	0.00000	-0.02479	0.00700
	0.1015	0.5640	0.6409	0.0032	0.7563	0.6163	0.0434	0.1926	0.5857	0.2796	0.7440	0.7440	0.9393
	136	22	179	133	171	179	177	10	31	113	2	176	121
HF	0	0	0	0	0	0	0	0	0	0	0	0	0
FE	0.25062	-0.18577	-0.04750	0.30265	-0.09515	0.31676	0.36300	0.47087	-0.16611	0.11759	-0.54473	0.32576	0.22237
	0.0001	0.0590	0.1310	0.0001	0.0028	0.0001	0.0001	0.0017	0.0128	0.0034	0.0238	0.0001	0.0001
	814	104	1012	696	988	1012	989	42	224	620	17	984	776
LA	-0.09196	0.00076	-0.41630	0.48766	-0.29004	0.72129	0.32934	0.37446	-0.12408	0.33541	0.01821	0.25263	0.18226
	0.0089	0.9939	0.0001	0.0001	0.0001	0.0001	0.0001	0.0146	0.0656	0.0001	0.9447	0.0001	0.0001
	809	104	1002	696	978	1002	979	42	221	619	17	975	769
PB	-0.16934	-0.19502	-0.27850	-0.03541	0.07834	0.12289	0.20580	0.06086	-0.01115	0.40134	-0.50130	0.46075	-0.07542
	0.0001	0.0484	0.0001	0.3519	0.0141	0.0001	0.0001	0.7018	0.8682	0.0001	0.0479	0.0001	0.0367
	811	103	1004	693	982	1004	982	42	224	613	16	977	768

GEOCHEMICAL ANALYSIS OF THE CHILWA ALKALINE AREA, MALAWI

CORRELATION COEFFICIENTS / PROB > IRI UNDER HO:RHO=0 / NUMBER OF OBSERVATIONS

	SC	SE	SI	AG	NA	SR	S	TA	TE	TB	TL	TH	SN
LI	0.19015	-0.08306	0.31314	0.02688	0.06623	-0.16572	0.04664	0.05195	0.02155	-0.14625	-0.06633	-0.02855	-0.00649
	0.0001	0.4390	0.0001	0.4962	0.0451	0.0001	0.1587	0.7535	0.7580	0.0004	0.8143	0.4237	0.8623
	761	89	936	643	916	936	915	39	207	575	15	910	717
LU	0.03705	0.03900	0.09913	0.15544	0.12697	-0.16401	0.07162	0.14322	0.17271	0.20080	-0.17888	0.12036	0.25494
	0.7116	0.8532	0.2581	0.1626	0.1532	0.0402	0.4217	0.6570	0.4421	0.0654	0.5987	0.1709	0.0094
	102	25	132	82	128	132	128	12	22	85	11	131	103
MG	0.27945	-0.05007	-0.07256	0.35602	-0.17553	0.40860	0.30755	0.07194	-0.45412	-0.11941	-0.24593	0.07060	0.18664
	0.0001	0.6137	0.0210	0.0001	0.0001	0.0001	0.0001	0.6507	0.0001	0.0029	0.3414	0.0288	0.0001
	814	104	1012	696	988	1012	988	42	224	620	17	984	776
MN	0.03268	0.00600	-0.50208	0.44795	-0.26953	0.64832	0.33972	0.36995	-0.19197	0.27856	-0.23665	0.30934	0.19383
	0.3518	0.9518	0.0001	0.0001	0.0001	0.0001	0.0001	0.0159	0.0039	0.0001	0.3605	0.0001	0.0001
	814	104	1012	696	988	1012	989	42	224	620	17	984	776
HG	-0.15715	0.08568	-0.11618	-0.08114	0.16264	0.03615	0.11207	0.00002	0.39648	0.21394	0.05903	0.20365	-0.12126
	0.0001	0.3991	0.0005	0.0436	0.0001	0.2270	0.0008	0.9999	0.0001	0.0001	0.8219	0.0001	0.0014
	728	99	906	619	882	906	888	41	205	588	17	880	692
MO	0.04068	-0.18909	-0.14638	0.30904	-0.17279	0.47372	0.29235	0.35769	-0.40699	-0.03382	-0.42981	0.09655	0.20604
	0.3046	0.0831	0.0001	0.0001	0.0001	0.0001	0.0001	0.0322	0.0001	0.4397	0.1427	0.0090	0.0001
	639	85	751	550	733	751	739	36	200	524	13	731	617
ND	-0.00580	0.05761	-0.44712	0.43741	-0.34576	0.69431	0.29521	0.41220	-0.35149	0.31930	0.08005	0.24838	0.17817
	0.8711	0.5792	0.0001	0.0001	0.0001	0.0001	0.0001	0.0074	0.0001	0.0001	0.7682	0.0001	0.0001
	785	95	965	666	942	965	946	41	215	614	16	938	747
NI	0.35315	-0.14668	0.55525	-0.08280	0.26671	-0.29506	0.07675	0.14175	-0.09931	-0.28954	-0.11792	-0.13930	0.04051
	0.0001	0.1393	0.0001	0.0291	0.0001	0.0001	0.0158	0.3705	0.1384	0.0001	0.6522	0.0001	0.2600
	813	103	1011	695	987	1011	988	42	224	619	17	983	775
NB	0.15445	-0.39704	-0.15680	0.24807	-0.08385	0.32012	0.15430	0.61993	-0.18046	0.09127	-0.17739	0.26553	0.27829
	0.0001	0.0001	0.0001	0.0001	0.0097	0.0001	0.0001	0.0001	0.0074	0.0234	0.4958	0.0001	0.0001
	791	96	975	669	951	975	955	42	219	617	17	947	756
P	0.10483	-0.04614	-0.18014	0.33355	-0.13917	0.56567	0.24528	0.28773	-0.09624	0.04920	-0.01131	0.11456	0.30122
	0.0027	0.6418	0.0001	0.0001	0.0001	0.0001	0.0001	0.0646	0.1511	0.2212	0.9656	0.0003	0.0001
	814	104	1012	696	988	1012	989	42	224	620	17	984	776
K	0.11389	-0.17381	0.52236	-0.39905	0.40867	-0.60562	-0.08967	-0.22081	0.36904	-0.08526	-0.16978	-0.03073	-0.10028
	0.0012	0.0776	0.0001	0.0001	0.0001	0.0001	0.0049	0.1599	0.0001	0.0345	0.5148	0.3366	0.0053
	810	104	1007	693	984	1007	985	42	221	615	17	980	772
RB	0.14374	0.04234	0.55911	-0.28433	0.37195	-0.55168	-0.17104	0.07102	0.41499	-0.16600	-0.40365	-0.08817	-0.04983
	0.0002	0.7004	0.0001	0.0001	0.0001	0.0001	0.0001	0.6806	0.0001	0.0003	0.2474	0.0129	0.2084
	657	85	815	567	809	815	795	36	181	482	10	795	639
SM	0.01339	0.08818	-0.35043	0.36937	-0.23986	0.48943	0.18427	0.17349	-0.29547	0.23318	0.12697	0.19869	0.13616
	0.7218	0.3904	0.0001	0.0001	0.0001	0.0001	0.0001	0.2909	0.0001	0.0001	0.6218	0.0001	0.0004
	710	97	849	606	828	849	855	39	207	584	17	823	675

GEOCHEMICAL ANALYSIS OF THE CHILWA ALKALINE AREA, MALAWI

CORRELATION COEFFICIENTS / PROB > IRI UNDER HO:RHO=0 / NUMBER OF OBSERVATIONS

	SC	SE	SI	AG	NA	SR	S	TA	TE	TB	TL	TH	SN
SC	1.00000	-0.20091	0.14931	0.01212	0.09200	-0.13581	0.05522	0.24666	-0.05987	-0.11833	0.00000	0.07216	0.11386
	0.0000	0.0758	0.0001	0.7708	0.0092	0.0001	0.1184	0.1532	0.3903	0.0071	1.0000	0.6420	0.0037
	814	79	814	580	800	814	801	35	208	516	10	795	649
SE	-0.20091	1.00000	-0.18768	0.17362	-0.26832	-0.10025	0.09604	-0.57735	0.29807	-0.01847	0.06241	-0.29566	-0.02597
	0.0758	0.0000	0.0564	0.1418	0.0067	0.3113	0.9515	0.4226	0.1671	0.8684	0.8942	0.0023	0.8158
	79	104	104	73	101	104	104	4	23	83	7	104	83
SI	0.14931	-0.18768	1.00000	-0.12635	0.19097	-0.50799	-0.02808	0.13028	0.16565	-0.34435	-0.45226	-0.19557	0.05546
	0.0001	0.0564	0.0000	0.0008	0.0001	0.0001	0.3777	0.4109	0.0130	0.0001	0.0683	0.0001	0.1227
	814	104	1012	696	988	1012	989	42	224	620	17	984	776
AG	0.01212	0.17362	-0.12635	1.00000	-0.32394	0.41394	0.14804	0.20696	-0.39069	-0.07675	0.00000	-0.10407	0.11563
	0.7708	0.1418	0.0008	0.0000	0.0001	0.0001	0.0001	0.2478	0.0001	0.1079	1.0000	0.0066	0.0059
	580	73	696	696	686	696	682	33	183	440	9	679	565
NA	0.09200	-0.26832	0.19097	-0.32394	1.00000	-0.27733	-0.00868	0.01649	0.36553	0.04066	-0.35886	0.14901	-0.09258
	0.0092	0.0067	0.0001	0.0001	0.0000	0.0001	0.7874	0.9174	0.0001	0.3201	0.1890	0.0001	0.0107
	800	101	988	686	988	988	967	42	219	600	15	961	760
SR	-0.13581	-0.10025	-0.50799	0.41394	-0.27733	1.00000	0.24334	0.05225	-0.15359	0.23891	0.27924	0.06134	0.21686
	0.0001	0.3113	0.0001	0.0001	0.0001	0.0000	0.0001	0.7424	0.0215	0.0001	0.2777	0.0544	0.0001
	814	104	1012	696	988	1012	989	42	224	620	17	984	776
S	0.05522	0.00604	-0.02808	0.14804	-0.00868	0.24334	1.00000	-0.06821	-0.02371	0.01168	-0.21282	0.23157	-0.00393
	0.1184	0.9515	0.3777	0.0001	0.7874	0.0001	0.0001	0.6678	0.7253	0.7728	0.4287	0.0001	0.9136
	801	104	989	682	967	989	989	42	222	613	16	963	765
TA	0.24666	-0.57735	0.13028	0.20696	0.01649	0.05225	-0.06821	1.00000	-0.49105	-0.02692	0.00000	0.07281	0.51168
	0.1532	0.4226	0.4109	0.2478	0.9174	0.7424	0.6678	0.0000	0.1050	0.8877	0.0000	0.6510	0.0020
	35	4	42	33	42	42	42	42	12	30	0	41	54
TE	-0.05987	0.29807	0.16565	-0.39069	0.36553	-0.15359	-0.02371	-0.49105	1.00000	0.25419	0.00000	0.30220	-0.04185
	0.3903	0.1671	0.0130	0.0001	0.0001	0.0215	0.7253	0.1050	0.0000	0.0015	0.0000	0.0001	0.5445
	208	23	224	183	219	224	222	12	224	154	1	220	212
TB	-0.11833	-0.01847	-0.34435	-0.07675	0.04066	0.23891	0.01168	-0.02692	0.25419	1.00000	-0.73833	0.39875	-0.10906
	0.0071	0.8684	0.0001	0.1079	0.3201	0.0001	0.7728	0.8877	0.0015	0.0000	0.0040	0.0001	0.0141
	516	83	620	440	600	620	613	30	154	620	13	603	506
TL	0.00000	0.06241	-0.45226	0.00000	-0.35886	0.27924	-0.21282	0.00000	-0.73833	1.00000	-0.59274	-0.39851	0.59851
	1.0000	0.8942	0.0683	1.0000	0.1890	0.2777	0.4287	0.0000	0.0040	0.0000	0.0000	0.0155	0.1581
	10	7	17	9	15	17	16	0	13	17	17	16	14
TH	0.07216	-0.29566	-0.19557	-0.10407	0.14901	0.06134	0.23157	0.07281	0.30220	0.39875	-0.59274	1.00000	-0.03091
	0.0420	0.0023	0.0001	0.0066	0.0001	0.0544	0.0001	0.6510	0.0001	0.0001	0.0155	0.0000	0.3967
	795	104	984	679	961	984	963	41	220	603	16	984	754
SN	0.11386	-0.02597	0.05546	0.11563	-0.09258	0.21686	-0.00393	0.51168	-0.04185	-0.10306	-0.39851	-0.03091	1.00000
	0.0037	0.8158	0.1227	0.0059	0.0107	0.0001	0.9136	0.0020	0.5445	0.0141	0.1581	0.3967	0.0000
	649	83	776	565	760	776	765	34	212	506	14	754	776

GEOCHEMICAL ANALYSIS OF THE CHILWA ALKALINE AREA, MALAWI

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	SC	SE	SI	AG	NA	SR	S	TA	TE	TB	TL	TH	SN
TI	0.37917 0.0001 814	-0.29749 0.0022 104	0.40681 0.0001 1011	-0.31069 0.0001 696	0.27371 0.0001 988	-0.36339 0.0001 1011	-0.00229 0.9426 988	0.17010 0.2815 42	0.17386 0.0091 224	-0.11623 0.0038 619	-0.32819 0.1984 17	0.11764 0.0002 983	0.13443 0.0002 775
W	0.01086 0.8186 449	-0.06714 0.5981 64	0.09588 0.0324 498	0.43169 0.0001 409	-0.34992 0.0001 490	0.55743 0.0001 498	-0.02232 0.6196 497	0.41577 0.0161 33	-0.38826 0.0001 174	-0.16471 0.0012 382	0.35145 0.35537 9	-0.34091 0.0001 489	0.23757 0.0001 433
U	-0.21234 0.0001 738	-0.14791 0.1548 94	0.27261 0.0001 889	0.21291 0.0001 624	-0.05697 0.0938 866	0.38692 0.0001 889	0.20309 0.0001 878	0.29350 0.0698 39	0.20365 0.0028 214	0.41555 0.0001 597	-0.58520 0.0172 16	0.39846 0.0001 866	0.05386 0.1499 716
V	0.38830 0.0001 788	-0.25034 0.0149 94	-0.02554 0.4288 962	-0.14096 0.0002 674	0.04795 0.1418 940	-0.09409 0.8992 962	0.14482 0.0001 941	0.01079 0.9459 42	0.11419 0.0941 216	0.01717 0.6770 591	-0.58015 0.0185 16	0.29065 0.0001 936	0.10113 0.0057 746
YB	0.04491 0.2432 677	0.00955 0.9260 97	-0.35946 0.0001 837	-0.15051 0.0003 574	0.03362 0.3384 813	0.14157 0.0001 837	0.02516 0.4720 819	0.12895 0.4278 40	0.23072 0.0015 186	0.36859 0.0001 544	0.02950 0.9105 17	0.42538 0.0001 817	0.00558 0.8892 626
Y	0.08333 0.0174 814	-0.04980 0.6156 104	-0.49246 0.0001 1012	-0.06289 0.0973 696	-0.05585 0.0793 988	0.36796 0.0001 1012	0.20440 0.0001 989	0.14285 0.3668 42	0.22976 0.0005 224	0.52529 0.0001 620	-0.02728 0.9172 17	0.53640 0.0001 984	0.05251 0.1439 778
ZN	-0.01061 0.7624 814	-0.22890 0.0194 104	-0.25691 0.0001 1012	0.38926 0.0001 696	-0.20576 0.0001 988	0.58227 0.0001 1012	0.37705 0.0001 989	0.38477 0.0119 42	-0.32496 0.0001 224	0.16061 0.0001 620	-0.51140 0.0359 17	0.27602 0.0001 984	0.23767 0.0001 776
ZR	0.35920 0.0001 239	-0.03508 0.8463 33	0.25392 0.0001 277	-0.12067 0.0929 195	0.18568 0.0019 277	-0.37262 0.0001 277	-0.26723 0.0001 270	0.70589 0.0007 19	-0.14514 0.2205 73	-0.04394 0.5581 180	0.00000 1.0000 5	-0.03301 0.5864 274	0.06661 0.3103 234
AL	0.49530 0.0001 1008	0.00007 0.9988 498	-0.25372 0.0001 887	0.03315 0.3047 961	-0.26163 0.0001 834	-0.38548 0.0001 1009	-0.27606 0.0001 1009	0.26191 0.0001 277	0.38548 0.0001 1009	-0.27606 0.0001 1009	0.26191 0.0001 277	0.26191 0.0001 277	0.26191 0.0001 277
SB	0.08329 0.0105 944	0.20072 0.0001 458	-0.15278 0.0001 823	-0.05361 0.1070 905	-0.02430 0.4998 773	-0.08518 0.0088 944	-0.07696 0.0180 944	0.17907 0.0041 255	0.17907 0.0041 255	0.17907 0.0041 255	0.17907 0.0041 255	0.17907 0.0041 255	0.17907 0.0041 255
AS	0.01920 0.5803 832	-0.14987 0.0028 396	0.26003 0.0001 750	0.25821 0.0001 796	0.16146 0.0001 731	0.21646 0.0001 833	0.10697 0.0020 833	-0.00739 0.9096 245	0.10697 0.0020 833	-0.00739 0.9096 245	-0.00739 0.9096 245	-0.00739 0.9096 245	-0.00739 0.9096 245
BA	-0.20191 0.0001 1011	0.39660 0.0001 498	0.34803 0.0001 889	0.05304 0.1001 962	0.14162 0.0001 837	0.39050 0.0001 1012	0.61790 0.0001 1012	-0.36140 0.0001 277	0.39050 0.0001 1012	-0.36140 0.0001 277	-0.36140 0.0001 277	-0.36140 0.0001 277	-0.36140 0.0001 277
BE	0.17981 0.0003 410	-0.05287 0.4482 208	0.12983 0.0161 343	0.17483 0.0005 393	0.20969 0.0001 376	0.19134 0.0001 411	0.11196 0.0232 411	0.23202 0.0060 159	0.11196 0.0232 411	0.23202 0.0060 159	0.23202 0.0060 159	0.23202 0.0060 159	0.23202 0.0060 159

GEOCHEMICAL ANALYSIS OF THE CHILWA ALKALINE AREA, MALAWI
CORRELATION COEFFICIENTS / PROB > IRI UNDER HO:RHO=0 / NUMBER OF OBSERVATIONS

	TI	W	U	V	YB	Y	ZN	ZR
BI	-0.04736	-0.08735	0.28237	0.11248	0.14636	0.27561	0.45863	0.02130
	0.5798	0.5106	0.0019	0.2062	0.0993	0.0010	0.0001	0.9127
	139	59	119	128	128	139	139	29
B	-0.29987	-1.00000	0.24714	-0.08296	-0.67654	-0.60122	-0.01907	-0.41158
	0.7001	2	0.7529	0.9170	0.3235	0.3988	0.9809	0.7300
	4	4	4	4	4	4	4	3
BR	0	0	0	0	0	0	0	0
CD	-0.27480	-0.00066	0.29514	0.09495	0.31165	0.42879	0.37920	-0.39869
	0.0001	0.9883	0.0001	0.0039	0.0001	0.0001	0.0001	0.0001
	971	497	858	923	818	972	972	267
CA	-0.34373	0.15048	0.32416	0.07796	0.29671	0.47926	0.40336	-0.19045
	0.0001	0.0008	0.0001	0.0158	0.0001	0.0001	0.0001	0.0015
	1007	495	885	958	833	1008	1008	275
C	-0.30943	0.21998	0.30142	0.09319	0.25799	0.46107	0.46078	-0.23147
	0.0001	0.0001	0.0001	0.0039	0.0001	0.0001	0.0001	0.0001
	1009	498	888	960	835	1010	1010	277
CE	-0.25448	0.51314	0.47478	0.14070	0.28730	0.52373	0.70443	-0.25376
	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
	1009	498	887	960	837	1010	1010	277
CS	-0.12816	0.09307	0.24164	0.02061	0.13792	0.24929	0.31969	-0.02336
	0.0001	0.0437	0.0001	0.5438	0.0001	0.0001	0.0001	0.7132
	911	470	814	870	762	912	912	250
CR	0.25929	-0.06943	-0.24926	-0.13056	-0.35220	-0.49790	-0.37245	0.15097
	0.0001	0.1233	0.0001	0.0001	0.0001	0.0001	0.0001	0.0119
	1004	494	884	956	830	1005	1005	277
CO	0.29739	0.28111	0.01817	0.24747	-0.04442	0.07973	0.21453	0.20288
	0.0001	0.0001	0.5905	0.0001	0.2038	0.0119	0.0001	0.0007
	994	495	879	949	820	995	995	277
CU	0.35641	-0.09699	-0.17630	0.19606	-0.05784	-0.10330	-0.23215	0.25488
	0.0001	0.0305	0.0001	0.0001	0.0945	0.0010	0.0001	0.0001
	1011	498	889	962	837	1012	1012	277
DY	-0.13483	-0.16364	0.28604	0.10772	0.41033	0.52109	0.16722	-0.08982
	0.0012	0.0036	0.0001	0.0121	0.0001	0.0001	0.0001	0.2572
	573	314	537	542	560	574	574	161
EU	-0.29203	0.21480	0.39872	0.05732	0.40488	0.58408	0.52240	-0.26674
	0.0001	0.0001	0.0001	0.0955	0.0001	0.0001	0.0001	0.0001
	882	473	797	847	751	883	883	249

GEOCHEMICAL ANALYSIS OF THE CHILWA ALKALINE AREA, MALAWI
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	TI	W	U	V	YB	Y	ZN	ZR
F	0.02140 0.4968 1011	0.15424 0.0006 498	0.34867 0.0001 889	0.32193 0.0001 962	0.25732 0.0001 837	0.50774 0.0001 1012	0.54603 0.0001 1012	-0.30143 0.0001 277
GA	0.50926 0.0001 1009	-0.00416 0.9264 497	-0.21147 0.0001 887	0.13227 0.0001 961	-0.23210 0.0001 835	-0.28997 0.0001 1010	-0.17971 0.0001 1010	0.37285 0.0001 277
GE	0.28916 0.0001 861	0.20276 0.0001 456	-0.20711 0.0001 755	-0.04513 0.1953 825	-0.17942 0.0001 689	-0.24882 0.0001 861	-0.11626 0.0006 861	0.39035 0.0001 259
AU	0.00374 0.9604 179	-0.03100 0.7882 79	0.17914 0.0248 157	0.02948 0.7019 171	0.03310 0.8787 159	-0.01278 0.8652 179	0.07345 0.3285 179	0.45124 0.0019 45
HF	0	0	0	0	0	0	0	0
FE	0.12549 0.0001 1011	0.29272 0.0001 498	0.27939 0.0001 889	0.31080 0.0001 962	0.14846 0.0001 837	0.36883 0.0001 1012	0.55720 0.0001 1012	0.03586 0.5523 277
LA	-0.33921 0.0001 1001	0.58529 0.0001 498	0.49423 0.0001 879	0.05110 0.1151 952	0.27581 0.0001 836	0.48870 0.0001 1002	0.70089 0.0001 1002	-0.36781 0.0001 275
PB	-0.15636 0.0001 1004	-0.27627 0.0001 496	0.36049 0.0001 882	0.00262 0.9356 957	0.28061 0.0001 831	0.40409 0.0001 1004	0.28876 0.0001 1004	-0.18163 0.0001 275
LI	0.30386 0.0001 935	0.00897 0.8490 453	-0.08541 0.0144 820	0.17406 0.0001 890	-0.11439 0.0015 765	-0.09896 0.0024 936	-0.08759 0.0073 936	0.18705 0.0026 257
LU	0.00419 0.9621 131	0.05824 0.6295 71	0.24200 0.0116 108	0.07209 0.4187 128	0.20121 0.0263 122	0.14318 0.1015 132	0.10396 0.2355 132	0.55243 0.0003 39
MG	0.03541 0.2607 1011	0.43806 0.0001 498	0.06881 0.0402 889	0.12627 0.0001 962	-0.08387 0.0152 837	0.13879 0.0001 1012	0.56106 0.0001 1012	-0.16766 0.0001 277
MN	-0.23190 0.0001 1011	0.36506 0.0001 498	0.47334 0.0001 889	0.10948 0.0007 962	0.30551 0.0001 837	0.54884 0.0001 1012	0.67956 0.0001 1012	-0.07898 0.0001 277
HG	-0.08848 0.0077 905	-0.35980 0.0001 456	0.27732 0.0001 810	0.12247 0.0003 864	0.18324 0.0001 781	0.25378 0.0001 906	0.06841 0.0395 906	-0.06442 0.2998 261

GEOCHEMICAL ANALYSIS OF THE CHILWA ALKALINE AREA, MALAWI
CORRELATION COEFFICIENTS / PROB > IRI UNDER HQ:RHD=0 / NUMBER OF OBSERVATIONS

	TI	W	U	V	YB	Y	ZN	ZR
MD	-0.15585 0.0001 750	0.44602 0.0001 470	0.22091 0.0001 710	-0.03888 0.2952 727	0.02882 0.5050 820	0.08189 0.0248 751	0.69409 0.0001 751	-0.19337 0.0037 224
ND	-0.35959 0.0001 964	0.55834 0.0001 493	0.43548 0.0001 870	0.01316 0.6898 922	0.29179 0.0001 811	0.51135 0.0001 965	0.71612 0.0001 965	-0.26601 0.0001 270
NI	0.38152 0.0001 1010	0.15916 0.0004 497	-0.25021 0.0001 888	0.14461 0.0001 961	-0.25626 0.0001 836	-0.32756 0.0001 1011	-0.07634 0.0152 1011	0.27839 0.0001 276
NB	0.16370 0.0001 974	0.24142 0.0001 498	0.20695 0.0001 872	0.30204 0.0001 932	0.22899 0.0001 819	0.35410 0.0001 975	0.42989 0.0001 975	0.04513 0.4594 271
P	0.02647 0.4005 1011	0.36146 0.0001 498	0.24406 0.0001 889	0.26081 0.0001 962	0.07720 0.0255 837	0.30195 0.0001 1012	0.67055 0.0001 1012	-0.15933 0.0079 277
K	0.51838 0.0001 1006	-0.42680 0.0001 494	-0.27680 0.0001 884	0.13824 0.0001 957	-0.16510 0.0001 834	-0.23021 0.0001 1007	-0.46942 0.0001 1007	0.18714 0.0018 276
RB	0.45087 0.0001 815	-0.32506 0.0001 395	-0.24877 0.0001 717	0.01906 0.5949 781	-0.16589 0.0001 662	-0.33788 0.0001 815	-0.47204 0.0001 815	0.39383 0.0001 252
SM	-0.28077 0.0001 848	0.42298 0.0001 477	0.30182 0.0001 785	-0.04129 0.2396 813	0.26493 0.0001 734	0.37807 0.0001 849	0.50691 0.0001 849	-0.39136 0.0001 243
SC	0.37917 0.0001 814	0.01086 0.8186 449	-0.21234 0.0001 738	0.38830 0.0001 788	0.04491 0.2432 677	0.08333 0.0174 814	-0.01061 0.7624 814	0.33920 0.0001 239
SE	-0.29749 0.0022 104	-0.06714 0.5981 64	-0.14791 0.1548 94	-0.25034 0.0149 94	0.00955 0.9260 97	-0.04980 0.6156 104	-0.22890 0.0194 104	-0.03508 0.8463 33
SI	0.40681 0.0001 1011	0.09588 0.0324 498	-0.27261 0.0001 889	-0.02554 0.4288 962	-0.35946 0.0001 837	-0.49246 0.0001 1012	-0.25691 0.0001 1012	0.25392 0.0001 277
AG	-0.31069 0.0001 696	0.43169 0.0001 409	0.21291 0.0001 624	-0.14096 0.0002 674	-0.15051 0.0003 574	-0.06289 0.0973 696	0.38926 0.0001 696	-0.12067 0.0929 195
NA	0.27371 0.0001 988	-0.34992 0.0001 490	-0.05697 0.0938 866	0.04795 0.1418 940	0.03362 0.3384 813	-0.05585 0.0793 988	-0.20576 0.0001 988	0.18568 0.0019 277

GEOCHEMICAL ANALYSIS OF THE CHILWA ALKALINE AREA, MALAWI
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	TI	W	U	V	YB	Y	ZN	ZR
SR	-0.56339 0.0001 1011	0.55743 0.0001 498	0.38692 0.0001 889	-0.00409 0.8992 962	0.14157 0.0001 837	0.56796 0.0001 1012	0.58227 0.0001 1012	-0.37262 0.0001 277
S	-0.00229 0.94226 988	-0.02232 0.6196 497	0.20309 0.0001 878	0.14482 0.0001 941	0.02516 0.4720 819	0.20440 0.0001 989	0.37705 0.0001 989	-0.26723 0.0001 270
TA	0.17010 0.2815 42	0.41577 0.0161 33	0.29350 0.0698 39	0.01079 0.9459 42	0.12895 0.4278 40	0.14285 0.3668 42	0.38477 0.0119 42	0.70589 0.0007 19
TE	0.17386 0.0091 224	-0.38826 0.0001 174	0.20365 0.0028 214	0.11419 0.0941 216	0.23072 0.0015 186	0.22976 0.0005 224	-0.32496 0.0001 224	-0.14514 0.2205 73
TB	-0.11623 0.0038 619	-0.16471 0.0012 382	0.41555 0.0001 597	0.01717 0.6770 591	0.36859 0.0001 544	0.52529 0.0001 620	0.16061 0.0001 620	-0.04394 0.5581 180
TL	-0.32819 0.1984 17	0.35145 0.3537 9	-0.58520 0.0172 16	0.58015 0.0185 16	0.02950 0.9105 17	-0.02728 0.9172 17	-0.51140 0.0359 17	0.00000 1.0000 5
TH	0.11764 0.0002 983	-0.34091 0.0001 489	0.39946 0.0001 866	0.29065 0.0001 936	0.42538 0.0001 817	0.53640 0.0001 984	0.27602 0.0001 984	-0.03301 0.5864 274
SN	0.13443 0.0002 775	0.23757 0.0001 433	0.05386 0.1459 716	0.10113 0.0057 746	0.00558 0.8892 626	0.05251 0.1439 776	0.23767 0.0001 776	0.06661 0.3103 234
TI	1.00000 0.0000 1011	-0.23732 0.0001 498	-0.22322 0.0001 888	0.49314 0.0001 961	-0.07829 0.0236 836	-0.03231 0.3048 1011	-0.18447 0.0001 1011	0.40737 0.0001 277
W	-0.23732 0.0001 498	1.00000 0.0000 498	0.02327 0.6081 488	-0.33044 0.0001 487	-0.22224 0.0001 420	-0.31572 0.0001 498	0.52530 0.0001 498	-0.04554 0.5787 151
U	-0.22342 0.0001 888	0.02327 0.6081 488	1.00000 0.0000 888	0.06349 0.0632 857	0.29031 0.0001 736	0.48135 0.0001 889	0.41841 0.0001 889	-0.03281 0.5964 263
V	0.49314 0.0001 961	-0.33044 0.0001 487	0.06349 0.0632 857	1.00000 0.0000 962	0.15954 0.0001 799	0.37008 0.0001 962	0.07888 0.0144 962	0.13676 0.0238 273
YB	-0.07829 0.0236 836	-0.22324 0.0001 420	0.29031 0.0001 736	0.15954 0.0001 799	1.00000 0.0000 837	0.77517 0.0001 837	0.11779 0.0006 837	0.16765 0.0079 250

GEOCHEMICAL ANALYSIS OF THE CHILWA ALKALINE AREA, MALAWI
CORRELATION COEFFICIENTS / PROB > IRI UNDER HO:RHO=0 / NUMBER OF OBSERVATIONS

	TI	W	U	V	YB	Y	ZN	ZR
Y	-0.03231 0.3048 1011	-0.31572 0.0001 498	0.48135 0.0001 889	0.37008 0.0001 962	0.77517 0.0001 837	1.00000 0.0000 1012	0.35095 0.0001 1012	0.09953 0.0983 277
ZN	-0.18447 0.0001 1011	0.52530 0.0001 498	0.41841 0.0001 889	0.07888 0.0144 962	0.11779 0.0006 837	0.35095 0.0001 1012	1.00000 0.0000 1012	-0.17716 0.0031 277
ZR	0.40737 0.0001 277	-0.04554 0.5767 151	-0.03281 0.5964 263	0.13676 0.0238 273	0.16765 0.0079 250	0.09953 0.0983 277	-0.17716 0.0031 277	1.00000 0.0000 277

Appendix 3 Statistical Values of Geochemical Analysis of Each Sector

VARIABLE	N	MEAN	MAXIMUM VALUE	MINIMUM VALUE	LOGARITHMIC STANDARD DEVIATION
----- SECTOR=TUNDU -----					
AL	132	0.61	15.59	0.01	0.90
SB	119	1.30	11.90	0.10	0.37
AS	114	1.68	101.30	0.20	0.53
BA	133	1565.68	40784.00	35.00	0.52
BE	79	2.13	13.60	0.20	0.45
BI	27	0.58	3.40	0.20	0.38
B	0	0.0	.	.	.
BR	0	0.0	.	.	.
CD	132	6.85	71.70	1.00	0.27
CA	133	15.13	38.30	0.06	0.58
C	133	5.62	11.95	0.04	0.45
CE	133	1234.22	20103.00	47.00	0.46
CS	119	5.50	55.00	1.00	0.35
CR	128	21.65	449.50	0.60	0.54
CO	130	3.47	37.90	0.10	0.35
CU	133	13.12	86.00	1.00	0.27
DY	107	16.41	306.00	1.00	0.60
EU	124	12.55	112.60	0.60	0.42
F	133	1450.89	14838.00	202.00	0.39
GA	133	1.99	33.90	0.20	0.46
GE	80	0.56	6.01	0.02	0.43
AU	23	2.30	16.00	1.00	0.37
HF	0	0.0	.	.	.
FE	133	3.70	46.27	0.31	0.39
LA	133	784.61	17815.00	29.00	0.43
PB	128	50.21	291.00	6.00	0.29
LI	127	5.18	57.00	1.00	0.37
LU	40	1.86	5.00	1.00	0.20
MG	133	0.43	8.05	0.06	0.61
MN	133	4064.48	33828.00	282.00	0.40
HG	130	116.35	1354.00	0.33	0.46
MO	86	17.06	199.00	1.00	0.51
NO	133	385.99	5166.00	10.00	0.40
NI	133	4.63	73.50	0.50	0.44
NB	133	114.43	4490.00	1.00	0.60
P	133	2217.26	45601.00	8.00	0.66
K	132	0.57	7.29	0.01	0.66
RB	102	24.06	570.00	2.00	0.54
SM	127	44.16	436.60	0.90	0.51
SC	96	2.76	27.00	1.00	0.33
SE	11	1.69	5.00	1.00	0.29
SI	133	1.95	29.33	0.02	0.81
AG	72	0.12	1.33	0.02	0.43
NA	127	0.11	4.08	0.01	0.74
SR	133	4055.01	27643.00	211.00	0.55
S	128	131.96	6517.00	11.00	0.45
TA	4	1.86	3.00	1.00	0.20
TE	32	0.24	0.96	0.06	0.30
TB	86	7.66	58.00	1.00	0.38
TL	8	0.24	0.40	0.20	0.14
TH	119	18.89	386.20	0.20	0.71
SN	106	0.90	5.80	0.10	0.37
TI	132	823.90	21029.00	27.00	0.52
W	47	6.35	21.00	2.00	0.30
U	113	7.80	70.40	0.10	0.53
V	125	65.70	420.00	6.00	0.35
YB	130	4.05	50.00	0.10	0.43
Y	133	80.92	1279.00	5.00	0.31
ZN	133	324.74	3107.00	20.00	0.45
ZR	29	10.87	136.00	2.00	0.54

VARIABLE	N	MEAN	MAXIMUM VALUE	MINIMUM VALUE	LOGARITHMIC STANDARD DEVIATION
----- SECTOR=NKALO -----					
AL	47	0.21	10.73	0.01	0.84
SB	27	0.47	3.30	0.10	0.47
AS	44	3.93	47.80	0.10	0.62
BA	48	1437.45	3295.00	388.00	0.21
BE	14	0.70	55.10	0.10	0.78
BI	2	0.59	0.70	0.50	0.10
B	3	56.04	320.00	10.00	0.75
BR	0	0.0	.	.	.
CD	48	5.28	35.30	1.20	0.26
CA	48	15.05	36.63	0.12	0.70
C	48	4.52	12.31	0.04	0.70
CE	48	2161.68	14221.00	28.00	0.58
CS	48	8.05	30.00	2.00	0.18
CR	48	24.67	443.80	2.00	0.58
CO	41	3.88	27.20	0.50	0.47
CU	48	12.61	70.00	5.00	0.24
DY	48	19.39	45.00	3.00	0.22
EU	45	7.41	19.30	0.20	0.52
F	48	1299.40	18707.00	5.01	0.73
GA	46	0.93	8.70	0.10	0.48
GE	34	0.50	6.00	0.01	0.79
AU	5	3.59	12.00	1.00	0.41
HF	0	0.0	.	.	.
FE	48	2.61	14.03	0.44	0.38
LA	48	854.21	5840.00	5.00	0.57
PB	48	56.04	197.00	14.00	0.21
LI	42	5.76	55.00	1.00	0.31
LU	13	2.21	13.00	1.00	0.32
MG	48	0.14	0.64	0.02	0.26
MN	48	9399.45	26148.00	960.00	0.38
HG	48	297.12	1713.00	82.00	0.39
MO	40	7.82	196.00	1.00	0.50
ND	46	285.21	1430.00	19.00	0.49
NI	48	2.92	18.20	0.70	0.36
NB	48	28.07	480.00	2.00	0.57
P	48	3214.27	76014.00	50.00	0.50
K	48	0.16	10.58	0.01	0.94
RB	21	50.63	759.00	5.00	0.83
SM	47	39.09	311.30	0.40	0.63
SC	29	1.82	13.00	1.00	0.27
SE	23	1.60	18.00	1.00	0.38
SI	48	3.06	25.66	0.14	0.62
AG	30	0.26	0.85	0.11	0.23
NA	46	0.05	3.57	0.01	0.55
SR	48	3912.49	25177.00	282.00	0.53
S	48	199.86	1214.00	28.00	0.46
TA	0	0.0	.	.	.
TE	0	0.0	.	.	.
TB	47	8.16	21.00	2.00	0.24
TL	7	0.20	0.20	0.20	0.00
TH	48	26.35	137.20	2.10	0.31
SN	29	0.68	3.10	0.20	0.33
TI	48	237.32	13897.00	19.00	0.85
W	25	4.39	14.00	2.00	0.26
U	48	22.40	564.40	2.90	0.51
V	39	36.14	303.00	2.00	0.54
YB	48	4.28	27.30	0.30	0.47
Y	48	76.42	195.00	8.00	0.34
ZN	48	186.25	5037.00	68.00	0.27
ZR	21	36.88	1540.00	6.00	0.77

VARIABLE	N	MEAN	MAXIMUM VALUE	MINIMUM VALUE	LOGARITHMIC STANDARD DEVIATION
----- SECTOR=MATOP -----					
AL	13	0.66	3.48	0.12	0.43
SB	13	1.00	3.10	0.06	0.57
AS	12	1.46	4.60	0.40	0.35
BA	13	4098.09	7852.00	2103.00	0.16
BE	13	3.39	11.60	0.80	0.37
BI	2	0.24	0.30	0.20	0.12
B	0	0.0	.	.	.
BR	0	0.0	.	.	.
CD	13	8.90	23.90	2.50	0.27
CA	13	29.67	34.67	18.54	0.08
C	13	8.44	10.40	5.11	0.09
CE	13	1987.61	3788.00	985.00	0.21
CS	13	6.31	14.00	2.00	0.26
CR	13	18.93	49.50	5.60	0.32
CO	13	2.92	7.40	0.90	0.31
CU	13	7.53	21.00	3.00	0.28
DY	11	16.04	72.00	2.00	0.53
EU	13	26.79	65.30	15.00	0.18
F	13	1910.69	7056.00	527.00	0.32
GA	13	1.43	2.80	0.50	0.20
GE	11	0.40	1.64	0.17	0.36
AU	1	1.00	1.00	1.00	.
HF	0	0.0	.	.	.
FE	13	5.51	10.98	2.92	0.17
LA	13	769.38	1006.00	593.00	0.07
PB	13	63.33	92.00	29.00	0.17
LI	11	2.53	4.00	1.00	0.23
LU	2	1.00	1.00	1.00	0.00
MG	13	0.26	0.59	0.11	0.24
MN	13	8322.83	14653.00	5766.00	0.14
HG	13	326.00	1031.00	181.00	0.26
MO	13	13.94	35.00	2.00	0.34
NO	13	586.68	2205.00	170.00	0.31
NI	13	6.77	10.30	5.30	0.09
NB	13	322.82	641.00	164.00	0.20
P	13	5516.28	16262.00	130.00	0.78
K	13	0.56	1.60	0.15	0.28
RB	13	20.59	65.00	4.00	0.37
SM	13	90.02	169.00	49.10	0.15
SC	11	1.07	2.00	1.00	0.09
SE	5	1.00	1.00	1.00	0.00
SI	13	2.08	9.48	0.37	0.39
AG	11	0.11	0.41	0.02	0.39
NA	13	0.11	1.97	0.03	0.53
SR	13	3512.73	7820.00	1988.00	0.16
S	13	188.22	318.00	97.00	0.15
TA	4	2.06	3.00	1.00	0.23
TE	0	0.0	.	.	.
TØ	11	7.99	18.00	2.00	0.27
TL	0	0.0	.	.	.
TH	13	48.37	217.90	18.90	0.34
SN	13	1.31	3.50	0.60	0.25
TI	13	1006.25	2590.00	225.00	0.37
W	12	6.91	17.00	2.00	0.32
U	13	16.66	37.80	2.20	0.36
V	13	80.15	171.00	49.00	0.17
YB	13	10.33	21.10	2.60	0.33
Y	13	154.84	367.00	45.00	0.27
ZN	13	521.04	1038.00	324.00	0.14
ZR	9	20.08	85.00	5.00	0.38

VARIABLE	N	MEAN	MAXIMUM VALUE	MINIMUM VALUE	LOGARITHMIC STANDARD DEVIATION
----- SECTOR=SONGW -----					
AL	89	0.47	13.60	0.05	0.54
SB	89	1.67	10.10	0.50	0.20
AS	83	2.02	44.30	0.20	0.49
BA	89	4778.30	16076.00	885.00	0.21
BE	53	3.74	47.10	0.20	0.51
BI	21	0.69	9.60	0.20	0.45
B	0	0.0	.	.	.
BR	0	0.0	.	.	.
CD	89	7.93	108.10	1.60	0.27
CA	89	22.74	37.79	0.28	0.38
C	89	6.88	11.07	0.23	0.34
CE	89	4151.06	12543.00	282.00	0.29
CS	88	6.78	16.00	2.00	0.22
CR	87	10.58	103.50	1.90	0.36
CO	87	2.19	12.70	0.10	0.37
CU	89	10.47	45.00	2.00	0.28
DY	89	58.79	227.00	2.00	0.38
EU	89	54.13	804.00	6.30	0.28
F	89	1880.48	19440.00	176.00	0.36
GA	89	1.66	16.90	0.30	0.35
GE	63	0.40	1.85	0.04	0.37
AU	31	2.69	46.00	1.00	0.41
HF	0	0.0	.	.	.
FE	89	6.93	50.11	1.44	0.28
LA	89	2186.00	6907.00	74.00	0.29
PB	89	135.84	1081.00	15.00	0.29
LI	86	3.47	23.00	1.00	0.27
LU	16	1.98	5.00	1.00	0.25
MG	89	0.25	4.20	0.08	0.29
MN	89	15215.01	79156.00	4210.00	0.24
HG	89	125.79	2629.00	10.00	0.35
MO	67	21.04	1230.00	1.00	0.62
NO	89	1588.01	3953.00	353.00	0.26
NI	89	1.77	15.10	0.20	0.36
NB	89	264.03	1307.00	21.00	0.41
P	89	2388.90	27176.00	104.00	0.51
K	89	0.31	8.04	0.02	0.55
RB	56	19.36	616.00	2.00	0.56
SM	89	218.75	4021.00	64.30	0.25
SC	86	3.41	13.00	1.00	0.28
SE	6	1.00	1.00	1.00	0.00
SI	89	0.73	19.73	0.07	0.55
AG	53	0.13	0.81	0.02	0.37
NA	81	0.15	7.04	0.01	1.01
SR	89	5551.08	21207.00	516.00	0.37
S	89	101.87	1147.00	20.00	0.33
TA	11	4.30	22.00	1.00	0.44
TE	6	0.30	0.67	0.11	0.27
TB	83	20.10	56.00	2.00	0.29
TL	0	0.0	.	.	.
TH	88	219.13	813.20	61.20	0.25
SN	49	1.02	9.90	0.10	0.30
TI	89	513.05	9694.00	46.00	0.42
W	42	6.99	30.00	2.00	0.33
U	89	25.55	271.00	1.10	0.43
V	87	61.08	544.00	10.00	0.29
YB	89	23.00	71.90	1.40	0.35
Y	89	337.23	1112.00	43.00	0.28
ZN	89	470.71	5908.00	89.00	0.37
ZR	11	10.25	164.00	2.00	0.61

VARIABLE	N	MEAN	MAXIMUM VALUE	MINIMUM VALUE	LOGARITHMIC STANDARD DEVIATION
----- SECTOR=MIKOM -----					
AL	10	8.52	12.16	6.21	0.13
SB	6	0.42	0.90	0.10	0.34
AS	10	4.53	7.80	1.40	0.28
BA	10	1135.82	1880.00	722.00	0.16
BE	3	1.00	1.60	0.70	0.18
BI	0	0.0	.	.	.
B	0	0.0	.	.	.
BR	0	0.0	.	.	.
CD	10	2.14	3.90	0.70	0.25
CA	10	0.15	1.26	0.06	0.41
C	10	0.05	0.40	0.02	0.41
CE	10	67.39	177.00	21.00	0.31
CS	7	1.35	2.00	1.00	0.16
CR	10	123.13	151.10	94.90	0.06
CO	10	3.05	24.20	1.10	0.49
CU	10	16.16	54.00	10.00	0.24
DY	7	21.45	28.00	17.00	0.07
EU	6	0.96	1.90	0.60	0.18
F	10	244.02	623.00	122.00	0.23
GA	10	4.50	8.10	2.80	0.16
GE	7	0.76	1.44	0.18	0.32
AU	2	4.00	8.00	2.00	0.43
HF	0	0.0	.	.	.
FE	10	2.46	6.68	1.32	0.23
LA	10	107.82	193.00	56.00	0.20
PB	10	24.60	50.00	11.00	0.19
LI	5	1.89	6.00	1.00	0.32
LU	0	0.0	.	.	.
MG	10	0.03	0.06	0.01	0.29
MN	10	170.37	1014.00	5.00	0.71
HG	10	255.22	767.00	105.00	0.27
MO	9	5.56	15.00	2.00	0.33
ND	10	58.35	106.00	25.00	0.22
NI	10	12.42	87.80	4.30	0.41
NB	10	33.23	161.00	7.00	0.47
P	10	2908.53	5113.00	1027.00	0.21
K	10	3.26	6.14	1.67	0.17
RB	10	274.74	307.00	250.00	0.03
SM	7	5.05	9.40	1.90	0.28
SC	9	2.60	5.00	1.00	0.22
SE	3	1.00	1.00	1.00	0.00
SI	10	28.45	32.48	24.84	0.05
AG	10	0.09	0.20	0.04	0.23
NA	10	3.10	4.04	2.22	0.08
SR	10	3261.13	5613.00	1855.00	0.14
S	10	55.91	92.00	42.00	0.11
TA	0	0.0	.	.	.
TE	8	0.74	1.04	0.58	0.10
TB	6	8.99	13.00	6.00	0.13
TL	0	0.0	.	.	.
TH	10	19.52	59.70	3.50	0.33
SN	10	0.86	1.70	0.30	0.26
TI	10	1016.23	2459.00	307.00	0.32
W	8	4.17	8.00	2.00	0.21
U	10	9.55	44.90	2.40	0.33
V	9	27.40	54.00	10.00	0.26
YB	10	1.92	4.30	0.90	0.19
Y	10	31.70	56.00	18.00	0.19
ZN	10	110.03	173.00	74.00	0.10
ZR	8	19.78	43.00	7.00	0.29

VARIABLE	N	MEAN	MAXIMUM VALUE	MINIMUM VALUE	LOGARITHMIC STANDARD DEVIATION
----- SECTOR=CHIPA -----					
AL	13	9.98	12.32	8.82	0.05
SB	10	0.84	2.10	0.20	0.37
AS	13	23.41	59.30	6.10	0.34
BA	13	999.86	1790.00	398.00	0.17
BE	6	2.52	21.30	0.30	0.74
BI	0	0.0	.	.	.
B	0	0.0	.	.	.
BR	0	0.0	.	.	.
CD	13	3.26	6.40	1.60	0.17
CA	11	0.27	1.01	0.02	0.49
C	13	0.09	0.32	0.01	0.40
CE	13	284.48	1131.00	42.00	0.45
CS	12	3.54	8.00	1.00	0.26
CR	13	91.29	190.40	26.40	0.26
CO	13	4.51	20.60	1.30	0.40
CU	13	16.54	33.00	8.00	0.19
DY	11	12.14	43.00	1.00	0.49
EU	10	3.23	8.40	0.20	0.50
F	13	733.40	5657.00	154.00	0.49
GA	13	7.93	17.90	2.20	0.25
GE	10	1.14	4.62	0.31	0.41
AU	1	2.00	2.00	2.00	.
HF	0	0.0	.	.	.
FE	13	4.98	11.18	2.91	0.19
LA	13	296.36	621.00	73.00	0.29
PB	13	44.85	98.00	15.00	0.24
LI	11	6.75	71.00	1.00	0.57
LU	0	0.0	.	.	.
MG	13	0.14	0.27	0.03	0.25
MN	13	2918.61	10137.00	787.00	0.35
HG	13	191.20	486.00	105.00	0.15
MO	12	7.59	15.00	3.00	0.19
ND	11	98.97	362.00	6.00	0.48
NI	13	10.85	23.50	3.80	0.23
NB	13	102.44	224.00	53.00	0.17
P	13	5307.72	6933.00	3027.00	0.10
K	13	6.23	9.24	4.54	0.10
RB	13	519.31	768.00	280.00	0.14
SM	13	9.49	47.40	0.80	0.57
SC	11	3.84	13.00	2.00	0.30
SE	1	1.00	1.00	1.00	.
SI	13	23.73	25.90	21.78	0.02
AG	12	0.10	0.20	0.04	0.26
NA	13	2.31	3.26	1.22	0.12
SR	13	1894.57	5770.00	177.00	0.50
S	13	87.60	273.00	20.00	0.27
TA	0	0.0	.	.	.
TE	13	1.55	2.26	0.43	0.19
TB	9	5.72	13.00	2.00	0.26
TL	1	0.20	0.20	0.20	.
TH	13	41.14	162.20	6.70	0.41
SN	13	2.23	4.50	1.00	0.21
TI	13	868.39	2401.00	201.00	0.34
W	11	4.45	15.00	2.00	0.35
U	13	32.95	57.50	13.40	0.21
V	13	55.69	129.00	12.00	0.35
YB	13	6.83	35.10	0.90	0.53
Y	13	83.96	240.00	18.00	0.41
ZN	13	206.38	401.00	78.00	0.20
ZR	5	32.43	59.00	12.00	0.27

VARIABLE	N	MEAN	MAXIMUM VALUE	MINIMUM VALUE	LOGARITHMIC STANDARD DEVIATION
----- SECTOR=SALAM -----					
AL	21	6.00	11.89	0.16	0.49
SB	13	0.76	2.80	0.10	0.50
AS	20	5.40	144.60	0.20	0.93
BA	21	1209.44	2675.00	457.00	0.17
BE	6	15.49	231.40	1.20	0.82
BI	0	0.0	.	.	.
B	1	13.00	13.00	13.00	.
BR	0	0.0	.	.	.
CD	21	2.47	17.70	0.30	0.35
CA	19	0.54	34.55	0.02	0.76
C	21	0.19	11.10	0.02	0.59
CE	21	186.88	2138.00	11.00	0.71
CS	19	3.15	8.00	1.00	0.22
CR	21	168.61	2293.10	26.30	0.51
CO	21	3.33	17.60	0.80	0.42
CU	21	20.21	113.00	9.00	0.26
DY	20	9.15	23.00	1.00	0.38
EU	21	3.43	10.10	0.60	0.30
F	21	326.30	2311.00	9.00	0.56
GA	21	3.30	18.50	0.20	0.40
GE	20	1.33	3.44	0.51	0.20
AU	2	2.00	4.00	1.00	0.43
HF	0	0.0	.	.	.
FE	21	2.01	6.85	0.43	0.44
LA	21	267.21	648.00	19.00	0.45
PB	18	45.33	319.00	5.00	0.45
LI	17	4.25	11.00	1.00	0.25
LU	0	0.0	.	.	.
MG	21	0.09	0.20	0.02	0.28
MN	21	630.91	9379.00	5.00	1.00
HG	21	469.43	1816.00	91.00	0.41
MO	21	6.05	32.00	1.00	0.48
ND	18	62.76	398.00	5.00	0.64
NI	21	11.48	56.10	1.80	0.28
NB	21	40.15	310.00	3.00	0.54
P	21	3877.68	8102.00	532.00	0.25
K	21	3.29	10.42	0.10	0.57
RB	19	82.70	722.00	2.00	0.79
SM	18	9.69	45.40	0.30	0.51
SC	17	3.87	10.00	1.00	0.29
SE	7	1.22	2.00	1.00	0.15
SI	21	23.38	44.96	1.15	0.31
AG	17	0.12	0.26	0.02	0.30
NA	21	1.18	6.06	0.02	0.58
SR	21	2849.61	8599.00	487.00	0.28
S	21	104.80	922.00	10.00	0.36
TA	0	0.0	.	.	.
TE	9	1.97	2.84	1.41	0.10
TB	18	10.07	28.00	2.00	0.30
TL	0	0.0	.	.	.
TH	20	14.23	607.10	0.20	0.86
SN	20	1.10	3.20	0.40	0.26
TI	21	775.70	2487.00	202.00	0.31
W	13	5.27	17.00	2.00	0.36
U	20	5.06	62.60	0.50	0.67
V	16	44.35	126.00	13.00	0.31
YB	16	3.52	27.80	0.30	0.57
Y	21	38.28	253.00	2.00	0.61
ZN	21	79.78	353.00	8.00	0.48
ZR	16	22.09	81.00	7.00	0.26

VARIABLE	N	MEAN	MAXIMUM VALUE	MINIMUM VALUE	LOGARITHMIC STANDARD DEVIATION
----- SECTOR=NAMAN -----					
AL	36	9.60	12.19	5.80	0.07
SB	36	1.26	2.70	0.30	0.27
AS	35	2.82	18.20	0.60	0.36
BA	36	1851.76	6566.00	149.00	0.38
BE	25	3.27	20.90	0.70	0.44
BI	11	0.61	1.60	0.20	0.31
B	0	0.0	.	.	.
BR	0	0.0	.	.	.
CD	35	6.29	20.60	1.20	0.30
CA	36	0.66	5.23	0.02	0.64
C	36	1.08	3.95	0.05	0.39
CE	36	412.26	2713.00	85.00	0.35
CS	26	4.11	13.00	1.00	0.33
CR	36	56.31	656.00	2.00	0.63
CO	36	3.98	9.40	1.10	0.21
CU	36	14.07	29.00	5.00	0.17
DY	24	5.47	47.00	1.00	0.59
EU	27	5.40	44.20	0.20	0.51
F	36	1366.91	3936.00	476.00	0.23
GA	36	5.03	11.20	1.00	0.24
GE	31	1.07	1.92	0.17	0.20
AU	5	1.64	3.00	1.00	0.21
HF	0	0.0	.	.	.
FE	36	4.06	135.00	1.13	0.34
LA	36	382.40	1922.00	67.00	0.34
PB	36	82.09	259.00	15.00	0.33
LI	36	17.83	119.00	1.00	0.58
LU	6	1.26	2.00	1.00	0.16
MG	36	0.80	5.32	0.09	0.52
MN	36	1129.22	5262.00	69.00	0.50
HG	36	101.84	271.00	40.00	0.18
MO	25	9.01	33.00	1.00	0.41
ND	36	134.93	911.00	18.00	0.59
NI	36	8.43	18.50	1.90	0.22
NB	36	127.05	519.00	20.00	0.36
P	36	1237.04	5835.00	68.00	0.41
K	36	1.90	5.50	0.39	0.22
RB	31	38.81	396.00	3.00	0.58
SM	28	18.17	289.80	0.60	0.65
SC	36	3.80	17.00	1.00	0.38
SE	5	1.00	1.00	1.00	0.00
SI	36	25.34	37.79	16.87	0.07
AG	24	0.09	0.36	0.02	0.32
NA	36	0.22	6.77	0.01	0.88
SR	36	943.81	10174.00	61.00	0.55
S	34	174.54	1230.00	25.00	0.36
TA	2	2.00	2.00	2.00	0.00
TE	16	0.50	0.96	0.06	0.30
TB	20	4.51	27.00	1.00	0.33
TL	0	0.0	.	.	.
TH	36	38.49	195.80	5.40	0.40
SN	28	0.91	4.70	0.30	0.24
TI	36	1905.13	8973.00	636.00	0.24
W	23	7.63	19.00	2.00	0.31
U	30	8.19	31.00	1.10	0.35
V	35	61.74	188.00	10.00	0.25
YB	36	3.55	18.60	0.20	0.49
Y	36	60.65	331.00	8.00	0.36
ZN	36	352.56	1528.00	46.00	0.36
ZR	10	8.41	57.00	1.00	0.67

VARIABLE	N	MEAN	MAXIMUM VALUE	MINIMUM VALUE	LOGARITHMIC STANDARD DEVIATION
----- SECTOR=NAMIN -----					
AL	22	4.10	10.46	0.40	0.45
SB	22	1.58	2.20	0.90	0.11
AS	19	0.76	2.80	0.20	0.29
BA	22	455.33	902.00	220.00	0.16
BE	3	0.51	1.50	0.10	0.62
BI	8	0.41	2.20	0.20	0.34
B	0	0.0	.	.	.
BR	0	0.0	.	.	.
CD	17	5.65	26.50	0.70	0.44
CA	22	0.44	34.41	0.02	0.75
C	22	0.13	9.88	0.01	0.74
CE	22	127.09	522.00	20.00	0.41
CS	12	1.66	3.00	1.00	0.21
CR	22	233.80	1066.20	57.70	0.29
CD	22	2.85	11.90	0.30	0.38
CU	22	15.97	32.00	9.00	0.15
DY	4	2.41	17.00	1.00	0.58
EU	10	1.94	7.20	0.30	0.44
F	22	466.75	2350.00	75.00	0.40
GA	22	2.19	6.00	0.60	0.29
GE	22	1.20	3.79	0.82	0.14
AU	11	1.66	8.00	1.00	0.30
HF	0	0.0	.	.	.
FE	22	1.32	4.41	0.50	0.22
LA	22	109.59	946.00	15.00	0.52
PB	22	43.47	159.00	10.00	0.32
LI	22	4.28	11.00	2.00	0.17
LU	0	0.0	.	.	.
MG	22	0.14	0.31	0.04	0.22
MN	22	139.45	6770.00	8.00	0.72
HG	22	93.04	293.00	10.00	0.34
MO	4	5.00	19.00	1.00	0.57
ND	22	16.04	185.00	5.00	0.37
NI	22	8.78	24.80	1.20	0.32
NB	17	18.16	315.00	1.00	0.79
P	22	668.78	8915.00	185.00	0.36
K	22	2.09	3.21	0.98	0.14
RB	22	110.08	392.00	4.00	0.52
SM	12	25.04	185.90	0.20	1.04
SC	11	2.86	13.00	1.00	0.39
SE	2	1.00	1.00	1.00	0.00
SI	22	30.61	43.08	2.34	0.25
AG	4	0.07	0.10	0.03	0.23
NA	22	1.67	3.03	0.93	0.15
SR	22	208.76	17554.00	105.00	0.46
S	21	58.29	103.00	26.00	0.20
TA	0	0.0	.	.	.
TE	0	0.0	.	.	.
TB	7	2.90	12.00	1.00	0.40
TL	0	0.0	.	.	.
TH	22	11.26	36.20	0.80	0.42
SN	11	0.80	1.80	0.09	0.36
TI	22	736.26	2037.00	269.00	0.23
W	0	0.0	.	.	.
U	15	2.91	4.80	1.70	0.18
V	17	21.13	105.00	5.00	0.42
YB	11	3.11	10.40	0.40	0.43
Y	22	5.57	115.00	1.00	0.44
ZN	22	84.64	416.00	17.00	0.41
ZR	8	3.72	22.00	1.00	0.60

VARIABLE	N	MEAN	MAXIMUM VALUE	MINIMUM VALUE	LOGARITHMIC STANDARD DEVIATION
----- SECTOR=CHILW -----					
AL	195	0.29	13.91	0.01	0.67
SB	178	1.06	8.40	0.10	0.43
AS	192	2.81	32.00	0.10	0.45
BA	196	3754.13	35772.00	67.00	0.42
BE	75	1.94	14.30	0.20	0.43
BI	45	1.18	66.50	0.20	0.53
B	0	0.0	.	.	.
BR	0	0.0	.	.	.
CD	196	6.40	144.40	0.50	0.35
CA	196	19.64	49.19	0.05	0.46
C	196	6.21	15.46	0.02	0.47
CE	196	1087.76	17446.00	20.00	0.48
CS	188	5.96	30.00	1.00	0.28
CR	196	21.65	235.60	1.80	0.42
CO	196	3.12	24.60	0.40	0.37
CU	196	10.13	45.00	2.00	0.24
DY	159	17.96	115.00	1.00	0.43
EU	182	14.22	135.20	0.30	0.44
F	196	1639.41	74826.00	59.00	0.41
GA	196	1.98	18.90	0.40	0.30
GE	154	0.42	2.67	0.01	0.43
AU	54	2.42	49.00	1.00	0.39
HF	0	0.0	.	.	.
FE	196	4.72	47.57	0.64	0.36
LA	196	614.96	9952.00	35.00	0.51
PB	196	97.32	1818.00	8.00	0.37
LI	157	2.48	107.00	1.00	0.37
LU	24	1.87	8.00	1.00	0.28
MG	196	0.46	10.57	0.01	0.71
MN	196	6467.36	88134.00	91.00	0.47
HG	189	123.11	1586.00	10.00	0.43
MO	169	16.09	636.00	1.00	0.61
ND	194	354.35	6212.00	5.00	0.54
NI	195	4.41	133.10	0.20	0.46
NB	196	120.40	61437.00	1.00	0.55
P	196	3230.84	30279.00	25.00	0.55
K	195	0.18	7.26	0.01	0.60
RB	134	17.12	678.20	3.00	0.57
SM	182	37.63	681.30	0.30	0.59
SC	143	3.00	18.00	1.00	0.34
SE	28	1.00	1.00	1.00	0.00
SI	196	1.67	30.53	0.11	0.57
AG	145	0.16	2.39	0.02	0.37
NA	189	0.21	8.24	0.01	0.85
SR	196	3626.28	14872.00	258.00	0.29
S	195	182.38	6547.00	12.00	0.45
TA	11	2.96	65.00	1.00	0.58
TE	38	0.28	1.99	0.06	0.35
TB	138	8.32	33.00	1.00	0.32
TL	1	0.20	0.20	0.20	.
TH	195	56.56	1265.90	1.30	0.52
SN	146	0.93	4.90	0.10	0.29
TI	196	400.68	8725.00	43.00	0.46
W	120	4.96	34.00	2.00	0.25
U	180	16.42	201.60	0.20	0.44
V	187	55.71	666.00	9.00	0.31
YB	188	6.63	44.20	0.20	0.48
Y	196	119.53	795.00	6.00	0.37
ZN	196	473.14	8678.00	16.00	0.44
ZR	18	8.65	224.00	2.00	0.69

VARIABLE	N	MEAN	MAXIMUM VALUE	MINIMUM VALUE	LOGARITHMIC STANDARD DEVIATION
----- SECTOR=KADON -----					
AL	9	7.52	11.17	1.96	0.23
SB	9	1.56	2.60	0.80	0.19
AS	7	0.19	0.90	0.10	0.40
BA	9	736.21	2215.00	397.00	0.24
BE	4	7.58	17.10	3.60	0.30
BI	0	0.0	.	.	.
B	0	0.0	.	.	.
BR	0	0.0	.	.	.
CD	9	0.39	2.60	0.10	0.47
CA	9	0.68	1.18	0.29	0.21
C	9	0.83	1.97	0.10	0.42
CE	9	249.54	1792.00	21.00	0.69
CS	9	6.30	13.00	3.00	0.23
CR	9	53.71	107.80	22.70	0.21
CO	9	7.81	24.90	2.50	0.26
CU	9	13.36	39.00	5.00	0.26
DY	9	12.99	28.00	3.00	0.32
EU	4	2.07	11.30	0.90	0.50
F	9	306.68	2635.00	130.00	0.49
GA	9	14.50	24.00	4.30	0.29
GE	9	2.27	2.87	1.94	0.05
AU	1	4.00	4.00	4.00	.
HF	0	0.0	.	.	.
FE	9	8.17	2753.00	2.60	0.96
LA	9	24.02	281.00	5.00	0.47
PB	9	90.68	150.00	40.00	0.16
LI	9	15.80	243.00	7.00	0.47
LU	1	2.00	2.00	2.00	.
MG	9	0.13	1.77	0.03	0.62
MN	9	3524.59	10097.00	517.00	0.41
HG	8	151.38	651.00	22.00	0.45
MO	4	7.92	82.00	2.00	0.77
ND	9	92.81	371.00	52.00	0.31
NI	9	12.20	48.00	6.50	0.25
NB	8	76.20	1716.00	1.00	1.44
P	9	1063.71	9115.00	420.00	0.39
K	9	3.51	5.22	1.53	0.15
RB	9	546.21	1972.20	182.40	0.30
SM	7	8.42	37.90	0.60	0.65
SC	3	5.13	15.00	1.00	0.62
SE	0	0.0	.	.	.
SI	9	22.84	27.72	15.07	0.08
AG	7	0.05	0.10	0.01	0.34
NA	9	3.83	6.65	2.58	0.12
SR	9	248.47	4125.00	33.00	0.61
S	7	25.63	38.00	13.00	0.17
TA	1	24.00	24.00	24.00	.
TE	0	0.0	.	.	.
TB	1	8.00	8.00	8.00	.
TL	0	0.0	.	.	.
TH	9	52.43	1847.20	9.60	0.74
SN	9	2.25	7.30	1.10	0.25
TI	9	3155.78	10739.00	1215.00	0.27
W	0	0.0	.	.	.
U	9	21.04	82.80	5.90	0.37
V	9	27.80	158.00	4.00	0.46
YB	6	4.90	32.90	0.40	0.82
Y	9	155.90	193.00	68.00	0.15
ZN	9	185.05	835.00	116.00	0.25
ZR	7	1163.47	6884.00	8.00	0.99

VARIABLE	N	MEAN	MAXIMUM VALUE	MINIMUM VALUE	LOGARITHMIC STANDARD DEVIATION
----- SECTOR=MONGO -----					
AL	31	10.22	12.87	5.91	0.06
SB	31	1.45	2.70	0.50	0.15
AS	17	0.24	0.80	0.10	0.30
BA	31	790.62	3120.00	4.50	0.52
BE	13	1.59	6.60	0.20	0.43
BI	0	0.0	.	.	.
B	0	0.0	.	.	.
BR	0	0.0	.	.	.
CD	31	1.87	3.80	0.40	0.31
CA	31	1.04	6.22	0.16	0.47
C	31	0.27	3.64	0.03	0.65
CE	31	132.88	1885.00	11.00	0.39
CS	25	2.64	9.00	1.00	0.29
CR	31	87.53	274.20	9.00	0.34
CO	30	2.10	4.10	0.70	0.19
CU	31	12.52	26.00	4.00	0.19
DY	6	4.51	10.00	2.00	0.25
EU	12	1.10	21.60	0.30	0.53
F	31	1007.10	1727.00	448.00	0.15
GA	31	10.75	16.50	2.60	0.14
GE	31	0.80	1.72	0.49	0.10
AU	6	3.09	6.00	2.00	0.23
HF	0	0.0	.	.	.
FE	31	3.77	6.02	1.51	0.12
LA	31	73.89	783.00	10.00	0.31
PB	31	58.05	140.00	18.00	0.22
LI	31	12.33	36.00	3.00	0.26
LU	4	1.57	3.00	1.00	0.24
MG	31	0.22	1.05	0.03	0.42
MN	31	1974.32	4856.00	430.00	0.22
HG	29	44.50	193.00	10.00	0.34
MO	5	2.22	6.00	1.00	0.34
ND	30	38.79	339.00	17.00	0.23
NI	31	3.85	7.30	1.10	0.18
NB	31	126.42	338.00	27.00	0.32
P	31	1135.91	7605.00	172.00	0.49
K	31	3.23	8.06	1.08	0.28
RB	31	201.77	852.10	34.00	0.39
SM	9	0.55	3.10	0.20	0.43
SC	10	2.94	5.00	2.00	0.15
SE	0	0.0	.	.	.
SI	31	25.09	31.96	13.92	0.08
AG	22	0.23	0.80	0.01	0.39
NA	31	0.49	5.75	0.04	0.78
SR	31	625.36	1953.00	185.00	0.33
S	31	131.03	1192.00	24.00	0.45
TA	2	1.73	3.00	1.00	0.34
TE	0	0.0	.	.	.
TB	3	3.04	7.00	2.00	0.31
TL	0	0.0	.	.	.
TH	31	17.08	48.60	7.70	0.18
SN	11	0.61	2.20	0.20	0.30
TI	31	2185.29	5447.00	217.00	0.32
W	9	3.29	8.00	1.00	0.28
U	14	5.66	12.50	0.30	0.39
V	31	35.40	126.00	15.00	0.26
YB	27	2.29	3.60	0.90	0.14
Y	31	21.59	38.00	5.00	0.17
ZN	31	74.17	210.00	14.00	0.36
ZR	1	3.00	3.00	3.00	.

VARIABLE	N	MEAN	MAXIMUM VALUE	MINIMUM VALUE	LOGARITHMIC STANDARD DEVIATION
----- SECTOR=CHIKA -----					
AL	36	6.70	13.51	3.42	0.12
SB	36	1.90	3.50	1.20	0.11
AS	35	4.62	11.90	0.30	0.49
BA	36	421.92	2836.00	55.00	0.50
BE	10	1.06	7.30	0.20	0.53
BI	1	0.20	0.20	0.20	.
B	0	0.0	.	.	.
BR	0	0.0	.	.	.
CD	34	1.25	3.40	0.20	0.38
CA	36	0.06	10.39	0.01	0.72
C	35	0.17	2.90	0.01	0.59
CE	36	158.02	1075.00	10.00	0.27
CS	32	3.26	11.00	1.00	0.28
CR	36	72.70	273.90	8.30	0.40
CO	36	3.38	47.00	0.90	0.31
CU	36	17.83	48.00	3.00	0.30
DY	4	1.68	2.00	1.00	0.15
EU	15	1.74	21.10	0.30	0.60
F	36	209.02	2650.00	65.00	0.42
GA	36	7.35	15.00	0.80	0.21
GE	36	0.91	1.40	0.51	0.11
AU	3	3.91	12.00	1.00	0.55
HF	0	0.0	.	.	.
FE	36	1.81	9.66	0.35	0.35
LA	36	51.64	456.00	4.00	0.39
PB	36	24.76	76.00	4.00	0.30
LI	36	8.41	22.00	1.00	0.33
LU	4	1.41	2.00	1.00	0.17
MG	36	0.11	4.16	0.02	0.56
MN	36	273.80	3406.00	5.00	0.53
HG	27	35.47	92.00	10.00	0.30
MO	29	8.05	35.00	1.00	0.42
ND	36	29.17	419.00	6.00	0.39
NI	36	10.25	19.40	2.00	0.25
NB	36	93.81	291.00	27.00	0.25
P	36	810.23	9976.00	68.00	0.48
K	36	0.64	7.80	0.07	0.71
RB	33	86.75	641.30	7.80	0.45
SM	15	1.27	75.80	0.08	0.85
SC	32	4.59	8.00	1.00	0.30
SE	0	0.0	.	.	.
SI	36	32.71	39.69	15.55	0.07
AG	11	0.04	0.12	0.01	0.38
NA	36	0.07	4.23	0.01	0.57
SR	36	393.64	1914.00	177.00	0.23
S	35	65.12	389.00	13.00	0.31
TA	1	2.00	2.00	2.00	.
TE	1	0.22	0.22	0.22	.
TB	12	1.25	7.00	1.00	0.25
TL	0	0.0	.	.	.
TH	36	21.74	58.10	5.40	0.21
SN	28	1.22	2.90	0.30	0.31
TI	36	2392.33	5622.00	481.00	0.24
W	2	12.73	18.00	9.00	0.21
U	35	2.16	13.20	0.50	0.37
V	36	60.80	127.00	7.00	0.29
YB	21	1.91	8.90	0.20	0.43
Y	36	13.62	47.00	3.00	0.26
ZN	36	73.71	491.00	6.00	0.34
ZR	16	37.01	411.00	5.00	0.58

VARIABLE	N	MEAN	MAXIMUM VALUE	MINIMUM VALUE	LOGARITHMIC STANDARD DEVIATION
----- SECTOR=KANGA -----					
AL	185	0.70	7.67	0.01	0.54
SB	185	1.56	3.00	0.50	0.12
AS	93	0.38	9.20	0.10	0.47
BA	185	6603.64	22247.00	759.00	0.21
BE	12	0.80	8.10	0.10	0.63
BI	1	0.10	0.10	0.10	
B	0	0.0			
BR	0	0.0			
CD	185	4.01	60.90	1.00	0.27
CA	185	12.35	24.28	0.13	0.33
C	185	6.20	11.18	0.05	0.33
CE	185	6941.84	44185.00	127.00	0.32
CS	180	6.06	21.00	1.00	0.24
CR	185	34.58	323.50	2.00	0.37
CO	185	6.48	18.20	2.00	0.20
CU	185	10.31	25.00	5.00	0.15
DY	36	4.17	15.00	1.00	0.35
EU	185	23.59	103.30	3.20	0.29
F	185	2148.64	18185.00	252.00	0.26
GA	185	2.00	12.00	0.30	0.34
GE	183	0.95	3.47	0.06	0.33
AU	19	2.39	6.00	1.00	0.27
HF	0	0.0			
FE	185	8.36	34.92	2.45	0.17
LA	185	4157.68	31525.00	456.00	0.33
PB	185	43.99	95.00	16.00	0.14
LI	185	4.88	408.00	1.00	0.34
LU	2	1.00	1.00	1.00	0.00
MG	185	3.74	8.17	0.25	0.23
MN	185	21604.47	98813.00	1207.00	0.27
HG	151	41.52	430.00	7.00	0.33
MO	183	69.05	418.00	1.00	0.51
ND	185	2563.82	13055.00	422.00	0.26
NI	185	7.38	18.10	1.80	0.18
NB	185	216.92	1551.00	51.00	0.31
P	185	13529.89	46596.00	479.00	0.28
K	182	0.07	5.22	0.01	0.62
RB	152	12.96	389.10	1.00	0.55
SM	185	162.04	916.00	6.20	0.40
SC	184	4.23	29.00	1.00	0.30
SE	3	1.00	1.00	1.00	0.00
SI	185	4.97	38.77	0.03	0.39
AG	177	0.42	1.15	0.01	0.23
NA	184	0.04	2.66	0.01	0.32
SR	185	18111.37	85684.00	1062.00	0.37
S	184	148.08	1531.00	11.00	0.30
TA	4	22.31	35.00	13.00	0.21
TE	61	0.14	0.64	0.05	0.30
TB	137	5.68	13.00	1.00	0.32
TL	0	0.0			
TH	175	14.96	50.70	0.20	0.34
SN	178	1.78	18.70	0.30	0.28
TI	185	369.15	5876.00	12.00	0.61
W	162	25.94	96.00	1.00	0.32
U	185	12.32	183.00	1.80	0.37
V	184	32.46	128.00	6.00	0.25
YB	103	1.58	10.90	0.10	0.45
Y	185	38.98	146.00	6.00	0.28
ZN	185	1349.90	7487.00	173.00	0.35
ZR	53	14.79	221.00	1.00	0.68

VARIABLE	N	MEAN	MAXIMUM VALUE	MINIMUM VALUE	LOGARITHMIC STANDARD DEVIATION
----- SECTOR=CHAUM -----					
AL	7	8.59	9.91	6.58	0.07
SB	7	1.69	2.30	1.30	0.10
AS	7	5.37	8.10	3.60	0.15
BA	7	217.37	300.00	138.00	0.12
BE	7	9.13	11.30	3.40	0.19
BI	2	0.49	0.60	0.40	0.12
B	0	0.0	.	.	.
BR	0	0.0	.	.	.
CD	7	2.59	5.20	1.40	0.22
CA	7	0.46	1.03	0.23	0.22
C	7	0.12	0.21	0.06	0.21
CE	7	165.22	231.00	138.00	0.08
CS	7	6.89	11.00	4.00	0.16
CR	7	372.15	427.80	290.20	0.06
CO	7	26.52	51.40	6.20	0.34
CU	7	54.17	156.00	28.00	0.31
DY	1	1.00	1.00	1.00	.
EU	7	3.35	4.80	2.10	0.14
F	7	117.86	198.00	68.00	0.15
GA	7	7.41	10.80	4.70	0.13
GE	7	9.01	10.26	8.01	0.04
AU	0	0.0	.	.	.
HF	0	0.0	.	.	.
FE	7	7.96	9.35	4.93	0.10
LA	7	73.69	88.00	59.00	0.06
PB	7	12.95	21.00	4.00	0.26
LI	7	5.69	8.00	4.00	0.11
LU	2	2.45	3.00	2.00	0.12
MG	7	0.31	0.41	0.19	0.11
MN	7	1263.59	2155.00	664.00	0.17
HG	2	12.33	19.00	8.00	0.27
MO	5	1.52	4.00	1.00	0.27
ND	7	29.91	42.00	20.00	0.12
NI	7	82.65	91.70	72.20	0.04
NB	7	71.25	150.00	3.00	0.61
P	7	209.96	377.00	93.00	0.26
K	7	1.93	2.40	1.51	0.07
RB	7	62.26	82.00	45.00	0.10
SM	1	0.20	0.20	0.20	.
SC	7	35.69	43.00	26.00	0.08
SE	0	0.0	.	.	.
SI	7	28.70	33.08	26.16	0.04
AG	7	0.13	0.14	0.12	0.03
NA	7	0.40	0.55	0.24	0.12
SR	7	63.43	89.00	40.00	0.13
S	7	51.00	77.00	31.00	0.13
TA	1	3.00	3.00	3.00	.
TE	0	0.0	.	.	.
TB	0	0.0	.	.	.
TL	0	0.0	.	.	.
TH	7	38.23	51.10	31.50	0.08
SN	7	0.35	0.90	0.10	0.32
TI	7	8096.03	16229.00	1341.00	0.37
W	2	3.46	4.00	3.00	0.09
U	7	2.94	4.40	2.00	0.13
V	7	124.89	346.00	40.00	0.36
YB	7	8.32	22.70	5.10	0.22
Y	7	95.32	186.00	40.00	0.34
ZN	7	142.55	241.00	101.00	0.15
ZR	7	400.84	418.00	375.00	0.02

VARIABLE	N	MEAN	MAXIMUM VALUE	MINIMUM VALUE	LOGARITHMIC STANDARD DEVIATION
----- SECTOR=KAPIR -----					
AL	21	2.68	9.98	0.62	0.34
SB	21	1.71	2.50	1.30	0.06
AS	19	1.88	14.70	0.20	0.50
BA	21	1943.87	8559.00	750.00	0.29
BE	5	5.28	16.30	0.70	0.54
BI	3	0.42	0.60	0.30	0.15
B	0	0.0	.	.	.
BR	0	0.0	.	.	.
CD	21	2.77	7.60	0.20	0.32
CA	21	11.35	28.20	1.58	0.35
C	21	4.29	10.83	0.34	0.36
CE	21	1545.95	14270.00	286.00	0.57
CS	20	5.10	10.00	1.00	0.27
CR	21	55.19	204.00	3.10	0.50
CO	21	13.33	48.30	9.00	0.19
CU	21	24.60	100.00	8.00	0.36
DY	18	19.20	78.00	1.00	0.47
EU	21	16.57	56.30	5.60	0.32
F	21	2592.56	6552.00	995.00	0.23
GA	21	3.40	6.70	1.50	0.16
GE	21	1.02	3.10	0.32	0.26
AU	3	3.83	8.00	1.00	0.51
HF	0	0.0	.	.	.
FE	21	8.21	12.99	1.44	0.23
LA	21	712.93	6213.00	135.00	0.55
PB	21	45.77	67.00	22.00	0.14
LI	20	4.50	21.00	1.00	0.40
LU	0	0.0	.	.	.
HG	21	1.99	4.93	0.50	0.26
MN	21	3652.84	9003.00	1444.00	0.26
HG	14	43.88	178.00	10.00	0.40
MO	20	9.10	69.00	1.00	0.57
ND	21	478.18	4533.00	107.00	0.56
NI	21	10.73	58.30	2.20	0.39
NB	21	167.19	368.00	68.00	0.21
P	21	7281.07	25595.00	1549.00	0.38
K	21	0.29	7.83	0.02	0.92
RB	21	40.46	202.10	5.30	0.47
SM	21	72.30	819.20	8.10	0.56
SC	21	6.38	26.00	1.00	0.38
SE	0	0.0	.	.	.
SI	21	9.07	23.53	2.98	0.26
AG	18	0.11	0.32	0.02	0.40
NA	21	0.12	4.22	0.02	0.72
SR	21	2434.20	8418.00	561.00	0.38
S	21	130.56	253.00	61.00	0.17
TA	0	0.0	.	.	.
TE	9	0.19	0.55	0.08	0.30
TB	11	3.70	13.00	1.00	0.38
TL	0	0.0	.	.	.
TH	21	47.56	138.70	6.40	0.36
SN	20	1.39	6.90	0.70	0.23
TI	21	2100.11	17080.00	57.00	0.69
W	14	14.68	31.00	4.00	0.22
U	21	12.51	24.20	5.40	0.21
V	21	88.05	341.00	22.00	0.35
YB	21	6.57	15.00	2.10	0.26
Y	21	99.11	361.00	27.00	0.33
ZN	21	423.53	1232.00	113.00	0.28
ZR	8	28.97	547.00	3.00	0.85

VARIABLE	N	MEAN	MAXIMUM VALUE	MINIMUM VALUE	LOGARITHMIC STANDARD DEVIATION
----- SECTOR=NSENG -----					
AL	14	3.07	8.53	0.21	0.63
SB	14	2.69	9.50	0.90	0.29
AS	12	3.74	48.20	0.20	0.79
BA	14	323.11	5918.00	75.00	0.47
BE	14	2.08	9.30	0.40	0.41
BI	0	0.0	.	.	.
B	0	0.0	.	.	.
BR	0	0.0	.	.	.
CD	8	0.91	4.70	0.10	0.65
CA	14	1.35	33.92	0.09	0.92
C	14	0.55	11.81	0.04	0.97
CE	14	48.76	211.00	6.00	0.58
CS	12	3.80	9.00	1.00	0.28
CR	14	154.98	1206.60	19.30	0.45
CO	14	3.65	12.70	1.50	0.29
CU	14	20.97	74.00	12.00	0.23
DY	0	0.0	.	.	.
EU	6	1.59	3.30	0.70	0.22
F	14	183.21	733.00	25.00	0.47
GA	14	3.41	7.30	0.70	0.29
GE	14	1.46	10.04	0.26	0.37
AU	2	2.45	3.00	2.00	0.12
HF	0	0.0	.	.	.
FE	14	2.59	9.34	0.22	0.52
LA	14	24.55	104.00	1.00	0.65
PB	14	37.22	1085.00	13.00	0.47
LI	13	6.05	166.00	2.00	0.49
LU	4	2.71	3.00	2.00	0.09
MG	14	0.22	10.66	0.04	0.80
MN	14	474.52	1423.00	61.00	0.41
HG	11	75.44	104.00	21.00	0.19
MO	3	1.26	2.00	1.00	0.17
ND	7	32.61	51.00	13.00	0.19
NI	14	14.33	44.50	5.40	0.30
NB	9	22.62	117.00	1.00	0.81
P	14	580.20	2877.00	298.00	0.28
K	14	1.64	6.86	0.25	0.51
RB	13	60.20	1487.00	11.00	0.58
SM	1	0.40	0.40	0.40	.
SC	11	4.01	11.00	1.00	0.38
SE	3	1.00	1.00	1.00	0.00
SI	14	15.63	40.98	0.83	0.51
AG	14	0.25	1.39	0.13	0.27
NA	14	0.19	2.42	0.01	0.65
SR	14	108.86	2715.00	17.00	0.51
S	13	61.23	203.00	11.00	0.33
TA	0	0.0	.	.	.
TE	2	0.09	0.10	0.09	0.03
TB	0	0.0	.	.	.
TL	0	0.0	.	.	.
TH	14	12.86	28.40	6.10	0.21
SN	8	0.83	1.30	0.30	0.19
TI	14	607.77	4168.00	51.00	0.66
W	1	8.00	8.00	8.00	.
U	6	4.48	9.10	2.90	0.19
V	14	24.87	83.00	4.00	0.48
YB	10	1.62	2.80	0.50	0.22
Y	14	7.66	34.00	1.00	0.60
ZN	14	42.75	74.00	18.00	0.20
ZR	6	230.05	269.00	183.00	0.06

VARIABLE	N	MEAN	MAXIMUM VALUE	MINIMUM VALUE	LOGARITHMIC STANDARD DEVIATION
----- SECTOR=MLIND -----					
AL	21	4.27	11.18	0.25	0.43
SB	21	1.43	2.90	0.70	0.15
AS	16	0.19	1.40	0.10	0.37
BA	21	4930.17	14921.00	175.00	0.51
BE	4	0.61	2.10	0.20	0.44
BI	0	0.0	.	.	.
B	0	0.0	.	.	.
BR	0	0.0	.	.	.
CD	16	1.27	3.20	0.60	0.19
CA	21	4.12	23.17	0.26	0.58
C	21	3.04	11.48	0.45	0.41
CE	19	300.37	547.00	80.00	0.21
CS	16	5.86	14.00	2.00	0.27
CR	21	60.64	1507.90	9.70	0.54
CO	21	11.80	44.20	0.50	0.53
CU	21	39.38	85.00	1.00	0.52
DY	2	8.66	15.00	5.00	0.34
EU	19	3.93	9.10	1.10	0.25
F	21	1072.51	3760.00	75.00	0.63
GA	21	6.04	13.00	1.00	0.32
GE	21	1.70	3.24	0.97	0.13
AU	0	0.0	.	.	.
HF	0	0.0	.	.	.
FE	21	3.84	14.65	0.14	0.51
LA	14	1.53	3.00	1.00	0.17
PB	21	43.18	57.00	20.00	0.09
LI	16	7.96	20.00	2.00	0.33
LU	0	0.0	.	.	.
MG	21	3.07	12.46	0.03	0.83
MN	21	590.92	1496.00	24.00	0.42
HG	20	46.12	177.00	17.00	0.31
MO	3	7.14	14.00	2.00	0.48
ND	19	126.44	236.00	21.00	0.28
NI	21	56.63	330.60	4.80	0.47
NB	21	49.79	199.00	20.00	0.20
P	21	3454.44	10705.00	349.00	0.52
K	21	3.02	6.59	1.98	0.19
RB	21	274.42	714.00	65.10	0.28
SM	17	20.49	30.10	8.00	0.16
SC	18	23.80	44.00	2.00	0.37
SE	0	0.0	.	.	.
SI	21	10.88	32.33	1.07	0.38
AG	3	0.02	0.05	0.01	0.36
NA	21	0.72	4.16	0.03	0.51
SR	21	516.68	2277.00	70.00	0.36
S	21	94.66	203.00	13.00	0.40
TA	0	0.0	.	.	.
TE	9	0.09	0.43	0.05	0.29
TB	9	2.90	9.00	1.00	0.33
TL	0	0.0	.	.	.
TH	20	16.63	46.70	0.40	0.44
SN	16	1.03	4.00	0.30	0.36
TI	21	4943.63	13987.00	143.00	0.54
W	0	0.0	.	.	.
U	21	0.97	4.90	0.10	0.42
V	21	109.19	246.00	6.00	0.54
YB	15	2.64	3.80	0.20	0.32
Y	21	22.33	42.00	2.00	0.40
ZN	21	60.19	170.00	4.00	0.45
ZR	10	38.48	126.00	9.00	0.47

VARIABLE	N	MEAN	MAXIMUM VALUE	MINIMUM VALUE	LOGARITHMIC STANDARD DEVIATION
----- SECTOR=NSALA -----					
AL	16	7.89	11.37	2.55	0.16
SB	16	1.28	2.30	0.40	0.21
AS	16	1.99	11.60	0.10	0.57
BA	16	1467.41	4018.00	835.00	0.23
BE	6	6.33	12.20	1.60	0.34
BI	1	0.70	0.70	0.70	.
B	0	0.0	.	.	.
BR	0	0.0	.	.	.
CD	15	2.66	12.20	0.50	0.33
CA	16	1.72	26.80	0.17	0.62
C	16	0.83	7.79	0.08	0.73
CE	16	534.25	1634.00	165.00	0.30
CS	14	4.43	11.00	1.00	0.33
CR	16	106.41	369.60	29.30	0.29
CO	16	4.93	21.70	1.50	0.35
CU	16	24.32	75.00	11.00	0.25
DY	8	8.35	31.00	1.00	0.53
EU	16	7.12	20.60	1.50	0.34
F	16	1458.28	2635.00	330.00	0.28
GA	16	5.21	8.30	3.30	0.10
GE	16	1.48	3.10	0.86	0.13
AU	2	2.24	5.00	1.00	0.49
HF	0	0.0	.	.	.
FE	16	3.88	7.65	0.91	0.31
LA	16	248.73	1085.00	34.00	0.42
PB	16	50.73	100.00	18.00	0.17
LI	16	10.97	53.00	1.00	0.41
LU	0	0.0	.	.	.
MG	16	1.02	4.52	0.08	0.60
MN	16	1601.75	6793.00	188.00	0.46
HG	13	43.63	111.00	9.00	0.32
MO	15	14.80	115.00	2.00	0.61
ND	16	167.67	346.00	19.00	0.32
NI	16	16.44	39.20	10.40	0.19
NB	15	119.88	219.00	56.00	0.18
P	16	2835.22	14078.00	290.00	0.47
K	16	1.97	7.05	0.03	0.72
RB	16	118.74	360.50	40.00	0.33
SM	16	21.03	85.30	0.70	0.61
SC	15	6.75	19.00	2.00	0.33
SE	0	0.0	.	.	.
SI	16	20.04	32.18	7.53	0.18
AG	7	0.10	0.19	0.02	0.35
NA	16	0.44	5.16	0.03	0.98
SR	16	836.30	7915.00	238.00	0.43
S	16	147.12	513.00	37.00	0.29
TA	0	0.0	.	.	.
TE	10	0.15	0.31	0.07	0.23
TB	11	6.40	10.00	1.00	0.29
TL	0	0.0	.	.	.
TH	16	41.30	116.00	9.70	0.25
SN	16	1.64	5.10	0.60	0.24
TI	16	2513.12	10757.00	220.00	0.36
W	7	2.56	5.00	2.00	0.15
U	16	12.47	22.70	6.20	0.20
V	16	93.82	354.00	20.00	0.32
YB	15	3.07	11.30	0.40	0.37
Y	16	47.44	165.00	18.00	0.31
ZN	16	245.74	991.00	37.00	0.39
ZR	12	32.27	606.00	8.00	0.59

VARIABLE	N	MEAN	MAXIMUM VALUE	MINIMUM VALUE	LOGARITHMIC STANDARD DEVIATION
----- SECTOR=KONGW -----					
AL	30	7.69	10.29	4.92	0.08
SB	30	1.75	2.30	1.30	0.08
AS	25	0.78	3.80	0.10	0.69
BA	30	861.69	3326.00	317.00	0.25
BE	18	4.93	18.70	0.60	0.45
BI	8	0.25	0.50	0.10	0.27
B	0	0.0	.	.	.
BR	0	0.0	.	.	.
CD	19	1.28	3.20	0.10	0.56
CA	30	1.12	5.59	0.10	0.54
C	30	0.48	1.83	0.02	0.50
CE	30	141.26	350.00	18.00	0.41
CS	22	2.96	11.00	1.00	0.30
CR	30	152.19	525.00	54.80	0.23
CO	30	6.89	38.90	0.40	0.59
CU	30	19.39	37.00	7.00	0.24
DY	1	2.00	2.00	2.00	.
EU	29	3.02	11.30	0.90	0.27
F	30	404.36	2099.00	34.00	0.57
GA	30	5.24	9.40	3.10	0.13
GE	30	1.73	4.17	0.92	0.17
AU	3	1.26	2.00	1.00	0.17
HF	0	0.0	.	.	.
FE	30	3.26	13.15	0.34	0.47
LA	30	59.95	306.00	13.00	0.33
PB	30	38.43	73.00	12.00	0.17
LI	30	6.32	13.00	2.00	0.25
LU	1	1.00	1.00	1.00	.
MG	30	0.23	1.88	0.04	0.43
MN	30	664.69	3749.00	48.00	0.56
HG	27	45.69	610.00	9.00	0.34
MO	10	2.27	6.00	1.00	0.30
ND	30	38.06	274.00	5.00	0.49
NI	30	15.67	49.00	5.90	0.23
NB	22	16.78	359.00	1.00	0.90
P	30	1709.80	12673.00	224.00	0.64
K	30	2.91	5.09	1.03	0.19
RB	30	245.15	554.30	82.00	0.25
SM	20	2.95	32.10	0.40	0.55
SC	27	3.92	15.00	1.00	0.41
SE	3	1.00	1.00	1.00	0.00
SI	30	26.57	34.50	19.86	0.07
AG	18	0.08	0.20	0.02	0.38
NA	30	0.60	3.62	0.03	0.62
SR	30	465.43	2024.00	142.00	0.20
S	27	55.94	144.00	21.00	0.24
TA	0	0.0	.	.	.
TE	0	0.0	.	.	.
TB	3	1.26	2.00	1.00	0.17
TL	0	0.0	.	.	.
TH	30	19.04	57.60	4.80	0.28
SN	18	0.86	2.00	0.10	0.32
TI	30	2404.88	11519.00	720.00	0.35
W	0	0.0	.	.	.
U	23	2.43	12.20	0.50	0.35
V	30	50.06	165.00	7.00	0.50
YB	21	3.57	12.00	0.20	0.44
Y	30	37.30	131.00	4.00	0.52
ZN	30	58.19	160.00	18.00	0.22
ZR	15	50.38	305.00	7.00	0.52

VARIABLE	N	MEAN	MAXIMUM VALUE	MINIMUM VALUE	LOGARITHMIC STANDARD DEVIATION
----- SECTOR=LIPER -----					
AL	7	7.16	8.77	6.02	0.05
SB	7	1.63	2.10	1.20	0.09
AS	2	1.35	2.60	0.70	0.40
BA	7	1483.99	2189.00	457.00	0.25
BE	7	2.13	11.40	0.30	0.58
BI	2	0.17	0.30	0.10	0.34
B	0	0.0	.	.	.
BR	0	0.0	.	.	.
CD	7	1.36	2.70	0.60	0.25
CA	7	1.59	7.13	0.57	0.35
C	7	0.34	2.98	0.02	0.64
CE	7	23.62	181.00	10.00	0.42
CS	4	2.83	8.00	1.00	0.39
CR	7	182.30	285.30	96.20	0.18
CO	7	3.75	12.30	1.90	0.30
CU	7	14.40	16.00	13.00	0.03
DY	0	0.0	.	.	.
EU	6	1.16	2.00	0.40	0.24
F	7	62.71	158.00	16.00	0.33
GA	7	4.43	7.00	2.50	0.15
GE	7	0.97	1.26	0.66	0.12
AU	0	0.0	.	.	.
HF	0	0.0	.	.	.
FE	7	1.47	5.42	0.55	0.41
LA	7	11.70	32.00	6.00	0.25
PB	7	45.90	77.00	13.00	0.26
LI	7	2.58	8.00	1.00	0.29
LU	1	1.00	1.00	1.00	.
MG	7	0.03	0.05	0.02	0.17
MN	7	169.81	3497.00	23.00	0.84
HG	5	41.52	104.00	9.00	0.40
MO	4	1.41	2.00	1.00	0.17
ND	1	6.00	6.00	6.00	.
NI	7	8.83	11.30	7.30	0.06
NB	7	16.73	54.00	3.00	0.41
P	7	335.67	925.00	146.00	0.28
K	7	4.33	5.68	2.40	0.17
RB	7	294.76	428.00	83.00	0.25
SM	3	1.66	2.20	1.30	0.12
SC	2	1.00	1.00	1.00	0.00
SE	0	0.0	.	.	.
SI	7	29.54	32.08	21.47	0.06
AG	4	0.06	0.32	0.01	0.66
NA	7	0.25	0.41	0.15	0.17
SR	7	336.89	415.00	160.00	0.15
S	5	48.58	62.00	40.00	0.08
TA	0	0.0	.	.	.
TE	1	0.43	0.43	0.43	.
TB	1	1.00	1.00	1.00	.
TL	0	0.0	.	.	.
TH	7	10.50	16.60	6.10	0.16
SN	3	0.28	1.10	0.10	0.54
TI	7	714.46	2550.00	98.00	0.59
W	0	0.0	.	.	.
U	2	0.14	0.20	0.10	0.21
V	7	13.58	156.00	2.00	0.67
YB	4	0.96	1.90	0.50	0.26
Y	7	4.21	13.00	2.00	0.29
ZN	7	27.87	54.00	9.00	0.26
ZR	2	15.81	25.00	10.00	0.28

VARIABLE	N	MEAN	MAXIMUM VALUE	MINIMUM VALUE	LOGARITHMIC STANDARD DEVIATION
----- SECTOR=KAWAN -----					
AL	6	2.59	8.45	0.13	0.76
SB	6	1.79	2.40	1.10	0.14
AS	5	0.67	3.20	0.20	0.43
BA	6	1598.59	2205.00	445.00	0.27
BE	6	4.63	11.30	2.30	0.26
BI	2	0.20	0.20	0.20	0.00
B	0	0.0	.	.	.
BR	0	0.0	.	.	.
CD	5	0.84	2.50	0.10	0.55
CA	6	1.97	36.91	0.14	1.04
C	5	0.36	11.08	0.01	1.52
CE	6	23.52	522.00	6.00	0.71
CS	4	2.45	6.00	1.00	0.33
CR	6	473.33	731.10	290.70	0.14
CO	6	2.18	4.10	0.90	0.26
CU	6	19.96	31.00	15.00	0.11
DY	1	1.00	1.00	1.00	.
EU	3	0.90	2.00	0.30	0.43
F	6	28.93	183.00	6.00	0.48
GA	6	3.90	7.40	2.20	0.20
GE	6	0.69	0.81	0.57	0.05
AU	0	0.0	.	.	.
HF	0	0.0	.	.	.
FE	6	0.56	4.50	0.16	0.52
LA	6	9.07	27.00	3.00	0.35
PB	6	59.97	174.00	18.00	0.38
LI	6	3.65	7.00	1.00	0.34
LU	2	1.73	3.00	1.00	0.34
MG	6	0.02	0.04	0.01	0.23
MN	6	61.89	616.00	10.00	0.58
HG	2	34.04	61.00	19.00	0.36
MO	3	1.00	1.00	1.00	0.00
NO	1	4.00	4.00	4.00	.
NI	6	9.31	11.60	7.20	0.07
NB	4	2.06	3.00	1.00	0.23
P	6	117.96	874.00	42.00	0.53
K	6	3.97	5.84	2.07	0.15
RB	6	228.89	433.00	93.00	0.23
SM	1	2.20	2.20	2.20	.
SC	3	1.00	1.00	1.00	0.00
SE	1	3.00	3.00	3.00	.
SI	6	11.03	34.51	0.54	0.76
AG	3	0.09	0.14	0.06	0.19
NA	6	0.17	0.24	0.11	0.16
SR	6	248.68	402.00	148.00	0.18
S	6	89.46	139.00	53.00	0.15
TA	0	0.0	.	.	.
TE	1	0.13	0.13	0.13	.
TB	0	0.0	.	.	.
TL	0	0.0	.	.	.
TH	6	10.43	17.40	7.20	0.14
SN	5	0.55	2.00	0.10	0.48
TI	6	211.74	991.00	113.00	0.34
W	0	0.0	.	.	.
U	0	0.0	.	.	.
V	2	5.20	9.00	3.00	0.34
YB	2	0.24	0.30	0.20	0.12
Y	6	1.86	7.00	1.00	0.34
ZN	6	18.59	37.00	8.00	0.25
ZR	0	0.0	.	.	.

VARIABLE	N	MEAN	MAXIMUM VALUE	MINIMUM VALUE	LOGARITHMIC STANDARD DEVIATION
----- SECTOR=ALIGO -----					
AL	13	5.81	8.76	2.55	0.16
SB	13	1.79	3.10	1.00	0.13
AS	11	0.49	5.60	0.10	0.73
BA	13	803.64	4042.00	245.00	0.35
BE	4	2.20	8.10	0.60	0.46
BI	0	0.0	.	.	.
B	0	0.0	.	.	.
BR	0	0.0	.	.	.
CD	10	0.89	2.90	0.30	0.37
CA	13	1.15	21.15	0.06	0.91
C	13	0.81	7.50	0.03	0.89
CE	13	115.89	11106.00	10.00	0.97
CS	12	4.27	11.00	1.00	0.31
CR	13	142.12	552.00	38.40	0.37
CO	13	2.90	11.20	1.30	0.24
CU	13	14.02	38.00	4.00	0.29
DY	5	5.23	13.00	2.00	0.34
EU	12	3.39	50.30	1.10	0.53
F	13	437.41	2250.00	25.00	0.68
GA	13	4.28	6.50	2.50	0.13
GE	13	1.42	2.21	0.97	0.11
AU	1	6.00	6.00	6.00	.
HF	0	0.0	.	.	.
FE	13	2.22	12.39	0.50	0.55
LA	10	37.37	284.00	5.00	0.63
PB	13	36.14	71.00	12.00	0.23
LI	13	6.01	31.00	2.00	0.35
LU	0	0.0	.	.	.
MG	13	0.35	6.05	0.02	0.89
MN	13	337.86	3256.00	41.00	0.77
HG	13	65.62	598.00	10.00	0.52
MO	4	5.08	83.00	2.00	0.81
ND	13	28.46	346.00	1.00	0.78
NI	13	14.02	50.20	6.00	0.21
NB	8	19.34	772.00	1.00	1.16
P	13	1595.77	13972.00	455.00	0.60
K	13	1.74	4.98	0.09	0.53
RB	13	230.30	1389.50	42.50	0.48
SM	7	19.75	702.10	0.40	0.95
SC	10	5.45	16.00	1.00	0.45
SE	0	0.0	.	.	.
SI	13	19.84	36.57	5.69	0.23
AG	5	0.02	0.10	0.01	0.41
NA	13	2.67	3.84	1.67	0.10
SR	13	524.93	4147.00	82.00	0.48
S	13	69.05	191.00	11.00	0.34
TA	0	0.0	.	.	.
TE	2	0.13	0.21	0.08	0.30
TB	7	3.41	6.00	2.00	0.20
TL	0	0.0	.	.	.
TH	13	15.01	593.40	0.40	0.86
SN	13	0.89	2.90	0.30	0.32
TI	13	3088.14	15843.00	389.00	0.59
W	0	0.0	.	.	.
U	13	5.60	18.20	1.30	0.38
V	13	29.95	185.00	3.00	0.71
YB	7	6.79	20.10	0.50	0.53
Y	13	22.15	190.00	1.00	0.72
ZN	13	89.32	755.00	15.00	0.53
ZR	5	589.59	1029.00	475.00	0.14

VARIABLE	N	MEAN	MAXIMUM VALUE	MINIMUM VALUE	LOGARITHMIC STANDARD DEVIATION
----- SECTDR=ACHIR -----					
AL	25	9.40	11.09	6.72	0.05
SB	25	1.67	2.10	1.20	0.07
AS	19	0.26	13.20	0.10	0.54
BA	25	919.94	2214.00	305.00	0.24
BE	14	1.03	3.70	0.20	0.40
BI	0	0.0	.	.	.
B	0	0.0	.	.	.
BR	0	0.0	.	.	.
CD	21	0.55	2.00	0.10	0.32
CA	25	0.29	5.06	0.05	0.58
C	25	0.08	1.53	0.01	0.60
CE	25	16.69	137.00	7.00	0.27
CS	15	2.22	5.00	1.00	0.21
CR	25	266.94	612.70	94.20	0.18
CO	21	1.67	4.50	0.60	0.30
CU	25	13.93	31.00	7.00	0.21
DY	3	1.82	3.00	1.00	0.24
EU	15	1.33	4.20	0.50	0.27
F	25	124.53	184.00	74.00	0.11
GA	25	5.33	9.80	2.70	0.15
GE	25	0.81	1.03	0.59	0.07
AU	2	2.45	3.00	2.00	0.12
HF	0	0.0	.	.	.
FE	25	0.92	8.85	0.23	0.32
LA	25	9.01	41.00	2.00	0.35
PB	25	54.04	112.00	15.00	0.22
LI	24	2.52	6.00	1.00	0.25
LU	8	1.71	4.00	1.00	0.26
MG	25	0.06	0.15	0.02	0.22
MN	25	90.04	398.00	13.00	0.35
HG	9	21.12	98.00	8.00	0.42
MO	15	2.01	6.00	1.00	0.27
ND	11	3.29	15.00	1.00	0.40
NI	25	10.00	21.30	6.40	0.13
NB	18	4.73	33.00	1.00	0.51
P	25	170.19	582.00	37.00	0.36
K	25	3.62	4.42	1.78	0.09
RB	25	152.91	333.00	3.00	0.42
SM	6	0.90	2.80	0.20	0.46
SC	16	1.36	3.00	1.00	0.19
SE	0	0.0	.	.	.
SI	25	31.78	34.51	29.68	0.02
AG	13	0.03	0.14	0.01	0.38
NA	25	0.21	0.38	0.12	0.14
SR	25	201.22	430.00	109.00	0.16
S	22	41.99	166.00	12.00	0.27
TA	0	0.0	.	.	.
TE	3	0.26	0.45	0.19	0.20
TB	0	0.0	.	.	.
TL	0	0.0	.	.	.
TH	25	8.85	17.90	3.10	0.19
SN	11	0.28	0.90	0.10	0.33
TI	25	430.02	2418.00	181.00	0.25
W	0	0.0	.	.	.
U	6	0.25	0.50	0.20	0.16
V	23	9.45	25.00	3.00	0.25
YB	18	0.92	2.10	0.40	0.21
Y	25	7.53	17.00	3.00	0.18
ZN	25	76.88	5081.00	11.00	0.66
ZR	0	0.0	.	.	.

VARIABLE	N	MEAN	MAXIMUM VALUE	MINIMUM VALUE	LOGARITHMIC STANDARD DEVIATION
----- SECTOR=CHILO -----					
AL	10	7.42	10.71	2.32	0.21
SB	10	1.93	2.50	1.50	0.08
AS	7	4.69	9.70	0.10	0.74
BA	10	312.00	495.00	208.00	0.14
BE	10	2.26	7.20	0.20	0.47
BI	3	0.52	0.70	0.40	0.12
B	0	0.0	.	.	.
BR	0	0.0	.	.	.
CD	10	1.16	2.00	0.40	0.24
CA	10	1.18	15.92	0.09	0.61
C	10	0.20	9.48	0.02	0.82
CE	10	13.39	56.00	5.00	0.28
CS	8	2.66	7.00	1.00	0.31
CR	10	286.57	805.60	173.40	0.20
CO	10	1.21	12.60	0.30	0.47
CU	10	17.51	448.00	8.00	0.51
DY	0	0.0	.	.	.
EU	6	0.55	2.30	0.20	0.41
F	10	32.32	752.00	3.00	0.70
GA	10	5.88	10.60	2.40	0.19
GE	10	1.16	1.43	0.75	0.10
AU	2	3.46	6.00	2.00	0.34
HF	0	0.0	.	.	.
FE	10	0.91	16.73	0.36	0.53
LA	10	7.83	25.00	2.00	0.38
PB	10	47.63	113.00	12.00	0.29
LI	9	5.94	9.00	3.00	0.15
LU	2	4.24	6.00	3.00	0.21
MG	10	0.06	7.18	0.01	0.78
MN	10	58.69	604.00	2.00	0.65
HG	4	15.95	31.00	8.00	0.32
MO	2	1.41	2.00	1.00	0.21
ND	7	2.43	7.00	1.00	0.34
NI	10	11.92	44.50	6.30	0.36
NB	7	3.42	19.00	1.00	0.59
P	10	192.11	949.00	80.00	0.36
K	10	2.60	4.03	1.64	0.12
RB	10	161.45	300.00	33.00	0.30
SM	4	1.07	2.40	0.40	0.35
SC	6	1.26	2.00	1.00	0.16
SE	3	1.59	4.00	1.00	0.35
SI	10	25.37	33.93	4.89	0.25
AG	9	0.11	0.54	0.04	0.39
NA	10	0.16	0.43	0.03	0.36
SR	10	212.32	300.00	139.00	0.12
S	9	80.63	13596.00	16.00	0.91
TA	1	2.00	2.00	2.00	.
TE	3	0.10	0.11	0.09	0.04
TB	0	0.0	.	.	.
TL	0	0.0	.	.	.
TH	10	11.75	18.60	8.40	0.13
SN	8	0.57	2.20	0.20	0.32
TI	10	309.15	1050.00	155.00	0.30
W	0	0.0	.	.	.
U	0	0.0	.	.	.
V	7	12.02	70.00	5.00	0.36
YB	6	0.84	1.40	0.20	0.32
Y	10	5.28	20.00	2.00	0.27
ZN	10	36.19	98.00	12.00	0.30
ZR	0	0.0	.	.	.

Appendix 4 Values of Whole Rock Analysis and CIPW Norm

SAMPLE NO.	1		2		3		4		5						
	WT. %	MOL. %	WT. %	MOL. %	WT. %	MOL. %	WT. %	MOL. %	WT. %	MOL. %					
	6H001R FOYALITE NKALONJE		6H002R MICROFOYALITE NKALONJE		6H003R PHONOILITE SALAMBIDWA		6H004R GRANULITE CHIPALANJE		6H005R PHONOILITE CHIPALANJE						
S102	49.86	50.97	58.81	52.03	53.44	62.14	55.84	58.93	66.91	77.59	77.61	83.72	54.98	58.77	67.18
T102	1.60	1.64	1.42	1.29	1.32	1.16	0.13	0.14	0.12	0.11	0.11	0.09	0.21	0.22	0.19
AL20S	20.67	21.13	14.37	20.48	21.03	14.41	20.87	22.02	14.74	11.84	11.84	7.53	20.74	22.17	14.93
FE20S	2.52	2.58	1.12	2.75	2.82	1.24	0.64	0.68	0.29	1.09	1.09	0.44	1.57	1.68	0.72
FE0	2.80	2.86	2.76	2.28	2.34	2.28	1.89	1.89	1.89	1.11	1.11	1.00	0.76	0.81	0.78
MNO	0.23	0.24	0.23	0.20	0.21	0.20	0.32	0.34	0.32	0.01	0.01	0.01	0.25	0.27	0.26
MGO	1.03	1.05	1.81	0.73	0.75	1.30	0.09	0.09	0.16	0.14	0.14	0.23	0.11	0.12	0.20
CA0	3.63	3.71	4.59	2.58	2.65	3.30	0.66	0.70	0.85	0.50	0.50	0.58	0.69	0.74	0.90
NA20	8.67	8.86	9.91	6.86	7.05	7.94	9.52	10.05	11.06	3.38	3.38	3.54	9.26	9.50	10.97
K20	6.26	6.40	4.71	7.48	7.68	5.70	4.77	5.03	3.65	4.11	4.11	2.83	4.00	5.24	3.82
P20S	0.32	0.33	0.16	0.28	0.29	0.14	0.02	0.02	0.01	0.02	0.02	0.01	0.07	0.07	0.04
BA0	0.24	0.25	0.11	0.41	0.42	0.19	0.01	0.01	0.00	0.07	0.07	0.03	0.01	0.01	0.00
H20+	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
H20-	1.35	1.35	1.84	1.84	1.84	1.84	4.31	4.31	4.31	0.25	0.25	0.25	5.53	5.53	5.53
TOTAL	99.18	100.00	100.00	99.21	100.00	100.00	99.07	100.00	100.00	100.22	100.00	100.00	99.08	100.00	100.00
Q	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	40.49	83.27	83.27	0.0	0.0	0.0
C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.92	1.12	1.12	0.0	0.0	0.0
DR	37.81	19.83	27.68	45.39	27.68	12.93	39.75	20.35	24.29	24.29	5.39	5.39	30.95	22.67	22.67
AB	6.68	3.72	8.37	12.93	8.37	3.76	29.77	28.88	28.88	28.61	6.74	6.74	40.24	31.28	31.28
AN	0.0	0.0	0.0	3.08	3.08	0.0	0.13	0.18	0.18	2.48	1.10	1.10	0.59	0.87	0.87
NE	35.96	38.94	30.22	25.29	30.22	70.03	24.51	32.86	32.86	0.0	0.0	0.0	23.57	33.83	33.83
SAL. TOTAL	80.45	60.49	70.03	86.69	70.03	70.03	94.15	82.27	82.27	96.80	97.63	97.63	95.35	88.65	88.65
AC	1.71	1.08	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WO - DI	4.22	10.61	6.73	2.30	6.73	0.0	1.34	4.39	4.39	0.0	0.0	0.0	0.54	1.90	1.90
EN - DI	2.82	7.62	6.31	1.87	6.31	0.16	0.09	0.36	0.36	0.0	0.0	0.0	0.29	1.19	1.19
FS - DI	1.35	2.99	0.0	0.16	0.41	0.0	1.40	4.03	4.03	0.0	0.0	0.0	0.23	0.72	0.72
EN - HY	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.35	0.43	0.43	0.0	0.0	0.0
FS - HY	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.97	0.91	0.91	0.0	0.0	0.0
FO - DL	0.0	0.0	0.0	0.0	0.0	0.0	0.10	0.54	0.54	0.0	0.0	0.0	0.0	0.0	0.0
FA - DL	0.0	0.0	0.0	0.0	0.0	0.0	1.63	6.09	6.09	0.0	0.0	0.0	0.0	0.0	0.0
MT	2.88	3.63	6.00	4.10	6.00	0.0	0.98	1.61	1.61	1.58	0.84	0.84	2.43	4.28	4.28
IL	3.11	5.98	5.63	2.52	5.63	0.69	0.26	0.65	0.65	0.21	0.17	0.17	0.43	1.15	1.15
AP	0.76	0.67	0.67	0.67	0.69	0.05	0.05	0.06	0.06	0.05	0.02	0.02	0.17	0.21	0.21
WO	12.76	6.93	4.19	1.44	4.19	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.54	1.90	1.90
FEM. TOTAL	19.40	39.51	29.97	13.04	29.97	29.97	5.85	17.73	17.73	3.16	2.37	2.37	4.64	11.35	11.35

ABBREVIATIONS:
 Q:QUARTZ, C:CORUNDUM, Z:ZIRCON, GR:ORTHOCLASE, AP:ALBITE, AN:ANORTHITE, LC:LEUCITE, NE:NEPHELINE, KP:KALIOPHILITE
 ML:HALITE, NC:SODIUM CARBONATE, AC:ACMITE, NS:SODIUM METASILICATE, KS:POTASSIUM METASILICATE, FA:FAVALITE,
 WO:WOLLASTONITE, DI:DIOPSIDE, EN:ENSTATITE, HY:HYPERSTHENE, FS:FERRUSILITE, FO:FORSTERITE, PF:PEROVSKITE,
 CS:CALCIUM ORTHOSILICATE, MT:MAGNETITE, CM:CHROMITE, HM:HEMATITE, IL:ILMENITE, TN:TITANITE, PF:PEROVSKITE,
 RU:RUTILE, AP:APATITE, CC:CALCITE, PR:PYRITE, FL:FLUORITE,
 SAL.:SALIC MINERALS, FEM.:FEMIC MINERALS

SAMPLE NO.	6		7		8		9		10	
	WT.%	MOL.%	WT.%	MOL.%	WT.%	MOL.%	WT.%	MOL.%	WT.%	MOL.%
	65.36	73.05	83.05	91.36	84.52	91.80	57.50	69.06	62.69	72.97
SiO2	0.75	0.63	0.09	0.07	0.62	0.51	0.82	0.74	0.46	0.40
TiO2	15.42	10.16	10.69	6.93	9.61	6.15	20.29	14.36	17.52	12.02
Al2O3	2.69	1.13	1.86	0.77	1.00	0.41	3.82	1.73	3.17	1.39
Fe2O3	2.84	2.47	0.55	0.49	0.28	0.25	1.67	1.68	2.25	2.19
FeO	0.04	0.04	0.0	0.0	0.04	0.04	0.12	0.12	0.18	0.18
MnO	1.10	1.11	0.03	0.05	0.04	0.06	0.51	0.91	0.29	0.50
MgO	2.97	3.56	0.04	0.05	0.07	0.08	0.74	0.95	0.42	0.52
CaO	3.77	4.08	0.03	0.03	0.33	0.34	3.68	4.28	5.06	5.71
Na2O	3.90	2.78	0.31	0.22	0.43	0.44	7.54	5.78	5.45	5.56
K2O	0.30	0.14	0.06	0.03	0.10	0.10	0.63	0.32	0.17	0.08
P2O5	0.29	0.13	0.01	0.00	0.02	0.02	0.15	0.07	0.02	0.01
BaO	0.0		0.0		0.0		0.0		0.0	
H2O+	0.74		4.20		3.60		1.64		1.62	
H2O-										
TOTAL	99.97	100.00	100.90	100.00	100.66	100.00	99.11	100.00	99.28	100.00
	WEIGHT(Z)	MOL.(Z)	WEIGHT(Z)	MOL.(Z)	WEIGHT(Z)	MOL.(Z)	WEIGHT(Z)	MOL.(Z)	WEIGHT(Z)	MOL.(Z)
Q	20.62	60.98	84.43	91.97	83.35	92.47	6.65	30.14	11.38	46.36
C	0.12	0.22	10.66	6.84	8.86	5.79	6.23	16.64	3.02	7.25
OR	23.22	7.41	1.89	0.22	2.62	0.31	45.71	22.36	32.86	14.44
AB	32.15	10.89	0.26	0.03	2.88	0.37	31.95	16.59	43.84	20.45
AN	15.40	8.56	0.0	0.0	0.0	0.0	0.0	0.0	1.03	0.91
SAL.TOTAL	89.52	88.06	97.24	99.07	97.70	98.94	90.54	85.73	92.13	89.42
EN - HY	2.76	4.89	0.08	0.05	0.10	0.07	1.30	3.53	0.74	1.80
FS - HY	1.47	1.98	0.0	0.0	0.0	0.0	0.0	0.0	1.11	2.07
MT	3.93	3.02	1.50	0.42	0.0	0.0	3.49	4.10	4.71	4.97
HM	0.0	0.0	0.89	0.37	1.03	0.43	1.52	2.58	0.0	0.0
IL	1.44	1.68	0.18	0.08	0.70	0.31	1.60	2.87	0.89	1.44
RU	0.0	0.0	0.0	0.0	0.27	0.23	0.0	0.0	0.0	0.0
AP	0.70	0.38	0.08	0.02	0.14	0.03	1.43	1.19	0.40	0.30
FEM.TOTAL	10.30	11.94	2.72	0.93	2.24	1.06	9.34	14.27	7.86	10.58

ABBREVIATIONS:
 Q:QUARTZ, C:CORUNDUM, Z:ZIRCON, OR:ORTHOCASE, AB:ALBITE, AN:ANORTHITE, LC:LEUCITE, ME:MEGNEPHLINE, KP:KALIOPHILITE
 HL:HALITE, NG:SODIUM CARBONATE, AC:ACMITE, NS:SODIUM METASILICATE, KS:POTASSIUM METASILICATE, FS:FERROSILITE, FO:FORSTERITE, FA:FAYALITE,
 WO:WOLLASTONITE, DI:DIOPSIDE, EN:ENSTHATE, HY:HYPERSTHENE, FS:FERROSILITE, FO:FORSTERITE, FA:FAYALITE,
 CS:CALCIUM ORTHOSILICATE, MT:MAGNETITE, CR:CHROMITE, IL:ILMENEITE, TN:TITANITE, PF:PEROVSKITE,
 RU:RUTILE, AP:APATITE, CC:CALCITE, PR:PYRITE, FL:FLUORITE,
 SAL:SALIC MINERALS, FEM:FEMIC MINERALS

SAMPLE NO.	11			12			13			14			15		
	6H015R GRANULITE CHAUMBWI			6H016R HORNBLENDE GNEISS CHAUMBWI			6H017R PHONOILITE ACHIRUNDU			6H018R GRANITIC GNEISS ACHIRUNDU			6H019R AGGLOMERATE ACHIRUNDU		
	WT.-%	WT.-%	MOL.-%	WT.-%	WT.-%	MOL.-%	WT.-%	WT.-%	MOL.-%	WT.-%	WT.-%	MOL.-%	WT.-%	WT.-%	MOL.-%
SIO2	79.08	54.62	83.95	53.64	54.62	59.06	55.35	59.00	67.38	73.46	74.16	81.23	76.12	76.65	83.17
TIO2	0.01	0.43	0.01	0.42	0.43	0.35	0.50	0.52	0.27	0.49	0.49	0.41	0.12	0.12	0.10
AL2O3	13.21	17.22	8.26	16.97	17.22	11.01	19.89	21.20	14.27	13.30	13.43	8.67	13.25	13.34	8.53
FE2O3	0.10	2.47	0.04	2.43	2.47	1.01	1.80	1.92	0.82	1.40	1.41	0.58	0.57	0.57	0.23
FE0	0.39	9.47	0.35	9.33	9.47	8.59	1.30	1.39	1.32	0.66	0.67	0.61	0.53	0.53	0.48
MNO	0.00	0.22	0.00	0.22	0.22	0.21	0.23	0.25	0.24	0.02	0.02	0.02	0.00	0.00	0.00
MGO	0.04	4.22	0.06	4.22	4.28	6.93	0.21	0.22	0.38	0.17	0.17	0.28	0.03	0.03	0.05
CAD	1.66	8.59	1.89	8.59	8.71	10.13	0.59	0.63	0.77	1.09	1.10	1.29	0.10	0.10	0.12
NA2O	4.87	4.87	5.01	2.22	2.25	2.37	8.95	9.54	10.56	2.73	2.76	2.93	3.73	3.76	3.95
K2O	0.64	0.46	0.43	0.45	0.46	0.32	5.02	5.35	3.90	5.33	5.58	3.90	4.77	4.80	3.32
P2O5	0.00	0.07	0.00	0.07	0.07	0.03	0.12	0.13	0.06	0.36	0.36	0.03	0.02	0.02	0.01
BAO	0.00	0.01	0.00	0.01	0.01	0.00	0.05	0.05	0.02	0.14	0.14	0.06	0.07	0.07	0.03
H2O+	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
H2O-	0.39	0.66	0.00	0.66	0.66	0.00	5.64	5.64	0.00	0.00	0.00	0.00	0.00	0.00	0.59
TOTAL	100.39	100.00	100.00	99.23	100.00	100.00	99.65	100.00	100.00	99.34	100.00	100.00	99.90	100.00	100.00
Q	44.41	84.46	0.00	0.00	26.43	0.00	0.00	0.00	0.00	34.22	79.00	0.00	36.03	81.16	0.00
C	1.49	1.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.90	1.23	0.00	1.78	2.37	0.00
DR	3.78	0.82	0.00	2.70	0.78	31.62	31.62	22.86	0.00	32.99	8.22	0.00	28.38	6.90	0.00
AB	41.21	8.98	0.00	19.06	6.12	40.30	40.30	30.93	0.00	23.32	6.17	0.00	31.78	8.20	0.00
AN	8.23	3.38	0.00	35.52	21.51	0.00	0.00	0.00	0.00	5.32	2.65	0.00	0.50	0.24	0.00
NE	0.00	0.00	0.00	0.00	0.00	0.00	21.11	29.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SAL.TOTAL	99.12	99.27	0.00	66.70	54.89	93.03	93.03	83.68	0.00	96.75	97.26	0.00	98.47	98.87	0.00
AC	0.00	0.00	0.00	0.00	0.00	1.29	1.29	1.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00
WO	0.00	3.03	0.00	3.03	4.40	0.99	0.99	3.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EN	0.00	1.26	0.00	1.26	2.12	0.32	0.32	1.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FS	0.00	1.79	0.00	1.79	2.28	0.71	0.71	2.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EN	0.10	0.11	0.00	9.40	15.77	0.00	0.00	0.00	0.00	0.43	0.59	0.00	0.08	0.10	0.00
FS	0.62	0.53	0.00	13.27	16.95	0.00	0.00	0.97	0.00	0.00	0.00	0.00	0.31	0.31	0.00
PO	0.00	0.00	0.00	0.00	0.00	0.42	0.42	1.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FA	0.00	0.00	0.00	0.00	0.00	2.14	2.14	3.71	0.00	0.78	0.47	0.00	0.83	0.49	0.00
MT	0.14	0.07	0.00	3.57	2.60	0.00	0.00	0.00	0.00	0.88	0.76	0.00	0.00	0.00	0.00
HM	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.88	0.76	0.00	0.00	0.00	0.00
IL	0.02	0.01	0.00	0.81	0.90	0.61	0.61	1.61	0.00	0.94	0.86	0.00	0.23	0.20	0.00
AP	0.00	0.00	0.00	0.16	0.08	0.30	0.30	0.36	0.00	0.14	0.06	0.00	0.05	0.02	0.00
FEM.TOTAL	0.88	0.73	0.00	33.50	45.11	6.94	6.94	16.32	0.00	3.16	2.74	0.00	1.49	1.13	0.00

ABBREVIATIONS: C:CORUNDUM; Z:ZIRCON; OR:ORTHOCLASE; AB:ALBITE; AN:ANORTHITE; LC:LEUCITE; NE:NEPHELINE; KP:KALIOPHILITE; Q:QUARTZ; NC:SODIUM CARBONATE; AC:ACNITE; NS:SODIUM METASILICATE; KS:POTASSIUM METASILICATE; FA:FAVALLITE; WO:WOLLASTONITE; DI:DIOPSIDE; EN:ENSTATITE; HY:HYPERSTHENE; FS:FERROSILITE; FO:FORSTERITE; CS:CALCIUM ORTHOSILICATE; MT:MAGNETITE; CM:CHROMITE; HM:HEMATEITE; IL:ILMENITE; TN:TITANITE; PP:PEROVSKITE; RU:RUTILE; AP:APATITE; CC:CALCITE; PR:PYRITE; FL:FLUORITE; SAL:CALC. MINERALS; FEM:FEMIC MINERALS

SAMPLE NO.	16			17			18			19			20		
	WT. %	WT. %	MOL. %	WT. %	WT. %	MOL. %	WT. %	WT. %	MOL. %	WT. %	WT. %	MOL. %	WT. %	WT. %	MOL. %
6H020R	LEUCOCRATIC GRANITE			HORNBLENDE GRANITE			LEUCOCRATIC GRANITE			LEUCOCRATIC GRANITE			HORNBLENDE GNEISS		
	CHILOLI			CHILOLI			CHILOLI			CHILOLI			KAWANULA		
SIO2	74.51	74.99	81.26	69.00	69.63	77.07	74.62	75.13	81.79	75.42	75.45	81.80	48.45	48.90	49.40
TIO2	0.06	0.06	0.05	0.21	0.21	0.18	0.06	0.06	0.05	0.02	0.02	0.02	0.34	0.34	0.26
AL2O3	14.45	14.54	9.39	16.63	16.78	10.95	13.63	13.72	8.80	14.04	14.05	8.97	13.51	13.64	8.12
FE2O3	0.31	0.31	0.15	0.47	0.47	0.20	0.49	0.49	0.20	0.16	0.16	0.07	0.94	0.95	0.56
FeO	0.32	0.32	0.29	0.45	0.45	0.42	0.45	0.45	0.41	0.53	0.53	0.48	1.96	1.98	1.67
MnO	0.01	0.01	0.01	0.02	0.02	0.02	0.01	0.01	0.01	0.0	0.0	0.0	0.06	0.06	0.05
MgO	0.03	0.03	0.05	0.18	0.18	0.30	0.06	0.06	0.10	0.03	0.03	0.05	8.73	8.81	13.27
CaO	0.92	0.93	1.07	1.58	1.59	1.89	0.66	0.66	0.78	0.96	0.96	1.12	23.36	23.58	25.52
MA2O	4.92	4.95	5.20	4.12	4.16	4.46	3.77	3.80	4.01	3.97	3.97	4.17	0.76	0.77	0.75
K2O	3.76	3.78	2.62	6.19	6.25	4.41	5.39	5.43	3.77	4.77	4.77	3.30	0.88	0.89	0.57
P2O5	0.03	0.03	0.01	0.11	0.11	0.05	0.12	0.12	0.06	0.03	0.03	0.01	0.05	0.05	0.02
BAO	0.04	0.04	0.02	0.13	0.13	0.06	0.06	0.06	0.03	0.03	0.03	0.01	0.03	0.03	0.01
H2O+	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
H2O-	0.22	0.22	0.35	0.35	0.35	0.35	0.30	0.30	0.30	0.61	0.61	0.61	1.11	1.11	1.11
TOTAL	99.58	100.00	100.00	99.44	100.00	100.00	99.62	100.00	100.00	100.37	100.00	100.00	100.18	100.00	100.00
Q	29.62	76.88	0.0	18.01	62.94	0.0	30.91	78.20	0.0	31.68	78.31	0.0	0.0	0.0	0.0
C	0.66	1.01	0.0	0.46	0.95	0.0	0.65	0.96	0.0	0.65	0.95	0.0	0.0	0.0	0.0
OR	22.36	6.27	0.0	36.91	13.92	0.0	32.07	8.76	0.0	28.20	7.52	0.0	0.0	0.0	0.0
AB	41.90	12.46	0.0	59.18	14.09	0.0	52.12	9.31	0.0	33.60	9.52	0.0	0.0	0.0	0.0
AN	4.47	2.51	0.0	7.42	5.60	0.0	2.62	1.43	0.0	4.62	2.47	0.0	51.14	16.26	16.26
LC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.12	1.37	1.37
NE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.52	1.80	1.80
SAL-TOTAL	99.01	99.13	0.0	97.99	97.50	0.0	98.36	98.66	0.0	98.76	98.76	0.0	38.77	19.42	19.42
MO - DI	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	27.50	34.38	34.38
EN - DI	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	21.95	31.75	31.75
FS - DI	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.39	2.64	2.64
EN - HY	0.08	0.12	0.0	0.45	0.95	0.0	0.15	0.23	0.0	0.07	0.11	0.0	0.0	0.0	0.0
FS - HY	0.25	0.30	0.0	0.13	0.21	0.0	0.34	0.40	0.0	0.81	0.91	0.0	0.0	0.0	0.0
CS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.48	7.56	7.56
MT	0.45	0.30	0.0	0.69	0.62	0.0	0.72	0.47	0.0	0.23	0.15	0.0	1.38	0.86	0.86
IL	0.11	0.12	0.0	0.40	0.56	0.0	0.11	0.11	0.04	0.04	0.04	0.0	0.65	0.62	0.62
AP	0.07	0.03	0.0	0.26	0.16	0.0	0.28	0.13	0.0	0.07	0.03	0.0	0.12	0.05	0.05
MO-TOTAL	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.12	2.72	2.72
FEM-TOTAL	0.96	0.87	0.0	1.93	2.50	0.0	1.60	1.34	0.0	1.22	1.24	0.0	60.64	80.58	80.58

ABBREVIATIONS:
 Q: QUARTZ, C: CORUNDUM, Z: ZIRCON, DR: ORTHOCLASE, AB: ALBITE, AN: ANORTHITE, LC: LEUCITE, NE: NEPHELINE, KP: KALIOPHILITE
 HL: HALITE, NC: SODIUM CARBONATE, AC: ACTINITE, NS: SODIUM METASILICATE, KS: POTASSIUM METASILICATE,
 WO: WOLLASTONITE, DI: DIOPSIDE, EM: ENSTATITE, HY: HYPERSTHENE, FS: FERROSILITE, FO: FORSTERITE, FA: FAYALITE,
 CS: CALCIUM ORTHOSILICATE, MI: MAGNETITE, CH: CHROMITE, HM: HEMATITE, IL: ILLMENITE, TN: TITANITE, PP: PEROFSKITE,
 RU: RUTILE, AP: APATITE, CC: CALCITE, PR: PYRITE, FL: FLUORITE,
 SAL.: SALIC MINERALS, FEM.: FEMIC MINERALS

SAMPLE NO.	21 6H027R PHONOILITE KAWANULA		22 6H030R NEPHELINE LIPEREMBE		23 6H031R MICROSYPENITE NSENGWA		24 6M001R FELD. AGSLDMERATE TUNDULU		25 6M003R SYENITE TUNDULU	
	WT.-%	MOL.-%	WT.-%	MOL.-%	WT.-%	MOL.-%	WT.-%	MOL.-%	WT.-%	MOL.-%
SI02	35.95	40.00	51.49	61.73	61.79	70.97	61.98	76.08	42.77	53.64
TI02	4.82	4.03	1.24	1.12	0.21	0.18	0.46	0.48	0.77	0.73
AL203	9.50	6.23	19.29	13.83	17.13	11.59	14.58	15.07	22.35	18.52
FE2O3	6.76	2.83	2.65	1.20	3.25	1.40	3.19	3.30	2.27	1.07
FeO	6.91	6.43	2.93	2.94	3.32	3.36	3.39	3.40	2.42	2.54
MNO	0.23	0.22	0.19	0.19	0.18	0.18	0.35	0.36	0.17	0.18
MGD	10.12	16.78	0.92	0.96	0.17	0.29	0.07	0.07	0.80	1.50
CAO	15.92	18.97	3.84	4.93	1.09	1.10	2.74	2.83	5.19	6.96
NA2O	2.79	3.01	7.35	8.54	6.23	6.31	0.26	0.27	9.73	11.83
X2O	1.40	0.99	5.04	3.85	5.31	5.38	10.50	10.85	6.05	4.84
P2O5	1.04	0.49	0.30	0.31	0.07	0.07	2.00	2.07	0.15	0.08
BAO	0.05	0.02	0.16	0.17	0.00	0.00	0.22	0.23	0.25	0.12
H2O+	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
H2O-	4.32	3.83	3.83	3.83	0.70	0.70	2.26	2.26	6.36	6.36
TOTAL	99.81	100.00	99.23	100.00	99.45	100.00	99.00	100.00	99.27	100.00
Q	0.0	0.0	0.0	0.0	1.72	11.02	20.45	64.08	0.0	0.0
C	0.0	0.0	0.0	0.0	0.0	0.0	2.53	4.67	0.0	0.0
OR	0.0	0.0	31.22	17.66	31.77	21.99	64.14	21.69	3.73	1.69
AB	0.0	0.0	25.44	15.27	53.58	39.21	2.27	0.82	0.0	0.0
AN	9.70	4.89	4.99	5.64	3.13	4.34	0.96	0.65	0.0	0.0
LC	6.79	2.18	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NE	13.39	6.61	21.53	23.87	0.0	0.0	0.0	0.0	47.39	42.04
SAL.TOTAL	29.89	13.69	83.18	62.45	90.01	76.55	90.35	91.91	51.12	43.72
AC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.00	0.54
MO - DI	17.46	21.09	4.16	11.28	0.78	2.60	0.0	0.0	4.26	9.24
EN - DI	15.09	21.09	2.40	7.53	0.10	0.37	0.0	0.0	2.14	5.38
FS - DI	0.0	0.0	1.57	3.74	0.77	2.24	0.0	0.0	2.02	3.86
EN - HY	0.0	0.0	0.0	0.0	0.53	1.26	0.18	0.34	0.0	0.0
FS - HY	0.0	0.0	0.0	0.0	2.68	7.81	0.0	0.0	0.0	0.0
FO - DL	7.92	15.80	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
FA - DL	7.48	12.19	0.0	0.0	0.0	0.0	0.0	0.0	6.36	15.73
CS	9.48	5.74	4.03	5.48	4.77	7.94	1.10	0.90	3.04	3.31
MT	0.54	0.48	0.0	0.0	0.0	0.0	2.54	2.99	0.0	0.0
HM	9.59	8.86	2.47	5.12	0.40	1.03	0.90	1.12	1.57	2.61
IL	2.52	1.08	0.73	0.70	0.16	0.19	4.79	2.74	0.37	0.29
AP	0.0	0.0	1.56	3.70	0.0	0.0	0.0	0.0	7.05	15.30
WO	0.0	0.0	16.72	37.55	10.00	23.45	9.51	8.09	27.83	56.28
FEM.TOTAL	70.08	86.31	16.72	37.55	10.00	23.45	9.51	8.09	27.83	56.28

ABBREVIATIONS:
Q:QUARTZ, C:CORUNDUM, Z:ZIRCON, OR:ORTHOCLEASE, AB:ALBITE, AN:ANORTHITE, LC:LEUCITE, NE:NEPHELINE, KPK:KALIOPHILITE
HL:HALITE, NC:SODIUM CARBONATE, AC:ACMITE, NS:SODIUM METASILICATE, KS:POTASSIUM METASILICATE,
WO:WOLLASTONITE, DI:DIOPSIDE, EN:ENSTATITE, HY:HYPERSTHENE, FS:FERROSILITE, FO:FORSTERITE, FA:FAYALITE,
CS:CALCIUM ORTHOSILICATE, MT:MAGNETITE, CM:CHROMITE, HM:HEMATITE, IL:ILMENITE, TN:TITANITE, PF:PEROVSKITE,
RU:RUTILE, AP:APATITE, CC:CALCITE, PR:PYRITE, FL:FLUORITE,
SAL.:SALIC MINERALS, FEM.:FEMIC MINERALS

SAMPLE NO.	26			27			28			29			30		
	WT.%	MOL.-%	WT.%	WT.%	MOL.-%	WT.%	WT.%	MOL.-%	WT.%	WT.%	MOL.-%	WT.%	WT.%	MOL.-%	
	45.65	50.29	57.59	48.67	50.16	54.96	78.82	82.05	89.16	75.52	75.73	82.05	56.31	57.97	69.17
SiO2	0.62	0.68	0.59	2.04	2.10	1.73	0.74	0.77	0.63	0.03	0.03	0.02	0.65	0.67	0.60
TiO2	15.84	17.45	11.77	15.17	15.64	10.09	10.63	11.07	7.09	13.85	13.93	8.89	20.22	20.82	14.64
Al2O3	4.28	4.71	2.03	4.76	4.91	2.02	4.20	4.37	1.79	0.03	0.03	0.01	4.48	4.61	2.07
Fe2O3	1.96	2.16	2.07	5.52	5.69	5.21	0.50	0.52	0.47	0.53	0.53	0.48	0.19	0.20	0.20
FeO	0.61	0.67	0.65	0.14	0.14	0.13	0.00	0.00	0.00	0.01	0.01	0.01	0.14	0.14	0.15
MnO	0.54	0.59	1.02	6.10	6.29	10.27	0.05	0.05	0.08	0.10	0.10	0.16	0.20	0.21	0.37
MgO	9.10	10.02	12.30	7.85	8.09	9.50	0.10	0.10	0.12	0.98	0.99	1.14	1.53	1.58	2.01
CaO	5.66	6.23	6.92	3.89	4.01	4.26	0.05	0.05	0.05	3.53	3.55	3.73	1.67	1.72	1.99
Na2O	5.88	6.48	4.73	1.84	1.90	1.33	0.57	0.59	0.41	4.94	4.97	3.43	10.30	10.60	8.07
K2O	0.48	0.53	0.26	0.89	0.92	0.43	0.33	0.34	0.16	0.04	0.04	0.02	1.26	1.30	0.66
BAO	0.18	0.18	0.08	0.15	0.15	0.07	0.07	0.07	0.03	0.10	0.10	0.04	0.18	0.19	0.09
H2O+				0.00			0.00			0.00			0.00		
H2O-	8.56			1.98			4.42			0.00			1.89		
TOTAL	99.34	100.00	100.00	99.00	100.00	100.00	100.48	100.00	100.00	99.80	100.00	100.00	99.02	100.00	100.00

	26			27			28			29			30		
	WT.-%	MOL.-%	WT.-%	WT.-%	MOL.-%	WT.-%	WT.-%	MOL.-%	WT.-%	WT.-%	MOL.-%	WT.-%	WT.-%	MOL.-%	
Q	0.0	0.0	0.0	0.0	0.0	0.0	79.40	89.96	89.96	33.43	79.11	79.11	7.09	31.60	
C	0.0	0.0	0.0	0.0	0.0	0.0	10.34	6.90	6.90	0.95	1.32	1.32	6.51	17.11	
OR	38.27	17.41	4.45	3.51	0.43	0.43	3.51	0.43	0.43	29.35	7.50	7.50	62.66	50.16	
AB	4.95	2.39	14.30	33.92	14.30	0.44	0.44	0.06	0.06	30.03	8.14	8.14	14.55	7.43	
AN	0.49	0.45	19.07	0.00	0.00	0.00	0.00	0.00	0.00	4.81	2.46	2.46	0.00	0.00	
NE	25.90	23.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
SAL.TOTAL	69.62	43.34	64.20	93.69	33.91	97.34	93.69	97.34	97.34	98.57	98.53	98.53	90.81	86.30	
WO - DI	1.88	4.10	12.21	6.41	12.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
EN - DI	1.48	3.74	4.80	4.80	10.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
FS - DI	0.19	0.37	1.64	0.98	1.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
EN - HY	0.00	0.00	2.79	6.15	0.09	0.13	0.13	0.09	0.09	0.25	0.35	0.35	0.51	1.37	
FS - HY	0.00	0.00	0.57	0.95	0.00	0.00	0.00	0.00	0.00	0.92	0.99	0.99	0.00	0.00	
FO - OL	0.00	0.00	5.65	17.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
FA - OL	0.00	0.00	1.27	2.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
MT	6.84	7.48	7.11	6.79	0.00	0.00	0.00	0.00	0.00	0.04	0.03	0.03	0.00	0.00	
HM	0.00	0.00	0.00	0.00	0.00	0.00	4.37	1.86	1.86	0.00	0.00	0.00	4.61	7.74	
IL	1.30	2.16	3.99	5.82	0.00	0.00	1.10	0.49	0.16	0.06	0.05	0.05	0.72	1.27	
RU	0.00	0.00	0.00	0.00	0.00	0.00	0.19	0.16	0.16	0.00	0.00	0.00	0.29	0.97	
AP	1.23	0.94	2.13	1.43	0.23	0.05	0.23	0.05	0.09	0.09	0.04	0.04	2.89	2.35	
WG	17.37	37.86	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
FEM.TOTAL	30.28	56.66	35.71	66.09	66.09	66.09	66.09	66.09	66.09	1.37	1.47	1.47	9.03	13.70	

ABBREVIATIONS:
Q:QUARTZ, C:CORUNDUM, Z:ZIRCON, DR:ORTHOCLASE, AB:ALBITE, AN:ANORTHITE, LC:LEUCITE, NE:NEPHELINE, KP:KALIOPHILITE
HL:HALITE, NC:SODIUM CARBONATE, AC:ACMITE, NS:SODIUM METASILICATE, KS:POTASSIUM METASILICATE, FA:FAYALITE,
WO:WOLLASTONITE, DI:DIOPSIDE, EN:ENSTHATE, HY:HYPERSTHENE, FS:FERRISILITE, FO:FORSTERITE, PA:PAVALITE,
CS:CALCIUM OPTHOSILICATE, MT:MAGNETITE, CM:CHROMITE, HM:HEMATITE, IL:ILMENITE, TN:TITANITE, PP:PEROVSKITE,
RU:RUTILE, AP:APATITE, CC:CALCITE, PR:PYRITE, FL:FLUORITE,
SAL:SYLIC MINERALS, FEM:FEMIC MINERALS

SAMPLE NO.	31		32		33		34		35	
	WT. %	MOL. %	WT. %	MOL. %	WT. %	MOL. %	WT. %	MOL. %	WT. %	MOL. %
	50.51	53.42	57.61	59.84	58.55	60.39	52.90	53.34	63.11	66.88
SiO2	0.64	0.89	0.47	0.49	0.38	0.39	1.85	1.87	0.26	0.28
TiO2	17.97	19.01	11.55	12.00	15.67	16.16	12.45	12.53	10.77	11.41
Al2O3	2.19	2.32	12.64	13.13	6.66	6.87	5.36	5.40	3.56	3.77
FeO	3.24	3.43	0.04	0.04	0.66	0.68	9.78	9.86	2.15	2.28
MnO	0.34	0.36	0.49	0.51	0.58	0.59	0.27	0.27	0.30	0.32
MgO	0.86	0.91	0.63	0.65	0.78	0.80	4.37	4.41	2.19	2.32
CaO	4.56	4.82	3.26	3.41	3.26	3.36	7.27	7.33	4.08	4.32
Na2O	9.45	9.99	0.20	0.21	4.74	4.89	2.82	2.84	5.56	5.89
K2O	4.04	4.27	9.37	9.73	5.39	5.56	1.61	1.62	1.90	2.01
P2O5	0.37	0.39	0.47	0.49	0.16	0.17	0.23	0.23	0.15	0.16
BaO	0.18	0.19	0.25	0.26	0.32	0.33	0.27	0.27	0.34	0.36
H2O+	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
H2O-	4.49		3.02		3.16		0.84		4.69	
TOTAL	99.04	100.00	99.29	100.00	100.11	100.00	100.02	100.00	99.06	100.00
	WEIGHT(%)	MOL.(%)	WEIGHT(%)	MOL.(%)	WEIGHT(%)	MOL.(%)	WEIGHT(%)	MOL.(%)	WEIGHT(%)	MOL.(%)
Q	0.0	0.0	17.50	53.60	4.74	22.95	7.74	22.57	16.62	49.08
OR	25.25	12.50	57.51	19.01	32.85	17.15	9.59	9.02	11.90	3.79
AB	16.90	8.89	1.76	0.62	41.37	22.92	24.06	8.03	47.49	16.07
AN	0.0	0.0	3.06	2.02	5.74	5.99	16.69	10.51	0.0	0.0
NE	30.91	30.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SAL. TOTAL	73.07	51.39	79.83	75.26	86.70	69.01	58.09	44.13	76.01	68.94
AC	6.70	4.00	0.0	0.0	0.0	0.0	0.0	0.0	2.08	0.80
NS	0.70	1.57	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WO - DI	7.46	17.70	1.89	2.99	2.32	5.80	7.79	11.74	8.27	12.63
EN - DI	2.27	6.22	1.63	2.99	2.00	5.60	3.81	6.64	5.78	10.21
FS - DI	5.49	11.48	0.0	0.0	0.0	0.0	3.84	5.10	1.80	2.42
EN - HY	0.0	0.0	0.0	0.0	0.0	0.0	7.17	12.50	0.0	0.0
FS - HY	0.0	0.0	0.0	0.0	0.0	0.0	7.23	9.59	0.0	0.0
MT	0.0	0.0	0.38	0.30	2.34	2.93	7.84	5.93	4.43	3.39
HM	0.0	0.0	12.87	14.83	5.26	9.57	0.0	0.0	0.0	0.0
IL	1.89	3.07	0.93	1.12	0.74	1.43	3.54	4.09	0.52	0.61
AP	0.91	0.76	1.13	0.63	0.38	0.34	0.54	0.29	0.37	0.20
WD	1.61	3.82	1.19	1.88	2.05	5.13	0.0	0.0	0.53	0.80
FEM. TOTAL	26.82	48.61	20.01	24.74	15.09	30.99	41.74	55.87	23.77	31.06

ABBREVIATIONS:
Q:QUARTZ, C:CORUNDUM, Z:ZIRCON, OR:ORTHOCLASE, AG:ALBITE, AN:ANORTHITE, LC:LEUCITE, NE:NEPHELINE, KP:KALIOPHILITE
HL:HALITE, NC:SODIUM CARBONATE, AC:ACMITE, NS:SODIUM METASILICATE, KS:POTASSIUM METASILICATE, FA:FAJALITE,
WO:WOLLASTONITE, DI:DIPSIDE, EN:ENSTATITE, HY:HYPERSTHENE, FS:FERROSILITE, PO:POFSERITE, PF:FAJALITE,
CS:CALCIUM ORTHOSILICATE, MT:MAGNETITE, CM:CHROMITE, HM:HEMATITE, IL:ILMENITE, TN:TITANITE, PP:PEROVSKITE,
RU:RUTILE, AP:APATITE, CC:CALCITE, PR:PYRITE, FL:FLUORITE,
SAL.:SALIC MINERALS, FEM.:FEMIC MINERALS

SAMPLE NO.	36			37			38			39			40		
	WT. %	MOL. %	WT. %	WT. %	MOL. %	WT. %	WT. %	MOL. %	WT. %	MOL. %	WT. %	MOL. %	WT. %	MOL. %	
6M054R QUARTZ DRUSE ROCK KANGANKUNDE	65.33	64.91	71.46	58.35	60.25	69.56	47.97	50.20	58.34	47.66	49.26	55.87	36.48	38.35	41.96
6M061R FENITE NSALA	0.79	0.81	0.67	1.17	1.21	1.05	1.47	1.54	1.34	2.12	2.19	1.87	3.64	3.83	3.15
6M062R FOYAITÉ NSALA	13.56	13.90	9.02	13.63	14.07	9.57	17.66	18.48	12.66	14.05	14.52	9.71	8.75	9.20	5.93
6M063R PHONOLITIC BRECCIA NSALA	3.95	4.05	1.68	8.39	8.66	3.76	5.76	6.03	2.64	6.71	6.94	2.96	10.41	10.94	4.50
6M064R PHONOLITE ALIGOMBA	2.93	3.00	2.76	0.13	0.13	0.13	2.42	2.53	2.46	3.72	3.84	3.65	7.33	7.71	7.05
STO2	0.16	0.16	0.15	0.49	0.51	0.49	0.47	0.49	0.48	0.25	0.26	0.25	0.39	0.41	0.38
TIO2	1.40	1.43	2.35	0.74	0.76	1.31	1.12	1.17	2.03	3.16	3.27	5.52	7.26	7.63	12.45
AL2O3	3.79	3.88	4.58	2.26	2.33	2.89	3.84	4.02	5.00	7.61	7.87	9.56	16.87	17.73	20.79
FE2O3	5.06	5.19	5.53	6.42	6.63	7.42	9.21	9.66	10.86	6.15	6.36	6.99	2.30	2.42	2.56
FE0	2.25	2.31	1.62	4.53	4.68	3.44	5.02	5.25	3.89	3.97	4.10	2.97	1.65	1.71	1.20
MNO	0.24	0.25	0.11	0.54	0.56	0.27	0.20	0.21	0.10	1.17	1.21	0.58	0.0	0.0	0.0
MGO	0.11	0.11	0.05	0.20	0.21	0.09	0.41	0.43	0.20	0.18	0.19	0.08	0.07	0.07	0.03
CAO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NA2O	1.65	1.65	2.26	4.42	4.42	4.42	4.42	4.42	4.42	3.16	3.16	3.16	3.91	3.91	3.91
P2O5	99.22	100.00	100.00	99.11	100.00	100.00	99.97	100.00	100.00	99.91	100.00	100.00	99.04	100.00	100.00
BAO															
H2O+															
H2O-															
TOTAL	99.22	100.00	100.00	99.11	100.00	100.00	99.97	100.00	100.00	99.91	100.00	100.00	99.04	100.00	100.00
G	17.71	55.74	0.0	3.09	16.86	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OR	13.63	4.46	0.0	27.64	16.25	0.0	31.05	15.77	0.0	0.0	0.0	0.0	24.25	10.47	0.0
AB	43.88	15.25	0.0	46.35	28.93	0.0	2.11	1.14	0.0	0.0	0.0	0.0	19.92	9.13	0.0
AN	7.83	5.13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SAL. TOTAL	83.05	78.58	0.0	77.08	62.03	0.0	34.51	34.36	0.0	17.29	14.64	34.25	11.08	5.74	13.27
AC	0.0	0.0	0.0	8.58	6.08	0.0	13.87	8.49	0.0	1.71	0.89	0.0	0.0	0.0	0.0
WO - DI	4.19	6.57	0.0	2.20	6.20	0.0	5.14	12.52	0.0	9.41	19.48	0.0	21.49	27.22	0.0
EN - DI	2.92	5.29	0.0	1.90	6.20	0.0	2.92	8.22	0.0	8.13	19.48	0.0	18.57	27.22	0.0
FS - DI	0.95	1.28	0.0	0.0	0.0	0.0	2.00	4.30	0.0	0.0	0.0	0.0	0.0	0.0	0.0
EN - HY	0.66	1.20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
FS - HY	0.21	0.29	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
FD - DL	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MT	5.87	4.62	0.0	0.0	0.0	0.0	1.79	2.19	0.0	6.88	7.15	0.0	8.50	14.53	0.0
RM	0.0	0.0	0.0	5.70	11.68	0.0	0.0	0.0	0.0	1.60	2.41	0.0	15.08	9.58	0.0
IL	1.54	1.85	0.0	1.37	2.95	0.0	2.92	5.45	0.0	4.16	6.59	0.0	0.54	0.50	0.0
TN	0.0	0.0	0.0	1.20	2.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AP	0.57	0.32	0.0	1.29	1.29	0.0	0.48	0.42	0.0	2.80	2.05	0.0	0.0	0.0	0.0
WO	0.0	0.0	0.0	0.56	1.57	0.0	2.94	7.15	0.0	3.72	7.71	0.0	0.0	0.0	0.0
FEM. TOTAL	16.86	21.42	0.0	22.80	37.97	0.0	32.07	48.73	0.0	38.42	65.75	0.0	71.75	86.73	0.0

ABBREVIATIONS:
Q: QUARTZ, C: CALCITE, Z: ZIRCON, OR: ORTHOCLASE, AB: ALBITE, AN: ANORTHITE, LC: LEUCITE, NS: NEPHELINE, KP: KALIOPHILITE
HL: HALITE, NC: SODIUM CARBONATE, AC: ACHITE, NS: SODIUM METASILICATE, KS: POTASSIUM METASILICATE, FA: FAYALITE,
MO: MOLLASTONITE, DI: DIOPSIDE, EN: ENSTATITE, HY: HYPERSTHENE, FS: FERROSILITE, FO: FORTSTERITE, FA: FAYALITE,
CS: CALCIUM ORTHOSILICATE, MT: MAGNETITE, CM: CHROMITE, HM: HEMATITE, IL: ILLMENITE, TT: TITANITE, PF: PEROFSKITE,
RU: RUTILE, AP: APATITE, CC: CALCITE, PR: PYRITE, FL: FLUORITE,
SAL.: SALIC MINERALS, FEM.: FEMIC MINERALS

SAMPLE NO.	41		42		43		44		45	
	WT. %	MOL. %	WT. %	MOL. %	WT. %	MOL. %	WT. %	MOL. %	WT. %	MOL. %
SI02	54.35	66.43	54.05	66.00	55.80	65.38	63.42	65.38	55.91	66.38
TiO2	0.34	0.31	0.34	0.31	0.64	0.56	1.07	1.10	0.55	0.49
AL2O3	19.83	21.15	19.89	21.17	19.82	20.25	13.65	13.87	19.08	13.35
FE2O3	2.62	2.79	2.45	2.61	3.50	3.58	3.94	4.06	3.01	3.13
FeO	1.14	1.22	1.63	1.73	0.66	0.67	0.76	0.78	0.55	0.55
MnO	0.22	0.23	0.33	0.24	0.26	0.27	0.54	0.56	0.21	0.21
MgO	0.19	0.20	0.19	0.20	0.37	0.38	1.37	1.41	0.29	0.30
CaO	0.84	0.90	0.83	0.88	1.47	1.50	1.36	1.40	1.18	1.23
Na2O	9.47	10.10	9.27	9.86	10.36	10.59	9.60	9.90	10.36	10.78
K2O	4.74	5.05	5.03	5.35	4.73	4.83	1.09	1.12	4.85	5.05
P2O5	0.03	0.03	0.05	0.05	0.17	0.17	0.39	0.40	0.08	0.08
BAD	0.0	0.0	0.01	0.01	0.09	0.09	0.01	0.01	0.06	0.06
H2O*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
H2O-	5.29		5.36		1.11		1.33		1.81	
TOTAL	99.06	100.00	99.33	100.00	98.98	100.00	98.33	100.00	97.94	100.00
Q	0.0	0.0	0.0	0.0	0.0	0.0	6.29	30.05	0.0	0.0
OR	29.87	20.86	31.63	21.56	28.56	19.06	6.64	3.42	29.81	20.07
AB	35.51	26.32	32.70	23.66	28.61	20.27	65.06	35.59	31.62	22.59
NE	24.44	33.44	25.12	33.55	26.35	34.47	0.0	0.0	22.96	30.28
SAL. TOTAL	89.82	80.61	89.45	78.77	83.52	73.80	78.00	69.06	84.39	72.94
AC	4.25	3.57	3.88	3.18	10.35	8.32	11.75	7.30	9.06	7.35
NS	0.0	0.0	0.0	0.0	0.13	0.40	1.24	2.92	1.61	4.93
MO - DI	1.44	4.82	1.69	5.53	1.66	5.32	1.82	4.48	1.32	4.26
EN - DI	0.50	1.95	0.36	1.38	0.94	3.48	1.37	3.93	0.75	2.80
FS - DI	0.97	2.87	1.44	4.15	0.65	1.84	0.26	0.55	0.51	1.45
EN - HY	0.0	0.0	0.0	0.0	0.0	0.0	2.14	6.12	0.0	0.0
FO - HY	0.0	0.0	0.0	0.0	0.0	0.0	0.40	0.86	0.0	0.0
FO - CL	0.0	0.0	0.10	0.53	0.0	0.0	0.0	0.0	0.0	0.0
FA - OL	0.0	0.0	0.43	1.59	0.0	0.0	0.0	0.0	0.0	0.0
MT	1.92	3.23	1.84	3.01	0.0	0.0	0.0	0.0	0.0	0.0
IL	0.69	1.76	0.69	1.72	1.24	3.04	2.10	3.96	1.09	2.68
AP	0.07	0.09	0.12	0.14	0.40	0.45	0.93	0.81	0.19	0.22
MO	0.33	1.09	0.0	0.0	1.04	3.34	0.0	0.0	1.04	3.36
FEM. TOTAL	10.18	19.39	10.55	21.23	16.42	26.20	22.01	30.94	15.57	27.06

ABBREVIATIONS:
 Q:QUARTZ, C:CORUNDUM, Z:ZIRCON, OR:ORTHOCLASE, AB:ALBITE, AN:ANORTHITE, LC:LEUCITE, NE:NEPHELINE, KP:KALIOPHILITE
 HL:HALITE, NC:SODIUM CARBONATE, AC:ACITE, NS:SODIUM METASILICATE, KS:POTASSIUM METASILICATE,
 MO:WOLLASTONITE, DI:DIPSIDE, EN:ENSTATITE, HY:HYPERSTHENE, FS:FERROSILITE, FO:FORSTERITE, FA:FAYALITE,
 CS:CALCIUM ORTHOSILICATE, MT:MAGNETITE, CM:CHROMITE, HM:HEMATITE, IL:ILMENITE, TN:TITANITE, PF:PEROVSKITE,
 RU:RUTILE, AP:APATITE, CC:CALCITE, PR:PYRITE, FL:FLUORITE,
 SAL.:SALIC MINERALS, FEM.:FEMIC MINERALS

SAMPLE NO.	46		47		48		49		50					
	WT. %	MOL. %	WT. %	MOL. %	WT. %	MOL. %	WT. %	MOL. %	WT. %	MOL. %				
	6M072R FOYALITE KADANGOSI		6M073R SOLYSBERGITE MLINDI		6M074R PERTHOSITE MLINDI		6M075R APLITE MLINDI		6M077R SOLYSBERGITE MLINDI					
SIO2	57.40	58.55	66.47	62.50	72.75	61.92	62.87	73.03	78.37	79.24	85.22	61.61	62.65	72.74
TIO2	0.62	0.63	0.54	0.09	0.08	0.95	0.96	0.84	0.11	0.11	0.09	0.16	0.16	0.14
AL2O3	18.59	18.96	12.69	19.81	20.49	16.97	17.23	11.79	11.36	11.49	7.28	18.33	18.64	12.75
FE2O3	2.97	3.03	1.29	5.47	2.49	4.34	4.81	1.93	0.57	0.58	0.23	6.08	6.18	2.70
FED	0.98	1.00	0.95	0.01	0.01	0.51	0.52	0.50	0.53	0.54	0.48	0.26	0.26	0.26
MGO	0.23	0.23	0.23	0.17	0.18	0.04	0.04	0.44	0.00	0.00	0.00	0.12	0.12	0.12
MNO	0.35	0.36	0.60	0.05	0.09	0.25	0.25	0.44	0.03	0.03	0.05	0.09	0.09	0.16
CAD	1.76	1.80	2.18	0.10	0.13	0.79	0.80	1.00	0.61	0.61	0.48	0.16	0.16	0.20
NA2O	10.17	10.37	11.42	4.88	5.95	2.82	2.86	3.22	2.72	2.75	2.87	5.96	6.06	6.82
X2O	4.80	4.90	3.55	5.83	5.82	9.03	9.17	6.79	4.70	4.75	3.26	5.24	5.33	3.95
P2O5	0.10	0.10	0.05	0.22	0.23	0.10	0.10	0.05	0.02	0.02	0.01	0.23	0.23	0.11
BAO	0.07	0.07	0.03	0.03	0.01	0.77	0.78	0.36	0.08	0.08	0.03	0.10	0.10	0.05
H2O+	0.0	0.0	0.03	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
H2O-	0.99			2.76		0.51			0.56			1.73		
TOTAL	99.03	100.00	100.00	99.46	100.00	99.00	100.00	100.00	99.46	100.00	100.00	100.07	100.00	100.00
	WEIGHT (%)	MOL. (%)	WEIGHT (%)	MOL. (%)	WEIGHT (%)	MOL. (%)	WEIGHT (%)	MOL. (%)	WEIGHT (%)	MOL. (%)	WEIGHT (%)	MOL. (%)	WEIGHT (%)	MOL. (%)
Q	0.0	0.0	42.40	10.59	42.40	8.71	40.19	43.97	85.81	85.81	43.97	6.87	33.52	
C	0.0	0.0	5.88	13.88	13.88	0.66	2.34	1.06	1.22	1.22	2.90	8.34	8.34	
DR	28.93	18.82	34.40	34.40	14.87	54.18	26.99	28.08	5.91	5.91	31.49	16.57	16.57	
AB	33.58	23.18	42.70	19.59	19.59	24.25	12.51	23.27	5.20	5.20	51.28	28.65	28.65	
AN	0.0	0.0	0.0	0.0	0.0	4.75	4.72	2.07	0.87	0.87	0.0	0.0	0.0	
NE	19.88	25.33	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
SAL. TOTAL	82.39	67.33	90.74	93.57	90.74	92.71	87.06	98.46	99.02	99.02	92.54	87.08	87.08	
AC	8.76	6.87	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
NS	1.76	5.21	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
WO	2.11	6.57	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
EN - DI	0.89	3.21	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
FS - DI	1.23	3.37	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
EN - HY	0.0	0.0	0.13	0.13	0.31	0.63	1.75	0.08	0.09	0.09	0.23	0.67	0.67	
FS - HY	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.32	0.29	0.29	0.0	0.0	0.0	
MT	0.0	0.0	0.34	0.34	0.35	0.0	0.0	0.84	0.42	0.42	0.78	0.99	0.99	
HM	0.0	0.0	5.42	8.17	8.17	4.41	7.65	0.0	0.0	0.0	5.65	10.36	10.36	
IL	1.20	2.87	0.18	0.18	0.28	1.18	2.16	0.21	0.16	0.16	0.31	0.60	0.60	
RU	0.0	0.0	0.34	0.34	0.0	0.0	1.19	0.0	0.0	0.0	0.0	0.0	0.0	
AP	0.24	0.26	0.20	0.20	0.15	0.24	0.20	0.05	0.02	0.02	0.35	0.31	0.31	
WD	1.38	4.32	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
FEM. TOTAL	17.57	32.67	9.26	6.27	9.26	6.80	12.94	1.49	0.98	0.98	7.31	12.92	12.92	

ABBREVIATIONS:
 Q:QUARTZ, C:CORUNDUM, Z:ZIRCON, OR:ORTHOCASE, AB:ALBITE, AN:ANORTHITE, LC:LEUCITE, NE:NEPHELINE, KP:KALIOPHILITE
 HL:HALITE, NS:SODIUM CARBONATE, AC:ACACITE, NS:SODIUM METASILICATE, KS:POTASSIUM METASILICATE,
 WO:WOLLASTONITE, DI:DIOPSIDE, EN:ENSTATITE, HY:HYPERSTHENE, FS:FERROSILITE, FO:FORSTERITE, FA:FAYALITE,
 CS:CALCIUM ORTHOSILICATE, MT:MAGNETITE, CM:CHROMITE, HM:HEMATE, IL:ILMENEITE, TN:TITANITE, PF:PEROVSKITE,
 RU:RUTILE, AP:APATITE, CC:CALCITE, PP:PYRITE, FL:FLUORITE,
 SAL:SALIC MINERALS, FEM:FEMIC MINERALS

SAMPLE NO.	51			52			53			54			55		
	WT. %	WT. %	MOL. %	WT. %	WT. %	MOL. %	WT. %	WT. %	MOL. %	WT. %	WT. %	MOL. %	WT. %	WT. %	MOL. %
	6M079R GABBRG MLINDI			6Y003R FELDSPATHIC ROCK TUNDULU			6Y006R NEPHELINE SYENITE TUNDULU			6Y010R GRANULITE TUNDULU			6Y011R MICROFOVAITE TUNDULU		
SI02	47.61	48.22	50.14	46.93	48.12	61.77	49.41	50.98	60.11	56.58	57.89	65.96	53.97	56.32	64.63
TI02	1.91	1.93	1.51	0.68	0.70	0.67	0.89	0.92	0.81	1.35	1.38	1.18	0.44	0.46	0.40
AL03	10.04	10.17	6.23	13.36	13.70	10.36	20.37	21.02	14.60	17.01	17.41	11.69	20.27	21.15	14.30
FE03	3.85	3.90	1.53	16.13	16.54	7.99	5.05	5.21	2.31	5.13	5.25	2.25	2.37	2.47	1.07
FE0	8.67	8.78	7.64	0.26	0.27	0.29	1.76	1.82	1.79	1.57	1.61	1.53	1.17	1.22	1.17
MNO	0.21	0.21	0.19	0.23	0.24	0.26	0.25	0.26	0.26	0.07	0.07	0.07	0.18	0.19	0.18
MGO	11.16	11.30	17.52	0.06	0.06	0.12	0.56	0.58	1.02	1.73	1.77	3.01	0.23	0.24	0.41
CAO	9.93	10.06	11.20	5.12	5.25	7.22	3.20	3.30	4.17	3.65	3.94	4.81	1.05	1.20	1.35
NA2O	2.12	2.15	2.16	0.23	0.24	0.29	7.70	7.94	9.08	5.12	5.24	5.79	10.57	11.03	12.27
K2O	1.97	2.00	1.32	10.46	10.73	8.78	7.17	7.40	5.56	4.43	4.53	3.29	5.44	5.68	4.16
P2O5	0.98	0.99	0.64	3.93	4.03	2.19	0.32	0.33	0.16	0.55	0.56	0.27	0.07	0.07	0.04
BAO	0.28	0.28	0.12	0.13	0.13	0.07	0.24	0.25	0.11	0.00	0.00	0.16	0.06	0.06	0.03
H2O+	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
H2O-	0.33	0.33	1.58	1.58	1.58	2.53	2.53	2.53	1.82	1.82	1.82	3.53	3.53	3.53	3.53
TOTAL	99.06	100.00	100.00	99.10	100.00	100.00	99.45	100.00	100.00	99.55	100.00	100.00	99.35	100.00	100.00

	51			52			53			54			55		
	WEIGHT(%)	MOL.(%)	MOL.(%)	WEIGHT(%)	MOL.(%)	MOL.(%)	WEIGHT(%)	MOL.(%)	MOL.(%)	WEIGHT(%)	MOL.(%)	MOL.(%)	WEIGHT(%)	MOL.(%)	MOL.(%)
Q	0.0	0.0	0.0	5.61	25.26	0.0	0.0	0.0	0.0	1.59	8.36	0.0	0.0	0.0	0.0
C	0.0	0.0	0.0	1.70	4.51	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GR	11.79	3.58	0.0	63.38	30.78	43.71	43.71	24.57	26.79	26.79	15.21	33.55	21.89	21.33	0.0
AB	18.17	5.53	0.0	2.00	1.03	6.91	6.91	4.12	44.33	26.71	26.71	21.89	14.77	0.0	0.0
AN	12.22	7.01	0.0	0.0	0.0	0.0	0.0	0.0	10.59	12.03	12.03	0.0	0.0	0.0	0.0
NE	0.0	0.0	0.0	0.0	0.0	0.0	32.51	35.79	0.0	0.0	0.0	29.96	37.32	0.0	0.0
SAL.TOTAL	42.17	15.92	0.0	72.69	61.57	83.13	83.13	64.49	0.0	83.29	62.31	0.0	85.40	73.42	0.0
AC	0.0	0.0	0.0	0.0	0.0	0.0	0.27	0.18	0.0	0.0	0.0	0.0	7.16	5.48	0.0
NS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.87	5.41	0.0
MO - DI	13.24	18.20	0.0	0.0	0.0	0.0	1.67	4.48	2.47	2.47	6.71	2.12	2.12	6.45	0.0
EN - DI	8.99	14.29	0.0	0.0	0.0	0.0	1.44	4.48	2.13	2.13	6.71	0.55	1.94	0.0	0.0
FS - DI	3.23	3.90	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.68	4.22	0.0	0.0
EN - HY	4.79	7.62	0.0	0.15	0.41	0.0	0.0	0.0	0.0	2.28	7.17	0.0	0.0	0.0	0.0
FS - HY	1.72	2.08	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
FD - OL	10.07	22.85	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.03	0.17	0.0
FA - OL	3.98	6.24	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.12	0.40	0.0
MT	5.65	3.90	0.0	16.54	27.99	0.0	4.03	5.45	1.41	1.41	1.92	0.0	0.0	0.0	0.0
HM	0.0	0.0	0.0	0.0	0.0	0.0	2.34	4.58	4.28	4.28	5.47	0.0	0.0	0.0	0.0
IL	3.67	1.90	0.0	1.07	1.90	0.0	1.74	3.80	2.62	2.62	5.46	0.87	2.03	0.0	0.0
RU	0.0	0.0	0.0	0.14	0.46	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AP	2.30	1.12	0.0	9.32	7.66	0.0	0.76	0.73	1.30	1.30	1.25	0.17	0.17	0.18	0.0
WO	0.0	0.0	0.0	0.0	0.0	0.0	4.46	12.01	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PEM.TOTAL	57.65	84.08	0.0	27.22	38.43	16.71	16.71	35.51	16.49	37.69	37.69	14.56	26.58	0.0	0.0

ABBREVIATIONS: C:CORUNDUM, Z:ZIRCON, OR:ORTHOCLASE, AB:ALBITE, AN:ANORTHITE, LC:LEUCITE, NE:NEPHELINE, KP:KALIOPHILITE
 Q:QUARTZ, HL:HALITE, NC:SODIUM CARBONATE, AC:ACICMITE, NS:SODIUM METASILICATE, KS:POSSASSIUM METASILICATE,
 WO:WOLLASTONITE, DI:DIOPSIDE, EN:ENSTATITE, HY:HYPERSTHENE, FS:FERRORSILITE, FO:FORSTERITE, FA:FAYALITE,
 CS:CALCIUM ORTHOSILICATE, MT:MAGNETITE, CM:CHROMITE, HM:HEMATE, IL:ILMENITE, TN:TITANITE, PP:PEROVSKITE,
 RU:RUTILE, AP:APATITE, CC:CALCITE, PR:PYRITE, FL:FLUORITE,
 SAL.:SALIC MINERALS, FEM.:FEMIC MINERALS

SAMPLE NO.	56			57			58			59			60		
	WT. %	WT. %	MOL. %	WT. %	WT. %	MOL. %	WT. %	WT. %	MOL. %	WT. %	WT. %	MOL. %	WT. %	WT. %	MOL. %
6Y019R FOVAITE SONGHE	6Y023R PHONOILITE NAMANGALE			6Y024R TRACHYTE NAMANGALE			6Y026R PHONOILITE NAMANGALE			6Y029R GRANITE NAMINGA					
SI02	55.23	56.16	65.03	53.79	55.58	63.30	54.59	56.92	65.21	54.18	56.09	63.92	71.29	72.70	79.55
TI02	0.56	0.57	0.50	0.84	0.87	0.74	0.78	0.81	0.70	0.52	0.54	0.46	0.21	0.21	0.18
AL2O3	22.55	22.93	15.65	19.42	20.07	13.48	20.50	21.38	14.43	20.44	21.16	14.21	14.24	14.52	9.36
FE2O3	1.99	2.02	0.88	2.90	3.00	1.29	1.93	2.01	0.87	1.14	1.18	0.51	0.73	0.74	0.31
FE0	0.66	0.67	0.65	1.30	1.34	1.28	2.15	2.24	2.15	2.16	2.24	2.13	1.03	1.05	0.96
MNO	0.16	0.16	0.16	0.19	0.20	0.19	0.23	0.24	0.23	0.18	0.19	0.18	0.01	0.01	0.01
MGO	0.25	0.25	0.44	1.10	1.14	1.93	0.99	1.03	1.76	0.44	0.46	0.77	0.20	0.20	0.33
CAO	1.41	1.43	1.78	2.54	2.62	3.21	1.51	1.57	1.93	2.00	2.07	2.53	1.21	1.23	1.45
NA2O	8.36	8.50	9.54	9.08	9.38	10.37	6.98	7.28	8.08	9.49	9.82	10.85	3.87	3.95	4.19
K2O	7.11	7.23	5.34	5.24	5.41	3.94	5.83	6.08	4.44	5.63	5.83	4.24	4.96	5.06	3.53
P2O5	0.05	0.05	0.02	0.27	0.28	0.13	0.22	0.23	0.11	0.20	0.21	0.10	0.24	0.24	0.11
BaO	0.02	0.02	0.01	0.11	0.11	0.05	0.19	0.20	0.09	0.22	0.23	0.10	0.07	0.07	0.03
H2O+	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
H2O-	1.33			2.52			3.98			2.96			0.97		
TOTAL	99.68	100.00	100.00	99.50	100.00	100.00	99.88	100.00	100.00	99.56	100.00	100.00	99.03	100.00	100.00

	56			57			58			59			60		
	WEIGHT (%)	WEIGHT (%)	MOL. (%)	WEIGHT (%)	WEIGHT (%)	MOL. (%)	WEIGHT (%)	WEIGHT (%)	MOL. (%)	WEIGHT (%)	WEIGHT (%)	MOL. (%)	WEIGHT (%)	WEIGHT (%)	MOL. (%)
Q	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	27.63	73.72	0.0
C	0.0	0.0	0.0	0.0	0.0	0.0	0.38	1.37	0.0	0.0	0.0	0.0	0.85	1.54	0.0
DR	42.72	28.98	31.99	19.07	35.92	23.77	35.92	23.77	35.92	23.77	35.92	23.77	29.89	8.61	0.0
AB	20.73	14.93	23.64	14.95	33.92	23.83	6.67	8.83	0.0	0.0	0.0	0.0	33.39	10.21	0.0
AN	3.06	4.15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.65	2.68	0.0
NE	27.73	36.85	26.78	31.26	14.99	19.43	91.88	77.23	0.0	29.55	34.63	0.0	0.0	0.0	0.0
SAL. TOTAL	94.24	84.91	82.41	65.28	91.88	77.23	0.0	0.0	0.0	85.82	69.08	0.0	96.41	96.55	0.0
AC	0.0	0.0	0.0	4.00	0.0	0.0	0.0	0.0	0.0	3.41	2.46	0.0	0.0	0.0	0.0
MS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.67	1.82	0.0	0.0	0.0	0.0
WD - DI	0.73	2.38	3.73	10.64	0.0	0.0	0.0	0.0	0.0	3.90	11.16	0.0	0.0	0.0	0.0
EN - DI	0.63	2.38	2.83	9.35	0.0	0.0	0.0	0.0	0.0	0.99	3.29	0.0	0.0	0.0	0.0
FS - DI	0.0	0.0	0.0	1.29	0.0	0.0	0.0	0.0	0.0	3.12	7.87	0.0	0.0	0.0	0.0
EN - HY	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.51	0.81	0.0
FS - HY	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.19	0.0
FO - GL	0.0	0.0	0.0	0.0	0.0	0.0	1.80	9.43	0.0	0.10	0.47	0.0	0.0	0.0	0.0
FA - DL	0.0	0.0	0.0	0.0	0.0	0.0	1.20	4.55	0.0	0.34	1.12	0.0	0.0	0.0	0.0
MT	1.04	1.70	1.56	2.23	2.92	4.64	0.0	0.0	0.0	0.0	0.0	0.0	1.08	0.75	0.0
HM	1.30	3.08	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
IL	1.08	2.69	1.65	3.60	1.54	3.75	0.0	0.0	0.0	1.02	2.24	0.0	0.41	0.43	0.0
AP	0.12	0.14	0.65	0.65	0.53	0.60	0.0	0.0	0.0	0.48	0.49	0.0	0.57	0.28	0.0
WD	0.84	2.72	1.04	2.96	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
FEM. TOTAL	5.75	15.09	17.52	34.72	8.00	22.77	14.03	30.92	0.0	3.54	3.54	0.0	3.54	3.45	0.0

ABBREVIATIONS:
 Q:QUARTZ, C:CORUNDUM, Z:ZIRCON, OR:ORTHOCLASE, AB:ALBITE, AN:ANORTHITE, LC:LEUCITE, NE:NEPHELINE, KP:KALIOPHILITE
 GL:HALITE, NC:SODIUM CARBONATE, AC:ACMITE, NS:SODIUM METASILICATE, KS:POYASSIUM METASILICATE,
 WD:WOLLASTONITE, DI:DIPSIDE, EN:ENSTATITE, HY:HYPERSTHENE, FS:FERROSILITE, FO:FOSTERITE, FA:FAYALITE,
 CS:CALCIUM ORTHOSILICATE, MT:MAGNETITE, CR:CHROMITE, HM:HEMATITE, IL:ILMENITE, IN:INJITANITE, PP:PEROFESKITE,
 RU:RUTILE, AP:APATITE, CC:CALCITE, PR:PYRITE, FL:FLUORITE,
 SAL:SALIC MINERALS, FEM:FEMIC MINERALS

SAMPLE NO.	61			62			63			64			65		
	WT. %	WT. %	MOL. %	WT. %	WT. %	MOL. %	WT. %	WT. %	MOL. %	WT. %	WT. %	MOL. %	WT. %	WT. %	MOL. %
6Y030R GRANITE NAMINGA	88.82	90.03	93.77	74.14	74.55	81.21	61.16	62.79	72.07	60.14	61.23	68.61	59.81	60.60	67.84
SI02	0.13	0.13	0.10	0.17	0.17	0.14	0.84	0.86	0.74	0.72	0.73	0.62	1.00	1.01	0.85
Y102	3.02	3.07	1.88	15.44	15.51	8.67	12.85	13.19	8.92	18.08	18.41	12.15	18.37	18.61	12.28
AL2O3	3.43	3.48	1.37	1.06	1.07	0.44	6.86	7.04	3.04	0.96	0.98	0.41	1.46	1.42	0.62
FE2O3	0.06	0.06	0.05	0.78	0.78	0.71	0.78	0.80	0.77	1.30	1.32	1.24	2.59	2.62	2.46
FED	0.93	1.00	0.88	0.02	0.02	0.02	0.12	0.12	0.12	0.10	0.10	0.10	0.12	0.12	0.12
MNO	0.10	0.10	0.16	0.17	0.17	0.28	0.56	0.57	0.98	0.82	0.83	1.39	0.94	0.95	1.59
MGO	0.44	0.45	0.50	0.91	0.92	1.07	2.15	2.21	2.71	3.16	3.22	3.86	2.87	2.91	3.49
CAO	0.61	0.62	0.63	3.82	3.84	4.06	4.61	4.73	5.27	6.16	6.27	6.81	6.86	6.95	7.54
NA2O	0.89	0.90	0.60	4.76	4.79	3.33	6.54	6.71	4.92	6.26	6.37	4.56	4.04	4.09	2.92
K2O	0.01	0.01	0.00	0.10	0.10	0.05	0.65	0.67	0.32	0.31	0.32	0.15	0.28	0.28	0.15
P2O5	0.14	0.14	0.06	0.03	0.03	0.03	0.29	0.30	0.15	0.21	0.21	0.09	0.35	0.35	0.15
BAD	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
H2O+	1.31			0.91			2.02			0.92			0.69		
H2O-															
TOTAL	99.74	100.00	100.00	100.36	100.00	100.00	99.43	100.00	100.00	99.14	100.00	100.00	99.38	100.00	100.00

SAMPLE NO.	61			62			63			64			65		
	WT. %	WT. %	MOL. %	WT. %	WT. %	MOL. %	WT. %	WT. %	MOL. %	WT. %	WT. %	MOL. %	WT. %	WT. %	MOL. %
6Y042R SYENITE CHIKALA	81.78	96.04		31.76	78.04		9.36	40.51		0.0	0.0		0.0	0.0	
Q	0.19	0.13		0.54	0.78		0.78	18.52		0.0	0.0		0.0	0.0	
DR	5.34	0.68		28.28	7.50		39.67	16.52		37.66	25.73		24.19	16.28	
AB	5.24	0.71		32.50	9.15		30.47	15.10		42.28	30.66		54.93	39.23	
AN	2.41	0.61		4.03	2.14		0.0	0.0		3.25	4.45		7.50	10.10	
NE	0.0	0.0		0.0	0.0		0.0	0.0		5.84	7.82		2.10	2.77	
SAL. TOTAL	94.96	92.16		97.11	97.82		79.51	74.14		89.04	68.65		86.72	68.38	
AC	0.0	0.0		0.0	0.0		8.43	4.74		0.0	0.0		0.0	0.0	
WO - DI	0.0	0.0		0.0	0.0		1.66	3.71		2.94	9.61		2.39	7.70	
EN - DI	0.0	0.0		0.0	0.0		1.43	3.71		2.08	7.93		1.22	4.56	
FS - DI	0.0	0.0		0.0	0.0		0.0	0.0		0.60	1.73		1.11	3.14	
EN - HY	0.25	0.18		0.43	0.63		0.0	0.0		0.0	0.0		0.0	0.0	
FS - HY	0.0	0.0		0.31	0.35		0.0	0.0		0.0	0.0		0.0	0.0	
FO - OL	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
FA - OL	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0		0.81	4.29	
MT	3.06	0.93		1.55	0.99		0.48	0.54		1.62	2.33		2.15	3.47	
HM	1.37	0.61		0.0	0.0		3.79	6.16		0.0	0.0		0.0	0.0	
IL	0.25	0.12		0.22	0.32		1.64	2.81		1.59	3.49		1.92	4.75	
AP	0.02	0.01		0.23	0.10		1.55	1.22		0.73	0.85		0.66	0.75	
WO	0.0	0.0		0.0	0.0		1.32	2.93		1.67	5.47		0.0	0.0	
FEM. TOTAL	4.96	1.84		2.84	2.38		20.30	25.86		10.83	31.35		11.05	31.62	

ABBREVIATIONS:
Q:QUARTZ, C:CORUNDUM, Z:ZIRCON, OR:ORTHOCLASTE, AB:ALBITE, AN:ANORTHITE, LC:LEUCITE, NE:NEPHELINE, KP:KALIOPHILITE
HL:HALITE, NS:SODIUM CARBONATE, AC:ACMITE, NS:SODIUM METASILICATE, KS:POTASSIUM METASILICATE,
WO:WOLLASTONITE, DI:DIOPSIDE, EN:ENSTHATE, HY:HYPERSTHENE, FS:FERROSILITE, FO:FOSTERITE, FA:FAYALITE,
CS:CALCIUM ORTHOSILICATE, MT:MAGNETITE, CM:CHROMITE, HM:HEMATITE, IL:ILMENITE, TN:TITANITE, PP:PEROVSKITE,
RU:RUTILE, AP:APATITE, CC:CALCITE, PR:PYRITE, FL:FLUORITE,
SAL.:SALIC MINERALS, FEM.:FEMIC MINERALS

SAMPLE NO.	66			67			68			69			70		
	WT. %	MOL. %		WT. %	MOL. %		WT. %	MOL. %		WT. %	MOL. %		WT. %	MOL. %	
SI02	60.49	61.31	68.81	42.69	43.14	47.64	55.05	56.79	66.76	53.51	54.98	62.46	59.49	60.63	70.73
TIO2	1.10	1.11	0.94	2.47	2.50	2.07	0.59	0.61	0.52	0.81	0.83	0.71	0.46	0.47	0.41
AL2O3	17.75	17.99	11.90	10.55	10.66	6.94	20.37	21.02	14.12	19.66	20.22	13.54	19.95	20.33	13.98
FE2O3	1.40	1.42	0.60	9.05	9.15	3.80	1.57	1.62	0.69	2.27	2.33	1.00	5.52	5.63	2.47
FE	2.37	2.40	2.25	5.67	5.73	5.29	1.36	1.40	1.34	4.91	4.93	0.89	0.53	0.54	0.53
MNO	0.16	0.16	0.15	0.45	0.45	0.43	0.13	0.13	0.13	0.13	0.13	0.13	0.11	0.11	0.11
MGO	0.72	0.73	1.22	5.98	6.04	9.95	0.46	0.47	0.81	0.88	0.90	1.53	0.07	0.07	0.12
CAO	2.01	2.04	2.45	12.94	13.08	15.47	1.02	1.05	1.29	2.75	2.83	3.44	0.09	0.09	0.11
NA2O	6.84	6.93	7.54	5.86	5.92	6.34	10.57	10.90	12.05	10.97	11.27	12.41	6.45	6.57	7.43
K2O	5.44	5.51	3.95	2.21	2.23	1.57	5.53	5.71	4.15	4.88	5.01	3.63	5.36	5.46	4.06
P2O5	0.35	0.35	0.17	1.06	1.09	0.51	0.19	0.20	0.09	0.24	0.25	0.17	0.05	0.05	0.03
BAO	0.03	0.03	0.01	0.0	0.0	0.0	0.09	0.10	0.04	0.20	0.21	0.09	0.04	0.04	0.02
H2O+	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
H2O-	0.57			0.83			1.12			1.93			1.71		
TOTAL	99.23	100.00	100.00	99.78	100.00	100.00	99.05	100.00	100.00	99.26	100.00	100.00	99.83	100.00	100.00
	WEIGHT (%)	MOL. (%)		WEIGHT (%)	MOL. (%)		WEIGHT (%)	MOL. (%)		WEIGHT (%)	MOL. (%)		WEIGHT (%)	MOL. (%)	
Q	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.30	8.20	
C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.53	13.11	
DR	32.58	22.96		9.17	2.89		33.71	21.19		29.63	16.72		32.28	21.94	
AB	50.44	37.74		0.0	0.0		25.57	17.06		20.26	12.14		55.82	40.13	
AN	1.69	2.38		0.0	0.0		0.0	0.0		0.0	0.0		0.20	0.27	
NE	4.45	6.15		22.97	14.17		27.50	33.86		30.24	33.43		0.0	0.0	
SAL. TOTAL	89.16	69.22		32.14	17.06		86.78	72.11		80.13	62.29		92.93	83.65	
AC	0.0	0.0		6.79	2.57		4.69	3.55		6.75	4.59		0.0	0.0	
NS	0.0	0.0		0.0	0.0		2.47	7.08		2.70	6.96		0.0	0.0	
WO - DI	2.57	8.68		18.85	28.44		1.72	5.17		3.13	8.45		0.0	0.0	
EN - DI	1.30	5.07		15.05	26.28		0.68	2.38		2.25	7.04		0.0	0.0	
FS - DI	1.21	3.61		1.63	2.16		1.05	2.79		0.59	1.41		0.0	0.0	
EN - HY	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0		0.18	0.67	
FO - OL	0.36	2.03		0.0	0.0		0.35	1.74		0.0	0.0		0.0	0.0	
FA - OL	0.37	1.44		0.74	1.27		0.59	2.04		0.0	0.0		0.0	0.0	
MT	2.06	3.49		9.86	7.46		0.0	0.0		0.0	0.0		0.75	1.22	
HM	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0		5.11	12.11	
IL	2.12	5.47		4.74	5.48		1.16	2.67		1.58	3.27		0.89	2.22	
AP	0.82	0.98		2.53	1.35		0.45	0.48		0.81	0.77		0.12	0.14	
WO	0.0	0.0		5.24	7.94		0.0	0.0		1.93	5.22		0.0	0.0	
FEM. TOTAL	10.82	30.78		65.44	82.94		13.16	27.89		19.74	37.71		7.04	16.35	

ABBREVIATIONS:
 C:CORUNDUM, Z:ZIRCON, Q:QUARTZ, GR:ORTHOCLEASE, AB:ALBITE, AN:ANORTHITE, LC:LEUCITE, NE:NEPHELINE, KP:KALIOPHILITE
 HL:HALITE, NC:SODIUM CARBONATE, AC:ACMITE, NS:SODIUM METASILICATE, KS:POTASSIUM METASILICATE, FS:FERROSILITE, FO:FORSTERITE, FA:FAVALLITE,
 WO:WOLLASTONITE, DI:DIOPSIDE, EN:ENSTATITE, HY:HYPERSTHENE, PS:PEROSILITE, FM:FERROMAGNETITE, IL:ILMENE, TT:TITANITE, PF:PEROVSKITE,
 CS:CALCIUM ORTHOSILICATE, MT:MAGNETITE, CM:CHROMITE, HM:HEMATE, IL:ILMENE, TT:TITANITE, PF:PEROVSKITE,
 RU:RUTILE, AP:APATITE, CC:CALCITE, PR:PYRITE, FL:FLUORITE,
 SAL:CALC MINERALS, FEM:FERRIC MINERALS

SAMPLE NO.	71			72			73			74			75		
	6Y050R FOYAITE MONGOLWE			6Y063R BEFOLSITE KANGANKUNDE			6Y072R NEPHELINE KAPIRI			6Y073R MICRODYAITE NSALA			6Y074R PHONOLITE NSALA		
	WT. %	WT. %	MOL. %	WT. %	WT. %	MOL. %	WT. %	WT. %	MOL. %	WT. %	WT. %	MOL. %	WT. %	WT. %	MOL. %
SiO2	63.96	64.37	73.18	13.04	16.24	19.92	27.98	35.04	37.25	49.88	52.71	61.42	38.35	39.95	44.70
TiO2	0.18	0.18	0.15	0.54	0.67	0.62	1.98	2.48	1.98	1.64	1.73	1.52	4.08	4.26	3.58
Al2O3	17.36	17.47	11.70	1.78	2.22	1.60	5.33	6.68	4.18	17.86	18.87	12.96	11.98	12.48	8.23
Fe2O3	3.72	3.74	1.60	14.89	18.54	8.56	3.86	4.83	1.93	5.72	6.04	2.65	8.22	8.56	3.60
FeO	0.26	0.26	0.25	0.03	0.04	0.04	9.02	11.30	10.04	1.43	1.51	1.47	5.35	5.57	5.21
MnO	0.12	0.12	0.12	2.06	2.57	2.67	0.38	0.48	0.43	0.28	0.30	0.29	0.69	0.72	0.68
MgO	0.38	0.38	0.65	4.61	5.74	10.50	6.41	8.03	12.72	1.21	1.28	2.22	6.37	6.53	10.89
CaO	0.37	0.37	0.45	28.10	34.99	46.00	18.91	21.18	24.12	3.53	4.05	5.05	12.06	12.56	15.06
Na2O	6.41	6.45	7.11	0.13	0.16	0.19	3.53	4.42	4.56	6.59	6.75	7.63	4.65	4.84	5.25
K2O	6.46	6.50	4.71	0.43	0.54	0.42	1.02	1.28	0.87	5.55	5.86	4.36	2.56	2.67	1.90
P2O5	0.06	0.06	0.03	14.25	17.74	9.22	3.38	4.23	1.90	0.57	0.60	0.30	1.58	1.65	0.78
B2O3	0.09	0.09	0.04	0.45	0.56	0.27	0.05	0.06	0.03	0.27	0.29	0.13	0.20	0.21	0.09
H2O+	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
H2O-	0.90	0.90	0.00	18.41	19.14	19.14	19.14	19.14	19.14	4.24	4.24	4.24	0.00	0.00	3.75
TOTAL	100.27	100.00	100.00	98.72	100.00	100.00	98.99	100.00	100.00	98.87	100.00	100.00	99.73	100.00	100.00
Q	1.26	8.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
GR	38.41	29.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	34.66	19.06	0.00	8.54	2.68	0.00
AB	53.66	43.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	23.65	13.81	0.00	0.00	0.00	0.00
AN	0.00	0.00	0.00	3.74	2.20	2.20	0.00	0.00	0.00	3.87	4.26	0.00	4.43	2.78	0.00
LC	0.00	0.00	0.00	2.48	0.93	0.93	5.92	1.79	0.87	0.00	0.00	0.00	0.00	0.00	0.00
NE	0.00	0.00	0.00	0.74	0.43	0.43	14.75	6.86	18.14	18.14	19.55	0.00	28.20	13.62	0.00
SAL. TOTAL	93.34	82.28	0.00	6.96	3.56	3.56	20.67	8.65	8.65	80.31	56.68	0.00	35.16	19.07	0.00
AC	0.81	0.75	0.00	0.00	0.00	0.00	8.97	2.57	2.57	0.00	0.00	0.00	0.00	0.00	0.00
WO - DI	0.68	2.49	0.00	5.28	7.44	7.44	5.93	6.29	3.68	3.68	9.71	0.00	18.82	28.24	0.00
EN - DI	0.58	2.49	0.00	4.57	7.44	7.44	2.96	3.90	3.18	3.18	9.71	0.00	16.27	28.24	0.00
FS - DI	0.00	0.00	0.00	0.00	0.00	0.00	2.39	2.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EN - HY	0.37	1.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FO - OL	0.00	0.00	0.00	6.82	15.86	15.86	11.93	22.43	22.43	0.00	0.00	0.00	0.00	0.00	0.00
FA - OL	0.00	0.00	0.00	0.00	0.00	0.00	10.59	13.74	13.74	0.00	0.00	0.00	1.32	2.26	0.00
CS	0.00	0.00	0.00	13.09	24.86	24.86	19.90	30.54	30.54	0.00	0.00	0.00	0.00	0.00	0.00
MT	0.71	1.32	0.00	6.54	4.62	4.62	2.51	1.43	1.43	0.81	1.02	0.00	7.96	5.99	0.00
HM	2.97	7.97	0.00	14.03	14.37	14.37	0.00	0.00	0.00	5.48	10.51	0.00	3.07	3.35	0.00
IL	0.34	0.97	0.00	1.28	1.38	1.38	4.71	4.10	4.10	3.29	6.64	0.00	8.09	9.29	0.00
AP	0.14	0.18	0.00	41.11	20.46	20.46	9.81	3.84	3.84	1.20	1.30	0.00	3.81	2.02	0.00
WO	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.66	4.37	0.00	1.02	1.53	0.00
FEM. TOTAL	6.80	17.72	0.00	92.71	96.44	96.44	79.30	91.34	91.34	19.51	43.32	0.00	60.36	80.93	0.00

ABBREVIATIONS:
 Q:QUARTZ, C:CORUNDUM, Z:ZIRCON, OR:ORTHOCLASE, AB:ALBITE, AN:ANORTHITE, LC:LEUCITE, NE:NEPHELINE, KP:KALIOPHILITE
 HL:HALITE, NC:SODIUM CARBONATE, AC:ACMITE, NS:SODIUM METASILICATE, KS:POTASSIUM METASILICATE,
 WO:WOLLASTONITE, DI:DIOPSIDE, EN:ENSTATITE, HY:HYPERSTHENE, FS:FERROSILITE, FO:FORSTERITE, FA:FAVALLITE,
 CS:CALCIUM ORTHOSILICATE, MT:MAGNETITE, CM:CHROMITE, HM:HEMATITE, IL:ILMENITE, TN:TITANITE, PF:PEROVSKITE,
 RU:RUTILE, AP:APATITE, CC:CALCITE, PR:PRASE, FL:FLUORITE,
 SAL.:SALIC MINERALS, FEM.:FEMIC MINERALS

SAMPLE NO.	76	
	AGGLOMERATE NSALA	
	WT. %	MOL. %
SiO2	46.83	54.93
TiO2	2.03	1.79
Al2O3	15.98	11.05
Fe2O3	5.56	2.45
FeO	3.49	3.42
MnO	0.25	0.25
MgO	2.70	4.72
CaO	7.79	9.79
Na2O	6.08	6.91
K2O	5.20	3.89
P2O5	1.38	0.64
BaO	0.34	0.16
H2O+	0.0	
H2O-	2.77	
TOTAL	100.50	100.00

	WEIGHT (%)	MOL. (%)
OR	51.51	13.78
AB	9.49	4.40
AN	0.98	0.86
NE	23.43	20.08
SAL. TOTAL	65.41	39.12
WO - DI	7.98	16.72
EN - DI	6.89	16.72
MT	6.34	6.66
HM	1.33	2.03
IL	3.95	6.34
AP	2.04	2.25
WO	4.84	10.15
FEM. TOTAL	54.58	60.88

ABBREVIATIONS:

Q: QUARTZ. C: CORUNDUM. Z: ZIRCON. OR: ORTHOCLASE. AB: ALBITE. AN: ANDRTHITE. LC: LEUCITE. NE: NEPHELINE. KP: KALIOPHILITE
 HL: HALITE. NS: SODIUM METASILICATE. AC: ACMITE. NS: SODIUM METASILICATE. KS: POTASSIUM METASILICATE. FC: FAYALITE.
 WO: WOLLASTONITE. DI: DIOPSIDE. EN: ENSTATITE. HY: HYPERSTHENE. FS: FERROSILITE. FO: FORSTERITE. FA: FAYALITE.
 CS: CALCIUM ORTHOSILICATE. MT: MAGNETITE. CM: CHROMITE. HM: HEMATITE. IL: ILLMENITE. TN: TITANITE. PF: PEROFSKITE.
 RU: RUTILE. AP: APLATITE. CC: CALCITE. PR: PIRYRITE. FL: FLUORITE.
 SAL: SALIC MINERALS. FEM: FEMIC MINERALS

Sample No.	Sector	Rock name	Microscopic observation
6H001R	Nkallonje	Monzonite	monzonite medium-grained texture main constituents: plagioclase, orthoclase (altered partly to calcite, sericite pectolite), aegirine, sodalite minor constituents: biotite, sphene, cancrinite accessory minerals: apatite, hematite
6H003R	Salambidwa	Trachyte	calcite-bearing trachyte trachytic texture phenocrysts: dusty anorthoclase groundmass: anorthoclase, hauyne, plagioclase, cancrinite, apatite, magnetite, calcite
6H006R	Chipalanje	Granulite	granulite granular texture main constituents: plagioclase, orthoclase, quartz, biotite minor constituents: hornblende (altered to chlorite, calcite), magnetite accessory minerals: apatite, zircon secondary minerals: carbonate, epidote, chlorite
6H014R	Mongolwe	Trachyte	trachyte trachytic texture main constituents: anorthoclase minor constituents: quartz, biotite, arfvedsonite secondary minerals: opaque mineral, nontronite
6H015R	Chaumbwi	Granulite	granulite granular texture main constituents: quartz, plagioclase, muscovite secondary minerals: sericite, opaque mineral

Sample No.	Sector	Rock name	Microscopic observation
6H016R	Chaumbwi	Granulite	granulite granular texture main constituents: plagioclase, garnet minor constituents: quartz, greenish brown hornblende, pale green clinopyroxene accessory minerals: apatite secondary minerals: opaque mineral
6H017R	Achirundu	Lamprophyre	lamprophyre porphyritic texture phenocrysts: orthoclase, biotite, magnetite, barkevikite, apatite, augite, plagioclase? (completely replaced by pectolite) groundmass: plagioclase, augite, aegirine, biotite, magnetite, apatite, anorthoclase, analcime secondary minerals: carbonate, pectolite
6H023R	Chiloli	Quartz-syenite	quartz-syenite mosaic texture main constituents: microperthite, quartz minor constituents: plagioclase accessory minerals: zircon
6H024R	Chiloli	Clinopyroxenite	clinopyroxenite coarse-grained texture main constituents: clinopyroxene accessory mineral: amphibole (replacing clinopyroxene), sphene secondary minerals: opaque mineral

Sample No.	Sector	Rock name	Microscopic observation
6H027R	Kawanula	Lamprophyre	<p>calcite-bearing lamprophyre porphyritic texture phenocrysts: kaersutite, augite, biotite groundmass: augite, biotite, magnetite, anorthoclase, calcite, apatite aggregates composed of augite, biotite, calcite, plagioclase (augite phenocrysts origin ?) secondary minerals: carbonate, chlorite</p>
6H030R	Liperembe	Trachyte	<p>trachyte porphyritic texture phenocrysts: sanidine, augite, hornblende, magnetite, sphere groundmass: plagioclase, anorthoclase, magnetite, aegirine, apatite, biotite, cancrinite, ilmenite secondary minerals: carbonate, limonite</p>
6H031R	Nsengwa	Phonolite	<p>phonolite trachytic texture phenocrysts: anorthoclase groundmass: anorthoclase, sanidine, plagioclase, arfvedsonite biotite, apatite secondary minerals: limonite, sericite, nontronite</p>
6M001R	Tundulu	Syenite aplite	<p>fine-grained syenite granular texture main constituents: dusty orthoclase minor constituents: apophyllite, zeolite, plagioclase, apatite, magnetite Apophyllite occurs as vein and geode mantled with zeolite. secondary minerals: limonite, carbonate</p>

Sample No.	Sector	Rock name	Microscopic observation
6M002R	Tundulu	Trachyte	trachyte intergranular texture main constituents plagioclase (andesine) minor constituents: quartz, K-feldspar, biotite (strongly altered) carbonate accessory mineral: dark green hornblende secondary minerals: nontronite, opaque mineral
6M003R	Tundulu	Nepheline syenite	calcite-bearing syenite medium-grained, granular texture main constituents: K-feldspar (orthoclase (inclusion rich and altered to pectolite partial)), biotite, aegirine nepheline, magnetite accessory minerals: cancrinite, calcite, sphene, apatite secondary minerals: pectolite, carbonate
6M008R	Matoponi	Phonolite ?	partially carbonatized phonolite ? spherulitic texture main constituents: K-feldspar, biotite, acicular aegirine cancrinite, calcite, natrolite, sodalite, magnetite secondary minerals: carbonate, limonite, sericite, amphibole ?
6M010R	Matoponi	Granulite	granulite granular texture main constituents: orthoclase (graphic), plagioclase, biotite, augite, hypersthene, magnetite accessory minerals: apatite, sphene secondary minerals: sericite, smectite, limonite

Sample No.	Sector	Rock name	Microscopic observation
6M012R	Namangale	Syenite porphyry	strongly altered syenite porphyry coarse-grained, trachytoid texture main constituents: exsolved anorthoclase, plagioclase magnetite accessory minerals: sphene, zircon secondary minerals: calcite, carbonate, sericite, biotite, nontronite
6M018R	Tundulu	Monzonite	monzonite fine-grained texture main constituents: dusty orthoclase, plagioclase, quartz accessory minerals: aggrine, calcite, apatite, opaque mineral secondary minerals: limonite, carbonate, sericite, rutile
6M030R	Chilwa I.	Carbonatite Tuff Carbonatite	carbonatite intersertal texture main constituents: calcite, siderite ? tuff main constituents: plagioclase, cancrinite minor constituents: calcite, zircon secondary minerals: limonite carbonatite porphyritic texture main constituents: carbonate (calcite > dolomite), pyrochlore minor constituents: quartz secondary mineral: hematite

Sample No.	Sector	Rock name	Microscopic observation
6M033R	Chilwa I.	Monzonite	monzonite fine-grained texture main constituents: orthoclase (replaced partially by carbonate), microcline, plagioclase, hornblende minor constituents: quartz accessory minerals: biotite, apatite, magnetite, zircon secondary minerals: calcite, carbonate, sphere
6M041R	Chikala	Perthosite	granulite granular texture main constituents: quartz, plagioclase minor constituents: K-feldspar accessory minerals: biotite (partly green), garnet, zircon secondary minerals: sericite, opaque mineral
6M055R	Kapiri	Carbonatite	carbonatite intersertal texture main constituents: K-feldspar, carbonate (calcite, dolomite) minor constituents: quartz, apatite secondary minerals: limonite, opaque mineral
6M062R	Nsala	Nepheline syenite	lamprophyre holocrystalline texture main constituents: orthoclase, augite-aegirine, nepheline, cancrinite, zeolite accessory minerals: magnetite, ilmenite, zircon secondary minerals: calcite

Sample No.	Sector	Rock name	Microscopic observation
6M064R	Aligomba	Trachyte	<p>trachyte (carbonatized) trachytic texture main constituents: anorthoclase, plagioclase, cancrinite, aegirine minor constituents: phlogopite accessory minerals: apatite, sphene secondary minerals: carbonate (vein and interstitial)</p>
6M065R	Aligomba	Lamprophyre	<p>calcite-bearing lamprophyre (strongly altered) porphyritic texture phenocrysts: hauyne, hornblende, anorthoclase, Na-augite Na-augites, Hornblendes are altered to calcite + nontronite at periphery. groundmass: plagioclase, anorthoclase, Na-augite, calcite, apatite secondary minerals: nontronite, calcite</p>
6M071R	Kadongosi	Nepheline-monzonite	<p>nepheline-monzonite medium grained texture main constituents: dusty plagioclase, inclusion-rich orthoclase aegirine, nepheline, cancrinite minor constituents: endialyte, sphene magnetite Aegirines have mottled core and inclusions of eudialyte.</p>
6M072R	Kadongosi	Monzonite	<p>nepheline-bearing monzonite medium-grained texture main constituents: plagioclase, orthoclase aegirine, cancrinite Some plagioclases have core showing mottled extinction. minor constituents: nepheline, sphene accessory minerals: apatite</p>

Sample No.	Sector	Rock name	Microscopic observation
6M073R	Mlindi	Trachyte	<p>trachyte trachytic texture main constituents: anorthoclase minor constituents: plagioclase accessory mineral: zircon secondary minerals: opaque mineral</p>
6M078R	Mlindi	Clinopyroxenite	<p>phlogopite-clinopyroxenite coarse-grained texture main constituents: phlogopite, clinopyroxene minor constituents: amphibole (replacing clinopyroxene) accessory minerals: apatite, sphene, calcite</p>
6M079R	Mlindi	Gabbro	<p>granulite granular texture main constituents: plagioclase, biotite, clinopyroxene (inclusion rich) minor constituents: brown hornblende, orthopyroxene accessory minerals: apatite secondary minerals: opaque mineral</p>
6Y006R	Tundulu	Phonolite	<p>phonolite porphyritic texture phenocrysts: sanidine, aegirine, sphene groundmass: sanidine-anorthoclase, plagioclase, nepheline cancrinite, sphene, apatite, magnetite Alteration products are calcite and sericite</p>

Sample No.	Sector	Rock name	Microscopic observation
6Y010R	Tundulu	Granulite	<p>granulite granular texture main constituents: plagioclase, K-feldspar minor constituent: hornblende accessory minerals: biotite, zircon, apatite secondary minerals: neutronite, opaque mineral, sericite</p>
6Y019R	Songwe	Nepheline syenite	<p>nepheline syenite medium-grained texture Microperthite crystals are abundant and partially altered to sericite. Aegirine crystals have augite core sometimes. Nepheline and cancrinite are common. Accessory minerals are sphene, magnetite, sodalite and apatite. Alteration products are leucoxene and richterite (?)</p>
6Y023R	Namangale	Trachyte	<p>slightly carbonaceous trachyte trachytoid texture phenocrysts: anorthoclase (?) exsolved, biotite, (augite core mantled with biotite aggregate) groundmass: nepheline, analcime, calcite, cancrinite, sphene, magnetite, apatite secondary minerals are carbonate, biotite, limonite, pectolite</p>
6Y026R	Namangale	Phonolite	<p>phonolite porphyritic texture phenocrysts: sanidine, aegirine, magnetite, sphene groundmass: sanidine, plagioclase, aegirine, nepheline, cancrinite apatite secondary minerals: aggregate of amphibole + chlorite + biotite + epidote</p>

Sample No.	Sector	Rock name	Microscopic observation
6Y031R	Naminga	Quartz-syenite	<p>quartz-syenite mosaic texture main constituents: microperthite, quartz, plagioclase, biotite Plagioclase is partly altered to sericite accessory mineral: zircon secondary minerals: sericite, opaque</p>
6Y042R	Chikala	Nepheline syenite	<p>nepheline syenite medium-grained texture main constituents: dusty microperthite, aegirine minor constituents: plagioclase, biotite, nepheline, cancrinite, sphene, apatite, opaque Microperthite has numerous dusty inclusions. Aegirine carries inclusions of sphene, apatite, K-feldspar Secondary mineral: carbonate</p>
6Y044R	Chikala	Nepheline syenite	<p>nepheline syenite medium-grained texture main constituents: microperthite (sometimes with many inclusions), augite-aegirine, biotite, nepheline Aegirine has augite core and inclusions of apatite, sphene, biotite minor constituents: plagioclase, sphene, magnetite secondary mineral: carbonate</p>
6Y045R	Chikala	Amphibolite	<p>slightly banded amphibolite granular texture main constituents: hornblende, plagioclase minor constituents: magnetite accessory minerals: biotite, sphene</p>

Sample No.	Sector	Rock name	Microscopic observation
6Y046R	Mongolwe	Nepheline syenite	<p>nepheline syenite medium-grained texture main constituents: orthoclase (dusty), microperthite, biotite, nepheline, cancrinite minor constituents: aegirine, plagioclase, sphene, magnetite, apatite secondary minerals: carbonate</p>
6Y047R	Mongolwe	Nepheline syenite	<p>nepheline syenite medium-grained texture main constituents: orthoclase, microperthite, aegirine, nepheline, cancrinite, sodalite, pectolite minor constituents: plagioclase, biotite, sphene, magnetite, apatite, carbonate</p>
6Y061R	Kangankunde	Carbonatite	<p>carbonatite mosaic texture main constituents: carbonate (calcite, dolomite) accessory mineral: apatite secondary mineral: epidote, opaque mineral</p>
6Y062R	Kangankunde	Carbonatite	<p>carbonatite mosaic texture main constituents: carbonate (calcite, dolomite) minor constituents: quartz, plagioclase secondary minerals: opaque mineral</p>

Sample No.	Sector	Rock name	Microscopic observation
6Y063R	Kangankunde	Carbonatite	<p>carbonatite porphyritic texture main constituents: carbonate (calcite, dolomite), K-feldspar minor constituents: quartz, plagioclase accessory mineral: zircon secondary minerals: opaque mineral, epidote</p>
6Y064R	Kangankunde	Carbonatite	<p>carbonatite mosaic texture main constituents: carbonate (calcite, dolomite) minor constituents: quartz, K-feldspar secondary minerals: opaque mineral</p>
6Y071R	Kapiri	Hornblende diorite Carbonatized tuff	<p>hornblende diorite medium-grained, granular texture main constituents: hornblende, plagioclase, orthoclase minor constituents: biotite, sphene, apatite secondary minerals: carbonate, limonite, hematite</p> <p>strongly carbonatized tuff crystals: plagioclase (altered to albite + calcite) hornblende (altered to calcite + albite + opaque) aegirine (altered to calcite + opaque) hematite</p> <p>matrix: carbonate, sericite, biotite, albite, limonite</p>

Sample No.	Sector	Rock name	Microscopic observation
6Y072R	Kapiri	Carbonatized tuff	<p>strongly carbonatized tuff crystals: plagioclase (altered to albite + calcite) augite-aegirine (altered to calcite) biotite, apatite, zircon matrix: carbonate, limonite, albite</p>
6Y073R	Nsala	Lamprophyre	<p>vogesite ? intersertal texture main constituents: anorthoclase, plagioclase, augite-aegirine minor constituents: nepheline accessory minerals: cancrinite, magnetite, zeolite, sphene, apatite secondary minerals: carbonate, pectolite, limonite</p>
6Y074R	Nsala	Lamprophyre	<p>camptonite ? porphyritic, intersertal texture phenocrysts: augite-aegirine, olivine, plagioclase ? (altered to calcite + albite ?) Clinopyroxene shows notable zonal structure at marginal part and partial alteration to carbonate. Olivine has thick mantle of opaque + carbonate + plagioclase groundmass: K-feldspar (sanidine?) biotite, augite-aegirine, cancrinite, magnetite, sphene, apatite secondary minerals: calcite, carbonate, opaque, albite?</p>

