Table DR1. Major Element Composition in Wt. %

	LMGG2	LMGG3	LMGDH1	LMGR1	LMGR7	LMGR5
SiO_2	75.04	75.25	75.06	74.52	74.01	74.31
TiO_2	0.218	0.212	0.217	0.212	0.243	0.222
Al_2O_3	12.14	11.79	12.1	12.11	11.97	11.92
FeO	1.52	1.51	1.59	0.75	1.01	0.7
Fe_2O_3	0.98	1.15	1.19	1.63	1.96	2.05
MnO	0.047	0.045	0.042	0.033	0.033	0.033
MgO	0.10	0.19	0.13	0.19	0.45	0.21
CaO	0.74	0.57	0.63	0.61	0.45	0.65
Na_2O	3.77	3.92	3.93	4.04	3.84	4.01
K_2O	4.77	4.76	4.86	4.47	4.64	4.57
P_2O_5	0.01	0.02	0.01	< 0.01	0.02	0.02
F	0.14	0.14	0.15	0.24	0.15	0.21
LOI*	0.38	0.26	0.24	0.52	0.44	0.56
Total	99.88	99.84	100.2	99.19	99.17	99.32

LMGG2, LMGG3, and LMGDH1 are from the green granite whereas LMGR1, LMGR7, and LMGR5 are from red granite. Loss on Ignition has been corrected for the titration of FeO.

Table DR2. Trace Element Composition in ppm

	LMGG2	LMGG3	LMGDH1	LMGR1	LMGR7	LMGR5
Sc	2	2	2	2	2	2
Be	5	6	5	6	5	6
V	< 5	< 5	< 5	< 5	< 5	< 5
Cr	20	30	100	30	90	90
Co	< 1	< 1	< 1	< 1	< 1	< 1
Ni	< 20	< 20	< 20	< 20	< 20	< 20
Cu	10	< 10	< 10	< 10	< 10	< 10
Zn	150	130	140	110	190	90
Ga	26	27	27	26	26	27
Ge	2.1	2.2	2.2	1.8	2.1	2.1
As	< 5	< 5	< 5	< 5	< 5	< 5
Rb	181	173	172	160	157	166
Sr	57	49	55	53	61	53
Y	91.4	94.7	92	94.5	104	95.3
Zr	620	677	662	684	709	660
Nb	66.9	71.6	65.8	64.7	66.8	69.2
Mo	3	3	9	2	10	8
Ag	2.1	2.7	2.4	2.3	2.5	2.2
In	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Sn	7	30	8	9	11	8
Sb	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Cs	7.8	3.9	5.3	5.1	6	6.4
Ba	1103	1093	1188	1159	1271	1129
La	89.3	90.9	101	95.9	104	90
Ce	197	201	220	211	230	199
Pr	22.3	22.7	24.5	23.5	26.1	22.5
Nd	87.4	90.9	96.7	93.5	104	89
Sm	17.8	18.6	18.9	18.9	20.8	17.7
Eu	2.55	2.57	2.74	2.77	2.97	2.56
Gd	15.3	16	16.2	16.5	17.9	15.6
Tb	2.7	2.79	2.72	2.82	3.07	2.69
Dy	15.5	16	15.7	16.1	17.3	15.5
Ho	2.98	3.13	3	3.12	3.34	3.04
Er	8.98	9.32	8.91	9.09	9.69	8.94
Tm	1.33	1.41	1.35	1.36	1.41	1.37
Yb	9.12	9.54	9.48	9.51	9.65	9.48
Lu	1.37	1.44	1.44	1.43	1.44	1.39
Hf	13.3	14.4	13.8	14.8	14.4	14.2
Ta	4.5	4.73	4.55	4.43	4.02	4.66
W	1.8	1.3	4.3	1.3	2.4	1.5
Tl	0.68	0.65	0.6	0.58	0.56	0.59
Pb	21	29	22	15	17	16
Bi	0.2	0.2	0.2	16.2	0.2	7.1
Th	14.6	15.2	15.5	14.9	14.7	14.9
U	4.58	4.74	4.67	4.98	4.18	4.89

LMGG2, LMGG3, and LMGDH1 are from the green granite whereas LMGR1, LMGR7, and LMGR5 are from red granite.

Table DR3. Quantitative Compositional Data from Feldspars.

Oxide	SiO_2	Al_2O_3	Fe_2O_3	CaO	Na_2O	K_2O	Total
SG 2-1 AC-1 Avg	**65.90**	**19.06**	**0.37**	**0.51**	**6.73**	**6.52**	**99.10**
Std Dev	0.36	0.26	0.23	0.25	0.86	1.25	
SG 2-1 GP-1 Avg	**66.58**	**18.24**	**0.49**	**0.14**	**4.65**	**9.61**	**99.70**
Std Dev	1.38	0.45	0.25	0.14	2.28	3.44	
SG 2-1 AC-2 Avg	**66.01**	**19.37**	**0.19**	**0.71**	**7.26**	**5.59**	**99.14**
Std Dev	0.60	0.47	0.10	0.59	1.30	1.97	
SG 2-1 GP-2 Avg	**65.41**	**18.24**	**0.59**	**0.10**	**3.13**	**11.62**	**99.09**
Std Dev	0.90	0.25	0.32	0.07	1.65	2.37	
SR 1-3 AC-1 Avg	**65.44**	**18.79**	**0.82**	**0.27**	**5.92**	**7.72**	**98.97**
Std Dev	0.43	0.21	0.53	0.09	0.85	1.18	
SR 1-3 GP-1 Avg	**65.78**	**18.43**	**1.51**	**0.09**	**5.10**	**9.06**	**99.98**
Std Dev	1.11	0.43	1.12	0.10	3.41	4.77	
SR 1-3 AC-2 Avg	**65.70**	**19.21**	**0.48**	**0.42**	**6.75**	**6.65**	**99.22**
Std Dev	0.53	0.22	0.51	0.28	0.75	1.03	
SR 1-3 GP-2 Avg	**64.56**	**17.64**	**1.00**	**0.10**	**3.92**	**9.91**	**97.12**
Std Dev	0.37	1.30	1.11	0.12	4.83	8.25	

Table DR4 – Green Long Mountain Granite AMS axes

Site	K 1	K2	K3
	Dec/Inc	Dec/Inc	Dec/Inc
SG2 (n = 8)	72.6/9.7	324.5/0.5	249.3/80.3
SG5 (n = 8)	122.4/14.6	212.6/0.9	305.9/75.3
SDH-1 (n = 8)	94.0/7.1	184.8/6.3	315.9/80.5
SG3 (n = 6/6)*	181.2/2.5	90.0/24.8	276.7/65
SG4 (n = 8)*	93.1/5.0	359.6/34.4	190.4/55.2

Note: * Not used in calculation of the tilt correction for the Long Mountain Granite.

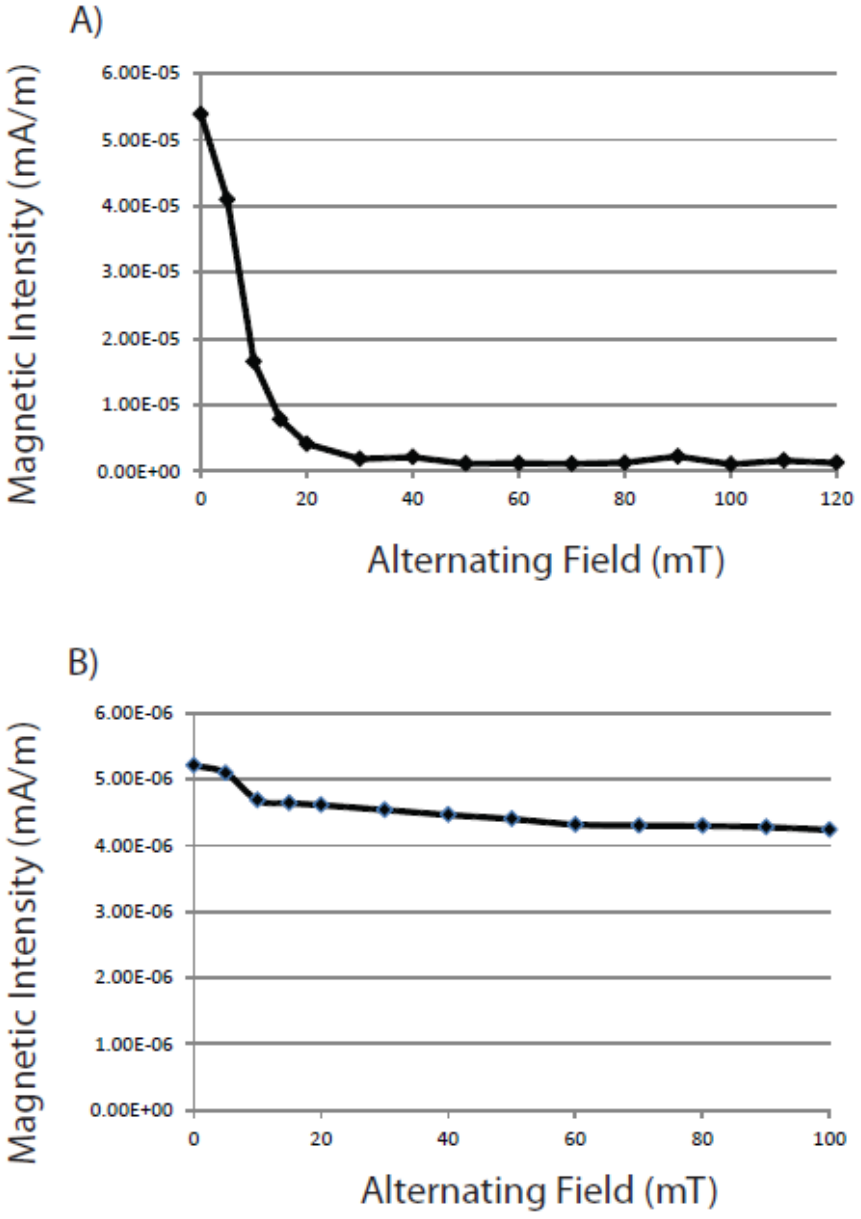

Figure DR1. Alternating field (AF) decay of representative specimends from the green and red Long Mountain Grantie. A) Green granite, B) Red granite. Note that AF decay removes most of the magnetization in the green grantie by 20 mT. The red granite shows little decay during AF demagnetization.

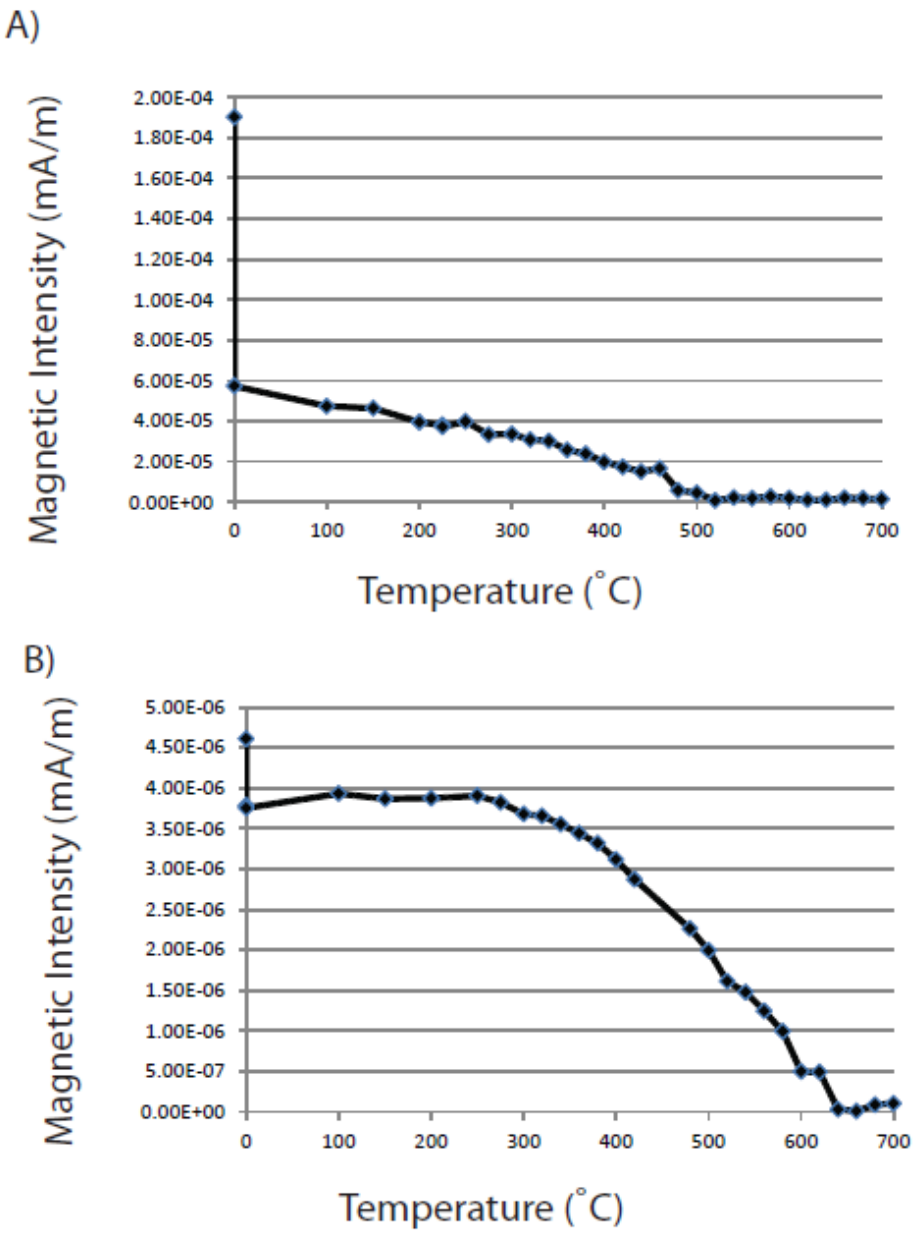

Figure DR2. LTD and thermal decay of representative specimens from the green and red Long Mountain Grantie. A) Green granite with one LTD treatment, B) Red granite with two LTD treatments.

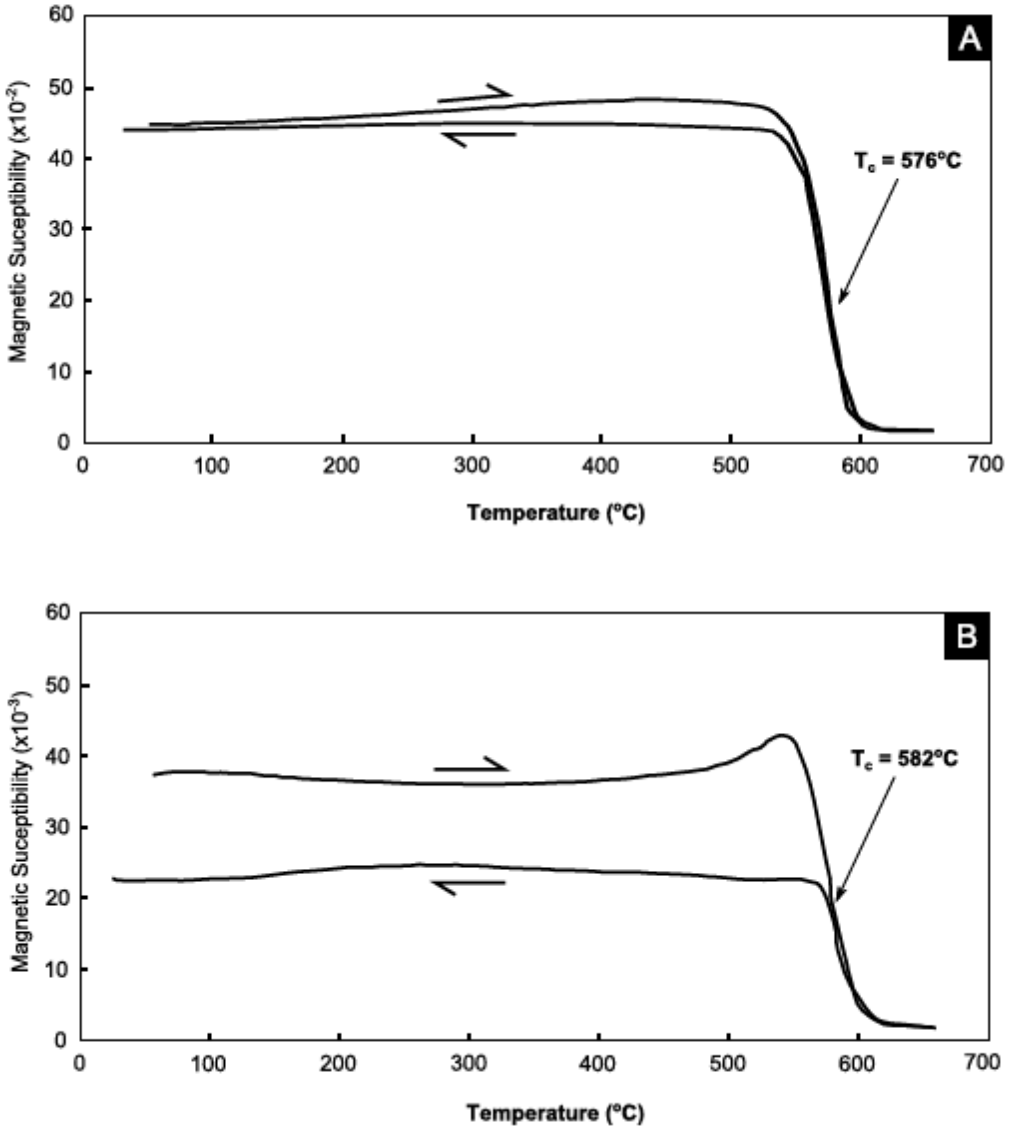

Figure DR3. Magnetic susceptibility versus temperature measurements for a green granite (A) and a red granite (B). The green granite curve shows a steep decline at 580°C indicating magnetite. The red granite curve also shows a steep decline at 580°C. This suggests that that magnetite is swamping the hematite in the sample.

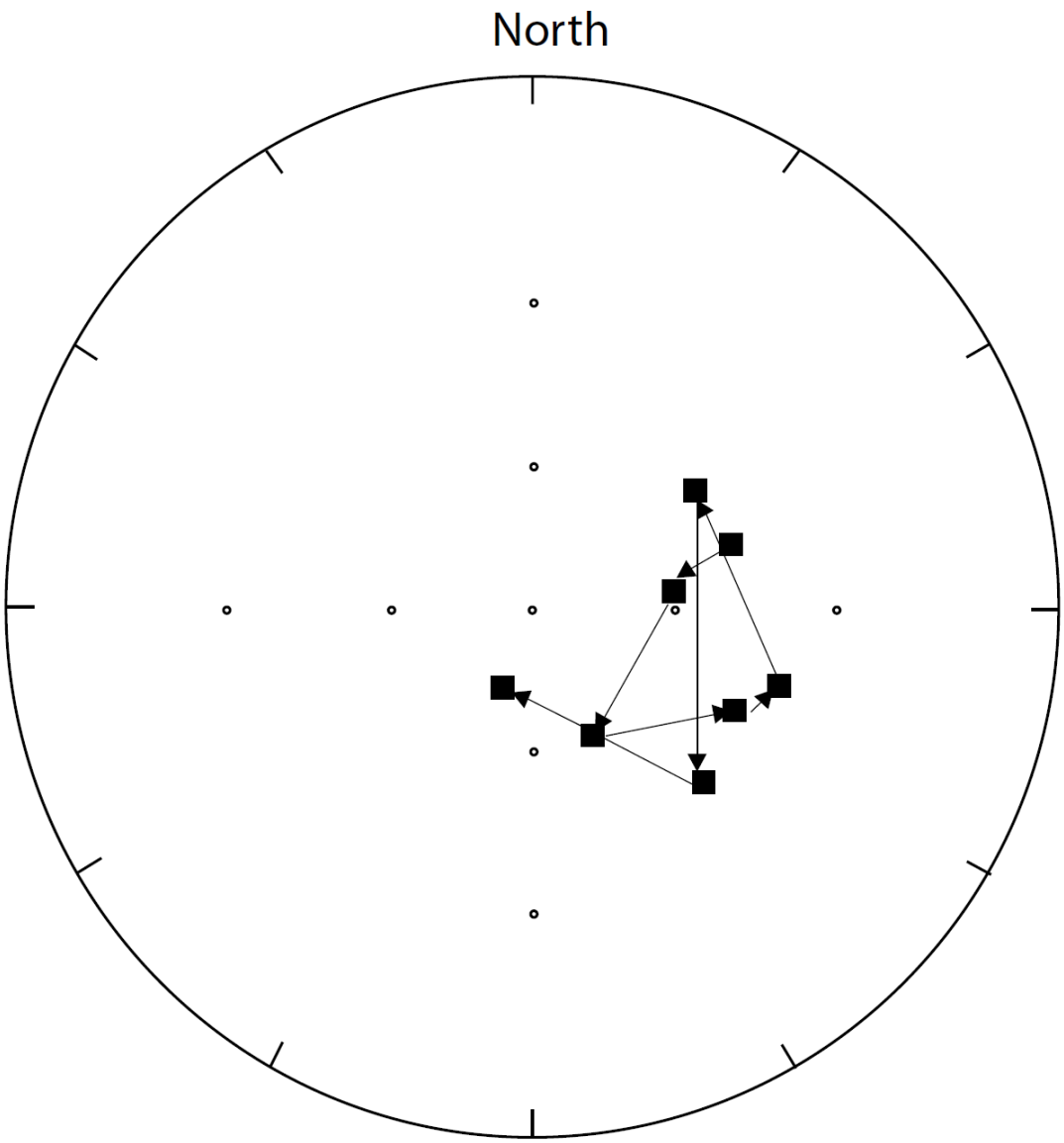

Figure DR4. ChRM directions of SDH specimens. Arrows show progression of sample direction from dike margin. Open symbols; negative (up) inclination: Solid symbols; positive (down) inclinations.