From: Brittain Hill
To: "John Stamatakos" <JSTAM@cnwra.swri.edu>
Date: 3/22/2006 1:51:15 PM
Subject: LW basalt

John - here's a compilation of data from my old sci notebook, for Lathrop Wells basalts we analyzed. Oxides in weight %, trace elements in ppm, last column is 1 std deviation uncertainty. As I recall, Fe3+ is about 15% of total Fe when the rock is fresh/non oxidized, which is about what it would be in the magma.

Cr-Ni substitutions should be pretty sensitive to Fe3+ vs Fe2+ in melt if this is a simple lattice substitution. Substitutions could be more complex (e.g., Cr-Ni-O2) which may make 3+/2+ unimportant, but I don't know and the metals guys should give an answer on this.

Is the concern that there is actual chemical reaction with C-22, or something else? Would expect to form a thin reaction rim around the alloy, but would be difficult to diffuse across that rim in the time (days-weeks?) magma actually would remain molten in the drift. We never worried about chem reaction for that very reason - any amount of solid rind on the WP effectively stops diffusion for time scales we're worrying about.

Britt

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Average Lathrop Wells Basalt
Bhill, Scientific Notebook #88

	n=24	1sd
SiO[2]	49.10	0.27
TiO[2]	1.96	0.06
Al[2]O[3]	16.89	0.12
Fe[2]O[3]	2.34	0.04
FeO	8.43	0.13
MnO	0.17	0.00
MgO	5.90	0.06
CaO	8.59	0.21
Na[2]O	3.60	0.11
K[2]O	1.81	0.05
P[2]O[5]	1.22	0.03
Sc	19	1
V	172	7
Co	31	0.4
Ni	63	4
Cr	82	5
Cu	43	6
Zn	128	8
Rb	20	2
Ba	1440	31
Sr	1463	40
Cs	1	0.3