Volcano Suspects: Ash Composition

The following represents a breakdown of the average concentration of major compounds (percentage by weight) in the ash from each volcano.

Ash Sample	Aluminum Oxide (Al_2O_3)	Calcium Oxide (CaO)	Iron Oxide (FeO)*	Potassium Oxide (K_2O)	Magnesium Oxide (MgO)	Sodium Oxide (Na_2O)	Titanium Dioxide (TiO_2)	Phosphorous Pentaoxide (P_2O_5)	Silicon Dioxide (SiO_2)
Mount St. Helens	14.70	1.81	1.39	2.01	0.46	4.45	0.17	0.04	74.80
Crater Lake	14.79	1.58	1.85	2.77	0.32	5.21	0.43	0.09	72.39
Lassen Peak	13.99	2.03	1.99	3.43	0.88	3.64	0.35	0.10	73.47
Long Valley Caldera	13.24	0.40	0.70	5.06	0.07	2.92	0.07	0.01	72.42
Valles Caldera	12.43	0.45	1.52	4.74	0.05	3.74	0.08	0.01	74.77
Bruneau-Jarbridge	11.90	0.80	2.70	6.10	0.10	2.50	0.10	0.08	75.60
Yellowstone Caldera	11.71	0.56	1.90	5.57	0.15	2.75	0.23	0.01	76.49
La Garita	12.50	0.56	1.10	4.80	0.01	2.38	0.10	0.02	77.10

*combined concentration of FeO and Fe_2O_3

Questions

1. For each suspect volcano, would you characterize the magma that produced the ash sample as mafic, intermediate, or felsic? Why?
2. Which ash seems to be most similar in composition to the Ashfall sample?

After you answer these questions, mark the "Volcano Suspects Table" on your "CSI: Ashfall Fossil Beds" handout with the volcano or volcanoes you feel is or are the *least* likely suspect(s) based on the data, and rate your confidence level in your answer.