

Appendix

Results of X-Ray Fluorescence Analysis

Northwest Research Obsidian Studies Laboratory

Table A-1. Results of XRF Studies: Cal Schmidt Clovis Site (35-HA-850), Harney County, Oregon

Site	Specimen No.	Catalog No.	Trace Element Concentrations									Ratios		Geochemical Source
			Rb	Sr	Y	Zr	Nb	Ti	Mn	Ba	Fe ²⁺ O ^{3T}	Fe:Mn	Fe:Ti	
35-HA-850	1	CAL1	122 ± 2	158 2	14 1	152 2	10 1	NM NM	NM NM	887 27	NM NM	NM NM	NM NM	Beatys Butte
35-HA-850	2	CAL2	119 ± 2	170 2	14 1	153 2	8 1	NM NM	NM NM	974 31	NM NM	NM NM	NM NM	Beatys Butte
35-HA-850	3	CAL3	227 ± 3	17 1	44 2	135 2	28 2	NM NM	NM NM	0 22	NM NM	NM NM	NM NM	Hawks Valley
35-HA-850	4	CAL4	225 ± 3	17 1	46 2	135 2	28 2	NM NM	NM NM	0 23	NM NM	NM NM	NM NM	Hawks Valley
35-HA-850	5	CAL5	193 ± 3	2 1	83 2	563 4	31 2	NM NM	NM NM	0 22	NM NM	NM NM	NM NM	Massacre Lake/Guano Valley
35-HA-850	6	CAL6	210 ± 3	15 1	46 2	130 2	26 2	NM NM	NM NM	0 21	NM NM	NM NM	NM NM	Hawks Valley
35-HA-850	7	CAL7	209 ± 3	16 1	42 2	131 2	26 2	NM NM	NM NM	0 22	NM NM	NM NM	NM NM	Hawks Valley
35-HA-850	8	CAL8	214 ± 3	16 1	43 2	129 2	26 2	NM NM	NM NM	0 22	NM NM	NM NM	NM NM	Hawks Valley
35-HA-850	9	CAL9	201 ± 3	15 1	44 2	127 2	28 2	NM NM	NM NM	0 22	NM NM	NM NM	NM NM	Hawks Valley
35-HA-850	10	CAL10	213 ± 3	17 1	43 2	137 2	27 2	NM NM	NM NM	0 20	NM NM	NM NM	NM NM	Hawks Valley
35-HA-850	11	CAL11	212 ± 3	3 1	89 2	579 3	33 2	NM NM	NM NM	0 0	NM NM	NM NM	NM NM	Massacre Lake/Guano Valley
35-HA-850	12	CAL12	177 ± 3	5 1	80 2	448 3	26 2	NM NM	NM NM	0 23	NM NM	NM NM	NM NM	Double H/Whitehorse
35-HA-850	13	9-2003-1	146 ± 2	31 1	25 1	126 2	13 1	NM NM	NM NM	260 26	NM NM	NM NM	NM NM	Surveyor Spring
35-HA-850	14	9-2003-2	215 ± 3	16 1	44 2	133 2	28 2	NM NM	NM NM	0 23	NM NM	NM NM	NM NM	Hawks Valley

All trace element values reported in parts per million; ± = analytical uncertainty estimate (in ppm). Iron content reported as weight percent oxide. NA = Not available; ND = Not detected; NM = Not measured; * = Small sample; FGV = Fine-grained volcanic specimen.

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			Rb	Sr	Y	Zr	Nb	Ti	Mn	Ba	Fe ²⁺ O ^{3T}	Fe:Mn	Fe:Ti	
NA	RGM-1	RGM-1	152 ± 2	108 2	27 1	220 2	11 1	NM NM	NM NM	753 30	NM NM	NM NM	NM NM	RGM-1 Reference Standard

All trace element values reported in parts per million; ± = analytical uncertainty estimate (in ppm). Iron content reported as weight percent oxide.
 NA = Not available; ND = Not detected; NM = Not measured; * = Small sample; FGV = Fine-grained volcanic specimen.

Table 1. Summary of results of trace element analysis of obsidian artifacts from 35-HA-850.

OBSIDIAN SOURCE	N=	PERCENTAGE
Beatys Butte	2	14.3
Double H/Whitehorse	1	7.1
Hawks Valley	8	57.2
Massacre Lake/Guano Valley	2	14.3
Surveyor Spring	1	7.1
TOTAL	14	100.0

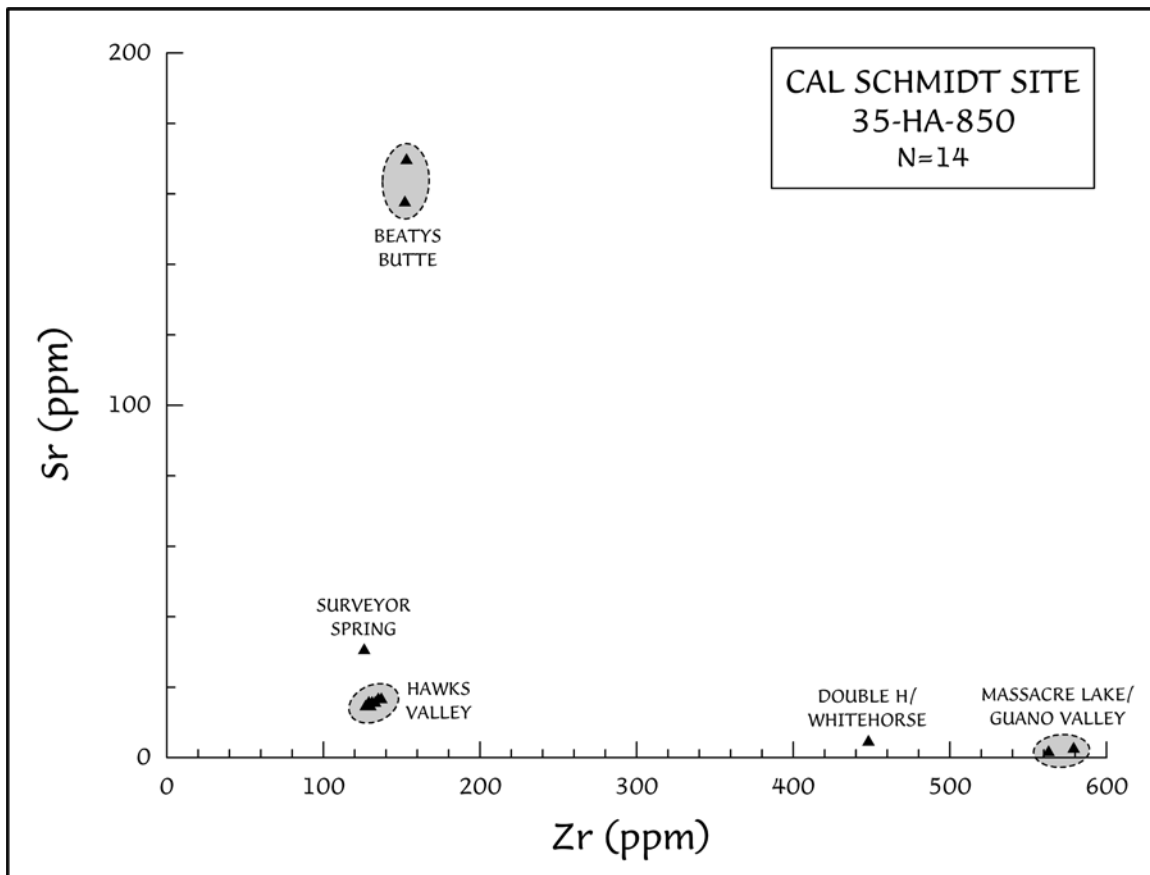


Figure 1. Scatterplot of zirconium (Zr) plotted versus strontium (Sr) for all analyzed artifacts.