

UC Berkeley

Archaeological X-ray Fluorescence Reports

Title

A Wavelength Dispersive X-Ray Fluorescence Analysis of Obsidian Artifacts from The Boudreau Site (CA-SDI-686), Del Mar, California

Permalink

<https://escholarship.org/uc/item/1qw8p16h>

Author

Shackley, M. Steven

Publication Date

2002-09-26

Supplemental Material

<https://escholarship.org/uc/item/1qw8p16h#supplemental>



Phoebe Hearst Museum of Anthropology
103 Kroeber Hall
University of California
Berkeley, CA 94720-3712

LETTER REPORT

A WAVELENGTH DISPERSIVE X-RAY FLUORESCENCE ANALYSIS OF OBSIDIAN ARTIFACTS FROM THE BOUDREAU SITE (CA-SDI-686), DEL MAR, CALIFORNIA

26 September 2002

Mark Becker
ASM Affiliates
543 Encinitas Blvd., Ste. 114
Encinitas, CA 92024

Dear Mark:

Typical of northern San Diego County sites that date between the Archaic and Late Prehistoric, one of the samples was produced from obsidian procured from Obsidian Butte, Imperial County, California, and the other from one of the domes at Coso, Inyo County, California.

The samples were analyzed with a Philips PW2400 sequential wavelength dispersive x-ray spectrometer in the Department of Geology/Geophysics, University of California, Berkeley. This crystal spectrometer uses specific software written by Philips (SuperQ/quantitative) and modifies the instrument settings between elements of interest. Practical detection limits have not been calculated for this new instrument, but should be available later this year. Sample selection is automated and controlled by the Philips software. Analysis of the USGS RGM-1 standard indicates high machine precision for the elements of interest (Govindaraju 1994; Table 1 here). Further information on this instrument is available in Shackley (1998), and at <http://obsidian.pahma.berkeley.edu/philipspw2400.htm>. Source determination was made using source standards at Berkeley, and reference to Hughes (1986, 1988; <http://obsidian.pahma.berkeley.edu/obsbutte.htm>).

Sincerely,

M. Steven Shackley, Ph.D.
Director

VOICE: (510) 643-1193 ext. 3
INTERNET: shackley@uclink.berkeley.edu
<http://obsidian.pahma.berkeley.edu/>

REFERENCES CITED

- Hughes, R.E.
1986 Trace Element Composition of Obsidian Butte, Imperial County, California. *Southern California Academy of Sciences Bulletin* 85:35-45.
- 1988 The Coso Volcanic Field Reexamined: Implications for Obsidian Sourcing and Hydration Dating. *Geoarchaeology* 4:253-265.
- Govindaraju, K.
1994 1994 Compilation of Working Values and Sample Description for 383 Geostandards. *Geostandards Newsletter* 18 (special issue).
- Shackley, M. S.
1998 Geochemical differentiation and prehistoric procurement of obsidian in the Mount Taylor Volcanic Field, Northwest New Mexico. *Journal of Archaeological Science* 25:1073-1082.

Table 1. Elemental concentrations for the archaeological samples. All measurements in parts per million (ppm).

Sample	Rb	Sr	Y	Zr	Nb	Ba	Source
SDI-686-151	122	31	105	314	29	437	Obsidian Butte
SDI-686-230	259	13	53	143	48	42	Coso
RGM-T1	152	105	25	223	9	800	standard