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CHEMICAL DIFFERENTIATION OF OBSIDIAN WITHIN THE NEWBERRY VOLCANIC COMPLEX BY LASER ABLATION ICP-MS, INAA, AND XRF

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Archaeological provenance studies are based on the ability to trace culturally modified materials back to their geologic source. By identifying the sources of artifacts, archaeologists can develop and test models of prehistoric trade, interaction, and access to resources. One particularly productive avenue of provenance research is the chemical characterization of obsidian. To date, the majority of obsidian-source studies have used instrumental neutron activation analysis (INAA) and X-ray fluorescence (XRF) which has resulted in the identification of 300-400 chemically discrete obsidian sources in the Western Hemisphere. More than 100 of these obsidian sources are located in Oregon. This paper explores compositional variability in obsidian from Oregon's Newberry Volcanic Field using data generated by INAA, XRF, and a relatively new analytical technique, laser ablation ICP-MS.

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