

## **Analysis of Volcanic Ash Samples Using Laser Ablation ICP/MS**

Elizabeth M. Golob<sup>1,2</sup>, Dirk Baron<sup>1</sup>, and Robert M. Negrini<sup>1</sup>

<sup>1</sup>California State University, Bakersfield, CA

<sup>2</sup>ChevronTexaco, Bakersfield, CA

[egolob@chevrontexaco.com](mailto:egolob@chevrontexaco.com)

Analysis of volcanic ashes to identify their source or date them by correlating them to a known eruption has been a common practice for many years. Methods such as INAA, microprobe analysis, and traditional ICP/MS were typically used, but were often expensive, time consuming, and unable to measure some important elements. With the use of Laser Ablation ICP/MS, a wide spectrum of elements can be analyzed quickly using a small amount of sample. LA-ICP/MS has been recently used to study similar ashes, however limited testing has been done using samples from the western United States.

This study analyzes volcanic ash samples from the western United States (including Kern River Ash, Bishop Ash, Lava Creek B Ash, and Fish Lake Valley Ash). Correlating the Kern River Ash to ash from known eruptions will improve our understanding of the stratigraphy of the southern San Joaquin Valley. We analyzed trace elements in the samples by Microwave Digestion with ICP/MS and LA-ICP/MS, and compared the two analyses and previous work. For this study, we used the Cetac LSX-200 Laser Ablation system with a Perkin Elmer Elan 6100 ICP/MS located in the CSUB Geochemistry Laboratory.

The new data allowed us to test the accuracy and precision of the two methods used, as well as to compare the data to previous work. The ash samples had previously been analyzed using either INAA or ICP/MS, giving the basis for our comparison. This sample set is significant because more trace elements are being measured in this study than have been analyzed in the past, presenting an opportunity to review correlations between the ashes.