

## **Analysis of Martian Analogs Using Benchtop XRD and XRF**

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As Martian rover missions become more detailed in their analysis functions, it is important to amass accurate data on analogous material for terrestrial applications. Furthermore, as modern labs move towards smaller footprint instrumentation, the validity of testing such samples for research quality data needs to be validated. This talk will present both XRD and XRF data collected on several Martian analog terrestrial volcanic samples using both benchtop systems.

Much of the Martian surface is suggested to be comprised of volcanic sequences. Thusly, 19 analogues basaltic material, with various degrees of weathering, were chosen from 7 different sites around the world. As the chemistry of feldspars can vary greatly while their XRD patterns are similar, XRF was employed to analyze the chemical composition of the representative samples prior to XRD phase analysis. The analysis of these samples not only adds to the knowledge base of Martian analogous material, but also further provides evidence that, while not as powerful as their free-standing counterparts, benchtop systems can provide a sufficient platform for performing standard research in modern laboratories.