**Carbon Dioxide Flux and Sources at Valles Caldera, New Mexico**

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Valles Caldera is a 13-mile wide, circular resurgent caldera within north-central New Mexico. Valles Caldera is host to a greater than 300 degree celsius geothermal system. Exploration of the Valles Caldera geothermal system has centered around estimation of its economic potential. Three drill cores (VC-1, VC-2A, and VC-2B) were acquired within the Valles Caldera between 1984 - 1988 under the Continental Scientific Drilling Program. Calcite deposited within these cores at a depth of approximately 1500 meters below the current caldera surface can be used as a proxy for past carbon dioxide degassing. Ca-rich plagioclase within the subsurface can act as a carbon dioxide sequester, forming calcium carbonate. Carbon dioxide that has been degassed through the hydrothermal system can then be calculated by the mass of deposited calcite. Carbon isotope compositions can also be analyzed to characterize the source of carbon dioxide degassed from within Valles Caldera as either mantle or biogenically sourced.

We propose to compare carbon dioxide flux and sources within Valles Caldera with measurements of the more active hydrothermal system at Yellowstone Caldera. Previous measurements of diffuse carbon dioxide flux at Yellowstone will be expanded upon to cover a wider study area. The accumulation chamber method will be used in order to estimate total flux within the caldera. Comparisons of carbon dioxide flux and source can then be made between Yellowstone and Valles Caldera.