

# Hydrometeorological Field Studies during the North American Monsoon in the Valles Caldera National Preserve

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## PURPOSE OF STUDY

In July 2005 during the North American Monsoon, researchers conducted a two week field campaign in the Valles Caldera National Preserve in order to better understand the region's hydrology, meteorology, and land-atmosphere interactions. The data collected in the field study will be enhanced by the TIN-based Real-time Integrated Basin Simulator (tRIBS) hydrologic model and continuous measurements in the region from local long-term research sites. The goals of this study are to understand the relationship between hydrology and the ecosystems found at high elevations in New Mexico and to provide detailed data in order to create and test a hydrologic model over the Jemez River.

## STUDY UNDERWAY

- A number of student investigators equipped with portable equipment measured soil moisture, runoff, soil temperature, and hydrometeorological variables including rainfall, air temperature, relative humidity, and barometric pressure. Other measurements during the field campaign included spring flow rate, spring and soil biochemistry, and shallow groundwater-surface water interactions.
- The researchers will employ tRIBS, a fine resolution, distributed hydrologic model to create a model for their field data.

## BENEFITS

- Field data used alongside modeling studies will substantially expand knowledge about the interaction of vegetation, hydrologic systems, and meteorological systems in the semi-arid mountain watersheds in New Mexico.



*After choosing the site location along Redondo Creek in early June, Alex Rinehart documents site characteristics such as latitude and longitude, aspect and slope. The sites were all located around Redondo Peak, Valles Caldera National Preserve, New Mexico.*



*Relaxing after a long day of field work, the participants have a Korean dinner at the Union Building in the Valles Caldera National Preserve. A total of thirteen students from New Mexico Tech, UCLA, MIT and UA participated with intermittent assistance from four faculty members from New Mexico Tech and UA. Clockwise from bottom left corner are Song-Ho Hong, Bart Forman, James Hogan, Alex Rinehart, Emily Engle, Marty Frisbee, Luis Mendez, Carlos Aragon, Kinwai "Bill" Tai, and Gautum Bisht.*

