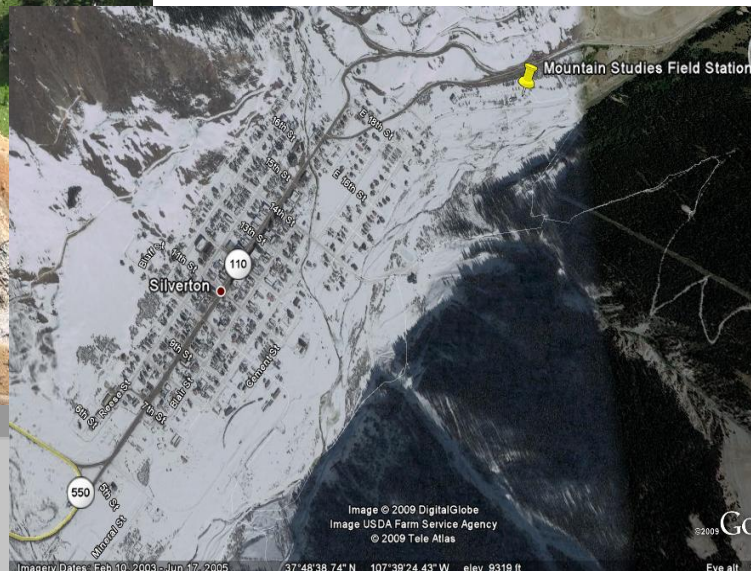


**MOUNTAIN STUDIES INSTITUTE
MOVING MOUNTAINS EDUCATION SEMINAR SERIES**

August 1, 2009: Acid Rock Drainage in the San Juans

Guest Instructors – Dr. David Borrok (University of Texas, El Paso), & Drs. Rich Wanty, Rob Runkel, and Andy Manning (U.S. Geological Survey)



WHAT TO BRING: Sack Lunch, Rain Coat, Hiking Boots

IMPORTANT: 4x4 transportation is required. We have a limited number of 4x4 vehicles, so please make your own arrangements.

SCHEDULE:

8:30am – Meet at Mountain Studies Institute Field Station – Silverton Lakes Campground. See **above** for directions.

9:00am – Leave for Prospect Gulch.

- **Stop 1.** Highway 110 across from Cement Creek. Look at ferricrete deposits. Discuss the formation of ferricrete and the longevity of acidic rock drainage in the San Juan Mountains.

9:45am – Arrive at Prospect Gulch and drive to upper section.

- **Stop 2.** Upper Prospect Gulch. Discuss acid mine drainage. Examine mine waste piles, look for sulfide minerals, and discuss current remediation efforts in the watershed. **Perform field experiment with mine tailings and deionized water.**
- **Stop 3.** Galena Queen shaft. Look at flowing groundwater at the bottom of the shaft. **Sample the groundwater and compare to surface water.** Discuss surface-water groundwater interaction. Highlight the fen and its relationship to the watershed.

12:00pm – Break for lunch. General discussion of Alpine hydrology + Q&A.

12:30pm – Drive back down Prospect Gulch.

- **Stop 4.** Red Chemotroph. Discuss the upwelling of groundwater – its source and age.
- **Stop 5. Tracer injection demonstration near the mouth of Prospect Gulch.** Discuss how a tracer dilution study works and how it is important in determining metal loads from different sources. Talk about the artesian flow in the area and point out the water wells.
- **Field experiment to demonstrate active remediation by raising pH.**

~ 3:00 pm – Wrap up field trip & head to Silverton Brewery for Q&A.