

Sign Up!! GES 209B/291 Spring Quarter Class: July 22-28, 2012

Field Trip to Snake Range Metamorphic Core Complex
(Great Basin National Park and Mt. Moriah Wilderness)

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Associated with GES 209 (Microstructures) taught Fall Quarter 2011-12 by

Miller, Warren and Lee (Blaustein visiting scholar 2011/12)

Extensional detachment faults remain enigmatic structures that are controversial in terms of their mechanism of formation and kinematic evolution. The Snake Range has spectacular exposures of footwall mylonites, the detachment fault, overlying brittle fault block mosaics and the inverted deposits of Miocene sedimentary basins. This field trip is a rare opportunity to learn more about crustal scale processes and extensional fault systems as they transition from the ductile to the brittle part of the earth's crust and to contemplate the geologic details that have made these structures so controversial. Advanced planning is needed, so please let elmiller@stanford.edu know your interest in such a trip before the beginning of Spring Quarter. The schedule is detailed below. Note that depending on interest and how we plan this trip, there can be wilderness hiking/camping involved.



Precambrian quartz mylonites and schists, Hendry's Creek



Sunday July 22: Drive out to Snake Range

Monday July 23: Syn-faulting Tertiary sedimentary section and its avalanche deposits (top). Precambrian-Cambrian section and views, Wheeler Peak/Stella Lake trails (10-11,000') Great Basin National Park (right)



Above: Snake Range detachment (between white and dark rocks, mouth of Hendry's Creek; mylonitized quartzites and schists in lower plate. *Right:* View of Table at 11,000' detachment and upper plate Cambrian and Ordovician limestones beneath Mount Moriah (12,072'). Wheeler Peak in background.

Tuesday July 24: Part of group has option of packing in to N. Snake Range from mouth of Hendry's Creek and hike to base of "Table" beneath Mt. Moriah and camp. Need light back-packing equipment and food/stove (~8 miles, 4-5,000' relief gain). Other part of group visits more stops (mylonites and detachment in Hendry's Creek and giant staurolite and kyanite in Hampton Creek and drives the vehicles to the top of the the next day to meet. Or if logistics and interests are otherwise, none of us have to backpack.

Wednesday July 25: Hike across Table, option of summiting Mt. Moriah, meet vehicle (and food and drink) at top of range, camp. If driving up on Wednesday, can hike to Table and to Mt. Moriah

Thursday July 26: Views of upper plate faulting and detachment, Deadman Creek Granite, camp on top of range





Friday July 27: Drive to and look at geology of Marble Wash, northern Snake Range. Warm Springs at end of day. Camp or leave.

Saturday July 28: Drive back to Stanford.



This field trip involves significant advance planning. We need to know interest and head count and have a \$50.00 deposit for food and expenses by the beginning of Spring Quarter, 2012. Students taking GES 209 (Microstructures) have priority.