

EES Field Excursion to Arizona, May, 2014

In May of 2014, the EES Department ran its first undergraduate field trip to Arizona led by Dickson Cunningham and Drew Hyatt with 14 students in tow. The trip was an action-packed 12-day jaunt taking in many of the geological highlights of the Grand Canyon state. The trip was part of a new 3-credit course titled 'EES Geological Field Excursion' which we hope to run every spring. After flying into Phoenix, we followed a clock-wise route that included visits to a large number of classic geological sites including the Val Verde rift with its interesting Tertiary sedimentary successions, the Montezuma's Castle Native American cliff dwelling, the Montezuma's Well sink hole, the Jerome mining town that once had the west's largest population and boasts an excellent mining museum (and spoil heaps ripe for ore mineral collecting), the stunningly beautiful canyons and erosional landforms at Sedona, the Colorado Plateau sedimentary succession and Grand Canyon with all its majestic scenery, the San Francisco volcanic field including Sunset Crater and the nearby Wupatki pueblo ruins, the variegated badlands of the Painted Desert and Petrified Forest, the impressive Salt River canyon with its transition zone basement geology, and the fascinating Biosphere 2 enclosed human colony experiment. We also visited various sites around Tucson including the Late Cretaceous Tucson Mts caldera complex, the Mojave-Sonora Desert Museum, the Santa Catalina and Rincon Mts metamorphic core complex, Mt Lemmon highway with its impressive mountainous geomorphology and different altitude-related vegetation zones, Sabino Canyon geological transect across the Catalina mylonitized detachment zone, igneous rocks of the Santa Rita Mts, and the active Asarco porphyry copper mine and mineral processing complex, including the on-site Mineral Discovery Center.

Although the trip was primarily focused on geological highlights, it was inter-disciplinary in scope because of the variety of site visits. Attention was given to Native American culture, sustainable land and energy use, economic geology, and the impacts of geology on Arizona society including geotourism. On most days, we enjoyed geological day hikes to key outcrops and viewpoints. The trip was organized so that there were daily discussions at each site and some wrap-up discussions in the evenings. Every student selected a topic that they researched beforehand so that they could serve as the trip 'expert' on that topic. All students made verbal presentations to the rest of the group on their topic when it tied in to one of the field trip stops. In this way, we all learned from each other and all students made important contributions to the trip's learning objectives.

On top of all the educational benefits of the trip, we had a lot of fun and the student group was wonderful in terms of the efforts made, positive behaviour and general bonhomie. We demonstrated that for about \$1400/student, we can run an enormously fulfilling geological excursion to one of America's most spectacular and geologically diverse regions. Below are several trip photos. Stay tuned for next year's newsletter, because at the time of writing, we are poised to embark on this year's field excursion to Idaho and Wyoming taking in Yellowstone and the Grand Tetons amongst other sites of geological interest.



Our group at Ooh-Aah Point within the Grand Canyon. The trip leaders are wearing the blue Eastern tee shirts (Drew Hyatt on left, Dickson Cunningham near top right).



Atop a small cinder cone in the San Francisco Peaks volcanic field north of Flagstaff.



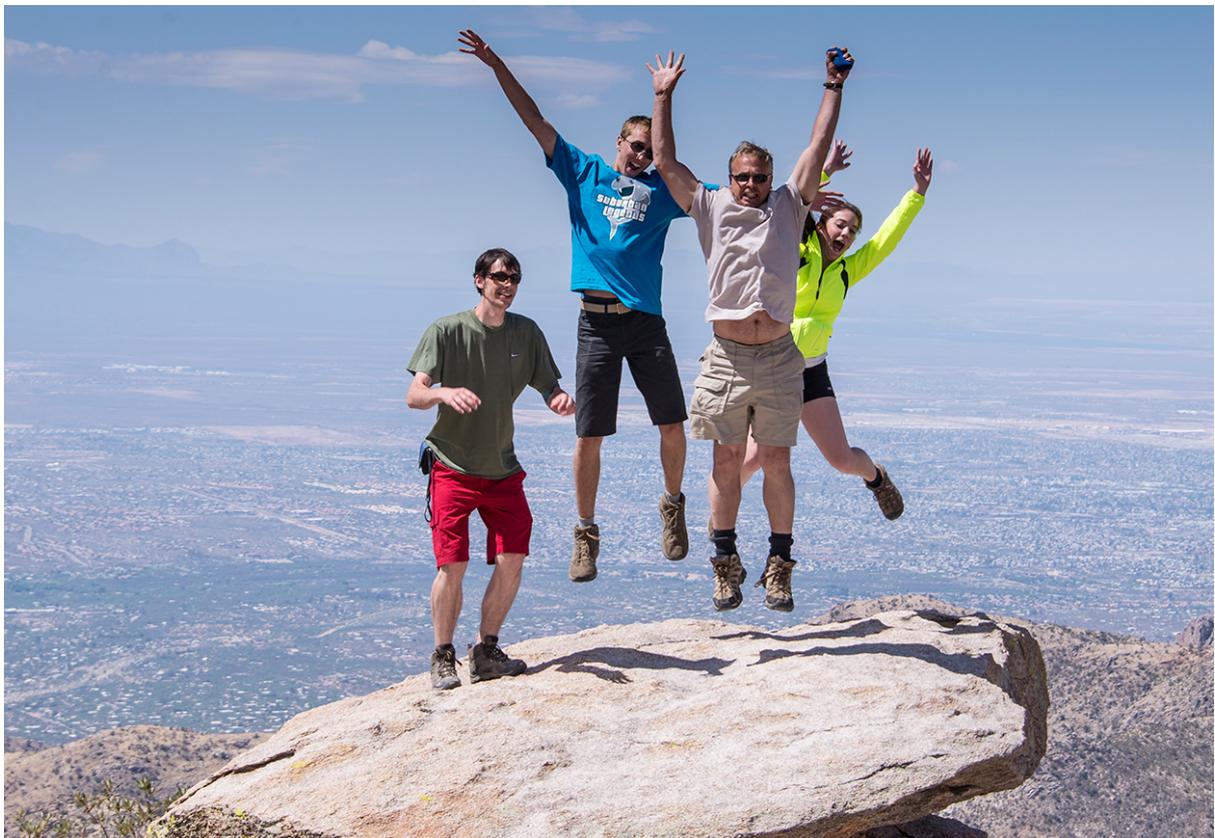
What a blast it must have been! At Meteor Crater, northern Arizona.



A true stratigraphic log! Petrified Forest National Park.



The big Tonka trucks at the Asarco Mission mine, southern Arizona.



Testing the laws of gravity on Mt Lemmon, high above Tucson.