

Saturday, June 30th, 2018



PROSPECTORS &
DEVELOPERS
ASSOCIATION
OF CANADA

RE: Dalhousie Earth Sciences Advanced Field School Fundraising Report

Dear Krishana Michaud,

On behalf of the senior Dalhousie Earth Sciences students who attended Dalhousie's Advanced Field School in May of 2018, I am writing to thank the Prospectors and Developers Association of Canada (PDAC) for their generous financial support. Under the supervision of the camp director, a teaching assistant and camp manager, nine students undertook various academic and professional field-based exercises over the course of 28 days in the deserts of southern Nevada and eastern California. This region proved, once again, to be an ideal learning laboratory for student geologists, with a rich geologic record, unrivaled rock exposure and road access, and amazing scenery. The field school also acted as an excellent opportunity for Dalhousie's senior undergraduates to develop their mapping skills and field techniques in a professional setting, while gaining valuable interpersonal and leadership skills that are highly sought after by Canada's major mining and mineral exploration companies – an opportunity that would not have been possible without your generous support.

The 2018 Advanced Field School included three major projects and a number of field trips. The first of the three projects was a stratigraphic logging exercise in a Miocene basin in the Basin and Range Province, where the group of nine participants was split into groups and responsible for creating a 50m detailed stratigraphic log of the Rainbow Gardens Member. This was followed by a field presentation given by each group to the others, giving valuable insights into the basis of the next two projects as well as enhancing the professional and practical presentation skills of the participants. The following project took place in Monarch Canyon, Death Valley, and consisted of detailed valley-based mapping of a metamorphic core complex, along with detailed structural and metamorphic mineral observations in order to aid in creating a geological history of the area. The final (and most substantial) of the three core projects was the 2-week long Big Poleta structural mapping exercise. Following a cursory introduction to the Little Poleta mapping area directly to the northeast, the field school participants split into pairs to map the 9 km², structurally complex (heavily folded and faulted, and well used by field schools across the continent for this very reason) and not completely understood mapping area. This project formed the culminating project of the field school, and not only helped the students to gain practical field mapping experience, but also tested and strengthened professional and personal relationships amongst the participants.

The field school also consisted of multiple day trips and excursions to various other geological locales of both scientific and economic interest. These day trips acted to give a greater picture of the geological and tectonic history of the still active region, as well as providing a much-needed change of scenery during the longer Big Poleta exercise. Three of these day trips proved of particular interest to the field school participants and gave them practical insights into the role of a geologist after graduation. The first involved an afternoon stop to observe the seismic work being undertaken by the USGS geohazards division in Panamint Valley, a tectonically active, low angle detachment-dominated fault zone Panamint



in Eastern California. The second involved a day trip through the ~500 km² Long Valley Caldera, from Bishop California northwest towards Mono Lake. This trip informed the participants of very recent (c. 3.10-0.76 Ma age of the youngest eruptions) volcanic history of the Sierra Nevada – White Mountains rift region. Stops along this trip included a visit to a pumice quarry, Obsidian Dome, and the hot springs of Hot Creek; all evidence of past (and present!) magmatic activity within this tectonically active region.

Arguably the most interesting of the day trips (for those students inclined towards pursuing a career in economic geology) was the day long visit to the Big Pine Pendant. The pendant consists of Paleozoic metasedimentary (primarily carbonate derived) sequence hoisted to significant relief by the underlying Sierra Nevada Batholith. Practically speaking, this pendant is now composed of marble, hornfels, and skarn mineralization which commonly host economic levels of commodity elements, such as Fe, Au, Cu, Zn, W, Mo, and Sn. In particular, the field school participants, alongside field school students from San Diego State University, spent the afternoon mapping the host granites, contact, and alteration zones of the skarn deposit, much as an exploration geologist would do within the industry. Participants also spent a small amount of time ‘rock-hounding’, as garnets – a common mineral in skarn deposits) as big as baseballs are rumoured to have been retrieved from the Big Pine area. Overall, this exercise acted as an interesting introduction into the work that would be involved in exploring an economic deposit, while also networking with American colleagues (and having a bit of fun as well!).



Dalhousie University and San Diego State field school collaboration in the Big Pine Skarn, eastern California

These opportunities would not have been without the generous support of PDAC, so we would like to once again reiterate our thanks, as well as our commitment to continue this strong academic-industry partnership for years to come.

Best Regards,
Jacob VanderWal

MSc. Candidate, Carleton University
BSc. (Hons.) Earth Science, Dalhousie University
jacobtvanderwal@gmail.com