

Inland Geological Society

February 2018

Newsletter of the Inland Geological Society

Volume 34 No. 2

Next Meeting:
Wednesday
February 7th

Time:
Social: 6:00pm
Dinner: 7:00pm
Lecture: 7:45pm

Location:
LSA Associates
1500 Iowa Ave.
Suite 200
Riverside, CA
92507
(Map on Pg. 7)

Coming to
Dinner?
Please RSVP
to Jessie Bagby
by Monday 2/5
rvsp.igs@gmail.com

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February Speaker:

Dylan Terry

Geochemical Analysis of Obsidians and Rhyolites of the Inyo Domes

Abstract:

Traditional geochemical studies typically involve collecting specimens to take back to a lab for analysis. In the last decade though, instruments to measure elemental abundances have become smaller and more portable which allows those instruments to be taken out to the field. One of these instruments is Thermo Scientific's Niton XL3t which uses x-ray fluorescence to measure elemental abundances. This instrument has been used in various applications such as mining, environmental analysis, and recycling. The Niton XL3t has only been used a few times though in igneous petrology and has not been tested against USGS igneous rock standards. Its onboard GPS has also not been tested for accuracy and precision. The primary question of this study is how well does the Niton XL3t do in performing geochemical analysis of different emplacement events of a lava dome compared to more traditional methods such as thin section analysis and scanning electron microscope analysis.

The field location selected for this study was the Inyo Domes near the city of Mammoth Lakes, California. These domes have been studied extensively and it is known that three separate eruption events led to the emplacement of these domes. The most recent eruption occurred approximately 650 years ago when a dike fed eruptions that led to the emplacement of Obsidian Dome, Glass Creek Dome, and South Deadman Dome. These domes each show different emplacement events with distal flows that erupted first followed by proximal flows. These distal and proximal flows show differences in texture and chemistry.

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Before taking it into the field, the accuracy and precision of the Niton XL3t's detector along with the onboard GPS were tested. To test the onboard GPS, the Niton XL3t was taken to three different local surveyed benchmarks where it measured its position. From these data, the accuracy of the onboard GPS was found to be between 3.9 and 0.44 meters. The precision of the GPS was measured to be between 1.3 and 3.31 meters. The Niton XL3t was then used to scan USGS felsic igneous rock standards. Calibration curves were input into the instrument after initial scans and then the standards were rescanned. From these data, it was found that the following elements were detected within acceptable limits: Ca, Fe, Nb, Rb, Sr, Zn, and Zr.

Approximately 100 hand specimens were collected in the field and their locations noted. These specimens covered the different emplacement events at the five domes of the Inyo Domes chain. The specimens were processed to produce thin sections and powder specimens back in the lab. The Niton XL3t was then used to scan the hand specimens along with the powder specimens. From these data, maps were generated showing the elemental concentrations at locations where specimens were collected.

Biography:

Dylan Terry is a graduate student in the Earth and Environmental Sciences program at California State University San Bernardino (CSUSB). His graduate studies mainly focus on mapping the geochemistry of volcanic deposits with his thesis being a study of emplacement events at the Inyo Domes near Mammoth Lakes, California. In addition to his research, Dylan also teaches several geology lectures and labs at CSUSB. In his lectures, Dylan experiments with new teaching methods such as flipping the classroom to improve student engagement as well as students' retention of knowledge. When his mind is not on geology or teaching, Dylan also finds time to meet and do events with the Inland Empire Returned Peace Corps Volunteer Group. And when he needs a mental break, a good place to find him is on a hiking trail admiring the geology and nature at his own pace.

President's Message

The Inland Geological Society would like to thank Rachel Kolenko for her efforts in serving as our Secretary. Unfortunately for IGS, but fortunately for Rachel, she is now working at Environmental Resources Management (ERM). For those who don't know, ERM is a leading global provider of environmental, health, safety, risk, and social consulting services. Rachel has been busy bouncing between different offices locally and further south, and getting ready for a drilling job in the Imperial Valley. In her words, "Thank you for letting me be Secretary as it definitely helped me with getting a job! If you ever have any students on the fence about holding a position, I can attest it looks really good on a resume!" Thank you, Rachel.

And with that, the Inland Geological Society would like to introduce Jessie Bagby as our new Secretary. I believe she is a Geology major at Cal State San Bernardino (I need to check my facts) and she has graciously volunteered to serve as our Secretary. Thank you, Jessie.

Sincerely,

Greg Johnson
IGS President

Summer Research Experience at the London Mathematical Laboratory

Applications are now invited from current undergraduate and postgraduate students for the 2018 Summer School at the London Mathematical Laboratory. The summer research experience will run from Monday, July 23, to Friday, August 17, 2018. Successful applicants will carry out a four-week research project under supervision at LML. Travel to and from London, accommodation, and a stipend of £1,000 will be provided. The deadline for applications is Friday, February 23, 2018. Two projects are particularly relevant to students interested in earthquake forecasting, seismic and other natural hazards, and model evaluation: (1) Risk and return: the gambler's approach to evaluating the skill of natural hazard forecasts; and (2) Evaluation of model performance in climate and earthquake hazard prediction.

See full details at <http://lml.org.uk/events/summer-school/summer-school-2018>.

Information Technology & Earth Science Summer Internship with the Southern California Earthquake Center

The Southern California Earthquake Center (SCEC) is now accepting applications for Summer 2018 undergraduate research internships. SCEC offers two internship programs, each providing compensation of at least \$6,500. The Undergraduate Studies in Earthquake Information Technology (UseIT) Program challenges teams of undergraduates of diverse backgrounds with real-world earthquake issues that require collaborative, interdisciplinary applications of earth science and information technology (including high performance computing). The Summer Undergraduate Research Experience (SURE) Program pairs undergraduates with SCEC scientists at that researcher's institution or field site. Projects for SURE interns span the spectrum of earthquake science. Applications received by the February 16th priority deadline will be considered in the first round of internship offers.

Learn more and apply at <https://www.scec.org/internships>.

WIM Scholarship Opportunities

The California Chapter of Women in Mining (WIM) is again partnering with the Southern California Mining Section of the Society of Mining Engineers (SME) to offer six Sager Memorial Scholarships of \$2,000 each. Scholarships are available to female and male California high school students and continuing college students who are pursuing studies in or related to mining, geology, engineering or environmental studies. The deadline for receipt of applications is March 2, 2018. Continuing college students can submit copies of transcripts with the understanding that a stamped original may be requested. In 2017, scholarships were awarded to students at Cal Poly Pomona, Cal State Fullerton, U.C. Santa Barbara, Cal State San Bernardino, and U.C. Berkeley. See complete requirements at <http://wimca.org/wp-content/uploads/2018/01/2018-Scholarship-Program.pdf>. The application is included on the following page.



**2018
CALIFORNIA CHAPTER
WOMEN IN MINING
SCHOLARSHIP APPLICATION FORM**

Deadline: March 2, 2018

Name: _____

Mailing Address: _____

City: _____ State: _____ Zip Code: _____

Home Phone: _____ Cell: _____

Email: _____

Major _____ Emphasis: _____

Current School: _____ Year in School: _____

Approximate Graduation Date: _____ Overall GPA: _____

Career or Field of Study you plan to pursue after graduation: _____

University or College of Choice:

1st Choice: _____

2nd Choice: _____

3rd Choice: _____

On a separate sheet of paper, write a one-page essay stating your future plans.



SAVE THE DATES

32nd Annual



Desert Symposium and Field Trip

Symposium: April 20-21, 2018 Zzyzx, CA
Field Trip: April 22-23, 2018

Theme: Against the current: Mojave River from sink to source: Hydrology and structural influences along Mojave Desert drainage systems.

Share your desert research with an oral or poster presentation. We encourage students to attend and compete for the **Adams Best Student Presentation Award.**

Abstract deadline (for all presentations):	20 Jan 2018
Final Paper submission deadline:	20 Feb 2018
Registration deadline:	10 Apr 2018

The field trip will camp at Owl Canyon Sunday night (Apr 22). A third-day informal trip will be held in the Barstow area.



For more information please visit
DesertSymposium.org



The 2018 Desert Symposium is being held in cooperation with the Desert Studies Center, California State University, Fullerton.

Upcoming Meetings/Events

Inland Geological Society

The Inland Geological Society typically meets the first Wednesday or Thursday of each month. The March meeting has not been announced yet. For more information, visit our website at www.inlandgeo.org.

South Coast Geological Society



Monthly dinner meetings are typically the 1st Monday of the month. This month's meeting will be held on Monday, February 12, 6:00 pm, at Dave & Buster's in Orange. For more information, visit the association

website at www.southcoastgeo.org.

AEG—Southern California Section



The next meeting of the AEG—Southern California Section has not been announced yet. For more information, visit the association website at www.aegsc.org.

AEG—Inland Empire Chapter



Monthly dinner meetings are typically the third Wednesday of the month at Pinnacle Peak Steakhouse, 2533 S. La Cadena Drive, Colton. The February meeting speaker will be Jason Dupre, P.E., of Torrent Resources. He will speak about stormwater

BMPs for the pretreatment and recharge of excess surface water. For more information, visit the association website at www.aegsc.org/chapters/inlandempire.

Rock & Gem Shows—various locations

Various rock and mineral shows will be held throughout southern California. To find one near you, visit www.rockngem.com, then select the Show Dates tab.

San Diego Association of Geologists



The February SDAG meeting will be held on Wed., Feb. 21st at the Marina Village Conference Center Catalina Room, San Diego. For more information, visit the association website at www.sandiegogeologists.org.

Los Angeles Basin Geological Society



Monthly lunch meetings are typically the 4th Thursday of the month from 11:30 am to 1:00 pm at the Willow Street Conference Center, 4101 E. Willow Street, Long Beach. The next meeting of the Los Angeles Basin Geology

Society has not been announced yet. For more information, visit the association website at www.labgs.org.

Riverside County Science & Engineering Fair

Save the date! The 2018 Riverside County Science and Engineering Fair for students in grades 4 through 12 is coming up on Monday and Tuesday, March 19th and 20th, at the Riverside Convention Center, 3637 Fifth Street, Riverside. Judges are needed! Please contact Margaret Gooding if you are interested in serving as a judge this year: margaret.gooding@LSA.net.

Get Your IGS Coffee Mug!

IGS will now be selling IGS coffee mugs at the monthly meetings. They will be on sale for \$10.



IGS MEETING LOCATION:

**LSA Associates, Inc.
1500 Iowa Ave, Suite 200
Riverside, CA 92507**

**IGS OFFICERS****President**

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