

The **BGS** **REPORT**



vol. 3, no. 1 – Fall, 2014



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[Cover Image]: Former President Kevin Coffey and current Vice President Drew Levy standing guard over newly appointed President Amanda Garcia. Members Kyler Boyle and Corinna Casey flank the past and present board members atop a volcanic plug in Joshua Tree National Park (story on page 8).

This issue of The BGS Report compiled by Amanda Garcia, Drew Levy, and Eui-jo Marquez.

From the President



Howdy BGS members! This past year, the Bruin Geological Survey has truly become a household name with another series of excellent trips and outreach events. We've explored the coast, the mountains, and everything in between in our search for fascinating geology. It couldn't have been done without an outstanding board and enthusiastic members, so thank you to everyone who made it all happen!

We started our third year with a bang, completing an exhilarating hike and reaching the highest peak in the San Gabriel Mountains, Mt. San Antonio (page 4). We are also now three for three on successful Exploring Your Universe exhibits. This time around we had the opportunity to add a dinosaurs and fossils component to our popular Exploring Your Earth geology exhibit (page 10). We surveyed the local sights on a Topanga State Park night hike (page 6), and we ventured into the desert on a camping and rock climbing trip to Joshua Tree National Park (page 8).

Some plans for the rest of the year include a variety of local day hikes led by BGS alumni, fossil and mineral hunts, and a trip to Santa Catalina Island in the spring: a sequel to a very enjoyable trip we've led there in the past. Keep an eye out for our signboard set to be displayed in a couple weeks, as well as this year's round of gear orders. In addition, I'm excited to announce that the BGS and other southern California college geology clubs are now coordinating to host joint field trips, talks, and other opportunities for geology students to get to know one another.

There are sure to be plenty of events to enjoy in the coming months. That being said, if you are interested in leading a trip or outreach event (especially for those of you BGS alumni working in industry), or simply have a great idea for one, be sure to send us an email. Thank you for your help in making BGS an indispensable resource here at UCLA. See you in the field!

Meet the 2014-2015 Board



Amanda Garcia – President

1st Year Geology Ph.D. student

Amanda studies Precambrian paleobiology with Bill Schopf. She's currently ruminating on how to constrain Earth ambient temperature changes over deep time. Her goal in life is to be an old timey naturalist.



Drew Levy – Vice President

3rd Year Geophysics/Space Physics B.S. student

Drew is studying the Earth's dynamo and magnetosphere. In his free time, he enjoys exploring the Sierra Nevada and geologizing!



Eui-jo Marquez – Secretary

Post Baccalaureate Geology student

Eui-jo is studying structure and paleoseismology with An Yin and Sinan Akciz in preparation for graduate school.



Greg Jesmok – Treasurer

3rd Year Geology B.S. student

Greg is working in the Meteorite Laboratory with John Wasson and studies luminescence with Ed Rhodes. Outside of learning about geology, he loves singing, dancing, and hiking.



Axel Wong – Fieldtrip Coordinator

2nd Year Applied Geophysics B.S. student

Axel is an enthusiast for both geology and alpine climbing. The highest mountain Axel climbed is Yuzhu Peak (6178 M) located in Qinghai Province, China.



Juliet Olsen – Alumni Relations Liaison

2nd Year Engineering Geology B.S. student

Juliet is studying luminescence with Ed Rhodes.



Tom Stanley – Recruiting and Outreach Coordinator

3rd Year Geology M.Geol. student

Tom is an exchange student from the University of Leeds, UK. He has focused his studies towards working in the mineral exploration sector, and acted as treasurer to the Leeds student chapter of the Society of Economic Geologists in 2013/14.

Appointed Officers



Jessica Lin – Webmaster

3rd Year Applied Geophysics B.S. student
Jessica is a curious explorer who loves hiking canyons and venturing in the wilderness. She also enjoys reading, playing cello, and collecting minerals.

Brenda Pack – Gear Coordinator

4th Year Geology B.S. student
Brenda is working with Jeremy Boyce using U-Pb dating to see if radiogenic lead is present in apatite on lunar basalts.

Trip: Mt. San Antonio San Gabriel Mountains Angeles National Forest, California 12 October 2014



BGS members enjoy the view at the peak of Mt. San Antonio.

For the first trip of the year, the BGS crossed a huge accomplishment off its list by climbing the highest peak in the San Gabriel Mountains: Mt. San Antonio. The trip was led by UCLA Professor Ray Ingersoll, lending his knowledge of Mt. San Antonio's place in southern California's geologic history. The day began bright and early at the bottom of the mountain. The group took the ski lifts up to the Notch – some members bravely facing their acrophobia. UCLA students and faculty, along with guests from CSUN, then headed off on the Devil's Backbone Trail toward the summit.

The BGS learned that the beginning of the trail traversed the uplifted subduction complex created when the Farallon plate was driven beneath the North American plate during the Mesozoic. Along the trail, students paused to study outcroppings of schist formed through this ancient plate interaction. Eventually, the group crossed the boundary between the Farallon subduction complex and the old North American continental crust, clearly visible through the changed rock type. Exciting as the geology was, the true physical challenge of climbing the steepest part of the trail was to begin. Thankfully BGS members don't shy from a challenge, and slowly but surely climbed the rocky summit.

The peak of Mt. San Antonio rewarded the group with a fantastic 360-degree view, which included the San Andreas fault to the north. After having lunch and taking some spectacular photos, everyone headed back down the trail for much deserved rest and beverages at the Notch restaurant.

Mt. San Antonio (continued)



[Above, from left to right]: John Mering, CSUN students Sean Klein and Trevor Barber, and Tom Stanley.
[Below left]: Jillian Daniels pointing out a contact between a dark and light rock unit. [Middle]: BGS members follow the precarious ridgeline Devil's Backbone Trail. [Right]: Returning to the parking lot via ski lift.



Trip: Topanga State Park Santa Monica Mountains National Recreation Area, California 11 November 2014



[Top left]: Lawrence Kumar, Amanda Garcia, and CSUN student Sean Klein show off a geologic map of Topanga State Park. [Top right]: Axel Wong, Lawrence Kumar, Drew Levy, Sean Klein, and Juliet Olsen pose with spheroidally weathered diabase.

Led by intrepid President Amanda Garcia, BGS set out on their second trip of the 2014-15 school year, traveling up to Topanga State Park, less than ten miles from UCLA as the crow flies. The state park is nestled atop the Santa Monica Mountain with great 360-degree views of the surrounding mountains, ocean, and city. But alas, BGS was not there for the postcard material, they were there for the geology!

The origin of the Santa Monica Mountains lies in the ocean depths some 16 million years ago. Underwater volcanic eruptions, from the subducting Farallon plate, began setting the foundation for the

mountains. As these volcanic formations were uplifting, they carried a trove of marine sedimentary deposits with them. Evidence of this volcanism can still be seen in the form of pillow basalts, which dot the trails throughout the park. The Santa Monica Mountains explored are much different than the volcanic behemoths that once towered above the sea. Since then, erosion has cut down the mountains from their original height, and a series of tectonic movements along the Raymond Fault has created the mixture of sedimentary and volcanic rocks we see today.

Starting at Trippet Ranch, BGS hiked along the dirt road that takes you up the ridgeline, through the park to Eagle rock. Right out of the parking lot, there was great exposure of sandstone and volcanics. One could trace the paths of some of these formations from ridgeline to ridgeline as they sweep across the mountain range. Further along, conglomerates took over the show. Not quite the trickster, the conglomerate formations gave away the details of their dip after some BGS members analyzed the outcrop. Eagle rock was the highlight of the hike. Looming out of the mountainside, this sandstone (intermixed with conglomerate) eagle takes command over the park. The BGS crew dined on some fine trail snacks and enjoyed the sunset atop the eagle's head. The next stop was Temescal Peak, or so they thought. With darkness looming, BGS' navigation skills all but went out the door and they couldn't find the proper Temescal Peak. However, after scrambling to the top of a hill to get a beautiful panorama of Los Angeles and San Fernando Valley, they named this newfound viewpoint BGS Peak, which is much better than Temescal Peak any day.

Topanga State Park (continued)



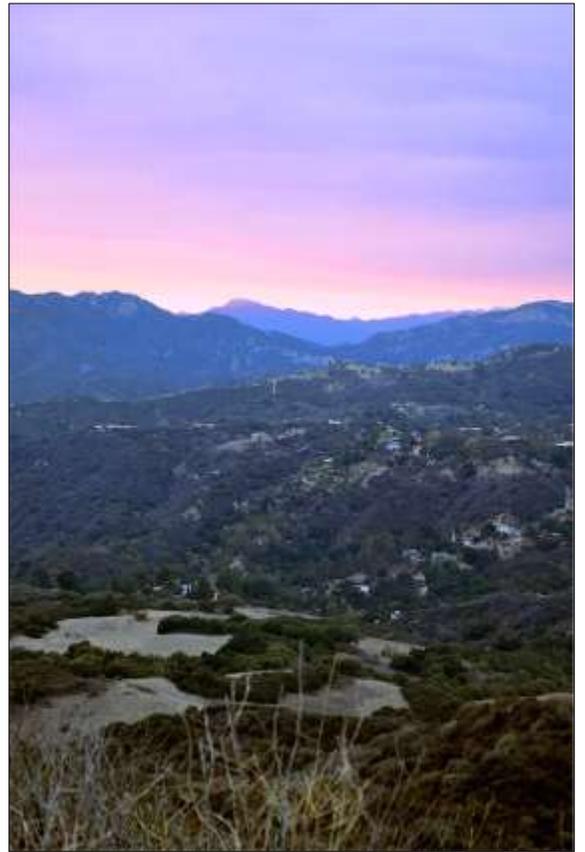
[Top left]: Drew Levy at the base of a sandstone outcrop.

[Top right]: The group hiking the trail to Eagle Rock.

[Middle left]: Juliet Olsen studies the top of Eagle Rock.

[Bottom left]: BGS members enjoy views of the LA downtown lights.

[Bottom right]: Sunset in Topanga State Park.



Trip: Joshua Tree National Park

Riverside and San Bernadino Counties, California

December 6-7 2014



[From left to right]: Kyler Boyle, Corinna Casey, Austin Chadwick, and Kevin Coffey scramble over the granite outcrops.

The BGS set off bright and early on a Saturday morning to head to a local favorite in southern California: Joshua Tree National Park. For the first time, we had a few avid rock climbers in our group who were excited to make the most of this world-class climbing destination.

Everyone met at Hidden Valley in the western portion of the park. Some set off to join other rock climbers who were already ascending the impressive granite formations in the morning sun, while the rest of the group hiked and scrambled to explore more of the park. The BGS learned the geologic story of Joshua Tree National Park: a monzogranitic intrusion comprising the southern extent of the Sierra Nevada batholith, subsequently tilted and extended. This granite was exposed and eroded over millions of years to form the alien-like formations so often seen on postcard pictures. The group also got up close and personal with some of the flora and fauna. We endured a few pokes and pricks by Joshua trees and chollas, and saw a few chipmunks skittering between the granite boulders.

As the sun was setting, the group drove to the campsite and enjoyed a delicious meal prepared by BGS “Chef” Drew Levy. With pasta and cold beverage in hand, the group gathered around a roaring campfire to swap stories and play a few hilarious rounds of Catch Phrase. Finally it was time to turn in, and the group fell asleep to the distant sounds of coyotes, probably having their own party somewhere in the desert.

The next day started with serious business, as BGS members Kevin Coffey and Drew were entrusted with the highly important task of filming scenes for friend-of-BGS Lauri Holbrook’s holiday film. The BGS got to show off their acting chops before parting ways. A few went to do some last-minute rock climbing, while the rest drove to the Lost Horse Mine trailhead. Here, the group headed for the nearest peak, Lost Horse Mountain. While only expecting to find some views and a hiking challenge, everyone was surprised to find that the peak was actually formed by a volcanic plug, complete with columnar basalts. The BGS found a variety of xenoliths within the basalt, some containing olivine. The group fit in a couple more scenes on the precarious slope of Lost Horse Mountain before setting off on the long drive home. It was an exciting end to a fun-filled camping trip.

Joshua Tree National Park (continued)



[Top left]: Amanda Garcia and Kevin Coffey examine columnar basalt talus and search for xenoliths. **[Top right]:** Austin Chadwick shows off impressive balance on a small man-made dam. **[Bottom]:** Corinna Casey soaks in the incredible view from a granite peak.



Outreach: Explore Your Universe 2014

Geology Building, UCLA

16 November 2014



Above: Kevin Coffey explains the wonders of sedimentology to an eager group of future geologist, who are soaking up the experience.

At UCLA's annual Exploring Your Universe, students come from schools all over Los Angeles and tour exhibits put together by UCLA faculty, staff, and students. This year the Bruin Geologic Survey put together two unique exhibits: Exploring Your Earth, and Dinosaurs and Fossils. For Exploring Your Earth, Vice President Drew Levy, past President Kevin Coffey, and a few BGS volunteers set up a tour through the world of rocks. The young explorers walked their way through the rock cycle, from igneous to sedimentary to metamorphic rocks. Obsidian was quite popular for its glassy luster. A few wonderful pieces of petrified wood were on display as well, which attracted a lot of attention. For many, it was their first time seeing many of the specimens BGS had laid out. The flume, which demonstrates soil transport and deposition, was one of the more popular stops in the room due to the fact that it worked on a much faster time scale (geologically speaking), than the other displays. It's safe to say that there were definitely some young engineering geologists in the crowd. In addition to these stations, there was a wind tunnel that created sand dunes, a set of geologic maps, a display of a geologist tools and typical camp set up, as well as microscopes to explore sand, and a stop where the young explorers learned about economic geology.

Meanwhile, the Dinosaurs and Fossils exhibit took young geologists on a tour back in geologic time to witness the evolution of life on Earth. BGS President Amanda Garcia, along with helpful volunteers set up the displays in anticipation of hundreds of eager children and their parents. Starting small, the kids got a close look at
(continued on next page)

Explore Your Universe 2014 (continued)

rarely seen microbial and plant fossils. The stations then progressed to more complex invertebrate fossils, marine reptiles, and finally to what all the kids were really excited to see: dinosaur fossils! The BGS made sure to teach the visitors what were, and what were not, dinosaurs (pterodactyl? Not a dinosaur.). The exhibit also showcased the connection between dinosaurs and birds, evidenced by fossil protofeathers and transitional forms. Finally, the BGS was fortunate to have access to a plethora of mammal fossils in the UCLA collection, many sourced from local La Brea Tar Pits. These bore the trademark burnt hue of La Brea fossils. Beside the fossil displays, controlled chaos reigned as the young explorers excitedly sped up geologic time in creating their very own, take-home plaster fossils. The activity was so popular, the hardworking BGS volunteers couldn't keep up; they vowed to bring more supplies and support for the next EYU.

The BGS exhibits, along with the entirety of EYU 2014 were a huge success. The BGS thanks everyone who took the time to volunteer and spread scientific knowledge, as well as the many people who tirelessly organized EYU. We all look forward to EYU 2015!



Get ready for the BGS gear sale!!

Order merchandise via email: bgs.ucla@gmail.com



Bruin Geological Survey

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check out gear, visit our website at:**

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