

AIPG California Section May-June 2018 Newsletter

In This Issue:

- Feature Article: 2018 California State Science & Engineering Fair
- Review of the April 4, 2018 Meeting at Sonoma State University
- SRTM University, India Student Chapter Update
- 2018 AIPG National Meeting in Colorado Springs, Colorado
- 2020 AIPG National Meeting on the West Coast
- ASBOG Opportunities
- List of California Section Officers and Advisors

FEATURE STORY

The AIPG California Section Judges at the 2018 California State Science & Engineering Fair

By Dave Sadoff, AIPG California Section Vice President

For the 18th consecutive year, the AIPG California Section judged geoscience projects at the California State Fair at Exposition Park in Los Angeles on April 25th. As in years past, there were excellent projects presented by Middle and High School students. In order to be accepted at the

State Fair, projects had to place at two previous local science fairs – such as a school science fair and a county science fair.



Photos of the science and engineering fair at the historic California Exposition Park facility.



AIPG Judge Dave Sadoff with Christina Moon

The First Place Excellence in Geology Award went to Christina Moon, for her project “Sordid Sediment”. Christina wanted to determine the effect of sediment on water quality in lakes and the marine organisms which inhabit the lakes. She collected sediment from three Monterey County lakes, mixed them with spring water in a container to simulate rainwater run-off, and used a sediment-free container with spring water as a control. She then placed 15 adult *Daphnia magna* (a small planktonic crustacean) into each of the four containers and counted the number in each container every 8 hours and observed the heart rates using a microscope every 16 hours. She found that the sediment-infused water had a lower reproduction rate compared to the control; and the

heart rate of the *Daphnia magna* was much faster than the control group. She concluded that runoff sediment from man-made structures around the lakes was the cause of water pollution and the decrease in vitality of marine organisms; and that there were correlations between the reproduction rate and heart rate – when the heart rate increased, the reproduction rate lowered. Christina received a certificate and a check from AIPG California Section for \$250.



Dave Sadoff with Ellery McQuilin

Second Place was awarded to Ellery McQuilin, for her project entitled “A Tale of Two Slopes: Aspect Creates Microclimates”. She was curious to see if the different north and south facing aspects in Lundy Canyon create substantially different temperatures and snow depth due to varying amounts of sun exposure. Ellery placed temperature sensors on the north and south facing slopes at 100 foot increments ranging from 7,400 to 7,900 feet elevation. She collected the snow depth with the snow poles and time-lapse cameras on the two slopes, recording snow depth at 15-minute intervals between November 2017 and February 2018. A total of 27,000 photos were used to populate a spreadsheet to calculate daily slope sunlight and snow depth.

She found the north facing slope received 0.06% of the solar energy that the south facing slope received. There were 21 days with no sunlight in December, and when the sun rose high enough in the sky to finally shine on the north facing slope it had low solar energy due to its low angle in the sky. This caused the north facing slope to have colder temperatures and a longer duration of snow coverage. The south facing slope was up to 14°C warmer than the north facing slope during the day, but cooled down to similar temperatures at night. Ellery concluded that both slopes create microclimates, places where the topography affects the local climate. The large temperature range of the south facing microclimate stresses rocks, which results in more rock falls. She further concluded that the north facing microclimate can be, at least temporarily, a refuge from climate

change for plant and animal species which require colder temperatures and snow coverage to survive. Ellery received a certificate and check for from AIPG California Section for \$150.



Dave Sadoff with Scott Cao

The Third Place Award went to Scott Cao for his project “Volatile Climate of the Miocene: A Glimpse into Our Future?” Scott wanted to determine how CO₂ levels (the greenhouse effect) and organic carbon burial (the Monterey Hypothesis) affected the climate of the Miocene. Sediments from the Miocene were studied from several Ocean Drilling Program (ODP) sites. Five samples of *Trilobatus Trilobus*, a foraminifera, were picked from the sediments cores, cleaned, and analyzed through a mass spectrometer for $\delta^{13}\text{C}$ (pronounced “delta thirteen C”). $\delta^{13}\text{C}$ is the isotopic signature related to the ratio of stable isotopes of carbon: ¹³C to ¹²C.

Scott concluded that global CO₂ levels were highest during the Mid-Miocene climatic optimum, and then decreased when temperatures decreased during the late Miocene, supporting the greenhouse effect. However, CO₂ levels decreased during the late Miocene, but temperatures remained relatively constant, showing a deviation from the greenhouse effect. The Monterey Hypotheses state that the high $\delta^{13}\text{C}$ caused the decrease in temperatures during the Mid-late Miocene, but $\delta^{13}\text{C}$ values increased approximately 18 Ma and temperatures did not start decreasing until approximately 15 Ma, indicating a lag time, which contradicts the Monterey Hypothesis. Scott received a certificate and a check from AIPG California Section for \$100.

As always, it was a pleasure seeing so many very bright young students, who are passionate about science in general, and geology in particular. These young adults represent a very promising future for humankind!

Editor’s Note: Dave Sadoff attended the event as an AIPG California Section Judge. Dave has performed this role for 15 years and provides leadership for AIPG California Section for this event.

Others have helped in the judging. If you want to assist in judging next year or other AIPG activities, please contact Dave at davesadoff@sbcglobal.net

California Student Robert Collar wins AIPG National Student Scholarship Award

An AIPG Student Member in the California Section won a student scholarship award from AIPG. Dave Sadoff will present Robert Collar of Stanford University with the award. Robert is an undergraduate in the Department of Geological and Environmental Sciences.

April 4, 2018 Sonoma State University AIPG Student Section meeting

Thank you to Sonoma State University Student Section for hosting the meeting.

A great speaker and SSU graduate Tom Magney provided his assessment of the various industries which employ geologists and his take on the opportunities. He put a lot of time into his analysis and offered suggested career pathways for geologists. Tom did a wonderful job engaging not only the students present in our meeting room but also with students watching from India. Many introspective questions were asked by students and answered by Tom and other AIPG senior members.



April 4, 2018 Sonoma State University AIPG Student Section meeting

Field Trip

Although we had originally thought about a field trip which we have done for the past several years, given the lack of a field trip leader, and other planned student trips on the same date, we decided to cancel the field trip for this year. We will resume planning for next year.

SRTM University, Nanded, Maharashtra, India – AIPG’s First International Student Chapter

The first AIPG International Student Section is SRTM University. Through the magic of video and the internet, Steve Baker had several participants (professor and students) from the Earth Sciences Department at SRTM University in Nanded, India listen in to our April 4, 2018 meeting. Professor Vasant M. Wagh was involved, and we later spoke to him in a two-way discussion after the meeting. Dr. Wagh had visited SSU in November 2016.



Professor Vasant M. Wagh
SRTM University, Nanded, India

Interest in India continued well after our Facetime Live event with friend requests that included students and professors at SRTM University. We will continue scheduling Facetime Live broadcasts at future meetings as long as internet speed is fast enough.

We continue to encourage all AIPG students at UC Davis and Sonoma State to engage with Indian students as we present opportunities for interaction. We are already thinking about our interactive scenarios for the next academic year. Students are encouraged to share their student experiences, hesitations, frustrations and successes with each other and India students.

News Brief on Operation Unite® Mentor Program

Operation Unite® continues to encourage AIPG student members in India and the U.S. to visit the Operation Unite website (www.operationunite.co) and listen to the “Meet Your Mentor” program podcasts of both Mentor Robert Trousil and Mentor Robert Campbell. Each mentor has recorded nine shows on a variety of topics. Listeners with questions for the mentor can engage in the blog page of the mentor.

AIPG members (student and professional levels) can also suggest the next water related profession and a possible mentor. Operation Unite® will contact suggested future mentors and request an application be filled out and returned to Operation Unite® for consideration.

Fall Speakers for 2018

We are already planning speakers for October and November 2018. The student sections at UCD and SSU will elect new officers.

AIPG National Meeting 2018 will be in Colorado Springs, Colorado

AIPG is currently accepting abstracts for oral presentations and poster presentations for the 55th American Institute of Professional Geologists National Conference that will be held in Colorado Springs, Colorado, from September 8-11, 2018. General topics include, but are not limited to, professional practice, mining, petroleum, water, and environmental remediation.

The national conference provides opportunities to present and learn from experts in various geology and geoscience fields, with networking opportunities throughout the conference. Earn CEU's too.

Purple Mountain Majesties

September 8-11, 2018; Colorado Springs, Colorado

Colorado Springs Marriott; 5580 Tech Center Drive, Colorado Springs, CO 80919

(719) 260-1800

AIPG National Meeting 2020

Mehmet Pehlivan was elected to a second one-year term on the AIPG National Advisory Board. He informs us that the AIPG National Meeting in the fall of 2020, likely to be on the west coast.

The details are still being worked out by AIPG National staff, subject to change. If you want to know more or help out, please contact Mehmet Pehlivan mp@baysgrp.net. The last time AIPG had a national meeting in on the west coast (California-Oregon-Washington) was in California for the 1990 Long Beach meeting. Stephen Testa was the General Chairman of this successful meeting and many other volunteers were involved. This upcoming 2020 meeting will require the same level of energy and involvement to be a successful meeting, and I encourage your participation!

Review of the Activities

We had a pretty good year with 4 meetings (October, November, March and April) and a December conference all about job interview skills. The California Section Science Fair judging was also a highlight, led by Dave Sadoff.

The National Association of State Boards of Geology (ASBOG®) Looking for Licensed Individuals! (Article courtesy of ASBOG®) 2018 Fall Council of Examiners (COE) Workshop and Field Trip

The National Association of State Boards of Geology (ASBOG®) is a volunteer organization whose primary purpose is to write the national geology license exams used by state licensing boards. In honor of the 50th Anniversary of geology licensing in California, ASBOG® is holding the Fall 2018 council of examiners (COE) workshops in Monterey, California on Friday and Saturday, November 2, and 3, 2018. A field trip will be arranged for Thursday November 1, 2018. The COE workshops are preceded by the annual meeting of representatives from the geology state license boards who come together to vote on ASBOG® business. The Fall 2018 ASBOG® COE and annual meeting is a wonderful opportunity to show your support.

Professional Licensing Exam Workshop

The purpose of the COE workshop is to review the fall 2018 ASBOG® examinations and review the subsequent examinations proposed for spring 2019. ASBOG® asks local licensed geologists to participate as subject matter experts (SMEs). Please email a statement of interest, and your credentials and contact information to Ms. Deana Sneyd, ASBOG® Executive Director, at dsneyd@asbog.org

To qualify, each SME must have:

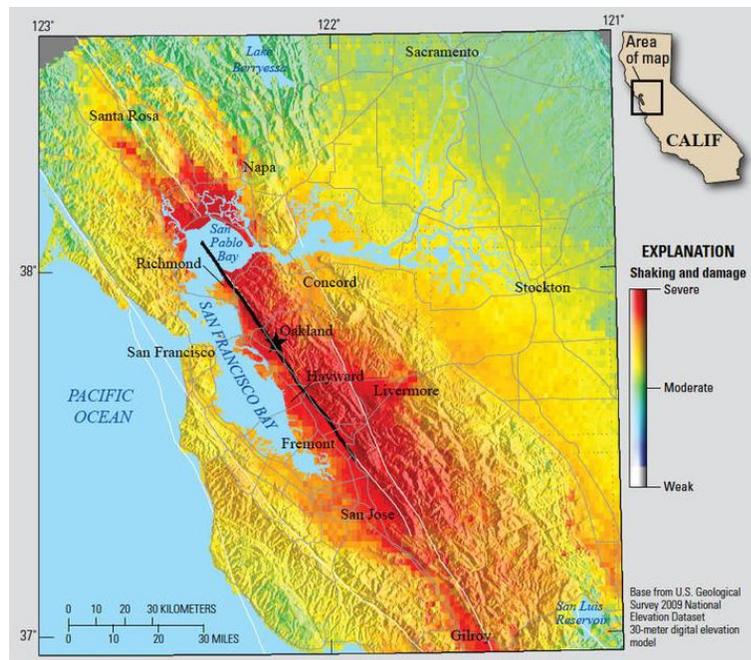
- A current license in good standing as a geologist in an ASBOG®-member state
- Worked as a professional geologist in industry, academia, or government.
- Be prepared to serve on the COE with no ASBOG® reimbursement of any expenses (travel or otherwise).
- Agreed to ASBOG® terms and conditions, provided upon acceptance as an SME, to participate.

Showcase your business through participation plus sponsorship opportunities are available

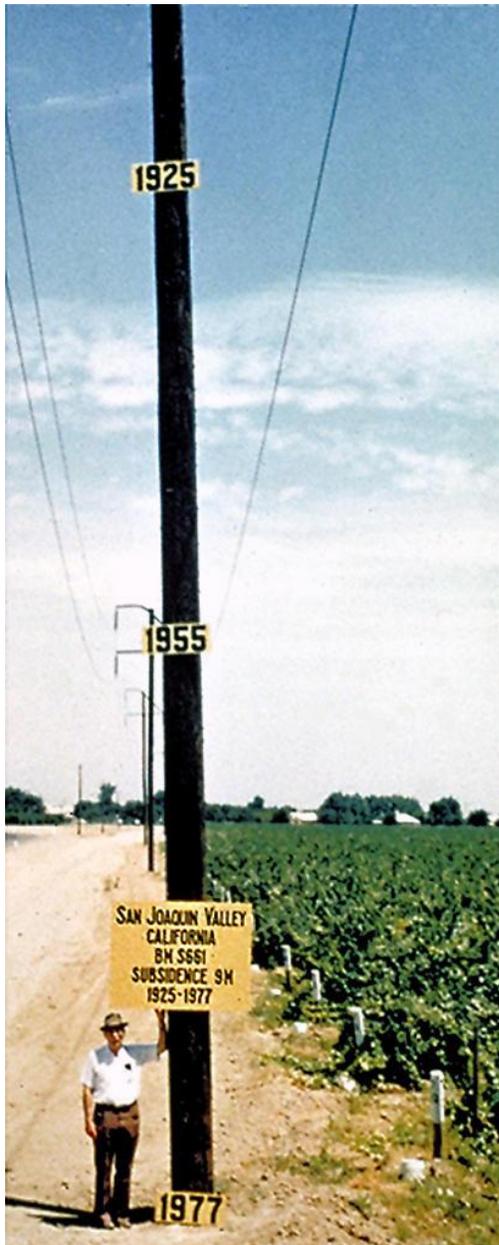
Professional licensing protects the public by promoting standards for competence and integrity. By supporting ASBOG®, your organization demonstrates that it supports these values. Supporting ASBOG® promotes the profession of geology by helping to establish standards for professional competence and compliments your participation in professional societies.

Supporting ASBOG® also benefits your company. Professional licensing of geologists is required by most states and having licensed personnel is important to your business. The availability of national license exams for geologists makes it easier for your employees to become licensed in multiple states greatly expanding opportunities for your company.

ASBOG® has developed sponsorship opportunities tailored for the Monterey COE and annual meeting. For information regarding sponsorship opportunities, please contact Ms. Deana Sneyd, ASBOG® Executive Director, at dsneyd@asbog.org www.asbog.org



USGS Hayward Fault Scenario (USGS, 2018) with a hypothetical magnitude 7.0 mainshock along the Hayward Fault shows shaking damage (severe).



CURRENT 2018 CALIFORNIA SECTION OFFICERS

- James Jacobs, President, UC Davis/SSU Sponsor
- David Sadoff, Vice President, Northern California
- Mark Rogers, Vice President, Southern California
- Karel Detterman, Treasurer/Secretary
- Steve Baker, Student Section Mentor/SRTM University Sponsor
- Rob Campbell, Student Section Mentor
- Bob Sydnor, Student Section Mentor
- Mehmet Pehlivan, Advisor
- Stephen Testa, Advisor
- Newsletter Editor: James Jacobs (looking for help)
- Your Name Here!

Student Chapters:

- UC Davis
(Minda Moe, Student President; Professor Nicholas Pinter, Advisor; Emeritus Professor Robert Zierenberg, Past Advisor)
- Sonoma State University
(Sonny Hutchinson, Student President)
- SRTM University, an AIPG International Student Chapter (Professor Vasant Wagh, Advisor)

Subsidence is a large problem in the Central Valley of California. The historic photo to the left is a reminder of subsidence from over-pumping. (Photo: Credit: Dr. Joseph F. Poland; USGS. Public domain.)

COMMENTS AND QUESTIONS:

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