

# 2020 Program

VOL. 52, NO. 4

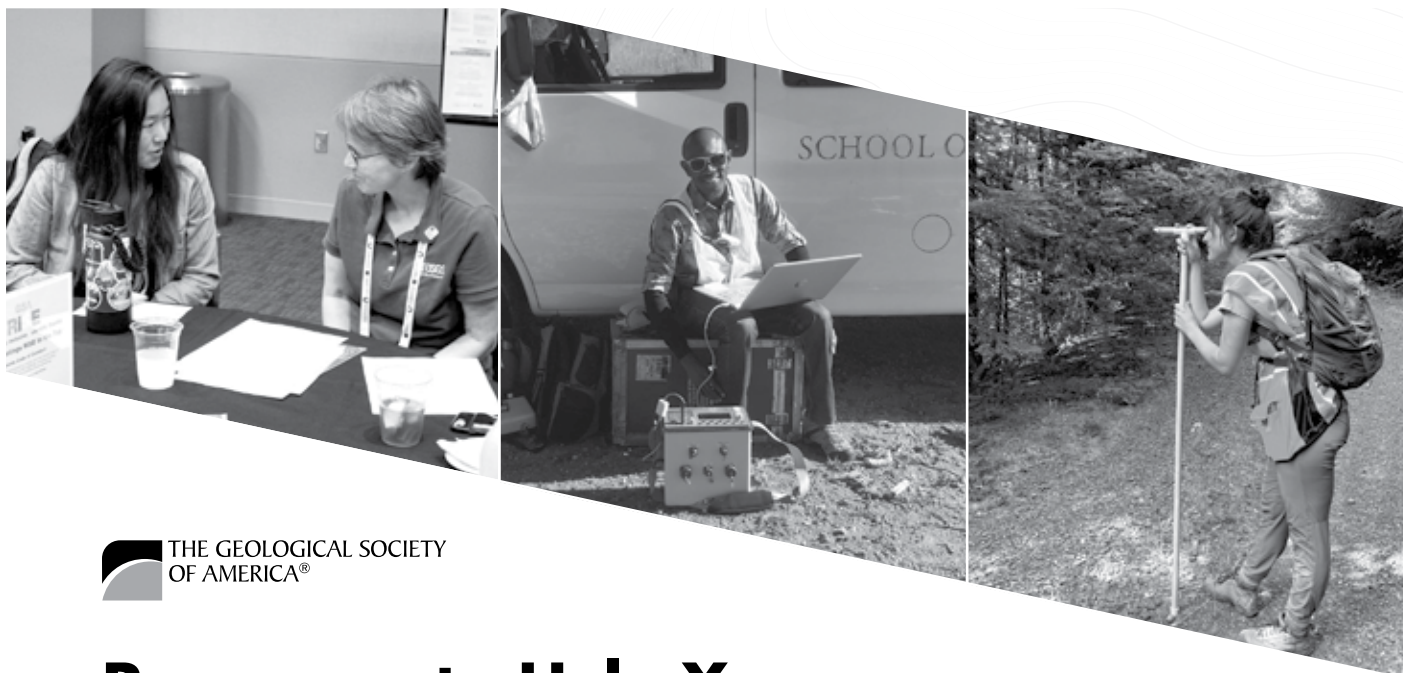
## **Cordilleran**

**12–14 May  
Pasadena, California, USA**

[www.geosociety.org/cd-mtg](http://www.geosociety.org/cd-mtg)



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*The mission of the Geological Society of America (GSA) is to advance geoscience research and discovery, service to society, stewardship of Earth, and the geosciences profession.*

For more information visit the GSA Foundation booth in the exhibit hall or visit our website  
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*Topographic pattern courtesy of Freepik.com*

**Second Announcement**  
**CORDILLERAN SECTION**  
**116th Annual Meeting of the Cordilleran Section, GSA**  
**12–14 May 2020**  
**Pasadena, California, USA**  
**<https://www.geosociety.org/cd-mtg>**



**Committee for the 2020 Meeting**

General Chair . . . . .	Doug Yule
Technical Program Chair . . . . .	Robinson Cecil
Field Trip Co-Chairs . . . . .	Richard Heermance, Joshua Schwartz
Short Course Chair . . . . .	Kathie Marsaglia
Student Volunteer Chair . . . . .	Elizabeth Nagy
Exhibits Chair . . . . .	Elizabeth Nagy
Sponsorship Chair . . . . .	Doug Yule

**Cordilleran Section GSA Officers for 2019–2020**

Chair . . . . .	Jeffrey Lee
Vice-Chair . . . . .	Robinson Cecil
Past Chair . . . . .	Michael Wells
Secretary . . . . .	Calvin Barnes
GSA Councilors . . . . .	Nathan Niemi, Jeff Rubin, Wendy Bohrson

## NOTICE

By registering for this meeting you have acknowledged that you have read and will comply with the GSA Code of Conduct for Events (full code of conduct listed on inside back cover). If you have any concerns about behavior that may violate the Code, please contact:

GSA Executive Director, Vicki McConnell, [vmconnell@geosociety.org](mailto:vmconnell@geosociety.org)

GSA Ethics and Compliance Officer, Nan Stout, [gsaeventscode@gmail.com](mailto:gsaeventscode@gmail.com)

You may also stop by the registration desk or the GSA Bookstore to have the named individuals directly contacted via phone.



# General Information



## Location

Pasadena, California, USA—the Crown City—is one of California’s iconic cities and is centered in a region defined by its geology. The landscape surrounding Pasadena reflects many past phases of geologic activity, all the while it continues to change through the slow motion of faults, the movement of water, the cycle of wind and fire and landslides, and many other processes. Its location affords access to world-famous faults, rugged mountains with an almost two-billion-year geologic history, well-known sedimentary basins with vast petroleum reserves, and legendary earthquakes, landslides, and other geologic hazards. Building on the extraordinary geological features of the surrounding region, we have devised a diverse program reflecting fundamental and applied aspects across earth-science disciplines. We look forward to welcoming the Geological Society of America to Pasadena in 2020!

## Venue

The meeting location is the Westin Pasadena Hotel in Pasadena, CA. Field trips depart from the north entrance of the hotel and short course, events, technical sessions, and posters and exhibits are being held on the first and second floors of the hotel. See hotel floor plans in the Field Trip and Workshop sections for details.

## Accommodations

A block of rooms has been reserved at The Westin Pasadena, 191 N Los Robles Ave., Pasadena, CA 91101, USA, which is where the conference will be held. Make reservations by calling toll free, +1-866-837-4181, or call the hotel directly at +1-626-304-1403.

## Transportation

The nearest airports are Burbank Airport and Los Angeles International (LAX) Airport, located 15 miles and 21 miles from the Westin Pasadena, respectively (Figure 1). Burbank Airport is easy to navigate but has limited flight options, and driving times to Pasadena vary from 20-40 minutes depending upon traffic. LAX is very busy but offers a wide selection of flight times and carriers, and driving times to Pasadena vary from 30-75 minutes depending on traffic. Ride services (Uber, Lyft, taxis) provide the fastest option for transport to Pasadena and will cost ~\$30 (from Burbank) and ~\$45 (from LAX). At Burbank ride services pick up immediately outside the terminal. At LAX one must take a shuttle from outside your terminal to the Lyft-Uber-Taxi Lot to meet your ride (a 5-15 minute shuttle ride). Public transport options are available and cost less (~\$15) but generally take longer than car transport. From LAX take the Flyaway Bus to Union Station and then the Gold Line train to Memorial Park station, locat-

ed 4 blocks to the west of the Westin Pasadena hotel. From Burbank Airport take the Metrolink train to Union Station and then the Gold Line train to the Memorial Park station. Please check schedules for Metrolink as their trains only run during morning and evening commute times.

For those driving to the conference, downtown Pasadena is located at the intersection of the Foothill (I-210), President Barack H. Obama (SR 134), and Harbor (SR 110) freeways (Figure 2).

## Parking

Parking is available throughout downtown Pasadena via metered street parking or various parking lots and garages. The most economical, closest parking garage is at the Pasadena Courthouse for \$10/day, located 2 blocks west of the Westin. Parking for the day at the Westin (Plaza las Fuentes underground parking structure) costs \$17.

## Weather

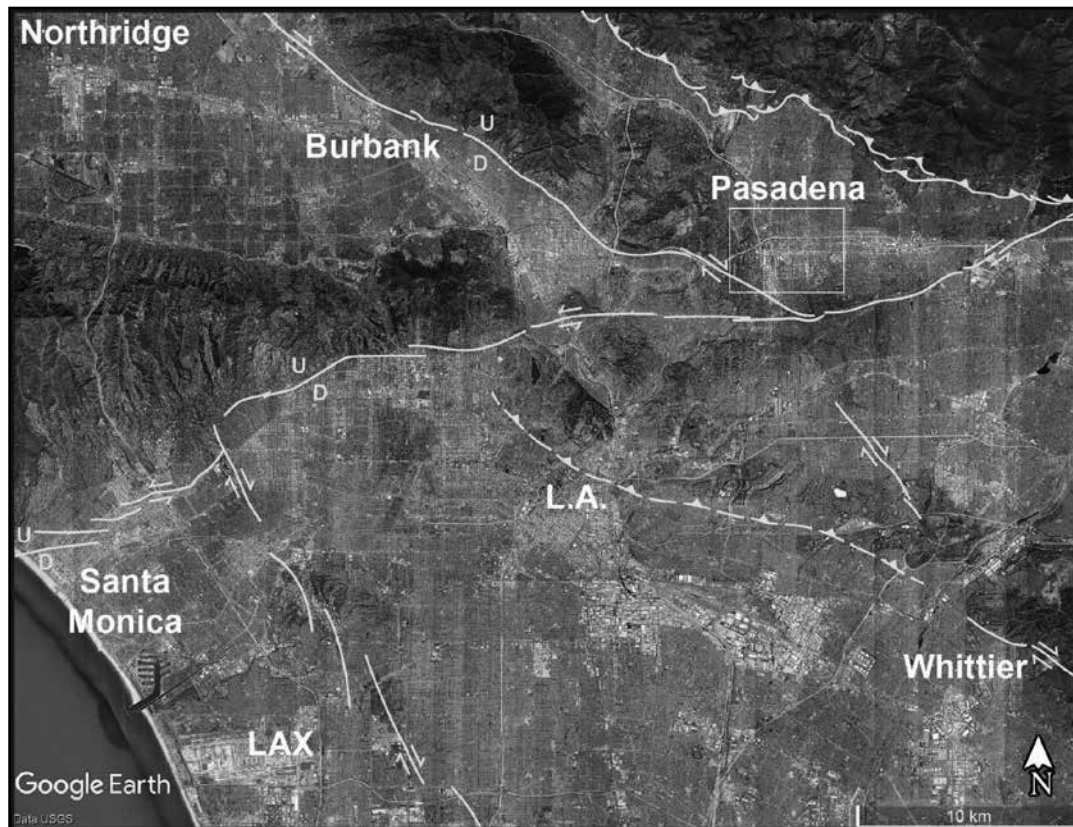
May weather in Pasadena is generally sunny and pleasant with average high/low temperatures of 79/57 °F, 26/14 °C. Record high/low temperatures are 104/32 °F, 40/0 °C. Rainfall averages total ~10 mm in May, with 2-3 rainy days. Mornings can be foggy, known to locals as “May Gray”, and are produced by a persistent marine layer. Purple-flowered Jacaranda trees line many streets in Pasadena (e.g., Del Mar Blvd) and are in full bloom in May.

## Dining

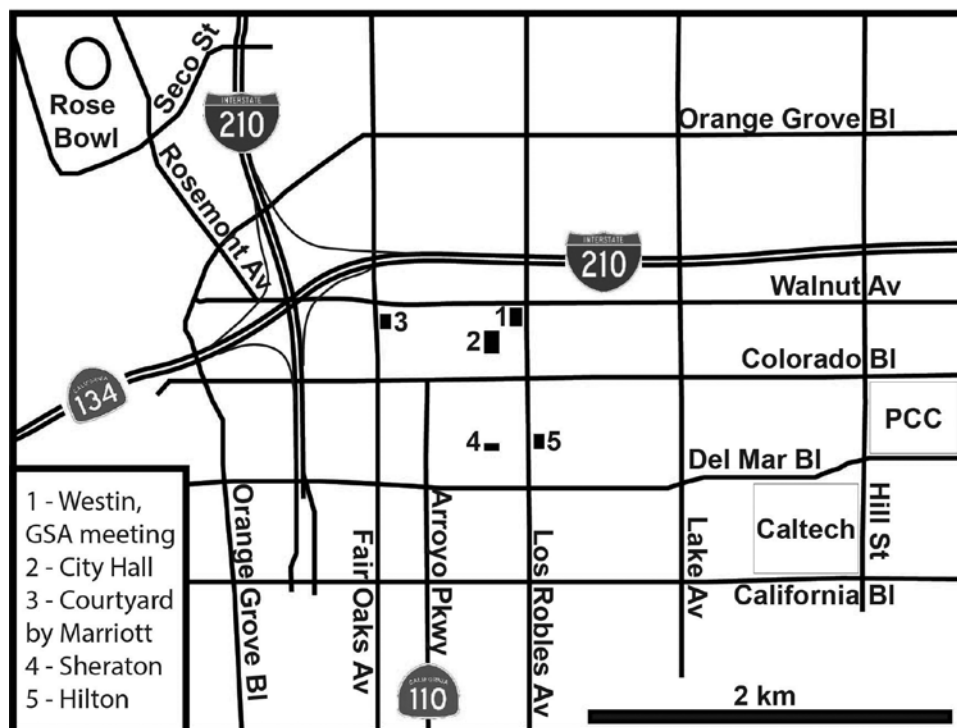
Pasadena offers an extensive variety of eateries, bars, and coffee houses within a short walking distance of the hotel. Some favorite choices are listed at this website from Eater Los Angeles: <https://la.eater.com/maps/best-pasadena-restaurants-california-los-angeles-south-pasadena-old-town>.

## Southern California Geology

Few places on Earth reveal a more diverse geologic history than the metropolitan Los Angeles region (Figure 3). Two mountain belts with opposing structural trends intersect at Pasadena, the east-west Transverse (TR) and northwest-southeast Peninsular (PR) Ranges. The eastern TR contain the oldest rock unit known in the state (the Paleoproterozoic Baldwin gneiss), Paleozoic quartzite and marble, and Triassic – Cretaceous plutons. Notable Cenozoic features include Late Quaternary glacial deposits, the Blackhawk landslide (thought to have traveled ~8 km across the floor of the Mojave on a cushion of air), and the ever-reconfiguring San Andreas fault system in the San Geronio Pass region. The central TR exposes the Vincent thrust, a paleo-subduction interface that separates underlying Late Cretaceous –



**Figure 1.** Map of the Los Angeles, CA region showing the active faults that participants will cross as they travel to/from the meeting. The closest airports are at Glendale-Burbank (Burbank) and Los Angeles (LAX). Faults shown with solid lines reach the surface; dashed fault lines are blind structures.



**Figure 2.** Street map of downtown Pasadena with convention location at “1”, the Westin Pasadena hotel.



Paleogene Pelona schist from overlying Precambrian gneisses and anorthosite, and Mesozoic plutons. The Big Bend region of the San Andreas fault separates the Mojave Desert and TR blocks. The western TR (wTR) consist mostly of Neogene marine strata that are tightly folded and faulted. The PR are cored by Jura-Cretaceous batholithic rocks, schist, and gneiss, and flanked on its western edge by coeval volcanic and sedimentary rocks. Neogene strata of the wTR and wPR, once conjoined, are now separated due to the development of the North American/Pacific transform boundary in Mio-Pliocene time and ~100-degree clockwise rotation of the wTR away from the PR. Onshore and offshore Neogene basins have produced enormous quantities of petroleum. Hills and islands separate the basins and expose rocks with both wTR and PR affinity. Dozens of active faults and fault systems define >100 possible earthquake sources. One example is the 1994 Northridge earthquake that devastated our campus. The 2020 Cordilleran meeting is pleased to offer a variety of technical sessions and field trips that explore southern California's vast and varied geologic framework.

### REGISTRATION

Registration is required for anyone attending technical sessions, field trips, short courses, or exhibits. Check-in and

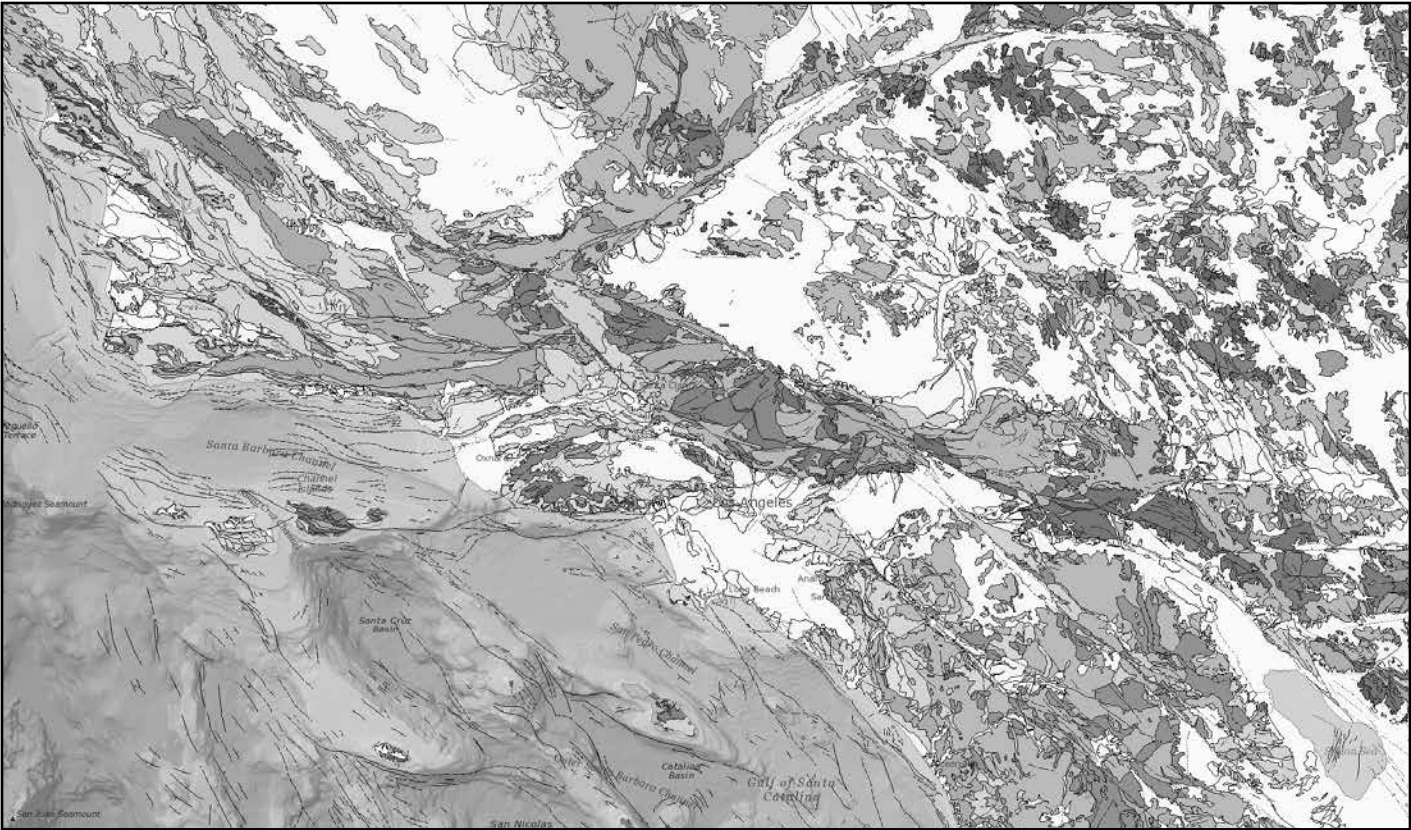
on-site registration is located in the Santa Rosa Foyer, on the second floor of the hotel and open during the following times:

Monday, 11 May	3–7 p.m.
Tuesday, 12 May	7 a.m.–5:30 p.m.
Wednesday, 13 May	7 a.m.–5:30 p.m.
Thursday, 14 May	7 a.m.–noon

### Fees

On-site registration fees are represented below in U.S. dollars

	Standard Full Mtg.	One day
Professional Member.....	\$335	\$270
Professional Member 70+ .....	\$230	\$170
Professional Nonmember.....	\$390	\$295
Early Career Professional Member .....	\$230	\$170
Student Member.....	\$140	\$105
Student Nonmember .....	\$165	\$120
K–12 Professional .....	\$140	\$105
Guest or Spouse .....	\$135	n/a
Field Trip/Short Course Only.....	\$90	n/a



**Figure 3.** Geologic map of the southern California region, taken from Geologic Map of California (2010): (<http://maps.conservation.ca.gov/cgs/gmc/>). Colors are coded by rock type: brown = Proterozoic metamorphic rocks; light blue-green = Paleozoic metasedimentary rocks; light pink, dark pink, lavender, and violet = Mesozoic plutonic rocks; lime = Cretaceous volcano-sedimentary rocks; purple = serpentinite; light blue = Rand-Pelona-Orocopia schist; red = Cenozoic volcanic rocks; ochre and yellows = Cenozoic sedimentary rocks; light yellow = Quaternary alluvium.

Guest registration is intended for non-geoscientists accompanying a registered professional, student or K–12 professional. Guest registration does not include attendance at workshops. All guests, volunteers, exhibitors, GSA staff, service providers and others in attendance are expected to abide by the GSA Events Code of Conduct, which outlines specific expectations for participants at GSA-supported events.

## **Cancellations, Changes, Refunds**

All requests for additions, changes, and cancellations must have been made in writing to GSA headquarters and received by 13 April 2020. There will be no refunds for cancellations received after this date.

## **Meeting App and Abstracts**

A web-based app is available for this meeting. This app allows you to view and search the meeting program and create your own schedule of events to attend. You can also view the full abstracts text from this app. Please download the app at <https://gsa.confex.com/gsa/2020CD/meetingapp.cgi>.

## **Accessibility**

GSA is committed to ensuring full participation for all conference attendees. You may indicate special requirements on your registration form; please inform the local organizing committee of these requirements at least one month prior to the meeting.

## **Continuing Education Credits (CEU)**

The Cordilleran Section Meeting offers an excellent opportunity to earn CEUs toward your continuing education requirements for your employer, K–12 school or professional registration. Please check the meeting website after the meeting to download your CEU certificate.

## **SPECIAL EVENTS**

### **Monday, 11 May**

**Welcome Reception.** 5–7 p.m., Fountain Ballroom. Enjoy snacks and a complimentary beverage while connecting with your colleagues. Each participant has a coupon for one free beer, wine, or non-alcoholic beverage in their registration packet.

### **Tuesday, 12 May**

**Session Chair Orientation.** 7–7:10 a.m., San Pascual Room. This meeting will include a review of session time management, AV procedures, and other information affecting the conduct of the day's sessions.

**Coffee Break.** 10–10:30 a.m., Fountain Terrace.

**Posters/Exhibits Beer, Wine, and Snacks.** 4–6 p.m. Fountain Ballroom. Each participant has a coupon for one free beer, wine, or non-alcoholic beverage in their registration packet.

**Paleontology Society Meeting and Reception.** 5–6 p.m. San Pascual Room.

**Reception hosted by California State University Northridge, Pasadena City College, and California Institute of Technology.** 5:30–8 p.m., ticketed event, free of charge, Thai buffet dinner and reception at the California Institute of Technology at South Mudd patio. Shuttle bus service provided between Westin Pasadena and Caltech. This is a complementary event. Each participant who registered for this complimentary event will receive a coupon for a free round-trip shuttle bus ride, as well as two coupons for free beer, wine, or non-alcoholic beverage in their registration packet.

### **Wednesday, 13 May**

**Session Chair Orientation.** 7–7:10 a.m., San Pascual Room. This meeting will include a review of session time management, AV procedures, and other information affecting the conduct of the day's sessions.

**Coffee Break.** 10–10:30 a.m., Fountain Terrace.

**Posters/Exhibits Beer, Wine, and Snacks.** 4–6 p.m. Fountain Ballroom. Each participant has a coupon for one free beer, wine, or non-alcoholic beverage in their registration packet.

**Recognition Banquet.** 6:30–9:30 p.m., Altadena Room, \$60. Join the celebration of the career of Francis C. ("Frank") Monastero. Dinner and some beverages included in ticketed event.

### **Thursday, 14 May**

**Session Chair Orientation.** 7–7:10 a.m., San Pascual Room. This meeting will include a review of session time management, AV procedures, and other information affecting the conduct of the day's sessions.

**Coffee Break.** 10–10:30 a.m., Fountain Terrace.

**Geology Club Officer Meet-Up.** 2–3 p.m., San Marino Room. If you are a geology club officer or are interested in starting a club on your campus plan to Meet-Up and chat with other representative about their activities, goals, and accomplishments.

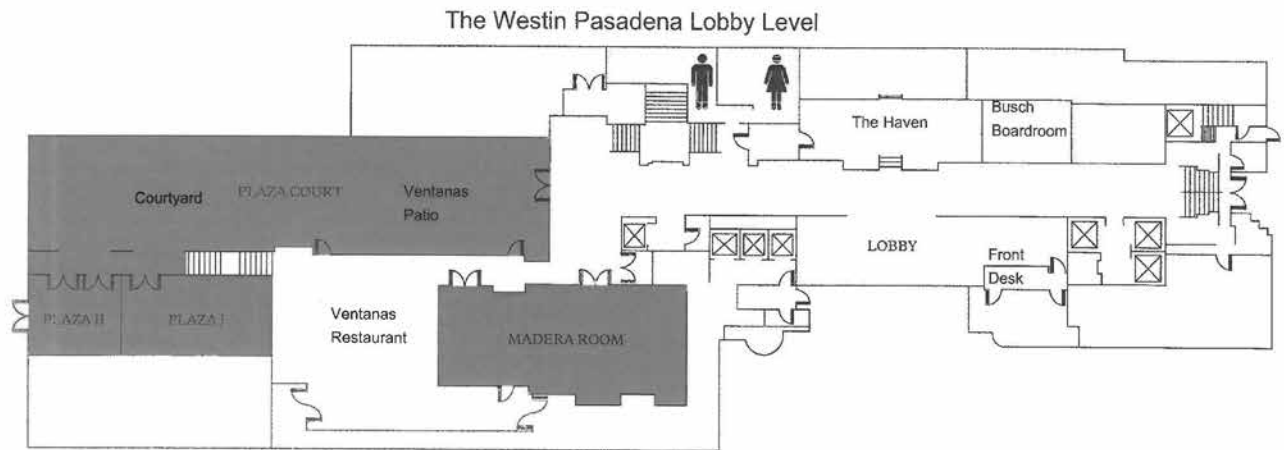
**End of Conference Reception.** 3–4:30 p.m. Fountain Ballroom. Enjoy snacks and a complimentary beverage while connecting with your colleagues. Each participant has a coupon for one free beer, wine, or non-alcoholic beverage in their registration packet.

## **BUSINESS MEETINGS**

**GSA Cordilleran Section Management Board Meeting.** Wednesday, 13 May, 5–6 p.m., San Marino Room.



PLAZA LEVEL



**Westin Pasadena hotel floor plan. Lobby level (above) and 2nd floor (below).**

**Registration** - Santa Rosa Foyer

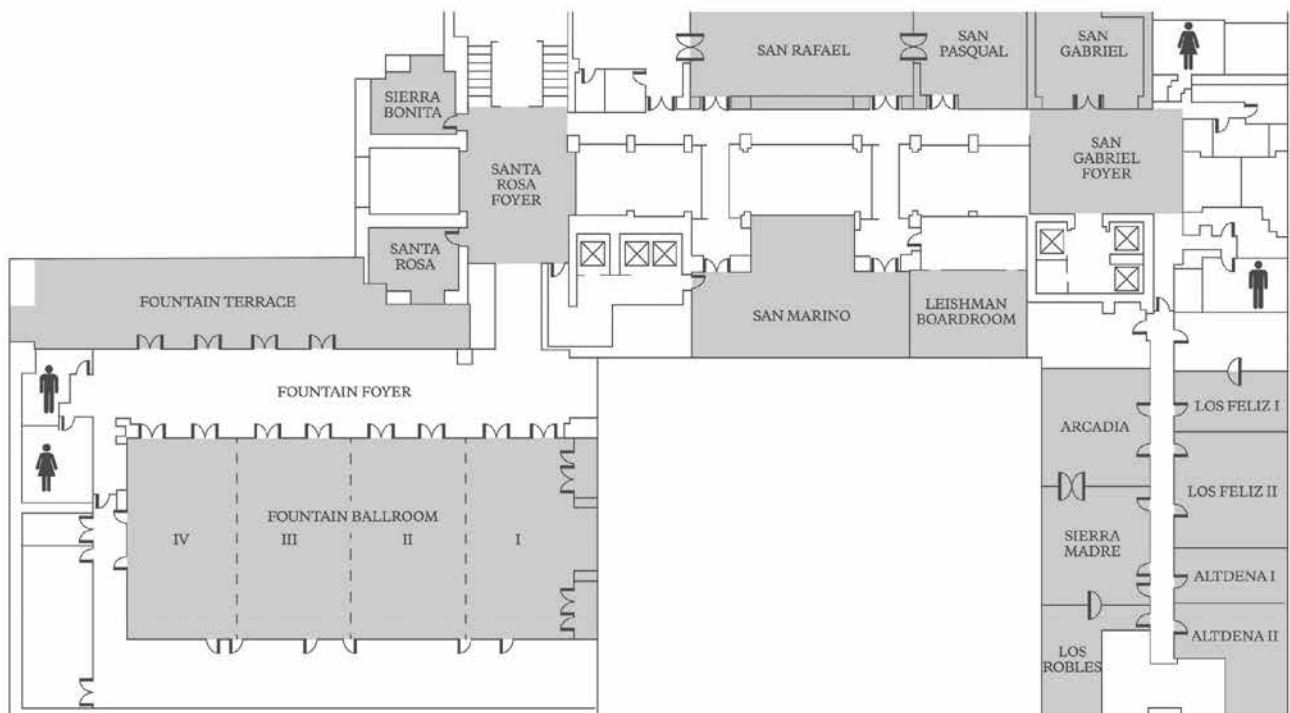
**Oral sessions** – Plaza and Madera (lobby level) and San Rafael (2nd floor)

**Welcome reception, coffee breaks, exhibits, posters** - Fountain Foyer and Ballroom

**Speaker ready room** – Santa Rosa

**Mentor lunches, recognition banquet** – Altadena

**Workshops, Session chair orientation, Paleo Society meeting** - San Pasqual



## TECHNICAL PROGRAM

The Meeting's Technical Program consists of Theme and Discipline Sessions arranged in oral and poster sessions. The Technical Program begins at 8 a.m. and ends at 6 p.m., Tues.–Wed. 12–13 May, and begins at 8 a.m. and ends at 5 p.m., Thurs. 14 May. Please direct questions related to the following sessions to the Technical Program Chair, Robinson Cecil, robinson.cecil@csun.edu.

### Oral Presentations

Oral presentations are 20 minutes; 17 minutes for the talk and 3 minutes for questions and discussion. Presentations must be prepared using PowerPoint or PDF formats, using a 16:9 screen ratio. One laptop with Windows (no Macs available) and PowerPoint, one LCD projector, and one screen will be available in each oral presentation room. In addition, each room is equipped with a lectern, microphone, slide advancer and speaker timer.

### Poster Presentations

Each poster board is 6 x 4 feet (landscape), and posters can be hung with push-pins. Posters will be located in the Fountain Ballroom adjacent to the exhibitors. Please check the Program for specific times and topics. Numbers on each poster display correspond to the poster booth numbers listed in the Program. Presenters are expected to have their posters up by 8:30 a.m. and they are expected to be present at their posters from 4–6 p.m. Presenters are expected to take down their posters at the end of the session. Any posters not taken down will be discarded.

### Speaker Ready Room

The Speaker Ready Room is located in the Santa Rosa Room, and is available at the following times:

Monday, 11 May	3–7 p.m.
Tuesday, 12 May	6:30 a.m.–5:30 p.m.
Wednesday, 13 May	6:30 a.m.–5:30 p.m.
Thursday, 14 May	6:30 a.m.–noon

All oral presenters must visit the speaker ready room before their scheduled presentation to ensure their PowerPoint or pdf file is properly configured and to upload it to the correct session folder on the meeting computers. All presentations are displayed as PowerPoint presentations in technical sessions, and presentations should be prepared using a 16:9 ratio. The Speaker Ready Room can also be used to check presentations prior to uploading files. We ask that oral presenters upload their presentation the night before for morning sessions, and at least 2 hours prior to the beginning of their session for afternoon sessions. Tuesday morning speakers should upload their talks by 7 a.m. on the same day.

### Session Chair Orientations

Each Session Chair is requested to attend a 10 minute "Session Chairs Orientation" held in the San Pascual Room on the morning of the day on which your session is to take

place. This meeting will include a review of session time management, AV procedures, and other information affecting the conduct of the day's sessions.

Session chairs are asked to strictly adhere to the technical program schedule and to limit speakers to their allotted time. If a speaker does not appear for an assigned time slot, session chairs should call a break or discussion period and begin the following presentation at its scheduled time.

A student volunteer is assigned to each oral session. Session chairs are asked to meet with the assigned student volunteer before the start of the session. The volunteers are there to help the sessions run smoothly and to contact the AV Coordinator in the event of technical problems.

### Technical Program Sessions

Please see page 10 for technical session schedule. Direct questions to the Technical Program Chair: Robinson Cecil, robinson.cecil@csun.edu.

## FIELD TRIPS

For detailed information, please contact the Field Trip chairs: Richard Heermance, richard.heermance@csun.edu, and Joshua Schwartz, joshua.schwartz@csun.edu.

### Pre-Meeting

**FT1. The Geology and Ambiguities of the Coyote Mountains, Western Salton Trough, Southern California.** Fri.–Mon., 8–11 May. Arrive at Travelodge by 4 p.m., 8 May. Cost: US\$364 (includes two lunches, one dinner, snacks, three nights lodging, SUV transportation, and guidebook). George Morgan; J.R. Morgan; John Prall; Jeff Hull.

This four-day trip explores the complexity of the Coyote Mountains and exposures there, including Paleozoic to Triassic metamorphic rocks, Nazas Jurassic intrusive units, early Basin and Range extensional structures, ca. 17.9 Ma arrival of Gulf of California during extension, recent faulting, and stream piracy and landslides, etc.

**FT2. Structure, Metamorphism, and Geodynamic Significance of the Catalina Schist Terrane.** Sat.–Mon., 9–11 May. Check in at 1 p.m. May 9, Southern California Marine Institute. Cost: US\$296 (includes two breakfasts, two lunches, two dinners, two nights lodging, ferry, van, and bus transportation, and guidebook). John Platt; Marty Grove; Tarryn Cawood.

This three-day pre-meeting trip will examine evidence for successive underplating of metamorphosed oceanic rocks along the Mesozoic convergent margin, with metamorphic grade decreasing from upper amphibolite/eclogite facies to blueschist facies, associated ductile deformation, mélange-type fabrics and extensive metasomatism, and possible signatures of seismic tremor and slow slip in rocks exhumed from >35 km.

**FT3. Tectonic and Magmatic Evolution of Salinian and Nacimiento Blocks, Central Coastal California.** Cosponsored by GSA Structural Geologic and Tectonics Division; GSA Geochronology Division; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division. Sat.–Mon., 9–11 May.

Check in at 7 a.m., north entrance of the Westin Pasadena Hotel. Cost: US\$255 (includes two breakfasts, two lunches, snacks, two nights lodging, van transportation, and guidebook). Alan Chapman; Scott Johnston; John Singleton; Owen Anfinson; Jeremy Hourigan.

This three-day trip showcases a Mesozoic arc-forearc-trench system exposed along the central California coast that has been dismembered by Late Cretaceous and Neogene tectonism. We will examine the Nacimiento Franciscan complex, forearc basin strata, the Salinian arc, underplated schists, and the Cretaceous–Neogene structures that separate these units.

**FT4. Recent Advancements in Geochronology, Geologic Mapping, and Landslide Characterization in Basement Rocks of the San Gabriel Mountains Block.** Sun.–Mon., 10–11 May. Check in at 7 a.m., north entrance of the Westin Pasadena Hotel. Cost: US\$93 (includes two lunches, van transportation, and guidebook). Jonathan Nourse; Brian Swanson; Nicolas Barth; Joshua Schwartz.

This two-day trip examines Paleoproterozoic basement, Neoproterozoic metasedimentary strata, and crosscutting intrusives at Frazier Mountain, Placerita Canyon, and Limerock Canyon and discusses new U–Pb geochronology results bearing on the Proterozoic to Mesozoic history. We will also observe large Late Quaternary landslides sourced from distinct basement rocks in San Antonio Canyon.

**FT5. Montecito Debris Flow of 9 January 2018: Physical Processes and Social Implications.** *Cosponsored by University of California Santa Barbara Earth Research Institute.* Mon., 11 May. Check in at 8 a.m., north entrance of the Westin Pasadena Hotel. Returns 6 p.m. Cost: US\$93 (includes one lunch, van transportation, and guidebook). Edward Keller.

The Montecito Debris flow of January 2018 was a wildfire-debris flow–linked event that took 23 lives and damaged or destroyed several hundred homes. This trip will include about six stops to view the 2018 event and two to three older large flows. Social science trip leaders will lead discussions at stops.

## Post-Meeting

**FT6. Late Quaternary Offset on the Central Sierra Madre Fault and Timing of Terrace Formation along the San Gabriel Mountains Range Front.** Fri., 15 May. Check in at 7:30 a.m., north entrance of the Westin Pasadena Hotel. Returns 5 p.m. Cost: US\$83 (includes one lunch, van transportation, and guidebook). Kate Scharer; Reed Burgette; Scott Lindvall.

The San Gabriel Mountains form the backdrop to Pasadena and are being uplifted along the Central Sierra Madre fault (CSMF). This field trip will visit localities along the CSMF where recent dating reveals the history of fault offset and dynamic aggradation and incision over the past 200 k.y.

**FT7. Santa Cruz Island: Geology, History, and Future Opportunities.** Fri.–Mon., 15–18 May. Check in at 8 a.m., Island Packers, Ventura Harbor. Cost: US\$650 (includes three breakfasts, four lunches, three dinners, three nights

lodging, ferry and 4WD transportation, National Park fees, and guidebook). Thomas Davis; Rick Beh; Katie O’Sullivan.

This chance-of-a-lifetime four-day trip will traverse the entirety of Santa Cruz Island, one of the few little-disturbed remnants of prehistoric California. We will visit key outcrop-to map-scale structural features (faults and folds) and lovely exposures of the Tertiary stratigraphic succession. Access by 4WD vehicles and hikes (five to six miles).

## SHORT COURSES

For detailed information, please contact the Short Course chair: Kathie Marsaglia, [kathie.marsaglia@csun.edu](mailto:kathie.marsaglia@csun.edu).

**SC1. Use of Magmatic Structures for Unraveling the Evolution of Magmatic Systems: Combined Field, Structural, and Geochemical Techniques.** *Cosponsored by GSA Structural Geology and Tectonics Division; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division.* Mon., 11 May, 8 a.m.–5 p.m., Room XXX. Fee: US\$25. Westin Pasadena. Scott Paterson; Katie Ardill; Cal Barnes; Vali Memeti.

**SC2. Using Thermal Infrared Spectral Imagery Data for Geological and Earth-Science Applications.** *Cosponsored by The Aerospace Corporation.* Mon., 11 May, 8 a.m.–noon., Room XXX. Fee: US\$25. Westin Pasadena. Rebecca (Amber) Witkosky; David Tratt; Kerry Buckland; Patrick Johnson; Joann Stock.

**SC3. Increase the Use of Data, Math, and Societal Relevance in your Undergraduate or 9–12 Classroom.** *Cosponsored by Geodesy Tools for Societal Issues (GETSI) Project; National Association of Geoscience Teachers.* Mon., 11 May, 8 a.m.–3 p.m., Room XXX. Fee: US\$20. Mt. San Antonio College. Workshop leaders will help facilitate carpools/vans to/from the workshop site. Becca Walker; Beth Pratt-Sitaula; Rachel Teasdale.

**SC4. Applied Forensic Geochemistry: Applications of Sr/Pb to Resolve Issues in Environmental Remediation.** Mon., 11 May, 1–5 p.m., Room XXX. Fee: US\$25. Westin Pasadena. Richard W. Hurst.

## STUDENT OPPORTUNITIES

Learn more about these opportunities at <https://www.geosociety.org/mentors/>.

**Roy J. Shlemon Mentor Program in Applied Geoscience.** Tues., 12 May, noon–1:30 p.m., San Marino Room. GSA student members will have the opportunity to discuss career prospects and challenges with applied geoscientists from various sectors over a FREE lunch. GSA student members will receive priority; any remaining space will be offered to student nonmembers on first come, first served basis.

**John Mann Mentors in Applied Hydrogeology Program.** Wed., 13 May, noon–1:30 p.m., San Marino Room. GSA student members interested in applied hydrogeology or hydrology as a career will have the opportunity to network with professionals in these fields over a FREE lunch. GSA student members will receive priority; any remaining space will be offered to student nonmembers on first come, first served basis.

## Career Workshop Series

**Geoscience Career Workshop Part 1: Career Planning and Networking.** Tues., 12 May, 9–10 a.m., San Marino Room. Your job hunting process should begin with career planning, not when you apply to jobs. This workshop will help you begin this process and will help you practice your networking skills. This section is highly recommended for freshmen, sophomores, and juniors. The earlier you start your career planning the better.

**Geoscience Career Workshop Part 2: Geoscience Career Exploration.** Tues., 12 May, 10–11 a.m., San Marino Room. What do geologists in various sectors earn? What do they do? What are the pros and cons to working in academia, government, and industry? Workshop presenters and professionals in the field will address these issues.

**Geoscience Career Workshop Part 3: Cover Letters, Résumés and CV's.** Wed., 13 May, 9–10 p.m., San Marino Room. How do you prepare a cover letter? Does your résumé need a good edit? Whether you are currently in the market for a job or not, learn how to prepare the best résumé possible. You will review numerous résumés to help you to learn important résumé dos and don'ts.

**Student Volunteers – Work opportunities may earn free registration.** Students interested in volunteering must contact Dr. Elizabeth Nagy, [eanagy-shadman@pasadena.edu](mailto:eanagy-shadman@pasadena.edu).

## Exhibits

Exhibits are located in the Fountain Ballroom.

Set up: Monday, 11 May, 8 a.m.–4 p.m.

Open: Monday, 11 May, 5–7 p.m.

Open: Tuesday, 12 May, 8:30 a.m.–6 p.m.

Open: Wednesday, 13 May, 8:30 a.m.–6 p.m.

Open: Thursday, 14 May, 8:30 a.m.–4:30 p.m.

Tear down: Thursday, 14 May, 5–9 p.m.

## Exhibitors (as of late February)

2021 Cordilleran Section Meeting, University of Nevada at Reno

American Institute of Professional Geologists (AIPG)

California Geological Survey

California State University Northridge

Geological Society of America

GSA Foundation

National Association of State Boards of Geology (ASBOG)

Western Science Center

## Technical Session Schedule

Tuesday, 12 May 2020			
Session	Time	Sponsor/Description	Location
1	8 a.m.	T1. The Changing Face of Paleontology I: In Honor of the Career Contribution of Dr. Richard L. Squires	San Rafael
2	8 a.m.	T8. Exhumation and Uplift of the Sierra Nevada and Tehachapi Mountains	Plaza Room
3	8 a.m.	T16. Metamorphic Processes in Cordilleran Arc Systems	Madera Room
4	9 a.m.	D1. Environmental and Engineering Geology (Posters)	Fountain Ballroom
5	9 a.m.	D2. Geoscience Education and Communication (Posters)	Fountain Ballroom
6	9 a.m.	D3. Paleontology (Posters)	Fountain Ballroom
7	9 a.m.	D4. Petrology and Volcanology (Posters)	Fountain Ballroom
8	9 a.m.	D5. Structural Geology (Posters)	Fountain Ballroom
9	9 a.m.	D6. Tectonics/Tectonophysics (Posters)	Fountain Ballroom
10	9 a.m.	T10. Quaternary Volcanism in California (Posters)	Fountain Ballroom
11	9 a.m.	T11. Impacts of Arc Activity on the Rheology of the Lithosphere across Convergent Margins (Posters) (GSA <i>Structural Geology and Tectonics Division</i> )	Fountain Ballroom
12	9 a.m.	T16. Metamorphic Processes in Cordilleran Arc Systems (Posters)	Fountain Ballroom
13	9 a.m.	T20. Hydrogeology (Posters)	Fountain Ballroom
14	1:30 p.m.	T1. The Changing Face of Paleontology II: In Honor of the Career Contribution of Dr. Richard L. Squires	San Rafael

15	1:30 p.m.	T4. The Kinematics, Dynamics, and Surface Expression of Faults in Eastern California—Improving Hazard Forecasts and Long-Term Slip Histories	Madera Room
16	1:30 p.m.	T21. Geoscience in the Two-Year-College (2YC) Community: Sharing Successes, Growing Pains, and Lessons Learned	Plaza Room

### Wednesday, 13 May 2020

Session	Time	Sponsor/Description	Location
17	8 a.m.	D7. Paleoearthquake Records and Slip Rates Across the Southern California Plate Boundary	Madera Room
18	8 a.m.	D8. The Origin and Spatiotemporal Evolution of Arc Magmas Recorded From Mineral to Plate-Boundary Scales I	Plaza Room
19	8 a.m.	T2. La Brea Tar Pits: Old Bones and New Insights	San Rafael
20	9 a.m.	D7. Paleoearthquake Records and Slip Rates Across the Southern California Plate Boundary (Posters)	Fountain Ballroom
21	9 a.m.	D8. The Origin and Spatiotemporal Evolution of Arc Magmas Recorded From Mineral to Plate-Boundary Scales (Posters)	Fountain Ballroom
22	9 a.m.	D9. Using Geological Archives to Understand and Document Earth Surface Processes and Past Climate (Posters)	Fountain Ballroom
23	9 a.m.	T2. La Brea Tar Pits: Old Bones and New Insights (Posters)	Fountain Ballroom
24	9 a.m.	T25. Undergraduate Research (Posters) ( <i>Council on Undergraduate Research Geosciences Division</i> )	Fountain Ballroom
25	1:30 p.m.	D8. The Origin and Spatiotemporal Evolution of Arc Magmas Recorded From Mineral to Plate-Boundary Scales II	Plaza Room
26	1:30 p.m.	D9. Using Geological Archives to Understand and Document Earth Surface Processes and Past Climate	Madera Room
27	1:30 p.m.	T9. The Enigmatic Late Cretaceous-Paleogene Tectonic Evolution of the Southwestern USA	San Rafael

### Thursday, 14 May 2020

Session	Time	Sponsor/Description	Location
28	8 a.m.	T7. Integrated Subduction Zone Systems: Advances in Understanding Landscape Evolution, Deformation, and Tectonics	Plaza Room
29	8 a.m.	T23. Professional Pathways within the Geosciences	San Rafael
30	8 a.m.	T26. Geology and Geophysics of the Coso Geothermal Field and Source Area of the 2019 Ridgecrest Earthquake Sequence I: A Tribute to the Career of Francis C. ("Frank") Monastero	Madera Room
31	1:30 p.m.	T15. Petrology, Geochemistry, and Structure of Cordilleran Batholiths through Space and Time ( <i>GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; GSA Structural Geology and Tectonics Division</i> )	Plaza Room
32	1:30 p.m.	T26. Geology and Geophysics of the Coso Geothermal Field and Source Area of the 2019 Ridgecrest Earthquake Sequence II: A Tribute to the Career of Francis C. ("Frank") Monastero	Madera Room

# Schedule of Events

EVENT	TIME	LOCATION
<b>FRIDAY, 8 MAY</b>		
FT1. The Geology and Ambiguities of the Coyote Mountains, Western Salton Trough, Southern California (Field Trip)	4 p.m.	Travelodge
<b>SATURDAY, 9 MAY</b>		
FT3. Tectonic and Magmatic Evolution of Salinian and Nacimiento Blocks, Central Coastal California (Field Trip)	7 a.m.	Westin Pasadena Hotel, North Entrance
FT2. Structure, Metamorphism, and Geodynamic Significance of the Catalina Schist Terrane (Field Trip)	1 p.m.	Southern California Marine Institute
<b>SUNDAY, 10 MAY</b>		
FT4. Recent Advancements in Geochronology, Geologic Mapping, and Landslide Characterization in Basement Rocks of the San Gabriel Mountains Block (Field Trip)	7 a.m.	Westin Pasadena Hotel, North Entrance
<b>MONDAY, 11 MAY</b>		
FT5. Montecito Debris Flow of 9 January 2018: Physical Processes and Social Implications (Field Trip)	8 a.m.–6 p.m.	Westin Pasadena Hotel, North Entrance
SC1. Use of Magmatic Structures for Unraveling the Evolution of Magmatic Systems: Combined Field, Structural, and Geochemical Techniques (Short Course)	8 a.m.–5 p.m.	ROOM?
SC2. Using Thermal Infrared Spectral Imagery Data for Geological and Earth-Science Applications (Short Course)	8 a.m.–noon	ROOM?
SC3. Increase the Use of Data, Math, and Societal Relevance in your Undergraduate or 9–12 Classroom (Short Course)	8 a.m.–3 p.m.	ROOM?
Exhibitor Set up	8 a.m.–4 p.m.	Fountain Ballroom
SC4. Applied Forensic Geochemistry: Applications of Sr/Pb to Resolve Issues in Environmental Remediation (Short Course)	1–5 p.m.	ROOM?
Registration Open	3–7 p.m.	Santa Rosa Foyer
Speaker Ready Room	3–7 p.m.	Santa Rosa
Exhibits Open	5–7 p.m.	Fountain Ballroom
Welcome Reception	5–7 p.m.	Fountain Ballroom
<b>TUESDAY, 12 MAY</b>		
Speaker Ready Room	6:30 a.m.–5:30 p.m.	Santa Rosa
Session Chair Orientation	7–7:10 a.m.	San Pasqual
Registration Open	7 a.m.–5:30 p.m.	Santa Rosa Foyer



EVENT	TIME	LOCATION
<b>Morning Oral Technical Sessions</b>		
T1. The Changing Face of Paleontology I: In Honor of the Career Contribution of Dr. Richard L. Squires	8 a.m.–noon	San Rafael
T8. Exhumation and Uplift of the Sierra Nevada and Tehachapi Mountains	8 a.m.–noon	Plaza Room
T16. Metamorphic Processes in Cordilleran Arc Systems	8 a.m.–noon	Madera Room
Exhibits Open	8:30 a.m.–6 p.m.	Fountain Ballroom
Geoscience Career Workshop Part 1: Career Planning and Networking	9–10 a.m.	San Marino
<b>Poster Sessions:</b> <i>Authors will be present from 4 to 6 p.m.</i>		
D1. Environmental and Engineering Geology (Posters)	9 a.m.–6 p.m.	Fountain Ballroom
D2. Geoscience Education and Communication (Posters)	9 a.m.–6 p.m.	Fountain Ballroom
D3. Paleontology (Posters)	9 a.m.–6 p.m.	Fountain Ballroom
D4. Petrology and Volcanology (Posters)	9 a.m.–6 p.m.	Fountain Ballroom
D5. Structural Geology (Posters)	9 a.m.–6 p.m.	Fountain Ballroom
D6. Tectonics/Tectonophysics (Posters)	9 a.m.–6 p.m.	Fountain Ballroom
T10. Quaternary Volcanism in California (Posters)	9 a.m.–6 p.m.	Fountain Ballroom
T11. Impacts of Arc Activity on the Rheology of the Lithosphere across Convergent Margins (Posters)	9 a.m.–6 p.m.	Fountain Ballroom
T16. Metamorphic Processes in Cordilleran Arc Systems (Posters)	9 a.m.–6 p.m.	Fountain Ballroom
T20. Hydrogeology (Posters)	9 a.m.–6 p.m.	Fountain Ballroom
Coffee Break	10–10:30 a.m.	Fountain Terrace
Geoscience Career Workshop Part 2: Geoscience Career Exploration	10–11 a.m.	San Marino
Roy J. Shlemon Mentor Program in Applied Geoscience	noon–1:30 p.m.	San Marino
<b>Afternoon Oral Technical Sessions</b>		
T1. The Changing Face of Paleontology II: In Honor of the Career Contribution of Dr. Richard L. Squires	1:30–5:30 p.m.	San Rafael
T4. The Kinematics, Dynamics, and Surface Expression of Faults in Eastern California—Improving Hazard Forecasts and Long-Term Slip Histories	1:30–5:30 p.m.	Madera Room
T21. Geoscience in the Two-Year-College (2YC) Community: Sharing Successes, Growing Pains, and Lessons Learned	1:30–5:30 p.m.	Plaza Room
Posters/Exhibits Beer, Wine, and Snacks	4–6 p.m.	Fountain Ballroom
Paleontology Society Meeting and Reception	5–6 p.m.	San Pasqual
Reception hosted by California State University Northridge, Pasadena City College, and California Institute of Technology	5:30–8 p.m.	California Institute of Technology, South Mudd Patio

EVENT	TIME	LOCATION
<b>WEDNESDAY, 13 MAY</b>		
Speaker Ready Room	6:30 a.m.–5:30 p.m.	Santa Rosa
Session Chair Orientation	7–7:10 a.m.	San Pasqual
Registration Open	7 a.m.–5:30 p.m.	Santa Rosa Foyer
<b>Morning Oral Technical Sessions</b>		
D7. Paleoeearthquake Records and Slip Rates Across the Southern California Plate Boundary	8 a.m.–noon	Madera Room
D8. The Origin and Spatiotemporal Evolution of Arc Magmas Recorded From Mineral to Plate-Boundary Scales I	8 a.m.–noon	Plaza Room
T2. La Brea Tar Pits: Old Bones and New Insights	8 a.m.–noon	San Rafael
Exhibits Open	8:30 a.m.–6 p.m.	Fountain Ballroom
Geoscience Career Workshop Part 3: Cover Letters, Résumés and CV's	9–10 a.m.	San Marino
<b>Morning Poster Sessions: Authors will be present from 4 to 6 p.m.</b>		
D7. Paleoeearthquake Records and Slip Rates Across the Southern California Plate Boundary (Posters)	9 a.m.–6 p.m.	Fountain Ballroom
D8. The Origin and Spatiotemporal Evolution of Arc Magmas Recorded From Mineral to Plate-Boundary Scales (Posters)	9 a.m.–6 p.m.	Fountain Ballroom
D9. Using Geological Archives to Understand and Document Earth Surface Processes and Past Climate (Posters)	9 a.m.–6 p.m.	Fountain Ballroom
T2. La Brea Tar Pits: Old Bones and New Insights (Posters)	9 a.m.–6 p.m.	Fountain Ballroom
T25. Undergraduate Research (Posters)	9 a.m.–6 p.m.	Fountain Ballroom
Coffee Break	10–10:30 a.m.	Fountain Terrace
John Mann Mentors in Applied Hydrogeology Program	noon–1:30 p.m.	San Marino
<b>Afternoon Oral Technical Sessions</b>		
D8. The Origin and Spatiotemporal Evolution of Arc Magmas Recorded From Mineral to Plate-Boundary Scales II	1:30–5:30 p.m.	Plaza Room
D9. Using Geological Archives to Understand and Document Earth Surface Processes and Past Climate	1:30–5:30 p.m.	Madera Room
T9. The Enigmatic Late Cretaceous-Paleogene Tectonic Evolution of the Southwestern USA	1:30–5:30 p.m.	San Rafael
Posters/Exhibits Beer, Wine, and Snacks	4–6 p.m.	Fountain Ballroom
GSA Cordilleran Section Management Board Meeting	5–6 p.m.	San Marino
<b>Recognition Banquet: Francis C. (“Frank”) Monastero</b>	6:30–9:30 p.m.	Altadena

EVENT	TIME	LOCATION
<b>THURSDAY, 14 MAY</b>		
Speaker Ready Room	6:30 a.m.–noon	Santa Rosa
Session Chair Orientation	7–7:10 a.m.	San Pasqual
Registration Open	7 a.m.–noon	Santa Rosa Foyer
<b>Morning Oral Technical Sessions</b>		
T7. Integrated Subduction Zone Systems: Advances in Understanding Landscape Evolution, Deformation, and Tectonics	8 a.m.–noon	Plaza Room
T23. Professional Pathways within the Geosciences	8 a.m.–noon	San Rafael
T26. Geology and Geophysics of the Coso Geothermal Field and Source Area of the 2019 Ridgecrest Earthquake Sequence I: A Tribute to the Career of Francis C. ("Frank") Monastero	8 a.m.–noon	Madera Room
Exhibits Open	8:30 a.m.–4:30 p.m.	Fountain Ballroom
Coffee Break	10–10:30 a.m.	Fountain Terrace
<b>Afternoon Oral Technical Sessions</b>		
T15. Petrology, Geochemistry, and Structure of Cordilleran Batholiths through Space and Time	1:30–5:30 p.m.	Plaza Room
T26. Geology and Geophysics of the Coso Geothermal Field and Source Area of the 2019 Ridgecrest Earthquake Sequence II: A Tribute to the Career of Francis C. ("Frank") Monastero	1:30–5:30 p.m.	Madera Room
Geology Club Officer Meet-Up	2–3 p.m.	San Marino
End of Conference Reception	3–4:30 p.m.	Fountain Ballroom
Exhibitor Tear down	5–9 p.m.	Fountain Ballroom
<b>FRIDAY, 15 MAY</b>		
FT6. Late Quaternary Offset on the Central Sierra Madre Fault and Timing of Terrace Formation along the San Gabriel Mountains Range Front (Field Trip)	7:30 a.m.–5 p.m.	Westin Pasadena Hotel, North Entrance
FT7. Santa Cruz Island: Geology, History, and Future Opportunities (Field Trip)	8 a.m.	Island Packers, Ventura Harbor

# Technical Sessions

## NOTICE

In the interest of public information, the Geological Society of America provides a forum for the presentation of diverse opinions and positions. The opinions (views) expressed by speakers and exhibitors at these sessions are their own and do not necessarily represent the views or policies of the Geological Society of America.

A no-smoking policy has been established by the Program Committee and will be followed in all meeting rooms for technical sessions.



## NOTE INDEX SYSTEM

Numbers (3-4, 15-4) indicate session and order of presentation within that session.

\* denotes speaker

## TUESDAY, 12 MAY 2020

### MORNING ORAL TECHNICAL SESSIONS

#### SESSION NO. 1

##### *T1. The Changing Face of Paleontology I: In Honor of the Career Contribution of Dr. Richard L. Squires*

8:00 AM, The Westin Pasadena, San Rafael

Linda Anita Ritterbush and Mary McGann, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 1-1 8:10 AM Squires, Richard\*: **EARLY EOCENE CLIMATE OPTIMUM AND ITS INFLUENCE ON THE PALEOBIODIVERSITY OF SHALLOW-MARINE GASTROPODS OF THE WEST COAST OF NORTH AMERICA**
- 1-2 8:30 AM Oleinik, Anton E.\*; Marincovich, Louie: **DISCOVERY AND ROCK-SOLID EVIDENCE: EXAMPLES FROM HIGH-LATITUDE NORTH PACIFIC MOLLUSCAN PALEONTOLOGY**
- 1-3 8:50 AM Groves, Lindsey T.\*; Landau, Bernard M.: **NEOGENE PALEONTOLOGY IN THE NORTHERN DOMINICAN REPUBLIC. THE SUPERFAMILY CYPRAEOIDEA (MOLLUSCA: GASTROPODA: FAMILIES: CYPRAEIDAE, OVULIDAE, TRIVIIDAE, AND ERATOIDAE)**
- 1-4 9:10 AM Powell, Charles L.\*; Boessenecker, Robert W.; Smith, N. Adam; Fleck, Robert J.; Carlson, Sandra J.; Allen, James R.; Long, Douglas J.; Sarna-Wojcicki, Andrei M.: **A REMARKABLE FOSSIL FAUNULE FROM THE BASAL WILSON GROVE FORMATION (LATE MIOCENE), SONOMA COUNTY, CALIFORNIA**
- 9:30 AM **BREAK**
- 1-5 9:45 AM Pietsch, Carlie\*; Anderson, Brendan M.; Maistros, Lauren M.; Padalino, Ethan C.; Allmon, Warren D.: **CONVERGENCE, PARALLELISM, AND FUNCTION OF EXTREME PARIETAL CALLUS IN MARINE GASTROPODS**
- 1-6 10:05 AM Vendetti, Jann\*: **THE MARINE GASTROPOD GENERA *PERRISITYS* STEWART, 1927 AND *BRUCLARKIA* TRASK IN STEWART, 1926: A NEW INTERPRETATION OF SHARED**

#### ANCESTRY AND ITS IMPLICATIONS FOR CRETACEOUS AND CENOZOIC TAXA

- 1-7 10:25 AM Ritterbush, Linda Anita\*: **AGNOSTIDS: REVOLUTION AND INNOVATION IN THE LATE CAMBRIAN**
- 1-8 10:45 AM Vendrasco, Michael\*; Eernisse, Douglas: **MORPHOLOGICALLY DISPARATE PALEOZOIC CHITONS AND THE ORIGIN OF THE CROWN GROUP CHITONIDA**
- 1-9 11:05 AM Nyborg, Torrey\*: **GROWTH SERIES AND POSSIBLE MOLT INCREMENTS IN FOSSIL CRABS**

#### SESSION NO. 2

##### *T8. Exhumation and Uplift of the Sierra Nevada and Tehachapi Mountains*

8:00 AM, The Westin Pasadena, Plaza Room

Ann E. Blythe and Jeffery Lee, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 2-1 8:05 AM Saleeby, Jason\*; Chapman, Alan D.: **HISTORY OF EXHUMATION AND RELATED STRUCTURAL RELIEF GENERATION FOR THE SOUTHERNMOST SIERRA NEVADA BATHOLITH, AND TECTONIC FORCING INTERPRETATIONS**
- 2-2 8:25 AM Shulaker, Danielle Ziva\*; Grove, Marty; Van Buer, Nicholas J.; Jacobson, Carl E.; Nourse, Jonathan A.; Lovera, Oscar M.: **REGIONALLY EXTENSIVE 85-70 MA COOLING OF THE SOUTHERN SIERRA NEVADA AND NORTHWEST MOJAVE DESERT BATHOLITH: IMPLICATIONS FOR THE INITIATION OF SHALLOW SUBDUCTION**
- 2-3 8:45 AM Sowers, Theron; Shimabukuro, David H.\*: **CENOZOIC TECTONIC HISTORY OF THE NORTHERN SALINIAN BLOCK FROM LOW-TEMPERATURE THERMOCHRONOLOGY**
- 2-4 9:05 AM WerlyKlein, Elijah J.\*; Pluhar, Christopher J.: **PALEOMAGNETIC ANALYSIS OF A POTENTIAL ERUPTIVE SOURCE FOR KENNEDY TABLE**
- 2-5 9:25 AM Phillips, Fred M.\*; Wakabayashi, John; Hildreth, Wes; Fierstein, Judy: **UPLIFT OF THE SOUTHERN SIERRA NEVADA**

**CREST BASED ON REEVALUATION OF DATA FROM THE SAN JOAQUIN RIVER DRAINAGE**9:45 AM **BREAK**

- 2-6 10:00 AM Lee, Jeff\*; Blythe, Ann E.; Stockli, Daniel F.: **MIOCENE SLIP ALONG THE SOUTHERN SIERRA NEVADA RANGE FRONT NORMAL FAULT: PRELIMINARY LOW-TEMPERATURE THERMOCHRONOLOGY RESULTS**
- 2-7 10:20 AM Mitchell, Scott C.\*; Pluhar, Christopher J.: **MAPPING AND ANALYSIS OF TECTONIC SIGNALS FROM NEOGENE COVER STRATA IN THE CENTRAL AND SOUTHERN SIERRA NEVADA, CALIFORNIA**
- 2-8 10:40 AM Pluhar, Christopher J.\*; Jones-Cervantes, Shelby A.; Schubert, Rosalie; Rodriguez, Nathan; Shields, Jessie E.; Neptune, Chad K.; Mitchell, Scott C.; Bautista, Jose; Valov, Gabriel; Teter, Feng: **FURTHER SUPPORT FOR A MIOCENE PALEOCHANNEL ACROSS THE SIERRA NEVADA CREST BETWEEN BRIDGEPORT AND HETCH HETCHY, CA**
- 2-9 11:00 AM Bidgoli, Tandis S.\*; Lee, John P.; Stockli, Daniel F.; Cosca, Michael A.; Walker, J. Douglas: **EXHUMATION HISTORY OF THE SIERRA NEVADA RANGE FROM LOW-TEMPERATURE THERMOCHRONOLOGY**
- 2-10 11:20 AM Schaffer, Jeffrey P.\*; Peppin, William A.; Miggins, Daniel P.: **UPLIFT IN THE SIERRA NEVADA: EXTENSIVE GEOLOGIC FIELD EVIDENCE THROUGHOUT THE RANGE SUPPORTS MAJOR LATE CRETACEOUS UPLIFT PLUS MAJOR INCISION INTO THE EOCENE**

**SESSION NO. 3****T16. Metamorphic Processes in Cordilleran Arc Systems**

8:00 AM, The Westin Pasadena, Madera Room

Joshua Schwartz, Jade Star Lackey and Stacia M. Gordon, Presiding

8:00 AM **INTRODUCTORY REMARKS**

- 3-1 8:10 AM Bartley, John M.\*; Glazner, Allen F.; Coleman, Drew S.; Stearns, Michael A.: **THE GRANITE AQUEDUCT AND AUTOMETAMORPHISM OF PLUTONS**
- 3-2 8:30 AM Stowell, Harold H.\*; Schwartz, Joshua J.; Bollen, Elizabeth M.; Tulloch, Andy; Klepeis, Keith A.; Ramezani, J.: **GEOCHRONOLOGY IN THE BOWELS OF MAGMATIC ARCS: A TALE OF TWO MINERALS, FIORDLAND NEW ZEALAND**
- 3-3 8:50 AM Lackey, Jade Star\*; Gevedon, Michelle L.; McCarty, Kyle R.; Barnes, Jaime D.: **U-PB DATING OF SKARNS IN THE SIERRA NEVADA AND MOJAVE SECTIONS OF CALIFORNIA'S MESOZOIC ARC**
- 3-4 9:10 AM Page, F. Zeb\*; Storey, Craig: **HIDDEN SUBDUCTION FLUID RECORD FROM FRANCISCAN ECLOGITE: AN INTEGRATED OXYGEN ISOTOPE AND TRACE ELEMENT STUDY OF RUTILE AND SPHENE**
- 3-5 9:30 AM Langenfeld, Betony\*; Page, F. Zeb: **PETROLOGY OF SUBDUCTION-RELATED GARNET QUARTZITES FROM SANTA CATALINA ISLAND, CA**
- 9:50 AM **BREAK**
- 3-6 10:05 AM Gordon, Stacia M.\*; Sauer, Kirsten B.; Hanson, Ann E.H.; Miller, Robert B.; Langdon-Lassagne, Elizabeth: **INSIGHT INTO THE DEFORMATION AND MAGMATIC HISTORY OF A LONG-LIVED ARC: THE RECORD PRESERVED IN METASEDIMENTARY ROCKS OF THE NORTH CASCADES ARC, WA**
- 3-7 10:25 AM Bollen, Elizabeth M.\*; Stowell, Harold H.; Rusmore, Margaret E.; Cecil, M. Robinson; Woodsworth, Glenn J.: **METAMORPHISM DURING HIGH-FLUX EVENTS IN THE SOUTHERN COAST MOUNTAINS BATHOLITH**
- 3-8 10:45 AM Llewellyn, Genevieve E.\*; Jean, Marlon M.; Todd, Erin; Bizimis, Michael; Loewen, Matthew W.: **PETROGENESIS OF SUPRA-SUBDUCTION ZONE OPHIOLITES FROM THE SEVENTYMILE ULTRAMAFIC COMPLEX, EASTERN ALASKA**

- 3-9 11:05 AM Tazzo-Rangel, M. Daniela\*; Weber, Bodo; Schmitt, Axel K.; González-Guzmán, René; Hecht, Lutz: **PERMO-TRIASSIC METAMORPHISM IN THE MÉRIDA ANDES, VENEZUELA – FINAL PANGAEA ASSEMBLAGE OR CIRCUM-SUPERCONTINENT SUBDUCTION? NEW INSIGHTS FROM GEOCHRONOLOGY, O-ISOTOPES, AND GEOTHERMOBAROMETRY**

11:25 AM **CONCLUDING REMARKS**

## POSTER TECHNICAL SESSIONS

**SESSION NO. 4****D1. Environmental and Engineering Geology (Posters)**

9:00 AM, The Westin Pasadena, Fountain Ballroom

Authors will be present from 4 to 6 PM

Booth #

- 4-1 1 Denison, Frank E.\*: **PRE-AND POST-MODELO FOLDING OF SEDIMENTARY ROCKS IN THE EASTERN SANTA MONICA MOUNTAINS, SOUTHERN CALIFORNIA**
- 4-2 2 Higgins, Chris T.\*; Gius, Fred W.; Fonseca, Milton C.: **GEOLOGIC UNITS IN CALIFORNIA AS POTENTIAL SOURCES OF MINERAL HAZARDS**
- 4-3 3 Rodriguez, Cindy\*; Guo, Junhua: **WILDFIRE IMPACTS ON SOIL PHYSICAL PROPERTIES: 2016 ERSKINE FIRE, CALIFORNIA**
- 4-4 4 Ramriez, Toni\*; Krugh, William C.: **EARTHQUAKE-INDUCED LANDSLIDE SUSCEPTIBILITY OF HILLSLOPES ALONG THE LOWER KERN RIVER, CA BASED ON HISTORICAL FAULT RUPTURE SCENARIOS**
- 4-5 5 DeFrisco, Michael J.\*: **AN UPDATED EVALUATION OF THE ROSE CANYON FAULT ZONE, SAN DIEGO, CALIFORNIA**

**SESSION NO. 5****D2. Geoscience Education and Communication (Posters)**

9:00 AM, The Westin Pasadena, Fountain Ballroom

Authors will be present from 4 to 6 PM

Booth #

- 5-1 6 Dooley, Alton C.\*; Radford, Darla; Wedel, Mathew; Atterholt, Jessie; Nalley, Theirra K.: **BROADER IMPACTS, AN EXHIBIT PROGRAM FOCUSING ON BASIC RESEARCH**
- 5-2 7 Bender, E. Erik\*; Winglee, Robert: **ROVER OBSERVATION AND DRONE SURVEY (ROADS) ON MARS: A GEOSCIENCE EDUCATIONAL CHALLENGE FOR ELEMENTARY THROUGH HIGH SCHOOL STUDENTS**
- 5-3 8 Xiao, Sianna\*; Dooley, Brett S.; Dooley, Alton C.: **WAIT! DO CAMELS MELT IN THE SUN? - A 3D PRINTING PLASTICS RESEARCH PROJECT**
- 5-4 9 Baker, Jacob\*; Hughes, Richard O.; VonSydow, Kathryn Ruth; Seymour, Bryan; Hasuke, Syunsake: **REFLECTIONS ON A SUPPLEMENTAL INSTRUCTION PROGRAM AT THE COMMUNITY COLLEGE LEVEL**
- 5-5 10 Guglielmo, Andrew; Holland, Peter J.\*; O'Neal, Matt: **COMPILATION OF ISOTOPIC AND FOSSIL AGES FOR THE SIERRA NEVADA AND ENVIRONS, CALIFORNIA AND NEVADA**
- 5-6 11 Pridmore, Cynthia L.\*; Thomas, Kate: **THE CALIFORNIA EARTHQUAKE CLEARINGHOUSE – RIDGECREST EARTHQUAKE SEQUENCE 2019**
- 5-7 12 Persad, Liselle\*; White, Lisa D.: **EFFECTIVELY COMMUNICATING SCIENCE: A PROJECT BY IODP'S 2019 SCHOOL OF ROCK AND AMBASSADORS FOR STEM TRAINING TO ENHANCE PARTICIPATION (A-STEP) PROGRAM**

## SESSION NO. 6

### D3. Paleontology (Posters)

9:00 AM, The Westin Pasadena, Fountain Ballroom

Authors will be present from 4 to 6 PM

Booth #

- |     |    |  |
|-----|----|--|
| 6-1 | 13 | Cromwell, Richard-Patrick*; Noble, Paula J.; Brown, Samuel; Cryderman, Charles; Wieczorek, Haylee; Withers, Benjamin: <b>INVESTIGATING THE RELATIONSHIP BETWEEN LITHOFACIES AND DIATOM COMMUNITY COMPOSITION IN THE HUNTER CREEK FORMATION, NORTHWEST RENO, NEVADA</b> |
| 6-2 | 14 | Jones, AnnMarie*; Rowland, Stephen M.: <b>CAMEL TRACKS AND STROMATOLITES IN A MIO-PLIOCENE EPHEMERAL LAKE DEPOSIT, MUDDY CREEK FORMATION NEAR MESQUITE, NEVADA</b>   |
| 6-3 | 15 | Orcutt, John D.*: <b>COMMUNITY COMPOSITION AND ENVIRONMENTAL SETTING OF THE MCKAY RESERVOIR FAUNA (MIOCENE, OREGON)</b>  |
| 6-4 | 16 | Weldon, Nicholas*; McLaughlin, Win N.F.: <b>STATISTICAL CLUSTERING ANALYSIS OF POSTCRANIAL MORPHOLOGY</b>  |

## SESSION NO. 7

### D4. Petrology and Volcanology (Posters)

9:00 AM, The Westin Pasadena, Fountain Ballroom

Authors will be present from 4 to 6 PM

Booth #

- |     |    |   |
|-----|----|---|
| 7-1 | 17 | Florez, Anthony*; Cao, Wenrong; Ruprecht, Philipp: <b>CRUSTAL COMPOSITIONS VARIATION WITH THE DEPTH IN A MAGMATIC CRUST: AN EXAMPLE FROM THE TILTED GANGDESE BATHOLITH IN SOUTHERN TIBET</b>  |
| 7-2 | 18 | Contreras-López, Manuel*; Delgado-Argote, Luis Alberto; Weber, Bodo; Torres-Carrillo, Xochitl G.; Gómez-Alvarez, Doris K.: <b>PETROGENESIS AND GEOCHEMICAL CORRELATION OF THE META-IGNEOUS ROCKS OF THE SIERRA EL ARCO WITH THE CEDROS-VIZCAINO REGION, CENTRAL BAJA CALIFORNIA PENINSULA: MIDDLE JURASSIC-EARLY CRETACEOUS ISLAND ARC MAGMATISM OF NW MEXICO</b> |
| 7-3 | 19 | Fox, Lena M.*; Streck, Martin J.: <b>IDENTITY OF CRBG LAVAS IN THE GREATER VALE AREA, EASTERN OREGON: IMPLICATIONS FOR VENTING GRANDE RONDE BASALT (GRB) UNITS LOCALLY, WITHOUT LATERAL CONNECTION TO MAIN GRB UNITS</b>  |
| 7-4 | 20 | Little, Quinn*; Wright, Tim; Copeland, Charles; Teasdale, Rachel: <b>DEVELOPING AN APP-BASED GUIDE INTO MT. YANA, AN ERODED STRATOVOLCANO IN THE SOUTHERN CASCADES</b>  |
| 7-5 | 21 | Baltzer, Suzanne M.*; Housley, Robert M.; Ramirez, Pedro: <b>MINERALOGY OF RARE EARTH BEARING APATITE VEINS WITHIN THE NORTHERN NEW YORK MOUNTAINS OF SOUTHERN NEVADA</b>   |
| 7-6 | 22 | Perry-Freer, Gabriel A.*; Brunstad, Matthew; Dietterich, Hannah R.; Grosfils, Eric B.: <b>A REMOTE SENSING APPROACH TO ASSESSING PAHOEHOE TO A'A TRANSITIONS IN MT. KILAUEA BASALT FLOWS</b>  |
| 7-7 | 23 | Blachly, Gregory F.*; Van Buer, Nicholas J.: <b>GEOCHRONOLOGY AND GEOCHEMICAL ANALYSIS OF LATE CRETACEOUS PLUTONIC BODIES IN THE CENTRAL MOJAVE DESERT, CA</b>  |

## SESSION NO. 8

### D5. Structural Geology (Posters)

9:00 AM, The Westin Pasadena, Fountain Ballroom

Authors will be present from 4 to 6 PM

Booth #

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|-----|----|---|
| 8-1 | 24 | Saenz, Joseph M.*; O'Neil, Thomas J.; Denison, Frank E.; Fischer, Peter J.; Vernon, James W.: <b>25 YEARS OF HYDROCARBON SEEP STUDIES IN THE SANTA MARIA BASIN AND ALONG THE NORTHWESTERN BOUNDARY OF THE SANTA BARBARA BASIN, OFFSHORE CALIFORNIA USING SEISMIC AND STRATIGRAPHIC DATA (1995 THROUGH 2020)</b> |
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| 8-2 | 25 | Johnson, Erinn P.*: <b>A STRUCTURAL HISTORY BY THE MOUNT STUART BATHOLITH, NORTH CASCADES, WASHINGTON</b>  |
| 8-3 | 26 | Brown, Howard J.*: <b>PRE-MIOCENE ROCKS AND STRUCTURES IN THE LANE MOUNTAIN-NORTH CALICO MOUNTAINS AREA, CENTRAL MOJAVE DESERT, CALIFORNIA</b>   |
| 8-4 | 27 | Brown, Howard J.*: <b>REVISED EARLY MIOCENE STRATIGRAPHY AND YOUNGER STRUCTURES IN THE LANE MOUNTAIN-NORTH CALICO MOUNTAINS AREA, CENTRAL MOJAVE DESERT, CALIFORNIA</b>  |
| 8-5 | 28 | Nourse, Jonathan A.*; Vermillion, Karissa B.; Dykstra, Michael R.: <b>STRUCTURAL GEOLOGY OF THE PLACERITA FORMATION, WESTERN SAN GABRIEL MOUNTAINS, CALIFORNIA</b>   |
| 8-6 | 29 | Reid, Andrew J.*; Reed, Nathan G.; Taylor, Wanda J.: <b>HETEROGENEOUS EXTENSION ALONG THE NORTHERN BOUNDARY OF THE CENTRAL BASIN AND RANGE SUB-PROVINCE: THE KANE SPRINGS WASH FAULT, SOUTHERN NEVADA</b>              |
| 8-7 | 30 | Manker, Craig R.*; Nourse, Jonathan A.: <b>STRUCTURAL ANALYSIS OF FOLDED PELONA SCHIST ON BLUE RIDGE, SAN GABRIEL MOUNTAINS, CALIFORNIA</b>  |
| 8-8 | 31 | Arakaki, Justin*; Behl, Richard J.; Onderdonk, Nate: <b>VARIED IMPACT OF FAULTS AND FRACTURES ON PETROLEUM MIGRATION AND PRODUCTION IN THE PISMO-HUASNA SYNCLINE, CENTRAL CALIFORNIA</b>                               |
| 8-9 | 32 | Miller, D.E.*; Molinero, Adrian; Moreno, Jesus Eduardo; Levinson, Zachary; Torres Andrade, Eneas: <b>NEW FAULTS FOR OLD DAD: STRUCTURAL INHERITANCE, MIOCENE KINEMATICS, AND QUATERNARY DEFORMATION, NE MOJAVE, CA</b> |

## SESSION NO. 9

### D6. Tectonics/Tectonophysics (Posters)

9:00 AM, The Westin Pasadena, Fountain Ballroom

Authors will be present from 4 to 6 PM

Booth #

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| 9-1 | 33 | Moore, Diane E.*; McLaughlin, Robert J.: <b>SERPENTINITE AND CREEP ALONG THE RODGERS CREEK FAULT, NORTHERN CALIFORNIA</b>  |
| 9-2 | 34 | Anaya Guarneros, Jonathan Abimael*; Martini, Michelangelo; Solari, Luigi: <b>SEDIMENTOLOGY AND PROVENANCE ANALYSIS OF UPPERMOST PALEOZOIC-MESOZOIC FLUVIAL SUCCESSIONS ORIGINALLY MAPPED AS THE MATZITZI FORMATION, MEXICO</b> |
| 9-3 | 35 | Vermillion, Karissa B.*; Nourse, Jonathan A.: <b>DISTINCTIVE JURASSIC AND LATE CRETACEOUS THERMAL DISTURBANCE OF ZIRCONS FROM THE PLACERITA FORMATION, WESTERN SAN GABRIEL MOUNTAINS, CALIFORNIA</b>                           |
| 9-4 | 36 | Pridmore, Cody James*; Chapman, James B.; Haxel, Gordon B.: <b>CRUSTAL MELTING IN THE SOUTHERN CORDILLERA: THE PAN-TAK GRANITE OF THE COYOTE MOUNTAINS METAMORPHIC CORE COMPLEX, ARIZONA</b>                                   |
| 9-5 | 37 | Rivera, Ashley*; Razo, Alejandro; Martinez, Jonathon; Polet, Jascha: <b>INITIAL GEOPHYSICAL SURVEY FINDINGS ON THE INTERIOR STRUCTURE OF THE BLACKHAWK LANDSLIDE</b>   |
| 9-6 | 38 | Abdelhaleem, Shaimaa A.; Barba, William K.; Reed, Nathan G.*; Reid, Andrew J.; Taylor, Wanda J.: <b>TRANSVERSE FAULTS IN RIFTING: TIMPAHUTE LINEAMENT, EAST-CENTRAL NEVADA</b>   |
| 9-7 | 39 | Thota, Rohit*; Davidson, Cameron; Garver, John I.: <b>DETRITAL ZIRCON FROM THE SCHIST OF NUNATAK FIORD NEAR YAKUTAT, ALASKA INDICATE ALLIANCE TO THE CHUGACH-PRINCE WILLIAM TERRANE</b>  |
| 9-8 | 40 | Trzinski, Adam*; Chapman, James B.; Scoggin, Shane: <b>LOW-ANGLE THRUST RELATIONSHIPS IN THE NORTHERN CHIRICAHUA MOUNTAINS, ARIZONA AND EVIDENCE FOR MULTIPLE PHASES OF CONTRACTIONAL DEFORMATION</b>                          |
| 9-9 | 41 | Gabito, Mary Frances P.*; Polet, Jascha: <b>TSUNAMI MAGNITUDE SCALE BASED ON DEEP-OCEAN ASSESSMENT AND REPORTING OF TSUNAMIS (DART) BUOY WAVE HEIGHT DATA</b>  |



- 9-10 42 Thompson, Mark A.\*; Nourse, Jonathan A.; Vermillion, Karissa B.: **RECONNAISSANCE GEOLOGY AND U-PB ZIRCON GEOCHRONOLOGY OF CLAREMONT WILDERNESS PARK, EASTERN SAN GABRIEL MOUNTAINS**
- 9-11 43 Goldman, Daniel\*.; Garver, John I.; Davidson, Cameron: **AGE AND PROVENANCE OF DETRITAL ZIRCONS OF THE YAKUTAT GROUP AT HARLEQUIN LAKE, ALASKA**
- 9-12 44 Mongovin, Daniel D.\*; Philibosian, Belle: **CREEP ON THE SARGENT FAULT OVER THE PAST 50 YEARS FROM ALIGNMENT ARRAYS AND IMPLICATIONS FOR SLIP TRANSFER BETWEEN THE CALAVERAS AND SAN ANDREAS FAULTS**
- 9-13 45 Cashman, Patricia H.; Grove, Sarah E.\*; Reid, Andrew J.; Taylor, Wanda J.: **DISTINCTIVE WEST VERGENCE IN THE LATE PALEOZOIC OF NORTH-CENTRAL NEVADA: KINEMATICS AND TIMING**
- 9-14 46 Burns, James E.\*; McGill, Sally; Rhodes, Edward J.; Dolan, James F.; Brown, Nathan D.; Saha, Sourav: **DATING OF OFFSET GEOMORPHIC FEATURES ALONG THE GARLOCK FAULT, MOJAVE DESERT, CALIFORNIA: TESTING A PROPOSED EARTHQUAKE SUPERCYCLE MODEL**

## SESSION NO. 10

### T10. Quaternary Volcanism in California (Posters)

9:00 AM, The Westin Pasadena, Fountain Ballroom

Authors will be present from 4 to 6 PM

Booth #

- 10-1 47 Calvert, Andrew T.\*; Christiansen, Robert L.: **MT. SHASTA: THE CASCADE'S LARGEST STRATOVOLCANO, BUILT AND REBUILT OVER 700 KA**
- 10-2 48 Vazquez, Jorge A.\*; Matthews, Naomi E.; Burgess, Seth D.: **YOUNG AND OLD RIMS ON ACCESSORY MINERALS: INSIGHTS FROM THE NEAR-ERUPTION CRYSTALLIZATION OF ZIRCONS FROM THE CRYSTAL-POOR AND -RICH COMPONENTS OF THE ~0.7 KA ERUPTION OF INYO DOMES, CALIFORNIA**
- 10-3 49 Larsen, Matthew B.\*; Teasdale, Rachel: **HYDROTHERMAL GAS COLLECTION AND CO<sub>2</sub> ANALYSIS AT LASSEN VOLCANIC CENTER, CALIFORNIA, OVER A TEN-YEAR PERIOD**
- 10-4 50 Stevens, Sally M.\*; Burgess, Seth D.: **U-PB ION MICROPROBE ZIRCON SURFACE DATING OF COBB MOUNTAIN UNITS WITHIN THE CLEAR LAKE VOLCANIC FIELD**

## SESSION NO. 11

### T11. Impacts of Arc Activity on the Rheology of the Lithosphere across Convergent Margins (Posters) (GSA Structural Geology and Tectonics Division)

9:00 AM, The Westin Pasadena, Fountain Ballroom

Authors will be present from 4 to 6 PM

Booth #

- 11-1 51 Burgess, Quentin\*.; Wenrong, Cao: **MAGMATIC IMPACTS ON THE THERMAL AND RHEOLOGICAL PROFILES OF THE UPPER CRUST: AN EXAMPLE FROM THE BEAR MOUNTAIN FAULT ZONE IN THE SIERRA NEVADA FOOTHILLS, CALIFORNIA**
- 11-2 52 Rantanen, Aleks M.\*; Whipp, David M.; Heinonen, Jussi S.; Pütz, Miro; Kaislaniemi, Lars: **INFLUENCE OF PULSED MAGMATIC ACTIVITY, LATENT HEAT, AND PARTIAL MELTING ON THE STRENGTH OF THE CONTINENTAL CRUST**
- 11-3 53 Singleton, John S.\*; Seymour, Nikki M.; Ruthven, Rachel C.; Mavor, Skyler P.; Gomila, Rodrigo; Heuser, Gert; Arancibia, Gloria: **RHEOLOGICAL BEHAVIOR OF INTRA-ARC STRIKE-SLIP FAULTS: INSIGHTS FROM THE ATACAMA FAULT SYSTEM IN NORTHERN CHILE**
- 11-4 54 Turner, Elijah\*.; Wells, Michael L.; Stockli, Daniel F.; Barba, William K.: **DIFFERING STRUCTURAL STYLES OF HINTERLAND AND FORELAND THRUSTS: A CASE STUDY IN THE PANAMINT RANGE, CA**
- 11-5 55 Ratschbacher, Barbara\*.; Cawood, Tarryn K.; Paterson, Scott R.; Larrovere, Mariano A.; Lusk, Alexander D.; Alasino, Pablo H.;

Rick, Christopher Benton; Memeti, Vali: **DO INTRUSIVE BODIES WEAKEN OR STRENGTHEN THE ARC CRUST – OR BOTH? AN EXAMPLE FROM THE FAMATINIAN ARC, ARGENTINA**

## SESSION NO. 12

### T16. Metamorphic Processes in Cordilleran Arc Systems (Posters)

9:00 AM, The Westin Pasadena, Fountain Ballroom

Authors will be present from 4 to 6 PM

Booth #

- 12-1 56 Clark, Nolan\*.; Wire, Nate; Lackey, Jade Star: **BULK ROCK AND SINGLE-CRYSTAL GEOCHEMISTRY OF CORUNDUM-BEARING ROCKS AT CASCADE CANYON, CA**
- 12-2 57 Hampton, S.K.\*; Page, F. Zeb; Lackey, Jade Star: **PETROLOGY OF AN EXOTIC BLUESCHIST FROM SANTA CATALINA ISLAND**
- 12-3 58 Geen, Alex\*.; Canil, Dante: **EVALUATION OF ANOMALOUSLY HIGH-T FOREARC METAMORPHISM OF THE PACIFIC RIM TERRANE ON VANCOUVER ISLAND, BRITISH COLUMBIA**
- 12-4 59 Lang, Katherine E.\*; Mulcahy, Sean R.; Schermer, Elizabeth R.: **TESTING MODELS OF EARLY SUBDUCTION ACCRETION IN THE EASTON METAMORPHIC SUITE, NORTHWEST CASCADES, WASHINGTON**
- 12-5 60 Seymour, Bryan\*.; Lazar, Codi: **A MINERALOGICAL AND GEOCHEMICAL INVESTIGATION OF THE INFLUENCE OF TECTONIC SETTING ON SULFUR CYCLING DURING SERPENTINIZATION ALONG THE WESTERN NORTH AMERICA MARGIN**
- 12-6 61 Chen, Julia\*.; Ratschbacher, Barbara; Bucholz, Claire E.: **VARIATIONS IN WATER CONTENTS AND HYDROGEN ISOTOPIC COMPOSITIONS OF IGNEOUS AND METAMORPHIC AMPHIBOLES**

## SESSION NO. 13

### T20. Hydrogeology (Posters)

9:00 AM, The Westin Pasadena, Fountain Ballroom

Authors will be present from 4 to 6 PM

Booth #

- 13-1 62 Hoover, Christian L.\*; Ikeda, Kyle H.; Schmitt, Erin E.; Kushner, Michael F.; Orihuela, Kenny; Bram, Danielle L.; Ganguli, Priya M.; Hauswirth, Scott C.: **LONG-TERM WILDFIRE-RELATED CHEMICAL IMPACTS ON WATER QUALITY WITHIN THE MALIBU CREEK COASTAL WATERSHED**
- 13-2 63 Rittiron, Supasiri\*.; Ellis, Andre: **POTENTIAL IMPACTS OF WILDFIRES ON SOIL AND WATER CHEMISTRY IN THE SAN GABRIEL MOUNTAINS, CALIFORNIA**
- 13-3 64 Jesmok, Greg S.\*; Ikeda, Kyle H.; Fuhrmann, Byran C.; Hauswirth, Scott C.; Beutel, Marc W.; Ganguli, Priya M.: **THE MYSTERIES OF MERCURY IN CASTAIC LAKE STATE RECREATION AREA, CASTAIC LAKE, CALIFORNIA**
- 13-4 65 Hohn, Rachel A.\*.; Fuhrmann, Byran C.; De Jesus Bartolo, Cindy; Ikeda, Kyle H.; Leguellec, Philippe; Hauswirth, Scott C.; Bram, Danielle L.; Beutel, Marc W.; Ganguli, Priya M.: **ENVIRONMENTAL IMPACTS OF THE FORMER NEW IDRIA MINE, THE SECOND LARGEST MERCURY MINE IN NORTH AMERICA, NEW IDRIA, CA**
- 13-5 66 Schmitt, Erin E.\*.; Fuhrmann, Byran C.; Hoover, Christian L.; Cottingham, Joshua W.; Cabrera, Lois; Bram, Danielle L.; Beutel, Marc W.; Hauswirth, Scott C.; Ganguli, Priya M.: **MERCURY TOXICITY AND TRANSPORTATION IN A WILDFIRE AFFECTED WATERSHED AND LAGOON SYSTEM**
- 13-6 67 Arroyo, Janet\*.; Osborn, Stephen G.: **ASSESSMENT OF ARSENIC AND BROMIDE IN WATERS AT DOS PALMAS NATURAL PRESERVE, SALTON SEA, SOUTHERN CALIFORNIA**
- 13-7 68 Warner, Rebecca L.\*.; Osborn, Stephen G.: **ANALYSIS OF METHANE IN SHALLOW AQUIFERS OVERLYING OIL AND GAS PRODUCTION IN PENNSYLVANIA AND COLORADO**
- 13-8 69 Baker, Rory; Campos, Georgina; Cortz, Angelica; Estrada, Marleni; Kwan, Patrik; Ly, Bryan; Magana, Alissa; Nguyen, Henry; Ramirez, Christian; Venegas, Dan; Rezaie Boroon, Mohammad Hassan\*;

**ANTHROPOGENIC POLYCYCLIC HYDROCARBON (PAH) AND NITRATE IN SEDIMENT AND WATER OF BALLONA AND DEL REY LAGOONS OF LOS ANGELES, CALIFORNIA**

- 13-9 70 Peralta, Carol\*; Hibbs, Barry J.: **ANALYSIS OF BACTERIA AND NUTRIENT LEVELS IN SUBSURFACE STORM DRAINS RECEIVING FLOWS FROM GROUNDWATER SEEPAGE AND URBAN RUNOFF IN DRY WEATHER CONDITIONS**
- 13-10 71 Hibbs, Barry J.\*; Demeter, Geza I.; Hu, Wynne; Kuepper, Kathleen; Harrison, Mike; Peralta, Carol; Clifford, Geoffrey: **STABLE WATER ISOTOPE HYDROLOGY OF THE SANTA MONICA MOUNTAINS – A FIFTEEN YEAR SYNOPSIS**
- 13-11 72 Diemel, Frank W.\*; Hibbs, Barry: **A COMBINED STABLE AND RADIOISOTOPE STUDY OF THE SOURCES OF RECHARGE IN THE COACHELLA VALLEY AQUIFER SYSTEM, RIVERSIDE COUNTY, CALIFORNIA**
- 13-12 73 Rascon, Kirstie\*; Hibbs, Barry J.; Eastoe, Christopher: **HYDROCHEMICAL CHARACTERIZATION OF GEOLOGICAL AND ANTHROPOGENIC INPUTS OF SALINITY IN THE EL PASO/ JUAREZ VALLEY**
- 13-13 74 Schindler, Leanna Christine\*: **WATER QUALITY ASSESSMENT OF THOMPSON CREEK WATERSHED (TCW), SAN GABRIEL MOUNTAINS, CA**
- 13-14 75 Young, Alyssa L.\*; Nourse, Jonathan A.; Osborn, Stephen G.; Van Buer, Nicholas J.: **INVESTIGATION OF ANOMALOUS SULFATE CONCENTRATIONS WITHIN THE SAN ANTONIO CANYON WATERSHED OF THE SAN GABRIEL MOUNTAINS, CALIFORNIA**
- 13-15 76 Estenssoro, Laura D.\*; Osborn, Stephen G.: **WATER QUALITY OF THE SAN ANTONIO WATERSHED OF THE SAN GABRIEL MOUNTAINS, CALIFORNIA**
- 13-16 77 Li, Jingjing\*; Sehler, Robin; Reager, J.T.; Ye, Hengchun: **EVALUATION OF SOIL MOISTURE - PRECIPITATION FEEDBACK USING REMOTE SENSING DATA**
- 13-17 78 Diego, Jose Manuel\*; Li, Jingjing: **EVALUATION OF NASA SOIL MOISTURE MEASUREMENTS WITH IN SITU DATA IN THE WESTERN UNITED STATES**
- 13-18 79 Gambill, Ian\*; McFadden, Sawyer R.; Singha, Kamini: **CHARACTERIZING HYPORHEIC EXTENT USING ELECTRICAL RESISTIVITY AND CONCENTRATION BREAKTHROUGH CURVES**
- 13-19 80 Tavitian, Massis\*; Travers, Christopher; Sadeghi, Sina; Cerda, Christopher; Hauswirth, Scott C.: **IMPROVING SWEEP EFFICIENCY AND DELIVERY OF OXIDANTS TO LOW PERMEABILITY ZONES USING VISCOSIFYING AGENTS**
- 13-20 81 Hauswirth, Scott C.\*; Abou Najm, Majdi; Basset, Christelle: **CHARACTERIZATION OF PORE SIZE DISTRIBUTIONS USING NON-NEWTONIAN FLUIDS**
- 13-21 82 Schmidt, Kevin M.\*; Minor, Scott A.: **CORRELATING OBSERVATIONS OF SURFACE WATER WITH FIELD-MEASURED PERMEABILITY ON SANTA ROSA ISLAND, CHANNEL ISLANDS NATIONAL PARK, CA**
- 13-22 83 Stokes, Scott\*; Greene, Todd J.: **STRATIGRAPHIC FRAMEWORK OF THE PLIOCENE TUSCAN FORMATION AND QUATERNARY UNITS IN THE VINA SUB-BASIN, CHICO, CA**
- 13-23 84 Saenz, Joseph M.\*; Zaiger, Kimo K.; Tiedeman, Andrew; Nordahl, Robert; Mitchell, Chad: **HYDROGEOLOGIC REPOSITORY AND COLOMBIA WATER WELL INSTALLATION, SEPTEMBER 2018**

## AFTERNOON ORAL TECHNICAL SESSIONS

### SESSION NO. 14

#### *T1. The Changing Face of Paleontology II: In Honor of the Career Contribution of Dr. Richard L. Squires*

1:30 PM, The Westin Pasadena, San Rafael

Linda Anita Ritterbush and Mary McGann, Presiding

- 14-1 1:30 PM Stoneburg, Brittney E.\*; Dooley, Alton C.; Dooley, Brett S.; McDonald, Andrew T.: **OTHER DUTIES AS ASSIGNED: OPENING RESEARCH PATHWAYS FOR NON-CURATORIAL STAFF**
- 14-2 1:50 PM Hendy, Austin J.W.\*; Wiedrick, Shawn: **REVISITING THE QUALITY OF CALIFORNIA'S FOSSIL RECORD**
- 14-3 2:10 PM Ritterbush, Kathleen A.\*; Hebdon, Nicholas; Peterman, David J.; Choi, YunJi; Cronin, Sarah: **"LAZING ALONG AND FRAZZLING OUT": TESTING TWAIN'S VISION OF AMMONITE ECOLOGY**
- 14-4 2:30 PM Grove, Sarah E.\*; Rowland, Stephen M.: **ENHANCED DATA COLLECTION METHODS OF ICHNOLOGICALLY SIGNIFICANT FIELD SITES IN SOUTHERN NEVADA THROUGH THE USE OF PHOTOGRAMMETRIC RECONSTRUCTIONS**
- 2:50 PM **BREAK**
- 14-5 3:05 PM Sankey, Julia\*: **WHY SWEAT THE SMALL STUFF? NEW DISCOVERIES OF BABY DINOSAURS, TINY SHARKS, AND OTHER MICROVERTEBRATE FOSSILS, LATEST CRETACEOUS HELL CREEK FORMATION, NORTH DAKOTA**
- 14-6 3:25 PM Melstrom, Keegan M.\*; Irmis, Randall B.: **MAMMAL-LIKE CROCS: DO EXTINCT CROCODYLOMORPHS OVERLAP WITH THE MORPHOSPACE OF LIVING MAMMALS?**
- 14-7 3:45 PM McLaughlin, Win N.F.\*; Aleksey, Matthew; Baraga, Johanna; Beisel, Joshua; Berberian, Lori; Dall, Jacqueline; Ginther, Melanie; Lu, Leeza; Luebbers-Rivera, Chandler; Osorio, Marvin; Pedrick, Fiona; Van Dusen, Ian L.; Wright, Cutter; Bar Yaacov, Talia: **PALEOBIOGEOGRAPHY OF THE GENUS *CHILOTHERIUM* (MAMMALIA, PERISSODACTYLA, RHINOCEROTIDAE) IMPLIES EXPLOITATION OF ECOLOGICAL NICHES NOT UTILIZED BY EXTANT RHINOS**
- 14-8 4:05 PM Brown, Kristen Ellen\*; Scott, Eric; Springer, Kathleen B.: ***PLESIPPUS IDAHOENSIS* FROM THE EARLY PLEISTOCENE TULARE FORMATION, KERN COUNTY, CALIFORNIA**
- 14-9 4:25 PM McGann, Mary\*: **PARALLEL INVESTIGATIONS IN THE PALEONTOLOGICAL CAREERS OF RICHARD L. SQUIRES AND MARY MCGANN: SUBMARINE CANYONS/ TURBIDITES, WHALE FALLS, METHANE SEEPS, AND BIOSTRATIGRAPHY**
- 4:45 PM **DISCUSSION**

### SESSION NO. 15

#### *T4. The Kinematics, Dynamics, and Surface Expression of Faults in Eastern California—Improving Hazard Forecasts and Long-Term Slip Histories*

1:30 PM, The Westin Pasadena, Madera Room

Elizabeth Haddon, Scott E.K. Bennett, Janis L. Hernandez and David M. Miller, Presiding

- 15-1 1:30 PM Hudnut, Kenneth W.\*; Fletcher, John M.; Koehler, Richard D.: **OBLIQUE RIFTING, CROSS-FAULT DOMAINS, AND ACTIVE DETACHMENT FAULTS**

- 15-2** 1:50 PM Dawson, Timothy E.\*; Scharer, Katherine M.; Morelan, Alexander E.; Rockwell, Thomas K.: **SURFACE RUPTURES FROM THE 2019 RIDGECREST EARTHQUAKE SEQUENCE AND OBSERVATIONS APPLICABLE TO FAULT DISPLACEMENT HAZARD ANALYSIS**
- 15-3** 2:10 PM Morelan, Alexander E.\*; Hudnut, Kenneth W.; Donnellan, Andrea: **QUANTIFYING FAULT DISPLACEMENT VIA OPTICAL IMAGE CORRELATION USING STRUCTURE-FROM-MOTION ORTHOMOSAICS IN THE 2019 RIDGECREST EARTHQUAKE SEQUENCE**
- 15-4** 2:30 PM Philibosian, Belle\*; Thompson Jobe, Jessica A.; Chupik, Colin; Dawson, Timothy E.; Bennett, Scott; Kendrick, Katherine J.; DuRoss, Christopher B.; Gold, Ryan D.; Pierce, Ian; Ladinsky, Tyler C.; Swanson, Brian J.; Haddon, Elizabeth K.; Seitz, Gordon G.: **EVIDENCE OF PREVIOUS FAULTING ALONG THE 2019 RIDGECREST EARTHQUAKE RUPTURES**
- 15-5** 2:50 PM Haddon, Elizabeth K.\*; Miller, David M.; Langenheim, Victoria E.; Mahan, Shannon A.: **HOLOCENE FAULT SLIP RATES INDICATE LOCALIZATION OF EASTERN CALIFORNIA SHEAR ZONE DEFORMATION BETWEEN RIDGECREST AND BARSTOW**
- 15-6** 3:10 PM Polun, Sean G.\*; Bidgoli, Tantis S.; Gomez, Francisco: **DETERMINING AGES OF FAULTED SURFACES ALONG INACCESSIBLE PORTIONS OF THE EASTERN GARLOCK FAULT USING RADIOMETRIC ASSESSMENTS OF SURFACE CHARACTER: APPLICATIONS FOR SLIP RATE STUDIES**
- 3:30 PM **BREAK**
- 15-7** 3:45 PM Lutz, Brandon\*; Axen, Gary; Phillips, Fred; van Wijk, Jolante: **HIGH-RESOLUTION ANIMATED TECTONIC RECONSTRUCTION OF THE DEATH VALLEY REGION**
- 15-8** 4:05 PM Langenheim, Victoria\*; Howard, Keith A.; Okaya, David; Mickus, Kevin L.; Dean, Branden; Earney, Tait E.: **CUMULATIVE SLIP ESTIMATES ALONG THE EASTERN MARGIN OF THE EASTERN CALIFORNIA SHEAR ZONE, CALIFORNIA**
- 15-9** 4:25 PM Umhoefer, Paul J.\*; Mavor, Skyler P.; Langenheim, V.E.; Beard, L. Sue; Bennett, Scott E.K.; Crow, Ryan; Stone, Paul; Brickey, Timothy: **MULTIPLE LINES OF EVIDENCE SUGGEST 30-35 KM OF OFFSET ON THE BLYTHE BASIN STRIKE-SLIP FAULTS: PART OF THE MISSING DEXTRAL SHEAR ACROSS THE MIOCENE PACIFIC-NORTH AMERICA PLATE BOUNDARY?**
- 15-10** 4:45 PM Menges, Christopher M.\*; Mahan, Shannon A.: **STRATIGRAPHIC AND GEOCHRONOLOGIC CONSTRAINTS ON TIME-SPACE PATTERNS OF LATEST QUATERNARY SURFACE RUPTURES ON THE EASTERN PINTO MOUNTAIN AND SOUTHERN MESQUITE LAKE FAULT ZONES NEAR TWENTYNINE PALMS, SOUTHERN CALIFORNIA**
- 15-11** 5:05 PM Miller, David M.\*; Bennett, Scott E.K.; Nuriel, Perach: **LONG-TERM EVOLUTION OF THE EASTERN CALIFORNIA SHEAR ZONE, 10 MA TO PRESENT**
- 16-3** 2:10 PM Berg, Christopher A.\*; Bender, E. Erik; Van Ry, Michael: **THE DEVELOPMENT OF FIELD STUDIES COURSES IN THE GEOLOGY PROGRAM AT ORANGE COAST COLLEGE: SUCCESSES, CHALLENGES, AND FUTURE OPPORTUNITIES**
- 16-4** 2:30 PM Oliver, David\*; Selvans, Michelle M.; Syverson, V.J.P.; Bennett, Megan: **SERVING UNDERREPRESENTED GROUPS IN STEM THROUGH K-6 TEACHER PREPARATION**
- 16-5** 2:50 PM Syverson, V.J.P.\*; Oliver, David; Selvans, Michelle M.: **DOING MORE WITH LESS: USING ONLINE DATA SETS FOR INQUIRY-BASED LAB INSTRUCTION**
- 16-6** 3:10 PM Nagy, Elizabeth A.\*: **EXOPLANET LAB ACTIVITY FOR INTRODUCTORY EARTH SCIENCE STUDENTS USING NASA'S EYES ON EXOPLANETS**
- 3:30 PM **BREAK**
- 16-7** 3:45 PM Anders, Tania-Maria\*; Ruiz, Sophia; Shen, Anne; Shin, Jaeseung Andy: **EMBARKING CHANGE: CO-CREATING A GREEN CAMPUS**
- 16-8** 4:05 PM Webb, Craig A.\*: **LESSONS FROM TEACHING GEOSCIENCE TO AN ALL DEAF AND HARD OF HEARING (DHH) COHORT**
- 16-9** 4:25 PM Vendrasco, Michael\*: **THE BENEFITS OF SIMPLE VALUES AFFIRMATION ASSIGNMENTS IN GEOLOGY COURSES**
- 16-10** 4:45 PM Wilbur, Bryan C.\*: **WORK HARD, PLAY HARD: THE VALUE OF A GEOLOGY CLUB TO A TWO-YEAR COLLEGE GEOLOGY DEPARTMENT**
- 16-11** 5:05 PM Walker, Becca\*; Hall, Sarah R.; Schmidt, Calla M.; Paul, John R.: **OUTCOMES OF AN ENVIRONMENTAL FIELD AND PROFESSIONAL DEVELOPMENT PROGRAM FOR UNDERGRADUATES: IMPLICATIONS FOR STUDENT CAREER PREPARATION, TECHNICAL SKILL BUILDING, AND PROFESSIONAL NETWORKING AT 2YCS**

## WEDNESDAY, 13 MAY 2020

### MORNING ORAL TECHNICAL SESSIONS

#### SESSION NO. 17

##### *D7. Paleoearthquake Records and Slip Rates Across the Southern California Plate Boundary*

8:00 AM, The Westin Pasadena, Madera Room

Sinan O. Akciz, Richard V. Heermance, Kate Scharer, Janis L. Hernandez and Brian Olson, Presiding

- 17-1** 8:00 AM Matti, Jonathan C.\*; Yule, J. Douglas: **DOES A "STRUCTURAL KNOT" IN THE QUATERNARY SAN ANDREAS FAULT EXIST IN SAN GORGONIO PASS? TRADITIONAL AND RECENT VIEWS PROVIDE CONFLICTING ANSWERS**
- 17-2** 8:20 AM Castillo, Bryan\*; McGill, Sally; Scharer, Katherine M.; Yule, Doug; McPhillips, Devin; McNeil, James; Saha, Sourav; Brown, Nathan D.; Moon, Seulgi: **AGES OF PREHISTORIC EARTHQUAKES ON THE BANNING STRAND OF THE SAN ANDREAS FAULT, NEAR NORTH PALM SPRINGS, CALIFORNIA**
- 17-3** 8:40 AM Spencer, Joel Q.G.\*; Ataei, Nina; Lacroix, Brice J.; Owen, Lewis A.: **DEVELOPMENT OF LUMINESCENCE DATING METHODS IN TECTONICALLY ACTIVE AND ARID REGIONS: DATING FANGLOMERATES FROM ALLUVIAL FANS, COACHELLA VALLEY, SOUTHERN CALIFORNIA**

#### SESSION NO. 16

##### *T21. Geoscience in the Two-Year-College (2YC) Community: Sharing Successes, Growing Pains, and Lessons Learned*

1:30 PM, The Westin Pasadena, Plaza Room

Elizabeth A. Nagy, Martha A. House and Tania Anders, Presiding

- 16-1** 1:30 PM Boryta, Mark\*; Anders, Tania-Maria: **BUILDING OCEAN LITERACY: THE SOCALSEAS PROJECT**
- 16-2** 1:50 PM Presiado, Rhea\*: **DITCHING LECTURES AND MAKING ROOM FOR PROJECT BASED LEARNING AND UNDERGRADUATE FIELD RESEARCH IN INTRODUCTORY OCEANOGRAPHY COURSES**

17-4	9:00 AM	McPhillips, Devin*: <b>NEW <sup>10</sup>BE SURFACE EXPOSURE AGES AND FAULT SLIP RATES, CUCAMONGA FAULT, SOUTHERN CALIFORNIA</b>
17-5	9:20 AM	Kelty, Clay*; Onderdonk, Nate; Garcia, Antonio F.: <b>ONSET AND CESSATION OF DEFORMATION ALONG A BLIND THRUST IN THE PAST 100 KA: THE SANTA YNEZ RIVER FAULT IN THE WESTERN TRANSVERSE RANGES OF CALIFORNIA</b>
	9:40 AM	<b>BREAK</b>
17-6	9:55 AM	Onderdonk, Nate*; McGregor, Ian; Kelty, Clay; Farris, Andrew; Slatten, Casey; Tyler, Edward: <b>EPISODIC DEFORMATION AND VARIATIONS IN FAULT SLIP RATES DURING THE LATE QUATERNARY IN THE WESTERN TRANSVERSE RANGES, CALIFORNIA</b>
17-7	10:15 AM	Hatem, Alexandra E.*; Gold, Ryan D.; Briggs, Richard W.; Field, Edward H.; Powers, Peter M.; Collett, Camille M.: <b>DEVELOPMENT OF A GEOLOGICALLY-INFORMED FAULT SOURCE PARAMETERS DATABASE AND UPDATES OF THE FAULT SOURCE MODEL FOR THE U.S. NATIONAL SEISMIC HAZARD MODEL</b>
17-8	10:35 AM	Blanton, Chelsea M.*; Rockwell, Thomas K.; Gontz, Allen; Kelly, Joshua T.: <b>APPLICATIONS OF GEOMORPHIC FEATURES PRODUCED BY EXTREME STORM EVENTS: UNRAVELING THE SEISMIC AND CREEP COMPONENTS OF FAULT SLIP</b>
17-9	10:55 AM	Coffey, Kevin T.*: <b>STRAIN PARTITIONING CAN EXPLAIN DISPARATE CROSS-FAULT CORRELATIONS ALONG THE SAN ANDREAS FAULT, SOUTHERN CALIFORNIA, U.S.A</b>
17-10	11:15 AM	Ingersoll, Raymond V.*: <b>INITIATION OF THE SOUTHERN CALIFORNIA BIGHT DURING MID-MIOCENE TRANSROTATION</b>

## SESSION NO. 18

### ***D8. The Origin and Spatiotemporal Evolution of Arc Magmas Recorded From Mineral to Plate-Boundary Scales I***

8:00 AM, The Westin Pasadena, Plaza Room

Katie E. Ardill, Cullen Scheland and Ana Maria Martinez Ardila, Presiding

	8:00 AM	<b>INTRODUCTORY REMARKS</b>
18-1	8:05 AM	Klepeis, Keith*; Schwartz, Joshua J.; Miranda, Elena A.; Turnbull, Rose; Stowell, Harold H.; Jongens, Richard: <b>SPATIOTEMPORAL EVOLUTION OF A MAGMA FEEDER ZONE BETWEEN THE LOWER AND UPPER CRUST IN THE FIORDLAND CONTINENTAL ARC OF SW NEW ZEALAND</b>
18-2	8:25 AM	Hora, John Milan*; Janoušek, Vojtěch; Tabaud, Anne-Sophie; Erban Kochergina, Yulia V.: <b>THE UNDER-APPRECIATED ROLE OF ENRICHED MANTLE DURING GENESIS OF VARISCAN ULTRAPOTASSIC MAGMAS</b>
18-3	8:45 AM	Hausback, Brian*; Bennett, Scott; Darin, Michael; Dorsey, Rebecca; Grandy, Sam; Dolby, Greer A.; Sawlan, Michael; Martínez-Gutiérrez, Genaro; Hernández-Salgado, Yahil: <b>LONG-LIVED SUBDUCTION AND POST-SUBDUCTION VOLCANISM AND INCISION IN THE SIERRA SAN FRANCISCO, CENTRAL BAJA CALIFORNIA PENINSULA, MEXICO</b>
	9:05 AM	<b>BREAK</b>
18-4	9:20 AM	Paterson, Scott R.*; Attia, Snir; Ardill, Katie E.; Scheland, Cullen; Wesley, Abigail J.: <b>QUANTIFYING MAGNITUDES AND RATES OF MASS REDISTRIBUTIONS IN ARCS IN THE CENTRAL SIERRA NEVADA, CALIFORNIA</b>
18-5	9:40 AM	Johnston, Scott M.*; Kylander-Clark, Andrew R.C.; Barth, Andrew P.: <b>DETRITAL ZIRCON AS A TRACER FOR TIME-TRANSGRESSIVE, REGIONAL-SCALE ARC PROCESSES: A CASE STUDY FROM MODERN SIERRA NEVADA SANDS</b>
18-6	10:00 AM	Richardson, Andrea E.*; Yoshinobu, Aaron S.; Barnes, Calvin G.: <b>SPACE/TIME EVOLUTION OF MAGMATISM IN THE KLAMATH MOUNTAINS PROVINCE (KMP), CA/OR:</b>

## **IMPLICATIONS FOR CORDILLERAN ARC MAGMA PERIODICITY**

### **DISCUSSION**

18-7	10:40 AM	Scheland, Cullen L.*; Paterson, Scott R.: <b>REVISITING PLUTON EMPLACEMENT THROUGH THE LENS OF INCREMENTAL GROWTH; NEW OPPORTUNITIES FOR EVALUATING THE ENTIRE PLUTON-HOST ROCK SYSTEM IN ASYMMETRICAL INTRUSIONS</b>
18-8	11:00 AM	Miller, Robert Bruce*; Lee, John D.; Budimirovic, Natasha: <b>INSIGHTS INTO HIGHLY ELONGATE, STEEPLY SHEETED ARC PLUTONS FROM INTRUSIONS IN THE SE COAST MOUNTAINS, BRITISH COLUMBIA AND WASHINGTON</b>
	11:20 AM	<b>CONCLUDING REMARKS</b>

## SESSION NO. 19

### ***T2. La Brea Tar Pits: Old Bones and New Insights***

8:00 AM, The Westin Pasadena, San Rafael

Donald Prothero, Presiding

19-1	8:00 AM	Long, Katherine L.; Prothero, Donald*; Syverson, V.J.P.: <b>HOW DO SMALL BIRDS EVOLVE IN RESPONSE TO CLIMATE CHANGE? DATA FROM THE LONG-TERM RECORD AT LA BREA TAR PITS</b>
19-2	8:20 AM	Scott, Eric*; Gust, Sherri M.: <b>ONTOGENETIC AGE AND SEX DISTRIBUTIONS OF <i>EQUUS OCCIDENTALIS</i> FROM RANCHO LA BREA, CALIFORNIA, BASED UPON DENTAL AND PELVIC DATA</b>
19-3	8:40 AM	Galvez, Saul*; Prothero, Donald: <b>AGE-MORTALITY PROFILES IN LA BREA BISON: INSIGHTS INTO POPULATION DYNAMICS AND TAPHONOMY</b>
19-4	9:00 AM	Dunn, Regan*; Rice, Karin: <b>HOW GRASSY WERE LATE PLEISTOCENE HABITATS AT RANCHO LA BREA?: FIRST PHYTOLITH RECORDS FROM THE TAR PITS</b>
19-5	9:20 AM	Rice, Karin A.*; Mychajliw, Alexis M.; Tewksbury, Laura R.; Campbell, Sean C.; Dunn, Regan E.; Lindsey, Emily L.: <b>DOCUMENTING SEDIMENTARY AND TAPHONOMIC HETEROGENEITY AT RANCHO LA BREA: NEW INSIGHTS FROM QUANTITATIVE APPROACHES</b>
19-6	9:40 AM	Noriega, Nicolas L.*; Pitcher, Ellie; Cohen, Joshua E.; DeSantis, Larisa R.G.; Lindsey, Emily; Meachen, Julie; O'Keefe, F. Robin; Southon, John; Binder, Wendy J.: <b>A STONE'S THROW THROUGH TIME: TAPHONOMIC VARIATION AMONG PITS AT RANCHO LA BREA</b>
	10:00 AM	<b>BREAK</b>
19-7	10:15 AM	DeSantis, Larisa R.G.*; Feranec, Robert; Southon, John; Binder, Wendy J.; Cohen, Joshua E.; Farrell, Aisling B.; Lindsey, Emily; Meachen, Julie; O'Keefe, F. Robin; Takeuchi, Gary T.: <b>NEW INSIGHTS FROM THE STABLE ISOTOPES OF BONES AND TEETH FROM RANCHO LA BREA CARNIVORANS</b>
19-8	10:35 AM	Long, Katherine L.; Madan, Meena A.*; Prothero, Donald; Syverson, V.J.P.: <b>DID SABERTOOTH KITTENS GROW UP MUSCLEBOUND? A STUDY OF POSTNATAL LIMB ALLOMETRY IN FELIDS FROM THE PLEISTOCENE OF RANCHO LA BREA</b>
19-9	10:55 AM	Htun, Thein*; Prothero, Donald; Hoffman, Jonathan M.: <b>A COMPARISON OF GROWTH AND DWARFING TRENDS OBSERVED IN PLEISTOCENE MAMMOTS AND MASTODONS: HOW DOES ONTOGENETIC SCALING OF LIMB BONES COMPARE TO CHANGES ASSOCIATED WITH INSULAR DWARFING?</b>
19-10	11:15 AM	Parry, Lauren E.*; Rowland, Stephen M.: <b>MIRED AND RETIRED: AGE-SELECTIVE COLUMBIAN MAMMOTH (<i>MAMMUTHUS COLUMBI</i>) MORTALITY FROM RANCHO LA BREA, CALIFORNIA AND ITS IMPLICATIONS FOR EVALUATING TOP-DOWN FORCING IN LATE PLEISTOCENE TROPHIC SYSTEMS</b>

19-11 11:35 AM De Anda, Erin\*; Balassa, Daniella; Prothero, Donald; Syverson, V.J.P.: **DID PRONGHORNS BECOME SMALLER AFTER THE ICE AGES?**

## POSTER TECHNICAL SESSIONS

### SESSION NO. 20

#### *D7. Paleoearthquake Records and Slip Rates Across the Southern California Plate Boundary (Posters)*

9:00 AM, The Westin Pasadena, Fountain Ballroom

Authors will be present from 4 to 6 PM

- |      | Booth #  |
|------|--|
| 20-1 | 1 Inserra, Nick*; Akcoiz, Sinan: <b>LATE HOLOCENE RUPTURE HISTORY OF THE SOUTH-CENTRAL SAN ANDREAS FAULT AT VAN MATRE RANCH, CALIFORNIA</b>  |
| 20-2 | 2 Ladinsky, T.C.*; Kelsey, Harvey; Bold, Samuel; Michalak, Melanie; Witter, Robert C.: <b>INVESTIGATING THE ROLE OF UPPER-PLATE FAULTS IN SOUTHERN CASCADIA: A PALEOSEISMIC INVESTIGATION OF THE LITTLE SALMON FAULT AND GOOSE LAKE FAULT, HYDESVILLE, HUMBOLDT COUNTY, CALIFORNIA</b> |
| 20-3 | 3 Springer, Kathleen B.*; Pigati, Jeffrey S.: <b>CLIMATICALLY DRIVEN DISPLACEMENT ON THE EGLINGTON FAULT, LAS VEGAS, NV</b>  |
| 20-4 | 4 Bold, Samuel E.*; Michalak, Melanie J.; Ladinsky, Tyler C.; Blisniuk, Kimberly; Patton, Jason R.; Kelsey, Harvey M.: <b>QUATERNARY MAPPING OF THE GOOSE LAKE FAULT, VAN DUZEN RIVER TERRACES, AND YAGER CREEK TERRACES, HUMBOLDT COUNTY, CALIFORNIA</b>                              |
| 20-5 | 5 Hatem, Alexandra E.*; Gold, Ryan D.; Briggs, Richard W.: <b>THINKING INSIDE THE BOX: MODELLING SLIP RATE VARIABILITY USING GEOLOGIC CONSTRAINTS</b>  |
| 20-6 | 6 Kerr, Drake Dennis*; Onderdonk, Nate: <b>GEOMORPHIC EVIDENCE FOR LATE QUATERNARY SLIP ON THE NORTHERNMOST SAN JACINTO FAULT ZONE, AND IMPLICATIONS FOR SLIP TRANSFER TO SAN ANDREAS FAULT</b>  |
| 20-7 | 7 McInnis, Margarita E.*; Pinter, Nicholas: <b>DEFORMED MARINE TERRACES ON SANTA CATALINA ISLAND, CALIFORNIA: NEW MEASUREMENTS FROM TERRACE-PLATFORM SURFACES AND PHOLAD-BORED CLASTS</b>  |

### SESSION NO. 21

#### *D8. The Origin and Spatiotemporal Evolution of Arc Magmas Recorded From Mineral to Plate-Boundary Scales (Posters)*

9:00 AM, The Westin Pasadena, Fountain Ballroom

Authors will be present from 4 to 6 PM

- |      | Booth #  |
|------|--|
| 21-1 | 8 Yang, Jiaming*; Cao, Wenrong: <b>MAGMATIC FABRICS OF THE GANGDESE BATHOLITH, SOUTHERN TIBET: A POTENTIAL TRACKER FOR CRUSTAL STRAIN FIELD</b>  |
| 21-2 | 9 Scheland, Cullen L.*; Attia, Snir; Lusk, Alexander D.; Carrera, Anahi; Gordon, Luke; Paterson, Scott R.: <b>PLUTON-HOST ROCK SYSTEMATICS OF THE JURASSIC SANTA RITA FLAT PLUTON AND ITS AUREOLE; MULTIPLE HOST ROCK TRANSFER MECHANISMS AT MULTIPLE SCALES DURING PLUTON EMPLACEMENT</b>                   |
| 21-3 | 10 Greene, David C.*; Hoffman, Charles F.; Lackey, Jade Star: <b>COMPLEXLY INTERLEAVED PERMIAN TO MID-CRETACEOUS VOLCANO-SEDIMENTARY ROCKS IN THE MINERAL KING PENDANT, SOUTHERN SIERRA NEVADA, CALIFORNIA INDICATE MULTIPLE DEFORMATIONS PRIOR TO AND SYNCHRONOUS WITH CRETACEOUS BATHOLITH EMPLACEMENT</b> |
| 21-4 | 11 Bates, Caitlin*; Memeti, Valbone; Wesley, Abigail J.; Paterson, Scott R.: <b>ARE MAFIC INTRUSIONS IN THE MAY LAKE AND</b>   |

### SNOW LAKE PENDANTS RELATED TO THE INDEPENDENCE DIKES?

- |      |  |
|------|--|
| 21-5 | 12 Dailey, Shane R.*; Barnes, Calvin G.: <b>TIMING OF PARTIAL MELTING OF RATTLESNAKE CREEK AMPHIBOLITE—INITIATION OF THE NEVADAN OROGENY?</b>  |
| 21-6 | 13 Brackman, Adam J.*; Deitel, Matthew; Greenberg, Gillian; Nolasco, Jocelyne; Page, Brandon; Stone, David; Schwartz, Joshua J.; Turnbull, Rose: <b>INVESTIGATING THE TRACE-ELEMENT RECORD OF MAGMA MIXING IN MINGLED MAFIC SHEETS, HALFMOON PLUTON, STEWART ISLAND, NEW ZEALAND</b> |
| 21-7 | 14 Marshall, Collin E.*; Mattinson, Christopher G.: <b>ZIRCON SEPARATION USING THE JCR CONCENTRATING TABLE: AN EVALUATION OF YIELD, CONCENTRATION, AND TIME EFFICIENCY</b>   |

### SESSION NO. 22

#### *D9. Using Geological Archives to Understand and Document Earth Surface Processes and Past Climate (Posters)*

9:00 AM, The Westin Pasadena, Fountain Ballroom

Authors will be present from 4 to 6 PM

- |      | Booth #  |
|------|--|
| 22-1 | 15 Dickey, Hank*; Kirby, Matthew E.; Knell, Ed; Anderson, William T.; Hernandez, Stephanie; Obarr, Sophia; Leidelmeijer, Jen; Taylor, Jan; Arriola, Eyrica: <b>USING LAKE SEDIMENTS TO INFER LATE-GLACIAL HYDROLOGIC CONDITIONS OF PLUVIAL LAKE MOJAVE, CALIFORNIA</b>   |
| 22-2 | 16 Campbell, Kyle*; Hernandez, Stephanie; Kirby, Matthew E.; Sproul Dit MacDonald, Glen M.; Carlin, Joseph; Leidelmeijer, Jennifer A.; Woodward, Alexandre; Avila, Judith; Han, Jiwoo; Nauman, Benjamin; Poulsen, Cody: <b>12,500 YEARS OF HYDROLOGIC VARIABILITY RECORDED IN SEDIMENTS FROM TULE LAKE, CA</b>   |
| 22-3 | 17 Barbosa, Jazleen*; Kirby, Matthew E.; Sproul Dit MacDonald, Glen M.; Carlin, Joseph; Leidelmeijer, Jennifer A.; Woodward, Alexandre; Avila, Judith; Han, Jiwoo; Nauman, Benjamin; Poulsen, Cody: <b>9,000 YEARS OF PALEOHYDROLOGICAL HISTORY INFERRED USING LACUSTRINE SEDIMENTS FROM MADDOX LAKE, CA</b>   |
| 22-4 | 18 Miller, D.E.*; Montejó, Carlos; Moreno, Jesus Eduardo; James, Robert N.; McKinney, Samuel; Sarti, Ethan; Watson, Kenneth; Buehler, Jeffrey; Rodriguez, Virginia; Torres Andrade, Eneas: <b>EVIDENCE FOR CENOZOIC LANDSCAPE EVOLUTION IN THE TEHACHAPI MTNS, CA FROM POLYCYCLIC FLUVIAL CONGLOMERATES</b>  |
| 22-5 | 19 Leidelmeijer, Jennifer A.*; Kirby, Matthew E.; Sproul dit MacDonald, Glen; Carlin, Joseph; Bonuso, Nicole; Loyd, Sean J.; Han, Jiwoo; Nauman, Benjamin; Avila, Judith; Woodward, Alexandre: <b>LATE GLACIAL TO EARLY HOLOCENE PALEOLIMNOLOGY INFERRED FROM BARLEY LAKE SEDIMENTS (NORTHERN COASTAL RANGES, CALIFORNIA)</b>  |
| 22-6 | 20 Kirby, Matthew E.*; Sproul dit MacDonald, Glen; Carlin, Joseph; Leidelmeijer, Jennifer A.; Avila, Judith; Woodward, Alexandre; Han, Jiwoo; Nauman, Benjamin; Barbosa, Jazleen; Hernandez, Stephanie; Campbell, Kyle; Boggis, Lacy; Nichols, Kevin; Ramezan, Reza; Poulsen, Cody: <b>THE HOLOCENE CALIFORNIA PRECIPITATION DIPOLE TRACKED USING LAKE SEDIMENTS</b> |
| 22-7 | 21 Johnson, Kathleen R.*; McCabe-Glynn, Staryl; Cheng, Hai; Wright, Kevin T.; Coreas, Cesiah; White, Aliza: <b>CALIFORNIA HYDROCLIMATE VARIABILITY SINCE THE LAST GLACIAL MAXIMUM: PRELIMINARY STALAGMITE RESULTS FROM CRYSTAL CAVE, SEQUOIA NATIONAL PARK, CA</b>   |
| 22-8 | 22 McCabe-Glynn, Staryl*; Johnson, Kathleen R.; Cheng, Hai: <b>ASSESSING LOCAL WATER BALANCE AND OCEAN-ATMOSPHERE DYNAMICS UTILIZING MULTIPLE PROXY RECORDS FROM A SOUTHERN CALIFORNIA SPELEOTHEM OVER THE LAST MILLENNIUM</b>   |
| 22-9 | 23 Downey, Anthony S.*; Heermance, Richard V.: <b>PULSED RETREAT OF THE SIERRA NEVADA ICE CAP AFTER THE LAST GLACIAL MAXIMUM IN HOPE VALLEY, SIERRA NEVADA, CALIFORNIA</b>   |

- 22-10 24 Hadsock, Harrison\*; Fryxell, J.E.; Hughes, Richard O.: **EVIDENCE FOR GLACIATION IN THE MT. SAN JACINTO REGION**
- 22-11 25 Beener, Katya\*; Carlin, Joseph; Hayward, Jamie Ann; Tran, Amy: **SEDIMENT SOURCE AREA CHARACTERIZATION THROUGHOUT THE MONTEREY BAY COAST AND WATERSHED**
- 22-12 26 Duncan, Theresa\*; Carlin, Joseph; Kanneg, Sadie; Beener, Katya: **CHARACTERIZING SEASONAL SEDIMENTARY CARBON FLUXES WITHIN A RESTORED COASTAL WETLAND**
- 22-13 27 Dickson, Sarah\*; Carlin, Joseph; Bonuso, Nicole: **EVOLUTION OF SOUTHERN CALIFORNIA COASTAL WETLAND**
- 22-14 28 Fordham, Edward M.\*; Pfeiffer, Allison M.: **QUANTIFYING DEBRIS FLOW CONTRIBUTIONS TO BASIN-SCALE SEDIMENT SUPPLY, SUIATTLE RIVER, NORTH CASCADES WASHINGTON STATE**
- 22-15 29 Casas, Karol\*; Krugh, William: **TREE MORTALITY AND ITS IMPACT ON HILLSLOPE PROCESSES AND LANDSLIDE SUSCEPTIBILITY IN THE KERN RIVER WATERSHED OF CALIFORNIA**
- 22-16 30 Bisgaard, Sarah Grace\*; Mrofska, David D.: **GREYWACKE OVERLYING THE SANTA CRUZ ISLAND VOLCANICS**
- 22-17 31 House, Brianna J.\*; Murray, Bryan P.: **MULTI-STRATIGRAPHIC INVESTIGATION AND PROVENANCE INTERPRETATIONS OF THE MID-TERTIARY SOLEDAD ROJO FORMATION OF THE SOUTHERN BASIN AND RANGE PROVINCE, WESTERN PALO VERDE MOUNTAINS, SOUTHEASTERN CALIFORNIA**
- 22-18 32 Finley, Jake M.\*; Anfinson, Owen A.; Odlum, Margaret; Levang, Devin; Poulaki, Eirini M.; Gaina, Carmen; Stockli, Daniel F.; Shephard, Grace; Pavlovskaja, Elena: **LATE DEVONIAN SEDIMENT PROVENANCE OF THE ANDRÉE LAND BASIN, SVALBARD, NORWAY**
- 22-19 33 Levang, Devin\*; Anfinson, Owen; Odlum, Margaret; Finley, Jake M.; Poulaki, Eirini M.; Gaina, Carmen; Stockli, Daniel F.; Shephard, Grace; Pavlovskaja, Elena: **EARLY TO MIDDLE DEVONIAN PALEOGEOGRAPHIC LOCATION OF SVALBARD, NORWAY**
- 22-20 34 Bennett, Scott E.K.\*; Darin, Michael H.; Dorsey, Rebecca J.; Hausback, Brian P.; Dolby, Greer A.; Sawlan, Michael G.; Wilder, Benjamin T.; Martínez-Gutiérrez, Genaro; Hernández-Salgado, Yahil; Grandy, Sam: **THE INFLUENCE OF MIOCENE TO RECENT TECTONICS AND LANDSCAPE EVOLUTION ON GENETIC DIVERSITY ALONG THE CENTRAL BAJA CALIFORNIA PENINSULA**
- 22-21 35 Hayduk, Tyler S.\*; Cotton, Jennifer M.; Hyland, Ethan G.; Insel, Nadja: **LINKING THE LATE MIOCENE C<sub>4</sub> GRASSLAND EXPANSION TO EXPANSION OF THE SOUTH AMERICAN SUMMER MONSOON IN RIO IRUYA CANYON, NORTHWEST ARGENTINA**
- 22-22 36 Ghosh, Adit\*; Cotton, Jennifer M.; Hyland, Ethan G.; Raigemborn, Maria Sol; Tineo, David; Insel, Nadja: **CONSTRAINING C<sub>4</sub> EXPANSION IN CONTINENTAL SOUTH AMERICA DURING THE LATE MIOCENE-PLIOCENE USING D13C ISOTOPIC PROXIES AND COMPLEX ORGANIC CARBON MOLECULES**

## SESSION NO. 23

### T2. La Brea Tar Pits: Old Bones and New Insights (Posters)

9:00 AM, The Westin Pasadena, Fountain Ballroom

Authors will be present from 4 to 6 PM

Booth #

- 23-1 37 Curd, Emily Elizabeth\*; Brown, Caitlin; Friscia, Anthony: **MICROBIAL SUCCESSION IN A TAR SEEP DECOMPOSITION ENVIRONMENT**
- 23-2 38 Godoy, Derek\*; Balisi, Mairin: **THEN AND NOW AGAIN – A BOBCAT'S TAIL**
- 23-3 39 Tome, Lilibeth\*; Balisi, Mairin: **SURVIVORS OF THE ICE AGE: ECOMORPHOLOGICAL CHANGES IN THE AMERICAN BADGER FROM THE PLEISTOCENE TO MODERN-DAY**
- 23-4 40 Balassa, Daniella\*; Prothero, Donald; Syverson, V.J.P.: **AFTER THE SABER-TOOTH: HOW DID COUGARS AND BOBCATS RESPOND TO THE END OF THE ICE AGES?**

- 23-5 41 Szymanski, Kathryn A.\*; Davis, Madison; Fuster, Joaquin; Cohen, Joshua E.; DeSantis, Larisa R.G.; Lindsey, Emily; Meachen, Julie; O'Keefe, F. Robin; Southon, John; Binder, Wendy J.: **ASSESSING MIGRATION IN PLEISTOCENE HERBIVORES AT RANCHO LA BREA – YEA OR NEIGH?**
- 23-6 42 Gomez, Giancarlo\*; Balisi, Mairin: **MICROEVOLUTIONARY CHANGES IN GRAY FOXES (*UROCYON CINEREOARGENTEUS*) AS ANALYZED FROM RANCHO LA BREA**
- 23-7 43 Jardon, Lizbeth\*; Balisi, Mairin: **ANALYZING ECOMORPHOLOGICAL SHIFTS IN THE STRIPED SKUNK (MEPHITIS MEPHITIS): FROM ICE AGE TO MODERN DAY**
- 23-8 44 Mazzello, Christine M.\*; Ellwood, Elizabeth R.; Takeuchi, Gary T.; Lindsey, Emily: **MAMMOTH RESULTS FROM MICROFOSSILS**

## SESSION NO. 24

### T25. Undergraduate Research (Posters) (Council on Undergraduate Research Geosciences Division)

9:00 AM, The Westin Pasadena, Fountain Ballroom

Authors will be present from 4 to 6 PM

Booth #

- 24-1 45 King, Rebekah\*; Memeti, Valbone: **A YOSEMITE NATIONAL PARK MAGMATIC SYSTEM VIRTUAL FIELD TRIP FOR INTRODUCTORY GEOLOGY COLLEGE COURSES**
- 24-2 46 Jory, Billyjack\*; Luu, Richard; Norris, Aulin Triona; Polcino, Christina: **SIMULATION OF MAGMA COOLING USING LOW-MELT BINARY ALLOYS IN GEOLOGY LABS TO INCREASE STUDENT CRITICAL THINKING IN BEGINNING GEOLOGY COURSES**
- 24-3 47 Bass, Jennifer\*; Robins, Colin: **VARIATIONS OF SOIL-BEDROCK GEOCHEMISTRY ALONG A SAN GABRIEL VALLEY CATENA: IMPLICATIONS FOR LANDSCAPE EVOLUTION IN A CHANGING SOUTHERN CALIFORNIA XERIC CLIMATE**
- 24-4 48 Almaguer, Alexandra\*; Lackey, Hilary Sanders; McCarty, Kyle R.; Lackey, Jade Star: **POST-FIRE TRACE ELEMENT ACCUMULATION IN SEDIMENT AND SURFACE WATER OF THE WOOLSEY WILDFIRE AREA**
- 24-5 49 Fong, Brandon T.\*; Guillinger, James J.; Barth, Nicholas C.; Gray, Andrew B.: **HILLSLOPE BOULDER DISPLACEMENT FROM SHALLOW LANDSLIDES**
- 24-6 50 Pinto, James L.\*; Holiday, Daniel J.; Carignan, Brandon J.; Putnam, Roger L.: **SYCAMORE CANYON FALLS: A BEDROCK-CONTROLLED KNICKPOINT IN THE SANTA MONICA MOUNTAINS, CALIFORNIA**
- 24-7 51 Pulver, Nathan\*; Petrashek, Stacey; Contreras, Raul; Polet, Jascha: **THE EFFECTS OF FAULTING ON GROUNDWATER FLOW IN THE SAN ANDREAS OASIS FROM MEASUREMENTS OF GROUND-BASED MAGNETICS, VERY LOW FREQUENCY AND DIRECT CURRENT RESISTIVITY**
- 24-8 52 Sivakumar, Ashwin\*; Mychajliw, Alexis: **FOSSIL-AUGMENTED SPECIES DISTRIBUTION MODELS REVEAL SHIFTING BASELINES FROM THE PLEISTOCENE TO THE PRESENT FOR THE CALIFORNIA CONDOR**
- 24-9 53 Moerer, Brandon T.\*; Woods, Adam D.: **ENVIRONMENTAL STRESS AS A CAUSE FOR PROLONGED RECOVERY FOLLOWING THE PERMIAN-TRIASSIC MASS EXTINCTION: A GEOCHEMICAL INVESTIGATION OF THE LOWER TRIASSIC UNION WASH FORMATION**
- 24-10 54 Gadd, Katelyn R.\*; Parsons, Grace Mackenzie; Young-Chung, Leah; Sankey, Julia: **LATEST CRETACEOUS FISH AND SHARKS FROM THE HELL CREEK FORMATION OF SOUTHWESTERN NORTH DAKOTA: EVIDENCE THAT THE CANTAPETA MARINE TONGUE (WESTERN INTERIOR SEAWAY) REACHED FURTHER WEST**
- 24-11 55 Voss, Natasha LaRae\*; Riggs, Nancy R.; Barth, Andrew P.; de Silva, Shanaka L.: **U-PB AGES OF DETRITAL ZIRCON AND THEIR CORRELATION TO LOCAL TECTONICS OF THE ANDEAN PLATEAU, CHILE**



- 24-12 56 Lieber-Kotz, Oren\*; Davidson, Cameron; Garver, John I.; Goldman, Daniel: **U/PB AGES OF CONGLOMERATE CLASTS OF THE YAKUTAT GROUP, HARLEQUIN LAKE, SOUTHERN ALASKA**
- 24-13 57 Norwood, Lily\*; Davidson, Cameron; Garver, John I.; Thota, Rohit: **METAMORPHIC ROCKS OF THE BOUNDARY BLOCK PROVIDE A LINK TO THE CHUGACH-PRINCE WILLIAM TERRANE ACROSS THE FAIRWEATHER FAULT, ALASKA**
- 24-14 58 Foran, Jack\*; Roeske, Sarah; Waldien, Trevor S.; Benowitz, Jeffrey A.: **WHAT CAN POST-COLLISION PLUTONIC EVENTS TELL US ABOUT THE TECTONIC HISTORY OF THE ALASKA RANGE SUTURE ZONE?**
- 24-15 59 Rowe, Jonathan D.\*; Sisley, Hope M.; Wolhowe, Matthew; Sachs, Julian P.; Licht, Alexis: **INVESTIGATING THE UPLIFT CHRONOLOGY OF THE CASCADE MOUNTAINS WITH THE ISOTOPIC COMPOSITION OF LIPID BIOMARKERS**
- 24-16 60 Hostettler, Eve I.\*; Waters, Laura E.; Roeske, Sarah M.; Mookerjee, Matty: **INVESTIGATING AMPHIBOLE COMPOSITIONS FROM HIGH-GRADE AMPHIBOLITE IN THE BEAR MOUNTAIN HIGH STRAIN ZONE**
- 24-17 61 Geddie, Virginia\*; Johnston, Scott M.; Kylander-Clark, Andrew R.C.: **DETRITAL ZIRCON GEOCHRONOLOGY AND GEOCHEMISTRY OF THE SOUTHERN CALIFORNIA CRETACEOUS FOREARC BASIN, SANTA YNEZ MOUNTAINS, CALIFORNIA**
- 24-18 62 Mocha, Nick\*; Littleton, Shelby; Johnston, Scott M.; Chapman, Alan D.; Kylander-Clark, Andrew R.C.: **ZIRCON PETROCHRONOLOGY OF SALINIAN ARC MIDDLE CRUST, EASTERN SANTA LUCIA MOUNTAIN, CALIFORNIA**
- 24-19 63 Torres, Jeremy A.\*; Akciz, Sinan: **TIMING OF DEFORMATION ALONG THE BORREGO SPRINGS SHEAR ZONE, IMPERIAL COUNTY, CALIFORNIA**
- 24-20 64 Polcino, Christina\*; Houchin, Shane; Sinha, Simmi; Jory, Billyjack; Wernicke, B.P.: **CORRELATION OF THE MORMON PEAK AND PETROGLYPH DETACHMENTS IN THE SOUTHERN MORMON MOUNTAINS, SOUTHERN NEVADA**
- 24-21 65 Smeets, Alexander J.\*; Isava, Virginia; Grove, Marty J.; Mahoney, Brian J.: **THERMAL HISTORY DETERMINATION OF THE BOULDER BATHOLITH, MONTANA THROUGH <sup>40</sup>AR/<sup>39</sup>AR THERMOCHRONOLOGY**
- 24-22 66 Baird, Chris M.\*; Mueller, Megan A.; Pierce, Derek; Schwartz, Theresa M.; Licht, Alexis: **DETRITAL ZIRCON STRATIGRAPHY OF PERMIAN TO MIOCENE STRATA FROM DILLON AREA, SW MONTANA, AND IMPLICATIONS FOR REGIONAL CORDILLERAN TECTONICS**
- 24-23 67 Yeager, Karen I.\*: **THE NATURE OF INTERPRETED ASH BEDS OF THE PERMIAN SALAGOU FORMATION**
- 24-24 68 Yandle, Matthew\*; Fidler, Mary Kate: **VOLCANIC HISTORY AND TECTONIC ASSOCIATION OF LAVAS OF THE BLACK HILLS AND RIVERBED BUTTE, SOUTH-CENTRAL OREGON: NEW WHOLE ROCK MAJOR AND TRACE ELEMENT GEOCHEMISTRY AND GEOLOGIC MAPPING**
- 24-25 69 Ross, Nathaniel\*; Browne, Brandon: **PETROLOGY AND GEOCHEMISTRY OF THE GRANITE BUTTE PORPHYRY, COAST RANGE, HUMBOLDT COUNTY, CALIFORNIA**
- 24-26 70 Graham, Mariah\*; Browne, Brandon: **BANDED PUMICE IN THE ~180 KA DACITE TUFF OF ANTELOPE WELL, MEDICINE LAKE VOLCANO, CALIFORNIA**
- 24-27 71 Dunn, Samantha\*; Browne, Brandon: **PETROGRAPHY AND GEOCHEMISTRY OF THE HOLOCENE INCONSTANCE LAVA FLOW, HOTLUM CONE, MT. SHASTA, CALIFORNIA**
- 24-28 72 Cristescu, Isabelle\*; Browne, Brandon: **MINERALOGICAL AND TEXTURAL ANALYSIS OF HORNBLende REACTION RIMS IN LAVA FLOWS FROM MOUNT SHASTA, SISKIYOU COUNTY, CA**
- 24-29 73 Rack, Sierra\*; Shimabukuro, David H.: **TRACE-ELEMENT GEOCHEMISTRY AND GEOBAROMETRY FROM OPHIOLITIC ROCKS NEAR GRASS VALLEY, CALIFORNIA**
- 24-30 74 Hager, Jaclyn M.\*; Shimabukuro, David H.: **GEOLOGIC MAPPING AND GEOCHEMISTRY FROM OPHIOLITIC ROCKS NEAR AUBURN, CALIFORNIA**
- 24-31 75 Willow, Nathaniel R.\*; Pluhar, Christopher J.: **RECONSTRUCTION OF AN EARLY MIOCENE RIVER CHANNEL IN THE EASTERN SIERRA NEVADA BY CORRELATION OF VOLCANIC DEPOSITS**
- 24-32 76 Pilker, Matthew\*; Knott, Jeffrey R.; Phillips, Fred M.; Jayko, Angela S.; Lackey, Jade Star: **GEOCHEMISTRY OF BASALTS AND TRACHYANDESITES IN NORTHERN OWENS VALLEY, INYO COUNTY, CALIFORNIA**
- 24-33 77 Martinez, Priscilla R.\*; Knott, Jeffrey R.; Heizler, Lynn L.; Sarna-Wojcicki, Andrei M.: **TEPHROCHRONOLOGY OF THE MODELO FORMATION, BALCOM CANYON, VENTURA COUNTY, CALIFORNIA**
- 24-34 78 Bracy, Zachary A.\*; Sengpiehl, Sarah; Putnam, Roger L.: **AN INVESTIGATION OF AMYGDALOIDAL BASALT IN THE CONEJO VOLCANICS FORMATION, SANTA MONICA MOUNTAINS, CALIFORNIA**
- 24-35 79 Ivey, Kyle R.\*; Bailey, Brittany K.; Stapel, Joshua K.; Green, Michaela K.; Putnam, Roger L.: **THE HOMOGENEITY (OR LACK THEREOF) OF THE DIKES OF THE WESTERN SANTA MONICA MOUNTAINS, CALIFORNIA**
- 24-36 80 Oliver, Patrick B.\*; Levenson, Zachary; Putnam, Roger L.: **COMPOSITIONAL HETEROGENEITY OF THE JOSEPHINE MOUNTAIN INTRUSION**
- 24-37 81 Pena, Vanessa\*; Van Buer, Nicholas J.: **USING GEOCHEMISTRY AND GEOCHRONOLOGY TO STUDY CRYPTIC INTRUSIVE CONTACTS IN THE CRETACEOUS WESTERN MOJAVE BATHOLITH**
- 24-38 82 Capurro, Twyla J.\*; Aird, Hannah M.: **COPPER SULFIDE MINERALIZATION WITHIN GRANODIORITE AND PORPHYRITIC QUARTZ MONZONITE OF THE ANN MASON PORPHYRY DEPOSIT IN THE YERINGTON MINING DISTRICT, NEVADA**
- 24-39 83 Claiborne, Justin R.\*; Aird, Hannah M.: **ANALYZING COPPER MINERALIZATION WITHIN THE HYDROTHERMAL ALTERATION AND MINERAL ASSEMBLAGES WITHIN QUARTZ MONZONITE PORPHYRY SAMPLES AT THE ANN MASON PORPHYRY DEPOSIT, LYON COUNTY, NEVADA**

## AFTERNOON ORAL TECHNICAL SESSIONS

### SESSION NO. 25

#### *D8. The Origin and Spatiotemporal Evolution of Arc Magmas Recorded From Mineral to Plate-Boundary Scales II*

1:30 PM, The Westin Pasadena, Plaza Room

Vali Memeti, Calvin G. Barnes and Barbara Ratschbacher, Presiding

#### 1:30 PM INTRODUCTORY REMARKS

- 25-1 1:35 PM Oppenheim, Louis F.\*; Memeti, Valbone; Barnes, Calvin G.; Chambers, Melissa; Esposito, Rosario: **FELDSPAR RECYCLING ACROSS MAGMA MUSH BODIES DURING THE VOLUMINOUS HALF DOME AND CATHEDRAL PEAK STAGES OF THE TUOLUMNE INTRUSIVE COMPLEX, YOSEMITE NATIONAL PARK, CALIFORNIA**
- 25-2 1:55 PM Memeti, Vali\*; Barnes, Calvin G.; Oppenheim, Louis F.; Werts, Kevin; Chambers, Melissa; Paterson, Scott R.: **THE FORMATION AND EVOLUTION OF THE TUOLUMNE INTRUSIVE COMPLEX FROM THE PERSPECTIVE OF ITS MINERALS**
- 25-3 2:15 PM Paterson, Scott R.\*; Ardill, Katie E.; Attia, Snir; Memeti, Valbone; Miller, Robert B.; Scheland, Cullen: **EVALUATING COUPLED INTERNAL GROWTH AND HOST ROCK DISPLACEMENT MODELS FOR THE TUOLUMNE INTRUSIVE COMPLEX, SIERRA NEVADA, CA**

- 25-4 2:35 PM Hirt, William H.\*: **INSIGHTS FROM ZIRCON CHEMISTRY ON THE CRYSTALLIZATION HISTORY OF THE WHITNEY PLUTON, SIERRA NEVADA, CALIFORNIA**
- 2:55 PM **BREAK**
- 25-5 3:10 PM Barnes, Calvin G.\*; Fuston, Spencer; Fly, Lara: **ASHLAND PLUTON (KLAMATH MOUNTAIN PROVINCE) REVISITED: THE VIEW FROM MINERAL COMPOSITIONS AND ZONING**
- 25-6 3:30 PM Angulo, Alejandra\*; Barnes, Calvin G.: **TRACE ELEMENTS IN CPX AND HBL REVEAL MAGMA BATCHES AND CRYSTAL ACCUMULATION IN THE IRONSIDE MOUNTAIN PLUTON, KLAMATH MOUNTAINS, CA**
- 25-7 3:50 PM Martinez-Ardila, Ana Maria\*; Memeti, Vali; Paterson, Scott R.; Esposito, Rosario; Chambers, Melissa: **PLAGIOCLASE FORENSICS AS A TOOL TO DETERMINE THE NATURE OF GABBRO: MANTLE-MELT OR CRYSTAL CUMULATE?**
- 4:10 PM **DISCUSSION**
- 25-8 4:30 PM Morris, Rebecca\*; Canil, Dante: **MAGMA-CARBONATE INTERACTIONS WITHIN THE JURASSIC BONANZA ARC, VANCOUVER ISLAND**
- 25-9 4:50 PM Fred, Riikka Maria\*; Heinonen, Aku; Heinonen, Jussi S.: **EQUILIBRIUM CRYSTALLIZATION OF MASSIF-TYPE ANORTHOSITE RESIDUAL MELTS**
- 5:10 PM **CONCLUDING REMARKS**

## SESSION NO. 26

### *D9. Using Geological Archives to Understand and Document Earth Surface Processes and Past Climate*

1:30 PM, The Westin Pasadena, Madera Room

Matthew E. Kirby, Joseph Carlin, Andrew B. Gray, Elizabeth Fard, Jessie George, Jiwoo Han, Kathleen R. Johnson and Glen Sproul dit MacDonald, Presiding

- 26-1 1:30 PM Springer, Kathleen B.\*; Pigati, Jeffrey S.: **THE REGIONAL HYDROLOGIC RESPONSE OF DESERT WETLANDS IN THE AMERICAN SOUTHWEST TO QUATERNARY CLIMATE CHANGE**
- 26-2 1:50 PM Wright, Kevin Timothy\*; Johnson, Kathleen R.; McGee, David; Serrato Marks, Gabriela; Bhattacharya, Tripti; Goldsmith, Gregory: **DID THE PACIFIC STORM TRACK REACH NORTHEAST MEXICO DURING THE LAST GLACIAL MAXIMUM?**
- 26-3 2:10 PM Mychajliw, Alexis M.\*; Rice, Karin; Tewksbury, Laura; George, Jessie; Ellwood, Elizabeth; Southon, John; Lindsey, Emily: **A STRATIGRAPHICALLY INTACT, PRE-LAST GLACIAL MAXIMUM WOODRAT MIDDEN AND ASSOCIATED VEGETATION FROM RANCHO LA BREA**
- 26-4 2:30 PM Carlin, Joseph\*; Schreiner, Kathryn; Dellapenna, Timothy; Smith, Richard: **EVIDENCE OF RECENT FLOOD DEPOSITION WITHIN A DISTAL SHELF DEPOCENTER AND THE IMPLICATIONS FOR TERRESTRIAL CARBON PRESERVATION IN NON-DELTAIC SHELF SETTINGS**
- 26-5 2:50 PM Guiling, James J.\*; Gray, Andrew; Barth, Nicolas C.; Fong, Brandon T.: **POST-WILDFIRE SEDIMENT TRANSFERS FROM DRAINAGE DIVIDES TO ALLUVIAL FANS DOCUMENTED WITH NESTED SCALES OF TOPOGRAPHIC MONITORING**
- 26-6 3:10 PM Gray, Andrew\*; McDonnell, Julianna; Behrens, Dane: **CHANGING DEPOSITIONAL REGIMES IN THE HUMAN IMPACTED ESTUARY OF A SMALL, MOUNTAINOUS WATERSHED**
- 3:30 PM **BREAK**
- 26-7 3:45 PM Gurrola, Larry\*; Rogers, J. David: **GEOLOGIC HAZARDS DUE TO LANDSLIDE DAMS IN THE COLD SPRINGS AND HOT SPRINGS WATERSHEDS, MONTECITO, COUNTY OF SANTA BARBARA, CALIFORNIA**
- 26-8 4:05 PM Manopkawee, Pichawut\*; Kirby, Eric: **GRAIN-SIZE VARIATIONS AND COUPLED CHANNEL-HILLSLOPE**

## EVOLUTION ALONG A TECTONIC GRADIENT, BOLINAS RIDGE, CALIFORNIA

- 26-9 4:25 PM Hernandez, Emilia Sakai\*: **CHANGES IN THE SULFUR CYCLE AROUND THE 2.63 GA GIANT IMPACT RECORDED IN THE MONTEVILLE FORMATION, SOUTH AFRICA**
- 26-10 4:45 PM Woods, Adam\*; Beach, Alyssa M.; Caesar, Kylie; Chen, Nancy M.; Hernandez, Edween Leonel; Leeper, Robert J.; Santos, Gabriel-Philip: **SEDIMENTOLOGY AND GEOCHEMISTRY OF THE LOWER TRIASSIC (SPATHIAN) SILVER LAKE FORMATION**
- 26-11 5:05 PM Murray, Bryan P.\*; Hames, Willis E.: **SYNEXTENSIONAL DEPOSITION OF THE EARLY MIOCENE JACKHAMMER AND PICKHANDLE FORMATIONS IN THE CALICO MOUNTAINS, SOUTHERN CALIFORNIA: IMPLICATIONS FOR THE TIMING OF INITIAL EXTENSION OF CENTRAL MOJAVE METAMORPHIC CORE COMPLEX**

## SESSION NO. 27

### *T9. The Enigmatic Late Cretaceous-Paleogene Tectonic Evolution of the Southwestern USA*

1:30 PM, The Westin Pasadena, San Rafael

Richard V. Heermance, Scott M. Johnston and John S. Singleton, Presiding

- 27-1 1:30 PM Pedrick, Fiona\*; Vogl, James J.; Rusmore, Margaret E.; Borel, Megan: **DISTRIBUTION AND AGE OF DUCTILE STRAIN BETWEEN TWO DETACHMENT FAULTS IN THE FOOTWALL OF THE PIONEER METAMORPHIC CORE COMPLEX**
- 27-2 1:50 PM Cawood, Tarryn K.\*; Moser, Amy C.: **NEW AGE CONSTRAINTS ON LATE CRETACEOUS THRUSTING AND ASSOCIATED GOLD MINERALIZATION IN SE CALIFORNIA**
- 27-3 2:10 PM Barba, William K.\*; Wells, Michael L.; Heizler, Matthew T.; Turner, Elijah: **TECTONIC EVOLUTION OF THE NORTHERN PANAMINT RANGE, SOUTHEASTERN CALIFORNIA: EVIDENCE FOR SYNCONVERGENT LATE CRETACEOUS EXTENSIONAL COLLAPSE OF THE SEVIER-LARAMIDE OROGEN**
- 27-4 2:30 PM Chapman, James B.\*; Runyon, Simone E.; Barth, Andrew: **THE NORTH AMERICAN CORDILLERAN ANATECTIC BELT AND LARAMIDE-AGE CRUSTAL MELTING IN THE SOUTHWEST US**
- 2:50 PM **BREAK**
- 27-5 3:05 PM Economos, Rita C.\*; Friesenhahn, Brody P.; Barth, Andrew P.; Wooden, Joseph L.; Powell, Robert E.; Paterson, Scott R.; Anderson, J. Lawford; Ianno, Adam J.: **CHARACTER OF LATE CRETACEOUS MAGMATISM SPANNING THE TRANSITION FROM SUBDUCTION TO LARAMIDE OROGENESIS IN THE WESTERN/CENTRAL MOJAVE REGION**
- 27-6 3:25 PM Sloan, Hanah\*; Heermance, Richard V.; Cecil, M. Robinson; Sousa, Francis J.; Barajas, Andrew; Pina, Isabel: **RAPID SUBSIDENCE AND COLLAPSE OF THE EOCENE CORDILLERAN MARGIN AND DEPOSITION OF THE MANIOBRA FORMATION, CA**
- 27-7 3:45 PM Miller, D.E.\*; Torres Andrade, Eneas; Montejo, Carlos: **PROVENANCE, PALEOGEOGRAPHY, AND CROSS-FAULT CORRELATIONS OF LATE CRETACEOUS-PALEOGENE POLYCYCLIC FLUVIAL AND SHALLOW MARINE CONGLOMERATES, WESTERN MOJAVE, COAST RANGES, AND TEHACHAPI MTNS, CA**
- 27-8 4:05 PM Lacroix, Brice J.\*; Ward, Christine; Lahfid, Abdeltif; Niemi, Nathan A.; Spencer, Joel; Kempton, Pamela D.: **DYNAMICS OF THE POST-SUBDUCTION THERMAL ANOMALY OF THE NACIMIENTO BLOCK REVEALED BY RSCM AND (U-TH/HE) THERMOCHRONOLOGY**

# THURSDAY, 14 MAY 2020

## MORNING ORAL TECHNICAL SESSIONS

### SESSION NO. 28

#### *T7. Integrated Subduction Zone Systems: Advances in Understanding Landscape Evolution, Deformation, and Tectonics*

8:00 AM, The Westin Pasadena, Plaza Room

Melanie J. Michalak, Francis Sousa and Rebecca Dorsey, Presiding

- 28-1** 8:00 AM Riggs, Nancy R.\*; Navas-Parejo, Pilar; Martini, Michelangelo; Pringle, Claire K.: **NEW DETRITAL ZIRCON DATA FROM THE WESTERNMOST OUACHITA-MARATHON-SONORA SUTURE BELT: IMPLICATIONS FOR WESTERN LAURENTIAN TECTONICS AND CLOSURE OF THE RHEIC OCEAN**
- 28-2** 8:20 AM Vaughn, Lochlan W.\*; Leary, Ryan J.: **PENNSYLVANIAN-PERMIAN EVOLUTION OF THE DARWIN BASIN: A BASIN DEVELOPED OVER THE NASCENT CORDILLERAN SUBDUCTION ZONE**
- 28-3** 8:40 AM Wakabayashi, John\*: **EXPOSURES AT BLIND AND NORTH SHELL BEACHES, SONOMA COUNTY COAST, CALIFORNIA: INSIGHT INTO MÉLANGE-FORMING PROCESSES AND SUBDUCTION SLIP ACCOMMODATION**
- 28-4** 9:00 AM Biasi, Joseph A.\*; Sousa, Francis J.; Acito, Sydney: **ROTATION OF THE OREGON COAST RANGE: A CAUTIONARY TALE**
- 9:20 AM **BREAK**
- 28-5** 9:35 AM Armentrout, John M.; Darin, Michael H.\*; Dorsey, Rebecca J.; Cooke, Sam S.: **INITIATION, UPLIFT, AND ISOLATION OF THE COOS BAY BASIN, SOUTHWESTERN OREGON: NEW INSIGHTS FROM U-PB DETRITAL ZIRCON DATA**
- 28-6** 9:55 AM Dorsey, Rebecca J.\*; Michalak, Melanie J.; Sousa, Francis J.; Acito, Sydney: **LATE CRETACEOUS AGE OF THE DOTHAN FORMATION, SW OREGON: IMPLICATIONS FOR EOCENE GROWTH OF THE NORTHERN KLAMATH MOUNTAINS DURING COLLISION AND ACCRETION OF SILETZIA**
- 28-7** 10:15 AM Acito, Sydney\*; Sousa, Francis J.; Dorsey, Rebecca; Cox, Stephen E.; Hemming, Sidney: **AR-AR DATING OF DETRITAL MICAS FROM THE EARLY EOCENE UMPQUA GROUP, SW OREGON: IMPLICATIONS FOR SEDIMENT PROVENANCE AND PALEORIVER MODELS**
- 28-8** 10:35 AM Michalak, Melanie J.\*; Kinser, Dylan; Morales, Edward; Acito, Sydney; Dorsey, Rebecca J.; Sousa, Francis J.: **PALEOTOPOGRAPHY OF THE KLAMATH MOUNTAINS PROVINCE REVEALED BY U-PB DETRITAL ZIRCON AGES AND HF ISOTOPES FROM THE LATE CRETACEOUS TO EOCENE MONTGOMERY CREEK FORMATION**

### SESSION NO. 29

#### *T23. Professional Pathways within the Geosciences*

8:00 AM, The Westin Pasadena, San Rafael

Jennifer Wilson, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 29-1** 8:05 AM Racca, Laurie\*: **50 YEARS OF PROTECTING THE PUBLIC: UNDERSTANDING KEY CONCEPTS IN CALIFORNIA GEOLOGY LICENSE LAWS AND REGULATIONS**
- 29-2** 8:25 AM Ernst, William D.\*: **PROFESSIONAL GEOLOGIST LICENSURE REQUIREMENTS AND THE ASBOG® NATIONAL GEOLOGY LICENSE EXAMINATIONS**

- 8:45 AM **ASBOG AND CALIFORNIA LICENSURE DISCUSSION**
- 29-3** 9:00 AM Godwin, William H.\*: **GEOLOGIC LICENSURE AND PRACTICE IN AN INTERNATIONAL SETTING**
- 29-4** 9:20 AM Eckrich, Gresham David\*: **LICENSURE OPPORTUNITIES IN ENGINEERING GEOLOGY**
- 9:40 AM **INTERNATIONAL AND DUAL LICENSURE DISCUSSION**
- 9:55 AM **BREAK**
- 29-5** 10:10 AM Wilson, Jennifer\*: **AN INTRODUCTION TO CONSULTING GEOLOGY**
- 29-6** 10:30 AM Hitchcock, Christopher\*: **EVOLVING RESPONSIBILITIES OF A PROFESSIONAL ENGINEERING GEOLOGIST AND CONSULTING FIRM OWNER**
- 29-7** 10:50 AM Pridmore, Cynthia L.\*: **UP AND DOWN CALIFORNIA - ONE GEOLOGIST'S PATH TO A GREAT CAREER**
- 11:10 AM **CAREER PATHWAYS DISCUSSION**
- 11:55 AM **CONCLUDING REMARKS**

### SESSION NO. 30

#### *T26. Geology and Geophysics of the Coso Geothermal Field and Source Area of the 2019 Ridgecrest Earthquake Sequence I: A Tribute to the Career of Francis C. ("Frank") Monastero*

8:00 AM, The Westin Pasadena, Madera Room

Allen F. Glazner and J. Douglas Walker, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 30-1** 8:10 AM Bacon, Charles R.\*: **MULTIDISCIPLINARY CHARACTERIZATION OF THE COSO VOLCANIC AND GEOTHERMAL FIELDS FORTY YEARS AGO**
- 30-2** 8:30 AM Burgess, Seth\*; Vazquez, Jorge A.; Coble, Matthew A.: **THE TIMING AND TEMPO OF QUATERNARY RHYOLITE DOME CONSTRUCTION AT THE COSO VOLCANIC FIELD**
- 30-3** 8:50 AM Miller, Jonathan\*; Glazner, Allen; Nebel, Oliver: **MANTLE-DRIVEN RHYOLITE VOLCANISM IN THE PLEISTOCENE COSO VOLCANIC FIELD (CA): THE RADIOGENIC ISOTOPE RECORD**
- 9:10 AM **BREAK**
- 30-4** 9:25 AM Glazner, Allen F.\*; Miller, Jonathan S.: **COSO VOLCANISM IN SPACE AND TIME**
- 30-5** 9:45 AM Chin, Emily J.\*: **XENOLITH CONSTRAINTS ON LITHOSPHERIC ARCHITECTURE BENEATH THE MOJAVE AND SIERRA NEVADA AND IMPLICATIONS FOR INTRAPLATE VOLCANISM**
- 30-6** 10:05 AM Jones, Craig H.\*; Bernardino, Melissa: **A PASSIVE SEISMOLOGICAL VIEW OF THE COSO VOLCANIC SYSTEM**
- 10:25 AM **DISCUSSION**
- 30-7** 10:45 AM Bidgoli, Tandis S.\*; Kurtoglu, Begum; Polun, Sean G.; Walker, J. Douglas; Andrew, Joseph E.; Stockli, Daniel F.: **INTEGRATION OF THE SEARLES VALLEY, PANAMINT VALLEY, AND HUNTER MOUNTAIN FAULTS FROM LOW-TEMPERATURE THERMOCHRONOLOGY**
- 30-8** 11:05 AM Unruh, Jeffrey\*; Monastero, Francis C.; Hauksson, Egill: **COMPOSITE UPPER CRUSTAL SECTION OF A NASCENT METAMORPHIC CORE COMPLEX IN A TRANSTENSIONAL REGIME, COSO RANGE, CALIFORNIA**
- 30-9** 11:25 AM Monastero, Francis C.\*: **THE COSO MYSTIQUE: WHATS THE FUSS?**

## AFTERNOON ORAL TECHNICAL SESSIONS

### SESSION NO. 31

**T15. Petrology, Geochemistry, and Structure of Cordilleran Batholiths through Space and Time (GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; GSA Structural Geology and Tectonics Division)**

1:30 PM, The Westin Pasadena, Plaza Room

Madeline J. Lewis, Claire E. Bucholz, Jade Star Lackey and Juliet Ryan-Davis, Presiding

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|      | 1:30 PM | <b>INTRODUCTORY REMARKS</b>  |
| 31-1 | 1:40 PM | Schwartz, Joshua*; Lackey, Jade Star; Miranda, Elena A.; Akciz, Sinan O.: <b>THE SOUTHERN CALIFORNIA BATHOLITH FLARE-UP: HIGH-TEMPERATURE ARC PROCESSES DURING FLAT SLAB COLLISION?</b>  |
| 31-2 | 2:00 PM | Grove, M.J.*; Kimbrough, David L.: <b>INSIGHTS INTO THE ASSEMBLY OF THE PENINSULAR RANGES BATHOLITH AND THE NATURE OF PRIMITIVE BASEMENT THAT UNDERLIES ITS WESTERN AND SOUTHERN EXTENT</b>  |
| 31-3 | 2:20 PM | Wolterman, Anya*; Chapman, Alan D.: <b>A DEEP GLIMPSE INTO THE PENINSULAR RANGES BATHOLITH: ZIRCON GEOCHRONOLOGY AND HF ISOTOPIC INSIGHTS FROM GRANULITE XENOLITHS OF THE SAN QUINTIN VOLCANIC FIELD, BAJA CALIFORNIA</b>  |
| 31-4 | 2:40 PM | Gevedon, Michelle*; Clemens-Knott, Diane; Duccini, Kalie M.: <b>COUPLED ZIRCON HAFNIUM AND OXYGEN ISOTOPES OF LOW MG# GABBROS: MIXING BETWEEN PARTIAL MELTS OF CONTINENTAL CRUST AND DEPLETED MANTLE IN THE DEEP ARC LITHOSPHERE, SOUTHEASTERN SIERRA NEVADA</b> |
|      | 3:00 PM | <b>BREAK</b>   |
| 31-5 | 3:15 PM | Hruska, Grace*; Lackey, Jade Star; McCarty, Kyle R.: <b>THE MONARCH DIVIDE INTRUSIONS: TRANSITIONAL MAGMATISM IN THE SIERRAN ARC</b>   |
| 31-6 | 3:35 PM | Glazner, Allen F.*; Bartley, John M.; Coleman, Drew S.: <b>THE ROCKS DON'T LIE, BUT PLUTONS SPEAK A LANGUAGE THAT IS EASY TO MISINTERPRET</b>  |
| 31-7 | 3:55 PM | Clemens-Knott, Diane*; Surpless, Kathleen DeGraaff; Barth, Andrew P.; Wooden, Joseph L.; Gevedon, Michelle L.: <b>USING DETRITAL ZIRCON GEOCHEMISTRY TO STUDY DEEP ARC PROCESSES</b>   |
| 31-8 | 4:15 PM | Isava, Virginia*; Grove, Marty; Mahoney, J. Brian: <b>PB ISOTOPIC VARIATION OF CRETACEOUS ARC CRUST IN THE PACIFIC NORTHWEST, U.S.A. AND CANADA</b>  |
|      | 4:35 PM | <b>DISCUSSION</b>  |

### SESSION NO. 32

**T26. Geology and Geophysics of the Coso Geothermal Field and Source Area of the 2019 Ridgecrest Earthquake Sequence II: A Tribute to the Career of Francis C. ("Frank") Monastero**

1:30 PM, The Westin Pasadena, Madera Room

Allen F. Glazner and J. Douglas Walker, Presiding

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| 32-1 | 1:30 PM | Hauksson, Egill*; Jones, Lucile M.: <b>SEISMOTECTONICS, SEISMICITY, AND STRESS STATE OF THE RIDGECREST-COSO REGION FROM THE 1930S THROUGH 2019</b>  |
| 32-2 | 1:50 PM | Im, Kyungjae*; Avouac, Jean-Philippe: <b>AFTERSHOCKS OF RIDGECREST EARTHQUAKES SUPPRESSED BY THERMAL DE-STRESSING IN COSO GEOTHERMAL FIELD</b>  |
| 32-3 | 2:10 PM | Andrew, Joseph E.*; Walker, J. Douglas: <b>NEW INSIGHTS FROM THE 2019 RIDGECREST EARTHQUAKES INTO THE EVOLVING ACCOMMODATION OF TRANSVERSE DEXTRAL-SLIP INTO THE THROUGH-GOING SINISTRAL-SLIP GARLOCK FAULT ZONE</b>  |
|      | 2:30 PM | <b>BREAK</b>  |
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| 32-5 | 3:05 PM | Jordan, Frank F.*; Wagner, Miles; Cato, Kerry; Working Group, Searles Valley: <b>GROUND SURFACE RUPTURE MAPPING OF FAULTS IN THE RIDGECREST-TRONA FAULT COMPLEX AND EARTHQUAKE SEQUENCE</b>   |
| 32-6 | 3:25 PM | Bartley, John M.*; Glazner, Allen F.; Kylander-Clark, Andrew; Coleman, Drew S.; Frazer, Ryan E.: <b>MODERN DEFORMATION AND VOLCANISM IN OWENS VALLEY REACTIVATES A LARAMIDE-AGE SHEAR ZONE</b>  |
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# Events Code of Conduct



The Geological Society of America (GSA) is a premier, international scientific society whose goals and mission are to advance geoscience research and discovery, to provide service to society and to promote stewardship of Earth, within and beyond the geosciences profession. GSA is committed to providing a professional environment at all of our events, welcoming people from diverse backgrounds and wide-ranging points of view. Attending GSA events is a privilege, and we expect all attendees and participants to live up to our pledge to provide Respectful, Inclusive Scientific Events (RISE).

## Applicability

The Events Code of Conduct (the “Events Code”) applies to all GSA events, including meetings, field trips, short courses, mentorships, and other GSA-supported programs. The Events Code also applies to individuals who submit abstracts and make presentations at oral or poster sessions. All registrants, speakers, session chairs, guests, volunteers, exhibitors, GSA staff, service providers, and others in attendance are expected to abide by this Events Code.

In addition, GSA members, affiliate members, fellows, honorary fellows, and any non-member who participates in a GSA program or activity must comply with GSA’s Code of Ethics. GSA-sponsored programs and activities include, but are not limited to, GSA meetings, publications, honors and awards, as well as appointed, elected, and volunteer positions.

## Expected Behavior – Professional Conduct at Events

- Treat others with respect and consideration.
- Be considerate, collegial, and collaborative.
- If a presenter or session chair indicates that photographs of slides or poster are not allowed, honor this preference.
- Communicate openly, with civil attitudes, critiquing ideas rather than individuals.
- Avoid personal attacks directed toward other event registrants, guests, volunteers, exhibitors, GSA staff, service providers, and all others in attendance.
- If you choose to drink when alcohol is available at GSA events, or consume other legal intoxicants, do so responsibly, safely, and without compromising your duty to act in a professional manner.
- Obey the rules and policies of the meeting venue, hotels, GSA-contracted facility, or any other venue where your meeting badge and GSA affiliation is likely to be displayed.
- Pay attention to your surroundings and other participants. If you notice a dangerous situation or someone in distress, call 911 or alert facility security personnel or GSA staff/ leadership.

## Expected Behavior – Abstracts, Meeting Presentations, and Photography at Meetings

The submission of an abstract implies a sincere intent to attend the meeting and present research. In addition, authors and presenters are expected to:

- Display integrity in disseminating your research.
- Adhere to the content and conclusions of abstracts, as submitted and reviewed.
- Remain gracious by offering collaborators the opportunity for recognition as a co-author.
- Make sure that listed co-authors have made a bona fide contribution to the project, are aware of their inclusion, and have accepted that recognition.
- Be diligent in preparing a polished product that conveys high quality scholarship.
- Take responsibility for choosing whether or not to allow photographs of your slides or posters and communicating your preference to the audience. (If you prefer not to allow photographs, GSA will provide you with tools to communicate your preference, e.g., no-photo image for your slides, talking points)

## Unacceptable Behavior includes but is not limited to:

- Do not engage in harassment, intimidation, bullying, or discrimination in any form.
- Do not make verbal comments related to gender, sexual orientation, disability, physical appearance, body size, race, religion, national origin or any other identified characteristic outlined in the GSA Diversity Position Statement ([https://www.geosociety.org/positions/pos15\\_Diversity.pdf](https://www.geosociety.org/positions/pos15_Diversity.pdf)).
- Do not display nudity and/or sexual images in public spaces or in presentations.
- Do not touch or make physical contact with anyone unless you know the contact is welcome.
- Do not make real or implied threats of, physical, professional or financial harm.
- Do not stalk registrants, guests, volunteers, exhibitors, GSA staff, service providers, or other attendees.
- Do not physically or verbally abuse any registrant, guest, volunteer, exhibitor, GSA staff, service provider, or other attendee.
- Do not disrupt presentations at oral or poster sessions, in the exhibit hall, on field trips, or at other events organized by GSA at the meeting venue, hotels, or other GSA-contracted facilities.
- Do not take pictures or make audio or video recordings after a presenter or convener has communicated that such images are not allowed.
- Do not drink or use other legal intoxicants to the extent that your ability to act professionally is compromised.

## Consequences of Unacceptable Behavior

- Anyone requested to stop unacceptable behavior is expected to comply immediately.
- GSA may take any action(s) deemed necessary and appropriate, including but not limited to the immediate removal from the meeting, field trip, or other event without warning or refund.
- GSA reserves the right to prohibit attendance at any future GSA meeting or other GSA-sponsored event.

## Reporting Unacceptable Behavior

If you experience behavior that appears to violate this policy or you have witnessed such behavior, please immediately notify anyone wearing a RISE button and/or a GSA staff member or a GSA member with a designated leadership position (i.e., GSA President, GSA Councilor, GSA Section Officer, GSA field trip leader). You also may report the behavior by emailing GSA at [ethics@geosociety.org](mailto:ethics@geosociety.org) or by calling (720) 507-7523.

## Recommended Procedures to be followed in an emergency situation:

- Evaluate the situation and if appropriate call 911 or activate a local fire alarm.
- If you witness a crime or behavior that constitutes an immediate or serious threat to public safety, make sure you keep yourself safe. Follow the directions of facility security, public safety personnel, or GSA staff.
- Initiate first aid based on need and your training.
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