

Inland Geological Society

August 2017

Newsletter of the Inland Geological Society

Volume 33 No. 8

Next Meeting:
Wednesday
August 2nd

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

Location:
LSA Associates
1500 Iowa Ave
Suite 200
Riverside, CA
92507
(Map on Pg. 5)

Coming to
Dinner?
Please RSVP
by Monday 7/31
(951) 232-0430
rkolenko90@gmail.com

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August Speaker:

Rachel Kolenko

Recent MS Graduate, Geological Sciences, University of California, Riverside

Modeling the Size Frequency Distributions of the Trilobite *Aulacopleura koninckii* and its Implications for Understanding Trilobite Biology and Preservation Potential

Abstract:

Trilobites were a diverse group of Paleozoic marine arthropods whose growth was characterized by exoskeletal ecdysis, or the molting of the outer cuticle. If all sclerites from all growth stages were preserved in a fossil assemblage, the distribution would be expected to be strongly right skewed because all individuals must have passed through smaller molt stages. While not all juveniles survive to large size, the overwhelming majority of observed trilobite size frequency distributions have normal distributions. This study investigates this disparity using a modified version of the method used by Hartnoll and Bryant (1990) to model crab size frequency distributions based on the parameters of instar duration, mortality rate, size per instar, and number of instars. I applied this method to the trilobite *Aulacopleura koninckii*, a Silurian species whose growth is among the best known for any fossil, and for which size-specific assemblages of articulated individuals are recorded. This required a combination of parameters known for *A. koninckii* and other estimates based on living crab biology. Observed growth parameters from *A. koninckii* suggest that this trilobite underwent up to 33 post-protaspid instars separated by 32 post-protaspid molts. A range of low mortality rates (5%, 10%,

(continued on p. 2)

Abstract (continued):

15%) at the first meraspid were assumed based on evidence that this taxon occupied a low predation environment. Assuming a constant recruitment and crab-based estimates of systematic changes in inter-molt duration, I was able to model predicted distributions of *A. koninckii* sizes that matched the largest individuals observed. Estimated life spans of *A. koninckii* according to these parameters ranged between 1 and 20 years. Although fitting the observed size range these distributions predicted far greater numbers of smaller specimens than larger ones, but this was not observed in the fossil record. To account for the dearth of smaller individuals, I explored the effect of selective preservation. Simulations suggest that the size frequency distributions observed for *A. koninckii* could be the outcome of either preservation bias against smaller trilobites or events that killed young populations.

Biography:

Rachel Kolenko is a Geologist-in-Training and recent graduate of the University of California, Riverside where she received a Master of Science in Geological Sciences. Throughout her academic career, she has specialized in using computer models to answer questions in paleontology including projects in the morphometric analysis of Graptolite species, heading data collection for a graptolite biostratigraphy project, and studying trilobite development and preservation through computer simulations.

Post-graduation, she has travelled the country visiting national parks, earned her Geologist-in-Training certification, and volunteers as the Secretary of the Inland Geological Society. She currently resides in Fontana, California while seeking employment in the field of geology.

**For Those Working on
Residential/Commercial Development
in Los Angeles County**

The Geotechnical and Materials Engineering Division (GMED) of the County of Los Angeles Department of Public Works is now accepting Building and Grading permit application document submittals through a web application at the following URL: <https://dpw.lacounty.gov/apps/esubmissions/gme/default.aspx>. Permit applications must be filed with Building and Safety before documents can be submitted to GMED because a plan check application number must be provided on the upload screen. First-time users are required to create a site login, which facilitates future submittals and provides contact information should it be determined that additional information is needed to process the submittal. Documents submitted through the web portal include consultant's reports, building/grading plans, permit applications, fee receipts, etc., and must be in Adobe PDF format. Submittal of hard copy (paper) documents to GMED is no longer required. The web application will not accept plan check application numbers for applications filed through Land Development Division and some Contract Cities.

For information on submitting these projects, or for any other questions, please contact GMED at GMED Submittals@dpw.lacounty.gov, or (626) 458-4923.

**CALIFORNIA DEPARTMENT OF CONSERVATION
CALIFORNIA GEOLOGICAL SURVEY**

www.conservation.ca.gov

**ANNOUNCEMENT OF PRELIMINARY REVIEW MAPS OF PROPOSED NEW
AND REVISED EARTHQUAKE FAULT ZONES
JULY 13, 2017**

Preliminary Review Maps of proposed new and revised Alquist-Priolo Earthquake Fault Zones were released to the Cities of Beverly Hills, Culver City, Los Angeles, Napa, Santa Monica, Vallejo, West Hollywood, and the Counties of Los Angeles and Napa by the California Geological Survey (CGS) on July 13, 2017. These maps are released under the authority of the Alquist-Priolo Earthquake Fault Zoning (AP) Act that was passed following the 1971 San Fernando earthquake. The AP Act is a state law designed to reduce the hazard from surface fault rupture during an earthquake.

Earthquake Fault Zones are regulatory zones that encompass surface traces of active faults that have a potential for future surface fault rupture. The index maps below (Figure 1) shows the general location of maps delineating the proposed Earthquake Fault Zones within the affected counties.

Review Comment Period

The July 13, 2017 release date begins a 90-day public comment period designed to provide the opportunity for the State Mining and Geology Board to receive technical review comments that may have a bearing on the proposed Earthquake Fault Zone maps. Comments should be sent to the State Mining and Geology Board before October 11, 2017. Comments should be addressed to:

Jeffrey Schmidt, Executive Officer
State Mining and Geology Board
801 K Street, MS 20-15
Sacramento, CA 95814
(916) 322-1082
smgb@conservation.ca.gov

The State Mining and Geology Board will hold a public hearing near the end of the 90-day review period. For more information on the date and location of the public hearing, contact the State Mining and Geology Board.

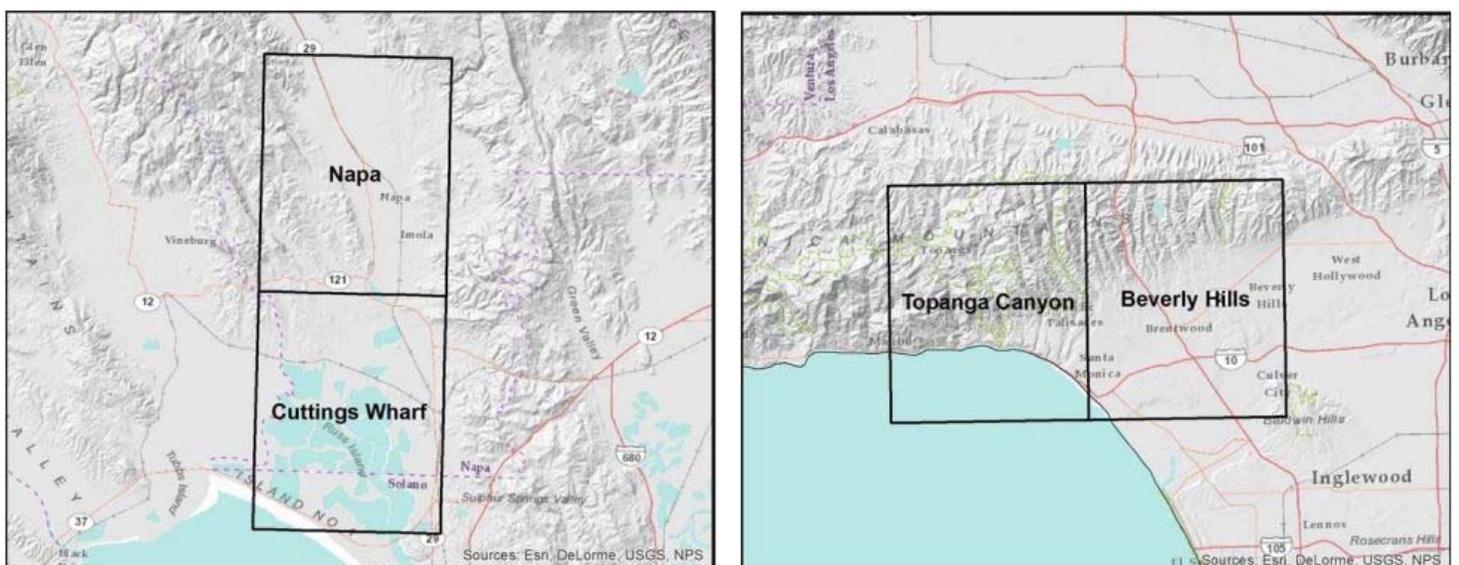


Figure 1. Index of Preliminary Review Maps of proposed new (Napa and Topanga Canyon) and revised (Cuttings Wharf and Beverly Hills) Earthquake Fault Zones issued July 13, 2017.

BPELSG Has TAC Vacancies

The California Board for Professional Engineers, Land Surveyors and Geologists (BPELSG) is currently accepting applications to fill vacancies on its Geology and Geophysicist Technical Advisory Committees (TACs). Please visit their website for more information at www.bpelsg.ca.gov, or contact Laurie Racca at Laurie.Racca@dca.ca.gov or (916) 263-2406.

Invitation to Submit Photos

Do you have an interesting photo to share?

IGS would like to begin publishing photographs submitted by members of **geologic localities or items of interest**. Subjects may include field site geology, field trip localities, mineral specimens, water issues, etc. Be creative! Photos must be your own work product. Submit your exemplary photo with your name, the approximate date and location, and a short (paragraph) description of the photo to any IGS board member for consideration for publication in an upcoming newsletter.

Links to Publications

Each month, Greg Johnson brings published articles to the IGS meeting which may be of interest to members. Selected articles can be accessed in electronic form at <ftp://dpwftp.co.la.ca.us/pub/GMED/geology/NGWA/>.

Thanks, Greg, for making these articles available!

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The California Geological Survey (CGS) is pleased to announce the release of earthquake regulatory zone maps as a web services product that can be incorporated into geographic information systems (GIS). Access to these maps via the internet provides an alternative to downloading individual 7.5-minute quadrangle maps and an automated way to maintain the most up-to-date versions on individual systems. The web-based earthquake hazard zone maps are now available at this URL: https://spatialservices.conservation.ca.gov/arcgis/rest/services/CGS_Earthquake_Hazard_Zones and include:

- Alquist-Priolo Earthquake Fault Zones
- Alquist-Priolo Earthquake Fault Zone Fault Traces
- Seismic Hazard Zones for Earthquake-triggered Landslides
- Seismic Hazard Zones for Liquefaction
- Seismic Hazard Zones for Overlapping Areas of Landslide and Liquefaction
- Areas not evaluated for Landslide and Liquefaction Hazards.

Attributes included with these data provide links to reports on how the maps were prepared and to the PDF cartographic versions. Metadata pages are available at:

- https://maps.conservation.ca.gov/cgs/metadata/SHP_Fault_Zones.html
- https://maps.conservation.ca.gov/cgs/metadata/SHP_Fault_Traces.html
- https://maps.conservation.ca.gov/cgs/metadata/SHP_Landslide_Zones.html
- https://maps.conservation.ca.gov/cgs/metadata/SHP_Liquefaction_Zones.html
- https://maps.conservation.ca.gov/cgs/metadata/SHP_LQLS_Overlap_Zone.html
- https://maps.conservation.ca.gov/cgs/metadata/SHP_Unevaluated.html

Access to the 7.5-minute quadrangle tile data is still available through the CGS Information Warehouse (<http://maps.conservation.ca.gov/cgs/informationwarehouse/>). These data include GIS Shapefiles and metadata, GeoPDF cartographic maps, as well as associated reports.

Upcoming Meetings/Events

Inland Geological Society

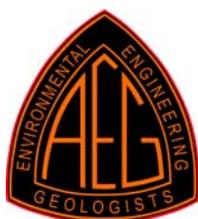
The Inland Geological Society typically meets the first Wednesday or Thursday of each month. Our September meeting will be held on Thursday, September 7th. For more information, visit our website at www.inlandgeo.org.

South Coast Geological Society



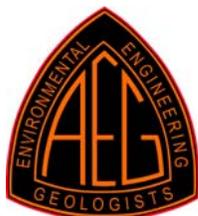
Monthly dinner meetings are typically the 1st Monday of the month at The Hilton DoubleTree Hotel, 7 Hutton Centre Drive, Santa Ana. On Monday, August 7th, Joann Stock, Professor of Geology & Geophysics, and Ryan Witkosky, graduate student, from California Institute of Technology, will share their talk titled "*Recent observations of fault geometries and uplifted surfaces in the Coachella Valley area.*" For more information, visit the association website at www.southcoastgeo.org.

AEG—Southern California Section



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

AEG—Inland Empire Chapter



Monthly dinner meetings are typically the third Wednesday of the month at Pinnacle Peak Steakhouse, 2533 S. La Cadena Drive, Colton. The next meeting of the AEG—Inland Empire Chapter has not been announced yet. For more information, visit the association website at www.aegsc.org/chapters/inlandempire.

San Diego Association of Geologists



The next SDAG meeting will be held on Wednesday, August 9th, as a joint meeting with the Society of Military Engineers. Speakers will be Timu Gallien and Ron Flick. For more information, visit the association website at www.sandiegogeologists.org.

Los Angeles Basin Geological Society



Monthly lunch meetings are typically the 4th Thursday of the month from 11:30 am to 1:00 pm at the Willow Street Conference Center, 4101 E. Willow Street, Long Beach. The next meeting of the Los Angeles Basin Geology Society has not been announced yet. For more information, visit the association website at www.labgs.org.

AEG—60th Annual Meeting



Registration is now open for the AEG 60th Annual Meeting, scheduled for September 10-16, 2017, Antlers Hotel, Colorado Springs, Colorado. For more information and updates, go to www.AEGAnnualMeeting.org.

Geological Society of America (GSA) Annual Meeting

Registration is now open for the GSA Annual Meeting, scheduled for October 22-25, 2017, at the Washington State Convention Center, Seattle, Washington. For more information and updates, go to www.geosociety.org/AnnualMeeting.

Rock & Gem Shows—various locations

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

IGS MEETING LOCATION:

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

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