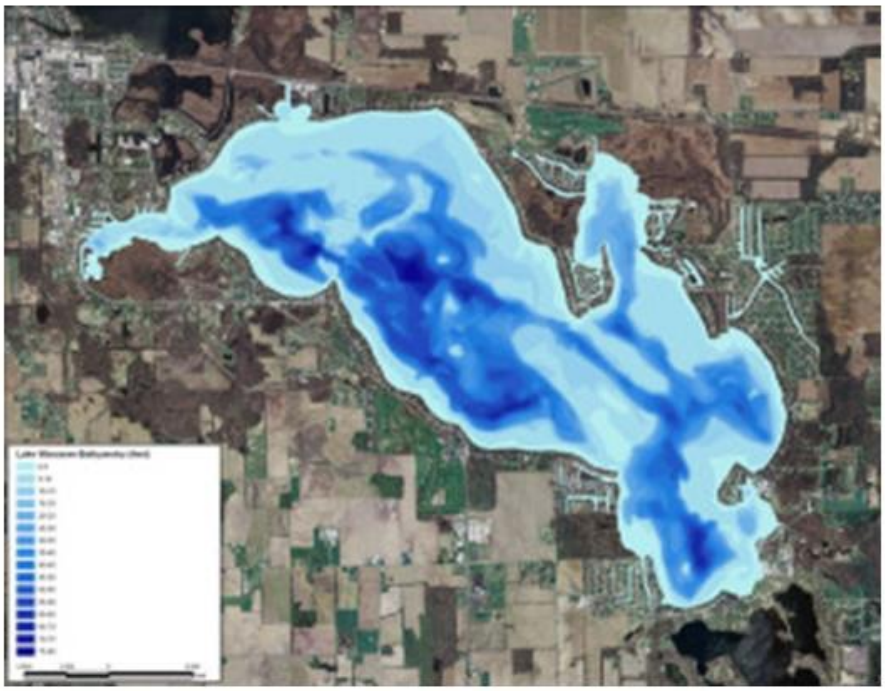
Geological Society of America
Limnogeology Division Newsletter
Volume 16 Number 1
October 2018



Lake Wawasee, Indiana, Bathymetrics
(http://wacf.com/water-quality/lake-bathymetrics/)

Limnogeology Division Newsletter

Volume 16 Number 1

October 2018

Limnogeology Division Officers and Management Board

Scott Starratt – Out going Chair
Geology, Minerals, Energy and Geophysics Science Center
U.S. Geological Survey
345 Middlefield Road
Menlo Park, CA 94025
650-329-4990 (voice)
650-329-5203 (fax)
sstarrat@usgs.gov

Lisa Park-Boush – Incoming Chair
Center for Integrative Geosciences
University of Connecticut
Storrs, CT 06269
860-486-4434 (voice)
lisa.park_boush@uconn.edu

Kathy Benison – Incoming Vice-Chair
Department of Geology and Geography
West Virginia University
98 Beechurst Ave.
Morgantown, WV 26506, USA
(989) 954-0701 (voice)
kcbenison@mail.wvu.edu

Michelle Goman - Secretary and Newsletter Editor
Dept. of Geography and Global Studies
Sonoma State University
Rohnert Park, CA 94928
(707) 664-2314 (direct)
(707) 664-3332 (fax)
goman@sonoma.edu

David B. Finkelstein - Treasurer
Dept. of Geoscience
300 Pulteney Street
Hobart and William Smith Colleges
Geneva, NY 14456
(315) 781-4443 (voice)
finkelstein@hws.edu

Johan C. Varekamp - Past Chair
Dept. of Earth & Environmental Sciences,
265 Church Street
Wesleyan University
Middletown, CT 06459
(860) 685-2248 (voice)
(860) 685-3651 (fax)
jvarekamp@wesleyan.edu

Anne L. Billingsley - Out going Student Representative
Dept. of Geosciences
1040 E. 4th Street
University of Arizona
Tucson, AZ 85721
abillingsley@email.arizona.edu

Sabrina Brown - Incoming Student Representative
Earth and Atmospheric Sciences
University of Nebraska-Lincoln
126 Bessey Hall
Lincoln, NE 68588-0340
sabrina.brown@huskers.unl.edu

David Warburton - Webmaster
Department of Geosciences
Charles E. Schmidt College of Science
777 Glades Road
Florida Atlantic University
Boca Raton, FL 33431
(561) 297-3312 (direct)
warburto@fau.edu

CONTENTS

From the Editor

Michelle Goman
Sonoma State University, Rohnert Park, CA

This edition of the Newsletter contains many items of interest for members: in particular a listing of all the Limnogeology sponsored sessions at Indianapolis is provided.

In this issue several Research Labs are show cased. Please consider submitting an article for the Spotlight on Research labs section for future editions of the newsletter. It is a great way to let the membership know about your research, develop potential collaborations, and attract graduate students.

There are a number of announcements for upcoming workshops (some with fast approaching deadlines).

REMEMBER!!

The newsletter is your forum to share news, events, and accomplishments.

If you would like to share your research, recent publications or images from the field and lab please contact me. Please do send me your news items!

Best

Michelle (goman@sonoma.edu)

Message from the Chair

Scott Starratt
U.S. Geological Survey, Menlo Park, CA

Sadly, my home State recently lost a lake. This wouldn't be a problem if I came from, say, Minnesota, where according to the license plate, there are at least 10,000 of them. But I come from Hawai'i, where until this spring (June 2), there were six lakes. With much fanfare, Madame Pele migrated down the East Rift from Kilauea to Puna and created fissure 8. Along with creating some new acreage along the eastern coast of the Big Island, the waters of Green Lake were vaporized.

As my term as Chair comes to an end, so does my focus on lakes. It's one of the benefits (?) of working for the government. At least for the short term, I will be leaving the sapphire waters of alpine lakes for the saltier waters of the Alaska and California continental shelf and the rocks of the Snake River Plain.

Indianapolis will be a busy place the first week on November (Don't Forget to Vote). The lake activity begins on Saturday with the Limnogeology Division short course "The Changing Face of Limnogeology - Tools and Methods for Analyzing Lacustrine Systems". The course will focus on coring and drilling methods and the services that LacCore and CSDCO can provide, macroscopic and microscopic core description (methods which are far too often ignored), radiocarbon analysis and calibration, and several biological proxies (they aren't as hard to learn as you may think). Support for the short course is being provided by RCN EarthRates, which is keeping the registration costs low ($25 for professionals; $10 for students). There is still space, so please consider joining us for this course.

Division members organized several sessions beginning on Sunday. "Lakes through Space and Time I & II" (T110) will run from 8:00 – 12:00 and 1:30 - 5:30 in Rm 134. The associated poster session will be in Halls J and K on Monday. Authors will be present from 4:30-6:30. Twenty-five years of research in Africa will be presented in a Pardee session (P4 "Human Evolution and Environmental History in Africa: 25 Years of Transformative Research") on Wednesday 8:00-12:00 in the Sagamore Ballroom 5. The associated poster session (T111 "Human Evolution and Environmental History in Africa: 25 Years of Transformative Research") will in Halls J and K on Tuesday. Authors will be present from 4:30-6:30. We are also sponsoring another 19 sessions on topics ranging from agrohydrology and drinking water to springs, lake level change, and microfossils.

On Tuesday night we will have the "Seds and Suds" Joint Awards Reception with the Sedimentary Geology Division. The 2018 I.C. Russell Award will be presented to Sherilyn C. Fritz of the University of Nebraska-Lincoln. The Kerry Kelts Student Research Award will be presented to Ellie Broadman in support of her project "Holocene effective moisture in

south-central Alaska reconstructed from diatom flora and $\delta^{18}O$ diatom at Sunken Island Lake".

Michael Rosen and I continue with the editing of GSA Special Paper 536 "From Saline to Freshwater: The Diversity of Western Lakes in Space and Time". Given the pace of the review and editorial process, the volume will probably be out in 2019. Upon publication, GSA publications will donate $500 to the Kelts Research Fund.

A bit on division demographics. Overall membership dipped in 2017 to 251 members including 67 students. The numbers for 2018 (through mid-summer) have returned to near 2016 levels at 272 members with 82 students. We see a drop in early career members (as most divisions do) but the number of members who have been members for 10 or more years continues to be consistent as members become stable in their careers. About 96% of division members are from North America, most coming from the Northeastern Section (88), followed by the Cordilleran (67) and Rocky Mountain (66) Sections. Besides limnogeology the most popular areas of interest to members are stratigraphy and sedimentology, paleontology, and Quaternary geology.

If your spring 2019 calendar isn't full yet, you might consider attending a section meeting. Check out the following sessions: Cordilleran Section (T28. Lakes across the West: Archives of Climate Change and Storehouse of Economic Resources), combined Rocky Mountain, North-Central and South-Central Sections (T34. Pleistocene Records of Climatic and Environmental Change in the Rocky Mountains, Great Plains, and Midwest), Northeastern Section (T14. Lake Sediments as Archives of Environmental Change), and the Southeastern Section (T6. Limnogeology: Sedimentary Records from Modern and Ancient Lakes). Each one offers the opportunity to showcase your research to a local audience. Section meetings are also a great place to introduce students to the art of making a scientific presentation without the crowds of the annual meeting.

Looking to the 2019 annual meeting in Phoenix (not Denver as previously advertised; if you are interested in why I can tell you the story). Consider proposing a topical session (deadline 2/1/19) or fieldtrip (deadline 12/3/18).

Scott

~*~

Please welcome our new officers

Incoming Chair: **Lisa Park-Boush** *University of Connecticut*

Incoming Vice-Chair: **Kathy Benison** *West Virginia University*

Incoming Student Rep.: ***Sabrina Brown*** University of Nebraska-Lincoln

Message from the Vice-Chair

Kathy Benison

West Virginia University

I am happy to introduce myself as the new vice-chair of the Limnogeology Division of GSA. I am a professor of Geology at West Virginia University who studies the sedimentology, geochemistry, and geomicrobiology of saline lakes and associated continental environments. My research focuses on modern acid saline lakes in Western Australia and Chile, some of which have negative pHs and are 10x saltier than seawater. I also study Permo-Triassic counterparts to these acid saline lake systems, which are represented by red beds and evaporites in the midcontinent of the U.S. and in Northern Ireland. Lake deposits on Mars are a third interest of mine. Check out the photo of Lake Aerodrome in Western Australia. It's small, but mighty and one of my favorite lakes.

Lake Aerodrome, at desiccation stage, covered with an orange crust composed of gypsum, bassanite, halite, and iron oxides.

I'd like to call your attention to two paleo-lake-related events taking place in March, 2019. The International Continental Scientific Drilling Program (ICDP) is sponsoring a workshop entitled "Probing the late Paleozoic icehouse-greenhouse transition" in Norman, Oklahoma on March 7-10, 2019. The goal of this workshop is to develop scientific and logistical plans

for coring Permian continental rocks, including lake deposits, in Oklahoma and western Europe. If interested, please see www.icdp-online.org/fileadmin/icdp/projects/doc/deep-dust/DeepDust_Wksp_Ad.pdf for details.

On Sunday, March 24, a field trip, "The Science and the Industry of the Permian Hutchinson Salt", will be held as part of the 2019 joint GSA sectional meeting to be held in Manhattan, Kansas. This field trip will be held partly underground in a salt mine and participants will examine both bedded halite in the mine walls and in the Atomic Energy Commission 2 core. The jury is still out on the depositional setting of the Hutchinson Salt; it could have been formed in a salt lake! For more information about this field trip, visit www.geosociety.org/GSA/Events/Section_Meetings/GSA/Sections/sc/2019mtg/fieldtrips.aspx.

I look forward to seeing you at the Limnogeology Division booth, our division meeting, and science talk and poster sessions at the upcoming GSA Annual Meeting in Indianapolis.

Kathy

~*~

2019 Kerry Kelts Submission Information

Applications are invited for the Kerry Kelts Research Awards. This year, one award of $1500 for undergraduate or graduate student research related to limnogeology, limnology, or paleolimnology is available. Deadline; 11:59 pm EDT 6/30/19

Prepare your application as a PDF (or PDFs) with your last name in all file names. The application files should contain a research summary and a short CV (two pages max.). The research summary must include a description of the proposed research its limnogeological significance, why the award funds are needed for the project, and a brief description of the student's other funding sources. Be sure to include a title. The maximum length for the summary is five pages, including figures and captions; the list of references cited is not included in this limit. Send your application to Division Chair Lisa Park-Boush, lisa.park_boush@uconn.edu. Please include "Kelts Award application" in the subject line.

~*~

Donate to the Kerry Kelts Award

GSA and the limnogeology Division hope to increase the number of Kelts awards, named for the visionary limnogeologist and inspiring teacher Kerry Kelts, in the future. If you can help support this award, please send your donation, labeled "Kerry Kelts Research Awards of the Limnogeology Division," to GSA at P.O. Box 9140, Boulder, CO 80301-9140, USA.

Kerry Kelts just before receiving the first Bradley Medal at the ILIC meeting in Brest, France. (Photo credit: Michael Rosen).

Spotlight on Research labs

Pioneer Stratigraphy and Paleoenvironments Laboratory at the University of Kentucky

By Michael Mcglue

I'm the director of the Pioneer Stratigraphy and Paleoenvironments Laboratory at the University of Kentucky. My group conducts research on the evolution of Neogene and Quaternary muddy depositional systems from source-to-sink, with a special emphasis on lake basins. We pride ourselves on being field scientists – on average, we spend 2-3 months per year collecting new datasets. We work in some of the most remote and spectacular places in the world, including the East African Rift Valley and the Pantanal wetlands. Closer to home, we've been exploring extant lakes in the eastern Sierra Nevada (California) and the Grand Tetons (Wyoming), as well as paleo-lakes in northern Kentucky. All of our research is accomplished in partnership with an amazing network of collaborators. The common thread of research in the Pioneer Lab is a desire to understand the influence of environmental change on inland aquatic ecosystems, revealed through the lens of fine-grained sediments.

I like to use whatever techniques necessary to attack a problem, so our lab routinely employs sequence stratigraphic analysis, seismic reflection profiling, side scan sonar mapping, sediment coring and core logging, x-ray techniques, petrography, granulometry, geochronology (primarily ^{14}C, and occasionally OSL and U-Pb detrital zircon dating), elemental and isotopic geochemistry of muds, and microfossil analysis. The limnogeology community is quite expert at collecting short sediment cores, and we are increasingly skilled at collecting long scientific drill cores. That said, many basins that contain remarkable sedimentary archives of Earth history will never be drilled, and these records are frequently beyond the reach of traditional short coring techniques. I built the Pioneer Lab's facilities with this challenge in mind. We have one of the few UWITEC percussion piston coring barges in the USA, and we've adapted marine seismic technology for use on small lakes to look deeper into the sub-surface. Recent successes in the field, including the defeat of thick tephras in virtually all lakes of the eastern Sierras by percussion coring and imaging >100 m sub-bottom in the Tetons, are nice illustrations of progress towards recovering exquisite sedimentary records of environmental change from intermediate sub-surface depths.

I'm always looking for new students – anyone interested in graduate studies at UK are encouraged to make contact (michael.mcglue@uky.edu). Research in the near future will place a spotlight on sedimentary records from Lake Tanganyika, where scientific drilling is on the horizon. Proposals for new research on the history of the pelagic food web and how earthquakes shape the stratal record are currently under development, and will need student researchers. I'm also co-chairing a limnogeology session with Eva Lyon at the Southeast GSA section meeting in March 2019 – please submit an abstract and join us in Charleston!

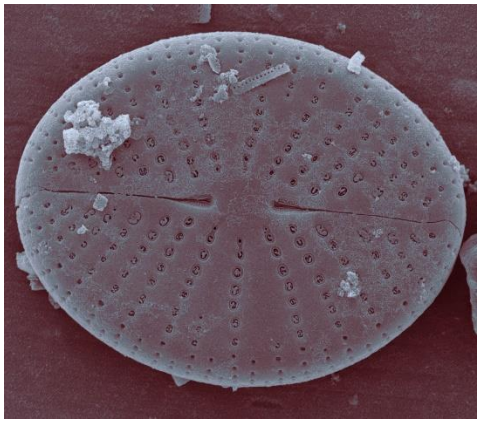
~*~

ISU Paleolimnology Laboratory & ISU Scanning Electron Microscope Laboratory, Indiana State

By Jeffery R. Stone

I am a limnologist/paleolimnologist that broadly specializes in diatom analyses. My research primarily addresses questions about long-term environmental variation. Most of my research focuses on reconstructing changes in lake level or thermal stratification patterns over time, particularly as a means to explore lake response to climate change. I often use classical paleoecology techniques that explore changes in fossil assemblages over time. However, I usually augment these techniques by integrating stratigraphic information from lake core studies with 3-dimensional lake modeling, and prefer to couple these analyses with modern ecological information to provide more robust interpretations. Diatoms are a diverse group that are highly sensitive to changes in multiple environmental parameters; an aspect of my research also usually involves diatom taxonomy. Because of the long timeframes contained in ancient lake records, my research is also well suited for asking questions about diatom speciation and the parameters that may drive diatom evolution in lake systems.

Research projects by my laboratory group at Indiana State covers a wide range of time scales. We explore patterns that range from seasonal variability in modern environments to geologic variability ranging back several million years. While most of the research in my lab group specializes in the analysis of fossil diatom assemblages, my graduate students have developed projects have used many other limnological tools, including charcoal analyses, carbonaceous spherical particles, geochemical analyses, and sedimentological analyses. My students have worked in modern lake and river systems as well, observing patterns in the natural variability, invasive diatom species, and exploring systems that have been substantially affected by human development or recent climate changes.



I have existing diatom research in many modern and ancient lakes in East Africa. These projects include fossil diatom analyses in Lake Malawi, Paleolake Turkana (Kenya), Paleolake Hadar (Ethiopia), Paleolake Mababe (Botswana), and the Baringo Basin (Kenya), Olduvai Gorge, and Kabua Gorge. This research focuses on climate change and diatom paleoecology/evolution that spans from the Pliocene to the Holocene. I also have multiple research projects in the Rocky Mountains (US), including reconstructing drought history, lake stratification, and diatom population dynamics from lakes within and near Yellowstone and Glacier National Parks. There are opportunities for diatom taxonomic research in most of these regions as well as sites in South America and the Himalayas. Many of my recent graduate and undergraduate student projects have also involved reconstruction lake records from Indiana and the surrounding regions, primarily focused on the more recent impacts of anthropogenic development, agricultural pollution, atmospheric pollution, and land use on water quality.

I am currently developing new paleolimnological research initiatives in Lake Tanganyika, Idaho, the Sierras, and sites near the Okavango Delta.

Contact: Jeffery.stone@indstate.edu

~*~

2018 Israel C. Russell Award

The Israel C. Russell Award is awarded for major achievements in Limnogeology through contributions in research, teaching and service.

The 2018 Israel C. Russell Award winner is **Sherilyn C. Fritz** of the University of Nebraska-Lincoln. The award will be presented to Sherilyn at the annual Division Business Meeting on November 6th 6-8pm. We hope to see you there!

2018 Kerry Kelts Student Research Awardee

Ellie Broadman of Northern Arizona University, (Flagstaff, AZ) was awarded the Kerry Kelts Student research award for her proposal entitled: "Holocene effective moisture in south-central Alaska reconstructed from diatom flora and $\delta^{18}O$ diatom at Sunken Island Lake".

MEETING REPORT

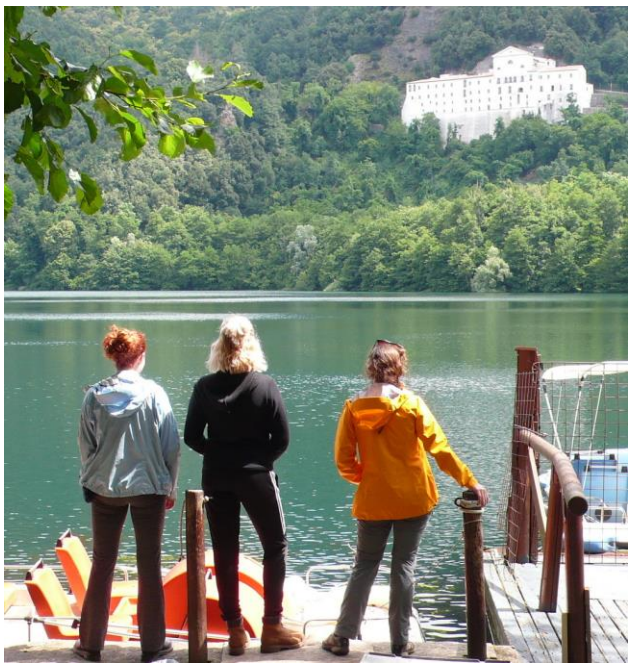
A CVL workshop at the Monticchio crater lakes, Mt. Vulture, Southern Italy (June 25-29, 2018)

Joop Varekamp
Earth & Environmental Sciences, Wesleyan University, Middletown CT USA

In the deep south of Italy (Basilicate) one can find a lonely volcano (Mt Vulture) that harbors two small crater lakes. Monticchio Lago Grande and Lago Piccolo have existed here for more than 140,000 years. The lake deposits of these two lakes have yielded extensive and significant paleoclimate records >100Ka long, despite the fact that the sedimentary records are slightly muddled by volcanic inputs into the lakes. Locally produced organic matter in the sediment cannot be 14-C dated because of the large flux of "dead" volcanic CO_2 into these lakes. But the *volcano giveth and taketh* – after removing the opportunity for ^{14}C dating, volcanic activity provides many ash layers that can be used for tephra chronology, and ultimately led to an age model for these long cores. The modern limnology of these two lakes is strongly influenced by current volcanic inputs, which has been a topic of research for several decades. All reasons enough for a volcanic lake workshop that was held at Monticchio from June 25-29 this year, organized by a committee of international lake researchers under the auspices of the Committee of Volcanic Lakes (CVL), part of IAVCEI. Franco Tassi and Jacopo Cabassi from the University of Firenze, Italy, were the main organizers, with the support of a large group of other limnologists. The aim of this meeting was to bring together limnologists, lake ecologists, and volcanologists to study the intersection of their fields of specialty in these two gassy lakes.

The first day was packed with oral presentations in the abbey of St Michele Arcangelo, overlooking Lago Piccolo. This 12th century Abbadia is also a natural history museum, where we learned that the Mt. Vulture area is host to a rare giant moth that only is "on the wing" for a few weeks a year in spring time (Brahmea Europea or Owl Moth). To regulate water levels, monks from the Abbadia dug a channel between the two lakes more than 800 years ago. The next few days were spent on the water, collectively working in small paddleboats because motorized boats are not allowed. We made physical limnology observations, cored the sediment, sampled water profiles, while other groups determined fluxes of CH_4 and CO_2 from the lake surface and collected bacterial growths from grab samples. All data will be deposited in a common web site with access for all participants, aiming at the collation of a joint paper with data from all participants. Studies of the Monticchio lakes go back many years, especially when after the limnic eruption at Lake Nyos in 1986, other gassy lakes were investigated for their explosive potential. The Monticchio lakes have high internal $P(CH_4)$ and slightly lower $P(CO_2)$, which at mean depth of 10-20m are both still below ebullition, and thus harbor the danger of gas accumulation in the bottom waters. Historical records have documented fish kills and water spouts up to 6 m tall in 1810 and 1820, suggestive for catastrophic overturns of gas-laden bottom waters. The Lago Piccolo waters smell of H_2S, and the bottom waters are O_2 depleted and Fe-rich – water

samples turn orange red in a short time upon exposure to air as a result of iron oxidation. The Lago Piccolo sediment is also difficult to core because upon core retrieval the sediment expands rapidly as a result of the expanding gases, expulsing the core from the barrel. Wherever we made a failed coring attempt, we left a vigorously bubbling spot at the lake bottom! Ultimately we succeeded in taking a 1.5 m long core for lake bed stratigraphy, chemical composition, and especially for a volcanic Hg depositional record.



Lago Piccolo with the abbey and the Wesleyan University, USA, student contingent (left) and (right) "our Piccolo core" of anoxic muds fresh from the lake bottom. This core was kept undisturbed and vertical during the bus trip from the lakes to Rome and during a subsequent train voyage from Rome to Milano to Verbania (border of Italy and Switzerland), where the core was dissected at the "Pallanza lake institute".

Sampling of lake water and dissolved gases. Picture by Sergio Calabrese.

Group picture in Matera. Picture by Jacopo Cabassi.

The evening hours were filled with long Italian dinners with extensive limno-discussions, stimulated by an almost artesian supply of the local red wine. One evening a local cantina

presented a wine tasting event of the silky deep red wines of the region, and although the lakes were not very deep, this led to profound discussions on their origin and evolution. The meeting was concluded with a fieldtrip to the nearby historic town (UNESCO site) of Matera, one of the oldest continuously settled cities in the world (since 10th century BC). In conclusion, the participants (both students, junior and senior scientists) collected many samples, and learned a lot of limnology in a few days, while enjoying the landscape and culture of southern Italy. The CVL website has a report of this meeting and other upcoming events (https://iavcei-cvl.org/). Upon our return to the USA, our group went on for our annual summer fieldwork at the USA-version of the Monticchio lakes: the gassy, twin Newberry crater lakes in Oregon. No ancient abbeys or cities as old as Matera in Oregon, but we are planning a similar workshop in a few years at the Newberry lakes.

~*~

WORKSHOP ANNOUCEMENTS

Workshop Announcement-Scientific Drilling In The Bouse Formation (CA/AZ, USA): Key Records for Understanding the Evolution of the Colorado River and Pliocene Climate in the Southwestern US

(Editor's Note: Fast Approaching Deadline!!!)

Conveners:
Andy Cohen, University of Arizona
Rebecca Dorsey, University of Oregon
Laurie Crossey and Karl Karlstrom, University of New Mexico
Ryan Crow and Kyle House, USGS
Phil Pearthree and Brian Gootee, Arizona Geological Survey

An NSF-funded workshop will be held Feb. 28-March 3, 2019 at the Bluewater Resort, Parker, AZ to develop initial plans for collecting drill cores from the Bouse Formation in the lower Colorado River corridor, with a primary focused on the Blythe Basin. The Bouse Formation is composed of carbonate and siliciclastic facies and is widely thought to record the arrival of the Colorado River. Especially in the southern basins, where drilling will be focused, ongoing controversies center on whether the Bouse deposits formed in entirely lacustrine depositional environments or if at least portions are estuarine or fully marine. This and the subsurface distribution of ancestral Colorado River deposits have important bearings not only on the Colorado River but also the tectonic history of the southwestern Basin and Range Province and the Colorado Plateau. The fine-grained deposits of the Bouse Formation also present an excellent opportunity for reconstructing climate during the Latest Miocene-Pliocene in southwestern North America.

Funding from a collaborative grant from NSF is supporting this 4-day workshop. Discussions will focus on the value of obtaining unweathered and continuous records of Bouse deposition at several depocenters. We will also hold a one-day field trip to examine key outcrop records related to Bouse depositional environment and geochronology controversies, and to visit

potential drill sites and consider logistics and stakeholder considerations of a Bouse drilling campaign. Our objective will be to decide whether a full drilling proposal to NSF or other organizations is warranted based on the science discussions, and if so, to develop an outline strategy for such a proposal, to be developed into a full proposal over the following year.

In addition to funding for key invited participants already involved in studies of the Bouse Formation we anticipate having funds sufficient for 8-10 other participants. Priority will be given to potential participants who could bring analytical or modeling approaches to Bouse drill core studies that are currently unrepresented by the existing science team. Students and participants from under-represented groups are particularly encouraged to apply. All hotel and meal expenses, plus partial to full transportation costs (depending on available funds) will be covered by the conference organizers.

Researchers interested in attending this meeting should submit their CV plus a brief (one page maximum) application letter outlining their science objectives and proposed methods/approaches to sampling Bouse drill cores. Applications and other inquiries about the project should be sent by email to Andrew Cohen, Department of Geosciences, University of Arizona (cohen@email.arizona.edu). The deadline for applications is Oct. 30, 2018.

~*~

February 17-20th, 2019
PACLIM 2019
Extreme Events

The theme for Paclim2019 will focus on the weather and climate of Extreme Events. The past year has been marked by extreme heat, wildfires, landslide and flooding events. These events are related to immediate weather conditions as well as recent historic drought conditions. The workshop encourages participation from climate scientists who are examining the climate dynamics behind extreme events and paleoclimatologists reconstructing past extreme events and connections. We also encourage the participation of archaeologists and historians who examine the impact of such events on society as well as current policy and emergency preparedness managers.

We welcome oral and poster presentations on this year's theme of Extreme Events and as always welcome presentations (oral and poster) related to the general theme of climate and the Pacific.

Confirmed Keynote speakers include:

- Amir AghaKouchak, University of California, Irvine – Hydrometeorology (Extremes)
- Kevin Anchukaitis, University of Arizona – Dendroclimatology (Drought)
- Craig Clements, San Jose State University – Microclimatology (Wind and Fire)
- Bethany Coulthard, University of Arizona – Dendroclimatology (Western US Snow Extremes)
- Ingrid Hendy, University of Michigan, Oceanography (Atmospheric Rivers and Floods)
- Cary Mock, University of South Carolina – Historical climatology (Drought/Flood)
- Scott Stephens, University of California, Berkeley – Environmental Science (Wildland Fire climate change)
- Tony Westerling, University of California, Merced – Climate Modeling (Fire)
- Erika Wise, University of North Carolina – Climatology (Drought)

For more information please go to paclim.org and join the paclim listserv.

We hope to see you at Asilomar!

With best wishes

Michelle Goman (goman@sonoma.edu)
Dept. of Geography, Environment, and Planning, Sonoma State University

Scott Mensing (smensing@unr.edu)
Department of Geography, University of Nevada, Reno

~*~

Paleoclimate to Policy Workshop –

Immediately following PACLIM 2019!

(Editor's Note: Fast Approaching Deadline!!!)

https://paleoclimateintopolicy.weebly.com/2019-workshop.html

This workshop seeks to improve the understanding and use of paleoclimate/paleoecology data, interpretations, and context in policymaking, management, and conservation. There are a wealth of scientific observations about the rates, magnitude and implications of climate and ecological change for physical, biological, and human systems that can be extracted from the paleo record. Our goal is to provide opportunities for paleoclimate and paleoecology researchers to hone their skills in working with decision makers.

The workshop is being held on Feb 20-22 at Bodega Marine Laboratory (2 hours north of San Francisco), following the PACLIM Conference, to facilitate participation in both meetings. The workshop is open to all paleoclimate/paleoecology researchers, including students, postdoctoral scholars, staff, and faculty. Please submit an Application to participate (due by November 16, 2018).

Organizing Committee: Tessa Hill (UC Davis), Hannah Palmer (UC Davis), Peter

Roopnarine (California Academy of Sciences) and Lance Morgan (Marine Conservation Institute)
Expert Trainers: Kim Cobb (Georgia Tech), Andrea Dutton (University of Florida), Kena Fox-Dobbs (University of Puget Sound), Faith Kearns (UC California Institute for Water Resources), Whit Saumweber (Center for Strategic & International Studies), Aradhna Tripati (UCLA).

~*~

DIVISION BUSINESS MEETING

GSA Sedimentary Geology Division, GSA Limnogeology Division, and SEPM: Joint Annual Business Meetings and Awards Ceremony	**Tuesday, 6 November 2018, 6:00 PM - 8:00 PM *Indiana Convention Center - Sagamore Ballroom 3***

PARDEE KEYNOTE SYMPOSIA

P4. Human Evolution and Environmental History in Africa: 25 Years of Transformative Research	**Wednesday, 7 November 2018: 8 AM–noon, Indiana Convention Center, Sagamore Ballroom 5**

DIVISION SPONSORED SESSIONS:

9, 61	T110. Lakes through Space and Time I & II	SUN	8:00 AM - 12:00 PM; 1:30 - 5:30 PM	Room 134
15	T152. Grain to Global Perspectives of Mars: Evolving Views of the Martian Sedimentary Rock Record	SUN	8:00 AM - 12:00 PM	Room 236-237
52	T14. Mining Wastes in the Tri-State Mining District of Kansas, Missouri,	SUN	1:30 PM-5:30 PM	Room 135

	and Oklahoma: Advances in Characterization and Remediation			
55	T57. Undergraduate Research Talks: The Next Step in Student Research Projects	SUN	1:30 PM - 5:30 PM	Room 141
62	T121. Insights from Microfossils, Palynology, and Their Modern Analogs: From Traditional to Emerging Techniques	SUN	1:30 PM - 5:30 PM	Room 140
25	T47. Global Drinking Water and Public Health: Conditions, Contaminants, Concerns, and Strategies (Posters)	SUN	9:00 AM - 5:30 PM	Halls J-K
63	T128. Recent Advances in Ichnology: Traces of Modern and Ancient Behavior	SUN	1:30 PM - 5:30 PM	Room 143-144
84	T95. Climate Variability, Change, and Water Resources	MO	8:00 AM - 12:00 PM	Room 132
130	T47. Global Drinking Water and Public Health: Conditions, Contaminants, Concerns, and Strategies	MO	1:30 PM - 5:30 PM	Room 238-239
131	T62. Landscapes in the Anthropocene	MO	1:30 PM - 5:30 PM	Room 136-13
134	T103. Springs: Groundwater-Influenced Ecosystems, Gaining Streams, and Wetlands	MO	1:30 PM - 5:30 PM	Room 133
96	T17. Sigma Gamma Epsilon Undergraduate Research (Posters)	MO	9:00 AM - 6:30 PM	Halls J-K
109	T110. Lakes through Space and Time (Posters)	MO	9:00 AM - 6:30 PM	Halls J-K
111	T121. Insights from Microfossils, Palynology, and Their Modern Analogs: From Traditional to Emerging Techniques (Posters)	MO	9:00 AM - 6:30 PM	Halls J-K
118	T152. Grain to Global Perspectives of Mars: Evolving Views of the Martian Sedimentary Rock Record (Posters)	MO	9:00 AM - 6:30 PM	Halls J-K

114	T128. Recent Advances in Ichnology: Traces of Modern and Ancient Behavior (Posters)	MO	9:00 AM - 6:30 PM	Halls J-K
105	T95. Climate Variability, Change, and Water Resources (Posters)	MO	9:00 AM - 6:30 PM	Halls J-K
106	T103. Springs: Groundwater-Influenced Ecosystems, Gaining Streams, and Wetlands	MO	9:00 AM - 6:30 PM	Halls J-K
149	T15. Urban Geochemistry	TU	8:00 AM - 12:00 PM	Room 135
161	T98. Satellite Remote Sensing Applications in Hydrology and Geology	TU	8:00 AM - 12:00 PM	Room 132
169	T15. Urban Geochemistry (Posters)	TU	9:00 AM-6:30 PM	Halls J-K
181	T98. Satellite Remote Sensing Applications in Hydrology and Geology (Posters)	TU	9:00 AM-6:30 PM	Halls J-K
184	T111. Human Evolution and Environmental History in Africa: 25 Years of Transformative Research (Posters)	TU	9:00 AM-6:30 PM	Halls J-K
203	T16. Advances in Agrohydrology: A Multidisciplinary Approach to Water Resources, Land Management, and Food Systems	TU	1:30 PM - 5:30 PM	Room 138-139
235	T127. Earth-Life Transitions: Critical Information from Deep Time to Manage Future Environmental Change	WE	8:00 AM - 12:00 PM	Room 143-144
258	T127. Earth-Life Transitions: Critical Information from Deep Time to Manage Future Environmental Change (Posters)	WE	9:00 AM - 6:30 PM	Halls J-K
256	T122. Oceans and Climates through Earth History: From Proxy Reconstructions to Model Assessments (Posters)	WE	9:00 AM - 6:30 PM	Halls J-K

INDIANAPOLIS TO DO LIST!!!!

COME VISIT THE LIMNOGEOLOGY DIVISION BOOTH, #817 IN THE EXHIBIT HALL!

Go to the Limnogeology Division website at:
http://rock.geosociety.org/limno/index.html
To get the latest information on other Limnogeology meetings and workshops…

David Warburton, Webmaster

DEADLINE: November 30, 2018