THE GEOLOGICAL SOCIETY OF AMERICA®
QUATERNARY GEOLOGY & GEOMORPHOLOGY DIVISION

Quaternary Geologist & Geomorphologist

Newsletter of the Quaternary Geology and Geomorphology Division
http://community.geosociety.org/qggdivision/home
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2016 Kirk Bryan Field Trip Highlights

Quaternary landslides, fluvial terraces, and recent geomorphic events along the Colorado Front Range

Photos courtesy of Jay Patton and Sarah Lewis.

Join us this year!
The 2017 Kirk Bryan Field Trip is 411. Exploring the Mechanics, Frequency, and Impacts of Deep-Seated Landslides in Washington State on Saturday, October 21, 2017.

Quaternary Geology & Geomorphology Division
--- Officers and Panel Members – 2016/2017---

Officers – 6 Members, three of whom serve one-year terms: Chair, First Vice-Chair, and Second Vice-Chair; and three of whom serve two-year terms: Secretary, Treasurer, and Newsletter Editor/Webmaster.
Management Board – 9 Members: Division officers and the Chair of the preceding year; also includes the Historian and the Student Representative.

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Glenn Thackray
Department of Geosciences
Idaho State University
921 S 8th Ave.
Pocatello, Idaho 83209
thackglen@isu.edu

1st Vice-Chair:
Tammy Rittenour
Department of Geology
Utah State University
4505 Old Main Hill
Logan, Utah 84322
tammy.rittenour@usu.edu

2nd Vice-Chair:
Grant Meyer
Department of Earth and
Planetary Science
University of New Mexico
MSCO3-2040
Albuquerque, New Mexico, 87131
gmeyer@unm.edu

Secretary: Sarah Lewis
College of Earth, Ocean
& Atmospheric Sciences
Oregon State University
3200 SW Jefferson Way
Corvallis, OR 97331
sarah.lewis@oregonstate.edu

Treasurer:
Scott F. Burns
Department of Geology
Portland State University
PO Box 751
Portland, OR 97207-0751
burnss@pdx.edu

2015 JTPC Representatives:
Glenn Thackray, Tammy Rittenour

Newsletter Editor/Webmaster:
Anne Jefferson
Department of Geology
Kent State University
221 McGilvrey Hall
Kent, OH 44242
ajeffer9@kent.edu

Historian:
P. Thompson Davis
Dept of Natural
Sciences
Bentley University
Waltham, MA 02452
pdavis@bentley.edu

Student Representative:
Lee Corbett
University of Vermont
ashley.corbett@uvm.edu

Past Chair: **Anne Chin**
University of Colorado-Denver
Geography & Env Sciences
P.O. Box 173364
Campus Box 172
Denver, CO 80217-3364
anne.chin@ucdenver.edu

PANEL MEMBERS

2015-2017 Panel	**2016-2018 Panel**
Amanda Keen-Zebert	Stephanie Shepherd
Jeff Munroe	Mark Sweeney
Stephanie Day	Karl Wegmann

GSA Councilor Liaison – Frank Pazzaglia
QG&G Division Liaison – Dominique Olvera
(Both appointed by the GSA President)

Updates from a Vibrant Division

--- Message from the Chair ---

As the near-record snowpack in my little corner of the West melts quickly and geomorphic processes threaten to damage or promise to activate, depending on one's perspective, I'd like to bring your attention to important items on the QG&G docket.

First up, the QG&G board and panel have been kept busy evaluating award nominations for our division professional awards, and the student awards committee busily reviewed dozens of proposals for our student awards. A new student award has been added this year, bringing our award palette to four. The Peter Birkeland Soil Geomorphology Award has been added to the long-standing Morisawa, Mackin, and Howard Awards. We send a huge thanks to the donors responsible for establishing and funding all of these awards, and two additional awards that are in the early stages. While you await the announcement of this year's award winners, we urge you to think ahead about potential nominees for the Distinguished Career, Kirk Bryan, and Farouk El-Baz awards, and research proposals for the Gladys W. Cole Award.

The second item is our recent division self-study, completed by the board and panel in response to a request from a GSA ad hoc committee charged with reviewing the society's structure. The document, which is posted on the QG&G website (http://community.geosociety.org/qggdivision/aboutus/selfstudy/), reveals a healthy and vibrant division, with challenges related to membership, diversity, and relevance. We urge you to read this document, celebrate our strengths, and ponder strategies to evaluate and address those challenges. The vigor and health of the QG&G have always arisen from the membership.

Finally, we look forward to yet another rich Annual Meeting, as well as a notable presence at the upcoming section meetings. For the Annual Meeting, QG&G is the sponsor for 21 technical sessions and 2 Pardee symposia, and many additional sessions are on the schedule in QG&G-related fields. The Kirk Bryan Field Trip will travel to the infamous Oso Landslide on the pre-meeting Saturday, and we anticipate stimulating discussion of the geomorphic processes, Quaternary stratigraphy, and societal factors that contributed to this tragic event. Several other QG&G-related field trips are on offer, exploring diverse environments from megafloods to river restoration to volcanic and tsunami hazards. The details are now available on the GSA website. The setting of the Seattle meeting is truly an excellent one for QG&G fields, so make your travel plans early and put the August 1 abstract deadline in your summer calendar!

Have an enjoyable spring and a productive summer, and thanks for all you do to make the QG&G an excellent division.

Glenn Thackray
Chair, Quaternary Geology and Geomorphology Division

Join us at the Annual Meeting
in Seattle 22-25 October 2017

QG&G is sponsoring more than 50 technical sessions, symposia, and field trips.
Check them out at:
http://community.geosociety.org/gsa2017/home
Abstract submission deadline is August 1.

GSA 2017
22–25 October
Seattle, Washington, USA

Division Awards - 2016

The following awards were given by the Division at our annual awards ceremony Tuesday, September 27, 2016 in Denver, Colorado.

--- The Kirk Bryan Award ---

The Kirk Bryan Award for Research Excellence was established in 1951 and given for a publication of distinction (within the past 5 years) advancing the science of geomorphology or Quaternary geology or a related field. Our 2016 award was presented to **Chris Goldfinger, C. Hans Nelson, Ann E. Morey, Joel E. Johnson, Jason R. Patton, Eugene Karabanov, Julia Gutiérrez-Pastor, Andrew T. Eriksson, Eulàlia Gràcia, Gita Dunhill, Randolph J. Enkin, Audrey Dallimore, and Tracy Vallier**. 2012, Turbidite event history—Methods and implications for Holocene paleoseismicity of the Cascadia subduction zone: U.S. Geological Survey Professional Paper 1661–F, U.S. Geological Survey, Reston. 170 p.

Citation by Alan Nelson and Scott Burns

Kirk Bryan award winners (l-r) Jason Patton, Ann Morey-Ross, Chris Goldfinger and C. Hans Nelson, with citationists Scott Burns and Alan Nelson.

Goldfinger et al. (2012) is a well written, exceptionally detailed, summary of a study of unusually broad areal and interdisciplinary scope, even for the highly interdisciplinary field of Quaternary geology. The paper is the culmination of a 13-year project by Chris Goldfinger, Hans Nelson, Ann Morey and ten other scientists (and about 30 students). Funded primarily by NSF and USGS, the resources devoted to obtaining and studying the >160 marine cores that provide the data for the study are unlikely to be available in the foreseeable future.

From the perspective of the Quaternary specialty of paleoseismology, Goldfinger et al. (2012) is one of the most important papers to appear since the development of this research specialty in the early 1970s. The paper is one of a handful describing enough evidence for large earthquakes over a span of time sufficient to model the recurrence of large earthquakes and how earthquakes may cluster in time due to changing patterns of stress accumulation and release on long faults. The paper is also unusual, even for a long monograph, in its careful explanation and extensive discussion of the methods used, data recovered, and alternative interpretations of the data, including statistical tests aimed at distinguishing among alternatives. Another major strength is the degree to which almost all data have been formatted in extensive data appendices.

The research summarized by Goldfinger et al. (2012) has played a key role in (1) the development of marine paleoseismology, (2) the increasing influence of Quaternary stratigraphy and (submarine) geomorphology in earthquake and tsunami hazard assessment and subsequent hazard mitigation, (3) the greater and more frequent media attention to hazard and other applied Quaternary studies, and (4) the resulting greater public appreciation of the value of Quaternary geology to society. Despite the explosion in the 21st century of convincing Quaternary stratigraphic data dated with dramatically increased precision, few papers of the past 15 years rival Goldfinger et al. (2012) in their scope, influence on the assessment of natural hazards, and importance in demonstrating the societal value of Quaternary studies.

Response by Chris Goldfinger

It's a bit ironic to be given this award, considering what a failure the project was. In 1990, John Adams published his hypothesis of great earthquakes in Cascadia based on turbidite evidence. The evidence was collected by OSU and UW students Gary Griggs, John Duncan, Hans Nelson, Bobb Carson Bill Barnard and others and developed into Dissertations under Vern Kulm and Dean McManus in the late 1960's. My reaction, and also that of Hans Nelson was that deriving paleoseismic records from turbidites was preposterous, there being so many things that could generate them; how could earthquakes ever be isolated from the sedimentary mess? Nelson, who had worked extensively on the Astoria Fan, thought there were only three Holocene turbidites on the Fan, not the 13 claimed by Adams. So we wrote a proposal to go test, and presumably disprove, this hypothesis. It took several attempts to get the proposal funded given that marine paleoseismology barely existed in the mid 1990's. In fact the Earth Science, not Ocean Science division of NSF supported it. Well, about midway through the 30 day cruise, we had a meeting in which we were to make a presentation to the ship's crew of our work. We pulled out a collection of the cores so far, laid them out in the main lab, and started discussing what we would say. Then it became apparent that in fact many of the cores had the same number of post Mazama ash turbidites, 13, as Adams had reported at numerous locations in Cascadia as a key test of synchronous deposition. So, we changed our story and showed the crew how marine paleoseismology worked in Cascadia. One of the engineers told us they listened to many such presentations, nodding politely but having no idea what the scientists were talking about. But for this one, he got it: "I can count to 13!" was his comment. So we failed in rather spectacular fashion, and have been doing marine paleoseismology ever since because it apparently works. We were also lucky to be able to use and build on the excellent work of the UW and OSU students decades before, without which our work would have been impossible. Many of us learned an important lesson rather graphically, that the data may well swerve us into a completely different path than expected, and so it's best not to hold onto pet ideas too tightly. We were also made to realize that sometimes it's best to just try ideas, even if our rational side tries to shoot them down. Our rational powers try to shoot everything down, that's how science works, but it's all too easy to kill good ideas in the process. Kirk Bryan passed long before my time, but he was known for teaching his students to think through problems themselves, rather than "teaching" them how things should be done. This takes a lot of patience, confidence in the process, and willingness to let it take us to new territory, but is something all educators can aspire to. We hope to get there, but meanwhile we appreciate the confidence in and appreciation of our work expressed by GSA and our colleagues Alan Nelson and Scott Burns, and will try to live up to that hope.

--- The Distinguished Career Award ---

The Distinguished Career Award was established in 1985. It is presented to Quaternary Geologists and Geomorphologists who have demonstrated excellence in their contributions to science. We presented the 2016 award to **William Ruddiman**, Professor Emeritus at the University of Virginia.

Citation by Maureen Raymo

It is my privilege to present this citation for the Distinguished Career Award of the GSA Quaternary Geology and Geomorphology Division to William F. Ruddiman. Bill is one of the outstanding Quaternary scientists of the last 50 years. He has made seminal contributions to the fields of stratigraphy, marine geology, paleoceanography, archeology, anthropology, and paleoclimatology. Not only is he an outstanding scientist, throughout his career he has been a community leader, a role model and a mentor for scientists and students young and old.

I have only indirect knowledge of Bill's earliest accomplishments (through a religious reading of his papers). Throughout the seventies Bill did pioneering work in the newly emerging field of paleoceanography. His studies of foraminifera in core tops demonstrated the fidelity with which microfossils in sediment recorded surface water fauna, work which helped paved the way for the CLIMAP program. He then took a leadership role in this project and through the rigorous application of various techniques demonstrated the response of the North Atlantic Ocean to orbital variations and the waxing and waning on ice sheets on nearby landmasses.

This truly was groundbreaking work that established the now standard approach of examining the frequency variance and phasing of different components of the climate system in order to understand the causal linkages between them. He also pioneered the approach of using the location of the ice-rafted debris belt in the sediment to map the motions of the polar front through time, and while at sea, he introduced the methods of offset drilling and composite depth sections so essential to today's ocean drilling programs.

Distinguished Career Award winner William Ruddiman, with citationist Maureen Raymo.

By the late 80's and into the early 90's Bill had started investigating climate variations on longer time scales and published a series of papers on the uplift of the Tibetan Plateau and its influence on Cenozoic climate and vegetation. One cannot overstate the importance of this contribution. Bill's investigations, and his modeling work with John Kutzbach, inspired not only my own work on uplift and chemical weathering, but basically *launched* the multi-disciplinary field of tectonics and climate.

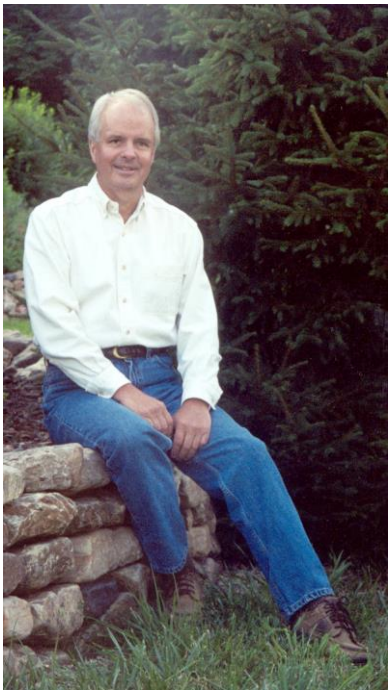
During these years at Lamont-Doherty Earth Observatory, Bill was a mentor and inspiration for a generation of paleoclimate students, his own and others alike; including Delia Oppo, Christina Ravelo, Alan Mix, Ed Pokras, Peter DeMenocal, Jim Wright, Chris Charles, Jean Lynch-Steiglitz, Julia Cole and myself among others. Bill not only taught us Earth Science but, by his example, he taught us how to do science and how to behave as scientists. With the publication of his widely adopted textbook in the 1990s *"Earth's Climate, Past and Future"* his knowledge is now shared with students around the world.

Unbelievably, even though he has been "retired" for the last 15 years, Bill is still producing cutting-edge science. I think many Earth scientists in our country probably first heard of the concept of the Anthropocene through the work of Bill Ruddiman. Indeed, if you google "Anthropocene Hypothesis" or "Early Anthropocene Hypothesis" you will get tens of thousands of links to papers, articles, discussions, and debates about the Anthropocene, most of which will have the name Bill Ruddiman, or Ruddiman Hypothesis, in them.

What is the Ruddiman Hypothesis? In 2001, Bill proposed that human alteration of our natural environment, through early agriculture, influenced atmospheric greenhouse gas concentrations, and thus the path of climate evolution, thousands of years before the beginning of the Industrial Revolution. And like the very best transformational hypotheses it stimulated debate, acrimonious at times, as well as much research across a swath of disciplines. Why? Because the stakes were so high—nothing less than a full understanding of the human impact on our natural world. It caused geologists, geochemists, climate modelers, anthropologists, and archeologists to rethink some of their most closely held assumptions about the Holocene, early agriculture, and natural climate variability. The Early Anthropocene, or Ruddiman Hypothesis represents a paradigm shift that has spurred interdisciplinary research and increased understanding of humankind's increasingly dominant role in transforming our planet, and Bill's ideas have inspired lay audiences around the world through articles, documentaries, and two popular books on the subject written by Bill.

In summary, William F. Ruddiman is an exceptional scientist and human being with a long and distinguished record of scientific accomplishment that I've only briefly touched upon, a record that stretches back five decades. I am just one of the many scientists whose careers were profoundly influenced by Bill and I cannot think of a more deserving scientist in our field for GSA to honor tonight.

Response by William Ruddiman


William Ruddiman

I thank the QG&G group for this award and Maureen Raymo for nominating me.

After receiving a B.A. in Geology at Williams College in 1964, my graduate student career began at Lamont (then 'Geological') Observatory under Bruce Heezen, reknowned for his work with Marie Tharp in mapping the sea floor and the Mid-Atlantic Ridge rift valley. Despite being out of favor with Maurice Ewing (Lamont's Director), Bruce somehow cobbled together enough money to support a dozen graduate students, including some well known to QG&G: Jim Hays, Warren Prell, Jim Gardiner, Billy Glass, Jeff Fox (and me). I enjoyed writing, but Bruce taught me how to edit a paper by working carefully through the progression of an argument section by section, paragraph by paragraph, and sentence by sentence.

In the 1970's, I worked with Andy McIntyre, who invited me to join him exploring orbital-scale polar front advances and retreats in the North Atlantic using foraminifera (me) and coccoliths (him). During those years in the CLIMAP Project, John Imbrie taught a generation of us marine scientists about time series and systems analysis. I also mapped the band of maximum deposition of ice-rafted detritus in the North Atlantic. Maureen joined us later in this effort, and she and I published the first verifiably complete $\delta^{18}O$ record of the 2.7-Myr ice ages.

In the 1980's, our focus shifted to the equatorial Atlantic to explore whether cross-equatorial heat transport affected North Atlantic SST responses at orbital time scales (it did not). Graduate student Alan Mix mapped oscillations in intensity of the equatorial divergence and linked them to interactions with the African summer monsoon, and Peter deMenocal compiled influxes of Saharan dust to the Atlantic over several million years. Our work in the North and equatorial Atlantic was also part of the 1980's SPECMAP Project.

Also in the 1980's, I joined Tom Webb, John Kutzbach and Herb Wright in the COHMAP Project. COHMAP held annual summer meetings of 50-75 scientists in Madison, Wisconsin. John taught a generation of terrestrial palynologists and lake-level experts about data/model comparisons, the forerunner of many later efforts.

In the 1980's-1990's, I proposed and initiated (along with John Kutzbach, and also Warren Prell) the first effort to model the effects of Tibetan uplift during the last 50 million years on the large-scale circulation of the atmosphere: changes in jet-stream meanders and winter/summer monsoons. But then-graduate student Maureen Raymo expanded this effort to explore how uplift has altered chemical weathering and global cooling. To this day, her idea remains a central paradigm

In 2001/2003, I posed the 'early anthropogenic hypothesis'--- major human alterations of late Holocene climate. Since then, I have worked with John Kutzbach (yet again) and with Steve Vavrus and Feng He to model the climatic impact of the late Holocene anthropogenic greenhouse-gas anomalies. I have also worked with numerous other scientists (including Jed Kaplan, Dorian Fuller, and Erle Ellis) to investigate ground-truth evidence that for several years has been fleshing out the early anthropogenic hypothesis.

Looking back over 50+ years, the main feeling I have is the joy of doing science and being paid for it! I feel fortunate to have had such good people to work with, and I am especially proud of several graduate students:
---Alan Mix (professor and former rotating Dean at Oregon State).
---Maureen Raymo (recently elected to the National Academy of Sciences and now a Bruce Heezen Research Professor at Lamont);
---Peter deMenocal (Professor at Columbia University and now Dean of Arts and Sciences)

My contribution was to choose them as graduate students because they seemed promising, give them a few ideas to think about, and then turn them loose to follow their curiosity.

--- The Farouk El-Baz Award for Desert Research ---

The Farouk El-Baz Research Award was established in 1999 and given for outstanding work in the field of warm desert research. The award is intended to encourage and reward arid-land studies. The 2016 award was presented to **Bernhard Eitel** of the University of Heidelberg.

Farouk El-Baz award winner Bernhard Eitel, with citationist Xiaoping Yang.

Citation by Xiaoping Yang

It is a distinct pleasure for me to experience GSA's QG & G division giving the very prestigious El-Baz Award for Desert Research to Prof. Dr. Bernhard Eitel. Dr. Eitel truly deserves this award for his significant role as a globally recognized authority on geomorphology, geoarchaeology, soils and Late Quaternary environmental change. Within this broad range of scientific fields, he has a strong focus on arid environments.

I am very thankful to many of our great experts who provided valuable letters of support for his nomination, including professors Wolf Dieter Blümel (Stuttgart, Member of the German National Academy of Science Leopoldina), Steven Forman (Baylor), Andrew Goudie (Oxford, former El-Baz Award recipient, former president of the International Association of Geomorphologists), Nicholas Lancaster (DRI, former El-Baz Award recipient), Aschok Singhvi (Ahmedabad, former El-Baz Award recipient), Olav Slaymaker (Vancouver, former president of the International Association of Geomorphologists), Ingmar Unkel (Kiel), Martin Williams (Adelaide, former El-Baz Award recipient).

Dr. Bernhard Eitel is Professor at the Institute of Geography in the Heidelberg University, Germany and is currently the President of this famous University. Over 20 years ago Dr. Eitel systematically studied the origins and the development of calcium carbonate in the carbonate-rich cover sediments in the Namib Desert. The truly pioneering and comprehensive study was published as a special issue of a German Geographical Journal in 1994 (Stuttgarter Geographical Studies, Volume 123, 193 pages), and this work has become a bench mark contribution in desert sciences. The quality of this work is manifest because it was his thesis for qualifying for full Professor in Germany at that time. To my knowledge, he is the first who successfully deciphered the Holocene climate changes and landscape evolution from palaeosoils in the Otjiwarongo region of Northern Namibia, using the approach of system analysis. He was probably also the first to realize that degradation of vegetation and soils by farming, and river channel formation could be the principle causes of farmland aridification in the drylands (Eitel et al., 2002, Catena).

During the past decades, Dr. Eitel has worked intensively in the Atacama Desert in Peru. He was the principal investigator of a long-term multidisciplinary research effort focusing on palaeoclimatology and environmental histories in southern coastal desert of Peru. He and his students did detailed field investigation in the Peru part of Atacama Desert and found geomorphological, sedimentary and biological (Molluscs) evidence for semi-arid phases during the Holocene in this currently extreme arid region. They discovered that wetter climate with open grassland and desert loess accumulation occurred in this part of Atacama during the early Holocene (Eitel, et al., 2005, Archaeometry; his co-authored papers 2007 in Quaternary International and 2010 in Quaternary Research, respectively).

Over the years Dr. Eitel has increased his desert research not only in terms of geographical regions but also in the sense of enhanced multidisciplinary canvass. To understand the processes of human and environment

interactions, he and his team carried out innovative, systematic research in Urumuqi, a megacity located in western China with an arid climate, and explored ways for sustainable development of the oases in drylands (his co-authored paper 2009 in Die Erde). Using ancient DNA data, Eitel and his team demonstrated that large-scale human migrations in the Central Andes occurred during droughts and increased climatic variability between 840 BC and 1450 AD (his co-authored paper 2014 in PNAS).

In more recently years Dr. Eitel has become a leading scientist also in the field of geoarchaeological studies in deserts. By enhancing collaboration between experts both in natural and social sciences, the desert research team in Heidelberg under his leadership has made great progresses towards understanding the interactions between man and environment and the accelerated cultural development during the Holocene in the regions of Atacama Desert and northwestern Chinese deserts (ZfG special issue in 2006 edited by him, his chapter in 2011 in the very influential German textbook Geography edited by Gebhardt, Glaser, Radtke and Reuber; his two coauthored German papers in 2009 in the journal Nova Acta Leopoldina; His coauthored German paper in 2009 in the journal Theorie und Praxis).

Sustained scientific productivity provides evidence of Dr. Eitel's excellence in scientific contribution in desert studies that are now internationally acclaimed. He has been member of executive committees of various international organizations related to desert research, and has been elected to the fellowship of the German National Academy of Science Leopoldina. As being mentioned in one of the supporting letters, 'the ultimate strength of Dr. Eitel's work lies in his willingness to challenge received wisdom and to offer alternative models founded upon careful field work, rigorous chronology and analysis of many independent lines of evidence'.

Dr. Eitel not only made significant and creative contributions himself, he is also a key person making desert research an active and interesting subject for students in German universities where he has held positions. Since he took the Professorial Chair in the Institute of Geography, Heidelberg University, he has made this institute an important center for desert research by establishing an OSL Lab, sedimentary and water labs and by initiating various desert research projects. Being a former graduate from Göttingen University, I feel confident to say that Dr. Eitel is one of the greatest desert researchers of modern times both in Germany and beyond.

Response by Bernhard Eitel

Professor El Baz, Dear colleagues, students, ladies and gentlemen,

Thank you very much, I feel very honored to be awarded the Farouk El Baz – Award for Desert Research. You honor me, but I am very grateful to my academic teachers, to my colleagues and my team who share my passion for drylands and desert environments. In our times it is impossible to do desert research as solitary scientist, therefore I very much appreciate their team spirit, help and support in the field as well as in the lab.

I started in the 1980s with loess research in southern Germany, at the beginning as `lonely digger´, later in a small team sometimes called `dusty Bernhard'. Dust is a fascinating material, and I was happy getting the opportunity to learn more about dust, silts and river-silt deposits in southern Africa. Successful in attracting third party funds more and more colleagues were interested in the results of our geomorphological, pedological and (palaeo-)environmental projects.

An increasing number of young researchers and students joined the group, the team grew and our expertise became interesting for collaborators in particular in the Mediterranean, in central Asia (Xinjiang, China), and in Peru. There we analyzed and dated, among other geoarchives, Holocene desert loess for the first time. It is very inspiring to be part of a research group which consists of young and experienced scientists and of an interdisciplinary collaboration enclosing geomorphologists, mineralogists, physicists, archaeologists, and others - in particular if the scientific questions provoke complex answers. And (palaeo-) environmental or geoarchaeological challenges always need interdisciplinary teamwork.

As member of a university, research is always related with teaching. Research oriented teaching is ideal to exemplify the intergenerational treaty which characterizes a university. It works at its best, if the young dynamic academics join the more experienced in the same project. This generates scientific creativity, and it strengthens the academic community which makes up a university. The young must pick the cherries, that means that they must look for best conditions to foster their own research and their academic careers, but after being successful they have the task to integrate the next generation of young scientists and must bake the cherry cake for them. I had such academic teachers: They gave me the chance to pick cherries and to develop my own ideas, now and some decades older I feel happy to have the opportunity to train the next generation and to provide freedom to create new ideas. Therefore, I take the award also for all my fellow colleagues who accompanied me through my academic life.

I would like to thank you all, and particularly

- my dear friend Xiaoping Yang for the nomination and the kind introduction,
- all colleagues who supported the nomination,
- the selection team,
- the team that organized and managed the ceremony,
- and Prof. El Baz for founding and funding the award, which gives visibility to Earth's exciting deserts that cover approximately 30% of the land surface

--- The Gladys M. Cole Memorial Research Award ---

The Glady W. Cole Memorial Research Award is restricted to investigation of the geomorphology of semi-arid and arid terrains in the United States and Mexico. It is given each year to a GSA Member or Fellow between 30 and 65 years of age who has published one or more significant papers in geomorphology. The fund was established in 1980 by Dr. W. Storrs Cole in memory of his wife. The first award was presented in 1982. The 2015 award was given to **Sara Rathburn** Colorado State University, for her proposal "*Are all dams created equal? Implications for Carbon Storage*."

Gladys M. Cole award winner Sara Rathburn.

Student Research Awards

--- J. Hoover Mackin Award ---

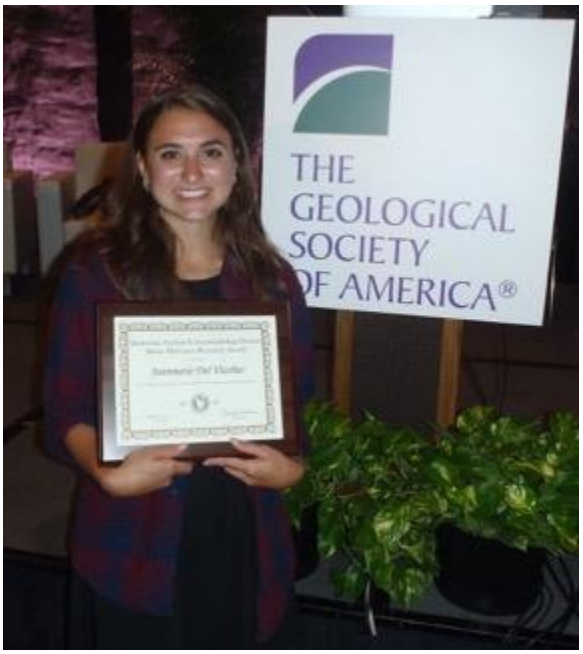
The J. Hoover Mackin Research Award was created in 1974 to support graduate student research in Quaternary geology/geomorphology. The 2016 Mackin Award for PhD research was given to **Helen Beeson**, University of Nevada at Reno, for her proposal, *"Persistent River-Basin Disequilibrium in a Cratonic Setting.*" Advisor: Amanda Keen-Zebert.

--- Arthur D. Howard Award ---

The **Arthur D. Howard Research Award** was established in 1992 to support graduate student research in Quaternary geography or geomorphology. The 2016 Howard award for MS research was given to **Adam Hawkins**, University of Northern British Columbia, for his proposal "*Holocene glacier fluctuations in Nahanni Provincial Park, Northwest Territories, Canada.*" Advisor Brian Menounos.

--- Marie Morisawa Award ---

The **Marie Morisawa Award** was established in 2006 to support promising female graduate students in geomorphology. The 2016 Morisawa award was given to **Joanmarie Del Vecchio**, Pennsylvania State University, for her proposal, "*A periglacial erosion record in a headwater valley, central Pennsylvania.*" Advisor Roman DiBiase.



The Quaternary Geology and Geomorphology Division management board thanks the following people for their help in evaluating this year's award applications for the Farouk El Baz, Mackin, Howard, and Morisawa awards: Marith Reheis, Alan Gillespie, Nick Lancaster, Jack Ridge, Craig Feibel, Stephanie Surine, Joel Johnson, Lisa Ely, Shannon Mahan, Lyman Persico, Tony Layzell, Randy Cox, J Elmo Rawlings, Carrie Jennings, Sara Mitchell, Alan Halfen, Joel Pederson, Andrew Wilcox, Will Ouimet, Josh Roering, Michael Church, Suzanne Anderson, and Jen Pierce.

--- Robert K. Fahnestock Memorial Award ---

The Fahnestock Memorial Award from GSA honors the memory of the former member of the Research Grants Committee, who died indirectly as a result his service on the committee. The award is given for the best proposal in sediment transport or related aspect of fluvial geomorphology. The 2016 recipient was **Lauren Colliver,** Purdue University, for her proposal, "*Regional Sediment Transport and Basin Development at the Crossroads of the Appalachian and Cordilleran Orogenies; Detrital Zircon Geochronology of the Big Bend Region, West Texas, U.S.A*." Advisor: Kenneth Ridgway

--- The John A. Black Award ---

Through the Black Family's generosity, the Black Award for coastal geomorphology was given by GSA for the first time in 2015. The 2016 recipient was **Lauren Brown**, University of California-Los Angeles, for her proposal, "*Effects of varied geochemistry on salt marsh accretion dynamics in multiple sites on the California Coast*." Advisor: Glen MacDonald

--- The John Montagne Fund ---

The Montagne Fund was established in 2000 to support one student's research in Quaternary geology and geomorphology. This is the final year the Montagne Fund award will be given by GSA. The 2016 recipient was **Ny Riavo Voarintsoa,** University of Georgia, for her proposal, "*Developing multi-proxy data set from stalagmites to understand paleoclimate in Madagascar.*" Advisor: L. Bruce Railsback

New Student Award!
Peter Birkeland Soil Geomorphology Research Award

The Peter Birkeland Soil Geomorphology Research Award will be given for the first time in 2017. The recipient should be a graduate student working on a thesis with a research focus in soil geomorphology. In the event there are no soil geomorphology applicants, the award may go to a student doing research in the general field of weathering, Quaternary stratigraphy, or geomorphology, in that order. Donations to grow the amount of the Peter Birkeland Soil Geomorphology Award, as for all the QG&G student awards, are tax-deductible and may be made through the GSA Foundation at any time.

Below, Peter Birkeland describes the impetus for the award.

I have decided it is time to start a soil geomorphology award to add to the other Quaternary Geology and Geomorphology student research awards: the Howard, Mackin, and Morisawa. I got the idea from the philanthropy of fellow geomorphologists Roy Shlemon (we learned soils together at the University of California-Berkeley) and Don Easterbrook (a fellow undergraduate at the University of Washington). I also have a connection to two of the people for which the awards are named: Mackin inspired me to study geomorphology and Howard was my thesis advisor. When it came time to write my thesis, however, Howard was on leave overseas, so Mackin graciously offered to check my fieldwork and to read the thesis. Little did he know how terrible my writing was then. He found that he could only edit every other page, leaving the rest to me. In time I learned.

I want this award to contribute to the advancement of soil geomorphology. I learned soils from Hans Jenny when I was a young professor in his soils department at the UC-Berkeley and I felt badly when I left for University of Colorado-Boulder. Another part of my soil education was from field trips sponsored by the GSA, as well as by Friends of the Pleistocene. Furthermore my poor grant record denied my students this aspect of funding. However, they were motivated and frugal and most did the work unfunded or with small grants and produced impressive results on a variety of soil geomorphology topics. A few had USGS or other government support. Their work spanned a large geographic area from the western USA and the midcontinent to overseas field sites in Andorra, Canada, New Zealand, Peru, and Slovenia. So my hope is that this award helps promote the field that Jenny got me into as well as supporting soil geomorphology students.

This award will be fully funded from the start thanks to the US Army. As a draftee in the Army ('53-55) we all had a $10K life insurance policy. Alas the policy was never activated and I survived as a member of the Camp Hale ski team. Upon discharge, I kept the insurance and the benefit is now sufficient to fund this award.

Cpl. Birkeland carrying the flag at the St. Paul winter carnival.

Management Board Meeting Minutes

Sunday, September 25, 2016

7:00 PM-9:00 PM, Hyatt Regency Agate Room A/B, Denver, Colorado

Attending:
Management Board: **David Dethier**, Past Chair; **Anne Chin**, Chair; ***Glenn Thackray**, 1st Vice Chair; **Tammy Rittenour**, 2nd Vice Chair; ***Grant Meyer,** 2nd Vice Chair elect; **Scott Burns**, Treasurer; **Sarah Lewis**, Secretary; ****Anne Jefferson**, Newsletter editor/ Webmaster; **Thom Davis**, Historian; **Lee Corbett**, Student Representative

***Panel**:* ***Anders Carlson, Alison Duvall, *Amy East** *2014-2016 Panel (outgoing)*
Stephanie Day, Amanda Keen-Zebert, *Jeff Munroe, *2015-2017 Panel*
Stephanie Shepherd, Mark Sweeney, *Karl Wegmann, *2016-2018 Panel (incoming)*

**Sent regrets for not attending*
***Participated via Skype*

Meeting was called to order at 7:10pm and began with introductions.

GSA Division Chair's Meeting Report:
Items on the chairs' meeting agenda that **Anne Chin** (Chair) shared with the division are listed below.

(1) The 2016 Denver meeting counted over 7000 attendees, and 230 topical sessions.
(2) Update on the transition of GSA journals to Open Access (target date of 2020) and activities to compensate for the resultant loss of income. Fundraising through GSA Foundation has reached $2.8 million; GSA membership dues have increased by $10; there are now options for authors to purchase varying levels (green, gold) of open access when publishing in GSA journals.
(3) Headquarters reported continued decline in GSA membership. GSA is dominated by white males 40-70 years old and there is broad concern about the lack of retention of women in mid-career, and the diversification of GSA in other ways. GSA continues to express interest in developing strategies to retain students, early career professionals in academia, government agencies and private industry.
(4) The 2017 Annual Meeting will be held in Seattle from October 22nd-25th; there has been a request for the division to encourage the submission of more interdisciplinary and Pardee sessions, and symposia, with a focus on developing high impact and unifying themes for the Seattle meeting.
(5) There is recognition that the JTPC scheduling process needs improvement; this year there will be a 24hr window after abstract submission closes on 2 Aug 2017 for divisions to work with abstracts & sessions.
(6) Finally, and perhaps most notably, Anne C. presented details of a GSA charge to all divisions. This was first discussed in the spring division chairs meeting, attended by Glenn Thackray (1st vice chair). Information gleaned from both of those discussions is presented here. The proliferation of divisions (18 divisions and 2 interest groups) is proving cumbersome for GSA, and potentially confusing for members, especially new student members, and resulting in decreases in membership across the board for divisions. QG&G remains the 6th largest of 18 total divisions, with our membership of ~1600 steady for the last three years. For reference, the QG&G membership breakdown is 36.3% Member, 31.8% Student, 21.7% Senior, 9.3% Early Career, 0.5% Affiliate, 0.3% K-12 Teacher, 0.1% Honorary. There is also some sense that the original division structure reflects the manner in which geologists saw the field in the 1950s and 60s, and that it may be outdated. In an effort to evaluate the structure of GSA, each division is being asked undertake a self-assessment to consider its successes, failures and problems, before April 2017, when GSA Council will take up the larger question of restructuring. The basic questions to each Division/IIG are:
   - What are your specific goals for the next five years?
   - What do you see as the challenges to achieving those goals?
   - How do you currently relate to other Divisions and IIGs? How do you see this relationship changing, if at all, over the next five years?

- Where do you see you Division/IIG in five years? What support will you need from GSA Headquarters to overcome challenges and meet your goals?
- Does the purpose statement in the Division bylaws adequately reflect your Division's current activities and goals?

Treasurer's report:
Scott Burns (Treasurer extraordinaire since 1999) reported that in fiscal year 2016 (July 2015 to June 2016) the Division had a total income of $12,203, and total expenses of $13,432 for a net loss of $1,229. This loss was primarily due to an unbudgeted $1000 contribution approved by unanimous board email vote to show QG&G support of a special session on the Nepal earthquake at the 2015 Baltimore meeting. For fiscal year 2017, Scott presented a budget having projected income of $9000 from dues, $4000 from donors (including a $1000 subsidy for students for the Kirk Bryan field trip), and projected expenses of $12,780, including International Association of Geomorphologists (IAG) dues of $1330 (2 yrs) for a projected net gain of $220 (see attached report). Scott is continuing discussions with the AGU Earth & Planetary Surface Processes group to share the financial responsibility for paying these dues with QG&G and AAG. Keeping current with dues allows the US geomorphology community to propose to host the 2018 IAG meeting (lead: Allan James). As of June 2016, the Division has total reserve assets of $5461. A portion of these assets ($4270) is set aside as deferred dues to cover expenses incurred prior to the collection of dues. Scott considers $5000 to be a comfortable cushion for the division. The reserve fund should continue to grow, and there is no need to raise dues. Motion to approve the proposed budget for 2016-17 was seconded and approved.

Scott also presented a review of the QG&G accounts with GSA Foundation. The Peter Birkeland Award is a new account. Most accounts saw small losses due to market performance. The John Montagne Fund and J. Hoover Mackin Award have continued to grow with new donations, with the Mackin Award approaching the level that QGG could consider giving two awards each year. The Schumm and Birkeland Awards will likely be given for the first time in 2017.

Student Award Evaluation Procedures:
Tammy Rittenour (2nd Vice Chair) provided an update on the student award evaluation process revision, initiated two years ago due to the increasing numbers of student proposals received for evaluation by the division. In 2016, each proposal received 3 reviews, and then the top selections went to the entire panel for final review. Tammy Rittenour (2nd Vice Chair) will communicate the details to Grant Meyer (incoming 2nd Vice Chair) for spring 2017. It is expected that in addition the Mackin, Howard, and Morisawa awards, the student award reviewers will also select the recipient of the inaugural Birkeland Award (see below). *Note: It is the board's understanding that the donor intent for the Black and Schumm Awards, similar to the Montange and Fahnestock Awards, is for the recipient to be selected for this specialized award by the GSA Committee on Research Grants, not directly by the division.*
See http://community.geosociety.org/qggdivision/awards/awardsoverview

Pete Birkeland Award:
David Dethier (Past Chair) has been working with the GSA Foundation and Pete Birkeland to establish the Peter Birkeland Soil Geomorphology Award. The inaugural award will be presented in 2017. The recipient should be a graduate student working on a thesis with a research focus in soil geomorphology or weathering. If there is not an applicant with either focus, the award may go to a student in the area of Quaternary stratigraphy or geomorphology, in that order. The applicant must be a GSA member. Each year, the recipient will receive the biographical information compiled when Peter Birkeland received the QG&G Distinguished Career Award in 2000. Donations to grow the amount of the Peter Birkeland Soil Geomorphology Award, as for all the QG&G student awards, are tax-deductible and may be made through the GSA Foundation at any time.

QG&G webpage:
Anne Jefferson (Webmaster) reported that the new QG&G website on GSA's Connected Community is up and running (http://community.geosociety.org/qggdivision/home). The majority of content (awards, newsletters) was successfully migrated and now the attention will shift to developing new content and functionality. A short list of items proposed by Anne J. and supplemented by suggestions from board members includes: an image archive for Kirk Bryan Field Trip photos and award winners, a history page, connectivity to

social media (Facebook, Twitter, blog roll), a place to donate to the division and QG&G award foundation accounts, a GSA journal roll for QG&G authors, a place for timely announcements, a resource page for graduate programs in Geomorphology & Quaternary Geology (modeled after the Archaeological Division's page http://rock.geosociety.org/arch/guide.html).

Division T-shirts & Hats:
QG&G T-shirts and hats were again available for a suggested donation of $15 each ($5 for size S) at the Awards Ceremony on Tuesday night. We are out of traditional style baseball hats and women's XL T-shirts. There were also requests for men's & women's XXL, as these shirts run small. The 2 large boxes containing the remaining items will be stored by GSA and delivered to the 2017 Seattle meeting. Mary Kerns of GSA reported that we collected $315 in the 2-hour window at the awards ceremony.
The board generally feels that there is interest in having QG&G merchandise available to the membership, but recognizes the diminishing returns on the current selection. *Unassigned(?) action item: research cost effectiveness vs. QGG community building through maintaining merchandise inventory. Proposal to purchase new hats and shirts with a wider range of sizes (to include XXL); new color/style; keep same logo.*

Inventory and Donation History for QG&G Merchandise:

	Inventory of Items (No.)	Donations Received	Cumulative Profit or (Loss)	Approx. Market Value of Items ($15/per)
2013 Purchase	425	~	($4275)	$6375
2013 Meeting	285	$2100	($2175)	$4275
2014 Meeting	239	$690	($1485)	$3585
2015 Meeting	210	$435	($1050)	$3150
2016 Meeting	145	$315	($735)	$1735 ($5 for S)

2016 Inventory: Women's: S -15, M-24, L-7, XL-1. Men's: S-29, M-25, L-11, XL-4. Hats (short bill): 29.

Review of Groundhog Day Document:
Sarah Lewis (Secretary) and **Anne Chin** (Chair) proposed a new strategy for updating the Groundhog Day Document. They suggest a complete overhaul of the document, created in 2000, and last comprehensively updated in 2009. Two key changes are:

1) remove "list style" division, individual board & panel member calendars, which are repetitive and cumbersome to update, and create a matrix (spreadsheet) division calendar. Ideally this calendar would be sortable or searchable by position or event/task.
2) clean the narrative for all sections by moving outdated or anecdotal information to an archive or appendix. The intent is that the GDD remain a guide to current procedures, while the archive would be consulted for the background on any individual issue to inform future changes to policy or procedures.

Anne C. & Sarah will lead the revision over the coming months, requesting input from board & panel members as appropriate, including developing new material on the Kirk Bryan Field Trip, the Schumm, Black and Birkeland Awards, and JTPC responsibilities. The target is to have the document ready for review by the 2017 board meeting in Seattle. Motion was seconded and approved.

Request for division sponsorship:
Anne Chin (Chair) expressed the need for a better way to track and grant division sponsorship of proposed sessions. The current procedure is for a session proposer to send the division contact (usually the Chair) an email request before the session proposal deadline. This traditionally results in a flurry of last minute emails and requires the contact to 1) respond to each email individually and 2) manually compile a list including session proposer names & emails, title, co-sponsors, and session description. The division contact may then contact proposers to ask them to combine or rework sessions, but there is often not adequate time to do this successfully. The board discussed changes that the division could make that might address these concerns, including setting a QG&G sponsorship request deadline at least 48 hours prior to the GSA deadline, and developing an online form to collect and manage requests, such as SurveyMonkey, Qualtrics or google forms. Motion to develop a web-based division sponsorship request form and new procedure for 2017 seconded and approved.

Nominations to GSA Fellowship:
Thom Davis (Historian) provided a comparison between a list of current division members and GSA fellows, highlighting potential nominees. As of 2016, QG&G has 294 GSA Fellows or 16% of division membership; QG&G ranks 4th among all divisions for which data was available and first or second for divisions with more than 1000 members. In order to facilitate the recognition of deserving Quaternary geologist and geomorphologists, Thom has volunteered to be the point of contact for coordinating the nominations, particularly calling for current GSA Fellows to participate in at least one nomination in 2017. Three nomination letters by GSA members are required; the primary nominator and one of the supporting nominators must be GSA Fellows. In each election cycle, a Fellow may support two nominees, but only one as primary nominator; a GSA member (non-Fellow) can support two nominees as a secondary nominator. See http://www.geosociety.org/members/fellow.htm.

GSA Headquarters charge to divisions:
Anne Chin (Chair) led an open discussion of the charge presented to the divisions (see GSA Division Chair's Meeting Report above for summary**).** The discussion was primarily information sharing with limited brainstorming about how to approach the charge, recognizing that Glenn Thackray (incoming Chair, not present at meeting) would lead the development of a QG&G response. The general feeling was that QG&G is a strong division that has a clear mission, an invested membership, and broad support within GSA. Discussion of ways to improve centered around the retention of early-career and student members, and how to assess and responsibly address the changing needs of the community. Motion to create a special committee to address the charge, chaired by Glenn and comprised of a range of board and panel members representing a range of disciplines & career stages, was seconded and approved.

Recognition of Service:
We thank outgoing Past Chair David Dethier, and 2014-2016 Panel Members Anders Carlson, Allison Duval, and Amy East for their service to QG&G.

Business Meeting and Award Ceremony:
The annual awards ceremony was held Tuesday, September 27th, 7-11 PM at the Colorado Convention Center. In addition to presenting the Division's student and professional awards, the management board provided an update to the membership on the financial status of the division and solicited nominations and proposals for the coming year and the Seattle 2017 meeting.

Meeting adjourned at 9:20 pm

Note: Minutes unanimously approved via email vote November 2016.

Division Elections

Your voice is important in our upcoming June election. To help you make an informed choice, here are the biographies for the two candidates for Second Vice Chair. The Second Vice Chair serves one year, before running for election for First Vice-Chair, then Chair and Past Chair.

Second Vice-Chair 2017-2018 (1 year term)

Julie Brigham-Grette. *Education:* B.A. Geology, Albion College; M.Sc. and Ph.D., Univ of Colorado-Boulder. Post-doctoral Fellow, Univ of Bergen, Norway, 1984-1985; Univ of Alberta, Edmonton, 1985-1987; At UMass-Amherst since 1987**.** *Professional Affiliations:* Member, Arctic Logistics Task Force for NSF Polar Programs 1996-1999; 2000-2003, Member of NSF -OPP Office Advisory Council 2002-2004; 2-term Chair, International Geosphere/Biosphere Program's Science Steering Committee on Past Global Change (PAGES) 2004-2008; President of the American Quaternary Assoc, 2004-2006, Secretary 1990-1998; US representative to Intern. Continental Drilling Program, 2003-2008; Member, US co-chief scientist of the Lake El'gygytgyn Drilling Project 2000-present; Polar Research Board, National Academy of Sciences 2008-present, Chair 2014 to present; External Advisory Committee to LacCore, University of Minnesota, 2007-present; Chair, AGU Paleoceanography & Paleoclimatology Focus Group 2010-2012; *Awards:* Geological Society of America Fellow, 2002; American Geophysical Union Fellow, 2016. *Research Interests*: Arctic marine & terrestrial paleoclimate records of the Late Cenozoic to recent, the evolution of the Arctic climate, especially in the Beringia/Bering Strait region.

Martha-Cary Eppes "Missy". *Education*: BS, Washington and Lee University 1993; MS New Mexico Tech 1996; PhD University of New Mexico 2002. *Experience*: Assistant Professor UNC Charlotte 2004-2008; Associate Professor UNC Charlotte 2009 – present. *Professional Affiliations*: GSA, AGU. *GSA Service*: GSA QG&G Grad Student Awards Selection Committee 2017; GSA QG&G Panelist 2004-2006, GSA Publications Committee 2010-2014; GSA Annual Meeting Field Trip Chair, 2013; GSA Graduate Student Grant Review Panel 2008-2009. *Other Service*: NSF Geomorphology and Land Use Dynamics Review Panel - 2 terms. *Awards*: GSA Hoover-Mackin Award 2000; GSA Gladys Coal Memorial Research Award 2007. *Research Interests*: Mechanical weathering. Soil geomorphology and Quaternary geology of post-glacial landscapes in the southern Rocky Mountains. Soil geomorphology of the piedmont of the eastern United States.

The rest of the ballot consists of:

Chair (one-year term): Tammy Rittenour (or Write-in)

1st Vice-Chair (one-year term): Grant Meyer (or Write-in)

Treasurer (two-year term): Scott Burns (or Write-in)

Newsletter Editor/Webmaster (two-year term): Anne Jefferson (or Write-in)

Panelists (two-year term; vote for three (3) candidates):

Greg Balco	Jaime Goode	Karen Gran
Brad Johnson	Joanna Redwine	Dylan Ward

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