



STRUCTURAL GEOLOGY AND TECTONICS DIVISION Newsletter

Volume 32, Number 2

September 2012

Chair's Message

Well, my year as Chair of our GSA Division has gone quickly, and I want to thank the members of the SGT for their engagement and support. The primary goals this year were consolidating the changes and innovations that the board put in place over the past several years. These include efforts to encourage greater participation by student members and establishing stronger ties between academic and applied aspects of our science. We have a great technical program set up for this fall's GSA meeting in Charlotte because of concerted efforts by our Program Committee, and of course the folks with the imagination and persistence to organize the sessions.

1. *Changes on the Board:* Our new Second Vice Chair this year is Sarah Roeske of the University of California, Davis. Please join me in extending congratulations to Sarah. Yvette Kuiper completed her first year as Secretary / Treasurer – Thanks Yvette. Your new Chair following the Charlotte GSA meeting will be Donna Whitney of U of Minnesota, and Andrew Meigs of Oregon State will move into the First Vice Chair slot.
2. *Career Contribution Award:* The award for this year goes to Richard Allmendinger of Cornell University. Rick has clearly distinguished himself through his research, teaching, and creation of useful computer programs that are distributed widely amongst the structural geology / tectonics community.
3. *Outstanding Publication Award:* The award goes to Doug Yule and Kerry Sieh for their 2003 paper 'Complexities of the San Andreas fault near San Geronio Pass'. A great application of structural geology to earthquake hazards!
4. *Laubach Award:* This year the Stephen E. Laubach Structural Diagenesis Research Award goes to Erika Swanson who is pursuing her PhD at CalTech. Erika is studying the evolution of the Hart Mountain detachment fault using clumped-isotope geothermometry. The award is shared between our division and Sedimentary Geology Division. Congratulations Erika!
5. *SG&T Keynote Lecturer:* This year's SGT Keynote Lecture will be by Peter Hennings, Manager of Structure and Geomechanics at Conoco-Phillips. He will discuss "Petroleum structure and geomechanics – what it is and how the industry/academic bond can be strengthened". The keynote lecture will be delivered in Topical Session T171: The role of structure and diagenesis in governing fluid storage and flow in deep sedimentary basins with applications to unconventional oil and gas reservoirs on Tuesday afternoon, Nov. 6.
6. *The People Behind the 2012 Meeting:* A well-balanced and organized technical program at the Annual meeting doesn't just spontaneously appear, but is the result of a lot of hard work by two

committees. The SG&T Program Committee now consists of the First and Second Vice Chairs of the SG&T Board, the Division's two representatives to the GSA Joint Technical Program Committee (JTPC), and a couple of SG&T member volunteers. JTPC members for this year are Phil Resor and Christine Siddoway. The Program Committee is Donna Whitney, Andrew Meigs, Kevin Stewart (UNC) and Jim Hibbard (NCSU).

7. The rest of the story: Let's acknowledge and thank our various committee members who managed selection of awards this year: *Career Contribution Award* – Gary Axen, Steve Wojtal and Sarah Roeske, *Outstanding Paper Award* – Adolph Yonkee, Jonathan Caine and Dyanna Czeck, *Stephen Laubach Research Award* – Charles Onasch and Christie Rowe. Also, we shall not forget the efforts of David West (Newsletter), Kevin Smart (Web page manager) and Kurt Burmeister (Facebook guru).
8. Looking forward: Next year is the 125th anniversary of the Geological Society of America, and we certainly want our division to be an active participant in the celebration during the annual meeting in Denver, CO, which is scheduled for 23 – 27 October, 2013. So we encourage you to consider appropriate topics (history of structural geology in U.S. for example?) and special field trips that may form part of this special meeting. Keep your SGT board informed of your ideas as they also prepare for the meeting.
9. In closing, I would like to refer you to the short reports on SGT happenings and future plans that are included in this newsletter. Paul Karabinos reports on the recent Structural Geology Forum which was held during the summer, Basil Tikoff reports on a new initiative to lay out ideas for future directions of research in structural geology and tectonics, and Doug Walker writes about upcoming structural geology database workshop to be held in October.

See you in Charlotte!

Ron Bruhn

Chair, Structural Geology and Tectonics Division

Message from the Secretary/Treasurer (Yvette Kuiper)

Similar to Ron, my first year at the Division has flown by as well. I certainly learned a lot about the Division as Secretary/Treasurer, feel even more part of the Structural Geology and Tectonics community than I already did, and am looking forward to the next year(s). I thoroughly enjoy working with my fellow Board Members and Committees. We're always looking for enthusiastic new people to serve on the Board and our Committees, so don't be shy to show your interest or recommend your friends/colleagues.

This report summarizes our year-end statement for the twelve months ending June 30, 2012. The Division is in good financial shape! We are just shy of \$15K in our operating budget, ~\$2,500 higher than last year, mostly due to continued income from 'Rite-in-the-Rain' notebooks and our increased dues. Donations were \$1,820, slightly lower than the previous year, when you were perhaps more excited about our (then new) bottles and caps. If you do have some spare money that needs a purpose though, just don't forget your GSA Structural Geology and Tectonics Division! With our increased income over the past two years we did decide to move \$5,000 to the Student Fund held by the GSA Foundation, which now totals just over \$45K! We generally use funds to support GSA Graduate Student Research Grants with a structural geology and/or tectonics focus, provide Student Travel Grants to the annual GSA meeting for students with such grants, and support our Division Awards and Annual Business Meeting. Our current membership count is 1721 as of August 2012.

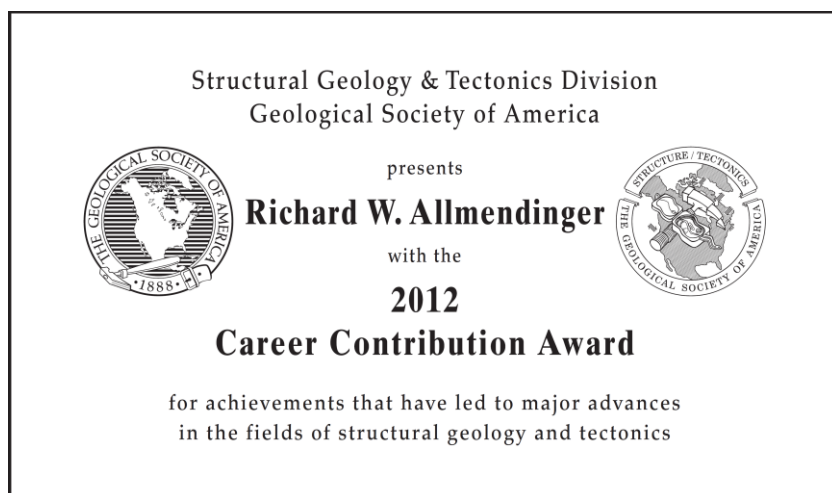
2012 GSA Annual Meeting in Charlotte (Nov. 4-7)

The SG&T Division is sponsoring a variety of theme sessions (see below) at the Annual Meeting of the Geological Society of America in Charlotte, North Carolina on November 4-7, 2012.

- *Geological Records of Earthquakes and Tsunamis on Passive and Active Margins Coasts*
- *EarthScope and Geoprisms in Eastern North America: Ongoing Endeavors and a Look Ahead*
- *Dynamic Views of North America from EarthScope-Related Research (Digital Posters)*
- *Tectonics of Icy Bodies and Their Analogs*
- *Impact Cratering in the Solar System: Processes and Products*
- *Central Virginia Earthquakes of 2011: Geology, Geophysics, and Significance for Seismic Hazards in Eastern North America*
- *The Role of Structure and Diagenesis in Governing Fluid Storage and Flow in Deep Sedimentary Basins with Applications to Unconventional Oil and Gas Reservoirs*
- *Appalachian-Ouachita-Marathon Fold-Thrust Belts and Foreland Basins: Their Stratigraphy, Sedimentology, Structural Evolution, and Economic Significance*
- *Deformation Processes in Lithospheric High-Strain Zones*
- *Heredity of Appalachian Crust*
- *Large-Scale Strike-Slip Fault Systems: Insights into 4-D Evolution through Lateral and Vertical Juxtaposition Recorded in the Rock Record, Geophysical Imaging, and Associated Basin Formation via Large-Scale Translation and Transpression*
- *Supercontinent Cycles through Earth History (Posters)*
- *Geology and Tectonics of the Aegean Region*
- *Dynamics of Gneiss Domes, Core Complexes, and Orogenic Plateaux*
- *Paleoseismology and Active Tectonics of Eastern North America*

SG&T Division Awards


Career Contribution Award: Richard Allmendinger of Cornell University.



The Division thanks the CCA selection committee of Gary Axen, Steve Wojtal and Sarah Roeske

Outstanding Publication Award: Doug Yule and Kerry Sieh


Yule, D., and Sieh, K., 2003, Complexities of the San Andreas fault near San Geronio Pass: Implications for large earthquakes: Journal of Geophysical Research, 108 (B11), 2548.



Structural Geology & Tectonics Division
Geological Society of America
presents the

**2012 Outstanding
Publication Award**
to

Doug Yule and Kerry Sieh
for the following paper:



Complexities of the San Andreas fault near San Geronio Pass: Implications for large earthquakes

Yule, D., and K. Sieh, Complexities of the San Andreas fault near San Geronio Pass: Implications for large earthquakes, J. Geophys. Res., 108(B11), 2548, doi:10.1029/2001JB000451, 2003.

Abstract—Geologic relationships and patterns of crustal seismicity constrain the three-dimensional geometry of the active portions of San Andreas fault zone near San Geronio Pass, southern California. Within a 20-km-wide contractional stepover between two segments of the fault zone, the San Bernardino and Coachella Valley segments, folds, and dextral-reverse and dextral-normal faults form an east-west belt of active structures. The dominant active structure within the stepover is the San Geronio Pass-Garnet Hill faults, a dextral-reverse fault system that dips moderately northward. Within the hanging wall block of the San Geronio Pass-Garnet Hill fault system are subsidiary active dextral and dextral-normal faults. These faults relate in complex but understandable ways to the strike-slip faults that bound the stepover. The pattern of crustal seismicity beneath these structures includes a 5–8 km high east-west striking step in the base of crustal seismicity, which corresponds to the downdip limit of rupture of the 1986 North Palm Springs earthquake. We infer that this step has been produced by slip on the linked San Geronio Pass-Garnet Hill-Coachella Valley Banning (SGP-GH-CVB) fault. This association enables us to construct a structure contour map of the fault plane. The large step in the base of seismicity downdip from the SGP-GH-CVB fault system probably reflects a several kilometers offset of the midcrustal brittle-plastic transition. (U/Th)/He thermochronometry supports our interpretation that this south-under-north thickening of the crust has created the region's 3 km of topographic relief. We conclude that future large earthquakes generated along the San Andreas fault in this region will have a multiplicity of mostly specifiable sources having dimensions of 1–20 km. Two tasks in seismic hazard evaluation may now be attempted with greater confidence: first, the construction of synthetic seismograms that make useful predictions of ground shaking, and second, theoretical investigations of the role of this complexity in retarding the propagation of future seismic ruptures.



Doug Yule



Kerry Sieh

The Division thanks the OPA selection committee of Adolph Yonkee, Jonathan Caine & Dyanna Czeck

Report on the 2012 Structural Geology and Tectonics Forum

The second Structural Geology and Tectonics Forum was held June 12-18, 2012, at Williams College in Williamstown, Massachusetts. One hundred and five geologists and five cognitive scientists attended the meeting, and most stayed on the Williams College campus and dined together at the Faculty Club. Thirty graduate students were present at the meeting. Steve Marshak, from the University of Illinois, summed it up well when he said “It was like a summer camp for structural geologists.” There were no registration costs for the forum, and lodging and meal expenses were minimal, thanks to support from the National Science Foundation and Williams College. Graduate student attendance was heavily subsidized.

The anchor of the forum was three days of oral and poster presentations on a variety of research topics, including one half day session on cognitive aspects of teaching a subject that relies heavily on visualization skills. The informal nature of the meeting promoted a great deal of discussion during and in between sessions. There were two days of field trips and short courses before and after the technical program. Field trips took geologists from eastern Massachusetts to the Hudson Valley of New York, and from the Berkshires in western Massachusetts to the Taconics in Vermont. The field trips were successful in generating discussions and sharing ideas between scientists with a wide variety of backgrounds and field experience. Workshops on analog deformation experiments, dating monazite, Google Earth, digital field mapping, and strain analysis programs provided participants with up-to-date views by experts in these fields. For a complete schedule visit: <http://www.geology.wisc.edu/~struct/mtg2012/>.

The Structural Geology and Tectonics Forum 2012 was organized by Paul Karabinos (Williams College), and Basil Tikoff and Richard Becker (University of Wisconsin, Madison). Many people helped by running field trips, workshops, convening technical sessions, and giving stimulating keynote presentations. The next SG&T Forum will take place at the Colorado School of Mines in Golden, Colorado, and be organized by Yvette Kuiper.



Field trip participants examine the famous deformed Taconic unconformity exposure during the Hudson Valley fold and thrust belt field trip in eastern New York associated with the SG&T forum held at Williams College in June. Trip leader Steve Marshak (orange vest) stands guard.

Proposed “White Paper” for Structural Geology and Tectonics

We propose to develop a community-based white paper for the National Science Foundation on Future Challenges in Structural Geology and Tectonics. This idea arose independently at both the 2012 Williamstown SG&T Forum and the 2012 Cutting Edge “Teaching Structural Geology, Tectonics, and Geophysics in the 21st Century” this summer. A number of other communities have recently created a white paper of this sort, and there was both desire and a feeling of necessity to create one for our community.

We would very much like this to be a community-based activity. Consequently, we propose the following steps as part of the current plan. First, we will form a planning team, which will consist of a handful of individuals from a variety of different parts of our community (with some representation from the GSA Structural Geology and Tectonics Division). This planning team will not participate in writing the document, but will designate a writing committee that fully reflects – to the extent possible – the methodological, geographic, professional, and demographic diversity of our community. In particular, the planning team will help to designate a few leaders who can bring the white paper to completion. At this point, the planning team will dissolve. The charge for the writing team would be to produce a document that would reflect the range of interesting and innovative research currently being done in our community. We anticipate that the writing team will encourage every interested person in the community to send in a 1-page (with format and questions predesigned) pdf file that addresses major challenges and pathways for meeting these challenges. The team will read all of these 1-page contributions and then develop a series of overarching themes that reflect community input. In addition, the writing team will have access to notes taken at any community gatherings that are organized in relation to this effort.

We also hope to engage the AGU Tectonophysics division and its members to participate in this process. We have engaged the **GSA Structural Geology and Tectonics Division** Board in our initial planning conversations, and they have agreed to play a limited role such as helping to form the planning team and helping to organize GSA-meeting-related activities. We propose the following timetable.

- 1) Develop a planning committee that will have two main functions: (1) facilitating the formation of a writing committee, and (2) identifying a person or persons who will take the responsibility for leading the writing effort and meeting established timelines.
- 2) Meet at GSA 2012 in Charlotte to discuss the ideas informally, and announce this effort at the business meeting.
- 3) Organize a town-hall meeting at Fall AGU 2012 to initiate interaction with Tectonophysics division members.
- 4) Initiate writing and community feedback efforts in Spring 2013.
- 5) Finalize writing in Summer 2013.
- 5) Have a final meeting/feedback at the annual GSA in Denver in Fall 2013, and produce a report perhaps at the end of 2013.

Please stay tuned for further developments, and contact Scott Johnson or Basil Tikoff if you have questions or ideas.

Cyberinfrastructure - Structural Geology

There will be a 2-day workshop in Chicago, IL, on October 20-21 to evaluate the cyberinfrastructure needs of the structural geology and tectonics community (SGTC) and develop plans for addressing these needs. This effort will include: 1) establishing science drivers and challenges of the SGTC; 2) identifying the impediments to using data and tools both within and external to the SGTC; 3) listing existing and more critically needed data, tools, and visualization to form a cyberinfrastructure for the community; 4) creating several use cases that demonstrate how the cyberinfrastructure will be used to address the science drivers or provide critical connections for teaching and research. The overall product of the workshop will be a report to NSF to help integrate SGTC needs and science efforts with EarthCube to start a dialog on how best to unite the efforts. We anticipate being able to cover all or most of the costs of the workshop for up to 40 participants; room and meals will be provided. Interested early career scientists and senior graduate are encouraged to contact the conveners.

The meeting will take place at an airport hotel near Chicago's O'Hare airport. The location was chosen because of Chicago's central location and major airport hub. This workshop is funded by the National Science Foundation through the EarthCube initiative, and is organized by Doug Walker (U Kansas), Basil Tikoff (UW-Madison), and John Oldow (UT Dallas).

Please contact Doug Walker (jdwalker@ku.edu) if you have questions or are interested in participating. For future information and to register for this event please go to: <http://www.eventzilla.net/web/event?eventid=2138966549>

Student Research Awards

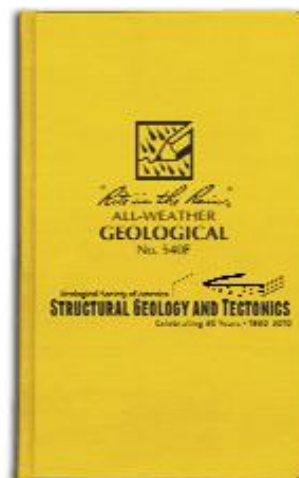
Each year the SG&T division recognizes students for excellent research proposals in the annual GSA solicitation. This year's impressive winners will be recognized at SG&T's Awards Ceremony during the GSA annual meeting in Charlotte and will receive funds to help with travel to the meeting.

Aileen Chea, San Francisco State University
David Oakley, Pennsylvania State University
James Worthington, University of Arizona

Brian Culp, Pennsylvania State University
John Templeton, Columbia University/LDEO
Alph Wright, Texas A&M

The SG&T Division Student Fund

Students represent the future of our division, and the board considers the support of students who are interested in structural geology and tectonics to be among our highest priorities. The student fund, established within the GSA Foundation, will allow us to more effectively meet this priority. Our goal is to grow the fund to \$80,000 before drawing interest from it. You can donate to the fund at the GSA web site (<http://www.gsafweb.org/makeadonation.html>) and then scroll down to SG&T Student Fund). Another way to support the SG&T student fund is to buy commemorative Rite-in-the-Rain field notebooks from the GSA store on-line (<http://www.geosociety.org/bookstore/> - product code SGTRITR). Approximately \$7 from every book sale will go to the student fund.



ANNOUNCEMENT OF GRANTS FOR STUDENTS TO ATTEND GSA SHORT COURSES OR FIELD TRIPS

Student members of the Structural Geology and Tectonics Division interested in attending short courses or field trips at the [2012 GSA Annual Meeting](#) in Charlotte, NC may apply for support from the [SG&T Division](#). Successful applicants will receive funds to pay all or part of the registration fees associated with short courses or field trips. Preference will be given to those delivering an oral or poster presentation on research in the fields of structural geology or tectonics at the GSA meeting.

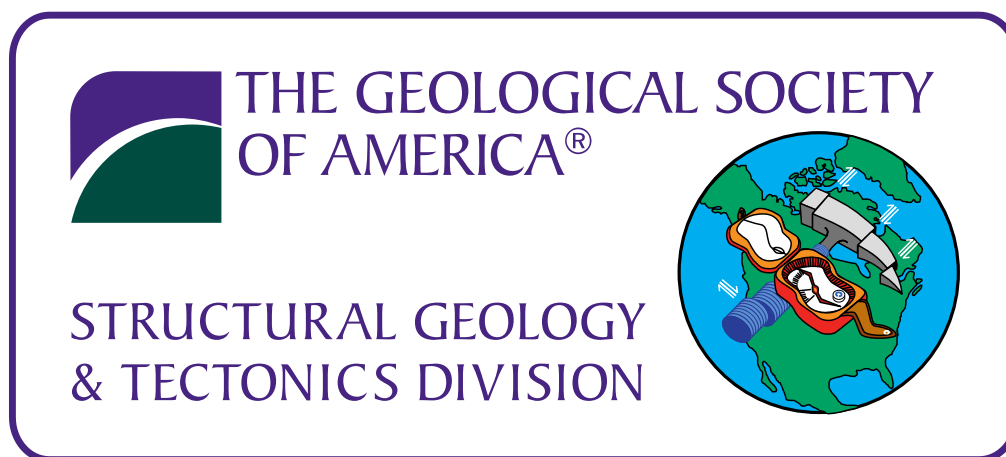
To apply, send the following to [Andrew Meigs](#) no later than 15 September 2012:

- * Your name
- * GSA member ID number
- * Your institution's name
- * Degree program status (degree sought, year in program)
- * Your research specialty (described in a few words)
- * Your poster or talk title, including session number, name, date, and time
- * Field trip or short course title and number
- * A narrative of two to three paragraphs indicating why the field trip or short course is important to your research or professional development

See you in Charlotte!

GSA Structural Geology and Tectonics
Management Board

The new SG&T Logo



In case you haven't seen it, SG&T has a new Logo. The GSA required us to modify our previous logo to fit their templates for division logos. While doing so Margo Sabjan at GSA did a coloring job for us. Thanks Margo!

The Board members all love it – but perhaps Yvette says it best: It's new! It's colorful! It's fashionable! And it's in style with all of our sister divisions! It is.....our new LOGO!!!

SG&T is on facebook!

SG&T Facebook page now has more than 5,000 fans! Everyone can access our page at www.facebook.com/GSA.SGT. This page will be used for announcements between newsletter publication times, and for the sharing of news, deadlines, and up to the minute updates on forthcoming conferences, workshops, and short courses that would be of interest to our members. The Division web site will remain the place for all official SG&T information <http://rock.geosociety.org/sgt/index.htm>

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