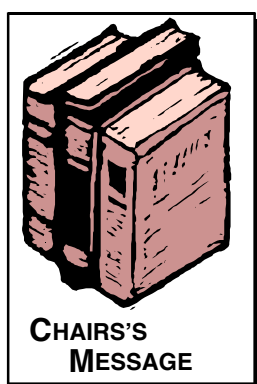


STRUCTURAL GEOLOGY AND TECTONICS DIVISION Newsletter

Volume 30, Number 1

February 2010



Chair's Message

Happy 30th anniversary SG&T!

2010 marks 30 years since the founding of the Structural Geology and Tectonics Division in 1980. We are celebrating this anniversary in a variety of ways. The program committee has developed an excellent array of sessions that will serve as meetings within the meeting (see page 17) and we are sponsoring a competition for a new logo that will be featured on merchandise for sale at the annual meeting (see page 2). In addition, the Board has been working on ways to better showcase the exciting activities within the Structural Geology Division.

These efforts include changing the name of the *Best Paper Award*, improving the design of the professional awards and starting a new GSA foundation fund for SG&T student research and travel.

Our intent in implementing these changes is to more effectively showcase the fabulous research going on within the division and foster career development of students.

Quick Links

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Outstanding Publication Award: The SG&T Board has unanimously agreed to change the name of the *Best Paper Award* to the *Outstanding Publication Award*. This change will alleviate some confusion and bring the name closer in line with the spirit of the award. The change from *paper* to *publication* recognizes that books, maps and other non-paper publications have been awarded in the past and can be nominated for recognition. We are also updating the award to a metal ionized version of the front page of the winning publication (see page 3).

Career Contribution Award: The Board is looking into designing a medal to serve as the award. As a point of information, the Board has been discussing alternative names for the Career Contribution Award. Ideally we would name this award for a geologist who has had profound impact on structural geology and tectonics and who does not already have a medal named for him/her. As you can imagine, our discussions

produced a myriad of names but little consensus at this time. We will continue our discussions and we welcome your ideas and suggestions.

SG&T Division Student Fund: The SG&T Division announces the inauguration of the *Structural Geology and Tectonics Division Student Fund*. This is a new GSA Foundation fund that will grow and provide much needed resources to expand our support of student research and travel to field trips and conferences. In this 30th anniversary year we are launching an inaugural campaign to grow the fund to \$80,000 (see page 3).

30th anniversary merchandise: The SG&T Division will be selling 30th anniversary merchandise, available for pick up at the annual meeting. All proceeds from the merchandise sales will go directly to the new *SG&T Division Student Fund*, so please plan your purchases!

As you can see, the Board has been hard at work with new initiatives that will promote and showcase the fabulous work that we are all doing. We are the largest (and we think most talented) Division within GSA. For the 30th anniversary of the Division, let's show them what we've got!

-Michele Cooke

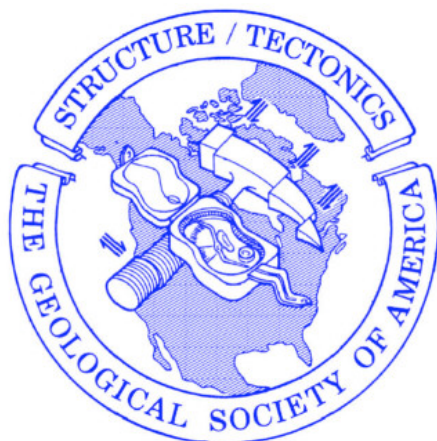
Chair, SG&T division



30th Anniversary Logo Competition

We've got a great division logo, can we come up with a better one? The SG&T division is sponsoring a competition for a new division logo to mark the 30th anniversary of the division. Would you like to see your design used to represent the division and featured on a variety of items (e.g. water bottles) for sale at the annual meeting, and on the division's awards?

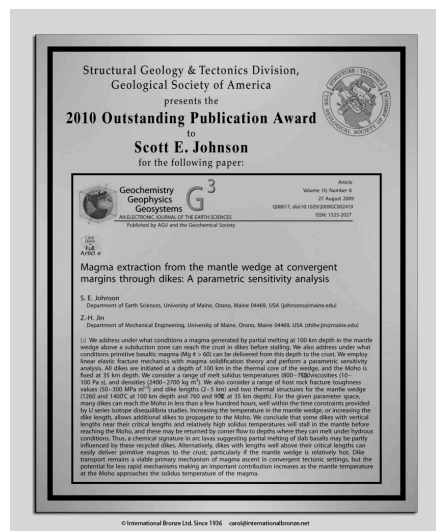
Submit your design to Ron Bruhn (ron.bruhn@utah.edu) by March 15th, 2010. The new logo should not be derivative of other logos or material and the winning design will be the property of GSA. We will post the submitted designs (as well as the current logo) and solicit votes and comments from division members. The designer of the winning logo will receive complimentary registration to the 2010 annual GSA meeting! All those who submit a contending design will be given SG&T merchandise at the 2010 meeting.



Shown are the original logo designed by Don Wise for the inception of the division in 1980 and the 25th anniversary logo.

Outstanding Publication Award

We are updating the physical award that is given to the winning publication. The *Outstanding Publication Award* will be a 8 x 10 inch metal ionized plaque inscribed with the front page of the publication (see sample image below – not intended to suggest that Scott's paper is worthy of the award). Achieving the *Outstanding Publication Award* is a tremendous honor and the board is very excited that future recipients will have this stylish metal plaque to display in recognition of their achievement.



This award is given annually for a published work (paper, book, or map) of exceptional distinction that clearly advances the science of structural geology or tectonics. Preference will be given to papers published in the past five years.

We have all read papers that have changed our thinking on tectonics and deformational processes, papers that elegantly account for what were previously puzzling correlations and papers that utilize new approaches to bring fresh perspective on our science. The Outstanding Publication Award is our chance to celebrate these papers and honor their authors. Information about the award can be found at (<http://rock.geosociety.org/sgt/BestPaperAward.htm>).

The SG&T Division Establishes a GSA Foundation Fund The SG&T Division Student Fund

As we celebrate the 30th anniversary of the SG&T Division, the board is very excited to announce the inauguration of the Structural Geology and Tectonics Division Student Fund. For the past 30 years, the division has supported student research and travel to conferences, field trips and short courses via membership dues and proceeds from merchandise sales. This has been money well spent. Past recipients of graduate student research grants are now some of the shining stars of our field. 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.

While we've been able to provide limited support for student participation in our scientific activities, the board realizes that we can do a great deal more by setting up a foundation fund for students – a fund that we can grow over the upcoming years. We have several good reasons for wanting to go the Foundation route. For one, the funds at the GSA Foundation earn interest, whereas GSA division bank accounts do not. Another good reason to start the student fund is that all SG&T division members will be able to donate directly to the fund, knowing that 100% of their tax deductible donation is going to support student activities. Even though we are the largest division of GSA, we are one of the few divisions with no GSA Foundation funds. We would like to change that, and we believe that this year is the right time to act.

In this inaugural and 30th anniversary year we are launching a campaign to grow the SG&T Division Student Fund to \$80,000 this year. The interest from this amount, even in bad economic times, will provide more support for students than we have ever been able to offer in the history of the SG&T Division. To launch the campaign, the division has invested most of its accumulated reserves (\$12,000) to this new fund. If every division member donates \$40, we will quickly reach our goal of \$80,000 in the first year. But to really reflect the size and scope of the SG&T Division, we hope to

have \$200,000 in the fund within the next 3 years. This amount would allow a minimum of \$10,000 per year towards student activities and we will be able to greatly expand on our current level of support for students. So, we are asking those members who can do so to donate even more, and we are also looking for members who would be willing to match the donations of others.

A letter of appeal for the 30th anniversary campaign will be in the mail to you shortly. You can donate using the envelope enclosed with that mailing or on the Foundation's website – www.gsafweb.org. Every division member who donates at least \$40 before the 2010 GSA Annual Meeting in Denver, will receive a small token of our appreciation at the 30th Anniversary Symposium at the Annual Meeting (look for future announcements of this Symposium).

We are very excited about the development of this new fund, and we hope that you will work with us to make it a success!





The Structural Geology and Tectonics division is now on facebook!

Everyone can access our page at www.facebook.com/GSA.SGT

This page will be used for periodic announcements between newsletter publication times and for sharing of news and deadlines. The Division web site will remain the place for all official SG&T information <http://rock.geosociety.org/sgt/index.htm>

Students! Travel \$\$ Available!

Students interested in attending short courses or field trips at the GSA annual meeting in Denver, may apply for travel support from the SG&T Division. To apply, send the following to Ronald L Bruhn <ron.bruhn@utah.edu> by September 1:

- your name,
- GSA member number,
- your institution's name,
- degree program status, specialty,
- poster or talk title if a presentation is being given at the meeting,
- field trip or short course title, and
- a narrative of two to three paragraphs indicating why the field trip or short course is important to your research/professional development.

Want to serve on the SG&T Division Board?

The board is looking for individuals with strong commitment to the structural geology and tectonics community to serve a 4 year term starting as 2nd vice chair. Send your recommended or volunteered nominations to Michele Cooke (cooke@geo.umass.edu) before April 1.

Minutes

GSA Structural Geology and Tectonics Division Management Board Meeting

Tuesday, 20 October 2009

11:30 AM-2:00 PM, Hilton Portland and Executive Tower: Senate Suite

Attending: Claudia Lewis, Michele Cooke, Scott Johnson, Ron Bruhn, Arlo Weil, Dave West, Wesley Hill (brief visit)

I. Welcome and introductions--Claudia Lewis

II. Treasurer's report—Claudia Lewis for Mary Hubbard

The Division is in good financial shape with more than \$24,000 in balance. After meeting-related expenses we expect to end the year with more than \$20,000.

III. Committee reports

a. BPA--Arlo Weil for John Oldow

John Oldow will chair the committee in 2010. Arlo agrees will ask Adolf Yonkee to join. All agreed that this is a prestigious award but that it needs to come with something more fitting than a plaque. Arlo suggested that the first page of the winning paper be bronze cast. All agree that this would be very appropriate and even coveted. We will do it assuming it is affordable.

b. CCA—Claudia Lewis for Carol Simpson

There was a great deal of discussion surrounding the award, ranging from its name to whether or not it is perceived as sending an “end of career” message. This is a creative Board that wants to make positive changes, so we will take the following action. Claudia will attempt to find one of the past CCA winners who is willing to endow the award. If we are successful in this, the award will be named after this person and the Board will work with this person on a new set of criteria for selection. It is also possible that we would include a contribution option for this endowment that people can participate in during annual membership fee payment.

c. Annual Program (2009, 2010)--Michele Cooke, Scott Johnson

Michele and Scott report that the 2009 meeting program is running smoothly. Michele outlined a number of ideas in preparation for the 30th anniversary of SG&T to be celebrated during the 2010 Denver meeting. Chief among these is ~6 special sessions that highlight advances in structural geology and tectonics over the past 30 years. The 2010 program committee provided a preliminary list of titles, which Michele will present to members at the business meeting. Additionally, Michele indicated that we will develop merchandise for sale, which has added significantly in the past to SG&T's total cash assets.

d. Newsletter (electronic format)—Dave West and Barb Sheffels (not present)

Dave West reports that the newsletter production went smoothly. Wesley Hill made a brief appearance and suggested that, in the future, we should do the following. (1) Produce the newsletter to our requirements. (2) Upload it to the SG&T website. (3) Notify her that it is there and ask her to briefly peruse it for any policy-related entries that might need editing or modification. When this process is complete, she will e-blast the membership notifying them that the newsletter is available on the SG&T website and providing the URL. Wesley explained that GSA's input is really only required when we include content that relates to GSA policy. However, she is happy to have a look for editorial purposes as well. No Board member was able to report any complaints with the on-line newsletter format, so it appears to have been a good decision with (so far) no negative impact.

e. Web--Kevin Smart (not present)

The Board agreed with glee and appreciation on the wonderful job that Kevin has been doing with the website. Michele reported that at the Division Chairs meeting a couple of days ago, other Division Chairs were very impressed with the SG&T website and it is considered Best Practice for Division websites.

IV. New business (45 minutes)

a. JTPC--issues? Pardee proposals? Scheduling? Michele Cooke, Scott Johnson

An important new topic brought to the Board was the issue of workload associated with JTPC duties. Because SG&T is the largest Division in GSA, Board members are already carrying significantly more service load than most of the other Divisions. Because the JTPC duties are so intense, it makes life noticeably hard on the 1st and 2nd Vice Chairs of SG&T. Scott and Michele discussed this issue at length after the August JTPC duties, and decided that something needs to be done about this. Michele checked with the Hydro Division and found that they actually find two volunteers from the membership, apart from the Board members, to serve as the JTPC reps. Scott and Michele presented that option to the Board and, after much clarifying discussion, it was agreed that we would solicit help from our membership to handle this duty. This would involve finding one volunteer to help Scott with the August 2010 JTPC duties, and thereafter we would cycle one new volunteer each year to work with the veteran volunteer in a 2-year service role as SG&T JTPC rep. These volunteers will not be Board members and therefore will not need to be elected by member ballot. Because this is a significant commitment, the Board felt that the volunteers need some tangible compensation, and so the Board will consider possibilities such as contributing to the Annual Meeting registration fee for the two JTPC reps. It was decided that we would act immediately on this to find the first volunteer to work with Scott. Michele and Scott will take care of this.

b. Discussion of nominees for new members for committees (BPA, CCA, Program)

Michele will contact potential new members

c. Section liaisons--ideas for SE, S Central, N Central, International [Ernie Duebendorfer, Rocky Mtn; none needed for Cordilleran or NE]

The idea of Section Liaisons met with mixed feeling from the Board. It was unclear what GSA was actually trying to accomplish with this and they appear to have shifted their perceptions and recommendations in a short time frame. The Board decided not to act on this matter.

d. noted Call for proposals for Denver 2010. Field trip & short course deadline Dec 1, 2009

e. SGT 30th anniversary

See Section IIIc above. Following Michele's lead, we have plans developing to make the 30th anniversary one to remember – and one that may set some new trends in the way that we organize annual programs.

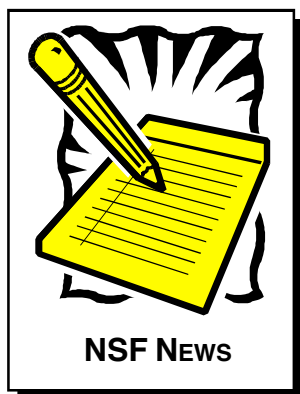
f. Other business.

Claudia suggested that we add a contribution option to the annual renewal process for members giving them the opportunity to contribute to students awards. After much discussion it was decided that we would start a fund with whatever the minimum is and then do a scholarship campaign for our 2010 30th anniversary. Each year we would award a percentage of membership donations to students for travel to workshops, field trips, or short courses. The remaining percentage of donations would go to building the fund. Our hope is to give at least \$1000 total each year, with the amount growing as the fund increases. Ideally we would like to make these available on a quarterly basis rather than just once a year so that students can attend workshops that aren't offered at the GSA annual meeting.

V. Adjourn We did so on time.

Respectfully submitted by Scott Johnson, 1st Vice Chair of the SG&T Division.





Notes from the NSF Tectonics Program

David Fountain and Jim Dunlap, Program Directors

NSF, Earth Sciences home page: <http://www.nsf.gov/div/index.jsp?org=EAR>
Tectonics Program home page:
http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=13673&org=EAR&from=home

NEW NSF Grant Proposal Guide

The new NSF Proposal and Award Policies Procedures Guide (NSF 10-1), which includes the Grant Proposal Guide and the Award and Administration Guide, is effective January 4, 2010. The new GPG outlines new requirements for post-doctoral fellowship mentoring, responsible conduct of research training, and reporting of research results.

NEW TECTONICS PROGRAM SOLICITATION

The EAR Tectonics Program solicitation (NSF 09-542) is available on the NSF website. Proposals can be submitted to the December 6 - January 6 or June 6 - July 6 submission windows. Proposals submitted to the Tectonics Program Dec 6-Jan 6 must follow NSF 10-1 since the end of the window (Jan. 6) acts as a due date.

EarthScope News

<http://www.earthscope.org/>

The next EarthScope Biannual Meeting will take place in 2011.

The past few months have been very active for the EarthScope program. The EarthScope community has worked hard to develop a new Science Plan, which is now available on the EarthScope web site (<http://www.earthscope.org/>). This report synthesizes community discussions from a workshop held in Snowbird UT on Oct 7-9, 2009 and post-workshop feedback by a wide cross-section of current and future EarthScope scientists. Talks and breakout group summaries from the workshop are available on the web site (http://www.earthscope.org/meetings/wesp_summaries). PBO and USArray engineers are working hard to install new seismic stations and to upgrade GPS stations in the Pacific Northwest with ARRA funds. The new instrumentation will enable high-resolution monitoring of episodic tremor and slow slip throughout the Cascadia forearc. Meanwhile, the TA continues to roll east and is currently straddling the Rocky Mountain front (http://www.earthscope.org/current_status), and SAFOD samples are in high demand (http://www.earthscope.org/data/safod_core_samples). The past year has also seen the success of several large, multidisciplinary proposals to integrate geology and geophysics in the Salton Sea, the Bighorn Mountains and elsewhere. For a complete list of funded projects see http://www.earthscope.org/science/funded_programs. Upcoming meetings include a workshop to prepare for EarthScope 2011 arrival in the Midcontinent (see Upcoming Meetings in this newsletter, page 19) (http://www.earthscope.org/workshops/cratonic_interior) and a workshop to introduce geologic interpreters to EarthScope and Yellowstone (web site coming soon). The web site also contains a bibliography of EarthScope publications, links to data products and complementary data sets, and many other "goodies." Please visit us on the web and join our email list (http://www.earthscope.org/maillist/general_list.php)!

--Anne Trehu, Oregon State University



NSF MARGINS Program

The MARGINS Decade, and its Successor

In the last decade the National Science Foundation's MARGINS program has built a robust interdisciplinary community, crossing the shoreline, to address a series of critical questions in the evolution of active continental margins. The existing program has emphasized four major initiatives, detailed on the MARGINS web page (www.nsf-margins.org): Rupturing Continental Lithosphere (RCL) which seeks to understand the processes by which continents break up; Source to Sink (S2S) which seeks to couple processes that generate and transport sediment on land to those that build the offshore stratigraphic record, the Seismogenic Zone Experiment (SEIZE) which explores the controls on rupture of major plate boundary thrust earthquakes, and the Subduction Factory (SubFac) which seeks to understand the processes by which inputs into trenches control the outputs at arc volcanoes. This program has seen many major scientific successes over this decade, and cultural ones as well; a typical proposal involves close integration of research from many different disciplines, field efforts seamlessly merge the very different approaches of marine and terrestrial observation, and throughout the program, computational, experimental and analytical studies provide critical integrative insights. The program is served by a central MARGINS Office, which facilitates these interactions and many educational efforts. Over the last decade, over 600 authors and coauthors have published more than 250 peer-reviewed papers acknowledging MARGINS funding, and well over 1000 scientists have participated in MARGINS scientific workshops. This decadal program has entered a final "integration and synthesis" phase.

There is great interest and enthusiasm for establishing a successor to MARGINS, and efforts are underway. In early 2009 a Decadal Review Committee evaluated the program, and provided a strong endorsement for another decade-scale focused program. That report led to a community-wide MARGINS Successor Planning Workshop, in San Antonio in February 2010, which provided a strong community consensus for the future. At that Workshop, attended by over 200 geoscientists, there was a clear appreciation for the new breakthroughs over the last decade facilitated by the MARGINS approach that motivate new directions, and a recognition of new opportunities not previously available. A successor program would likely have one focus on Subduction Zones and one on Rift Initiation and Evolution, with research guided by a series of cross-cutting themes that link the processes of continental evolution. Future field studies will be able to take advantage of the vast investments made by NSF and other agencies in scientific infrastructure over the last decade (for example, new drilling and 3D seismic vessels, EarthScope and other geophysical facilities, computational infrastructure resources, and the Ocean Observing Initiative). The MARGINS successor program also recognizes the growing societal importance of understanding active processes at continental margins; most geohazards are associated with continental margins, as are many economic resources, and these margins are where an increasing proportion of the planet's population resides. These connections with the public ensure many opportunities to educate and disseminate MARGINS science more broadly. International partnerships have been also greatly enhanced by the existence of MARGINS, and are expected to continue. As of this writing, the Draft Science Plan for the successor program is beginning to take shape, with the intent to submit it to NSF in April 2010. Following review, NSF will decide whether or not to authorize a successor, and will define the program's scope. Regardless of the outcome, the success of MARGINS over the last several years has shown that a coordinated interdisciplinary scientific effort, well focused on critical scientific questions, can have important benefits to all of the geosciences.

*--Geoffrey A. Abers, Chair, MARGINS Steering Committee,
Lamont-Doherty Earth Observatory of Columbia University*

*--Julia Morgan, Chair, MARGINS Planning Committee
Rice University*



Petroleum Research Fund

2010 Summary of ACS PRF Research Grant Programs

The ACS Petroleum Research Fund is a source of support for "fundamental research in the petroleum field," and has funded research grants in the geosciences, chemistry, materials science, and petroleum engineering since 1954. ACS PRF is an endowed fund administered by the American Chemical Society, and the annual grant budget derives from the proceeds of stocks and bonds; there is no connection between ACS PRF and the petroleum exploration companies.

ACS PRF does not provide "continuation research" funding. ACS PRF grants provide "seed money" for new and established researchers, with separate consideration of proposals from doctoral degree-granting and non-doctoral departments. These grants are designed to enable an investigator to obtain the initial "proof-of-concept" data set required for proposals to other agencies which support continuing research programs. Indirect costs are not allowed on ACS PRF proposals, and all grant funding goes to the Principal Investigator(s).

The table below lists the current ACS PRF grant types:

Grant Type	Grant Amount	Grant Length
New Directions (ND)	\$100,000	2 Years
Doctoral New Investigator (DNI)	\$100,000	2 Years
Undergraduate Research (UR)	\$65,000	3 Years
Undergraduate Faculty New Investigator (UNI)	\$50,000	2 Years

Doctoral New Investigator (DNI) and New Directions (ND) grant programs are oriented at faculty at departments which offer the doctoral degree. Undergraduate Faculty New Investigator (UNI) and Undergraduate Research (UR) grants are restricted to departments which do not offer the Ph.D. degree. All ACS PRF proposals receive anonymous external peer review before consideration for funding by the PRF Advisory Board.

Doctoral New Investigator (DNI) grants are "starter grants" to scientists or engineers within the first three years of their first academic appointment. These should enable new PIs at doctoral degree-granting departments to establish an original research direction, which may then be supported by other agencies which offer continuation funding for research. "Original research" is defined as being different from that previously performed by the PI as part of their graduate or postdoctoral studies.

The intent of New Directions (ND) grants is to stimulate *new* research projects by established faculty, enabling a Principal Investigator to pursue a research direction which has not been previously funded by an agency or published in refereed journals by the PI. Type ND grants may lead to subsequent proposals to other agencies which offer continuation research funding.

Undergraduate Faculty New Investigator (UNI) grants are "starter grants," similar to the DNI grants discussed above, but Type UNI proposals are limited to new investigators at departments which do not offer the doctoral degree.

Undergraduate Research (UR) grants support the development of student-oriented research involving undergraduates, in academic departments which do not award the doctoral degree. Master's degree students may be supported on Type UR grants, if the M.S. is the highest degree awarded by the department of the Principal Investigator, and if undergraduates are also involved in the research program of the proposal.

The 2008 drop in the Stock Market affected the investments which provide the annual ACS PRF grant budget, forcing the cancellation of some RFPs and the restructuring of some ACS PRF grant

programs (*i.e.*, suspension of grant supplements and travel assistance to foreign speakers giving petroleum-relevant talks at national meetings). Decreased grant budgets have limited the PRF Advisory Board to consideration of only the DNI and UNI "starter grant" applications at the May 2010 Board meeting; these proposals are currently undergoing peer review.

However, at its September 2010 meeting the PRF Advisory Board will fund all four (DNI, ND, UNI, and UR) research grants. To be considered in September, proposals must be submitted between February 19 and 5:00 PM (Eastern time) on March 19, 2010.

Proposals to ACS PRF must be fundamental and not "applied research." The PRF Website (<http://www.acsprf.org>) has a listing of areas deemed by the PRF Advisory Board to be applied research. For the geosciences, the following areas have been deemed applied, and thus outside the scope of PRF: Pollution and environmental remediation studies, research on anthropogenic effects of petroleum, and groundwater hydrology.

As part of the electronic submission process for research proposals, all applicants for ACS PRF funding must provide a 100-word statement of the "petroleum-relevance" of their research. For New Directions proposals, the Principal Investigator must also include as part of their proposal, a one-page description of their current research and how this proposal is a "new and innovative area" of research for the PI.

For questions concerning the potential relevance of research topics to the ACS PRF guidelines, or any other inquiry about geoscience proposals, please feel free to contact the Program Manager for geosciences, Dr. Dean A. Dunn, by email d_dunn@acs.org or telephone (202-872-4083).



Division Members:

Do you have a suggestion for a GSA Annual Meeting short-course?

Check here for information on short-course proposals:

<http://www.geosociety.org/meetings/2009/scProposals/index.htm>

We are always looking for good courses!

Also--

Send us your news!

If you're doing great stuff, we want to hear about it!

Send your updates and announcements to your friendly SG&T Newsletter Co-Editors Dave West dwest@middlebury.edu or Barb Sheffels barbsheffels@comcast.net. If it falls between newsletters, we'll put it on Facebook or Kevin Smart ksmart@swri.org can put it on our web page!



**STRUCTURAL GEOLOGY AND TECTONICS DIVISION
2009 BEST PAPER AWARD**

Presented to Brian Atwater

Evidence for great Holocene earthquakes along the outer coast of Washington State: *Science*, v. 236, p. 9412-944.

Citation by Darrel Cowan

I want first to review what Brian wrote in his paper, which is barely 2 _ pages long, including three figures and references, and then tell you why I nominated it.

Brian acknowledged that he was not the first person to recognize coseismic subsidence and uplift accompanying major earthquakes at convergent margins. However, he wrote that he was the first to, and I quote, “consider Cascadia’s seismic potential in light of geologic evidence for recurrent coastal subsidence.” He included a figure showing where he predicted subsidence would be observed, and he went to look. Armed with the most sophisticated geological tools—a canoe and a spade and almost certainly a hand lens—he found and documented evidence in several estuaries for recurrent and rapid subsidence of vegetated coastal lowlands, which he argued was cyclical and very likely coseismic rather than interseismic. Moreover, he found sandy layers mantling some of the buried lowland deposits, which he presciently and correctly interpreted as having been deposited by earthquake-related tsunamis. He concluded that six great earthquakes had affected the Willapa Bay estuary since 7000 ybp. Recognizing that the size of the earthquakes would have been directly related to the length of the ruptures, and he proposed that other stretches of the coast be investigated for similar evidence.

Why did I nominate this paper? Brian uses an oblique reference to baseball and I’ll do the same. Most or all of us here tonight love what we do, and we want to tell our colleagues by presenting talks and posters at meetings like this one and by publishing. Every so often someone here hits a home run: presents a talk or writes a paper that attracts the attention of the structure-tectonics community, just as a real home run immediately galvanizes the fans and sometimes even wins a game. Home runs are much less frequent than base hits, and grand slams even more rare. Brian hit a grand slam. Simply stated, his paper changed the way we have thought about and investigated a significant tectonic problem that also happens to be of great societal importance to those of us living in the Pacific Northwest and the US and Canada as a whole. His paper immediately redirected the efforts of a wide spectrum of research scholars in unanticipated ways, and has led to: further investigations of subsidence along the coast; dating tree rings in a drowned forest that enabled Brian and colleagues to show that the last mega-earthquake occurred at about 9 p.m. on January 26, 1700; and I would claim also led to greatly enhanced geodetic and seismological studies of what we thought was a pretty ordinary region, seismologically speaking.

I’ll close with two more personal comments. As you all recognize, we are sitting tonight on the hanging wall of the Cascadia megathrust. Now, as a resident of Seattle, I kind of wish Brian had never gone to Willapa Bay so we all could have continued living in our naïve ignorance about giant earthquakes. But in truth, his paper and continued work heralded the dawn of a new era of public awareness about the seismic hazards in the Pacific Northwest. Finally, I want to emphasize again that the foundation of this singular contribution was Brian’s skills as an observer. He used the simplest of tools: his mind and his eyes. For me, no paper better illustrates the power and importance of working in the field.

Response by Brian Atwater

Please accept three tokens of thanks to the Structural Geology and Tectonics Division, and to Darrel Cowan. Let’s call these tokens Mission Theater, Left Field, and The Supply System.

Mission Theater

Professor Cowan excused my absence tonight so I can have a beer at a nearby pub. The beer counts as public outreach thanks to GSA and the Oregon Museum of Science and Industry, or OMSI.

OMSI sponsors informal public talks in a series known as Science Pub. GSA teamed up with OMSI for this week's Science Pub, which focuses on Oregon earthquakes. I signed on as a speaker back in March, before Michelle Cooke and Claudia Lewis told me of the Best Paper Award.

The venue, formerly a church and a union hall, now serves "pub fare and handcrafted ales, wines, and spirits." These accompany movies and the occasional OMSI talk.

At the moment I'm probably setting the stage for the next speaker. She'll be describing a program to reinforce Oregon schools against earthquakes bigger than those for which they were designed. The Cascadia subduction zone is the main source of those earthquakes.

Left field

Though the findings in tonight's paper may seem to have come from an unexpected direction, a journal referee saw them otherwise. He or she rightly described the paper as using old methods to help solve an interesting problem. Tidal marshes weren't all that far out in left field, even in 1985.

That October a dry public gathering on earthquake hazards took place in a Seattle hotel ballroom. A USGS group was staging the launch of a multi-year study of the region's seismic hazards. A great subduction earthquake had just killed nearly 10,000 people in Mexico City. Could Cascadia do that kind of harm in Seattle?

I attended as a newcomer. The USGS had recently helped me move to Seattle for care of a disabled daughter. The geology department of the University of Washington had given me office space, library privileges, and entrée to the university's Earth-science community.

Perhaps nobody in that ballroom expected tidelands to reveal Cascadia's earthquake and tsunami history. Yet many surely knew that intertidal evidence—raised barnacles, submerged spruce—had largely revealed the tectonics of the 1964 Alaska earthquake, even before "plate tectonics" was coined. Furthermore, geologists had already documented stratigraphic records of the 1964 earthquake and of the 1960 Chilean tsunami. Geophysicists in the ballroom were asking questions that these kinds of geology could, and would, largely answer.

The Supply System

Tonight's paper got published a few months after it failed as a project proposal. In this backstory, discoveries about Cascadia's earthquake hazards are hastened by the ambitions of the Washington Public Power Supply System, or WPPSS, and by the vigilance of the Nuclear Regulatory Commission.

WPPSS in the 1970s had undertaken the construction of five nuclear-power plants. At the time, the Cascadia subduction zone was seen as dead or benign. Two of the plants, near Satsop, were sited 50 km from the Washington coast.

With the Satsop plants and one or two others in mind, the NRC supported research into Cascadia earthquake hazards. The first recipient, a seismologist, encouraged me in 1986 to propose follow-up work based on the findings in the paper cited tonight, which was then in manuscript form.

The NRC at first declined my proposal for lack of objectivity. From left field I was promising estimates of how big Cascadia's great earthquakes can get and how often they happen. But the NRC soon reversed this decision and proceeded to support radiocarbon dating that eventually helped link Cascadia to a far-field tsunami in Japan. That link, strengthened by the findings of tree-ring scientists in North America, gave an exact date (26 January 1700) and an approximate size (magnitude 9) for Cascadia's most recent great earthquake.

Clues to the 1700 Cascadia earthquake and its predecessors have been coming to light for decades and continue to be found. They result from the efforts of a great many people and organizations, the unsung heroes behind tonight's award.



STRUCTURAL GEOLOGY AND TECTONICS DIVISION 2009 CAREER CONTRIBUTION AWARD

Presented to Paul Hoffman

Citation by Sam Bowring

Paul Hoffman has profoundly changed our understanding of earth history by integrating and synthesizing geological observations, tectonics, geochemistry, and climate science. Many here may be most familiar with Paul's most recent work on Neoproterozoic climate history, often simplified as "Snowball Earth" and not his first twenty-five years of work on the origin and development of continental lithosphere. However, what may appear at first glance to be a twopart history is rather a continuum in which Paul's natural curiosity and strongly integrative approach melded to provide a better understanding of how our planet operates.

Paul Hoffman is without doubt one of the most influential and creative geologists of the past 100 years and it is an honor to present him for the 2009 Structural Geology and Tectonics Division Career Contribution Award. It is no coincidence that seventeen years ago Paul received the Division's Best Paper Award for his paper entitled "United Plates of America, the birth of a craton: early Proterozoic assembly and growth of Laurentia." This contribution, known to most as the "United Plates" paper is probably the most influential paper for the study of Precambrian continental lithospheric evolution in the past two decades and was borne of more than twenty field seasons in the Canadian Arctic followed by five years of intense office work examining maps and reports and drafting maps and figures. During his PhD studies and early years at the Geological Survey of Canada, Paul recognized that the plate tectonic models being applied to the Appalachians could easily be adapted to Proterozoic rocks of the Canadian Shield. He built upon the careful, measurement-intensive work in the east arm of Great Slave Lake to develop plate tectonic models for basin development, from subsidence to deformation. Central to Paul's approach when trying to understand plate tectonics was the recognition that huge reservoirs of information – from paleocurrents to infer changing topography and provenance in a tectonically controlled basin to recognizing the role of precipitation in driving uplift – are contained in sedimentary rocks.

This was followed by a now legendary effort at understanding the history of Wopmay orogen. The team of students, co-workers, and colleagues that Paul led during the mapping of Wopmay orogen was independent, diverse, and expert in a broad cross section of disciplines. At the core of compilation maps for this part of the Canadian Shield are many years of 1:50,000-scale mapping. Paul has a voracious appetite for knowledge and made sure that he and his team had a deep understanding of plate tectonics on the present day earth from the development of passive margins, thrust and fold belts, foreland basins, and magmatic arcs to the chemistry of arc magmas and the utility of geochronology and isotope geochemistry so that they could apply it to their rocks. Wopmay orogen is now one of many, but probably the best studied, Paleoproterozoic orogenic belts that provide evidence that plate tectonics operated at least 2.0 billion years ago. The lessons learned in Wopmay orogen and the recognition of the power of synthesis led Paul to expand his approach to the entire Canadian Shield, Laurentia, and the history of supercontinents. It is impossible to overstate the influence that Paul has had as his approach has served as a template for analysis of other continents and for inter-cratonic correlations.

Following his Laurentian synthesis, Paul began the second phase of his career, applying the tools of field mapping, structural geology, section measuring, isotope geochemistry, geochronology, and plate reconstructions to understand Neoproterozoic earth history. Paul first went to Namibia to develop a

tectonic story of Pan African orogens and the amalgamation of Gondwana, but what piqued his interest was the juxtaposition of glacial deposits with platform carbonates. Most geologists would not be broad or creative or even interested enough to notice such a juxtaposition, let alone want to completely change their research agenda and study it in detail. However, this is a perfect example of Paul's breadth and creativity. Within two years, and based on detailed observation rather than conjecture, he was to develop the Snowball earth hypothesis to a level of detail way beyond Kirschvink's original hypothesis. He immersed himself in the literature of low-temperature stable isotopes, paleoceanography, and glaciology, and built a comprehensive, multidisciplinary hypothesis that helped lead to a series of landmark papers and perhaps more importantly, a new generation of scientists who can integrate tectonics, climate science, biology, and geology. One has to wonder how many classically trained geologists 10-15 years from retirement could "switch gears"- and have such an impact?

Many of us in the room have argued with Paul on topics that range from a sedimentary structure in a rock to politics, track and field, jazz, and baseball and know that such discussions are not for the faint of heart or the unprepared. His encyclopedic knowledge and photographic memory have left many stuttering and speechless and/or infuriated. On the other hand, Paul has been a generous mentor for students and colleagues and in any endeavor, whether physical or intellectual, leads by example. Paul Hoffman has had a profound influence on our understanding of the importance of plate tectonics in earth history, from the construction of continental lithosphere and supercontinents to the chemistry of Neoproterozoic oceans and atmospheres and richly deserves the GSA Career Contribution Award.

Response by Paul Hoffman

Thank you, Sam, for the generous citation. Recognition by one's peers is second only to the kick one gets from the work itself.

When I look back, I see that many of my interpretations were failures. Most of those that didn't fail, weren't original. My first paper appeared in *Science* over 40 years ago. It showed that stromatolite shape and orientation give the direction and facing of ancient shorelines. I subsequently found that the eminent paleontologist Winifred Goldring of the New York State Museum had reached the same conclusion three decades earlier.

I was first known in tectonics circles for the concept of *aulacogens*, the failed arms of rift systems that opened to make ocean basins. I knew and acknowledged their recognition by Nikolai Shatsky in Russia in the 1940s, and their interpretation based on studies in Africa by Hans Cloos and Kevin Burke. The problem was, my own example in the east arm of Great Slave Lake wasn't an aulacogen at all, it was a collision zone between the Slave and Rae cratons.

In the Wopmay orogen of northern Canada, I had recognized a rifted continental margin 1500 km inland from the present Pacific margin: either the continent had grown by accretion of juvenile crust, or continental rafts had been added by collisional orogeny. At the time, 1970-71 and years before Cordilleran suspect terranes, I thought a Precambrian continental margin was news. I didn't know that 20 years earlier, long before plate tectonics, the first pre-Mesozoic continental margin had been recognized in the Adelaidean (Neoproterozoic) of South Australia. Its discoverer was the far-sighted geologist, entrepreneur and conservationist, Reg Sprigg.

The age of initial rifting in Wopmay orogen and the location of the collisional geosuture between the deformed passive-margin and accreted terrane were high on my research agenda. Sam Bowring later showed that rifting occurred 115 Myr earlier and the passive-margin stage lasted seven times longer than we initially inferred. Robert Hildebrand forced the geosuture to retreat tens of kilometers toward the craton, cutting anchor from the intervening terrane. Message to Cordilleran geologists about Hildebrand: do not be too quick to dismiss GSA Special Paper 457!

My thoughts on supercontinents, sea-level and climate were anticipated by Tom Worsley and my reconstruction of paleo-northern Rodinia was derived from Charlie Jefferson. Where we had placed Australia-Antarctica, Jim Sears elbowed in Siberia and Zheng-Xiang Li inserted South China. Around this time I gave a talk at Queen's University in Ontario on, "The value of making BIG mistakes". Afterwards, an earnest undergraduate asked, "If you acknowledge making mistakes, won't people stop believing you?" Evidently my talk had failed as badly as my geology.

Which brings us to Snowball Earth. I used to be labelled a "doctrinaire uniformitarian" for saying that plate tectonics has changed little since the Mesoarchean, 3.5 billion years ago. That criticism, at least, has ceased! Some people think I've gone the way of Sam Carey, the great Tasmanian structural geologist, glacial sedimentologist, global tectonicist and academic administrator, who is sadly remembered most for his unshakeable adherence late in life to the expanding Earth hypothesis. There is nothing more pathetic than a scientist who clings to a false theory too long, but there is nothing worse for science than one who gives up on a good idea too soon. This is the tight-rope I chose to walk. As of now, I'm sticking with the snowball hypothesis. Of course, the concept has changed some over the years. Tropical marine platforms like the one I study in Namibia were not just enveloped by sea ice, as I originally envisioned, they had their own dynamic ice sheets, complete with ice streams. But the core idea of an ocean-wide dynamic ice-shelf still best explains the occurrence of iron-formations, cap carbonates and extraordinary CO₂ levels inferred from boron, carbon, oxygen and calcium isotopes.

Finally, it is customary for Career Awardees to proffer some "sage" advice. With the recent history of large lending institutions and my own failures in mind, I give you this. Beware of science projects that are "too big to fail." Paraphrasing the philosopher Karl Popper, What can't fail, isn't science.

Thank you, and let us vow to keep the makers of field boots in business.



MEMORIAL

Ted Apotria
1961-2009



On June 6, 2009, our good friend and colleague, Ted Apotria, passed away after a brief, but intense battle with brain cancer. He was 48. Although his time with us was cut short, Ted will long be remembered for his enthusiasm and sense of humor, his athleticism and passion for sports, and his contributions to structural geology & tectonics and seismic interpretation.

Ted was born on August 1, 1961 and was raised in Hamden, Connecticut. It was there he first learned to play golf, a game for which he maintained a passion for his entire life. In high school, Ted expanded his athletic interests to also include gymnastics and diving. In fact, Ted was accomplished enough in diving that he became a four-year member of the swim team when he later attended the University of Connecticut. It was at UCONN where Ted developed a lifelong love of the geosciences and received a B.S. in Geology in 1983 and a M.S. in 1985. His M.S. thesis was titled "*The Stability and Evolution of Triple Junctions*" and was based on his work with Dr. Norman Gray on the motion and evolution of the Bouvet triple junction. Ted further distinguished himself by publishing his Masters work in *Nature*, in Apotria and Gray (1985).

In 1985 Ted headed south to Texas A&M to continue his graduate studies in structural geology under the supervision of Dr. David Wiltschko. Ted's dissertation at Texas A&M focused on the kinematics and

mechanics of oblique-ramp deformation in the Wyoming fold-and-thrust belt. Ted's dissertation thesis was entitled "*The Kinematics and Mechanics of Oblique Ramp Deformation within Fold-and-Thrust Belts*". Based on this work, Ted published two significant papers for the fold-and-thrust belt research community: Apotria et al. (1992), which described a theoretical 3-D kinematic analysis of displacement trajectories over concave and convex oblique-ramp segments (essentially predicting the magnitude and orientation of out-of-plane displacement trajectories); and Apotria (1995), which detailed the structures and strains associated with a natural oblique ramp in the Wyoming fold-and-thrust belt. These papers influenced many later studies on the kinematics and mechanics of fault-related folds because of Ted's detailed field observations and quantitative numerical analysis of out-of-plane strains and displacement trajectories. It was also at A&M that we all first encountered Ted, and developed lifelong friendships that continue to this day.

Life after graduate school led us all to work in the petroleum industry in Houston. Ted first worked with Shell Development Company from 1990-1993, and then joined us at Exxon Production Research in 1993. Ted's athletic endeavors evolved from tennis to cycling and basketball and eventually back to golf. We all shared laughs and geology together during this period. It was while at Exxon that Ted met his wife, Amy Ruf. Ted and Amy were married in 1999. They shared a love for geology, outdoor activities, movies, and their golden retriever, Greta. After many years in Houston, they moved to Jakarta, Indonesia, where they had been living for the past two years.

On the professional side, Ted enthusiastically embraced the art and science of 3-D volume interpretation and the application of structural geology to exploration and development. Ted also continued working on the geometry and deformation of fold-and-thrust belts. His work on this topic culminated in his co-editorship of the Journal of Structural Geology special volume "*Fault-Related Folds: The Transition from 2-D to 3-D*" with Scott Wilkerson and Mark Fischer. In this volume, Ted was co-author of two papers: Wilkerson et al. (2002), which looked at natural and model fault-related fold termination map patterns in order to distinguish between folds that terminated due to a loss of displacement versus those that terminated due to an oblique ramp; and Apotria & Wilkerson (2002), which described the seismically constrained 3-D geometry and kinematics of a natural fault-related fold termination in Venezuela. This special volume and these two papers served to bridge Ted's research interests in fold-and-thrust belts and seismic interpretation. Ted continued to work on seismic volume interpretation for the next decade at Exxon (and later ExxonMobil), eventually moving to Jakarta in 2007. There he applied his talents to develop models for structural controls on carbonate deposition and post-depositional structural impacts on carbonate reservoirs in Java.

Ted's enthusiasm for structural geology and seismic interpretation was second only to his enthusiasm and love for his family, friends, and life in general. And it is this enthusiasm and delight in life that we all will remember most about Ted.

--Doug Goff, Scott Wilkerson and Bill Shea

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GSA Annual Meeting Denver, Colorado, October 31 – November 3, 2010

The 2009 GSA Annual Meeting will be in Denver, Colorado, October 31 – November 3. An exciting collection of field trips, short courses, Pardee and technical sessions have been proposed for the meeting. The Structural Geology and Tectonics division is sponsoring or co-sponsoring approximately 30 technical sessions at the Denver meeting. Proposed sessions sponsored by SG&T range in topic from the application of virtual reality to tectonics, to the initiation and termination of subduction, to the controls and consequences of continental rifting. Included in these sponsored sessions are five that were initiated by the SG&T Board and Program Committee to help celebrate the 30th Anniversary of SG&T. These five technical sessions are intended to showcase the breadth and depth of SG&T research, and we anticipate that some or all will draw large enough participation to warrant at least 2 oral sessions each, and we are hoping to see panel discussions and other activities as part of the session organization. The five technical sessions are:

- 1) Coupling of Deformation and Chemical Processes in Earth
- 2) Applications of Structural Geology in Meeting the Natural Resource and Energy Needs of Society: Challenges and Innovations for the 21st Century
- 3) Where Does Earthquake Physics Meet Earthquake Geology?
- 4) Orogeny: Relating Rigid Plates to Diffuse Lithospheric Deformation
- 5) Tortoise to Hare Tectonics: Steady and Transient Deformation

As part of our celebration of the 30th Anniversary of SG&T, we are excited to announce that there will be a special 4-hour 30th Anniversary Symposium. While we are still working out the details, we anticipate two invited speakers, 30th Anniversary merchandise sales, award ceremonies and much more. So watch the final program for detail and please make every effort to attend this important event!

The SG&T Board would like to take this opportunity to thank the external members of the 2010 Program Committee, Jonathan Caine, Todd Ehlers and Jeff Lee. Jonathan Caine is especially thanked for canvassing the local community about field trips and short courses for the Denver meeting.

In addition to the sessions for which it is the lead sponsor, SG&T is co-sponsoring a number of exciting sessions with many other divisions and the International Section (formerly International Division). Thanks to all the conveners for submitting session proposals. This year's GSA abstract deadline is August 10. This later deadline gives us all more time to include our summer research into our GSA abstracts. We look forward to seeing you in Denver.



2010 GSA Section Meetings

Southeastern/Northeastern, Joint Meeting: 13–16 March 2010, Baltimore, Maryland, Noel Potter, Chuck Bailey [[web site](#) | [register](#) | [technical program](#)]

North-Central/South-Central, Joint Meeting: 11-13 April, Branson, Missouri, Thomas G. Plymate, Marcia Schulmeister [[web site](#) | [register](#)] **Early Registration Deadline:** 8 March

Rocky Mountain: 21-23 April, Rapid City, South Dakota, Michael Terry [[web site](#) | [register](#)]
Early Registration Deadline: 22 March

Cordilleran (joint with Pacific Section, AAPG): 27-29 May, Anaheim, California, Phil Armstrong, Curtis Henderson [[web site](#) | [abstracts form](#)] **Abstracts Deadline:** 9 March

Penrose Conference

[Origin and Uplift of the Sierra Nevada, California, USA](#)

16-20 August 2010 • Bridgeport, California

Conveners: Cathy J. Busby and Keith D. Putirka

Apply by 26 April 2010

Field Forum

[Significance of along-strike variations for the 3-D architecture of orogens: The Hellenides and Anatolides in the eastern Mediterranean](#)

16-22 May 2010 • Samos, Greece

Conveners: Uwe Ring, Klaus Gessner, Talip Güngör, Nikos Skarpelis, Dov Avigad, Olivier Vanderhaeghe



OTHER UPCOMING MEETINGS



Stress controls on faulting, fracturing and igneous intrusion in the Earth's crust

A meeting to commemorate the work of Ernest Masson Anderson on the 50th anniversary of his death.

6-8 September 2010 at the University of Glasgow, UK

Organisers: [Zoe Shipton](#), [Rick Sibson](#), [Dave Healy](#), [Rob Butler](#), [Heather Moir](#).
<http://www.gla.ac.uk/events/andersonconference/>

E.M Anderson (1877-1960) was one of the 20th century's most influential structural geologists, for his 1905 paper and his 1942/51 book on "The Dynamics of Faulting and Dyke Formation with Application to Britain". This contains some simple but profound insights into stress and fault development in the brittle crust - namely that there are three basic stress regimes in the crust and that three fundamental classes of fault should therefore exist if these stress conditions are combined with the Coulomb criterion for brittle shear failure. He also argued convincingly for stress controls on the orientation of high-level igneous intrusions (dykes, cone sheets, etc.). It is notable that his 1905 paper predicted the existence of subvertical wrench (strike-slip) faults well before most geologists were prepared to accept that such faults existed or were important. One year later came the 1906 San Francisco strike-slip rupture on the San Andreas Fault!

Modern measurements of tectonic stress, stress inversions from fault slip data and focal mechanism analyses have largely verified his supposition that one of the principal stresses is usually

vertical. Seismology also shows that his three fundamental fault classes account for a high proportion of observed focal mechanisms. The work continues to underpin much research on the borderline between structural geology and seismology.

Contributors to the meeting are invited to reappraise 'Andersonian' concepts (e.g. how often, and under what conditions, do stress trajectories deviate significantly from the vertical and the horizontal) in the light of our present understanding of stress, failure mechanics, and igneous intrusive processes in the crust.

Registration Please download the [registration form](#) for fee information and to register. Early registration deadline: May 31.

Abstract submission: download and complete the abstract template (Microsoft Word document). [abstract template](#) Please make sure you retain the formatting used in the abstract template (font style, font sizes, A4 page size etc.). This will make it much easier for us to assemble the abstract volume. Abstracts should be no more than one page of A4 and may include figures.

Email completed abstracts to zoe.shipton@ges.gla.ac.uk. If you have problems downloading the abstract template or need it in another format, email zoe.shipton@ges.gla.ac.uk for help.

Abstract deadline: end April 2010.

Field trips

There will be three field trips associated with the conference:

a) 1 day pre-conference field trip to the North Solway Firth.

b) 3 day post-conference field excursion to the NW Highlands

c) Palaeogene igneous centres of Northern Ireland. The Volcanic and Magmatic studies group of the Geological Society of London (VMSG) run an annual fieldtrip

(<http://www.dur.ac.uk/d.a.jerram/VMSG/meetings.html>), which this year has been timed to coincide with the Anderson conference. Costs: Full price £350 Student £280. Price includes full board YH accommodation and a field guide. Places are limited to 30, on a first come first served basis and are already filling up fast. Registration deadline 1st July (or when places are filled).

Please contact Carl Stevenson (c.t.stevenson@bham.ac.uk) for a registration form and payment details.

Earthscope

North American Cratonic Interior Workshop

An EarthScope workshop will be held April 11-13, 2010 at the University of Illinois (Urbana-Champaign). The goal of the workshop is to outline a research agenda and stimulate collaborations that can take advantage of EarthScope-related data obtained in the U.S. Midcontinent.

Visit www.earthscope.org/workshops/cratonic_interior for more information and to apply for the workshop. Application deadline is March 8, 2010. Funding to help cover expenses to attend the meeting will be available from NSF. Please contact Prof. Stephen Marshak at the University of Illinois (smarshak@illinois.edu) if you have additional questions.



AAPG Annual Meeting

11-14 April, New Orleans

Nearly 1000 oral and poster sessions make up this year's technical program. Details of the conference, including pre- and post-meeting short-courses and fieldtrips, are at www.aapg.org/neworleans. Note that members of GSA can register at the AAPG member rate.

Sessions of interest to the SG&T community include:

- Baffles and Barriers — Conduits & Impediments to Fluid Flow
- Basin Modeling
- Capturing Critical Fault Seal Issues
- Complex Structural Modeling in Honor of Ted Apotria
- Conjugate Central and Northern Atlantic Margins
- Conjugate South Atlantic Margins
- Continental Breakup Processes and Their Implications for Exploration Models in Rift and Passive Margin Settings
- Fractured Reservoirs: From Fundamental Processes to Technological Advancements
- Interaction of Hydraulic Fracture Treatments with Natural Fractures in Tight Gas Reservoirs
- Intra-plate Deformation and Inversion Tectonics: Causes and Petroleum Implications
- Numerical and Physical Modeling of Climatic and Tectonic Controls on Sedimentation
- Regional Interactions of Tectonics and Sedimentation: Examining Relationships Between Deformation and Basin Evolution
- Rock Physics and Quantitative Seismic Analysis
- Salt Sediment Interaction
- Salt, Sub-Salt and Pre-Salt Tectonics, Models and Hydrocarbon Traps
- Sedimentation and Tectonics in Rifts
- Seismic Interpretation of Faulted Reservoirs: How to Get the Right Answer the First Time
- Shale Behavior from Pore to Basin Scale
- Slope Systems Deformed by Gravity Processes
- Understanding the Gulf of Mexico: Depositional Systems, Play Concepts and Structure

LASI IV

Physical Geology of Subvolcanic Systems: Laccoliths, Sills, and Dikes

22-26 September, 2010

Moab, Utah

The conference will include two days of talks and posters on the emplacement processes, petrogenesis, magma system dynamics, fabric analysis, and geologic setting of shallow level magma emplacement. The two-day field trip will be devoted to the Henry Mountains, which are the type locality for the term 'laccolith' and have superb three-dimensional exposures of many forms of intrusions. Field trips will document the incremental growth of a large intrusion from sill, to sheeted laccolith, to bysmalith (pluton). We will also examine evidence for assembly of intrusions through emplacement of multiple magma pulses (sheets).

Registration deadline: June 1, 2010. Registration is limited to 50. To register and for more details, go to the LASI IV website: <http://lasi.lmtg.obs-mip.fr/LASI4/Home.html>

Abstract deadline: July 1, 2010

Organizing Committee: Sven Morgan, Central Michigan University, Michigan, USA sven.morgan@cmich.edu <sven.morgan@cmich.edu>, Eric Horsman, East Carolina University, USA horsmane@ecu.edu <<mailto:horsmane@ecu.edu>>, Michel de Saint Blanquat, CNRS and Toulouse University, France michel@LMTG.OBS-MIP.FR <michel@LMTG.OBS-MIP.FR>, Basil Tikoff, University of Wisconsin, Wisconsin, USA basil@geology.wisc.edu <basil@geology.wisc.edu>



2010 Structural Geology and Tectonics Forum

Sponsored by the GSA SG&T division

May 20-22, 2010, Madison, WI

Website: <http://www.geology.wisc.edu/~struct/mtg2010>

Application Deadline: March 20, 2010; Decision Date: April 5, 2010

No Registration or Workshop Fees!

The Structural Geology and Tectonic Forum is a new meeting that hopes to combine the best of the well-established “Tectonic Studies Group” meetings (UK, Australia) and “Deformation, Rheology, and Tectonics” (European) meetings. Basically, it is an informal specialist meeting focusing on research, and providing an environment for testing of new ideas and discussion of ongoing research. It is aimed at professional geologists, although advanced graduate students are encouraged to attend. Questions? Contact Richard Becker (rabecker2@wisc.edu).

Organizing committee: B Tikoff & L Goodwin (U Wisconsin), M Cooke (U Mass.), J Evans (Utah State), J Newman (Texas A&M), B van der Pluijm (U Michigan), C Siddoway (Colorado College)

Pre-meeting Events:

1-Day Workshop on digital databases in Structural Geology (D. Walker; Kansas)

[3- Day Fieldtrip to Marquette district, upper peninsula, Michigan](#) (S. Marshak; Illinois & D. Holm; Kent State)

1-Day Short course on low temperature thermochronology (P. Reiners; Arizona)

Post-meeting Events:

1-Day Short course on teaching displacements, strain, and stress (T. Blenkinsop; James Cook & S. Wojtal; Oberlin College)

[1-Day Fieldtrip to Baraboo, Wisconsin](#) (J. Craddock; Macalester College)

[5-Day Short course on numerical modeling using Ellipsis](#) (P. Rey; Sydney)

Also of potential interest following the meeting...

Microbeam Analysis Society's EBSD 2010 Topical Conference

Monday May 24-Wednesday May 26 (also several vendor events Sunday May 23)

University of Wisconsin, Madison, WI

<http://www.microbeamanalysis.org/topical-conferences/ebsd-2010-1>

This conference is for everyone from raw novices to experienced practitioners. There will be a one day tutorial with hands-on labs for beginners, and 2 days of invited and contributed talks on the latest topics, including sample prep for both geological material and metals.

There is abundant funding for student participation, and any student using EBSD or contemplating using EBSD in their research should plan to attend! The deadline for applications for financial aid is March 1 (you must be registered first, but submission of an abstract is not required.)

Abstract submission deadline is March 1.

Space is limited--50% of the 125 open seats have already been filled, so waiting much longer may mean missing out on this great meeting.



AGU Meetings

Chapman Conference on Giant Earthquakes and Their Tsunamis

17–24 May 2010, Valparaíso, Viña del Mar, and Valdivia, Chile

Abstract deadline: passed

2010 Western Pacific Geophysics Meeting

22–25 June 2010, Taipei, Taiwan

Abstract submissions deadline: 25 February 2010

Student travel grant application deadline: 25 February 2010

Meeting of the Americas, 2010 Joint Assembly

08–13 August 2010, Foz do Iguassu, Brazil

Abstract submissions deadline: 31 March 2010

2010 Annual AGU Fall Meeting

13–17 December 2010, San Francisco, California, USA

Website will be released mid-2010

Tectonic Crossroads: Evolving Orogens of Eurasia-Africa-Arabia

4-8 October 2010 • Ankara, Turkey

Middle East Technical University, Turkey

A global meeting brought to you by The Geological Society of America and GSA's International Section

Deadlines

- **Abstracts deadline: 25 May 2010.**
- Standard registration deadline: 23 August 2010.
Registration available in early March.
- Registration cancellation deadline: 30 August 2010

Students and early career participants who are members of the Structural Geology and Tectonics division may be eligible for travel support.



Special Event

W.A. Thomas Retirement Symposium, University of Kentucky

After 47 years in higher education, William A. “Bill” Thomas is planning to retire from the Department of Earth and Environmental Sciences at the University of Kentucky in Spring 2010. The Department has planned a two-day tribute in honor of his career beginning the afternoon of Friday, April 16 and continuing Saturday, April 17, 2010 in Lexington, KY. For additional details, please refer to the Department web site:

http://www.as.uky.edu/news_events/news/Pages/Department%20Announces%20Bill%20Thomas%20Retirement%20Symposium.aspx or contact Joe Allen [allenj@concord.edu].

For the Latest on Meetings and Field Trips go to

[Upcoming Meetings](http://rock.geosociety.org/sgt/sgt_meetings.html)

http://rock.geosociety.org/sgt/sgt_meetings.html



Resource—Camp Available for Field Trips

Camp Terry-Benton, California

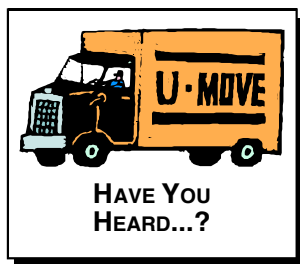
(36 miles north of Bishop on route 6)

<http://terrywrightgeology.com/benton.html>

This camp is available for field trip groups up to 20 people and includes power, water, a kitchen with sink and tables and a solar shower/washroom area. Also a trailer is available for office work with power, kitchen and refrigerator. There is a large area both on the property and across the street on BLM land for tent camping and room for several campers/trailers. Fees are negotiable, and some combination of cash, letter of donation value from non-profit or educational institution, or work on improvements is usual.

Benton is a small town near the Nevada border, about 50 miles east of Mammoth, 40 miles north of Bishop and 200 miles south of Reno on the east side of the Sierra. It is nestled in a valley surrounded by mountains, with Boundary Peak and Montgomery peak at the north end of the White Mountains directly to the east shown in the picture. Hiking and geologizing in the White Mountains is at my doorstep. Saline Valley is a 4-hour drive.

Contact Terry Wright, PhD, for more information and reservations: Terryw100@gmail.com, 760-933-2296 Benton, 707-887-7816 Sonoma County, 707-479-0884 Mobile, terrywrightgeology.com



This is the section of the newsletter where we have traditionally posted comings and goings as well as honors and accomplishments.

From now on such news will be posted on the SG&T facebook site

(www.facebook.com/gsa.sgt).

Anytime you've got some news to share, just post it yourself right onto the Division facebook page. You don't have to wait for the next division newsletter, and over 1700 fans will read your news right away. If you prefer

(or don't have a FB account) we can post it for you. Send your news to Dave West (dwest@middlebury.edu) or Barbara Sheffels (barbsheffels@comcast.net) for publication on the Division facebook page.



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