The world is changing
GSA is soliciting applications and nominations for science co-editors for the journals *Geology* and *Lithosphere* with four-year terms beginning 1 January 2017. *Geology* has been ranked by the Journal Citation Reports (JCR) as the #1 geology journal for the ninth year in a row, and up-and-coming *Lithosphere*'s impact factor has increased 4 out of the 5 years it has been ranked by the JCR.

**POSITIONS AVAILABLE**

The research interests listed would best complement those of the continuing editors. Note that candidates should not feel they must have expertise in every area listed; however, editors may need to handle papers outside of their main disciplines.

**Geology** (position 1) geomorphology/surface processes, neotectonics, tectonophysics, geodynamics, planetary geology, volcanology

**Geology** (position 2) seismology, structural geology, tectonics, numerical modeling of earth processes, microstructure, rock mechanics, geofluids, planetary geology

**Lithosphere** deformation, geodynamics, geophysics, palaeomagnetism, Precambrian geology, structural geology, tectonics, neotectonics, tectonophysics, geochronology

**INTERESTED?**

- Please submit a curriculum vitae and a letter describing why you are suited for the position to Jeanette Hammann, jhammann@geosociety.org.

- To nominate another, submit a nomination letter and the person's written permission and CV.

Editors work out of their current locations at work or at home. The positions are considered voluntary, but GSA provides an annual stipend and funds for office expenses.

**DEADLINE** Nominations or applications received by 15 February 2016 will be given first consideration.

**FUTURE OPENINGS** (terms begin January 2018): One position each for *GSA Bulletin, Geology, Geosphere*, and *GSA Today*
Featured Article

2015 GSA PRESIDENTIAL ADDRESS

4 The world is changing
Jonathan G. Price

Cover: View of the Carlin East pit and portal 2000, Newmont Mining Corporation, Nevada, USA, one of the top gold-mining areas in the world. See related article, p. 4–10.

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Errata:

In the June 2015 GSA Today Groundwork article (v. 25, no. 6, p. 42–43) Louise H. Kellogg’s middle initial was listed as “K” instead of “H”.

In the December 2015 GSA Today science article (v. 25, no. 12, p. 4–10), “Imaging spectroscopy of geological samples and outcrops: Novel insights from microns to meters,” by Rebecca N. Greenberger et al., the scale bars for Figure 2 were inadvertently removed. The corrected figure is on p. 50. GSA Today regrets this error.
The world is changing

Jonathan G. Price, LLC, 2210 Andromeda Way, Reno, Nevada 89509, USA

The world is changing. Our science is increasingly global, as we recognize the challenges of understanding interconnected Earth systems, meeting the rising global demand for mineral and energy resources, handling tradeoffs regarding sustainable development, and reducing the risks of natural disasters that impact the global economy. The geosciences are vital to meeting these societal challenges. The future is bright for the geosciences, from many perspectives.

Demand is high for nearly every mineral and energy resource. This high demand provides many opportunities for geoscientists to contribute throughout the life cycles of these resources (from exploration and mining to reclamation and recycling) and to continually improve environmentally responsible and economically sustainable extractive activities.

Global production of copper (Fig. 1) illustrates the high demand. Copper is vital in modern society, primarily as a conductor of electricity. Demand is high in part because the world population continues to rise and in part because per capita consumption is also rising (illustrated in Fig. 1 as annual mine production divided by population). More people want the conveniences that electricity provides—lighting, heating, motors, refrigerators, computers, etc. Since 1900, world population has increased approximately four-fold, whereas copper production has increased by a factor of 38, and per capita consumption has risen nine-fold. Although some ups and downs (due to recessions and wars) in production are apparent, the trends are clearly toward more copper mined and more use per person each year.

A somewhat similar situation is illustrated by gold production (Fig. 2). Although gold has many industrial uses (vital for conducting electricity in computers and cell phones and in reflecting heat), its primary use is as money, either in the form of bullion, coins, or, in much of the world, jewelry. Since 1900, gold production has increased by a factor of seven, and per capita consumption has fluctuated but overall increased by a factor of about two.

Mine production of gold in 2014 reached the historically high amount of 2,860 metric tons, according to the U.S. Geological Survey (2015). For the geological community, this is a staggering amount. In comparison, the Carlin trend in Nevada (Fig. 3), one of the top gold-mining areas in the world, has produced ~2,500 metric tons of gold (worth approximately US$100 billion at last year’s average price) in its entire history (including modern-day production after the discovery of the Carlin deposit in 1961). Assuming that mine production, from hundreds of mines throughout the world, continues at this rate, geoscientists will need to find the equivalent of at least one new Carlin trend each year to keep up with global demand.

We are in the midst of the biggest gold-mining boom in history, both globally (Fig. 2) and in the United States (Fig. 4). The current boom has exceeded previous booms in terms of total production, peak annual production, and longevity. Yet the world of gold mining has changed. For decades the Witwatersrand in South Africa dominated global gold production, but in 2007, China overtook South Africa to become the number 1 producer (Fig. 5). China is the world’s most populous country, with 19% of the global population (Fig. 6), and if one assumes even geographic distribution of mineral resources, one might expect China to produce roughly 19% of most commodities. China’s growth in the last decade has
been dramatic. To meet its demand for mineral resources needed for domestic infrastructure, domestic consumption, and exports of products, China far exceeds 19% of global production for many mineral commodities (Fig. 6). That is, the world of mining has changed, with China far exceeding other countries in production.

China also leads the world in coal production, with 46% of the global total in 2013. Like most of the other mineral resources, global annual coal production has been rising in recent years (Fig. 7), largely due to China’s demand. Coal is used primarily in the generation of electricity, but metallurgical coal is also used in the production of steel, for which China produced 50% of the global supply in 2014. Annual global coal production (~7.8 billion metric tons in 2013) is significant in terms of both impacts to the land and to the atmosphere. Assuming an average coal-seam thickness of 3 m (Fig. 8), the global amount of coal production would cover an area of ~1860 km². There are indications that China is slowing down its coal production, in part due to the health hazards of air pollution. With changing technology in energy production, it is likely that we will one day see a peak in coal production, much like the peak in flint production (Fig. 9), which was caused by technological advances.

Climate is changing, with many opportunities for geoscientists to contribute to mitigation and adaptation. It seems clear that the burning of coal and other fossil fuels is contributing to the
observed rise in CO₂ in the atmosphere (Fig. 10). As estimated from the calculation below, the amount of CO₂ released from burning of coal in 2013 would have been enough, even with natural reduction from plant growth, rain, and other processes, to raise the concentration of CO₂ in the atmosphere by ~2.9 parts per million by volume (ppmv), a bit more than the recent global trend of CO₂ increasing ~2 ppmv per year.

\[
(7.823 \times 10^{15} \text{ g coal burned in 2013}) \times (~0.8 \text{ g C/g coal}) \\
\times (3.6642 \text{ g CO}_2/ \text{ g C})/(5.15 \times 10^{21} \text{ g air in the atmosphere}) \\
\times (28.97 \text{ g air}/\text{mole air}) \times (1 \text{ mole CO}_2)/(44.0095 \text{ g CO}_2) \\
\times 10^6 \text{ ppmv CO}_2/(\text{mole CO}_2/\text{mole air}) = ~2.9 \text{ ppmv CO}_2
\]

due to additional CO₂ potentially added to the atmosphere

Geoscientists will have opportunities to contribute to mitigation through exploration and development of the mineral resources needed for renewable and carbon-minimal energy production and more efficient use of electricity. Examples include uranium and thorium for nuclear power; neodymium, iron, and boron for high-strength magnets in wind turbines; and terbium and europium in highly efficient fluorescent light bulbs. Geoscientists will also contribute to safe disposal of waste from energy production, including evaluating the safety of nuclear waste repositories and injection of CO₂ in permeable strata without generating damaging earthquakes.

As all geologists know, the world is literally changing. Plate tectonics slowly moves the ocean floors and continents. Erosion sculpts the landscape. Volcanism modifies climate. What has changed, though, in my lifetime, is that we are now measuring many of the changes directly. With the advent of the global positioning system (GPS), we are now able to accurately measure how the world is changing, with a myriad of applications from basic science to natural hazards. We are able to directly measure tectonic rates of change (Fig. 11), which are increasingly being used in earthquake-hazard assessment and communication to the public (Figs. 12 and 13). Such communication is slowly helping to
improve building codes and limit losses from collapse of unreinforced masonry buildings during earthquakes (Fig. 14). As technology evolves, we can expect many new discoveries and exciting new applications in geology.

The demographics of our science have evolved. Not only is the world changing, but we geoscientists are changing as well (Fig. 15). The American Geosciences Institute’s Workforce Program (Wilson, 2014) reported on recent gains among women in all college majors (Fig. 16) and in the geosciences (Fig. 17). The representation of women in the geosciences is approaching, but not quite at, the percentage in the population (at least in the U.S.). We have a long way to go, however, in terms of minorities in the geosciences (Fig. 18). Also, few statistics are available on the percentage of individuals with disabilities within our profession. To attract the best and brightest to our profession, we must have attractive career paths and opportunities for all people. I’m pleased that GSA actively supports opening the profession to all, through such programs as On To the Future, which is bringing students from underrepresented groups to our annual meetings.

Our profession is changing. Neuendorf et al. (2005) defined geology as “the study of the planet Earth, the materials of which it is made, the processes that act on those materials, the products formed, and the history of the planet and its life forms since its origin.” They also defined geologist as “one who is trained in and works in any of the geological sciences.” I am somewhat disappointed about the evolution of the terminology for geologists. What was once broadly labeled as a geologist became a “geological scientist,” presumably partly to not offend some geophysicists and geochemists. We also use the term “Earth scientist,” but that might offend some planetary scientists. We now promote the term “geoscientist.” I actually prefer the label “geo.” In the international mining business, geos include geophysicists, geochemists, structural geologists, economic geologists, mineralogists, sedimentologists, stratigraphers, paleontologists, volcanologists, petrologists, environmental geologists, geological engineers, geotechnicians, etc.; and they work with biologists and other scientists, engineers, skilled laborers, and community-relations and business professionals to benefit society.

GSA has Divisions, but we work together on our mission to advance geoscience research and discovery, service to society, stewardship of Earth and the geosciences profession. Perhaps the word Division isn’t the best term. It implies that we are divided, when so many of our issues, such as mining in an economically and environmentally acceptable manner, require multidisciplinary approaches. Maybe we need to change the name from Divisions to something else. Multiplications doesn’t make sense, nor does Exponentials, but along those lines, perhaps Dimensions could be better. The string-theory physicists have about 10 dimensions. We have at least 18, the current number of GSA divisions (GSA18), or 20, if you add the Soils and International Interest Groups (GSA20), or 90+, if you add the Associated Societies and their disciplinary, professional, and geographic dimensions (GSA90+).

GSA’s world is changing as well. A huge change, which will benefit our members, authors, the general public, and science, is the fact that our journals will be freely accessible on the Web upon publication, with Geology first in 2017.

Let’s envision GSA and our science in the future journals. GSA publications will continue to be rigorously peer reviewed and edited. GSA publications will attract many of the best papers, books, and maps in the geological sciences. Electronic access will be available anywhere—in the office, lab, or field. We might even expect that the public will make sound decisions on the basis of our science. GSA publications will be accessible to everyone, and we will attract the best and brightest students from diverse backgrounds, thereby increasing the likelihood of meeting societal challenges.
Figure 12. Geodetic strain in part of the western United States, information that is used, along with seismic and neotectonic data, in earthquake-hazard assessment and communication of hazard information to the public (warmer colors and longer arrows illustrate areas of relatively higher strain; figure from Kreemer et al., 2012). A full-size copy of this map is available at http://pubs.nibmg.unr.edu/Geod-strain-rate-full-size-p/m178.htm.
Figure 13. The U.S. Geological Survey integrates neotectonic (fault), earthquake, and geodetic data into its probabilistic seismic hazard analysis, which, in turn, is incorporated into model building codes. Image from U.S. Geological Survey (2014).

Figure 14. Front (left) and back (right) of an unreinforced masonry (URM) building damaged in the 21 Feb. 2008 Wells earthquake in Nevada, USA.
Technological advances in such areas as multiple sensors on airborne drones, submersibles, and vehicles on other planets will permit geoscientists to go places previously considered impossible for many abled and disabled individuals, further expanding the inclusiveness of the geoscience profession. GSA’s outreach efforts, including opportunities to visit informative exposures in the field, will also increase the accessibility of our exciting science to the public. GSA Meetings—annual, section, specialty/collaborative with other geo-societies, Penrose Conferences, Thompson Field Forums—will be attended in person and virtually, thereby reaching the global membership and global public. Research interest groups will flourish with the aid of virtual meetings and discussions. Language and cultural barriers will drop with the aid of translation technology.

In summary, the world is changing. The future is bright for geosciences from many perspectives, including mineral, energy, and water resources; adapting to and mitigating climate change and natural hazards; likely scientific discoveries; demographics and technologies that will attract the best and brightest; and GSA’s dimensions.

It is an honor to serve as this year’s GSA President. Thank you.

REFERENCES CITED


Call for Proposals

Technical Session Proposals

**Deadline:** 1 Feb. 2016

Help ensure that your area of research and expertise is represented in this year’s technical program. Individuals and geoscience organizations are welcome to suggest topics and submit proposals for both **Topical Sessions** and **Pardee Keynote Symposia**. Pardee Symposia are high-profile sessions on significant scientific developments, with invited speakers only. Topical Sessions are a combination of invited and volunteered papers. Unique formats are allowed, but must be outlined in the proposal along with the technical support needs. Upload your proposal at [https://gsa.confex.com/gsa/2016AM/cfs.cgi](https://gsa.confex.com/gsa/2016AM/cfs.cgi).

Short Course Proposals

**Deadline:** 1 Feb. 2016

Have something that your peers need to know? Lead a Short Course at the GSA 2016 Annual Meeting in Denver. Courses can be run to develop professional, teaching, and research skills at all levels. Proposal guidelines are available at [www.geosociety.org/meetings/scProposals.htm](http://www.geosociety.org/meetings/scProposals.htm) or by contacting Jennifer Nocerino at jnocerino@geosociety.org.

Photo courtesy of the Denver Metro Convention & Visitors Bureau.
Annual Meeting & Exposition

1-4 NOVEMBER

GSA 2015

Baltimore, Maryland, USA

WRAP-UP

On behalf of all of the staff, volunteers, and Society leaders, I extend a hearty thank you to all who participated in the GSA 2015 Annual Meeting & Exposition in Baltimore. I especially recognize our organizing committee and meeting sponsors. Meeting memories: You’ll find photos, media coverage, and links to GSA TV on the meeting website, community.geosociety.org/gsa2015/.

—Melissa Cummiskey, GSA Senior Director of Meetings & Events

GSA 2015 BY THE NUMBERS

- Attendees: 7,400
- Countries Represented: 58
- Students & Early Career Professionals: 3,333
- On To the Future Scholars: 115
- Abstracts Accepted: 4,709
- Technical Sessions: 342
- Presentations by Professionals: 2,705
- Presentations by Students: 1,995
- Field Trips: 29
- Short Courses: 15
- Exhibit Booths: 251
- App Downloads: 2,479
- Tweets: 1,258 tweeps used hashtag #GSA2015 nearly 4,500 times, reaching >5.8 million Twitter followers

General Chair: David A. Vanko
Technical Program Chair: Patrick Burkhart
Field Trip Chair: Richard A. Ortt Jr.
Field Trip Co-Chairs: David K. Brezinski and Jeffrey P. Halka
Sponsorship Chair: David A. Vanko
K–12 Education Chair: Michael Passow
Special Events Chair: Michael S. Kelley
Student Committee: Hannah Susorney and Sophie Lehmann

We look forward to seeing you at GSA 2016 on 25–28 September (note the unusually early date), in Denver, Colorado, USA. Remember: You make the meeting—and you still have time to propose a technical session or short course (1 Feb., see p. 11).

25-28 SEPTEMBER

GSA 2016

Denver, Colorado, USA

Learn more at

www.geosociety.org/meetings/2016
Thank You Sponsors!

Your support of The Geological Society of America’s Annual Meeting & Exposition continues a tradition of more than 125 years of serving science and the profession. The Society appreciates your investment in the growth of current and future leaders in the geoscience community.

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BRONZE
CONTRIBUTOR
McCormick/World of Flavors*
Nature Communications

*denotes in-kind contribution

The GSA Foundation is proud to continue its work in support of GSA and its programs.
2016 GSA Medals and Awards

- Penrose Medal
- Day Medal
- Young Scientist Award (Donath Medal)
- GSA Public Service Award
- Randolph W. “Bill” and Cecile T. Bromery Award for Minorities
- GSA Distinguished Service Award
- Doris M. Curtis Outstanding Woman in Science Award
- Geologic Mapping Award in Honor of Florence Bascom
- Honorary Fellow

GSA Fellowship

Elevation to GSA Fellowship is an honor bestowed on the best of our profession at each spring GSA Council meeting. GSA Fellows may support two nominees each year but only one as a primary nominator; GSA members who are not Fellows may be secondary nominators for up to two nominees. To nominate a member for GSA Fellowship, go to www.geosociety.org/members/fellow.htm.

2016 Post-Doctoral Research Awards

- Gladys W. Cole Memorial Research Award
- W. Storrs Cole Memorial Research Award

Learn more at www.geosociety.org/grants/postdoc.htm.

John C. Frye Environmental Geology Award

Nomination deadline: 31 March

In cooperation with the Association of American State Geologists and supported by endowment income from the GSA Foundation's John C. Frye Memorial Fund, this annual award recognizes the best paper on environmental geology published either by GSA or by a state geological survey.

Learn more at www.stategeologists.org/awards_honors.php?id=19&award_information=details.
UPCOMING GSA PROGRAM DEADLINES

OTHER AWARDS

American Geosciences Institute (AGI)

Deadline: 1 February
- AGI Medal in Memory of Ian Campbell
- AGI Marcus Milling Legendary Geoscientist Medal
  Go to www.agiweb.org/direct/awards.html to submit your nominations.

National Awards

Nomination deadlines vary.

- National Medal of Science (presented by the President of the United States): www.nsf.gov/od/nms/medal.jsp

Travel Awards To NEGSA 2016

Application deadline: 5 February

Non-traditional students in the geosciences have the opportunity to apply for a generous travel award to attend the 2016 Northeastern Section Meeting, 21–23 March in Albany, New York, USA. Students who work full-time, are financially independent, or care for dependents while earning an undergraduate degree are highly encouraged to apply. Check the NEGSA website at www.geosociety.org/Sections/ne/2016mtg/ for details or contact Tahlia Bear at tbear@geosociety.org.

GEOCORPS™ AMERICA

Summer 2016

Application deadline: 19 February

GSA is now accepting applications for paid, short-term geoscience opportunities on public lands throughout the United States. All levels of geoscientists—students, educators, professionals, retirees, and others—are encouraged to apply.

Learn more at
www.geosociety.org/geocorps | www.facebook.com/GeoCorps

Like us on Facebook
UPCOMING GSA PROGRAM DEADLINES

GSA DIVISION AWARDS

ARCHAEOLOGICAL GEOLOGY DIVISION

For more information, go to www.geosociety.org/arch.

• Rip Rapp Award: Nominations due 15 February; send materials to mandel@ku.edu. George “Rip” Rapp, Jr., was one of the founding members of this Division and generously established an award fund with the GSA Foundation. Nominations should include a biographical sketch, a statement of outstanding achievements, and a selected bibliography of the nominee.

• Richard Hay Student Paper/Poster Award: Nominations due 20 August; send materials to gsa.agd@gmail.com. Richard Hay had a distinguished career in sedimentary geology, mineralogy, and archaeological geology. The award is in the form of a travel grant for a student (undergraduate or graduate) presenting a paper or poster at GSA’s annual meeting. The grant is competitive and is awarded based on the evaluation of the scientific merit of the research topic and the clarity of an expanded abstract prepared by a student for presentation in the Division’s technical session.

• Claude C. Albritton, Jr., Award: Nominations due 5 March; send materials to gsa.agd@gmail.com. This fund (managed by the GSA Foundation) provides research scholarships and fellowships for graduate students in archaeology or the earth sciences. Recipients must have interest in (1) achieving a master’s or Ph.D. degree in earth sciences or archaeology; (2) applying earth-science methods to archaeological research; and (3) a career in teaching and academic research. Awards in the amount of US$650 are given in support of thesis or dissertation research, with emphasis on field and/or laboratory work. The Division also invites contributions to this award fund.

ENERGY GEOLOGY DIVISION

• Gilbert H. Cady Award: Nominations due 28 February; send materials to Jen O’Keefe at j.okeefe@moreheadstate.edu. This award recognizes outstanding contributions in the field of coal geology that advance the science both within and outside of North America. Learn more at www.uky.edu/KGS/coal/GSA/awards.htm.

ENVIRONMENTAL AND ENGINEERING GEOLOGY DIVISION

• E.B. Burwell, Jr., Award: Nominations due 1 February; send materials to Dennis Staley at dstaley@usgs.gov. This award honors the memory of one of the founding members of the Division and the first chief geologist of the U.S. Army Corps of Engineers. It recognizes the author or authors of a published paper of distinction that advances knowledge concerning principles or practice of engineering geology or of related fields, such as applied soil or rock mechanics, where the role of geology is emphasized. The paper must (1) deal with the engineering geology or a closely related field, and (2) have been published no more than five years prior to its selection. There are no restrictions on the publisher of the paper. Learn more at http://rock.geosociety.org/egd/Awards.html#Burwell.

• Richard H. Jahns Distinguished Lecturer: Nominations due 28 February; submit materials to Matt Crawford at mcrawford@uky.edu. This lectureship is awarded to an individual who through research or practice has made outstanding contributions to the advancement of environmental and/or engineering geology. The awardee will speak on topics of earth processes and the consequences of human interaction with these processes, or the application of geology to environmental and/or engineering works. Award funds are administered by the GSA Foundation. Learn more at http://rock.geosociety.org/egd/Awards.html#Jahns.

GEOSCIENCE EDUCATION DIVISION

• Biggs Award for Excellence in Earth Science Teaching: Nominations due 15 February; submit nominations to http://community.geosociety.org/gedivision/news/awards/biggaward. Any questions should be directed to GEOEDGSA@umd.edu. This award recognizes innovative and effective teaching in college-level earth science. Earth-science instructors and faculty members from any academic institution engaged in undergraduate education who have been teaching full-time for 10 years or fewer are eligible (part-time teaching is not counted in this requirement). Both peer- and self-nominations will be accepted. This award is administered by the GSA Foundation. An additional travel reimbursement is also available to the recipient to enable him or her to attend the award presentation at the GSA Annual Meeting. Learn more at http://community.geosociety.org/gedivision/news/awards/biggaward.

HISTORY AND PHILOSOPHY OF GEOLOGY DIVISION

For more information, go to http://community.geosociety.org/histphildiv/awards#dsa.
**UPCOMING GSA PROGRAM DEADLINES**

### GSA DIVISION AWARDS

- **Mary C. Rabbitt History and Philosophy of Geology Award:** Nominations due **15 February**; send materials to Kathleen Lohff, kathylohff@msn.com. This award recognizes an individual’s exceptional scholarly contributions of fundamental importance to understanding the history of the geological sciences. Achievements deserving of the award include, but are not limited to, publication of papers or books that contribute new and profound insights into the history of geology based on original research or a synthesis of existing knowledge. Nominators and nominees do not have to be members of the Division or of GSA. The nomination packet should include (1) a letter detailing the contributions that warrant the award; and (2) the nominee’s current curriculum vitae, including name, title, affiliation, education, degrees, honors and awards, and major career events. Award funds are administered by the GSA Foundation.

- **Gerald M. and Sue T. Friedman Distinguished Service Award:** Nominations due **15 February**; send materials to Kathleen Lohff, kathylohff@msn.com. This award recognizes excellence in a student paper to be given at GSA’s annual meeting. Awards may also be given for second place. Oral presentations are preferred. Faculty advisors may be listed as second author, but not as the lead author of the paper. The proposed paper may be (1) on the history or philosophy of geology; or (2) a literature review of ideas for a technical work or thesis/dissertation; or (3) some imaginative aspect of the history or philosophy of geology we have not thought of before. Inclusion of up to three additional third-party letters in support of the nomination is encouraged. If you have questions, please contact David Parkhurst at dlpark@usgs.gov. For more information, go to http://gsahydrogeology.org/OEMeinzer.htm.

- **History and Philosophy of Geology Student Award:** Nominations due **15 June**; send materials to Kathleen Lohff, kathylohff@msn.com. This award recognizes excellence in a student paper to be given at GSA’s annual meeting. Awards may also be given for second place. Oral presentations are preferred. Faculty advisors may be listed as second author, but not as the lead author of the paper. The proposed paper may be (1) on the history or philosophy of geology; or (2) a literature review of ideas for a technical work or thesis/dissertation; or (3) some imaginative aspect of the history or philosophy of geology we have not thought of before. Students should submit an abstract of their proposed talk and a 1,500–2,000 word prospectus. The Awards Committee will assist the winner(s) with an abstract to facilitate presentation according to GSA standards. Currently enrolled undergraduates and graduate students are eligible, as are students who received their degrees at the end of the fall or spring terms immediately preceding GSA’s annual meeting. It is open to all students regardless of discipline, provided the proposed paper is related to the history or philosophy of a geological idea or person. Funds for the award, made possible by a bequest from the estate of Mary C. Rabbitt, are administered by the GSA Foundation.

### HYDROGEOLOGY DIVISION

Nominations for the following four awards are due **1 February**; send materials to gsa.hydro.nominations@gmail.com.

- **The O.E. Meinzer Award** recognizes the author or authors of a publication or body of publications that have significantly advanced the science of hydrogeology or a closely related field. The nomination must cite the publication(s) on which the nomination is based and describe the role of the publication(s) in advancing hydrogeology or a closely related discipline. Please submit a letter of nomination that describes the distinguished service that warrants the nomination. Supporting letters are helpful but not required. If you have questions, please contact David Parkhurst at dlpark@usgs.gov. For more information, go to http://gsahydrogeology.org/DistinguishedService.htm.

- **The George Burke Maxey Distinguished Service Award** will be made in recognition of distinguished personal service to the hydrogeology profession and to the Hydrogeology Division, based on a history of sustained creditable service. Please submit a letter of nomination that describes the distinguished service that warrants the nomination. Supporting letters are helpful but not required. If you have questions, please contact Brian Katz at brian.katz@dep.state.fl.us. For more information, go to http://gsahydrogeology.org/DistinguishedService.htm.

- **The Kohout Early Career Award** will be presented to a distinguished early career scientist (35 years of age or younger throughout the year in which the award is to be presented or within 5 years of receiving their highest degree or diploma) for outstanding achievement in contributing to the hydrogeologic profession through original research and service and for the demonstrated potential for continued excellence throughout their career. The nomination package must include (1) at least one letter of nomination with a description of the significant contributions or accomplishments; (2) a copy of the nominee’s curriculum vitae with complete bibliography; and (3) at least four supporting letters. If you have questions, please contact Steve van der Hoven at sjvanderhoven@gmail.com. For more information, go to http://gsahydrogeology.org/Kohout.htm.

- **The Birdsall-Dreiss Distinguished Lecturer** is selected based on outstanding contributions to hydrogeology or a closely related field through original research and public communication, as well as a potential for continued contributions to the profession. To nominate, include at least one letter of nomination, a copy of the nominee’s curriculum vitae, and at least two supporting letters describing the significant contributions or accomplishments constituting the basis for the nomination. If you have questions, please contact Dani Or at dani.or@env.ethz.ch. For more information, go to http://gsahydrogeology.org/BirdsallDreiss.htm.
MINERALOGY, GEOCHEMISTRY, PETROLOGY, AND VOLCANOLOGY (MGPV) DIVISION

Nominations due 15 July. For each of the following awards, send materials to J. Alex Speer, Mineralogical Society of America, 3635 Concorde Pkwy Suite 500, Chantilly VA 20151-1110, USA; jaspeer@minsocam.org. MGPV awards emphasize achievements in geologic and multidisciplinary approaches. Geologic work is by nature generalistic and has an important field component, with Earth as the natural laboratory. Send (1) a cover letter from an MGPV Division member, no longer than three pages, summarizing the nominee's most important accomplishments in geologic approaches to mineralogy, geochemistry, petrology, and/or volcanology. Special attention should be paid to describing how the nominee's published work demonstrates field-based multidisciplinary geologic accomplishments of a ground-breaking nature. The letter should include the name, address, and contact information of the nominator as well as from whom letters of support can be expected; (2) a curriculum vitae of the nominee; and (3) three letters of support that can be either from members or non-members of GSA or the MGPV Division. For more information, go to www.geosociety.org/divisions/mgpv/awards.htm.

- The MGPV Distinguished Geologic Career Award will go to an individual who, throughout his or her career, has made distinguished contributions in one or more of the following fields of research: mineralogy, geochemistry, petrology, and/or volcanology, with emphasis on multidisciplinary, field-based contributions. Nominees need not be citizens or residents of the United States, and GSA membership is not required.

- The MGPV Early Career Award will go to an individual near the beginning of his or her professional career who has made distinguished contributions in one or more of the following fields of research: mineralogy, geochemistry, petrology, and/or volcanology, with emphasis on multidisciplinary, field-based contributions. Nominations are restricted to those who are within eight years of receiving their final degree. For example, awards decided before 31 Dec. 2015 will include all candidates whose final degree was awarded no earlier than 1 Jan. 2008. Extensions of up to two years will be made for nominees who have taken career breaks for family reasons or caused by serious illness. Nominees need not be citizens or residents of the United States, and GSA membership is not required.

QUATERNARY GEOLOGY AND GEOMORPHOLOGY (QG) DIVISION

- Kirk Bryan Award for Research Excellence: Nominations due 15 January. Send materials to Sarah Lewis, sarah.lewis@oregonstate.edu. This award will go to the author or authors of a published paper of distinction that advances the science of geomorphology or some related field, such as [Pleistocene] Quaternary geology. The paper must fulfill the following requirements: (1) it will deal with geomorphology or with a bordering field related to geomorphology; and (2) it will have been published not more than five years prior to its selection for the award. Nominations should include (1) a letter (one to three pages long) by the chief nominator outlining the significance and importance of the nominated publication; (2) a copy of the publication; (3) reviews of the publications that have appeared in journals, newsletters, or books (if any); and (4) one or more letters from other supporters of the nomination.

- Farouk El-Baz Award for Desert Research: Nominations due 1 April; send materials to Anne Chin, anne.chin@ucdenver.edu, including (1) a statement of the significance of the nominee's research; (2) a curriculum vitae; (3) letters of support; and (4) copies of no more than five of the nominee's most significant publications related to desert research. This award recognizes excellence in desert geomorphology research worldwide. It is intended to stimulate research in desert environments by recognizing an individual whose research has significantly advanced the understanding of the Quaternary geology and geomorphology of deserts. Any scientist from any country may be nominated. Neither nominators nor nominees need be GSA members; self-nomination is not permitted. Award funds are administered by the GSA Foundation.

- Distinguished Career Award: Nominations due 1 April; send materials to Sarah Lewis, sarah.lewis@oregonstate.edu, including (1) a brief biographical sketch, (2) a statement of no more than 200 words describing the candidate's scientific contributions to Quaternary geology and geomorphology, (3) a selected bibliography of no more than 20 titles, and (4) a minimum of four letters from colleagues supporting the nomination. This award is presented annually to a Quaternary geologist or geomorphologist who has demonstrated excellence in their contributions to science. Neither nominators nor nominees need be GSA members; self-nomination is not permitted.

SEDIMENTARY GEOLOGY DIVISION

- Laurence L. Sloss Award for Sedimentary Geology: Nominations due 1 March; send materials to Linda Kah, lkakah@utk.edu, including (1) a cover letter describing the nominee's accomplishments in sedimentary geology and contributions to GSA, (2) a curriculum vitae, and (3) any additional supporting letters. Nomination materials remain active for three years. This award is given annually to a sedimentary geologist whose lifetime achievements best exemplify those of Larry Sloss (i.e., achievements that contribute widely to the field of sedimentary geology and service to GSA). Award funds are administered by the GSA Foundation. Learn more at http://rock.geosociety.org/sed/SGD_Awards2.html#Sloss.
SEDIMENTARY GEOLOGY DIVISION/STRUCTURAL GEOLOGY AND TECTONICS DIVISION JOINT AWARD

- Stephen E. Laubach Structural Diagenesis Research Award: Nominations due 1 April; for more information, go to http://rock.geosociety.org/sgt/Laubach.htm. This award promotes research that combines structural geology and diagenesis and also curriculum development in structural diagenesis. It addresses the rapidly growing recognition that fracturing, cement precipitation and dissolution, evolving rock mechanical properties, and other structural diagenetic processes can govern recovery of resources and sequestration of material in deeply buried, diagenetically altered and fractured sedimentary rocks. The award also highlights the growing need to break down disciplinary boundaries between structural geology and sedimentary petrology, as exemplified by the work of Dr. Stephen Laubach and colleagues. Graduate students, postgraduates, and faculty-level researchers are eligible. Note that the application includes a budget page; we anticipate giving one award of US$2500 in 2016.

Mentoring & Travel Grant Program

GSA is accepting applications for the mentoring and travel grant program for the 35th International Geological Congress (IGC) in Cape Town, South Africa. Students and early career scientists (those within seven years of receiving their Ph.D.) are welcome to apply.

Applicants must be residents or citizens of the United States and be enrolled in, or employed at, a U.S. institution. Award max.: US$3,500 per awardee. The online application and supplemental material must be received electronically no later than 20 Feb. Applicants will be notified of the results by 30 April.

In addition to the online form/résumé, the following supplemental information is required: (a) a cover letter addressing your reasons for attending the meeting and a prioritized budget of expenses; (b) proof of abstract submission and a copy of the submitted abstract; and (c) two letters of reference.

This program is organized in collaboration with the GSA Foundation, the U.S. National Committee for Geological Sciences (of the National Academy of Sciences), and the American Geosciences Institute.

Questions? Please contact Jennifer Nocerino at jnocerino@geosociety.org.

UPCOMING GSA PROGRAM DEADLINES

GSA DIVISION AWARDS

- STRUCTURAL GEOLOGY AND TECTONICS DIVISION

  - Career Contribution Award: Nominations due 1 March; for more information, go to http://rock.geosociety.org/sgt/CareerAward.htm. This award is for an individual who, throughout his or her career, has made numerous distinguished contributions that have clearly advanced the science of structural geology or tectonics. Nominees do not need to be U.S. citizens or residents, and GSA membership is not required. Nominations should include (1) name of nominee, present institutional affiliation, and address; (2) summary statement of nominee’s major career contributions to the science of structural geology and tectonics; (3) selected key published works of the nominee; and (4) name and address of nominator.

  - Outstanding Publication Award: Nominations due 1 March; for more information, go to http://rock.geosociety.org/sgt/BestPaperAward.htm. 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. Nominations should include (1) a full citation; (2) nomination (as short as a paragraph; letters or reviews may also be included); and (3) name and address of nominator.
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Second Announcement

SOUTHEASTERN SECTION

65th Annual Meeting of the Southeastern Section, GSA
Columbia, South Carolina, USA
31 March–1 April 2016

www.geosociety.org/sections/se/2016mtg/

GSA TODAY | JANUARY 2016

Ready to Rock Your World!

REGISTRATION

Early registration deadline: 29 February
Cancellation deadline: 7 March

REGISTRATION FEES (all fees are in U.S. dollars)

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ACCOMMODATIONS

Reservation deadline: 8 March

Blocks of rooms have been reserved at the Hyatt Place Columbia, 819 Gervais Street, Columbia, SC 29201, USA, +1-803-978-2013, and the Hampton Inn Columbia, 822 Gervais Street, Columbia, SC 29201, USA, +1-803-231-2000. Both venues are located in The Vista, within a short walking distance to the Columbia Convention Center. To make your reservations, please call the hotels and be sure to mention you are attending the GSA Southeastern Section meeting.

TECHNICAL PROGRAM

For more information, please see the meeting website.

Symposium


Theme Sessions

T4. Groundwater Availability in the Atlantic Coastal Plain: Bruce Campbell, Joe Gellici.
T5. Paleolimnological Reconstructions: New Insights from the Tried and True to the Unique and New: Nathan M. Rabideaux, Chris Tidwell, Alex Simpson.
T10. Ecohydrology: Jeff Wilcox.
T11. Large Datasets and Interactive Visualizations in Undergraduate Research: Steven Whitmeyer, Jeffrey Ryan.

Photo courtesy of Columbia Metropolitan Convention & Visitors Bureau.
OPPORTUNITIES FOR STUDENTS

For mentor program and career workshop descriptions and On To the Future information, see p. 29.

Career Workshops

1. Geoscience Career Workshop Part 1: Career Planning and Informational Interviewing: Thurs., 31 March, 8–9 a.m.
3. Geoscience Career Workshop Part 3: Cover Letters, Résumés, and CVs: Fri., 1 April, 9–10 a.m.

Mentor Programs

John Mann Mentors in Applied Hydrogeology Program Luncheon: Fri., 1 April.

LOCAL COMMITTEE

General Chair: Venkat Lakshmi, vlakshmi@geol.sc.edu
Technical Program Chair: Jim Knapp, knapp@geol.sc.edu
Field Trip Chair: Will Doar, doarw@dnr.sc.gov
Undergraduate Volunteer Chair: Michael Bizimis, mbizimis@geol.sc.edu
Second Announcement

CORDILLERAN SECTION

112th Annual Meeting of the Cordilleran Section, GSA
Ontario, California, USA
4–6 April 2016

www.geosociety.org/sections/cord/2016mtg/

REGISTRATION

Early registration deadline: 29 February
Cancellation deadline: 7 March

REGISTRATION FEES (all fees are in U.S. dollars)

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ACCOMMODATIONS

Reservation deadline: 14 March

The meeting will be held in the Ontario Convention Center, which is a two-minute walk from the headquarters hotel, the DoubleTree by Hilton, at 222 N. Vineyard Ave., Ontario, California 91764, USA. GSA has secured a meeting rate of US$129 per night plus tax for single and double occupancy. Reservations can be made via the meeting website, or you can call the DoubleTree at +1-909-418-4873 (local) or toll-free at +1-800-222-8733; reference the group code “Geological Society of America.”

TECHNICAL PROGRAM

Abstract deadline: 5 January
Submit your abstract online at www.geosociety.org/Sections/cord/2016mtg/techprog.htm. Fee: US$15 for students; US$20 for all others. If you cannot submit an abstract online, please contact Heather Clark, hclark@geosociety.org, +1-303-357-1018.

T1. Neotectonics and Magmatism in Death Valley and Southwestern Basin and Range: Jim Calzia, J.R. Knott.


T3. Causes and Consequences of Magmatic and Tectonic Tempos in Continental and Oceanic Arcs: Scott Paterson, Barbara Ratschbacher, Joshua Schwartz, Ben Clausen.


LOCATION

Ontario is ~60 km from the U.S. Pacific coast in the “Inland Empire” of the greater Los Angeles Basin. The city is surrounded by the San Gabriel, San Bernardino, and Santa Ana Mountains, with the San Andreas fault 25 km to the northeast and other iconic geologic sites such as the Mojave Desert, Joshua Tree National Park, the Peninsular Ranges, and Salton Trough one to three hours away.

Photo courtesy of Jade Star Lackey.


T11. Investigating Environmental Changes using the Coastal and Marine Sedimentary Record: Joseph Carlin, Alex Simms.


FIELD TRIPS

Trip fees include transportation and lodging for multi-day trips, and most include meals. For more information, see the meeting website.

Pre-Meeting

1. Arc Magmatism, Tectonics, and Tempos in Mesozoic Arc Crustal Sections of the Peninsular and Transverse Ranges, Southern California: Fri.–Sun., 1–3 April. US$370. Scott R. Paterson, Univ. of Southern California, paterson@usc.edu; Adam Ianno, Juniata College, adam.ianno@gmail.com; Valbone Memeti, California State Univ. Fullerton, vmemeti@fullerton.edu; Ben Clausen, Loma Linda Univ., bclausen@llu.edu; Josh Schwartz, California State Univ. Northridge, joshua.j.schwartz@gmail.com.

2. Geology and Vertebrate Paleontology of Tule Springs Fossil Beds National Monument: Fri.–Sun., 1–3 April. US$345. Kathleen Spring, Univ. of California Riverside and USGS, kspringer@usgs.gov; Eric Scott, Cooper Center, California State Univ. Fullerton, erscott@fullerton.edu; Jeff Pigati, USGS, jpijati@usgs.gov.

3. Large Earthquakes and Rates of Slip on the San Jacinto–San Andreas Fault System: Sun., 3 April. US$65. Doug Yule, California State Univ. Northridge, doug.yule@csun.edu; Sally McGill, California State Univ. San Bernardino, smcgill@csusb.edu; Nate Onderdonk, California State Univ. Long Beach, nate.onderdonk@csulb.edu.

4. Stratigraphy and Paleontology of the Palos Verdes Peninsula: Sun., 3 April. US$80. Austin Hendy, Natural History Museum of Los Angeles County, ahendy@nhm.org; Jann Vendetti, Natural History Museum of Los Angeles County, jvendetti@nhm.org; Lindsey Groves, Natural History Museum of Los Angeles County, lgroves@nhm.org; Howell Thomas, Natural History Museum of Los Angeles County, hthomas@nhm.org; Jorge Velez-Juarbe, Natural History Museum of Los Angeles County, jvelezjuar@nhm.org.

Post-Meeting

5. Geology, Stratigraphy, and Paleontology of the Santa Ana Mountains, Orange County, California: Thurs., 7 April. US$80. Jere Lipps, Cooper Archaeological & Paleontological Center, OC Parks & California State Univ. Fullerton, jlipps@fullerton.edu; Eric Scott, Cooper Archaeological & Paleontological Center, OC Parks & California State Univ. Fullerton, erscott@fullerton.edu; Lisa Babilonia, Orange County Parks, lisa.babilonia@ocparks.com; Richard Lozinsky, Fullerton College, rlozinsky@fullcoll.edu.


7. Neogene Sedimentation, Volcanic Activity, and Faulting in the Coyote Mountains, Salton Trough, California: Thurs.–Sat., 7–9 April. US$260. Ann Byerk-Kaufman, California State Univ. Chico, abeka-kauffman@csuchico.edu; Michael Parker, California State Univ. Chico, michaelpparker@sbcglobal.net; Amy Gentry, California State Univ. Chico, kitsune556@gmail.com; David Teimoorian, California State Univ. Chico, davidteimoorian@gmail.com.

8. Late Cretaceous to Neogene Assembly and Disaggregation of the Southern Sierra Nevada Region: Thurs.–Fri., 7–8 April. US$240. Alan Chapman, Macalester College, chapman@macalester.edu; Jason Saleebey, California Institute of Technology, jason@gps.caltech.edu; David Wood, djwd@swbell.net.

9. Vertebrate Paleontology of Death Valley National Park, California: Thurs.–Sat., 7–9 April. US$320. Torrey Nyborg, Loma Linda Univ., tnyborg06g@llu.edu; Steve Rowland, Univ. of Nevada Las Vegas, steve.rowland@unlv.edu.

WORKSHOPS

The following teaching workshops will be held at the DoubleTree Hotel. Generous sponsorships allow the organizers to offer these workshops at no charge, except for the normal meeting registration fee. Space is limited, so register early. See the meeting website for more information.

1. California Earthquake Hazards & Mineral Resources—NGSS: Cosponsored by California Mineral Education Foundation (CMEF); Southern California Earthquake Center (SCEC); Women In Mining (WIM). Sun., 3 April, 8 a.m.–3 p.m. Limit: 25; refreshments included, but participants need to provide their own lunch. Cynthia L. Pridmore, California Geological Survey, cpridmore@consrv.ca.gov; Robert De Groot, Southern California Earthquake Center; Joyce Pulliam-Fitzgerald, Elementis Specialties Inc.

2. Creating Dual-Enrollment Honors Geology Classes at High Schools: Sponsored by National Association of Geoscience Teachers, Far Western Section. Sun., 3 April, 8 a.m.–noon. Limit: 20; refreshments included. Dirk Baron, California State Univ. Bakersfield, dbaron@csub.edu.
OPPORTUNITIES FOR STUDENTS

For mentor program and career workshop descriptions and On To the Future information, see p. 29.

Mentor Programs
Roy J. Shlemon Mentor Program in Applied Geosciences
Luncheon: Mon., 4 April.
John Mann Mentors in Applied Hydrogeology Program
Luncheon: Tues., 5 April.

Career Workshops
1. Career Planning & Informational Interviewing: Mon., 4 April, 8–9 a.m.
2. Geoscience Career Exploration: Mon., 4 April, 9–10 a.m.
3. Cover Letters, Résumés & CVs: Tues., 5 April, 9–10 a.m.

Undergraduate and Graduate Student Presentation Awards
To recognize exceptional work, the Cordilleran Section will offer awards for outstanding posters and oral presentations to both graduate and undergraduate students. Professional members: If you are interested in helping evaluate these presentations, please contact Jade Star Lackey, jadestar.lackey@pomona.edu.

Travel Grants
Deadline to apply: 29 February
To qualify, (1) you must be a GSA student member; (2) you must be registered for the meeting before you can apply for a grant; and (3) you’ll need to complete the online travel grant application form. Checks will be available for grant recipients to pick up at the meeting (in person, with photo ID). Learn more and access applications at www.geosociety.org/sections/cord/travelGrants.htm.

Volunteering
Deadline to apply: 29 February
Students are encouraged to volunteer to assist with different meeting activities in exchange for free registration, if they commit to their given work assignment (max. of six hours). Please contact Hilary Lackey, hlackey@mtsac.edu, for more information.

LOCAL COMMITTEE
Conference Chair: Jade Star Lackey, Pomona College, JadeStar.Lackey@pomona.edu
Field Trip Chair: Brian Kraatz, Western University of Health Sciences, bkraatz@westernu.edu
Technical Program Co-Chairs: Colin Robins, Claremont McKenna, Pitzer, and Scripps Colleges, crobins@kecksci.claremont.edu; Robert Gaines, Pomona College, robert.gaines@pomona.edu
Exhibits and Sponsorship: Joan Fryxell, CSU–San Bernardino, jfryxell@csusb.edu
Student Volunteers: Hilary Lackey, Mount San Antonio College, hlackey@mtsac.edu

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Preliminary Announcement and Call for Papers

ROCKY MOUNTAIN SECTION

68th Annual Meeting of the Rocky Mountain Section, GSA
Moscow, Idaho, USA
18–19 May 2016

www.geosociety.org/Sections/rm/2016mtg/

Moscow, Idaho, USA, is located in the beautiful Palouse region of north-central Idaho. It is an ideal base for exploring the lavas of the Columbia River Basalts, granites of the Idaho Batholith, tremendous flood features of the Channeled Scablands, metamorphic Precambrian Belt rocks, agriculturally rich tephra-influenced loess soils, and the breathtaking landscape features of this tectonically active region.

ACCOMMODATIONS

Reservation deadline: 15 April
A block of rooms has been reserved for meeting attendees at the Best Western University Inn, located just north of the Univ. of Idaho campus at 1516 Pullman Road (State Hwy 8), +1-800-325-8765. Room rate: $109.99, plus tax, for up to 4 guests; please mention the GSA room block.

CALL FOR PAPERS

Abstract deadline: 1 March
Submit your abstract online at www.geosociety.org/Sections/rm/2016mtg/. Fee: US$15 for students; US$20 for all others. If you cannot submit an abstract online, please contact Heather Clark, +1-303-357-1018, hclark@geosociety.org.

Theme Sessions

1. Megafloods, Paleohydrology, and Fluvial Processes on Earth and Beyond: In Recognition of the Scientific Contributions of Victor R. Baker: Jim O’Connor, USGS, oconnor@usgs.gov; Virginia Gulick, NASA Ames/SETI Institute, virginia.c.gulick@nasa.gov; Lisa Ely, Central Washington Univ., ely@geology.cwu.edu; Brian Yanites, Univ. of Idaho, byanites@uidaho.edu.

2. Quaternary Geochronology and Mapping: Applications to Geomorphic Problems in the Intermountain Western North America: Cal Ruleman, USGS, cruleman@usgs.gov; Shannon Mahan, USGS, smahan@usgs.gov.

3. (Bio)Geochmical Processes in Soils: Carmen Nezat, Eastern Washington Univ., cnezat@ewu.edu; Abir Biswas, Evergreen State College, biswasa@evergreen.edu.

4. Paleogene–Neogene (?) Gravels of the Interior Plains of Western North America: Dale Leckie, Univ. of Calgary, leckied@shaw.ca; Andrew Leier, Univ. of South Carolina, aleier@geol.sc.edu.

5. Source to Sink, Proterozoic to Today: Erosion, Sediment Transport, and the Stratigraphic Record of Surface Processes: Robert Mahon, Univ. of Wyoming, mahan1@uwyo.edu; Claire Lukens, Univ. of Wyoming, clukens@uwyo.edu; Paul Link, Idaho State Univ., linkpaul@isu.edu.

6. Lagerstätten through Time and Space: Julien Kimmig, Univ. of Saskatchewan, jkimmig@gmail.com; Amy Singer, Univ. of Montana, amysinger@umontana.edu.

7. Late Paleozoic Ice Age: Gondwana Systems and Proxies in the U.S. Cordillera: Peter Isaacscon, Univ. of Idaho, isaacscon@uidaho.edu.

8. Volcanic Hazards: Products, Processes, and Perspectives: Brittany Brand, Boise State Univ., brittanybrandon@boisestate.edu; Shannon Kobs Nawotniak, Idaho State Univ., kobs@asu.edu.

9. Seismic and Landslide Hazards in the Inland Northwest: Suzette Payne, Idaho National Laboratory, suzette.payne@inl.gov; Bill Phillips, Idaho Geologic Survey, phillips@uidaho.edu; Daisuke Kobayashi, Univ. of Idaho, dice.k.koba@gmail.com.

10. Energy Resources and New Plays in Western North America: John Welhan, Idaho Geologic Survey, weljohn@isu.edu; Ed Ratchford, Idaho Geologic Survey, edratchford@uidaho.edu; Jerry Fairley, Univ. of Idaho, jfairley@uidaho.edu; Renee Breedlove, Idaho Geologic Survey, reeneb@uidaho.edu.

11. Mineral Deposits and Metallogeny of Western North America: Chris Dail, Midas Gold, dail@midasgoldinc.com; Eric Jones, Thunder Mountain Gold; Lauren Perreault, HDR; Virginia Gillerman, Idaho Geologic Survey, edratchford@uidaho.edu.

12. Geologic Setting and Hydrogeology of the Columbia River Basalt Group and the Snake River Plain: Attila Folnagy, Montana DNRC, afolnagy@mt.gov; Tom Wood, Univ. of Idaho, twood@uidaho.edu.

13. Cenozoic Volcanism in the Inland Northwestern United States: John Wolff, Washington State Univ., jawolff@wsu.edu; Scott Borroughs, Washington State Univ., geoeoptics@gmail.com; Jesse Mosolf, Montana Tech, jmosolf@mttech.edu; Bill Bonnichsen, Univ. of Idaho, billb@uidaho.edu.

14. Geochronology of Igneous Processes: Vince Isakson, Boise State Univ., vincentisakson@u.boisestate.edu; Mark Schmitz, Boise State Univ., markschmitz@boisestate.edu.
15. **Geologic Evolution of Accretion-Related Orogenic Belts and Associated Elements of the Central North American Cordillera:** Keith Gray, Wichita State Univ., k.gray@wichita.edu; Keegan Schmidt, Lewis Clark State College, klschmidt@lcsc.edu.

16. **Constraints on the Formation, Assembly, and Evolution of Precambrian Rocks in the Rockies:** Julie Baldwin, Univ. of Montana, julie.baldwin@umontana.edu; Jeff Vervoort, Washington State Univ., vervoort@wsu.edu; Da Wang, Washington State Univ., binglian454@gmail.com.

17. **Planetary Science: Insights from Remote Sensing, Field, and the Laboratory:** Deepak Dhingra, Univ. of Idaho, deepdpes@uidaho.edu.

18. **Undergraduate Geologic and Multidisciplinary Research: Faculty Examples and Student Experiences in the Field:** Chad Pritchard, Eastern Washington Univ., cpritchard@ewu.edu.

### FIELD TRIPS

For additional information, please see the meeting website or contact field trip co-chairs Reed Lewis, reedl@uidaho.edu, or Keegan Schmidt, klschmidt@lcsc.edu.

#### Pre-Meeting

1. **Pleistocene Megaflood Landscapes of the Channeled Scabland:** Sun.–Tues., 15–17 May. Victor Baker, Univ. of Arizona; Bruce Bjornstad, Richland, Washington; David Gaylord, Washington State Univ. Vans depart from Spokane, Washington, on Sunday; the trip ends in Moscow, Idaho, on Tuesday.


3. **Miocene Fossils in the Clarkia Area: Classic Lagerstätten:** Tues., 17 May. Bill Rember, Univ. of Idaho.

4. **Geology of the Wallowa Terrane in the Northern Part of Hells Canyon:** Tues., 17 May. Keegan Schmidt, Lewis-Clark State College; Tracy Vallier, Emeritus, USGS.

5. **Metamorphic History of the Belt Supergroup and Underlying Paleoproterozoic Basement Rocks in the Western Part of the Clearwater Complex:** Tues., 17 May. Julie Baldwin, Univ. of Montana; Reed Lewis, Idaho Geological Survey; Jeff Vervoort, Washington State Univ.

#### Post-Meeting


8. **Geology and Geologic History of the Moscow-Pullman Basin, Idaho and Washington, from Late Grande Ronde to Late Saddle Mountains Time:** Fri., 20 May. John Bush, Emeritus, Univ. of Idaho; Dean L. Garwood, Spokane Community College; Pamela Dunlap, Emeritus, USGS.


11. **Precious and Base Metal Deposits of the Coeur d’Alene Mining District:** Fri.–Sat., 20–21 May. Chris Dail, MidaS Gold Inc.; Sadae Lortz, U.S. Silver and Gold; John Etienne, New Jersey Mining; Virginia Gillerman, Idaho Geological Survey; Grant Brackebusch, New Jersey Mining; Dan Hussey, U.S. Silver and Gold; Kathryn Dehn, U.S. Silver and Gold; Aaron Gross, U.S. Silver and Gold.

### OPPORTUNITIES FOR STUDENTS

For mentor program and career workshop descriptions and On To the Future information, see p. 29.

#### Career Workshops

1. **Geoscience Career Workshop Part 1: Career Planning and Informational Interviewing:** Wed., 18 May, 8–9 a.m.

2. **Geoscience Career Workshop Part 2: Geoscience Career Exploration:** Wed., 18 May, 9–10 a.m.

3. **Geoscience Career Workshop Part 3: Cover Letters, Résumés, and CVs:** Thurs., 19 May, 9–10 a.m.

#### Mentor Programs

- **Roy J. Shlemon Mentor Program in Applied Geoscience Luncheon:** Wed., 18 May.
- **John Mann Mentors in Applied Hydrogeology Program Luncheon:** Thurs., 19 May.

### LOCAL COMMITTEE

**General Co-Chairs:** Leslie Baker, l.baker@uidaho.edu; Brian Yanites, byanites@uidaho.edu

**Technical Program Co-Chairs:** Tom Williams, tomw@uidaho.edu; Peter Isaacson, isaacson@uidaho.edu

**Field Trip Co-Chairs:** Reed Lewis, reedl@uidaho.edu; Keegan Schmidt, klschmidt@lcsc.edu

**Student Volunteer Chair:** Cary Lindsey, caryrlindsey@gmail.com

**Student Mentoring/Programs Coordinator:** Judy Parrish, jparrish@uidaho.edu
ON TO THE FUTURE (OTF)

Stop by the GSA Foundation booth at your Section Meeting’s Welcome Reception to find out about applying to OTF, which provides travel support to students underrepresented in the geosciences to attend their first GSA Annual Meeting (the next one is 25–28 Sept. 2016 in Denver, Colorado, USA).

CAREER WORKSHOPS

Geoscience Career Workshop Part 1: Career Planning and Informational Interviewing

Your job-hunting process should begin with career planning, not when you apply for jobs. This workshop will help you begin the process and will introduce you to informational interviewing. This section is highly recommended for freshmen, sophomores, and juniors. The earlier you start your career planning the better.

Geoscience Career Workshop Part 2: Geoscience Career Exploration

What do geologists in various sectors earn? What do they do? What are the pros and cons of working in academia, government, and industry? Workshop presenters, and professionals in the field, will address these issues.

Geoscience Career Workshop Part 3: Cover Letters, Résumés, and CVs

How do you prepare a cover letter? Does your résumé need a good edit? Whether you are currently on the job market or not, learn how to prepare the best résumé possible. You will review numerous résumés to help you learn the important dos and don’ts of the process.

MENTOR PROGRAMS

Enjoy a free lunch while meeting with geoscience mentors working in the applied sector. The popularity of these programs means that space is limited, so plan to arrive early, because lunch is first-come, first-served. For further information, contact Jennifer Nocerino at jnocerino@geosociety.org.

South-Central Section: Baton Rouge, Louisiana, USA
Roy J. Shlemon Mentor Program in Applied Geoscience
Luncheon: Monday, 21 March
John Mann Mentors in Applied Hydrogeology
Luncheon: Tuesday, 22 March

Northeastern Section: Albany, New York, USA
Roy J. Shlemon Mentor Program in Applied Geoscience
Luncheon: Monday, 21 March
John Mann Mentors in Applied Hydrogeology
Luncheon: Tuesday, 22 March

Southeastern Section, Columbia, South Carolina, USA
Roy J. Shlemon Mentor Program in Applied Geoscience
Luncheon: Thursday, 31 March
John Mann Mentors in Applied Hydrogeology
Luncheon: Friday, 1 April

Cordilleran Section, Ontario, California, USA
Roy J. Shlemon Mentor Program in Applied Geoscience
Luncheon: Monday, 4 April
John Mann Mentors in Applied Hydrogeology
Luncheon: Tuesday, 5 April

North-Central Section, Champaign, Illinois, USA
Roy J. Shlemon Mentor Program in Applied Geoscience
Luncheon: Monday, 18 April
John Mann Mentors in Applied Hydrogeology
Luncheon: Tuesday, 19 April

Rocky Mountain Section, Moscow, Idaho, USA
Roy J. Shlemon Mentor Program in Applied Geoscience
Luncheon: Wednesday, 18 May
John Mann Mentors in Applied Hydrogeology
Luncheon: Thursday, 19 May

PROFESSIONALS: Interested in sharing information about your applied geoscience career with students? Being a mentor is a rewarding experience. If you are interested in serving as a mentor at one of GSA’s Section Meetings, contact Jennifer Nocerino at jnocerino@geosociety.org.
NOW AT GSA: Your Time to Shine

Volunteer or nominate a colleague to serve as a GSA Officer, Councilor, or committee member. Deadline: 15 June (terms begin July 2017). Student members are especially encouraged to bring their unique points of view to GSA leadership.

Links to Learn More
Officers & Councilors: www.geosociety.org/aboutus/officers.htm
Committees: www.geosociety.org/aboutus/committees

ELECTIONS: GSA OFFICERS and COUNCILORS

GSA ELECTIONS BEGIN 10 MARCH 2016

GSA’s success depends on you—its members—and the work of the officers serving on GSA’s Executive Committee and Council. Members will receive instructions for accessing a member-only electronic ballot via our secure website, and biographical information on the nominees will be online for review at that time. Paper versions of both the ballot and candidate information will also be available upon request. Contact Susan Lofton, slofton@geosociety.org, for more information. Ballots must be submitted electronically, faxed to GSA Headquarters, or postmarked by 10 April 2016.

2016 OFFICER NOMINEES

<table>
<thead>
<tr>
<th>OFFICER POSITION</th>
<th>NOMINEE</th>
<th>INSTITUTION/ADDRESS</th>
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<tbody>
<tr>
<td>PRESIDENT</td>
<td>Claudia I. Mora</td>
<td>Los Alamos National Laboratory, Los Alamos, New Mexico, USA</td>
</tr>
<tr>
<td>VICE PRESIDENT/PRESIDENT-ELECT</td>
<td>Isabel Montanez</td>
<td>University of California Davis, Davis, California, USA</td>
</tr>
<tr>
<td>TREASURER</td>
<td>Bruce R. Clark</td>
<td>The Leighton Group Inc., Irvine, California, USA</td>
</tr>
</tbody>
</table>

We congratulate our incoming president!

2016 COUNCIL NOMINEES

<table>
<thead>
<tr>
<th>COUNCILOR POSITION</th>
<th>NOMINEE</th>
<th>INSTITUTION/ADDRESS</th>
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<tr>
<td>COUNCILOR POSITION 1</td>
<td>F. Edwin Harvey</td>
<td>National Park Service, Denver, Colorado, USA</td>
</tr>
<tr>
<td>COUNCILOR POSITION 2</td>
<td>Mark Little</td>
<td>University of North Carolina, Chapel Hill, North Carolina, USA</td>
</tr>
<tr>
<td></td>
<td>David W. Szymanski</td>
<td>Bentley University, Waltham, Massachusetts, USA</td>
</tr>
<tr>
<td>COUNCILOR POSITION 3</td>
<td>Donna Whitney</td>
<td>University of Minnesota, Minneapolis, Minnesota, USA</td>
</tr>
<tr>
<td></td>
<td>Marjorie Chan</td>
<td>University of Utah, Salt Lake City, Utah, USA</td>
</tr>
</tbody>
</table>

Second candidate to be confirmed

Ballots must be submitted electronically or postmarked by 10 April 2016.
Welcome New GSA Members!

The following individuals submitted their applications for GSA membership between 17 April 2015 and 31 August 2015 and were approved by GSA Council at its October 2015 meeting.

Top Three Reasons Geoscientists Become GSA Members
1. Career Development
2. GSA Meetings
3. GSA Publications

PROFESSIONALS
Mohd Shafiq Firdauz Abdul Razak
Bill Ackland
Lufadeju O. Aderinola
Muhammad Adnan
Musaad Abdul Algarawi
Gabriel Ernesto Aliaga
Mohammed Musa Aliyu
Guillermo Almaguer Sr.
Arafat A. Alshuaibi
Wagner Silva Amaral
Fadhil Ahmed Ameen

R. Anand
Perseo Anaya
Bryan J. Anderson
Jacob Lee Anderson
Ryan L. Anderson
Alessandra Ascione
Lea Anne Scott Atwell
Muhammad Awais
Arthur Paul Baclawski
Wayne E. Baldwin
Charles Baltzer
David Baskin
Grace Margaret Beaudoin

Frederick M. Beck
Gretchen Benedix
Karen Berry
Warwick Stuart Board
Michael Boiardi
David Boleneus
Ryan James Bonney
Rich Booth
William Andrew Bratney
Suzanna Brauer
Jonathan Andrew Brewer
Kristina O. Bridger
Jeffrey Kent Brown
Reyna Brown
Andrew Alexander Buchanan
Allan Büchi
Melody B. Burkins
Gregory K. Burns
Thomas A. Buscheck
Jacqueline Marie Bussey
Gordon Butt
Ryan L. Campbell
Matthew T. Carrano
Nicholas John Castonguay
Geane Carolina Gonçalves
Cavalcante
Wei Chen
Katie Lynne Cipolla
Linda Coles
Pier Paolo Comida
Trevor Scott Copple
Claudia Ximena Correa Rojas
John Oliver Costello
Dan Cravens
Jim Criswell
Selby Cull-Hearth
Tera L. Curren
Chiara D’ambrogi
Simon D’haenens
Daniel Andres Damas
Andrea M. Davis
George Davis II
Jonathan Dean
Tyler Deines
Francesco Dela Pierre
George Henry Denton
Thomas E. Dewey
Robert Michael Difilippo
Nazzareno Diodato
Adekunle Oluwafemi Ditiolu
Sarah Rebecca Doliber
Katerina Dontsova
Chandra Shekhar Dubey
Alexander Mark Dunhill
Ivy B. Dupree
Stuart J. Dykstra
Kevin Eastham
David Elbert
Christianna Kay Ellingson

John Ross Elliott
Abubakar Oshioke Esubino
Curtis Evans
Anthony Faia
Silvio Ferrero
John V. Firth
Sergio Alejandro Flores
Castro Sr.
Scott Frastaci
Mary Pyott Freeman
Stephen Mike Futrell
Yuan Gao
George Gpapindashvili
Isaais Gebredegne Gebreweldi
Teamrat A. Ghezzehei
Margaret G. Gilliland
Christopher A. Gomez
Aida Juliana Gomez Ramirez
Richard Goodsell Sr.
Ethem Gorgun
Simon Goring
Tolga Gorum
Andrew Graham
Mott Tuthill Greene
Luigi Guerriero
Brian Gulbranson
Ngirit Hagedorn
Jeffrey Halka
Casey M. Hall
Frank Reginald Hall
Jesi Jean Halligan
John S. Hanna
Nathaniel J. Hansen
David W. Hanson
Lindy Marie Hanson
Steven W. Hart
Sean Hartman
Ken Hasson
Andrew Heinowski
Elizabeth Herndon
Andrew Heyes
Sharon Susanna Hoffmann
Erin Rachel Honse
Ernest R. Houston
Kalin Joseph Howell
Andrew J. Hoppley
Teddy Iu
Jose Maria Jaramillo
Fred Jee
Byron J. Jenkinson
Thomas Jerome
Carol A. Johnson
Kurt J. Johnson
Brian Johnston
Graham Johnston
Mindy Juergensen
Abdalnasser A. Kahla
Ji-hoon Kang
New Professional Members Employment Type

<table>
<thead>
<tr>
<th>Employment Type</th>
<th>Percentage</th>
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<tr>
<td>Private Sector</td>
<td>46%</td>
</tr>
<tr>
<td>Education</td>
<td>36%</td>
</tr>
<tr>
<td>Government</td>
<td>18%</td>
</tr>
</tbody>
</table>

EARLY CAREER PROFESSIONALS

Thomas Afton
Shan Ahmad
Merja Alam
Adam K. Aleksinski
Kari Amick
Robbie Arnone
Nicoie Arnes
Etham M. Arten
Margaret R. Atterbury
Erik Bagley
Jordan W. Barnes
Satyajit Barthakur
Casey Leigh Barton
Kelsey Batz
Laura Baumann
Andrew M. Bayles
John Travis Berger
Robert Bridgeford Jr.
Steven C. Brost
Christine Brownfield
Paige Alison Buckner
Sean Daniel Burns
Carolyn H. Canterbury
Derek David Carr
Theresa Carranza-Fulmer
Alexandra Caruso
Queenie Chang
Jenna Chervin
Saebiyul Choe
Allyson L. Clabough
Justin Andrew Clark
Bonny Kingdom Clarke
John Patrick Cleary
Ted J. Coleman
Case T. Collins
Budoin-Brutus Cooper
Antonio Cusumano
Silvia Danise
Dylan K. Davis
Sara D. Delfin
Victoria Marie Desjardins

Lauren Devito
Giuliana Andrea Diaz
Mendoza
Nancy Diaz-Garcia
Michael Dickens
Petter Dischington
Brian Dowd
Dylan Michael Dwyer
Zachary M. Edgar
Boty Lee Elsen
Matthew Emmett
Michael Evans
Christopher John Everett
Sarahi Felix
Jenna B. Flitcroft
Caleb Brooks Fogel
John David Fortner
Andrew Charles Francis
Kristin Michelle Franks
Brian Kelly Frett
Eric James Freudenberger
Jorge A. Garcia Jr.
Janelle Ann Guan
Zachary Ben Gordon
Tyler Grabner
David Matthew Greening
Joshua Shane Phillip Greer
Thomas Michael Gregory Jr.
Gessika Lee Guerra
Xiaofeng Guo
Ejaz Hafeji
Shahan Haq
Anja Helfrich
Cyanna L. Hicks
Grace Hilbert
Jana Hillenbrand
Jefferson Lindsay Hopper
Emily Hughes
Paul Jackson
Corbin Russell Jensen
Heather Johnson
David Michael Johnston
Allison Jones
Rachel Amy Joseph
Welcome New GSA Members

Michael Jewell Jury
Hannah Catherine Keck
Heather Lelah Keck
Md. Mahmudur Rahman Khan
Nikki Kovalcheck
John Nathan Lafferty
Kellen Olen Lamp
Ronny Maik Leder
Jordan Leech
Tiffany A. Lopez
Mark Lower
Sarah Elizabeth Lyter
Stephanie Macdonald
Arielle Maines
Chase Thomas Martin
Joshua Alexander Matherson
Chloe Mayne
Elle McFarlane
Charles McGaw III
Jorge Mendoza
Lacey Rye Morrison
Catherine Ngarami Mushi
Greggory Howard Myers
Juliana Joseph Nyikos
Markos Kapes
Peter A. Leach
Jaafar M. Assey
Lauren Taylor Bane
Climatology/Meteorology

Allison M. Chartrand
Sarah Farley
Rachael E. Grube
Natashia Henderson
Christopher B. Hornung
Michael Krasowski
Kory Everett Leech
Ryan Rajela
Brennan Michael Voorheis
Economic Geology

Connor Louis Abendschein
Jason Michael Burwell
Nicholas J. Butterfield
Nicholas Camper
Bijal Mahendra Chudasama
Guinevere Collins
Elizabeth R. Hollingsworth
Brock Howell
Steven G. Johnson

Archaeological Geology

Adrena M. Bentley
Jason Chambers
Stephanie Michelle Clark
Ethan J. Cole
Kristy May Ely
Adam Hudak
Jaafar Jotheri
Emmanuel Villa Joya
McKenzie Rivers Juarez
Markos Kapes
Peter A. Leach
Ian M. Macadam
Cody Wayne Martin
Sibajene Moono
Molly Ann Murphy
Alexandra Rocca
Tyler Christian Treadwell
Kelsey D. Watson

Climatologists/Meteorologists

Allison M. Chartrand
Sarah Farley
Rachael E. Grube
Natashia Henderson
Christopher B. Hornung
Michael Krasowski
Kory Everett Leech
Ryan Rajela
Brennan Michael Voorheis

Top Five Reasons Students Become GSA Members

1. GSA Meetings
2. Career Development
3. GeoCorps America
4. Free Online Journal Access
5. Research Grants
Ryan Clements
Nathan G. Cote
Meghan Curtis
Sarah Kathryn Dailey
Hilary Davis
Evan Dean
Jennifer Grace Dixon-Gonzales
James Duquemin
Andrew Martin Dyrhood
Nicole Fenton
Dylan J. Fisher
Katherine Victoria Gass
Joshua Phillip Gavin
Emma Lyn Giddens
Benjamin Michael Ginter
Austin Michael Gion
Jenna Marie Graham
Jennifer L. Graham
Leslie Grove
Abdul Haq III
Nicholas Heasley
Tyler J. Hebert
Scarlett Henson
Amy Hickmon
Micha Hough
Jackson Jakeway
Hunter M. Johnson
Onyechega Patrick Kelechi
Zachary Aidan Keller-Coffey
Michael V. Kennedy
John Tyler Kieffer
Adam Russell Kreider
Brian Scott Kubik
Nathan Lentsch
Jordan Alexander Levy
Lauren Michelle Lloyd
Gerald David Mackay
Telemachos Andrew Manos
Zachary Alan Mansour
Robert W. Martin
Makuachukwu Federa
Mbaegbu
Joseph Bodie McCosby
Connor Thomas McCoy
Andrew McKenna
Ross Meyer
Sandra Cecilia Miano
Michael Mulligan
Kingsley K. Nwozor
Cole Nypaner
Davidson C. Okoko
Samuel Orta
Brandon Padgett
Julia Peacock
Corrin J. Peters
Gregory Hugh Peters
Travis Pohl
Mallory Ramos
Meredith Ann Raphelson
David Rowan
Ross Conley Sanor
Emiliano D. Santin
Gabrielle Sasseville
Jacob Saurer
Austin M. Savage
Bryan Thomas Sheppard
Kris Sitttheamorn
Jessica Maire Soliz
Ben Stone
Emma Sue Swaninger
Ana Lucia Swor
Frank M. Tamakloe
Tyler Tanner
Matthew Thimsen
Travis Tillman
Iva Tomijenov
Houston A. Vincent
J. Sage Wagner III
Lindsay Walsh
Kevin J. Warner
Holly Young

Environmental Science
Frida Akerstrom
Amineh B. Albashaireh
Carmen Amos
Francis Anaya
Elliott William Baker
Roxanne Baker
Jess Balkenhol
Alexa Faith Barber
Thomas Barber
Catherine Joy Bartell
Lisa Aerin Beattie
Brandon W. Becker
Matthew Robert Bly
Andrew M. Bogard
John Augustus Burgin
Mary Butwin
Hayley C. Buzulencia
Lindsey Lea Chadderdon
Taylor M. Christensen
Emily Elizabeth Cigolle
Ida Clarke
Isabella Giuseppa Cucuzza
Kristen Coomer
Cortney Caye Crites
Trevor Wade Crosby
Kate Cullen
Maryanne Michelle Dalanon
Andrea Michele Dearing
Chad Joseph Dentlinger
Sarah K. Dester
Brittney Leigh Detcienne
Julia Anne Domenech
Mitchell Donovan
Alex R. Edler Sr.
Matthew Tanner Edwards
Carly Ellis
Deanna Nicole Ercolani

Engineering Geology
Zachary Albert
Elliott Joseph Andelman
Parker Wells Aubin
Jodutt Marwan Basrawi
Allison Renee Bieda
John Breiner
Abby Buarapha
Christine Rosalynn Cano
Yonesha Yasshelle Donaldson
Anna Elgqvist
Allan William Foster III
Brendan J. Gaylord
Sumaya Hamdi
Kelly Hickcox
Jasmin Jamal
Sruthi Kakaturu
Samantha Lynne Kephart
Kelly Kindgren
Justin T. King
Zachary J. Klang
Brenton Koby Kreiger
Nicholas Lippincott
Joshua Joseph Mack
Caleb Andrew Marhoeover
Amber Rene Menegay
Jennifer Nguyen
Kevin Patrick Ormerod
Abby Preston
José Luis Rueda Escobar
Daniel Henry Sammon
Wesley David Mcadam Silvey
Benjamin Matthew Stark

Top Five Fields of Interest (Students)

1. Mineralogy, Geochemistry, Petrology, and Volcanology
2. Environmental Science
3. Hydrogeology/Hydrology
4. Energy Geology
5. Structural Geology and Tectonics
Carolyn Koebel
Melanie Koerth
Rachel Krueger
Michelle Lanzoni
David A. Lawrence
Sydney Le Cras
Katharine Leopold Schiller
Cliff Lewis
Austin Thomas Luecke
Katie Lyon
Kevins Magouirk
Jillian C. Matz
Georgiana Marie Mcswane
Cameron W. Mercer
Kevin J. Meyer
Michael Michno
Haley Caitlyn Miller
Olivia Michael Minella
Allison Marie Mitchell
Scott M. Morgan
Julie Mui
Marc Muraoka
Jeffrey Murl
Peter T. Nguyen
Aleksand Novak
Juliana Elizabeth Olsen-Valdez
Larry B. Page
Andrea Pain
Rusha Pal
Saumik Panja
Elaine M. Panuccio
Erin Peeling
Christina Penna
Jeff Perkins
Margaret L. Perme
Emma Jean Peterson
William Alfred Peterson
Challen Pinkney
Katrina Lynne Ponder
Allison Pourquoi
Patrik C. Prouse
Scott A. Raulerson
Rachel Elise Rea
Emilie Michelle Richard
David Riera
Samantha Robillard
Gabrielle Russell
Devon Rowe Rutledge
Kelly Margaret Schwinghamer
April M. Seeley
Evan R. Shalagan
Melika Sharifironizi
Shabnam Shomail
Tammy Leigh Slagle
Kelsey Marie Slayton
Katelynn Smith
Mathew J. Stanek
Graham Stewart
Marleen Stuhr
Ayana Suber
Ryan Keenan Sullivan
Nicholas Anthony Suraci
Lucas George Tatarko
Hope Telder
Christina Tenison
McKay B. Tenney
Heather Rose Thole
Daniel H. Thompson
Torrance Tyrell Tolle
Matthew Henry Vander Loop
Michelle Pamela Waddington
Katarzyna Walkowska
Gregory A. Wall
Meghan Walsh
Tina M. Williams
Changhong Wu
Lindsey Danese Yazbek
Jenny Jie Zheng

Geography
Hannah Rae Adams
Eric Paul Armstrong
James P. Bando
Steven G. Braund
Carla M. Castillo
Elizabeth Dreimiller
Robert Gannon
Wenjie Ji
Ashley Kochlett Larsen
Max J. Parada
Brad Peter
Elizabeth Ann Plascencia
Julia D. Scott
Diana C. Stack
Quentin Stubbs
Alan Tanwi
Celina Villegas
Greta Hoe Wells

Geoinformatics
Matthew Joseph Acree
Aman Arora
Phachara Henry Boucher
Robbyn Ferris
Alexis Ho-Liu
John A. Kanchean
Jennifer Christine Lewis
Sam Lockshin
Myriam Loving
Michael Perkins
Alan L. Pongratz
Joseph Anthony Saunders
Thomas Smith

Geology and Health
Natalie Nicole Buch
Benjamin M. Durel
Eric Arthur Escoto
Jacob Kiyoshi Kato
Naomi Ty Asha Plummer
Tyler Jacob Rust
Meg Sumner-Moore
Michael Terlga
Haowei Wang
Alex M. Washburn
Sarah Wolpert Wayman

Geophysics/Tectonophysics
Benjamin Ammerman
Courtney Elizabeth Bivens
Lexine Black
David Garrett Blank
Joshua D. Boschelli
El Bachen Yousef Bouali
Luke Douglas Brown
Hesham M.A. Buhedma
Angelica Jimenez Calderon
Erik Conlon
Elizabeth Da Silva
Evan Fritz
Steven Michael Hannes
Ryan Joseph Hefley
Olivia Hoch
Justin Thomas Holliday
Admiral Musa Julius
William Ross Kersey
Tyler J. Kukla
Lateef Owolabi Lawal
Mary Elizabeth Layton
Pengyu Lu
Michael Steven Mcclimans
Timothy McGovney
Martha Thatiana
Perdomo-Figueroa
John W. Pugh III
Pengbo Qin
Ambrosia Lee Rhoads
Kerry Ryan
Somaria Ivy Sammy
Jeremiah A. Smith
Sarah Diane Trutner
Vanessa René Vickroy
Samantha Jayne Wexler
Dawnmarie White
Jefferson Yarce

Geoscience Education
Rachel Atkins
Kimberly Beck
Elizabeth Anne Bogue
Dylan Droxler
Daniel Etelman
Hazel Gibson
John William Granholm II
Kelley Marie Grim
Shelby Kay Johnston
Bailey Zo Krager

Tayrn C. Lee
Michaela L. Marshall
Claire Nehlsen
Nicholas Vincent Podmaska
Michael Rodriguez
Debra L. Salters
Monica Christine Steele
Gary J. Vecchiarelli
Erika C. Vye
Christopher Michael Watson
Shilpi Yadav

Geothermal
Brittany Hoover
Mulyanto Mulyanto
Claire Marie O’Donnell
Shawna Evelyln Olsen

Hydrogeology/Hydrology
Mustafa M. Al kuisi
Joshua M. Allen
Jeanie R. Amezcue
Jonathon Andrews
Tanner Reid Bakke
Joshua Benton
Daniel Thomas Brennan
Tom Brubaker
Crystal S. Burgess
Gregory James Burgess
Chadaporn Busarakum
Melissa Cain
Caitlin Renae Carter
Jason Michael Chapman
Thomas Ciarlante
Cliff S. Clark
Lane P. Cockrell
Jim Matthew Coll
Hannah C. Couch
Luke Kendall Cousino
Jaclyn Marie Daum
Joshua Thomas Dodge
Mitchell Enderson
Elizabeth G. Erwin
Ashley Renea Farren
Matthew Faryan
John Benjamin Frazier
Janae Fried
Gerrit Thomas Gardner
Angelo Genabe
Alexi George
Claire Goydan
Marty Green
Lucas Matthew Groat
Julia Ann Guimond
Seung-wook Ha
Tae Gyeong Hamm
Dana Leigh Hardage
Joshua Paul Harrington
Nathan Hay
Anthony Joseph Saraceni IV  
Chris Sbarra  
Cullen Scheland  
Emma Lincoln Schneider  
Connor J. Scofield  
Leydi Karina Serrano  
Brenainn F. Simpson  
Trevor James Slazas  
Patrick Caleb Smith  
David R. Snoeyenbos  
Johanna Sommer  
Hunter S. Songy  
Claire Louise Sotelo  
Yanqing Su  
Stephanie E. Suarez  
Sagar Kumar Swain  
Fang Tan  
Andrew Thomas  
Glenn Tristan Thompson  
Sara Marie Tilp  
Stephanie M. Todd  
Sally June Tracy  
Katlyn Turner  
Natalie Adele Tyler  
Rebecca F. Unger  
Daniel J. Warbritton  
Marshall B. Wayment  
Kristen Taylor West  
Joshua Wiejacli  
Kellan D. Wilging  
Grant Alexander Willford  
Noah N. Williams  
Heather Winslow  
Brian Blaine Yagle  
Rogelio Zamora Jr.  
Sara Zarrebin  
Zacharie Zens  
Feifei Zhang  
Michael Joseph Ziegler  
Caleb Zubia  
Alex Zumberge  
Matthew Carl Zurawski  
Davitia James  
Arye Max Janoff  
Carson L. Jelen  
Mitchell J. Kordesch  
Wendy E.C. Kordesch  
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Astrid Pacini  
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Sarah Elizabeth Perry  
Alyssa Victoria Pietraszek  
Autumn Charlotte Pugh  
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Alyssa Wagner  
Christopher Wallace  
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Jon Yang  
Paleo-Sciences  
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Peter Adamson  
Gwen Antell  
Lauren S. Bano  
Henry Cleave Barker  
Nathan Battey  
Paige Marie Breen  
Jenneke Fopke Antonia  
Brombacher  
Tyler Buchanan  
Sara Ann Burrell  
Jesse A. Carpenter  
Eric Carr  
Marlee Cloos  
Shannon Cofield  
Jesse Cooney  
David R. Cordie  
Anne-Sofie Crüger Ahm  
Tammy Danner  
Robert Andrew Domeyko  
Lyndsey Erin Farrar  
Amanda Marie Fromer  
Keith Fuller  
Kacey Garber  
Jacob Gardner  
Christopher R. Gentile  
Samantha Mary Giancarli  
Demi Girot  
Amanda Lynn Godbold  
Nathaniel C. Goodman  
Mariah Green  
Lauren Elisha Henderson  
Rebecca Hofmann  
Naava H. Honer  
Preston Itie  
Kevin Edward Jackson  
Claire M. Johnson  
Sara Kahanamoku  
Karastin Katusin  
Abigail Kelly  
Jacob Kohr  
Brock Kokes  
Melissa K. Macias  
Alexandra R. Mackay  
Miguel Angel Miguel  
Joseph Norman Milligan  
Jordan Mills  
Sydney Minges  
Chad A. Morgan  
Mark Ansel Moritz-Rabson  
Angela Nebel  
Christopher Nicolo  
Matthew Vincent Nigro  
Shawn Patrick Oates  
Stefan Linus Ososky  
Abbey E. Padgett  
Sameer Patel  
Lucas J. Ratter  
Matthew A. Reedy  
Adriana Rizzo  
Caroline Mae Robinson  
Stephanie Anne Rosbach  
Riffin Thandassery Sajev  
Wout Pieter Salenbien  
Laura Anna Schachter  
Ian Enrico Scolos  
Daniel Segessenman  
Zackary Ryann Sheperd  
Bethania Siviero  
Richard Thomas Smith  
Jack Reza Stack  
Hunter William Starr  
Thomas Steeman  
Nursufiah Sulaiman  
Kelsie Swatek  
Ridley Isaac Thomas  
George Tillery  
Samuel Tybout  
Alexander Alan Wheatley  
Nickolas James Wiggan  
James Witts  
Oceanography/Marine Geology  
Sean Thomas Beckwith  
Nicolle Brennan  
Hallie Anne Burnett  
Richard Carlos  
Alex James Courneya  
Maria Cristina Figueroa Matías  
Amanda M. Finn  
Nicolle Marie Flechcia  
Cindy Eunico Flores  
Jesse Alexander Gatlin  
Kimberly Gottschalk  
Alexis Clare Hayser  
Sarah Horns  
Keena H. Honer  
Preston Itie  
Kevin Edward Jackson  
Claire M. Johnson  
Sara Kahanamoku  
Karastin Katusin  
Abigail Kelly  
Jacob Kohr  
Brock Kokes  
Melissa K. Macias  
Alexandra R. Mackay  
Miguel Angel Miguel  
Joseph Norman Milligan  
Jordan Mills  
Sydney Minges  
Chad A. Morgan  
Mark Ansel Moritz-Rabson  
Angela Nebel  
Christopher Nicolo  
Matthew Vincent Nigro  
Shawn Patrick Oates  
Stefan Linus Ososky  
Abbey E. Padgett  
Sameer Patel  
Lucas J. Ratter  
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Ian Enrico Scolos  
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Bethania Siviero  
Richard Thomas Smith  
Jack Reza Stack  
Hunter William Starr  
Thomas Steeman  
Nursufiah Sulaiman  
Kelsie Swatek  
Ridley Isaac Thomas  
George Tillery  
Samuel Tybout  
Alexander Alan Wheatley  
Nickolas James Wiggan  
James Witts  
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Robert Breeze  
Jillian Schacher  
Quaternary/Regulatory  
Tyler Aken  
Jacob Daniel Brinkman  
Dakota J. Burt  
Angel Jahudiel Cervantes  
Pina Sr.  
Aubrey Dalbec  
Joanmarie Del Vecchio  
Elsemarie Devries  
Jordan F. Fields  
Kurtis R. Frievat  
Miles Allan Harbury  
Zach T. Hilgendorf  
KyungHo Jeon  
Chase Scott Kasmerchak  
Aaron Knowlton  
GSA TODAY  |  JANUARY 2016  |  WELCOME NEW GSA MEMBERS
Why GSA Membership Is Important to Me

What is the value of GSA for a mid-career, government agency geoscientist? For me, it has brought a surge of energy from interacting with the members, reconnecting with people from past posts, and meeting new people engaged in a wide range of research and policy efforts. I’ve served on the Geology and Public Policy Committee for the past several years and have had the pleasure of working with interesting, motivated, and engaged committee members. Each, in their own area of expertise, is working to improve the world in ways large and small. My advice is to join a committee or two, be an active volunteer, attend meetings, and take in (or lead!) a field trip. What you get out of GSA is directly related to what you are willing to contribute. GSA is a large tent open to new ideas and challenges to those ideas. Whether you are motivated to expand your network of smart, adventurous geoscientists or want to follow up on a research interest that got left behind in graduate school, there is sure to be a committee or GSA Division to nurture your interest. GSA membership has enriched my life professionally and intellectually.

Susan Stover, P.G.
Geologist, Outreach Manager
Kansas Geological Survey

GSA member since 2010;
GSA Fellow since 2015
In Memoriam

The Society notes with regret the death of the following members (notifications received between 1 August and 28 October 2015).

Ronald Barton
Manchester, UK
Date of death: 15 Sept. 2015

Gerald P. Brophy
Amherst, Massachusetts, USA
GSA notified: 9 Sept. 2015

Harold F. Bonham Jr.
Sparks, Nevada, USA
Date of death: 6 June 2015

Willard E. Cox
Payson, Arizona, USA
Date of death: 3 Apr. 2015

I.G. Grossman
Media, Pennsylvania, USA
Date of death: 1 July 2015

Anne E. Harding
Corvallis, Oregon, USA
Date of death: 6 June 2015

Dennis E. Haynes
Palisades, New York, USA
Date of death: 4 Apr. 2015

Michael W. Higgins
Clayton, Georgia, USA
Date of death: 4 Apr. 2015

Augustus S. Knight Jr.
Chester, New Jersey, USA
Date of death: 25 Aug. 2015

Mervin Kontrovitz
Monroe, Louisiana, USA
Date of death: 4 Sept. 2015

H. Richard Lane
Washington, D.C.
Date of death: 16 Oct. 2015

Milton R. Marks
Lake Oswego, Oregon, USA
Date of death: 3 Aug. 2015

Haydn H. Murray
Bloomington, Indiana, USA
Date of death: 4 Feb. 2015

Peter Popeneoe
Woods Hole, Massachusetts, USA
Date of death: 23 July 2015

David B. Stewart
Reston, Virginia, USA
Date of death: 12 Apr. 2015

Berry Sutherland
San Antonio, Texas, USA
Date of death: 12 Sept. 2015

Alfred Traverse
State College, Pennsylvania, USA
GSA notified: 21 Sept. 2015

H. Jesse Walker
Baton Rouge, Louisiana, USA
GSA notified: 7 Oct. 2015

Joseph L. Weitz
La Jolla, California, USA
Date of death: 22 July 2015

John R. Williams
La Jolla, California, USA
Date of death: 30 Sept. 2015

William I. Woods
Lawrence, Kansas, USA
GSA notified: 30 Sept. 2015

To honor a friend or colleague with a GSA memorial, please go to www.geosociety.org/pubs/memorials/mmlGuid.htm to learn how. Contact the GSA Foundation, www.gsafweb.org, if you would like to contribute to the Memorial Fund.

Call for Applications

2016–2017 GSA-USGS Congressional Science Fellowship

Application deadline: 1 Feb. 2016

Bring your science and technology expertise to Capitol Hill to work directly with national leaders at the interface between geoscience and public policy.

The GSA-USGS Congressional Science Fellowship provides a rare opportunity for a geoscientist to spend a year working for a member of Congress or congressional committee. If you are an earth scientist with a broad geologic background, experience applying scientific knowledge to societal challenges, and a passion for helping shape the future of the geoscience profession, GSA and the USGS invite your application. The fellowship is open to GSA members who are U.S. citizens or permanent residents, with a minimum requirement of a master's degree with at least five years of professional experience or a Ph.D. at the time of appointment.

Learn more at www.geosociety.org/csf or by contacting Kasey White, +1-202-669-0466, kwhite@geosociety.org.
Elizabeth Goldbaum, GSA Science Policy Fellow

On 29–30 September 2015, geoscientists from across the nation visited Capitol Hill to share their research and voice their concern over fizzling federal support for earth sciences with policymakers from states as diverse as Wyoming, Florida, Texas, and California. GSA, along with many fellow geoscience societies (www.americangeosciences.org/policy/get-involved/events/GEO-CVD), organized this, the 8th Annual Geoscience Congressional Visits Day (www.geosociety.org/geopolicy/CVD/), or “GeoCVD.”

Established and emerging geoscientists from academia, industry, and government attended a workshop and reception on 29 Sept. to welcome and prepare them to make the most of their visit. The following day they met with their representatives, senators, their staffers, and congressional committees in small teams to talk about how strong federal investment in geoscience research and education can enhance national security, support resilient communities, sustain a highly skilled workforce, and strengthen the nation’s global and economic competitiveness.

A Crash Course on Current Science Policy

During the orientation, organizers from the many hosting geoscience societies gave participants a refresher on how Congress works, focusing on the current status of federal geoscience funding. Kasey White, GSA’s Director for Geoscience Policy, spoke about H.R.1806, the “America COMPETES Reauthorization Act of 2015,” and its stipulations to cut NSF funding for geosciences, despite increasing overall funding for NSF. White also detailed cuts to many geoscience research programs at the Department of Energy contained in the bill. The House passed the bill back in May 2015. The Senate has been holding roundtables and seeking feedback before releasing a draft bill.

White also discussed the “NASA Authorization Act of 2016 and 2017 (H.R.2039),” which includes deep authorization cuts to NASA’s Earth Science Division and cuts to geoscience research in the House appropriations bills.

Participants heard from current geoscience congressional fellows, including GSA-USGS Congressional Science Fellow Susanna Blair. Congressional Science Fellows work for a year as staff members for members of Congress or congressional committees. The fellows shared their experiences and lessons learned about effective meetings from their time on the Hill with the participants.

Once participants were up to speed on the latest science policy legislation, they had the opportunity to practice their message with fellow team members. Each team had between two to five people and was matched with congressional offices from a state or pair of states, as well as congressional committees. Teams came up with strategies to find a local, resonating message to bring to Congress that highlighted geoscience research.

For instance, Annika Deurlington, an undergraduate student at Claremont College who was awarded travel funding by GSA’s Cordilleran Section, told Tom McClintock’s (R-CA) office that she appreciated his dedication to finding ways to store water and also asked him “to promote groundwater storage wherever possible,” Deurlington said in an email.

Representatives Who Support Federally Funded Geoscience Research

Participants ended their first day on Capitol Hill at a reception hosted by the USGS Coalition, of which GSA and other societies are members.

More than 150 people attended the event, which honored two members for “their efforts to advance the scientific fields that further our understanding of Earth’s living and non-living systems,” Robert Gropp, the chairman of the USGS Coalition and interim co-executive director of the American Institute of Biological Sciences, said in a statement.

GSA Executive Director Vicki McConnell (right) presenting Representative Suzanne Bonamici (D-OR) with the USGS Coalition Leadership Award.

GSA Executive Director Vicki McConnell presented Representative Suzanne Bonamici (D-OR) with the USGS Coalition Leadership Award and said that Bonamici “really gets it” when it comes to the importance of federally funding geoscience. McConnell commended Bonamici for her work on H.R.34, the “Tsunami Warning, Education, and Research Act of 2015,” which authorizes and strengthens tsunami detection, forecast, warning, research, and mitigation program. In her thanks,
Bonamici said that she is on geoscientists’ side and will continue to be an advocate for funding scientific research.

Elizabeth Duffy, the government relations director for the Seismological Society of America, then honored Representative Tom Cole (R-OK) for his support of geoscience research and his wise management of natural resources. Cole expressed his thanks and said that he is “not used to getting these kinds of accolades,” but supports up-and-coming science.

David Applegate, the acting deputy director of the USGS, echoed the speakers’ gratitude for the Representatives’ support during his speech at the reception.

**Reaching Out to Congress**

Participants began their next day back on Capitol Hill meeting with their members. Participants were clear in their message on the importance of sustained funding for geoscience and enthusiastic when sharing their research with policymakers.

“My hope is that I was a tangible reminder to congressional staffs that money spent on education and research translates into professionals who can perform tasks that benefit society,” Deurlington said. Jon Price, GSA’s current president, connected with his local Nevada Representative’s office. The office returned Price’s interest and sent a staffer to an open house of the Nevada Bureau of Mines and Geology to learn about geological hazards and mineral and energy resources. Marisa Repasch, a graduate student at the University of New Mexico who received travel support from GSA’s Rocky Mountain Section, visited Representative Michelle Lujan Grisham’s (D-NM) office. Along with her team members, Repasch closely connected with Grisham’s office and discovered that Grisham is interested in New Mexico’s geoscience research, especially the environmental impacts of the Gold King Mine spill into the Animas River, which flows through New Mexico.

“Geology is a significant part of New Mexico’s economy, culture, and health, and it is impossible to have a functioning society without geoscientists,” Repasch said in an email. “I am excited about all the new connections that were created between congress and their geoscientist constituents. I am sure that our actions on Capitol Hill will have a positive impact on the federal funding appropriated for geoscience research.”

GSA is pleased to announce that Karen Paczkowski is serving as the 2015–2016 GSA-USGS Congressional Science Fellow in Senator Edward Markey’s office. During her year on the Hill, Paczkowski hopes to tackle national challenges in energy, the environment, and STEM education. She plans to work on topics including (but not limited to) U.S. energy security, clean energy, protection and sustainable use of natural resources, climate change mitigation and adaption, development of a competitive STEM workforce, and federal investment in STEM research and education.

Paczkowski holds a B.S. in mechanical engineering from Boston University and both an M.S. in mechanical engineering and a Ph.D. in geology and geophysics from Yale University. Her research focused on determining the physical processes that control lithospheric drip instabilities and mantle flow in subduction zones, and demonstrated that anomalous observations in many regions can be explained as extensions to the theory of plate tectonics.

Paczkowski has worked in industry, academia, and at nonprofits on topics that span science, engineering, and policy. She has conducted research on blood flow, mantle convection, and earthquake dynamics; designed airplane thermodynamic systems; and worked with policymakers to broaden support for investment in STEM research and education.

This past year, Paczkowski served as GSA’s Science Policy Fellow. Paczkowski’s primary role as the GSA Fellow was to act as a liaison between scientists and policy makers. She trained scientists to better communicate the value of their science to both policymakers and the public through communications workshops, webinars, and on-site training sessions. She kept GSA members updated and involved in the policy process by publishing articles about upcoming legislation, science policy events, and the importance of federal investment in science. She also worked with coalitions of science organizations to write strategic communications and plan Hill events for policymakers on the possible ramifications of upcoming science related legislation.
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POSITIONS OPEN

ASSISTANT PROFESSOR IN TECTONICS/STRUCTURAL GEOLOGY
DEPARTMENT OF GEOLOGY
UNIVERSITY OF MARYLAND, COLLEGE PARK

The Dept. of Geology at the University of Maryland invites applications for a tenure-track assistant professor in Tectonics/Structural Geology, broadly defined. Possible research areas of interest include, but are not limited to: active tectonics and natural hazards, basin analysis, climate–tectonics interactions, crustal evolution, geodesy, microtectonics, orogenesis, planetary geology, and tectonophysics. The appointee will be expected to develop and maintain an active, externally funded research program that will involve both graduate and undergraduate students, and to participate fully in teaching at all levels, including structural geology. We particularly encourage applications from those who integrate across traditional disciplinary boundaries both within and between the departments of geology and geophysics. The appointee will be expected to develop and maintain an active, externally funded research program that will involve both graduate and undergraduate students, and to participate fully in teaching at all levels, including structural geology. The appointee will be expected to develop and maintain an active, externally funded research program that will involve both graduate and undergraduate students, and to participate fully in teaching at all levels, including structural geology. The appointee will be expected to develop and maintain an active, externally funded research program that will involve both graduate and undergraduate students, and to participate fully in teaching at all levels, including structural geology. The appointee will be expected to develop and maintain an active, externally funded research program that will involve both graduate and undergraduate students, and to participate fully in teaching at all levels, including structural geology. The appointee will be expected to develop and maintain an active, externally funded research program that will involve both graduate and undergraduate students, and to participate fully in teaching at all levels, including structural geology. The appointee will be expected to develop and maintain an active, externally funded research program that will involve both graduate and undergraduate students, and to participate fully in teaching at all levels, including structural geology. The appointee will be expected to develop and maintain an active, externally funded research program that will involve both graduate and undergraduate students, and to participate fully in teaching at all levels, including structural geology. The appointee will be expected to develop and maintain an active, externally funded research program that will involve both graduate and undergraduate students, and to participate fully in teaching at all levels, including structural geology. The appointee will be expected to develop and maintain an active, externally funded research program that will involve both graduate and undergraduate students, and to participate fully in teaching at all levels, including structural geology. The appointee will be expected to develop and maintain an active, externally funded research program that will involve both graduate and undergraduate students, and to participate fully in teaching at all levels, including structural geology. The appointee will be expected to develop and maintain an active, externally funded research program that will involve both graduate and undergraduate students, and to participate fully in teaching at all levels, including structural geology. The appointee will be expected to develop and maintain an active, externally funded research program that will involve both graduate and undergraduate students, and to participate fully in teaching at all levels, including structural geology. The appointee will be expected to develop and maintain an active, externally funded research program that will involve both graduate and undergraduate students, and to participate fully in teaching at all levels, including structural geology. The appointee will be expected to develop and maintain an active, externally funded research program that will involve both graduate and undergraduate students, and to participate fully in teaching at all levels, including structural geology. The appointee will be expected to develop and maintain an active, externally funded research program that will involve both graduate and undergraduate students, and to participate fully in teaching at all levels, including structural geology. The appointee will be expected to develop and maintain an active, externally funded research program that will involve both graduate and undergraduate students, and to participate fully in teaching at all levels, including structural geology. The appointee will be expected to develop and maintain an active, externally funded research program that will involve both graduate and undergraduate students, and to participate fully in teaching at all levels, including structural geology.

Applications will begin on Jan. 29, 2016 and will continue until the position is filled. If you are an individual with a disability and desire an accommodation, contact please contact Ms. Sharon Collins (sharon72@vt.edu).

Inquiries regarding the position should be directed to Professor Shuai Xiao, Search Chair (xia0@vt.edu); Dept. of Geosciences, Virginia Tech, Blacksburg, VA 24061, USA; (540) 231-6521. Further information about the Department is available at www.geos.vt.edu/

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ASSISTANT PROFESSOR
SOFT ROCK GEOLOGY
MERCYHURST UNIVERSITY

The Mercyhurst University Dept. of Geology in Erie, Pennsylvania, invites applications for a tenure track Assistant Professor position to begin August 2016. We seek a soft rock-oriented geologist committed to teaching excellence in the liberal arts tradition. Teaching responsibilities may include intro geology
CSU has a nationally recognized track record of partnership and outreach through efforts such as the Cunningham Center for Leadership Development, Coca-Cola Space Science Center, Oxbow Meadows Environmental Learning Center, and its own residence—the Spencer House—in Oxford, England. The University has two primary campus locations in Columbus, Georgia: the original campus on 150 acres in midtown Columbus and a beautiful campus in historic downtown Columbus overlooking the Chattahoochee River. The Columbus region, with more than 350,000 residents, is home to world-class enterprises such as Aflac, Synovus, W.C. Bradley Company, TSYS and Ft. Benning, the U.S. Army’s Maneuver Center of Excellence headquarters. For additional information about the University visit our website at www.ColumbusState.edu.

Columbus State University is a proud member of the University System of Georgia, enrolling more than 8,400 students in a wide variety of degree programs. From online degrees to a doctoral program, Columbus State thrives deeply personal and relevant college experience. Just 100 miles southwest of Atlanta, and professional success in an increasingly global environment. Columbus State thrives as an educational region for students who want to achieve personal and professional success in an increasingly global environment. Just 100 miles southwest of Atlanta, the University has two primary campus locations in Columbus, Georgia: the original campus on 150 acres in midtown Columbus and a beautiful campus in historic downtown Columbus overlooking the Chattahoochee River. The Columbus region, with more than 350,000 residents, is home to world-class enterprises such as Aflac, Synovus, W.C. Bradley Company, TSYS and Ft. Benning, the U.S. Army’s Maneuver Center of Excellence headquarters. For additional information about the University visit our website at www.ColumbusState.edu.

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geo-resources, stratigraphy, sedimentology, structural geology and applied geology will receive more favored consideration. Applicants are requested to submit the following documents: CV, list of publications, three to five copies of refereed articles published within the last seven years (one of which shall be designated as representative paper and must be published after 1st August, 2011), plans for teaching and research in WORD or PDF files, and names of three potential referees. Application materials should be sent to Professor Ya-Hsuan Liou, the Chairman of the Searching Committee, by post or emails at yhliou@ntu.edu.tw. Address: Dept. of Geosciences, National Taiwan University, No. 1, Sec. 4, Roosevelt Rd., Taipei 106, Taiwan.


ENDOWED CHAIR (ASSOCIATE/FULL PROFESSOR) OF UNCONVENTIONAL ENERGY PURDUE UNIVERSITY

The Dept. of Earth, Atmospheric, and Planetary Sciences at Purdue University invite applications for the Steven and Karen Brand Chair in unconventional energy resources. Candidates with a core expertise in unconventional energy with a strong and consistent track record of applying this expertise to unconventional petroleum resources will be considered. Candidates with expertise including, but not limited to, unconventional exploration and production, tight reservoir characterization, geophysics and seismic data analysis, subsurface integration, hydraulic fracture mechanics, pore/fluid interactions, water and environmental issues, and enhanced oil and gas recovery are encouraged to apply. Excellence in and/or commitment to interdisciplinary research and teaching is a requirement. It is expected that the candidate hired would significantly enhance Purdue’s visibility and impact in this key area; increase opportunities for industry collaboration and grant funding; and inspire and train the next generation of leaders in the field.

This is an open-rank search; senior or mid-career scientists with academic, national laboratory, and industry background are all encouraged to apply. Applicant must hold a doctorate in an appropriate field; salary and rank are commensurate with qualifications and experience. The Dept. of Earth, Atmospheric, and Planetary Sciences, and the College of Science at Purdue embrace diversity and seek candidates who will create a climate that attracts students and faculty from around the world, who want to achieve personal and professional success in an increasingly global environment. Just 100 miles southwest of Atlanta, Columbus State University is a proud member of the University System of Georgia, enrolling more than 8,400 students in a wide variety of degree programs, from online degrees to a doctorate in education. Among public regional universities in the South, Columbus State University recently ranked No. 46 in the “Best Colleges” rankings by U.S. News & World Report.

CSU has a nationally recognized track record of partnership and outreach through efforts such as the Cunningham Center for Leadership Development, Coca-Cola Space Science Center, Oxbow Meadows Environmental Learning Center, and its own residence—the Spencer House—in Oxford, England. The University has two primary campus locations in Columbus, Georgia: the original campus on 150 acres in midtown Columbus and a beautiful campus in historic downtown Columbus overlooking the Chattahoochee River. The Columbus region, with more than 350,000 residents, is home to world-class enterprises such as Aflac, Synovus, W.C. Bradley Company, TSYS and Ft. Benning, the U.S. Army’s Maneuver Center of Excellence headquarters.

For additional information about the University visit our website at www.ColumbusState.edu.

Interested applicants should visit https://hiring-science.purdue.edu; submit a curriculum vitae, a research statement, a vision statement, a teaching statement, and complete contact information for at least 3 references. Review of applications will begin January 15, 2016, and continue until the position is filled. Questions related to this position should be sent to Drs. John Cushman or Ken Ridgway, Co-Chairs of the Search Committee (phone: 765-494-3258, email jcsushman@purdue.edu or rridge@purdue.edu). Applications will be accepted until the position is filled.

Purdue University is an EOE/AA employer. Purdue University is committed to maintaining a community which recognizes and values the inherent worth and dignity of every person. In pursuit of its goal of academic excellence, the University seeks to develop and nurture diversity. All qualified applicants for employment will receive consideration without regard to race, religion, color, sex, national origin or ancestry, genetic information, marital status, parental status, sexual orientation, gender identity and expression, disability or status as a veteran.

ASSISTANT PROFESSOR OF GEOLOGY COLUMBUS STATE UNIVERSITY

The Dept. of Earth and Space Sciences at Columbus State University invites applications for a tenure-track Assistant Professor position with specialization in Sedimentology/Stratigraphy to begin Fall 2016. Candidates must demonstrate potential for research and effective teaching of university level courses. The successful candidate will be expected to maintain an active research program, including mentoring graduate and undergraduate students, leading to publications in peer-reviewed journals; assist with academic advising; and contribute to the service needs of the university. Teaching responsibilities will include: introductory geology, sedimentary geology, stratigraphy and basin analysis, as well as other undergraduate/graduate courses within the area of expertise.

The Dept. of Earth and Space Sciences is strongly interdisciplinary with tracks in Astrophysics and Planetary Geology, Environmental Science, Geology, and Secondary Education within the BS Earth and Space Sciences program, as well as degree tracks in Geoscience and Environmental Science within the MS Natural Sciences program. Earth and Space Sciences faculty have a strong tradition of incorporating both undergraduate and graduate students in faculty research.

Columbus State University provides a creative, deeply personal and relevant college experience. Serving the Southeast while attracting students from around the world, Columbus State thrives on community partnerships to deliver excellence for students who want to achieve personal and professional success in an increasingly global environment. Columbus State University recently ranked No. 46 in the “Best Colleges” rankings by U.S. News & World Report.

Applicants must have earned a bachelor’s degree in Geoscience prior to the start date of August 2016. Experience teaching at the baccalaureate level is desired.

Candidacy in interdisciplinary interests are preferred.

Review of applications will begin immediately and will continue until the position has been filled. Applications for part-time and full-time faculty positions must include transcripts of all academic work, and official transcripts must be presented prior to campus visit if selected for interview. Applicants must have the ability to meet Southern Association of Colleges and Schools Commission on Colleges (SACSCOC) requirements, in particular a minimum of 18 graduate hours in the teaching discipline. Columbus State University is an Affirmative Action/Equal Opportunity Employer, Committed to Diversity in Hiring.

A successful criminal background check will be required as a condition of employment.

Required Documents to Submit with Online Application:

- Unofficial Transcripts
- Cover Letter/Letter of Application
- Curriculum Vitae
- Statement of Teaching Philosophy
- Other document 1: Statement of Research Interests
- Other document 2: Contact information for 3 persons willing to provide letters of reference

All applications and required documents must
be submitted using the Columbus State University’s online employment site. To access the Columbus State University’s online employment site, please visit https://columbusstate.peopleadmin.com/.

If you have any questions, please contact Dr. David Schwimmer, Dept. of Earth and Space Sciences, Columbus State University, 4225 University Avenue, Columbus, GA 31907; Phone: 706-569-3028; or e-mail to schwimmer_david@columbusstate.edu.

FULL TIME, ASSISTANT RESEARCHER (COLLECTION MANAGER)
KU BIODIVERSITY INSTITUTE

The KU Biodiversity Institute seeks a full-time Assistant Researcher (Collection Manager) to oversee its world-class collections of invertebrate fossils. Required qualifications include master’s degree in museum studies, geology, systematics, or paleontology, knowledge of invertebrate fossil taxonomy and identification, knowledge of care and management of natural history collections, and familiarity with biodiversity informatics. For additional information and complete application instructions please visit https://employment.ku.edu/staff/4566BR. KU is an EO/AAE. All qualified applicants will receive consideration for employment without regard to race, color, religion, sex (including pregnancy), age, national origin, disability, genetic information or protected Veteran status. Review begins 1 Feb. 2016.

THREE ASSISTANT PROFESSOR POSITIONS, DEPARTMENT OF GEOLOGY & GEOGRAPHY, WEST VIRGINIA UNIVERSITY

The Dept. of Geology and Geography at West Virginia University seeks to fill three geology faculty positions. Applicants should have a PhD or equivalent degree in geology, earth science or related field by the start date. Review of applications for all positions will begin January 15, 2016 and continue until each position is filled; start date for all positions is August 15, 2016.

Paleobiology: We seek to hire a full-time (9-month), tenure-track Assistant Professor specializing in Paleobiology, which could include expertise in Invertebrate or Vertebrate Paleontology, Micropaleontology, Paleocology, Paleobotany/ Palynology, Ichnology, or related fields. The successful candidate will be expected to develop a vigorous externally-funded research program, teach core undergraduate classes in paleontology, graduate courses in the area of his/her expertise, and mentor graduate and undergraduate students. Candidates should demonstrate potential to establish a strong externally-funded research program, publish in peer-reviewed journals, and excel in teaching at the undergraduate and graduate levels. To apply, please visit jobs.wvu.edu and navigate to the title position listed above. Upload (1) a single PDF file containing a curriculum vitae, statement of research interests, statement of teaching philosophy, and names, titles, and full contact information for 3 references; and (2) PDF files of up to 3 publications. In addition, arrange for 3 letters of reference to be sent to paleobiology@mail.wvu.edu.

Opportunities for Students

Ph.D. Fellowships in Hydrologic Sciences at the University of Nevada Reno and the Desert Research Institute. The Graduate Program in Hydrologic Sciences at the University of Nevada, Reno and the Desert Research Institute seeks Ph.D. candidates in hydrology and hydrogeology to fill graduate teaching and research assistant positions beginning in Fall 2016. Three year research fellowships are available for a wide range of topics, including effects of halophytic plants on soil quality; climate patterns and tree rings; groundwater residence times and aquatic ecology of springs; snow hydrology; and Nevada water resources. Details are available at http://www.hydro.unr.edu/research/research_funding.aspx.

New Mexico Highlands University, Graduate Assistantship. Graduate assistantships are available for students wishing to pursue an MS in Geology beginning Fall 2016 term. The NMHU Environmental Geology Program strengths are in mineralogy, petrology, geochemistry, rock-paleomagnetism, structural geology, volcanology, and collaborative endeavors with the Forestry and the New Mexico Forest and Watershed Restoration Institute. The NSF-Funded Paleomagnetism-Rock Magnetism, Powder X-Ray Diffraction, and Water Chemistry laboratories support wide-ranging analytical research. The NMHU campus in Las Vegas, New Mexico, is situated at the boundary of the Great Plains and the Sangre de Cristo Mountains and is located within one to two hours from Cenozoic volcanic fields, Precambrian rock exposures, glaciated valleys, desert terrains, and several world-renowned geologic features - the Valles Caldera, the Rio Grande Rift, and the Harding Pemmatite. A low student:faculty ratio, state-of-the-art laboratory facilities, and committed faculty provide students with a superior learning experience. The graduate assistantship includes a nine-month stipend and tuition waiver per academic year. Application review begins 03/16/16. For more information, contact Dr. Michael Petronis, Environmental Geology, Natural Resource Management Dept., New Mexico Highlands University, Box 9000, Las Vegas, New Mexico 87701, mpetronis@nmhu.edu. For disabled access or services call 505-454-3513 or TDD# 505-454-3003, AA/EOE Employer.

Graduate Student Opportunities, Ohio University. The Dept. of Geological Sciences at Ohio University invites applications to its graduate program for the Fall of 2016. The department offers an MS degree in Geological Sciences and areas of emphasis within three research clusters: paleobiology and sedimentary geology, solid earth and planetary dynamics, and environmental and surficial processes. Prospective students are encouraged to contact faculty directly to discuss potential research topics. Qualified students are eligible to receive teaching or research assistantships that carry a full tuition scholarship and a competitive stipend. For additional information and application information, visit the department website at http://www.ohio.edu/cas/geo/ or contact the graduate chair, Dr. Alycia Stigall (stigall@ohio.edu). Review of applications begins 1 February.
Graduate Opportunities in Planetary Geology at North Carolina State University. The Dept. of Marine, Earth, and Atmospheric Sciences (MEAS) at North Carolina State University invites applications from prospective M.Sc. and Ph.D. students in the broad field of planetary geology. Opportunities in the new MEAS Planetary Research Group exist in particular for tectonic and volcanic comparative planetology projects, using a combination of analogue modeling, field work, and remote sensing from unmanned aerial systems. Applicants must have a B.S. or M.Sc. in geology or a related discipline; experience in remote sensing, GIS, and/or fieldwork is desirable. Financial support is available through a combination of research and teaching assistantships.

MEAS is one of the largest interdisciplinary geoscience departments in the nation. Review of applications will begin on January 31, 2016, and initial decisions will be made as early as February 2016. Information about MEAS, its graduate programs, and the application procedure can be found at www.meas.ncsu.edu. Applications can be submitted at www.ncsu.edu/grad/applygrad.htm. For more information, prospective applicants can contact Dr. Paul Byrne at paul.byrne@ncsu.edu.

Multiple Graduate Assistantships Available in Geology and Meteorology at Iowa State University. Motivated and talented graduate students are invited to apply to M.S. and Ph.D. programs offered in geology and meteorology to fill multiple graduate assistant positions beginning in Fall 2016. Although we strongly encourage students with interests in all fields of geoscience to apply, we particularly encourage students with a strong background in chemistry as some teaching assignments may include introductory chemistry laboratory classes. Summer support is also likely beyond the nine-month academic year. In addition, the geology program will consider one or two outstanding Ph.D. applicants for the recently endowed David Morehouse Fellowships that will cover full-tuition and a stipend for the first year (12 months) of studies. Faculty and student research covers five broad focus areas: Climate and Quaternary Studies, Geoscience Education, Hydrological Sciences, Micrpscale and Mesoscale Meteorology, and Solid Earth Processes. Information about the graduate program and the Dept. of Geological and Atmospheric Sciences can be found at http://www.ge-at.iastate.edu/. Applicants should initially contact individual faculty members as soon as possible to indicate interest, but should do so no later than the university application deadline of February 1, 2016. All qualified students will receive consideration for acceptance without regard to race, color, religion, sex, national origin, disability, or protected Veteran status. Questions regarding the positions should be directed to the Department Chair (Bill Simpkins; bsimpkins@iastate.edu).

The Jonathan O. Davis Scholarship supports graduate students working on the Quaternary geology of the Great Basin. The national scholarship is $7,500 and the University of Nevada, Reno, stipend is $7,500. The national scholarship is open to graduate students enrolled in an M.S. or Ph.D. program at any university in the United States. The Nevada stipend is open to graduate students enrolled in an M.S. or Ph.D. program at the University of Nevada, Reno. Details on application requirements can be found at: http://www.dri.edu/GradPrograms/Opportunities/ JonathanDavis. Applications must be post-marked by February 17, 2016. Proposals will not be returned. Applications should be addressed to: Executive Director Division of Earth and Ecosystem Sciences, Attn: Davis Scholarship, Desert Research Institute, 2215 Raggio Parkway, Reno, Nevada, 89512

Lindahl Ph.D. Scholarships, Department of Geological Sciences, The University of Alabama. The University of Alabama Dept. of Geological Sciences seeks highly qualified Ph.D. students with specializations in topics that complement faculty research interests. Exceptional students will receive Research or Teaching Assistantships and a Lindahl Scholarship totaling $22,000 for a nine month appointment. The University of Alabama covers the cost of non-resident tuition and fee waivers. Funding is renewable for at least 4 years if expectations are met. Other fellowships are available from the Graduate School on a competitive basis. Further details are at http://www.geo.ua.edu/. Applicants should contact Dr. Delores Robinson (dmr@ua.edu) to express interest. Review of applications for Fall 2016 admission will begin January 15, 2016.
Erratum

In the December 2015 GSA Today science article (v. 25, no. 12, p. 4–10), “Imaging spectroscopy of geological samples and outcrops: Novel insights from microns to meters,” by Rebecca N. Greenberger et al., the scale bars for Figure 2 were inadvertently removed. The corrected figure is below. GSA Today regrets this error.

Figure 2. Hyperspectral image of a serpentinite sample with red and green coatings (Nor4-14, described in Greenberger et al., 2015b) from Norbestos, Quebec, Canada. (A) Photograph of the full rock. (B) Image showing spectral parameters that map calcite (red), serpentine (green), and a feature at 0.45 μm (BD450; blue) due to tetrahedral Fe³⁺ within serpentine. The third dimension shows the reflectance as a function of wavelength for each pixel within the image, with black and purple being low and red high. (C) Plot with representative spectra of different units within the hyperspectral image. Colors correspond to colors in the spectral parameter image with locations numbered. Close-up views of the 0.45 μm feature are shown on the right. These images were acquired with Headwall Photonics Inc. High Efficiency Hyperspec® visible–near-infrared E-series (0.4–1.0 μm, 7 nm spectral resolution, 0.382 mrad instantaneous field of view) and High Efficiency Hyperspec® shortwave infrared X-series pushbroom systems (1.0–2.5 μm, 12 nm spectral resolution, 1.2 mrad instantaneous field of view) imaging spectrometers (see GSA Supplemental Data Repository item no. 2015342 for more information).
I’m a Geoscientist n. 1 The proud declaration of someone dedicated to the geosciences. 2 A really cool t-shirt!!!
Philmont Scout Ranch Volunteer Geologist
Program Marks 25th Year

Cimarron, New Mexico, USA

*Sponsored by the Rocky Mountain Association of Geologists*

Philmont Scout Ranch is one of three national high-adventure bases owned and operated by the Boy Scouts of America. Located in the southern Sangre de Cristo Mountains of northern New Mexico, Philmont is a 137,000-acre ranch dedicated to outdoor activities. The twelve-day backpacking experience serves more than 27,000 high-school-age boys and girls from all over the USA as well as several foreign countries. Learn more about the geology of the area at [http://pubs.usgs.gov/pp/pp_505/html/pdf.html](http://pubs.usgs.gov/pp/pp_505/html/pdf.html).

Fifty-four volunteer positions are open this year, to be filled on a first-come, first-served basis. Volunteers will receive a sign-up packet with scout applications (you have to be a scout, at least for the summer!), medical forms, and brochures in May 2016. Students who would like to volunteer must show proof of enrollment in a graduate-level program. The 2016 season begins on Saturday, 11 June; the last week of the program begins on Saturday, 6 August.

For more information and to sign up, contact Ed Warner, 62 South Ash Street, Denver, CO 80246, USA, +1-303-331-7737, cell +1-720-490-5152, ewarn@ix.netcom.com. Alternate contact: Bob Horning, P.O. Box 460, Tesuque, NM 87574, USA, +1-505-820-9290, rrhorning@gmail.com.

Volunteer to Teach and Demonstrate Area Geology in Back-Country New Mexico this Summer!
Public Policy Programs

Every day on Capitol Hill, lawmakers and leaders create and enact the policies that fund the majority of earth-science research, regulate natural resources and drive energy exploration, and shape the broader landscape of science education.

GSA brings together the perspectives of academia and industry, students, and the public sector within a comprehensive vision founded in strong science. As a trusted partner, convener, and collaborator, GSA is able to work across the science and professional science worlds, as well as across the aisle, to magnify our impact. GSA’s public policy efforts integrate three programs at the intersection of the geosciences and policy.

GSA’s Washington, D.C., office coordinates the Society’s advocacy work in cooperation with the GSA Geology and Public Policy Committee and the GSA Geology and Society Division. The office provides opportunities to touch policy work at the national, state, and local levels through a more informed membership base. See “Geoscientists Visit Capitol Hill during Annual Outreach Event,” on p. 42 of this issue to learn more.

The GSA-USGS Congressional Science Fellow Program is celebrating its 30th year. Each year, in partnership with the U.S. Geological Survey, GSA selects and funds a Congressional Science Fellow who brings geoscience expertise to Capitol Hill by serving on the staff of a Member of Congress or congressional committee. Past GSA-USGS Congressional Fellows now serve important roles in academia and policy organizations.

Three years ago, GSA created the Policy Fellow position to work alongside the GSA Director for Geoscience Policy in the Washington, D.C., office. The Policy Fellow provides GSA with critical staff power while gaining unique professional and political experience.

Thank you for your support of these important, proven, and innovative programs designed to serve our members. This is an important area to invest in for GSA’s future.
Find your research at www.gsapubs.org

GSA Publications Highlights

GSA depends on the volunteer efforts of many science editors, associate editors, and editorial board members to ensure the timeliness and quality of our publications.

GSA thanks the editors whose terms ended 31 December 2015 for their service to the Society and to the science: Rónadh Cox and Ellen Thomas, Geology; Christian Koeberl, GSA Bulletin; Kent Condie, Books; Eric Kirby, Lithosphere; and Doug Walker, Maps and Charts.

GSA Today’s science editors Steve Whitmeyer and Jerry Dickens remain on-board for another year.

Please join us in welcoming the science editors starting terms this month:

GSA Books, Christian Koeberl, University of Vienna

Lithosphere, Damian Nance, Ohio University

Geology, Judy Parrish, University of Idaho

Geology, Jim Schmitt, Montana State University

GSA Bulletin, Brad Singer, University of Wisconsin–Madison

GSA Maps and Charts, John Van Hoesen, Green Mountain College

The current list of editors is posted at www.geosociety.org/pubs/editors.htm.

Thanks to All Our Science Editors
2016 GSA
Section Meetings

SOUTH-CENTRAL
21–22 March
Hilton Baton Rouge Capitol Center,
Baton Rouge, Louisiana, USA

NORTHEASTERN
21–23 March
Albany Convention Center,
Albany, New York, USA

SOUTHEASTERN
31 March–1 April
Columbia Metropolitan Convention Center,
Columbia, South Carolina, USA

CORDILLERAN
4–6 April
Ontario Convention Center,
Ontario, California, USA

NORTH-CENTRAL
18–19 April
I-Hotel and Conference Center,
Champaign, Illinois, USA

ROCKY MOUNTAIN
18–19 May
University of Idaho,
Moscow, Idaho, USA

www.geosociety.org/sections

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Large Meteorite Impacts and Planetary Evolution V

Edited by Gordon R. Osinski and David A. Kring

Impact cratering is one of the most fundamental geological processes. On many planets, impact craters are the dominant geological landform. On Earth, erosion, plate tectonics, and volcanic resurfacing continually destroy the impact cratering record, but even here, the geological, biological, and environmental effects of impact cratering are apparent. Impact events are destructive and have been linked to at least one of the "big five" mass extinctions over the past 540 Ma. Intriguingly, impact craters can also have beneficial effects. Many impact craters are associated with economic metallic mineral deposits and hydrocarbon reservoirs. This Special Paper provides an up-to-date synthesis of impact cratering processes; the role of meteorite impacts in the origin of life, products, and effects; and the techniques used to study impact craters on Earth and other planetary bodies. This volume resulted from the Large Meteorite Impacts and Planetary Evolution V conference held in Sudbury, Canada, in August 2013.

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