Chair’s Message –

As I write this newsletter, field camp is over and the research field season has begun. I hope that all of you are enjoying your summer, whether it be in the lab, office, in the field, or on vacation. The JTPC committee is about to go to work reviewing and scheduling hundreds of abstracts for the Denver meeting. Many thanks go to Dave Lageson and John Geissman for their hard work on a difficult task. On the bright side, the large number of SG&T abstracts typically submitted to the Annual Meeting shows that our Division is thriving. There will be more than 25 topical sessions and discipline sessions of interest to members, and several field trips. Also, while in Denver, please stop by the SG&T poster booth in the poster hall to meet your board members and share your ideas and concerns.

Thanks to the members of the SG&T Division award committees who worked hard to select the awardees for the Career Contribution Award and the Best Paper Award. I’m pleased to announce that this year’s Career Contribution award will be given to Kevin Burke. The rest of the awards will remain a surprise for the Division business and awards meeting in Denver.

Thanks also to those who volunteered or nominated candidates for the management board, and to those who agreed to be nominated to serve the Division. I was pleased by the number of responses to our requests to serve, more people than available positions! If you weren’t chosen this year, rest assured your name will be carried over for future opportunities! On this note, don’t forget to vote for your Division management board officers. Electronic balloting makes this task easier, but if you don’t have access, you can still mail in a paper ballot. See the candidates’ biographies and ballot in this newsletter, and vote online at http://rock.geosociety.org/balloting/sgt.asp by September 22.

In a few short months we will again be soliciting short courses, field trips, and special sessions for the next Annual Meeting. Please send us your ideas! Short courses, especially, require much advance planning, so now is the time to get the ball rolling.

We are planning events for the 2005 Annual Meeting to celebrate the 25th anniversary of the SG&T Division, which was established in 1980. If you have an idea for how to celebrate our anniversary, please email me.

Another meeting of interest to SG&T members is “Backbone of the Americas,” April 3-7 2006, in Mendoza, Argentina, cosponsored by GSA and the Asociación Geológica Argentina. More details are provided later in the newsletter, but, on behalf of the organizers, I would also like to solicit help from our Division membership. Scientific committees are currently forming, and the organizers are looking for enthusiastic, knowledgeable volunteers who would like to serve on committees with both North American and South American members. If you are interested in helping plan and run the meeting, please contact Suzanne Kay at smk16@cornell.edu. They would also appreciate suggestions on the structure and format of the meeting. The current plan is to have topical sessions with talks from both North and South American perspectives, leaving discussion time to highlight similarities and differences. A broad range of topics and disciplines surrounding these themes will be entertained.

See you in Denver!

Liz Schermer

The new EarthScope: Science, Education and Related Activities for the USAArray, San Andreas Fault Observatory at Depth (SAFOD), and Plate Boundary Observatory (PBO) Program Announcement is now available! [http://www.nsf.gov/pubs/2004/nsf04589/nsf04589.htm]


NSF will return proposals without review that do not separately address both merit review criteria within the Project Summary. See: [http://www.geo.nsf.gov/cgi-bin/geo/announce.pl?div=ear]

NSF EAR policy is that investigators must wait one year before resubmitting a proposal.

A NEW STRUCTURE FOR THE ORGANIZATION OF THE DIVISION OF EARTH SCIENCES

The purpose of this letter is to announce a new organizational structure for the Division of Earth Sciences (EAR). For the past 15 years, EAR has been organized in two Sections: 1) the Research Grants Section, providing support for most of the core research programs, and 2) the Special Projects Section, which includes crosscutting programs and a core research program. This two-Section structure is a mixture of core research and Division-wide infrastructure programs. The designations, Research Grants Section and Special Projects Section, no longer reflect the structure and needs of the Earth Sciences community, nor the actual activities within the Sections.

The Division of Earth Sciences will be realigned in two Sections:

- **Surface Earth Processes Section (SEP):** will consist of the programs: Hydrologic Sciences (HS), Education and Human Resources (EHR), Sedimentary Geology and Paleobiology (SGP), Geobiology and Environmental Geochemistry (GEG), and Geomorphology and Land Use Dynamics (GLD). The current budget for the SEP section totals approximately $50M per year. The new SEP Section will support research on processes occurring at or near the Earth’s surface, studies of the stratigraphic record and paleobiology, and crosscutting studies on education and human interactions with the geosphere.

- **Deep Earth Processes Section (DEP):** will consist of the programs: Geophysics (PH), Tectonics (TE), Petrology and Geochemistry (CH), Continental Dynamics (CD), Instrumentation and Facilities (IF), and EarthScope (ES). The current budget for the DEP section totals approximately $90M per year. The DEP Section will support research on the Earth’s crust, mantle, and core, crosscutting programs for the support of Earth Science instrumentation and facilities, and the EarthScope facility and associated science and education activities.

The new structure redistributes workload among the Sections and Programs to provide for more efficient and balanced operation within the EAR Division and better reflects the natural organization of the Earth Sciences. It combines the programs into logical groups by research interests and function, and brings together programs with similar research objectives. The new organization will provide an impetus for more cross-program integration and sponsorship of interdisciplinary research projects; closely aligned programs within Sections will foster interaction and allow more flexibility of resource management at the Section level. This organization will provide a rational Section-level base for the development of our large, visible and complex programs, such as EarthScope, GeoInformatics, and the EAR facilities and will continue to provide a firm base to efficiently serve the individual investigator.

In addition to the realignment at the Section level, we have also reorganized the Geology and Paleontology (GE) Program into a more efficient 3-program structure. It has long been recognized that the GE Program covers an extremely wide range of subdisciplines and no longer reflects the evolving science structure of the Earth Sciences community. Therefore, the GE Program has been reorganized into three disciplinary Programs:

- **Sedimentary Geology and Paleobiology (SGP):** will support studies of: (1) life and ecology in past geologic time based on fossil plants, animals, and microbes; (2) stratified rocks and interpretation of the historical information they contain; (3) the science of dating and measuring the time sequence of events of the Earth’s past; and (4) the production, transport and deposition of physical and chemical sediments. SGP especially encourages integrative studies at the national and international levels that seek to link traditional subdisciplines, such as paleoclimatology, paleobiogeography, and paleoenvironmental and paleoecologic reconstructions.

- **Geobiology and Environmental Geochemistry (GEG):** will support studies focused on: (1) interactions between biological and geological processes; (2) furthering understanding of the geologic processes that shape the biosphere; (3) the role of biological agents in geophysical and geochemical processes; (4) processes, rates, and mechanisms of inorganic and organic
geochemical phenomena, at, or in proximity to, the Earth’s surface, including the soil sciences; (5) development of tools, methods, and models for geobiological research, and (6) understanding geochemical phenomena at the broad spectrum of environmental interfaces ranging from planetary and regional to mineral-surface and supramolecular scales. GEG facilitates cross-disciplinary efforts to harness new bioanalytical tools—such as those emerging from molecular biology—in the study of the terrestrial environment.

**Geomorphology and Land Use Dynamics (GLD)** will support studies of: (1) the dynamic processes that produce landforms and the relationship to atmospheric and hydrologic agents and their underlying structures; (2) the history of geologic changes recorded in surface features; (3) airborne and spaceborne imaging of the landscape; (4) the study of sustainable landscapes and anthropogenically or naturally modified landscapes, and (5) changes in land uses and land covers that are critical to ecosystem functioning, services, and human welfare. GLD includes the computer analysis of remote sensing (airborne, satellite) data using pattern recognition tools. This is a fast-growing area of research because of its applications to ecological, hydrological and social systems (including national security applications).

New avenues of research are fast emerging in the Earth Sciences and EAR must be prepared to cope with increasing demand of many exciting activities. The Division has expanded its research efforts in natural hazards, sustainability science, environmental research, and cyberinfrastructure has become central for forefront research throughout the Earth Sciences. The deployment of the EarthScope facility, the rapid evolution of the water science community, increased management oversight needs for our facilities and centers, and the increased emphasis on geobiologic activities and human dynamics in the Earth sciences have all introduced special challenges for Division management. We are confident that this new alignment of the Division of Earth Sciences will provide a firm base for more effective management of research and education within the Earth Sciences community.

A revised Program Announcement will soon be published to reflect EAR’s new organization. We anticipate that the effective date for the new EAR organizational structure will be August 1, 2004.

**Search for Head, Surface Earth Processes Section (formerly Head, Research Grants Section)**

The Division of Earth Sciences (EAR) announces an extension of our nationwide search to fill the position of Head, Surface Earth Processes Section (supersedes the position of Head, Research Grants Section in accordance with the reorganization described above; Head, Special Projects Section will be superseded by Head, Deep Earth Processes Section). The new deadline for applications is September 1, 2004.

This position is responsible for supervising and carrying out the day-to-day operations and management of the Surface Earth Processes Section. The Section Head is responsible for the overall planning, management and commitment of budgeted funds for the Surface Earth Processes Section.

The successful applicant will guide the Surface Earth Processes Section in formulating and implementing its research objectives and manages its administrative, fiscal and personnel aspects. The responsibilities of the Section Head include the coordination of activities with other relevant organizations within the Foundation, other Federal agencies, community organizations and international partners. The Section Head must demonstrate an ability to serve as the senior spokesperson for a major organization involved in the support of science and education development initiatives, and to foster partnerships throughout the geosciences community and across disciplinary boundaries.

Section Heads in the Division of Earth Sciences come to their positions with an established record of scientific research and demonstrated leadership experience. Knowledge of grant and contract administration, fiscal management, and budget preparation with experience in scientific research support will be helpful. Section Heads must work well with people, be effective communicators and act as mentors to continuously develop the diversity of talents and skills of their colleagues.

You may access the position announcement, including information on application procedures, at the GEO website: [http://www.geo.nsf.gov/vacancy.htm](http://www.geo.nsf.gov/vacancy.htm). General inquiries should be directed to: Dr. Herman Zimmerman, Dr. James Whitcomb, or Dr. Walter Snyder; Division of Earth Sciences; tel: (703) 292-8550.

The position may be filled as a career appointment in the Federal Senior Executive Service (S20040087-C). The position is also announced on a two-to-three year limited term appointment basis in S20040087-LTD and on an Intergovernmental Personnel Act assignment basis in S20040087-IPA.

Applications may be transmitted electronically to [execsrch@nsf.gov](mailto:execsrch@nsf.gov) or mailed to: National Science Foundation, Executive Personnel and Development Branch, Division of Human Resource Management, 4201 Wilson Boulevard, Room 315, Arlington, VA 22230. The Executive Personnel and Development Branch may be reached by telephone at (703) 292-8755.

- Excerpted from letters from Herman B. Zimmerman, Director, Division of Earth Sciences
Geoscience in a Changing World
2004 GSA Annual Meeting & Exposition
Denver, Colorado - November 7-10, 2004

Abstracts Deadline: July 13
Standard Registration Deadline: September 30
Pre-Meeting Field Trips: Tues-Sat, Nov 2-6
Short Courses and Workshops: Fri & Sat, Nov 5-6
Presidential Address & Awards Ceremony: NEW DAY Sat, Nov 6, 7-9pm
Welcoming Party & Exhibits Opening: Sun, Nov 7, 5:30-7:30pm
Technical Program: NEW Sun-Wed, Nov 7-10
Postmeeting Field Trips: Wed-Sat, Nov 10-13

REGISTER: Online at www.geosociety.org
By mail: 2004 GSA Annual Meeting, PO Box 9140, Boulder, CO 80301-9140
By fax: 303-357-1071, or 303-357-1072 if using a credit card

The following list highlights offerings that may be of interest to SG&T members;
the complete lists of sessions, short courses, etc. are available at <www.geosociety.org>.

Pardee Keynote Symposia
P1 Early Paleoproterozoic (2.5–2.0 Ga) Events and Rates: Bridging Field Studies and Models
Andrey Bekker a.bekker@gl.ciw.edu, Geophysical Lab, Carnegie Institution of Washington, Washington, D.C.; Mark E. Barley mbarl@geol.uwa.edu.au, The University of Western Australia, Western Australia, Australia; Robert H. Rainbird rrainbird@nrcan.gc.ca, Geological Survey of Canada, Ottawa, Ontario. Field-oriented and modeling studies dealing with the 2.5–2.0 Ga Earth's evolution are invited. Session will focus on relationships between tectonics, change in atmospheric composition, and climatic changes as well as the rates of these changes.

P2 Geoinformatics and the Role of Cyberinfrastructure in Geosciences Research
Randy Keller keller@geo.utep.edu, University of Texas, El Paso; Lee Allison jallison@kgs.ku.edu, Kansas Geological Survey, Lawrence. This session consists of presentations on geoinformatics and the use of advanced information technology in support of research in the geosciences. The talks will provide an overview of cyberinfrastructure that is emerging and describe projects that are developing as well as using this cyberinfrastructure.

Topical & Discipline Sessions
T48 Unraveling the History of Ocean Crust Production: Evidence For and Against Changes in Seafloor Spreading Rates Since the Mesozoic
Jenney M. Hall, Yale University, New Haven, Conn.; David B. Rowley, University of Chicago, Chicago, IL; Mark Pagani, Yale University, New Haven, CT. This session invites evidence for and against changes in the rate of seafloor crust production as well as implications regarding the global carbon cycle and secular changes in seawater chemistry from both modeling results and empirical data.

T61 Frontiers in Understanding the Geologic Record of Climate Change: A Session in Honor of William W. Hay
Eric J. Barron, Pennsylvania State University, University Park; Robert DeConto, University of Massachusetts, Amherst. A remarkable revolution has taken place in the geosciences associated with a growing understanding of climate and climate change. This revolution is providing context for much of our interpretation and understanding of the earth system.

T70 Modeling Grain-Scale Processes in Metamorphic Rocks
W.D. Carlson, University of Texas, Austin; C.T. Foster, University of Iowa, Iowa City. This session will synthesize recent advances stemming from a broad range of approaches to modeling deformation and reaction processes at the mm to cm scale in metamorphic rocks.

T73 Early Paleoproterozoic (2.5-2.0 Ga) Events and Rates: Bridging Field Studies and Models
Andrey Bekker, Geophysical Lab, Carnegie Institution of Washington, Washington, D.C.; Mark E. Barley, The University of Western Australia, Western Australia, Australia; Robert H. Rainbird, Geological Survey of Canada, Ottawa, Ontario. Field-oriented and modeling studies dealing with the 2.5-2.0 Ga Earth's evolution are invited. Session will be focused on relationships between tectonics, change in atmospheric composition, and climatic changes as well as the rates of these changes.

T74 1500 to 2500 Ma: A Period of Changing Mantle Regimes in Earth History?
Kent C. Condie, New Mexico Institute of Mining and Technology, Socorro; Dallas Abbott, Lamont-Doherty Earth Observatory,
T75 A Xenolith Perspective on the Physical and Chemical Evolution of Continental Lithosphere
Jane Selverstone, University of New Mexico, Albuquerque; Roberta L. Rudnick, University of Maryland, College Park. We seek contributions from a diversity of disciplines to examine the role that mantle and crustal xenolith studies play in constraining the composition, age, physical properties, and petrologic evolution of continental lithosphere.

T76 Pre-EarthScope Synthesis of the Rocky Mountains I: Framing the Key Geological, Geophysical, and Geodynamic Controversies
Karl E. Karlstrom, University of New Mexico, Albuquerque; Rick Aster, New Mexico Institute of Mining and Technology, Socorro. Synthesis of controversies related to lithospheric evolution of the Rocky Mountain region, with linkages among the geology, geophysics, geomorphology, and geodynamics communities to help shape an interdisciplinary approach to a still-embryonic EarthScope science program.

T77 Pre-EarthScope Synthesis of the Rocky Mountains II: Surface Processes, Geodynamics, and the Roles of Neotectonics and Climate in Development of Modern Topography
Eric Kirby, Pennsylvania State University, University Park; Margaret E. McMillan, Univ of Arkansas at Little Rock. Studies of rock and surface uplift and development of the present topography, including studies of paleoelevation, mantle to surface interconnections, geodynamics of intracratonic deformation, and relative importance of neotectonics versus climate in development of relief.

Eric Ervlev, Colorado State University, Fort Collins; David Lageson, Montana State University, Bozeman; Arthur Snoke, University of Wyoming, Laramie. This session honors Don Blackstone's pioneering work on Rocky Mountain structures by presenting new geological and geophysical studies of Laramide structures that provide important insights into the linkage between basement-involved foreland structures and lithospheric processes. ORAL and POSTER

T79 Pre-EarthScope Synthesis of the Rocky Mountains IV: New Ideas on Late Paleozoic Intraplate Orogenesis: The Greater Ancestral Rocky Mountains
Charles F. Kluth, Colorado School of Mines, Golden; Gerilyn S. Soreghan, University of Oklahoma, Norman. This session will provide a forum for new data and interpretations on late Paleozoic tectonics and tectonic-climatic interactions in western Pangea, enabling integration of ideas from diverse geographic settings and scientific disciplines.

Michael Williams, University of Massachusetts, Amherst; Karl E. Karlstrom, University of New Mexico, Albuquerque. Studies of processes of accretion of juvenile lithosphere, location of major sutures, lithospheric stabilization and reactivation processes, and cumulative tectonic evolution of the basement leading to today's geophysical state of the crust and upper mantle.

T81 Regional Geology of the Northern Rockies: A Session Honoring Betty Skipp
Paul K. Link, Idaho State University, Pocatello; Susanne Janecke, Utah State University, Logan; David Lageson, Montana State University, Bozeman. For 50 years, Betty Skipp, U.S. Geological Survey, has, learned, taught, and led by example in understanding the paleontological, sedimentary, and structural development of the northern Rocky Mountains. Historical syntheses, state-of-the-art ideas, and student papers are welcomed.

T82 Bill Braddock's Backyard- Proterozoic to Recent Geology of the Northern Colorado Front Range
James C. Cole, U.S. Geological Survey, Denver, CO; William Nesse, University of Northern Colorado, Greeley. An eclectic session reflecting the broad interests and accomplishments of one of Colorado's premier field geologists in one of the most scenic and geologically diverse outdoor laboratories. A tribute to the career of William A. Braddock.

T83 Cordilleran Arc Magmatism, BATHOLITHS and Continental Crustal Genesis
Mihai N. Ducea, University of Arizona, Tucson; Christopher Andronicos, University of Texas, El Paso; Paul Wetmore, University of Arizona, Tucson. Petrologists, geochronologists, structural geologists, and geophysicists will present data and models on the evolution of continental arcs, with a special emphasis on the Coast Mountains batholith and preliminary data from the National Science Foundation Continental Dynamics project BATHOLITHS.

T84 Terrane Translation, Orogenesis, and Plate Interactions in the Late Mesozoic to Early Cenozoic North American Cordillera, and Implications for Paleogeographic Reconstructions
Paul Umhoefer, Northern Arizona University, Flagstaff; Sandra Wyld, University of Georgia, Athens; James E. Wright, University of Georgia, Athens. Session will focus on the interrelations among terrane translation, orogenesis, and plate motions; the amount and sense of terrane displacements; and the implications of new and existing data for paleogeographic and tectonic reconstructions.
T85 Whence the Mountains? New Developments in the Tectonic Evolution of Orogenic Belts: Celebrating the Dynamic Career of Raymond A. Price at the 50Year Mark
James W. Sears, University of Montana, Missoula; Tekla A. Harms, Amherst College, Amherst, MA; Carol Evenchick, Natural Resources Canada, Vancouver, British Columbia. An investigation into the tectonic evolution of ancient and active mountain belts from around the globe, using traditional and innovative methods at all scales of observation.

T86 Ribbon Continents: Their Origin, Development, and Role in Rifting and Orogenesis
Phil J.A. McCausland, University of Michigan, Ann Arbor; Stephen T. Johnston, University of Victoria, Victoria, British Columbia. Ribbon continents, long assemblages of rifted continental fragments and intraoceanic arcs, are a locus of crustal deformation and growth. This session explores their occurrence and role in the evolution of continental margins and orogenic belts.

T87 Recent Advances in Himalayan Geology
Elizabeth J. Catlos, Oklahoma State University, Stillwater; Richard A. Marston, Oklahoma State University, Stillwater. Recent discoveries regarding the evolution of the Himalayas will be examined with the goal of disseminating and exploring broader implications of information gained from this type locality of continent-continent convergence.

T88 Thrust Belts and Plateaus: The Anatomy of Convergent Systems
Delores M. Robinson, University of Alabama, Tuscaloosa, AL; Nadine McQuarrie, California Institute of Technology, Pasadena, CA. We encourage papers that explore the linkage between foreland fold-thrust belts and adjacent hinterland plateaus in orogenic systems through deformation and elevation histories and mechanisms, rates of uplift and erosion, kinematic processes, and morphology.

T89 Tectonic Evolution of the Arctic Basin and its Margins
Jaime Toro, West Virginia University, Morgantown; Jeffrey M. Amato, New Mexico State University, Las Cruces. This session highlights the tectonic evolution of one of the least understood regions of Earth: the Arctic oceanic basin and the surrounding margins and continental terranes.

T90 Low-angle Normal Faults and Faulting: Field Studies, Fault Rocks, Mechanics, and Weakening Mechanisms
Robert E. Holdsworth, University of Durham, Durham, United Kingdom; Darrel S. Cowan, University of Washington, Seattle; Cristiano Collettini, Università di Perugia, Perugia, Italy. An interdisciplinary session where field geologists, experimentalists, seismologists, geodynamicists, and others can present observational evidence and theoretical insights on low-angle normal faults and faulting.

T91 Paleomagnetism and Rock Magnetism Perspective of Shear Zone Kinematics
Tim F. Wawrzyniec, University of New Mexico, Albuquerque; Mike Petronis, University of New Mexico, Albuquerque. Integrated studies of shear-zone processes benefit greatly from applied paleomagnetic and rock magnetic investigations. The goal of this session is to demonstrate from a geophysical perspective the applications and caveats of applied paleomagnetism and rock magnetic studies in understanding shear zone kinematics.

T92 Neotectonics and Earthquake Potential of the Eastern Mediterranean Region
Ibrahim Çemen, Oklahoma State University, Stillwater; Eric Sandvol, University of Missouri, Columbia; Omer Emre, MTA, Ankara, Turkey. Different research groups have been studying neotectonics and earthquake potential of major tectonic features of different portions of the eastern Mediterranean region. This session plans to provide a formal discussion on problems related to neotectonics of the region.

T93 Crustal Seismic Anisotropy as a Measure of Regional Tectonic Deformation (Posters)
David Okaya, University of Southern California, Los Angeles; Nikolas Christensen, University of Wisconsin, Madison. This session explores how crustal seismic anisotropy may serve as a proxy for intracrustal deformation by combining tectonic formation and regional distributions of shear and metamorphic fabrics, anisotropic material properties, and observations of seismic waves.

T94 Geoinformatics and Geological Sciences: The Next Step (Posters)
Ramon Arrowsmith, Arizona State University, Tempe; Charles Meertens, UNAVCO, Inc., Boulder, CO. Present results of geoinformatics projects in the geoscience community, in particular from those associated with distributed data and computational resource integration efforts. Explore areas where information technology developments can address geoscience problems.

T95 Differentiating Climatic from Tectonic Controls on Landscape Evolution (Posters)
Claudia J. Lewis, Los Alamos National Lab, Los Alamos, NM; Eric V. McDonald, Desert Research Institute, Reno, NV; John Gosse, Dalhousie University, Halifax, Nova Scotia. Dynamic response of mountainous landscapes to climate-driven denudation bedevils determination of tectonic uplift. We seek papers that quantify landscape and lithospheric responses to climatic and tectonic forcing in active orogens and mountain belts undergoing postorogenic exhumation.

T123 Teaching Structural Geology in the 21st Century
Barbara Tewksbury, Hamilton College, Clinton, NY; Robert Burger, Smith College, Northampton, MA; Jan Tulis, Brown University, Providence, RI; Michael Williams, University of Massachusetts, Amherst. We invite abstracts that showcase effective methods of teaching structural geology in the classroom, laboratory, and field. This session will also present outcomes from the 2004 workshop, Teaching Structural Geology in the 21st Century:
T124 Using Field Observations and Field Experiences to Teach Geoscience: An Illustrated Community Discussion (Posters)
David W. Mogk, Montana State University, Bozeman; Cathryn A. Manduca, Carleton College, Northfield, MN; Barbara Tewksbury, Hamilton College, Clinton, NY. Presentations will demonstrate ways that field observations and experiences can be used to enhance students’ understanding of geoscience. Contributions can document both successful teaching practice and potential use of field research to enhancing students' learning. Those submitting abstracts to this session will have the one-abstract rule waived and will be asked to use a common poster format.

T125 Using Digital Geological Maps to Build Deeper Understanding of Earth Science Relationships (Posters)
Andrew H. Wulff, Western Kentucky University, Bowling Green. This session will focus on the use of digital geological maps; specifically how to make these interactive data sets more accessible and how their use may facilitate the deeper understanding of geological relationships.

Pre-Meeting Field Trips
2. Strike-Slip Tectonics and Thermochronology of Northern New Mexico [402]
Thurs–Sat, Nov 4–6. Eric Erslev erslev@cnr.colostate.edu, Dept. of Geosciences, Colorado State University, Fort Collins, CO 80523, (970) 491-5661, fax 970-491-6307; Steven Cather; Seth Fankhauser; Matt Heizler; Rob Sanders. Max: 40; min: 12. Cost: $255 (2L, R, 2ON, vans). Begins and ends in Denver or Santa Fe, New Mexico. Participants will meet in Denver or join us in historic Santa Fe for a review of dextral faults in New Mexico and the active controversy over their age—are they Laramide, Pennsylvanian, or Precambrian? Friday will be spent viewing spectacular granitic breccias and folds of the Picuris-Pecos fault, the largest strike-slip fault in the southern Rockies. On Saturday, we will explore the thermochronologic contrasts and metasomatic alterations in the Sangre de Cristo Mountains and view new seismic data across their frontal faults.

3. Geology of the Silver Cliff–Rosita Hills Mining District and Spanish Peaks Area [403]
Fri and Sat, Nov 5–6. Cosponsored by GSA Sedimentary Geology Division. Paul R. Krutak pkrutakgeos@hotmail.com, P. Krutak Geoservices International, PO Box 369, 2118 Main Street, Rye, CO 81069-0369, (719) 489-2282 (phone and fax); John R. Barwin; Marty Horn. Max: 36; min: 12. Cost: $185 (2L, 1D, R, 1ON, vans). The first day of this two-day field excursion covers the mining geology of the Silver Cliff–Rosita Hills mining district on the west flank of the Wet Mountains, Colorado. We plan visits to the sites of the old Geyser, Bull Domingo, and Bassick mines as well as to the BP (British Petroleum) CO2 facility at Sheep Mountain. Second-day activities include study of the Spanish Peaks intrusives in the Raton Basin, where we will examine the following plutons: Black Hills, Silver (Dike) Mountain, and at least two of the radial dikes (Profile Rock and Devil’s Stairway) associated with the West Spanish Peak. We will also visit synorogenic fanglomerates at Cordova (Apishapa) Pass and Laramide structures associated with the Culebra Thrust.

5. Structural Implications of Underground Coal Mining in the Mesaverde Group, Somerset Coal Field, Delta and Gunnison Counties, Colorado [405]
Fri and Sat, Nov 5–6. Cosponsored by GSA Coal Geology Division. Christopher J. Carroll Chris.Carroll@state.co.us, Colorado Geological Survey, 1313 Sherman St., Room 715, Denver, CO 80203, (303) 866-3501, fax 303-866-2461; Wendell Koontz; Eric Robeck. Max: 20; min: 7. Cost: $240 (2L, 1D, R, 1ON, vans). This trip will visit two underground coal mines: Bowie #2 and West Elk Mines. Coal cleat development and open-mode fractures will be observed on the surface and compared to underground seams there. A reverse-reactivated, penecontemporaneous fault exposed underground, with soft-sediment deformation and shale diapirism in the fault plane, will be observed. We will show how early faults can rotate coal cleat, providing a tool for locating hidden faults in advance of mining.

Sat, Nov 6. Cosponsored by Colorado Scientific Society. Karl Kellogg kkellogg@usgs.gov, U.S. Geological Survey, P.O. Box 25046, Denver Federal Center, Denver, CO 80225, (303) 236-1305, fax 303-236-0214; Bruce Bryant; Jack Reed. Max: 36; min: 12. Cost: $100 (1L, R, vans). The trip will explore the geologic framework and uplift history of the Front Range by examining (1) the sedimentary and structural record along the eastern margin near Denver, (2) the Proterozoic basement of the range and the significance of northeast-trending shear zones, (3) the geologic setting of the Colorado mineral belt, and (4) the western structural margin of the range, which contrasts significantly with the eastern margin.

Sat, Nov 6. Lisa R. Lytle lfiniol@mines.edu, Dept. of Geology and Geological Engineering, Colorado School of Mines, Golden, CO 80401-1887, (303) 478-9427, fax 303-273-3859; Thomas R. Fisher. Max: 36; min: 12. Cost: $90 (1L, R, vans). A trip through the Central Front Range of Colorado to examine the ca. 1.7 Ga metamorphosed volcanic and sedimentary sequences formed during the accretion of Colorado onto the North American craton. Island arc, back-arc, and sedimentary basin-fill sequences that comprise the so-called “Idaho Springs Formation” will be examined. The possible origins and significance of the Coal Creek Quartzite, an amphibolite-grade meta-sandstone and metaconglomerate, will be presented and discussed.
Max: 45; min: 12. Cost: $90 (1L, bus). Also offered as a postmeeting trip. This trip will visit classic dinosaur bones and footprints at Dinosaur Ridge in the vicinity of Morrison, Colorado. Participants will investigate the stratigraphy and depositional systems of the sedimentary rocks in the foothills. A stop will be made to examine the four lava flows at North Table Mountain with discussion of the vent area for the flows. Regional geology will be reviewed from overlooks in the area. Other sites will include the geologic display at the new Red Rocks visitor center as well as the Precambrian unconformity located nearby, selected Precambrian outcrops, an oil seep in the Dakota group, and a textbook example of a uranium roll front.

13. Overview of Laramide Structures along the Northeastern Flank of the Front Range [413]
Max: 38; min: 12. Cost: $120 (1L, R, bus). Laramide fold structures in the sedimentary rocks along the northeastern flank of the Front Range uplift are quite varied, including both symmetrical and asymmetrical anticlines and synclines, as well as domes, basins, and monoclines. These structures are a microcosm of the Wyoming Province of the Rocky Mountain Foreland. Exceptional exposures along the flank of the Front Range make it possible to observe the contrasting deformation of the Proterozoic basement rocks and the overlying Phanerozoic rocks. This well-illustrated field trip will be a roadside overview of the variety of structures found in the area and how they relate to regional lineaments and the structure of the adjacent Denver Basin. A short, easy walk will occur at the last stop.

Postmeeting Field Trips
Max: 45; min: 12. Cost: $90 (1L, bus). Also offered as a premeeting trip—for description see listing above.

23. Laramide Horizontal Shortening in the Rockies: Faulting and Folding in Oblique Backlimb-Tightening Structures of the Northeastern Flank of the Front Range, Colorado [423]
Thurs, Nov 11. Eric Erslev erslev@cnr.colostate.edu, Dept. of Geosciences, Colorado State University, Fort Collins, CO 80523, (970) 491-6375, fax 970-491-6307.
Max: 24; min: 10. Cost: $100 (1L, R, vans). The northeastern flank of the Front Range exposes oblique backlimb-tightening (BLT) structures that develop in basement-involved arches during horizontal compression. Moderate hikes to multiple structural levels within these Laramide fault-propagation folds will reveal the complications provided by the obliquity between the N-S–trending basin margin and the SSE-plunging folds.

Short Courses
2. Introduction to Geographic Information Systems (GIS), Using ArcGIS9 for Geological Applications
Fri and Sat, Nov 5–6. Cosponsored by GSA Geoscience Education Division and Environmental Systems Research Institute. Ann B. Johnson and Dave Fosdek, ESRI, Denver. Fee: $240. CEU: 0.8. This short course will introduce the use of GIS in geology related applications using ArcGIS, ArcMap, ArcCatalog, and Spatial and 3D Analyst extensions. Experience with ArcGIS is not necessary, but familiarity with Windows OS would be beneficial. Focus will be hands-on use of ArcGIS including ModelBuilder, data access and analysis, Geoprocessing with ArcTools, and the Geodatabase. The Geodatabase GeoModel schema will be discussed.

K-16 Education Workshops
1. Earthquakes — A One-Day Workshop for College and University Faculty [601]
Sat, Nov 6, 8 am–5 pm. Cosponsored by the IRIS Consortium, U.S. Geological Survey, National Science Foundation, and Purdue University. Intended audience: Faculty at two-year and four-year colleges and universities teaching Earth science courses and wishing to learn more about earthquakes, seismology and plate tectonics for their instruction. Fee: $20. This workshop will cover the following topics: causes of earthquakes, plate tectonics, propagation of seismic waves, seismographs, statistics and data, Earth’s structure, and earthquake hazards. Learning activities emphasizing hands-on and inquiry-based learning will be used to deliver content to participants. Participants are encouraged to reflect on how these activities could be used in their
classrooms. Materials (hands-on activities, maps, earthquake book, posters, software and other teaching aids) will be provided to participants as part of the workshop. Information: Michael Hubenthal hubenth@iris.edu; Larry Braile; John Lahr jlahr@usgs.gov; John Taber taber@iris.edu; Lisa Wald lwald@usgs.gov.

8. Using the “Our Dynamic Planet” and “Global Ocean Data Viewer” to Implement Effective Science Writing Activities

Sat, Nov 6, 1–5 pm. Intended audience: Middle and high school teachers, college and university faculty, and informal educators. Fee: $25.

This workshop will focus on the use of earth data to support learning about the Earth. Topics to be covered are (1) using “Our Dynamic Planet” to learn about and support the theory of plate tectonics, (2) using the “Global Ocean Data Viewer” to learn about ocean structure and circulation, (3) familiarization with a collection of Web-available data sources used in University of California at Santa Barbara Oceanography, (4) implementing effective activities that support student learning using data, and (5) writing to learn about the Earth using earth data. For more information please visit http://oceanography.geol.ucsb.edu. Attendees will receive a CD-ROM and materials. Information: William A. Prothero, Jr. prothero@geol.ucsb.edu.

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Free $$$$

Student members of the SG&T Division are eligible to apply for grants to supplement the cost of field trips and short courses associated with the upcoming GSA Annual Meeting in Denver. Applications should be sent to Liz Schermer schermer@geol.wwu.edu. Indicate what trip or short course you would like to attend, and include a brief note indicating why it is important to your research/professional development.

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Meeting Summary

From Forelands to Core Zones: Deformation and Tectonic Evolution of Orogenic Belts

June 17-20, 2004, Calgary, Canada

Conveners:

Leslie Reid, Department of Geology and Geophysics, University of Calgary, Calgary Alberta, Canada
Sharon Carr, Department of Earth Sciences, Carleton University, Ottawa Ontario, Canada

This conference was held at the University of Calgary (Calgary, Alberta), June 17-20, 2004. It focused on structural and tectonic elements of orogenic belts and their linkages. The conference was in honour of Dr. Philip Simony, Professor Emeritus, Department of Geology and Geophysics (University of Calgary) as a tribute to his contribution to structural geology and tectonics. Philip conducted research in the southern Canadian Cordillera for the majority of his 39 year career at the University of Calgary. His work has helped further understanding of structural, igneous and metamorphic processes in the core zones of orogenic belts.

The conference attracted a wide range of geoscientists from North America and overseas. Participants enjoyed lively discussions on various orogenic processes including channel flow, wedge tectonics, gravity sliding, and large-scale lithospheric structures of orogenic belts. Current research on structural, metamorphic and igneous processes from various orogenic belts around the world was also presented.

The conference was followed by a three-day field trip led by Dr. Philip Simony, Dr. Sharon Carr and Dr. Raymond Price through the Foreland Fold and Thrust Belt westward into the metamorphic-plutonic core of the southeastern Canadian Cordillera. The field trip provided participants with an excellent overview of the geology of the Rocky Mountain Foreland Fold and Thrust Belt and a more in-depth look at the Valhalla Complex. The Valhalla Complex is a well-exposed core complex where ductile shear zones are exhumed that may be linked to Late Cretaceous thrusts in the foreland. Fruitful discussions ensued at many outcrops as participants marveled over the beautiful mid-crustal shear zones and their related structures.

This conference was sponsored by the Department of Geology and Geophysics at the University of Calgary.
Earthscope News

Research Frontiers in Appalachian Geology
September 10-11, 2004; Arlington, Virginia

Abstract deadline: Passed
For more information, visit www.earthscope.org or contact:
Krishna Sinha, Virginia Tech, Geosciences, 1089 Derring Hall, Blacksburg, VA 24061
ph: 540-231-5580, email: pitlab@vt.edu

The workshop will provide an open forum for all Earth scientists to collaboratively formulate new research opportunities within the EarthScope program, particularly those involving the natural laboratory provided by the Appalachian Mountains. Another significant objective of the workshop, in keeping with the broader goals of EarthScope, will be to initiate the process of developing synoptic databases that identify the current state of knowledge in the Appalachian orogen. Database scientists will be invited to facilitate the understanding of the research benefits of analyzing multidisciplinary data through use of information technology.

Some of the research opportunities identified by the community (at the 2004 NE/SE GSA meeting) include:
(I) Present day mantle configuration: implications for neotectonics
(II) Contractual Phases of Appalachian Orogenesis.
(III) Post Collisional Extension
(IV) Synoptic databases: status of current knowledge

Towards meeting new scientific challenges, the workshop will provide a framework for an organizational structure to focus research and educational activities in the Appalachian region, including Canada. In partnership with the US Geological Survey (Reston, VA) plans should be established to (1) conduct thematic/regional workshops to further refine future EarthScope activities and its implementation, (2) consideration of a more formal partnership with MARGINS initiative, as well as other EarthScope facilities, and (3) critically evaluating the need for a data management system through NSF supported cyberinfrastructure activities. Finally, the workshop report should contain multiple, but focused integrative science themes that best represent the new research opportunities provided by EarthScope, as it “will dramatically improve the seismic imaging of the continental lithosphere and deeper mantle, and integrate these images to unresolved issues of continental structure, evolution and dynamics” www.earthscope.org.

Rocky Mountain EarthScope Workshop I
Catalyzing New Collaborations and Advancing Fundamental Understanding
of Past and Present Geological and Geophysical Processes in the Rocky Mountain Region
September 15-17, 2004.
Sevilleta National Wildlife Refuge and Long Term Ecological Research Facility, Socorro County, New Mexico.
Online registration at www.ees.nmt.edu/RME/#

Rocky Mountain EarthScope Workshop II
The Future of EarthScope in the Rocky Mountains
Spring 2005, Date to be determined.
Sevilleta National Wildlife Refuge and Long Term Ecological Research Facility, Socorro County, New Mexico.
Online Registration will be available in 2005.

These workshops are sponsored by NSF and are hosted by the University of New Mexico and New Mexico Tech on EarthScope in the Rocky Mountain region. For more information, visit www.earthscope.org, or contact Karl Karlstrom kek1@unm.edu or Rick Aster aster@ees.nmt.edu, New Mexico Tech, Dept of Earth & Environmental Science, 801 Leroy Place, Socorro, NM 87801, office 505.835.5924, fax 505.835.6436.
VOTE FOR OFFICERS ON LINE

If you haven’t already voted, please vote online at http://rock.geosociety.org/balloting/sgt.asp, or use the paper ballot to vote for the Division officers. Brief biographies are presented below:

**Candidate for Chair:**

**David R. Lageson lageson@montana.edu**

Dave is a Professor of Geology in the Department of Earth Sciences at Montana State University. He completed a BA in geology at Western State College of Colorado and was subsequently employed in the petroleum industry in Wyoming as a well-site geologist and exploration geologist. Dave completed his MS and his PhD in structural geology at the University of Wyoming. During graduate school, he was also employed full-time as a staff geologist with the Wyoming State Geological Survey. Dave has been at Montana State University since 1980, including five years as department head in the early 1990s. He teaches a variety of undergraduate and graduate courses in structural geology and tectonics. Dave’s research is largely field-based and focuses on the structural analysis of superimposed tectonic regimes through time, as well as the analysis of active, earthquake-generating fault systems in the northern Intermountain Seismic Belt. He has also investigated fault-controlled pluton emplacement in the Sevier fold-and-thrust belt of western Montana. Current research projects include: 1) regional tectonic controls on the track of the Yellowstone hotspot, i.e., non-deep-mantle “hotspot” hypothesis; 2) structural evolution of the east-west trending Centennial Mountains seismotectonic zone, southwest Montana; and 3) compilation of a regional tectonic map of the Northern Rockies and Pacific Northwest. In addition, Dave is currently director of the new USGS-MSU Earthquake Science Laboratory. Dave was co-convener of a GSA Penrose Conference on Laramide structure/tectonics in the early 1980s, serves as the current (2002-2003) SG&T Division Second Vice-Chair, and has been actively involved with many service activities to the profession and public throughout his career. Dave has been a GSA member since 1976 and was elected a GSA Fellow in 1994. He is currently the Science Editor of the GSA Field Guide Series.

**Candidate for 1st Vice-Chair:**

**John Geissman jgeiss@unm.edu**

John W. Geissman is a Professor in the Department of Earth & Planetary Sciences at the University of New Mexico. He received his PhD from the University of Michigan. He is a long-time GSA volunteer, serving as chair of the Geophysics Division (1995), JTPC rep (1994-1995), associate editor of the GSA Bulletin (1989-1994), co-editor of the GSA Bulletin (1995-2000), editorial board member for Geology (1993-1998), co-chair for two combined Rocky Mountain/South-Central GSA section meetings, Technical Program Chair for the Denver 2002 Annual Meeting, and member of the Annual Program Committee (2001-2003). He is the current Second Vice-Chair of the SG&T Division. John has been a GSA Member since 1982 and was elected a GSA Fellow in 1997. He received the GSA Distinguished Service Award in 2002. His current research interests include the tectonics and paleomagnetism of North America, rock magnetism and relations to igneous and sedimentary oxide mineralogy, lithosphere structure, geomagnetic field behavior, general geodynamics, exploration geophysics, and extensional tectonics.

**Candidate for Secretary/Treasurer:**

**Peter Vrolijk peter.vrolijk@exxonmobil.com**

Peter J. Vrolijk’s expertise lies in structural geology, petroleum geology, and hydrogeology. He earned his BS and MS degrees in Geology from MIT, and his PhD in Geology from the University of California at Santa Cruz. He held a NATO Post-Doc at Cambridge University (1987-1988) and a Post-Doc at the University of Michigan (1988-89). From 1989 until the present he has been with ExxonMobil Upstream Research Co, where he is a Research Geologist. He has been a GSA member since 1984. He has served as the Structural Geology & Tectonics Division’s Secretary/Treasurer from 2000 until the present. He has also served on the editorial board for Geology (2002-present) and as the GSA Bulletin Associate Editor (1995-2001). In addition, he served as External Editor for ODP Leg 131 91-92. His research interests focus on the impact of faults and fault gouge on multi-phase subsurface fluid flow.
Candidates for 2nd Vice-Chair:

William M. Dunne  wdunne@utk.edu
William Dunne is Professor in the Department of Earth & Planetary Sciences and Associate Dean for Research for the College of Arts & Sciences at the University of Tennessee Knoxville (UTK). Bill received his PhD in structural geology from the University of Bristol, England, with Paul Hancock as his advisor, for an investigation into the structural development of southwest Wales. He began his academic career as an assistant professor at West Virginia University in 1980, and then moved to UTK as an associate professor in 1988. Through that time, he has used the central Appalachian foreland thrust belt to investigate the low-temperature deformation of sedimentary rocks in compressive settings. At the same time, he has maintained his interest in improving the characterization of joint systems with field sites in Wales, Nevada, Pennsylvania and West Virginia, and subsurface sites in Nevada and Colorado. Bill has been a GSA member since 1986. He has been lead editor for a special issue of the Journal of Structural Geology honoring Paul Hancock, has been a member and chaired the Best Paper Award Committee for the Structural Geology and Tectonics Division, was a co-organizer for a GSA Southeastern Section meeting, is an active participant in Division short courses and meetings, and has been a leader of that fine informal organization, the Appalachian Tectonic Studies Group (which just celebrated its 20th fieldtrip!) He chaired the then Department of Geological Sciences at UTK for 5 years prior to being becoming an associate dean. He currently supervises two graduate students and is involved in a few funded research projects when being a professor as opposed to an associate dean.

James W. Sears  jwsears@selway.umt.edu
Jim Sears is Professor in the Department of Geology, University of Montana. Jim received his PhD from Queen's University, Ontario. He has been at the University of Montana since 1982. His current research interests are in thrust kinematics of the northern Rocky Mountains; restoration and tectonic interpretation of the Precambrian Belt basin; history of rifting along the western margin of Laurentia; Precambrian plate restorations; the origin of hotspots; and Middle Miocene and younger extensional tectonics of SW Montana as related to the Yellowstone hotspot. He believes in field geology, mapping, and structural analysis. He directs the University of Montana field geology course in the Dillon area of SW Montana. Jim has been a GSA member since 1979. He was a field trip leader for the 2000 GSA Rocky Mountain Section meeting.

Arlo B. Weil  aweil@brynmawr.edu
Arlo Weil is an Assistant Professor in the Department of Geology at Bryn Mawr College. He received his BS from The University of Oregon and his PhD from the University of Michigan under the tutelage of Rob Van der Voo and Ben van der Pluijm. Arlo has been a GSA member since 1996. His current research interests include fold-thrust belt formation, curved orogens, Proterozoic paleogeography, the amalgamation and dispersal of the Rodinia supercontinent, and deformation-induced rock remagnetizations.
**BALLOT**

**Election of Officers**
**for the Structural Geology & Tectonics Division**


To Fellows and Members of the Division:
The slate of officers of the Division presented by the Nominating Committee is submitted herewith. Please vote by checking the appropriate box or by inserting the name of your nominee in the space provided. Biographical data for the nominees can be found on the previous page. This ballot or the electronic version must be received no later than September 15, 2004. The election results will be announced at the business meeting of the Division in Denver, CO, in November.

**CHAIR (One candidate)**
- David Lageson
  - Write in: _______________

**FIRST VICE-CHAIR (One candidate)**
- John Geissman
  - Write in: _______________

**SECOND VICE-CHAIR (Vote for one)**
- William Dunne
  - Write in: _______________
- Jim Sears
  - Write in: _______________
- Arlo Weil
  - Write in: _______________

**SECRETARY (One candidate)**
- Peter Vrolijk
  - Write in: _______________

Send to: Ballot Structural Geology and Tectonics Division
Geological Society of America
PO Box 9140
Boulder, CO 80301-9140

Your GSA member number (required)*: _______________________

Your Signature (required): ______________________________________

* For assistance: (303) 357-1000, option 3; tollfree (888) 443-4472; gsaservice@geosociety.org
For a legal vote, this ballot must be signed
Signature: ____________________________
Print name: __________________________
Address: ____________________________

Ballot Structural Geology and Tectonics Division
Geological Society of America
P.O. Box 9140
Boulder, CO 80301-9140
Geological Society of America
Structural Geology and Tectonics Division

CAREER CONTRIBUTION AWARD NOMINATION

This award will be given for the eighteenth time in 2005. It is given to an individual who throughout his/her career has made numerous distinguished contributions that have clearly advanced the science of structural geology or tectonics. The deadline for nominations is February 15, 2005. Nominees need not be citizens or residents of the United States, and membership in the Geological Society of America is not required. The Career Contribution Award cannot be given posthumously, unless the decision to give it was made before the death of the awardee. Past recipients are:

1993: Benjamin M. Page 1999: Hans Laubscher

Name of nominee, present institutional affiliation and address:

Summary statement of nominee’s major career contributions to the science of structural geology or tectonics (attach additional page if necessary):

Selected key published works of the nominee (attach additional page if necessary):

Name and address of nominator:

Mail to: Shankar Mitra
School of Geology and Geophysics
The University of Oklahoma
100 East Boyd St., Suite 810
Norman, OK 73019
smitra@ou.edu
Teaching Structural Geology in the 21st Century  
July, 2004 - Northampton, Massachusetts

During July 2004, 75 structural geologists from around the US gathered at Smith College in Northampton, Massachusetts for a very stimulating one-week workshop on teaching structural geology. This newsletter article describes 1) the workshop resources available on the web for interested structural geologists who did not attend the workshop, 2) the online resource collections that you can visit and for which we are seeking contributions, 3) what the working groups are doing, and 4) information about the oral and poster session on teaching structural geology coming up at GSA in Denver. The workshop was part of the NSF-funded professional development program *On the Cutting Edge: Workshops for Geoscience Faculty*, sponsored by NAGT and affiliated with DLESE [http://serc.carleton.edu/NAGTWorkshops/](http://serc.carleton.edu/NAGTWorkshops/).

**Workshop Resources Available on the Web:** If you teach structural geology but were unable to attend the workshop, you can download electronic versions of any of the workshop notebook materials by going to the workshop program web page and scrolling to the item of interest. Materials include documentation for each of the plenary and demonstration sessions, field trip materials, and a survey of what topics people teach and which textbooks people use in SG courses. The URL is [http://serc.carleton.edu/NAGTWorkshops/structure04/schedule.html](http://serc.carleton.edu/NAGTWorkshops/structure04/schedule.html).

**Online Resource Collections for Teaching Structural Geology:** We are developing a number of collections of resources for teaching structural geology that are available online at the *Cutting Edge* website at [http://serc.carleton.edu/NAGTWorkshops/structure04/resources.html](http://serc.carleton.edu/NAGTWorkshops/structure04/resources.html). The collections listed below are in their infancy. They will grow as workshop participants and you and your colleagues contribute to them. Some of the collections are currently quite short. Please add your own resources to the collections and continue to visit the collections as they grow. Asterisks in the list below indicate collections that were "live" as of 7/15/04. By the time you read this newsletter, the other collections will likely be started as well.

- *Activities & Assignments* for use in the classroom, lab, and field, as well as out-of-class activities and projects.
- *Articles* that are accessible to undergraduate structural geology students.
- *Geologic Maps* useful for teaching structural geology. This collection includes maps that are available in print form, as well as those available in digital form.
- *Analog Materials* that can be useful for helping students understand the behavior of materials and the development of structures. The collection includes brief comments about how each item can be used.
- *Internet Resources* useful for teaching structural geology. These links may relate specifically to teaching structural geology or may provide support for teaching structural geology.
- **Applications of Structural Geology in Other Disciplines.** This collection includes ideas for integrating examples of using structural geology in other disciplines into SG courses, as well as annotated references to articles illustrating outstanding examples.
- **Computer Applications in Structural Geology.** The submission tool for this collection is currently under construction but will likely be up when this newsletter comes out.
- **Outstanding Field Sites.** The submission tool for this collection is currently under construction but will likely be up when this newsletter comes out.
- **Goals and Syllabus Data Base** for teaching structural geology. This collection will contain examples of goals and syllabi for SG courses and will likely have at least a few submissions by the time this newsletter comes out.
- **A Collection of Images of Structures.** The submission tool for this collection is currently under construction.

Please help us by contributing to the online collections! To contribute a resource in any of the categories above, go to [http://serc.carleton.edu/NAGTWorkshops/structure04/submit_resource.html](http://serc.carleton.edu/NAGTWorkshops/structure04/submit_resource.html).

By early fall 2004, we will reconfigure the Teaching Structural Geology materials around the resource collections, rather than the workshop. At that time, you will find easy access to the structural geology teaching collections under Topics at the Cutting Edge website at [http://serc.carleton.edu/NAGTWorkshops/index.html](http://serc.carleton.edu/NAGTWorkshops/index.html).

**Listserv:** We have established a listserv discussion group for those who teach structural geology. The listserv is open to anyone who wishes to participate. To join the listserv, go to [http://serc.carleton.edu/mailman/listinfo/tsglist](http://serc.carleton.edu/mailman/listinfo/tsglist) to subscribe.

**Working Groups:** One of the main aims of the workshop was to develop plans for collecting and creating new materials 1) in key thematic areas, 2) in areas that are not currently incorporated in most structural geology courses, and 3) in areas that link structural geology to other courses that our students take. Each participant in the TSG workshop is now part of a working group tasked with collecting, developing, and posting materials to the Teaching Structural Geology Resource Collections. You can find information about the working groups plus links to individual working group pages at...
http://serc.carleton.edu/NAGTWorkshops/structure04/working_groups.html. The working groups are:

- Applications of structural geology to other disciplines
- Integrating structural geology, petrology, tectonics, and geochronology to solve geologic problems
- Integrating geophysics and EarthScope into structural geology courses
- Grain scale deformation processes, microstructures, and teaching the processes of formation of structures
- Effective use of computers in teaching structural geology
- Modeling structural processes
- Integrating field work, field trips, and long-term projects into classroom/lab activities

If you did not attend this workshop and would like to contribute to one of the working groups listed above, please contact Barbara Tewksbury at Hamilton College btewksbu@hamilton.edu.

GSA Annual Meeting in Denver: We will have both an oral and a poster session on Teaching Structural Geology in the 21st Century. We hope that you will attend the session!

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**International Symposium on the Geodynamics of Eastern Mediterranean: Active Tectonics of the Aegean**

Colleagues in several major universities in Turkey are organizing an international conference to be held in Istanbul, Turkey next June, 2005. The title of this conference is International Symposium on the Geodynamics of Eastern Mediterranean: Active Tectonics of the Aegean. There will be 22 topical sessions on important themes, and it is very likely that several GSA Special Papers will result from this conference. The abstract deadline is February 15, 2005 (NOT January 15, 2004). For more information, see http://www.earth.itu.edu.tr. If you need any additional information, please contact Professor Tuncay Taymaz at the Istanbul Technical University taymaz@itu.edu.tr or Yildirim Dilek dileky@muohio.edu.

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**Second Earth System Processes Meeting**

**Calgary, Alberta Canada**

**August 8-11, 2005**

Earth System Processes 2 is a follow-up meeting to the very successful ESP-1 meeting in Edinburgh, Scotland, 2001. It will be sponsored by the Geological Society of America and the Geological Association of Canada, and co-chaired by Chris Beaumont, Don Canfield and Lee Kump, who have taken the reins from the Ians (Dalziel and Fairchild).

**HOW CAN YOU BE INVOLVED?**

1) **Propose a session.** You can help us ensure that this meeting is as exciting as the first by proposing a session. GSA has made this as painless as possible. To submit a proposal, please visit http://www.geosociety.org/meetings/esp2/ and select the "Submit A Proposal" button. The deadline for session proposals is September 15, 2004.

As with ESP-1, the upcoming meeting focuses on interactions in the Earth system, addressing problems in Ancient Earth Systems, Modern Earth System Processes, and Earth System Futures. Please discuss ideas for sessions with your students and colleagues, and submit a session proposal well in advance of the September 15th deadline.

For those of you who did not attend the first Earth Surface Processes meeting, you may wish to visit the website at http://www.geosociety.org/meetings/edinburgh/index.htm. In particular, follow the Media Coverage link to see how well the meeting was received.

2) **Propose a pre- or post-meeting field trip.** Details will be posted on the meeting website shortly.

We hope to see you in Calgary!
Backbone of the Americas from Patagonia to Alaska
(informally called BACKBONE)
April 3-7, 2006, Mendoza, Argentina.

Organized by the Geological Society of America and the Asociación Geológica Argentina.
Sponsors for the meeting include the GSA International Division, GSA Structural Geology and Tectonics Division, and the Sociedad Geológica de Chile. Co-Chairs are Suzanne Kay (Cornell University) and Victor Ramos (University of Buenos Aires).

SEE THE GSA WEBSITE TO SIGN UP ON AN EMAIL LIST TO RECEIVE PERIODIC UPDATES.
http://www.geosociety.org/meetings/06boa/FieldTrips.htm

As noted in Liz Schermer’s letter above, Structural Geology and Tectonics Division members can play an important role in organizing this meeting. If you are interested in helping plan and run the meeting, please contact Suzanne Kay smk16@cornell.edu.

The scientific plan for the meeting is to compare and contrast first order tectonic and magmatic processes along the margins of the Americas with a particular focus on plateau uplift, shallow subduction, and ridge collisions. The meeting will feature 4 days of talks in Mendoza, Argentina (April 3-7, 2006), an inter-meeting field trip from Mendoza to the Chilean border for all participants (April 5), and a choice of two pre-meeting and two post-meeting field trips focusing on the meeting themes.

Mendoza, Argentina is located in the eastern foothills of the Andes, on the southern margin of the modern shallow subduction zone. Mendoza is easy to reach through either Buenos Aires or Santiago, and is a beautiful city with good facilities for meetings of several hundred people and access for short field trips - no health or safety concerns. We are currently looking for funding to help defray costs for student participants. At present, airfares of less than $1000 are available, and hotel accommodations and meals in Mendoza are a bargain.

Participants from both the academic and industrial communities are invited (we anticipate ~ 300 participants). The topics are ones of longstanding interest to all of those interested in tectonics and magmatic processes along the western coast of the Americas. The theme fits well with the goals of both the MARGINS and EARTHSCOPE initiatives of the US National Science Foundation in the Earth Sciences.

Field Trips

Exact dates and field trip costs will be posted as soon as they are available.

Mid-Meeting Field Trip, Wednesday, April 5, 2006

Shallow Subduction Zone — Mendoza to Las Cuevas, Argentina
One-day trip along main roads, easy access from Mendoza.
Leader: Victor Ramos and others from University of Buenos Aires tectonics group.
Price: All participants attend—fee included in registration.
Travel from Mendoza to Las Cuevas on the Chilean border. The trip will cross the Andes from the western Precordillera to the Main Cordillera at the southern margin of the Chilean flat slab region. See neotectonic features, inverted Triassic normal faults, the Neogene Aconcagua fold and thrust belt and related basin sediments, Mesozoic to Neogene magmatic units, and glacial features. Maximum elevation reached will be less than 3000 meters.

Pre-Meeting: March 27 - April 1.

Ridge-Trench Collision—East of the Chilean Triple Junction
Five-day Trip, Additional Air Travel Required.
Principal leaders: Miguel Haller (Puerto Madryn, Argentina).
Rough cost - $500.00. Airfare not included.
A transect from Argentine Patagonia through the Patagonian Andes to the Chilean coast east of where the Chile Ridge has recently collided the Chile Ridge. Features to be examined include the backarc basalt fields, the Patagonian slabmelt adakites, the Austral fold and thrust belt and related sedimentary basins, and forearc margin deformational and magmatic features.

Pre-Meeting: March 27 - April 1

Andean Cordillera and Backarc in Northernmost Patagonia
Five-day Trip, Additional Air Travel Required.
Principal Leader: Tomas Zapata (REPSOL-YPF).
Rough cost - $500.00. Airfare not included.
The Andean Cordillera and Backarc in Northernmost Patagonia - Northern Neuquén and southern Mendoza provinces, Argentina. Contrasts in inversion of pre-Andean structures, plateau volcanism, block uplifts and volcanic centers formed over possible Late Miocene shallow subduction zone, extensional tectonics, the active Southern Volcanic Zone.

Post-meeting: April 8 -13.

Evolution of the Argentine-Chilean Flatslab Region over the Shallowly Subducting Nazca Plate
Five-day Trip, leave and return to Mendoza.
Principal Leader – Victor Ramos (University of Buenos Aires).
Rough cost - $500.00.
Transect across the Argentine-Chilean Flatslab from Sierras Pampeanas to Chile. Features to be seen are block-faulted Sierras Pampeanas, foreland basin deposits, Precordillera fold and thrust belt, minor Miocene magmatic centers, Calingasta Valley, and Frontal and Main Cordilleras.
Post-Meeting: April 9 – 15 (April 8 is a travel day).

Plateau Uplift — Central Andean Puna plateau and Southern Volcanic Zone.
Six day Trip, Route: Antofagasta de la Sierra to Copiapó.
Principal Leaders – Beatriz Coira (University of Jujuy, Argentina), Constantino Mpodozis (Si Petrol, Chile).
Rough cost - $700.00. (Airfare not included – trip will end in Copiapó, Chile).
Trip to Central Andean Puna plateau – small group. Features to be examined include the Puna plateau, giant young ignimbrites, young mafic lava flows, normal, strike-slip and reverse faults, backarc basin deposits, southernmost Southern Volcanic Zone, Miocene volcanic evolution east of a migrating arc front.

New AAPG Field Seminar

Cretaceous Carbonate Reservoirs & Source Rocks: Golden Lane/Poza Rica Trend -
Classic Tertiary Type Localities: Tampico/Misantla Basin -
Modern Patch Reefs: Veracruz/Anton Lizardo, Mexico

AAPG has approved a new Field Seminar for 2004. For more information, see p. 37 of the 2004 AAPG Geoscience Education Catalogue.

The initial excursion will be Oct. 19-23, 2004. It is in conjunction with the AAPG International Conference in Cancun, Mexico. Participants can earn 4.0 CEU (Continuing Education Units) from AAPG. Following is a brief description of the excursion’s Objectives and Content.

The first part of this 5-day field excursion involves study and sampling of many of the classic Tertiary localities in the Tampico/Misantla Basin (Chapapote, Chicontepec, Escolin, Horcones, Meson, and Tuxpan). Participants will be able to obtain outcrop samples for later thin section and/or micropaleontological analysis. The seminar also includes study of the classic outcrops of the Sierra de El Abra reef knolls, which crop out near the village of Taninul, Mexico. Subsurface equivalents of the El Abra occur in the Golden Lane oil fields of the Tuxpan area. The subsurface El Abra contains most of the facies found in the surface outcrops, and is part of a giant supercharged petroleum system in the southern Gulf of Mexico, the Pimienta-Tamabra (1), that has total reserves of 66.3 BBO and 103.7 TCF of natural gas (~83.6 BBOE). During the field excursion, participants will be able to examine and study two slabbed cores and associated thin sections from two wells in the Golden Lane trend: (1) the #101 Las Canas, and (2) the #1 Mesita. The seminar will end in Veracruz, Mexico, where we will visit the Fortress of San Juan Ulua, which was constructed from coral quarried from the modern Gallega reef. During this portion of the seminar, new sedimentologic data will be presented concerning modern hybrid (mixed) carbonate reef systems, which are being stressed by advancing siliciclastics. Many similar ancient systems have produced significant volumes of hydrocarbons. This seminar ties surface and subsurface data together, and will result in new exploration perceptions of seismic data, both from the reservoir engineer’s viewpoint and biostratigraphic/lithofacies aspect.

Contact either Paul R. Krutak, PhD (P. Krutak Geoservices International; 2118 Main St., PO Box 369, Rye, Colorado 81069-0369, USA: Phone/Fax: 719-489-2282; e-mail: pkrutakgeos@hotmail.com or Barbara Davis bdavis@aapg.org at AAPG for registration particulars.
Ophiolites, Batholiths and Regional Geology: A Tribute to Cliff Hopson
April 29-May 1, 2005, GSA Cordilleran Section Meeting, San Jose, CA

Jim Wright is organizing a session for the San Jose, CA, Cordilleran Section meeting as a tribute to Cliff Hopson. If you are interested in submitting an abstract, contact Jim Wright: jwright@gly.uga.edu.

New York State Geological Association

SUNY Potsdam will host the 76th annual New York State Geological Association meeting September 17-19, 2004. Information is available on our website at http://www.potsdam.edu/NYSGA.

Additional Meetings

For a listing of Earth Science related meetings, see http://www.agiweb.org/calendar/index.html.


September 19-25, 2004. Eurogranites 2004 Field Meeting: The Galway and Leinster Granites in Ireland. Contact: Pádraig Kennan, Geology Dept, University College Dublin, Dublin 4, Ireland, <pkennan@iol.ie> or John Reavy, Geology Dept, University College Cork, Cork, Ireland, j.reavy@ucc.ie.


October 24-27, 2004. AAPG International Conference & Exhibition, Cancun, MX. Petroleum Industry in the 21st Century: Technology, Business and Frontiers. Info: www.aapg.org or Convention Dept, PO Box 979, Tulsa, OK, 74101 USA; (888) 945-2274 (USA/Canada) or (918) 560-2679, fax (918) 560-2684.


November 22–24, 2004. XII Latin American Geological Congress, Quito, Ecuador. Information: Guillermo Rosero, Juan León Mera y Orellana, Ed. MOP 3er Piso, (593-2) 2550041/550018, fax (593-2) 2550041, ext. 3313, dinage@menergia.gov.ec.


April 25-29, 2005. European Geosciences Union (EGU) XXX General Assembly, Nice, France. EGU Office, Max-Planck-Str. 13, 37191 Katlenburg-Lindau, Germany; phone: +49-5556-1440; fax: +49-5556-4709; e-mail: egu@copernicus.org; website: www.copernicus.org/EGU/EGU.html.


Oct 16-19 2005. GSA Annual Meeting, Salt Lake City, Utah, USA, by the Geological Society of America. GSA Meetings, PO Box 9140, Boulder, CO 80301-9140; phone: (303) 357-1000; fax: (303) 357-1072; e-mail: meetings@geosociety.org; web: http://www.geosociety.org/meetings/2005/.

December 5-9, 2005. 2005 AGU Fall Meeting, San Francisco, California, USA. AGU Meetings Department, 2000 Florida Avenue NW, Washington, DC 20009 USA; phone: +1-202-777-7335; fax: +1-202-328-0566; e-mail: meetinginfo@agu.org; website: www.agu.org/meetings.
Greetings! Please also check the SG&T website for Division news and information: http://rock.geosociety.org/sgt/index.html. The site is maintained by Kevin Smart, who can be reached at <ksmart@swri.edu>. Please send your news and information to Barb Sheffels barbsheffels@comcast.net (please note NEW email address) or Barbara John bjohn@uwyo.edu -- we welcome your contributions. Here's the latest news …

Bruno Vendeville, who was working at the Bureau of Economic Geology (University of Texas at Austin), has moved to France, where he is holding a professor position at the Université de Lille (northern France).

Scott Giorgis (Ph.D. at University of Wisconsin) got the structural geology job at SUNY-Geneseo. Cheryl Waters (soon-to-be Ph.D. at University of Wisconsin) got the structural geology job at Western Carolina University. Both were advised by Basil Tikoff.

Ron Schott has moved from Lake Superior State University to a tenure-track position at Fort Hays State University. Congratulations to Michele Cooke, who has received tenure at the University of Massachusetts Amherst. Mark Evans has left the University of Pittsburgh and is now at Central Connecticut State University in New Britain, CT.

News from the 2004 Flight of Discover: The 2004 Flight of Discovery www.flightofdiscovery.com recently safely concluded after a 14-day, 6000-mile, bicentennial journey that retraced the route of the 1804-1806 Lewis & Clark Corps of Discovery. The group included about 30 volunteer scientists, pilots, and crew. Eleven aircraft participated, including two Waco bi-planes (a 1941 original and a 1999 reproduction) and two helicopters. GSA member Phyllis Steckel, RG, participated as a Flight Geologist.

The mission of the Flight of Discovery was twofold. First, the Flight of Discovery group documented the 2004 status of many of the scientific aspects of the Louisiana Purchase. In 1804, President Thomas Jefferson charged Captains Meriwether Lewis and William Clark to explore and document the native peoples, animals, plants, and agricultural and mineral resources of the newly acquired Louisiana Purchase. In 2004, the Flight of Discovery crew - biologists, botanists, ecologists, geologists, and erosion specialists - documented the changes to these elements of the natural landscape that have occurred in the past 200 years.

Second, the Flight of Discovery group visited with numerous K-12 students and their teachers along the way. Schools selected had received a "Trunk of Discovery" about six months earlier - literally a trunk filled with dozens of scientific- and aviation-related books, tools, field and lab equipment items, a telescope, microscope, plant press, mineral hardness kit, a GPS, aviation simulation software, sample boxes, model airplanes, and many other kid-friendly "classroom goodies" that were valued at $1500 to $2000 each. Many of the elementary schools visited by the Flight of Discovery crew are located within Native American tribal nations populated by the descendants of the Native Americans who helped the original Lewis & Clark Corps of Discovery through the winters of 1804-05 and 1805-06.

"The highlight for me was meeting a little fourth-grade girl in New Town, North Dakota, whose great-great-grandmother and great-grandfather are depicted as Sacagawea and her baby, Jean Baptiste, on the new dollar coin," said GSA member Phyllis Steckel. "That really brought the history full-circle." New Town is the center of the Three Affiliated Tribes - Mandan, Hidatsa, and Arikara - each of whom played a role in the 1804-1806 Lewis & Clark Corps of Discovery.

Steckel's personal interest included a regional reconnaissance of the Upper Missouri River Basin for evidence of paleo-seismic features, such as sand blows, sand boils, and liquefaction. The recorded earthquake history of the region is sparse, although several moderate earthquakes (in the 4.5 to 5.5 range) have occurred over the past hundred years or so. Steckel was able to identify and contact several local residents who have felt earthquakes, as well as identified potential sources of recorded Native American oral and written histories that may include references to past earthquakes. She plans to present the results of her study at an upcoming GSA meeting.

Steckel's pilot-husband, Richard, and their kids, Nathan (16) and Katie (14), also participated as part of the Flight of Discovery crew. "This was not inexpensive - but it was a once-in-a-lifetime opportunity for our family that we just couldn't pass up. I'd do it again in a minute."

For more information about Flight of Discovery visit www.flightofdiscovery.com.
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