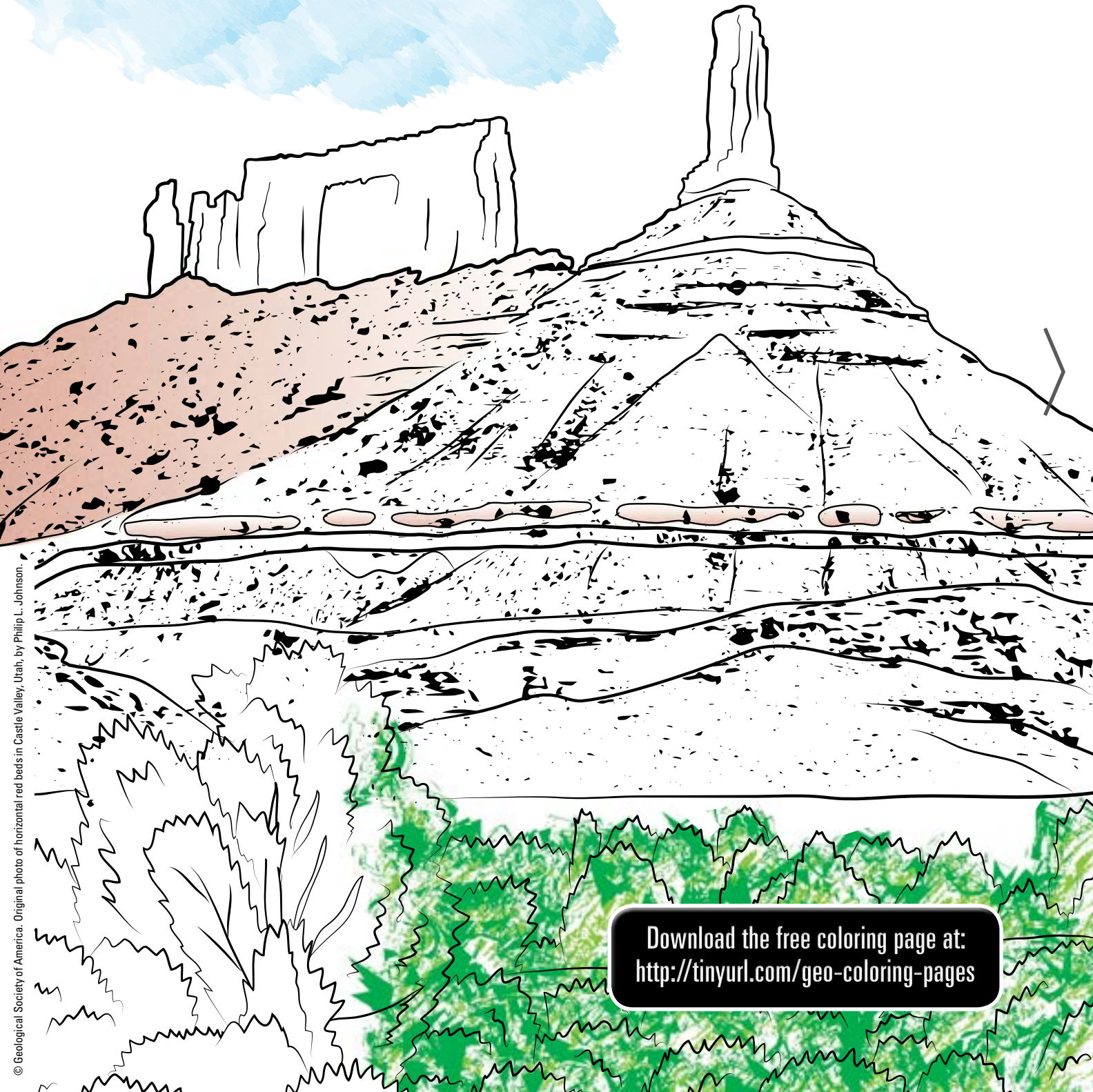




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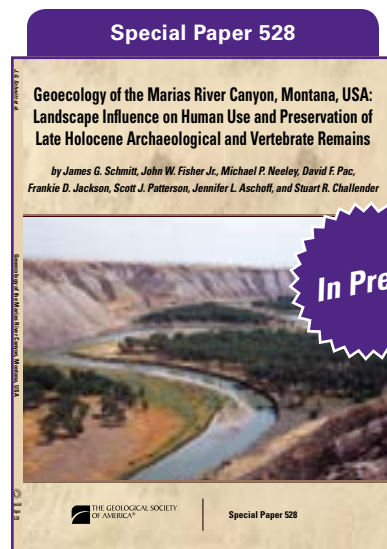
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In Press

Geocology of the Marias River Canyon, Montana, USA: Landscape Influence on Human Use and Preservation of Late Holocene Archaeological and Vertebrate Remains

By James G. Schmitt, John W. Fisher, Jr., Michael P. Neeley, David F. Pac, Frankie D. Jackson, Scott J. Patterson, Jennifer L. Aschoff, and Stuart R. Challender

The Marias River canyon in north-central Montana served during late Holocene time as a locus of human activity in an ecologically and geologically dynamic landscape. This volume presents the results of interdisciplinary research, synergistically combining geologic, ecologic, and archaeological approaches focused on examining the ways that Late Precontact peoples depended upon the animal (bison) and plant resources of a changing landscape subject to erosion and sediment transport as dominant surficial processes. Connections between erosion and deposition, plant community distribution, large mammal niches, and native peoples' place in the Marias River canyon geocosystem, as well as the role of tributary-junction alluvial fans as repositories of archaeological materials and vertebrate faunal remains are emphasized.

SPE528, 53 p., ISBN 9780813725284
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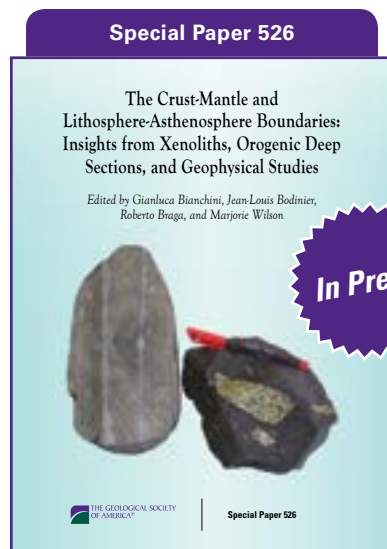
By Daniel J. Soeder

New technology has opened vast reserves of "unconventional" natural gas and oil from shales like the Marcellus in the Appalachian Basin, making the United States essentially energy independent for the first time in decades. Shale gas had its origins in the oil embargos and energy crises of the 1970s, which led to government research to increase domestic energy supplies. The first large-scale shale gas production was successful on the Barnett Shale in Texas in the late 1990s, followed a few years later by the Marcellus Shale in Pennsylvania. Shale gas has changed thinking about fossil energy supplies worldwide, but the development of these resources has been controversial. Activists have made claims that hydraulic fracturing may contribute to climate change, threaten groundwater resources, and pose risks to terrestrial and aquatic ecosystems, and human health. This volume explores the geology, history, technology, and potential environmental impacts of Marcellus Shale gas resources.

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"An excellent objective explanation of the history, science, technology, politics, environmental concerns, and economics of the shale gas boom. The author clearly has great practical experience of the science and technology of shale gas development and shows a deep understanding of the environmental and economic issues."

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The Crust-Mantle and Lithosphere-Asthenosphere Boundaries: Insights from Xenoliths, Orogenic Deep Sections, and Geophysical Studies

Edited by Gianluca Bianchini, Jean-Louis Bodinier, Roberto Braga, and Marjorie Wilson

This 10-chapter volume encompasses contributions from a wide spectrum of Earth science disciplines, including geophysics, geodynamics, geochemistry, and petrology, to provide an overview of the nature and evolution of the crust-mantle and lithosphere-asthenosphere boundaries in different tectonic settings, combining studies that exploit different types of data and interpretative approaches. The integration of geochemical, geophysical, and geodynamic data sets and their interpretation provides a state-of-the-art summary of current understanding, and will serve as a blueprint for future research activities.

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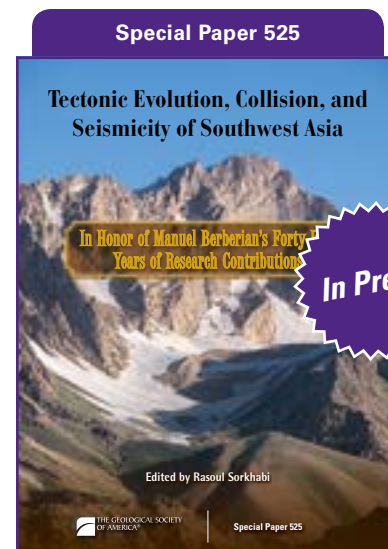
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Edited by Rasoul Sorkhabi

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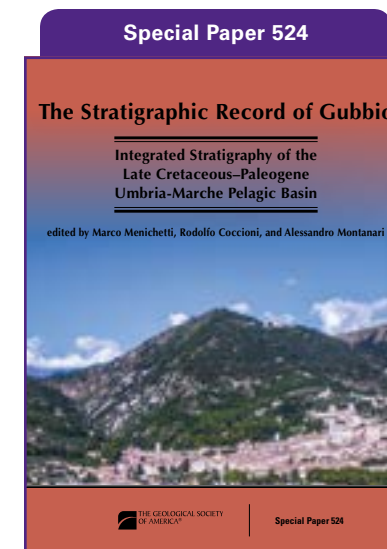
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Edited by Marco Menichetti, Rodolfo Coccioni, and Alessandro Montanari, 2016

Since the beginning of the last century, the lower Jurassic to mid-Miocene pelagic succession exposed along the valleys of the Umbria and Marche Apennines of Italy represented a fertile playground for generations of earth scientists. This volume provides a reappraisal of the geological and integrated stratigraphic research, which was carried out by scores of earth scientists in the gorges around the medieval city of Gubbio over the past fifty years. Following review chapters about pioneering sedimentologic, biostratigraphic, and magnetostratigraphic studies of the Gubbio sections, a series of papers presents new, original data addressing different stratigraphical, paleoenvironmental, and structural geological aspects of particular Cretaceous to Paleogene intervals, including the still much-debated K-Pg Boundary Event in the world-famous site of the Bottaccione Gorge, where the Alvarez theory of global mass extinction caused by a catastrophic extraterrestrial impact was born in 1980.

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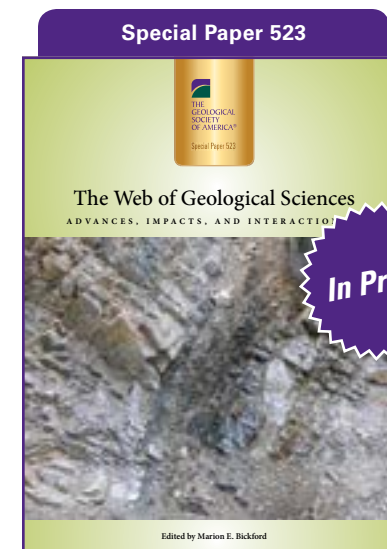
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The Web of Geological Sciences: Advances, Impacts, and Interactions II

Edited by Marion E. Bickford

This book is a follow-up to Special Paper 500: *The Web of Geological Sciences: Advances, Impacts, and Interactions*, which was prepared to celebrate the 125th anniversary of the founding of GSA, and whose theme was "What have we learned in the last fifty years?" Three important disciplines that were not covered in the first book are engagingly presented here: "Earth's dynamic surface: The past 50 years in geomorphology" by Ellen Wohl et al.; "The metamorphism of metamorphic petrology" by Frank Spear et al.; and "The Archean: Fifty years of searching for the origin of everything" by Paul Mueller and Allen Nutman. Readers will find these chapters comprehensive and readable. They will appeal to professional scientists and especially to teachers.

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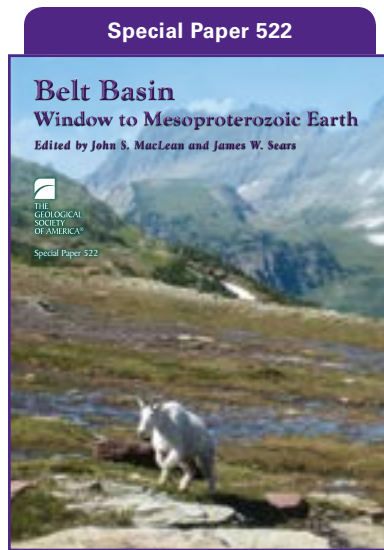
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Edited by John S. MacLean and James W. Sears, 2016

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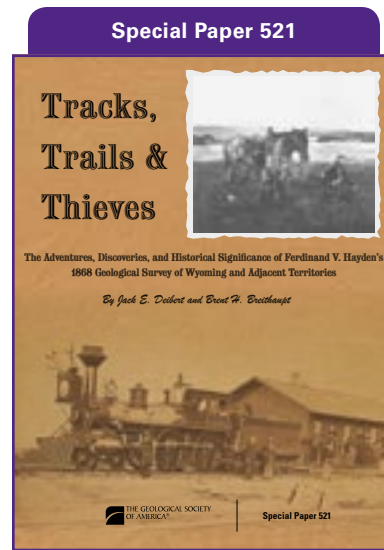
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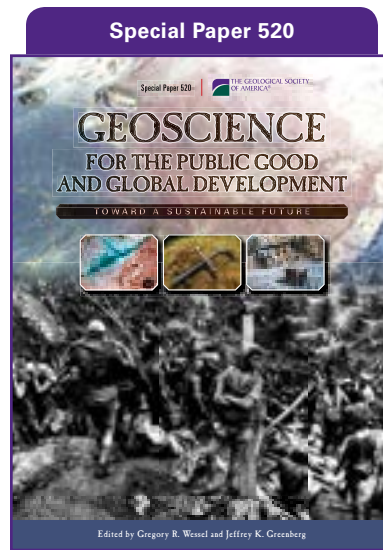
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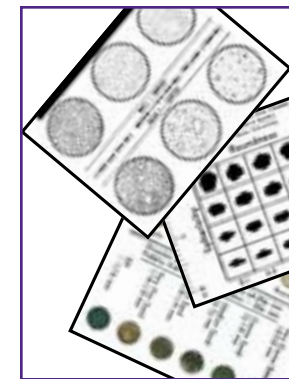
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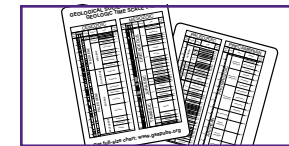
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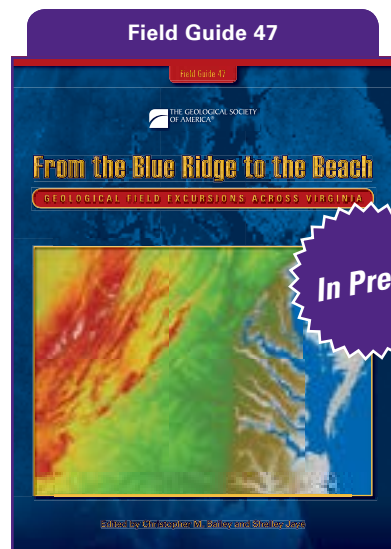
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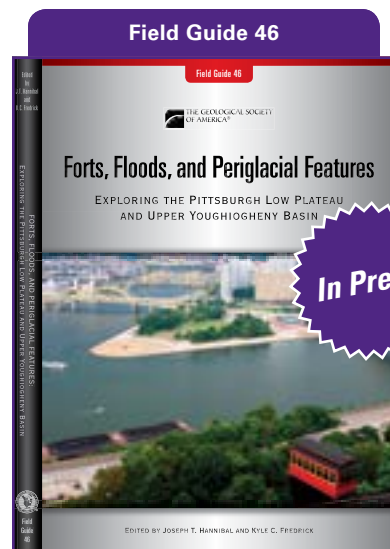
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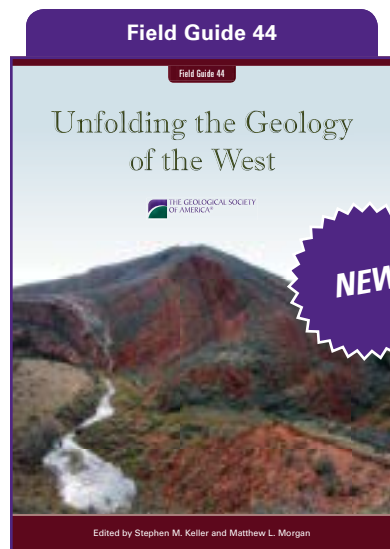
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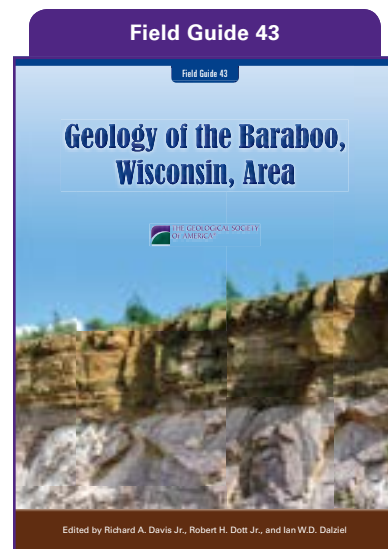
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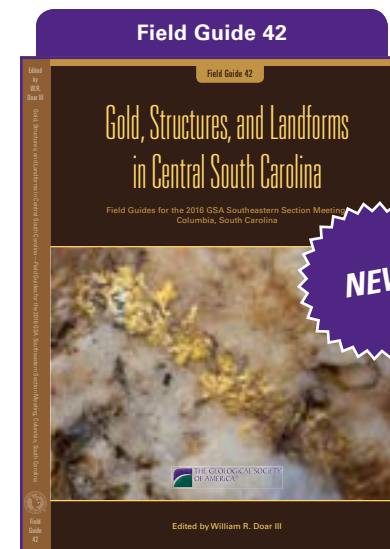


Geology of the Baraboo, Wisconsin, Area: Geological Society of America Field Guide

*Edited by Richard A. Davis Jr., Robert H.
Dott Jr., and Ian W.D. Dalziel*

With its wide variety of geological features and phenomena packed into a small area, the Baraboo of south-central Wisconsin is among the most visited parts of the Midwest by geology students. This guidebook, the first comprehensive look at the area in decades, covers the spectrum of geological features present in the area, and it is useful as a teaching tool. An exceptional outdoor classroom, the Baraboo area contains a spectrum of geology, including excellent examples of geomorphology, glacial geology, structural geology, petrology, stratigraphy, and sedimentology. Ages of the strata range from 1.7-billion-year-old Precambrian to the Quaternary. The area has been studied for about a century, but it still holds surprises for professionals and students alike.

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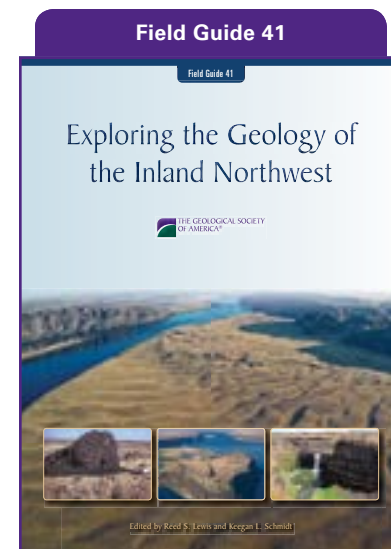


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Edited by William R. Doar III, 2016

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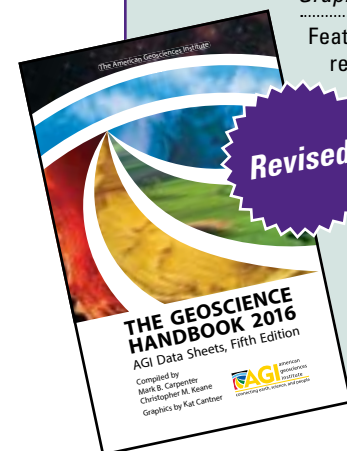
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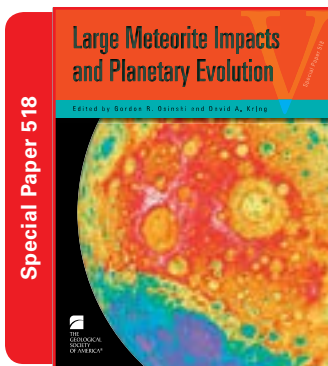
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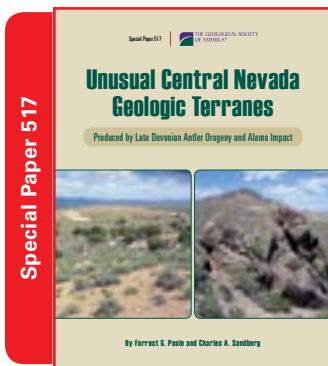
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■ Large Meteorite Impacts and Planetary Evolution V

Edited by Gordon R. Osinski and David A. Kring, 2015

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 metalliferous ore 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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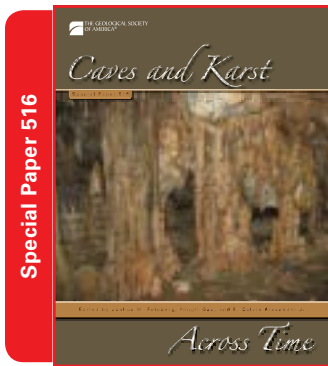
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■ Unusual Central Nevada Geologic Terranes Produced by Late Devonian Antler Orogeny and Alamo Impact

By Forrest G. Poole and Charles A. Sandberg, 2015

The product of nearly 25 years of research, this volume is an exposition of two areas (the Bisoni-McKay and the Warm Springs-Milk Spring) less than 25 km east of the Mississippian Roberts Mountains allochthon, each displaying a unique geologic terrane, previously undocumented in Nevada and perhaps in North America. Detailed geologic maps support the conclusions and hypotheses in the text. The authors identified and dated Paleozoic rock units by studying nearly 100 carbonate conodont samples and at least 50 collections of conodonts on siltstone bedding planes; they also redated Tertiary volcanic rocks and evaluated mineral and petroleum resources.

SPE517, 104 p. + 2 plates, ISBN 9780813725178 | original list \$55.00 | \$40.00 | member price \$28.00



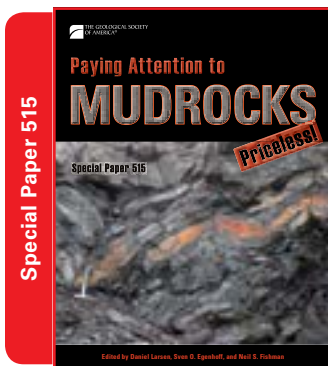
Special Paper 516

■ Caves and Karst Across Time

Edited by Joshua M. Feinberg, Yongli Gao, and E. Calvin Alexander Jr., 2016

Understanding of cave and karst systems evolved dramatically since the creation of the Geological Society of America in 1888. Caves are now recognized as important geological features and karst as a distinctive and significant geologic system that covers about 20% of Earth's land surface. Karst aquifers are the world's most productive yet vulnerable groundwater systems, serving as the sole or primary water supply for about a billion people. Karst systems have evolved dynamically across time, reflecting changes in climate and regional tectonism, and the crustal scale hydrologic responses invoked by these processes. We are now aware of the complexity of groundwater flow within karst and epikarst systems, and are striving to link our understanding of such heterogeneous flow processes to contamination studies and hazard assessment. This volume highlights the changes in the study and application of cave and karst systems since GSA's origin, while looking to the future.

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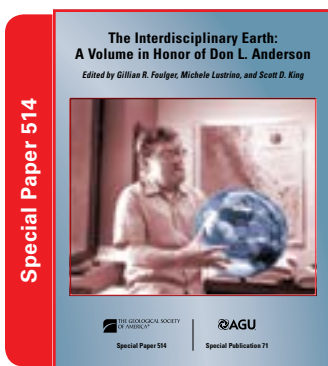
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■ Paying Attention to Mudrocks: Priceless

Edited by Daniel Larsen, Sven O. Egenhoff, and Neil S. Fishman, 2015

Siliciclastic mudrocks, often termed shales, represent more than two thirds of all sedimentary rocks on Earth, yet they are probably the least understood. This volume brings together current research of academic and industry importance that helps clarify key aspects of sedimentology, mineralogy, origin, and resource distribution in mudrocks.

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■ The Interdisciplinary Earth: A Volume in Honor of Don L. Anderson

Edited by Gillian R. Foulger, Michele Lustrino, and Scott D. King, 2015
Copublished with the American Geophysical Union as AGU Special Publication 71

This volume is a memorial to Don L. Anderson, former director of the Seismological Laboratory of the California Institute of Technology, recipient of the Crafoord Prize, the National Medal of Science, and numerous other awards. A geophysicist extraordinaire, he contributed much to our understanding of the structure and dynamics of the interior of Earth. This book, comprised largely of chapters written at Anderson's invitation, reflects his interdisciplinary career. It includes papers on anisotropy, the seismic structure of the mantle, mantle convection, the statistics of melting anomalies, planetary geology, tectonics, the thermal budget of Earth, lithospheric structure, geochemistry, and flood basalts.

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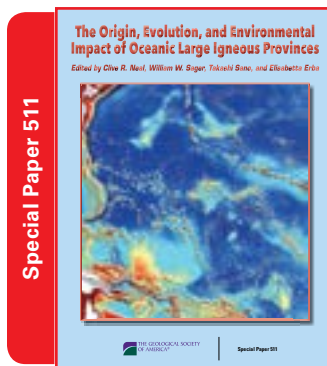
Special Paper 513

■ Late Jurassic Margin of Laurasia—A Record of Faulting Accommodating Plate Rotation

Edited by T.H. Anderson, A.N. Didenko, C.L. Johnson, A.I. Khanchuk, and J.H. MacDonald Jr., 2016

Fast-paced and complex extensional and contractional deformation, between 170 and 148 Ma, along the margin of Laurasia coincides with ocean-floor formation within basins, such as the central Atlantic, the Gulf of Mexico, and the southern Caspian Sea. Along the western margin of North America, numerous basins that formed in the Middle Jurassic and continued throughout the Late Jurassic are kinematically compatible with sinistral strike-slip fault movement, suggesting a transtensional origin. Comparable basins are postulated to have developed in Russia, Mongolia, China, and Iran. Domains of contractional deformation, attributed to transpression, such as the Blue Mountains (Oregon, USA) and the Chersky collision belt (Siberia, Russia), interrupt the belt of Late Jurassic basins. The tectonic evolution that is characterized by linkages among faults and related structures along the margin of the Laurasian plate may be interpreted as recording plate rotation during the breakup of Pangea.

SPE513, 606 p. + plate + DVD, ISBN 9780813725130 | original list \$120.00 | \$80.00 | member price \$56.00



Special Paper 511

■ The Origin, Evolution, and Environmental Impact of Oceanic Large Igneous Provinces

Edited by Clive R. Neal, William W. Sager, Takashi Sano, and Elisabetta Erba, 2015

The origin, evolution, and environmental impact of large igneous provinces (LIPs) represent a topic of high scientific importance because the magmatism associated with these features cannot be directly related to plate tectonics, and because the eruption of flood basalts may have global environmental consequences. Oceanic LIPs are even more poorly understood due to their relative inaccessibility. This volume takes a multidisciplinary approach to understanding LIP origin, evolution, and environmental impact in ocean basins. Papers that focus on plate tectonic reconstructions, petrologic and geophysical investigations of various LIPs, and sedimentological and micropaleontological evidence of syn-LIP sediments are presented. Precious materials and data from dredging cruises and scientific ocean drilling expeditions have made this volume possible.

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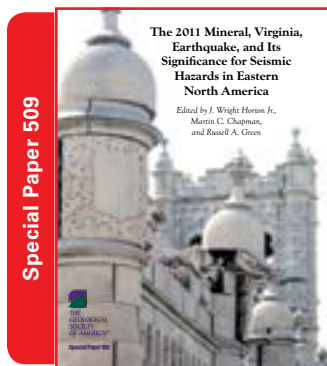
Special Paper 510

■ East European Craton: Early Precambrian History and 3D Models of Deep Crustal Structure

By Michael V. Mints et al., 2015

The results of regional geological study and geophysical surveying, including interpretation of common midpoint seismic geotraverses, bear new information on 3D deep crustal structure and geological history of the early Precambrian East European craton. In addition, new geochemical, petrological, and geochronological data on the unique Mesoarchean-Neoproterozoic Belomorian eclogite province are presented. The authors conclude that regional granulite-gneiss belts are evidence for mantle plume activity. Oval intracontinental orogens (a new type of tectonic unit) were also formed under the influence of mantle plumes. The Archean tectonics of miniplates resembles the Phanerozoic plate tectonics more closely than the concept of Neoproterozoic-Paleoproterozoic supercontinents. Geological, tectonic, and petrophysical maps and seismic cross sections covering more than 4000 km in total length, as well as their geological interpretations, are presented as appendices.

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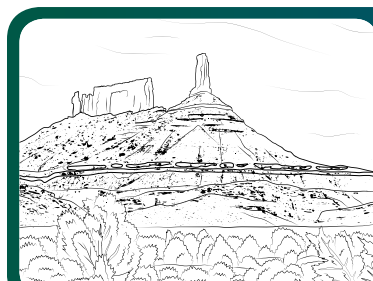
Special Paper 509

■ The 2011 Mineral, Virginia, Earthquake, and Its Significance for Seismic Hazards in Eastern North America

Edited by J. Wright Horton Jr., Martin C. Chapman, and Russell A. Green, 2015

The magnitude ~5.8 Mineral earthquake of 2011 was the largest to occur in the Appalachian region in >100 years. It was felt over much of the eastern United States and southeastern Canada, caused significant damage from central Virginia to Washington, D.C., and was responsible for the automatic shutdown of a nuclear power station. It renewed interest in earthquake processes, hazards, and preparedness along the Eastern Seaboard, and responses of the science and engineering communities to this rare event serve as models for future responses. The earthquake provided important new data that contribute to the understanding of earthquakes in eastern North America and to better assessment and mitigation of seismic hazards. This volume makes these results available for those interested in understanding earthquakes and seismic hazards in intraplate settings.

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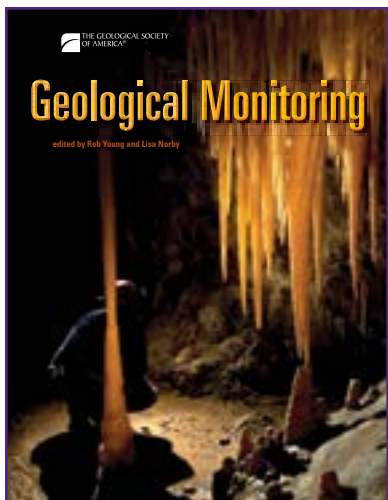


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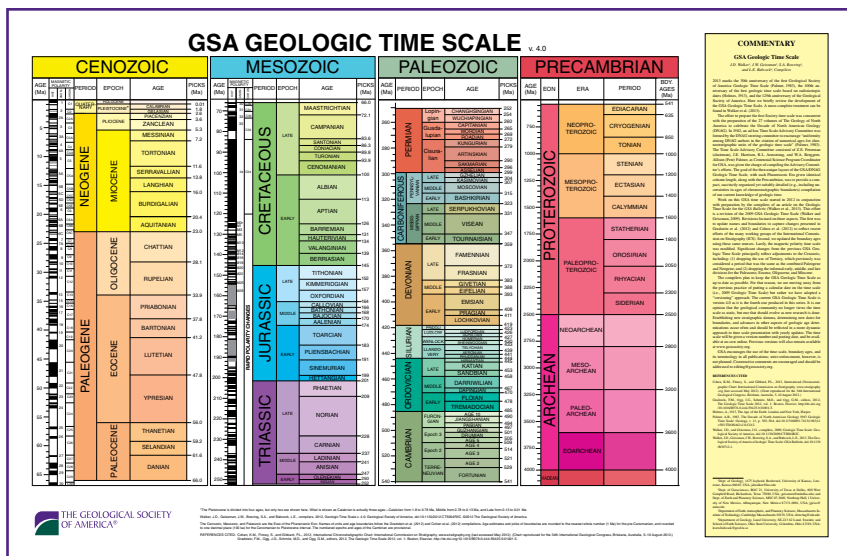
Geological Monitoring

Edited by Rob Young and Lisa Norby, 2009

Geological Monitoring is a practical, nontechnical guide for land managers, educators, and the public that synthesizes representative methods for monitoring short-term and long-term change in geologic features and landscapes. A prestigious group of subject-matter experts has carefully selected methods for monitoring sand dunes, caves and karst, rivers, geothermal features, glaciers, nearshore marine features, beaches and marshes, paleontological resources, permafrost, seismic activity, slope movements, and volcanic features and processes. Each chapter has an overview of the resource; summarizes features that could be monitored; describes methods for monitoring each feature ranging from low-cost, low-technology methods (that could be used for school groups) to higher-cost, detailed monitoring methods requiring a high level of expertise; and presents one or more targeted case studies.

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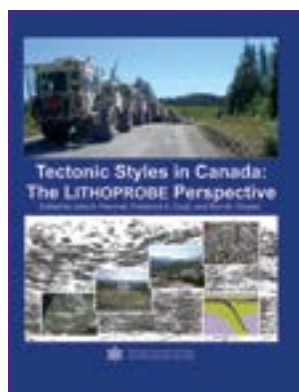


Geologic Time Scale Poster v. 4.0

Compiled by J.D. Walker, J.W. Geissman, S.A. Bowring, and L.E. Babcock, 2012

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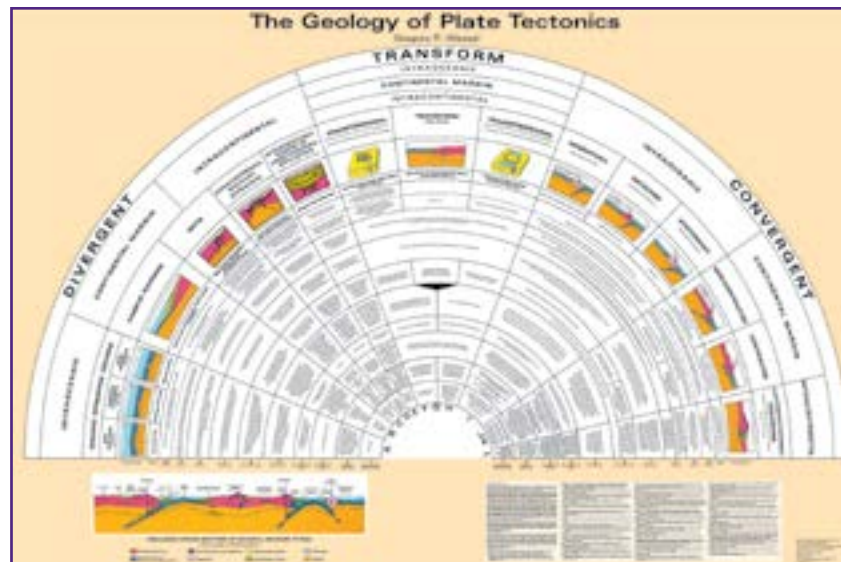


Tectonic Styles in Canada: The LITHOPROBE Perspective

Edited by John A. Percival, Frederick A. Cook, and Ron M. Clowes, 2012

This volume (Special Paper 49 from the Geological Association of Canada) provides an in-depth overview of most of the major scientific results deriving from the LITHOPROBE project, Canada's 20+ year national research project in the earth sciences.

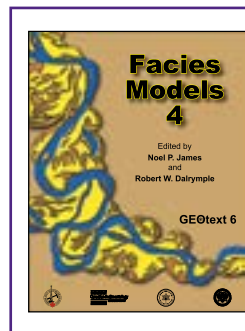
LPROBE, 512 p., ISBN 9781897095607 | original list \$95.00 | now \$40.00 |



The Geology of Plate Tectonics

Compiled by Gregory R. Wessel. This chart belongs in every geology classroom and lab! Printed in full-color, it attempts to organize the types of plate boundaries and displays them in a useful graphic form. The chart describes geologic features with each type. Sheet is 36" x 53" (folded only).

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Facies Models 4

Edited by Noel P. James and Robert W. Dalrymple, 2010

The essential volume on sedimentary succession interpretation, this full-color textbook by the Geological Association of Canada incorporates the enormous advances in our understanding of depositional environments since the last edition (1992). Written for the advanced undergraduate- to graduate-student level, this book is accessible to anyone with an interest in sedimentary environments.

GACGT6, 575 p. plus index, ISBN 9781897095508 | \$100.00 | member price \$85.00 |



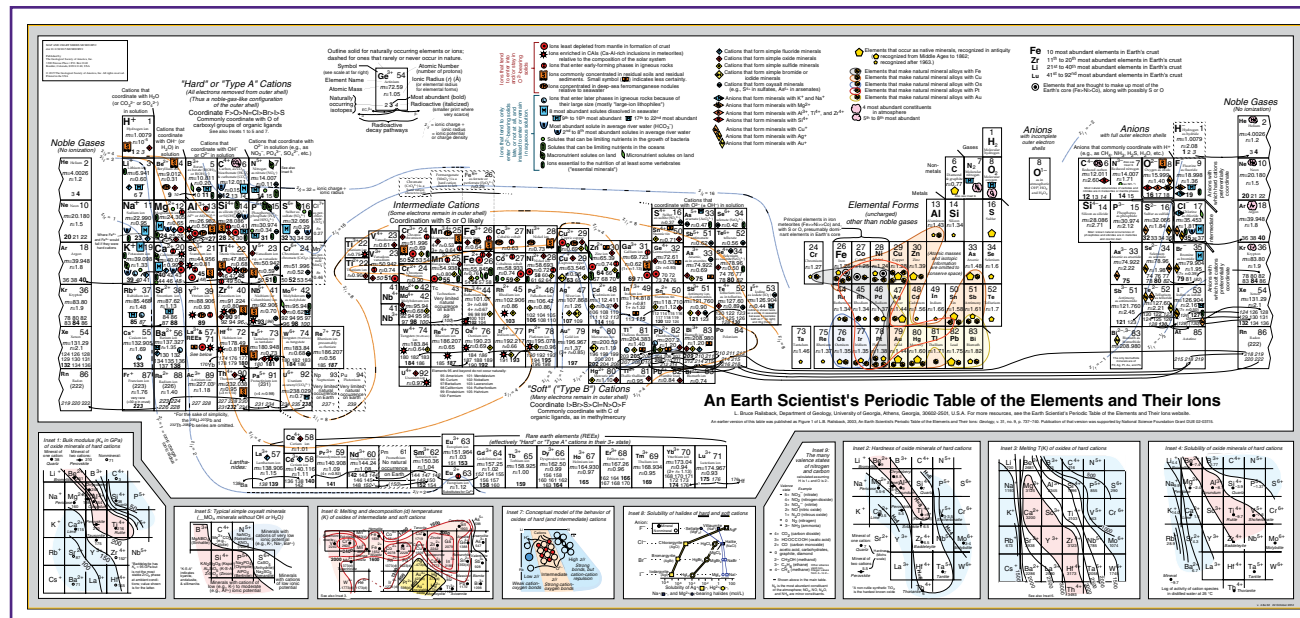
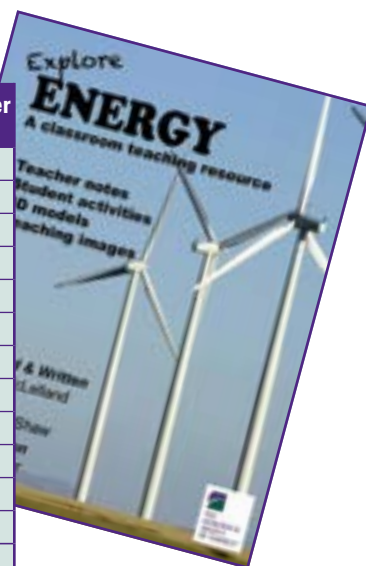
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By L. Bruce Railsback, 2015. This periodic table is designed to contextualize trends in geochemistry, mineralogy, aqueous chemistry, and other natural sciences. First published as an insert in the September 2003 issue of Geology, this version is updated and supersized—36" x 76"!

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