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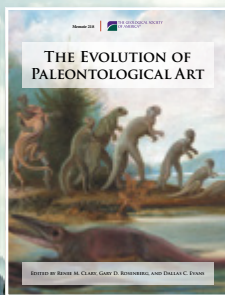
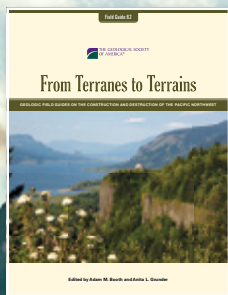
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Field Guide 66

Field Guide 66

Field Excursions to the Appalachian Plateaus and the Valley and Ridge for GSA Connects 2023

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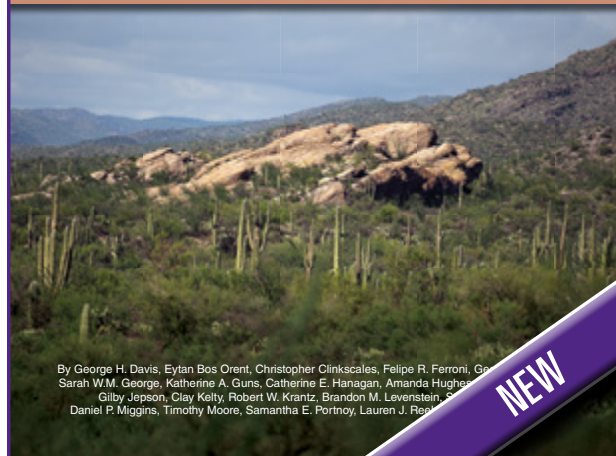
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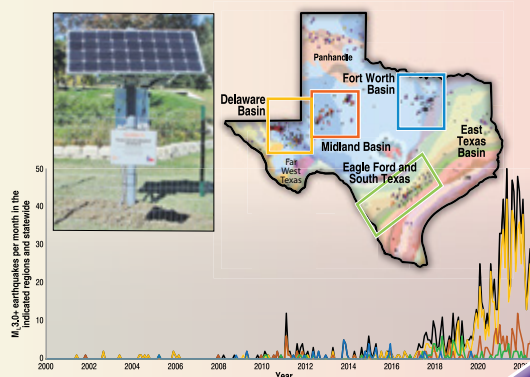
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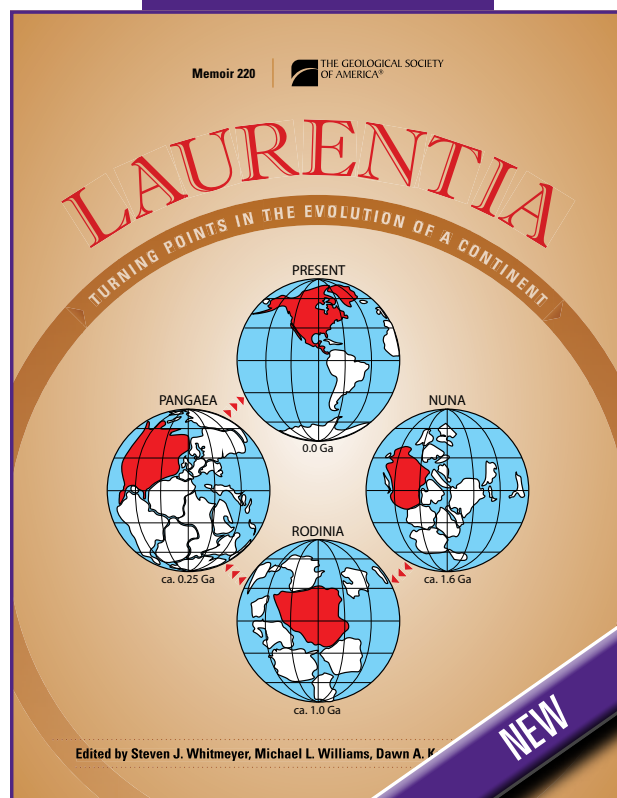
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Edited by Steven J. Whitmeyer, Michael L. Williams, Dawn A. Kellett, and Basil Tikoff, 2023

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This volume pays tribute to the great career and extensive and varied scientific accomplishments of Walter Alvarez, on the occasion of his 80th birthday in 2020, with a series of papers related to the many topics he covered in the past 60 years: Tectonics of microplates, structural geology, paleomagnetism, Apennine sedimentary sequences, geoarchaeology and Roman volcanics, Big History, and most famously the discovery of evidence for a large asteroidal impact event at the Cretaceous–Tertiary (now Cretaceous–Paleogene) boundary site in Gubbio, Italy, 40 years ago, which started a debate about the connection between meteorite impact and mass extinction. The manuscripts in this Special Paper were written by many of Walter's close collaborators and friends, who have worked with him over the years and participated in many projects he carried out. The papers highlight specific aspects of the research and/or provide a summary of the current advances in the field.

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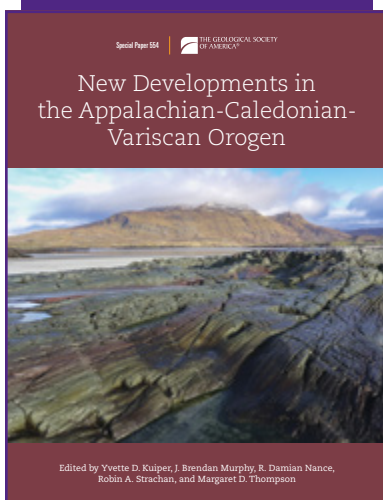
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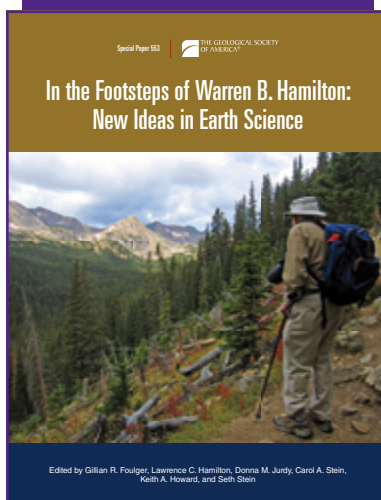
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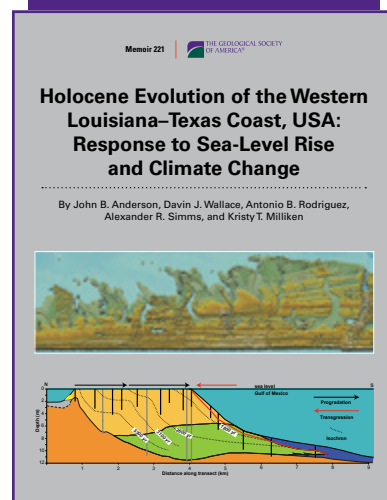
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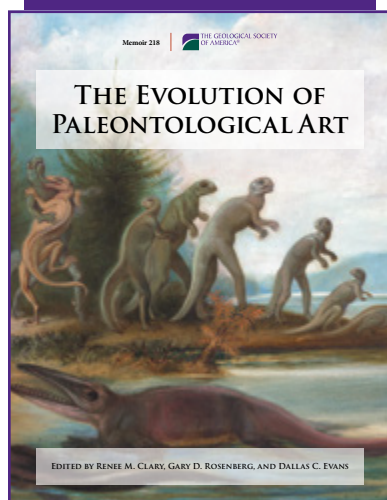
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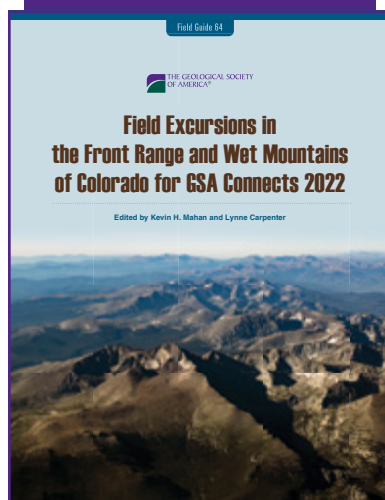
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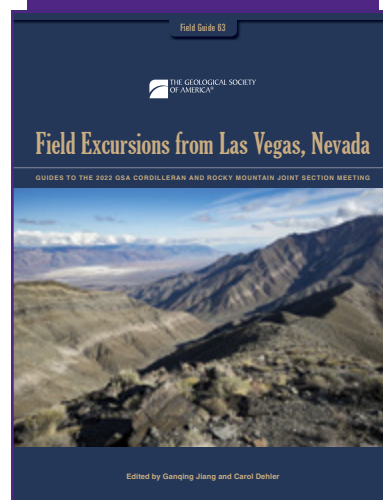
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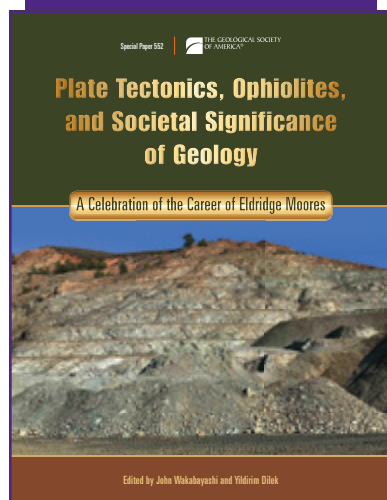


Plate Tectonics, Ophiolites, and Societal Significance of Geology: A Celebration of the Career of Eldridge Moores

Edited by John Wakabayashi and Yildirim Dilek, 2021

This volume honors Eldridge Moores, one of the most accomplished geologists of his generation. The volume starts with a summary of Moores' achievements, along with personal dedications and memories from people who knew him. Leading off the volume's 12 chapters of original scientific contributions is Moores' last published paper that presents an example of the Historical Contingency concept, which suggested that earlier subduction history may result in supra-subduction zone geochemical signatures for some magmas formed in non-subduction environments. Other chapters highlight the societal significance of geology, the petrogenesis of ophiolites, subduction zone processes, orogenic belt evolution, and other topics, covering the globe and intersecting with Moores' interests and influences.

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Biostratigraphy, Age, and Paleoenvironment of the Pliocene Beaufort Formation on Meighen Island, Canadian Arctic Archipelago

By R.W. Barendregt, J.V. Matthews Jr., V. Behan-Pelletier, J. Brigham-Grette, J.G. Fyles, L.E. Owendon, D.H. McNeil, E. Brouwers, L. Marinovich, N. Rybczynski, and T.L. Fletcher, 2021

The Beaufort Formation records extraordinary details of Arctic environments and amplified temperatures at approximately modern levels of atmospheric CO₂. It was deposited during the Neogene on the western side of what is now the Canadian Arctic Archipelago. Meighen Island is a key locality for studying this formation because marine sediments there are interbedded with terrestrial fossiliferous sands. The biostratigraphic succession, fossils from the marine beds, and paleomagnetic data from the Bjaere Bay region of the island suggest two potential ages for the studied exposures: either continuous deposition at ca. 3.0 Ma, or a sequence of deposits at ca. 4.5 Ma and 3.4 Ma. The sediments appear to encompass at least two eustatic highstands of sea level and a particularly warm climate interval of the Pliocene Arctic.

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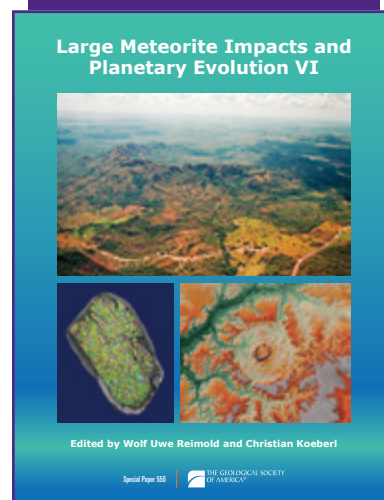
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Large Meteorite Impacts and Planetary Evolution VI

Edited by Wolf Uwe Reimold and Christian Koeberl, 2021

This volume represents the proceedings of the homonymous international conference on all aspects of impact cratering and planetary science, which was held in October 2019 in Brasília, Brazil. The volume contains a sizable suite of contributions dealing with regional impact records (Australia, Sweden), impact craters and impactites, early Archean impacts and geophysical characteristics of impact structures, shock metamorphic investigations, post-impact hydrothermalism, and structural geology and morphometry of impact structures—on Earth and Mars. Many contributions report results from state-of-the-art investigations, for example, several that are based on electron backscatter diffraction studies, and deal with new potential chronometers and shock barometers (e.g., apatite). Established impact cratering workers and newcomers to the field will appreciate this multifaceted, multidisciplinary collection of impact cratering studies.

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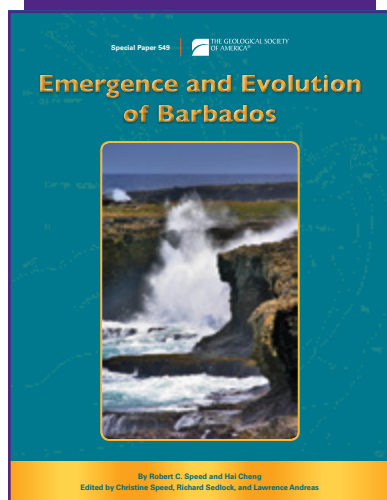
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Emergence and Evolution of Barbados

*By Robert C. Speed and Hai Cheng;
edited by Christine Speed, Richard
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Emergence and Evolution of Barbados is a three-part analysis of the Quaternary geologic and geomorphologic evolution of the island of Barbados in the southeastern Caribbean. "Geology of Southeastern Barbados" assembles and integrates detailed observations into a complex 700 k.y. history of marine sculpting and riverine flooding processes. "Marine Terrace Evolution of Windward Barbados" revises the Quaternary stratigraphy of the island, describes the tectonics of emergence, and demonstrates that uplift rates vary by location. "Active Emergence, Chronology, and Limestone Facies in Southeastern Windward Barbados" is the first comprehensive study to integrate marine erosion and deposition with tectonic uplift rates. Major findings of this work are that Barbados' Central Highlands are an erosional remnant, and that terraces originated principally by marine erosion rather than by reef construction.

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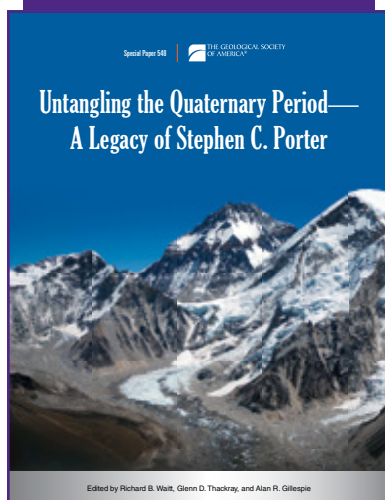
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*Edited by Richard B. Waitt, Glenn D.
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Stephen C. Porter was an international leader in Quaternary science for several decades, having worked on most of the world's continents and having led international organizations and a prominent interdisciplinary journal. His work influenced many individuals, and he played an essential role in linking Chinese Quaternary science with the broader international scientific community. This volume brings together 19 papers of interdisciplinary Quaternary science honoring Porter. Special Paper 548 features papers from six continents, on wide-ranging topics including glaciation, paleoecology, landscape evolution, megafloods, and loess. The topical and geographical range of the papers, as well as their interdisciplinary nature, honor Porter's distinct approach to Quaternary science and leadership that influences the field to this day.

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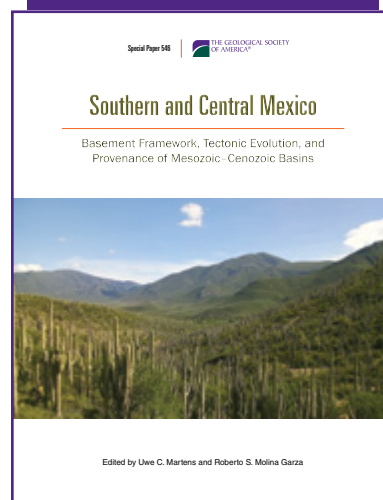
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This volume furthers our understanding of key basins in central and southern Mexico, and establishes links to exhumed sediment source areas in a plausible paleogeographic framework. Authors present new data and models on the relations between Mexican terranes and the assembly and breakup of western equatorial Pangea, plate-tectonic and terrane reconstructions, uplift and exhumation of source areas, the influence of magmatism on sedimentary systems, and the provenance and delivery of sediment to Mesozoic and Cenozoic basins. Additionally, authors establish relationships between basement regions (sediment source) in the areas that supplied sediment to Mesozoic rift basins, Late Cretaceous foreland systems, and Cenozoic basins developed in response to Cordilleran events.

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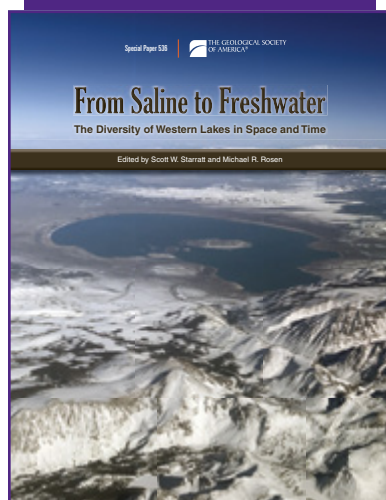
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*Edited by Scott W. Starratt and
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Beginning with the nineteenth-century territorial surveys, the lakes and lacustrine deposits in what is now the western United States were recognized for their economic value to the expanding nation. In the latter half of the twentieth century, these systems have been acknowledged as outstanding examples of depositional systems serving as models for energy exploration and environmental analysis, many with global applications in the twenty-first century. The localities presented in this volume extend from exposures of the Eocene Green River Formation in Utah and Florissant Formation in Colorado, through the Pleistocene and Holocene lakes of the Great Basin to lakes along the California and Oregon coast. The chapters explore environmental variability, sedimentary processes, fire history, the impact of lakes on crustal flexure, and abrupt climate events in arid regions, often through the application of new tools and proxies.

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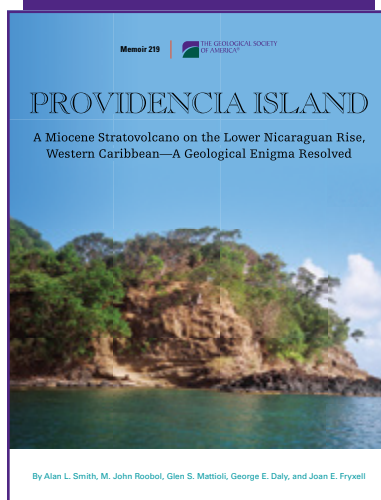
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*By Alan L. Smith, M. John Roobol, Glen
S. Mattioli, George E. Daly, and Joan E.
Fryxell, 2021*

Providencia is the only example of sub-aerial volcanism on the Lower Nicaraguan Rise. In this volume, the authors examine this volcanism and the geological history of the western Caribbean and the Lower Nicaraguan Rise, whose origin and role in the development of the Caribbean plate has been described as enigmatic and poorly understood. While the Providencia alkaline suite is similar to others within the Western Caribbean Alkaline Province, its subalkaline suite is unique, having no equivalent within the province. In order to unravel its complex history and evolution, this volume presents new and previously published results for the geology, geochemistry, petrology, and isotopic ages from the Providencia island group.

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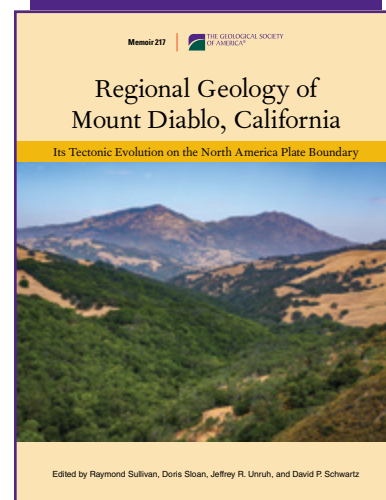
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Regional Geology of Mount Diablo, California: Its Tectonic Evolution on the North America Plate Boundary

*Edited by Raymond Sullivan, Doris Sloan,
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2021*

Mount Diablo and the geology of the Central California Coast Ranges are the subject of a volume celebrating the Northern California Geological Society's 75th anniversary. The breadth of research illustrates the complex Mesozoic to Cenozoic tectonic evolution of the plate boundary. Recent faulting and folding along the eastern edge of the San Andreas system have exposed in the mountain a core of Franciscan accretionary wedge complex faulted against Cretaceous and Cenozoic forearc strata. The Memoir includes papers on structure, stratigraphy, tephrochronology, zircon provenance studies, apatite fission track analyses, and foraminifera and calcareous plankton assemblages tied to Cenozoic climate events. Chapters also address the history of geologic work in the area and the resource development of oil and gas, mercury, coal, sand, and road aggregate.

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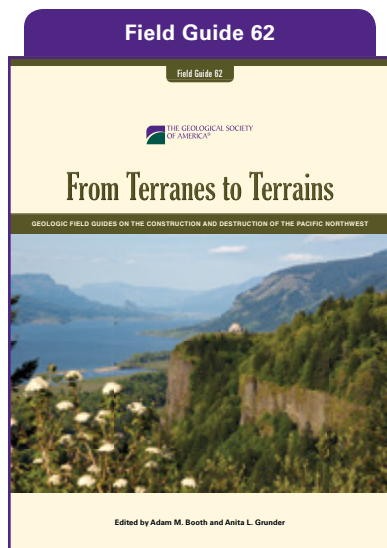
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From Terranes to Terrains: Geologic Field Guides on the Construction and Destruction of the Pacific Northwest

Edited by Adam M. Booth and Anita L. Grunder, 2021

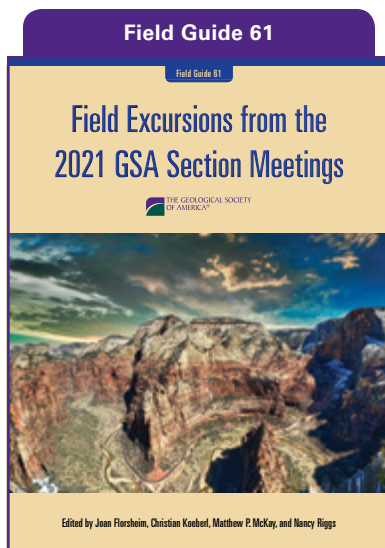
The eight field trips in this volume, associated with GSA Connects 2021 held in Portland, Oregon, USA, reflect the rich and varied geological legacy of the Pacific Northwest. The western margin of North America has had a complex subduction and transform history throughout the Phanerozoic, building a collage of terranes. The terrain has been modified by Cenozoic sedimentation, magmatism, and faulting related to Cascadia subduction, passage of the Yellowstone hot spot, and north and westward propagation of the Basin and Range province. The youngest flood basalt province on Earth also inundated the landscape, while the mighty Columbia watershed kept pace with arc construction and funneled epic ice-age floods from the craton to the coast. Additional erosive processes such as landslides continue to shape this dynamic geological wonderland.

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*Edited by Joan Florsheim,
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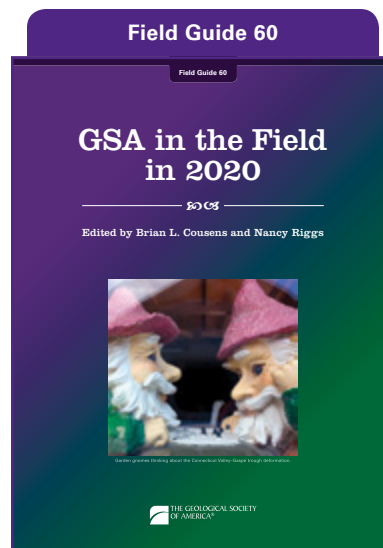
The 2021 GSA Northeastern, Southeastern, joint North-Central/South-Central, and Cordilleran Section Meetings were held virtually in spring 2021 during continued restrictions on travel and large gatherings due to COVID-19. Eleven groups put together field guides, taking participants on treks to states from Connecticut to Nevada in the United States, to Mexico, and to Italy, and covering topics as varied as bedrock geologic mapping, geochemistry, paleodrainage, barrier islands, karst, spring systems, a southern Appalachian transect, Ordovician and Mississippian stratigraphy, high-energy events, Cretaceous arc granites and dextral shear zones, and Mesoproterozoic igneous rocks. This volume serves as a valuable resource for those wishing to discover, learn more about, and travel through these geologically fascinating areas.

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Edited by Brian L. Cousens and Nancy Riggs, 2021

COVID-19 made for a highly unusual year as it affected almost every facet of life. The pandemic made gathering and visiting the field nearly impossible as we quarantined and moved into virtual spaces. Three groups submitted guides for publication during the height of the pandemic: two for trips that would have taken place during the GSA Annual Meeting in Montréal, Canada, and one from the Rocky Mountain Section Meeting in Provo, Utah, USA. Readers will enjoy these journeys to the Ottawa aulacogen/graben on the Northeast U.S.–Canadian border; the southern Québec Appalachians; and Lake Bonneville, the Wasatch Range, and Great Salt Lake in Utah.

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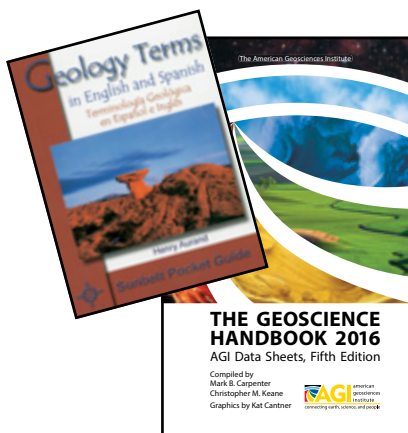


Geology Terms in English and Spanish/Terminología Geológica en Español e Inglés

By Henry Aurand, 2000

Whether you're an armchair geologist or a seasoned professional, this pocket guide, which contains over 2400 terms, is a handy reference for describing physical science vocabulary in Spanish and English. Published by Sunbelt Publications.

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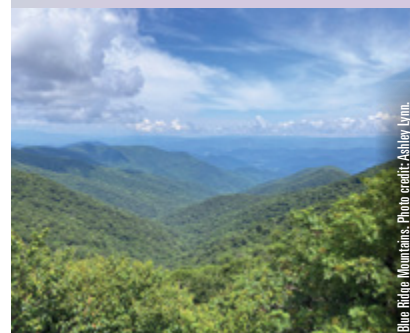
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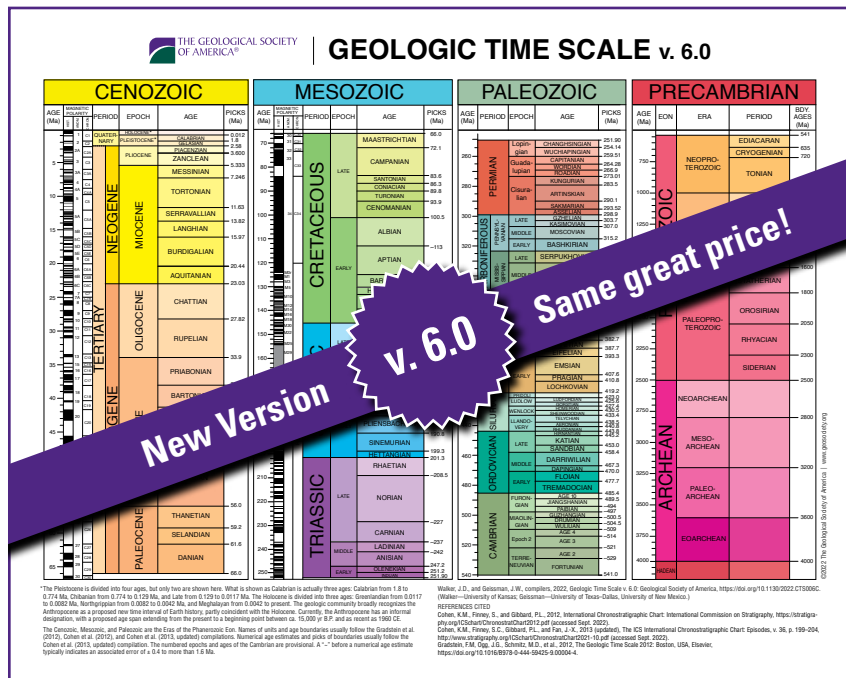
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The Grand Canyon Trail of Time Companion

By Karl Karlstrom and Laura Crossey

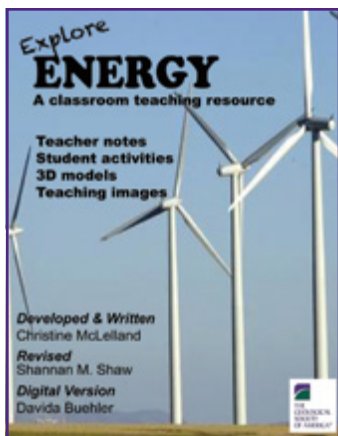
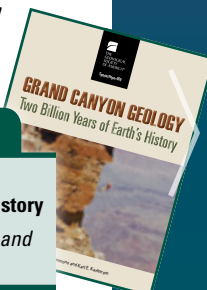
The creators of the "Trail of Time" exhibition at Grand Canyon have published this guide to the exhibit to enhance your walk along the accessible Rim Trail from Grand Canyon Village to Yavapai Geology Museum. Families, groups, and individuals will find activities in the guide that combine sight-seeing, learning, challenges, and adventure. Be sure to take a copy of this guide along on your trip to Grand Canyon, and find out for yourself why it won the 2011 first place award from the National Association for Interpretation.

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 (Published by Trail of Time Publishers.)

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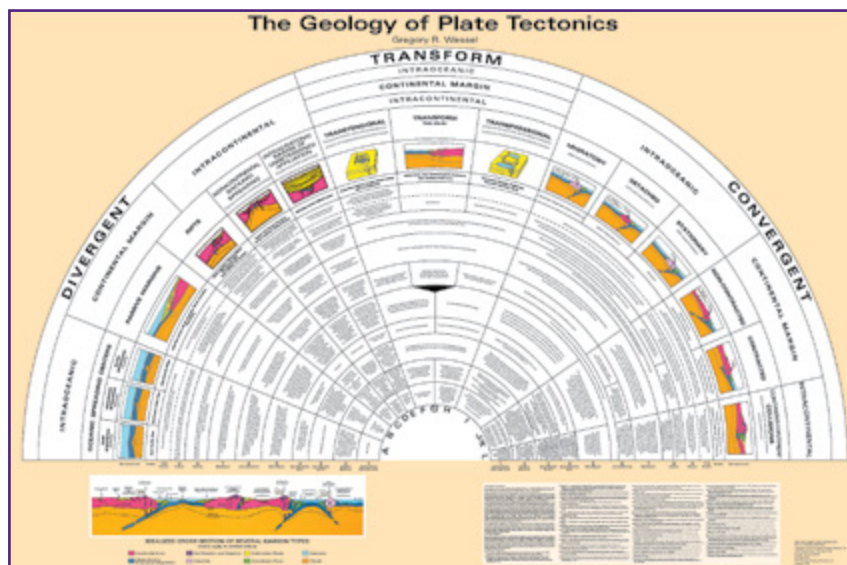


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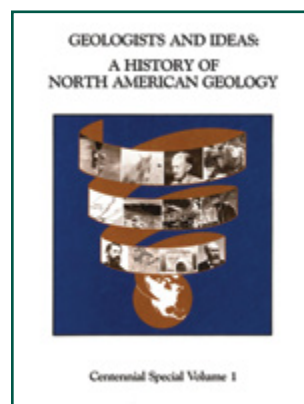
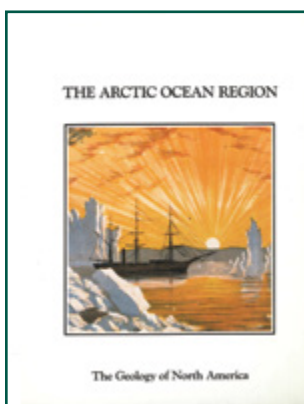
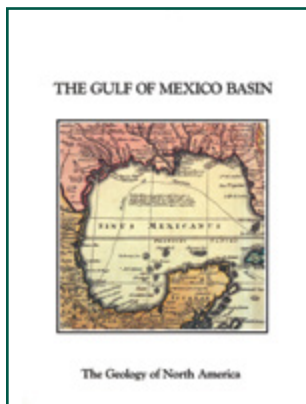
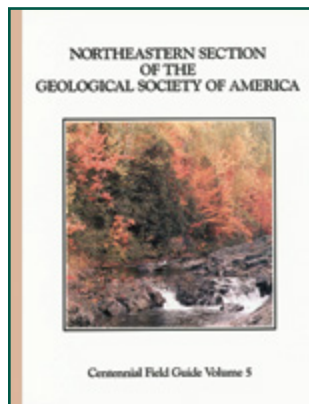
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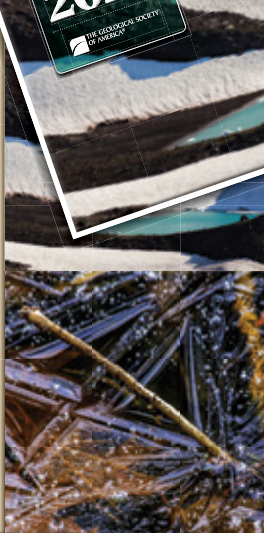
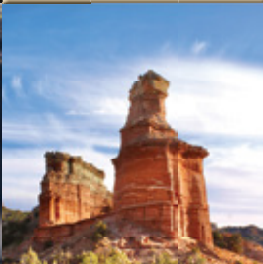
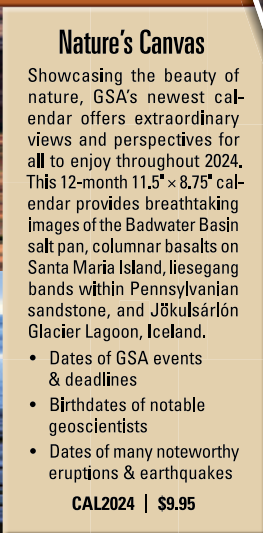
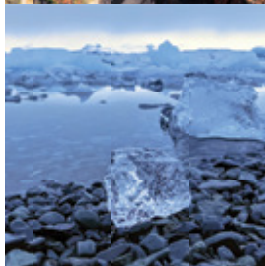


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