A second edition of one of the most popular books published by KGS is now available. *Exploring the Geology of the Cincinnati/Northern Kentucky Region*, written by University of Cincinnati geology professor emeritus Paul E. Potter, was first published in 1996. The 128-page book is intended for “amateurs, civil engineers, geographers, geologists, planners, architects, and teachers from grade school through university—a broad, diverse audience,” according to the book’s preface. Heavily illustrated with photos and graphics, it examines the geologic history of the 11-county region as well as the contemporary landscape, soils and sedimentation, geologic hazards, and groundwater, among other topics. Numerous references and “Digging Deeper” sections direct readers to sources of additional information on regional geology.

“I like to refer to Dr. Potter as KGS’s best unpaid employee,” says Jim Cobb, Kentucky’s state geologist and KGS director. “He combines a vast knowledge of the geology of the region with boundless enthusiasm for sharing it with others.”

“Paul Potter is well known in his field,” says UC Department Chair Arnold Miller. “Despite no longer teaching classes, he’s very engaged in working, traveling, and writing technical papers. There’s nothing he’d rather be doing than geology. He loves it.”

About half of the 87 illustrations in the book have been updated, and the text reflects the better understanding geologists now have about the region’s geology, both at the surface and below. “I hope the book demonstrates to more people that, if you understand geology, you can use it to save many social and municipal mistakes. In other words, build with awareness of geology to forestall future problems,” says Potter.

Besides crediting other researchers and the UC Geology Department for their support, Potter says he’s indebted to the Kentucky, Ohio, and Indiana Geological Surveys for much of the material that went into the book. In addition, local geological and engineering organizations and companies contributed to the publication costs of the book.

The new edition of *Exploring the Geology of the Cincinnati/Northern Kentucky Region* is available for $10 plus shipping from the KGS Public Information Center at (859) 257-3896 or toll-free at (877) 778-7827.

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Two of the major annual events sponsored by KGS again drew large crowds of participants in April. About 120 people filled the seminar room to capacity on the first floor of the Mining and Mineral Resources Building for the fifth Donald C. Haney Distinguished Lecture on April 19. Texas State Geologist Scott W. Tinker spoke on the topic of world energy in a presentation entitled “The Global Energy Scene: An Energy, Economy, Environmental Waltz.” Tinker examined historic trends in energy use, as well as the expectations for future needs of coal, natural gas, nuclear, and other energy sources. He also commented on the costs and technical obstacles of the transition away from hydrocarbon-based fuels. His talk drew listeners from the University of Kentucky campus community as well as other higher-education campuses in the state, along with geologists and related professionals in the region.

Tinker, who is the current president of the Association of American State Geologists, spent 18 years working in the oil and gas industry and is a former AAPG and SPE Distinguished Lecturer and current AAPG International Distinguished Ethics Lecturer. He noted that coal continues to play a major part in the “energy equation” in the United States and worldwide. “When you think about choices that are being made and decisions...”

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about energy, it’s small wonder that coal is part of that mix,” Tinker said. “It has to be. It’s a huge resource, a huge reserve, and we’re talking about how to use it more wisely now than we have in the past.”

An audience of over 130 people attended the 47th KGS Annual Seminar at the Survey’s Well Sample and Core Library the following morning. The theme for this year’s seminar was Geology and Public Policy, as State legislative and executive branch officials, KGS researchers, and a private consultant discussed geologic and public policy issues in the energy and water-supply fields.

Kentucky House Majority Leader Rocky Adkins, of Sandy Hook, spoke about energy legislation introduced in the General Assembly and his view of Kentucky’s role in national energy policy.

John Byrnes, a consultant with Castlebar Petroleum, told his listeners about the planned development of heavy oil reserves in Edmonson, Warren, and Butler Counties. The executive director of the Governor’s Office of Energy Policy, Talina Matthews, discussed the State’s energy policy.

Two KGS section heads, Dave Harris and Jim Dinger, summarized the major research efforts by their staff in the energy and water fields. KGS director Jim Cobb finished the morning sessions with a look at the future of coal.

During the afternoon, KGS staff demonstrated new capabilities of the Survey’s large online water, oil, and coal databases as well as the GIS and mapping tools available on the KGS Web site.

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**KGS people**

**Dan Carey** is the recipient of the 2007 Geologist of the Year award presented by the Kentucky Section of the American Institute of Professional Geologists. The award, given since 1997, recognizes a person in its profession who has played a substantial role in benefitting the geologic community or the citizens of Kentucky with the work done the previous year.

Carey, of Versailles, has been developing a county map series, “Generalized Geologic Maps for Land-Use Planning,” intended to inform land-use planners, local officials, and the public about geologic conditions that affect the selection of sites for various development purposes. He also spearheaded the compilation of a set of 120 county groundwater resource reports.

This year’s award was presented at the Kentucky Section–AIPG spring field trip and awards banquet at the Blue Licks Battlefield State Resort Park on May 12.

**Carrie Pulliam**, who joined KGS in October 2003, has moved from the Survey’s office in Henderson to the main office on the University of Kentucky campus in Lexington. As a geologic technician in the Henderson office, she responded to requests from energy exploration companies and the general public for oil and gas well records. She also spent several years sorting and cataloging a collection of regional oil and gas well data donated by the University of Southern Indiana to KGS.

Carrie moved to Lexington in January. In her new position in the Geoscience Information Section, she is helping with scanning oil and gas well documents for the online database and correcting database errors. Eventually, she will become more heavily involved with the operation and oversight of the database, which currently includes about 154,000 well records covering almost 190 years of drilling activity.

**Jim Drahovzal** of the Energy and Minerals Section received a Distinguished Service Award from the Division of Professional Affairs of the American Association of Petroleum Geologists in April. The award, recognizing Drahovzal “for many years of dedicated service,” was presented at the annual AAPG meeting in Long Beach, Calif. Drahovzal retired as head of the Energy and Minerals Section in September 2006 after serving nearly 18 years in that position. During his service to KGS, he had worked in collaboration with geologists from surrounding states on a variety of projects, from research on the East Continent Rift Basin to developing Kentucky’s submission for the FutureGen project. He continues to work part-time on a number of Survey projects.
Plans for ES-AAPG annual meeting progressing

The technical program and workshop schedule has been set, field trips organized, and dozens of papers submitted for the Eastern Section–AAPG meeting, scheduled for September in Lexington. The workshops will include training on Petra and Geographix software, enhanced oil recovery, and the AAPG code of ethics, among other topics. Participants will be able to choose from field trips to view the Kentucky River Palisades, Mammoth Cave, the Eastern Kentucky Coal Field, and a K-12 teachers workshop in the Louisville area.

Among more recent additions to the agenda is a “Devonian Shalebration,” a display of Devonian organic-rich shale cores from the Appalachian, Illinois, and Michigan Basins. A luncheon has been added to the Tuesday, September 18, agenda featuring KGS Director Jim Cobb, who will speak on the results of a soon-to-be-released coal study by the National Research Council.

<table>
<thead>
<tr>
<th>Schedule for Eastern Section AAPG Meeting, Lexington, Ky. (see <a href="http://www.esaapg07.org">www.esaapg07.org</a> for details)</th>
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<tr>
<td><strong>Saturday</strong>&lt;br&gt;Sep. 15</td>
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<tr>
<td>8 a.m.–5 p.m. Petra software workshop</td>
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<tr>
<td>7:30 a.m.–11 p.m. Field trip: Mammoth Cave National Park</td>
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<td>8 a.m.–5 p.m. Teacher workshop</td>
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<td>6–8 p.m. Student Job Quest</td>
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<td>5–9 p.m. Icebreaker</td>
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Federal, State grants fund new mapping projects

Geologic mappers at KGS will stay busy both in the field and the office, with new grants and increased funding from the U.S. Geological Survey and the Kentucky Transportation Cabinet. The STATEMAP program funding from the USGS grew from $197,000 last fiscal year to $234,000 for the current year.

“We have to give credit to the KGS Advisory Board for offering some good suggestions that we included in our grant proposals to both USGS and KTC,” says geologist Drew Andrews, who oversees geologic mapping in the KGS Geospatial Analysis Section. “Both agencies liked the ideas and rewarded us with funding to carry them out.” Members of the Advisory Board held a special meeting.

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Members of the KGS mapping group, Tom Sparks, Drew Andrews, Ron Counts, and Mike Murphy, look over draft maps during a field trip to the Henderson area earlier this year.
KGS staff explores the expanded Lake Cumberland shoreline

The 40-foot reduction of the level of Lake Cumberland in southeastern Kentucky gives geologists an opportunity to examine rock formations that have not been easily visible for almost 30 years. The U.S. Army Corps of Engineers has lowered the lake for repairs on Wolf Creek Dam, and formations that are normally underwater are now exposed to view. In early May, eight Survey staff members took a boat trip to view some of the outcrops of the Fort Payne Formation along the steep banks of the lake. The Fort Payne is noted for its complex internal stratigraphy, consisting of deeper-water shales, crinoid-bryozoan bioherms, submarine channels, and slumps. The formation is responsible for oil reservoirs tapped by hundreds of oil wells in this region of the state.

Above left, John Hickman of the Energy and Minerals Section looks up at layers of rock normally hidden from view by the waters of Lake Cumberland. Don Chesnut, Steve Greb, and Brandon Nuttall walk carefully down an outcrop of channel-fill limestones looking for rock samples in the picture below left.

The group followed a Geological Society of Kentucky (now the Kentucky Society of Professional Geologists) field guide written in 1978 by Richard Lewis and Paul Potter, when the lake level was also drawn down to its current level. Along the five stops and seven points of interest mentioned in the guide, they looked at mudstone mounds and green shale deposits associated with them, along with slides and slumps.

The new STATEMAP funding will also allow the continued mapping of unconsolidated Pleistocene and Holocene deposits in the Ohio and Green River Valleys of western Kentucky, primarily for seismic hazard assessment. This work is being done by Ron Counts and Scott Wanninger out of the Henderson office. Tom Sparks will also use surficial data from this project to develop a bedrock map of the Evansville 30 x 60 quadrangle.

Meanwhile, the Kentucky Transportation Cabinet has approved a KGS proposal to begin a fracture-mapping program. KGS geologist Steve Martin will travel around the state determining the orientation, trends, and spacing of fractures in roadcuts as well as in natural occurrences. These data can benefit water exploration, slope design for road projects in areas of fragile slope stability, and possibly petroleum exploration. Andrews says the long-term goal of this promising project is a statewide map of fracture patterns.

— "Grants," continued from page 3

last August at the Henderson office to hear presentations from users of geologic maps and offer suggestions for future funding proposals.

The STATEMAP grant will fund the beginning of surficial mapping in eastern Kentucky by Matt Crawford and Mike Murphy. The main benefit of this work is to assist with landslide mitigation, and it serves as a useful follow-up to a 1-year pilot project in 2006. In that project, the USGS landslide program provided a grant to develop a methodology for landslide mapping.
Crawford developing Mammoth Cave map

The National Park Service has provided a grant for Matt Crawford of the KGS Geospatial Analysis Section to develop a geologic map of Mammoth Cave National Park in west-central Kentucky. After the NPS had expressed an interest in national park maps similar to the generalized geologic maps for land-use planning that Dan Carey is doing for each Kentucky county, Crawford submitted a proposal to create such a map of Mammoth Cave.

The Park Service liked the proposal, provided a small grant, and Crawford’s efforts with co-author Rick Olson of the Mammoth Cave staff have resulted in a draft, Geology of Mammoth Cave National Park, Kentucky, which will be completed by the end of June.

“The map gathers the geologic issues of Mammoth Cave National Park and presents them in a way that nongeologists can understand,” says Crawford. “It includes maps, diagrams, photos, and text that illustrate and discuss issues such as karst and sinkholes, water-quality protection, the science of cave formation, and even how plant and animal life interact with the geology of the region.”

During the development of the new map, which measures 35 x 70 inches, Crawford visited the park staff to gather data overlays and photos to include in the finished product. NPS staff is in the midst of visits to each of Kentucky’s four national historic sites, parks, and recreational areas to gather geologic information for technical maps and publications about each location. Crawford says he’s hoping those visits will help convince the Park Service that geologic maps intended for the average person will be useful for some of the other Kentucky sites overseen by the Park Service.

Olson, who is an ecologist for the national park, says the park staff plans to use the map as a guide when they lead field trips for college-level classes visiting the park. A copy may also be set up as an interpretative display in the Mammoth Cave visitors center, and a digital file may be sent to groups in advance of visits to the national park.

“We’re hoping to have this ready for some of these uses as early as this summer,” Olson says.

Ann Watson teaches reading of rocks

Ann Watson, a geologist in the KGS Public Information Center, led one of several seminars offered to participants in a May 19 field day sponsored by the Kentucky Network of Outdoor Women in Frankfort. The seminar, “Read the Rocks,” focused on rock and fossil identification in the Bluegrass Region. Watson explained why particular fossils and formations are found in their geologic settings and what they tell observers about the settings.

The field day, annually sponsored by KNOW, was held at the Salato Wildlife Education Center, operated by the Kentucky Department of Fish and Wildlife Resources. Other sessions included orienteering, wildflower identification, auto maintenance, and fishing.

Another visiting scholar arrives from China

Another visiting scholar from China’s Lanzhou Institute of Seismology has come to Kentucky as a part of the ongoing exchange between the Institute, KGS, and the University of Kentucky. Yuxia Lu, who is on the research staff at Lanzhou, arrived in February for a year of work on earthquake seismic issues with the KGS Geohazards Section and UK’s Department of Earth and Environmental Sciences. Lu will process seismic data gathered in Lanzhou and the Kunlun Mountain region in China during two visits there by KGS and UK staff in the past 2 years, as well as data from the central United States. Lu specializes in seismic hazards and near-surface geophysics.

She is also taking a geology class at the Department of Earth and Environmental Sciences. Lu is the second LIS staff member to spend a year as a visiting scholar working on seismic issues; Zijian Wu spent much of 2006 doing similar work.
Sedimentary rocks
Musings from Dan Carey

When the noise of the day becomes wearisome, I seek the comfort of sedimentary rocks.

As I grow older, I find myself increasingly attracted to them. Not the post-Ordovician shales, of course—nasty brutes, unreliable and without integrity. But for sandstone, siltstone, dolomite, and limestone my fondness increases year by year.

One cannot drive Ky. 1274 in Rowan County without pulling over to share a few moments with the Cowbell Siltstone. And time must be set aside to sit quietly before the Corbin Sandstone along the Little Sandy River. Some effort is required to visit the Grier Limestone, laced with channels, cracks, and crevices beside the abandoned Norfolk Southern Railroad line in Woodford County, but the magic it evokes rewards the hike.

What is the source of my late-life lithologic attraction? I think it is the there-ness of the rocks: They were there for my grandfather and father, and they will be there for my son and grandson. Or perhaps it is the bits and pieces of my aging body anticipating their reunion with the rocks, a homecoming embrace, if you will.