Arkoma Basin-Related Publications
Available from the Oklahoma Geological Survey


SP2003-2. Cromwell Play in Southeastern Oklahoma, by Richard D. Andrews. 87 pages, 58 figures, 8 tables, 8 plates. 2003. $16.00. [Also see Open-File Report 1-2005, a guidebook companion to this report.]


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A brief history
The Arkoma Basin and OGS Studies

The Arkoma Basin and Ouachita Mountains in southeastern Oklahoma are part of a long, mostly buried, foreland basin/fold-and-thrust belt pair that forms the southern margin of the North American craton. Natural gas in both areas has been exploited since the early 1900s. The major gas reservoirs range in age from Ordovician to Pennsylvanian and include (from oldest to youngest): Arbuckle Group carbonates, Woodford Shale, Wapanucka Limestone, Spiro sandstone, Red Oak sandstone, Hartshorne Sandstone, and Hartshorne coal. There are many minor reservoirs that range in age from Devonian to Pennsylvanian.

While the principal resource in the region is petroleum, others including coal, building stone, and water are important. And water will certainly become more important in the future. An understanding of these resources is necessary for their wise use so that future Oklahomans may benefit from them.

In 1985 the Oklahoma Geological Survey, in cooperation with the Arkansas Geological Commission and U.S. Geological Survey, began a systematic geologic mapping program along the northern part of the Ouachita Mountains frontal belt and the southern part of the Arkoma Basin. The effort was designed to further our knowledge of the stratigraphy and structure of the area. The 22 maps (scale 1:24,000) aided the exploration for natural gas and increased our understanding of the geology of the complex transition from tectonic belt to foreland basin. They also spurred additional research by universities and industry, much of which is published or available as theses and dissertations.

Survey work in the Arkoma Basin and Ouachita Mountains has been published in a number of formats including guidebooks, circulars, and open-file geologic maps and reports. A complete list of these publications is available on the OGS Web. In addition, much work has been published in a number of scientific journals and newsletters.

Recent Arkoma Basin Publications from the OGS


This landmark publication contains J. Kaspar Arbenz’s comprehensive study of the complex Ouachita Mountains of Oklahoma and Arkansas, along with older work by Peter Misch and Keith F. Oles. Arbenz’s extensive field studies and new data present an innovative and more complete look at the Ouachitas. The 86 pages of text and illustrations come with nine oversized maps and cross sections on paper as well as on CD ROM.

Arbenz concludes that large-scale horizontal displacement and local rotation of thrust sheets explain the surface and subsurface features observed on geologic maps and in seismic data.

The paper by Misch and Oles is based on 1950s field work and was the focal point for much controversy. Its importance lies in historical perspective, insightful observations, and detailed maps and cross sections.

Guidebook 35, Guidebook to the Booch Sandstones: Surface to Subsurface Correlations, by Neil H. Suneson and Dan T. Boyd. 96 pages, 112 figures, 2008. $11. Shown on the front cover of this flyer, the Survey’s latest Guidebook was compiled to locate, identify and describe the best Booch sandstone outcrops in the Oklahoma part of the Arkoma Basin.

Authors Suneson and Boyd interpret the depositional environments of the strata and examine the outcrops based on lithologies, sedimentary structures, stratigraphic unconformities and textural changes. They include gamma-ray profiles that approximate wireline gamma-ray logs in the subsurface. Parts of wireline logs from nearby wells show that, in some cases, the logs closely match, while at other times they differ greatly from the outcrop. The logs and outcrops are placed in the sequence-stratigraphic framework for the entire Booch interval.

A Sample of Arkoma Basin Material on the OGS Web Site

Geologic Maps
22 area quadrangles for free download
www.ogs.ou.edu/statemap1_22.php

Coal, Coalbed Methane Information
bibliographies, databases, maps, reports, presentations
www.ogs.ou.edu/level3-coal.php

Oil and Gas, Source Rocks, Shale Gas
maps, bibliographies, references, cross sections, reports and presentations
www.ogs.ou.edu/level3-oilgas.php

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www.ogs.ou.edu/pubs.php

See the back of this flyer for a list of OGS Arkoma Basin publications