Arkansas Geological Survey
Bekki White, State Geologist and Director

Structural Axes of the Eastern Arkansas River Valley

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2017

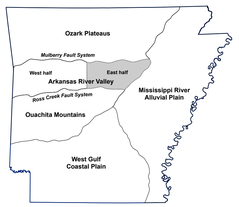
Digital Geologic Map
River Valley Structural Map East
DGM-RVSM-E

SCALE 1:100 000

1 0 1 2 3 4 5 6 7 8 MILES

1 0 1 2 3 4 5 6 7 8 9 10 KILOMETERS

Location map of area within Physiographic Provinces



Symbols

Cadron (C) from Croneis — Anticline

Pine Hill — Syncline

About The Map

This is one of two maps representing the structural axes in the Arkansas River Valley. This map covers the eastern portion of the area. The physiographic boundaries of the River Valley coincide with the structural boundary of the Arkoma Basin. The northern boundary is the Mulberry Fault System, however, the fault system becomes difficult to locate east of Range 14 W. From here the boundary follows a physiographic break to the Mississippi River Alluvial Plain. The southern boundary is the Ross Creek Fault System. The western boundary runs north and south from a point just to the west of the Bunker Mountain Anticline.

An outstanding body of work on the structures in the Arkansas River Valley was summarized by Croneis in 1930. In fact, his structural axes map has been the principal reference for structures in Arkansas since that time. When Croneis produced his map, topographic coverage was limited and he interpreted many of the structures to extend for tens and some over a hundred miles. Using modern hillshade and large-scale topographic maps, it can be now be determined that many of these structures can be shortened. Axial traces were compared to Croneis and named accordingly. These structures appear with a (C) after the structure name. This map also incorporates interpretations by Haley (1993) and Arbenz (2004), and their naming schemes were also used where applicable. Previously unknown structures were named for local geographic features. Structures were field checked when their trace was unclear from the map references.

References

Arbenz, J.K., 2004, Structural Framework of the Ouachita Mountains, in, N.H. Suneson (ed.), Stratigraphic and Structural Evolution of the Ouachita Mountains and Arkoma Basin, Southeastern Oklahoma and West-Central Arkansas: Applications to Petroleum Exploration: 2004 Field Symposium. The Arbenz-Misch/Oles Volume: Oklahoma Geological Survey, Circular 112A, p. 1-40.

Croneis, C., 1930, Geology of the Arkansas Paleozoic Area with Especial Reference to Oil and Gas Possibilities, Arkansas Geological Survey, Bulletin 3, 475p., 2 plates.

Haley, B. R., et al, 1993, Geologic Map of Arkansas: Arkansas Geological Commission Open File Report, scale 1:500,000.

Arkansas GIS Office, 2007, 2006 Five Meter Resolution Hillshade Model (Raster), Geostor, https://gis.arkansas.gov/product/2006-five-meter-resolution-hillshade-model-raster/.

Limitations

This map, like all geologic maps, is based on interpretations which were made from data available at the time it was created. As work continues and new data is collected, this map may change.

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http://www.geology.ar.gov/geologic_maps/dgm-rvsm.htm

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