OSU Cartography Services Work on the Geological Highway Map Series

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About

The Geological Highway Map Project is a series of maps that span the continental United States (See Index Map below) displaying the distribution of geologic features and ages. These maps are a result of the American Association of Petroleum Geologists (AAPG) Foundation and Oklahoma State University Geoscience and Geographic Information Systems (GIS) Consortium. This consortium exists to provide peer-reviewed, digital GIS products created by OSU Cartography Services in collaboration with the Boone Pickens School of Geology at OSU.

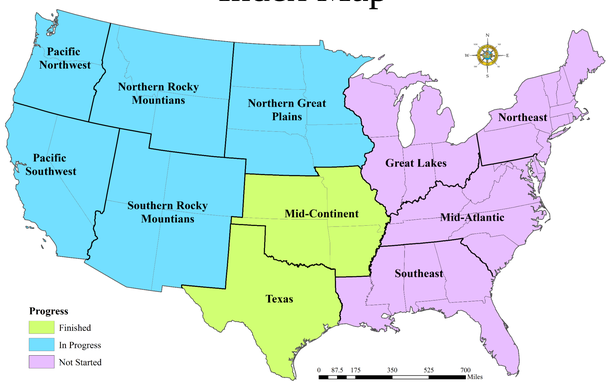
The maps presented here are samples of the figures made at OSU Cartography Services. These maps are painstakingly recreated from scans of the original map by student employees under the supervision of the GIS Specialist, verified for accuracy, and reformatted for print. These are combined with the text portions by a partner before being sent to the AAPG for printing. The examples here include the main map of major tectonic features and surface rock types (Figure 1), a cross section profile following major highways across the region (Figure 2), and the tectonic region and fault feature map (Figure 3). OSU Cartography Services provides two products per region: a printed map and the GIS files.

Image 1: Monument Rocks in Grove County, Kansas near US-83.

Two regions of the Geologic Highway Map Series have been completed and printed: Mid-Continent, containing the states of Oklahoma, Kansas, Arkansas and Missouri, and the Region of Texas. OSU Cartography Services is currently working on four other regions: Northern Rocky Mountains, Northern Great Plains, Pacific North West, and Pacific South West. Please refer to the Index Map for a visual reference.

While the digital GIS version of these maps are available only for AAPG members, high quality printed maps are available for purchase by the public at the AAPG's online bookstore (http://store.aapg.org/detail.aspx?id=661). For more information regarding OSU Cartography Services, contact Michael Larson at michael.larson@okstate.edu.

Index Map



Mid-Continent Region

Oklahoma, Kansas, Arkansas, Missouri

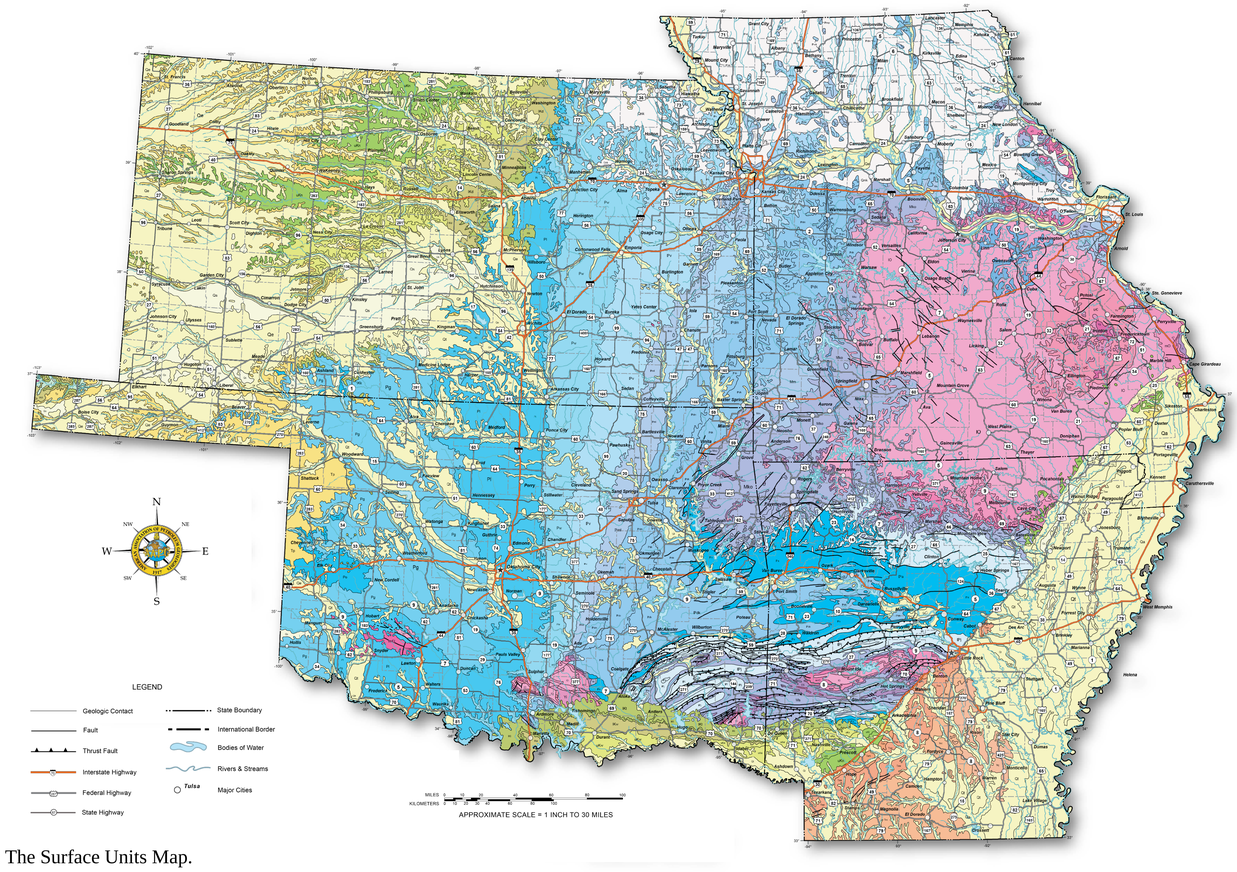


Figure 1: The Surface Units Map.

The Surface Unit Map (Figure 1) displays the distribution of geologic features across the region in relation to lakes, rivers, cities, towns, roads and highways. The colors of the map have been standardized across all regions and follow the recommendations of the USGS. These colors and letter symbols represent the age of the rock.

The Geological Cross Sections (Figure 2) show the surface configuration, the relation of the underlying rocks to the surface profile, the age, nature, attitude, thickness, distribution, and sequence of the rock layers, and the location, nature, and magnitude of the structural elements along major highways.

The Tectonic Map pictured below (Figure 3) shows the location and type of fault lines across the region including a thrust fault or normal fault. This map shows the geologic age of broad regions, tectonic belts and fault zones of the Mid-Continent Region. As a result of the shifting in the Earth's crust, the deformation of the surface has occurred since the earliest geological time.

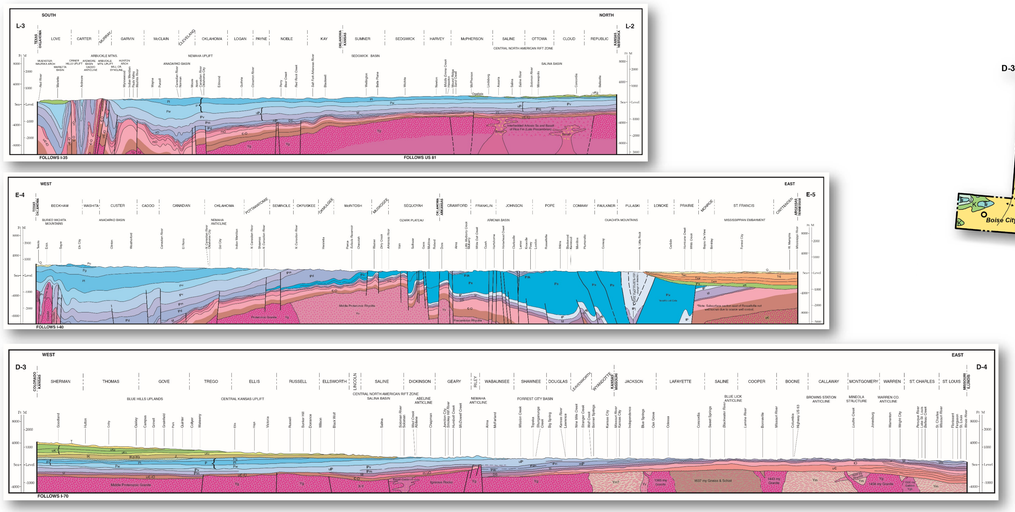


Figure 2: The Geological Cross Sections.

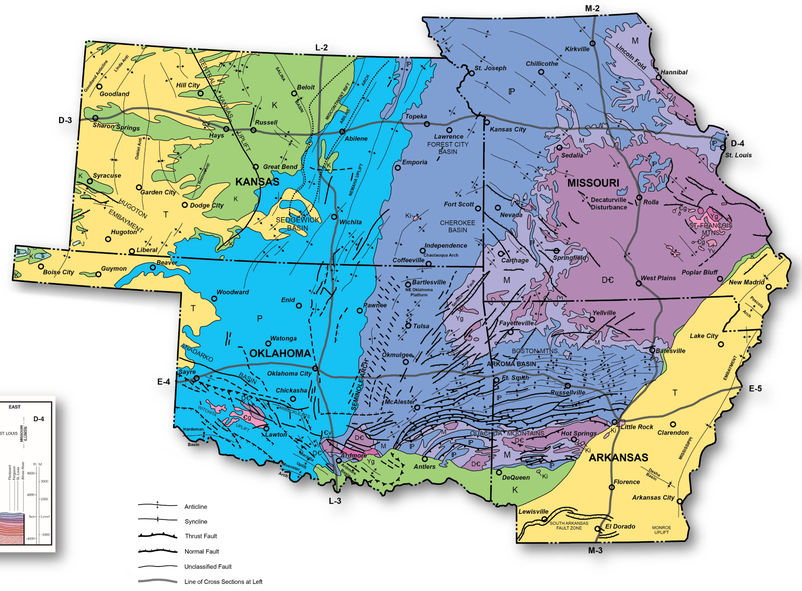


Figure 3: The Tectonic Map.