

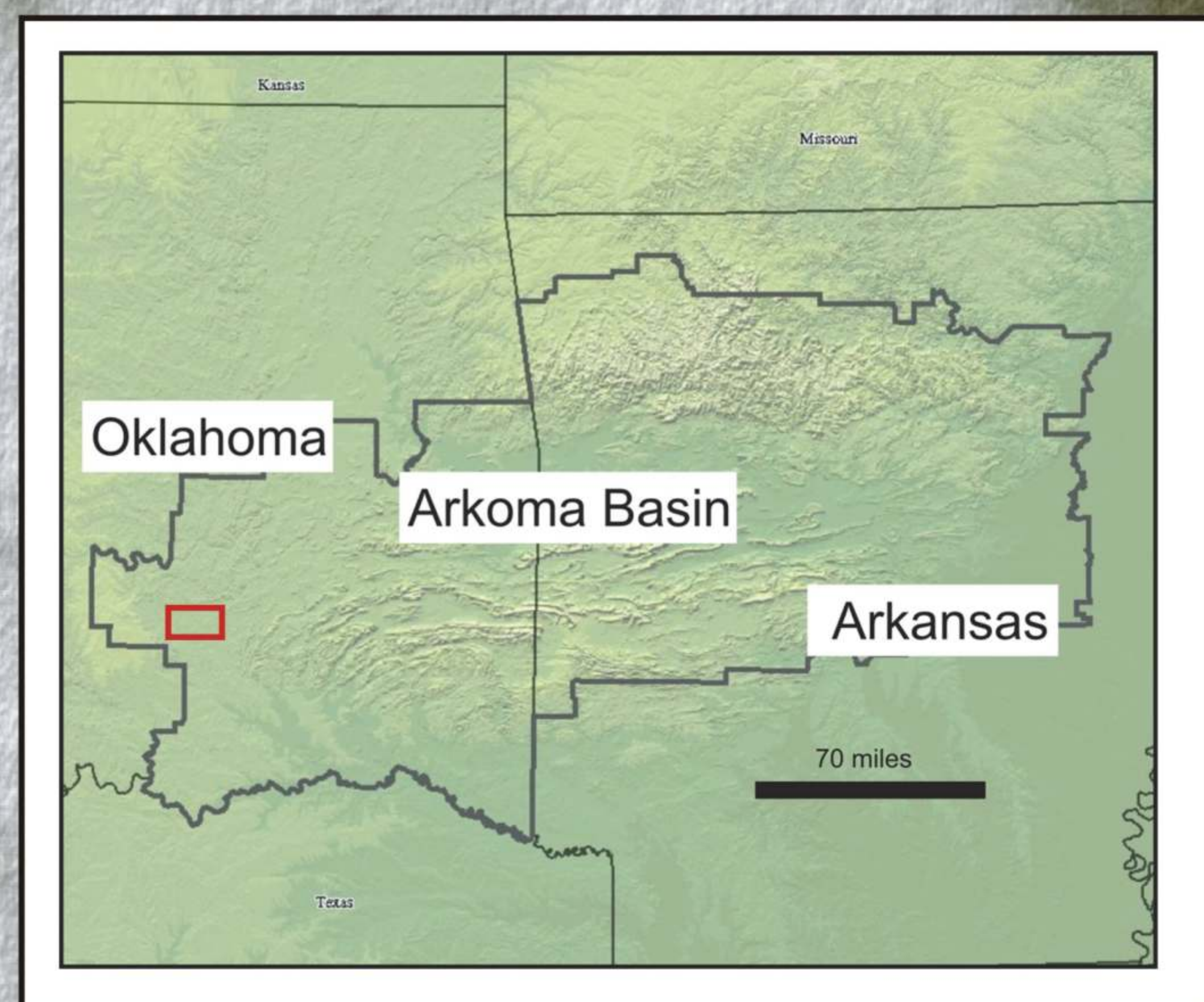
CHARACTERIZATION OF THE WOODFORD SHALE IN OUTCROP AND SUBSURFACE



Hypothesis

Stress fields in the Woodford Shale can be correlated in outcrop and subsurface. The relationship between fractures in outcrop and faults in the subsurface and their related stresses can provide guidance in lateral orientation and efficient recovery efforts.

A topographic map of central United States. The approximate extent of the Arkoma Basin is outlined in bold with the study area indicated by a red box on the western side of the basin (Perry, 1995).



Objectives

The primary objective of this project was to develop an understanding of the relationship between fracturing, faulting and associated stresses within the Woodford shale in the subsurface and in outcrop. A 3D seismic volume, 2D seismic lines and an outcrop was correlated by mapping the Wapanucka and Woodford seismic horizons. The seismic data was validated with extensive well control and a synthetic tie. The data was then tied to the outcrop along an arbitrary cross section line.

A detailed map view of the area of research. The 2D seismic lines are indicated in gray. The 3D seismic survey is outlined in green to the east of the figure. Well A, shown as a green circle, is located within the 3D survey. The outcrop extent of the Woodford shale is highlighted in purple to the west. A blue line connects the wells to indicate the extent of the cross section.

