

Joshua Carpenter

Department: Geosciences and Geological and Petroleum Engineering

Major: Geology & Geophysics

Research Advisor: John Hogan

Advisor Department: Geosciences and Geological and Petroleum Engineering

Funding Source: Unfunded

Dynamic Topography of the St. Francois Mountains

The purpose of this research project was to search for evidence of relict topographic surfaces in the St. Francois Mountains that preserve a history of regional and/or global forces. To accomplish this, topographic cross-sections were taken in Google Earth to examine changes in the region's topography with focus towards the following features: sub-horizontal surfaces, knickpoints, and valley floors. Elevation data was then collected and plotted in Excel. This revealed sub-horizontal surfaces between elevations of ~1780-1545 ft; knickpoints between ~1700-900 ft; and valley floors at ~1470-1350 ft. and ~1200-900 ft. The sub-horizontal surfaces are interpreted as relict peneplains preserved during periods of reduced geologic activity. The knickpoints reflect intervals of increased erosion caused by uplift or base-level changes. Bimodal valley floors may reflect similar base-level changes on a local scale. Future research will involve field work and the use of geographic information systems (GIS) for more effective collection and analysis of data. The field of study may expand to other sub-provinces of the Ozark Plateau to compare similar topographies.

Joshua Carpenter is a sophomore majoring in Geology & Geophysics with an interest in geographic information systems and their various applications. He is a dedicated Air Force ROTC cadet and member of the C.L. Dake Geological Society. In his free time, he enjoys fencing, reading, and playing video games.