Oklahoma has grown to be one of the largest hotbeds for hydrocarbon development and exploration in the United States. One primary play within Central-South Oklahoma is known as SCOOP (South Central Oklahoma Oil Province). The SCOOP play primarily targets the Devonian to Mississippian Woodford Formation and Pennsylvanian to Mississippian Springer Group of the Paleozoic.

Geochemical characterization of nearly 300 hydrocarbon reservoirs indicates charge from source rocks in various Pennsylvanian, Mississippian (Goddard, Caney, and Sycamore Formation), and Devonian – Mississippian (Woodford). As such, there is proof of a combination of both in-situ and migrated oil present in the plays. These hydrocarbons can be further understood by identifying the reservoir energy. Interpretive methods included in this dataset include the effective thermal stress of hydrocarbon generation, mixing of secondary hydrocarbon charge, identification of phase separation (volatile and residual fractions), devolatilization of the reservoir through top seal leakage, and other secondary alteration mechanisms.