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## Tectonic Characteristics and Controls on Hydrocarbon Accumulation in Middle Section of Western Sichuan Depression

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Western Sichuan Depression is located in the west of the Sichuan Basin and has shown great gas prospects for many years. Due to the characteristics of multiple stages of tectonic evolution and multiple directions of tectonic distribution, petroleum geological conditions are extremely complex in this area. In this paper, we use geological data, seismic data, well logging, and petroleum geological data to study the tectonic characteristics and controls on hydrocarbon accumulation in the middle section of the Western Sichuan Depression. The middle part of the Western Sichuan Depression is dominated by thrust structures, including thrust structures formed by the combination of thrust faults, fault triangular belt, and thrust imbricate structures, as well as fold deformation related to thrust faults, such as snake-head structure and slippage fold. The study area is characterized by east-west zonation and up-down stratification. In the process of formation and evolution, Western Sichuan Foreland Basin mainly experienced three tectonic periods, namely the Indosinian period, the Yanshan period, and the Himalayan period. Multi-stage tectonics, the change of force source, and principal stress direction also lead to the formation of tectonic series and tectonic belts with different trends. Most of the traps of the Leikoupo Formation in the region had their embryonic form in the late Indochinese period, which was further developed in the Yanshanian period, and basically formed in the early Himalayan period. Therefore, the tectonic conditions and accumulation conditions were well arranged, forming self-generation and self-accumulation or a combination of self-generation and self-accumulation and up-generation and sub-accumulation reservoir formation mode. The superior accumulation conditions and tectonic conditions make the Marine strata of the Leikoupo Formation of the Western Sichuan Depression show more favorable exploration potential. This study reveals structural style of the piedmont belt in the foreland basin and establishes reliable evidences for the further development of regional structural and accumulation models, which are crucial for further oil and gas explorations.