



## **Geometric and kinematics of West Segment of South Dabashan Foreland Fold-and-Thrust Belt, Northeast Sichuan Basin, China**

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The west segment of South Daba Shan (WSD) foreland thrust belt is an ideal area to disclose the intra-continental tectonic processes. Based on the latest pre-stack depth migration of 3-D seismic data, 2-D seismic profile, well data and geological outcrop, the paper explore the structural geometric and kinematic features of WSD with the application of fault-related folding theories. WSD is characterized by multi-level detachment deformation due to the three predominant sets of weak layers, Lower Triassic Jialingjiang Formation gypsum interval, Silurian mudstone beds and Cambrian shale zone. It is accordingly subdivided vertically into three tectonic systems. The upper one is above the Jialingjiang Formation gypsolith layer and presents a Jura-like fold-and-thrust belt. The middle one takes Silurian shale as the base and Jialingjiang Formation gypsolith interval as the passive roof, in which imbricate thrusts developed. The lower one is bounded to Cambrian and Silurian detachment layers, in which duplex dominated. The Sinian and Proterozoic basements below Cambrian have not been involved in deformation. WSD underwent four periods of tectonic evolution: Late Jurassic –Cretaceous (150–110Ma); Late Cretaceous (110–70Ma); Latest Cretaceous to Paleogene (70–30Ma); Oligocene to Quaternary (30-0 Ma). The deformation propagated southward as an imbricate style, which results in the passive uplifting of overlying structural layer. WSD exhibits a rather low taper tectonic wedge. According to the magnetotelluric and deep seismic profiles, it is inferred that the WSD tectonic processes is mainly controlled by the Yangtze continental block subduction northward under the Qingling Mountains and the pro-wedge multi-level thrusting during late Jurassic to Cretaceous. The Upper Paleozoic carbonates in the middle tectonic deformation system are favorable for gas exploration in thea area.