



Formation and evolution of Weiyuan-Anyue extension-erosion groove in Sinian system, Sichuan Basin

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Based on comprehensive analysis of deposition and structure, the horizontal and vertical characteristics of the Weiyuan-Anyue erosion-extension groove have been studied using outcrop, drilling, well logging and seismic data. According to the strata, lithology, structure and regional evolution, the Sinian system denuded thickness has been restored to show the development and evolution as well as transformation of the erosion-extension groove in the Tongwan orogeny. The Weiyuan-Anyue extension-erosion groove is distributed along the Penglai-Anyue-Rongchang in NW direction, with the west area steeper than the east in groove. According to the study of the Weiyuan-Longnüsi seismic profile across the middle area of erosion-extension groove, the formation of the Weiyuan-Anyue extension-erosion groove is the synthetic result of different geological processes from differential uplift, the denudation, erosion and dissolution in the Dengying Formation caused by multiple-phase episode graben or horst movement of the Sinian basement fault. The formation of the Weiyuan-Anyue erosion-extension groove can be divided into three stages, and the erosion and dissolution can be calculated quantitatively by denudation recovery profile, its maximum can reach 600 m.