

Linking Paleogene Rifting and Lacustrine Source Development in the Northern Song Hong and Beibuwan Basins, Vietnam, with Left-Lateral Motion on the Ailao Shan-Red River Shear Zone

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Abstract

Extrusion tectonics forced by plate collisions shape continents not only through lateral terrain displacement and mountain building, but also through massive rifting and basin development. The rift system underneath the Gulf of Tonkin, Vietnam, constitutes a world-class example of how extrusion tectonics drives continental rifting and transtensional basin development and thereby influence the petroleum systems hosted within such basins. Rifting and the Song Hong and Beibuwan basin evolution are compared with the development of the Ailao Shan-Red River Shear Zone (ASRRSZ) that accommodated the extrusion of Indochina forced by the Indian-Eurasia collision. Rifting occurred during later Eocene-Late Oligocene time forced by ASRRSZ left-lateral shearing. Latest Oligocene-earliest Miocene transpression and inversion brought rifting to a halt, after which left-lateral shearing decreased.