

PS 3D-Basin Modelling of the Lishui Sag: Research of Hydrocarbon Potential, Petroleum Generation and Migration*

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Abstract

Lishui Sag is located in the southeast of Taibei Depression, East China Sea basin. The sag is the main hydrocarbon accumulation zone in East China Sea basin. 3D basin modelling of Lishui Sag was used to address the masses of petroleum generated, accumulated and lost during the evolution of the basin. Calibration of the model, based on observed maturity (vitrinite reflectance) and present-day temperatures, took into account two main erosion episodes: a late cretaceous to early Paleocene event, due to tectonic uplift and an Oligocene erosion event. The maturity levels of the main source rocks (Yueguifeng, Lingfeng and Mingyuefeng Formations) were reconstructed and show that the highest maturities have been reached in the western middle of the basin. Our research started out from source rock evaluation, basin modeling and fluid inclusions homogenization temperature analysis, in order to study the abundance, types and maturity of source rocks, thermal history and hydrocarbon generation history of single wells and cross sections, speculated the process of hydrocarbon accumulation in Lishui Sag. Our Study found out that the main hydrocarbon source rocks of Lishui Sag are argillaceous source rocks in Yueguifeng Formation. The primary hydrocarbon generation period is between Middle Paleocene and beginning of Eocene. The important period of hydrocarbon accumulation is from late Paleocene to early Eocene.

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