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### 峨眉山超级地幔柱对四川盆地烃源岩热演化的影响

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**摘要** 四川盆地的构造、热演化与峨眉山超级地幔柱有密切关系,峨眉山超级地幔柱对四川盆地中二叠统之下的烃源岩热演化有着十分重要的影响.在四川盆地热历史恢复的基础上,研究了峨眉山超级地幔柱对盆地内烃源岩,特别是中二叠统之下的古生界烃源岩热演化的影响.结果表明,中二叠统及下伏烃源岩的热演化受中晚二叠世发生在盆地西南方向的峨眉山超级地幔柱的影响巨大,且具地区差异性.即在靠近峨眉山地幔柱中心的地区,有机质迅速成熟并达到其成熟度的最高值(以H1井为代表),古生界烃源岩迅速进入过成熟,此后未有二次生烃;而远离峨眉山地幔柱的盆地大部分地区,古生界烃源岩在二叠纪以来具有多次生烃过程.中生界烃源岩热演化,主要和前陆盆地阶段的构造过程包括前陆沉积和断裂的逆冲推覆等相关.在烃源岩有机质成熟度演化史的基础上,从盆地热史和烃源岩热演化的角度指出了下二叠统及之下烃源层在四川盆地不同地区油气勘探中的不同意义.

**关键词** [烃源岩热演化](#) [镜质体反射率](#) [古热流法](#) [峨眉山超级地幔柱](#) [四川盆地](#)

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The effect of Emeishan supper mantle plume to the thermal evolution of source rocks in the Sichuan basin

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**Abstract** Both the structural evolution and thermal history of the Sichuan Basin are closely related to the Emeishan Supper Mantle Plume (ESMP).The ESMP played an important role on the thermal evolution of the source rocks in the Sichuan basin. On this basis of the thermal history of the Sichuan basin, reconstructed based on vitrinite reflectance ( $R_o$ ) from boreholes in the basin using a paleo-heat flow method, the effect of the ESMP to the evolution of the Paleozoic source rocks is studied. The results show that in the southwestern Sichuan Basin (the central of the ESMP) the evolution of organic matter of the Paleozoic source rocks, which became mature in middle Late Permian, was strongly affected by the ESMP. In more detail, in the region close to the ESMP (southwestern Sichuan Basin), the source rocks of lower Permian was heated to peak maturity (maximum  $R_o > 3\%$ ) at around 260 Ma (from the beginning of the Late Paleozoic to the end of the early Permian) and later there was no secondary hydrocarbon generation. However, in the regions (northeastern Sichuan Basin) far away from the ESMP, secondary hydrocarbon generation of the source rocks existed. The thermal evolution of the Mesozoic source rocks was related with Mesozoic foreland basin evolution-regional denudation and burial history of the basin, rather than the ESMP. Therefore, expect the regions far away from the ESMP; the prospect of oil and gas sourced from Paleozoic source rocks is unfavorable in the regions close to the ESMP.

**Key words** [Thermal evolution](#); [Vitrinite reflectance](#); [Paleo- heat flow method](#); [Emeishan supper mantle plume](#); [Sichuan Basin](#)

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