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## 伊洛瓦底盆地热-沉降史模拟及构造-热演化特征

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The modeling of thermal-subsidence history and character of tectonic-thermal evolution in Irrawaddy Basin

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摘要

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### 摘要

本文首先运用EASY% Ro反演法对伊洛瓦底盆地由北向南进行了热史的恢复, 北部钦敦凹陷的平均古地温梯度为13.0~15.0 °C/km, 中部沙林凹陷的平均古地温梯度为18.0~22.0 °C/km, 南部三角洲凹陷的平均古地温梯度为33.0~37.0 °C/km. 从模拟结果可以看出, 盆地由北向南地温梯度逐渐升高, 生烃门限的深度由深变浅. 然后模拟了盆地的构造沉降史. 模拟结果表明, 盆地具有幕式构造沉降特征, 这反映了伊洛瓦底盆地可能处于弧间或弧后的构造背景. 伊洛瓦底盆地北部和南部具有不同幕次的构造沉降史, 北部在早始新世时期(53~51 Ma) 经历了一幕拉伸过程, 然后进入了热沉降期, 并伴随局部的快速隆升; 南部则经历了两幕拉张过程, 分别是在早始新世时期(53~51 Ma) 和中新世时期(21~13 Ma). 盆地的这种南北构造沉降的差异很可能是造成盆地地温梯度北低南高的原因.

关键词 伊洛瓦底盆地, 热史, 沉降史, 模拟

### Abstract:

In this paper, using the EASY% Ro inversion method, the thermal history of Irrawaddy Basin is modeled and restored from north to south. In Chindwin depression in the north of Irrawaddy basin, the average paleogeothermal gradient is 13.0~15.0 °C/km. In Sarin depression at the center of Irrawaddy Basin, the average paleogeothermal gradient is 18.0~22.0 °C/km, and in the south delta depression it is 33.0~37.0 °C/km. The results show that the basin's temperature gradient increases and threshold of hydrocarbon descends gradually from north to south. Then with the stripping method and the simple or pure shear model of basin formation, we model the tectonic subsidence history of the basin. The results display that the north of the basin has different episodic subsidence from the south. The north experienced only one rifting episode in the early Eocene period (53~51 Ma), and then reversed into the extrusion period, accompanied by rapid uplifting. The south experienced two rifting episodes in the early Eocene period (53~51 Ma) and the Miocene period (21~13 Ma). The different tectonic subsidence from north to south may result in lower temperature gradient on north and higher in south.

Keywords Irrawaddy Basin, Thermal history, Subsidence history, Modeling

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