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南海西部深水区台缘生物礁发育模式与成因背景

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Developmental pattern and genetic background of carbonate platform margin reef complexes in deep-water area in Western South China Sea

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摘要 图/表 参考文献 相关文章 (15)

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摘要 本文基于高精度二维、三维地震资料和钻井资料,结合台缘结构和礁体结构特征,将台缘生物礁发育模式划分为断控陡坡型和台缘缓坡型两类,并进一步识别出加积、进积和退积三种礁体内部沉积结构。此外,从地质背景和环境背景两方面开展生物礁成因背景分析。研究认为:构造古地貌和构造沉降速率是断控陡坡型台缘生物礁生长的主控因素,前者控制了生物礁时空展布特征,后者决定了礁体内部沉积结构特征;海平面升降变化和洋流季风是台缘缓坡型生物礁生长的主控因素,前者对生物礁时空迁移特征和礁体垂向叠置样式皆有重要影响,后者对礁体生长规模、外部轮廓及礁滩体沉积相空间分布具有重要控制作用。

关键词 : 南海西部深水区, 台缘生物礁, 断控陡坡型, 台缘缓坡型, 发育模式, 成因背景

Abstract : Cenozoic reef-banks reservoirs in western deep-water area of the South China Sea are one of the most profitable targets. In this work, developmental pattern and genetic background of carbonate platform margin reef complexes are analyzed based on the latest 2D and 3D seismic data. It is found that there are two kinds of developmental pattern of reef complexes in the area:fault-controlling steep slope and carbonate platform ramp with three kinds of interior depositional structures:aggradational, progradational, and retrogradational structures. Geology and environment background play an important role in the growth characteristic and distribution of reef complexes. Palaeogeo morphology and tectonic subsidence rate are the main controlling factors in the development of fault-control steep slope reef complexes. The spatial distribution of marginal reef is influenced by the former factor while the interior sedimentary structure is controlled by the latter one. Sea level changes and monsoon-ocean currents are the crucial factors in the development of carbonate platform ramp. The sea level changes play a vital role in reef complex migration and vertical stacking pattern. Monsoon and ocean currents influence not only the scale of reef development and its external morphology, but also control the distribution of sedimentary facies.

Key words : deep-water area in Western South China Sea carbonate platform margin reef fault-omtrolling steep slope carbonate platform ramp developmental pattern genetic background

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