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鄂尔多斯盆地西缘奥陶纪生物礁基本特征、分布规律及成礁模式

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摘要:

鄂尔多斯盆地西缘奥陶纪发育有生物礁. 本文通过对鄂尔多斯盆地西缘野外及钻井岩心生物礁调查及室内鉴定分析, 认为在乌海桌子山地区、棋探1井地区、彭阳石节子沟等地发育了较为典型的生物礁, 主要造礁生物为珊瑚、层孔虫和海绵. 三处生物礁发育特征有差异, 北段礁体生长发育2~3期, 中段发育2期生长, 南段生长发育可达4期; 北端及南端生物礁造礁生物个体较大, 生长的水体环境相对较浅, 而中段生物礁造礁生物个体较小, 生长的水体相对较深. 这些典型生物礁的生长、发展和消亡呈现了不同的发育特征和时空分布规律, 北段生物礁发育层位早, 中、南段发育层位晚, 这种分布变化规律与华北板块在早古生代处于赤道附近发生了北漂右旋的旋转漂移规律有关. 通过对不同地段生物礁基本特征分析, 结合 $\delta^{13}\text{C}$ 和 $\delta^{18}\text{O}$ 同位素分析结果, 认为盆地西缘生物礁成礁模式为中央古隆起西部陆缘海背景下的开阔台地边缘带点礁-滩体组合模式, 分布较为局限, 认为该地区生物礁死亡原因系海平面快速上升事件导致礁体被淹死所致, 也进一步推测生物礁之上存在一次海平面快速上升事件.

英文摘要:

Organic reefs developed in the western margin of the Ordos Basin of Ordovician. By investigating the western margin in the field and identifying well cores of the organic reef in lab, this article concludes that a representative organic reef existed in the Zhuozishan area in the Wuhai (north reef), the Qitan1 Well (middle reef), and the Shijiezigou in the Pengyang County (south reef), and so on. The main reef-building organisms are coral, stromatoporoids, and sponges. The various organic reefs show different characteristics. The northern Wuhai reef has shown 2~3 growth phases while the middle Qitan reef shows 2 growth phases, and the southern Shijiezigou reef has had at least 4 growth phases. The presence of reef-building organisms suggests that the north and south reefs grew in a relatively shallow marine environment, but the middle reef formed in a relatively deep aquatic environment. The growth, development, and disappearance of these typical organic reefs presented different development features and temporal-spatial distributions. The northern section of the organic reef was developed earlier while the middle and southern developed later. The temporal-spatial distribution of the reefs is related to the law of rotating drift, where the northward drift and clockwise rotation caused by motion of the north china plate around the Equator in the Early Paleozoic. Based on the analysis of the temporal spatial development characteristics and results of carbon and oxygen isotope geochemistry, we establish the reef building model as an open platform margin point reef-beach mode under the marginal sea background near the western side of the central uplift. The death of the organic reef in this area can be attributed to the event of rapid sea-level rise resulting in the drowning of the reef. Furthermore, it can be inferred that an event of rapid sea-level rise occurred above organic reef.

关键词: [鄂尔多斯盆地西缘](#) [奥陶纪](#) [生物礁](#) [成礁模式](#)

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