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南海北部东沙古隆起的综合地球物理解释

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The geophysical interpretation of a Dongsha ancient uplift on the northern margin of South China Sea

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摘要

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摘要 通过对南海东北陆缘地震和重磁资料的综合地球物理解释,将原来东沙隆起细化为东沙古隆起和东沙隆起两部分.指出,东沙古隆起呈条带状分布于南海北部陆架外缘,长约550 km,宽约60 km,为一个和珠一坳陷、珠二坳陷、台湾岛隆起等构造单元级别相当的一个构造地质体.其地层的层状结构保存清楚,显示没有岩浆侵入、刺穿的现象发生.东沙隆起大致以东沙岛为中心,范围非常局限,其下明显为岩浆侵入结构.两者的形成时代相去甚远,是完全不同的两次构造运动的产物.东沙古隆起和南海东北部高值正异常条带相吻合,是正值高磁异常带形成的原因.东沙隆起,以及陆坡火山带为低值异常,正负并不确定.且南海东北部的正值高磁异常条带形成的时间很早(约裂谷时期),和东沙隆起没有关系.东沙古隆起在裂谷时期为一列由海沟俯冲形成的岛弧.由于俯冲作用时间较短,在岛弧下方的岩浆底侵只发生在地壳的深部,并没有向上迁移到地壳中部或者上部,更没有形成火山活动.底侵的岩浆冷却后获得正的强磁性,从而形成高值正异常.东沙隆起,以及陆坡和海盆中的火山链都具有相对低的磁性,是在晚期东沙运动时期在碰撞挤压背景下形成的.

关键词: 东沙古隆起 正值高磁异常带 底侵

Abstract: Based on the interpretation of seismic profiles, an ancient uplift belt was distinguished along the northern margin of South China Sea. This belt is striking in northeastern direction and about 550 km in length and 60 km in width. This belt is coincided well in shape with a high positive magnetic anomaly zone on the northern margin of South China Sea. So, the paper believed that this ancient uplift belt is the origin of the high positive magnetic zone. Dongsha ancient uplift belt was a subduction related arc belt. Due to the subduction, the magma intrusion happened under the arc belt. And due to a short duration of the subduction, the intrusion only happened at the deeper part of the arc belt. So the magma accumulated and solidated at the deeper part of the arc belt and acquired high positive magnetic.

Keywords: Dongsha ancient uplift High positive magnetic anomaly belt Magma intrusion

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