地震地质   最新目录| 下期目录| 过刊浏览| 高级检索   ◀◀ 前一篇 | 后一篇 ▶▶

生物礁、滩、灰泥丘沉积特征及地震识别

何永垚[1], 王英民[1,2], 许翠霞[3], 李冬[4], 吴宇翔[5], 赵鹏[5]

1. 中国石油大学地球科学学院, 北京 102249;
2. 油气资源与勘探国家重点实验室, 北京 102249;
3. 中化石油勘探开发有限公司, 北京 100031;
4. 中海石油研究中心, 北京 100027;
5. 中海石油(中国)有限公司深圳分公司, 广东深圳 518067

Sedimentary characteristics of reef, shoal and lime mud mound, and their seismic identification

He Yongyao[1], Wang Yingmin[1,2], Xu Cuixia[3], Li Dong[4], Wu Yuxiang[5], Zhao Peng[5]

1. College of Geosciences, China University of Petroleum (Beijing), Beijing 102249, China;
2. State Key Laboratory of Petroleum Resource and Prospecting, PetroChina, Beijing 102249, China;
3. Sinochem Petroleum Exploration & Production Co., Ltd, Beijing 100031, China;
4. CNOOC Research Institute, Beijing 100027, China;
5. Shenzhen Branch, CNOOC Ltd, Shenzhen, Guangdong 518067, China

摘要   图/表   参考文献   相关文章 (15)

全文: PDF (22798 KB)   HTML (1 KB)

输出: BibTeX | EndNote (RIS)

服务
▸ 把本文推荐给朋友
▸ 加入我的书架
▸ 加入引用管理器
▸ E-mail Alert
▸ RSS

作者相关文章
▸ 何永垚
▸ 王英民
▸ 许翠霞
▸ 李冬
▸ 吴宇翔
▸ 赵鹏

摘要 通过对国内外典型的生物礁、滩及灰泥丘实例分析，寻求三者的识别方法，建立地震识别标志。依据生物礁、滩及灰泥丘沉积特征及其地球物理响应，提出"三角分类"方案，相应归纳出"点、线、面、体、时"综合地震识别法，其中"点"即分析单个地质体的地震反射结构和构型，"线"即分析地质体的沉积环境，"面"即刻画地质体的平面分布，"体"即刻画地质体的空间分布，"时"即解剖地质体的纵向旋回性。应用该方法在南海西北部深水区共识别出了5类生物礁、3类滩和2类灰泥丘。其中生物礁具有低频、中一强振幅、中连续反射结构，丘状反射构型，内部具有海侵—海退旋回，位于构造高部位，沉积于高能环境；滩呈低频、中连续、中一强振幅地震反射结构，席状地震反射构型，位于构造斜坡带，形成于高能环境；灰泥丘具有低频、强振幅、非连续反射结构，丘状地震反射构型，位于斜坡相对底部位，沉积于低能环境。"点、线、面、体、时"识别方法将沉积特征、环境能量、地球物理响应及旋回分析有机结合，能可靠地识别生物礁、滩及灰泥丘，揭示出南海西北部深水区局部发育生物礁，广泛发育碳酸盐滩。

关键词 生物礁, 滩, 灰泥丘, 地震识别, 南海西北部

Abstract: Seismic identification marks are established by analyzing domestic and overseas cases of reef, lime-mud mound, and shoal. According to their sedimentary and geophysical characteristics, 'trigonometric classifications' is proposed. Accordingly, a new comprehensive recognition method, named 'point, line, plane, volume and time', is adopted for identification of reef, lime-mud mound, and shoal. 'Point' represents seismic reflection configurations of single geologic body; 'line' represents sedimentary environments; 'plane' corresponds to plane distribution; 'volume' corresponds to three-dimensional distribution; and 'time' represents longitudinal cyclicity. Using this method, we recognize totally five types of reefs, three types of carbonate mud mounds, and two kinds of shoals in South China Sea. Located at structure tops in high energy environment and controlled by transgression-regression cycles, reefs are characterized by low frequency, middle and high amplitude, moderately continuous mound reflections. Located at structure slopes in high energy environment, shoals are represented by low frequency, middle and high amplitude, moderately continuous mat reflections. Located at structure lower slopes in low energy environment, carbonate mud mounds are characterized by low frequency, high amplitude, discontinuous mound reflections. Application results show that our approach can effectively identify reef, lime-mud mound and shoal in the study area.

Key words: reef   shoal   lime-mud mound   seismic identification   South China Sea

引用本文:

何永垚, 王英民, 许翠霞, 李冬, 吴宇翔, 赵鹏. 生物礁、滩、灰泥丘沉积特征及地震识别[J]. 石油地球物理勘探, 2014, 49(5): 971-984. He Yongyao, Wang Yingmin, Xu Cuixia, Li Dong, Wu Yuxiang, Zhao Peng. Sedimentary characteristics of reef, shoal and lime mud mound, and their seismic identification. OGP, 2014, 49(5): 971-984.

链接本文:

http://www.ogp-cn.com.cn/CN/   或   http://www.ogp-cn.com.cn/CN/Y2014/V49/I5/971