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地震海洋学方法在研究南海东北部海水水体结构中的应用

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The application of seismic oceanography to studying ocean water mass structure in the northeastern South China Sea

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摘要 反射地震方法一般用于地下地质结构的探测.本文采用南海东北部的一条地震测线记录,通过对水体反射信号的处理,获取了该测线上海水的声速剖面,并获得了海水水体结构的直观图像.在反射地震剖面上,可以看出南海东北部上层海水结构较为稳定,没有明显的水体侵入痕迹,但中、深层海水中内波较为发育,这与物理海洋学上的研究结果是一致的.本文通过设计合理的数据模型说明了地震海洋学这种方法的可行性,并对地震海洋学的工作方法和方向上提出了一些意见和建议.

关键词： 地震海洋学 温盐结构 南海东北部 内波

Abstract： Seismic reflection method is usually used to explore the geological structure of underground. In the paper, by processing the data of a high resolution seismic survey line in the northeastern South China Sea, we obtained the subtle velocity structure and clear reflection images of seawater mass in the survey line. From the seismic profile, we can distinguish that the thermohaline structure of upper layer seawater in the northeast South China Sea is relatively steady. There isn't obvious intrusion of other water mass. But in the middle layer seawater, internal waves can be found from the seismic profile. The result accords with the research on physical oceanography in the northern South China Sea. Additionally, a reasonable data model has been designed to prove the feasibility of the seismic oceanography method; some opinions and suggestions are given, which will contribute to future research in seismic oceanography.

Keywords： Seismic oceanography Thermohaline structure the Northeastern South China Sea Internal wave

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