

Structural features of potential gas hydrate area in the Pointer Ridge off southwest Taiwan

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The offshore area of the southwest Taiwan is located in the oblique convergence zone between the northern continental margin of South China Sea and the Manila accretionary wedge. To the west of the deformation front offshore southwestern Taiwan, the Pointer Ridge is located in the passive South China Sea continental margin. The continental margin is composed of extensional horst-and-graben structures. There are numerous submarine channels and linear ridge, formed due to the submarine erosion across the continental slope region. According to geophysical research off SW Taiwan, abundant gas hydrate may exist. In this study, our purpose is to understand the relationship between the near-seafloor structures of the Pointer Ridge and the gas hydrate formation off SW Taiwan.

The data we used include multi-beam echo sounder (MBES), side-scan sonar (SSS), sub-bottom profiler (SBP) and the multi-channel reflection seismic (MCS) data. Our results show the pockmark and gas seepage structures mainly appear in the place where the gradient of the BSR thickness is maximum. Those sites contain authigenic carbonate signature shown in the sub-bottom profiler. We also observe several folds and faults structures in this extensional background; however, these compressional features need further studies.

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