Based on the reflection seismic data processing of Muli basin and AVO analysis, combined with the logging data for AVO modeling, we get the seismic response characteristics of hydrate in the permafrost region of Muli basin and the standard of AVO abnormal distinguishing. Through the analysis, we found several traits: the distribution of hydrate is closely related to fractures in this region, the hydrate reservoir have a certain angle with the formation, showing approximate horizontal distribution; AVO modeling display the hydrate layer amplitude with offset increases and decreases, and the indicating parameter of hydrocarbon is positive anomaly; the actual data processing gets the characteristics that same as the simulation results, and hydrate abnormal results of earthquake prediction are consistent with the actual drilling.

**The Seismic Response Characteristics of Hydrate in the Permafrost Region of Muli Basin**

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