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MARINE FRONTIERS ABSTRACTS

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Geologic Evolution of the Bering Sea Komandorsky Deep Basin

The deep-water Komandorsky basin is located in the southwestern part of the Bering Sea. On the east, it is separated from the Aleutian basin by the submerged Shirshov Ridge; on the west, it is bordered by structures of the north Kamchatka accretionary prism. The Komandorsky basin is characterized by strongly dissected relief of its acoustic basement, which is overlain by a 1.5 to 2.0-km thick sedimentary cover.

The western part of the basin is occupied by a rift zone, which is characterized by modern seismicity and high heat flow. It is considered to be the axial zone of Miocene-Pleistocene spreading. On the north terrace of the Komandorsky island arc, traced active volcanos provide evidence that subduction is occurring under the arc from the north. The spreading rift zone is reflected on the continent in Miocene-Pleistocene volcanic rocks, characterized by typical oceanic tholeiitic composition.

The Komandorsky basin formed as a result of spreading during the Maestrichtian. Spreading within the basin occurred during the early and middle Oligocene and the late Miocene. East and west of the spreading axis, accretionary prisms formed. The latter are observed along the western flank of the Shirshov Ridge and on the eastern sides of the Kamchatka Peninsula and Koraginsky Island.