



## Abstract View

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## A Structural Front Over the Continental Shelf of the Eastern Bering Sea

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### ABSTRACT

Conductivity and temperature versus depth (CTD) and expendable bathythermograph (XBT) data taken during the ice-free seasons of 1975–77 define a structural front paralleling the 50 m isobath. This front forms a narrow transition separating a well-mixed coastal domain from a two-layered central shelf domain. In early spring, prior to frontogenesis, we believe that temperature and salinity are continuous across the 50 m isobath. Thus, the front does not result from the confluence of water masses; rather the front permits the evolution of different water masses following frontogenesis. The changing balance between buoyant energy input and tidal stirring determines the frontal location and the frontal width correlates with bottom slope. The front is similar to those reported around the British Isles, but we find that in the Bering Sea the salinity distribution is important, that the ice cover influences the seasonal evolution of the hydrographic structure, and that the geostrophic (baroclinic) speed differences across the front are small ( $<2 \text{ cm s}^{-1}$ ). We hypothesize that frontogenesis depends critically on positive feedback between stratification and mixing.

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