



## Abstract View

[Volume 9, Issue 1 \(January 1979\)](#)

### Journal of Physical Oceanography

Article: pp. 88–103 | [Abstract](#) | [PDF \(1.14M\)](#)

# Variability of Current and Bottom Pressure Across the Continental Shelf in the Northeast Gulf of Alaska

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(Manuscript received March 3, 1978, in final form June 5, 1978)

DOI: 10.1175/1520-0485(1979)009<0088:VOVABP>2.0.CO;2

### ABSTRACT

The low-frequency ( $<0.25$  cph) velocity and bottom pressure variability were studied in the northeast Gulf of Alaska from March to August 1976. Measurements of velocity in 100, 185 and 250 m of water showed a contrast between the flow at the shelf break and that on the shelf. The former circulation had a weak mean alongshore flow ( $5 \text{ cm s}^{-1}$ ), but large anticyclonic low-frequency fluctuations. On the shelf the flow was almost entirely aligned along isobaths. The anticyclonic shelf break fluctuations did not propagate onto the shelf. Bottom pressure variations measured at four locations showed little variation along the shelf and a linear decrease in bottom pressure variance across the shelf. Correlations of bottom pressure gradient with velocity indicate much of the alongshore flow was consistent with barotropic quasi-geostrophic dynamics. Cross-shelf flow could not be related to the pressure gradients. Examination of the pressure field response to the wind showed that the nearshore sea level setup accompanied onshore winds, whereas in the outer shelf the setup accompanied alongshore winds.

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