



## Abstract View

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# Seabed Stresses in Combined Wave and Steady Flow Conditions on the Nova Scotia Continental Shelf: Field Measurements and Predictions

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### ABSTRACT

A tripod holding electromagnetic flowmeters at two heights within 1 m above the seabed has been deployed at two shallow sites (25 and 45 m depths) on the continental shelf off Nova Scotia, Canada. Wave flows are comparable with the small mean flows at both sites. Friction velocities have been estimated from the observed spectra of vertical turbulent velocities, using a modification of the dissipation method appropriate to low Reynolds number conditions. The results from each site show no significant change of friction velocity with height, as expected for measurements from within the constant stress layer. However, in each case the observed friction velocities are considerably larger than would be predicted on the basis of the observed bottom roughness and the mean flows alone, indicating that the wave flows were important in enhancing the friction velocity. The theory of Grant and Madsen (1979) has been used to predict the friction velocities, based on the observed mean and wave velocities and on the bottom roughness estimated from stereophotography of the seabed. Good agreement is found between the predicted and observed friction velocities at both sites provided that the significant orbital velocity amplitude is used in the predictions. This is in general agreement with the results of Grant et al.

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