



Abstract View

[Volume 6, Issue 6 \(November 1976\)](#)

Journal of Physical Oceanography

Article: pp. 962–968 | [Abstract](#) | [PDF \(504K\)](#)

Observations of Wind-Generated Waves on Variable Current

Steven R. Long and Norden E. Huang

NASA Wallops Flight Center, Wallops Island, Va. 23337

(Manuscript received February 23, 1976, in final form May 31, 1976)

DOI: 10.1175/1520-0485(1976)006<0962:OOWGWO>2.0.CO;2

ABSTRACT

Laboratory measurements utilizing a laser probe are made for the slopes of wind waves generated on both positive and negative currents at different values of fetch. The data are then processed electronically to yield an average wave-slope spectrum in frequency space with 128 degrees of freedom. These spectra are used to obtain the growth of the spectral components at various frequency bands for increasing wind and different values of fetch and current. The results indicate that the growth of these components is not monotonic with the frictional wind speed U_* , but rather exhibits an “overshoot” phenomena at lower values of U_* , and in addition, displays a significant effect due to current. The peak location and spectral intensity of the spectra also show strong influence by the current condition. This results in the rms surface slope value increasing with negative current and decreasing with positive current. The results agree qualitatively with some theoretical predictions. The potential use of the current-induced effects as a means for remote sensing of ocean current is also briefly discussed.

Options:

- [Create Reference](#)
- [Email this Article](#)
- [Add to MyArchive](#)
- [Search AMS Glossary](#)

Search CrossRef for:

- [Articles Citing This Article](#)

Search Google Scholar for:

- [Steven R. Long](#)
- [Norden E. Huang](#)



© 2008 American Meteorological Society [Privacy Policy and Disclaimer](#)
Headquarters: 45 Beacon Street Boston, MA 02108-3693
DC Office: 1120 G Street, NW, Suite 800 Washington DC, 20005-3826
amsinfo@ametsoc.org Phone: 617-227-2425 Fax: 617-742-8718
[Allen Press, Inc.](#) assists in the online publication of *AMS* journals.