

# YALE PEABODY MUSEUM

P.O. BOX 208118 | NEW HAVEN CT 06520-8118 USA | PEABODY.YALE.EDU

## JOURNAL OF MARINE RESEARCH

The *Journal of Marine Research*, one of the oldest journals in American marine science, published important peer-reviewed original research on a broad array of topics in physical, biological, and chemical oceanography vital to the academic oceanographic community in the long and rich tradition of the Sears Foundation for Marine Research at Yale University.

An archive of all issues from 1937 to 2021 (Volume 1–79) are available through EliScholar, a digital platform for scholarly publishing provided by Yale University Library at <https://elischolar.library.yale.edu/>.

Requests for permission to clear rights for use of this content should be directed to the authors, their estates, or other representatives. The *Journal of Marine Research* has no contact information beyond the affiliations listed in the published articles. We ask that you provide attribution to the *Journal of Marine Research*.

Yale University provides access to these materials for educational and research purposes only. Copyright or other proprietary rights to content contained in this document may be held by individuals or entities other than, or in addition to, Yale University. You are solely responsible for determining the ownership of the copyright, and for obtaining permission for your intended use. Yale University makes no warranty that your distribution, reproduction, or other use of these materials will not infringe the rights of third parties.



This work is licensed under a Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International License.  
<https://creativecommons.org/licenses/by-nc-sa/4.0/>



*Comments on "Ocean Spectra for the  
High-Frequency Waves as Determined from  
Airborne Radar Measurements"*

A. E. Strong

*National Oceanic and Atmospheric Administration  
National Environmental Satellite Service  
Washington, D.C. 20031*

---

Valenzuela et al. (1971) have discussed some interesting results relating radar backscatter to the gravity-capillary region of the ocean-wave spectrum. While they have attempted to relate their observed backscatter power to the wind speed, they have neglected to report the height above the surface at which these winds were observed. This height would have been particularly useful, as they do report atmospheric-stability variations. Assuming that their Table I has the air and sea temperatures reversed on "II/11/69" (for consistency with their comment at the end of § 3.1, "... the air temperature was warmer than the sea temperature . . ."), the effect of atmospheric stability in this case may have been most influential. Such an effect has been observed (e.g., by Strong and Bellaire 1965, Richards et al., 1966); and Cardone (1969) has shown that the surface-friction velocity is enhanced by instability (or reduced with increasing stability). The interested reader is also directed to a report by Porter and Wentz (1971). Critical to the determination of a surface-friction velocity is not only knowledge of the air-sea temperature differential but also of the height of the wind measurements. It can therefore be expected that use of a stability parameter would make possible a more definitive description of the relationship of radar backscatter to ocean spectra. Since capillary waves represent a nearly instantaneous response to a wind stress, it is expected that a closer relationship would be most evident in the high-frequency portion of the ocean-wave spectrum.

REFERENCES

CARDONE, V. J.

1969. Specification of the wind distribution in the marine boundary layer for wave forecasting. Report, Contract No. Nonr 285(57), Geophysical Sciences Laboratory TR-69-1, New York University, 131 pp.

PORTER, R. A., and F. J. WENTZ

1971. Microwave radiometric study of ocean surface characteristics, Final Report, NOAA Contract No. 1-35140, National Environmental Satellite Service, 652 pp.

RICHARDS, R. L., H. DRAGERT, and D. R. MCINTYRE

1966. Influence of atmospheric stability and over-water fetch on winds over the lower Great Lakes. *Mon. Weather Rev.*, Washington, 94: 448-453.

STRONG, A. E., and F. R. BELLAIRE

1965. The effect of air stability on winds and waves. *Proc. 8th Confer. on Great Lakes Research, Univ. of Michigan, Great Lakes Res. Div., Publ. 13; pp. 283-289.*

VALENZUELA, G. R., M. B. LAING, and J. C. DALEY

1971. Ocean spectra for the high-frequency waves as determined from airborne radar measurements. *J. mar. Res.*, 29(2): 69-84.