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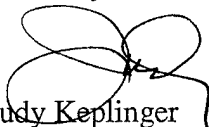
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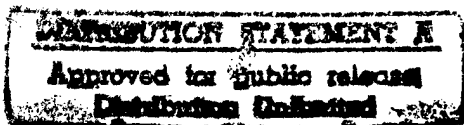
Subject: Final Technical Report  
ONR Grant No. N00014-93-1-0007

Enclosed is the final technical report with the required number of copies as outlined in the original award documents for the referenced grant.

Sincerely,

  
Judy Keplinger  
Contract & Grant Assistant  
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cc: Nancy Wilson  
SIO Contract & Grant Administration



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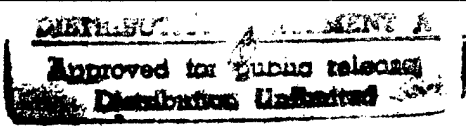
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This ONR grant, entitled "Bottom Pressure Fluctuations on the Shelf Induced by Surface Waves", resulted in successful research concerning the dynamics of surface gravity waves on the broad continental shelf offshore of North Carolina. A transect of pressure sensors were deployed on the sea floor from the shoreline to the shelf break and data was acquired nearly continuously for 4 months during Fall 1994. The data includes energetic waves generated by Hurricane Gordon. These and previously acquired observations have been used to study nonlinearly forced waves at both double-wind wave frequencies and at low infragravity frequencies. The energy levels and wavenumbers of motions in both frequency bands are accurately predicted by weakly nonlinear theory. While the double-frequency pressure field is shown to be consistently dominated by forced wave motions, the observed infragravity waves are a mixture of locally excited forced waves and usually more energetic free waves. Ongoing research concerns the evolution of sea and swell propagating across the shelf.

Publications acknowledging ONR support include

Herbers, T. H. C., S. Elgar, and R. T. Guza. Infragravity-frequency (0.005-0.05 Hz) motions on the shelf, Part I: Forced waves, *J. Phys. Oceanogr.*, 24,917-927,1994.

Elgar, S., T. H. C. Herbers, and R. T. Guza. Reflection of ocean surface gravity waves from a natural beach, *J. Phys. Oceanogr.*, 24(7), 1503-1511, 1994.

Herbers, T. H. C., and R. T. Guza. Nonlinear wave interactions and high-frequency sea floor pressure, *J. Geophys. Res.*, 99(C5), 10035-10048, 1994.

Herbers, T. H. C., S. Elgar, R. T. Guza, and W. C. O'Reilly, Infragravity-frequency (0.005-0.05 Hz) motions on the shelf, Part II: Free waves, *J. Phys. Oceanogr.*, 25(6), Part 1, 1063-1079, 1995.