

1089-76-165

**Katie L Oliveras\*** (oliveras@seattleu.edu) and **Vishal Vasan**. *Recovering the water-wave profile from pressure measurements.*

A new method is proposed to recover the water-wave surface elevation from pressure data obtained at the bottom of the fluid. The new method requires the numerical solution of a nonlocal nonlinear equation relating the pressure and the surface elevation which is obtained from the Euler formulation of the water-wave problem without approximation. From this new equation, a variety of different asymptotic formulas are derived. The nonlocal equation and the asymptotic formulas are compared with both numerical data and physical experiments. (Received February 12, 2013)