



NZCCRI Seminar Series

Parameterizing Aerosol Production and Gas Exchange in Wind-Driven Seas

Speaker: Dr Grant Deane

Oceanographer

**Scripps Institution of Oceanography
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Accurate models of ocean-atmosphere coupling are central to accurate climate simulations. The exchange of heat, mass and momentum in wind-driven seas are all enhanced by breaking waves, giving this complex, non-linear process a central role in exchange processes. In particular, air bubbles entrained by breaking waves enhance the exchange of greenhouse gases and are the dominant source of marine aerosols. They also form whitecaps – the transient, wet foam accompanying wave breaking – and whitecap coverage is the primary signal for parameterizing wind-driven exchanges. Despite its importance, the dependence of whitecap coverage on wave properties, the chemistry of the upper ocean boundary layer, and biology remains poorly understood. Recent results demonstrating the central role of surface chemistry in whitecap coverage and the production marine aerosols from whitecaps will be presented.

Date: Wednesday 20th November 2013

Time: 1 - 2pm

Venue: Cotton Seminar Room 304

Biography: Dr Grant Deane received the B.Sc. and M.Sc. (Hons.) degrees in physics from Auckland University, Auckland, New Zealand in 1982 and 1983, and the D.Phil in mathematics from Oxford University, Oxford, U.K. in 1989. He was a Mellon Fellow at Scripps Institution of Oceanography, UCSD, La Jolla from 1990 to 1992. He has been a Research Oceanographer at SIO since 1995 and is the Director of the SIO Hydraulics Laboratory. His research interests include underwater acoustics, small-scale, upper ocean physics (wave breaking, turbulence, air entrainment and marine aerosol generation), and bioluminescence. Dr Deane is a Fellow of the Acoustical Society of America and a member of the American Geophysical Union and American Meteorological Society. He is currently an Associate Editor for the Journal of the Acoustical Society of America Express Letters.