

Abstract Submitted  
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**An investigation of the backscattered acoustic response from a suspension of clay aggregates** CLEMENTINA RUSSO, WAYNE SLADE, EM-MANUEL BOSS, University of Maine — Particle aggregation in the ocean is a common phenomenon that has significant implications for measuring particle concentration and particle dynamics. It is recognized (Hatcher, 2001 & Boss et al., 2009) that flocculated particles compromise certain optical measurements, but there is disagreement over the extent that aggregation affects the acoustic response. This work investigates the nature of the backscattered acoustic response to a suspension of flocculated clay particles. The character of this response is compared to the response predicted using scattering theory for singular, solid clay spheres and for clay aggregates, following an acoustical model for porous, aggregated particles (Dukhin et al., 2007). An expected linear relationship between the acoustic response and measured samples of concentration is shown and the mass normalized acoustic response to changes in particle size is compared with that predicted using scattering theory. We demonstrate that the mass normalized acoustic response exhibits a sensitivity to porous particle packaging and we discuss the implications that aggregation may have for an acoustic approach to the study of particle dynamics.

clementina russo  
University of Maine

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