ORE SEMINAR

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IN THE SCHOOL OF OCEAN AND EARTH SCIENCE AND TECHNOLOGY AT THE UNIVERSITY OF HAWAI'I AT MĀNOA

Acoustic Roles of Bubbles in the Ocean

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3:30-4:30 pm Seminar

Abstract

Lots of bubbles are generated in the ocean by breaking waves, wind, rain and many other agents. In the late 1950s, the importance of bubbles at sea as acoustic scatterers was introduced to oceanographers and SONAR users in ocean acoustics by Urick and Hoover [R.J.Urick and R.M.Hoover, J.Acoust.Soc.Am. 28, 1038-42 (1956)]. Most early attempts to observe bubbles in the ocean were optical technique for sizing and counting because everyone believed that "Seeing is believing." However, such attempts were not successful to describe acoustic roles of bubbles in the ocean. One of the most distinguished pioneers in bubble acoustics, Medwin well described acoustic roles of bubbles as scatterers at sea in his early 1970s and 1980s work [H.Medwin and C.S.Clay, "Fundamentals of Acoustical Oceanography," (Academic Press, Boston, 1998) pp.287-347]. Since the early 1990s, bubbles have had more attention as ambient noise sources at sea as well as sound scatterers [S.W.Yoon et al., J.Acoust.Soc.Am. 89, 700-706 (1991)]. In this seminar, acoustic roles of bubbles will be reviewed as ambient noise sources and acoustic scatterers in near-surface sound propagation at sea.