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Department of Marine Sciences
Presents a Seminar By

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Sea spray production from remote sensing observations

Laboratory and field measurements of sea spray aerosol (SSA) concentrations and/or fluxes have been used to parameterize the sea spray source function (SSSF) that estimates the SSA production for aerosol models, chemical transport models, and global climate. Recent advances of SSSF parameterizations include recognition of the large contribution of organic substances to SSA population, and extension of SSA observations to smaller sizes ($r_{dry} < 0.05 \mu\text{m}$). Still, uncertainty of a factor of 4–5 in measuring and parameterizing the production flux of larger SSA ($r_{dry} > 0.5 \mu\text{m}$) remains. This uncertainty is a major reason for the two orders-of-magnitude spread in current global annual SSA emission estimates. Contributing to the uncertainty in estimates of SSA production are measuring difficulties and errors; use of oversimplified assumptions and approximations; oversimplified use of forcing parameters, such as local wind speed alone; and limited account for various influences such as those of the wave field, atmospheric stability, seawater temperature and salinity, and the presence, amount, and nature of surfactants. A notable recommendation for constraining the SSA production flux is the use of field observations or consistent determination by multiple approaches.

Remote sensing observations of the sea state at microwave frequencies can help to constrain the estimates of SSA production employing both physical and empirical approaches. Microwave brightness temperature TB of the ocean surface can reliably represent the composite sea state of the ocean interface and the associated SSA production. On this ground, use of satellite-based estimates of whitecap fraction can help to introduce additional variables in the physically-based SSSF. Field experiment on-board Floating Instrument Platform (FLIP) has afforded the derivation of a direct empirical relationship between the flux of super-micron SSA and the degree of polarization of TB. The use of remote sensing observation to measure SSA flux and parameterize SSSF will be described, current status will be given, and limitations will be discussed.

Host: Penny Vlahos

Time & Date: 11:00 am, Friday, February 17, 2017

Place: Marine Sciences Building, Seminar Room 103

Please see this [page](#) for cancelations and additional seminar information, email marinescienceseminars@uconn.edu, or call 860-405-9152 or 860-405-9151