JOHNS HOPKINS
Center for Environmental
& Applied Fluid Mechanics

Weekly CEAFM Seminar: Fall 2013

Date: **Friday, October 18, 2013**

Time: 11:00 AM

Location: Gilman 50 (Marjorie M. Fisher Room)

Speaker: **Dr. Fabrice Veron** (University of Delaware)

Title: ***"Impact of Sea Spray on Air-Sea Fluxes"***

Abstract

The contributions of sea spray drops to the total air-sea exchanges of momentum, heat, and mass remain an open question. A number of factors obscure any simple quantification of their contribution: the per-drop contribution to the fluxes is a particularly important factor that cannot be calculated easily, as are the number of drops formed. We present results from Lagrangian stochastic simulations of sea spray drops to estimate the per-droplet fluxes. The total spray fluxes are then assessed using both theoretical and experimental estimates of the drop fluxes. When the spray-mediated fluxes constitute a significant fraction of the total fluxes under certain conditions, their feedback effect on the atmosphere cannot be neglected and thus need to be incorporated in the results. We find that the spray-mediated fluxes may be especially sensitive to the size distribution of the drops. The total effective air-sea fluxes lead to drag and enthalpy coefficients that increase modestly with wind speed. The rate of increase for the drag coefficient is greatest at moderate wind speeds, while the rate of increase for the enthalpy coefficient is greatest at higher wind speeds where spray is ubiquitous.

Bio

Fabrice Veron received his M.S. in Mechanical Engineering and Applied Mathematics in 1995 from the University of Bordeaux, France, and his Ph.D. in Oceanography from Scripps Institution of Oceanography at UCSD in 2000. He joined the faculty at the university of Delaware in 2002 where he is now an Associate Professor and currently serves as the director for the Physical Ocean Science and Engineering group. His research focuses on small scales aspects of air-sea interaction and fluxes, and surface wave related phenomena such as rain damping, sea spray, air-sea fluxes, and the generation of turbulence on both sides on the interface.