



Carbon speciation at the air-sea interface during rain

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This investigation demonstrates the surface ocean dilution during rain events on the ocean and quantifies the lowering of surface $p\text{CO}_2$ affecting the air-sea exchange of carbon dioxide. Surface salinity was measured during rain events in Puerto Rico, the Florida Keys, East Coast USA, Panama, and the Palmyra Atoll. End-member analysis is used to determine the subsequent surface ocean carbonate speciation. Surface ocean carbonate chemistry was measured during rain events to verify any approximations made. The physical processes during rain (cold, fresh water intrusion and buoyancy, surface waves and shear, microscale mixing) are described. The role of rain on surface mixing, biogeochemistry, and air-sea gas exchange will be discussed.