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Collective Effects in Bursting Bubbles Aerosol Production[1] BAPTISTE NEEL, LUC DEIKE, Princeton University — The bursting of surface bubbles, understood as a production mechanism of sea spray aerosols, is a key feature of gas and mass transfers between ocean and atmosphere. While the case of a single bursting bubble has been extensively studied recently, little is known about collective effects in this context. Our experimental study characterizes the dynamical and statistical properties of an ensemble of initially mono-disperse air bubbles at the water surface, and the resulting spray droplets being produced. After rising in a still bath, the bubbles stand at the free surface, where they coalesce and move around before they eventually burst. The addition of surface active agents, because they prevent bubbles coalescence above a certain concentration, modify the features of the surface bubbles population (coalescence and lifetime), whose consequences on the spray production are discussed.

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