

Abstract Submitted  
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**3D PTV in a spray cloud from wave impact with wind interaction**

REYNA RAMIREZ DE LA TORRE, ATLE JENSEN, UiO — Marine icing is a phenomenon of growing importance due to the increase of marine traffic in the Arctic sea. An interesting example is the ocean spray freezing on top of vessels. However, its dynamics is still to be understood. These type of studies are important for the safety of people, ships and installations that operate in the Arctic environment. It has been reported that sea spray formation is caused mainly by wave impact and wind. Therefore, an experimental model of this phenomenon was created to describe the trajectories of droplets in the spray cloud generated by wave impact and wind. The experiments were developed in the wave plume of the Hydrodynamics Laboratory in the University of Oslo. Breaking waves were generated, while a fan was used to produce wind on top of the waves. Droplet trajectories were reconstructed by 3D Particle Tracking Velocimetry. Using this setup we studied the dynamics of spray clouds with different wind conditions and compared the experiments with simulations. The overall goal is to develop solutions to reduce the icing of Arctic structures.

Reyna Ramirez De La Torre  
UiO

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