



## **Effects of Sea Spray on the Structure of Tropical Storm in a Coupled Atmosphere-Wave-Ocean Model**

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Although it is widely recognized that sea spray under hurricane-strength winds is omnipresent in the marine surface boundary layer (MSBL), how to parameterize sea spray physics in coupled atmosphere-wave-ocean models for hurricane prediction still remains a subject of research. Over the past decade, we have developed and fine-tuned a parameterization scheme to take into account the effects of sea spray on the momentum and enthalpy fluxes using the Monin-Obukhov similarity theory. In this scheme, the effects of sea spray can be considered as an additional modification to the stratification of the near surface profiles of wind, temperature and moisture in the MSBL. The overall impact of sea-spray droplets on the mean profiles of wind, temperature and moisture depends on the surface stress, wave state and sea surface temperature. This paper presents an idealized simulation of the coupled GFDL hurricane model in which the sea spray parameterization is included for the purpose of demonstrating the effects of sea spray on the model simulated storm structure.