



A simple spume droplets and wave stress parameterizations to study the impact on maritime near-surface variables

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The impact of ocean gravity waves on the wind and temperature above the surface is investigated using a simple one-dimensional boundary layer model. The effect of the wave-induced stress is evaluated using a formulation applied on the

complete wave spectrum, including mainly the wave high frequencies components.

A very simple and feasible parametrization of droplets astrophysical to be used in operational models is proposed. The droplet load contribution and the latent and heat fluxes accompanying the production of spume droplets by waves are investigated.

The results show that the droplet load contribution to the total surface stress can be neglected for 10-m wind speeds up to 15 m/s. However its importance increases with speed, and its magnitude becomes about 1/5 of the total stress for wind speed around 30 m/s.

Concerning the latent and sensible heat fluxes accompanying the production of spume droplets by waves, the experiments, with sea water temperature 5 K higher than the atmospheres, shows that for each significant wave height there is a limiting period, from which the cooling due to latent heat remains constant, while the sensible heat increases, masking the effect of the evaporation on the near surface temperature.