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A Mechanism for the Increase of Wind Stress (Drag) Coefficient with Wind Speed over Water Surfaces: A Parametric Model

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ABSTRACT

A mechanism is proposed for a physical explanation of the increase in wind stress (drag) coefficient with wind speed over water surfaces. The formula explicitly incorporates the contribution of both winds and waves through the parameterizations of an aerodynamic roughness equation. The formula is consistent with measurements from the field and with results obtained by numerical models for storm surges and water level fluctuations.

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