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Optimal Power-Law Description of Oceanic Whitecap Coverage Dependence on Wind Speed

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ABSTRACT

The optimal power-law expression for the dependence of oceanic whitecap coverage fraction W on 10 m elevation wind speed U as determined by ordinary least squares fitting applied to the combined whitecap data sets of Monahan (1971) and Toba and Chaen (1973), is $W = 2.95 \times 10^{-6} U^{3.52}$. The equivalent expression, obtained by the application of the technique of robust biweight fitting, is $W = 3.84 \times 10^{-6} U^{3.41}$. These expressions fit the combined data set better than any of the previously published equations.

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