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**A new analytical wavelet-Gaussian wake model** ZEIN SADEK, RAUL BAYOAN CAL, Portland State University, NICHOLAS HAMILTON, National Renewable Energy Laboratory — A new analytical wake model focusing on capturing near wake phenomena is proposed. A Ricker wavelet function summed with a normal Gaussian is used to capture flow acceleration and hub jet in the near wake and transition into a single Gaussian curve downstream. Simplifications are implemented to allow for inexpensive computational cost while still upholding the fidelity of the model. Parameters are considered to be functions of flow conditions and turbine properties and expressed analytically. Large eddy simulations and small scale wind tunnel experiments are used to validate the model.

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