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## Assessment of atmospheric stability measurements from microwave radiometer observations for offshore wind energy applications

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Atmospheric stability is a measure of atmospheric status which determines whether thermodynamically perturbed air will rise, sink, or be neutral. Atmospheric stability has a major impact on the evolution of wind turbine wakes and thus on the yield and performance of offshore wind parks. For estimations of wind park power output and for improving analyses of offshore wind park wakes, a crucial parameter was found to be profiles of atmospheric temperature and stability metrics. Atmospheric temperature profiles can be measured in-situ by balloon-borne sensors, but also estimated from the ground using radiometric observations. This presentation reviews the stability metrics useful for monitoring wind park performances and provides a quantitative assessment of the value of microwave radiometer (MWR) observations to estimate these stability metrics from near surface, either over land or ocean. Results from three different MWR instruments, representing the most common available on the market, and at least three field experiments will be presented.

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