

## *Temperature Lapse Rate Estimation By Doppler SODAR*

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A statistical approach of turbulence in the lower atmosphere by Blackadar permits to anticipate the estimation of the temperature lapse rate in the stable cases by SODAR if the first two moments (intensity and doppler shift) of the backscattered echo are accurately measured.

The validity of this estimation was first tested using data provided by the Kernforschungszentrum (Nuclear Research Center) in Karlsruhe (West Germany), where a REMTECH Doppler SODAR had been operating for years, one hundred meters away from a 200-meter-high meteorological tower.

We had shown that this method can be extended to unstable cases and that the SODAR's lapse rate is well correlated with the tower data, provided that weak turbulent cases are conveniently treated.

Over the past years we have improved the method by allowing an adaptive estimation of the first moment, which accounts for the antenna efficiency variations (for instance because of ambient temperature changes). Recent inter-comparison data using a PA0 (very small SODAR) and a PA5 (long-range SODAR) will be presented.