Intercomparison of wind data observed with Wind Doppler LIDAR and SODAR at Ressacada, Florianópolis-Brazil

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Abstract: Nowadays, remote sensing equipment has long been used for various studies related to atmosphere. When wind speed issues are discussed, the Wind Doppler LIDAR and SODAR deserve to be highlighted due to high vertical resolution of both and the high data acquisition rate. This equipment has been very applied in academic studies for environmental issues and also in the industry as wind power projects and airport security. Though each has its limitation, they enable different types of studies, which range from the observation of the vertical wind profile until the detection of turbulent phenomena. The main objective of this work is to do an intecomparison between these two technologies. For this study one measurement campaign was conducted in Florianópolis (Santa Catarina State - Brazi) and a case study will be presented, where were employed a Wind Doppler LIDAR WL70 Leosphere operating with wavelength of 1.5 μm and maximum range of 1,500 meters and a SODAR MFAS SCINTEC with maximum range of 800 meters. It will be held: a statistical analysis in relation to the wind velocity and wind direction values, analysis of the turbulence and detection of PBL (planetary boundary layer) height. Both devices will be validated by atmospheric sounding data from the airport near the study area. From the results of this work are expected to find consistent values of correlation between the two devices and demonstrate its wide applicability, although each one have your different limitations, in the various areas of knowledge.

Keywords: Wind Doppler Lidar, planetary boundary layer, turbulence

VIII WLMLA Topic: Synergy between lidar and others instruments