

Validation of wind profiles retrieved by the new Long-Range Windcube with Wind Profiler Radar and Radiosonde measurements at the Lindenberg GRUAN site

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The wind field is one of the most important atmospheric parameter. Its accurate knowledge is crucial for the improvement of Numerical Weather Prediction (NWP) models. Moreover, in the tropical regions the wind and mass fields are uncoupled due to weak or absent Coriolis force. This means that the wind observations are necessary to obtain an accurate tropical wind analysis.

Doppler Wind Lidar systems, developed by LEOSPHERE, measuring wind profiles with a high accuracy up to 200m height are being largely deployed worldwide for applications in the wind energy industry.

Based on the operating experience of these ground-based remote sensors, an extended version (up to 5km range in horizontal configuration) is now available. Such a new equipment however needs to be validated with independent operational instruments such as Wind Profiler Radars and Radiosondes in order to be used as an operational meteorological instrument.

For this reason, the new Long Range Doppler Wind Lidar (Windcube WLS200) was deployed at the Lindenberg GCOS Reference Upper-Air Network (GRUAN) site during April and May 2011 to be validated against the 482 Mhz Wind Profiler, daily launched Radio Soundings, and NWP models outputs. This paper presents encouraging results of this intercomparison.