

Name of the presentation: The long-range windscanner  
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Abstract:

Many onshore wind turbines are being erected in hilly and mountainous areas. In terms of flow and resource modeling, such areas are described as 'complex' since sophisticated mathematical models are required to describe the mean flow and the turbulence. Efforts to improve numerical flow modeling rely heavily on comparisons to 3D flow measurements performed at full-scale. One of aims of a long-range windscanner project is to fulfill "shortage" of a good-quality field data.

The long-range windscanner is a system comprising three individual pulsed lidars (**L**ight **D**etection **A**nd **R**anging) each with a modified scanner head. By steering the three beams to meet at a point, the 3D flow vector can be measured and by moving the beam intersection over an area of interest, a complete 3D flow field can be measured. The measured flow field can then be compared to model predictions.

In this presentation we will concentrate on the background of the long-range windscanner, its characteristics, performances and future applications. To some extent an explanation of the past engineering challenges will be presented.

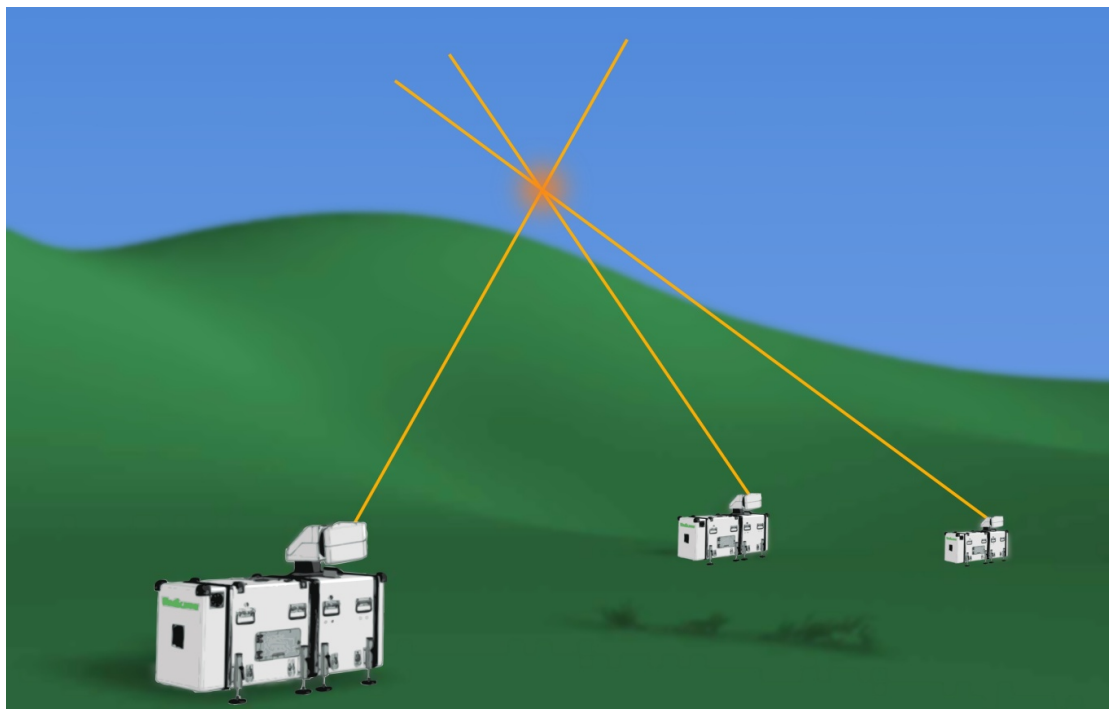


Figure 1. The long-range windscanner system, 3D sketch.