Comparison of 3D turbulence measurements using three staring wind lidars and a sonic anemometer - DTU Orbit (28/07/2019)

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Three pulsed lidars were used in staring, non-scanning mode, placed so that their beams crossed close to a 3D sonic anemometer. The goal is to compare lidar volume averaged wind measurement with point measurement reference sensors and to demonstrate the feasibility of performing 3D turbulence measurements with lidars. The results show a very good correlation between the lidar and the sonic times series. The variance of the velocity measured by the Mar is attenuated due to spatial filtering, and the amount of attenuation can be predicted theoretically.

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