



The accuracy of lidar measurements

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In experiments near London in the summer of 2003, two Doppler lidars were used to derive information about components of wind velocity at a range of altitudes. Data were collected about every two seconds for periods of about 10 minutes. There is variation in the results recorded. The question is whether it is possible to distinguish between variations due to measurement error (lidar accuracy) and variations due to changes of wind velocity (turbulence). Very simple models are suggested, with some providing acceptable fits to the data. It is found that the back-scattered signal strength is a good indicator of lidar accuracy. The implications for dual-lidar calculations will be examined.