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*Remote sensing instruments have certain advantages over point measurements when observing the urban boundary layer. They can be used to make measurements throughout the depth of the boundary layer, and can easily obtain data from above the roughness sublayer. Both of these things are difficult to achieve using an instrumented mast. In order to determine their accuracy, these observations must be compared with more traditional methods of data collection.*

*One method of obtaining wind profiles using a Doppler lidar is a three-beam method known as Doppler beam swinging (DBS). This type of scan can be completed in a shorter time than other wind-profiling methods, meaning that all points of the flow sampled during the scan should be related, even over inhomogeneous terrain.*

*A Doppler lidar has been deployed in central London since July 2010 and has been collecting wind speed data using DBS. These observations have been compared with data collected by a sonic anemometer located at the top of the BT Tower in central London (190 m). The suitability of DBS for use as a wind profiling method in urban areas has been assessed.*

*The performance of the DBS method is comparable to other lidar wind profiling methods, although it could be improved by increasing the scan frequency of the lidar. The data collected using this method are unlikely to be suitable for applications requiring very precise observations (such as wind power), but can give a valuable insight into the structure of wind profiles in the urban boundary layer.*