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New measurement technology for profiling the urban boundary layer

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Measurement of turbulence and wind profiles from street level up through the urban boundary layer, within the street canyon environment, is particularly challenging. Experience with use of commercial SODAR (acoustic 'radar') instruments has emphasized difficulties with data contamination from acoustic echoes from buildings and the sound being intrusive to residents. We present early results from a new SODAR design which specifically addresses working in confined spaces. The instrument produces rapid profiles of wind and turbulence, with good second moment data, so that flux information through the boundary layer transition regions is available. Comparisons are made with mast sonics at the lower levels.