

A New Project for 3-Dimensional Measurement of Urban Boundary Layer

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Meteorology, climate, and air quality in an urban or mega-city area (urban environment) is increasingly of scientific and social interest in recent years. The urban environment has been observed and studied mainly with techniques of ground surface, tower, and scale-model experiments, and computer simulations. Importance of the planetary boundary layer observation in city area has been recognized in related science communities to achieve more fully understanding and more precise predictions of phenomena, and however techniques available in past such as balloon-borne and air-borne observations have limitation in location and temporal continuity in data acquisition.

In this paper we propose a new project to apply remote-sensing techniques to the urban boundary layer observation, where information technology is also applied to enable data acquisition/transfer/display on a real-time basis. This project is expected to enable continuous measurements with more spatial coverage than previous experiments, clarifying urban boundary layer behaviors, effects of urban-area architecture to the atmosphere, and contributing to social applications such as air quality and local downpour predictions.