Japan Geoscience Union Meeting 2010
(May 23-28 2010 at Makuhari, Chiba, Japan)

AEM011-02 Room: Function Room A Time: May 27 09:15-09:30

Wind field observations in atmospheric boundary layer with ground-based Doppler lidar and wind profilers

Yasuhiro Murayama[1*], Hironori Iwai[1], Shin'ya Sekizawa[1], Ryoko Oda[1], Shoken Ishii[1], Kohei Mizutani[1], Seiji Kawamura[1], Yuichi Ohno[1]

[1]Ntl. Inst. Info. Comm. Tech.

Importance of observing and understanding planetary or atmospheric boundary layer has been increasingly stressed, in aspects of human living environment, air pollution monitoring/forecast/ control, precise meteorological forecast, especially in urban areas where most of human population are concentrated.
Recent advances of remote-sensing techniques such as wind profiling radar and Doppler lidar and so on have been enabling us to observe the 3-D structures and temporal evolution of turbulence, local circulation, front passage, convective activity etc., which leads to more understanding the lower-most atmospheric layer behaviors. Those techniques enable observing the height region above buildings/tower upto the lower troposphere with temporally frequent sampling and high-time resolution, which cannot be covered by most of past observation techniques as surface, balloon, tower, airborne, etc.
We have been developing 2-micron infrared Doppler lidar/CO2-DIAL and m-sequence pulse compression wind profiler radars. In addition to the past campaigns of 2006-2008, radiosonde launchings and deployment of tower observation in NICT campus are planned in February-March 2010. This observation gives background information of the boundary layer such as atmospheric stability, which is crucial to discuss atmospheric behaviors such as turbulence, convection, etc. leading to physical insight in more depth. Observed results are shown in this paper.

Keywords: Doppler lidar, wind profiler, atmospheric boundary layer