Development of high pulse compression wind profiler for three-dimensional observation of the urban atmosphere

Shinya Sekizawa[1]; Seiji Kawamura[1]; Yasuhiro Murayama[1]

[1] NICT

These days the local weather forecasts for torrential downpours and tornadoes are widely noticed, and the resolution of numerical models used for the forecast is increasing. On the other hand, spatial distributions of the observing stations, at which observed data are taken for the numerical forecasts, are not enough. It is desired to take observed data more densely in urban area.

Height profiles of wind velocities are one of the most important parameters for the numerical forecasts. We have examined the wind profiler system to get these data more densely. In this system, we need to locate many wind profilers in the urban area. So the development of the wind profiler system that is small, low-cost, and strong for the interference is required.

We have already developed an MSPC-WPR (M-Sequence Pulse Compression - Wind Profiler Radar) which uses M-sequence pulse code to avoid the channel interference with the other transmitters near it. This radar, which is small and low-cost, has been verified its ability to observe wind velocities. This time we develop a new defocus feeding parabolic antenna and improve the system for automatic observations. The outline of these improvements will be reported.