

## **Evaluation and improvement of cloud and precipitation processes of NICAM with ULTIMATE**

**Masaki Satoh**<sup>1</sup>, Woosub Roh<sup>1</sup>, Shuhei Matsugishi<sup>1</sup>, Yasutaka Ikuta<sup>2</sup>, Naomi Kuba<sup>1</sup>, Hajime Okamoto<sup>3</sup>

We propose a collaboration study between numerical models and ground remote-sensing observation data over the metropolitan area of Tokyo. The initiative is called ULTIMATE (ULTra-site for Measuring Atmosphere of Tokyo metropolitan Environment), in which using an intensive observation data in the Tokyo area together with satellite observations, cloud microphysics schemes of numerical models are evaluated and improved.

We will consider the use of observation data planned for ground validation of the EarthCARE satellite and the dual-polarization Doppler weather radar, which is now in operation at the Japan Meteorological Agency. We particularly focus on the evaluation and improvement of the Non-hydrostatic Icosahedral Atmospheric Model (NICAM), which can be used seamlessly on both global and regional domains, allowing us to quickly test the improved scheme on a global scale, compare it with satellite observations, and estimate climate sensitivity.