

## NICT Calibration and Validation experiment for DPR/GPM

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The GPM core satellite is scheduled to be launched on February 28, 2014. It carries the Dual-Frequency Precipitation Radar (DPR) developed by Japan Aerospace Exploration Agency (JAXA) and National Institute of Information and Communications Technology (NICT), which consists of two radars: Ku-band precipitation radar (KuPR, 13.6 GHz) and Ka-band radar (KaPR, 35.5 GHz). NICT is planning the GPM/DPR onboard calibration experiment at NICT Koganei. The beam matching of two radars will be evaluated. NICT is also planning the post-launch ground validation (product validation) experiment at two locations, NICT Kobe (NICT Advanced ICT Research Institute) and NICT Okinawa (Okinawa Electromagnetic Technology Center). NICT is developing two X-band phased array radars (PANDA: Phased Array radar Network DATA system) and will install at NICT Kobe and Okinawa. PANDA can scan three-dimensionally in thirty seconds. We can compare the radar directly and simultaneously. At NICT Okinawa, the C-band polarimetric Doppler radar (COBRA) is also installed. The differential reflectivity ( $ZDR$ ) can be used to validate the rain drop size distribution parameter ( $D_0$ ). The cross-correlation coefficient ( $\rho_{HV}$ ) can be used to validate the melting layer flag. Using the ground-based rain drop size measurements, the two-dimensional Video disdrometer (2DVD), Joss-type disdrometer, and Laser Optical disdrometer (Parsivel), and so on, the characteristics of DSD itself are analyzed and the  $k-Z$  relationship is estimated for evaluation and improvement of the GPM/DPR algorithm.

Keywords: GPM, DPR, Beam matching, Ground Validation, PANDA (Phased Array radar Network DATA system), COBRA