



The current status of the GPM/DPR project in Japan

S. Shimizu (1), T. Tanaka (1), R. Oki (1), M. Kojima (2), T. Iguchi (3) and K. Nakamura (4)

(1) Earth Observation Research and application Center (EORC), Japan Aerospace Exploration Agency (JAXA), shimizu@eorc.jaxa.jp/+81-3-6221-9049 (2) GPM/DPR Project Team, JAXA, (3) National Institute of Information and Communications Technology (NICT), (4) Hydrospheric Atmospheric Research Center, Nagoya University

The Dual-frequency Precipitation Radar (DPR) on the Global Precipitation Measurement (GPM) core satellite is being developed by JAXA and NICT. DPR consists of two radars, which are Ku-band (13.6GHz) precipitation radar (KuPR) and Ka-band (35.5GHz) radar (KaPR). The objectives of DPR are (1) to provide three-dimensional precipitation structure including snowfall over both ocean and land, (2) to improve the sensitivity and accuracy of precipitation measurement, and (3) to calibrate the estimated precipitation amount by microwave radiometers (MWRs) on the GPM constellation satellites. KaPR will detect snow and light rain, and the KuPR will detect heavy rain. In an effective dynamic range in both KaPR and KuPR, drop size distribution (DSD) information and more accurate rainfall estimates will be provided by a dual-frequency algorithm. The algorithm must use the difference in rain attenuation from the matched beam data observed by KaPR and KuPR.

In order to estimate accurate precipitation rate value, calibration and validation of the DPR algorithms and products are essential. From the experiments of TRMM ground validation activities, simple validation activities using instantaneous campaign observation data between the satellite and the ground surface are not enough. It is important to collect the data of physical parameters over the ground surface for the validation of the DPR algorithms before the launch of GPM-core satellite. JAXA is constructing the ground validation plans for GPM/DPR. We will report the validation plans and the current status of the GPM/DPR project in Japan.