Early result of Dual-Frequency Precipitation Radar (DPR) onboard GPM core satellite

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The Global Precipitation Measurement (GPM) core satellite was successfully launched on February 28 2014 (3:37 A.M. Japan standard time). The GPM mission aims to provide accurate global precipitation data frequently (e.g. 3 hourly) by combining the GPM core satellite and satellites which equip passive microwave radiometer (e.g. MetOp, DMSP, NOAA, and GCOM-W1, so called constellation satellites). The Dual-frequency Precipitation Radar (DPR), that is key instrument of the GPM jointly developed by the Japan Aerospace Exploration Agency (JAXA) and the National Institute of Information and Communications Technology (NICT), consists of Ku-band precipitation radar (KuPR) and Ka-band precipitation radar (KaPR) and it is expected to be the reference for the precipitation estimation by passive microwave radiometers by providing the three dimensional accurate precipitation profile.

In this report, the earlier results of the DPR observation, the initial check-out activities mainly on the PDR calibration and the earlier validation result will be presented. Since the KuPR is quite similar instrument to the precipitation radar (PR) onboard Tropical Rainfall Measurement Mission (TRMM) satellite which is still actively observing, it is worth to compare the TRMM/PR data with GPM/DPR data. The calibration and validation activities are important to guarantee the quality of DPR products. NICT has developed radar calibrator available both for KuPR and KaPR. On the validation of DPR, NICT developed X-band phased array radars and are deployed Kinki-area (mid-latitude site) and Okinawa Island (sub-tropical site) in Japan. These are very powerful tool that enable almost simultaneous comparison with spaceborne radar because of very fast scanning (10 to 30 seconds for one volume scan).

Note that the GPM core satellite is quite healthy and the initial check-out activities are progressed as scheduled at the time of the submission of this abstract.