Enhancement of Integrated Satellite Simulators for Data Assimilation

*幾田 泰酵[1]
*Yasutaka Ikuta[1]

1. 気象庁気象研究所
1. Japan Meteorological Agency/Meteorological Research Institute

In order to data assimilate the GPM/DPR, it is necessary to simulate the KuPR and KaPR from the results of the forecast model and compare them with the observation. The accuracy of the DPR simulation is directly related to the accuracy of data assimilation. To improve the accuracy of data assimilation, we enhanced the Integrated Satellite Simulators (I-Simulator). The I-Simulator is based on the radar simulator used for DPR data assimilation in the Meso-scale Analysis at JMA. In addition, it can also simulate microwaves using RTTOV-SCATT, and it is also possible to simulate ground-based radar.

In this study, the DPR is simulated using the predictions of the Meso-Scale Model at JMA. The hydrometeors of targets to simulate are cloud water, rain, cloud ice, snow, and graupel. The particles of snow and cloud ice are assumed to be non-spherical particles. The attenuation by the hydrometeors is taken into account in the calculation of the reflectivity. The observation error characteristics are discussed by comparing the simulation and the observation. We will show not only the observation error characteristics of KuPR and KaPR, but also the error characteristics of DFRm, which includes the outer swath KaPR in DPR-L2 V06X. The effects of DPR data assimilation expected from the Jacobian of the observation operator will be shown in the presentation.

キーワード：GPM、DPR、データ同化
Keywords: GPM, DPR, Data assimilation