



Sensitivity analysis of precipitation rate retrieval algorithms for spaceborne precipitation radar

Qiong Wu, Honggang Yin, Lin Chen, Jian Shang,
Songyan Gu, Naimeng Lu

NSMC/CMA

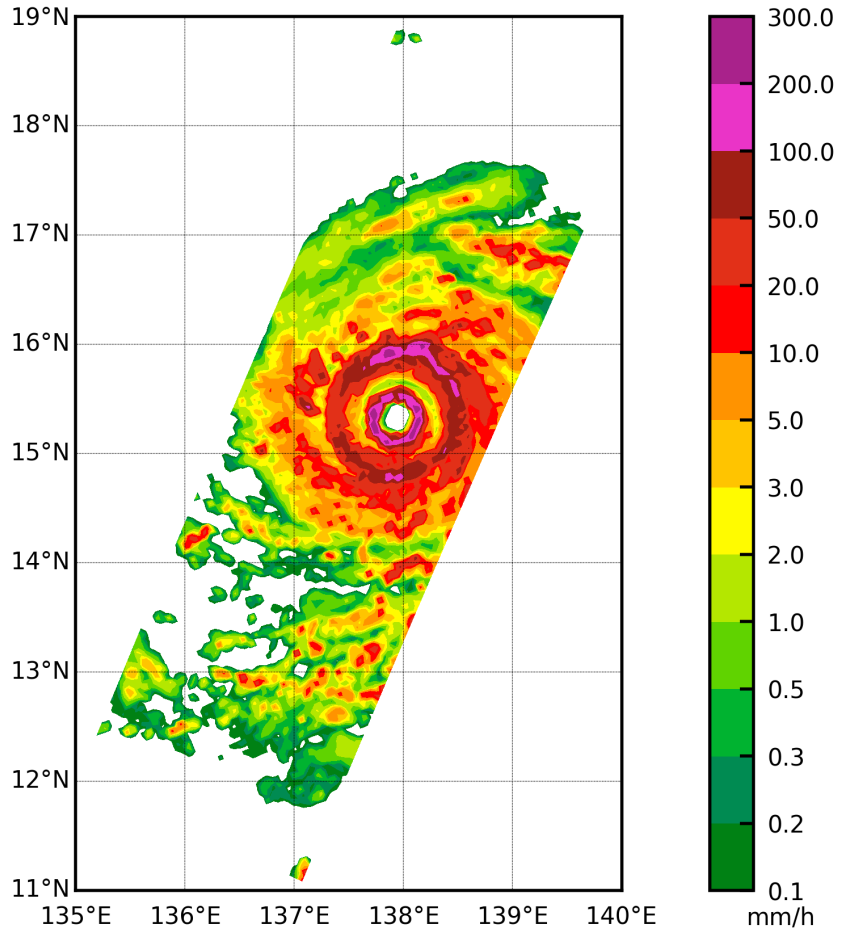
2024-07-18



Algorithm

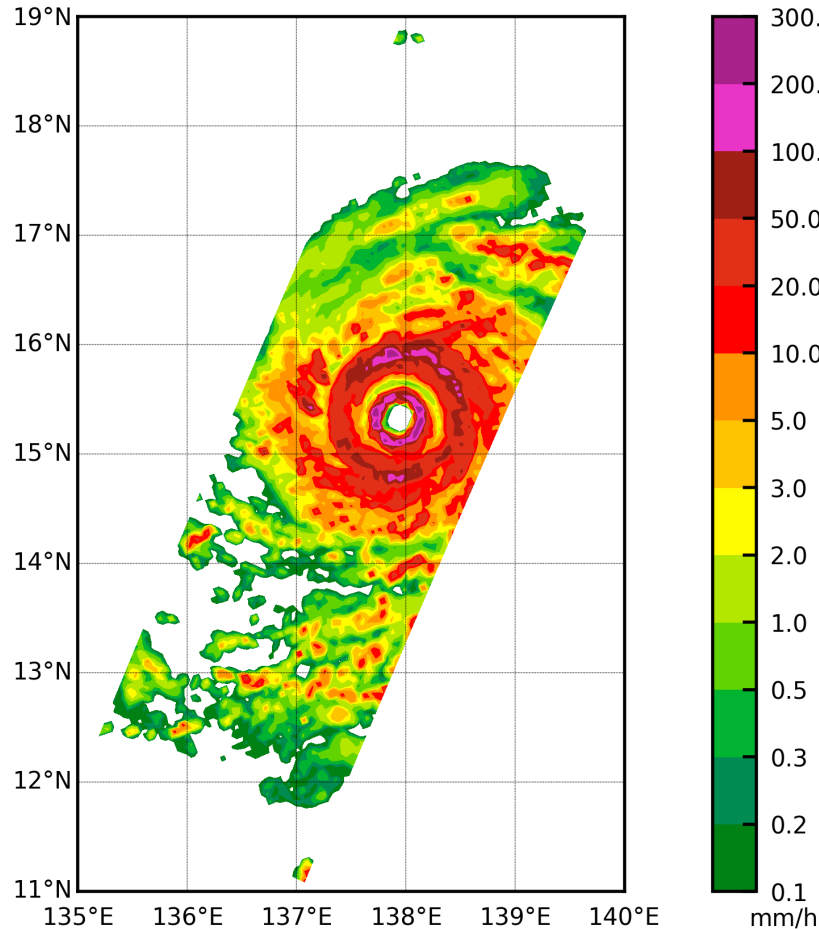


GPM DPR Ku NearSurface rainfall on 202305260521

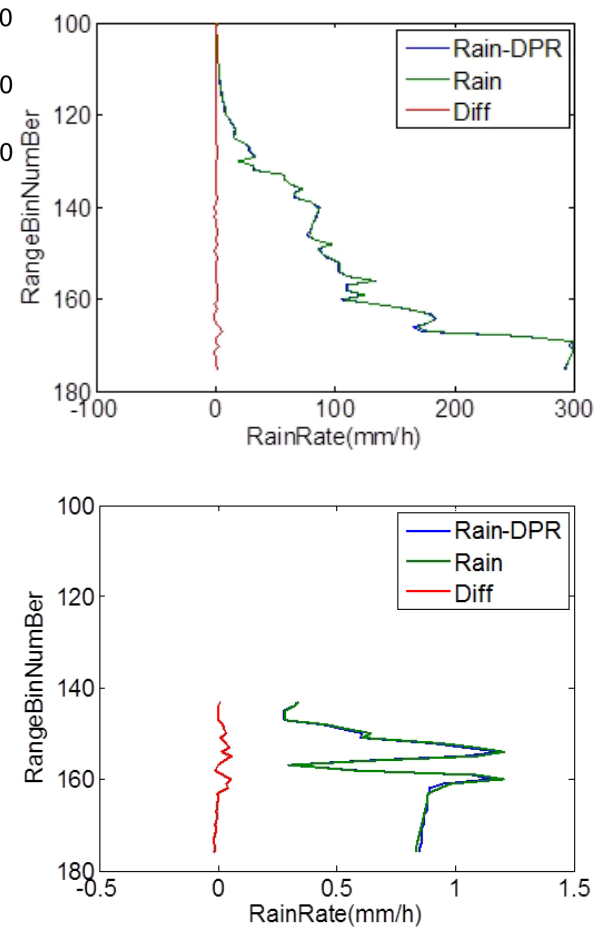


Algorithm here

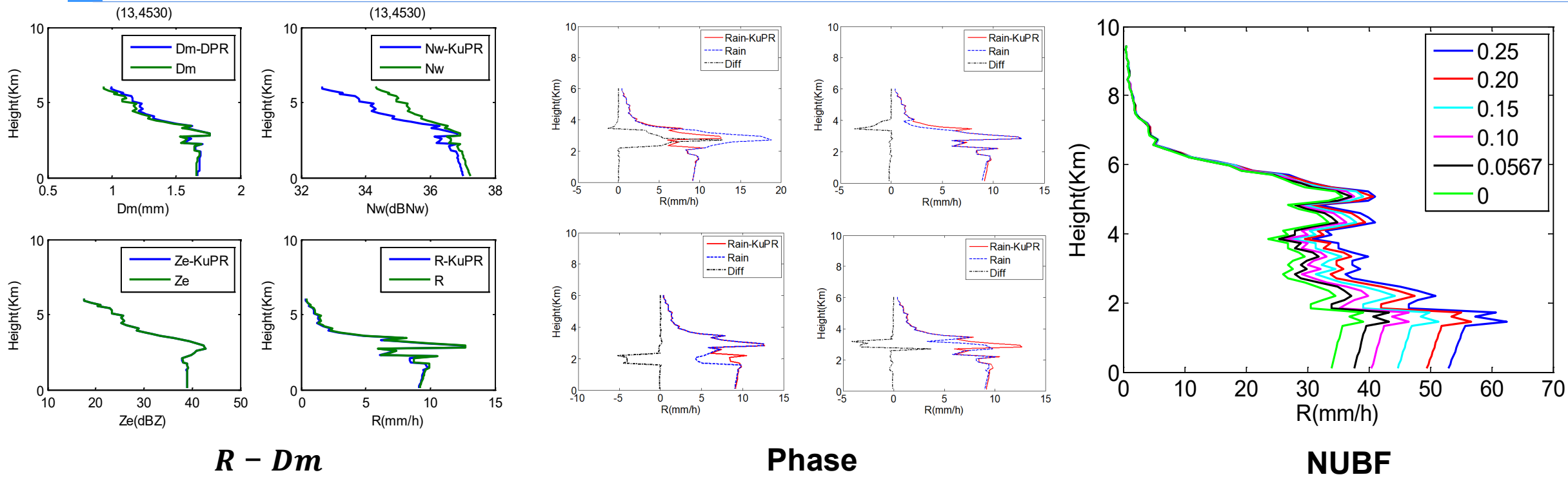
GPM DPR Ku NearSurface rainfall on 202305260521



GPM (typhoon Mawar)



Sensitivity analysis



The results indicate that $R - Dm$ is not sensitive to the retrieval of radar reflectivity factor profiles and precipitation rate profiles, but it is relatively sensitive to DSD profiles. Misjudgment of phase affects precipitation rate near the 0 degree layer and has little impact on ground precipitation rate. ParamNUBF is a highly sensitive factor, and the greater the difference from the true value, the greater the error of the precipitation rate profiles. It will be helpful for the improvement of algorithm based on the field experiments of FY-3G PMR and the Indicator argumentation for next generation of FY Rain Measurement Satellite.