

## Validation for summer precipitation of GPM/DPR in Mongolian and Siberian regions

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North eastern Eurasia PMM Terrestrial UNited validation Experiment (NEPTUNE project) aims for comprehensive validation of precipitation (rain) in summer, precipitation (snow fall) in winter and their spatial distribution based on ground truth data obtained by our observation network which has been improved in Northeast Eurasia. We could get certain numbers of synchronised events between GPM/DPR and surface observation in 3 summers (2014-2016) at 2 gauge sites in Siberia, 10 gauge sites and 1 radar region near Ulaanbaatar in Mongolia, respectively.

The GPM/DPR, KuPR and KaPR ES data showed good correspondence with rain records of surface observation. For gauge station, most of rain events correspond to each other within a few hours. Rain events in Mongolia were detected as stratiform with higher clutter free bottom with more than 1000m above surface. In case of rain in mountainous region observed by precipitation radar in Ulaanbaatar, GPM failed to detect the precipitated region likely due to higher topography. Extended convective rain events could be observed in Yakutsk in July 2016. The event showed lower clutter free bottom (530m above surface) with higher storm top height (9200m) thick intensive rain layer (530m to 3375m with 15mm/hour of rainfall intensity), which was never found in case of Mongolia.

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