



Microwave Land Surface Emissivity Map Derived from TRMM TMI and JRA25

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Reliable estimate of microwave land surface emissivity is expected to improve satellite rainfall retrieval over land. To this end, we develop a dataset of global land surface emissivity calculated from TRMM TMI brightness temperature (TB) and atmospheric profile data from Japanese 25-year Reanalysis Project (JRA-25). TRMM PR is used to identify Rain-free scenes. The dependency of emissivity on each TMI frequency, each local time, and seasonal/annual variation is studied. Moreover, the regional variation of surface emissivity is analyzed in comparison with JRA25 land type. Histogram of polarization difference of emissivity closely reflects land types, while histogram of vertical emissivity and 85GHz-horizontal emissivity is less related to land type variability. It is then attempted to derive land surface emissivity in raining regions by interpolating emissivity from neighboring rain-free areas with Gaussian function weighting. The potential applicability to rainfall retrieval is also discussed.