Evaluation of TRMM Datasets for Applications with Rain Distributions in Hazardous Storms

Song Yang

George Mason University and NASA/Goddard Space Flight Center, Code 613.1, Greenbelt, MD 20771, USA (ysong@agnes.gsfc.nasa.gov / Phone: 301-614-6338)

Since Tropical Rainfall Measuring Mission (TRMM) satellite was launched in November 1997, TRMM has already provided eight-year rain products. The quality of TRMM rain product has been improved substantially since its initial release in early 1998. There are several rain products based on measurements from TRMM primary rain measuring instruments, i.e., TRMM microwave imager (TMI) and precipitation radar (PR). The rain datasets from TRMM facility rain algorithms applied in this talk are TMI-only, PR-only and TMI/PR combined level II rain products. The current version 6 TRMM rain products indicate that the convergence of zonal oceanic monthly rainfall has an uncertainty of less than 10%, while the error convergence of zonal continental monthly rainfall is only around 20%. The trends of monthly rainfall from different TRMM rain algorithms are consistent. However, differences between these products still exist. It is important to document the detailed differences and their distributions among TRMM rain products so that people who plan to use these datasets would understand the basic characteristics to help them decide how to apply the datasets in their scientific researches. This presentation will present a systematical analysis on the evolution of TRMM rain products, the horizontal error distributions of current rain products at different spatial-temporal scales, and applications for studying rain distributions in hazardous storms.