



Rain Characteristics over Western India from TRMM and Nonhydrostatic Cloud Resolving Model

A. Mehta (1), E. Smith (2), G. Tripoli (3)

(1) JCET / Univ. of Maryland in Baltimore County at NASA/GSFC, Greenbelt, MD, USA (amita@radar.gsfc.nasa.gov), (2) Code 613.1, Laboratory for Atmospheres, NASA/GSFC, Greenbelt, MD, USA (eric.a.smith@nasa.gov), (3) Dept. of Atmospheric & Oceanic Sciences, University of Wisconsin, Madison, WI, USA, (tripoli@aos.wisc.edu)

In this study we analyze nine (9) years (1998-2006) of Tropical Rainfall Measuring Mission (TRMM) Precipitation Radar (PR) product 2A25, and TRMM merged product 3b42 to characterize intraseasonal, seasonal, and interannual summer monsoon rainfall (June-July-August-September) over western and central-western India (68°E-80°E and 20°N-25°N). The spatial domain includes the catchment areas of four major rivers and their tributaries of western India. Frequent flooding over this domain during summer monsoon seasons is common, but, the most disastrous floods of this decade occurred during August of 2006, resulting from heavy and sustained precipitation. In this study, we specifically focus on understanding the heavy rainfall events of August 2006. We use a cloud resolving model, specifically the University of Wisconsin Nonhydrostatic Modeling System (UW-NMS), to simulate rain systems which occurred during 6-16 August 2006. We examine NCEP operational analysis and the cloud model simulations to understand rainfall efficiency of these rain systems in terms of large-scale, mesoscale, and cloud-scale dynamical and moist processes over western India.