



Quantifying precipitation characteristics of the severe cyclone Thane along the Bay of Bengal

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Hurricane "Thane" devastated the eastern coast of peninsular India during Dec 2011-the associated storm surges were high and the updraughts strong. In this paper, we first calculate the associated Cloud Cover, using MODIS (MODerate resolution Imaging Spectroradiometer) retrievals. A preliminary analysis indicates a substantially larger cloud cover than those associated with normal north east monsoon activity. The precipitable water amounts are analysed using THOR (Tool for High-resolution Observation Review) and TRMM (Tropical Rainfall Measuring Mission) retrievals. An analysis of Thane's morphology indicated that warm rain microphysics was the main triggering mechanism for the onset of precipitation. In this paper, we first quantify precipitable water amounts using the UK Meteorological Office Large Eddy Simulation Model, and then compare these amounts with those retrieved from the Giovanni NASA Project MODIS TERRA and AQUA Level 3 data. Finally, we grow a cloud droplet spectrum from aerosol distributions over the region, using a microphysical parcel model, and then feed the resulting cloud spectrum into a stochastic collection model to obtain the rain masses mediated by warm rain microphysics.