Aerosol and Cloud spatio-temporal characteristics over India: pertain to active and break spells of monsoon

M.C.R. Kalapureddy, P. Ernest Raj and R.D. Ruchith Indian Institute of Tropical Meteorology, Pashan, Pune 411008

The contribution of aerosols in formation and/or dissipation of clouds, life time of clouds, and precipitation process needs a detailed understanding especially in the tropical monsoon region. It is therefore essential to understand atmospheric aerosols and pollution levels and their effects on the microphysics and dynamics of naturally forming clouds. Their role and interaction with lower atmosphere become a crucial part in understanding and assessing the atmosphere-cloud-aerosol interactions. For this, spatiotemporal evolution of aerosol and cloud features can provide some insights into the aerosol-cloud interactions, which is the main focus of this work. The present work utilizes aerosol and cloud products mainly from Moderate Resolution Imaging Spectroradiometer's (MODIS) Terra satellite. High resolution Type II (better than 10 km) and gridded Type III MODIS (10 x 10) products have been utilized here to focus on both local and regional aspects of cloud and aerosol features in and around Indian region mainly during monsoon period. Various aerosol and cloud products have been examined under active and break phase of the monsoon. There are certain relations found valid among the aerosol and cloud parameters over a selected region and period. Such analysis is expected to help in better characterizing and interpreting the atmosphere-cloud-aerosol interaction over India.