

Seasonal Variability of Aerosol Optical Properties and Their Radiative Effects over Indo-Gangetic Plain in India

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Abstract : Aerosols represent an important component of earth-atmosphere system and have a profound impact on the global and regional climate. With the growing population and urbanization, the aerosol load in the atmosphere over the Indian region is found to be increasing. Several studies have reported that the aerosol optical depth over the northern part of India is higher as compared to the southern part. The northern India along the Indo-Gangetic plain is often influenced with dust transported from the Thar Desert in northwestern India and from Arabian Peninsula during the pre-monsoon season. Seasonal variations in aerosol optical and radiative properties were examined using data retrieved from ground based multi-wavelength Prede Sun/sky radiometer (POM-02) over Delhi, Rohtak, Jodhpur and Varanasi for the period April 2011-April 2013. These stations are part of the Skynet-India network of India Meteorological Department. The Sun/sky radiometer (POM-02) has advantage over other instruments that it can be calibrated on-site. These aerosol optical properties retrieved from skyradiometer observations are further used to analyze the Direct Aerosol Radiative Forcing (DARF) over the study locations.

Keywords : aerosol optical properties, indo- gangetic plain, radiative forcing, sky radiometer

Conference Title : ICECCHH 2015 : International Conference on Environment, Climate Change and Human Health

Conference Location : Amsterdam, Netherlands

Conference Dates : May 14-15, 2015