

## **Characterization of urban aerosol scattering phenomena for understanding the meteorology**

In a paper recently published in the renowned journal 'Measurement' authored by P.C.S. Devaraa, K.Vijayakumar and P.D.Safaica of Amity Centre for Ocean Atmospheric Science and Technology (ACOAST), Amity School of Earth and Environmental Sciences (ASEES), University of Haryana, Gurgaon, Department of Physics, Sri Venkateswara University (SVU), Tirupati and Indian Institute of Tropical Meteorology(IITM), Pune respectively, it is stated that The latest developments in science and technology have enabled the research community to devise numerous methods to monitor and analyze the aerosol properties in real time.

Aerosols are the suspension of fine solid and liquid particles in air or gas which arises from both natural and human activities. Different types of atmospheric aerosols, both from natural and anthropogenic sources, interfere with incoming and outgoing solar radiation contributing to the weather and climate changes. When these particles are large enough, as they scatter and absorb sunlight, sunlight dispersal can reduce visibility (haze). The presence of these aerosols over any location is due to a combination of local sources and long-range transport that can result in a variety of mixing states (both internal and external), primarily due to aging and interaction between different aerosol types. These aerosols interact with the solar radiation directly or indirectly influencing the life-time and albedo of clouds and ultimately precipitation. Such absorption and scattering properties of aerosol particles cause changes in weather and climate and also affect visibility, air quality, and human health.

The researchers developed numerous methods for real-time monitoring and analysis of aerosol properties with the help of Ecotech Model Aurora 3000 tri-wavelength integrating nephelometer deployed in Pune.

The study found that the relation of the scattering coefficient and asymmetric parameter showed significant day to day variability, spectral dependency, and engagement with local

meteorology. A significant enhancement Scatter coefficient during weekdays was found which differ from weekends (Saturday and Sunday) which is attributed to the traffic density.

Commercially and globally available Ecotech products that operate on polar nephelometric technology can revolutionize the measurement of light scattering from multiple angles (at close intervals) for better characterization of aerosol scattering phenomena and forecasting

Ref: <http://www.elsevier.com/locate/measurement>

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