

Title: Possible mechanism of New Particle Formation in Tropics

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Abstract:

Ion mobility measurements have been made to identify the formation of intermediate ions at various locations. Measurement sites for such observations extend over large ranges of altitude (e.g. in the boundary layer and the lower, middle and upper free atmosphere), latitude (e.g. in the tropics, mid- and high-latitudes, Polar regions), and the degree of pollution (e.g. in the remote marine, polluted marine, remote continental, rural, urban). Emphasis in most of these studies, some of which extend to long periods of several years, is to study the nucleation events for formation of new particles and their growth to the size of cloud condensation nuclei. A variety of different mechanisms such as the binary (water - sulphuric acid) nucleation, ternary (water-sulphuric acid – ammonia) nucleation, ion-induced nucleation, nucleation involving organic vapors or iodine have been proposed to be responsible for the nucleation and growth of these newly formed particles. No conclusion has, however, been reached for a satisfactory mechanism**.** Therefore, more measurements spanning over a broad range of geographical locations and ambient environmental conditions extending over long periods are required.

Very few studies have been carried out to analyse the rain-induced events for particle formation. During the rainfall periods, an enhancement of intermediate ion concentrations has been associated with the breaking of water droplets into numerous fine negatively and positively charged droplets. However, the mechanisms of the formations of charged particles are not well known and understood.

Biography(100-150 words)

Dr. Alok Sagar Gautam is a researcher, mentor and academician of National and International repute holds Post Graduate (M.Sc.), and Doctoral Degree (Ph.D) in the field of Atmospheric Physics and Space Science, associated as Assistant Professor of Department of Physics, Hemvati Nandan Bahuguna Garhwal University (A Central University), Uttarakhand. He has published some very good scientific papers in peer reviewed International/Nationals journals. He has also organized/participated in many scientific International/Nationals conferences, seminars,

workshops. As a result of his very good research work, Dr. Gautam has been awarded Junior Associate at International Centre for Theoretical Physics (ICTP) Italy.

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