I-T-1

ATMOSPHERIC AEROSOLS AND THEIR RADIATIVE FORCING OVER INDIAN REGION – AN INSIGHT INTO THE SPATIO-TEMPORAL HETEROGENEITY AND ROLE OF LONG RANGE TRANSPORT

K KRISHNA MOORTHY
SPL, VSSC, TRIVANDRUM

Abstract

The region-specific and season-specific nature of aerosol characteristics and the significance of their understanding in reducing the current uncertainty in the direct and indirect radiative forcing (both at regional and global levels) is being increasingly recognized by scientists and environmentalists. The concerted research activities in India towards understanding the above and quantifying it for the Indian region started as early back in the 1980s. However, the last decade saw more co-ordinated, and thematic approaches to above subjects through intensive field experiments and long-term observational programmes. National programmes such as the ISRO-GBP and multi-institutional multi- instrumented campaigns such as the INDOEX-i, the ARMEX, the LC1 &LC2 and of late the ICARB have contributed immensely to this. The network observatories established over different geographical regions of India under ISRO-GBP as well those undertaken by individual research institutions have provided considerable insight into the temporal and spatial heterogeneity. Long-range transport of aerosols from distinctively different aerosol environments of the adjoining landmasses as well as large-scale atmospheric dynamics and associated airmass movement, significantly contributes in causing the above heterogeneity. These are modulated by regional scale weather events as well as by anthropogenic activities. The talk aims at providing a summary of our understanding of the above with emphasis on the recent field experiments.