Government of India
Ministry of Earth Sciences

Press Release

Winter Fog Experiment (WIFEX 2016-17)

Ministry of Earth Sciences (MoES), Government of India has taken up a multi-institutional initiative during winter 2016-17 to conduct an intensive ground-based measurement campaign in Delhi to understand different physical and chemical features of fog and factors responsible for its genesis, intensity and duration. The campaign is being conducted at the Indira Gandhi International Airport (IGIA), with full cooperation and support of Airport Authority of India and GMR, IGIA. India Meteorological Department, National Center for Medium Range Weather Forecast under MoES and Indian Institute of Science Education and Research (IISER) Mohali are participating in the observational campaign being led by Indian Institute of Tropical Meteorology, Pune. The goal of the Winter Fog Experiment (WIFEX) is to develop methods for forecasting winter fog on various temporal and spatial scales, and help reduce its adverse impact on aviation, transportation and economy, and loss of human life due to accidents.

The presence of heavy and extended period of fog in the northern regions of India is one of the major weather hazards, impacting aviation, road transportation, economy and public life in the world's most densely populated region. Studies show that maximum period of fog occurrence over Northwest India is about 48 days (visibility < 1000m) per year, and occurs mostly during December-February time period. Significant socio-economic concern has been raised due to increase in frequency, persistence and intensity of fog occurrence over the northern parts of the country. Land use changes and increasing pollution in the region are responsible for growing fog occurrence. Therefore the campaign, being conducted during Dec 2016 -Feb2017, is being undertaken to study the characteristics and variability of fog events and associated dynamics, thermodynamics and fog microphysics, with the aim to achieve better understanding of the fog life cycle and ultimately improve capability in fog prediction.

Extensive sets of comprehensive ground-based instrumentation, including remote sensing platforms, have been deployed at IGIA, New Delhi to measure micro meteorological conditions, radiation, fog droplet and aerosol microphysics, aerosol optical properties, and aerosol and fog water chemistry to describe the complete environmental conditions in which fog develops. These measurements will form the basis for understanding some of the key questions on fog formation and dispersion. These measurements when assimilated into models will help to improve the prediction skill of

fog formation. Further, these observations will be used to validate model forecasts and to improve model capability. It is proposed to introduce this model for operational forecasts of fog during the winter season of 2017-18.

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