

Project Abstract

Title: Monitoring Air Pollution in Delhi NCR using a Hybrid Approach: Feedback for Policy

Investigators:

PI: Sagnik Dey

Affiliation: Associate Professor, Centre for Atmospheric Sciences, IIT Delhi

Contact Information:

Email: sagnik@cas.iitd.ac.in, Tel: +91 (11) 26591315 (office)

Project Summary:

Air pollution is the leading environmental risk factor in India with estimates of more than a million premature deaths annually. In recent years, Delhi NCR has been experiencing severe air pollution episodes. Lots of recent and past studies have focused on air pollution in Delhi. However, there is no consolidated effort to examine the efficacy of the various policy implementations to curb air pollution in Delhi. Three largest continuous sources of air pollution in Delhi NCR are coal-fed thermal power plants (TPPs), brick kilns and vehicles. In addition, open biomass burning during Oct-Nov (stubble burning) and waste burning throughout the year also contribute to the air pollution in Delhi NCR. In this work, a framework will be developed to understand the trends in air pollution (fine particulate, PM_{2.5} and gaseous precursors) and its linkage to three major sources – TPP, brick kiln, and open biomass burning. I will use a hybrid approach (integrating in-situ, satellite and chemical transport model (CTM) data) to examine whether the policies to curb emission from these sources are effectively implemented or not.

Deliverable

The project will have the following deliverables:

1. Estimation of contribution of various neighboring states and trans-boundary transport to Delhi's air pollution
2. Identifying the changes in open burning pattern, pollutions at large point sources (e.g. TPPs)/source clusters (e.g. brick kilns)
3. Feedback for policymakers to judge the effectiveness of the mitigation measures implemented to curb pollution due to these three major sources.