

## 1.110 Quantifying the contribution of biogenic emissions to air quality in a mega-city.

Early Career Scientist

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Abstract:

Clean air is a fundamental human right yet over 90% of the world's population are exposed to air pollution above World Health Organization limits. Nearly 5 million die each year as a result and many millions of tonnes of crops are lost. Despite increasingly strict controls on emissions of pollutants and their parent compounds, air pollution continues to increase in many world regions. The causes of poor air quality are complex and poorly understood, and pollution sources many and varied. Delhi is the world's third most populous megacity and suffers among the poorest air quality. In this study we used state-of-the-art instruments and techniques to measure concentrations and fluxes of air pollutants and precursor compounds at flux towers at two sites in central Delhi. We supplemented these atmospheric measurements with leaf-level sampling of biogenic hydrocarbon emitted from dominant plant species in the footprint of the flux towers. We calculated temperature and light response curves for emission rates of key biogenics for each species, and deduced basal emission factors. This will enable us to model and better understand the contribution of natural emissions of reactive gases from vegetation to air pollution in an urban environment where anthropogenic pollution sources are large. The knowledge gained can be used to enable regulators to devise appropriate emission control strategies to reduce episodes of poor air quality in the world's urban areas.