4.005 Modelling and remote-sensing based analysis of a dense haze event over Northeastern Pakistan.

Early Career Scientist

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Abstract:

Urban areas in Pakistan are experiencing escalation in haze episodes. Due to magnification in the economy, emissions of gaseous and aerosol components from automobiles, road constructions and industry have been growing in Pakistan that resulted in worst air quality during winter and post-monsoon season. Northeastern (NE) Pakistan ($71-74.5°E$, $28-34°N$) is undergoing from haze (smog / mist) episodes because of magnification in aerosol pollution levels. In addition to anthropogenic emissions, the winter pollution over NE Pakistan is associated with unwonted meteorological conditions. In this article, predicated on model simulations, to examine the pollution levels before, during and after the heavily polluted episode in NE Pakistan. The Lahore, a metropolitan city in NE Pakistan experienced a dense haze event during the first week of November 2016. Particulate matter concentrations, AOD, and pollutants concentration incremented many folds than the mundane. Goal of this study to characterize sources and causes of this haze event especially over Lahore. Weather Research Forecasting model coupled with chemistry (WRF-Chem) and pertinent satellite data from MODIS are utilized towards validation as well. Additionally, the Vertical Feature Mask (VFM) results was presented from the Cloud-Aerosol Lidar and Infrared Pathfinder Satellite Observations (CALIPSO) satellite that reveals thick layers of aerosol ranging from 2- 5 km in the study region and period.