



Air Pollution in South Asia: Real Time Air Quality Index Analysis

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Abstract

Lahore, New Delhi, Beijing and Dhaka are listed among the most polluted cities in Asia. PM_{2.5} Air quality index (AQI) in New Delhi is often higher than Lahore but sometimes situation reverses. AQI is normally moderate in both neighboring countries from January to September, but suddenly rises during October to January every year. India and Pakistan use their own air quality standards, indices and color codes to describe the level of air pollution to their citizens. India uses her own National AQI and Pakistan uses US EPA AQI standard. India deployed real-time world air quality index (WAQI) sensors in all big cities and Pakistan relied on AirVisual Map (IQAir) pollution monitoring system. It is possible to convert AQI number into actual concentrations ($\mu\text{g}/\text{m}^3$) of pollutants that does not change anywhere. United States of America deployed PM_{2.5} WAQI sensors in her Embassy in Islamabad and Consulates in Karachi, Lahore and Peshawar in April 2019, which made it possible to analyze relative AQI of New Delhi and Lahore on the same scale. The AQI data collected by the U.S. Embassy and Consulates in Pakistan is translated into actionable information by the U.S. Environmental Protection Agency's (EPA) NowCast algorithm. This communication reports air pollution levels in New Delhi and Lahore using WAQI data that clearly shows the New Delhi and Lahore have their own minimum PM_{2.5} AQI levels above which downwind cities are affected by stubble burning smoke. North-south and east-west winds at 10-20 km/h transfer pollutants from New Delhi to Chennai and Lahore in one to two days. This situation reverses when AQI in Lahore is higher than New Delhi. Stubble burning and Diwali fireworks increase severity of smog.

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