

## Modeling Breathable Particulate Matter Concentrations over Mexico City Retrieved from Landsat 8 Satellite Imagery

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**Abstract :** In order to diminish health risks, it is of major importance to monitor air quality. However, this process is accompanied by the high costs of physical and human resources. In this context, this research is carried out with the main objective of developing a predictive model for concentrations of inhalable particles (PM<sub>10-2.5</sub>) using remote sensing. To develop the model, satellite images, mainly from Landsat 8, of the Mexico City's Metropolitan Area were used. Using historical PM<sub>10</sub> and PM<sub>2.5</sub> measurements of the RAMA (Automatic Environmental Monitoring Network of Mexico City) and through the processing of the available satellite images, a preliminary model was generated in which it was possible to observe critical opportunity areas that will allow the generation of a robust model. Through the preliminary model applied to the scenes of Mexico City, three areas were identified that cause great interest due to the presumed high concentration of PM; the zones are those that present high plant density, bodies of water and soil without constructions or vegetation. To date, work continues on this line to improve the preliminary model that has been proposed. In addition, a brief analysis was made of six models, presented in articles developed in different parts of the world, this in order to visualize the optimal bands for the generation of a suitable model for Mexico City. It was found that infrared bands have helped to model in other cities, but the effectiveness that these bands could provide for the geographic and climatic conditions of Mexico City is still being evaluated.

**Keywords :** air quality, modeling pollution, particulate matter, remote sensing

**Conference Title :** ICAPCM 2019 : International Conference on Air Pollution and Control Methods

**Conference Location :** Rome, Italy

**Conference Dates :** July 22-23, 2019