

Mapping PM 2.5 Concentration with Satellite Based Remote Sensing Technology: A Case Study of Kathmandu, Nepal.

Ashish Chalise and Tejendra Kandel

Department of Civil and Geomatics Engineering Pashchimanchal Campus,
Institute of Engineering, Tribhuvan University
Pokhara, 33700, Nepal.

Abstract:

Air pollution has become a major issue of modern metropolitan because of industrial emission, urbanization and anthropogenic activities. Many air quality monitoring stations are established for measuring the pollution but these stations tend to be scarcely distributed and do not provide sufficient tools for mapping atmospheric pollution since air quality is highly variable. Satellite remote sensing is a valuable tool for assessing and mapping air pollution as satellite images are able to provide synoptic views of large areas in one image on a systematic basis due to the temporal resolution of the satellite sensors. This article investigates the relationship of PM 2.5 concentration an air pollution pattern with urban land use and with urban thermal landscape using a Remote sensing approach. Aerosol Optical Depth (AOD) being the measure of aerosols (e.g., urban haze, smoke particles, desert dust) distributed with in a column of air from the instrument (earth's surface) to top of the atmosphere plays an effective role to alter the earth's energy balance and hence the climate. The research focuses on relating satellite based AOD retrieval with the ground-based PM concentration. The European Satellite Agency (ESA) sentinel 5P aerosol index was used as satellite imagery for this research. Relationships among the spatial patterns of air pollution, with ground-based observation were sought through python and correlation analyses. Therefore, using better mathematical model air pollution assessment of place is detailed rather than virtual station.

Key Words: remote sensing, sentinel, aerosols, particulate matters, model



[6th International Conference on GIS and Remote Sensing](#)

November 23-24, 2020 Webinar

Abstract Citation:

Ashish Chalise and Tejendra Kandel, Mapping PM 2.5 Concentration with Satellite Based Remote Sensing Technology: A Case Study of Kathmandu, Nepal, 6th International Conference On GIS And Remote Sensing, November 23-24, 2020 Webinar.

<https://gis-remotesensing.environmentalconferences.org/speaker/2020/ashish-chalise-it-maps-and-consultant-pvt-ltd>



Biography:

Ashish Chalise has completed his Engineering at the age of 22 years from Tribhuvan University. He is the employe of IT Maps and Consultant Pvt Ltd, a premier geospatial organization of Nepal. He has published several papers in reputed journals