

IAF EARTH OBSERVATION SYMPOSIUM (B1)
Earth Observation Applications, Societal Challenges and Economic Benefits (5)

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SPATIOTEMPORAL AIR QUALITY MONITORING USING IN-SITU AND CAMS INTEGRATED
SATELLITE DATA IN PORT HARCOURT, NIGERIA.

Abstract

The pollution of the ambient air has long been revealed as the most fatal form of environmental pollution. Air pollution causes about seven million deaths every year. However, Port Harcourt is proven one of the most polluted cities in the world and with seasonal sooth precipitation. The levels of air pollution vary from one location to another. This study investigated the spatiotemporal variation of air pollutants with in-situ monitoring in Port Harcourt metropolis and compare with the Copernicus Atmosphere Monitoring Service (CAMS) data. The atmospheric pollution is very high in the city because of high industrial presence, high vehicular traffic and rising human population density. The concentrations of air quality parameters selected for the study were SPM, CO, SO₂, and NO₂. Each parameter was measured at the 9 different sampling locations within the study area using a hand-held Gas analyzer; Aerocet-531 Met One Instrument, Drager X-am 5000 and a Handheld Germin-300 GPS device to record the GPS coordinates of the sampling points. ArcMap 10.0 was used to interpolate the geospatial air quality data to produces results in maps describing air quality parameter distribution. The results of air quality parameters are above the WHO and FMEnv air quality standards. PM 2.5 and PM10 have a maximum value of 159.23 and 378.39 respectively which is higher than the WHO and FMEnv Standard limits for 24hours exposure. The spatial distribution of air quality index was fully unhealthy for the entire area in dry while 50