

ASSESSMENT OF ATMOSPHERIC AEROSOLS IN NIGERIA AND ITS CORRESPONDENCE HEALTH EFFECTS

ABSTRACT

Aerosol is an important component of the atmosphere, and its source, composition, distribution, and effects are highly complicated. Atmospheric aerosols have significant effects on human health, air quality and global climate. Particulate Matter (PM) is a widespread air pollutant, consisting of a mixture of solid and liquid particles suspended in the air. The size of the particles has been directly linked to their potential for causing harm to human health. This study examined the possible health effects as a result of inhaling particulate matter with focus on fine and coarse particulate matter (PM_{2.5} and PM₁₀) as it affects human health. Relevant standards such as the World Health Organization (WHO) and United States Environmental Protection Agency (USEPA's) National Ambient Air Quality Standards (NAAQS) guideline limit for PM_{2.5} and PM₁₀ in ambient air are used in comparing findings from particulate matter studies in some selected cities across the six geopolitical zones of Nigeria. Air Quality Standards (AQI) of some selected industrial sites in Port-Harcourt was also examined and the findings were compared with the international standard guidelines. Findings of Atmospheric Particulate Matter in some selected cities across the six (6) geo-political zones in Nigeria shows higher concentration level of PM_{2.5} and PM₁₀ compared to the air quality standards guidelines for PM by WHO. Similarly, result of atmospheric particulate matter at the three emerging industrial sites in Port-Harcourt indicated higher concentrations compared to WHO and NAAQS standard guidelines for PM_{2.5} and PM₁₀ with higher concentration level during dry season. The AQI of the three emerging industrial sites also indicated a category of "good to moderate" for wet season and "unhealthy to hazardous" for dry season in all the sampling areas. The particulate matter concentration level in such sites may have great effects to human health especially on people with respiratory diseases.

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