The Air Quality Basin Concept in the Tropics

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Abstract

According to the guidelines of the World Health Organization (WHO), the air quality pollution levels have to decrease to reach the goals by 2030 (Health Organization Regional Office for Europe, 2017). These air pollution levels must be reached through the enforcement of monitoring and regulation policies and the development of atmospheric pollution management zones. In order to improve the air quality, it is necessary to boost the consistency of environmental monitoring and modeling, as well as the granting of environmental licenses allowance for new projects in urban and industrial areas. This emission permit is linked to an atmospheric pollution management location defined by air quality monitoring systems, administrative boundaries, industrial or urban clusters, or meteorological and topographic data. The regulation is often updated when levels of air quality pollutants are detected. This delimitation frequently fails to reflect the nature of the pollution problem, atmospheric ventilation, and dispersion behavior in the study region. The goal of this project is to provide a comprehensive, theoretical overview with regard to the current approaches and definitions of the concept of an air basin. The paper argues that the current definition of an air basin is insufficient for tropical regions, has poor integration with the regional emission permit system, and should be incorporated into the design of the estimation of the allowable emissions for industrial clusters. Also, includes a study case in a tropical region that includes the dispersion of pollutants from modeling that allows a preliminary methodology for the establishment of an air basin and its alignment to tropical areas. In this research is to develop a framework for the definition of an airshed for the accomplishment of air quality management, to aid in the structure and enhance the emissions permit system that could be revamped, including those with a distinct tropics behavior.

Early Career Scientist

YES, I am an early career scientist.

IGAC Activities

CCMi: Chemistry Climate Model Initiative, GEIA: Global Emissions Initiative, TOAR: Tropospheric Ozone Assessment Report, MAP-AQ: Monitoring, Analysis and Prediction of Air Quality

IGAC Regional Working Groups

Southern Hemisphere Working Group