

Satellite-Based Air Quality Diagnosis in Southeast Asian Countries

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Abstract

This study investigates the general air quality pattern based on retrieval products from polar-orbit satellite measurements, particularly using the aerosol optical depth (AOD) and the vertical column density of nitrogen dioxide (NO₂). Our study specifically would focus on the spatial distribution of air quality pattern in each administrative district, which is useful for further evaluation of health risk or environmental policy impact in a local scale. Also, these results will be useful for the installation and management of local air quality monitoring station (AQMS) in ASEAN countries. Some examples about AOD and NO₂ VCD pattern is provided with several regional features. The polar-orbit satellite monitoring has almost 20-year history, enabling us to see the climatological pattern, but it is limited for the 'diurnal cycle' style analysis. Since 2020, the Geostationary Environment Monitoring Spectrometer (GEMS) onboard the GEO-COMPSAT-2B satellite started the hourly monitoring of AOD and NO₂ over East Asia. Therefore in further study, we will repeat our analysis using the GEMS dataset in a diurnal scale and extend our understanding more by comparing our results between polar-orbit and geostationary satellite products.

Early Career Scientist

NO, I am not an early career scientist.

IGAC Activities

TOAR: Tropospheric Ozone Assessment Report