SENSING AIR POLLUTION FOR ENVIRONMENTAL PERFORMANCE INDEX (EPI)

Mazlan Hashim[*], Mohd Nadzri Reba[*], Xen Quan Yap[*], Maged Marghany[*]

[*] Institute of Geospatial Science & Technology (INSTeG)
Universiti Teknologi Malaysia
81310 UTM Skudai, Johor Bahru, Malaysia
Tel: +607 5530666; Fax +607 5566163
Email: mazlanhashim@utm.my, profmhashim@gmail.com

KEY WORDS: Air quality, PM_{10}, Environmental Performance Index (EPI)

ABSTRACT: Air pollution is a major environmental issue that is being carefully monitored in a global scale due to its ability to circulate or disperse globally within weeks. In fact, air quality within global cities is one of crucial issue that concern their citizen the most as it is easily expose to the general public with various estimated side effects of causing approximately 2 million premature deaths worldwide annually. Consequently, many international organizations were using a more comprehensive and trans-boundary method such remote sensing approach that provides high temporal and spatial coverage observation to obtain information regarding air quality. This recent advancement in satellite remote sensing technology has seen the columnar measurement of aerosol at the surface of the terrain as well as at the top of atmosphere. Such an approach combines satellite remote sensing data with in situ measurement to deliver state-of-the-art information on air quality. Some of the current air quality models that combine satellite data and in situ measurement were also reported in recent studies. The EPI has now being introduced as indicator to rank countries according to information regarding environmental health, ecosystem vitality, and socioeconomic sustainability. In this study, long-term (2001 to 2005) air quality (PM_{10}) monitoring on major cities in Peninsular Malaysia is presented using MODIS Satellite as input into the EPI indicator for environmental burden of disease and effects to human health. The main objectives of this work are: (i) to model long-term relationship of aerosol optical depth (AOD) derived from MODIS to the ground observed PM_{10}; and (ii) to map long-term air quality of major cities.