

# Assessing the Variability of the Isoprene Emission in the Coastal Area of Peninsular Malaysia

Ayu Nabila Khairul Anuar

Department of Environment, Faculty of Forestry and Environment, Universiti Putra Malaysia, 43400 Serdang, Selangor, Malaysia

## Author list (excluding presenting author)

Muhammad Abid Mohd Yuzaidey, Mohd Shahrul Mohd Nadzir, Nur Ili Hamizah Mustaffa

## Abstract

Marine environment is widely recognized as a significant global contributor to biogenic volatile organic compounds (BVOCs), with isoprene (C<sub>5</sub>H<sub>8</sub>) playing a crucial role in climate dynamics. This study aims to determine the trends of total volatile organic compounds (TVOC) concentration including isoprene emission in the coastal area of Peninsular Malaysia from July to December 2023. In-situ measurements of isoprene have been done using a low-cost water sensor, known as Aquasense.. Biological parameters such as chlorophyll a (chl-a) and phytoplankton cell density (cellsL<sup>-1</sup>), as well as meteorological parameters including air temperature, air humidity, wind speed, and solar radiation were measured to correlate with isoprene concentration. A significant positive correlation was observed between isoprene and chl-a ( $r^2 = 0.45$ ,  $p < 0.0001$ ), and isoprene and wind speed ( $r^2 = 0.67$ ,  $p < 0.0001$ ). There were 27 genera found in Port Dickson and 24 genera discovered in Pulau Tinggi and dominated by diatoms species. High isoprene concentrations were observed in the sea surface mixed layer during the peak of the diatom bloom with total density during the Southwest Monsoon (July) compared to the Northeast Monsoon (October, November, and December). Overall, this research offers valuable perspectives on the concentration of isoprene and the factors affecting its production specifically within the coastal regions of Malaysia.

## Early Career Scientist

YES, I am an early career scientist.

## IGAC Activities

ACAM: Atmospheric Chemistry and the Asian Monsoon, Allin-Wayra: Small Sensors for Atmospheric Science

## IGAC Regional Working Groups

MANGO: Monsoon Asia and Oceania Networking Group