3.064 Measurement Of Isoprene Sea-To-Air Fluxes At The Ocean-Atmosphere Interface.

Early Career Scientist

Presenting Author:
ROYSTON UNING, School of Environmental Sciences and Natural Resources, Faculty of Science and Technology, The National University of Malaysia, 43600 Bangi, Selangor, Malaysia., uningroyston@gmail.com

Co-Authors:
Talib Latif, School of Environmental Sciences and Natural Resources, Faculty of Science and Technology, The National University of Malaysia, 43600 Bangi, Selangor, Malaysia.
Haris Hafizal Abd Hamid, School of Environmental Sciences and Natural Resources, Faculty of Science and Technology, The National University of Malaysia, 43600 Bangi, Selangor, Malaysia.
MD Firoz Khan, Institute of Climate Change, The National University of Malaysia, 43600 Bangi, Selangor, Malaysia.
Mohd Shahrul Mohd Nadzir, School of Environmental Sciences and Natural Resources, Faculty of Science and Technology, The National University of Malaysia, 43600 Bangi, Selangor, Malaysia & Institute of Climate Change, The National University of Malaysia, 43600 Bangi, Selangor, Malaysia.
Suhaimi Suratman, Institute of Oceanography and Environment, Universiti Malaysia Terengganu, Kuala Terengganu, 21030, Malaysia.

Abstract:

Sea surface microlayer (SML) as the ocean-atmosphere interface releases isoprene that effects the oxidative capacity of the atmosphere and act as a source for secondary organic aerosols. Estimating isoprene flux from the SML under *in situ* conditions is of prime importance in understanding the interactions between the ocean and the atmosphere for global climate models. Measuring isoprene flux from the SML remains a great challenge because the current sampling methods such as screens or glass plates are not practical for highly insoluble gases. A chamber coupled with sorbent tube as a solventless extraction method is suitable for flux measurement. The main objective of this study is to present a new approach to measure isoprene flux from the SML under *in situ* condition. A system consist of a floating flux chamber coupled with sorbent tubes have been developed, tested and optimized. Isoprene emitted from the SML was trapped in the floating chamber. Sampling of isoprene was performed during daytime by adsorption into 1TD sorbent tubes using low flow pump. Samples were analysed using thermal desorption unit coupled with gas chromatography mass spectrometry. Recent year 2017 measured isoprene fluxes located at the tropics region ranged from 8.3 to 34.3 ($\times 10^7$) molecules cm^{-1} s^{-1} and mean 19.7 ± 7.3 ($\times 10^7$) molecules cm^{-1} s^{-1}. The measurement of isoprene flux from the SML under *in situ* conditions is expected to

improve the estimation of the ocean isoprene fluxes. This approach also have the capacity to measure fluxes for other type of trace gases emitted from the SML.