Isoprene Sea-to-air Flux at the Ocean-atmosphere Interface

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Biogenic isoprene released by the sea surface microlayer (SML) 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 chamber coupled with a sorbent tube 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 on 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 0.83 to 3.43 molecules cm^{-1} s^{-1} $\times 10^8$, with an average 1.97 ± 0.73 molecules cm^{-1} s^{-1} $\times 10^8$. The measurement of isoprene flux from the SML under *in situ* conditions is expected to improve the estimation of the ocean fluxes. This approach have the capacity to measure fluxes for other type of trace gases emitted from the SML.