

DEVELOPMENT OF MEASUREMENT SYSTEM FOR MARINE AND ATMOSPHERIC ISOPRENE AND DIMETHYL SULFIDE USING CURIE-POINT PYROLYZER (CPP)

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Abstract

Isoprene is one of the dominant and highly reactive non-methane hydrocarbons and is rapidly oxidized in the atmosphere, contributing to secondary organic aerosol formation. Although terrestrial vegetation is the main source of isoprene emissions, isoprene is also produced by marine organisms. Data coverage of isoprene in seawater is still limited to understand its production factors. The usual method for oceanic trace gas measurements involves discrete sampling and analysis by gas chromatography (GC) on board, however, we need the large space and expendables such as refrigerant to maintain GC measurements. To improve the data coverage of isoprene and marine important trace gas dimethyl sulfide (DMS) in seawater, we tried to develop a new conceptual measurement system using a curie point pyrolyzer. This method doesn't require both refrigerant and large space for the extraction. The simpler extraction and preservation will realize the improvement data coverage of dissolved isoprene and DMS.

Key words: Isoprene, dimethyl sulfide, DMS, curie point pyrolyzer, dissolved gases, gas chromatography