

Development of fast measurement system of DMS by fluorine-induced chemiluminescence

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To measure the dimethylsulfide(DMS)concentration in the marine boundary layer fast enough for eddy correlation method, measurement system of DMS with F₂-induced chemiluminescence was developed. The detection limit was about 250 pptv (SN=2). Sensitivities of this system to VOCs were examined by using three sulfur gases (OCS, CS₂ and CH₃SH) and forty eight NMHC standard gases. This system was insensitive to OCS which is most abundant sulfur compound in the marine air, while the sensitivity to CH₃SH was about half to that of DMS. The sensitivity to NMHC was significantly small as compared with that to DMS. Measurement of DMS flux by this system was performed during the cruise of RV Mirai (MR07-04). When atmospheric DMS concentration exceeded several hundreds pptv, measurement of DMS by this system was successful. Possible interference gas in this cruise was CH₃I. Although further improvement of this system is required, this system will be available to the measurement of DMS flux.