Determination of Dimethyl Sulphide (DMS) and Dimethylsulphoniopropionate (DMSP)

Water samples were taken from the CTD rosette bottle fired nearest to the surface (approximately 3m depth) immediately after the instrument was inboard. Two ground glass bottles were filled simultaneously using teflon tubing which delivered water to the bottom of the bottles. In order to minimise contamination or degassing, the bottles were allowed to overflow before being stoppered.

Samples were transferred to the ship's laboratory for immediate analysis by purge and trap gas chromatography. Trace gases were extracted from the water by a stream of nitrogen which subsequently passed through a cold trap (-150°C) where the gases were concentrated before being heated and injected into the gas chromatographs.

For DMS aliquots of filtered water were analysed using a Chromosil 330 column, isothermal at 40°C with flame photometric detection (FPD). Full details are given in Turner et al (1990).

For DMSP aliquots of filtered and unfiltered water were hydrolised with 10M NaOH to decompose DMSP to DMS which was then analysed as above. Note that this procedure necessitated a correction for DMS to obtain the DMSP values. If no value for DMS was obtained, this correction was not possible and consequently the DMSP values were overestimated.

The data were supplied to BODC in units of ng S/l. These were converted to nM by division by 32.064.

Reference

Turner, S.M., Malin, G., Bagander, L.E. and Leck, C. (1990). Interlaboratory calibration and sample analysis of dimethyl sulphide in water. Mar. Chem. 29, 47-62.