

## ON LINE METHOD TO DETECT AND QUANTIFY A SET OF TRACE GASES DISSOLVED IN THE WATER: STUDY CASE IN THE ARCTIC OCEAN DURING TRANSSIZ 2015

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There is a growing interest in understanding the variability of volatile organic trace gases dissolved in the sea water over different oceanic areas. Several technics and protocols have been developed during the last years to assess this scientific question and to provide simple and robust extraction devices which can be used during oceanic campaigns. In the framework of our CBRN-E research project funded by the French Atomic Energy Commission department of Military Application (CEA-DAM) we have developed a novel method to extract and measure dissolved trace gases in the water. Our concept is based on a stripping technique of a small amount of water by micrometric bubbles. The head space containing the extracted trace gases in thermodynamic equilibrium with the liquid phase can be directly and continuously injected on any analytical system. The On Line Water Extractor Device (OLWIED) has been coupled to a Proton Transfer Mass Spectrometer (PTRMS, Ionicon Austria) for the quantification of dimethylsulfide, isoprene, acetone, benzene, toluene, xylenes, and a gas chromatograph (Trace Analytical, Menlo Park, USA) for carbon monoxide survey. We present here the first application of our simple and robust system for on line and high frequency surface sea water analysis during the TRANSSIZ campaign in the Arctic Ocean.

Details of this oceanic campaign and preliminary results can be found in: <http://blogs.helmholtz.de/polarstern/en/>



Fig. 1 Ionicon PTRMS coupled to the On Line Water Extraction Device (OLWED) at CEA Saclay, France

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