Improvements in Under Water Mass Spectrometry

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The great advantage of in situ mass spectrometry (UWMS) in marine science is the simultaneous measurement of several gases (CH_4, CO_2, $C2H_6$…) with high temporal and spatial resolution. UWMS is useful to e.g. investigate biogeochemical processes in the water column, to detect point sources of dissolved methane (CH_4), and to identify the distribution of the gases in the ocean. UWMS data can be used to better quantify the amount of gases emitted from the seafloor and their possible contribution to the atmospheric budget and, thus, global climate effects (e.g. CH_4).

After seven years of field work and more than 25 expeditions in situ mass spectrometry is becoming established in marine sciences. Nevertheless, calibrations and detection limits need continuous improvements to extent the usefulness of the instrument. Here I will present improved calibration during field campaigns and a new approach to optimize the detection limit of mass spectrometers by a membrane inlet system.