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## CRDS-based dissolved N<sub>2</sub>O & CH<sub>4</sub> measurement system

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Gas chromatography (GC) is the most commonly used analytical equipment for tracer gas measurements. However, high performance equipment such as cavity ring-down spectrometer (CRDS) has been developed and currently become commercially available (G2308, PICARRO). CRDS is optical spectrometer to measure tracer gas, and its principal is that determines the gas concentration through the rate of decay of the optical signal. The great advantage of using CRDS is that not required too many material, time, and easy to handle than GC system. In general, CRDS is used for continuous measurement, which requires a large amount of gas for quantification. So, we have modified CRDS system to measure small amount of N<sub>2</sub>O/CH<sub>4</sub> gases which is extracted from seawater samples using headspace method, and in turn have tested in various marine environments from coastal regions to open oceans. As a result, we have obtained highly accurate concentrations of dissolved N<sub>2</sub>O & CH<sub>4</sub> gases, suggesting that the system would be useful to study dynamics of climate-relevant trace gases.