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The Flanders Marine Institute (VLIZ) ICOS Ocean Stations. Marine Inorganic Carbon and GHGs observations in the southern part of the North Sea.

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**Abstract text**

The Flanders Marine Institute is operating two ICOS ocean stations in the southern part of the North Sea. The main scope is to provide the ICOS relevant services (i.e. high quality CO<sub>2</sub> data), however operating in such a dynamic and constantly changing environment, both spatially and temporally, provides a great opportunity to constrain marine inorganic carbon parameters, understand relevant processes and estimate sources and sinks of carbon on short and longer time scales (e.g. diurnal, seasonal, annual). Novel techniques for inorganic carbon in situ observations, inorganic nutrients and phytoplankton characteristics (active fluorometry, flow cytometry) can provide additional information in order to understand the biochemical characteristics and evolution of this area. This works illustrates both the engineering and technical aspects of the two stations and the derived products (data), but also future potentials such as observations and studying of non CO<sub>2</sub> GHGs and use of the platforms for development and testing of new techniques and observation methodologies.