



15 Years of Continuous Hydrographical Measurements at the Time Series Station Spiekeroog, German Wadden Sea

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The Wadden Sea with its highly dynamic tidal flats has been a UNESCO natural heritage site since summer 2009. At one of the tidal inlets in the East Frisian part of the area, close to the Island of Spiekeroog, the Institute for Chemistry and Biology of the Marine Environment (ICBM) at the University of Oldenburg (Germany) has been running a research platform for almost 15 years. The sensors installed at the station continuously record hydrographical, meteorological and biogeochemical parameters even under harsh weather and environmental conditions. The time series data are available in real-time via the institute's website (<https://www.icbm.de/messstation/>).

Here, we are presenting the experiences gained and the challenges met during 15 years of running the station. We will provide insights into the methods used for automatic real-time validation and management of complex data sets. We will then present and analyse selected data covering the period from 2002 until 2017. This includes data demonstrating the impact of extreme events such as storm surges on suspended matter dynamics as well as a discussion of the variability of selected parameters on different time scales. The presentation will also discuss the influence of the density gradient on the dynamics of the exchange processes between the Wadden Sea and the open North Sea.