

# Adaptation of the Helgoland client to represent the marine monitoring network of BSH

Hans Christoph Schreyer, Federal Maritime and Hydrographic Agency (BSH), Bernhard-Nocht-Straße 78,

20359 Hamburg, Germany

[Hans-Christoph.Schreyer@bsh.de](mailto:Hans-Christoph.Schreyer@bsh.de)

## Abstract

The Federal Maritime and Hydrographic Agency (BSH) is the central service provider for maritime services in the field of shipping, economy and marine environment. To observe the phenomena of the marine environment the BSH operates several measuring stations in the North Sea and Baltic Sea.

Different from environmental monitoring ashore, where the sensors are distributed over a large area, the sensors are concentrated at one point. For example, approx. 145 sensors are installed on the Arcona Basin Buoy in the eastern part of the Baltic Sea (54°53' N, 13°52' E). The sensors are measuring 29 phenomena spread over 30 different depths (from 10m to -45m).

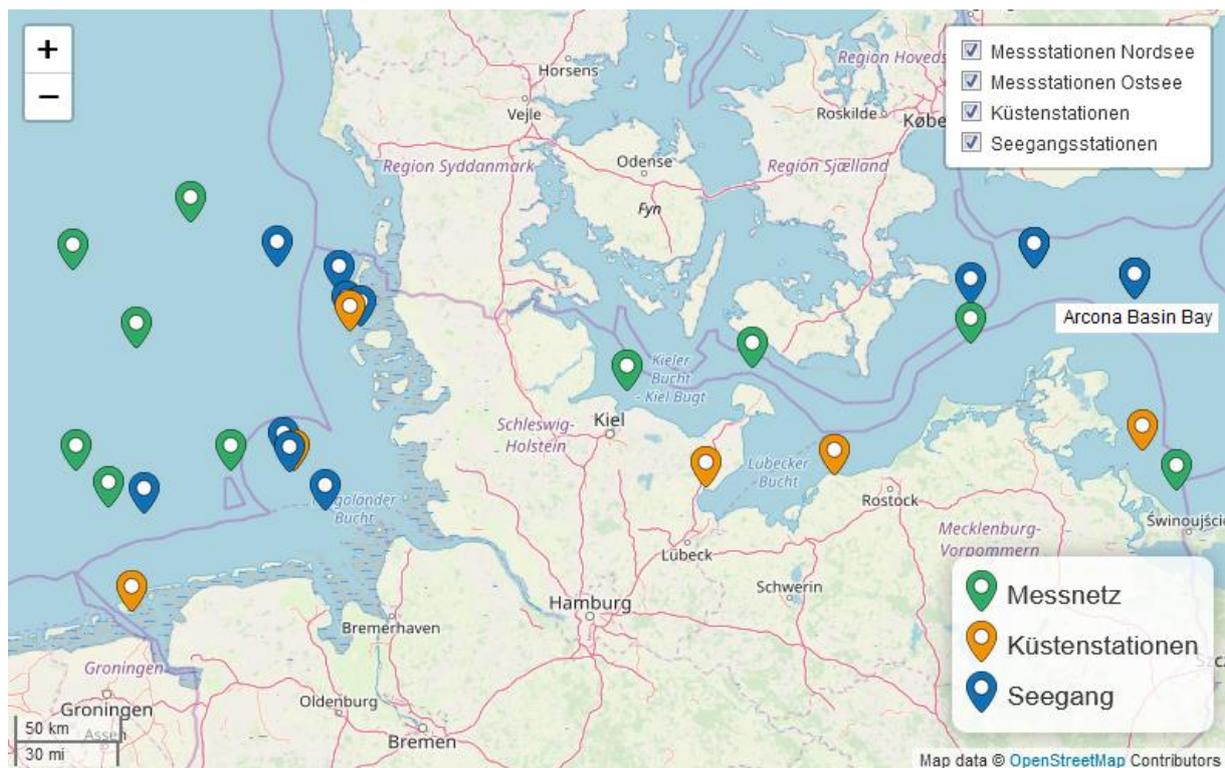


Figure 1: BSH measuring stations in North Sea and Baltic Sea

After the transfer and validation of the sensor data they are stored in different databases. These databases are the basis for our SOS processes.

This distribution and quantity of the sensors made modifications both of the 52°North SOS server and helgoland client necessary in order to make the stations overview and the legend of the diagrams more clear and readable.

For this purpose we replaced the list view with a tree representation which can be sorted by phenomenon as well as by depth (see figure 2). The desired phenomena or depths are selected by checkboxes to display them in the diagram view.

The data model and Sensor Web REST-API of the 52°North SOS server will be extended by a “category” element. This element allows the connection of the measured values with the corresponding depth.

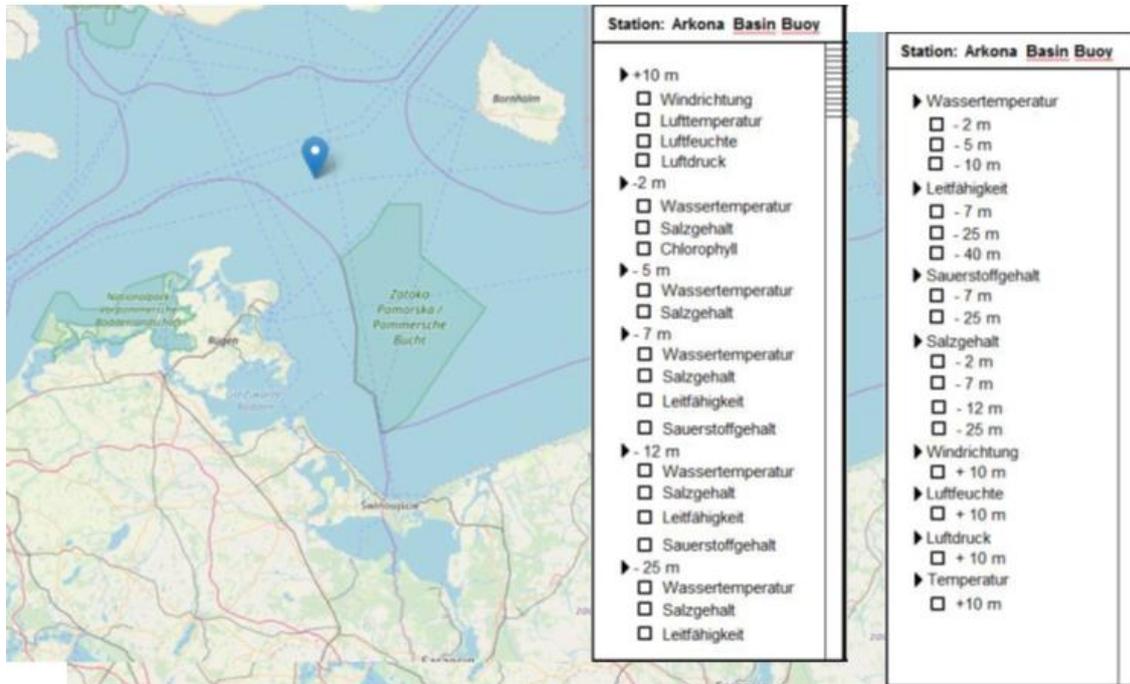


Figure2: Representation of possible time series sorted by depth and phenomenon

The mapping of the sensor system hierarchy (SensorML) and the data import into the O&M model (Observation and Measurement) is programmed with the Feature Manipulation Engine (FME) from Safe Software.