



FRESHWATER RESEARCH AND ENVIRONMENTAL DATABASE

Schaalsee

Lake Schaalsee thermistor chain with oxygen

FRED Package 851

In recent years, numerous lakes throughout Germany have been included in a climate impact measurement programme. Long-term climate monitoring that provides continuous series of measurements with high temporal resolution over many years is an essential basis for better understanding the interrelationships in lakes, carrying out trend analyses and developing adaptation strategies from them. In addition to measuring changes, they provide a basis for model-based management scenarios.

Lake Schaalsee

The Schaalsee is located between Hamburg and Schwerin on the border between Mecklenburg-Vorpommern and Schleswig-Holstein, which was the inner-German border until 1989. The Schaalsee region is divided into the Schaalsee UNESCO Biosphere Reserve in Mecklenburg on the eastern side and the Lauenburg Lakes Nature Park on the western side. It is a lake that was formed during the Weichselian glacial period and consists of nine individual lakes that are connected to each other. The lake covers an area of 23.5 km² and has an average depth of 17 metres. The Schaalsee is one of the deepest lakes in Germany, reaching a maximum depth of 72 metres in the Rethwiesentief in Lassahner See. The catchment area is 180 km² in size. The Schaalsee drains via the Schaale, a natural outlet in the south of the lake.

Measuring chain

The measuring chain consists of a rope that is kept in tension by a weight on the bottom and a pressure-resistant buoy located 1.5 m below the water surface. The loggers are attached to the rope at fixed intervals.

The logger depth given indicate the depth below the water surface. Due to the anchoring on the bottom, the distances of the logger from the bottom are always the

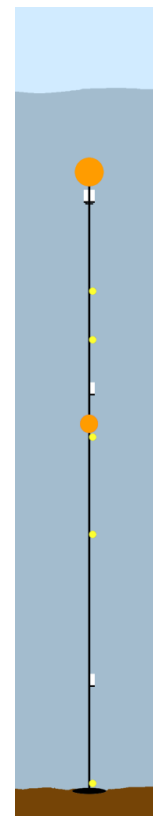





Abb. Scheme of a measurement chain with autonomous loggers

same, but not when viewed from the surface. This can cause problems if the water level fluctuates, as it changes the real distance between the logger and the water surface.

The coordinates of the measuring chain are N 53.61135° E 10.92645°. This is the deepest part of the lake.

Autonomous datalogger

Logger specifications

Parameter	name	accuracy	resolution	max. operating depth	
temperature	Tinytag Aquatic 2 TG-4100, Gemini Data Loggers	± 0.5°C according to manufacturer) ± 0.1°C (own experience)*	0.01 °C	500 m	
oxygen and temperature	miniDOT, Precision Measurement Engineering (PME)	according to manufacturer ± 5% ± 0.3 mg/l ± 0.1°C	0.01 mg/L 0.01 °C	100 m	
Wiper	miniWIPER, Precision Measurement Engineering (PME)				
pressure	Hobo U20L-02, Onset Computer Corporation	max. 2.55 kPa	< 0,04 kPa	30 m	

*only loggers with an accuracy of ± 0.03°C are used

To prevent mussel settlement, the 2 m DO logger is covered with copper tape and equipped with a wiper.

Data

Time span 2020-11-26 ongoing

Intervall 30 min. (60 min. for pressure)

The data are stored as individual txt files in the IGB Cloud Nimbus.

Logger depth distribution 2020 to 2024



Contact

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