



## FRESHWATER RESEARCH AND ENVIRONMENTAL DATABASE

# Groß Glienicker See

## GGG temperature chain (with oxygen)

### FRED Package 585

*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.*

### Measuring chain

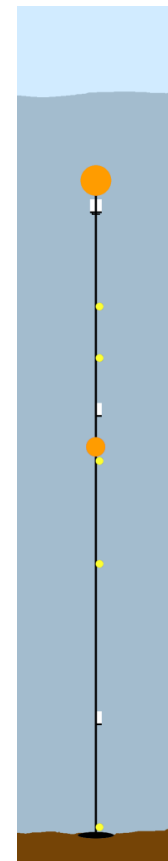
The measuring chain consists of a rope that is kept in tension by a weight on the bottom and a pressure-resistant buoy located 1-1.5 m below the water surface. The loggers are attached to the rope at fixed intervals.

#### Information about the depth values of the loggers

The depths given indicate the depth below the water surface. However, these are inaccurate, especially in the last few years, because these were very hot years with very little precipitation. Due to the anchoring on the bottom, the distances of the loggers from the bottom are always the same, but not when viewed from the surface. In the case of large water level fluctuations due to lack of precipitation and hot summers, this leads to problems, as the distance of the loggers to the water surface changes as a result. The depths of the loggers in Groß Glienicker See have changed several times over the years, not least because the water level has dropped by more than one metre.

Since April 2020, a temperature logger is located on a separate surface buoy at a distance of exactly 1m below the water surface.

*Abb. Scheme of a measurement chain with autonomous loggers*





## Autonomous datalogger

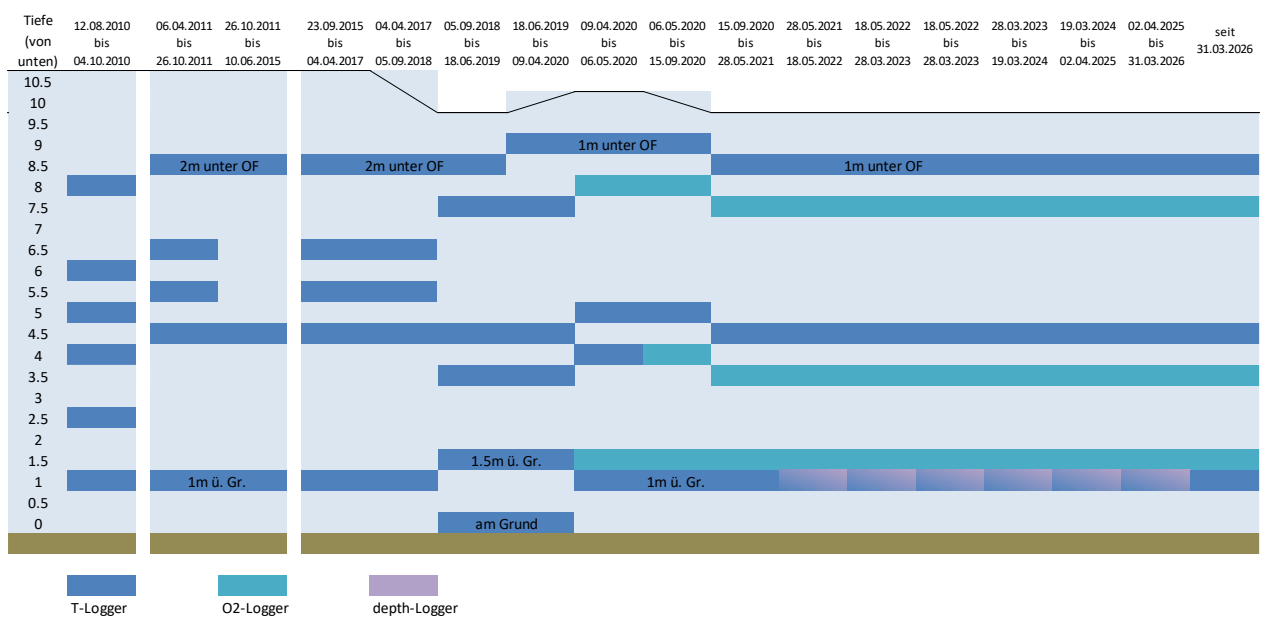
Tinytag Aquatic 2 TG-4100 underwater data loggers from Gemini Data Loggers, UK, are used for the temperature measurements.

MiniDOT data loggers from PME (Precision Measurement Engineering, Inc.) are used for the oxygen measurements. To prevent mussel settlement and biofouling, the 2 m O<sub>2</sub> logger is equipped with a miniWIPER, an autonomous antifouling system.

### Logger specifications

Parameter	name	accuracy	resolution	max. operating depth	
<b>temperature</b>	Tinytag Aquatic 2 TG-4100 Gemini Data Loggers	± 0.5°C (according to manufacturer) ± 0.1°C (own experience)	0.01 °C	500 m	
<b>Sauerstoff with temperature</b>	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	
<b>Depth (with temperature)</b>	Hobo U20L-01	0.1%			

### Logger depth distribution 2010 bis 2026



## Data

Time span	2010/08/12 ongoing
Gaps	2010/10/04 – 2011/04/06 and 2015/06/10 – 2015/09/23
Intervall	30 min. (sometimes 60 min.)

Until 2017, the data are available in an Excel file. After that they are stored as individual .txt and .csv files in the IGB Cloud Nimbus. A descriptive metadata file is included.

## Detail of the descriptive file "GGS\_meta"

Ordner	20220518_GGS_data						
Datei	Logger	Parameter	Logger-Nr.	Tiefe (m)	Messintervall	Messzeitraum	Bemerkungen
Tinytag_891341_GGS_1m	Tinytag	T	891341	1	30	28.05.2021 - 16.03.2022	am 16.03. nur 1m-Logger gewechselt
	miniDot USB	O2 + T	686750	2		keine Daten	
Tinytag656707_GGS_5m.txt	Tinytag	T	656707	5	30	28.05.2021 - 18.05.2022	
miniDot663430_GGS_6m.TXT	miniDot USB	O2 + T	663430	6	30	28.05.2021 - 18.05.2022	
miniDot726790_GGS_8m.TXT	miniDot USB	O2 + T	726790	8	30	28.05.2021 - 18.05.2022	
Tinytag656711_GGS_8-5m.txt	Tinytag	T	656711	8.5	30	28.05.2021 - 18.05.2022	
Hobo_20936110_GGS_8-5m.txt	Hobo	p + T	20936110	8.5	60	28.05.2021 - 18.05.2022	
Ordner	20230328_GGS_data						
Datei	Logger	Parameter	Logger-Nr.	Tiefe (m)	Messintervall	Messzeitraum	Bemerkungen
Tinytag891333_GGS2022_1m.txt	Tinytag	T	891333	1	30	18.05.2022 - 30.12.2022	nicht bis zum Ende
miniDot542280_GGS2022_2m.TXT	miniDot USB	O2 + T	7450-542280	2 (1.8)	30	18.05.2022 - 28.03.2023	
Tinytag656707_GGS2022_5m.txt	Tinytag	T	656707	5 (4.9)	30	18.05.2022 - 28.03.2023	
miniDot572641_GGS2022_6m.TXT	miniDot USB	O2 + T	7450-572641	6 (5.95)	30	18.05.2022 - 28.03.2023	
miniDot582476_GGS2022_8m.TXT	miniDot USB	O2 + T	7450-582476	8	30	18.05.2022 - 28.03.2023	
Tinytag656711_GGS_8-5m.txt	Tinytag	T	656276	8.5	30	18.05.2022 - 24.02.2023	nicht bis zum Ende
Hobo20936109_GGS2022-8-5m.csv	Hobo	p + T	20936110	8.5	60	18.05.2022 - 28.03.2023	
Ordner	20240319_GGS_data						
Datei	Logger	Parameter	Logger-Nr.	Tiefe (m)	Messintervall	Messzeitraum	Bemerkungen
Tinytag953588_GGS2023_1m.txt	Tinytag	T	953588	1	30	28.03.2023 - 06.02.2024	nicht ganz bis zum Ende
miniDot663430_GGS2023_2m.TXT	miniDot USB	O2 + T	7392-663430	2	30	28.03.2023 - 19.03.2024	mit Wischer
Tinytag972624_GGS2023_5m.txt	Tinytag	T	972624	5	30	28.03.2023 - 19.03.2024	
miniDot687537_GGS2023_6m.TXT	miniDot USB	O2 + T	7450-687537	6	30	28.03.2023 - 19.03.2024	
miniDot149593_GGS2023_8m.txt	miniDot USB	O2 + T	7450-149593	8	30	28.03.2023 - 19.03.2024	
Tinytag976917_GGS2023_8-5m.txt	Tinytag	T	976917	8.5	30	28.03.2023 - 19.03.2024	
Hobo20936109_GGS2023_8-5m.csv	Hobo	p + T	20936109	8.5	60	28.03.2023 - 19.03.2024	

## Contact

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