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Leibniz-Institut für Gewässerökologie und Binnenfischerei

FRESHWATER RESEARCH AND ENVIRONMENTAL DATABASE

Arendsee water chemistry

FRED Package 35

The Arendsee is one of the few lakes in Germany with long-term data on physical, chemical and biological parameters. The lake was studied particularly intensively between 1976 and 1985, between 1991 and 2000 and during the last 15 years.

This dataset contains the data collected by the Helmholtz Center for Environmental Research (Helmholtz-Zentrum für Umweltforschung, UFZ), the State Office for Flood Protection and Water Management Saxony-Anhalt (Landesbetrieb für Hochwasserschutz und Wasserwirtschaft Sachsen-Anhalt, LHW) and the Leibniz-Institute of Freshwater Ecology and Inland Fisheries (IGB).

Study site

The lake Arendsee is located in the Altmark region in Saxony-Anhalt. With an area of 514 hectares, Arendsee is one of the ten largest lakes in the federal state. As is the case with many other lakes in Germany and other countries in Europe, the lake Arendsee is also affected by eutrophication. Owing to an excessive input of phosphorus, particularly in spring and summer, there is often an excessive growth of algae and cyanobacteria, which can result in the temporary restriction in the use of the lake for bathing purposes. It is now known that the main cause of the lake's ecologically poor condition is contamination of the groundwater.

Characteristics

Area:	5.14 km²
Maximum depth:	48 m
Average depth:	29 m
Water volume:	147 million m³
Maximum length:	3.24 km
Maximum width:	2 km

Sampling location (deepest point):   N 52.8894°, E 11.4602°

List of elements

date	Datum		dd.mm.yyyy
institute	Institut		
depth	Tiefe		m
chlorophyll a	Chlorophyll a	Chl_a	µg L^{-1}
secchi depth	Secchi-Tiefe (Sichttiefe)	ST	m
temperature	Temperatur	T	°C
oxygen-konzentration	Sauerstoff-Konzentration	O2	mg L^{-1}
oxygen-saturation	Sauerstoff-Sättigung	O2	%
pH	pH	pH	
conductivity	Leitfähigkeit	Lf	µS cm^{-1}
dissolved phosphorus	gelöster Phosphor	SRP	mg L^{-1}
total phosphorus	Gesamtphosphat	TP	mg L^{-1}
ammonium-nitrogen	Ammonium-Stickstoff	NH^4-N	mg L^{-1}
nitrite	Nitrit	NO^2-N	mg L^{-1}
nitrate	Nitrat	NO^3-N	mg L^{-1}
organic nitrogen	organischer Stickstoff	org_N	
total nitrogen	Gesamtstickstoff	TN	mg L^{-1}
total inorganic nitrogen	Gesamt-anorganischer-Stickstoff	TIN	mg L^{-1}
dissolved organic carbon	gelöster organischer Kohlenstoff	DOC	mg L^{-1}
total organic carbon	gesamter organischer-Kohlenstoff	TOC	mg L^{-1}
total inorganic carbon	Gesamt-anorganischer-Kohlenstoff	TIC	mg L^{-1}
chloride	Chlorid	Cl	mg L^{-1}
sulfate	Sulfat	SO$_4^{2-}$	mg L^{-1}
sulfide	Sulfid	H$_2$S	mg L^{-1}
iron	Eisen	Fe	mg L^{-1}
manganese	Mangan	Mn	mg L^{-1}
kalium	Kalium	K	mg L^{-1}
natrium	Natrium	Na	mg L^{-1}
calcium	Calzium	Ca	mg L^{-1}
magnesium	Magnesium	Mg	mg L^{-1}
chrome	Chrom	Cr	mg L^{-1}
copper	Kupfer	Cu	mg L^{-1}
cadmium	Cadmium	Cd	mg L^{-1}
aluminium	Aluminium	Al	mg L^{-1}
boron	Bor	B	mg L^{-1}
nickel	Nickel	Ni	mg L^{-1}
zinc	Zink	Zn	mg L^{-1}
lead	Blei	Pb	mg L^{-1}
arsenic	Arsen	As	mg L^{-1}
sulphur	Schwefel	S	mg L^{-1}
total hardness	Gesamthärte	GH	°dH
acidity constant	Säurekonstante	K_S	mmol L^{-1}
cabonate hardness	Karbonathärte	KH	°dH
hydrogen carbonate	Hydrogenkarbonat	HCO$_3$	mg L^{-1}
calcium carbonate	Calziumkarbonat	CaCO$_3$	mg L^{-1}
silicon	Silizium	Si	mg L^{-1}

Comments

Temperature, oxygen, pH and conductivity are only used to classify the measurement data. Probe data are available in other packages.

As this is a collection of data from three institutions, some of these parameters were only measured by one institution.

They are almost exclusively depth profiles. Mixed samples were marked with the depth 100m.

Data

timespan   1960 ongoing

Interval   1 to 32 samples per year

The data collection starts in 1960 with a depth profile of phosphorus values with additional data such as water temperature, oxygen and pH. From 1963 to 1970 there are individual values for P and N compounds and ions and some metals. Sampling became more frequent from 1972 onwards. Phosphorus was sampled particularly intensively from 1976 to 1985 and from 1991 onwards.

Contact

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Data collection	UFZ 1960-2003	
	LHW since 1996	
	IGB since 1998	

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