

Interactive comment on “Biogeochemical processes controlling density stratification in an iron-meromictic lake” by E. Nixdorf and B. Boehrer

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We would like to thank Dr. Zurek for his feedback and his constructive comments. We will include all suggested technical corrections and specific remarks.

As suggested, we will use the correlation coefficient instead of the coefficient of determination to describe the correlation between EC and chemocline height.

We can present measured Secchi depths in Lake Waldsee for the time period 01/2009 till July 2010 (Table 1). In most instances, it coincided with the height of the chemocline. This indicated that some radiation reached the chemocline and was absorbed there in the turbid waters. This had some implication for the possibility of colonizing the chemocline by photosynthetic organisms.

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A quantitative approach for oxygen production cannot be based on these data, as the colour of the water restricts the spectral part of the light, which is available for chlorophyll absorbance. However for the presented investigation, the oxygen production in the water is of limited relevance, as - at any time - it can be assumed that the mixolimnion contained plenty of oxygen to oxidize iron, while below the chemocline there never was any dissolved oxygen and no radiation to produce any. We feel that a deeper discussion of this point would require considerable space and would distract from the main purpose of the study.

Kind regards - For all authors

Erik Nixdorf

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Table1: Secchi depth in Lake Waldsee

Date	Secchi depth	Chemocline depth
20.01.2009	1.45m; 0.2m ice	1.4 m
17.02.2009	1.10m ; 0.18m ice + 0.12m snow	1.2 m
17.03.2009	1.0 m	1 m
16.04.2009	0.8m	1 m
19.05.2009	0.8m	1 m
23.06.2009	0.9 m	1.1 m
29.07.2009	0.9 m	1.2 m
25.08.2009	0.9 m	1.3 m
22.09.2009	0.9 m	1.4 m
20.10.2009	0.4 m	1.5 m
17.11.2009	0.7 m	1.4 m
17.12.2009	1.25 m; 0.025 m ice and 0.035 m snow	1.2 m
12.01.2010	Ice 0.13 m snow 0.18m No secchi measurement	-
23.02.2010	Ice thickness overall 0.29m (4.5 cm frozen snow, 1.5cm snow and water, 8.5 cm ice, 12cm ice, 3cm black ice) No secchi measurement	1 m
23.03.2010	0.04-0.08m ice No Secchi measurement	0.8 m
27.04.2010	0.45m	0.7 m
21.07.2010	0.5 m	0.6 m

Fig. 1.