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## ***Interactive comment on* “Technical Note: Comparison of storage strategies of sea surface microlayer samples” by K. Schneider-Zapp et al.**

### **Anonymous Referee #2**

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Schneider-Zapp and colleagues report in this short manuscript how sample treatment (filtration/fixation) and storage (4°C vs -20°C for up to 20 days) affects surfactant activity (SA) and CDOM characteristics of surface microlayer samples. The rationale for performing this type of comparison specifically for surface microlayer samples is not well explained, raising the question on the originality of the results. Storage protocols for CDOM samples are available, and based on previous studies the storage of filtered samples at 4°C in the dark is well accepted in the community. The authors demonstrate that this protocol also applies to surface microlayer samples. The question of how SA could change over time and with treatment is more relevant in this context, and I suggest the authors make a stronger point on this aspect.

The Material&Methods Section is overall well written, but the Results and Discussion

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Section could be more elaborate. In particular, the Figure Legends are extremely short. They do not allow to fully understand the content of the figures. Further, the present compilation of previous studies (p. 2841 line 20-29 and p. 2842 line 1-10) could be better integrated in the text.

- Only one surface microlayer device is presented here. Do the authors consider the results obtained for the Garret Screen valid for other sampling devices?

- The authors focus on the factor time for each of the treatments, by contrast, the treatment effect is very little documented. It appears that treatment is in some cases more important than time. This issue merits more attention. It would be interesting to know whether the relative change compared to the untreated sample is statistically different? The authors could then compare treatment effect and time, and conclude on which factor is more important for surface microlayer samples.

-I strongly suggest the authors change their recommendation to a more precise conclusion from their study. Looking at Fig. 1 and 2, temporal changes appear not significant up to 15 days for most of the treatments. Thus, the term “storage times as far as practicable” could be re-phrased accordingly. Also, the statement that “SML studies should validate their chosen protocols independently” does not invite any potential reader to look more closely into the manuscript. Is this really the message the authors want to give?

-Fig. 1 to 3. I suggest the authors explain in the Figure Legends the offset from zero. The results from the statistical analyses could be indicated with an asteriks above each symbol, whenever the results are significantly different from time zero.

-Fig. 4. This figure would be much easier to read if the absolute values were presented, as the aim is to demonstrate that the storage effect depends on the initial SA concentrations. The comments in each graph are not clear. Should S stand for salinity? Do the numbers refer to the dates of sampling?

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-Fig. 5. Again, the Figure Legend does not sufficiently explain the graph. The numbers 1 to 5, referring to 5 different fluorescence components are only briefly described in the text. Refer, for example to Table 2, to explain the fluorescence components.

Page 2840: Line 17-18: "if so it is . . .Sentence is unclear.

Overall, if this manuscript is to be published in BGS, I recommend the authors present a stronger message on the particularities of CDOM in the surface microlayer and thus the originality of their work, and provide a more conclusive recommendation for potential readers of their investigation.

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Interactive comment on Biogeosciences Discuss., 10, 2835, 2013.

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10, C779–C781, 2013

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