

## ***Interactive comment on “Dynamics of auto- and heterotrophic picoplankton and associated viruses in Lake Geneva” by A. Parvathi et al.***

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### GENERAL COMMENTS

I think that the manuscript reports important and interesting findings on a subject that is definitely understudied in freshwater ecosystems, and therefore merits publication. There are several comments however than need to be addressed before the article is ready for publication.

- there are several grammar mistakes, looks like a rather early draft of the manuscript. It needs revision of the English language, text and structure. - I have doubts about the methods used for quantification of picoplankton and about the statistical analyses. See specific comments. - I think that there are too many figures, number 3 and 4 can be

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provided as supplementary material, possibly also number 7.

SPECIFIC COMMENTS Abstract - line 1: "dynamics have", not has. - line 15: define interplay, be more specific. - line 16 to end: it looks like these are all conclusions. maybe better to be more specific with the results and leave just one sentence of concluding remarks.

Introduction - line 12: I think that viral control should be mentioned as bottom up, rather than top-down (more generally associated with zooplankton) control - page 4 line 11: sentence not clear, please rephrase. line 18: please re-write being more explicit in "various", bring out is also not appropriated.

Methods - chapter 2.1: details of the size and volume of the lake are not relevant for this study - chapter 2.2: it is not clear what was sampled (chapter 2.1) at discrete depths, since phyto and zooplankton were collected as integrated samples. please be clear. - chapter 2.3, line 13: do you mean filtered lake water instead of TE? please correct. why lake water instead of buffer? did you filter out phytoplankton larger than 3 um for the pico-cyano analysis? how did you distinguish / count pico-cyanobacteria with FCM? size classes can be tricky to define based on total scattering or FL. - chapter 2.4: this paragraph is not clear, the procedure is not well explained. what do you mean with over washed? please re-write the description of the selective filtration steps, it is not understandable. - ch 2.5, line 16: why you say in situ? aren't water samples in the lab? - ch 2.8: what is month wise stat analysis? log-transformation is not sufficient to get rid of multicollinearity, as you actually found out. Also, how did you deal with serial autocorrelation of temporal data? this is crucial because it affects all your stats.

Results - figures should be numbered according to their appearance in the text. here figure 6 is mentioned before figure 3 and 4, etc. - Table 3: how does temporal autocorrelation affect the calculation of coefficients in your analysis? - Table 4: significant at what p-value? - Figure 1: what type of interpolation was used to account for missing temporal datapoints in the graphs? you don't really know what happens in between

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your sampling dates, given the amount of time passed for these microorganisms that have a generation time in the orders of hours to days. - figure 2: you put VP and BP in the same graph, are they comparable in their units? It doesn't look like - figure 3 & 4 can be supplementary information - figure 7 needs legends for the point abbreviation in the graph.

#### Discussion & conclusions

- seems to me a bit overstated considering the uncertainties that I have regarding the methods and statistical analysis. for example the adjective "clearly" in the conclusions should be omitted. Should be re-written after revision of methods and results.

Acknowledgements NIO contribution lacks the number.

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Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 10, 8715, 2013.

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