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Interactive comment on "Enhanced viral production and virus-mediated mortality of bacterioplankton in a natural iron-fertilized bloom event above the Kerguelen Plateau" *by* A. Malits et al.

Anonymous Referee #1

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This is a very interesting study, bringing key results for our understanding of the role of viruses in the C-cycle. The manuscript is well written, clear and concise.

I'm picky and I will just mention a few minor points.

Protozoans, protists and HNF are not synonymous and correspond to different microbial communities. The term protozoan should be avoided as it refers to an obsolete classification. Protists are unicellular eukaryotes of all sizes and encompassing pigmented and non pigmented cells. HNF, for heterotrophic nano-flagellates, corresponds only to non-pigmented protists and of the nano-size fraction. It should be homogenised

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throughout the paper.

The recent study of Biller et al. (2014) should shed light on potential biases in the measure of the abundance of viruses using the fluorescent dye method. Indeed, numerous microbes may produce vesicles that can be counted as viruses either by fluorescent microscopy or flow cytometry. This can affect virus abundance, viral production and burst size measurements as done in this study. TEM, though tedious, should considerably reduce this potential bias. The term virus-like particle is thus more suited for studies were fluorescently stained particles are counted by flow cytometry or fluorescent microscopy. Also, the viruses considered in this study comprise bacteriophages but also cyanophages and viruses specific to eukaryotes. Because heterotrophic prokaryotes are more abundant than the other microbial communities, it is likely that most of the viruses are bacteriophages. For both potential biases, the relationships observed between viral and bacterial parameters suggest that these two potential biases might be of minor importance here and would not change the conclusions of the study. However, it could be briefly mentioned in the discussion.

Should viruses be considered as “living entities” as mentioned L18 - P10829 in this manuscript or as “biological entities”? This is a hot debate as highlighted by the review of Moreira and López-García (2009) but "biological entities" should be preferred.

What hypothesis may explain that there was no lysogenic infection in 9 out of 15 experiments?

References: Biller SJ, Schubotz F, Roggensack SE, Thompson AW, Summons RE, Chisholm SW (2014) Bacterial vesicles in marine ecosystems. Science 343: 183-186

Moreira D and López-García P (2009) Ten reasons to exclude viruses from the tree of life. Nature reviews Microbiology 7:306-311

Interactive comment on Biogeosciences Discuss., 11, 10827, 2014.