

Interactive comment on “Lytic viral infection of bacterioplankton in deep waters of the western Pacific Ocean” by Y. Li et al.

Anonymous Referee #2

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Li and colleagues provide data on their observations of deep water virus activity from 2 cruises in the Pacific Ocean. Overall the paper is an interesting contribution to the literature as there are very few estimates of virus activity in the deep ocean. That said there are a number of places the paper needs to be cleaned up. This is especially the case in terms of the language – I think a good proof reading by an English language reader would help – I have tried to be helpful below. One concern I have is in the correlations – the authors need to remember there is a temporal separation between viruses and bacteria – to get more viruses you generally need to kill bacteria. Moreover, it is not the instantaneous conditions that drive virus production but often those at the time of infection. Indeed, some multivariate stats would help this work a lot. Finally, the relationship to cyanophage that is suggested needs to be explained in light of these incubations being completed in the dark.

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Specifics Abstract Line 11. Delete “The” at the start of the sentence Introduction page 19634 Line 21. The first line of the abstract and the introduction are too similar. . . .please consider revising one. Line 23. Change to “Viruses produce progeny through infection. . . .” Pg 19635 Line 5. Change “were” to “have been” Line 11. Place a “the” in front of “biological pump” Line 14 . Delete “so far” Line 21. Replace “was usually” with “has been” Line 27. Delete “of the” Page 19636. I think the authors have missed some papers, including Matteson et al. 2013 (FEMS Microbiology Ecology) and Strzepek et al. 2005 (Global Biogeochemical Cycles). Higgins et al. (2009, Deep Sea Research Part II) was also in the Pacific. Line 10 remove “in the present study” and change survey to “surveyed” Line 11 remove first “the” Line 21 change “by” to “using” Line 25. Please clarify – were these measurements made on the ship or after? If after how were they preserved / stored prior to measurement Page 19637 – change “flashly frozen” to “flash freezing” (and again on the next page) Page 19638 – Line 3. How were all these different temperatures managed? Line 13. Change “according to” to “as suggested by” Page 19639 Change “sampling dates” to “sites” Page 19643 Line 3 – Does your CTD data not tell you where the exact maxima where? Line 22. But you incubated these in the dark? So how do you get a contribution from cyanobacterial viruses as the host cells need light? Page 19644 – Line 3. Why not a comparison to the other Pacific Ocean data? Line 12. Whose rates are you referring too here? This study? Line 14. Remember, Matteson et al. were working in a gyre constrained bloom that was highly productive Page 19646 Line 2. Change to “of the ecological role of viruses in the dark ocean is however very limited.” Line 11. One or two “orders of magnitude” lower. Line 22. Do you mean lysis of this much biomass? Please clarify Page 19647. Line 8. The ideas in this area are disconnected. Please try and fix them. Line 13. I did not see the Jiao et al. paper referenced here. Perhaps reference to Jiao et al. 2010 would work here. Figure 2. There are some very large interpolations in the left side images. . . .perhaps there are better and more realistic ways to display this data?

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