

Interactive comment on “Photochemical production of ammonium in the oligotrophic Cyprus Gyre (Eastern Mediterranean)” by V. Kitidis et al.

Anonymous Referee #2

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Comments on Kitidis et al. “Photochemical production of ammonium in the oligotrophic Cyprus gyre (Eastern Mediterranean)”, *Biogeosciences Discussion*, 3, 449-474, 2006.

General comments:

Photochemical transformations are important processes in the marine environment. Despite the fact that photochemical processes have received increasing attention during the last years, it is certainly true to state, that we still have only a rudimentary idea about the underlying mechanisms and driving forces. Moreover, we are still far from being able to have reasonable estimate of the contribution of photochem. processes to the overall marine budget of carbon, nitrogen and other elements.

The results and conclusions presented in the ms under review are based on a novel data set of photoammonification rates in the eastern Mediterranean Sea. The conclusions are justified by the data. The ms is written in a clear and informative way. I especially found the Introduction very informative. I have only a few minor comments mainly on the presentation of the data.

Therefore, I suggest accepting the ms for publication in Biogeosciences with minor revisions.

Detailed comments:

- On page 459, lines 15-21, I found the statement that the authors did not find significant differences between IN and OUT stations and conclude that P addition did not influence the NH₄⁺ photoproduction. This seems to be in contradiction to the statement found on p. 464, lines 16-18 where the authors speculate about a possible link between P limitation and NH₄⁺ fueled primary production. This needs to be clarified. - Results, section 3.1. The presented data should be listed in a Table. - Table 2: I would like to suggest presenting the data as a bar chart, which would facilitate comparison of the data. - Figure 1. The study area is placed in the lower right corner of the map. Wouldn't it be better of have map with the study area placed in the center? (a good example might be the map given in Thingstad et al., Science, 2005) - Please avoid unnecessary repetition of information, e.g. compare p. 459 line 15 with p. 461 line 21; p. 460 lines 12-15 with p. 452 line 3

Interactive comment on Biogeosciences Discuss., 3, 449, 2006.

BGD

3, S291–S292, 2006

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