

## ***Interactive comment on “Factors controlling the community structure of picoplankton in contrasting marine environments” by Jose Luis Otero-Ferrer et al.***

### **Anonymous Referee #2**

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The manuscript by Otero-Ferrer et al reports the relationship between nitrate supply and temperature in the structure of picoplankton groups determined by flow cytometer. The manuscript is really well written, and the literature seems extensively covered. The strength of this work resides in the use of nitrate diffuse flux as a proxy of nutrient availability and depth integrate biomass for the different picoplankton groups to predict the niche of the groups analyzed. Commonly, these measurements are treated as discrete rather than continuous variables. The data and results presented by Otero-Ferrer et al have lot of potential and I am confident that the community will benefit from its publication. However, I believe there are very few points that can be amended in a way to improve clarity of the main message of this work. 1- Plots with the vertical

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distribution of the main variables considered (nitrate, cell abundance of picoplankton groups and temperature) could be provided and would certainly help the reader to have a better assessment of the conditions in the sampled stations. 2- Which values of cell-to-carbon conversion factors were used to transform abundance into biomass of the different groups of picoplankton analyzed? 3- The depth integrated biomass of picoeuks was not linearly correlated with temperature, PAR nor nitrate flux when the authors used the simple linear model. However, with the additive model, picoeuks showed a negative trend with temperature and unimodal distribution with nitrate. Could the authors elaborate a bit more in the discussion about this contradiction between methods? 4- The dataset of this manuscript was originated from coastal waters rather than oceanic, from two oceanic regions (Atlantic and Med Sea) and it is confined to a narrow latitude range. Thus It does not support extrapolations to worldwide oceans. I recommend the authors to be more caution and remove figure A2 and the lines 23 to 27 of the last paragraph. SPECIFIC POINTS: INTRO Line 26 – missing a space between the word communities and the reference. MM Section 2, Line 5 – please keep one abbreviation for the Med sea to avoid confusion by writing the only once northwestern. No need to repeat every time since for the Atlantic the same was done. Section 2, line 14 – Diaz et al 2018 does not seem to be on bioRxiv or any other repository, thus the info is not available. I would not cite unless the paper has been already released. Section 2.6, line 6 – add Generalized Linear Models before GLM abbreviation since it is the 1st time that appears. RESULTS Section 4.1, line 15, please add the average temperature value for picoeuks, especially because it seems very close to the one found for syn. DISCUSSION The figures and tables still can be cited in the discussion section. It facilitates a lot the follow up of the points discussed.

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