

Interactive comment on “Ultraplankton distribution and upper ocean dynamics in the eastern Mediterranean during winter” by M. Denis et al.

Anonymous Referee #2

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Denis et al. reported the distribution of ultraplankton in the eastern Mediterranean in winter season and tried to explain the pattern with upper ocean dynamics. I have following concerns/comments for this manuscript.

Major concerns: 1. Although it is not a strong argument, I was a little surprised to find that the dataset was from samples collected about 15 years ago. Even the samples should be analyzed soon after collection (I guess), the improvement of techniques (e.g. FCM) during last 15 years made present data a little outdated. For instance, now we may separate *Prochlorococcus* or *Synechococcus* into different groups on FCM analysis, which is quite useful when discuss their ecological distribution (e.g. high light, low

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light). 2. Basically, the relationship between ultraphytoplankton and ocean dynamics is not direct. Thus, lack of chemical (nutrient) data left a gap between them. It seems the authors did have those chemical data, as indicated at P6856 L26-27. Is it possible to include them into current manuscript? 3. As a biologist, I was scared by numerous hydrodynamism writing at the beginning of reading. Definitely, the protagonist of this manuscript was “ultraphytoplankton”. I think, in order to make the story attractive to marine BIOgeo-scientists, the writing and structure of this manuscript need to be modified. Furthermore, it is too long, in terms of both text and figure number.

Specific comments: Title: Why not impress readers with “Basin-scale”?

Abstract: Again, last sentence, the authors should point out that this is the first “basin-scale” investigation of

Introduction: I will suggest the authors re-structure the introduction and put the text of ultraphytoplankton ahead of those about circulation of Mediterranean.

Materials and Methods P6845 L4-16: is it necessary to use this whole paragraph for MLD background? P6846 L7: final concentration of paraformaldehyde? P6846 L15-19: Please move data analysis of FCM after experiment of FCM. P6847 L4: small and large——nano and pico? P6847 L5: How to estimate volumes with FCM?

Results: I think it is certain that based on the calculation the authors used, the distribution of biomass followed the same pattern to those of abundance. So it is meaningless for those sentences like P6853 L3-5; P6854 L3-4.

Discussion: The discussion will be improved a lot if have chemical data, especially when compared to numerous previous studies. P6864 L14-15: Definitely, this sentence is too absolute.

Figs: Fig 1. Is it possible to highlight which 47 stations have ultraphytoplankton data? Fig. 3. Scale bar. Fig. 9. upper panel: nanoplankton or nanoeukaryote? Fig. 10. Notes for empty and filled triangles Fig. 12. Y axis: distance? Fig. 13. see above Fig.

10.

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