Comment on os-2022-6
Anonymous Referee #1

Referee comment on "Net community production in the northwestern Mediterranean Sea from glider and buoy measurements" by Michael P. Hemming et al., Ocean Sci. Discuss., https://doi.org/10.5194/os-2022-6-RC1, 2022

general comments

This paper has scientific significance as first glider study of Net community production in the Mediterranean, which is an important carbon sink region.

It has scientific significance as it compares data obtained from a fixed ocean station and profiling gliders, which also provided an opportunity to test novel instrumentation.

Overall this paper was an interesting read. Net community production was calculated from both oxygen and dissolved inorganic carbon for each platform and there was a thorough analysis of uncertainties. Daily calculations of influences of advection, mixing and air sea flux in each case was also presented. The period of study was less than a month but showed clear changes in essential ocean variables as the spring bloom started in this region.

The presentation quality was very high. There was a lot of data to communicate in the figures. With a bit of study, they proved clear and informative. The results and conclusions were very clear, if the discussion a little short.

specific comments

There were some interesting details on correcting glider data, correcting the pH sensor for
drift and validation of sensors with bottle data. There could have been a clearer
description at the start of the paper on the motivation to calculate NCP in two ways and on
the significance of the discrepancies found. However, the paper successfully argued for
augmenting long time series data with targeted short duration profilers and there are only
minor changes required.

**technical corrections**

L.11 slight change in wording: ‘calculation of advective’

L.24: Reference required for processes and climate change?

L.30: Reference for Revelle factor

L.45: reference on significance of POC and DOC changes? (explain acronyms here)

L.108: not sure what B2,C refers to here?

L.173: Interesting observation on the differences in PP and NCP were not explored?

L.111: change yer to year

L.123: Use acronym here?

L.268: the non-Redfield ratios were interesting but not really discussed further (the
discussion section is in fact quite small)

L.295: is this change in concentration (just written as ‘c’)?

L.312: what do you mean by vane?
L.401: close the brackets