Review of the manuscript “Pelagic primary production in the coastal Mediterranean Sea: variability, trends and contribution to basin scale budgets” by Paula Maria Salgado-Hernanz et al.
Authors present an analysis of the spatial and temporal variability of primary production in the coastal areas of the Mediterranean Sea. The analysis of the marine coastal areas is often neglected in experimental and modelling studies due to the inherent complexity of the processes. Therefore this work is extremely important since coastal areas are the most impacted and most impacting on anthropogenic activity. The scope of the manuscript is well presented and the methodology is correctly described. The analyses performed support the conclusions presented.
I suggest publication of the present manuscript after minor revisions detailed below.

Minor comments:

1. PG 2 Line 41 missing full stop: 2007). The productivity

2. PG 5 line 125 I would rephrase “Note that neither Chl, a* and \phi are made variable with time.” With “ Note that Chl, a* and \phi are considered time independent parameters.”

3. PG 5 In Equation 4, in order to compute light attenuation is it necessary to consider the normalization on cosines to account for Solar Declination ?

4. PG 5 lines 148,149 the empirical formula, Morel (1991) and Morel et al. (1996), are valid also for coastal waters, the modelled primary production correspond to Gross Primary Production or Net Primary Production?

5. PG 6 lines 156,159 The studies by Laws 2000,2011 to derive *ef-ratio* are calibrated on open ocean conditions, could Authors comments on the applicability of such empirical relations in the coastal areas?

6. PG 6 lines 169,170 “We report annual PP estimates (Gt C) for the entire Mediterranean coastal areas (ΣPPcoast) and separately for the Western, Eastern and Adriatic basins (ΣPPbasin).” Here Authors mean Western and Eastern coastal basins or open ocean Basins?

7. PG 7 Table 1: The total values of PP for the Mediterranean Sea are obtained combining literature data for the open ocean water summed to the coastal estimates derived in this manuscript? Please explain.

8. PG11: Does Figure 3 show surface PP values or vertically averaged values or they coincide because chlorophyll vertical distribution is constant?

9. PG12 Figure 4 In the caption I would specify “whole Mediterranean **coast**, b) western **coast** basin, c) eastern **coast** basin” otherwise it can be confusing.

10. PG 13 lines 315,316“A significant negative correlation was observed between coastal ΣPP and SST ($r=-0.63$, $p< 0.001$; Fig. 6a) showing that the important decrease

of Chl over the years was able to compensate the effect of temperature increase." Could authors elaborate a bit more the expected correlation between ΣPP, SST and Chl and the corresponding compensation?

11. PG 14 Figure 6: It would be nice to see also the chlorophyll trend and how it correlates with SST, NAO and MOI.

12. Pg 18 lines 391-392 "Indeed, Case-1 waters are largely predominant in the coastal Mediterranean regions whereas Case-2 waters are reduced to less than 5% of the whole basin." The 5% is related to the coastal basin or to the total Basin? It would be important to report the Case-2 water fraction of the coastal basin to evaluate the relative importance.

13. Pg 20 Lines 439,441" While negative tendencies seem to fit with the assumed model of PP limitation associated with increasing temperatures, the origin of the positive trend in the Adriatic basin is more uncertain". Also chlorophyll exhibits a reduction starting from 2012 and being an independent variable it could be the responsible, or a concurring responsible, for such trend.

14. Pg 22 line 511. "Our data does not display a general relationship between shelf width (Q) and PPannual" from this sentence it seems that Q is the symbol to indicate shelf width instead in figure 9 Q refers to river discharge.

15. Pg 22 Figure 9. The bubble are a bit superimposed and it is not easy to understand what's going on especially near the origin axis. Would it be possible to use a color bar with fixed size bubbles to reduce overlapping, use a log scale for x and y axis, or to arrange the plot to increase readability