

Dear Dr. Gregoire,

We would like to thank you and the referees for the interest you showed to our manuscript and the careful review you did.

We have modified the manuscript to integrate all of your corrections as well as the ones of reviewer #1. All the new modifications appeared in blue in the manuscript and the figure 3 has been modified to integrate the unit at the color scale.

Looking forward to hearing from you.

Best regards.

Héloïse Lavigne and co-authors.

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List of modifications:

Editor:

Minor comments:

Abstract: please define NIG : **Done**

Page 5, line 25 : « as both elements ... » **changed to “as the both elements co-vary”**

Page 6, line 15: difference between: **the space has been added between the two words**

Page 7, line 3: be attributed: **the space has been added between the two words**

Page 7, line 25, nutrients to: **the space has been added between the two words**

Figure 3, legend, « used »: **It has been corrected**

Page 8, line 31, During: **It has been corrected**

Reviewer:

Abstract

Page 1

Line 20. "gyre, bloom onset occurred" -> "gyre, the bloom started". **Done**

Line 29. "peak of chlorophyll" -> "chlorophyll peak". **Done**

1 Introduction

Page 2

Line 10. "Mixed Layer Depth (MLD)" -> "The Mixed Layer Depth (MLD)". **Done**  
Line 24. "the formation of cyclonic eddies cause" -> "the formation of cyclonic eddies causes". **Done**  
Line 30. "long lifetime" -> "long-lived". **Done**  
Line 31. "superior" -> "greater than". **Done**

## 2 Data and Methods

### 2.1 Satellite and modelling data

Page 4

Line 9. "8-day average". -> "the 8-day average". **Done**  
Line 15. "as well as the OC4 global algorithm" -> "as for OC4 ". **Done**  
Line 17. "As the present study focus" -> "As the present study focuses". Or "focusses", if British English is needed. **Modified to "As the present study focuses"**  
Line 18. "utilisation of global" -> "utilisation of the global". **Done**  
Line 30. "(ECMFW)" -> "(ECMWF)". **Done**  
Line 31. "Data was available" -> "Data were available" **Done**

### 2.2 In-situ data

Page 5

Line 5. "isopycnal 28.9 kg m-3" -> "28.9 kg m-3 isopycnal" (correct twice in line) **Done**  
Line 25. "nitrate dynamic" -> "nitrate dynamics" **Done**  
Line 25. "as the both elements co-varies" -> "since both nutrients co-vary" **Done**  
Line 25. "and as the quality" -> "since the quality" **Done**

### 2.3 Phenological metrics

Page 6

Line 4. "in the Mediterranean Sea trophic situation" -> "the Mediterranean Sea trophic situation". **Done**  
Line 6. "initiation" -> "onset". **Done**  
Line 7. "determine bloom onset date" -> "determine the bloom onset date". **Done**

## 3 Results and Discussion

### 3.1 Physical and chemical characterization of the NIG

Line 15. "differencebetween" -> "difference between" **Done**  
Line 21. "Although, the ICI" -> "Although the ICI": eliminate comma. **Done**  
Line 22.  
Line 22. "it is affected by seasonal signal" -> "the differences with respect to the yearly means suggest that it is affected by a seasonal signal". (suggested correction) **Done**  
Line 27-28 "(see Figure 2c)" -> "(Figure 2c)". No need for "see". Usually one should use "see" only to suggest consultation of "remote" figures w/respect to the text (e.g. in the Introduction: "see Fig. 4 below"). **OK, "see" has been removed.**

Page 7

Line 3. "beattributed" -> "be attributed". **Done**  
Line 16. "Haine 2010" -> "Haine, 2010" **Done**

Line 19. "Data used here" -> "The data used here" **Done**  
Line 20. "during which water column" -> "during which the water column" **Done**  
Same. "reaches nitracline depth" -> "reaches the nitracline depth" **Done**  
Line 21. "Applying" -> "By applying" **Done**  
Line 25. "nutrientsto" -> "nutrients to" **Done**

### 3.2 General patterns of phytoplankton phenology in the Ionian Sea

Line 33. "then," -> eliminate comma **Done**

Page 8

Line 2. "(see Figure 5)" -> "(Figure 5)" **Done**

### 3.3 Impact of the NIG circulation on the [Chl-a] phenology

Line 15. "negative anomalies" -> more simply: "negative anomalies (Fig. 5c)". Cite figures. **Done**  
Line 16. "panels" -> "Figure 5". **c**  
Line 30. "end of January" -> "end of January (Figure 6, right panel)" **Done**  
Line 31. "D uring" -> "During" and "the cyclonic regime," -> "the cyclonic regime (Figure 6, left panel)" **Done**  
Line 33. "The annual maximum growth rate..." -> cite Figure 7 here? **Reference to Table 1 has been added.**

Page 9

Line 1. "in average" -> "on average" **Done**

### 3.4 Role of the NIG circulation patterns compared to the interannual variability in MLD (focus on the region S3)

Line 14. "on the area S3" -> "on the S3 area" **Done**  
Line 20. "as earlier as" -> "as early as" **Done**  
Line 21. "weak:-24%" -> "weak: -24%" insert space after column. **Done**  
Line 21-22. "(see Table 1)" -> "(Table 1)". **Done**

Page 10

Line 17. "Trades' " -> "the Trades' " **Done**  
Line 23. "very small" -> "very low" **Done**  
Line 28. "such supply" -> "such a supply" **Done**  
Line 30. "estimated" -> "the estimated" **Done**

Page 11

Line 2. "reached almost" -> "almost reached" **Done**  
Line 4. "a entrainment" -> "an entrainment" **Done**  
Line 25. "masksthe" -> "masks the" **Done**

## 4 Summary and Conclusion -> 4 Summary and Conclusions (CORRECT THIS unless the journal wants "Conclusion")

Line 28. "of spring bloom" -> "of a spring bloom". **Done**

Lines 2-3. "in case of anticyclonic circulation" -> "in the anticyclonic case" **Done**

Line 12. "high dense" -> "high-density" or "very dense" **Done**

Line 22. "DhyanAranha" -> "Dhyan Aranha" (two words, I guess?) **Yes, it has been modified.**

Line 25. "Equipementd'Avenir" -> " Equipement d'Avenir " **Done**

Line 27. "are thanks" -> "are thanked" **Done**

#### Figures and captions

Fig. 3 a, b color palette: units are missing. I suppose they are meters? Maybe add in caption or put an "m" near the palette. **The unit “m” has been added to the Figure.**

Figure 6 caption. "regimesaveraged in the region S3" -> "regimes averaged in region S3" **Done**