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.

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
The Mixed Layer Depth (MLD) causes the formation of cyclonic eddies, which can have a long lifetime and a greater impact on the ecosystem than other eddies. The utilisation of global data sets, such as the ECMWF, is crucial for understanding the differences between the Mediterranean Sea trophic situation and other regions.

Data and Methods

2.1 Satellite and modelling data

Page 4

8-day average. As the present study focuses on the utilisation of the global dataset, especially the ECMWF, it is affected by a seasonal signal. Data were available for both the in-situ and satellite data.

2.2 In-situ data

Page 5

The isopycnal 28.9 kg m⁻³ is a significant parameter for both nutrients and their co-variation. Since both nutrients co-vary, the determination of bloom onset date is possible.

2.3 Phenological metrics

Page 6

In the Mediterranean Sea, the initiation of the bloom onset date is determined by various factors. Although, the ICI can be affected by seasonal signal, suggesting that it is affected by a seasonal signal. The differences with respect to the yearly means are significant.

3 Results and Discussion

3.1 Physical and chemical characterization of the NIG

Page 7

The differences between the distribution of nutrients and temperature are attributed to seasonal signal. Haine, 2010, provides more detailed information on the seasonal signal and its impact on the ecosystem.
3.2 General patterns of phytoplankton phenology in the Ionian Sea

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

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

4 Summary and Conclusion
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