Author response:

Manuscript has greatly improved and concerns raised by the reviewers have been adequately answered. My recommendation is to accept with minor revision. Please fix the following question and revise the text accordingly.

I can not accept the definition of cold/warm years provided by the authors:

"We further investigated the characteristics of MHWs during 'warm' or 'cold' periods. Specifically, we define warm periods as those that exhibit a pronounced positive SSTA compared to the long-term average, while cold periods are characterized by a pronounced negative SSTA. Warm years are identified as those that are warmer than the preceding and following year, and cold years as those that are colder than the year before and after. The definition of "cold" and "warm" years is relative to the SSTA variability and does not necessarily imply that the SSTA in those years was unusual or extreme."

This definition could lead to an extreme year with 4ºC anomaly to be defined as cold if the preceding and following years are even more extreme with a 5ºC. This definition needs to be changed before publication. At least, do not refer to "cold" in this case. It is also confusing to define "warm periods" by the sign of the anomaly but a "cold year" could have positive SSTA.

The Authors would like to thank the Reviewer for his/her kind comments on this paper and their very valuable evaluation.

We fully agree with the Reviewer that the definition could be confusing for the reader. Therefore, this part is modified in the Methodology and the Results Sections as follow:

Lines 194 – 200: "We further investigated the characteristics of MHWs during 'warm' or 'cold' years. Specifically, we define warm years as those that exhibit a pronounced positive SSTA compared to the long-term average, while cold years are characterized by a pronounced negative SSTA. The definition of "cold" and "warm" years is relative to the SSTA variability and does not necessarily imply that the SSTA in those years was unusual or extreme. Once the warm or cold years are identified, we calculate the average SSTA for those years by averaging the SSTA values over the entire years for each grid cell. Similarly, we calculate the MHWDs for the warm or cold years by averaging the MHWDs over those years for each grid cell. This gives us an indication of the overall spatial variability of the SSTA/MHWDs during the warm or cold years in our study period."

Lines 311 – 318: "Over the study period, there were years that were notably colder or warmer than the average for that period. The cold years were 1985, 1990, 1992, 1993, 1997, 2012 and 2013, while the warm years were 1991, 1995, 2010 and the last six years of the study period (2016-2021). During both the warm and cold years, the spatial distribution of the average SSTA and MHWDs was analyzed, as shown in Figures 6-8. In the cold years, the NRS and the Strait of Bab El-Mandab had the highest SSTA and MHWDs (Figure 6). However, in the warm years, the SRS had the highest SSTA, and the SRS and the northern regions of the Gulfs of Suez and Aqaba had the highest number of MHWDs (Figure 7). The year 2010 was an exception among the warm years, with a distinct spatial distribution of SSTA and MHWDs. In 2010, the NRS and the Gulfs of Suez and Aqaba had the highest SSTA and MHWDs (Figure 8)."