## Information for the Editor

Please provide in the first paragraph of your Cover Letter the title of the manuscript, the article type, and whether it is part of a Research Topic. You must also state that the manuscript has not been submitted for publication elsewhere.

Please also provide a short description of the significance of the manuscript and the relevance to the scope of the specialty you are submitting to.

To Whom it may concern,

The manuscript uploaded here, “Predominant atmospheric and oceanic patterns during coastal marine heatwaves”, is an Original Research article, is not part of a Research Topic, and has not been submitted for publication elsewhere. The aim of this research was to develop a methodology that could identify predominant atmospheric and/or oceanic patterns that occurred around the southern African subcontinent whenever a marine heatwave (MHW) was occurring somewhere along the coast (<400 m from the low water mark). The objective was to use the identified patterns to show what variables were most often/likely forcing the coastal MHWs. The success of the methodology, as well as the results it generated, are significant to oceanography and marine biology broadly, as well as the specific field of coastal ocean processes for a number of reasons, but I will focus here only on the later. Firstly, though increasing, little research on MHWs is being carried out, particularly in coastal systems, making this paper an important contribution in what is currently a knowledge sparse area. Secondly, statistical analyses not common in oceanography (e.g. NMDS and SOM) are used here effectively. Thirdly, we have shown that it is possible to identify predominant atmospheric and oceanic patterns that occur during coastal MHWs with open source code that is freely available online and may be used by anyone on any coastline around the world.

This work is relevant to coastal ocean processes because MHWs are not only an interesting statistical property of time series, but also because they pose a grave threat to coastal ecosystems. Making this an interdisciplinary issue. MHWs are also likely to increase with a changing climate, both due to the general increase in mean ocean temperature and increases in the wind & current variability of many climate systems. Therefore, the study of these events is also likely to increase, which will make this work an important foundational part of this newly budding focus within many fields of oceanography and marine biology. Though this study has focused on the southern Africa subcontinent, its findings are relevant to the world more broadly because they show not only that the general atmospheric and oceanic drivers of MHWs around southern Africa are similar to those that have been discerned for the few well studied MHWs, but also that it is possible to determine these drivers on multiple MHWs at once. This is perhaps the largest contribution of this research to the study of coastal ocean processes.

Best regards,

-Robert Schlegel