

# The state of the union: air-sea interactions during coastal marine heatwaves

Robert W. Schlegel<sup>a,\*</sup>, Eric C. J. Oliver<sup>b,c</sup>, Sarah Kirkpatrick<sup>d</sup>, Andries Kruger<sup>e</sup>, Albertus J. Smit<sup>a</sup>

<sup>a</sup>*Department of Biodiversity and Conservation Biology, University of the Western Cape, Private Bag X17, Bellville 7535, South Africa*

<sup>b</sup>*ARC Centre of Excellence for Climate System Science, Australia*

<sup>c</sup>*Institute for Marine and Antarctic Studies, University of Tasmania, Hobart, Australia*

<sup>d</sup>*UWA Oceans Institute and School of Plant Biology, The University of Western Australia, Crawley, 6009 Western Australia, Australia*

<sup>e</sup>*SAWS, South Africa*

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## Abstract

As the study of extreme climatic events increases, it becomes necessary to document the history of these events more thoroughly. In addition to documentation it behooves us to investigate potential mechanistic causal pathways that may allow us to better forecast the occurrence of these devastating events. To this end we have taken oceanic and atmospheric reanalysis data to examine the state of the air and sea surrounding coastal areas along the coast of South Africa at time in which extreme events have been documented. It was found that X, Y and Z occurred often in tandem with coastal MHWs. This may be taken as the first step of a more in depth exploratory analysis between what may be a causal link in the air sea interaction at these mid-latitude locations.

*Keywords:* extreme events, air-sea interaction, remotely-sensed SST, *in situ* data, climate change, nearshore

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## 1. Introduction

The negative impact of anthropogenically forced warming on both marine and terrestrial ecosystems has become progressively better documented over the last few decades. The primary topic of focus for changing climates often manifests itself as linear increases in mean temperatures in given areas.

Whereas these long term changes are important and are already having documented impacts on a myriad of systems identified as critically important (Stocker et al., 2013), the major impacts on humans and ecosystems in the present are due to extreme events (Easterling et al., 2000). Often unpredictable, cyclones, floods, heatwaves and cold-spells may already begin and end before any warning systems may be of use. It is for this reason, and others, that focus in climate change research is now being applied to the study of these extreme events (Jentsch et al., 2007).

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\*Corresponding author

Email address: 3503570@myuwc.ac.za (Robert W. Schlegel)

## 2. Methods

## 3. Results

## 4. Discussion

## 5. Conclusion

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