# Variability and Meandering of the East Australian Current



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### Importance of Western Boundary Currents

The large-scale role of ocean currents in balancing global sea level, heat and carbon distribution is relatively well understood, but the variability and change of the dynamics of the ocean boundary currents and their influence on regional marine ecosystems, shelf-coastal processes and feedbacks to extreme weather and seasonal climate are not. Lack of understanding is due to the paucity of long time-series observations and systemic biases in coupled climate and ocean-only models, including down-scale models. This is particularly true for the East Australian Current.

### Impact of the East Australian Current

The eastern Australian coastal regions are warming, experiencing rising sea levels, and becoming more acidic, and experiencing changes in cross-shelf exchanges and coastal upwelling. The changes at Australia's eastern seaboard result in increased frequency and severity of extreme events (East coast lows, flooding, coastal inundation, marine heat wave, coral bleaching) and impact the marine ecosystem and biodiversity.

## **Concluding Remarks**

If we are to understand, better predict, mitigate, and successfully adapt we absolutely must understand changes in EAC systems and its broader impacts on the physical, chemical, and biological environments and infrastructure along the Australian eastern seaboard. Maintaining observing infrastructure will be critical to our ability to proactively make the right decisions.



