

Introduction

Marine heatwaves are defined as phenomena where, in the ocean, water temperature keeps remarkably high in a time interval (All about MHWs, n.d.). Over the past several decades, it is monitored that marine heatwaves occur with higher frequency at a higher temperature and continue over long periods.

In 2016, Great Barrier Reef has experienced a marine heatwave which causes a coral bleaching event. Only 70 per cent of the corals still alive after the bleaching (Earth Systems and Climate Change Hub, 2019). Scientists have to bring more evidence to show that marine heatwaves can impact Australia's coral ecosystem in a long-term and destructive way. As a chain reaction, industries such as fisheries, aquaculture and tourism will finally affect the country's economy (Earth Systems and Climate Change Hub, 2019).

As an abnormal oceanic event, marine heatwaves appear to be an unstable factor and have the potential of undermining the ocean ecosystem and economy based on sea lives. Thus, to help protect the lives in the ocean, knowing more about the characteristics and measuring the severity of marine heatwaves has become an urgent problem now.

This project aims to analyze key characteristics of a marine heatwave over the past 3 decades, from 1992 to 2020, by comparing sea-surface temperature records at Rottnest Island and Port Phillip. We plan to use Python to access the data, using R to draw plots contained tendency line and fitted line. By comparing how marine heatwaves variance during this period time, we can have a general understanding of how characteristics of marine heatwave changed.