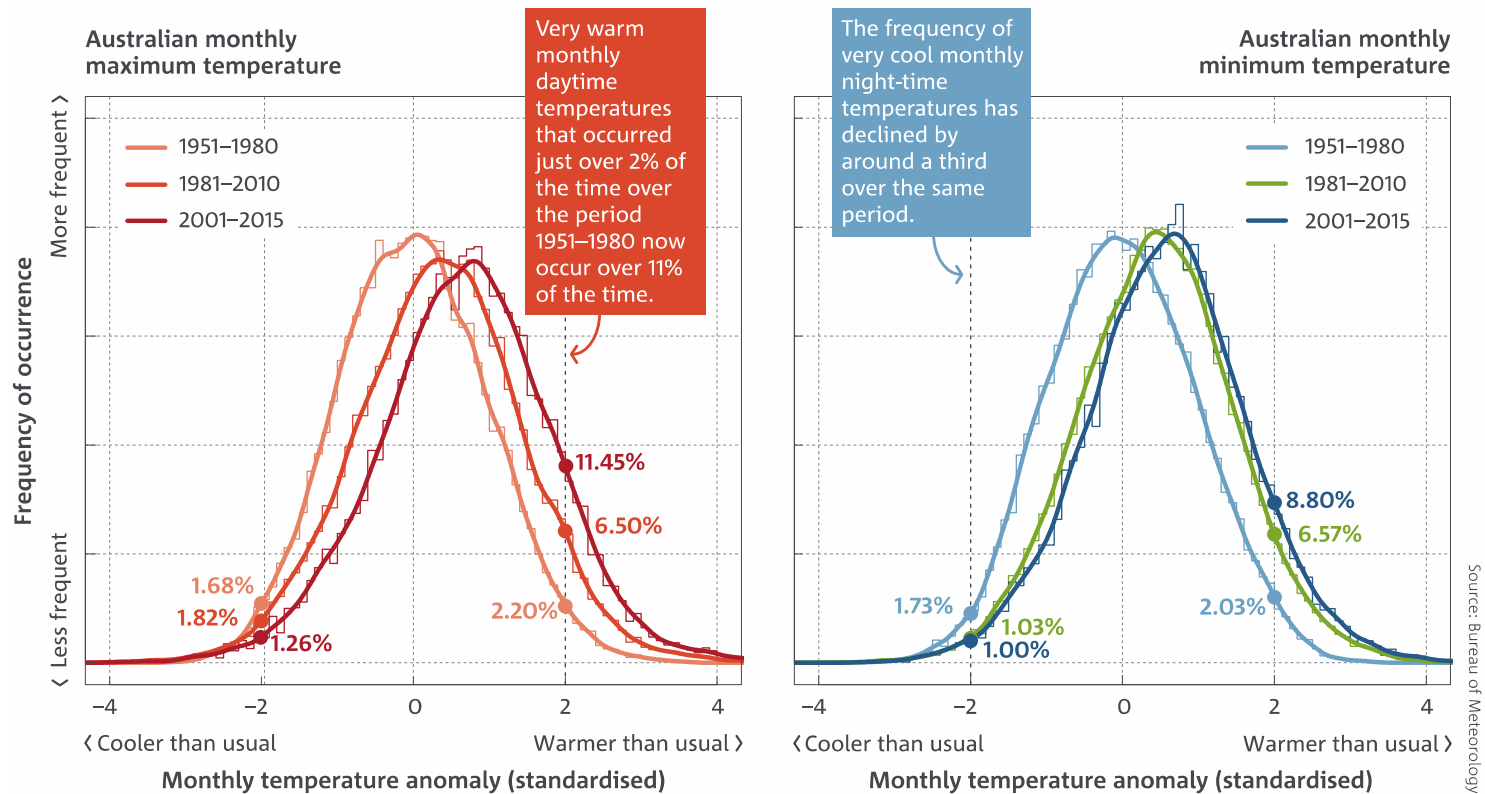
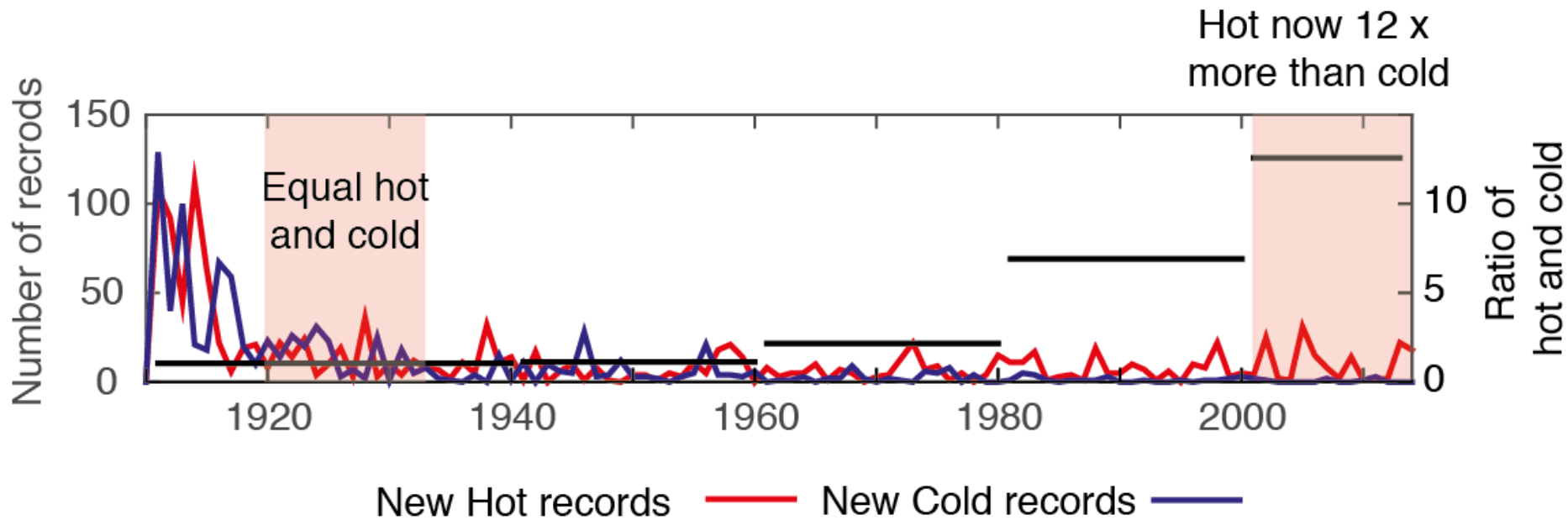


Observed increase in extremes

Global increases in frequency and magnitude of warm daily temperature extremes and decreases in cold extremes virtually certain in the 21st century (IPCC, 2012)

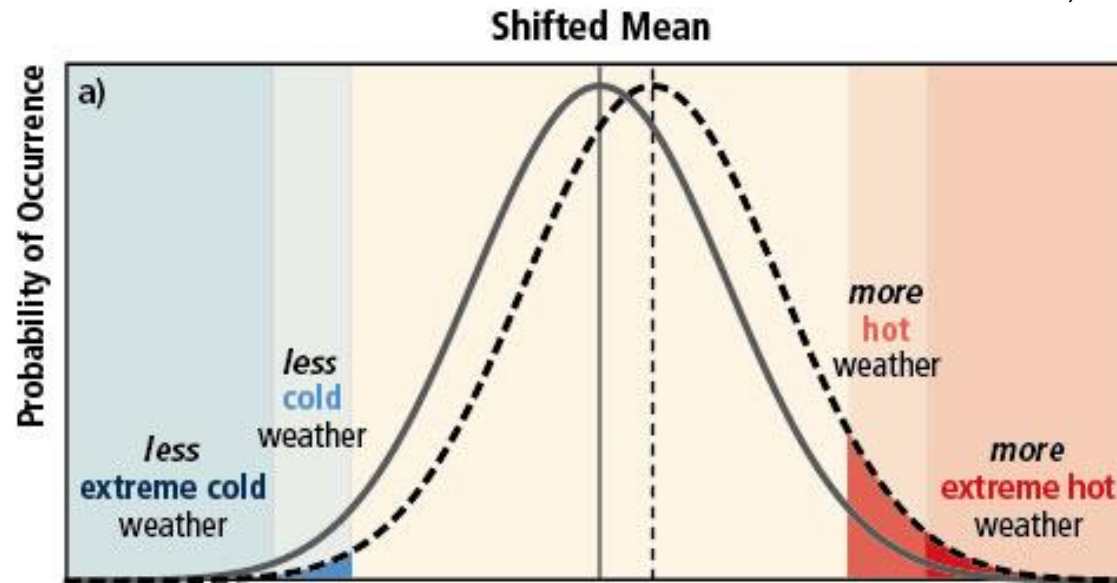


More hot extremes, fewer cold extremes in Australia



Causes of recent extremes

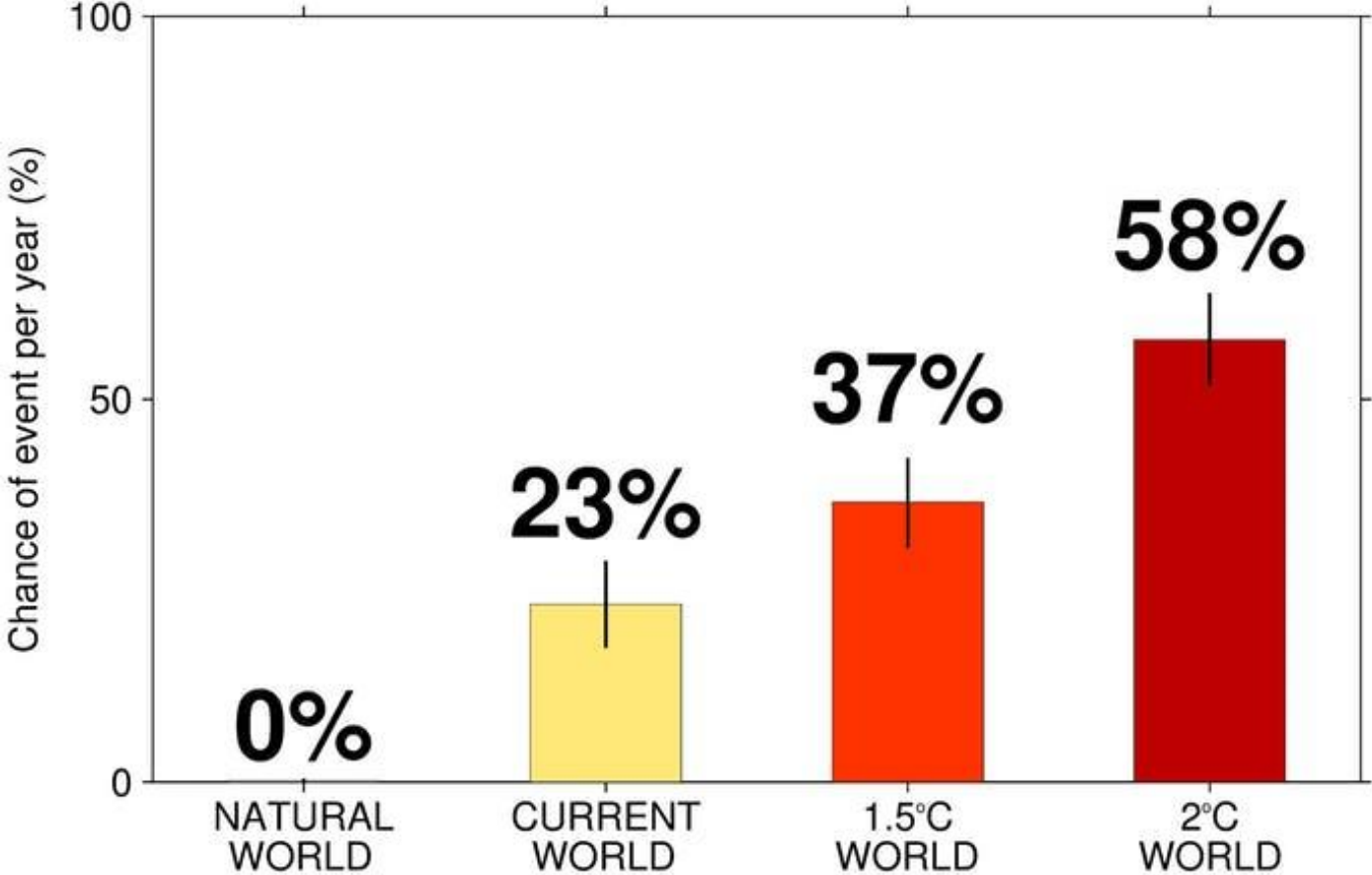
SREX, 2012



- 2012/2013 summer 5 x more likely
- 2013 temperatures virtually impossible with climate change
- Great Barrier Reef Bleaching more likely
- 60 x increase in record warm winter in 2017
- 50 x increase in likelihood of summer heatwaves in 2017

Causes of 2017 winter heat

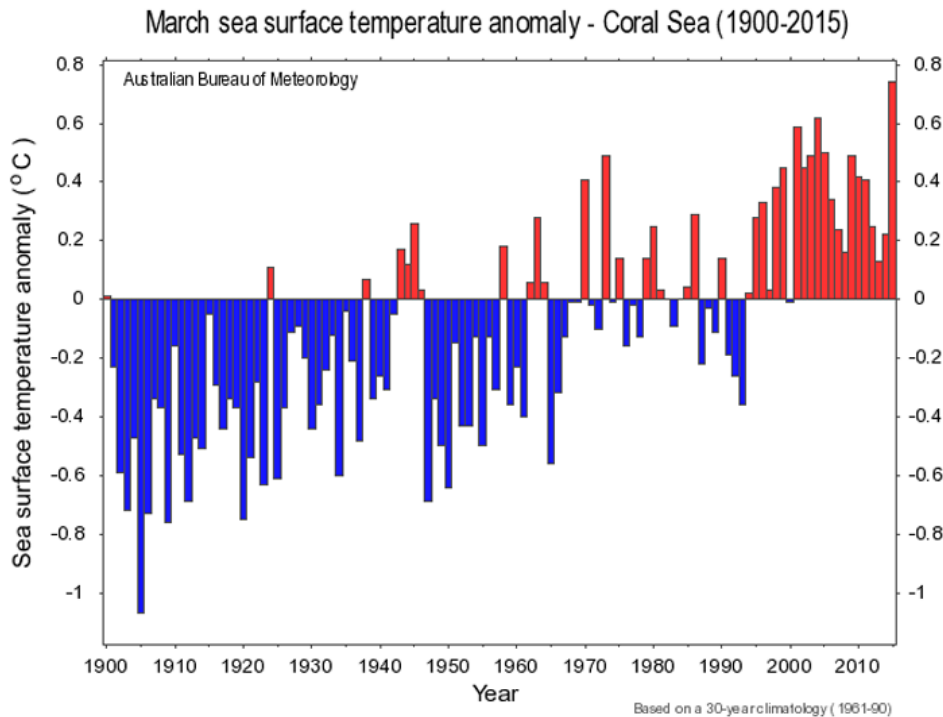
Australian hot winters like 2017 under global warming



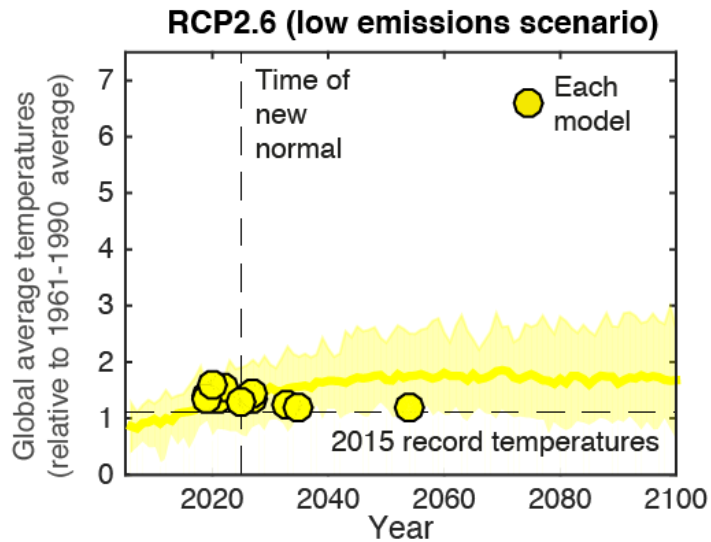
Causes of 2016 Reef bleaching



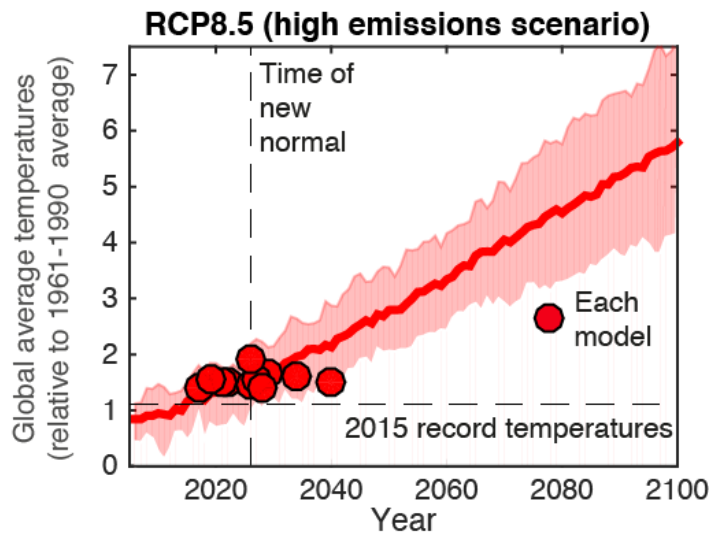
- Bleaching in 2016 very different from 2011 and 1998 bleaching events
- Other factors like water quality will have less ability to protect the reef in the future.



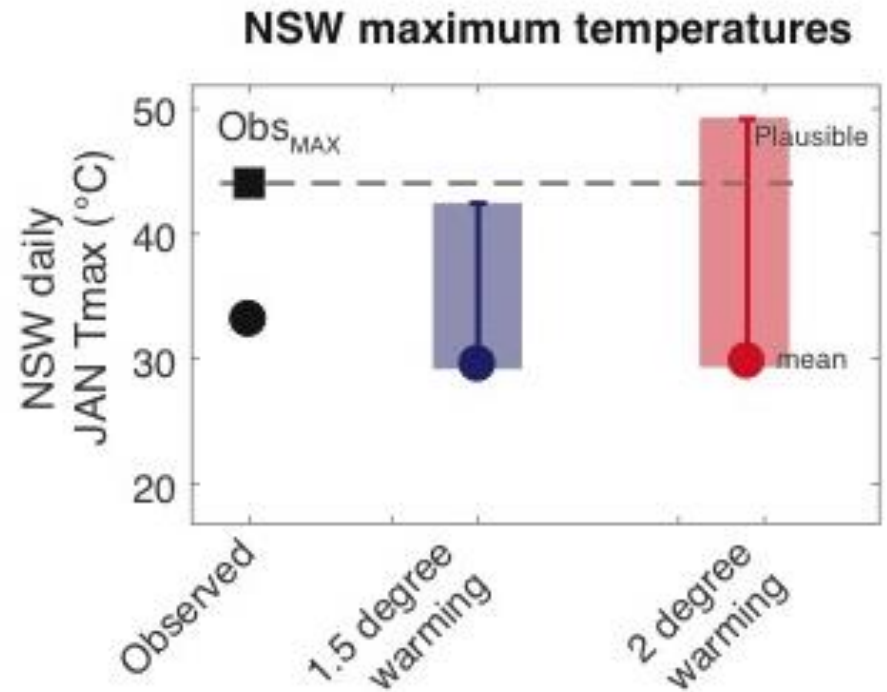
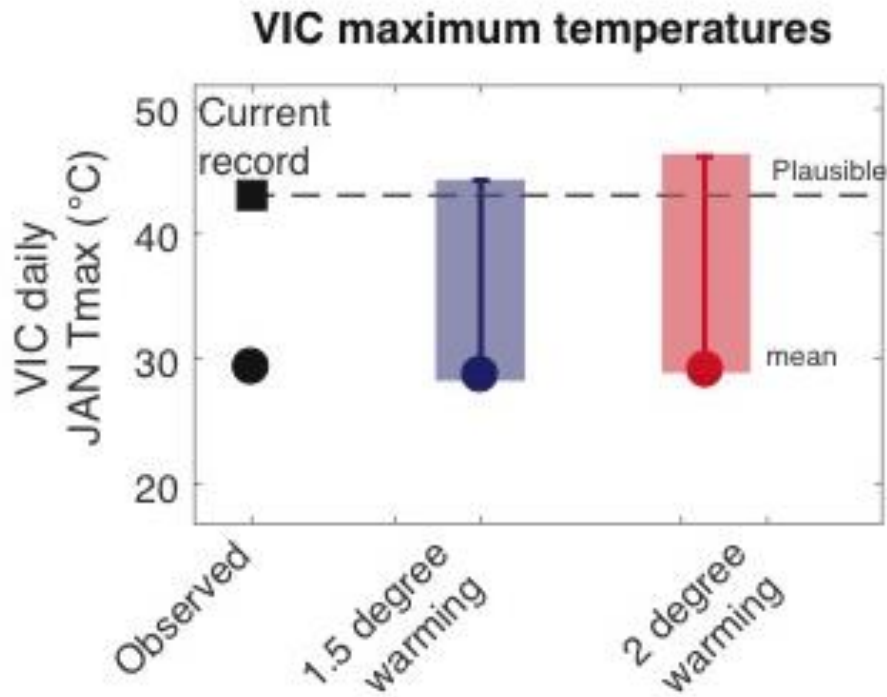
Future extremes



Record temperatures projected to become average or mild by 2030

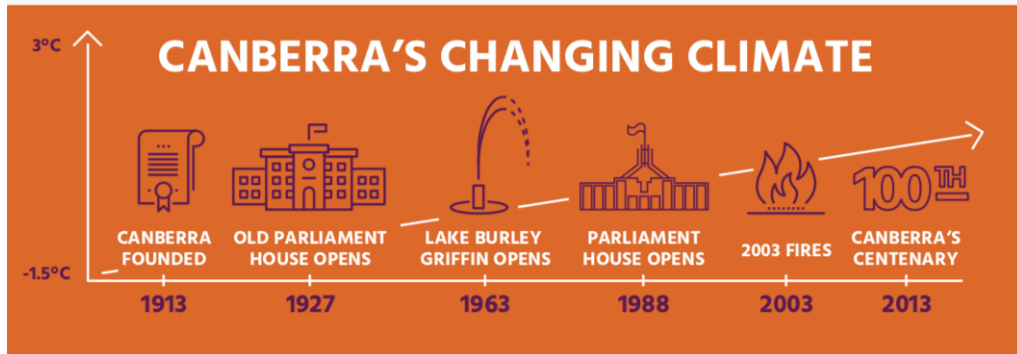
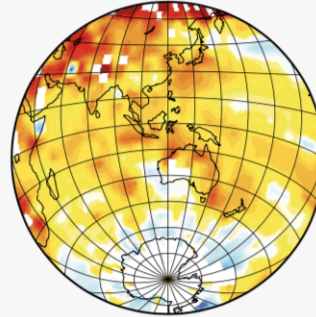
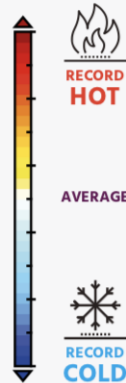


Paris agreement and Australia's future





GLOBAL CHANGE – LOCAL IMPACT



CANBERRA IMPACTS

- INCREASE IN EXTREME TEMPERATURES
- INCREASE IN SEVERITY, FREQUENCY, INTENSITY OF HEATWAVES
- INCREASE IN SEVERE FIRE WEATHER
- DECREASE IN WINTER RAINFALL
- DECREASE IN COLD WEATHER AND FROST DAYS
- INCREASE IN HEAT STRESS AND HOSPITAL ADMISSIONS