

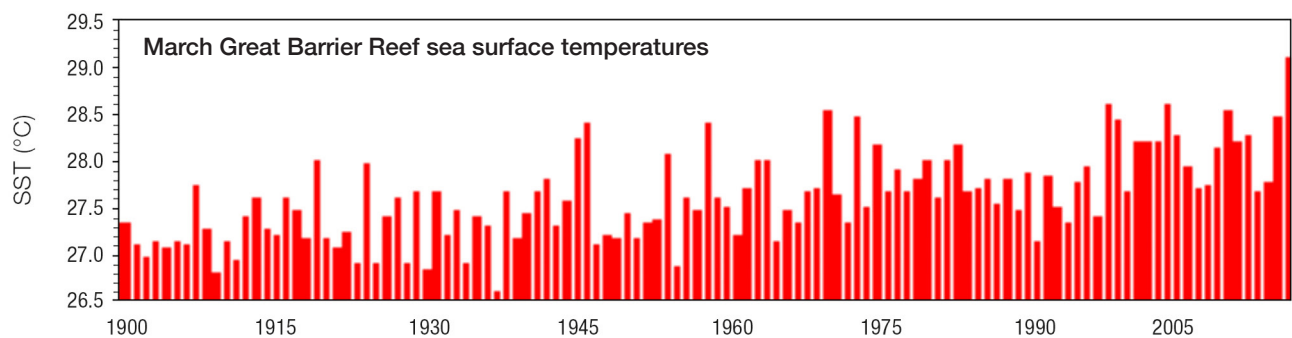


2016 marine heatwave on the Great Barrier Reef

Hottest sea surface temperatures on record

Great Barrier Reef sea surface temperatures (SSTs) for February, March and April 2016 were the hottest on record. Mean SSTs over the reef were 29.1°C in February, 29.1°C in March and 27.8 °C in April; 1.1°C, 1.3°C and 1.0°C

warmer than the long-term monthly averages, respectively. These high temperatures led to widespread severe coral bleaching on the Reef this summer.



March mean sea surface temperatures (based on 9 ERSSTv4 grid cells within the Great Barrier Reef Marine Park).

What caused record ocean temperatures in 2016?

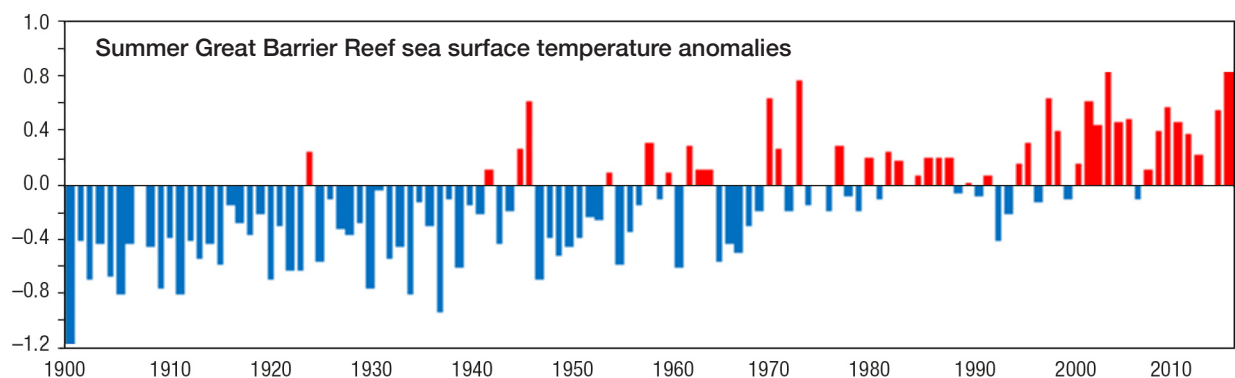
Three factors led to the high ocean temperatures on the Reef:

1. Global warming
2. El Niño
3. Local weather patterns

Global warming

The ocean is warmer than at any time since the instrumental record began. 93% of the heat being gained from enhanced greenhouse warming is going into the oceans.

Summer (January–March) sea surface temperatures over the Great Barrier Reef have risen substantially over the past century due to climate change.

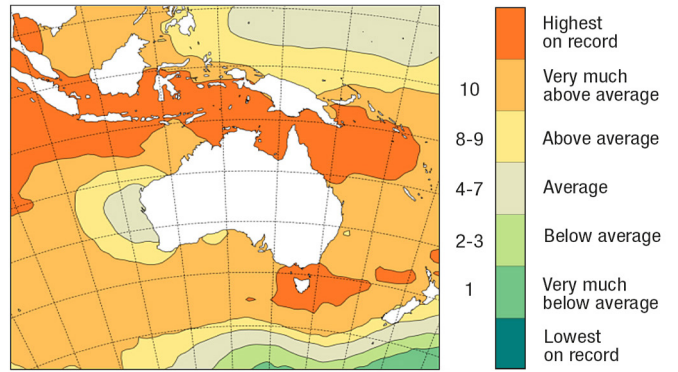


Summer sea surface temperature anomaly (difference from normal) on the Great Barrier Reef compared to the 1961–1990 average (Data from ERSST.v4)

El Niño and local weather patterns

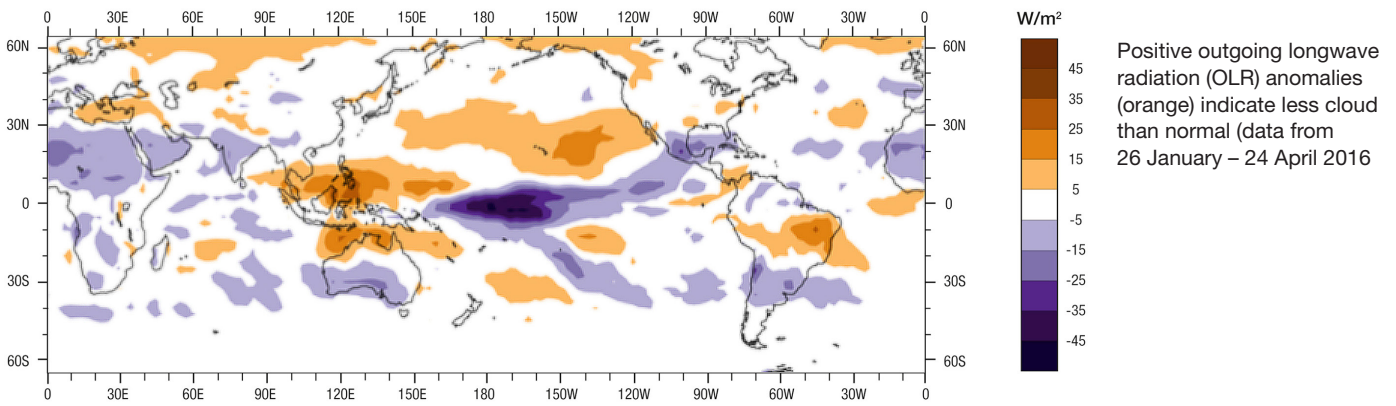
The 2015–16 El Niño suppressed and delayed the monsoon, leading to reduced cloud cover and weakened winds this summer. Additionally, a relatively low number of summer storms occurred over the Reef. These factors led to increased surface heating and reduced mixing, resulting in substantially warmer ocean temperatures around northern Australia from December to March 2016. As El Niño starts to break down in late summer, warmer waters in the central equatorial Pacific are brought towards Australia. In 2016, this return to normal wind and ocean current patterns led to further warming of sea surface temperatures on the Reef.

January–March 2016 sea surface temperature percentiles

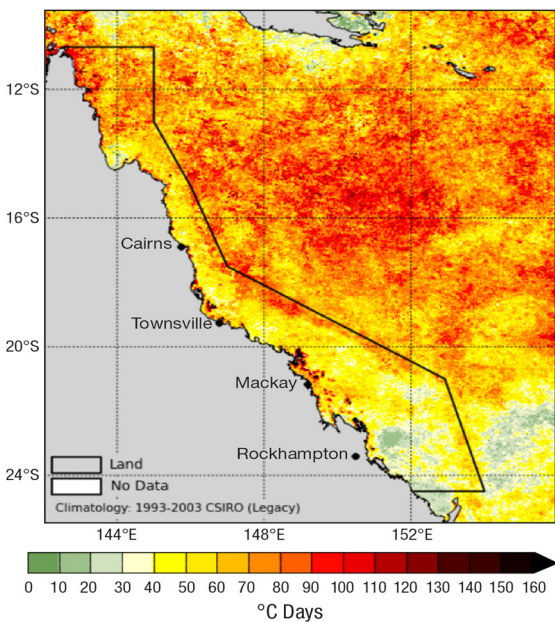


Dark orange indicates highest temperatures on record since 1900. (Data from [ERSST.v4](#)).

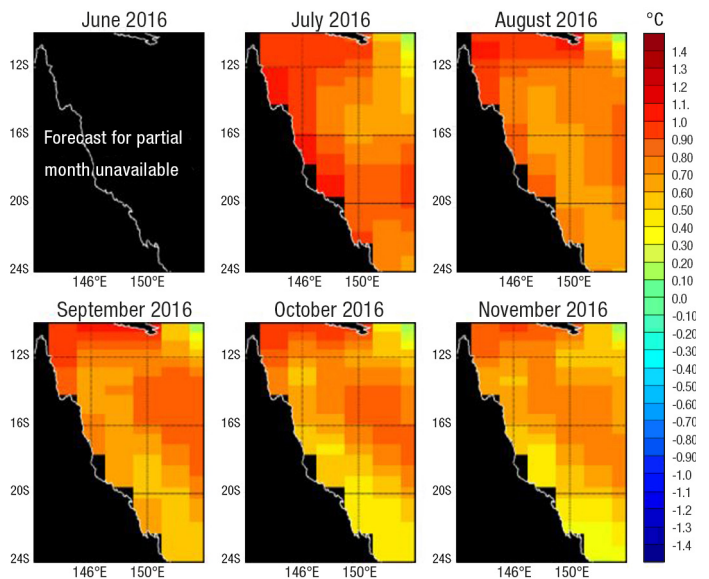
Cloudiness from 26 January – 24 April 2016



Monitoring during the event ReefTemp Next Generation



What's the current outlook? Seasonal Great Barrier Reef Forecast



Realtime seasonal sea surface temperature forecast for the Great Barrier Reef. Forecast issued 22 May 2016 shown above: up to 1°C warmer than average for July and August.