

2. Climate drivers

Key points:

- A strong positive Indian Ocean Dipole (IOD) contributed to low rainfall over southern and central Australia during winter and into spring
- There was a negative Southern Annular Mode (SAM), which during the warmer months is associated with drier than average conditions in Australia's southeast and east

Australia's climate was impacted by a positive Indian Ocean Dipole (IOD) in 2019, exerting a drying influence over many parts of the country. The IOD is characterised by cooler waters to the northwest of Australia and warmer waters further west towards Africa (<http://www.bom.gov.au/climate/iod/images/IOD-in-Australia.pdf>). In combination with reduced rainfall, positive IOD events also lead to reduced humidity across Australia. Recent months have seen notably low humidity, which enhances potential evaporation and increases fire danger.

~~– The positive IOD contributed to low rainfall over southern and central Australia during winter and spring⁶. While the IOD is a natural mode of variability, its behaviour is changing in response to climate change. Research suggests that the frequency of positive IOD events, and particularly the occurrence of consecutive events will increase as global temperatures rise.~~

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During October and November 2019, a prolonged negative phase of the Southern Annular Mode (SAM) likely enhanced the warm and dry conditions in areas of eastern Australia. Sudden Stratospheric Warming (SSW) during September above Antarctica preceded the period of negative SAM. The SSW was caused by a weakening of the

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