



## **Connections between coastal East Antarctic snowfall and Southern Australian climate**

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Annual snowfall accumulation at Law Dome, in coastal East Antarctica, is reconstructed from ice core time-series. This site has a high accumulation rate (late Holocene average of  $\sim 0.68\text{m}$  ice-equivalent), which is dominated by cyclones and yields a high resolution record with very well-resolved seasonal cycles. This accumulation series shows a strong correlation ( $r > 0.6$ ) with sea-level pressure across Southern Australia, extending eastward to New Zealand. The series also shows anticorrelation on multiannual timescales with precipitation in the southwestern region of Western Australia: a locality experiencing impacts from a significant shift to drier conditions in the last 2-3 decades. The connection with Law Dome accumulation may in part be connected with SAM (Southern Annular Mode) driven variations which connect the climates of the mid- and high-latitudes. However, rather than the zonally symmetry expected for SAM-related influences, the correlation pattern is largely restricted to the Australian sector.