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**Recent changes in hailstorm-prone conditions in Australia**

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**Abstract**

Hail is a damaging phenomena that regularly inflicts significant losses in Australia. While climate change is likely to affect hailstorms, geographical differences in observed large-scale changes, a dearth of long-term hail observations, the computational expense of hailstorm modelling studies, and knowledge gaps in hail processes conspire to make the nature of exact changes highly uncertain globally. We present an analysis of trends in hail-prone atmospheric environments over the last four decades in Australia. We use radar records and a hail proxy applied to reanalysis data to show the first continental analysis of trends in the frequency of hail-prone days. We show that changes in atmospheric instability are the primary driver of the trends. While hail-prone day frequency has reduced in much of the country, there have been increases in hail-prone day frequency in some of Australia's highly-populated regions, including around Sydney, Canberra, and Perth.

**Keywords**

storms, hail, regional studies