

Significant Warming of the Antarctic Winter Troposphere

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We report an undocumented major warming of the Antarctic winter troposphere that is larger than any previously identified regional tropospheric warming on Earth. This result has come to light through an analysis of recently digitized and rigorously quality controlled Antarctic radiosonde observations. The data show that regional midtropospheric temperatures have increased at a statistically significant rate of 0.5- to 0.7-Celsius per decade over the past 30 years. Analysis of the time series of radiosonde temperatures indicates that the data are temporally homogeneous. The available data do not allow us to unambiguously assign a cause to the tropospheric warming at this stage.

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