



Winter warming of Antarctic troposphere

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The recently discovered winter warming of the Antarctica, peaking at 0.5 oC/decade between 400 and 600 hPa, is the largest observed in the troposphere. We seek to explain this. Examination of the IPCC AR4 modelling archive of simulations of the late 20th century show little consistency; except that most models show slight trends much smaller than observed. We hypothesise that the observed trend might be caused by an effect not included in the models: an increase in polar stratospheric clouds (PSCs) driven by cooling in the stratosphere. To test this, we impose a simple representation of PSCs within the radiation scheme of the UKMO Hadley Centre model HadAM3. This does indeed produce a warming within the troposphere similar to that observed.