



## **An assessment of IPCC AR4 coupled models over Antarctica**

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We assess the IPCC AR4 model simulations of the late 20th century, focussing on the Antarctic domain. The assessment is based on the calculation of "skill scores". The AR4 models show a wide range of skill scores when assessed against Antarctic or Global measures of large-scale circulation indices. Except for continental surface mass balance, the model average proves a more reliable estimate than that for any one model, though it is usually not the best estimate for any given assessment. Individual models show a very wide scatter in simulated temperature trends over the past century. In particular the large trend over the Antarctic peninsula in winter is not well represented, which makes it clear that whatever has been driving these trends is not well captured by many GCMs. Only a few individual models produce creditable simulations of what has been observed. Trends in temperature are clearly linked to the sea ice simulation, another variable that most models do not simulate well.