



Simulated atmospheric and Southern Annular Mode response to decreased Antarctic sea ice extent

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The atmospheric response to a reduced Antarctic sea-ice cover has been investigated by means of an AGCM (ECHAM5) sensitivity experiment. A simulation with reduced Antarctic sea-ice cover has been compared with a control run with climatologic sea-ice conditions. The mean atmospheric response exhibits distinct similarities to the structure of the Southern Annular Mode (SAM) which is identified as the leading mode of Southern Hemisphere variability. When investigating the response in variability, we found that it projected significantly onto the SAM. However, a closer inspection showed that there is a considerable seasonal dependency of the degree of SAM projection. The month with the most distinct SAM projection is September. In September we find a significant negative response of the SAM index. The associated change in storm tracks and surface fluxes will be presented as well.