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Future changes in extra-tropical cyclones in Hadley Centre climate models

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Extra-tropical cyclones strongly influence weather and climate in mid-latitudes and any future changes in the frequency, distribution or intensity of these cyclones may have large impacts on the local scale. Future changes in mid-latitude storms have been analysed in a large sub-set of the experiments carried out with each of the Hadley Centre coupled ocean-atmosphere models and with two atmosphere only models. There are fewer Northern Hemisphere winter storms with increased CO2 in all of the Hadley Centre models, except UKTR. There are some local increases in storminess, but the location of the increases varies with model and simulation. The frequency of severe storms with central pressures below 970 hPa increases in HadCM2, HadAM3P and some of the HadCM3 experiments but not in other HadCM3 experiments or in HadGEM1. The changes to intensity of Northern Hemisphere winter storms and regional frequency changes due to CO2 increases remain uncertain.