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# Stronger winds could trigger rapid change in Southern Ocean

A new IMAS study has found that an increase in average wind speeds could lead to abrupt physical changes in the Southern Ocean, with significant implications for climate change.

Research by Dr Andreas Klocker, published in *Science Advances*, found that stronger winds could trigger rapid changes to Southern Ocean eddies and jets, potentially affecting how the ocean takes up atmospheric heat and $CO_2$ through a process known as ocean ventilation.

The study was carried out in collaboration with NCI, a research computing organisation based in Canberra which is home to Raijin, the fastest supercomputer in the Southern Hemisphere and the only one in Australia capable of managing the huge amount of data needed to model the complexity of the Southern Ocean.

Dr Klocker said the modelling showed that abrupt changes could be triggered with just a 25 per cent increase in Southern Ocean wind speeds, well within the range predicted by the end of this century as a result of climate change.

“Changes in ocean ventilation are thought to be important for both rapid transitions of the ocean