EGU21-884
https://doi.org/10.5194/egusphere-egu21-884
EGU General Assembly 2021
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Interhemispheric asymmetry of surface mean and extreme wind projections in CanESM5 climate change simulations

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The internal climate variability contributes to various aspects of climate change projections. This presentation will report results of the ensemble mean and spread of future projections of globally surface mean and extreme winds in boreal winter, based on single model initial-condition simulations forced by the SSP5-8.5 high-emissions scenario from a 50-member ensemble of CanESM5 models. Over the next half century, surface wind is projected to increase in the Northern Hemisphere mid-latitudes and increase in the Southern Hemisphere low-latitudes, an interhemispheric asymmetry feature relevant to large-scale changes in surface temperature and atmospheric circulation. Decreases in the surface extreme wind are clearer than the mean wind in the northern mid-latitudes. Large ensemble spreads are apparent in the mean and extreme wind changes, including spatial pattern and magnitude of the projected trends over the next half century. The internal climate variability generated components of the mean and extreme wind trends exhibit large-scale spatial coherences, and are comparable to the externally anthropogenic forced components of the trends.