

EGU22-8755

<https://doi.org/10.5194/egusphere-egu22-8755>

EGU General Assembly 2022

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Robust trends in the number of winter days with heavy precipitation over Europe are modulated by a weaker NAO variability by the end of 21st century

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We use 14 models participating in the Coupled Model Intercomparison Project phase 6 (CMIP6) to analyse the number of days with extreme winter precipitation over Europe and its relationship to the North Atlantic Oscillation (NAO), for the observed period 1950-2014 and 21st-century that for northern Europe, models project two times more extreme precipitation days by the end of the 21st century compared to the historical period (1950-2014). In contrast, no significant change in the number of extreme precipitation days is detected over the whole period for southern Europe. We find a weakening of the NAO variability in the second half of the 21st century compared to the historical period. For the second half of the 21st century, models show an intensified correlation between the extreme precipitation and the NAO index in both southern and northern Europe. Models with a reduced variability of the NAO show an increased positive trend of days with extreme precipitation in northern Europe.