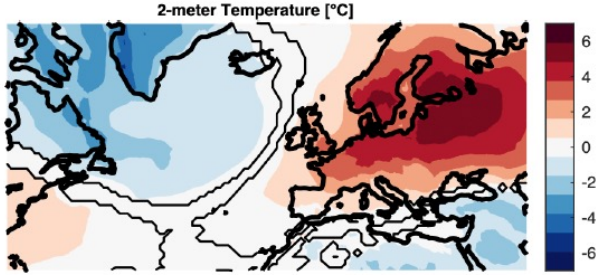
RESULTS: WINTER

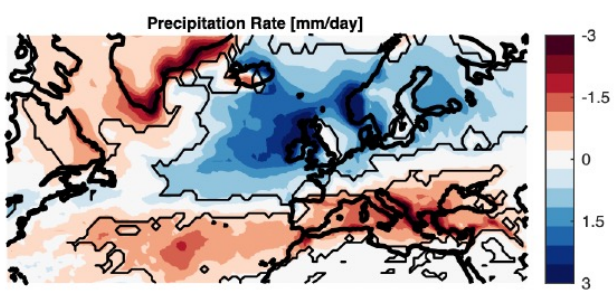
The vast majority (92.7%) of circulation patterns show no significant occurrence trend in the historical period; 5.1% show increasing trends and 2.2% show decreasing trends

INCREASING TRENDS

E

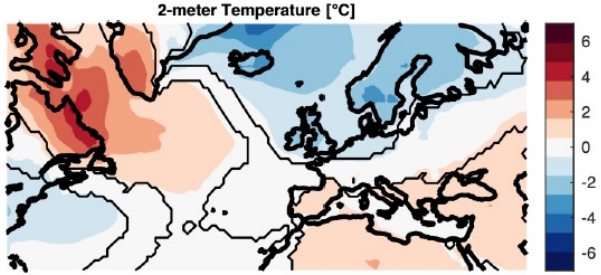


G



DECREASING TRENDS

F



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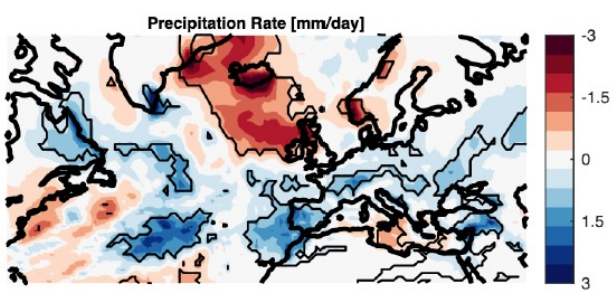
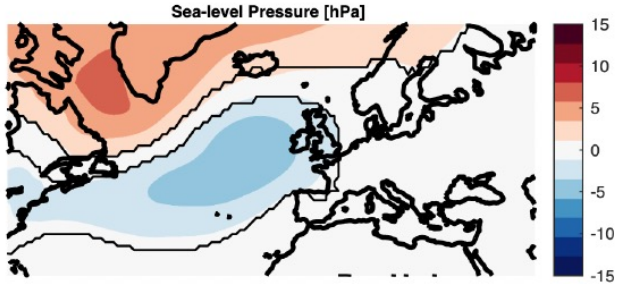


RESULTS: SUMMER

The vast majority (92.7%) of circulation patterns show no significant occurrence trend in the historical period; 5.1% show increasing trends and 2.2% show decreasing trends

INCREASING TRENDS

A



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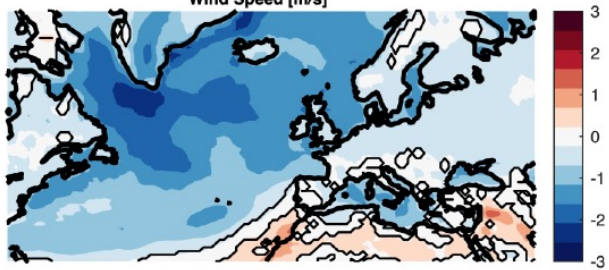
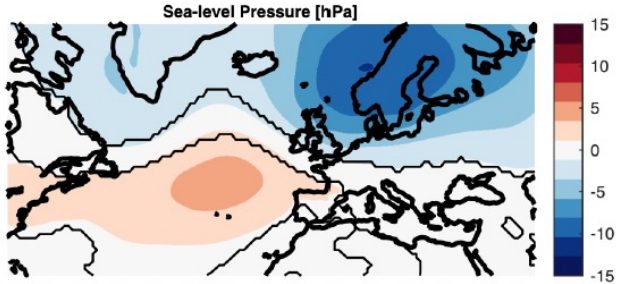


DECREASING TRENDS

B



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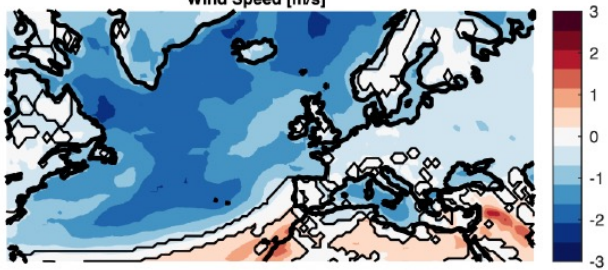
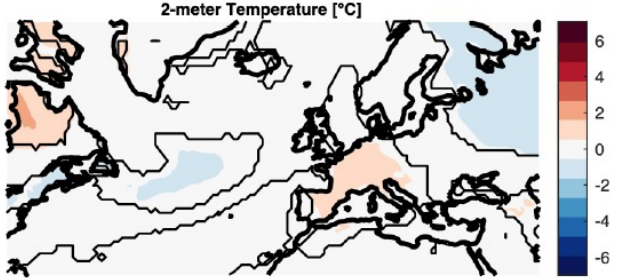


RESULTS: SUMMER

The vast majority (92.7%) of circulation patterns show no significant occurrence trend in the historical period; 5.1% show increasing trends and 2.2% show decreasing trends

INCREASING TRENDS

E



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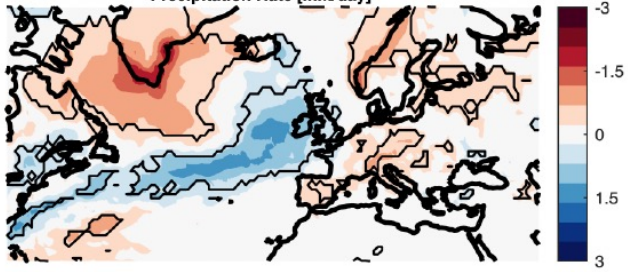
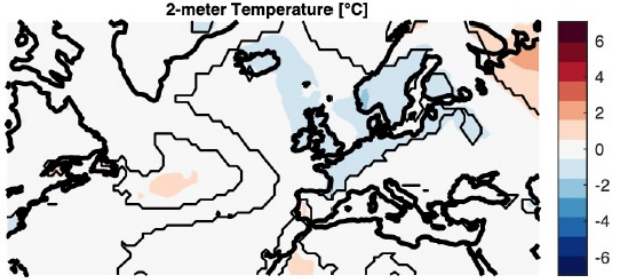


DECREASING TRENDS

F



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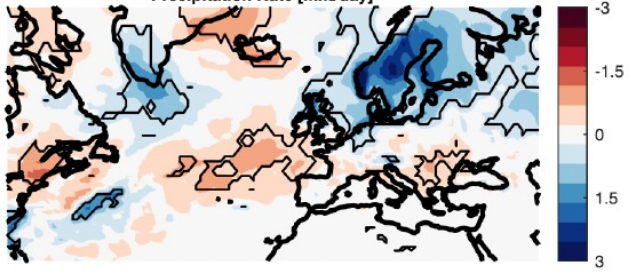
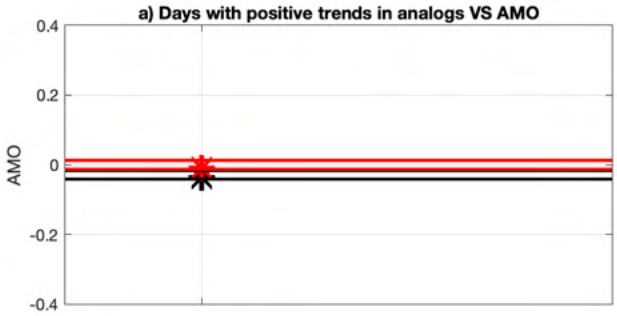
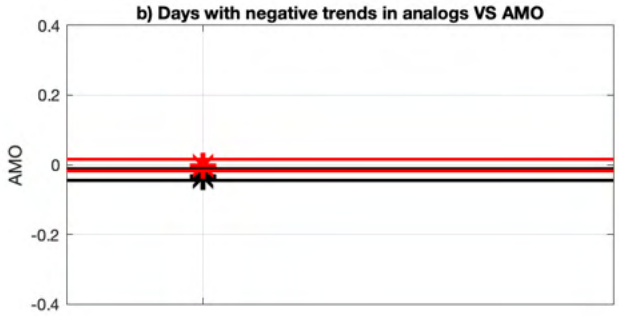
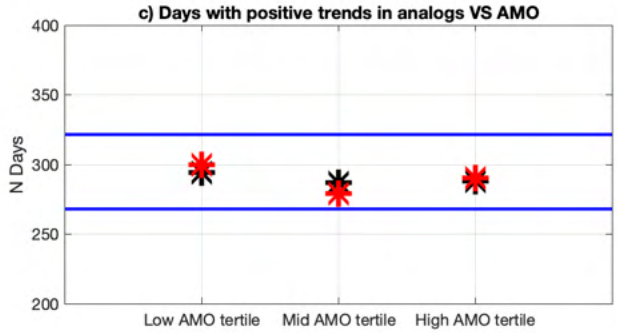


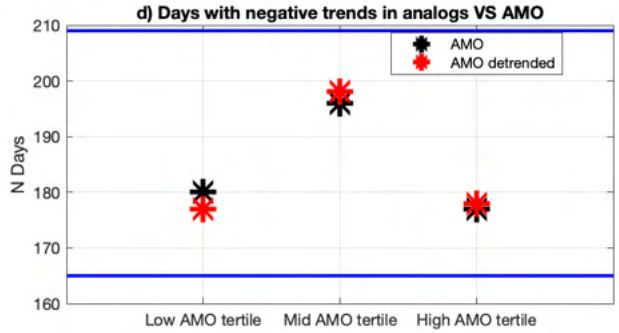
RESULTS:
Role of Interannual Variability

We find a non-significant influence of AMO in the trends



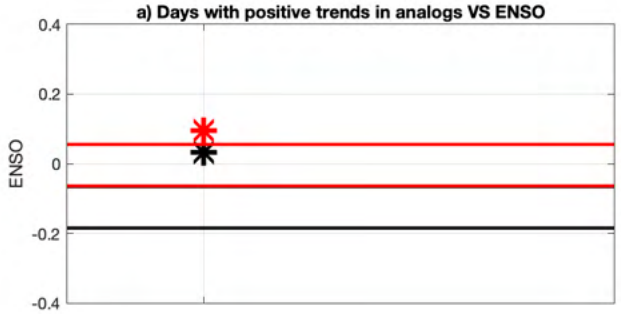


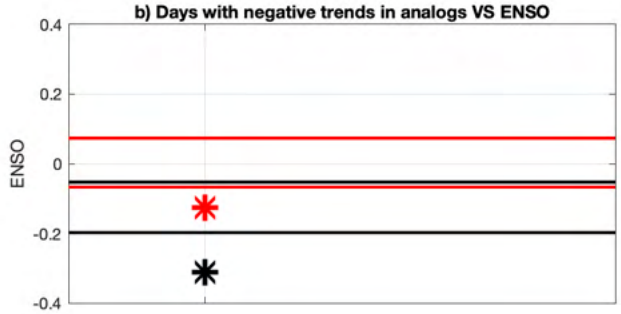


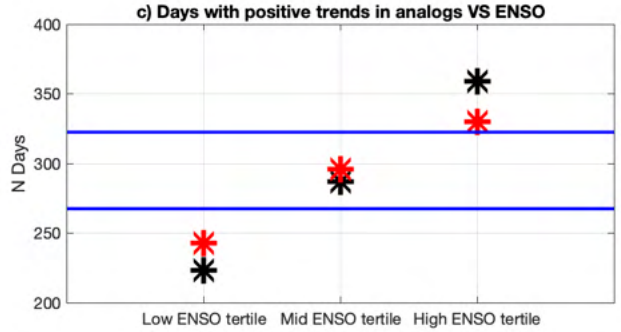


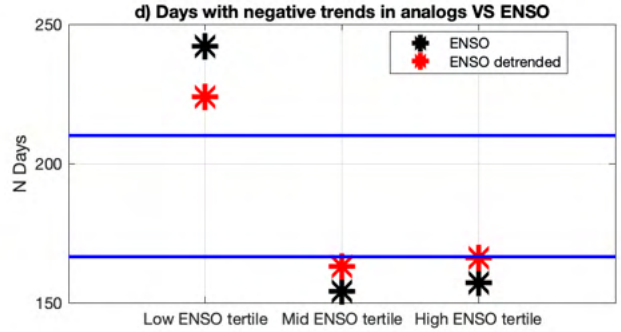
RESULTS:
Role of Interannual Variability

We find a moderate role of ENSO, but it is not sufficient to explain all the trends observed



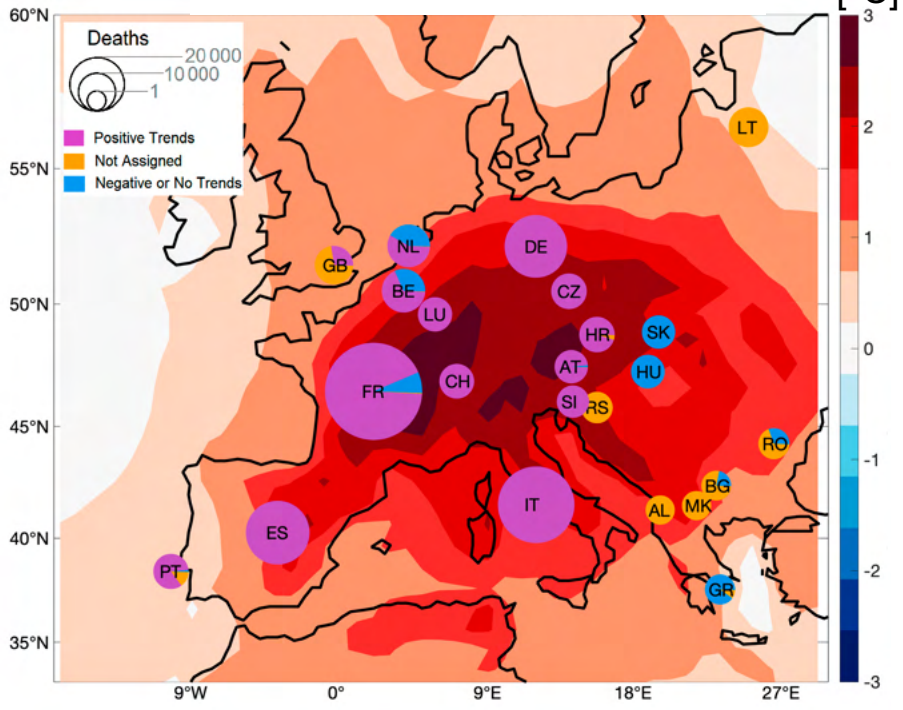




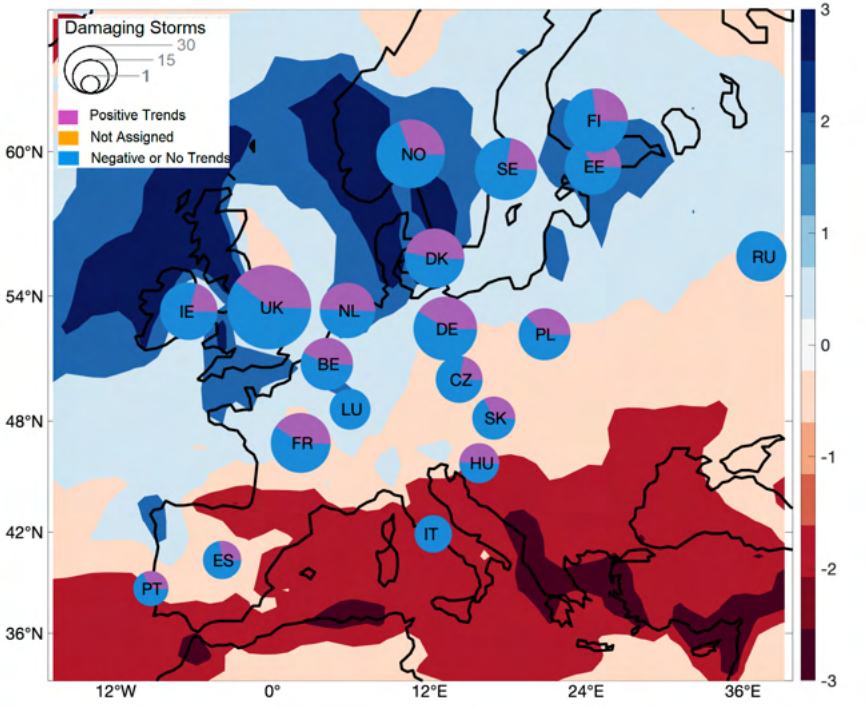


RESULTS:
Linking frequency changes to impactful extreme events

SUMMER HEATWAVES



WINTER WINDSTORMS



SUMMARY

We find that large scale atmospheric patterns which favor summertime heatwaves and wintertime windstorms over large parts of the continent are becoming increasingly frequent

We have also shown that ENSO and AMO play a minor role in these changes. These trends can be therefore linked to anthropogenic climate change.

A key implication of our work is that anthropogenically-induced circulation changes modulate extreme events already in the present climate.


JOUEZ À
CLIMA
RISQ
COMPRENDRE LA COMPLEXITÉ DU SYSTÈME CLIMATIQUE ET L'URGENCE D'UNE ACTION COLLECTIVE

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D Faranda, G Messori, A Jézéquel, M Vrac, P Yiou. Atmospheric circulation compounds anthropogenic warming and extreme climate impacts in Europe. PNAS, 2023 https://doi.org/10.1073/pnas.2214525120