Hybrid statistical-dynamical seasonal prediction of summer extreme temperatures over Europe

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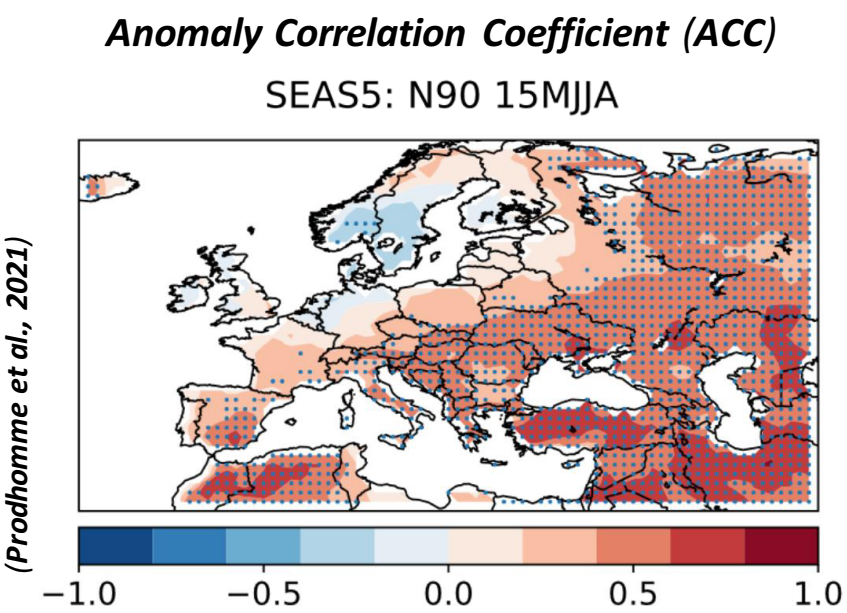
Prediction skills of summer extreme temperatures in Seasonal Prediction Systems

Anomaly Correlation Coefficient (ACC)



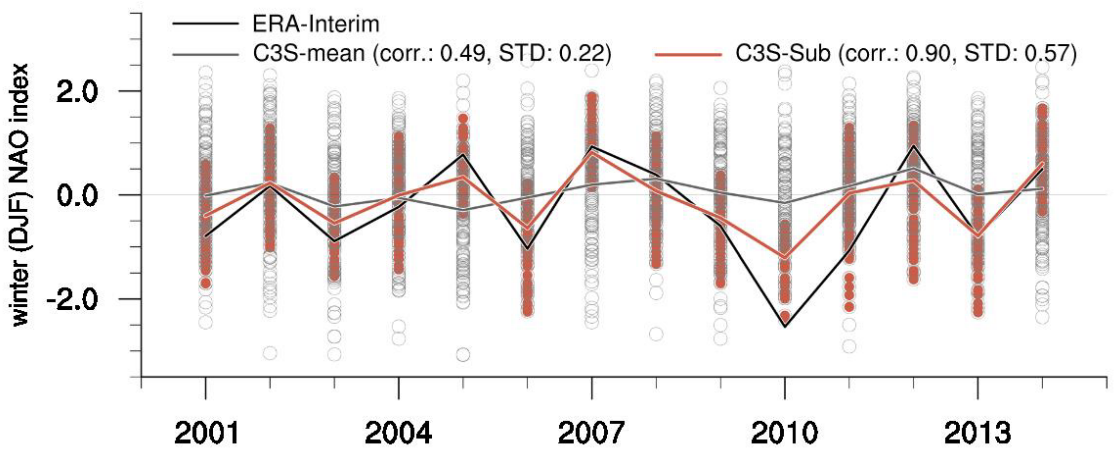
(Prodhomme et al., 2021)

- **Good prediction skills** of summer extreme temperatures in state-of-the-art seasonal prediction systems over **southern/eastern regions**
- However, **low prediction skills** over **northern/continental regions**, affected by particularly hot summers in the past few years (e.g. France 2003 and UK 2022)

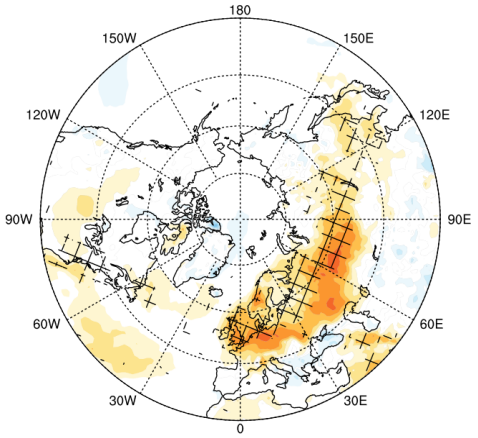
Improved Prediction Skills through Subsampling

Prediction skills of European climate can be improved by **subsampling the seasonal prediction systems**, that is by retaining only some ensemble members that satisfy specific statistical conditions on the atmospheric circulation.

(Dobrynin et al., 2022)



Improvement of seasonal prediction skill of winter T2m



Scientific Question

Can we improve the **seasonal prediction skills** of European climate and extreme temperatures during **summer season** in **state-of-the-art forecast systems**, by refining the dynamical ensemble through **subsampling technique**?