

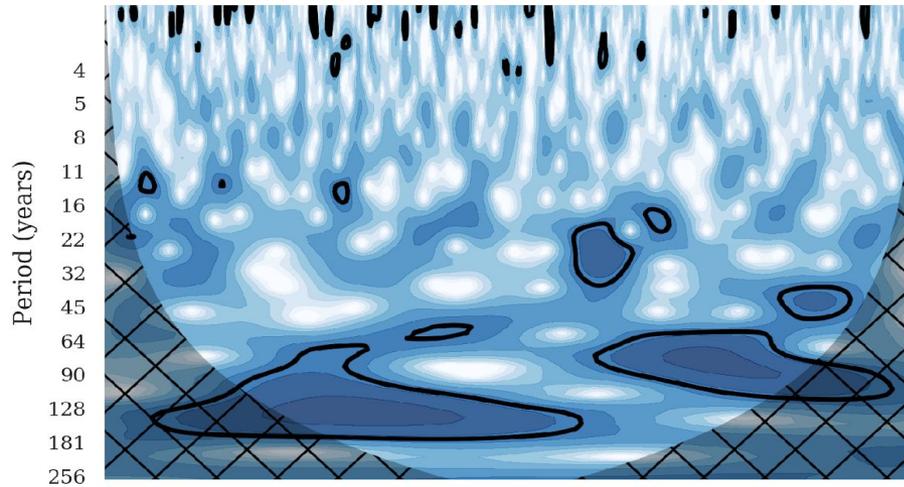
The Atlantic Multidecadal Oscillation controls the impact of the North Atlantic Oscillation on North European climate

Börgel, F., Frauen, C., Neumann, T., Meier, H. E. M. (2020),

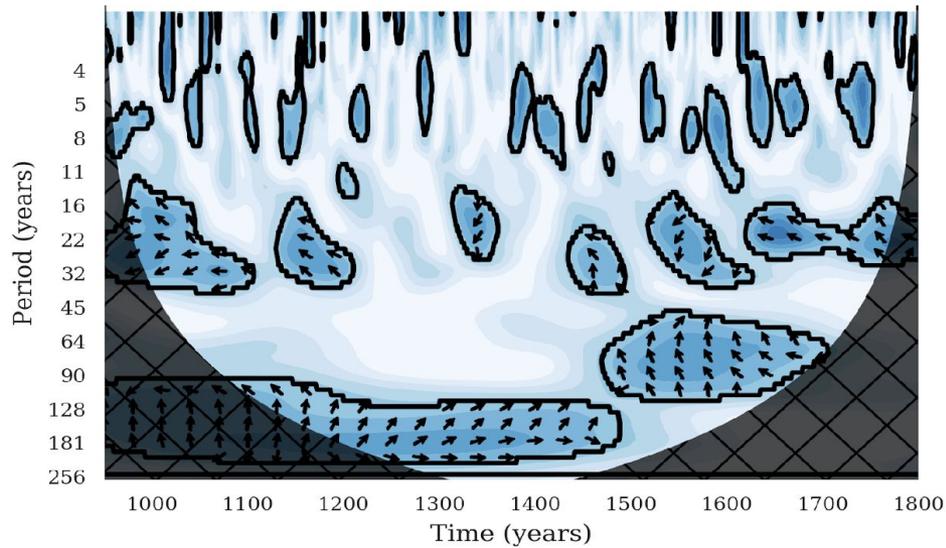
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<https://doi.org/10.1088/1748-9326/aba925>

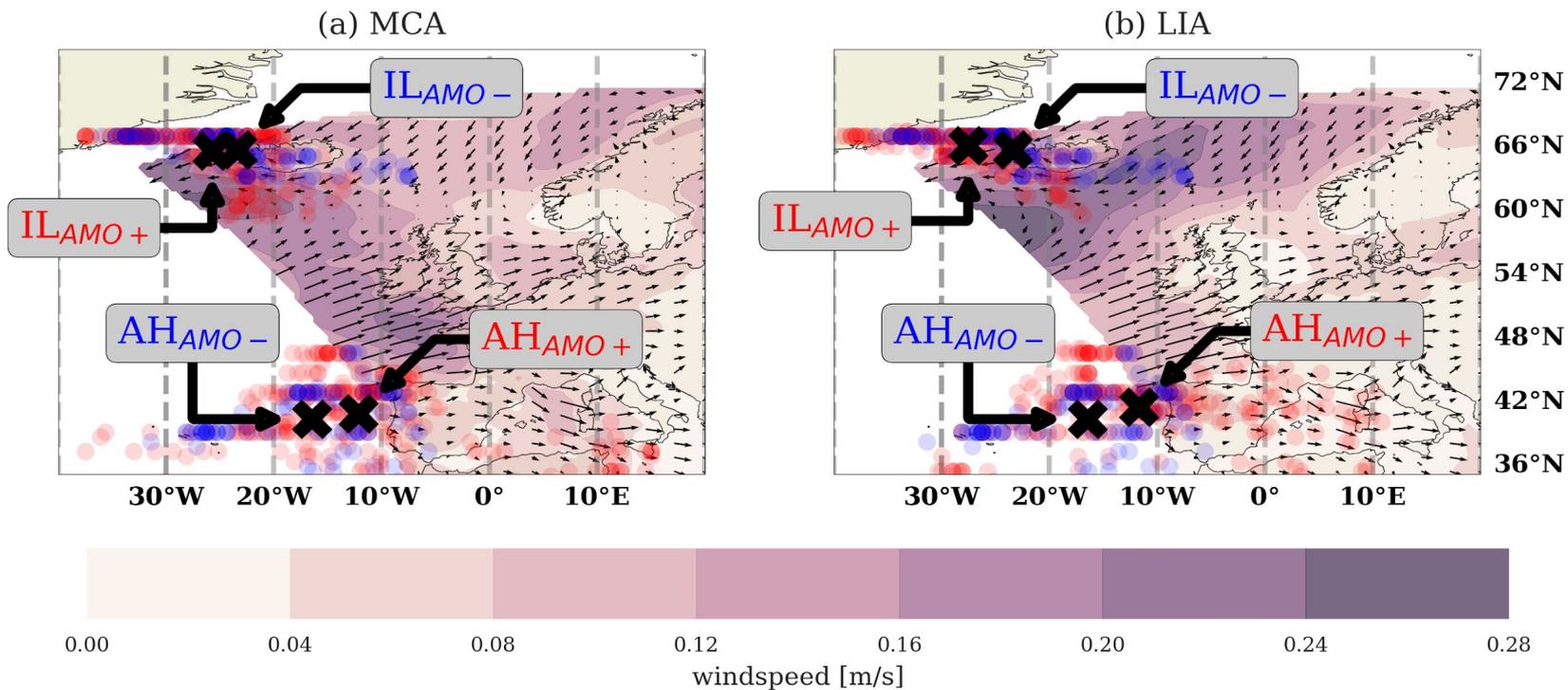
(b) AMO Wavelet Power Spectrum (Morlet)



(c) Wavelet coherence AMO and NAO EOF(1)

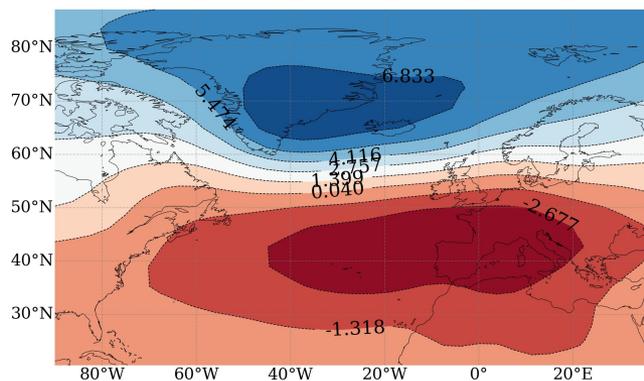


AMO influences the mean position of the NAO



Börgel et al. (2020),
their Figure 3

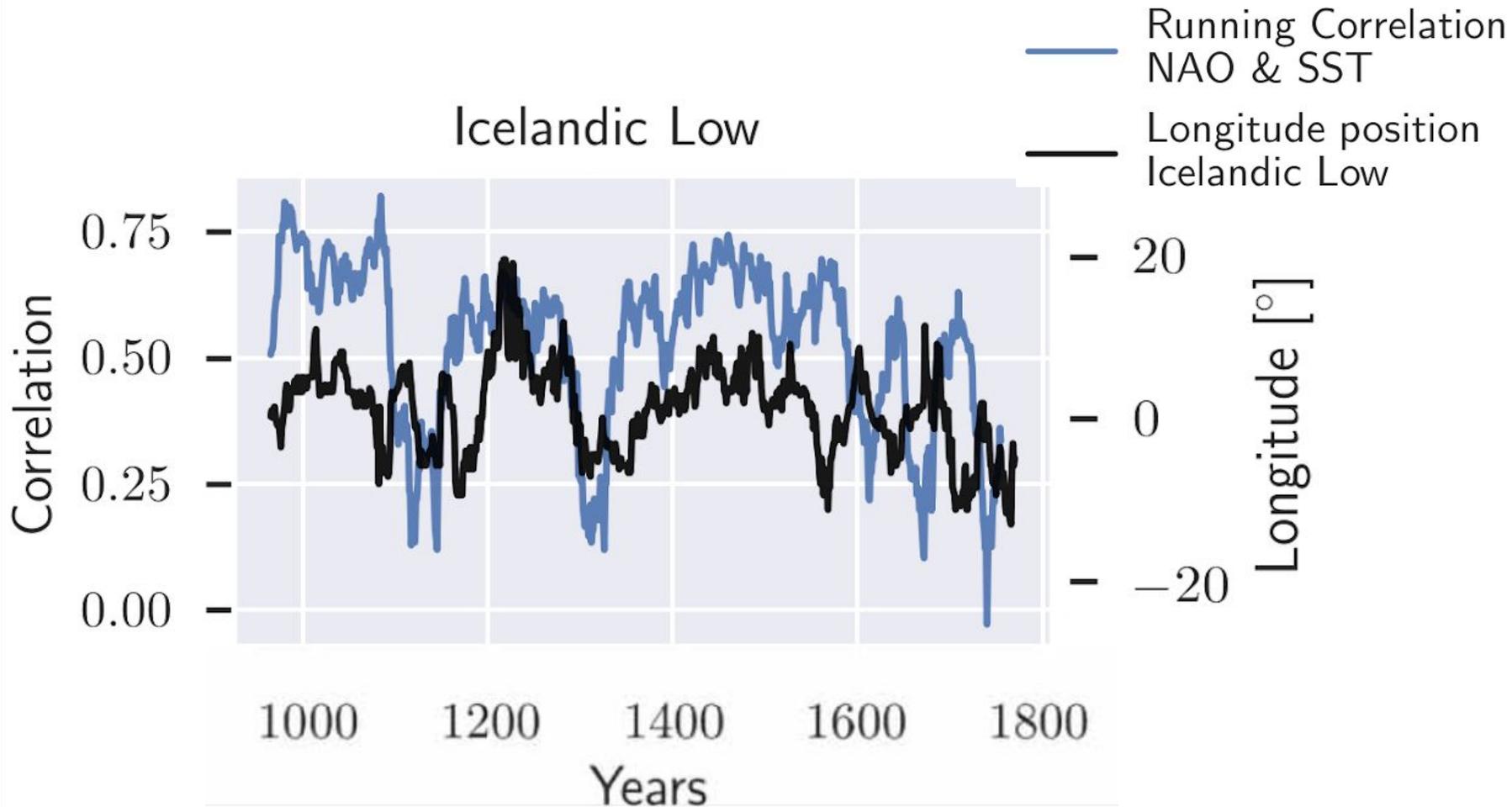
IL = Icelandic Low
AH = Azores High



Variance explained: 38.17%

Florian Börgel; NAO (EOF1) for the period 950 - 1800 as simulated by the global circulation model ECHO-G. Data: OETZ12 ECHO-G (Hünicke et al., 2010)

Regional importance of the spatial position of the NAO

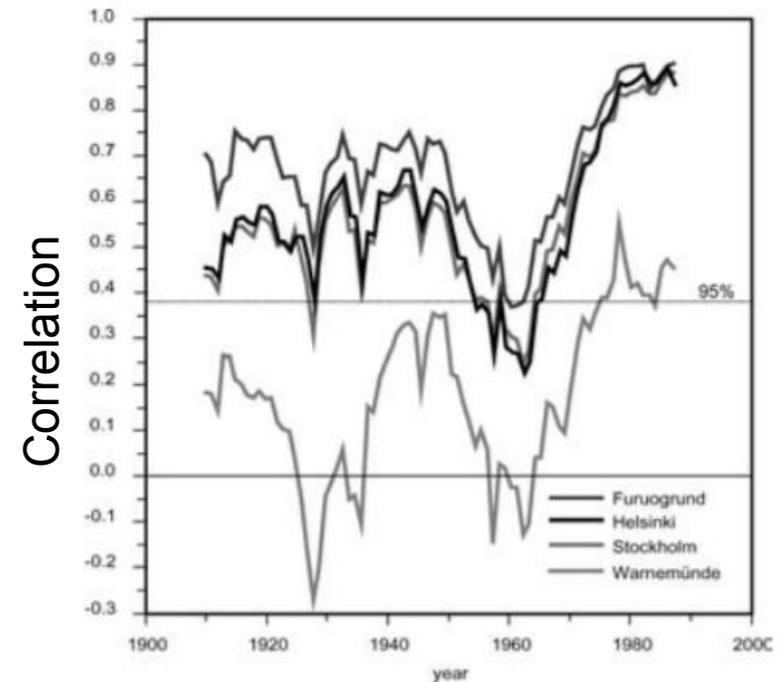


Börgel et al. (2020),
their Figure 4 (a)



„The ice extent is fairly well correlated to the NAO [...]. However, [...] the relationship is not stationary in time“.

Omstedt and Chen (2000)

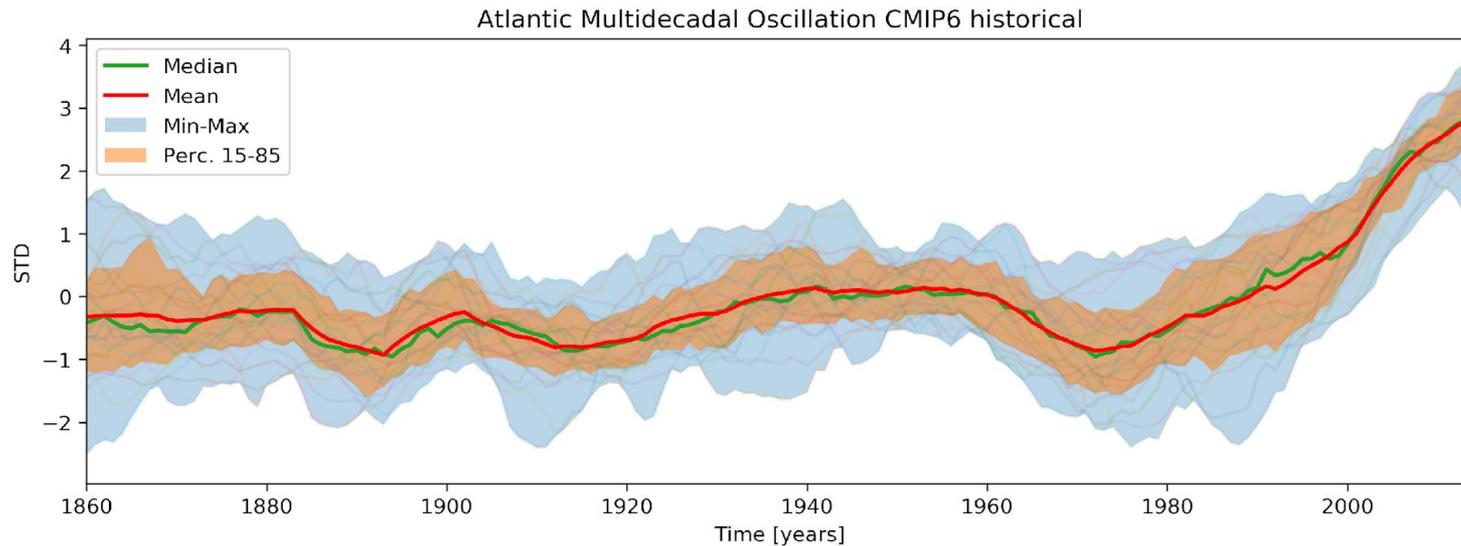


Hünicke and Zorita (2006)

Summary:

- The AMO impacts the spatial position of the NAO.
- The position of the NAO plays a crucial role for the climate of Northern Europe.
- When the Icelandic Low is moving towards Northern Europe the correlation between the NAO and regional climate variables increases.

- Ensemble simulation of multiple models, forcing and initial conditions



Ensemble members

KACE-1-0-G	E3SM-1-1
GFDL-CM4	EC-Earth3-Veg
GFDL-ESM4	FIO-ESM-2-0
NESM3	INM-CM4-8
SAM0-UNICON	IPSL-CM6A-LR
MCM-UA-1-0	MIROC6
BCC-CSM2-MR	MPI-ESM1-2-HR
BCC-ESM1	MRI-ESM2-0
CAMS-CSM1-0	GISS-E2-1-G-CC
FGOALS-f3-L	GISS-E2-1-G
CanESM5	GISS-E2-1-H
ACCESS-CM2	CESM2-FV2
ACCESS-ESM1-5	CESM2-WACCM-FV2
E3SM-1-0	CESM2-WACCM
E3SM-1-1-ECA	CESM2

Florian Börgel, Data: CMIP6