

Further experience with System 2

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Overview

- Global perspective
- Regional: NAO
- Local RPSS sensitivity on reference climate
- Application: Klimagramms

Data basis: monthly means of

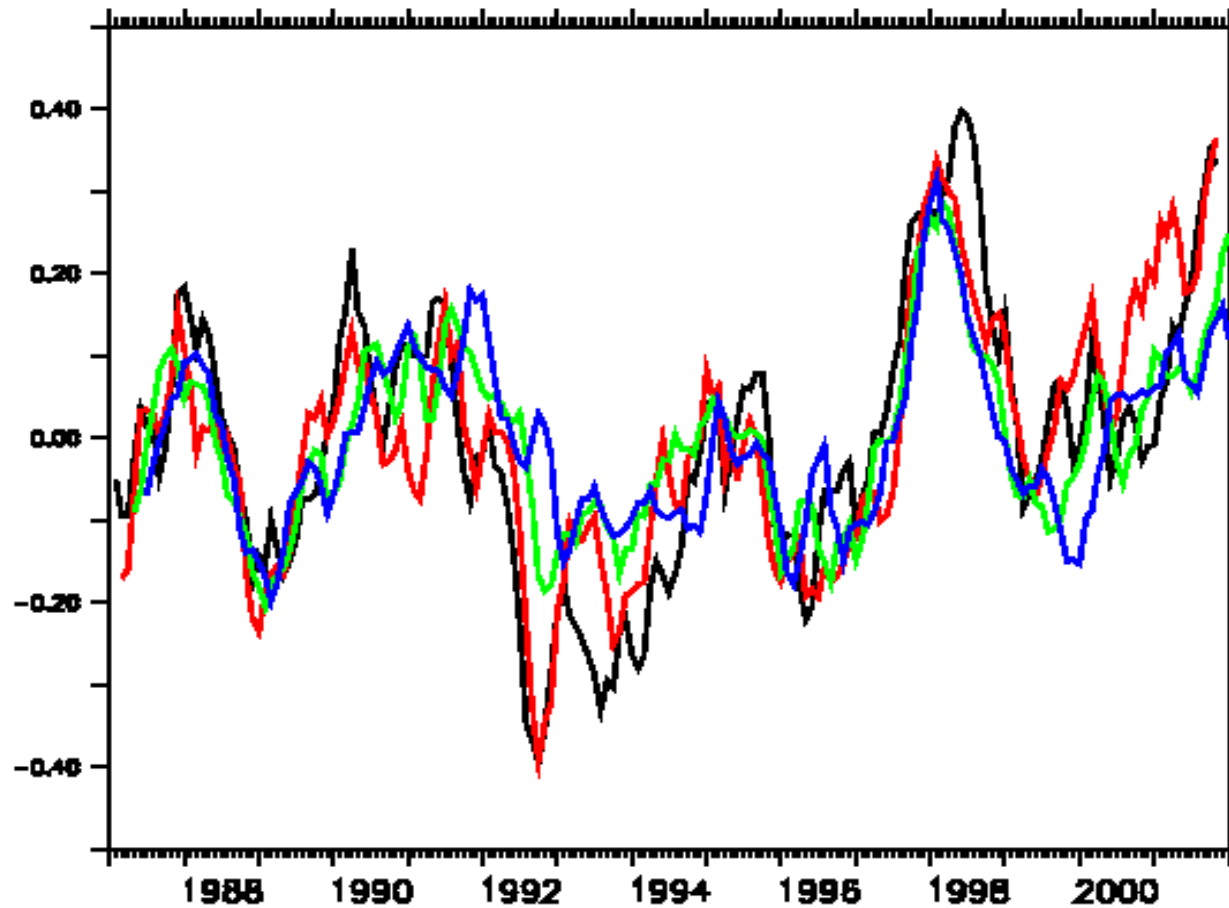
- ECMWF System 2 1987-2002, mainly May and Nov
- ERA-40 1987-2002
- NCEP 1948-2001



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Global Climate: mean T2m



Observation (NCEP)

System2 Lead 0

System2 Lead 2

System2 Lead 4

Correlations

0.79

0.69

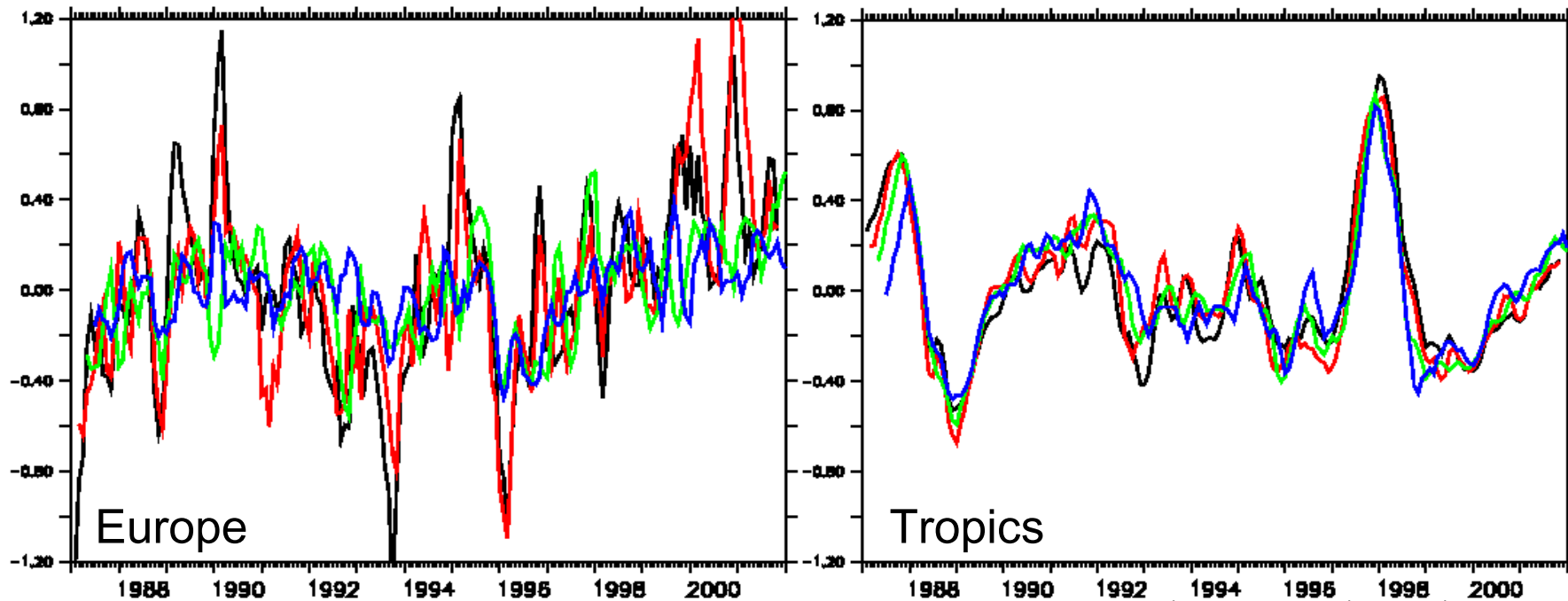
0.55



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Regional Climate: mean T2m



Correlations

0.64

0.38

0.15

Observation (NCEP)

System2 Lead 0

System2 Lead 2

System2 Lead 4

Correlations

0.93

0.82

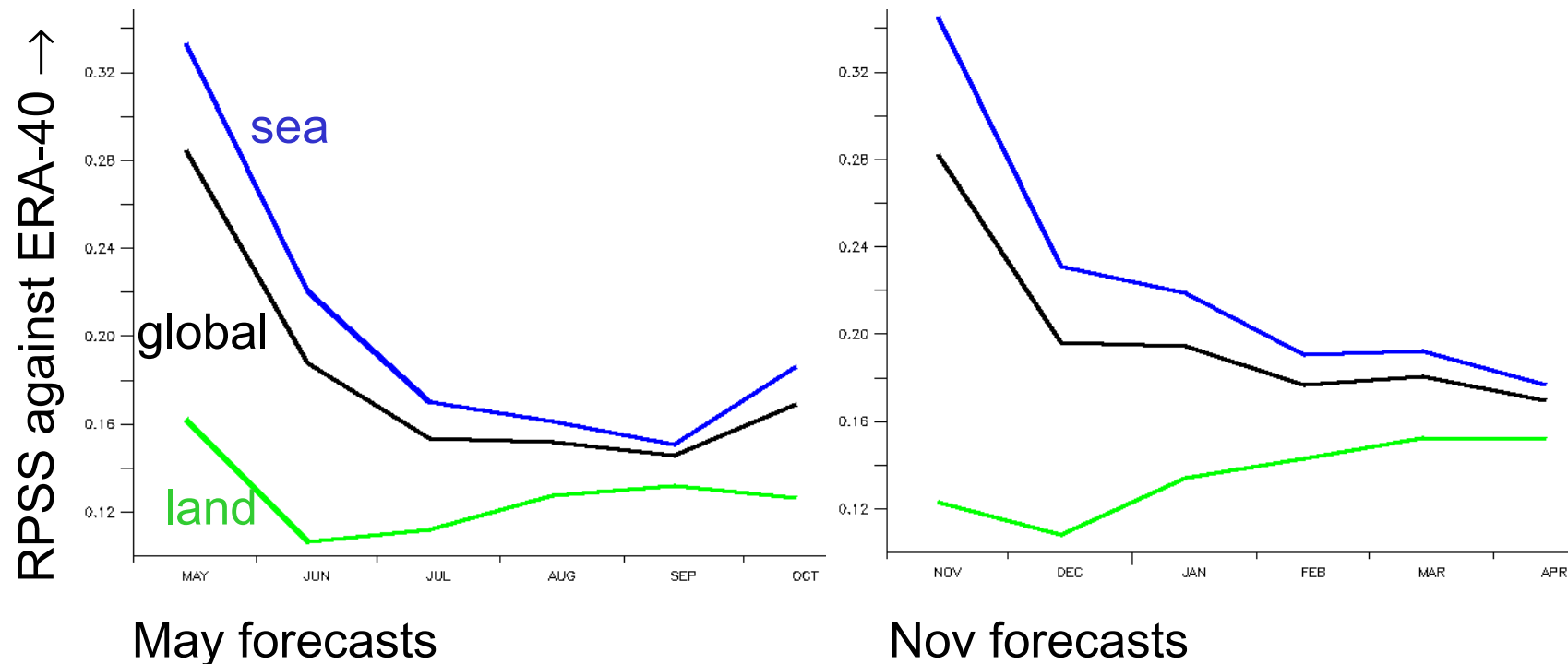
0.57



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Skill: global, land, sea T2m



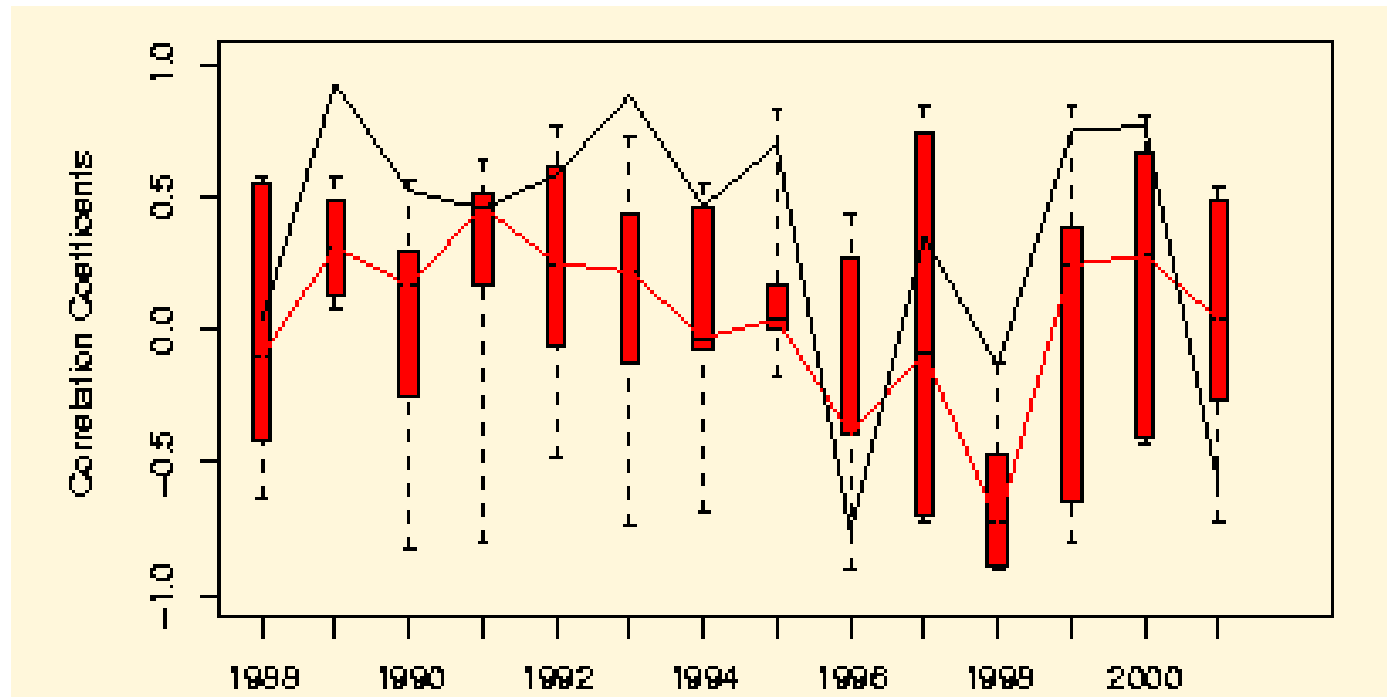
- Higher skill over oceans, but stronger decay
- Slight increase over land?
- El Nino signal in October?



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NAO in a perfect model approach



- NAO (EOF of Nov forecasts regressed on members), **median**
- NAO (EOF of NCEP 87-01 regressed on NCEP)

based on monthly mean Z500

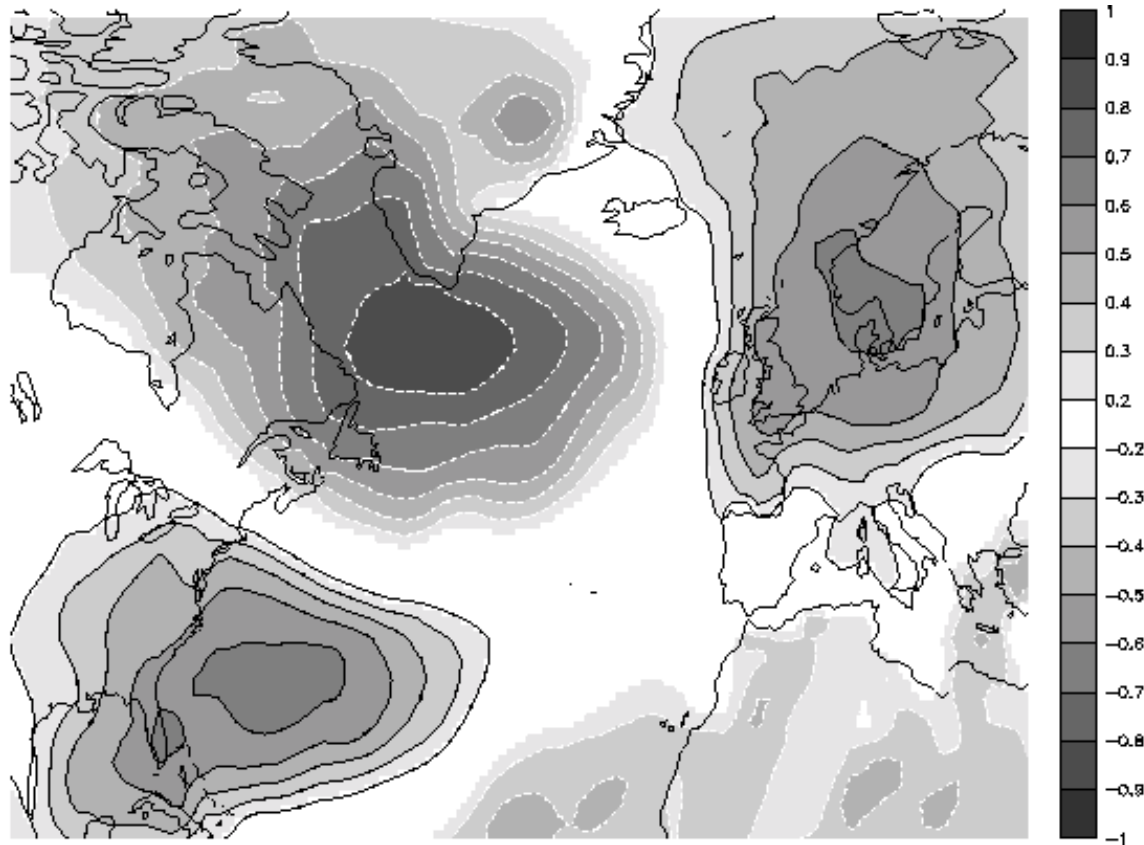
DJF of Nov forecasts



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NAO and European T2m



NAO in System 2: Correlation with T2m

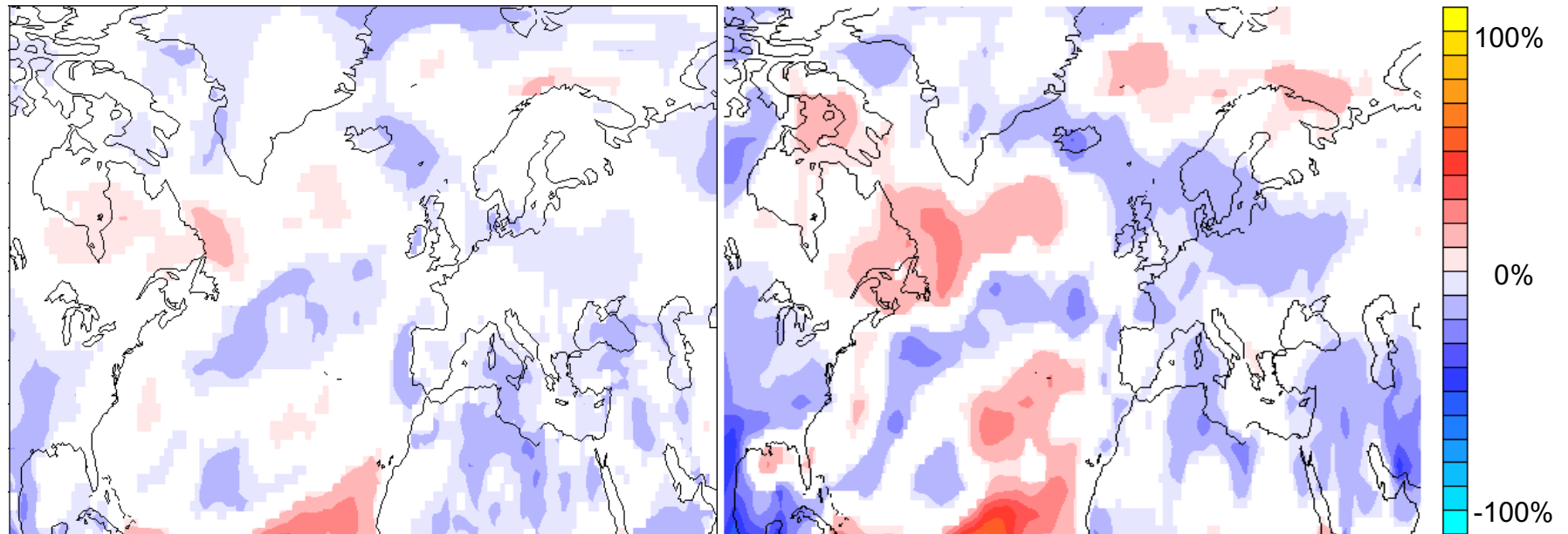
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Local RPSS: ERA-40 and NCEP

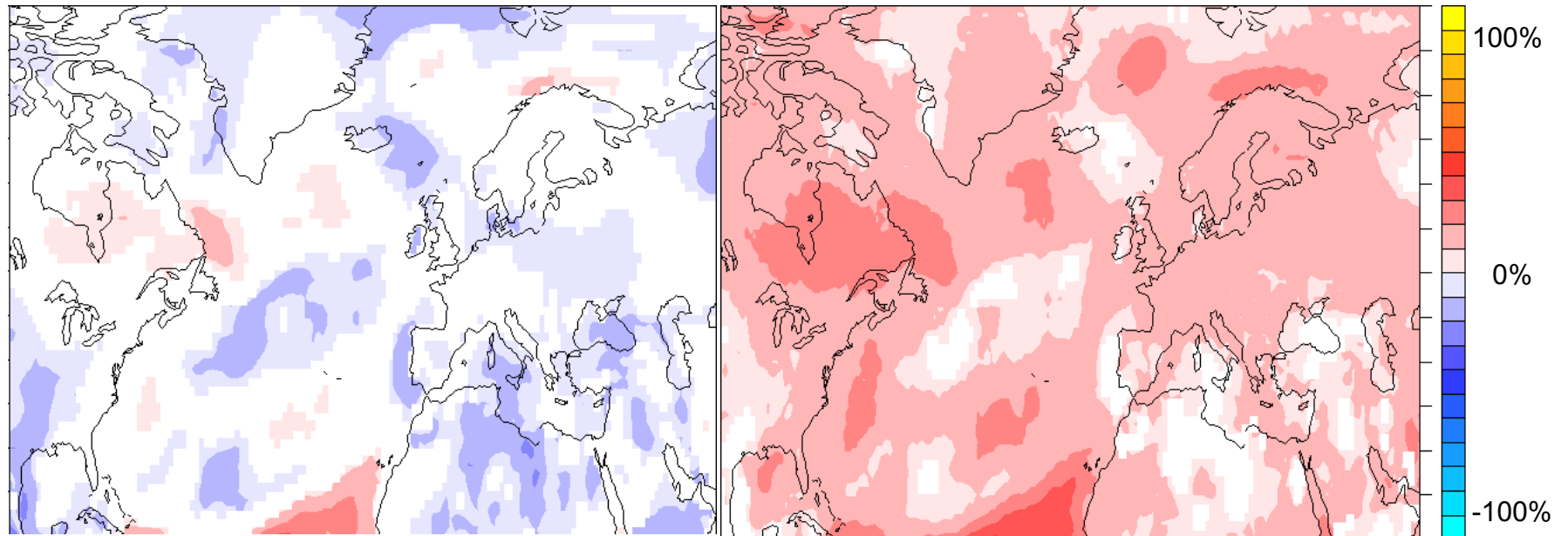


Reference climatology: ERA-40
1987 - 2001, all years (CRPSS)

Reference climatology: NCEP
1987 - 2001, all years (RPSS)

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Local CRPSS: ERA-40, excluding



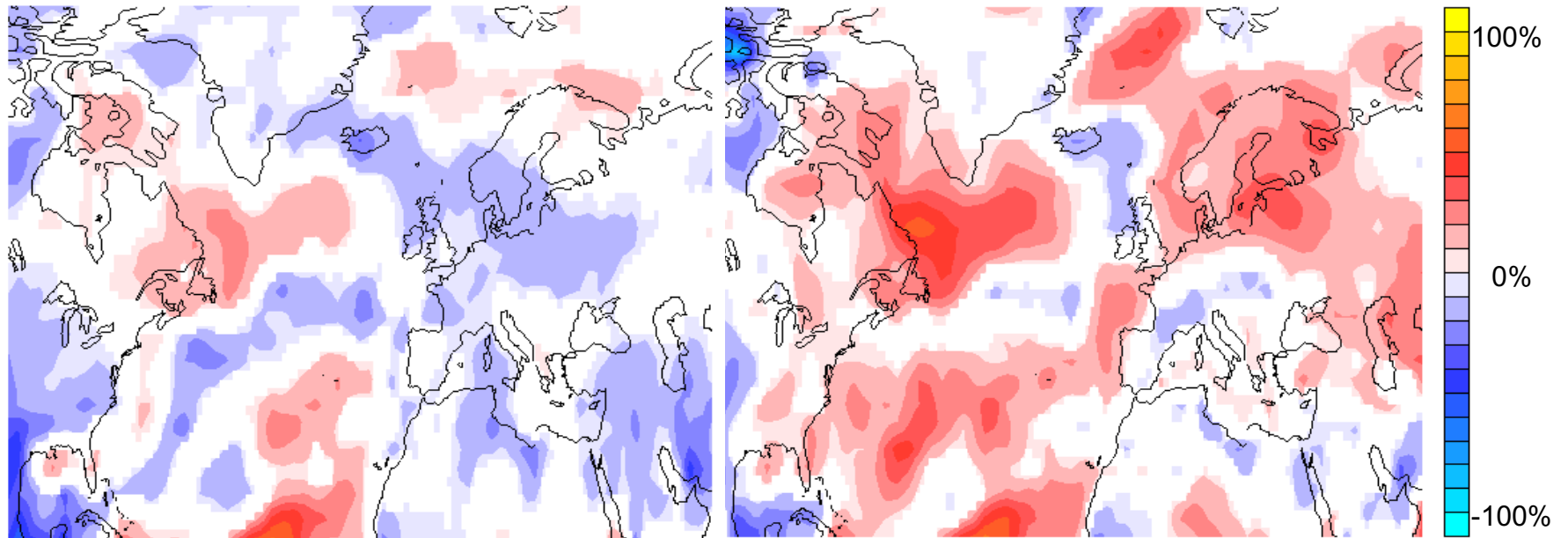
Reference climatology: ERA-40

1987 - 2001, all years

1987 - 2001, excluding forecast years

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Local RPSS: NCEP, past 30yrs



Reference climatology: NCEP
1987 – 2001, all years

Reference climatology: NCEP
30 yrs before forecast

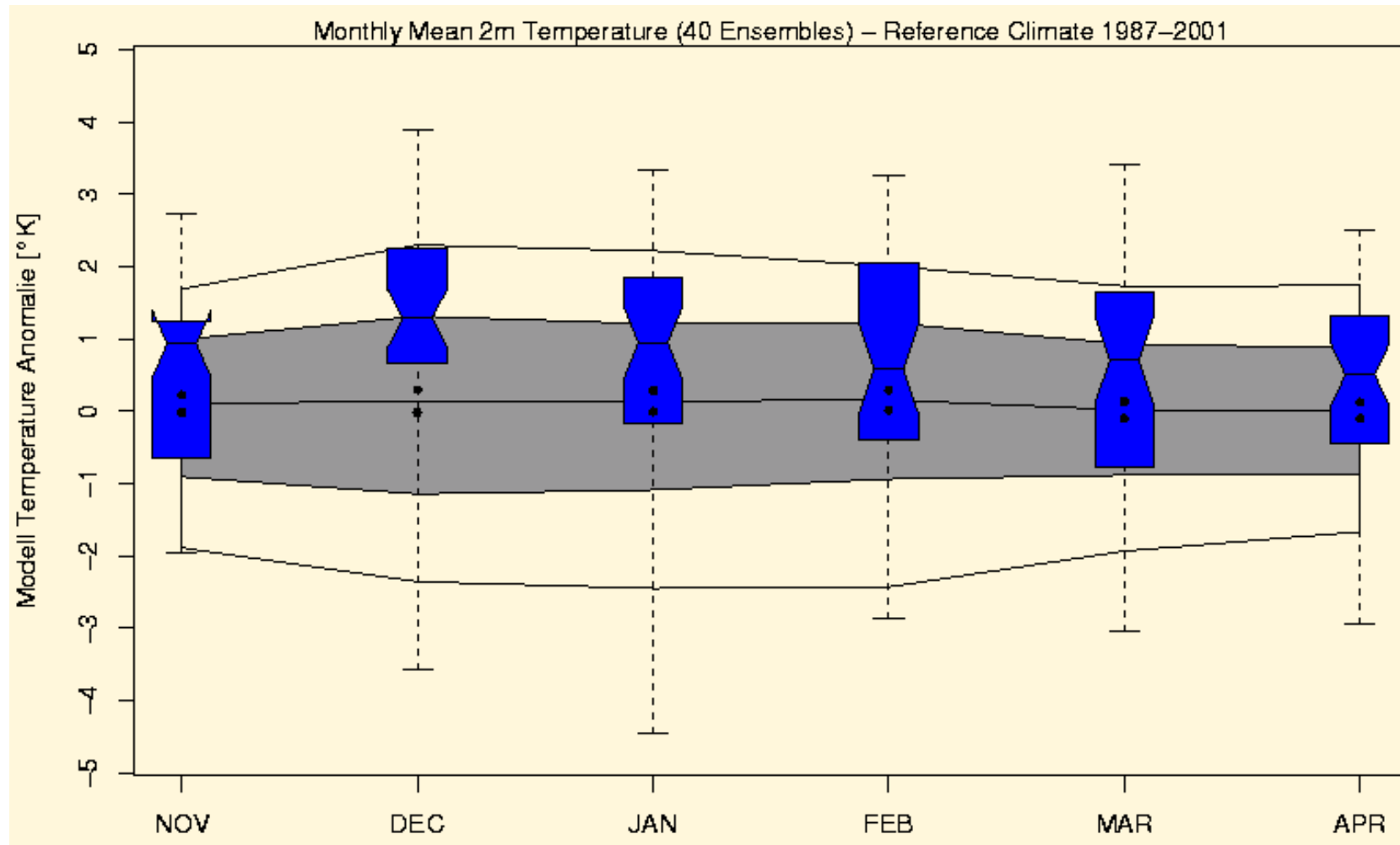
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Klimagramm for France/Germany



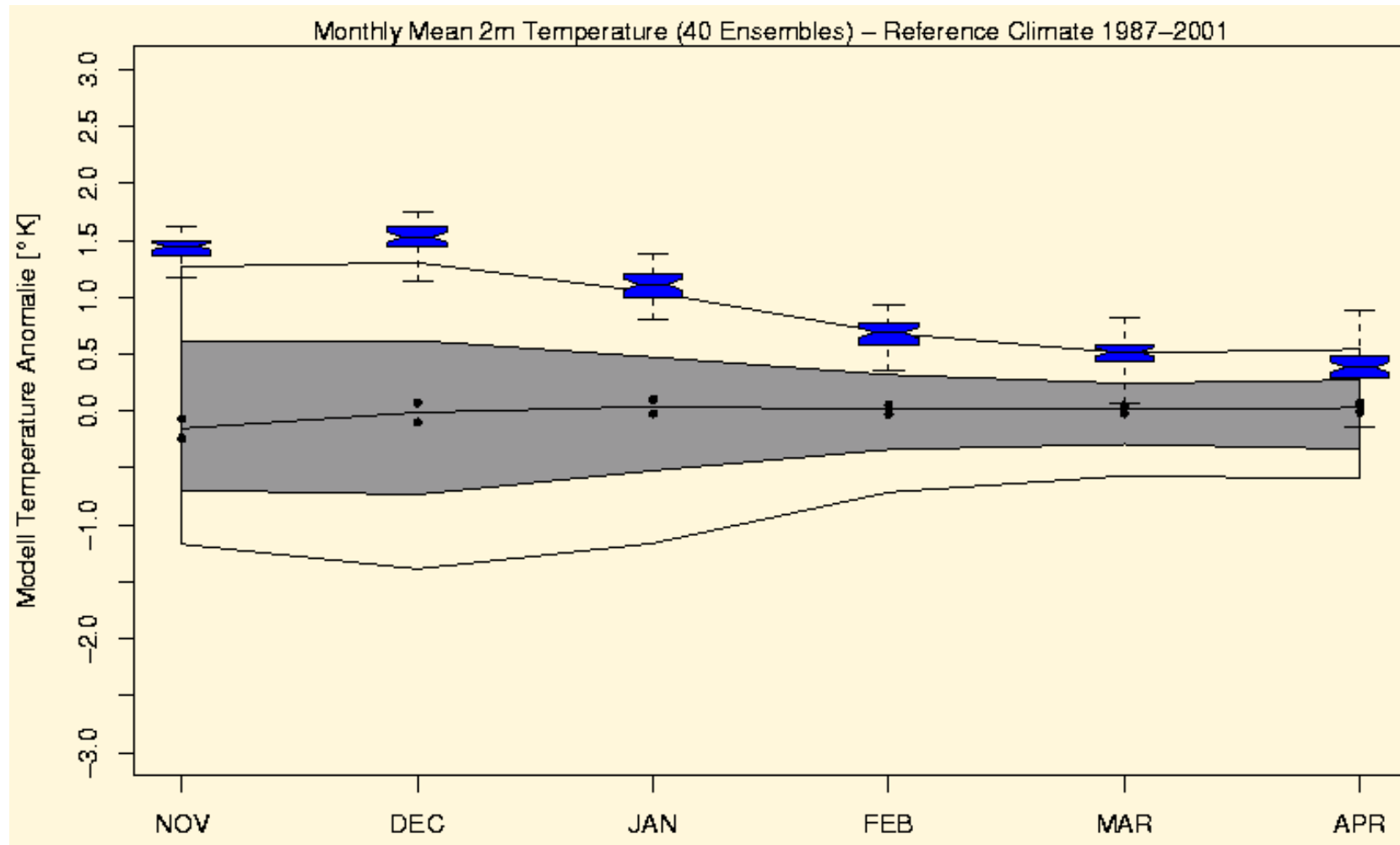
Forecast (Quartiles), Model climatology (Quartiles)



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Klimagramm for Nino-3.4



Forecast (Quartiles), Model climatology (Quartiles)

Conclusions

- Global skill mainly over sea.
- Predictability of NAO itself, but T2m signal weak.
- Absolute skill highly dependent on reference climatology, but skill structures consistent.
- Klimagramm: Temporal evolution of anomaly values and predictability for regions of interests.