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Barcelona Supercomputing Center
Centro Nacional de Supercomputación

EXCELENCIA SEVERO OCHOA

Shedding light on the intraseasonal variations of the winter ENSO teleconnection in the Northern Hemisphere

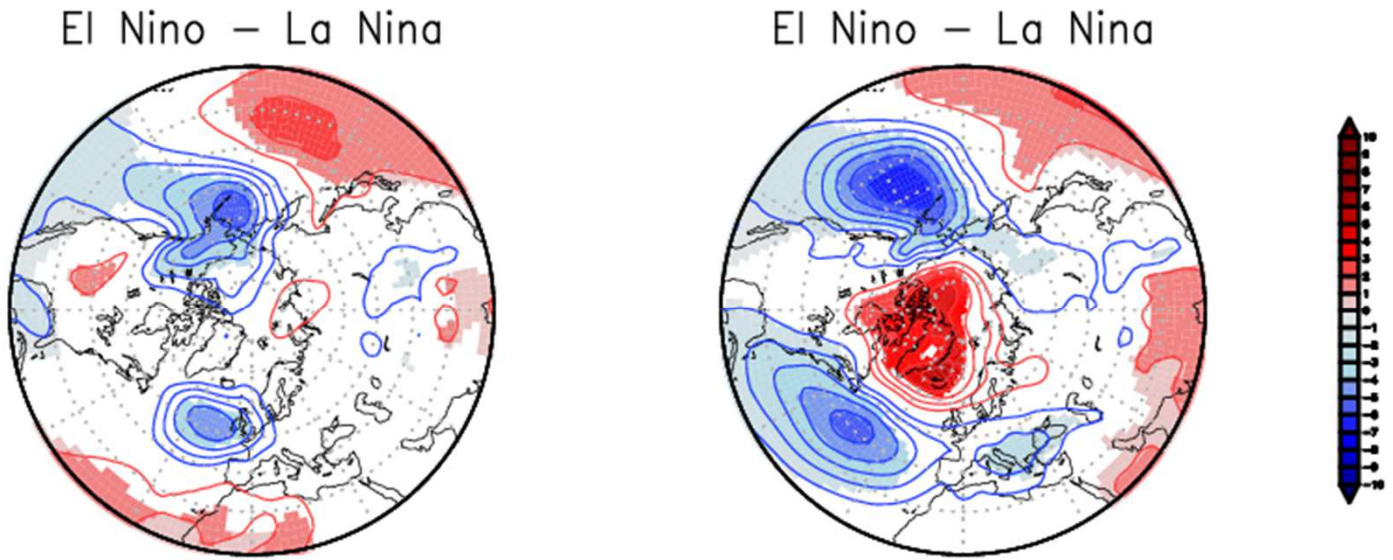
I. Bladé (UB), J. García-Serrano (UB, BSC), B. Mezzina (BSC)

GOBIERNO DE ESPAÑA
MINISTERIO DE CIENCIA, INNOVACIÓN Y UNIVERSIDADES

DANAE project (CGL2015-68342-R)

Intra-seasonal change in the ENSO teleconnection

early-winter (ND) vs. late-winter (JFM)



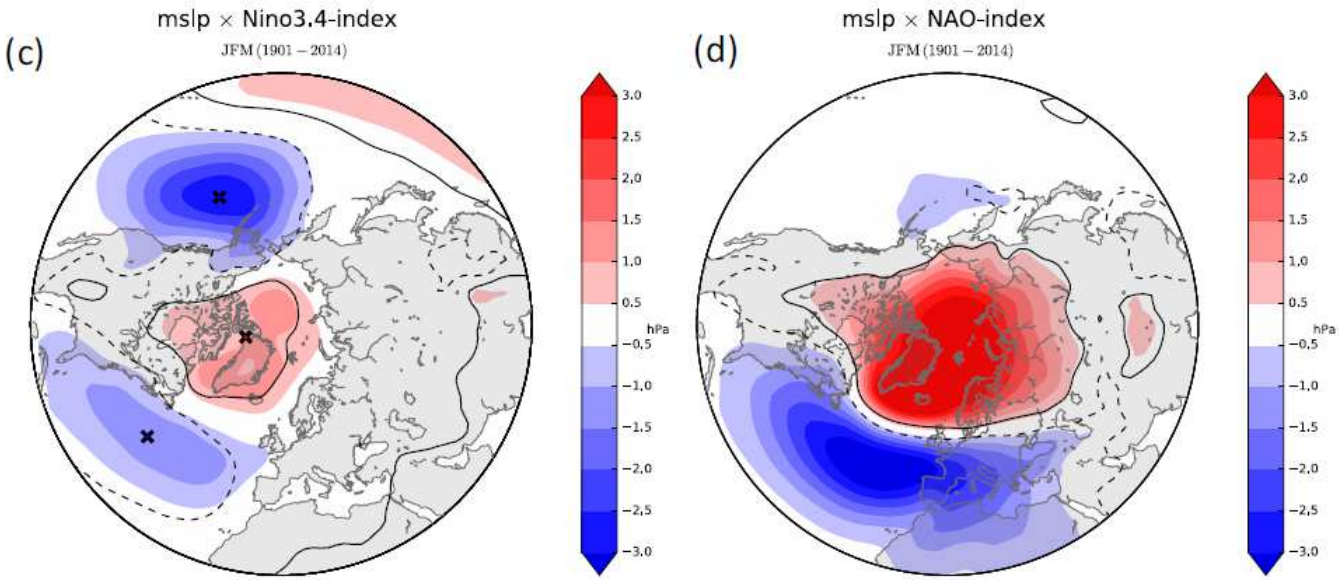
Bladé et al. (2018, in preparation) – using NOAA-20CR

PREVIOUS EVIDENCE: observed (Moron and Gouirand 2003, IntJClimatol) and simulated (Gouirand et al. 2007, GRL)

REVIEWED: Brönnimann (2007, Rev Geophys)

REVISITED: King et al. (2018, BAMS); Ayarzagüena et al. (2018, JClim)

ENSO teleconnection in late-winter



Mezzina et al. (2018, in preparation)

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ENSO teleconnection in late-winter

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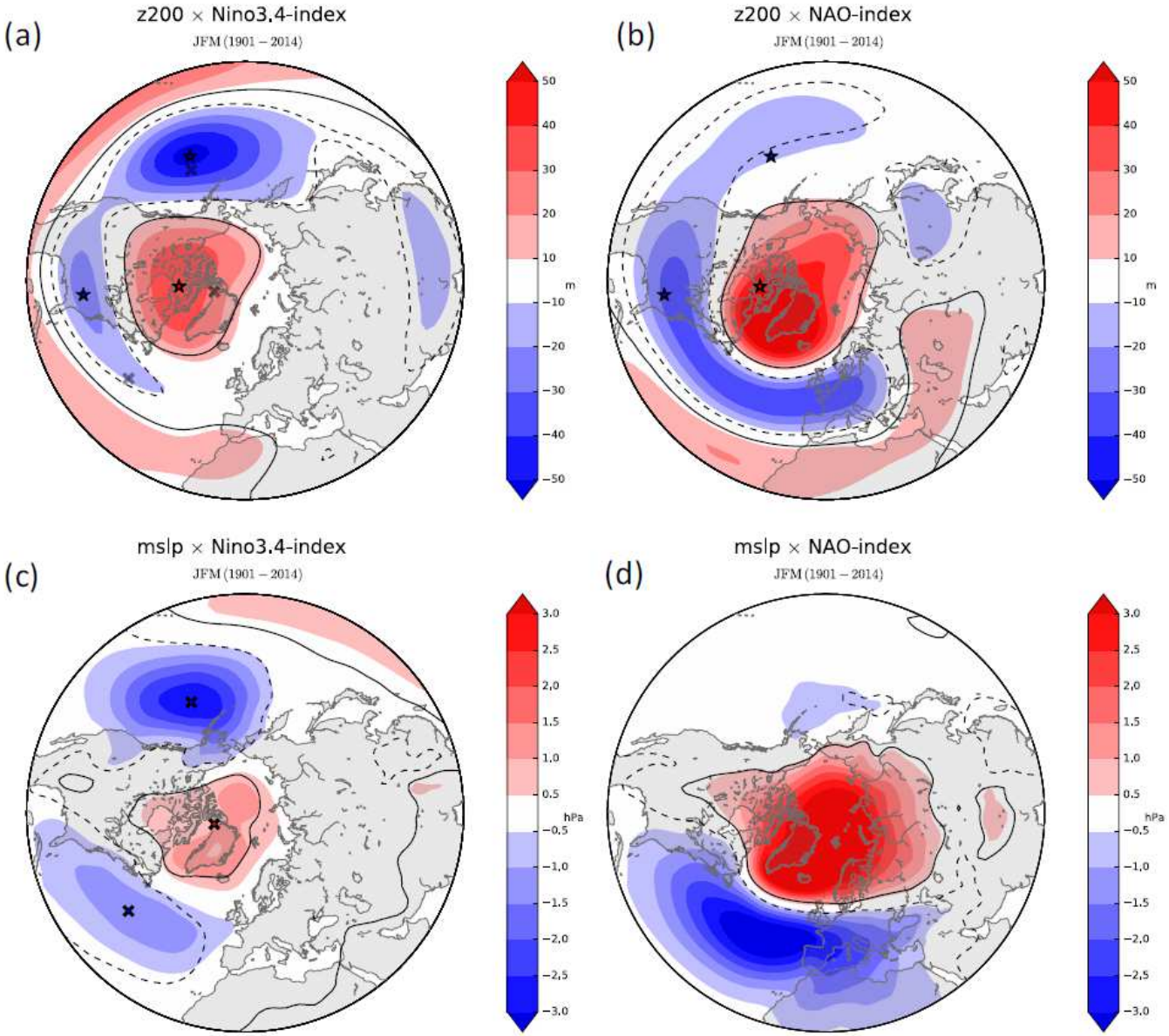

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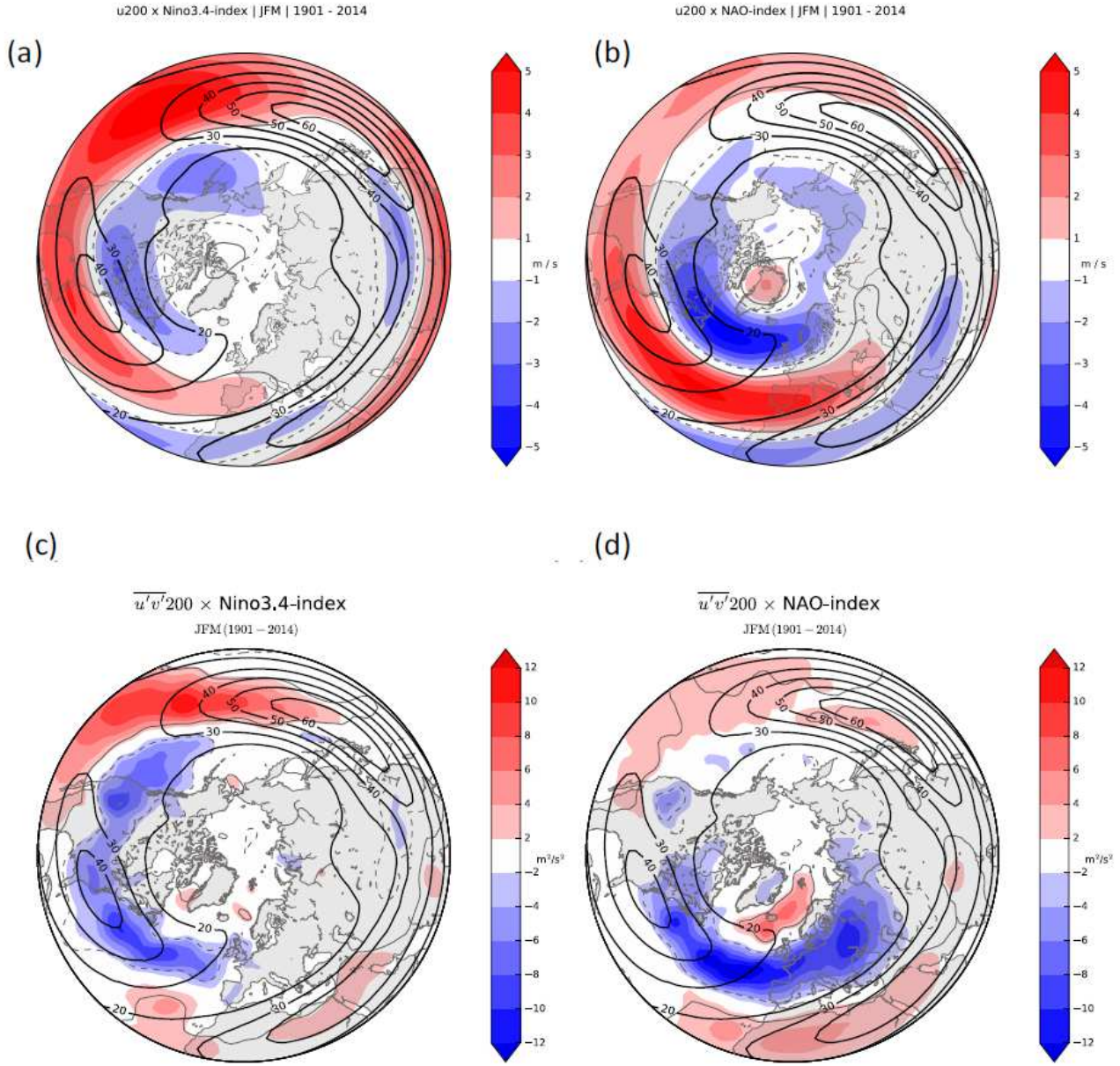

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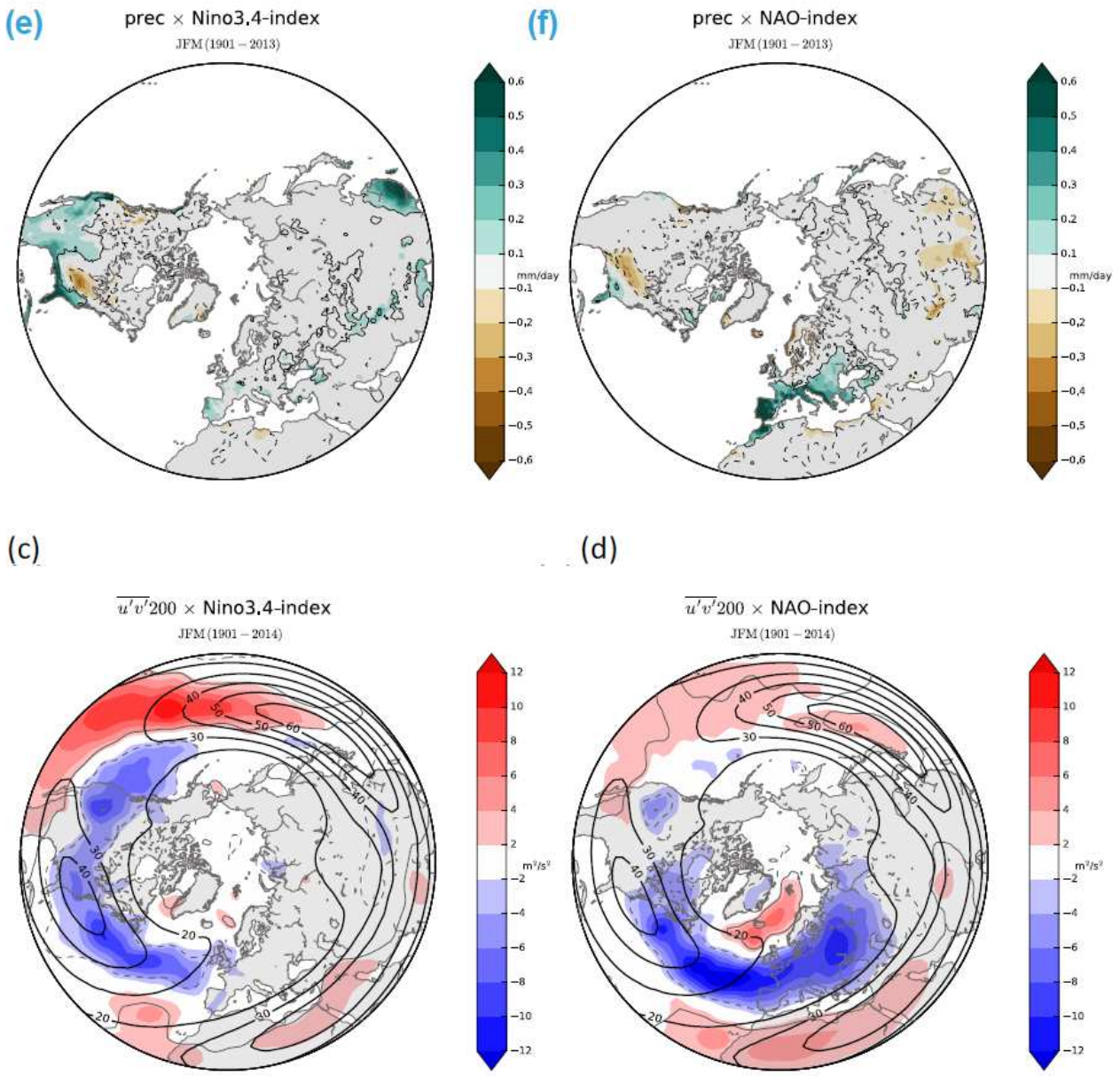
ENSO teleconnection in late-winter



Mezzina et al. (2018, in preparation)

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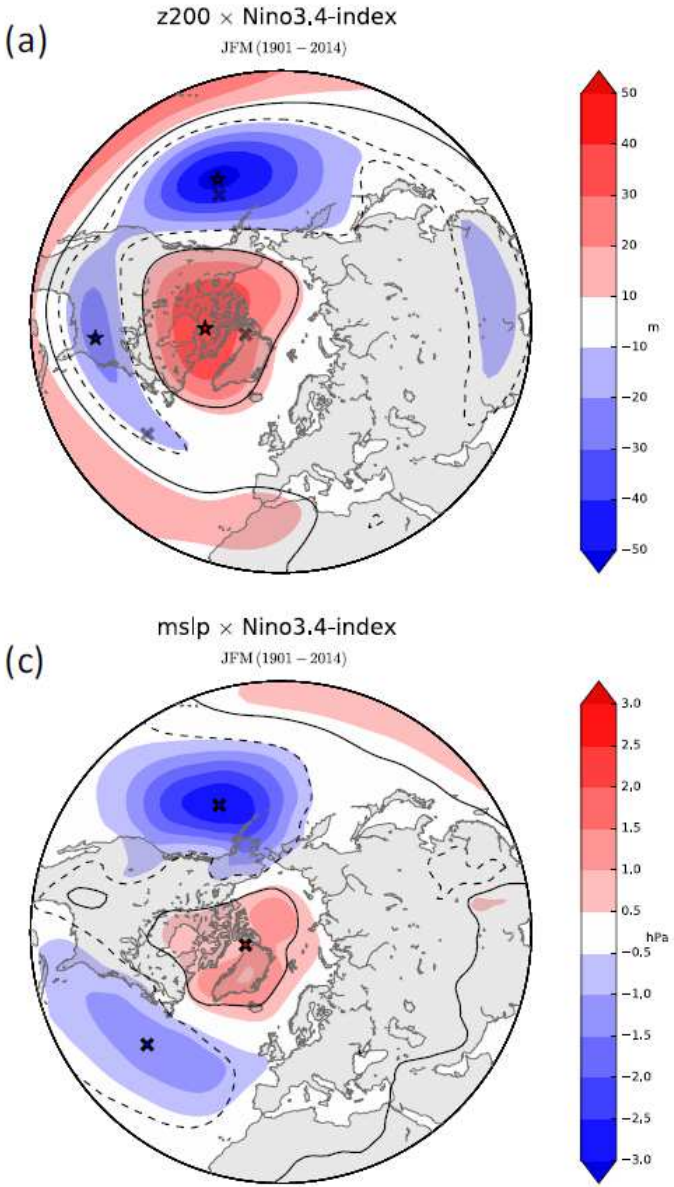

Mezzina et al. (2018, in preparation)

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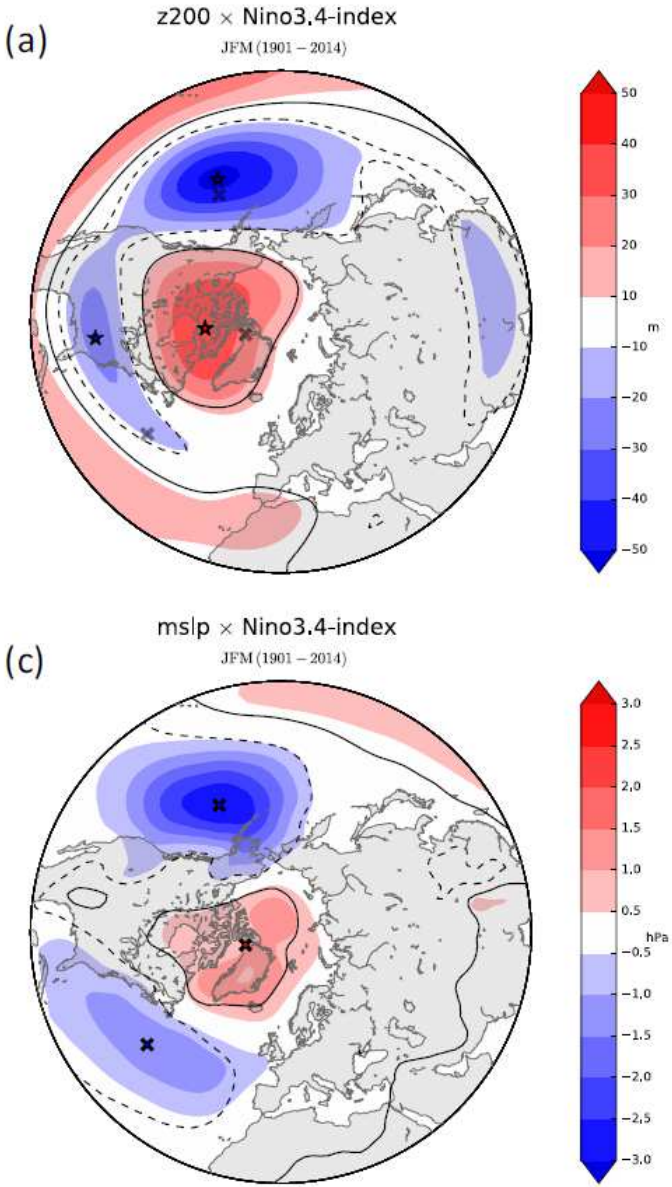
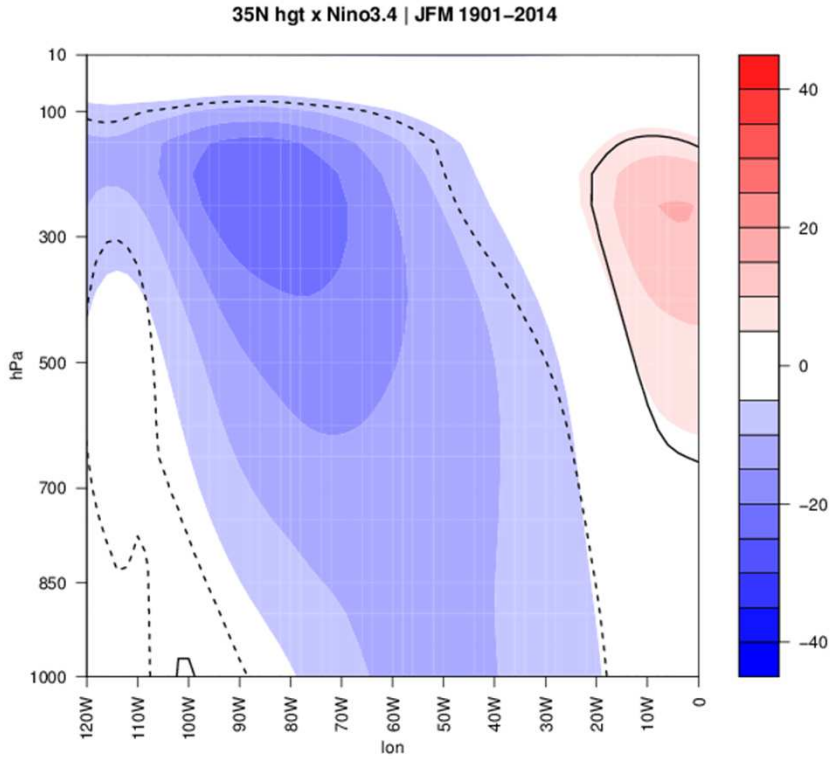
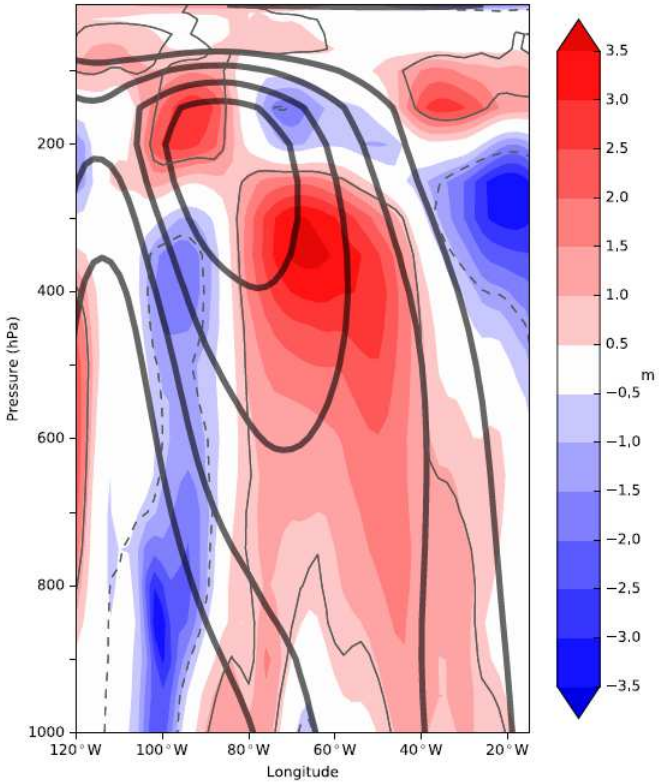




Mezzina et al. (2018, in preparation)

Diagnosing the westward tilt with height of the ENSO teleconnection



zonal-eddy dynamics

*v*T* > 0*

Mezzina et al. (2018, in preparation)

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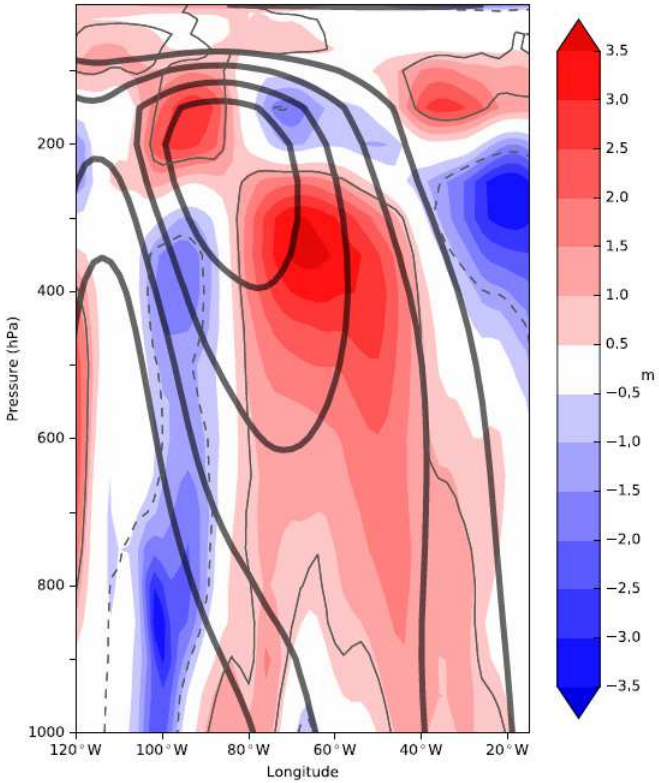

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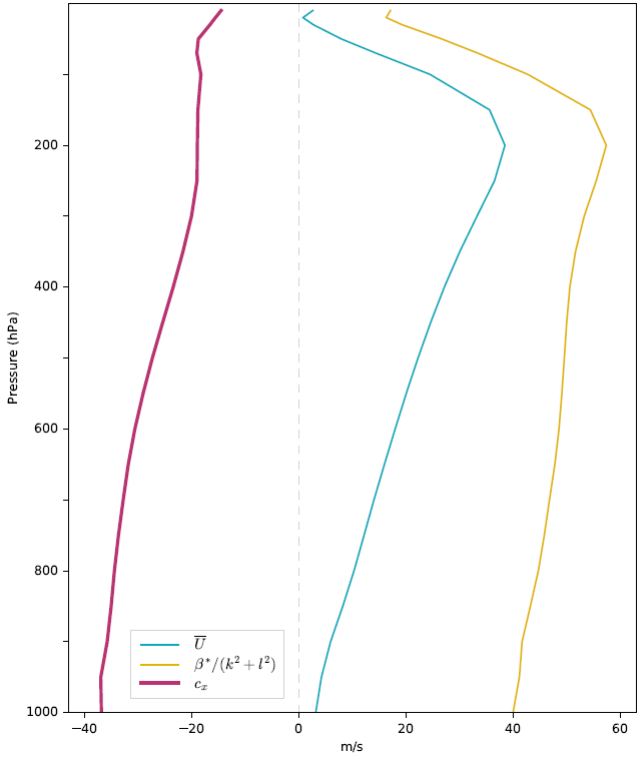
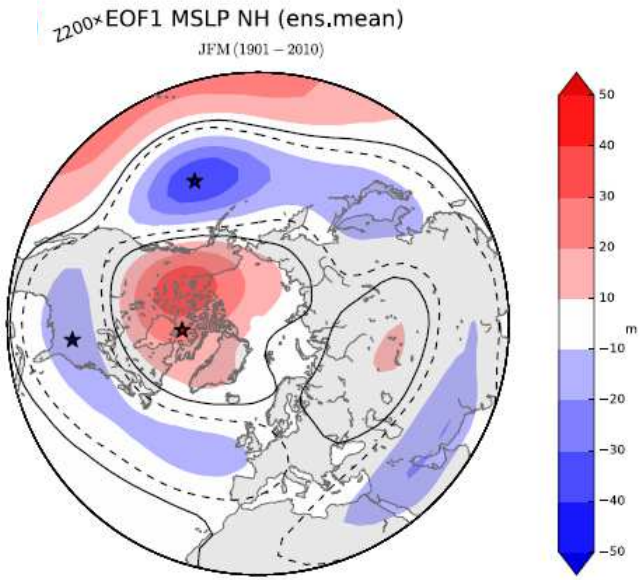


Rossby wave dynamics

$$c_x = \overline{U} - \frac{\beta^*}{k^2+l^2} < 0$$

Mezzina et al. (2018, in preparation)

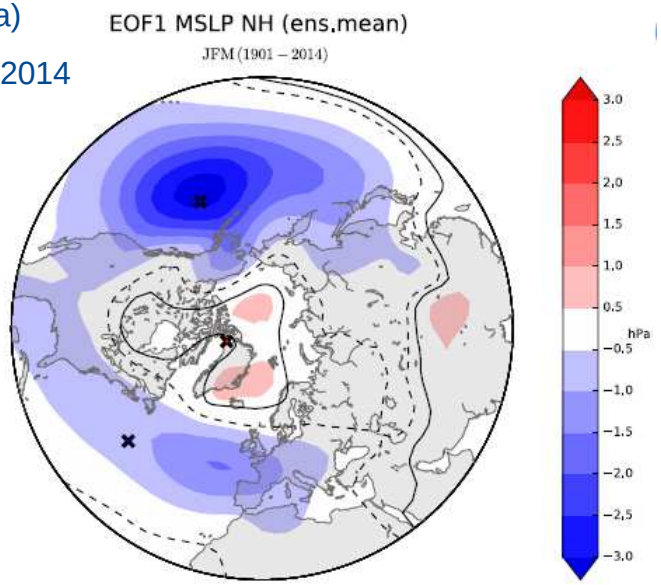
ENSO teleconnection in late-winter

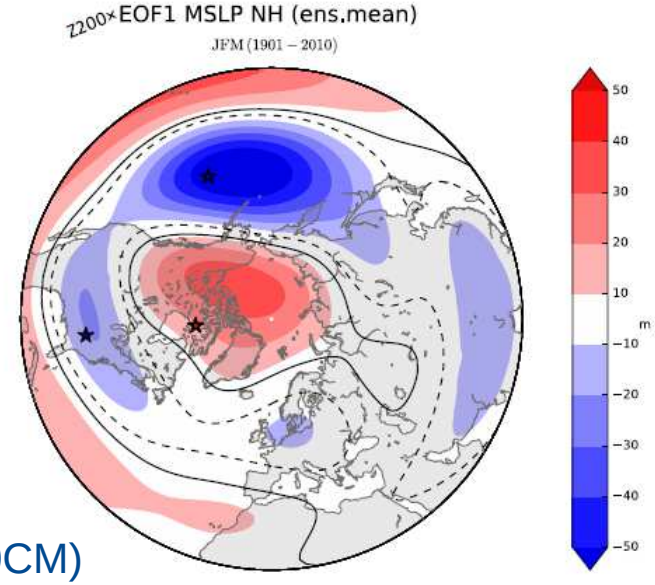


SPEEDY

T30/L8 (30hPa)

SST-forced 1901-2014

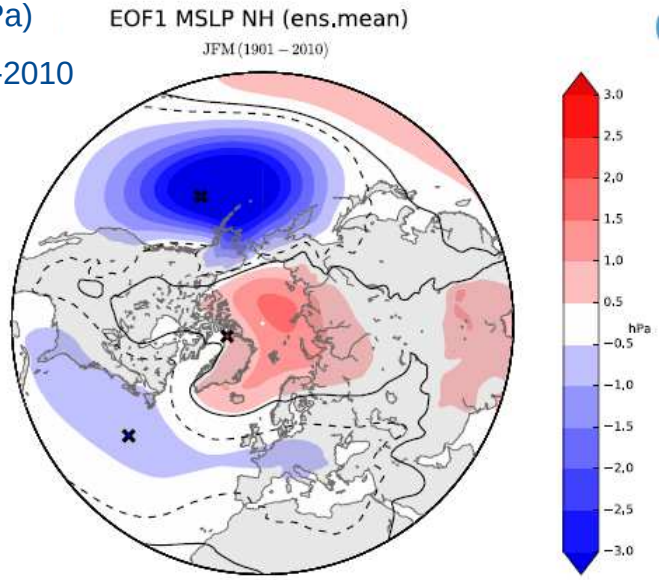




IFS (ERA-20CM)

T159/L91 (1hPa)

SST-forced 1901-2010



Mezzina et al. (2018, in preparation)

ENSO teleconnection in late-winter

KEY MESSAGES

- The intraseasonal change of the extratropical ENSO teleconnection (ND vs. JFM) has to be taken into account, in both the NPA and NAE regions [Bladé et al. 2008, JClim]

- The canonical ENSO teleconnection in the NAE region (late-winter) doesn't have to be interpreted as "NAO-like" pattern but just as dipole-like pattern [García-Serrano et al. 2011, ClimDyn]

- The canonical ENSO teleconnection in the NAE region (late-winter) corresponds to the surface projection of the ENSO wavetrain, whose westward tilt with height is consistent with both zonal-eddy and Rossby wave dynamics

- The extratropical ENSO teleconnection in late-winter dominates the SST-forced variability in the Northern Hemisphere