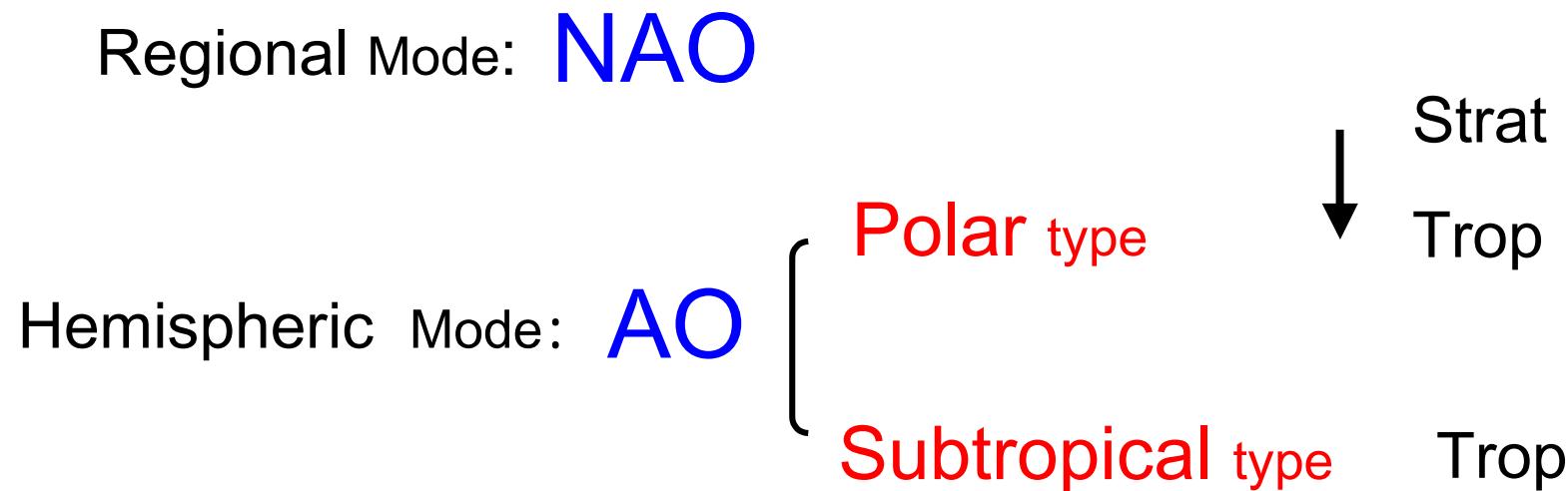


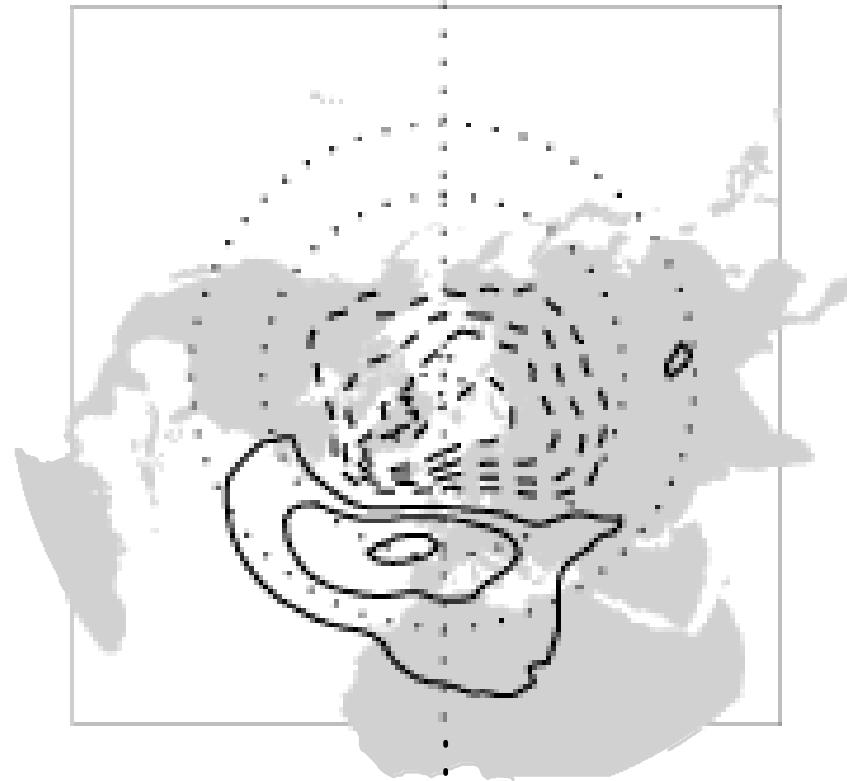
NAO, AO and Coupled S-T mode

Kunihiko Kodera

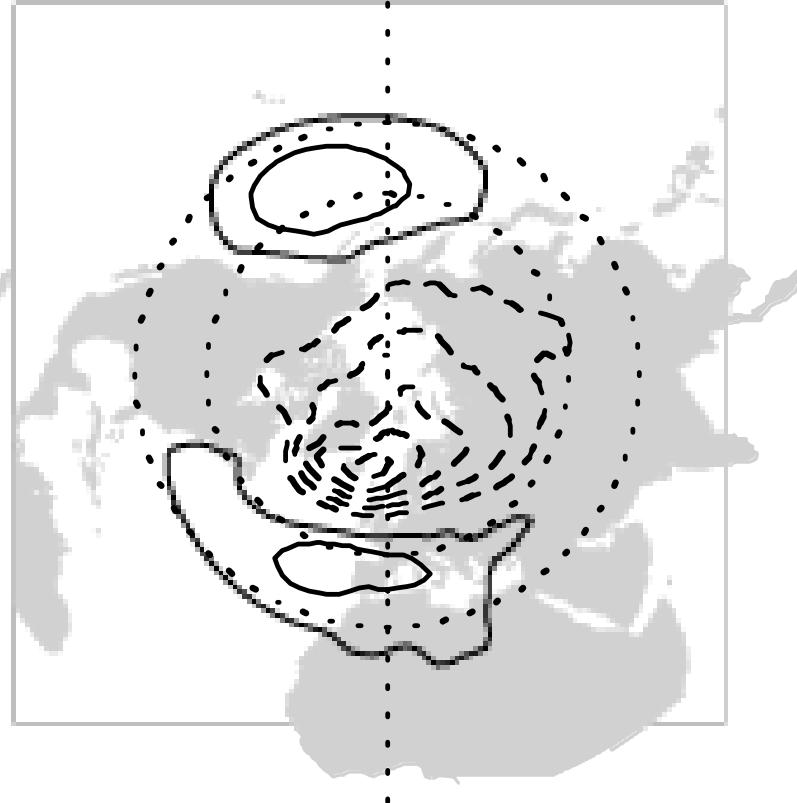
Meteorological Research Institute, Tsukuba, Japan



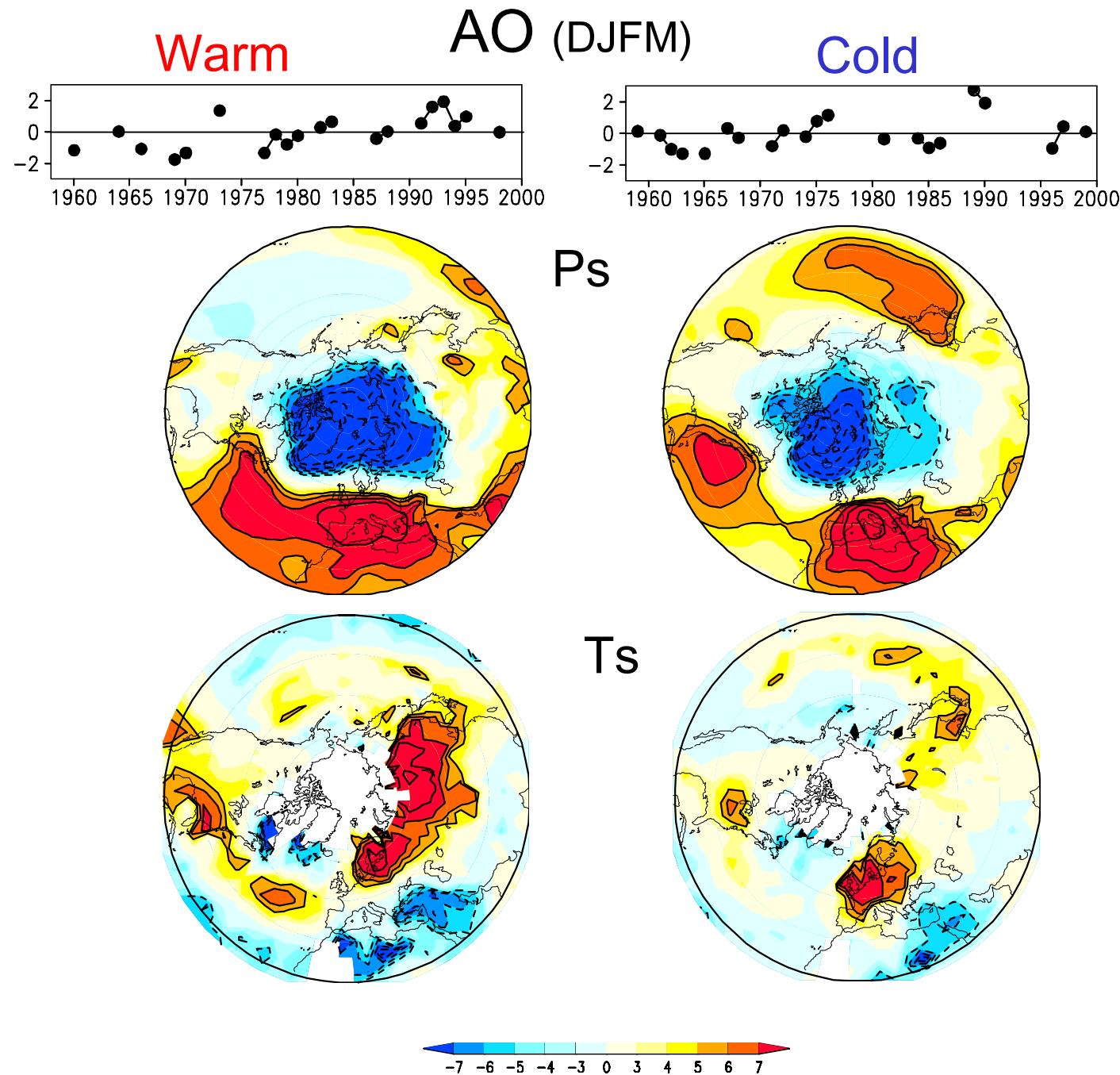
WARM



COLD

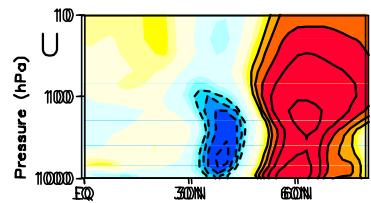


Quadrelli and Wallace (2002)

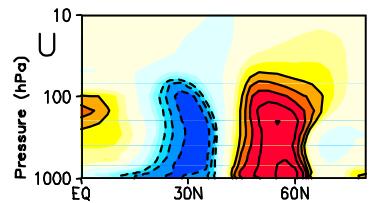


Cor. AO (DJFM)

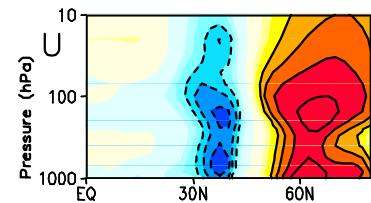
Warm



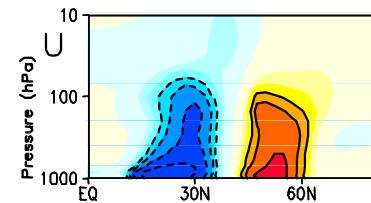
Cold



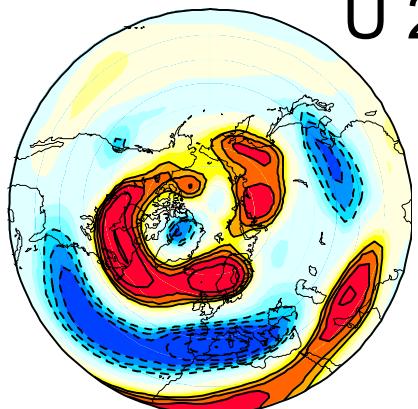
Fy 55N



Fy 35N

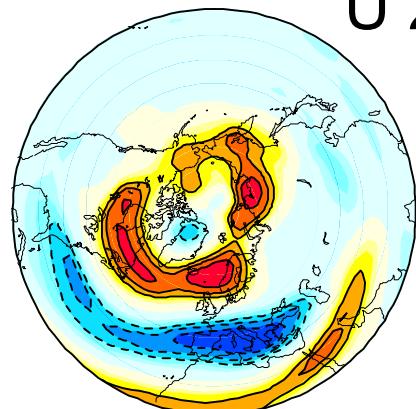


U 250

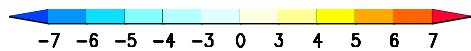


1959-1999

U 250

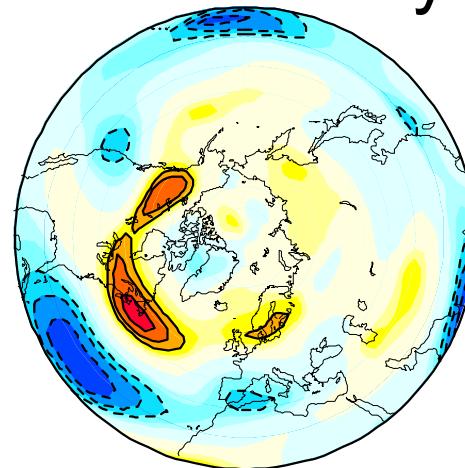


1969-1999



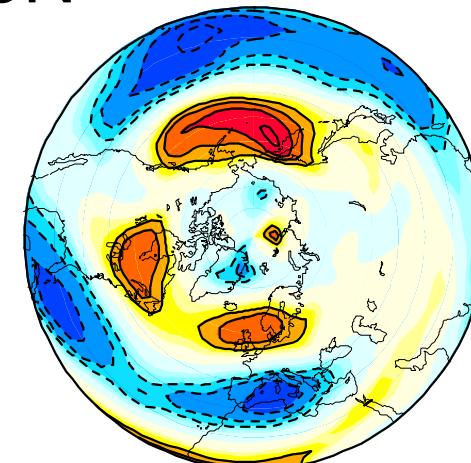
Warm

U 250



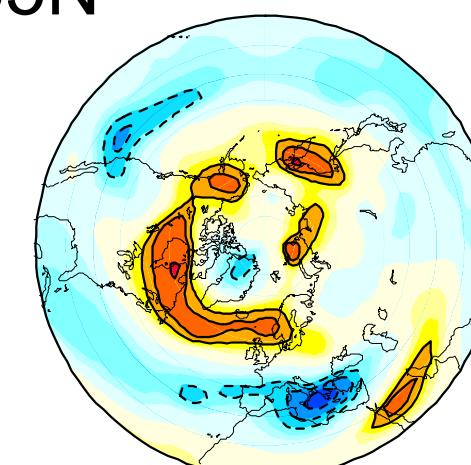
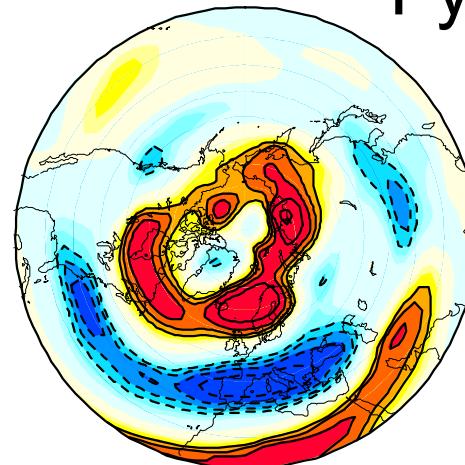
Fy 35N

Cold



U 250

Fy 55N



1969-1999

Correlation (winter AO, monthly variables)

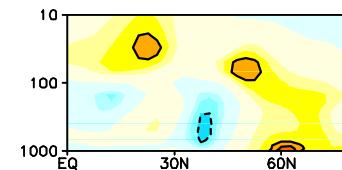
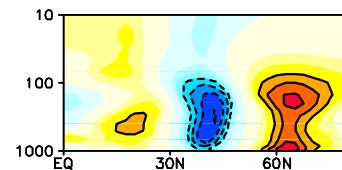
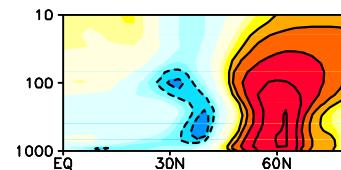
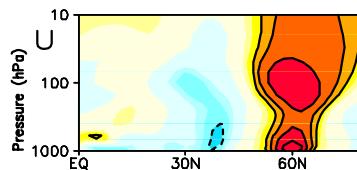
Warm

Dec

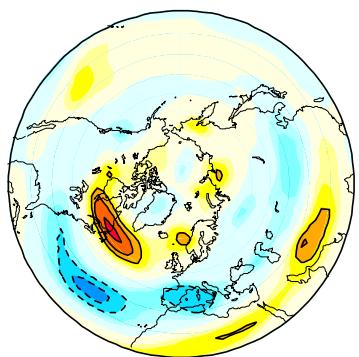
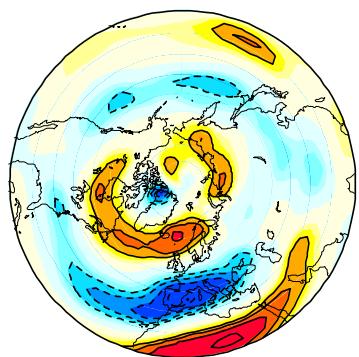
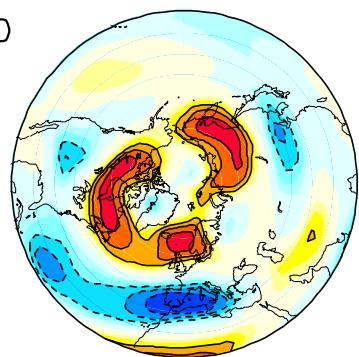
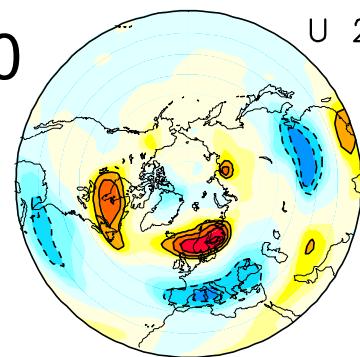
Jan

Feb

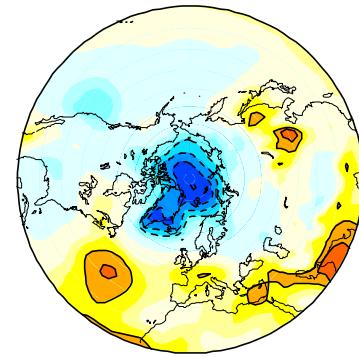
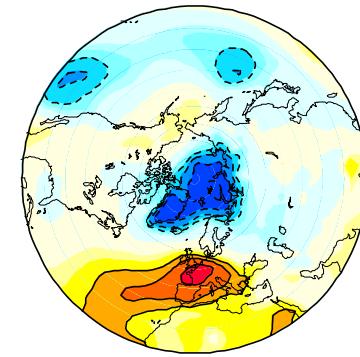
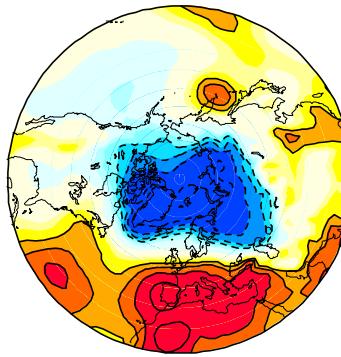
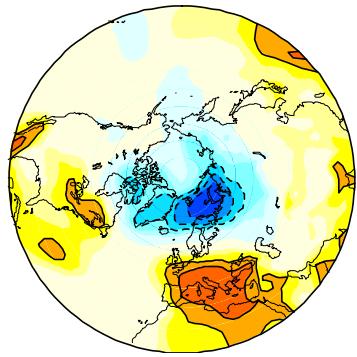
Mar



U 250



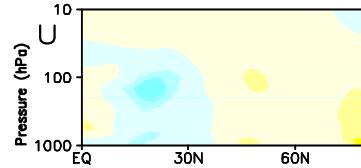
Ps



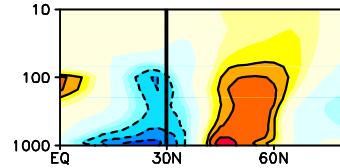
Correlation (winter AO, monthly variables)

Cold

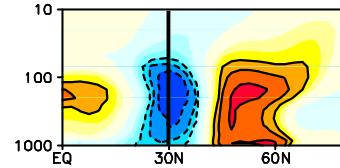
Dec



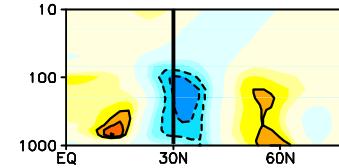
Jan



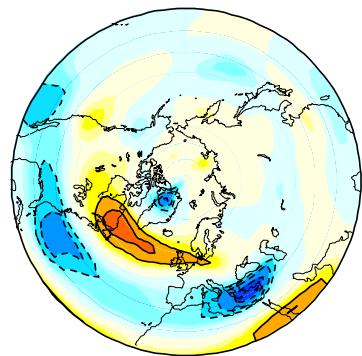
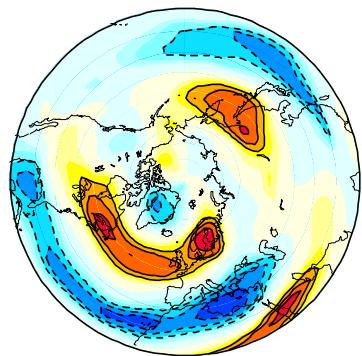
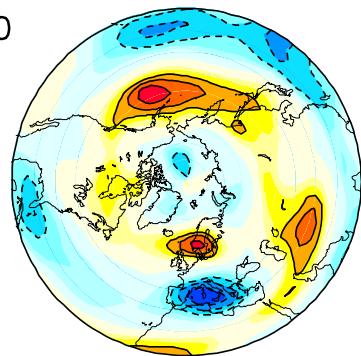
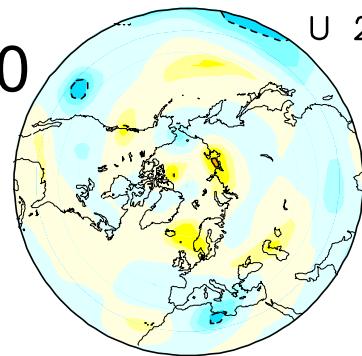
Feb



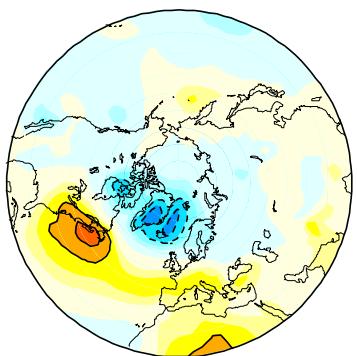
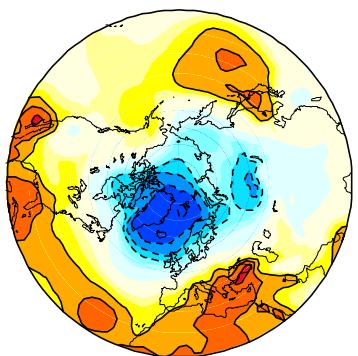
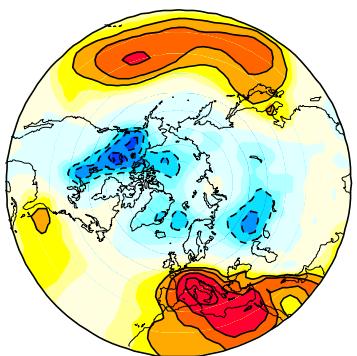
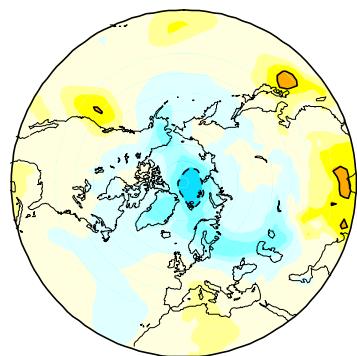
Mar



U 250

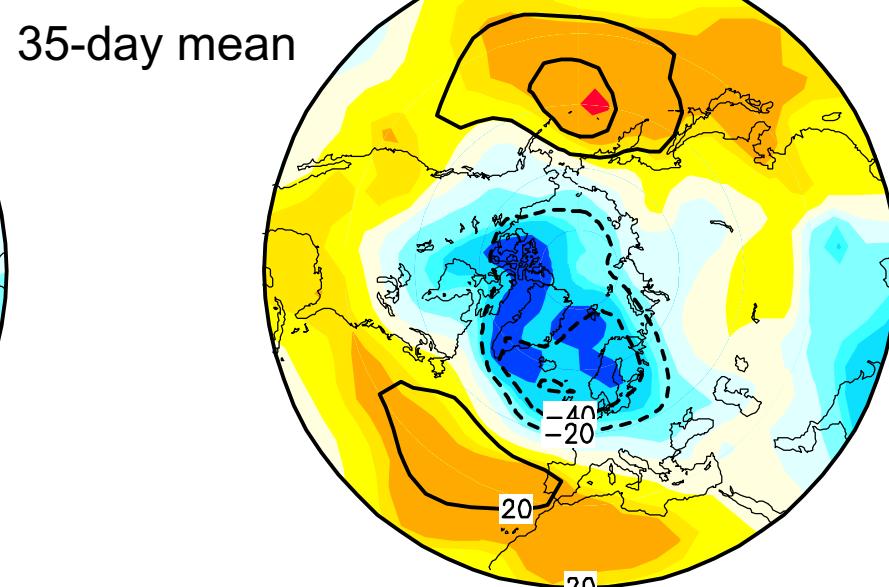
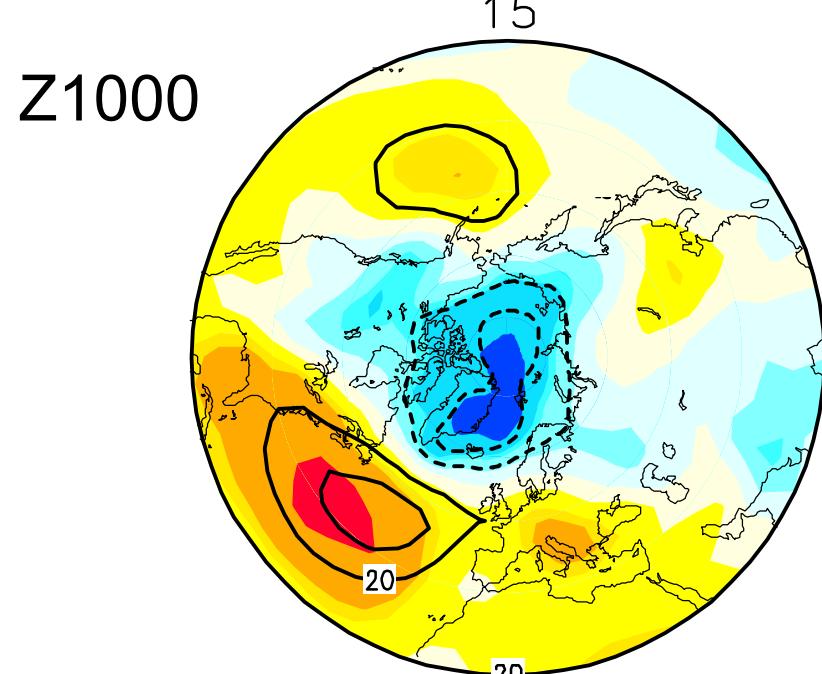


Ps



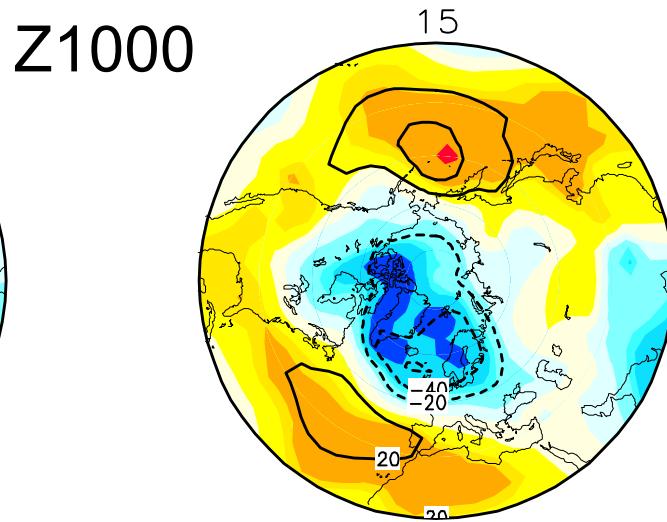
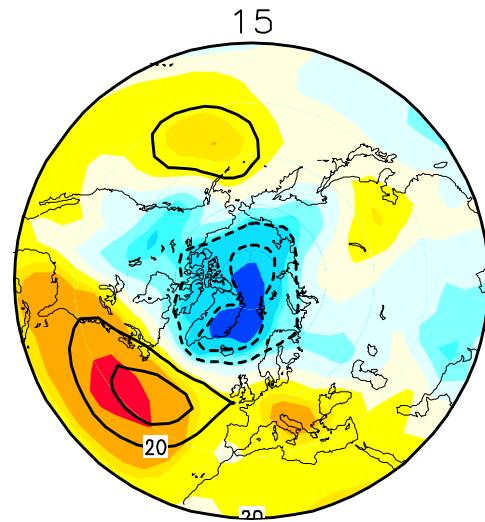
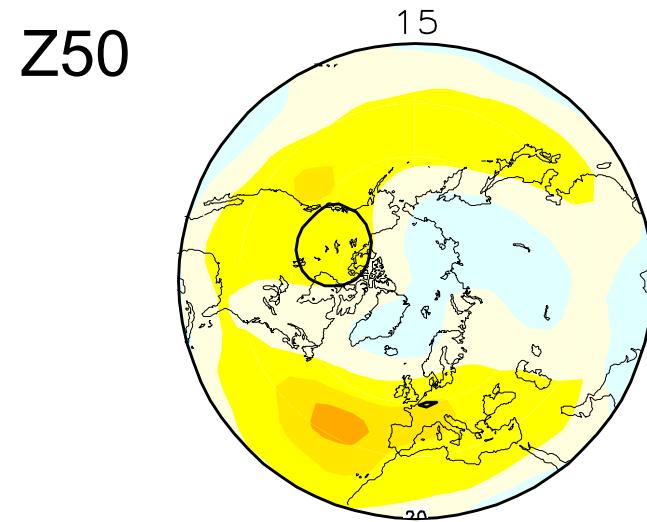
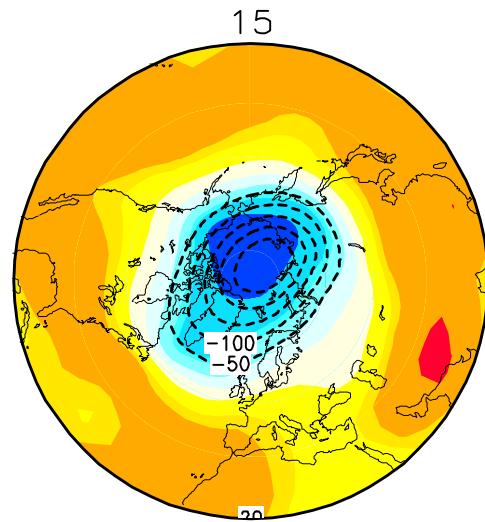
Composite analysis of the AO change

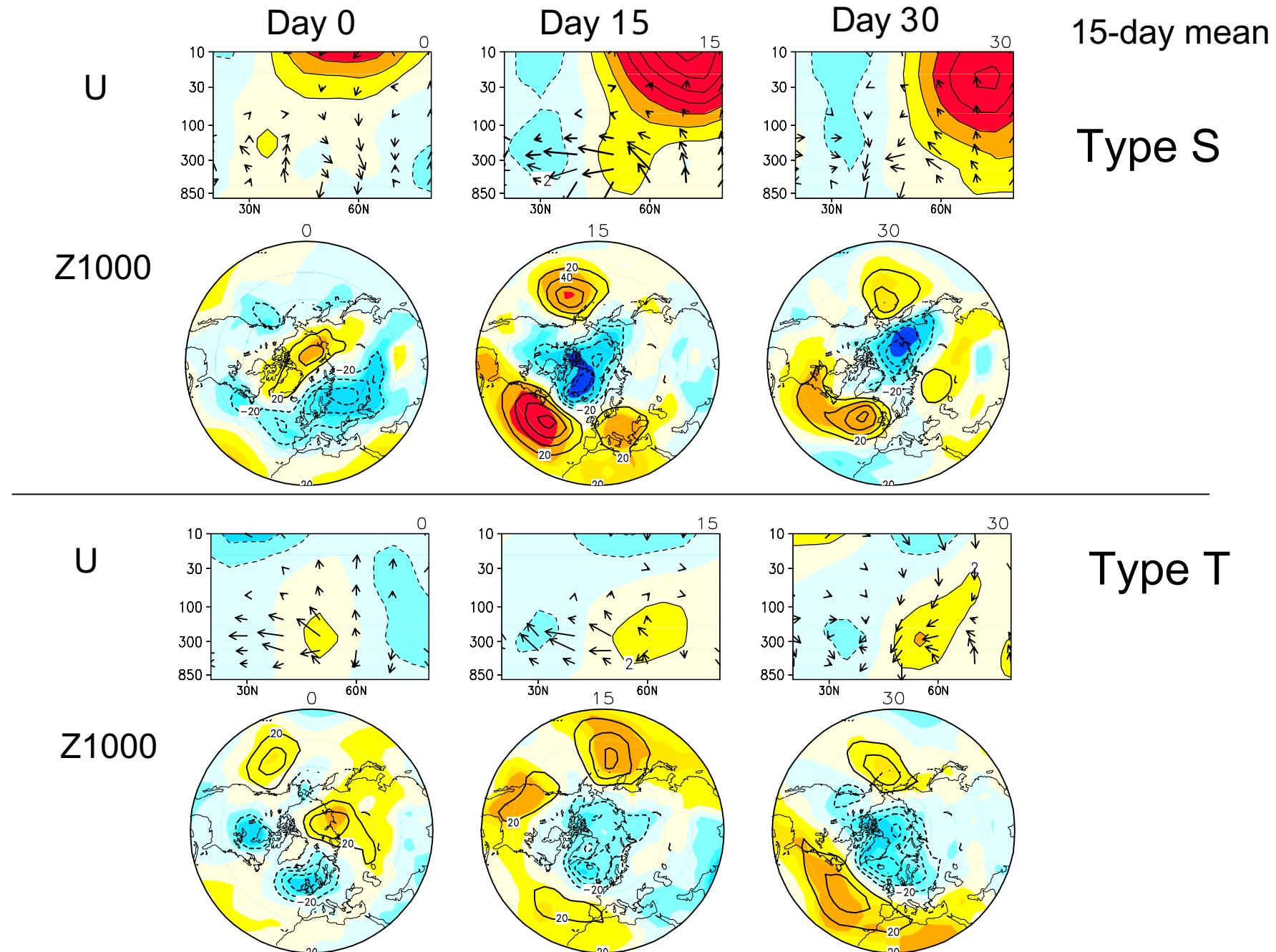
The figure consists of two side-by-side panels. The left panel is labeled "S-type" and the right panel is labeled "I-type". Both panels have "NAM" written vertically on the left. The x-axis for both is "Days" ranging from -30 to 30. The y-axis ranges from 10 to 850. Each panel contains contour lines representing NAM values. In the S-type panel, a vertical black arrow points downwards at Day 0, with a small diamond marker on the contours at approximately (-15, 300). Contour labels include 1.2 and 1.5. In the I-type panel, a similar vertical black arrow points downwards at Day 0, with a small diamond marker on the contours at approximately (-15, 300). Contour labels include -0.3 and 0.3.

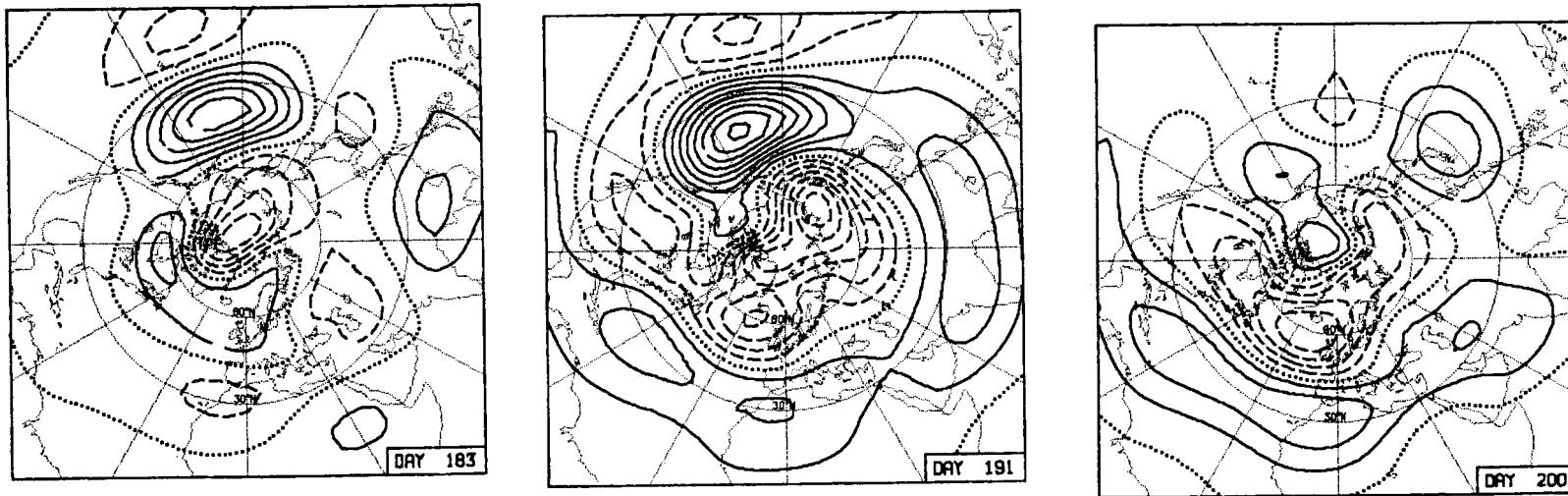


Kodera and kuroda (2000)

Type S 35-day mean Type T

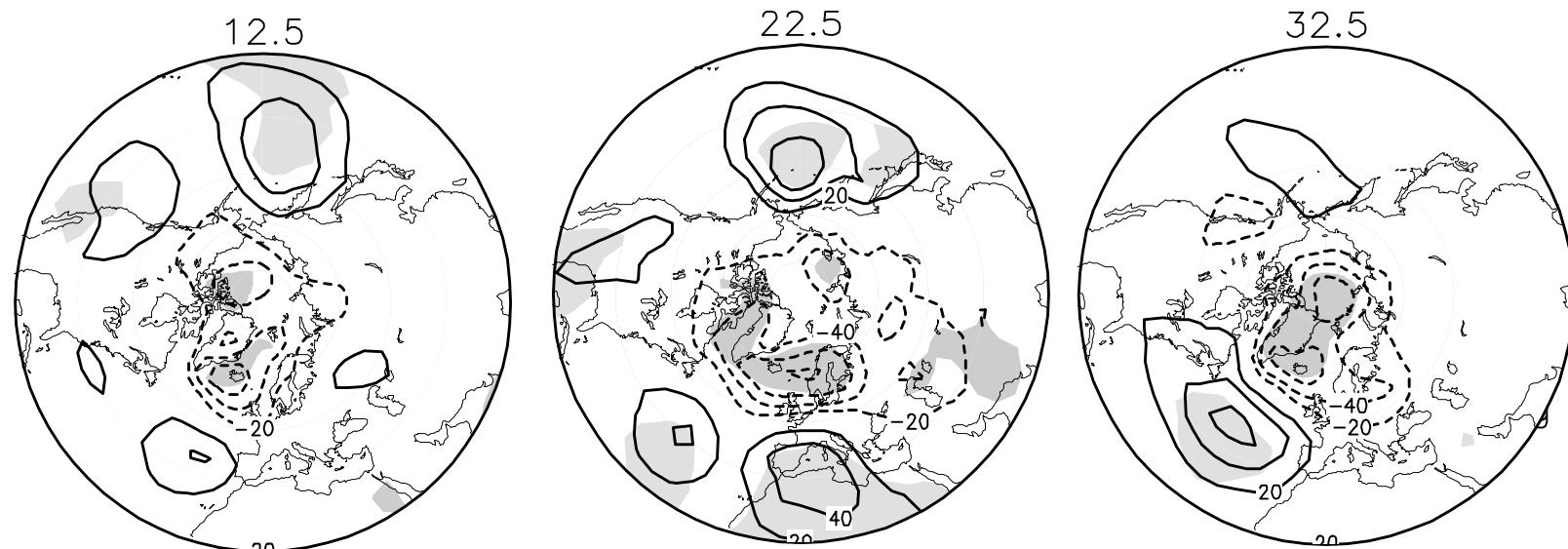


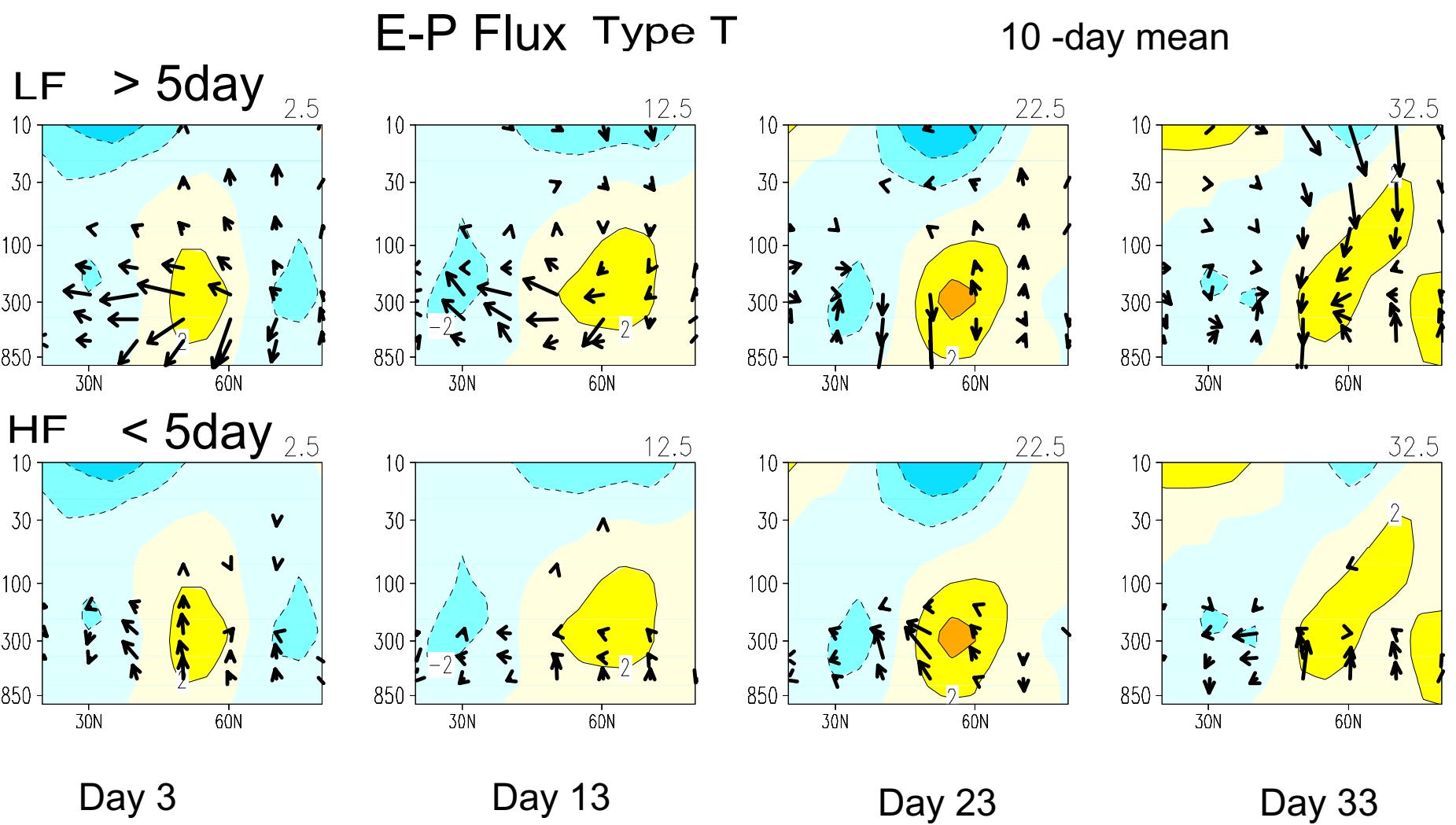




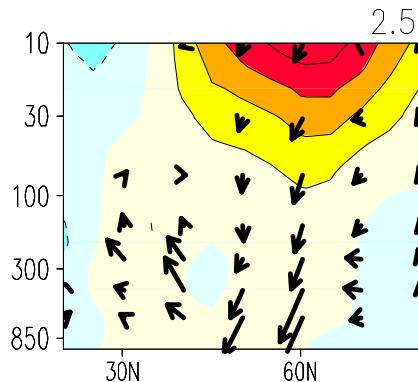
What is type T ?

Simmons et al. !983

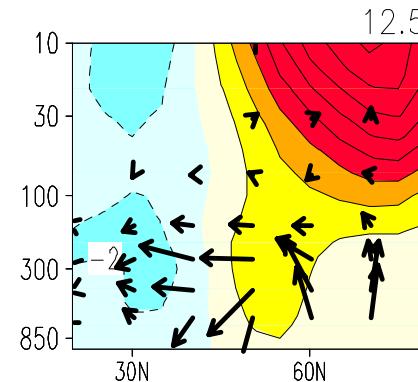




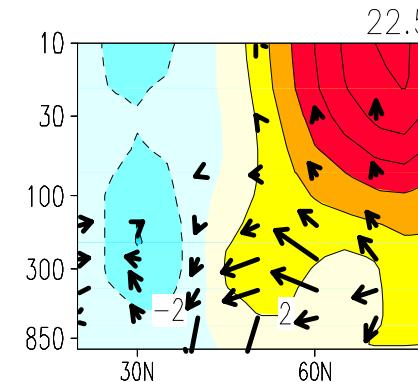
LF > 5day



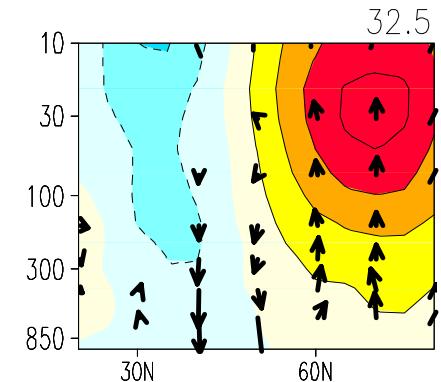
E-P Flux



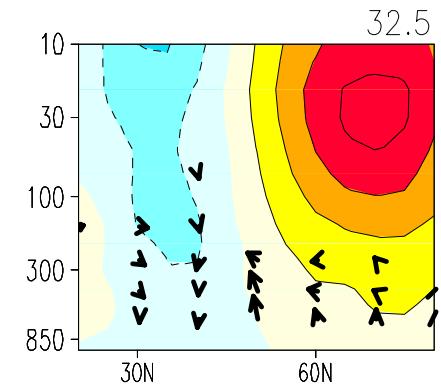
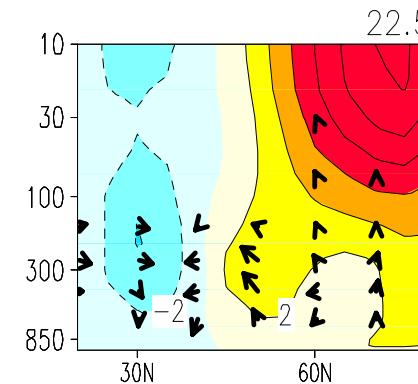
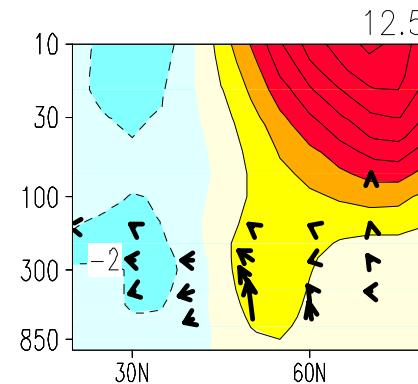
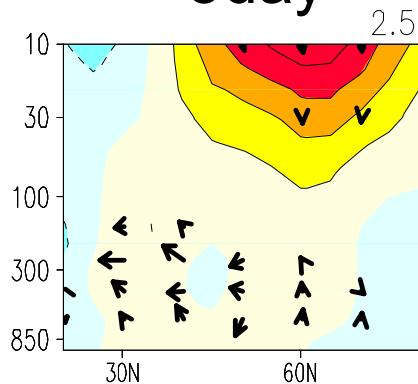
Type S



10 -day mean



HF < 5day



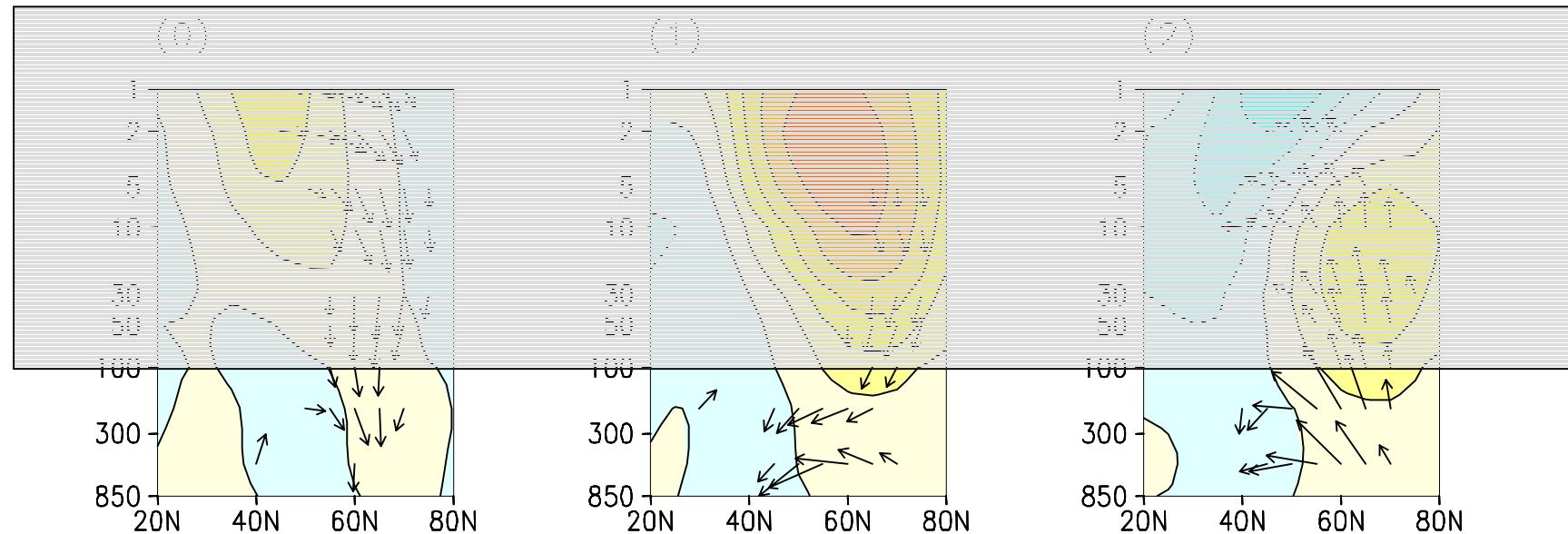
Day 3

Day 13

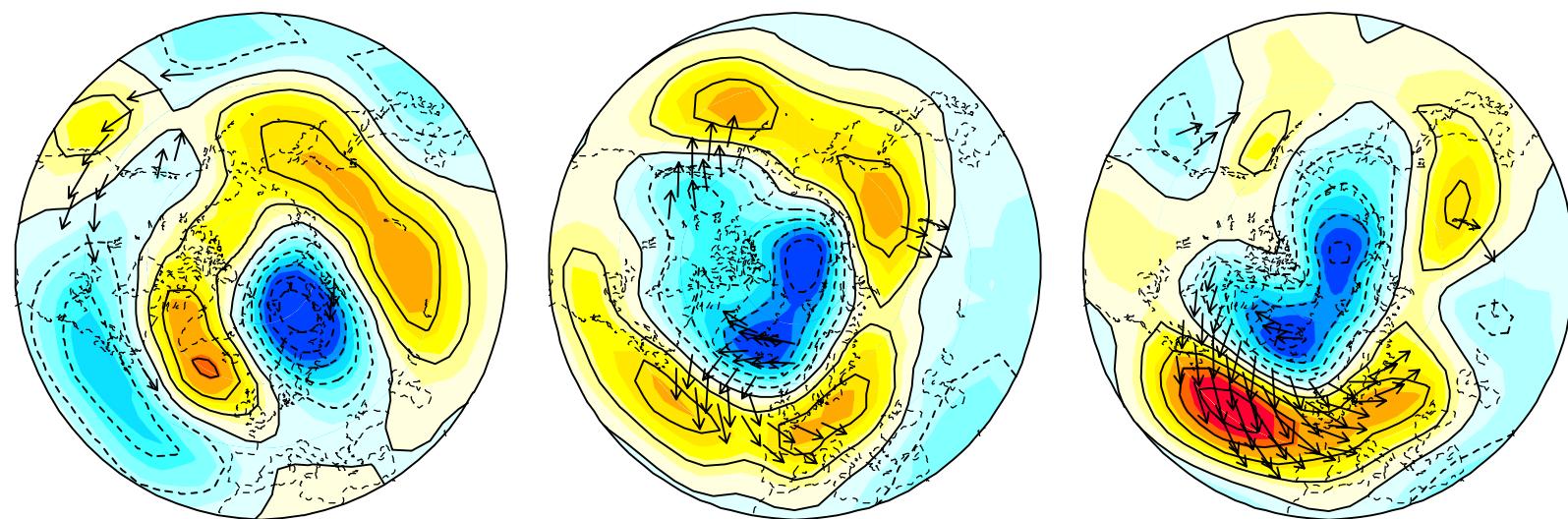
Day 23

Day 33

E- SVD 1 (U, Fz)

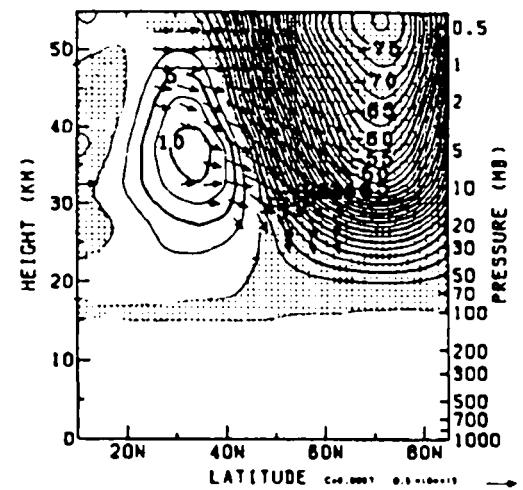


Z500

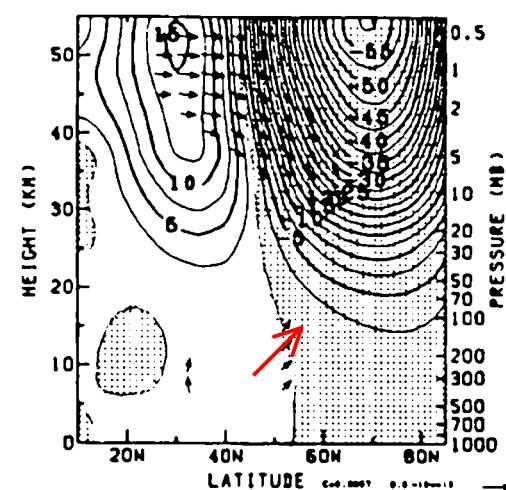


Kuroda and Kodera (1999)

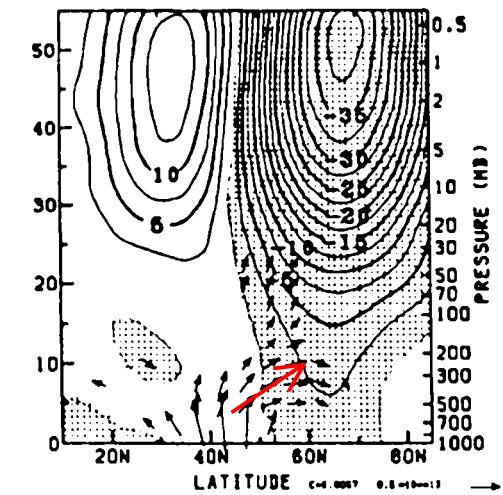
Initial



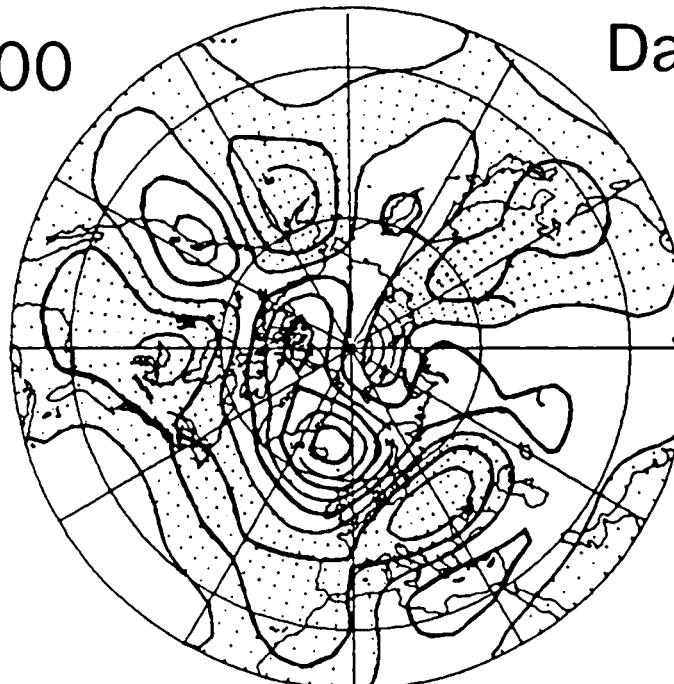
Day 1- 10



Day 11- 20



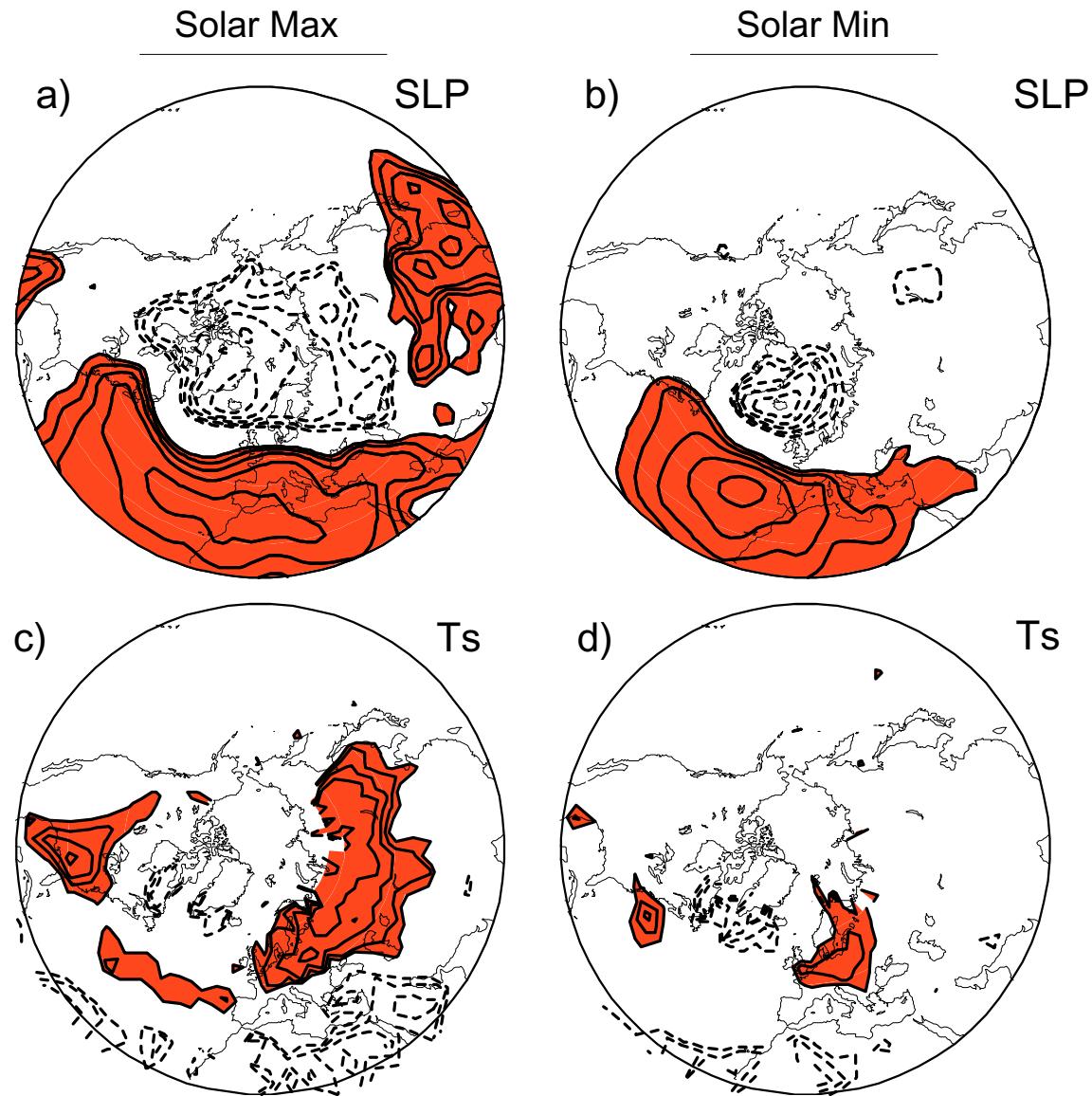
Z500



Day 11- 20

Kodera et al. (1996)

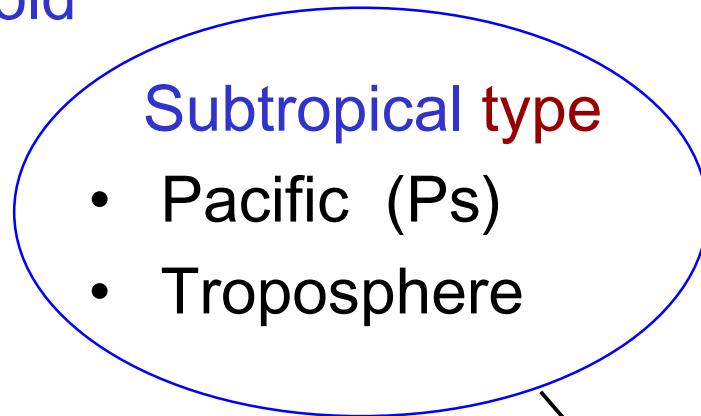
Correlation with NAO index



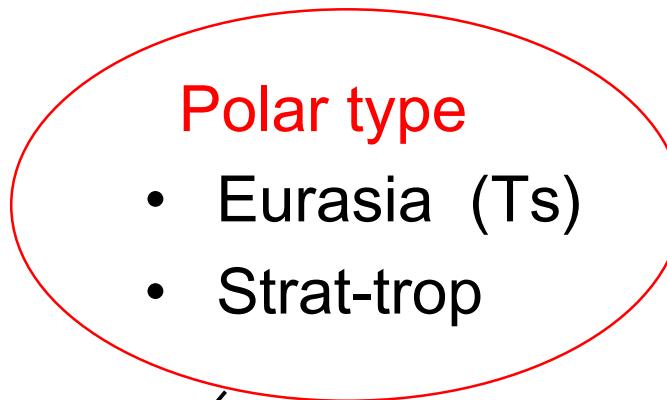
Kodera (2002)

Two types of the AO

cold



Warm

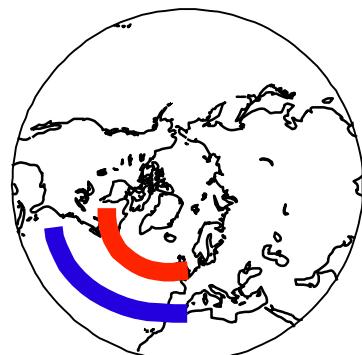


NAO

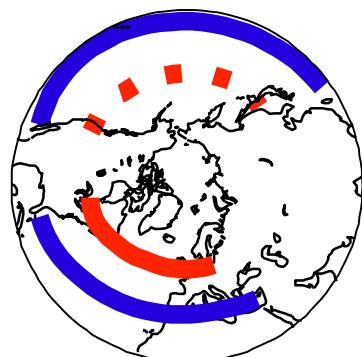
Atlantic



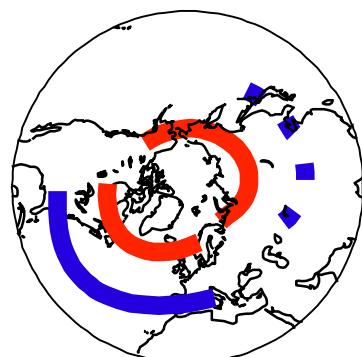
regional NAO



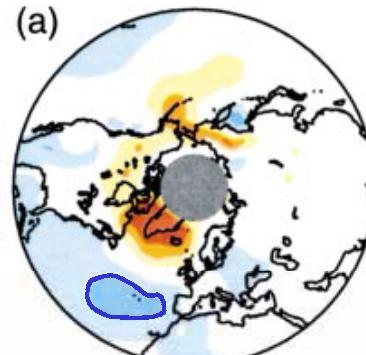
Subtropical type



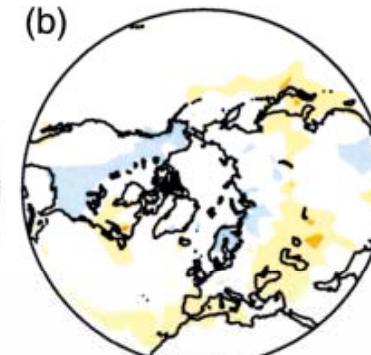
Polar type



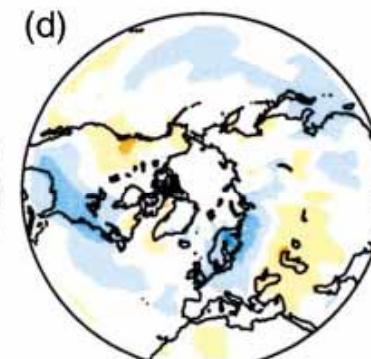
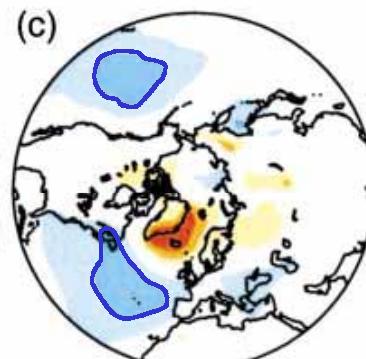
SLP trends (mb)



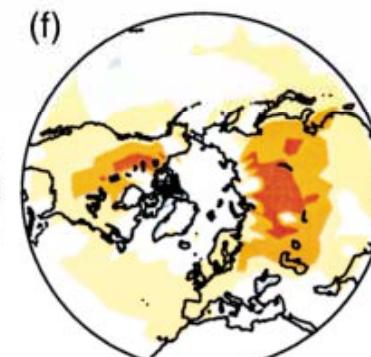
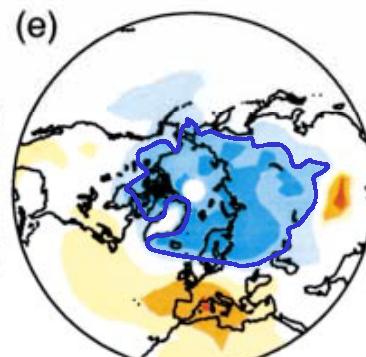
SAT trends (K)



1920-69



1949-69



1969-2000

-5.5 -3.5 -1.5 1.5 3.5 5.5

-3.5 -2 -0.5 0.5 2 3.5

Ostermeier and Wallace (2003)