# NAO, AO and Coupled S-T mode

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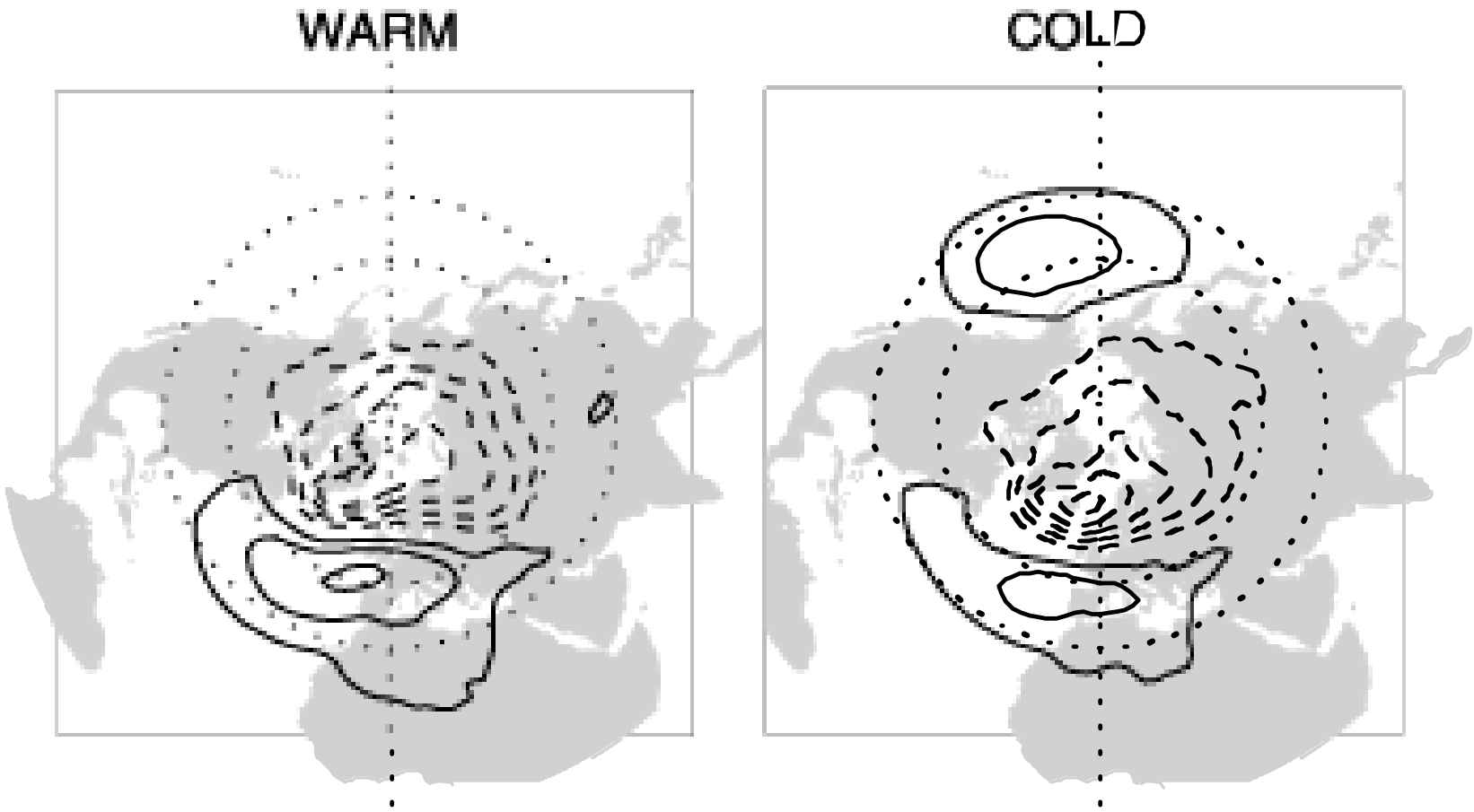
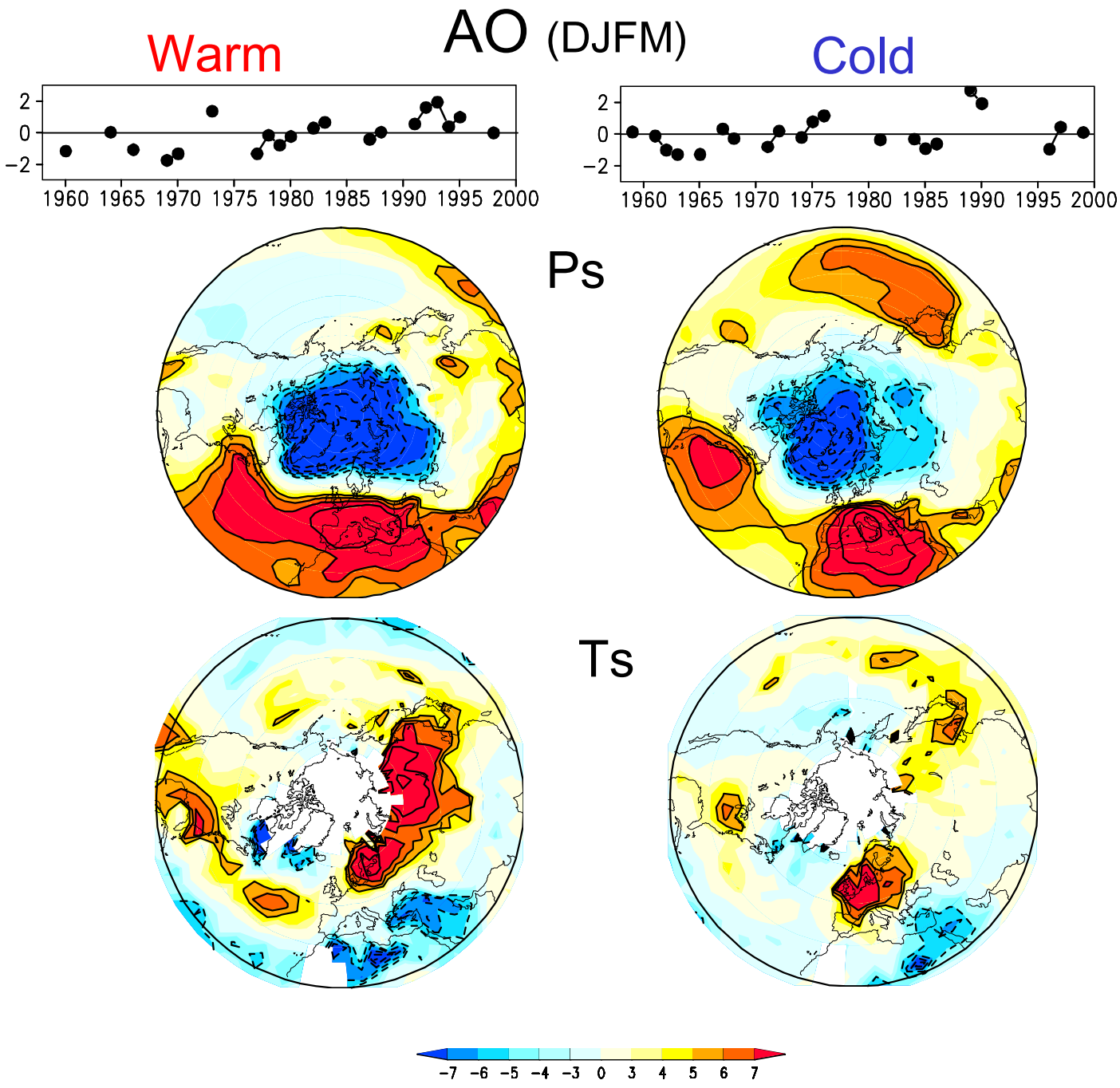
Regional Mode: NAO

Hemispheric Mode: AO

- Polar type — Strat ↓ Trop
- Subtropical type — Trop

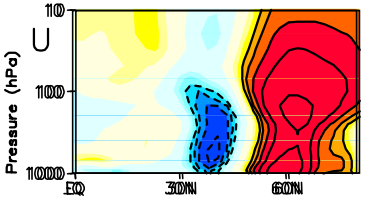



Quadrelli and Wallace (2002)

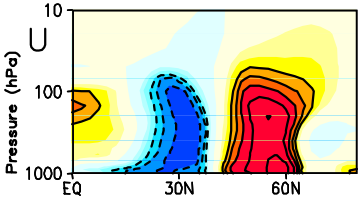

AO (DJFM)
Warm
Cold
2
0
−2
1960 1965 1970 1975 1980 1985 1990 1995 2000
Ps
Ts
−7 −6 −5 −4 −3 0 3 4 5 6 7

# Cor. AO (DJFM)

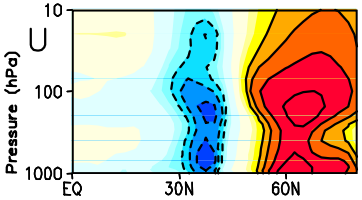
## Warm



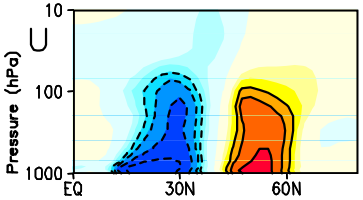

## Cold



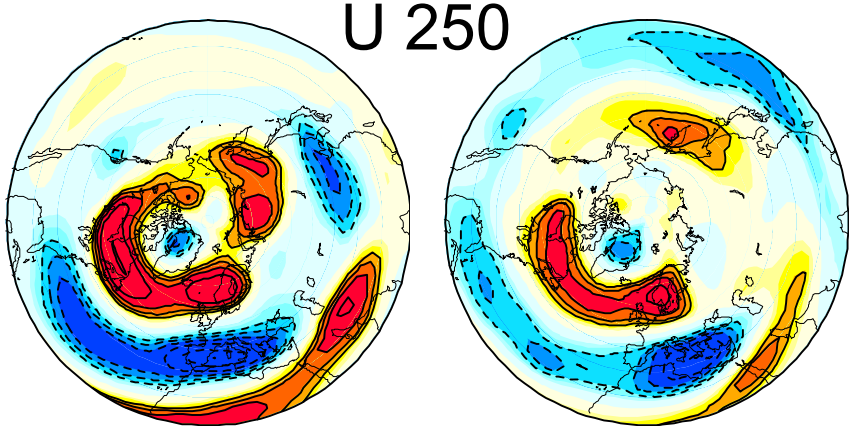

## Fy 55N




## Fy 35N

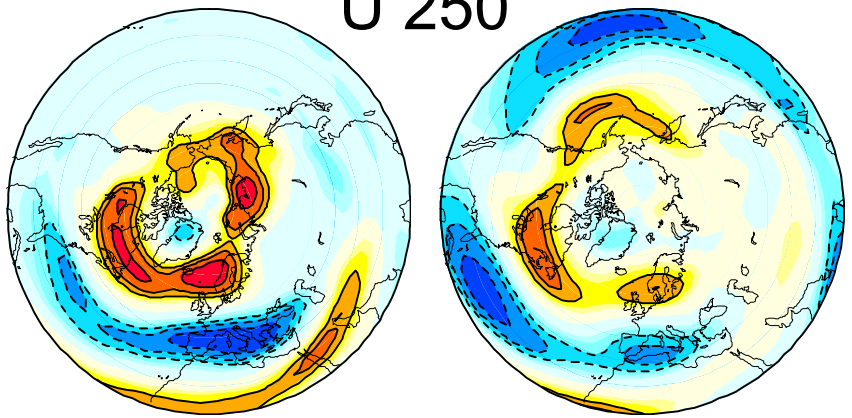



## U 250

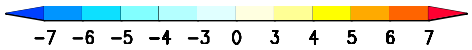


1959-1999

## U 250



1969-1999

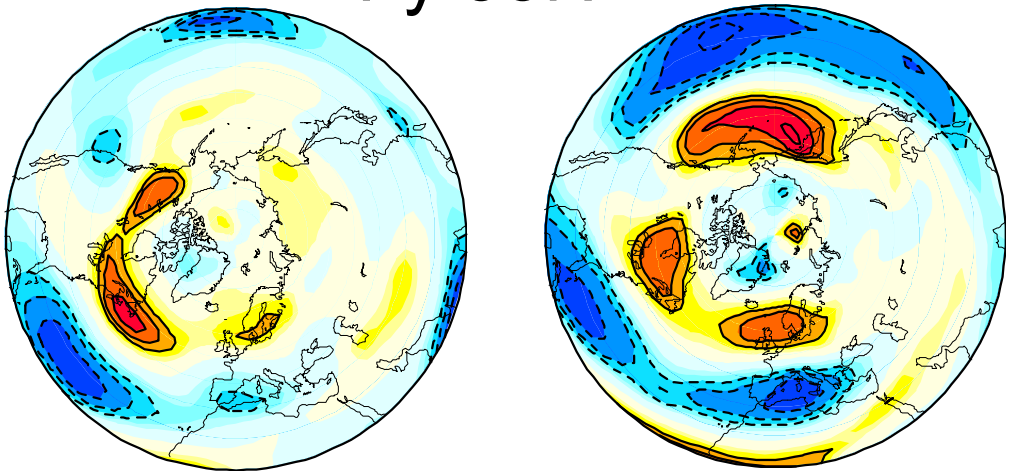


Warm

Cold

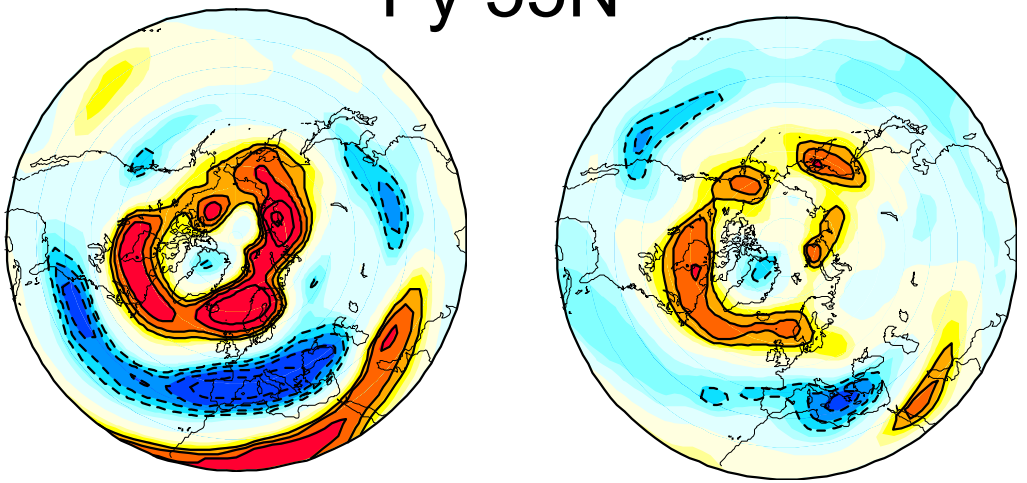
Fy 35N

U 250



U 250

Fy 55N

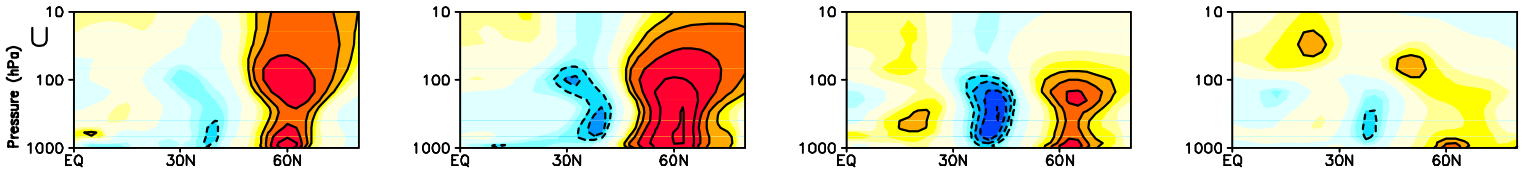


1969-1999

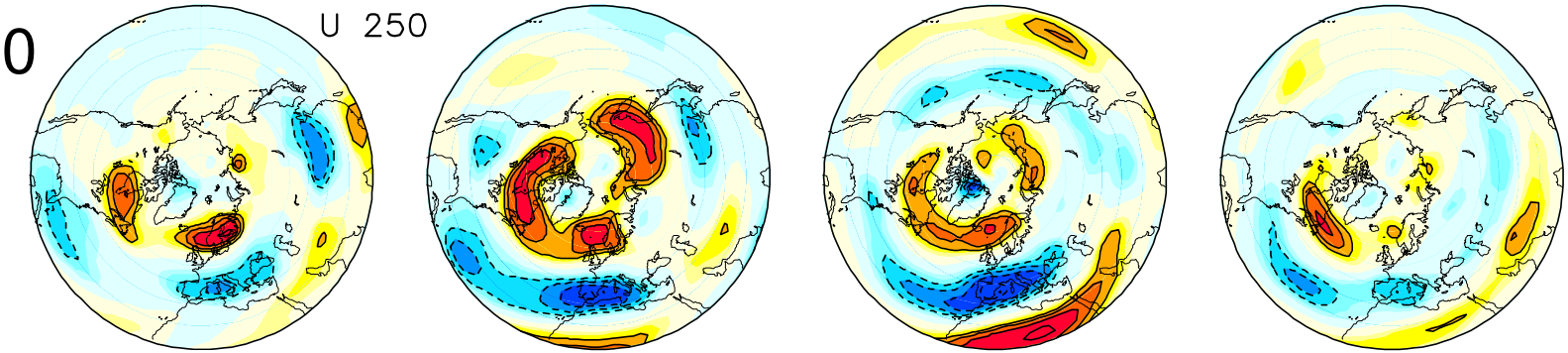
Warm

# Correlation ( winter AO, monthly variables)

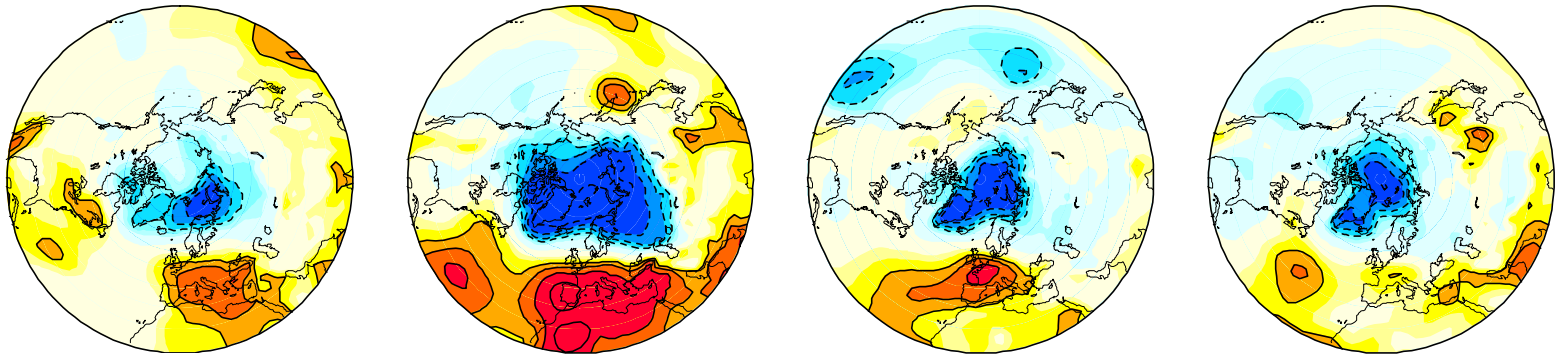
Dec Jan Feb Mar




U 250

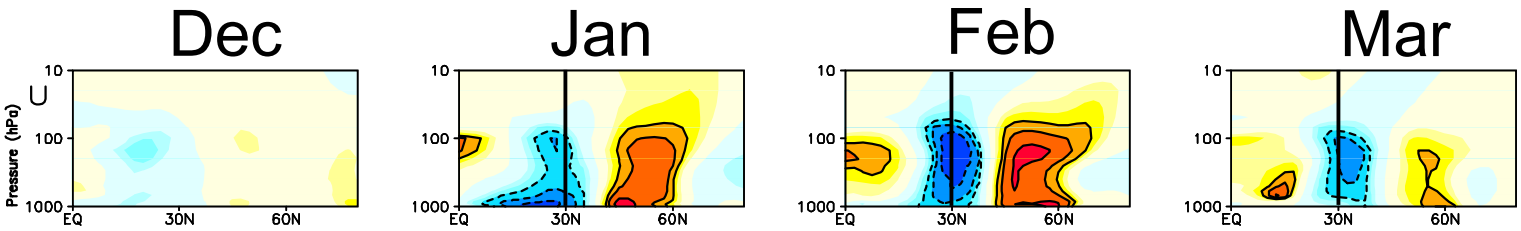



Ps

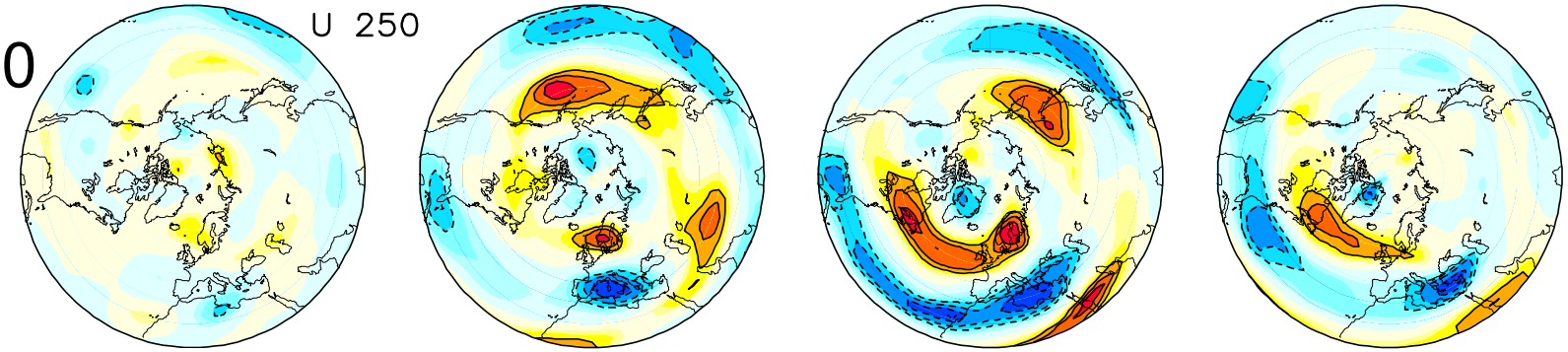


# Correlation ( winter AO, monthly variables)

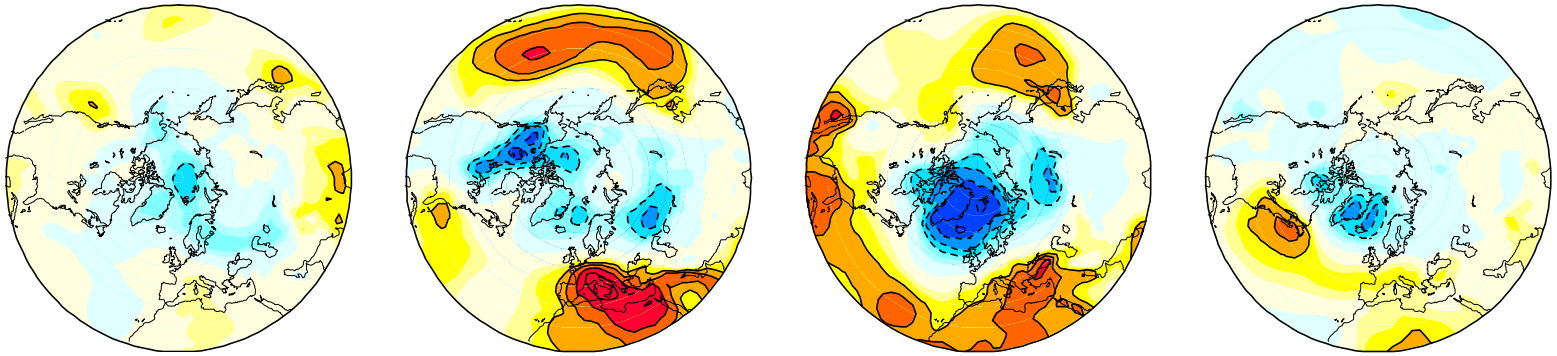
Cold




U 250




Ps

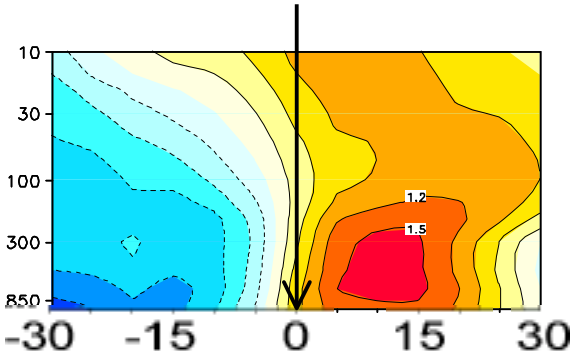


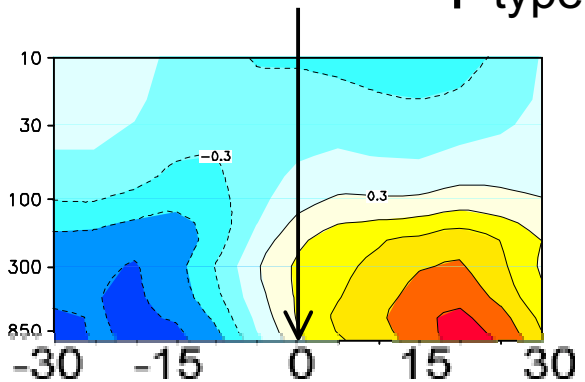
# Composite analysis of the AO change

S-type

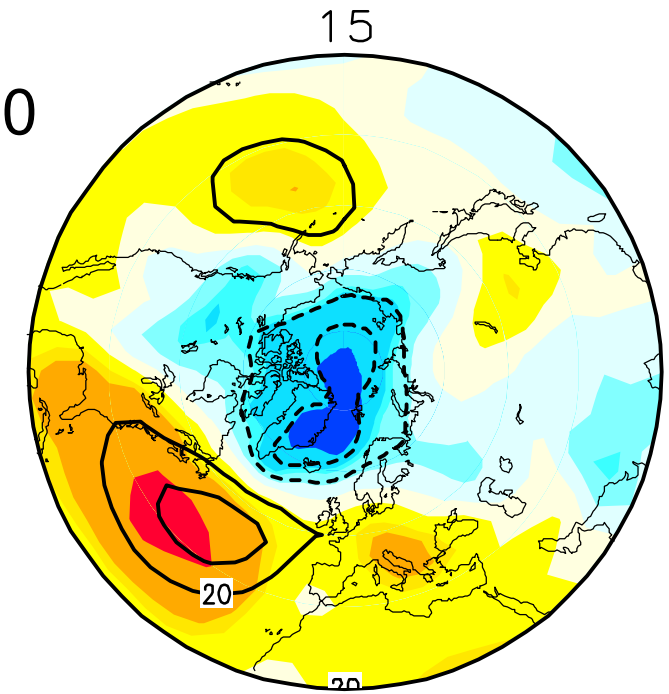
T-type

NAM

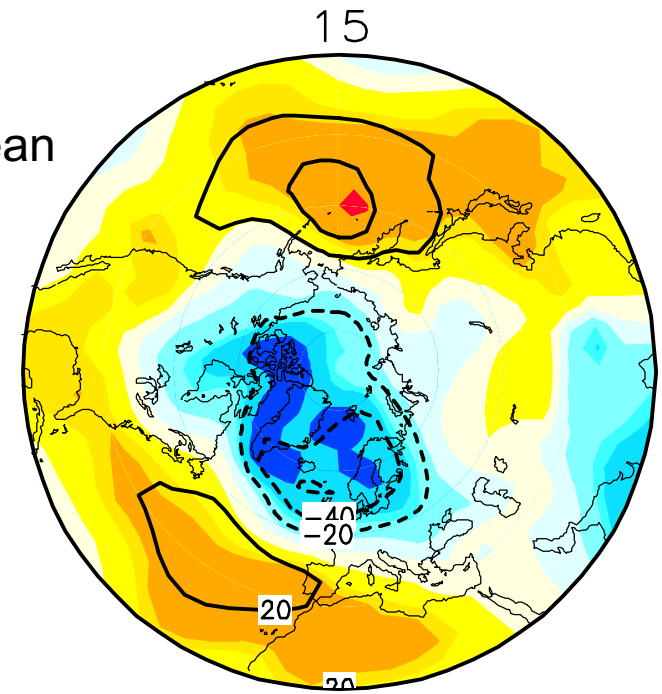



Z1000




35-day mean



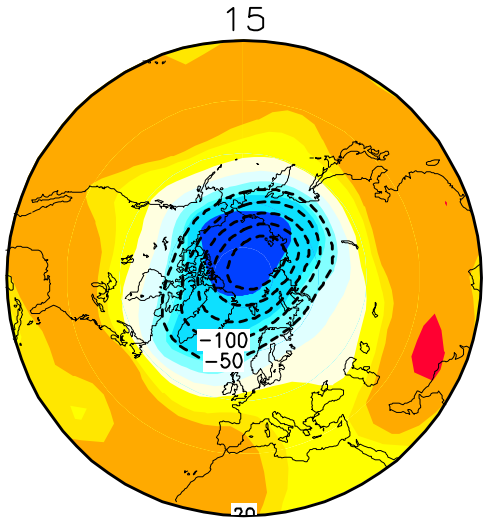

Kodera and kuroda (2000)

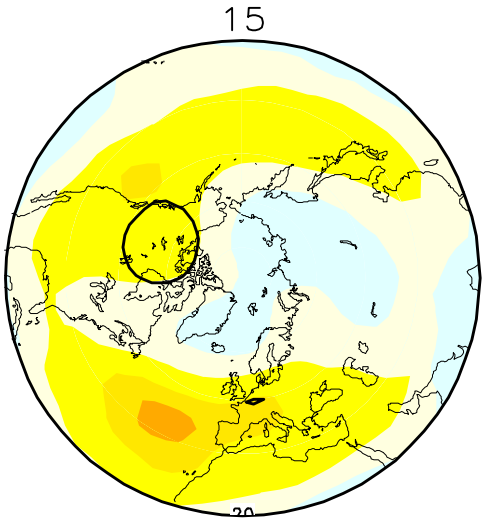
35-day mean

Type S

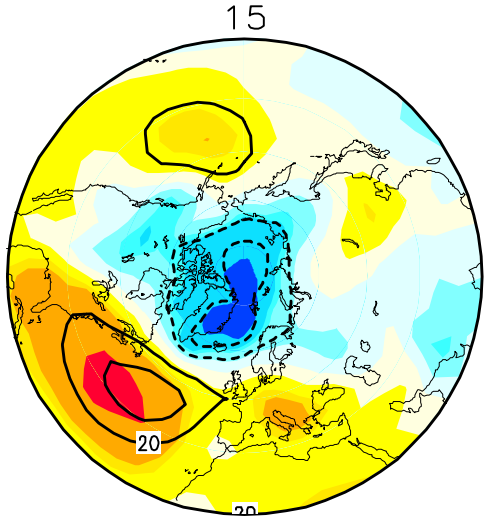
Type T

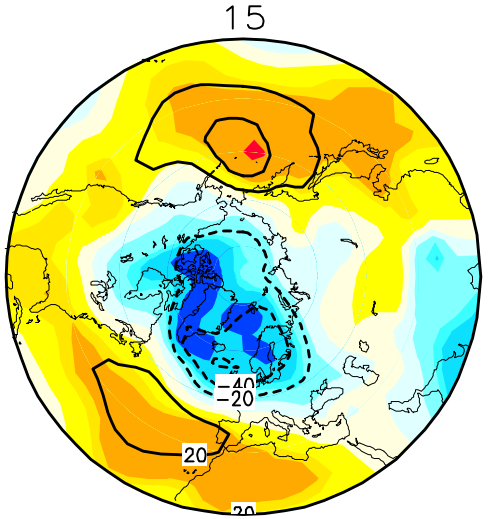
Z50

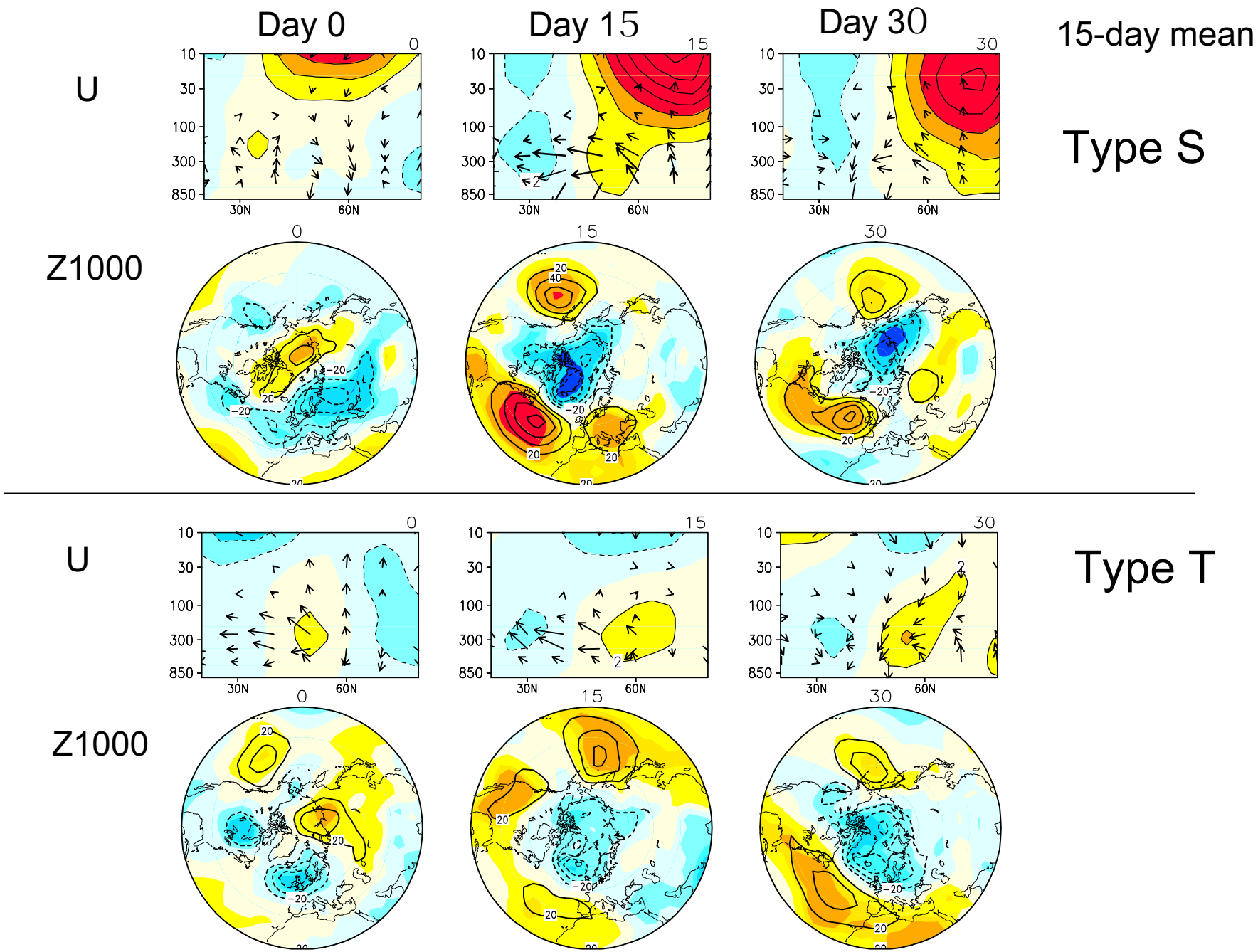


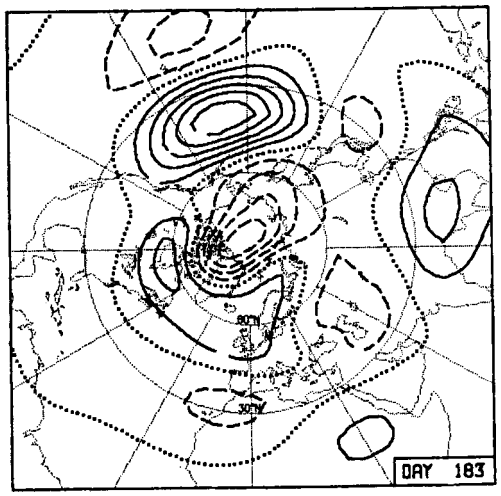



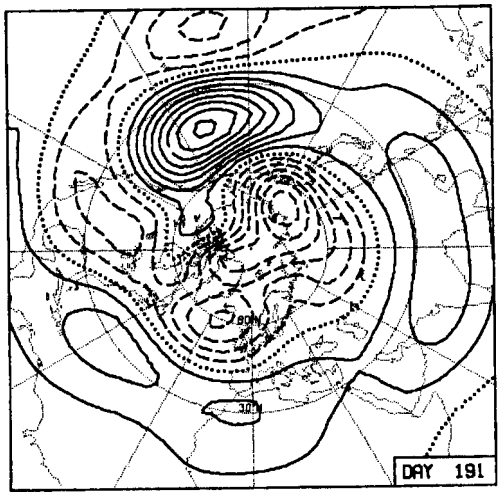

Z1000

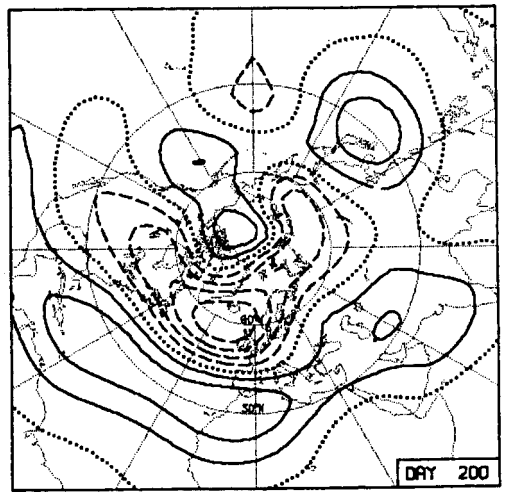



Day 0
Day 15
Day 30
15-day mean
U
Type S
Z1000
U
Type T
Z1000
10
30
100
300
850
30N
60N
0
15
30
20
40
-20
2

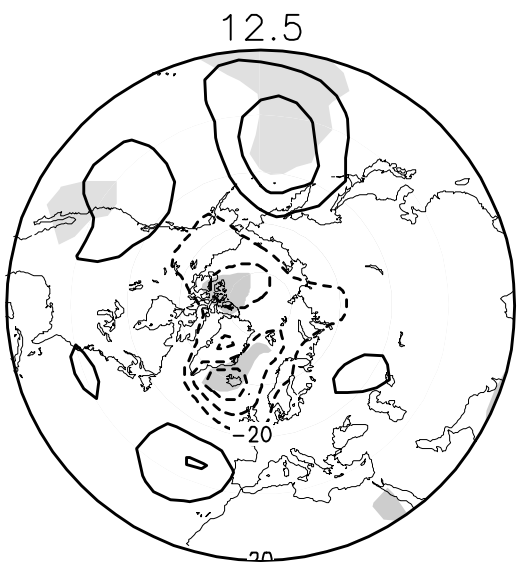


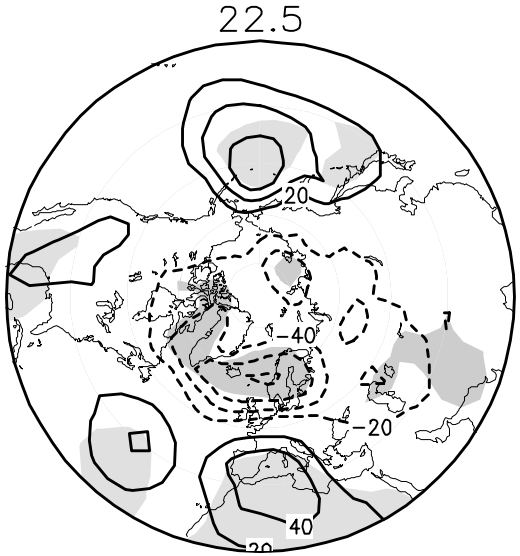



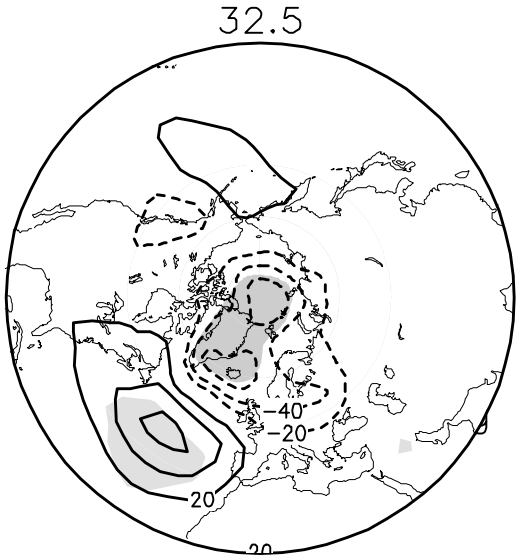




# What is type T ?

Simmons et al. !983



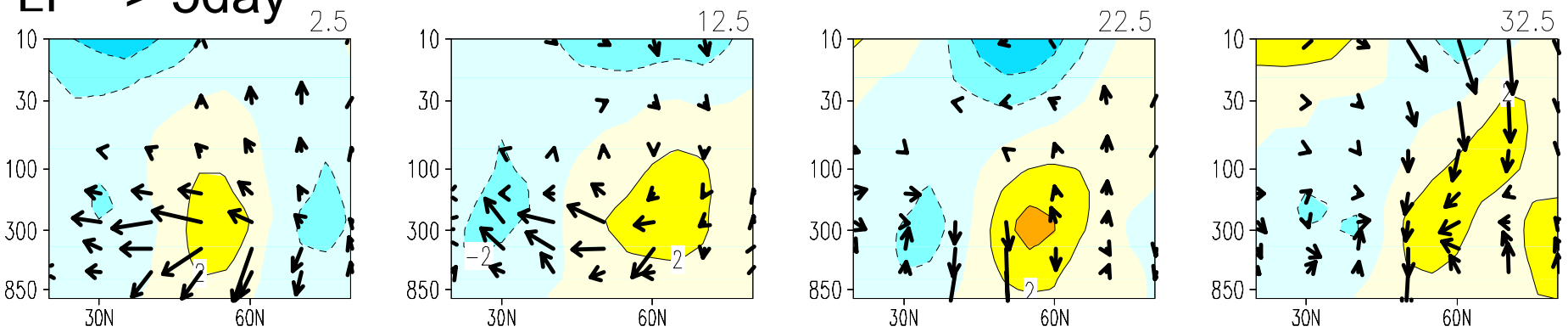



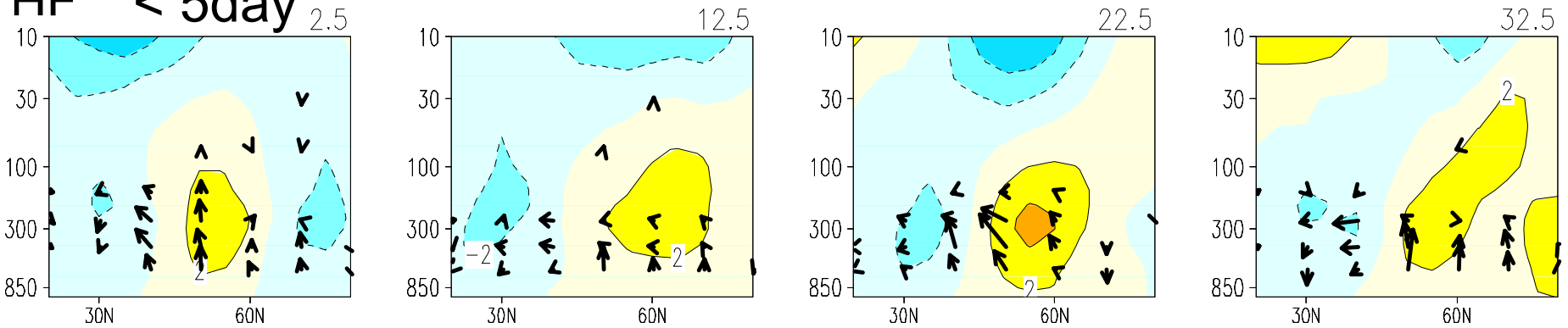
# E-P Flux Type T

10 -day mean

LF > 5day



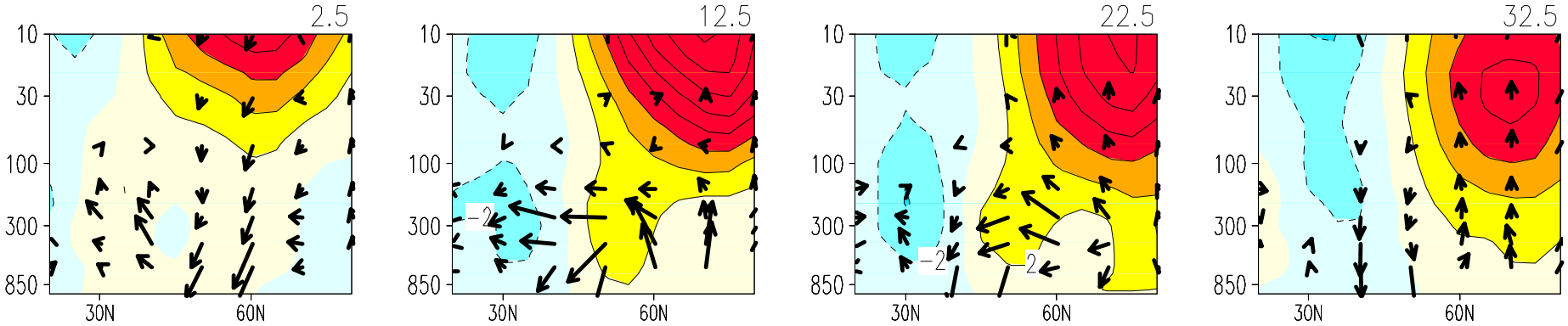

HF < 5day



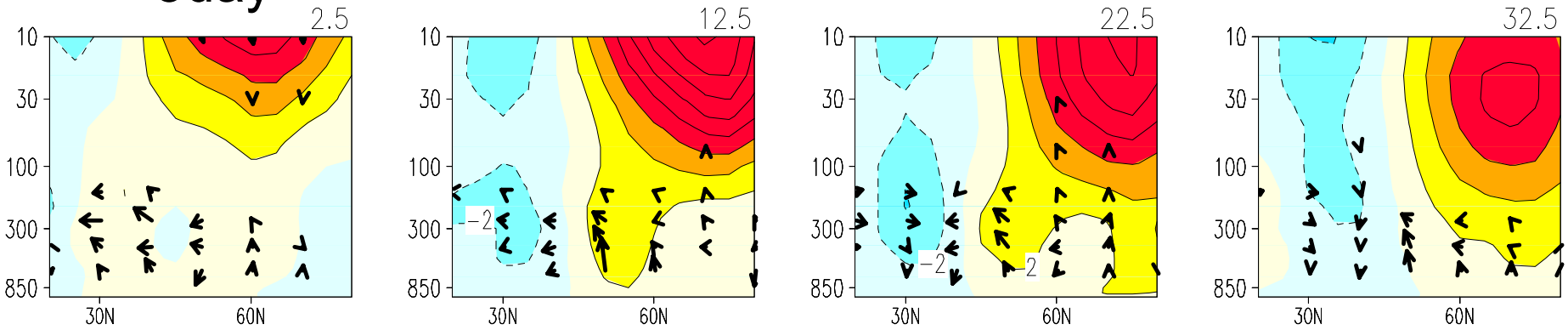

Day 3 Day 13 Day 23 Day 33

E-P Flux Type S 10 -day mean

LF > 5day

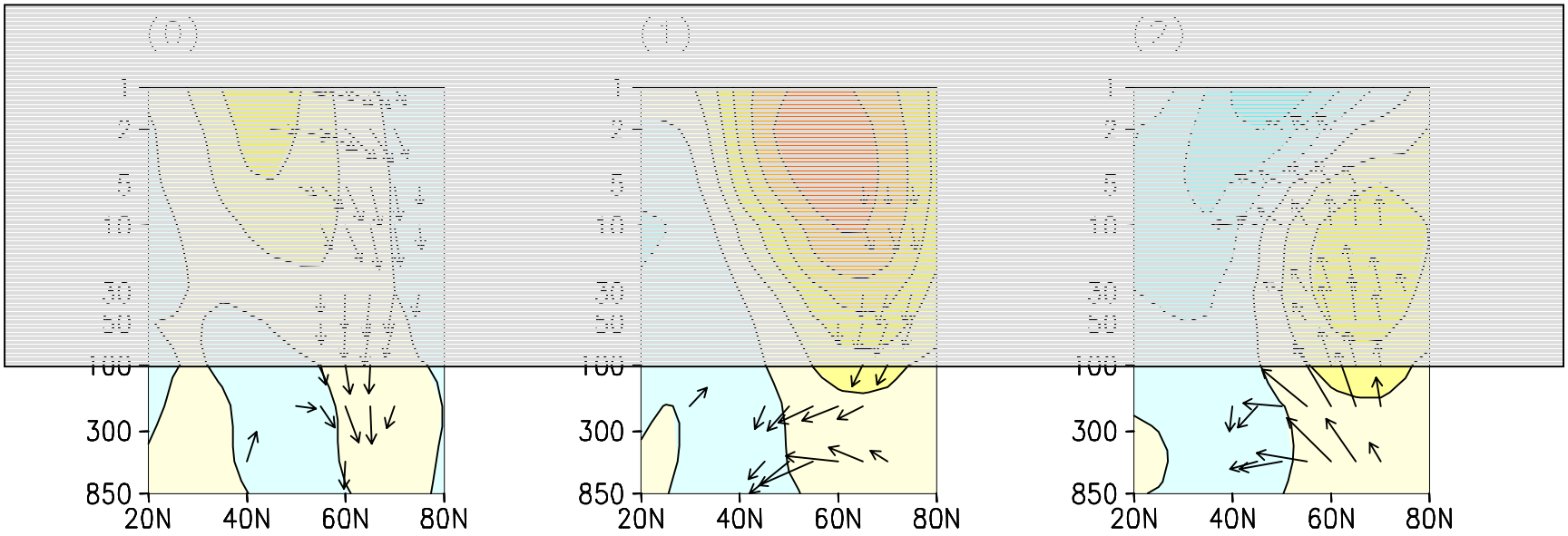



HF < 5day

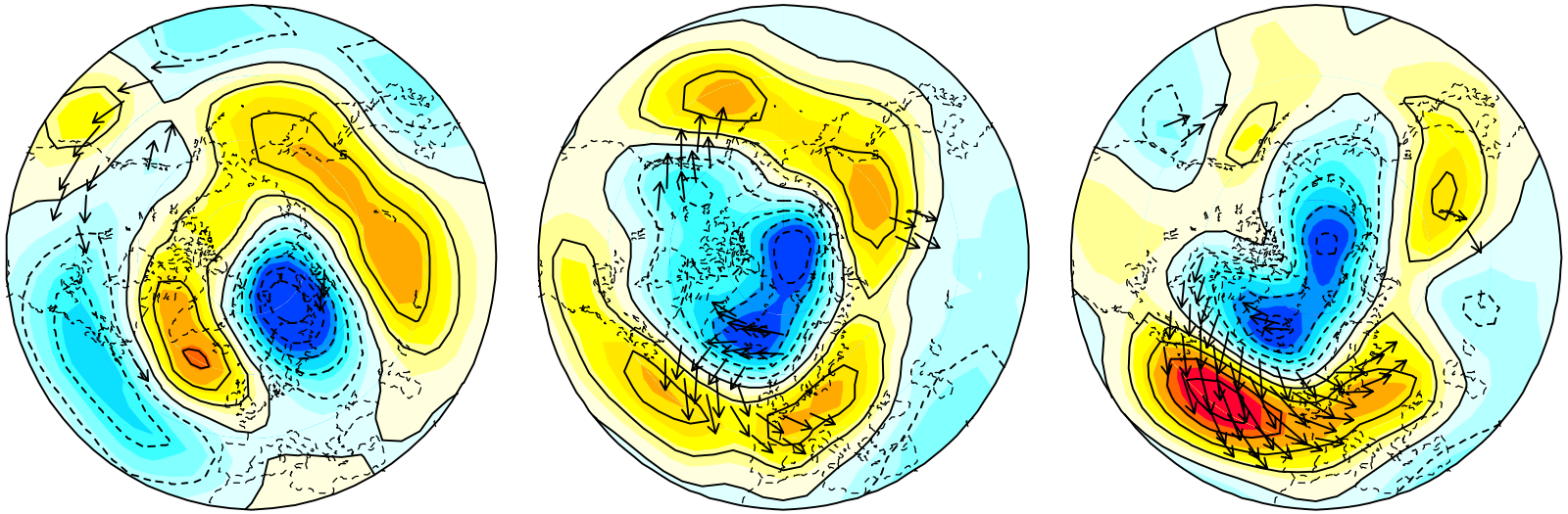



Day 3 Day 13 Day 23 Day 33

# E- SVD 1 ( U, Fz )

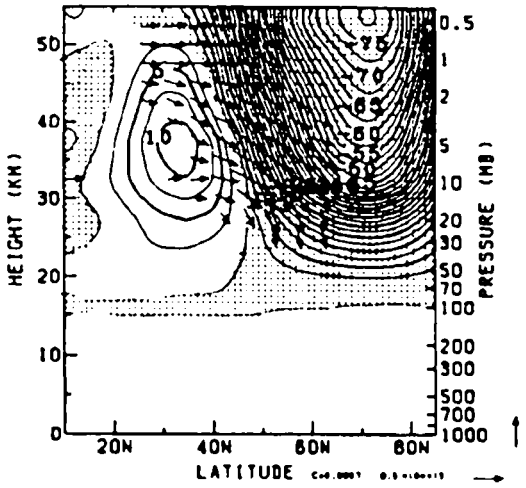



Z500

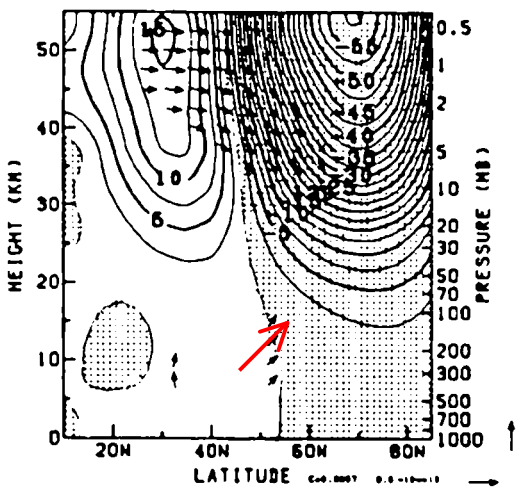


Kuroda and Kodera (1999)

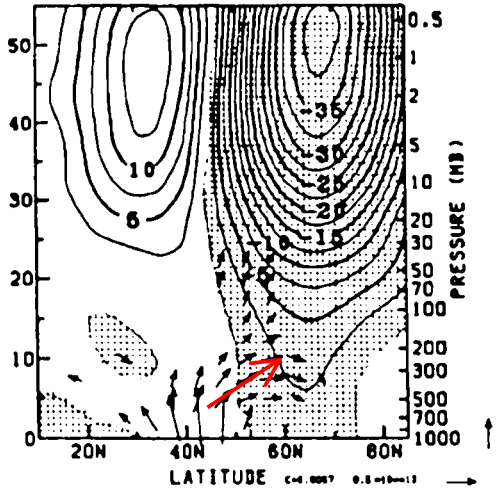
Initial



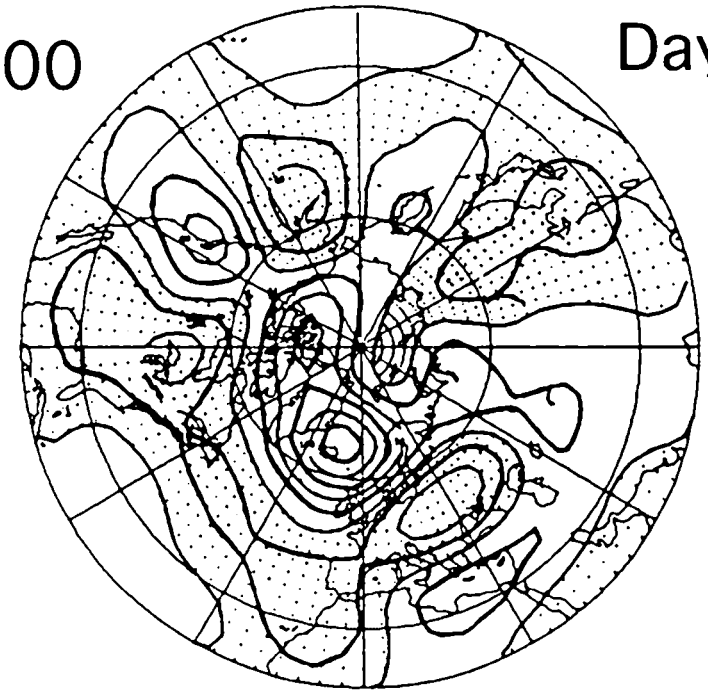

Day 1- 10




Day 11- 20



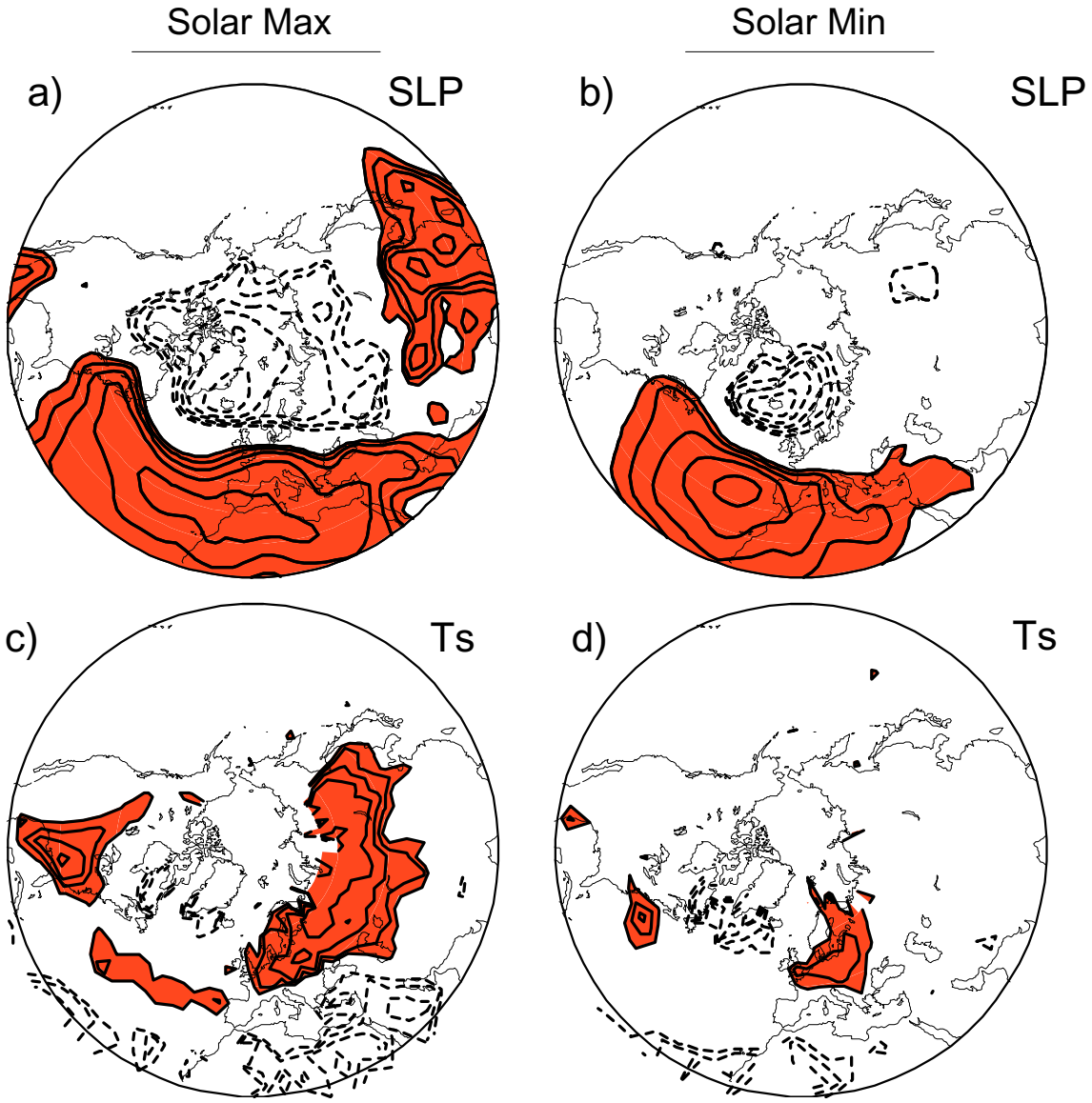

Z500



Day 11- 20

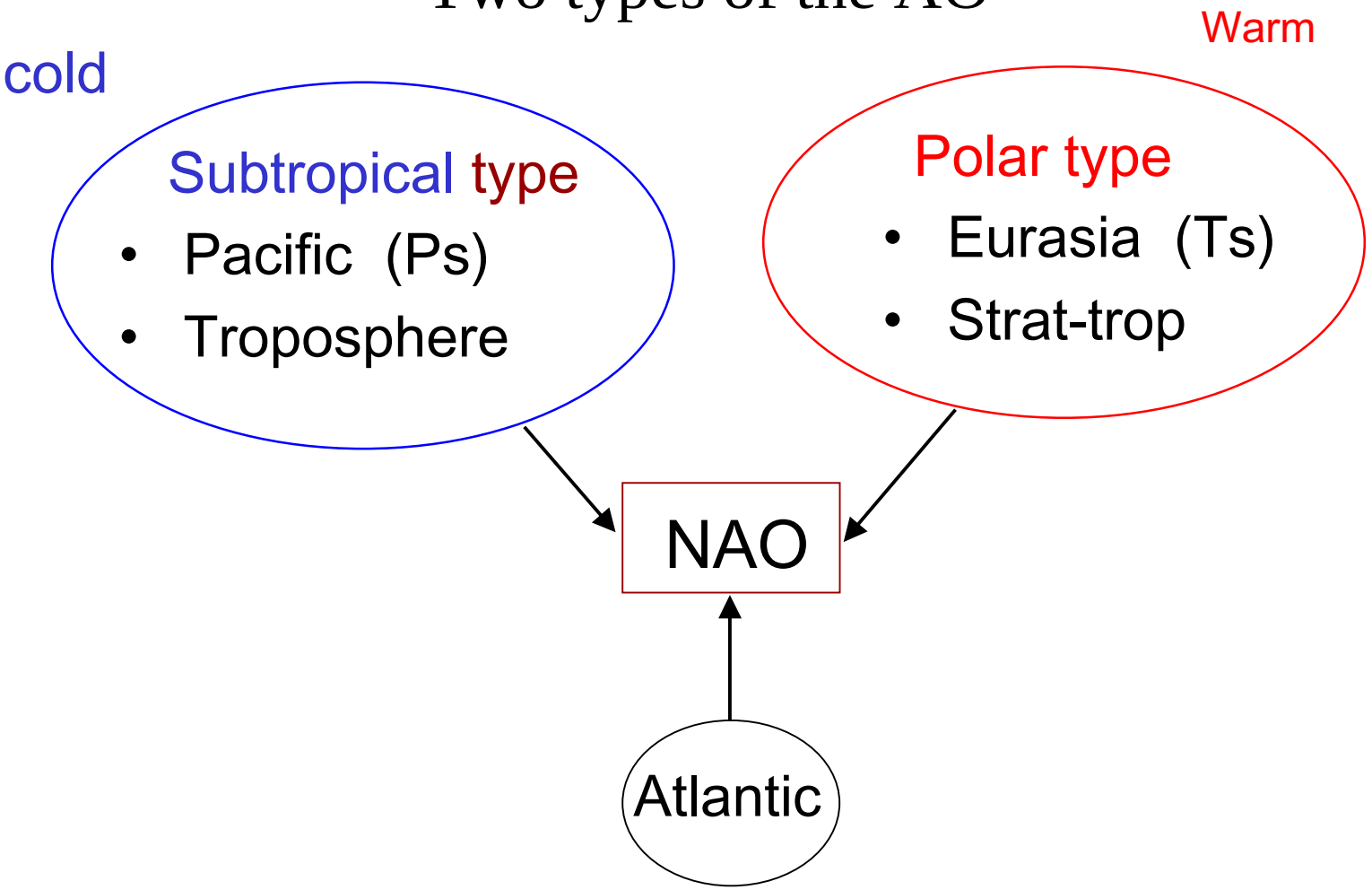
Kodera et al. (1996)

Correlation with NAO index

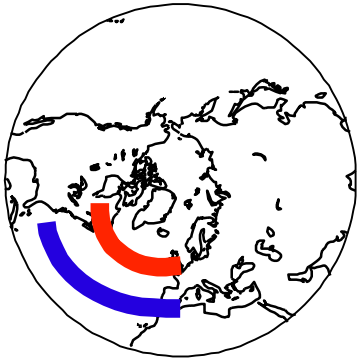



Kodera (2002)

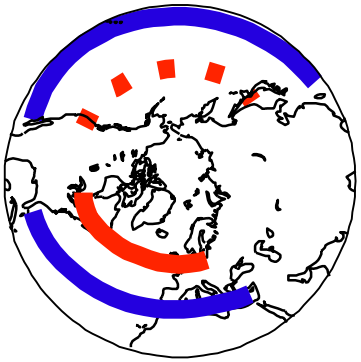
# Two types of the AO



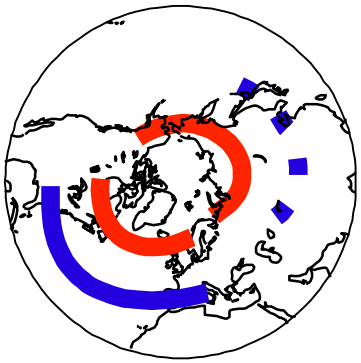
regional NAO

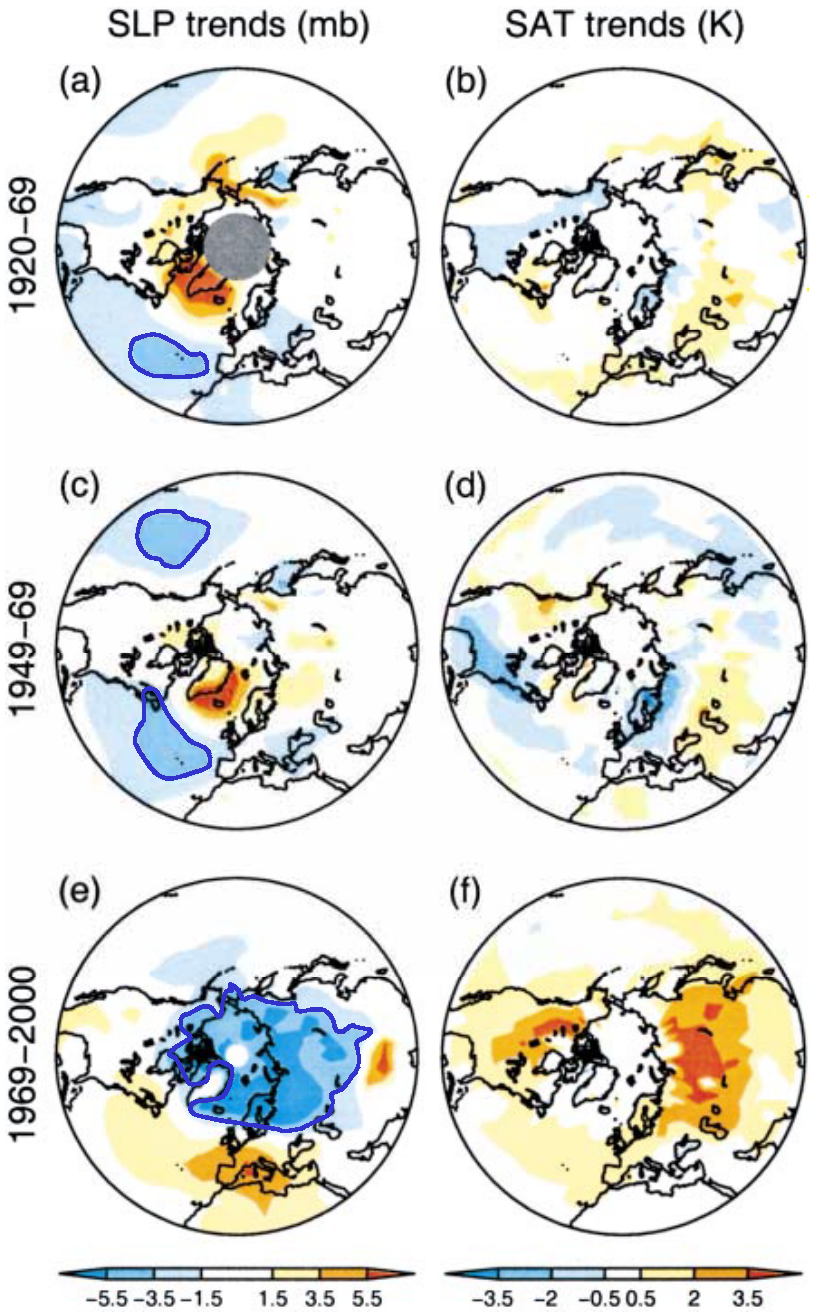


Subtropical type



Polar type






Ostermeier and Wallace (2003)