

# Change of Siberian-Mongolian High Intensity from November to December-January

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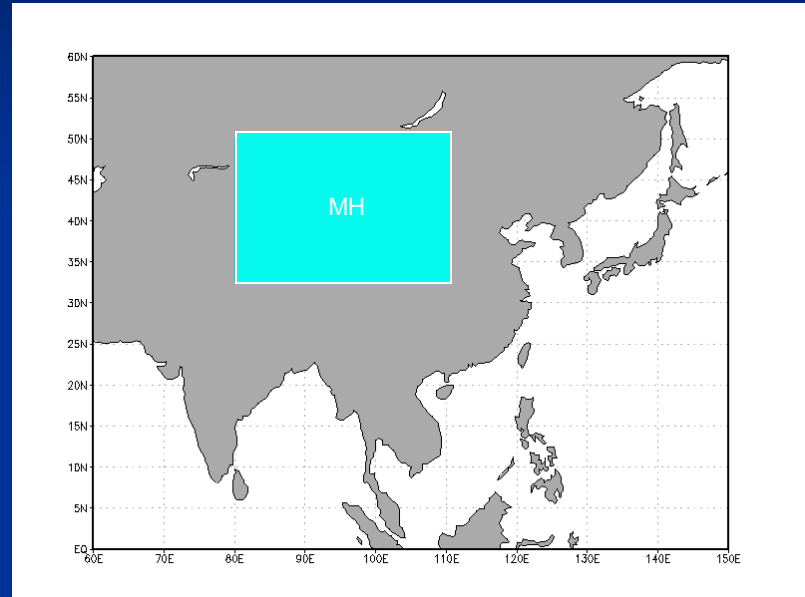
Co-authors: Mong-Ming Lu and Yong-Hua Ji

## MH (anomaly)

MH (anomaly) (1979-2008)				
corr.	Oct	Nov	Dec	Jan
OND				
NDJ				

Due to land-sea difference SMH starts to develop in fall before winter season officially sets in (Chang et al. 2004).

During this transition period, how do the rolling 3-month seasonal forecasts perform on individual months?



## MH (anomaly)

MH (anomaly) (1979-2008)				
corr.	Oct	Nov	Dec	Jan
OND	.56	.44	.56	-.20
NDJ				

95% .36

99% .46

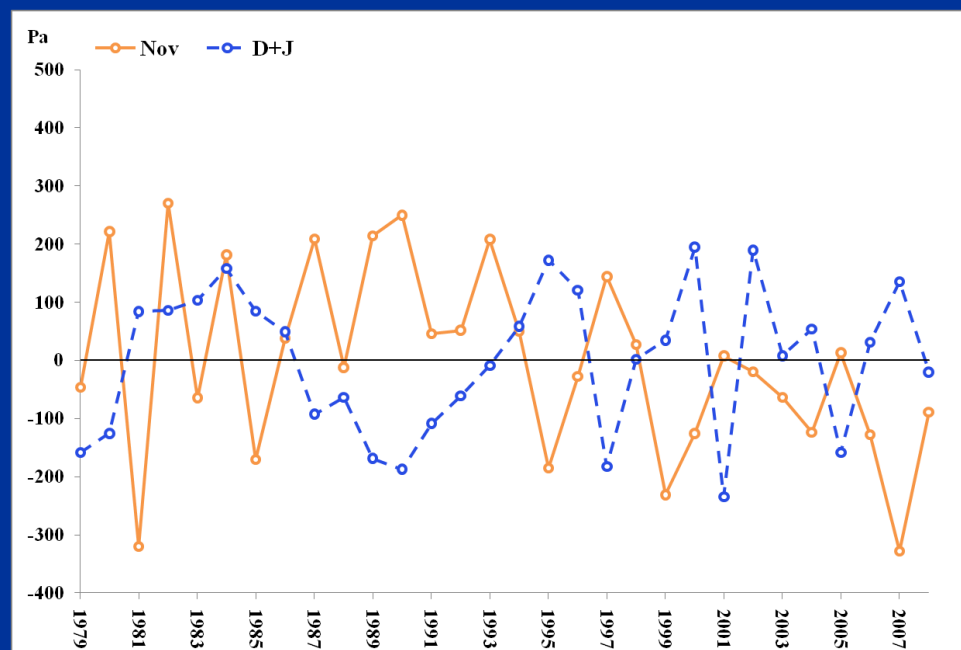
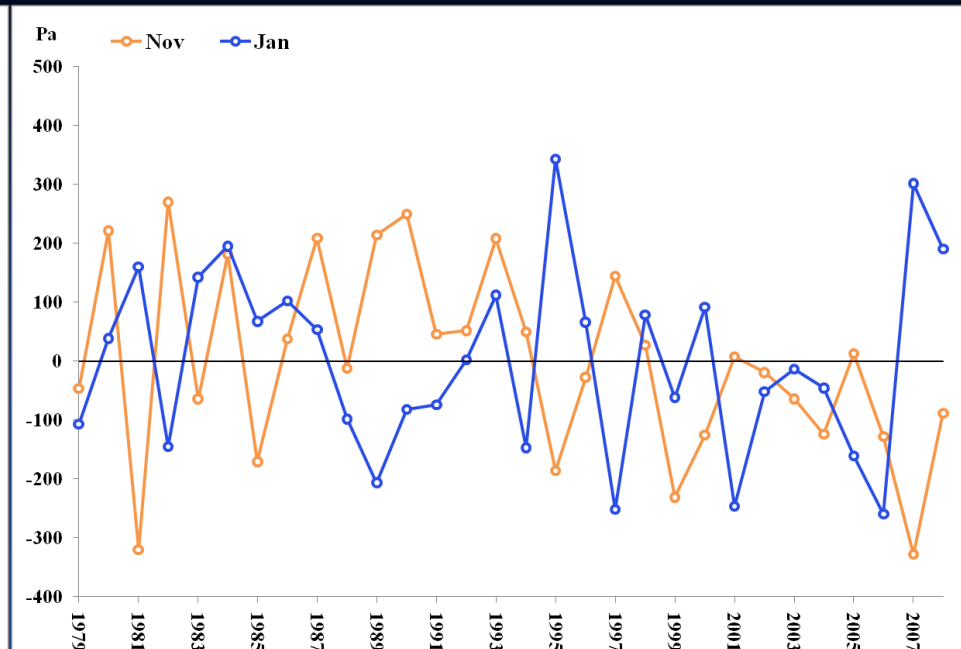
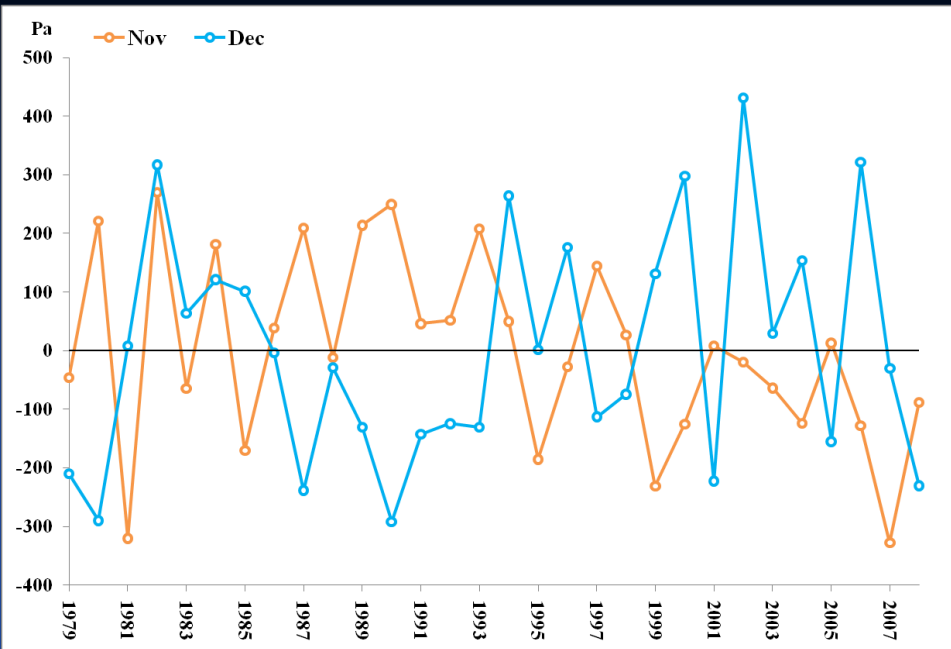
# MH (anomaly)

MH (anomaly) (1979-2008)				
corr.	Oct	Nov	Dec	Jan
OND	.56	.44	.56	-.20
NDJ	.11	.18	.65	.42

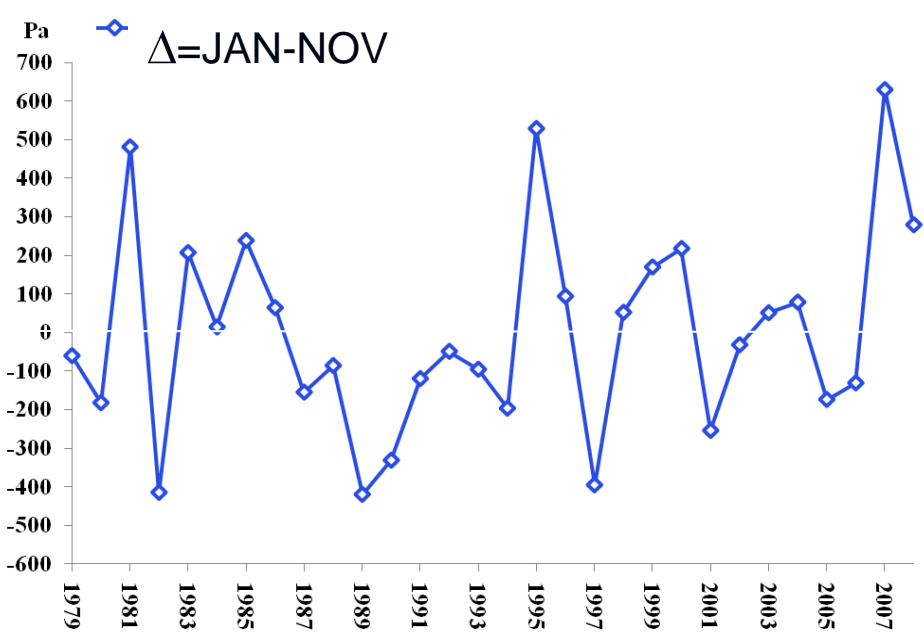
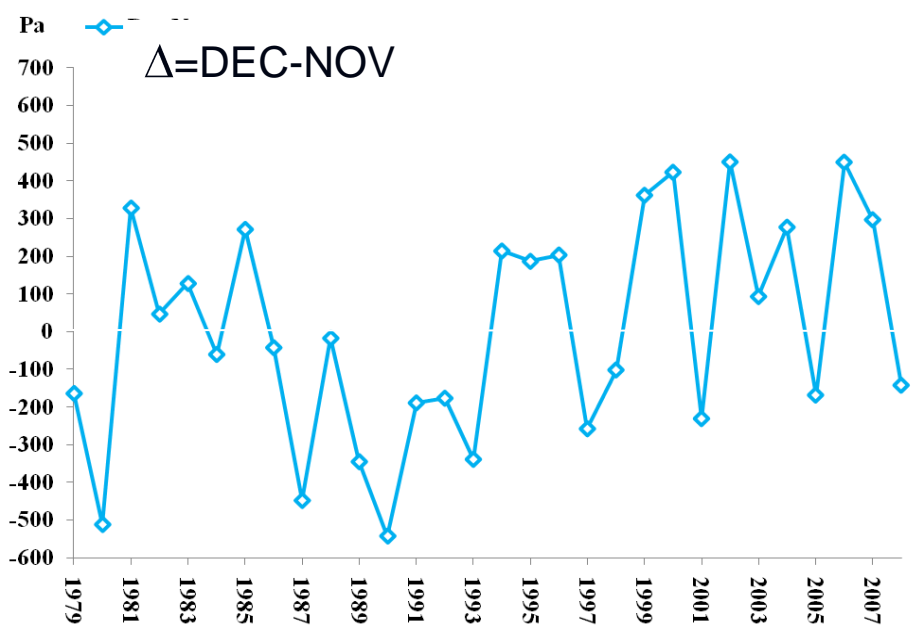
95% .36

99% .46

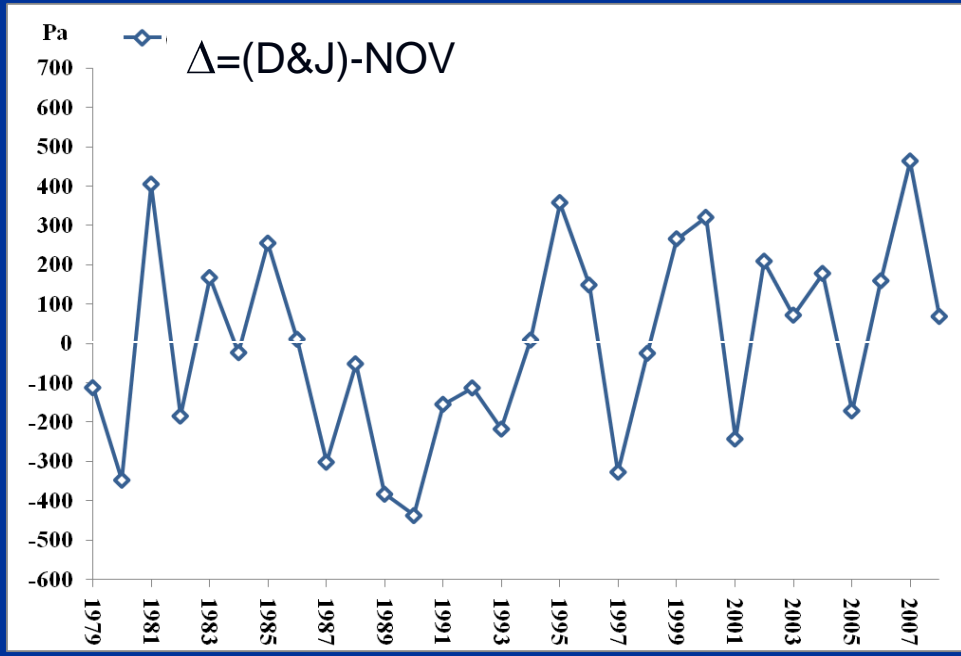
MH (anomaly) (1979-2008)					
	Oct	Nov	Dec	Jan	D+J
Oct	1				
Nov	.11	1			
Dec	-.05	-.30	1		
Jan	.10	-.37	-.03	1	



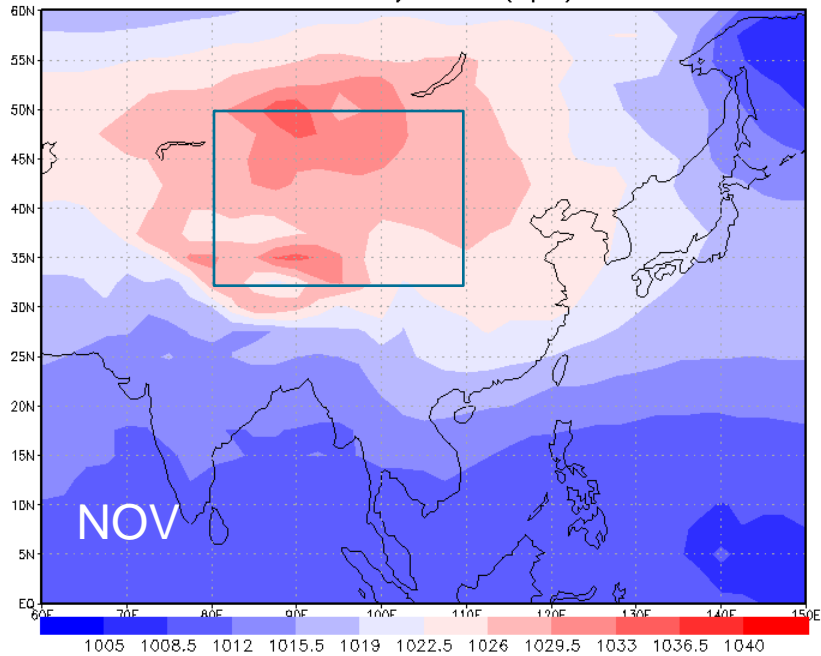
MH SLP  
anomaly



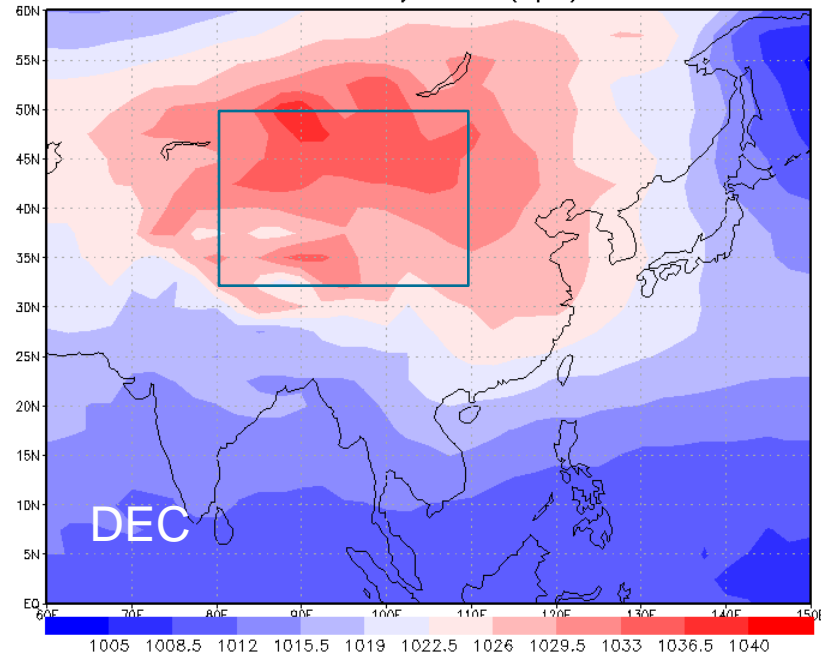
$\Delta = \text{MMM} - \text{NOV}$



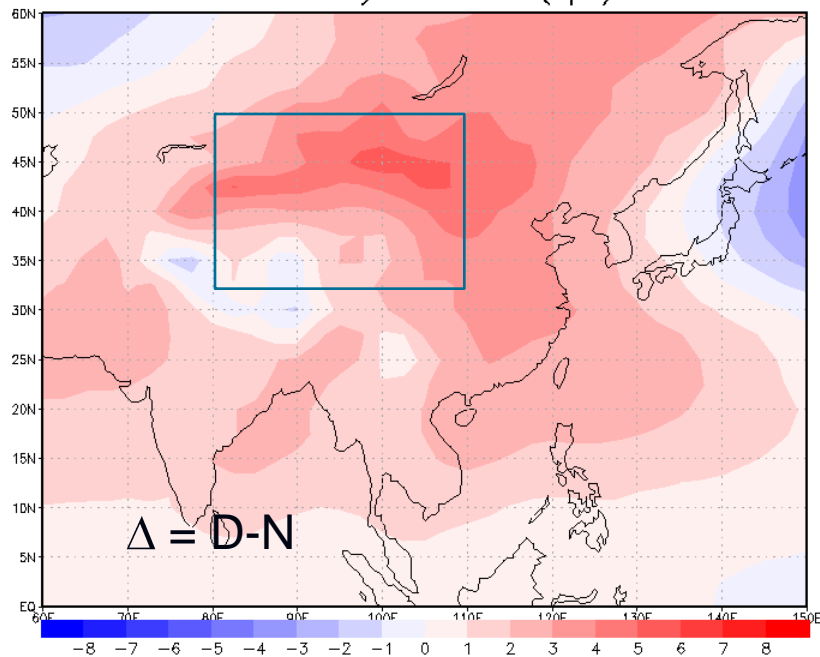
SMH 30yr Nov (hpa)



SMH 30yr Dec (hpa)

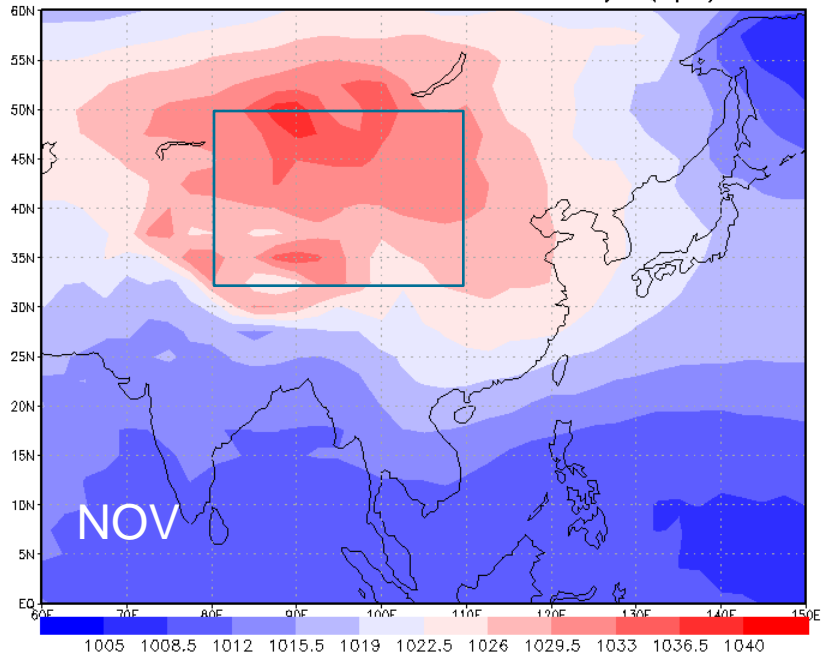


SMH 30yr Dec-Nov (hpa)

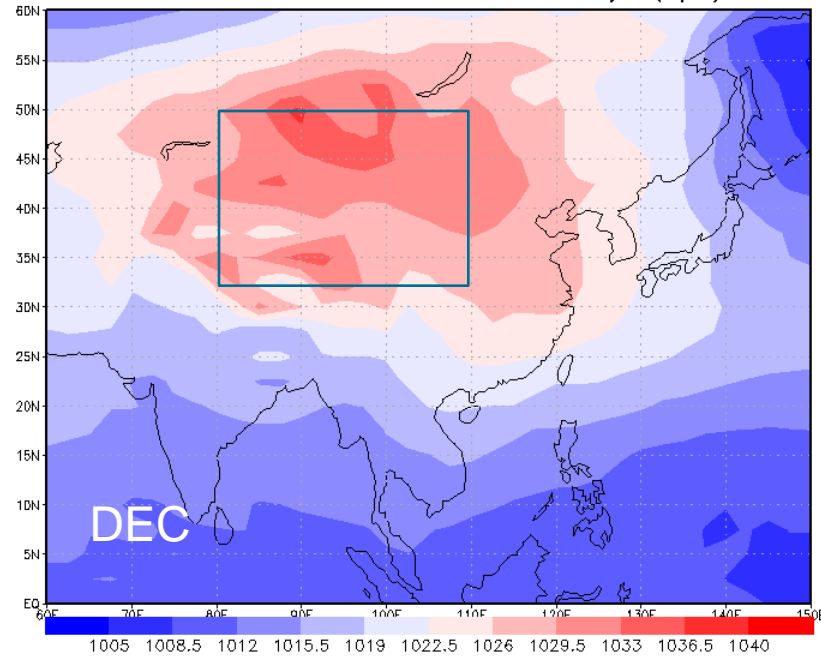


1979-2008  
CLIMATOLOGY

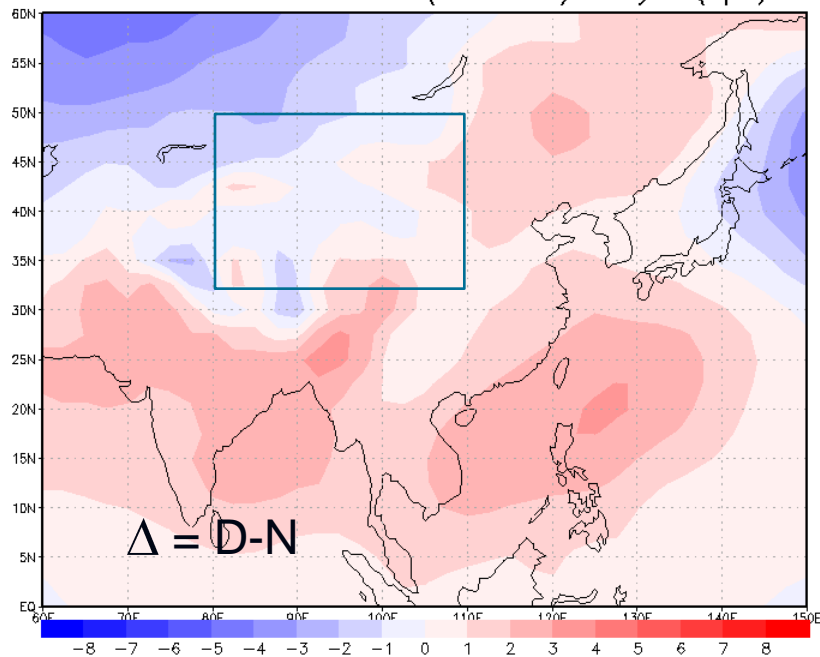
SMH Nov above normal Nov 30yr (hpa)



SMH Nov above normal Dec 30yr (hpa)

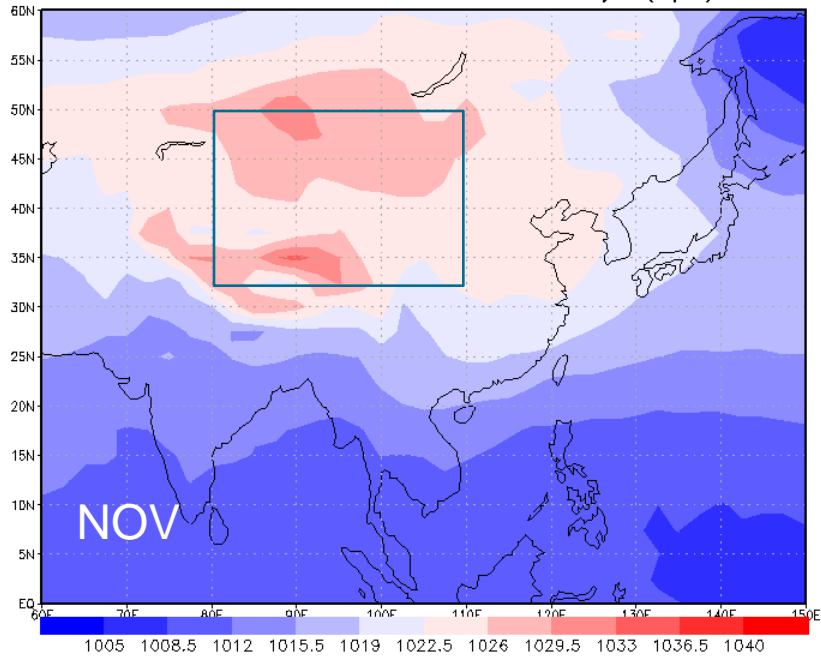


SMH Nov above normal (Dec–Nov) 30yr (hpa)

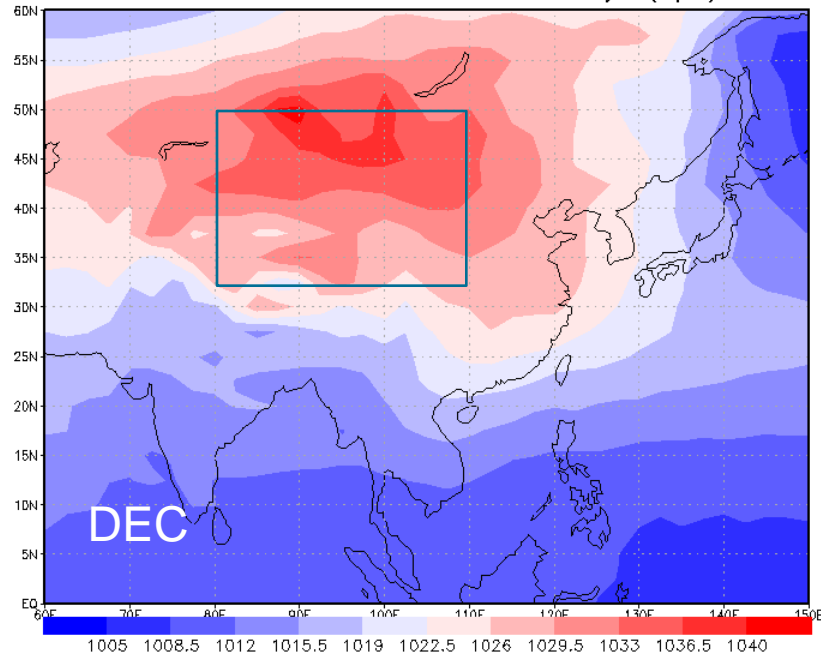


NOV ↑

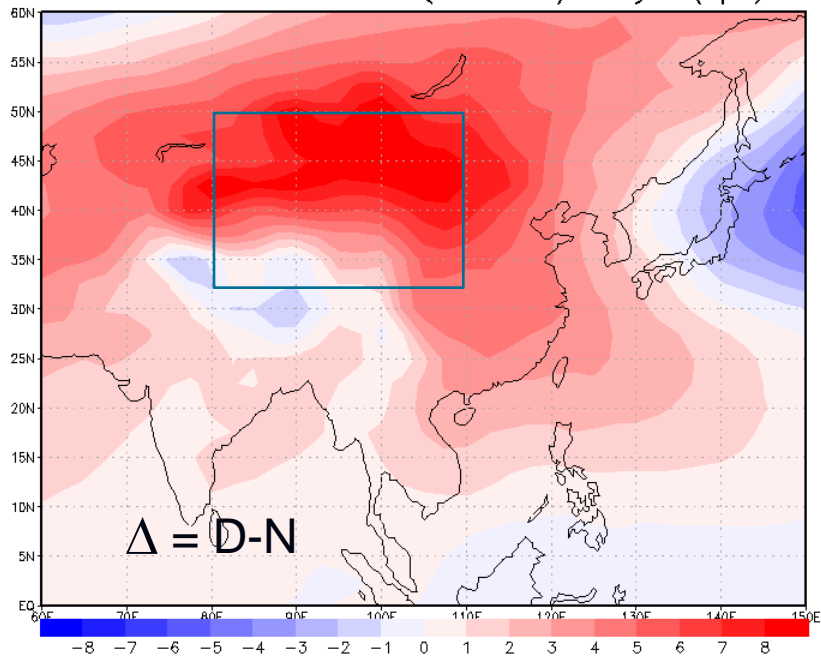
SMH Nov below normal Nov 30yr (hpa)



SMH Nov below normal Dec 30yr (hpa)

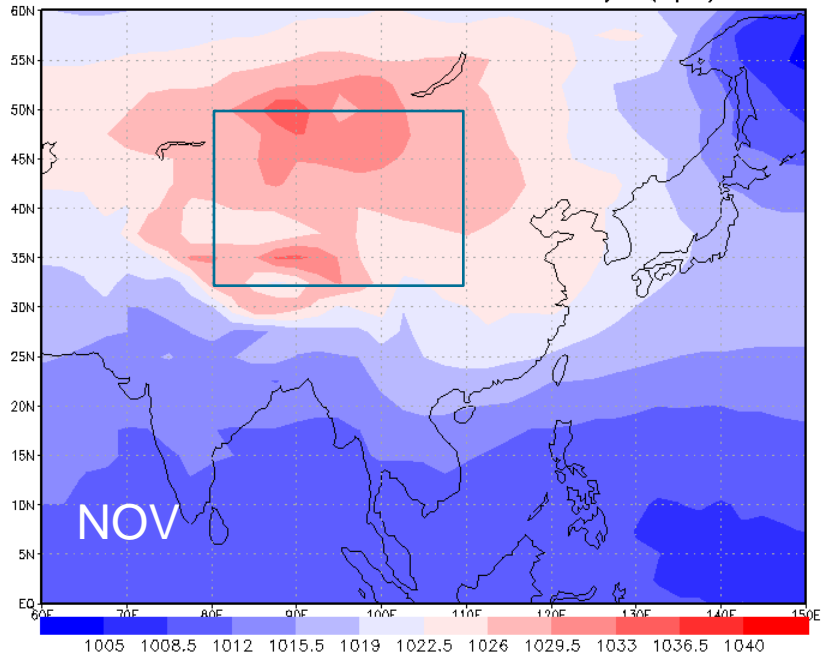


SMH Nov below normal (Dec-Nov) 30yr (hpa)

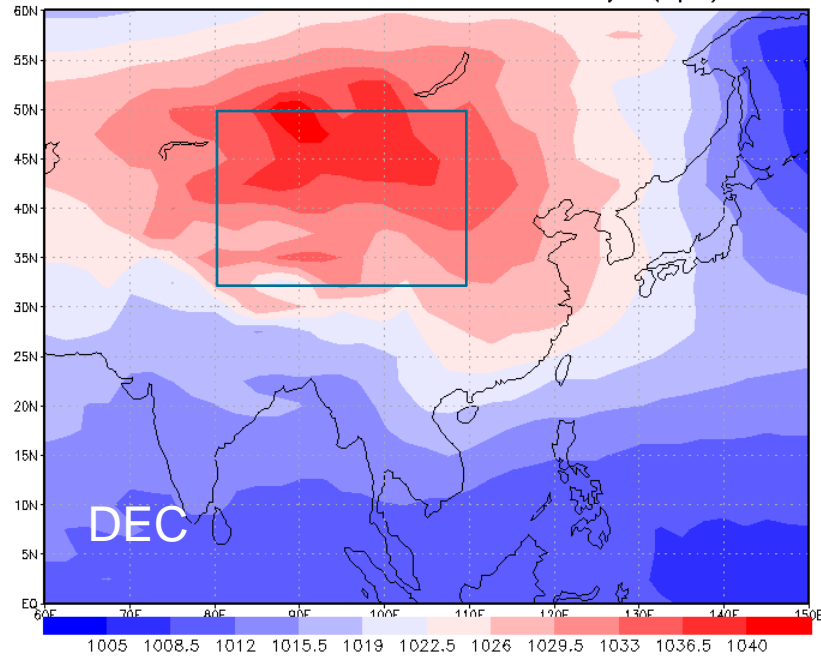


NOV ↓

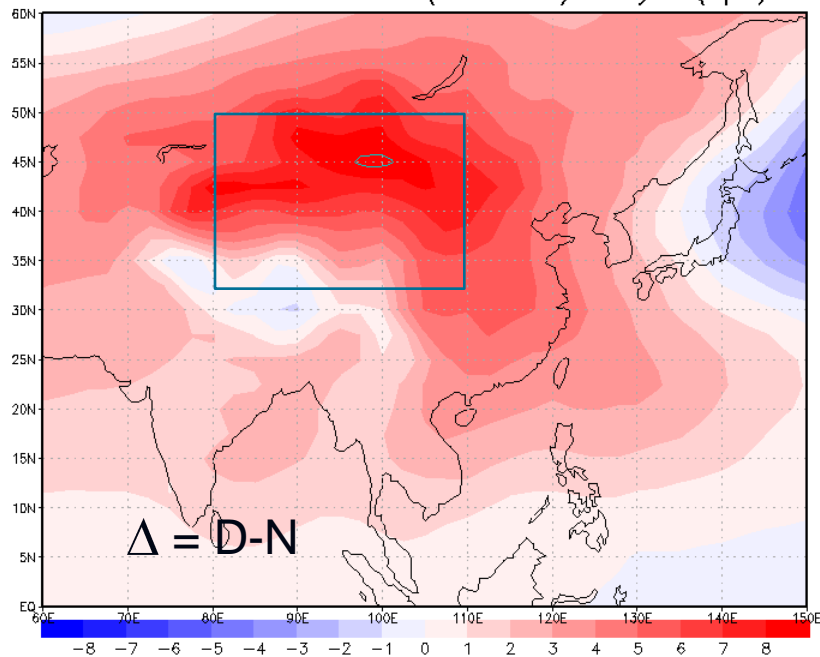
SMH Dec above normal Nov 30yr (hpa)



SMH Dec above normal Dec 30yr (hpa)

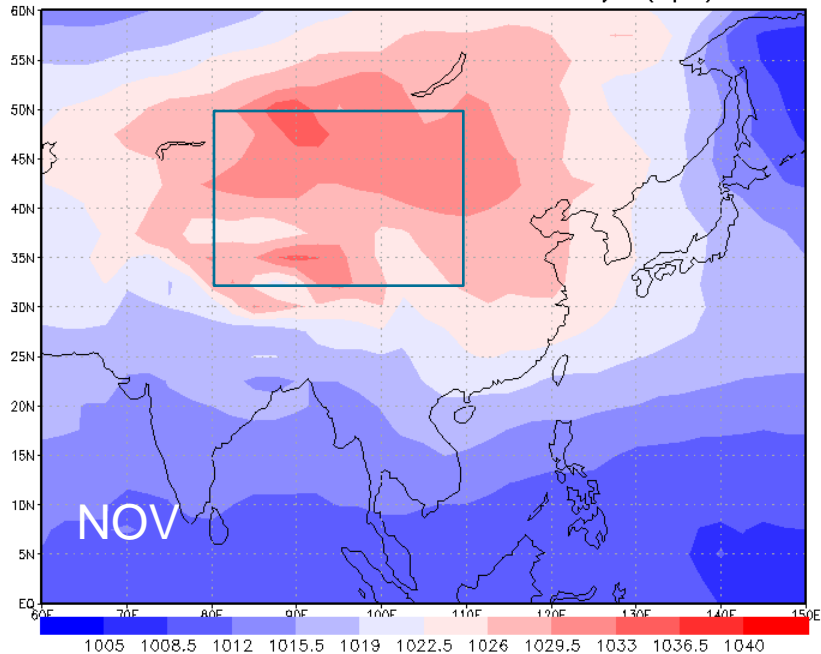


SMH Dec above normal (Dec-Nov) 30yr (hpa)

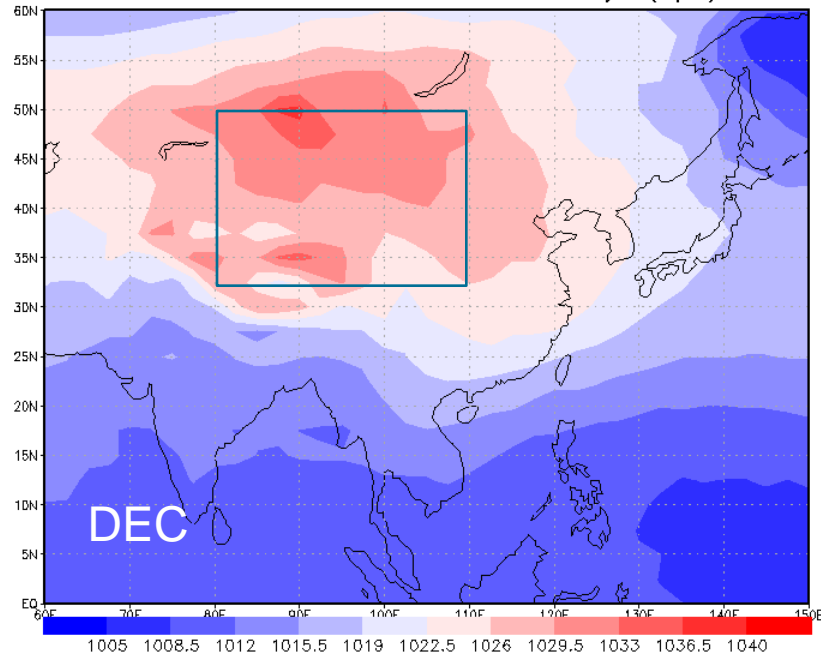


DEC ↑

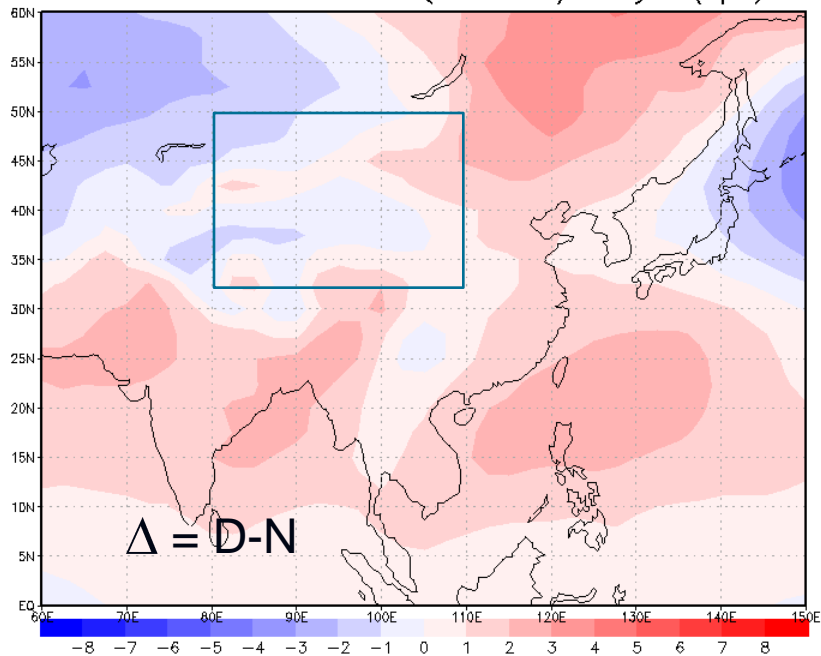
SMH Dec below normal Dec 30yr (hpa)



SMH Dec below normal Nov 30yr (hpa)

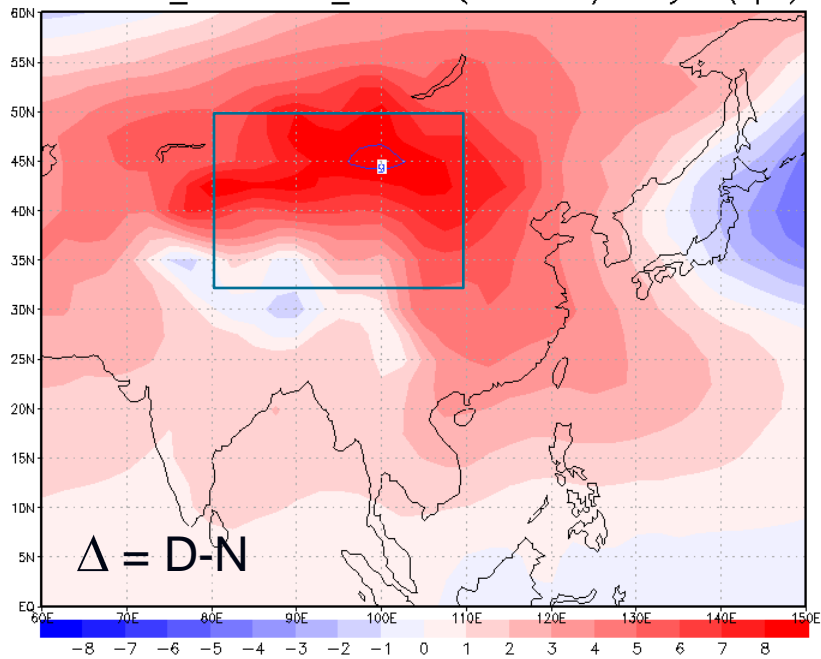


SMH Dec below normal (Dec-Nov) 30yr (hpa)



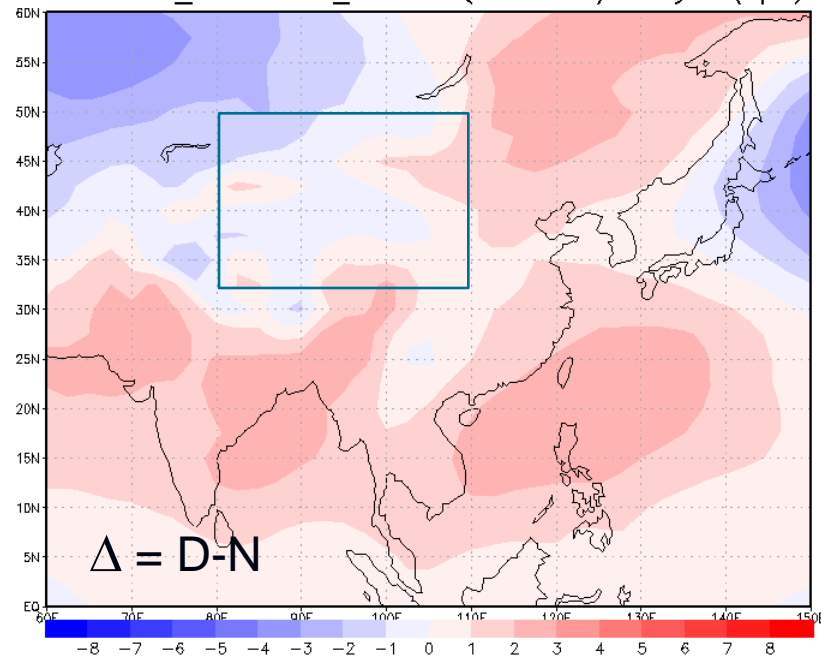
DEC ↓

SMH Dec\_above Nov\_below (Dec-Nov) 30yr (hpa)



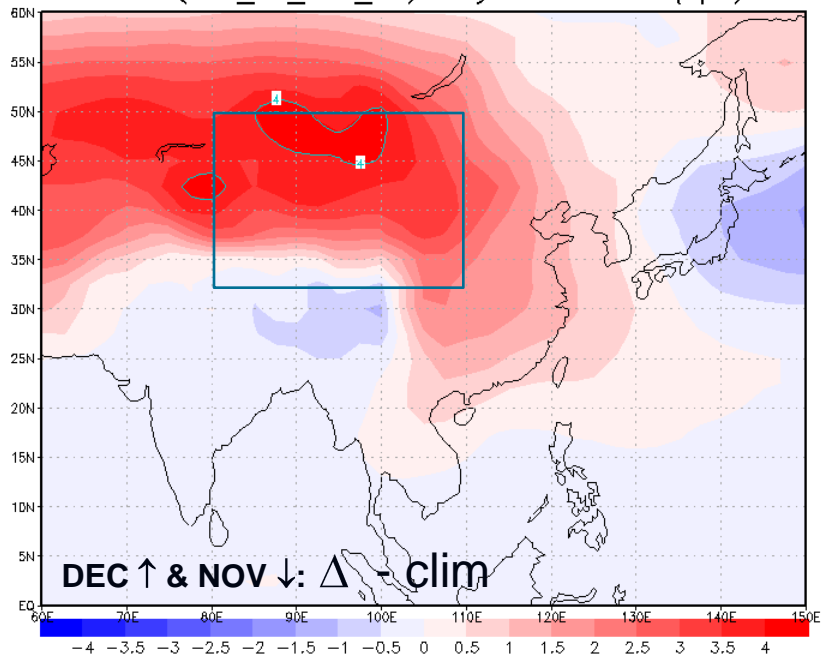
DEC ↑ & NOV ↓

SMH Dec\_below Nov\_above (Dec-Nov) 30yr (hpa)

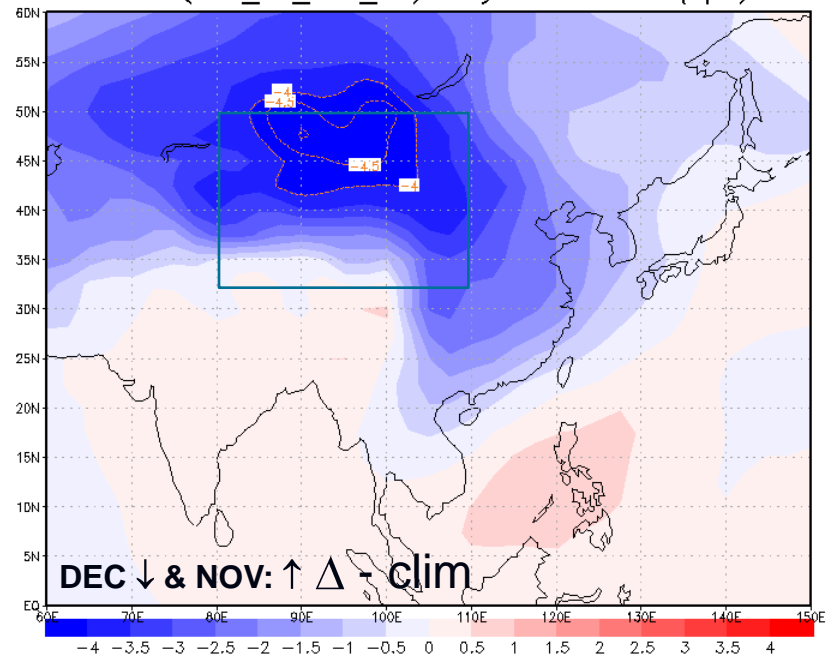


DEC ↓ & NOV ↑

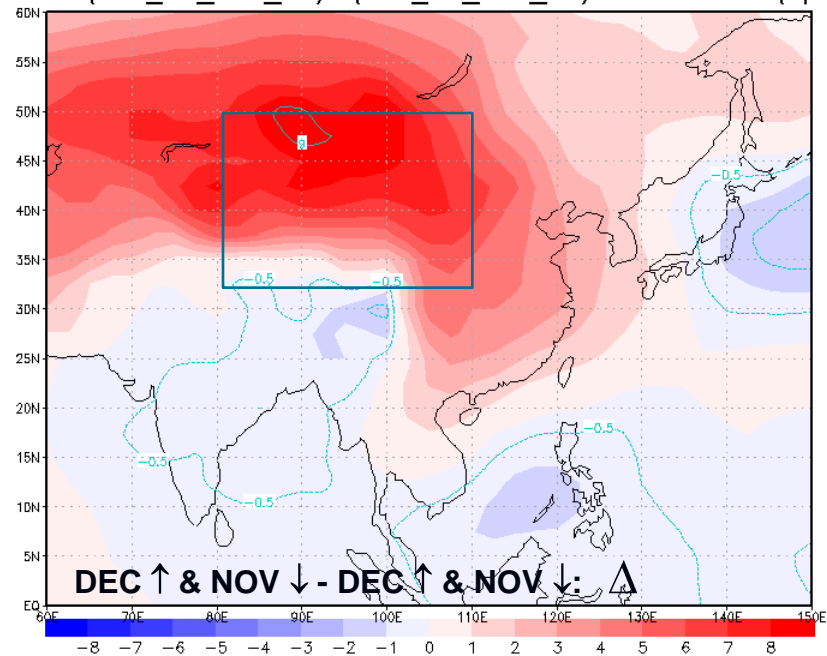
SMH (Dec\_an\_Nov\_bn)-30yr Dec-Nov (hpa)

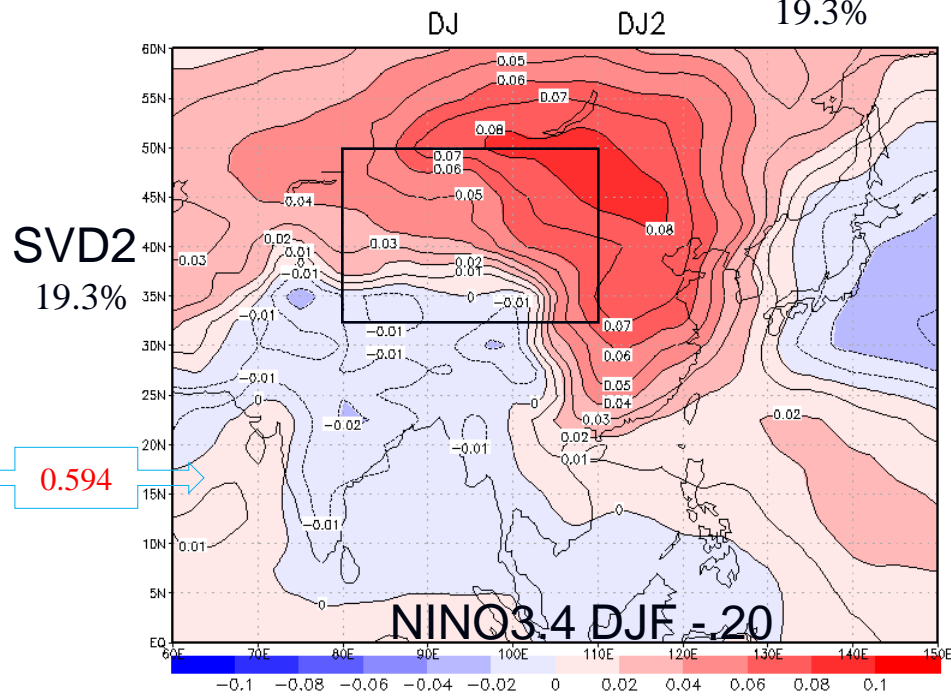
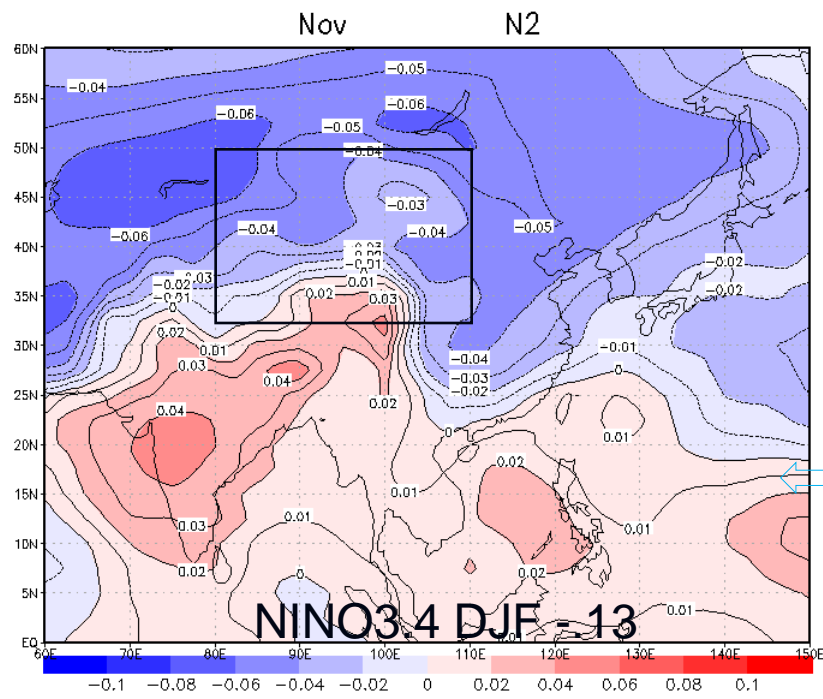
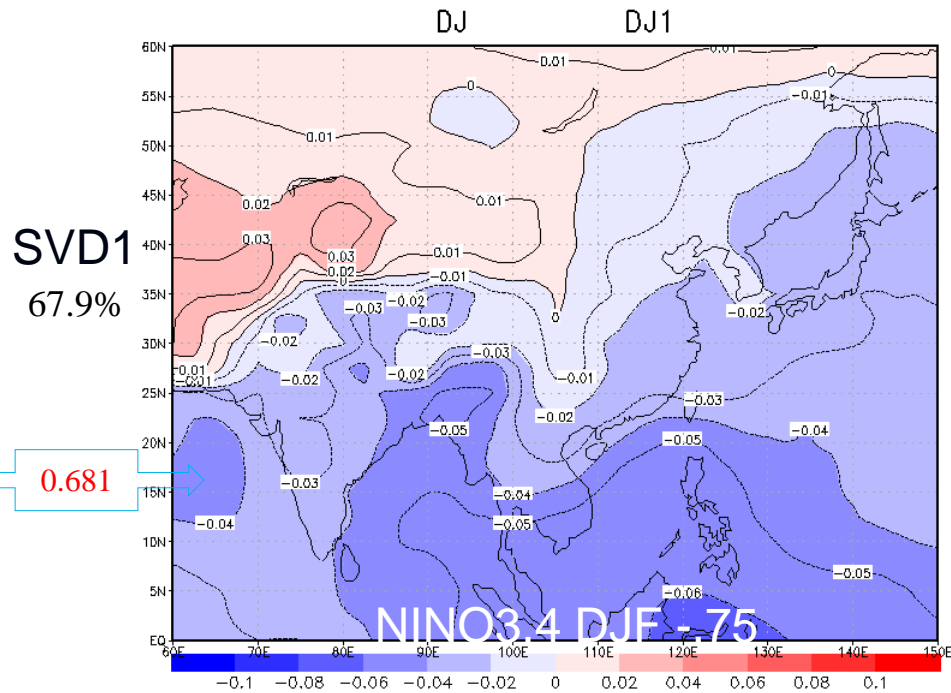
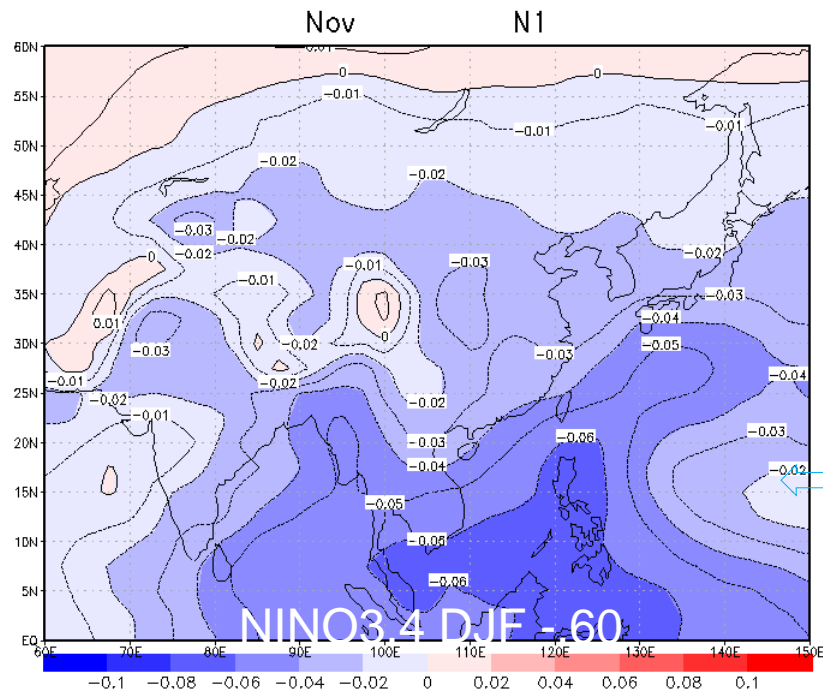


SMH (Dec\_bn\_Nov\_an)-30yr Dec-Nov (hpa)

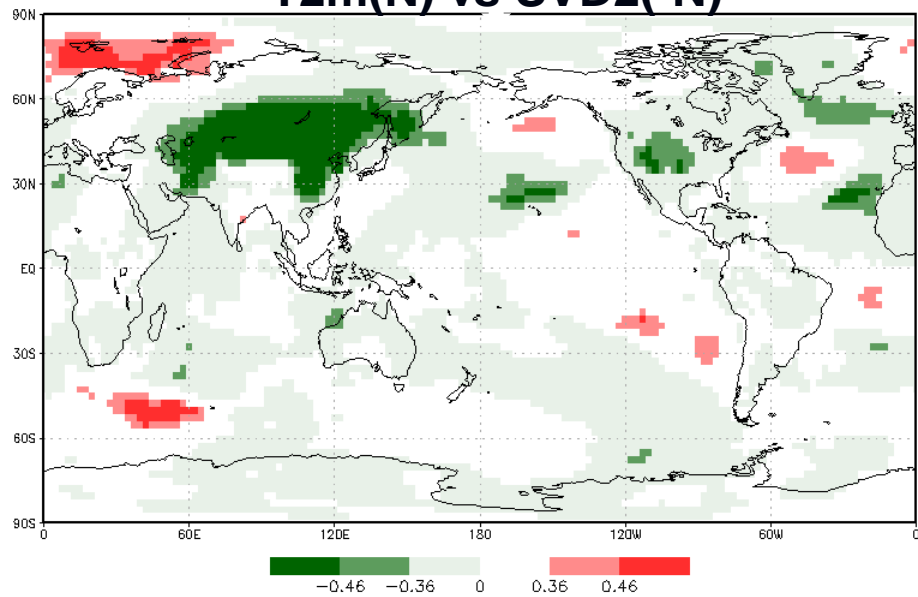


SMH (Dec\_an\_Nov\_bn)-(Dec\_bn\_Nov\_an) Dec-Novr (hpa)

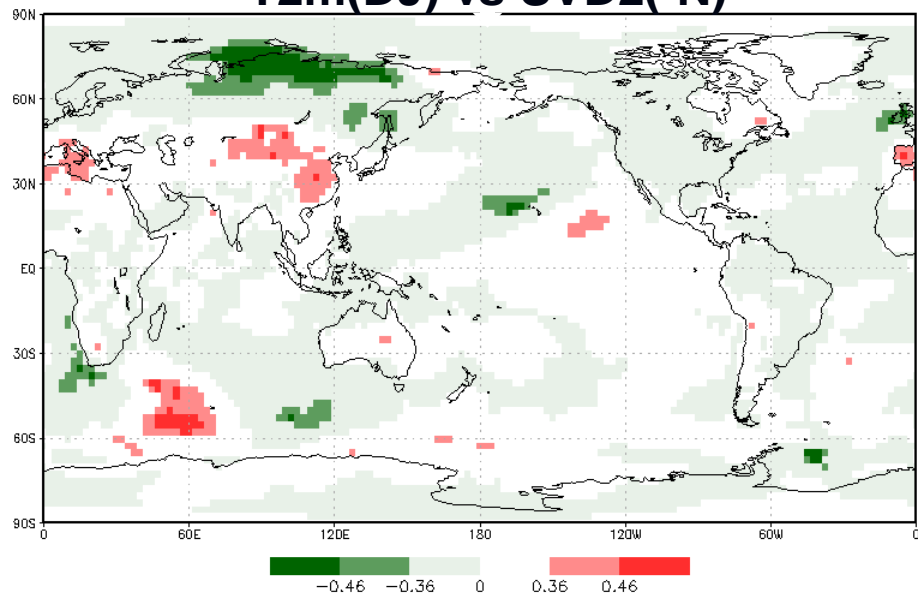




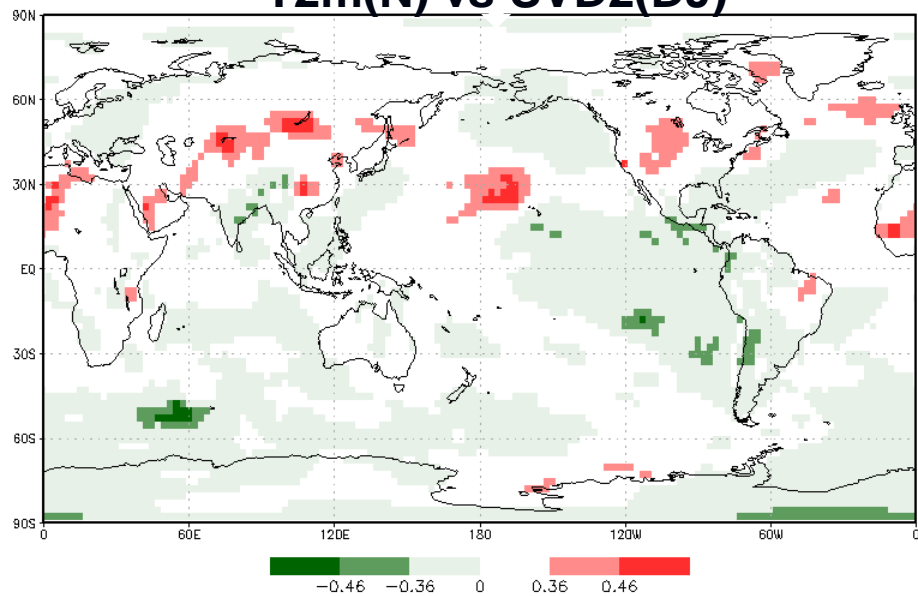
### T2m(N) vs SVD2(-N)



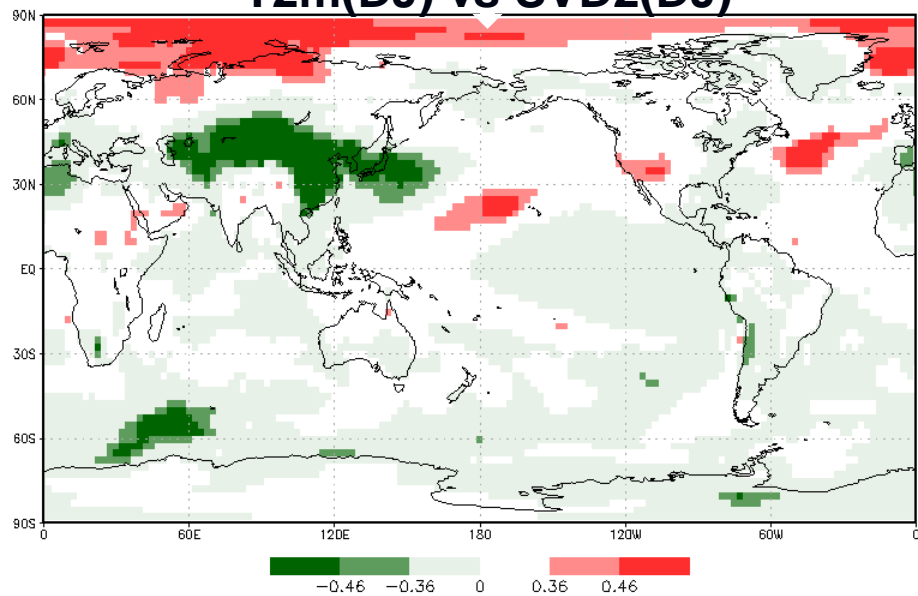
### T2m(DJ) vs SVD2(-N)



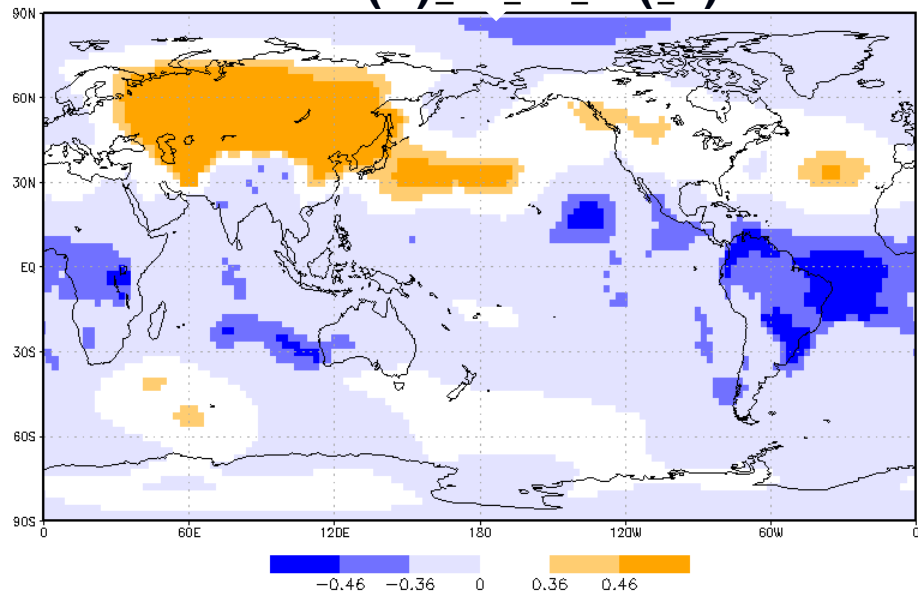
### T2m(N) vs SVD2(DJ)



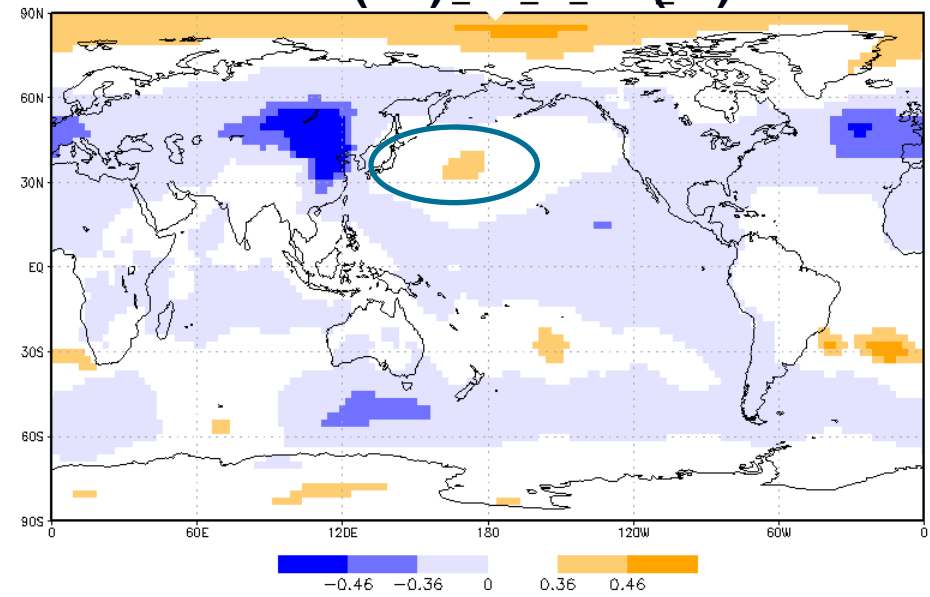
### T2m(DJ) vs SVD2(DJ)



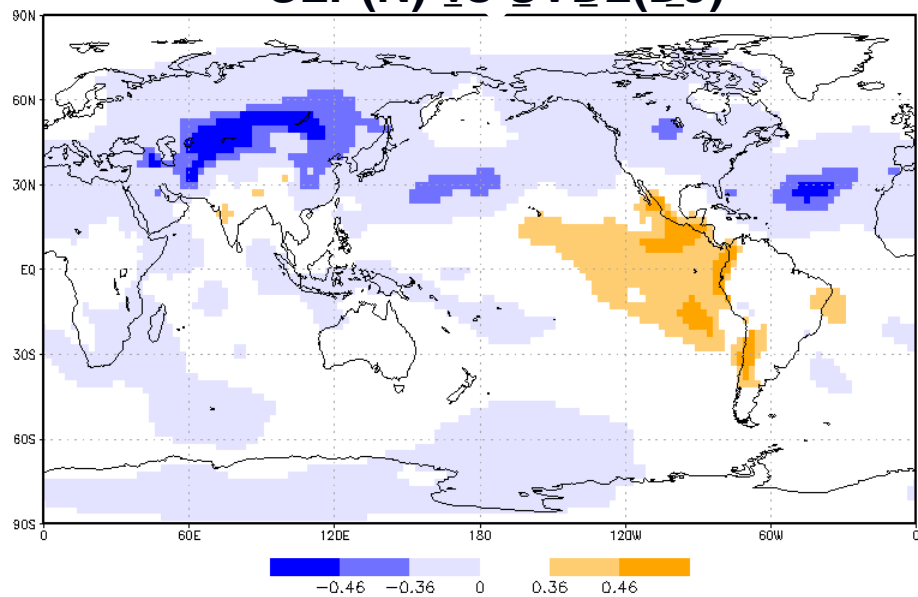
### SLP(N) vs SVD2(-N)



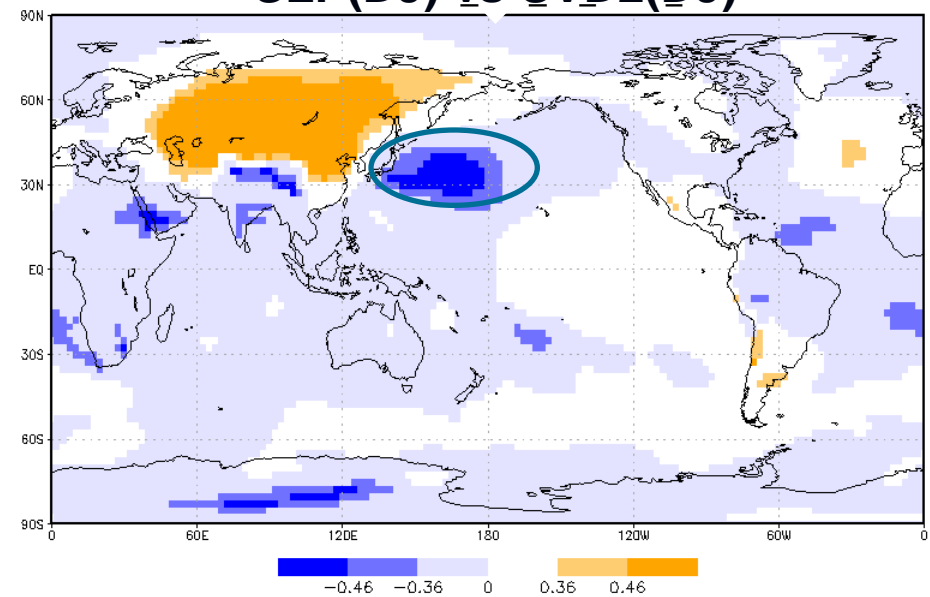
### SLP(DJ) vs SVD2(-N)



### SLP(N) vs SVD2(DJ)



### SLP(DJ) vs SVD2(DJ)



# Summary

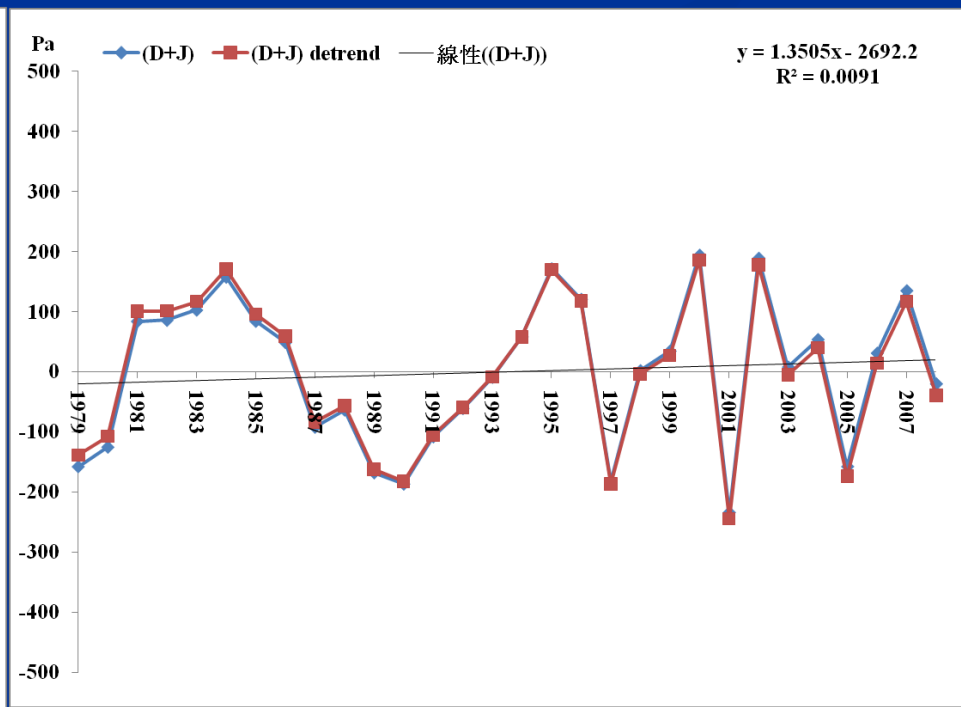
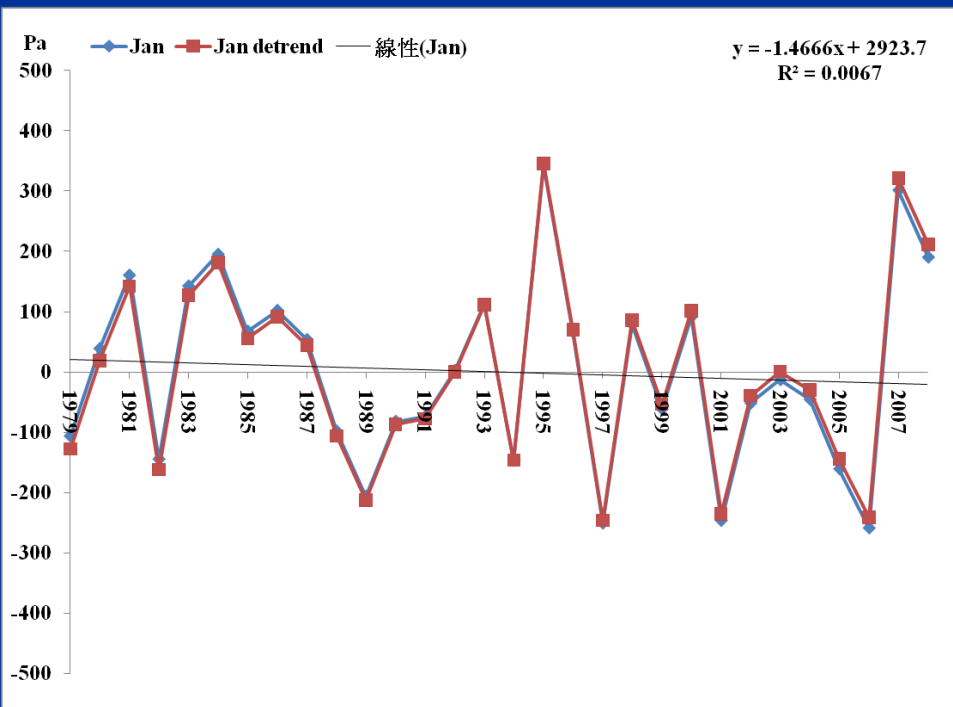
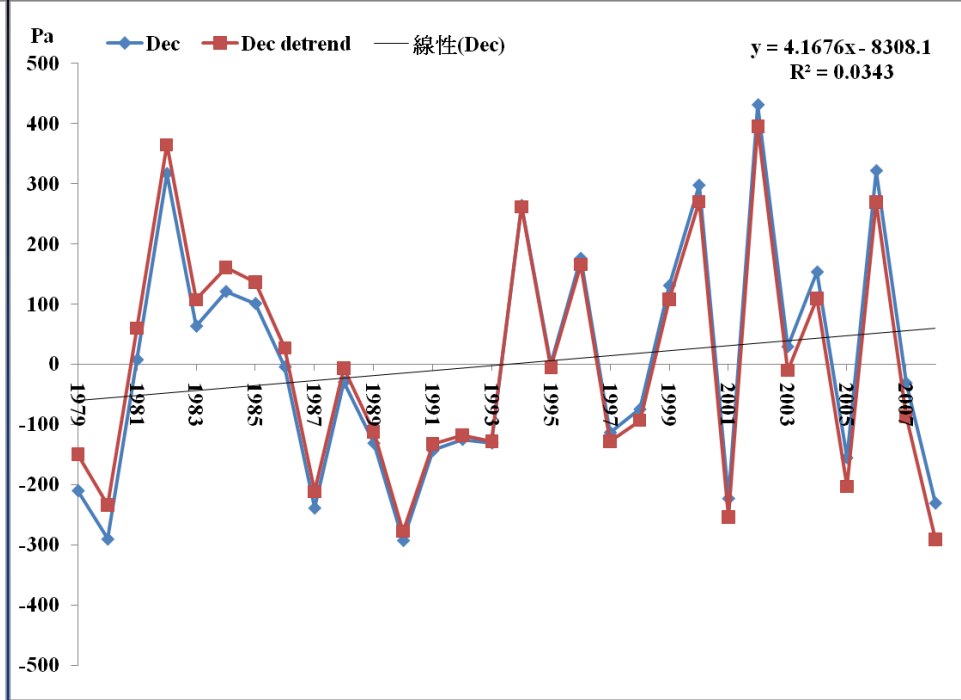
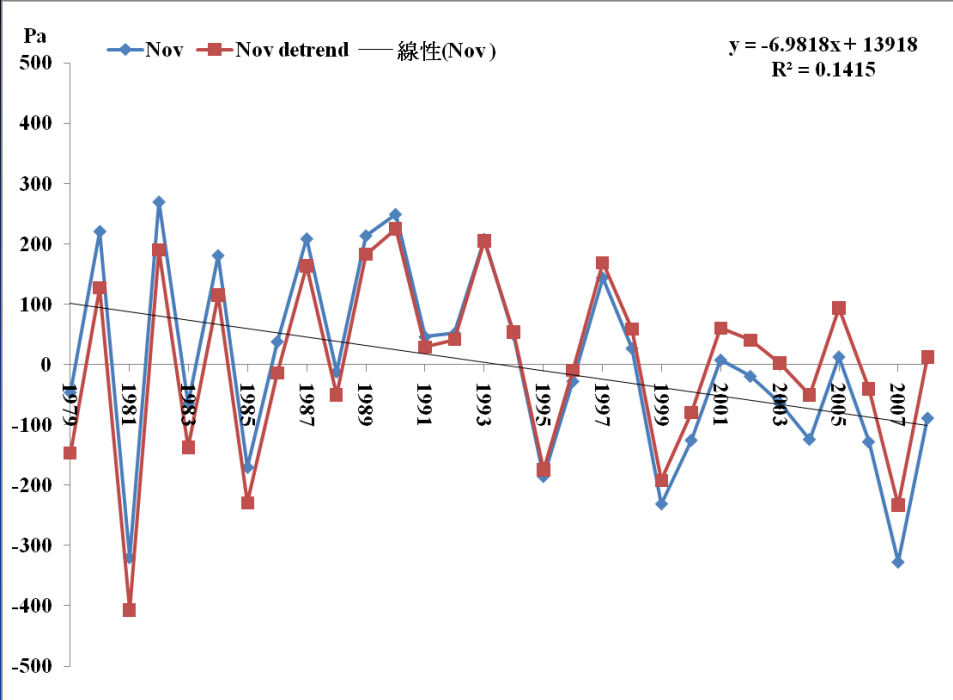
- SMH anomalies tend to change sign as the season transitions from NOV to DEC & JAN in the last 25-30 years.
- Effect shows up on cold surge track from eastern China and Korea southward to southern China coast.
- SVD2 not related to ENSO.
- Central Asia snow storms? Effect of Global warming?
- A perfect NDJ seasonal forecast will have little use for November, and may degrade December and January forecasts.

**Thanks!**

# MH (anomaly)

1979-2008					
	Oct	Nov	Dec	Jan	D+J
Oct	1				
Nov	.11	1			
Dec	-.05	-.30	1		
Jan	.10	-.37	-.03	1	
D+J	.03	-.47	.77	.61	1

1985-2008 (24 y)					
	Oct	Nov	Dec	Jan	D+J
Oct	1				
Nov	.13	1			
Dec	-.13	-.49	1		
Jan	.21	-.41	-.04	1	
D+J	.04	-.65	.76	.62	1



1979-2008					
	Oct	Nov	Dec	Jan	D+J
Oct	1				
Nov	.11	1			
Dec	-.05	-.30	1		
Jan	.10	-.37	-.03	1	
D+J	.03	-.47	.77	.61	1

1979-2008 detrended					
corr.	Oct	Nov	Dec	Jan	D+J
Oct	1				
Nov		1			
Dec		-.25	1		
Jan		-.43		1	
D+J		-.47			1

