



The Eleventh Session of the East Asia Winter Climate Outlook Forum



Seasonal outlook for winter 2023/2024 over Mongolia

*Research Division of General circulation and Long range prediction
Information and Research Institute of Meteorology, Hydrology
and Environment, MONGOLIA*

6-8 November 2023

Content

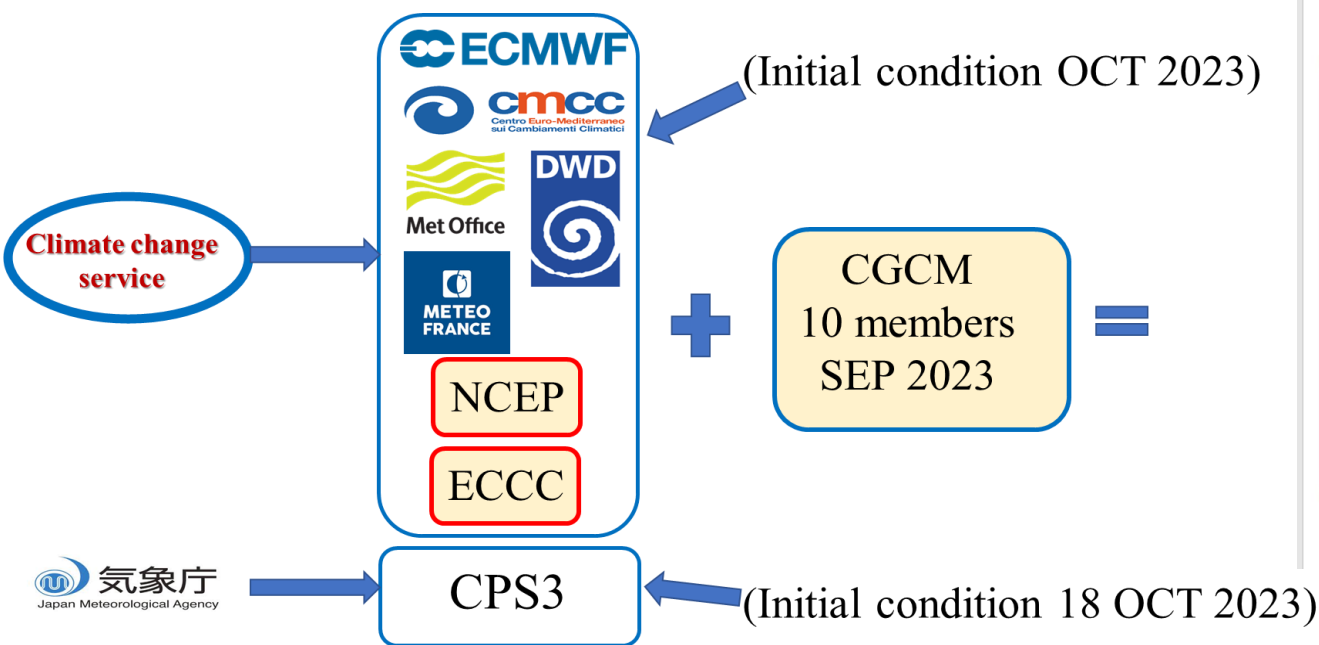
- Used models and Multi-model ensemble system (MME)
- Statical analyze and Prediction of large scale index

- Outputs of dynamical models

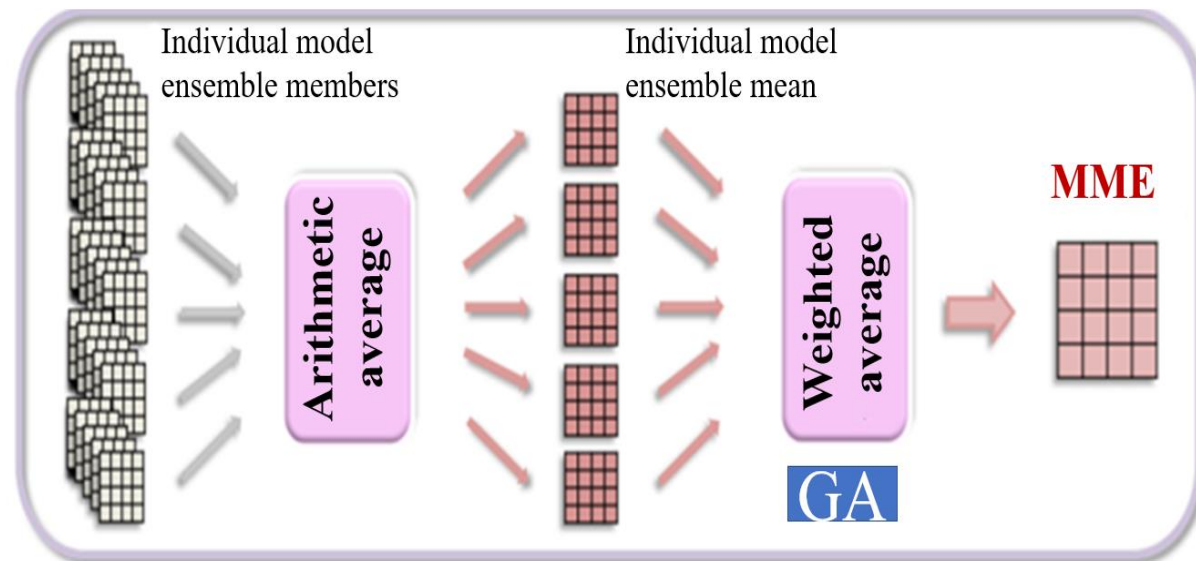
- Outlook for 2023/24 winter

Used models and Multi-model ensemble system (MME)

Used models

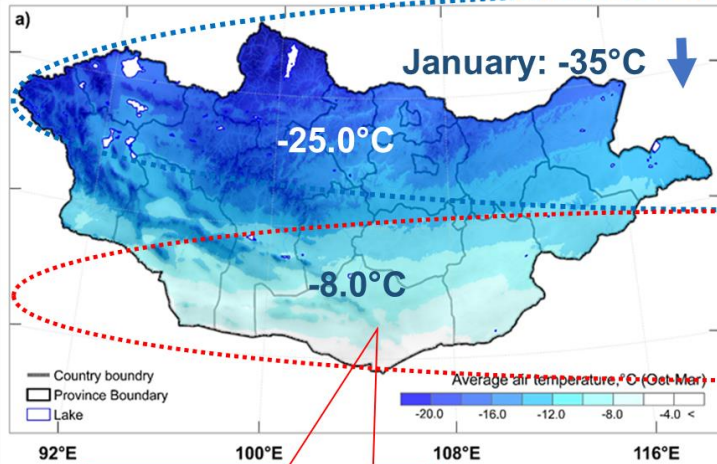


Multi-model ensemble system (MME)



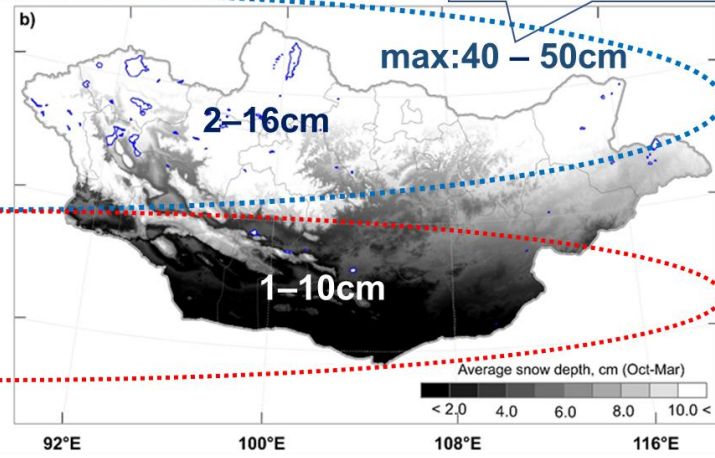
➤ Statistical analyze and Prediction of large scale index

Average air temperature (AT₁₀₋₃)



South region

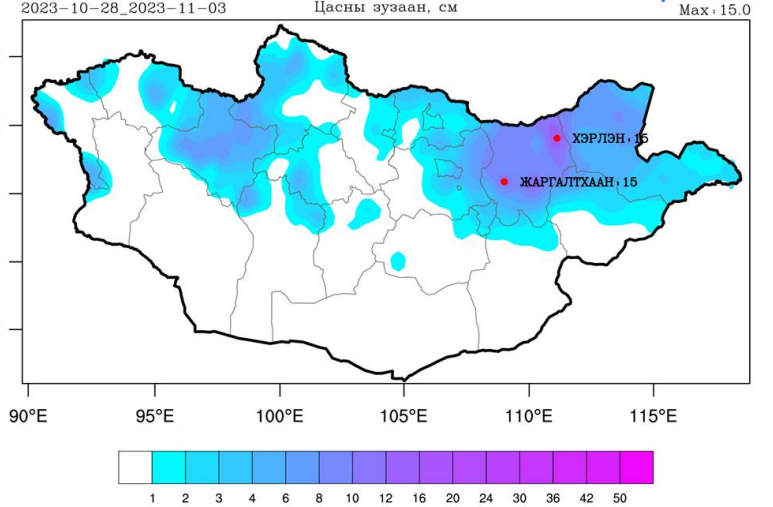
Average snow depth (SD₁₀₋₃)



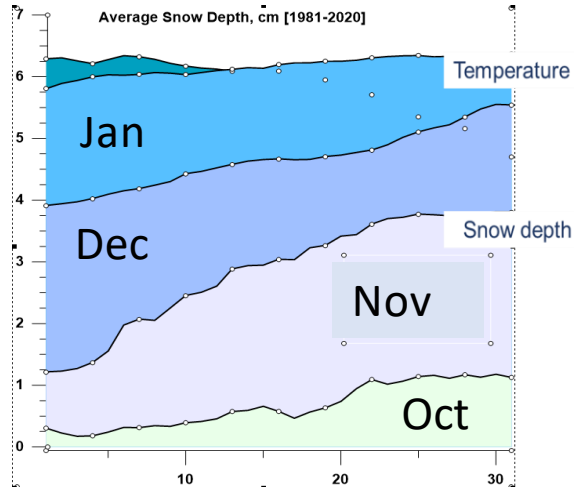
North region

60% of land is covered with snow during cold season

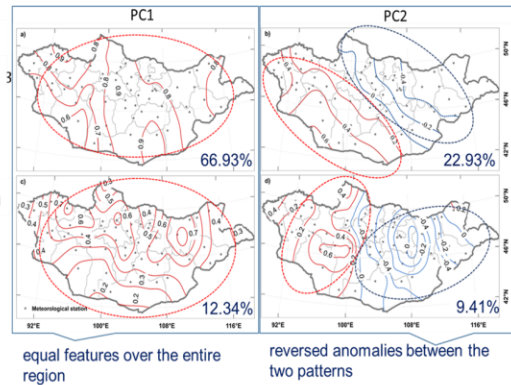
The current condition of snow depth
The current condition of snow depth



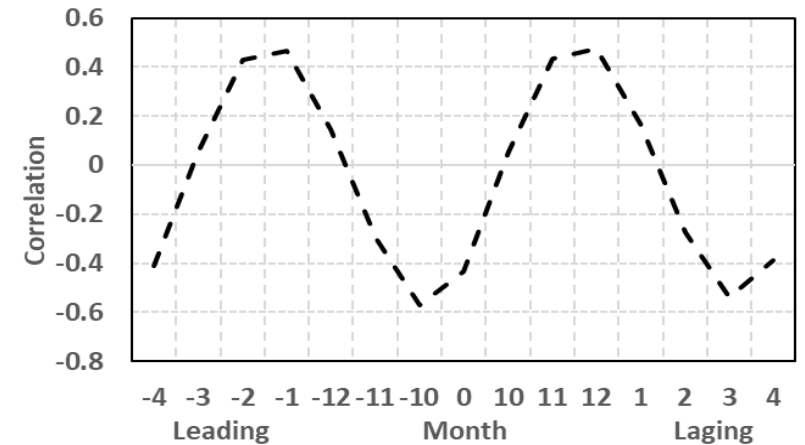
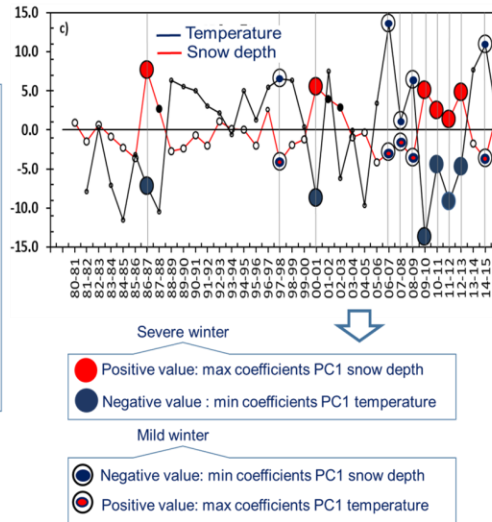
The average monthly of SD (1981-2020)



Special pattern of coefficients temperature and snow

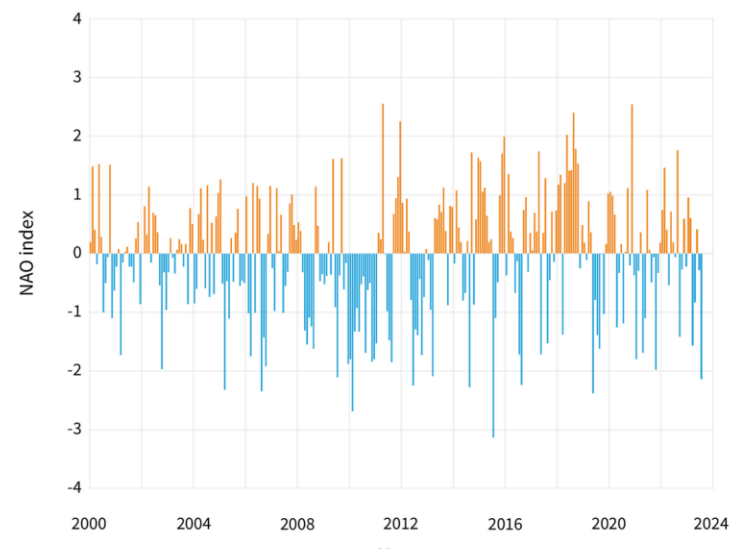
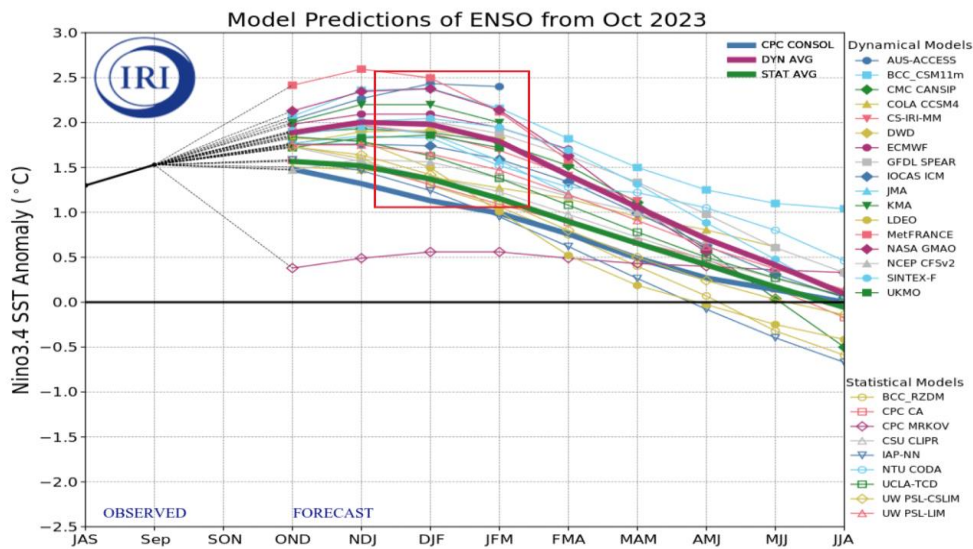
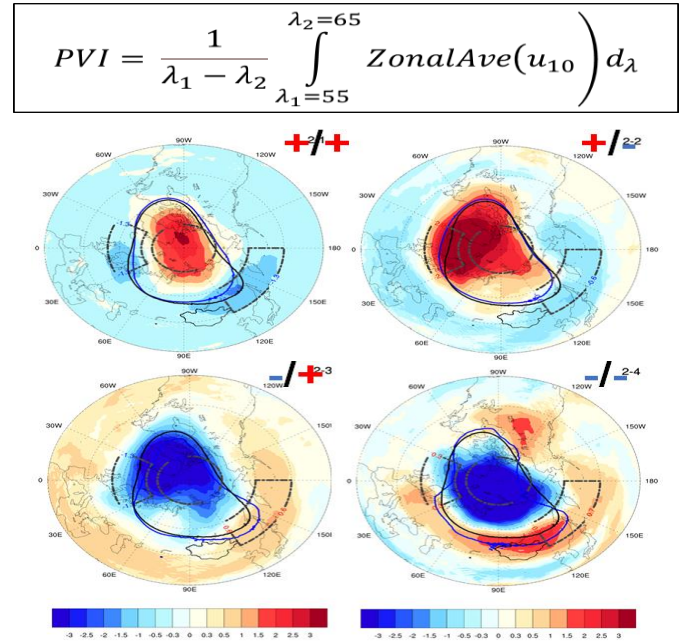
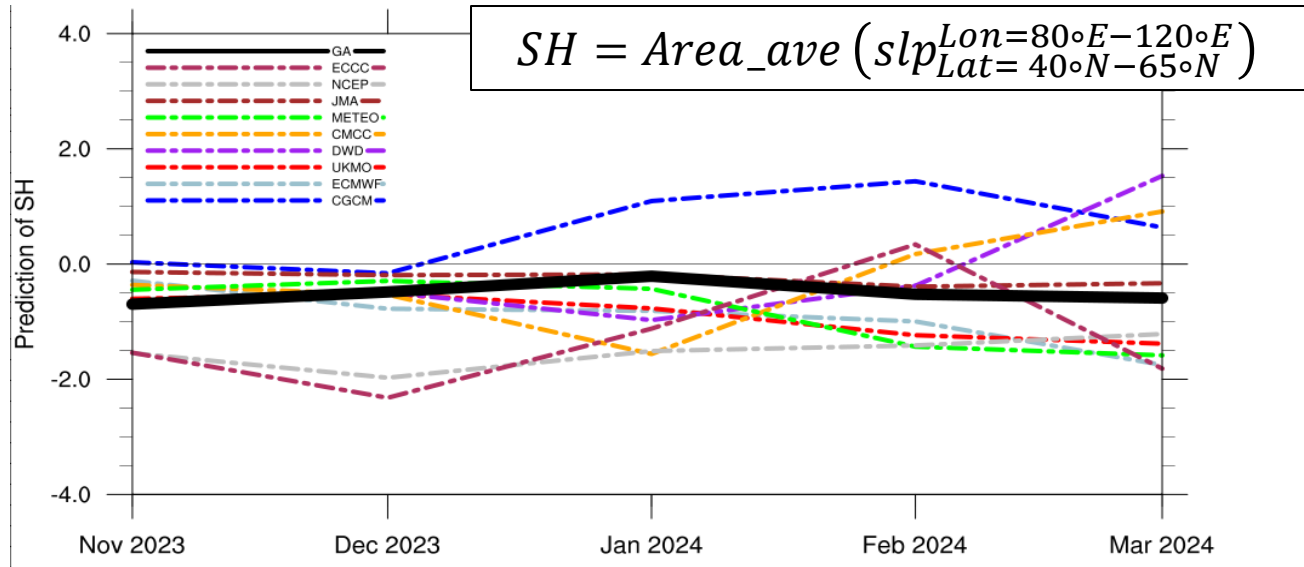


Inter-annual variation of first coefficients



Mongolia: Snow depth characterized by a maximum value of lag correlation of 0.48 (p<0.05; with lags of 1.5 months) with air temperature

➤ Statistical analyze and Prediction of large-scale index



Outputs of dynamical models - Multi-model ensemble system (MME)

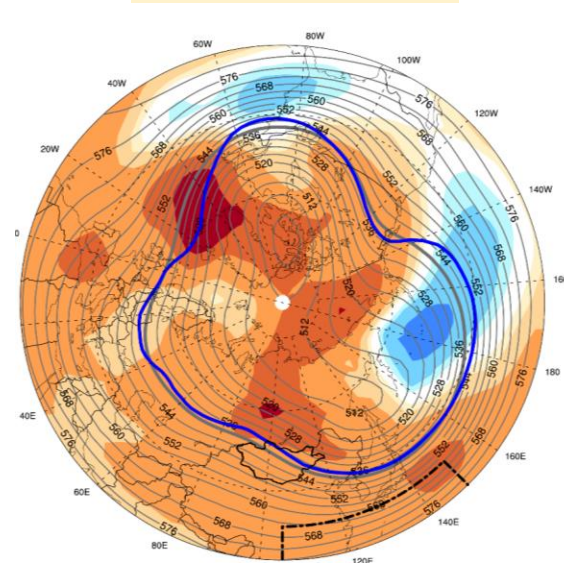
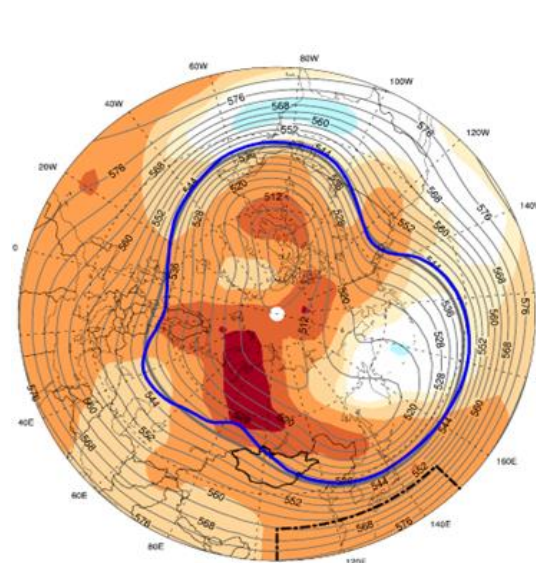
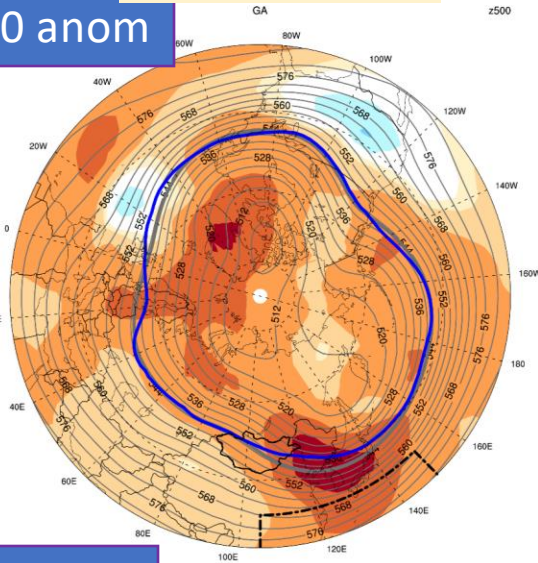
Dec, 2023

Jan, 2024

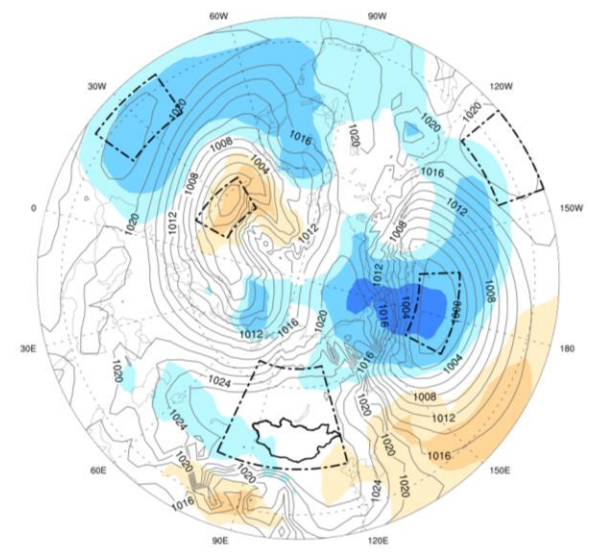
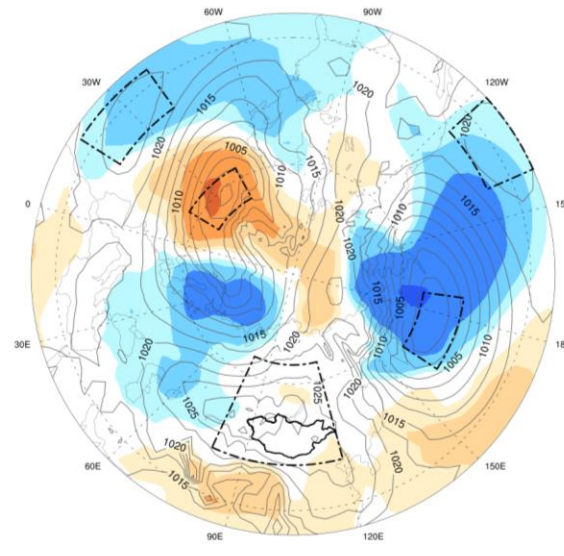
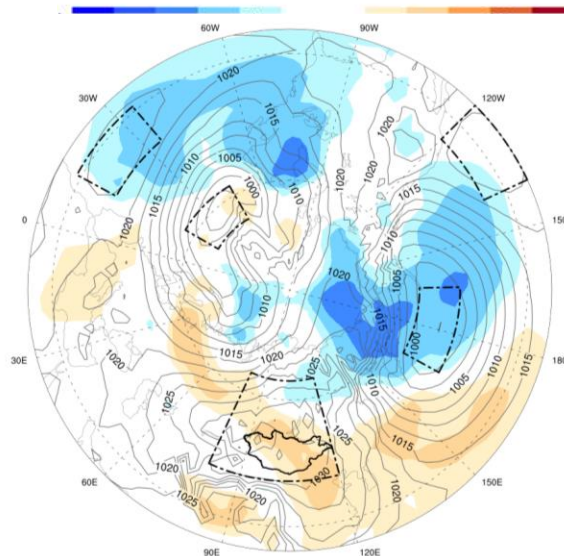
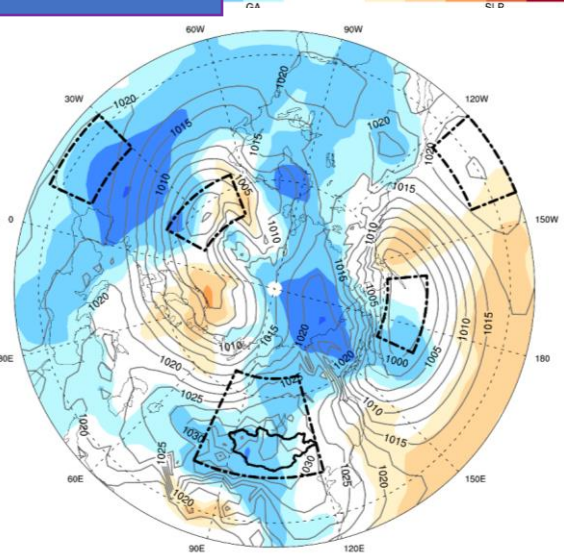
Feb, 2024

DJF, 2023-2024

z500 anom



SLP anom.



Outputs of dynamical models - Multi-model ensemble system (MME)

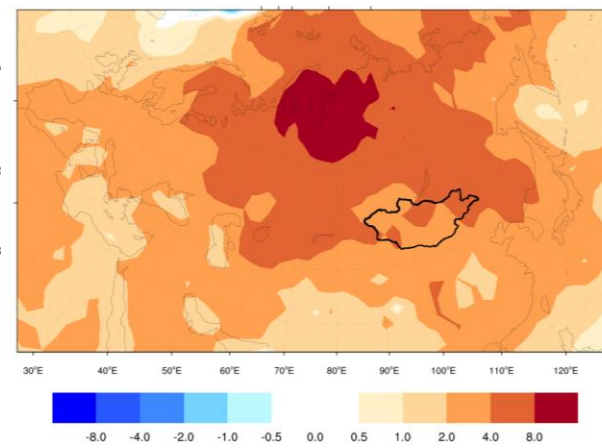
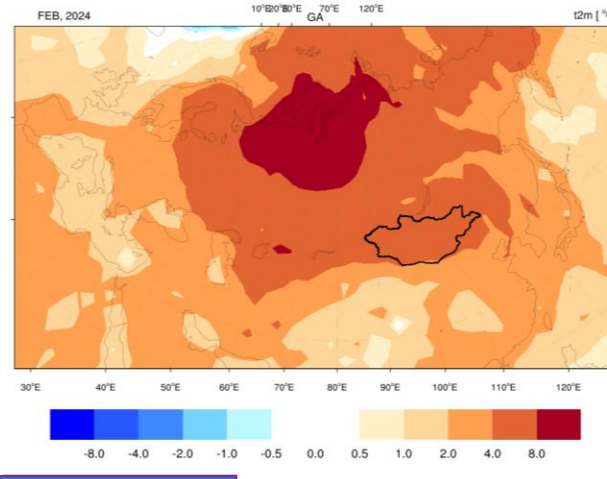
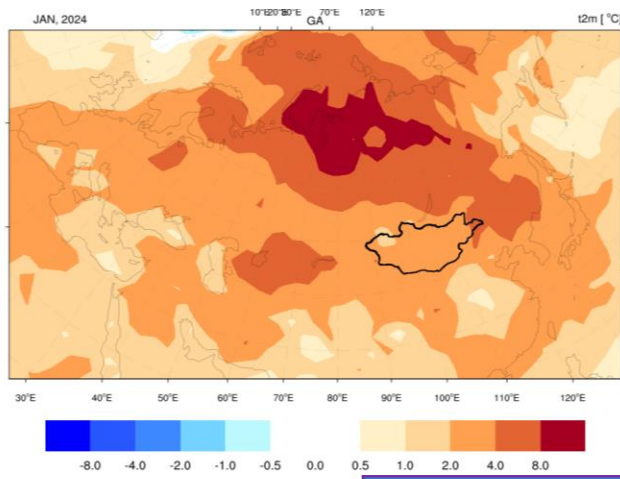
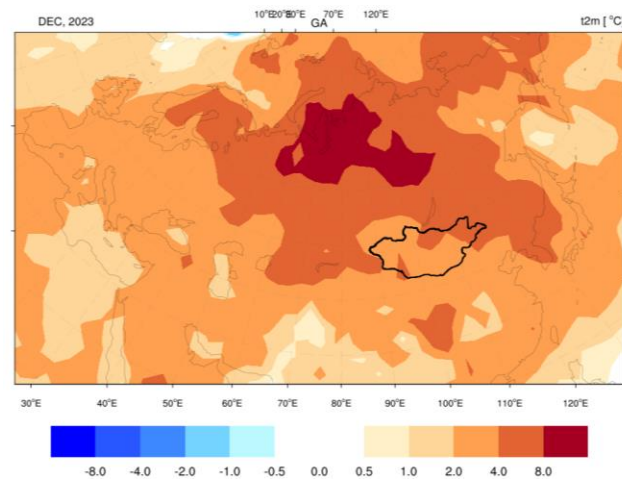
Dec, 2023

Jan, 2024

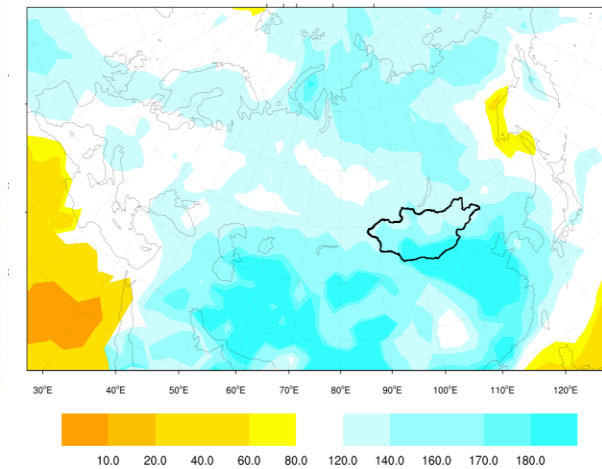
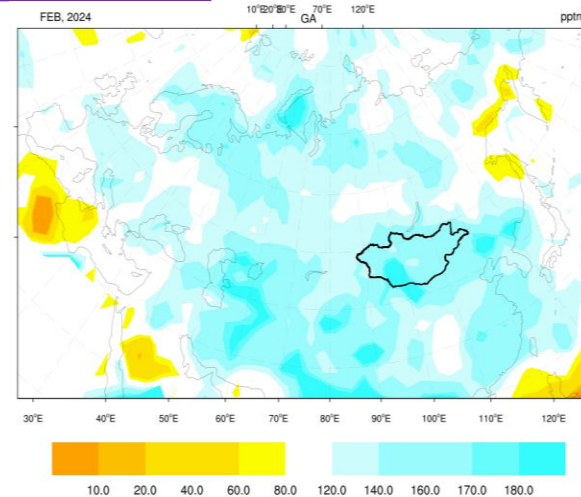
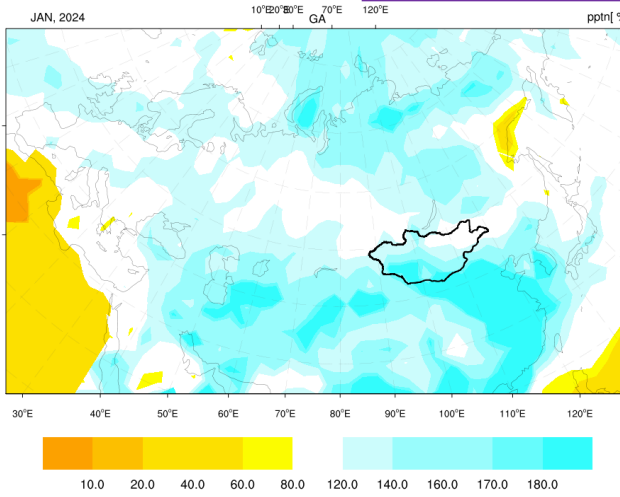
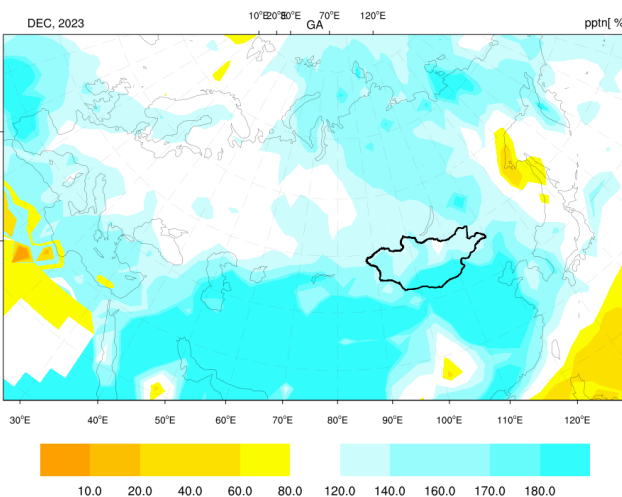
Feb, 2024

DJF, 2023-2024

Temperature anom, [°C]

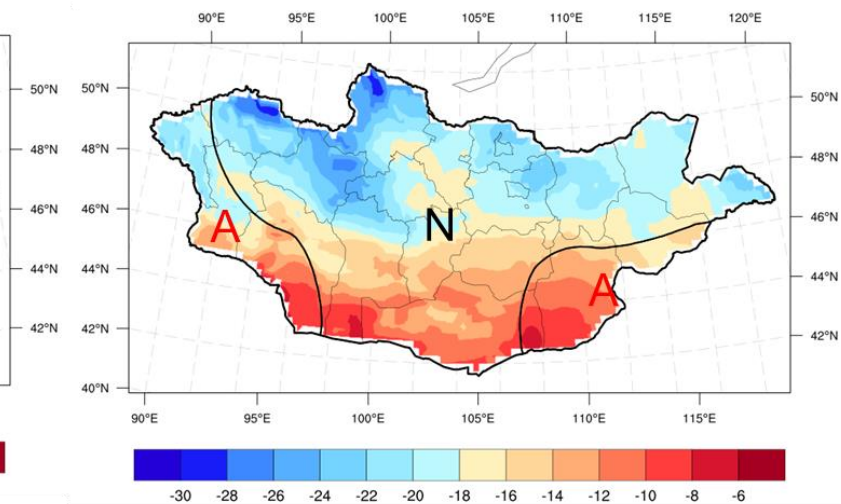
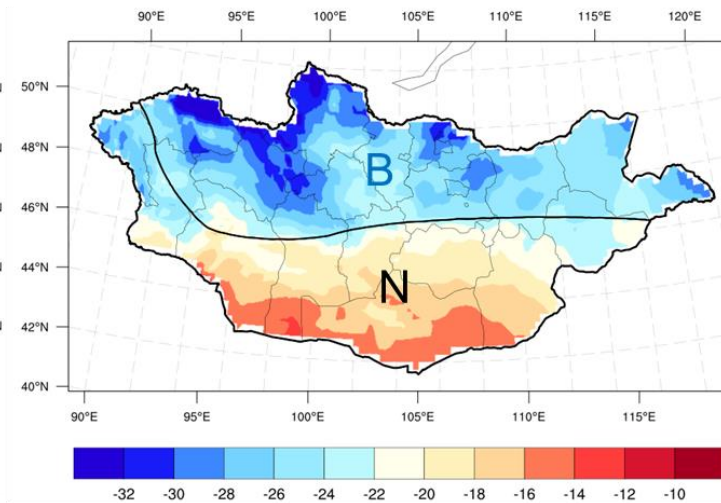
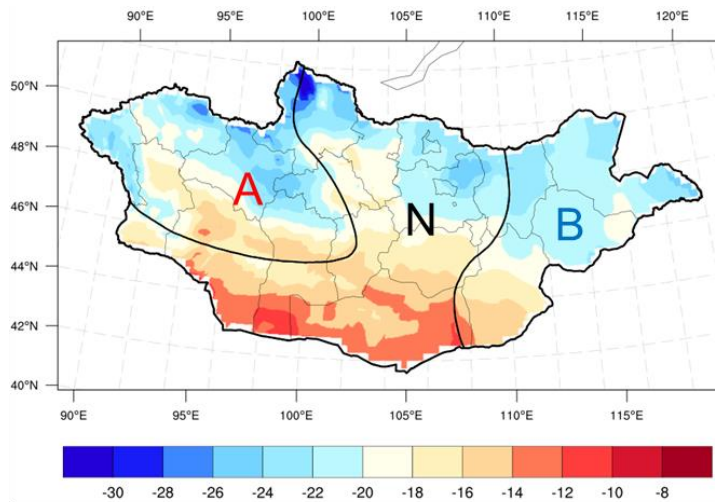


Precipitation anom, [%]

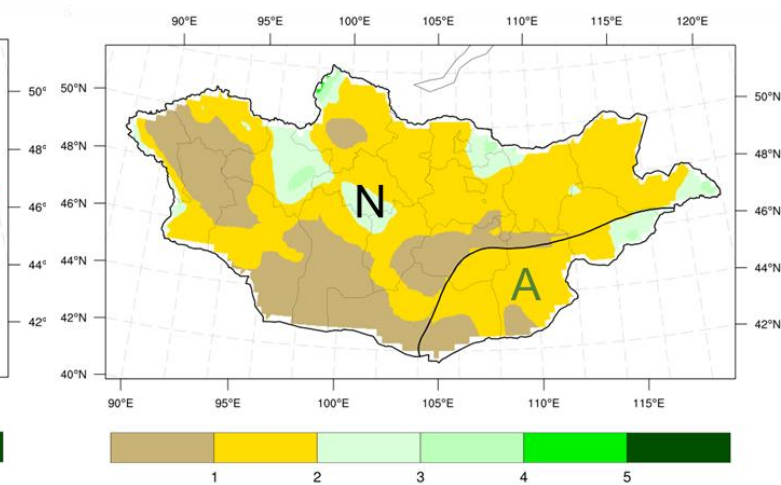
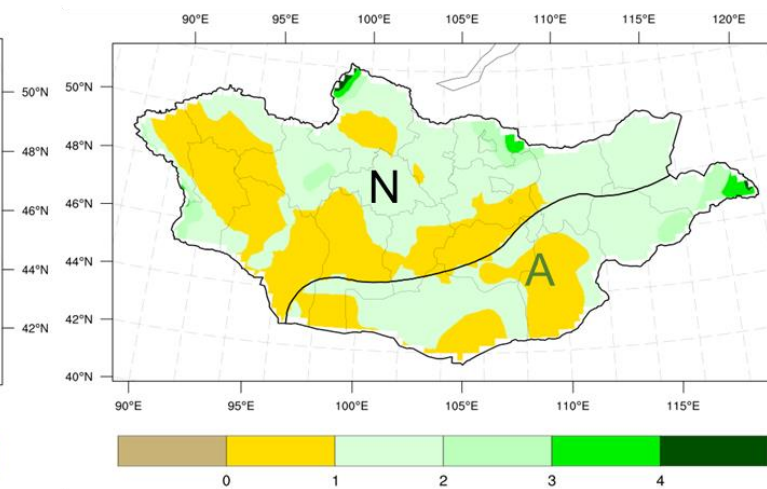
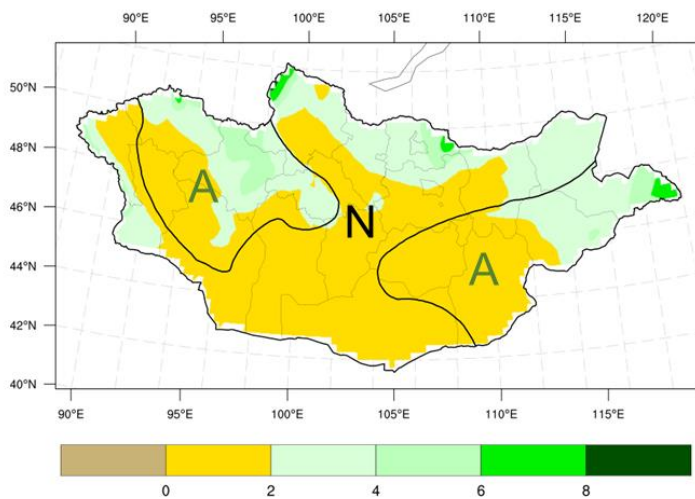


Outlook for 2023/24 winter

Temperature anom, []



Precipitation anom, [%]



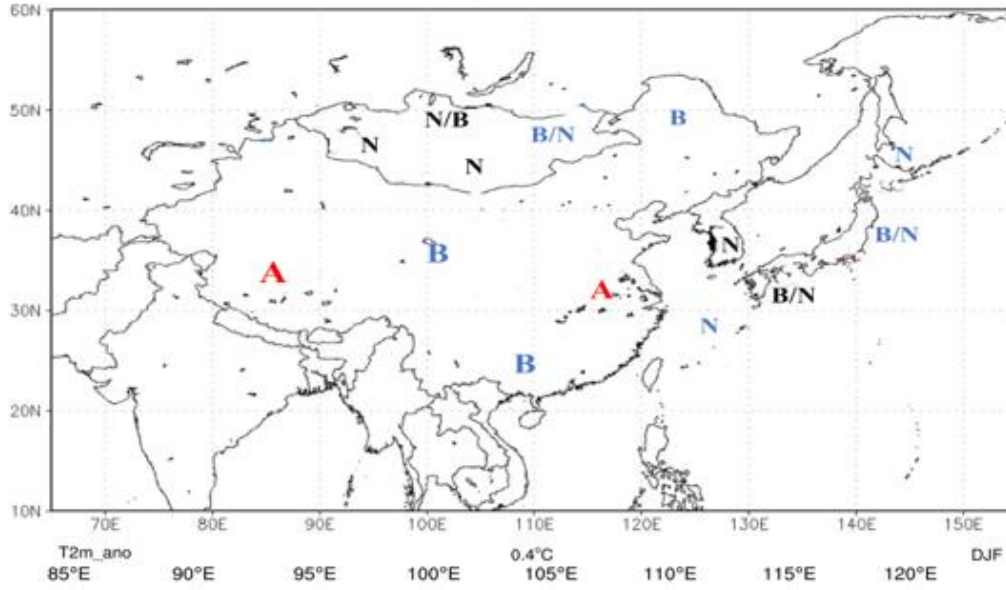
Outlook for 2023-2024 winter

	WEST	CENTER	EAST	GOBI
TEMPERATURE				
December	A	N	B	N/B
January	B/N	B	B	N
February	A/N	N	N	N/A
DJF	N/A	N/B	B/N	N
PRECIPITATION				
December	A/N	N	A/N	A
January	N	N	N/A	A
February	N	N		A
DJF	N	N	A/N	A

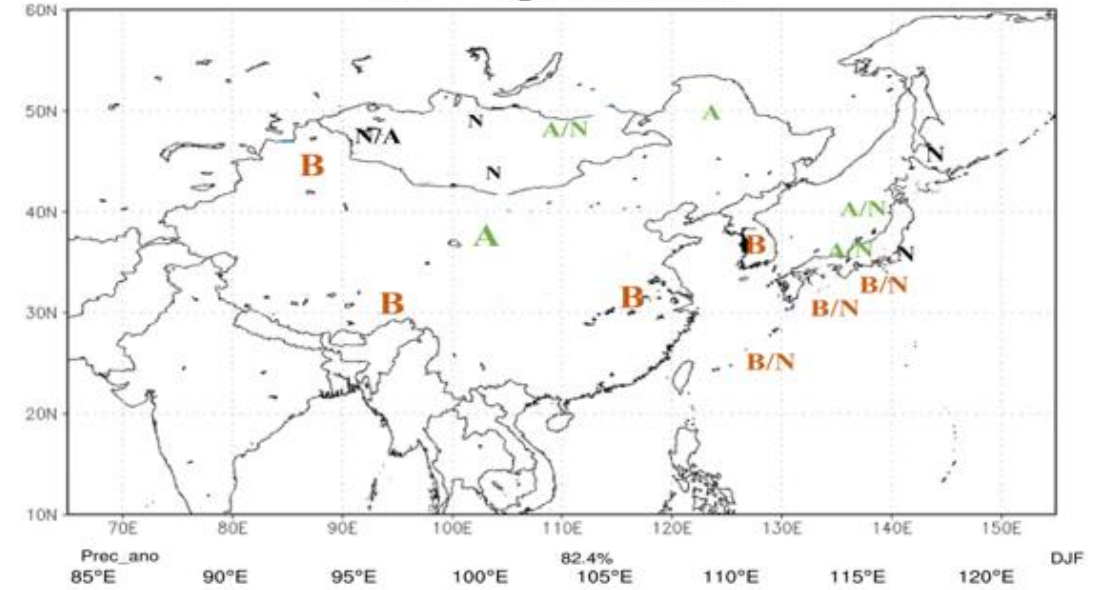
How was last winter forecast? (2022/23)

Prediction

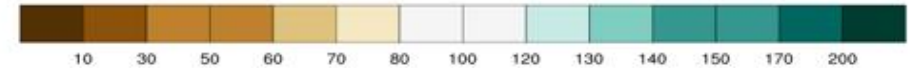
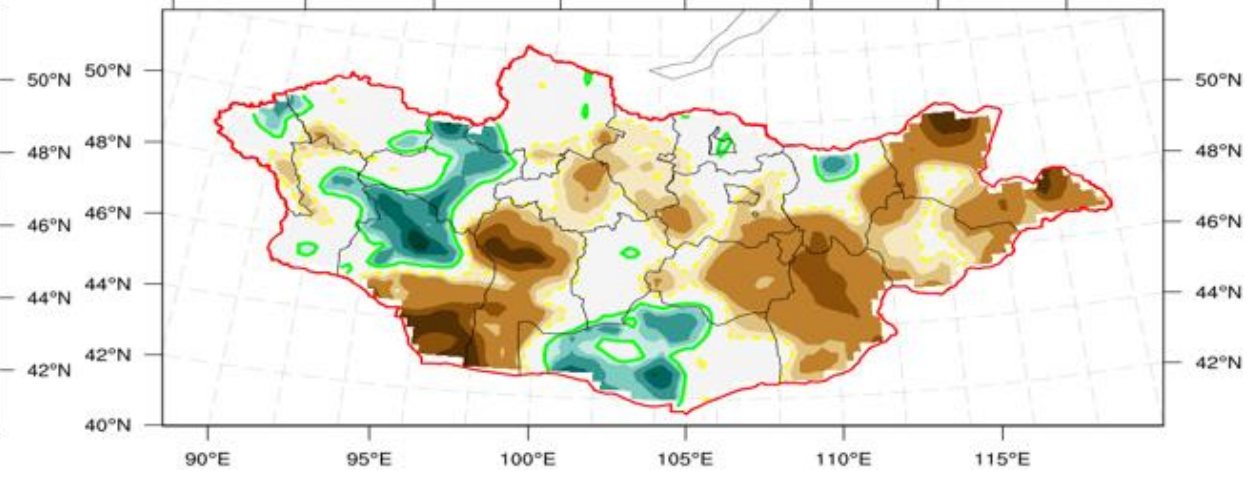
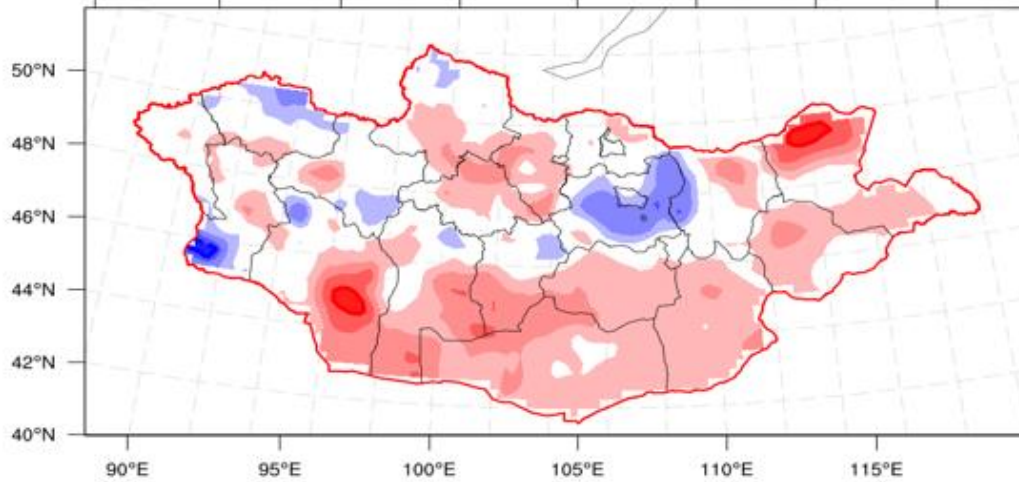
Temperature



Precipitation

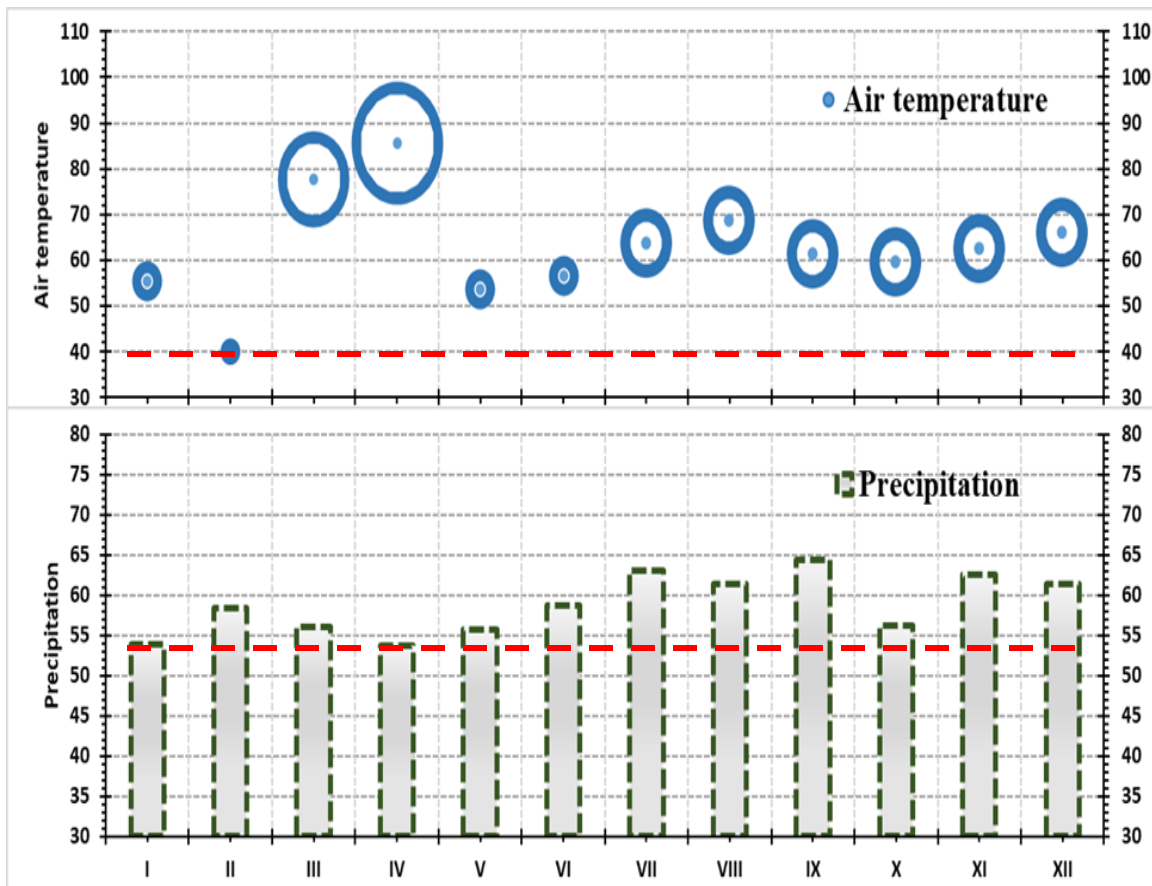


Observation

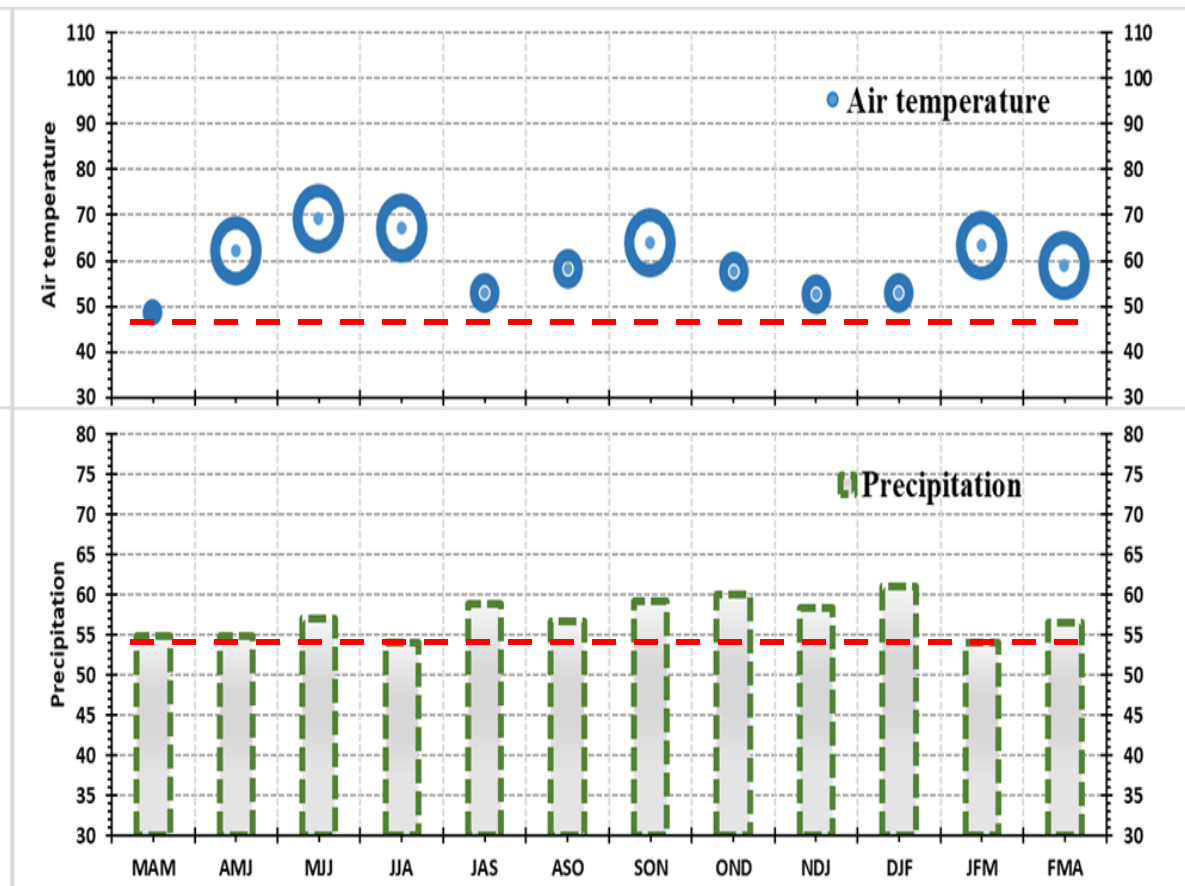


The average accuracy of the last 5 years

Monthly forecast



Seasonal outlook



The average accuracy of the last 5 years, the air temperature of monthly and seasonal forecasts generated for the territory of Mongolia using the dynamic and statistical models is 60-75% for monthly forecast, but 50-70% for the seasonal outlook.



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Thank you

