Seasonal Climate Outlook for Winter 2025/2026

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Beijing Climate Centre/China Meteorological Administration

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Outline

1. Output of the 13th EASCOF

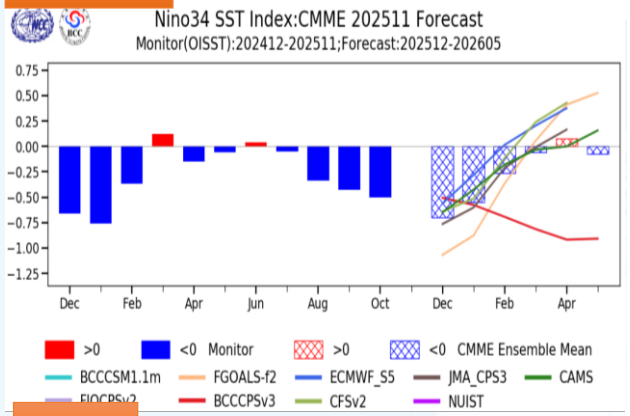
2. Impact of forcing factors on winter

3. Outlook for climate over TP

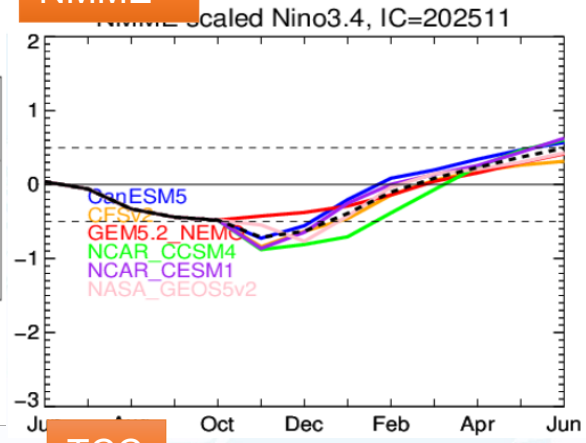
- The Thirteen Session of the East Asia winter Climate Outlook Forum (EASCOF-13) was the forum brought together long-range forecasters and climate experts from CMA, JMA, NAMEM, KMA within the WMO Regional Association II (RA II).
- Participants shared knowledge and experiences on seasonal prediction techniques and discussed the seasonal outlook for the winter of 2025/2026.

<DJF 2025/26> ENSO outlook

CMME



NMME



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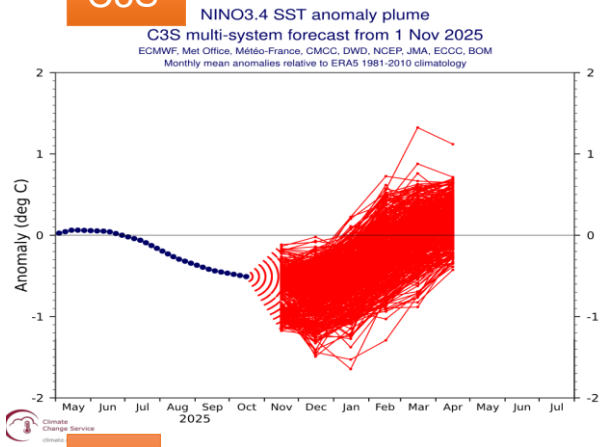

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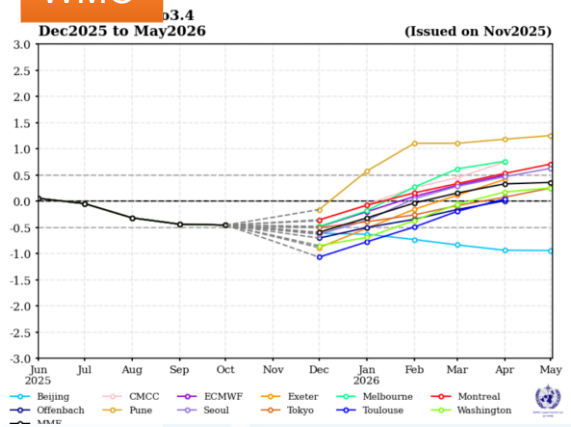

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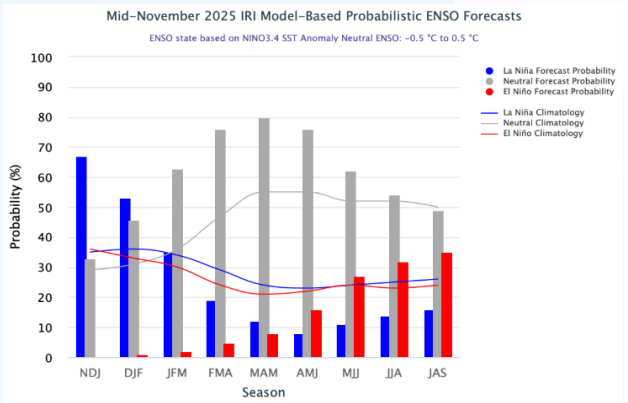
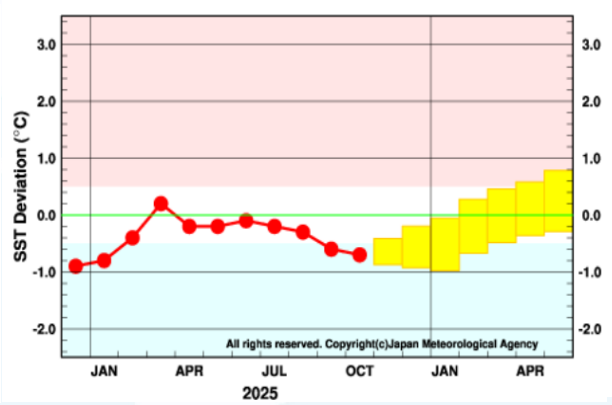
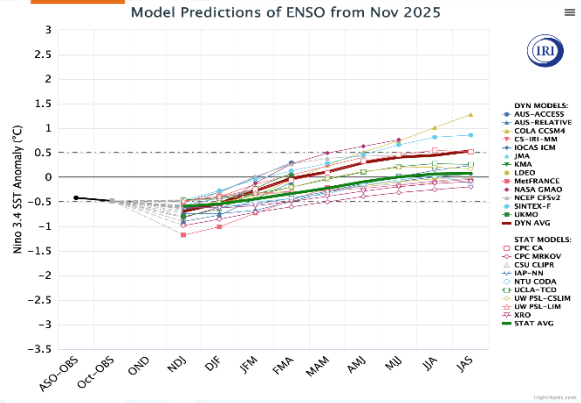


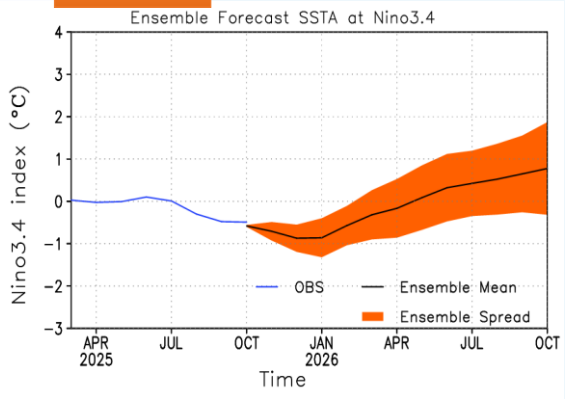
TCC



IRI



大气所



- The current La Niña-like conditions are expected to develop and persist through late 2025 and into early 2026.

<DJF 2025/26> Circulation fields

- The Siberian High is predicted to be around normal to slightly stronger.
- The Western North Pacific Subtropical High (WNPSH) is projected to be weaker than normal.
- The Arctic Oscillation (AO) is predicted to remain near-neutral to negative with significant uncertainty.
- The East Asian Trough is expected to be slightly stronger than normal in early winter.
- Based on the conclusion of the 13th EASCOF, the Third Pole region will show the characteristics of high temperature and less precipitation in the coming winter.

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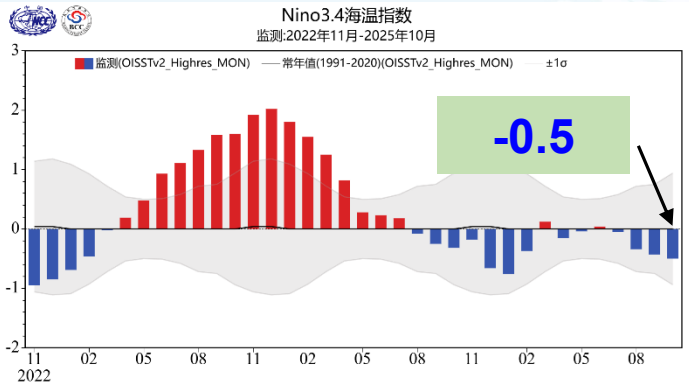
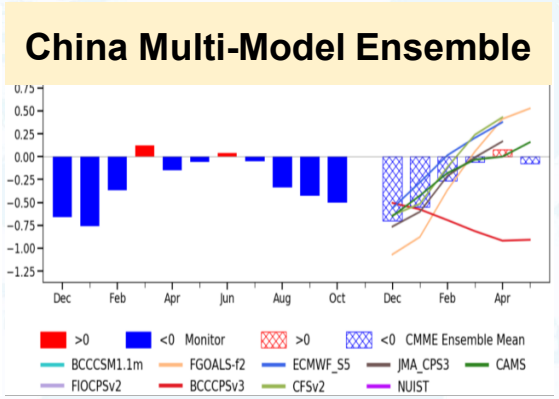
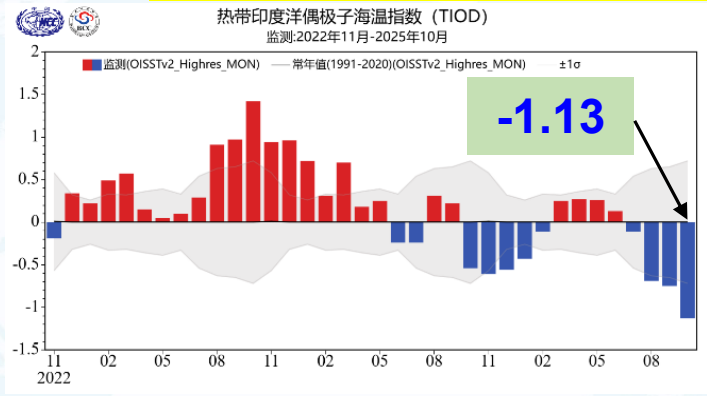
SST index

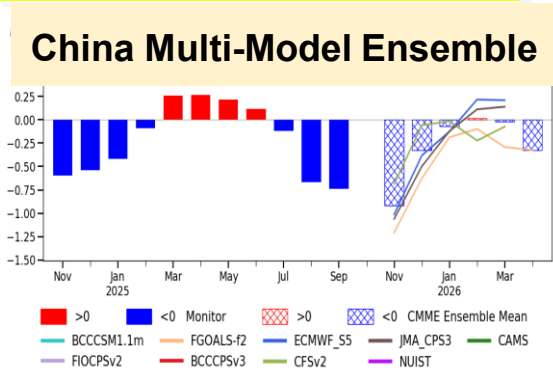
NINO3.4





Tropical Indian Ocean Dipole（TIOD）



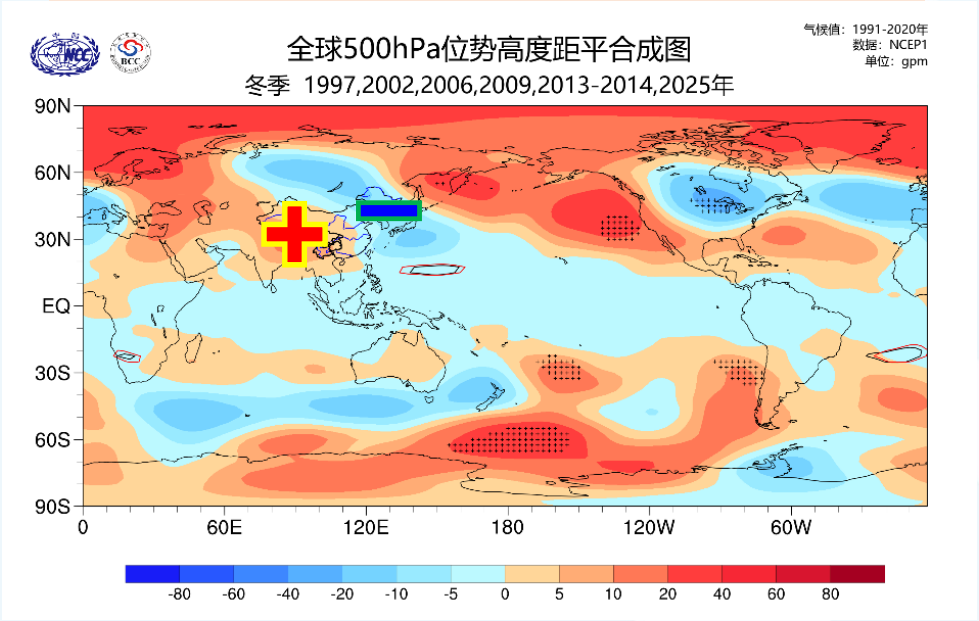


- The Nino3.4 and TIOB are two significant signals of the October ocean.

Impact of ENSO and TIOD

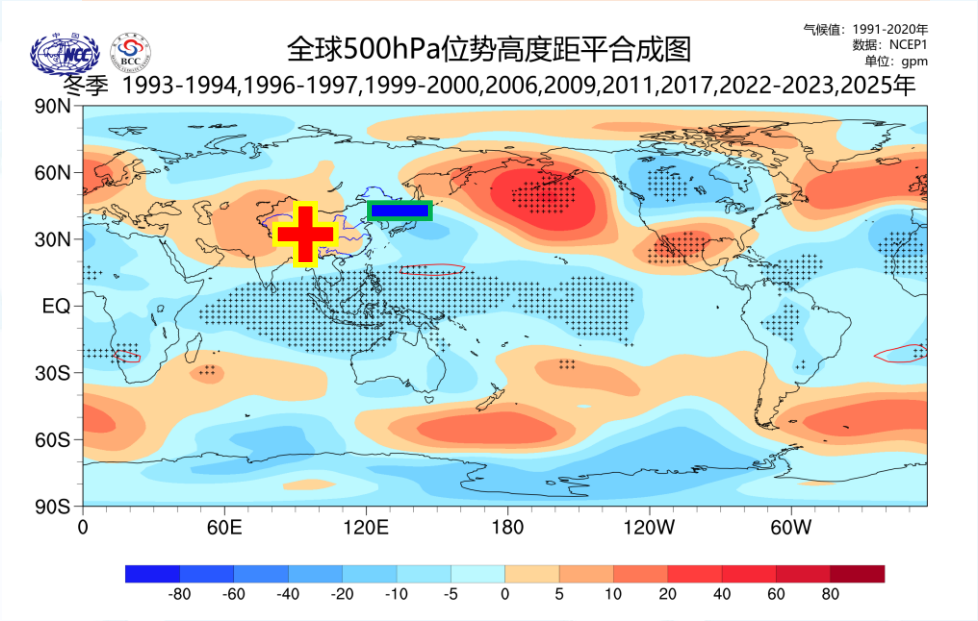
Composite of GH500 in DJF

(LANINA Conditons Winters)



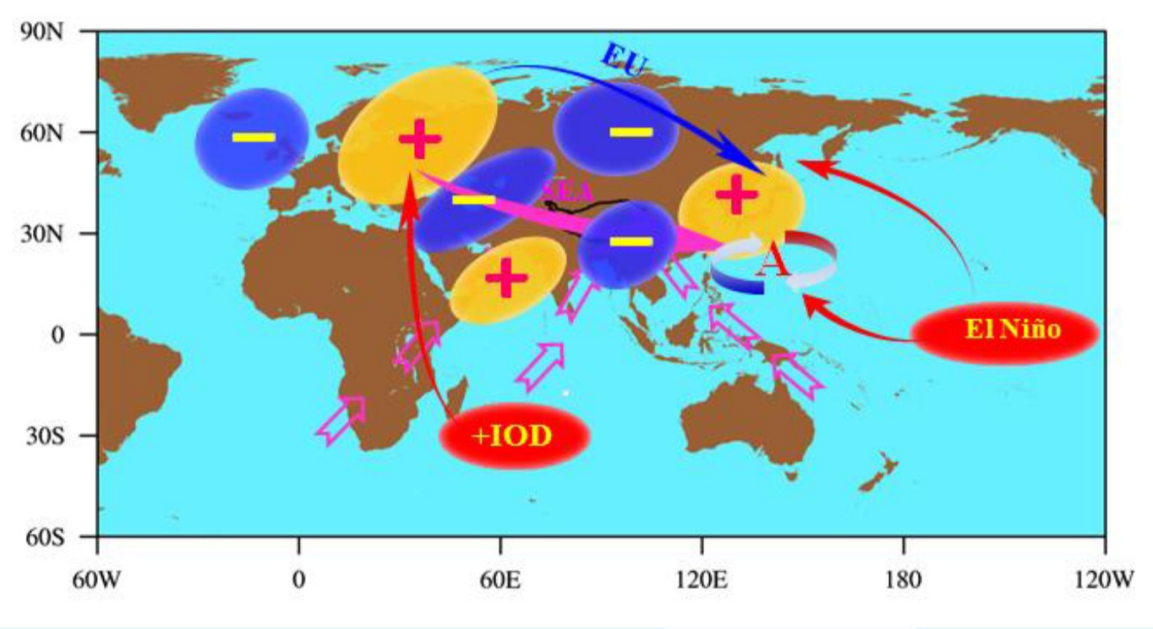
Composite of GH500 in DJF

(Negative TIOD in Autumn)



- LA NINA and negative phase of autumn TIOD are beneficial to the pattern of the "lower in the north, higher in the south" over the East Asian, beneficial to the TP being warmer in winter.

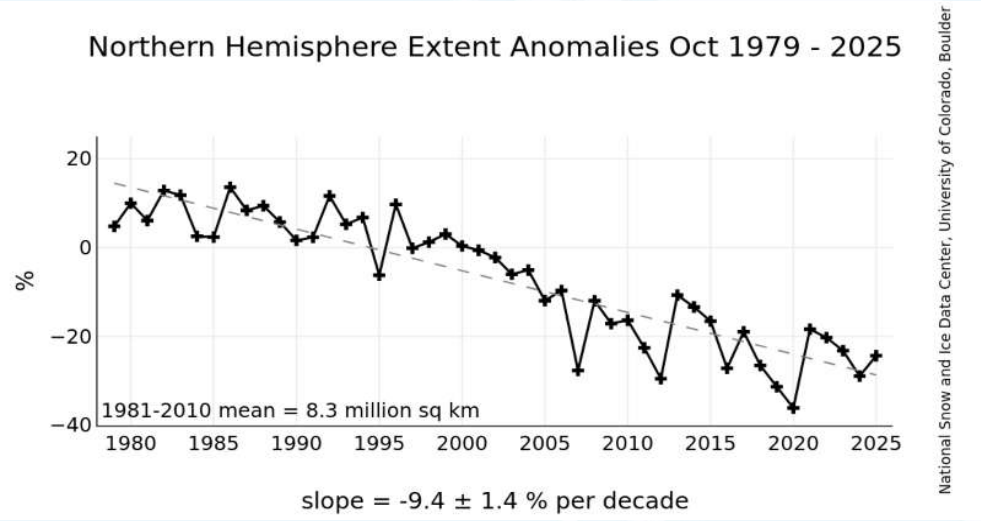
Conceptual model of the benefits of snow over TP



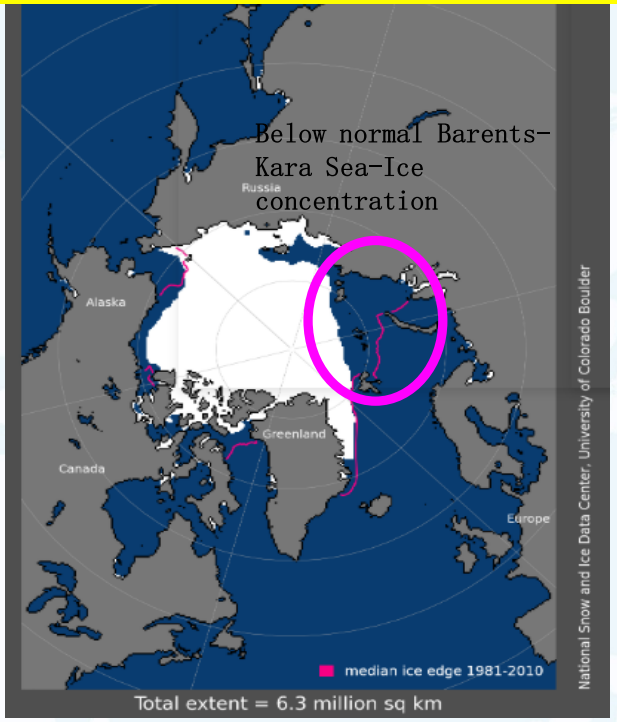
Shen H Y.，2021

- The combined effect of ENSO warm phase and positive TIOD provided abundant water vapor conditions in winter over TP；
- **The current ocean signal is opposite to that of the snowy year, favoring the plateau to present a warm and dry feature.**

Arctic Sea Ice



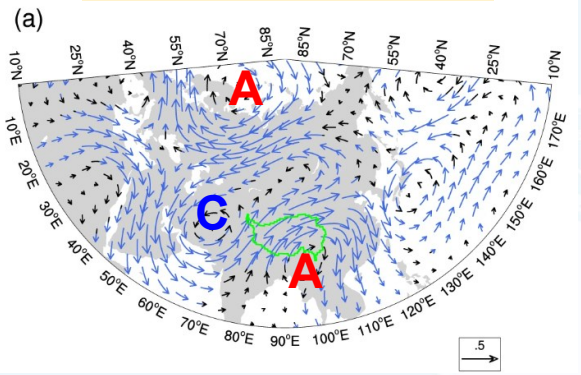
Sea ice concentration anomaly (Oct. 2025)



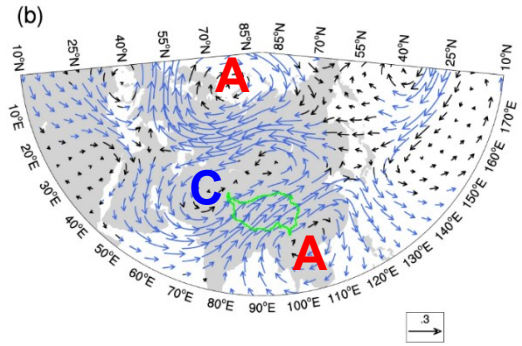
- Sea ice in Oct. was generally below normal but above the trend line;
- The sea ice concentration in the Barents-Kara Seas was significantly below normal.

Impact of Sea ice

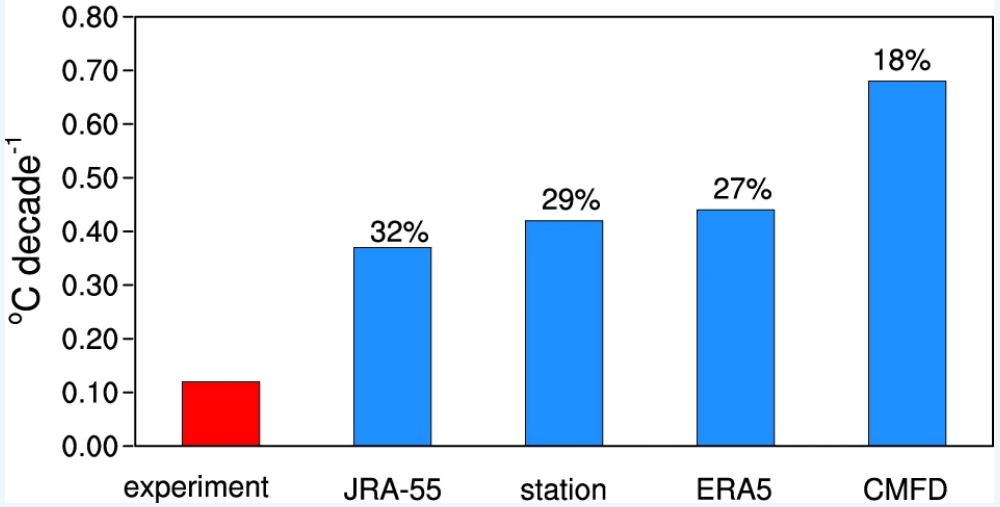
200hPa



500hPa



Contribution of BKS sea ice loss to the TP winter warming.



- The decline of sea ice concentration over the Barents-Kara Sea (BKS) could account for 18~32% of the winter warming over the TP.
- The reduced BKS sea ice can intensify a Rossby wave train propagating equatorward to the TP. As a result, the enhanced southwesterlies towards the TP strengthen the warm advection over most parts of the TP and lead to TP warming.
- The obvious lack of sea ice in BKS is beneficial to the warmer TP in winter.

Duna A M.，2022

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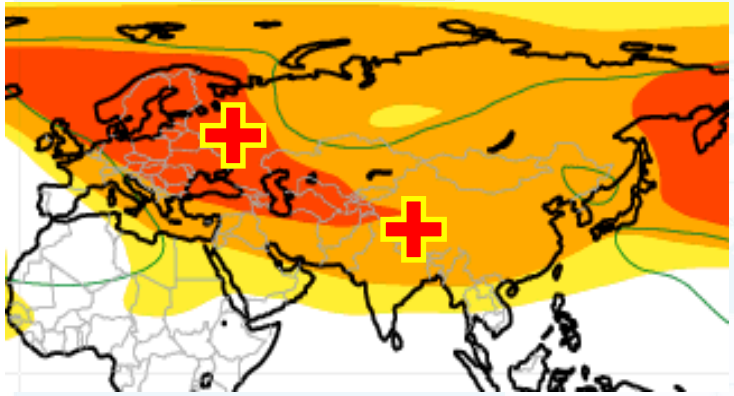
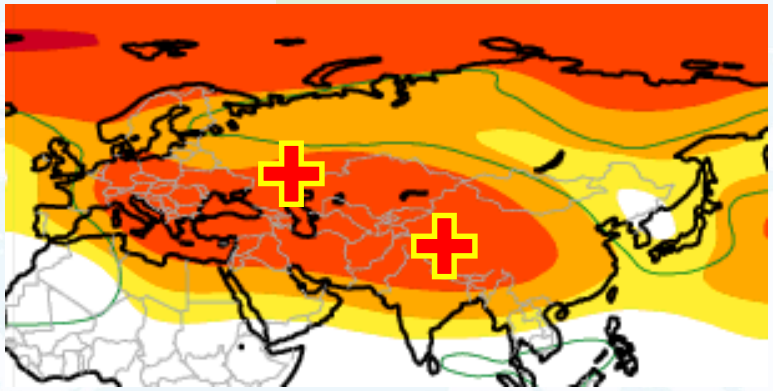
Geopotential Height(GH500) anomaly for DJF

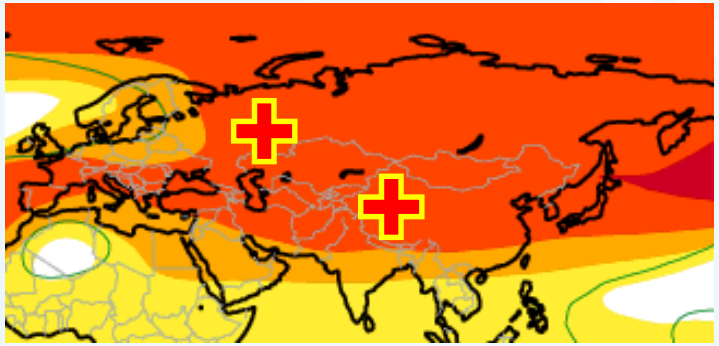
ECMWF Nov



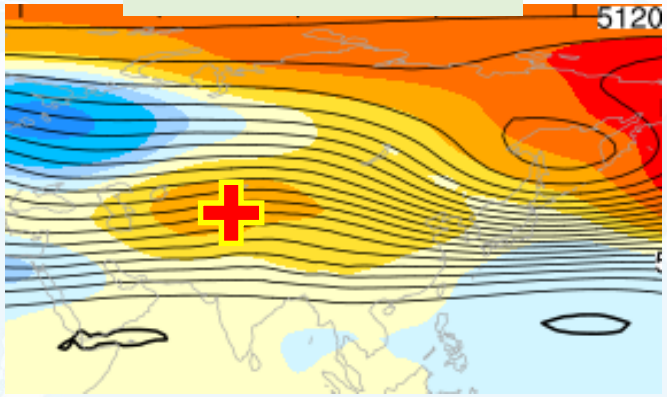
JMA Nov



JMA Nov



CMA-CPSv3 Nov



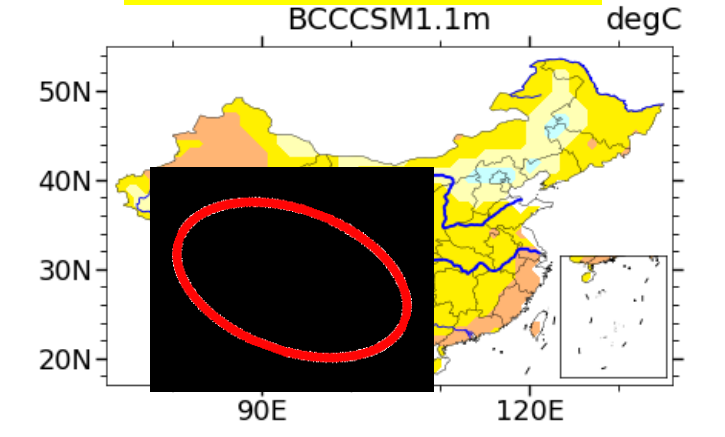
- The geopotential height field over the Tibetan Plateau will exhibit a positive anomaly feature, which is conducive to the high temperature in this region;
- EC, JMA and NCEP predict that the Ural blocking will be stronger, which is favorable for a lower temperature in northern Xinjiang.

Temperature – CMA

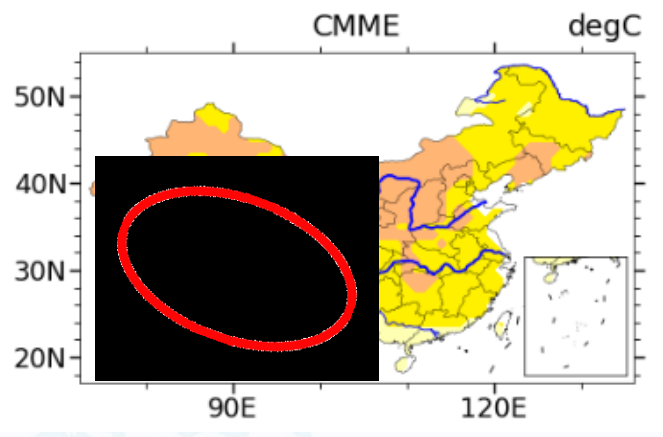
Prediction

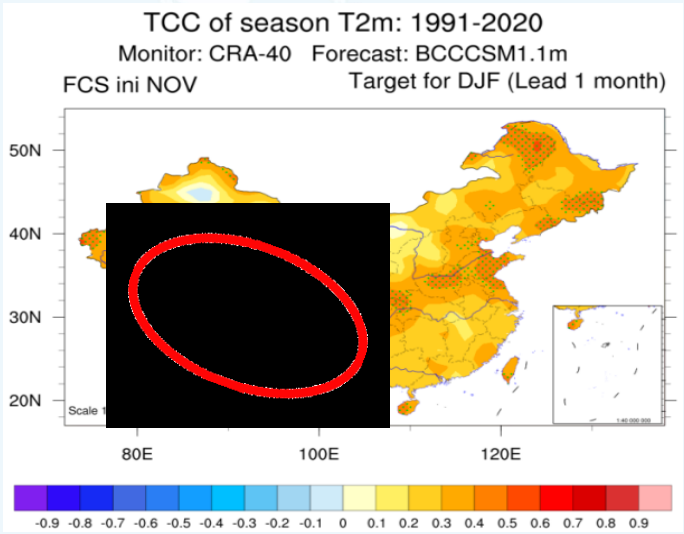
Hindcast skill

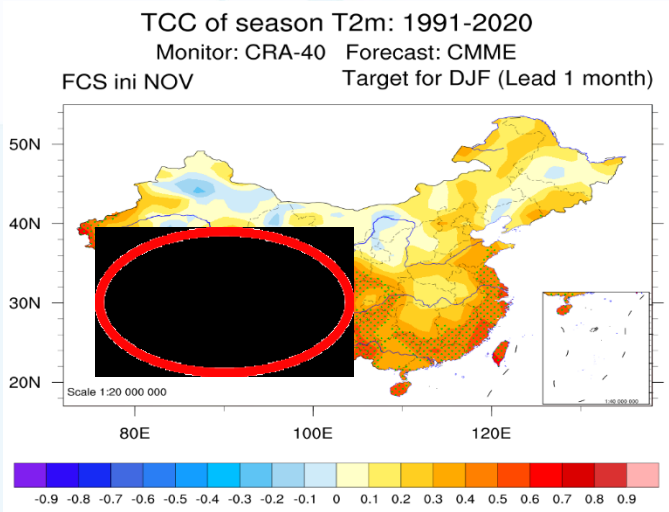
BCCCSM



China Multi-Model Ensemble



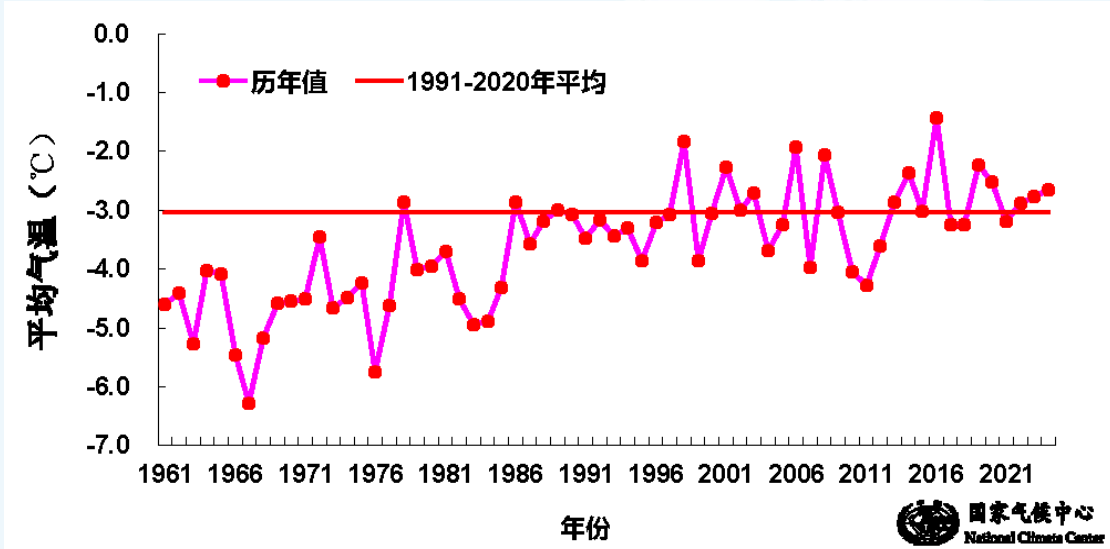




- The winter temperature will be generally higher, especially in Xizang.

Winter temperature in China

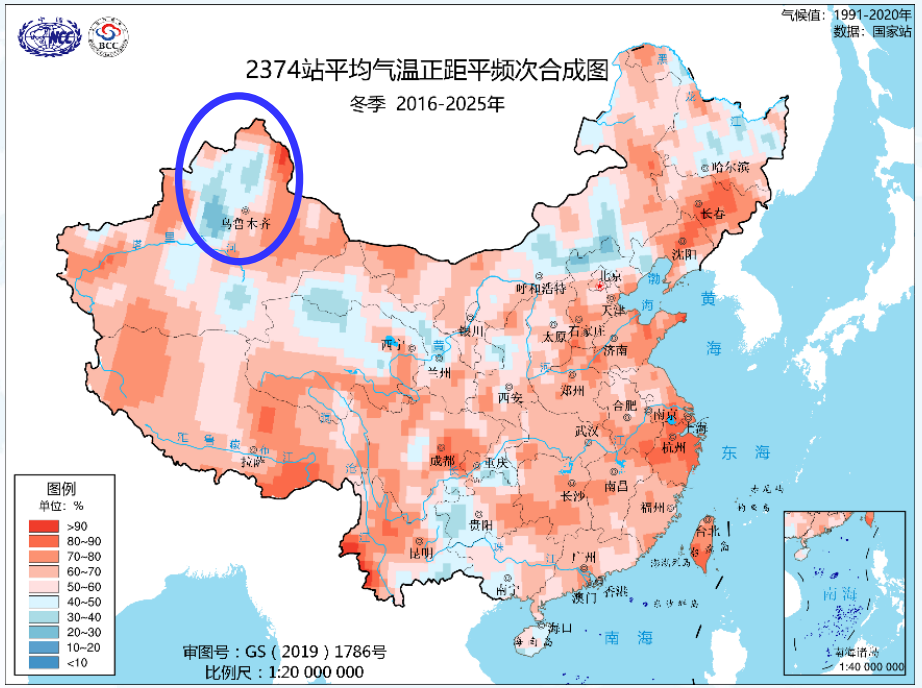
Temperature in winter



Unit：℃

年代	61-70	71-80	81-90	91-00	01-10	11-24
气温	-4.85	-4.26	-3.81	-3.24	-3.01	-2.88

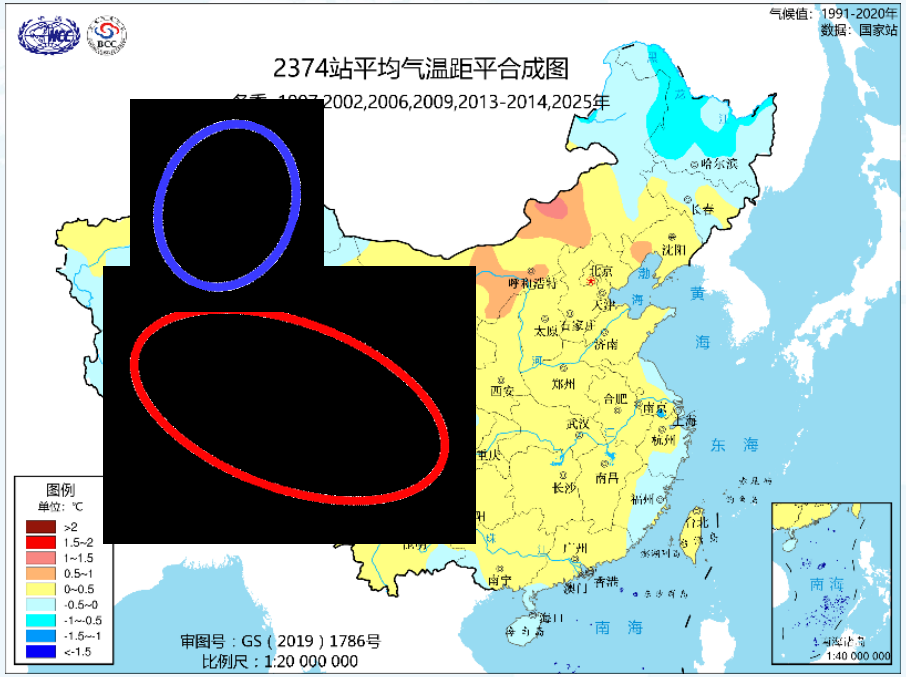
Composite in 2016-2025



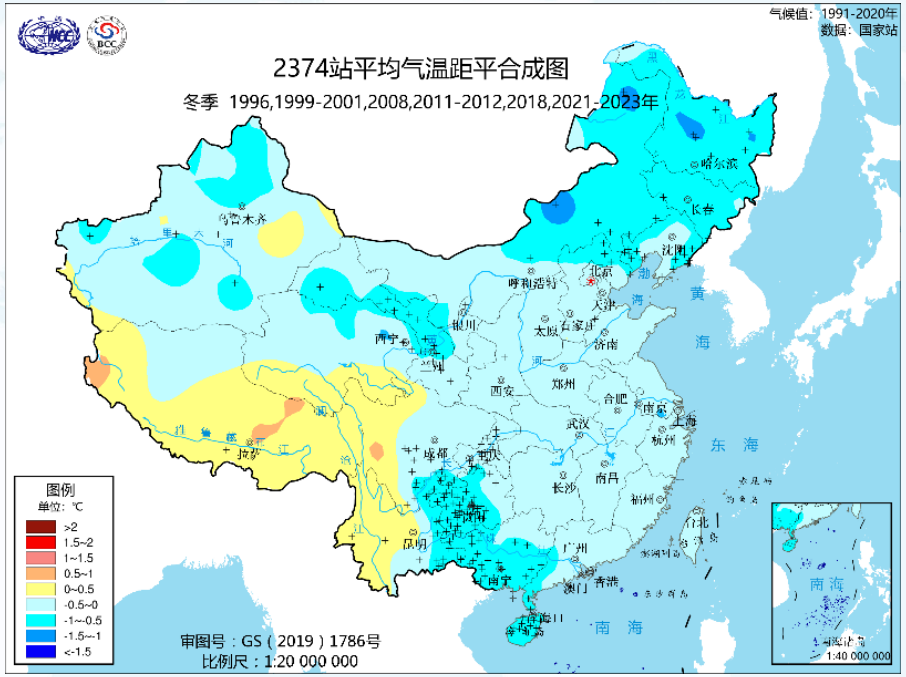
The average winter temperature in China is increasing，but the frequency of lower temperatures in the northern Xinjiang is relatively high.

Impact of La Nina

Composite of TM in La Niña conditions



Composite of TM in La Niña events

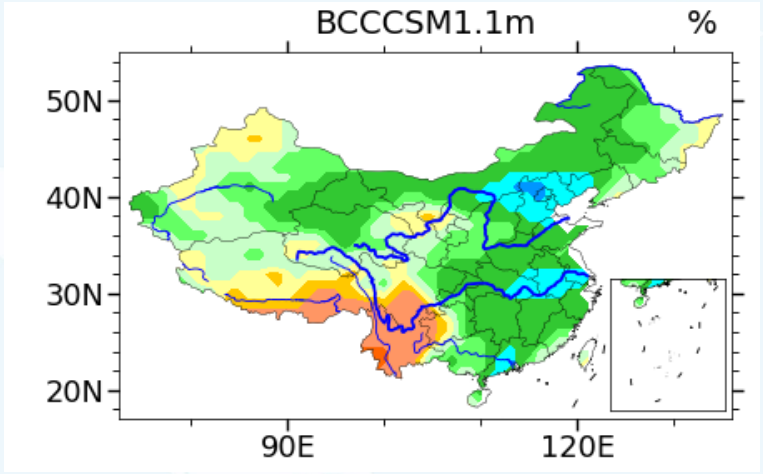


In the winters of La Nina conditions, Xizang and the western part of the southwestern region are warmer; the northern part of Xinjiang is colder.

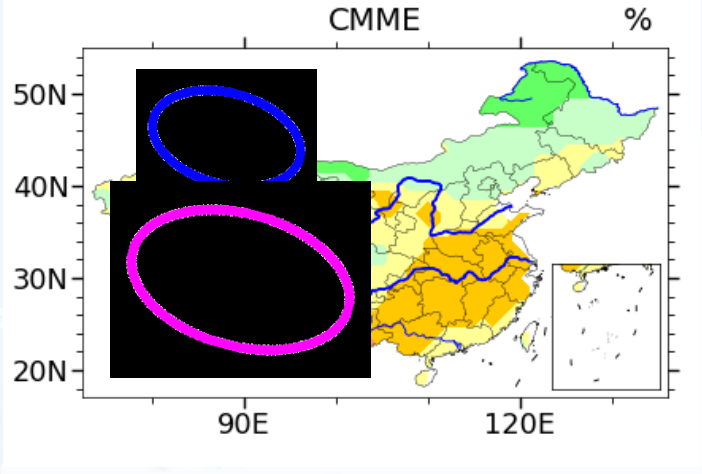
Precipitation – CMA

Prediction

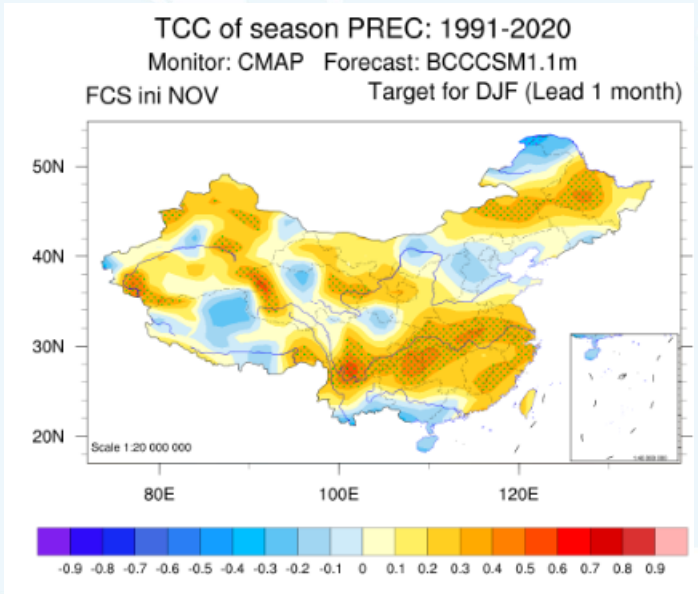
CMA-CPSv3

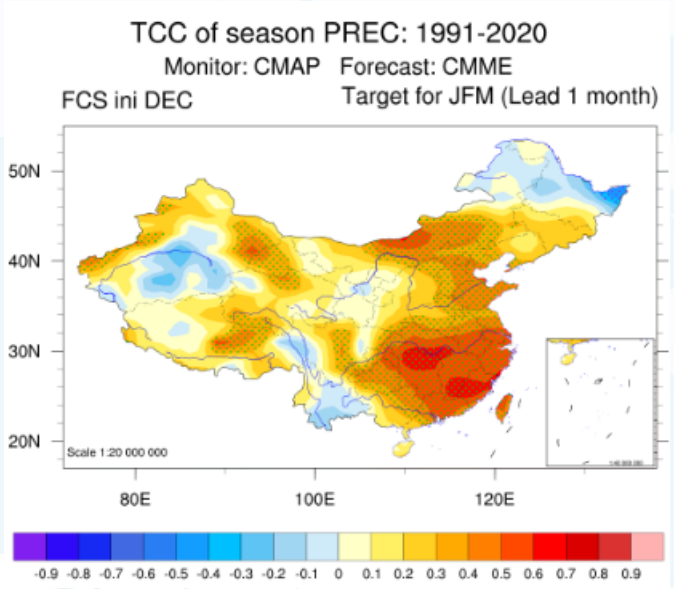


China Multi-Model Ensemble



Hindcast skill

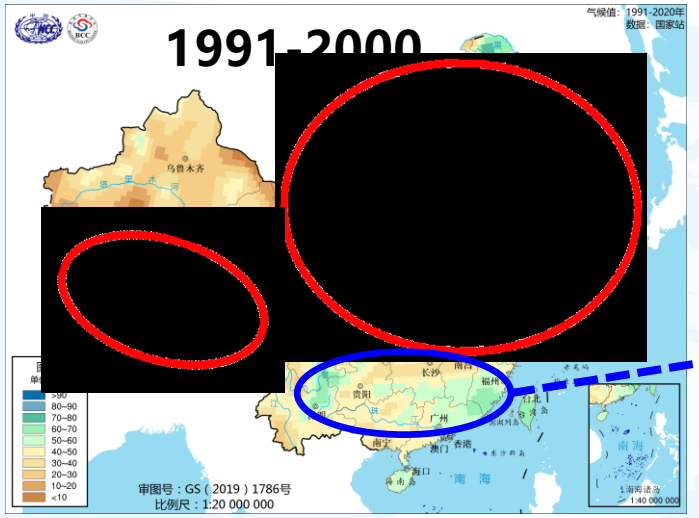


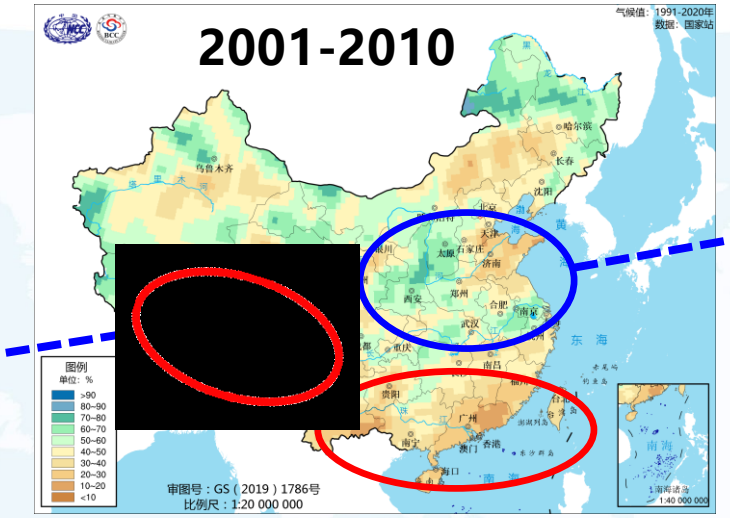


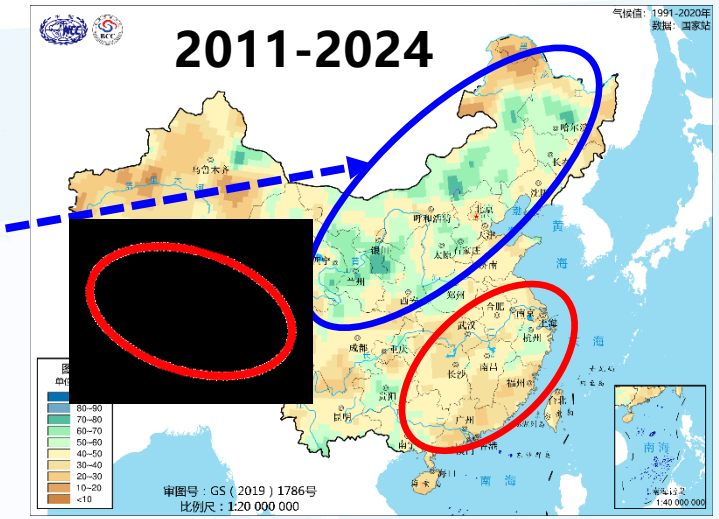
- The precipitation in northern Xinjiang will be more, while that in Xizang will be less.

Winter precipitation in China

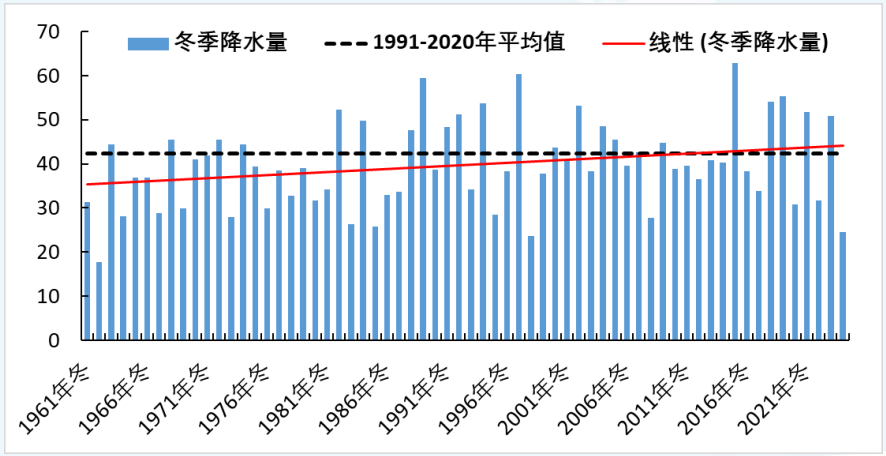
Composite







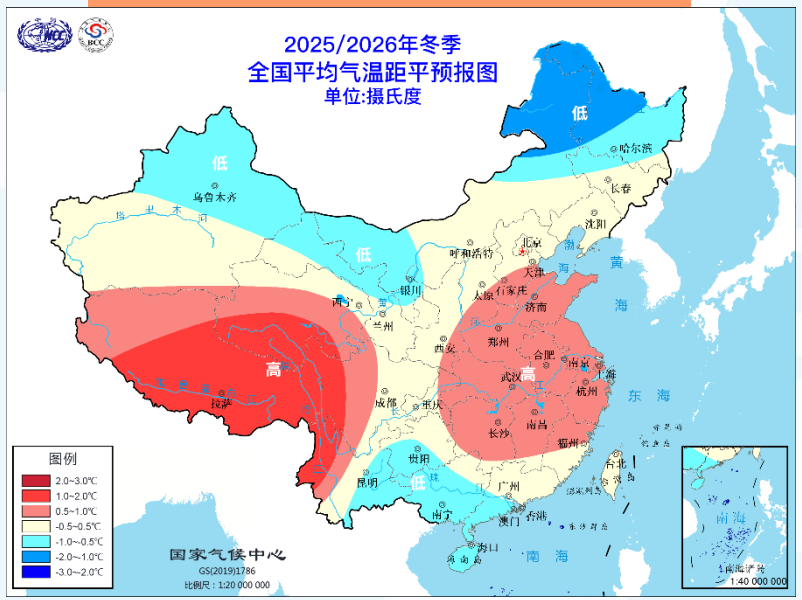
Winter precipitation



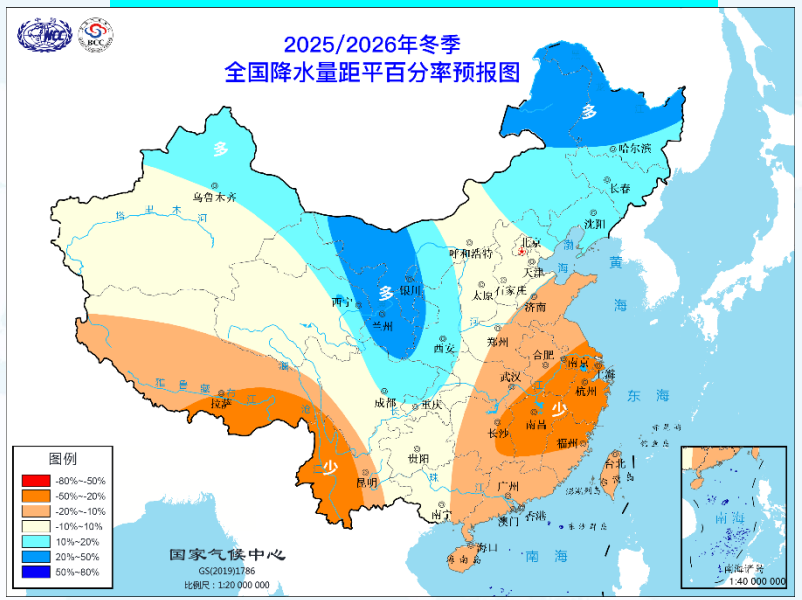
- The areas with more precipitation gradually shifted to the north, showing the characteristics of “more in the north and less in the south”.
- The overall precipitation in Xizang is mainly less than normal.

Outlook for 2025/2026 winter

Temperature



Precipitation



- Temperatures in the western part of the southwest China and Xizang will be higher than normal, with the central and eastern part of the TP being 1~2℃ higher.
- Precipitation in the central and southern parts of Xizang and most of Yunnan will be less than normal, with a reduction of 20% to 50% in the southeastern part of Xizang to the western part of Yunnan.

THANK YOU!