Fourth Session of Third Pole Climate Forum (TPCF-4) Consensus Statement

Online, 1-2 December, 2025

State of the Climate for June to September 2025 and the Seasonal Outlook for December 2025 to February 2026

Background and Contributing Institutions

The Third Pole Regional Climate Centre Network (TPRCC-Network), focusing on the unique climate and cryosphere challenges of the Third Pole region, was established to deliver tailored regional climate services and is currently in demonstration phase for WMO designation. The TPRCC-Network consists of three Nodes (countries list attached as *Annex-I*) with geographical as well as functional distribution of WMO RCC mandatory functions: the Northern Node (led by China), the Southern Node (led by India), and the Western Node (led by Pakistan), with China taking the overall coordinating role. In addition to performing all the mandatory RCC functions for their respective geographical domains of responsibility, the Northern Node has taken the functional responsibility for operational climate monitoring, the Southern Node for operational data services and the Western Node for operational seasonal prediction, for the entire Third Pole region. Extensive collaborations have been established with GCW, GEWEX, ICIMOD, MRI, TPE, and UNESCAP to enhance the Network's effectiveness. The TPRCC-Network plays a pivotal role in promoting regional climate cooperation, supporting stakeholders in climate adaptation, and facilitating decision-making across the region. Products and services are developed and disseminated through the TPRCC-Network web portal (https://www.rccra2.org/tp-rcc/), ensuring seamless access to climate information. Regular updates, Seasonal Climate Bulletins, and Consensus Statements released during biannual climate forums, maintain a steady flow of information and engagement.

The latest Consensus Statement integrates the State of the Climate for June to September 2025 and the Seasonal Outlook for December 2025 to February 2026. Developed using regional expertise, it synthesizes observational data, historical trends, current climate conditions, and seasonal predictions. The Statement provides a comprehensive overview of surface air temperature (SAT), precipitation, snow cover, and high-impact climate events observed during the preceding season, while presenting an outlook for SAT and precipitation for the upcoming winter season. To facilitate understanding of this Statement, details of the developing approach are provided in *Annex-II*.

This Consensus Statement was produced and mutually agreed upon during the Fourth Session of the Third Pole Climate Forum (TPCF-4), held virtually on 1–2 December 2025 and jointly hosted by the National Climate Centre, China Meteorological Administration (NCC/CMA), and the World Meteorological Organization (WMO). The content and graphics were prepared collaboratively by CMA, India Meteorological Department (IMD), Pakistan Meteorological Department (PMD) and UNESCAP with support from the TPRCC Technical Team on Climate Prediction (TT-CP) in developing methodologies for objective climate prediction. Guidance from WMO and contributions from all the node leads, member countries and partners is gratefully acknowledged.

Highlights

- From June to September (JJAS) 2025, most of the Third Pole (TP) region recorded above - normal surface air temperature (SAT), while the SAT in the southwestern TP region was below normal.

- For JJAS 2025, the southwestern TP region and parts of the southwest Third Pole Core Region (TPCR)[1] experienced significantly wetter conditions, with precipitation exceeding the normal by twice the amount. Conversely, some areas in the western and northern TP region, as well as the central area along its southern edge, recorded a 20%–50% precipitation deficit relative to the normal level.

- In summer 2025, snow cover extent (SCE) over the TP region was close to the normal, although it recorded around 20.6 % below normal in July, ranking as the fifth lowest since 2004.

- Due to the unusually early and intensive South Asian monsoon, several countries in the TP region have been affected significantly by floods, landslides, and debris flows. Despite the early arrival of the monsoon, the southern plains of Nepal experienced a significant lack of rainfall for around three months, leading to a severe water crisis and drought conditions. Throughout the season, the southeastern Central Asia and the northern Pakistan were affected by severe heatwaves.

- Above-normal SAT is expected across most parts of the TP region during DJF 2025/26, with stronger warm anomalies over the southwestern, eastern and northwestern sectors of the TP region. The probabilistic outlook further indicates a high likelihood of above-normal temperatures over the southwestern and eastern TP region.

- The precipitation anomaly outlook for DJF 2025/26 shows a mixed spatial pattern. Below-normal precipitation is expected along the Himalaya–Karakoram ranges, while the eastern and northeastern parts of the TP region are expected to receive slightly above-normal precipitation.

[1] TPCR refers to the region with elevation above 2000 m within the TPRCC-Network service domain, i.e. the region within black contour in Figures 1-6 in the Consensus Statement.

Climate Summary for June – September 2025

Temperature

During June to September (JJAS) 2025, most of the TP region witnessed above-normal surface air temperature (SAT), with particularly significant positive anomalies of 2–4°C in the western TPCR. In contrast, the SAT in the southwestern TP region was near or below normal, with parts of the region 1–2°C lower than normal (Figure 1).

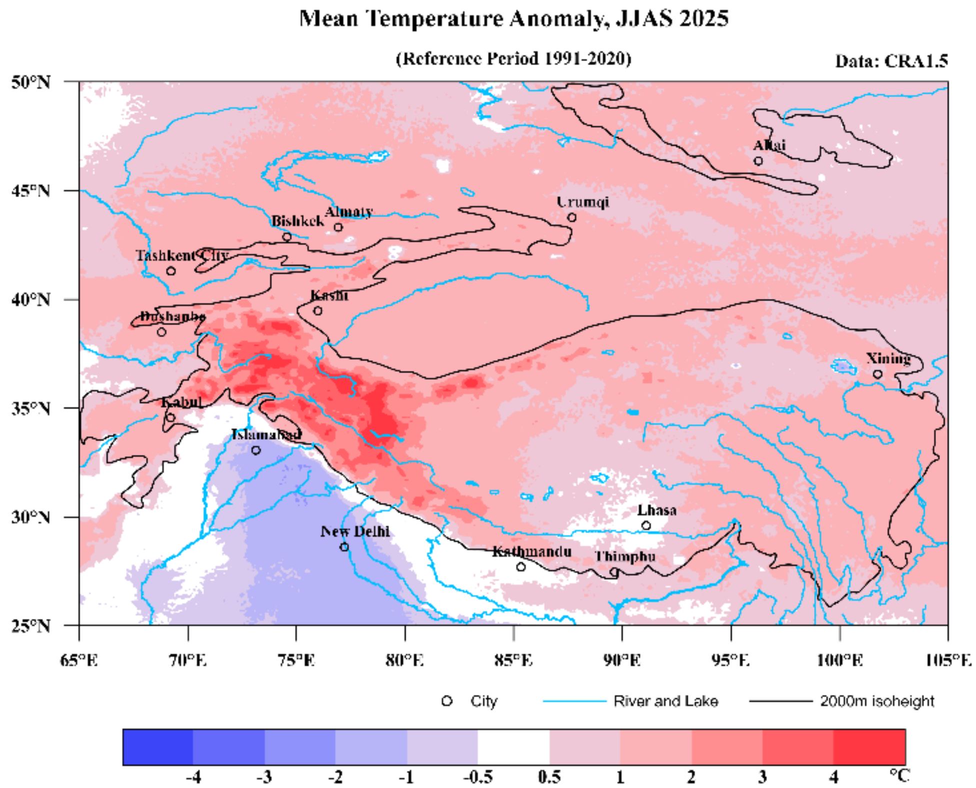

Figure 1 Mean surface air temperature anomalies (relative to 1991–2020) for JJAS 2025
Data source: CRA1.5

Precipitation

For JJAS 2025, the distribution of precipitation anomalies over the TP region exhibited a distinct west-east alternating pattern of "below-normal, above-normal, below-normal, above-normal" pattern from west to east (Figure 2). The southwestern TP region and southwestern TPCR experienced exceptionally wet conditions, with precipitation exceeding the normal by 100–200%, and locally surpassing 200%. In contrast, parts of the western and northern TP region, as well as central areas along the southern margins, recorded precipitation deficits of 20%–50% relative to the normal level, with specific areas in the western regions recording a precipitation deficiency of over 80%.

Snow Cover

Over the past two decades, there has been no significant linear trend for summer snow cover extent (SCE) over the TP region as a whole, although notable inter-annual fluctuations have been observed. In summer (JJA) 2025, the regional SCE amounted 114.8×103 km^2, approximately 6.8% lower than the normal (2005-2020 average). Within the season, SCEs in June and August were near the normal, while that in July was around 20.6% below the normal, ranking as the fifth lowest since 2004.

Spatially, snow cover was concentrated in high-elevation areas, mainly along the Tianshan Mountains, the Pamirs, the Kunlun Mountains, the Qilian Mountains, the Nyainqentanglha Mountains, the Gangdise Mountains, and the Himalayas. The number of snow cover days (NSCD) exhibited below normal along most of the aforementioned mountains, except in the eastern Kunlun Mountains where NSCD was close to normal (Figure 3).

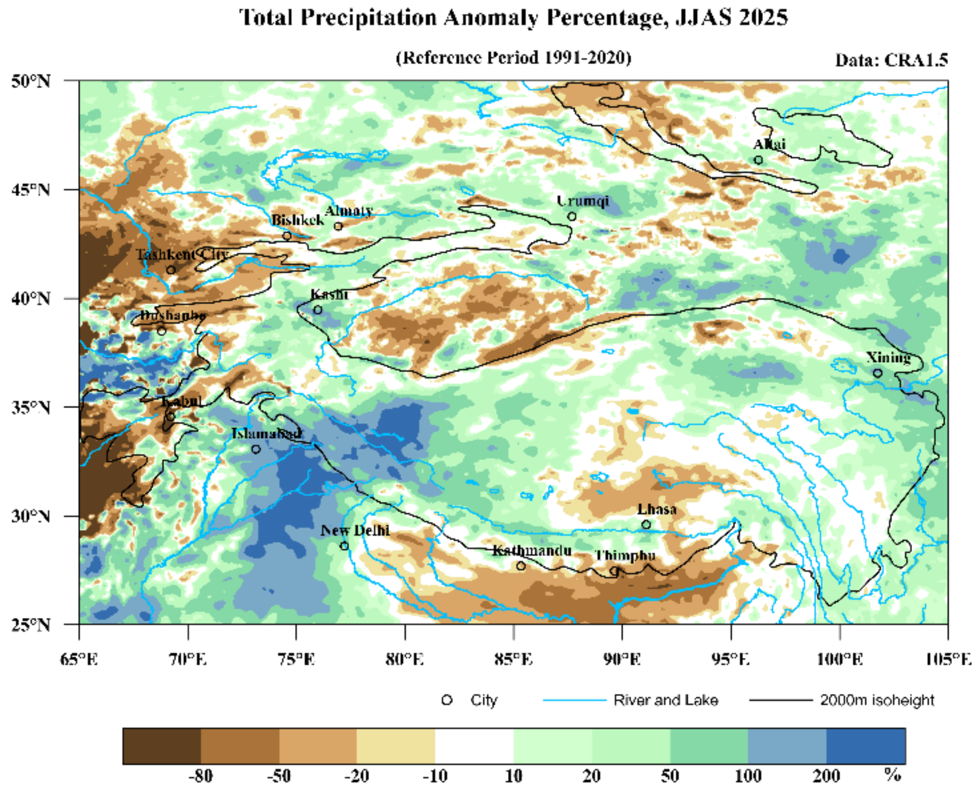

Figure 2 Total precipitation anomaly percentage (relative to 1991–2020) for JJAS 2025
Data source: CRA1.5

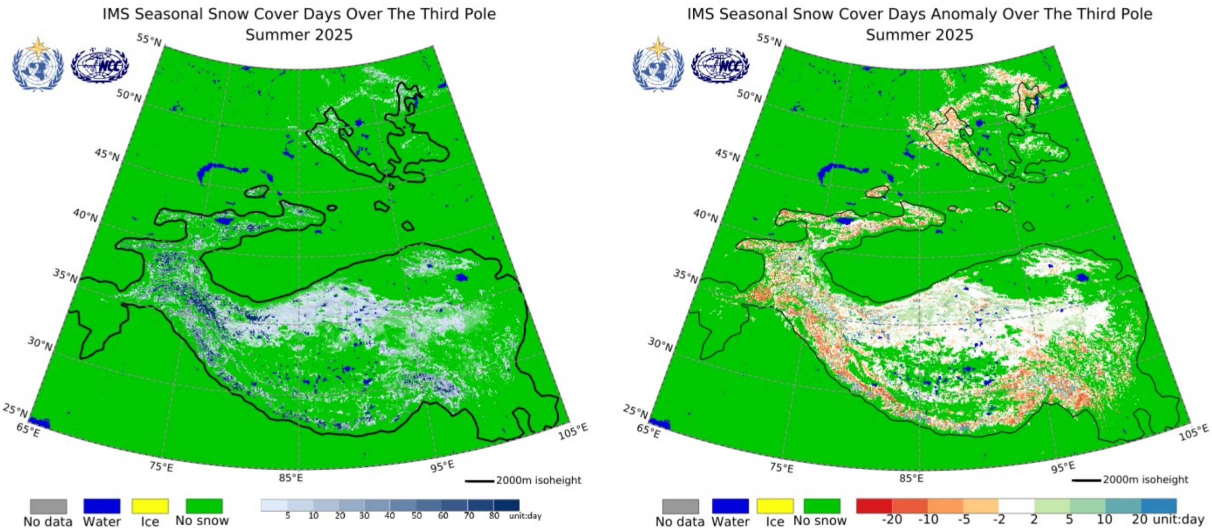

Figure 3 The number of snow cover days in summer (JJA) 2025 and anomalies (relative to 2005–2020).
Data source: IMS/NSIDC

For September 2025, the regional mean SCE was estimated at 109.7×10^3 km^2, approximately 3.5% less than normal. Compared with the summer distribution, a similar spatial pattern persisted south of

40°N, with NSCD increasing over the western TPCR and decreasing in the central TPCR. In the mountain areas north of 40°N, the snow season has begun although the monthly NSCD remained below or near normal (Figure 4).

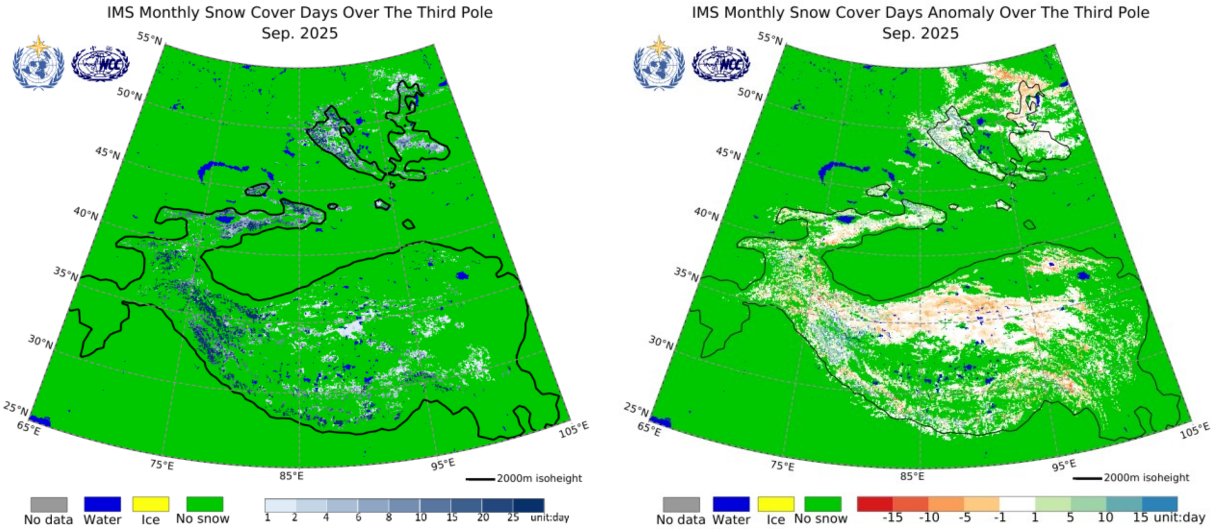

Figure 4 Number of snow cover days (left) and anomalies (right) (relative to 2005-2020) in September 2025. *Data source*: IMS/NSIDC

High-impact Climate Events

Unusually early and intensive summer monsoon

Following its early onset on 24 May 2025, the South Asian monsoon advanced rapidly across southern and western India, covering the entire country nearly two weeks ahead of schedule. Heavy rainfall from late May to early June caused widespread flooding and landslides in northeastern and eastern India. In August, India was again affected by heavy rains and floods. On 14 August, a violent cloudburst struck Kishtwar district, triggering flash floods and mudslides. The event destroyed residential structures, roadways, and community infrastructure, resulting in 68 fatalities and 300 injuries.

From June to September 2025, Pakistan experienced an intense and destructive monsoon season characterized by 23% above-average rainfall and nine major spells of extreme weather, leading to widespread flash floods, riverine inundation, landslides, and glacial lake outbursts across all regions. The season resulted in 1,037 deaths and 1,067 injuries, and the destruction or damage of 229,763 homes, while also severely impacting infrastructure and agriculture. Punjab, Khyber Pakhtunkhwa, and Sindh were the hardest-hit provinces, with significant events including catastrophic flooding in Buner (256 fatalities) and record-breaking rainfall in Sialkot (363.5 mm in one day). The disaster affected approximately 3 million people, prompting large-scale evacuations and relief operations. Preliminary damage estimates reached PKR 822 billion (about USD 3 billion), underscoring Pakistan's escalating vulnerability to climate-driven extreme weather

With the retreat of the South Asian monsoon, continuous heavy rainfall occurred across Nepal from 3 to 7 October 2025, triggering flash floods and landslides in several areas, which resulted in 51 fatalities, 47 injuries, and 6 people missing.

Drought

The southwest monsoon reached Nepal on 29 May 2025, which was one of the earliest onsets recorded in the country's history. Despite the early arrival of the monsoon, the southern plains of Nepal (Madhesh Province) experienced significant rainfall deficits for nearly three months. The lack of rainfall led to a water crisis, and the province faced an unexpected drought. Water sources dried up and the groundwater table depleted, creating a critical shortage of drinking water and affecting agricultural irrigation. As a result, farmers were unable to transplant paddy saplings. The drought left seedbeds parched and paddy saplings withered, raising fears of an impending food shortage in Nepal’s primary rice-producing region. According to a decision made by the Federal Government on 23 July 2025, all 136 municipalities across the eight districts of Madhesh Province were officially declared drought-affected areas. By the end of August 2025, the accumulated monsoon precipitation remained below the normal across most parts of the country, particularly in Madhesh Province, where little or no significant rainfall was recorded.

Heatwave

In June, persistent high temperatures affected eastern and southern Central Asia, as well as northern South Asia. The number of days with daily maximum temperatures at or above 40°C ranged from 10 to 20, with some areas experiencing over 25 such days. In July, prolonged high-temperature weather was observed across southern Central Asia and northern Pakistan. High temperatures continued through August in southeastern Central Asia and northwestern Pakistan, with daily maximum temperatures exceeding 40°C in many locations and locally surpassing 45°C.

Glacial lake outburst flood (GLOF) and glacier tongue collapse

Several GLOF events and two cases of glacier tongue collapse were reported in the service domain of TPRCC-Network.

On 8 July 2025, triggered by the rapid growth and drainage of a supraglacial lake on the Purepu Glacier in the upper reaches of Donglin Zangbu River in Gyirong County of China, a flash flood accompanied by debris flow struck the border area between China and Nepal. The disaster resulted casualties and heavy property losses at the Nepal-China border port. Investigation shows the formation of this GLOF was also related to the significantly elevated temperatures, localized heavy rainfall, and intense seismic activity in the surrounding areas at early time.

Collapses of glacier tongues were reported in Pakistan (damage to infrastructure) and Tajikistan in July-August and September-October, respectively. These events were associated with strong positive temperature anomalies that affected both countries, particularly intensifying in high-mountain regions. The glacier collapse in Tajikistan was contributed by the surging behaviour of the Didal Glacier.

Seasonal outlook for DJF 2025-26

Temperature

The surface air temperature (SAT) for DJF 2025/26 is likely to remain above normal across most of the TP region. The probability outlook shows a pronounced warm anomaly over the Karakoram Range, where temperature anomalies are predicted to exceed +2°C (Figure 5).

In the rest of the TP region, including the Tibetan Plateau and adjoining high-elevation areas, temperatures are generally expected to remain above normal.

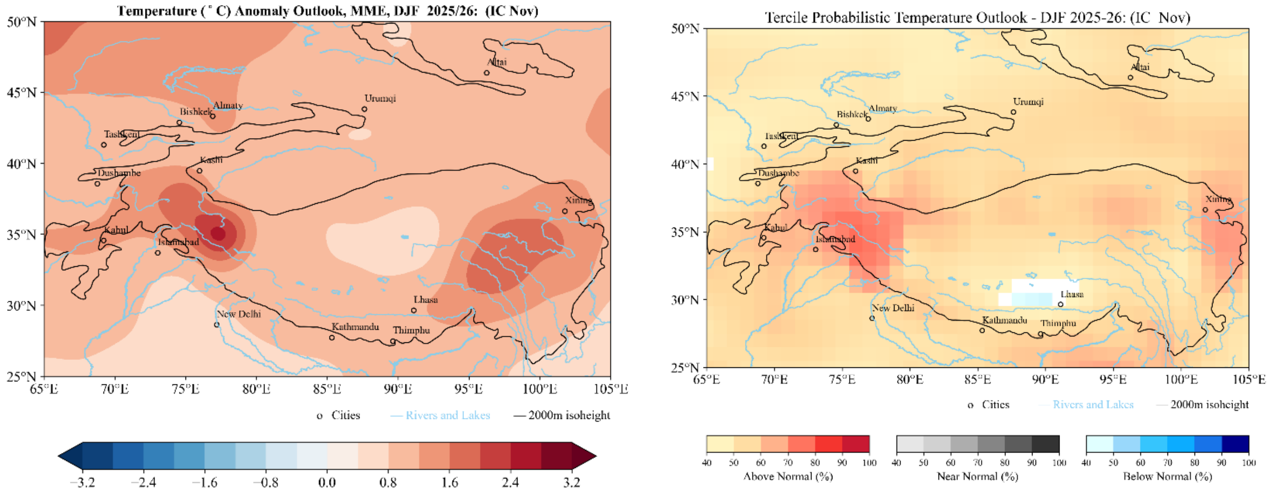

Figure 5 Surface Air Temperature anomaly and probabilistic outlook, DJF 2025/26 for TP region (Reference period: 1993–2016)

Precipitation

The precipitation anomaly outlook for DJF 2025/26 over the TP region indicates a mixed pattern with notable regional contrasts. Significant negative anomalies are projected along the Himalaya–Karakoram ranges, with the southwestern and western sectors exhibiting the highest likelihood of reduced precipitation (Figure 6).

In contrast, localized positive precipitation anomalies are expected in parts of the northern and southeastern TP region, indicating slightly wetter-than-average conditions in these areas, although the magnitude of these anomalies remains moderate.

Across much of the region, particularly the central Tibetan Plateau, precipitation is anticipated to be near normal, with no substantial departures from climatological averages.

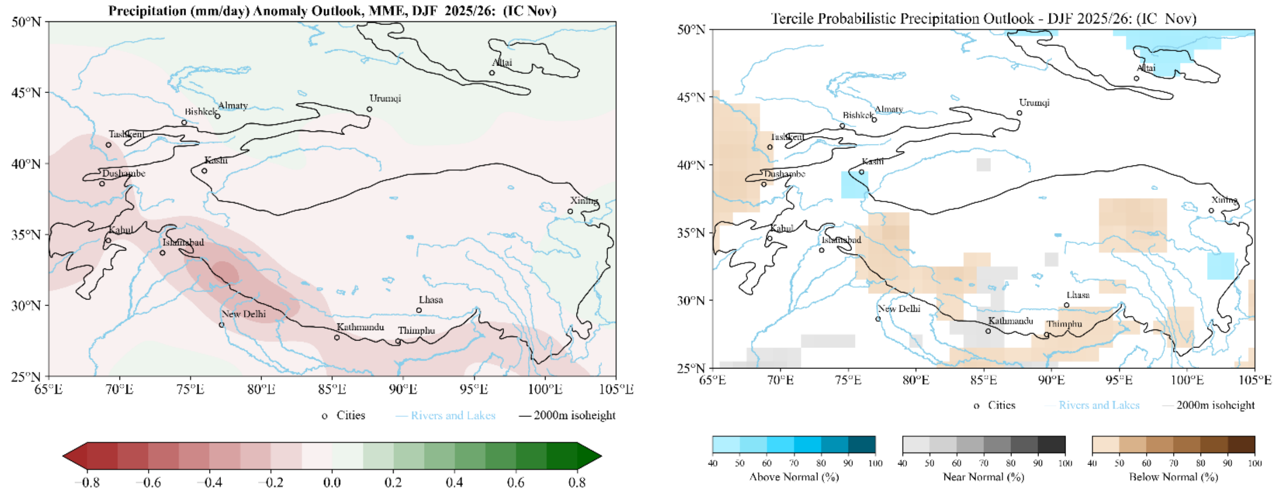

Figure 6 Precipitation anomaly and probabilistic outlook, DJF 2025/26 for TP region (Reference period: 1993–2016)

Annex-I

Third Pole Regional Climate Centre Network (TPRCC-Network) Overview

A WMO Regional Climate Centre (RCC) Network comprises a group of specialized centers collectively fulfilling all mandatory functions required of an RCC. Each center in the network is referred to as a "Node," with specific responsibilities aligned to its geographical and functional domain. The details of the Third Pole Regional Climate Centre Network (TPRCC-Network), which is currently in demonstration phase for WMO designation, are as follows:

The Northern Node

Geographical/Functional Responsibility: All RCC mandatory functions for the Northern part of TP region and Climate Monitoring for the entire TP region
Lead: China, with the National Climate Centre, China Meteorological Administration (NCC/CMA) as the leading institute
Consortium Members: Bhutan, Kazakhstan, Mongolia, Nepal, Pakistan

The Southern Node

Geographical/Functional Responsibility: All RCC mandatory functions for the Southern part of TP region and Operational Data Services for the entire TP region
Lead: India, with the India Meteorological Department (IMD) as the leading institute
Consortium Members: Bangladesh, Bhutan, Myanmar, Nepal

The Western Node

Geographical/Functional Responsibility: All RCC mandatory functions for the Western part of TP region and Operational Climate Prediction for the entire TP region
Lead: Pakistan, with the Pakistan Meteorological Department (PMD) as the leading institute
Consortium Members: Afghanistan, China, Tajikistan, Uzbekistan

Annex-II

Explanatory Notes on the Consensus Statement

Temperature and precipitation monitoring products were generated using 0.1°×0.1° daily reanalysis data of the CMA Global Atmospheric Reanalysis Version 1.5 (CRA1.5), available through the China Meteorological Data Service Centre (http://data.cma.cn/en/#/home). CRA1.5 is the latest global atmospheric reanalysis product developed by CMA, providing notable improvements over its predecessor CRA-40.

Snow cover products were produced using 4-km daily data of the IMS released by the NSIDC (https://nsidc.org/home). The number of snow cover days within a specific period was determined by counting the days with recorded snow cover. To calculate the SCE for each grid cell in a certain period, the following two-step methodology was employed: (1) calculate the snow cover fraction for each grid cell by dividing the number of days with snow cover by the total number of days in the period, and (2) multiply the snow cover fraction by grid cell area (16 km^2) to obtain SCE for individual grid cells. The regional SCE for the period was determined by summing the SCEs of all grid cells within the domain of the TPRCC-Network.

The *High Impact Events* section was initially compiled and organized based on information on weather and climate related disasters that occurred across the TP region during JJAS 2025, released on the ReliefWeb by the United Nations Office for the Coordination of Humanitarian Affairs (UN-OCHA) (https://reliefweb.int/) and the International Disaster Database (EM-DAT, https://www.emdat.be/). After subsequent review, supplementation, and confirmation by the WMO Member countries within the service domain of the TPRCC-Network, as well as by the Network's technical partners, the information was finalized. This coordination process ensured the authority and consistency of the relevant disaster records.

The probabilistic and deterministic outlooks of surface air temperature and precipitation for the TP region are based on the outputs of eight and ten global seasonal prediction models, respectively, with optimal skill over the region. These models are combined using the multi-model ensemble (MME) technique to generate operational predictions. The probabilistic outlook is based on the combined ensembles from all participating models and represents a consensus prediction across the entire ensemble system.

The reliability of seasonal climate outlooks relies on the skillfulness (i.e., the ability of a climate model to predict seasonal climate) of models used for MME, which emphasize the importance of models evaluation before performing ensembles. Models selection for the Third Pole region is guided by statistical performance metrics: correlation, Index of Agreement (IOA), and Root Mean Square Error (RMSE), to evaluate accuracy against observations. These metrics provide a quantitative evaluation of each model's forecasting skill relative to observations. The models are ranked according to their respective metric values. A total rank is then computed for each model by assigning equal weight to all metrics. The models are then sorted according to their total rank values, with lower values reflecting better overall performance. This approach facilitates the identification of models with optimal skill scores.

An MME approach is a well-recognized methodology for providing the most reliable objective forecasts. The basic idea of MME is to avoid inherent model errors and minimize uncertainties by using independent and skillful models. Therefore, MME was applied to merge information from all individual models identified from above-mentioned approach, which provides a forecast with higher confidence in regions where different model outputs are consistent, and lower confidence where models show less agreement. Ensemble means are calculated from the outputs of the individual models using a simple composite method (SCM). The ensemble mean anomaly forecasts for each individual model is calculated using their own climatology obtained from the hindcast. The anomaly for each model is based on the reference period (1993–2016) of the model's climatology. Ensemble mean anomaly is calculated from those of the individual models using SCM.

Acronyms

1. CMA – China Meteorological Administration
2. DJF – December, January, February
3. GCW – Global Cryosphere Watch
4. GEWEX – Global Energy and Water EXchanges
5. ICIMOD – International Centre for Integrated Mountain Development
6. IMD – India Meteorological Department
7. IMS – Interactive Multisensor Snow and Ice Mapping System
8. JJAS – June, July, August, September
9. MME – Multi-Model Ensemble
10. MRI – Mountain Research Initiative
11. NCC–National Climate Centre
12. NSCD – Number of Snow Cover Days
13. NSIDC – National Snow and Ice Data Center
14. PMD – Pakistan Meteorological Department
15. RCC – Regional Climate Centre
16. SAT – Surface Air Temperature
17. SCE – Snow Cover Extent
18. SCM – Simple Composite Method
19. TP – Third Pole
20. TPCF – Third Pole Climate Forum
21. TPCR – Third Pole Core Region
22. TPE – Third Pole Environment Programme
23. TPRCC-Network –Third Pole Regional Climate Centre Network
24. TT-CP –Technical Team on Climate Prediction
25. UNESCAP – United Nations Economic and Social Commission for Asia and the Pacific
26. WMO – World Meteorological Organization