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SEASONAL CLIMATE OUTLOOK OVER SOUTH ASIA

for the 2026 Southwest Monsoon Season

34th Session of South Asian Climate Outlook Forum (SASCOF-34) and Climate Services User Forum (CSUF)

Malé, Maldives, 28 April 2026

Statement on the Seasonal Climate Outlook over South Asia for the 2026 Southwest Monsoon Season (June – September)

Summary

Below normal rainfall is most likely during the 2026 southwest monsoon season (June – September) over most parts of South Asia, particularly across the central parts of the region. However, some areas over the north-western, north-eastern, and parts of the southern region are likely to experience normal to above normal rainfall.

During the season, minimum and maximum temperatures are expected to be above normal across most of South Asia.

This regional climate outlook for the 2026 Southwest monsoon season over South Asia was jointly prepared by the nine National Meteorological and Hydrological Services (NMHSs) of the region, with support from international experts at the 34th session of South Asian Climate Outlook Forum held in Malé, Maldives. The process involved an expert assessment of the prevailing global climate conditions, national level forecasts and forecasts from different climate forecasting agencies around the world.

Currently, ENSO-neutral conditions in the equatorial Pacific are transitioning toward an El Niño conditions. Based on the global climate model forecasts, there is strong consensus among experts that the El Niño conditions are likely to develop during the 2026 monsoon season. Neutral Indian Ocean Dipole conditions currently prevail over the Indian Ocean, and climate models indicate that a positive IOD phase is likely to emerge later in the monsoon season.

It is recognized that the global climate model predictions prior to and during the spring season generally have noticeable uncertainty due to spring barrier in the seasonal predictability. It is also noted that other regional and global factors as well as the intra-seasonal features of the region can also affect the seasonal climate patterns over the region.

For more information and further updates on the southwest monsoon outlook on national scale, the respective National Meteorological and Hydrological Services (NMHSs) may be consulted.

Introduction

The climate outlook for the 2026 southwest monsoon season (June to September) was finalized during the 34th session of the South Asian Climate Outlook Forum (SASCOF-34) held on 28 April 2026 at Malé, Maldives. Experts from the National Meteorological and Hydrological Services (NMHSs) of nine South Asian countries attended the session, along with representatives from several global and regional climate organizations, including the World Meteorological Organization (WMO), WMO Regional Climate Centre Pune, Indian Institute of Tropical Meteorology (IITM), UK Met Office (UKMO), Regional Integrated Multi-hazard Early Warning System, Japan Meteorological Agency (JMA), WMO Lead Centre of Seasonal Prediction (WMOLC), Korean Meteorological Administration (KMA), and the United Nations Economic and Social Commission for Asia and the Pacific, among others. The forum deliberated on various observed and emerging climatic features that influence the performance of the southwest monsoon such as the El Niño-Southern Oscillation (ENSO), Indian Ocean Dipole (IOD), winter and spring Northern Hemisphere (NH) snow cover, land surface temperature anomalies, etc. The key features of these climate drivers are as follows:

ENSO Conditions over the Pacific Ocean

The ENSO is one of the global-scale climate phenomena that has a significant influence on the year-to-year variability of the monsoon over South Asia. At present, ENSO-neutral conditions in the equatorial Pacific are transitioning toward an El Niño conditions over the equatorial Pacific. Latest forecasts from the Monsoon Mission Climate Forecast System (MMCFS) and global climate centers suggest a high probability of El Niño emerging during the April to June 2026 season. These El Niño conditions are likely to persist and potentially strengthen throughout the 2026 southwest monsoon.

IOD Conditions over the Indian Ocean

In addition to ENSO conditions over the Pacific, other factors such as Indian Ocean Dipole (IOD) has also influence on the South Asian southwest monsoon. A positive (negative) IOD is associated with a stronger (weaker) than normal southwest monsoon over the region. Neutral Indian Ocean Dipole conditions currently prevail

over the Indian Ocean, and climate models indicate that a positive IOD phase is likely to emerge later in the monsoon season.

Snow Cover over the Northern Hemisphere (NH)

The NH winter and spring snow cover extent has a general inverse relationship with the subsequent summer monsoon rainfall over South Asia. The northern hemisphere snow cover areas during January to March 2026 were observed to be slightly below normal.

Regional Outlook for the 2026 Southwest Monsoon Rainfall over South Asia

The regional climate outlook for South Asia's 2026 Southwest monsoon rainfall was developed using objective seasonal forecasting guidelines combined with expert analysis of prevailing large-scale global climate indicators. It further incorporates experimental models from capacity-building workshops conducted for South Asian countries alongside earlier SASCOF sessions, along with both experimental and operational long-range forecasts generated by NMHSs in the region and by climate research and operational centres around the world.

There is a strong consensus among the experts that the El Niño conditions are likely to develop over the equatorial Pacific during April to June Season and likely to continue during the 2026 southwest monsoon season. Further, it is well-known that ENSO predictions at this time of the year generally have substantial uncertainty due to the so-called spring barrier in seasonal predictability. However, it is important to note that ENSO conditions are not the only factor that determines the performance of Southwest monsoon over the region. Other relevant climate drivers such as the state of the IOD, tropical Atlantic sea surface temperatures (Atlantic Zonal Mode), Eurasian land heating etc. are also important. All these parameters collectively shape the expected state of the monsoon over the region, and dynamical climate models inherently capture this relationship as they underpin the current outlook.

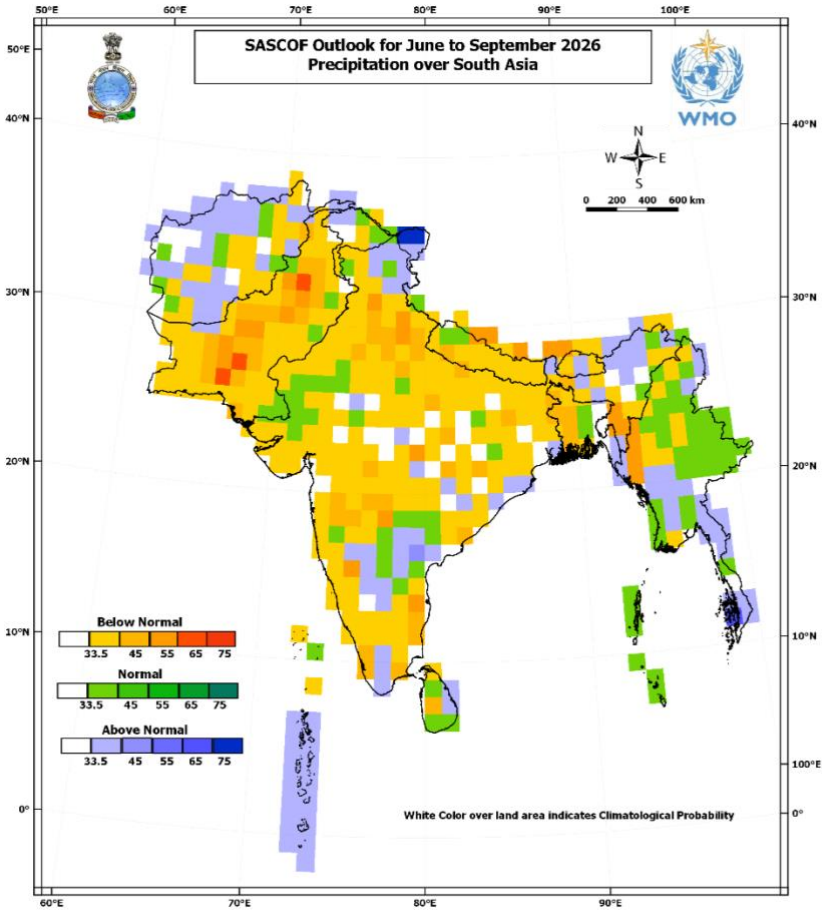

Fig.1a. Probability of the most likely category for the 2026 southwest monsoon rainfall over South Asia.

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[1]Tercile categories have equal climatological probabilities, of 33.33% each.

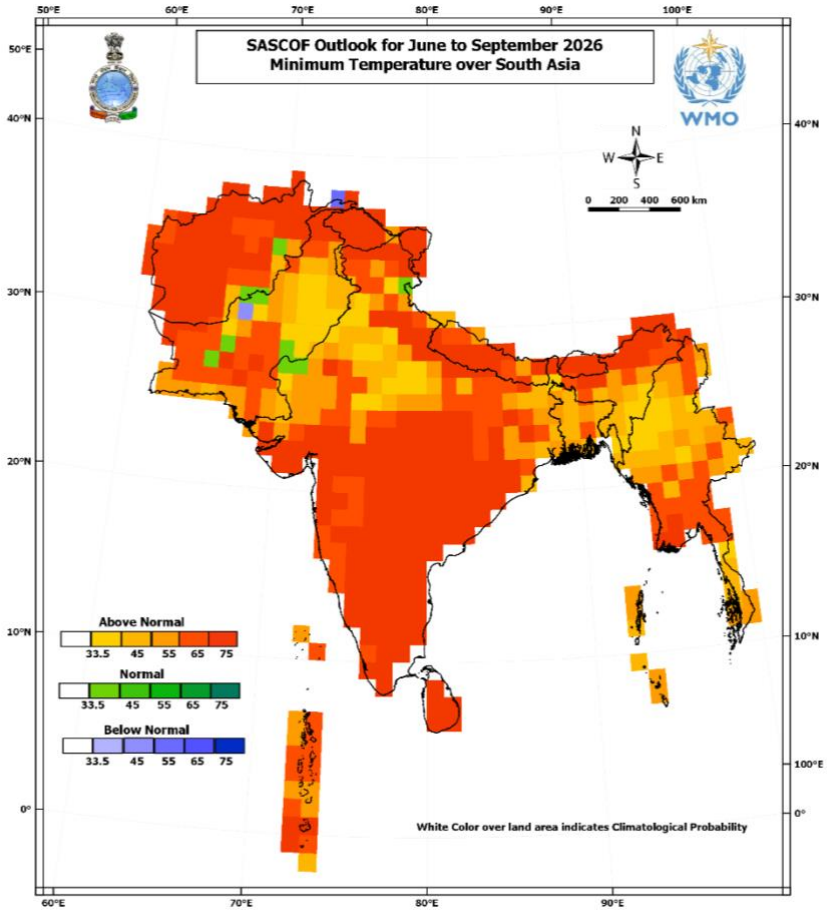

Fig.1b. Consensus outlook for the monsoon season (June to September 2026) Minimum Temperature over South Asia.

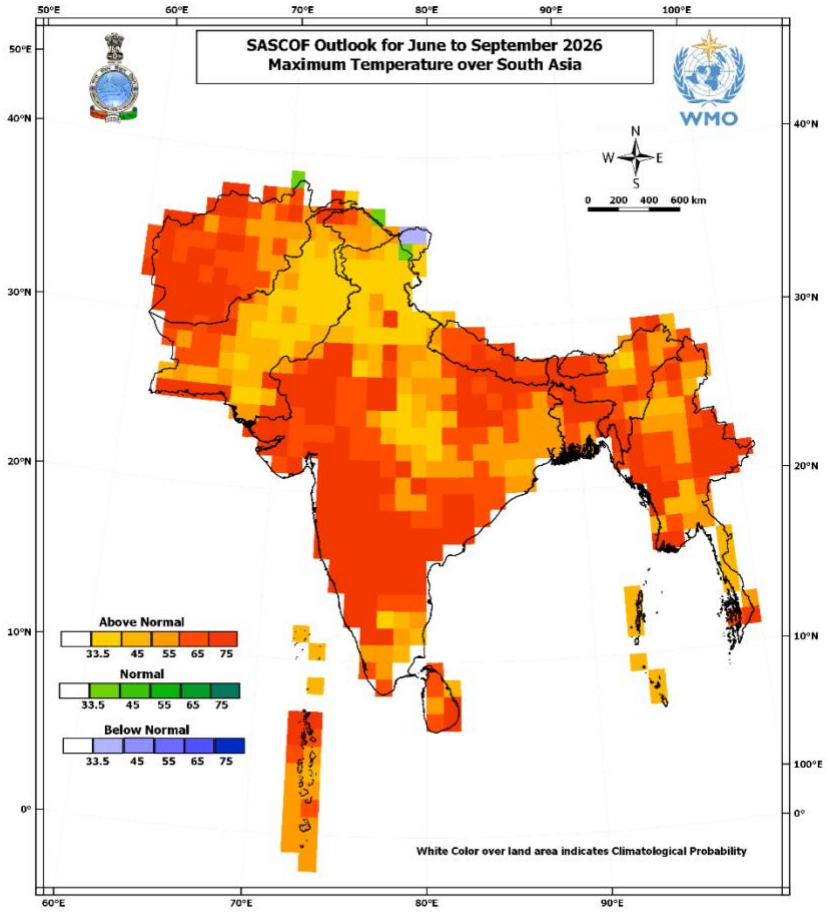

Fig.1c. Consensus outlook for the monsoon season (June to September 2026) Maximum Temperature over South Asia.

The outlook for the southwest monsoon rainfall and Temperatures (Minimum and Maximum) for the southwest monsoon season (June to September) over South Asia is shown in Fig. 1**a-c.** The Figure illustrates grid wise most likely tercile category[1] as well as its probability for each of the 1° latitude x 1° longitude spatial grid boxes over the region. The box-wise tercile probabilities were derived by a synthesis of the available information and expert assessment. It was derived from an initial set of gridded objective forecasts and was iterated through collaborative assessment to synthesize predictive signals coming from reliable multiple sources.

The outlook suggests that below normal rainfall is most likely during the 2026 southwest monsoon season (June–September) over most parts of South Asia, particularly across the central parts of the region**.** However, some areas over the

north-western, north-eastern, and parts of the southern region are likely to experience normal to above normal rainfall. **The** white shaded areas within the land represent no forecast signal from the model, where the models do not show a strong consensus signal.

The SASCOF outlook on minimum temperatures for June to September 2026 season suggests during the season, above normal minimum temperatures are most likely over South Asia except some isolated regions over the north-western part of the region where normal temperatures are most likely. The consensus outlook for maximum temperatures during the June to September 2026 season suggests that seasonal maximum temperatures are most likely to be above normal over South Asia.

As the rainfall and Temperatures during the southwest monsoon season depicts strong intra-seasonal variability, it is advised to watch the Sub-seasonal forecasts along with updated seasonal forecasts for better decision making. The sub-seasonal forecasts for rainfall, temperature, cyclone genesis, MJO etc. over the region can be obtained from RCC, Pune website (http://rcc.imdpune.gov.in/exrange.html). These forecasts are updated every week.

Verification of rainfall outlook for JJAS 2025 issued by SASCOF-31

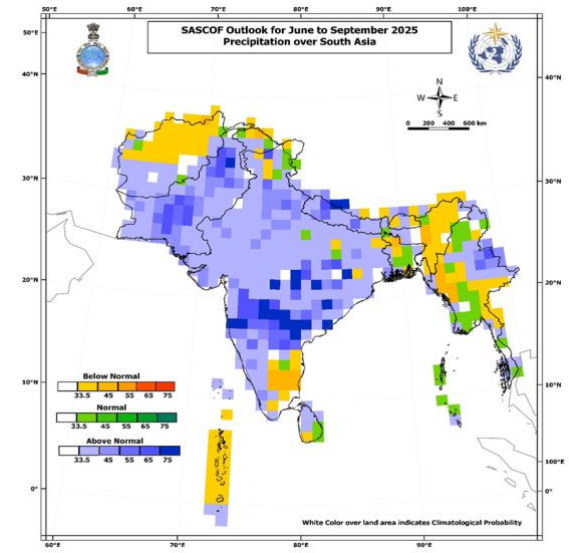

Fig 2a. Consensus outlook map for 2025 southwest monsoon rainfall over South Asia

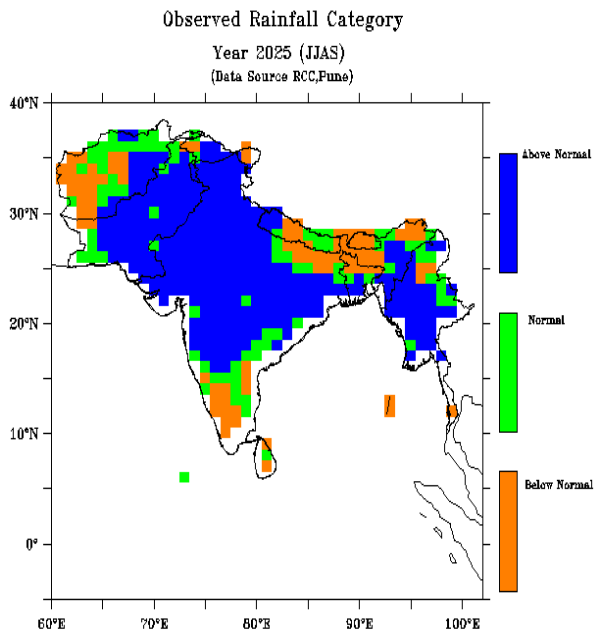

Fig 2b. Observed rainfall distribution during 2025 southwest monsoon season over South Asia expressed as the grid point rainfall tercile categories (base period 1982 to 2020).

The outlook for the 2025 southwest monsoon season (June to September), as shown in Fig. 2a, suggested above-normal rainfall over most parts of South, except some parts of northwestern, northeastern, and southern regions where below normal rainfall is predicted. Climatological probabilities were shown over the remaining areas where the forecast signal was weak.

Fig. 2b shows the observed rainfall distribution during the 2025 southwest monsoon season expressed in terms of tercile categories. Observations showed above-normal rainfall across large parts of the region, particularly in central areas, while normal to below-normal rainfall occurred in parts of the northwestern, northeastern, and southern regions. The outlook reasonably captured the broad spatial distribution of

rainfall anomalies. However, regional-scale differences were evident, especially in areas where observed rainfall categories did not match the forecast.

Background of SASCOF

Climate predictions are of substantial benefit to many parts of the world in risk management and adaptation to the impacts of climate variability and change, and it is considered useful for countries having common climatological characteristics to come together and collaboratively assess the available prediction information to develop consensus outlooks. Recognizing this, regional climate outlook forums (RCOFs) were conceived with an overarching responsibility to produce and disseminate a joint assessment of the state of the regional climate for the upcoming season. Built into the RCOF process is a regional networking of the climate service providers and user sector representatives. In Asia, China has been coordinating the 'Forum on Regional Climate Monitoring, Assessment and Prediction for Regional Association II' (FOCRA II) since 2005, covering the entire Asian continent.

Asia is a large continent with large differences in the climatological settings on sub-regional scales. Therefore, WMO's Regional Association II (Asia) recommended sub-regional RCOFs devoted to specific needs of groups of countries having similar climatic characteristics. Implementation of the South Asian Climate Outlook Forum (SASCOF) in 2010 is a step in that direction with specific focus on the climate information needs of nations affected by the Asian southwest monsoon climate. The first three sessions of the SASCOF were held at Pune, India (during April) and its 4th session was held in April, 2013 at Kathmandu, Nepal. SASCOF-5 (April 2014) was again held in Pune, India.

SASCOF-6 (April 2015) was held in Dhaka, Bangladesh along with Climate Service User Forum (CSUF) for water sector. SASCOF-7 (October 2015), which was the first forum that focused on the winter season, was held in Chennai, India in conjunction with the first CSUF-Agriculture. From SASCOF-7 onwards RIMES joined IMD and WMO in co-sponsoring and co-ordinating the SASCOF events and

associated user forum. SASCOF-8 (April 2016) was held in Colombo, Sri Lanka along with CSUF Water and CSUF-Health in parallel sessions. SASCOF-8 was also preceded by a capacity building training workshop on seasonal prediction for the operational climate experts of the South Asian countries. SASCOF-9 (September 2016) was held in Nay Pyi Taw, Myanmar in September 2016, in conjunction with the second CSUF-Agriculture.SASCOF-10 was held in Thimphu, Bhutan (April 2017) and SASCOF-11 was held in Male, Maldives (September 2017). The SASCOF-12 (April 2018) and associated training workshop on Climate Data Base Management and seasonal prediction were held in Pune, 2018. SASCOF-13 (September 2018) was held in Colombo, Sri Lanka. The SASCOF-14 and associated Pre-COF training workshop on seasonal prediction and CSUF was held in Katmandu, Nepal and hosted by Department of Hydrology and Meteorology (DHM). Met Office, UK joined other existing agencies (IMD, WMO and RIMES) in co-sponsoring the SASCOF events since SASCOF-14 event held during 18-23 April, 2019. The SASCOF-15 and associated Pre-COF training workshop on seasonal prediction and CSUF was held during 23-25September 2019in Thiruvananthapuram, India was hosted by India Meteorological Department (IMD).

The 16th to 24th Sessions of the SASCOF and associated Climate Service User Forum (CSUF) were held online in the backdrop of the extraordinary circumstances of Covid-19 pandemic prevailing in the world. After four years of online sessions of SASCOF, it was decided to restart the physical sessions of the SASCOF. Thus the 28th Session of SASCOF (SASCOF-28) was held in Pune, India coinciding with the celebration of 150th year of establishment of IMD. The SASCOF-28 is jointly coordinated and co-sponsored by IMD, WMO, RIMES and UKMO.

The table below shows the brief details of these SASCOF sessions held online during 2020-2025.

SASCOF EVENT	DATE	Host Country/Organization	SEASON	CSUF SECTOR
SASCOF-16 & CSUF	2020 (20-22 April)	RCC IMD, WMO, RIMES, UKMET Office & BMD	JJAS	Water, Agriculture, DRR & Health
SASCOF-17 & CSUF	2020 (23-24 & 28 September)	RCC IMD, RIMES & UKMET Office	OND	Water, Agriculture, DRR & Health.
SASCOF-18	2020 November	RCC IMD, WMO, RIMES & UKMET Office	DJF	-
SASCOF-19 & CSUF	2021 (26-28 April)	RCC IMD, WMO, RIMES & UKMET Office	JJAS	Water, Agriculture, DRR & Health
SASCOF-20 & CSUF	2021 (27-30 September)	RCC IMD, WMO, RIMES & UKMET Office	OND	Water, Agriculture, DRR & Health
SASCOF-21	2021 (25 November)	RCC IMD, WMO, RIMES & UKMET Office	DJF	-
SASCOF-22 & CSUF	2022 (26-28 April)	RCC IMD, WMO, RIMES & UKMET Office	JJAS	Water, Agriculture, DRR & Health
SASCOF-23 & CSUF	2022 (26-29 September)	RCC IMD, WMO & RIMES	OND	Water, Agriculture, DRR & Health
SASCOF-24	2022 (24 November)	RCC IMD, WMO & RIMES	DJF	-
SASCOF-25 & CSUF	2023 (27-29 April)	RCC IMD, WMO & RIMES	JJAS	Water, Agriculture, DRR & Health
SASCOF-26 & CSUF	2023 (27-30 September & 3 October)	RCC IMD, WMO & RIMES	OND	Water, Agriculture, DRR & Health
SASCOF-27	2023 (29 November)	RCC IMD, WMO & RIMES	DJF	-

SASCOF-28 &CSUF	2024 (29 April to 1st May 2024)	RCC IMD, WMO, RIMES & UKMET Office	JJAS	Water, Agriculture, DRR & Health
SASCOF-29 & CSUF	2024 (25 September to 3 October)	RCC IMD, WMO, RIMES & UKMET Office	OND	Water, Agriculture, DRR & Health
SASCOF-30	2024 (5 December 2024)	RCC IMD, WMO, RIMES & UKMET Office	DJF	-
SASCOF-31 & CSUF	2025 (28 April to 30 April)	RCC IMD, WMO, RIMES, UKMET Office & UNESCAP	JJAS	Water, Agriculture, DRR & Health
SASCOF-32 & CSUF	2025 (25 September and 3 October)	RCC IMD, WMO, RIMES, UKMET Office & UNESCAP	OND	Water, Agriculture, DRR & Health
SASCOF-33	2025 (27 November)	RCC IMD, WMO, RIMES, UKMET Office & UNESCAP	DJF	-

For preparing the consensus forecasts, the forecast products from various centres such as RCC Pune, JMA, CMA, WMO's Lead Centre for Long Range Forecasting–Multi-Model Ensemble (WMO LC-LRFMME), National Centre for Environmental Prediction (NCEP), USA, Météo France, Met Office UK, European Centre for Medium Weather Forecasting (ECMWF), Canadian Meteorological Centre (CMC), Bureau of Meteorology (BoM), Australia, International Research Institute for Climate and Society (IRI), USA, Japan Agency for Marine-Earth Science and Technology (JAMSTEC), APCC, and CPTEC, Brazil etc. were also considered.

The long-term historical patterns of the southwest monsoon rainfall over South Asia (Fig.3), characterized by remarkable spatial variability, provide the general reference points at the respective locations for the rainfall anomalies indicated in the outlook.

The long-term historical patterns of the Temperature (Minimum and Maximum) over South Asia during June to September (Fig.4 a & b), characterized by large spatial

variability, provide the general reference points at the respective locations for the temperature anomalies indicated in the outlook.

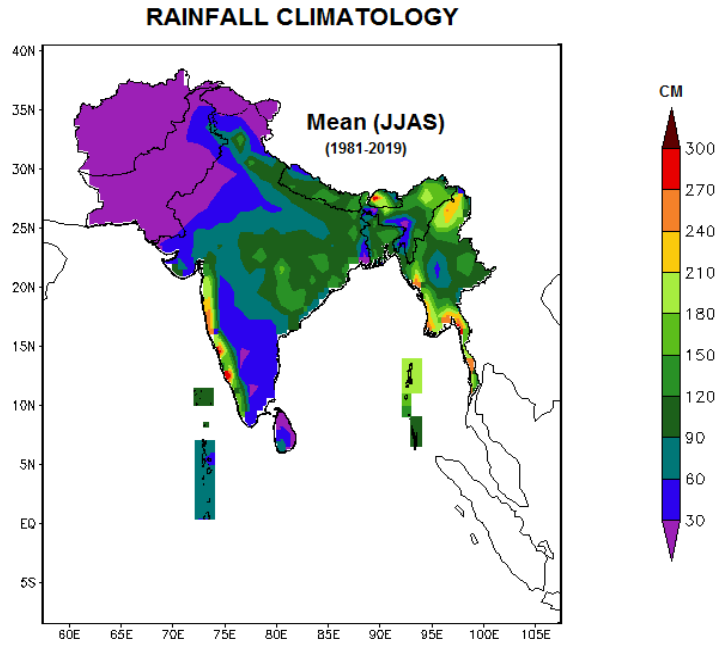

Fig.3 Rainfall climatology for the period 1981-2019 over South Asia Source: Merged rainfall data over south Asia of RCC, Pune)

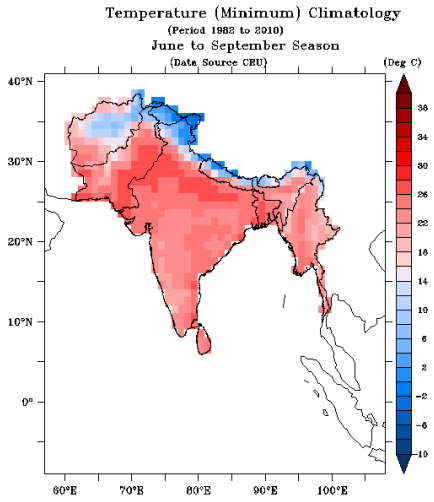

Fig.4 (a) Minimum Temperature climatology for the period 1982-2010 for June to September Season over South Asia

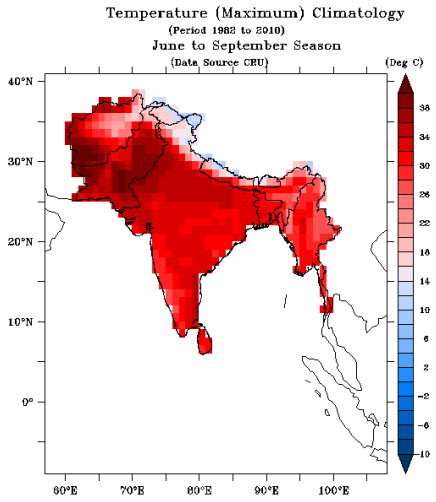

Fig.4 (b) Maximum Temperature climatology for the period 1982-2010 for June to September Season over South Asia