

**Thirteenth Session of
South Asian Climate Outlook Forum (SASCOF-13)
Colombo Sri Lanka, 26-28 September 2018**

**Consensus Statement on the Forecast for the 2018
October to December (OND) Season Rainfall and Temperatures
over South Asia**

Summary

- ❖ Some parts of southeast Peninsular India, most parts of Sri Lanka, southern parts of Maldives and some areas of northeastern part of the South Asia region are likely to receive above normal rainfall during the 2018 OND season. Below normal is most likely over southeastern part of the region, along the coastal areas adjacent to the north Bay of Bengal and southeastern most areas of Peninsular India. Normal rainfall is most likely over remaining areas of the region including northwest and central areas that generally receive very little rain during the season.
- ❖ Normal to slightly above normal temperatures are likely during the 2018 OND season over most parts of the region.
- ❖ Currently warm neutral ENSO conditions prevail in the Pacific Ocean and these conditions are likely to turn to border line/ weak El Niño conditions during the OND season and continue till early next year. It is recognized that in addition to SST forcings from Pacific and Indian oceans, other regional and global factors as well as the strong intra seasonal climate features of the region will also have influence on the climate anomaly patterns over the region leading to increased uncertainty in the prediction of the season averaged rainfall and temperature patterns over the region.
- ❖ The consensus forecast outlook presented here has been developed through an expert assessment of the prevailing global climate conditions and forecasts from different climate models from around the world.
- ❖ A separate consensus statement for winter season (December 2018 to February 2019) will be issued in November 2018. For more information and further updates on the northeast monsoon outlook on national scale, the respective National Meteorological and Hydrological Services (NMHSs) may be consulted.

Introduction:

Associated with the southward shift of the Inter Tropical Convergence Zone (ITCZ), north easterly trade-wind regime (northeast monsoon or NEM) gets established over South Asia during the October to December (OND) season. This brings significant amounts of rainfall to the southern parts of India, Sri Lanka and Maldives. The season also coincides with one of the major agricultural seasons of the region. It has been recognized that there is moderate seasonal predictability for the NEM over the region as the seasonal variability is strongly influenced by the slowly varying boundary forcings like sea surface temperatures. However, the predictability is also limited to some extent due to the high frequency atmospheric variability caused by the passage of the synoptic scale systems such as easterly waves, lows, depressions, cyclones etc. The seasonal predictability of the NEM is also influenced by the Madden Julian Oscillation (MJO), which represents the major global scale intraseasonal variability pattern.

The current climate outlook was prepared during the 13th session of the South Asian Climate Outlook Forum (SASCOF-13), which is also the fourth session devoted exclusively for the NEM. SASCOF-13 was held at Colombo, Sri Lanka during 26-28 September 2018. The forum meeting was attended by several experts from various South Asian countries such as Bangladesh, Bhutan, India, Maldives, Myanmar, Nepal and Sri Lanka. The forum was also attended by the experts from Japan Meteorological Agency (JMA), UK Met Office, European Centre for Medium-range Weather Forecasting (ECMWF) and the Regional Integrated Multi-Hazard Early Warning System for Africa and Asia (RIMES). This session of the SASCOF was supported by the UK Met Office under the Asia – Regional Resilience to Changing Climate (ARRCC) program funded by the World Bank and the UK's Department for International Development (DFID). The Forum deliberated on various observed and emerging climatic features that are known to influence the climate of the region such as the El Niño-Southern Oscillation (ENSO) conditions over the equatorial Pacific, Indian Ocean Dipole (IOD) conditions over the Indian Ocean etc. The key features of these conditions are as follows.

ENSO Conditions over the Pacific Ocean

The El Niño/Southern Oscillation (ENSO) is one of the global scale climate phenomena that have significant influence on the year-to-year variability of the NEM rainfall as well as the surface temperatures over South Asia.

Neutral ENSO conditions are prevailing over the equatorial Pacific since June with above normal sea surface temperatures (SSTs) over the central equatorial Pacific. Atmospheric conditions over the Pacific also indicate ENSO neutral conditions. The latest forecast from most of the global models indicates enhanced probability of SST warming over equatorial central and east Pacific and likely development of weak El Niño conditions during the 2018 OND season, which are likely to continue till the early part of next year. It is recognized that in addition to SST forcing from Pacific and Indian oceans, other regional and global factors as well as the strong intra seasonal climate features of the region will also have influence on the climate anomaly patterns over the region leading to increased uncertainty in the prediction of the season averaged rainfall and temperature patterns over the region.

Conditions over the Indian Ocean

Currently, Indian Ocean Dipole (IOD) neutral conditions are prevailing. The latest forecast from the global models indicates neutral to positive IOD conditions are likely during the northeast monsoon season.

Consensus Outlook for the 2018 OND Season Rainfall over South Asia:

A consensus outlook for the OND season rainfall over South Asia has been prepared based on the expert assessment of prevailing large-scale global climate indicators mentioned above and experimental as well as operational long-range forecasts based on statistical and dynamical models generated by various operational and research centres of the world including WMO Regional Climate Centers (RCCs) and Global producing centers of LRF (GPCs).

It is recognized that there is increased probability of development of border line/weak El Niño conditions during the OND season. It is also recognized that El Niño and La Niña are not the only factors that drive global climate patterns, and that the strength of El Niño/ La Niña does not automatically correspond to the strength of its effects. It is also recognized that there is uncertainty in the prediction of climate of the region due to the significant high frequency atmospheric variability generally observed in the region.

The outlook for the 2018 OND rainfall over South Asia is shown in **Fig.1**. The figure illustrates the most likely tercile category¹ 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 synthesis of the available information and expert assessment. It was derived from an initial set of gridded objective forecasts and modified through a consensus building discussion of climate experts.

The outlook suggests that above normal rainfall is most likely during the 2018 OND season over some parts of southeast Peninsular India, most parts of Sri Lanka, southern parts of Maldives and some areas of northeastern part of the South Asia region. Below normal is most likely over southeastern part of the region, along the coastal areas adjacent to the north Bay of Bengal and southeastern most areas of Peninsular India. Normal rainfall is most likely over remaining areas of the region including northwest and central areas that generally receive very little rain during the season.

Normal to slightly above normal temperatures are most likely during the 2018 OND Season over most parts of the region.

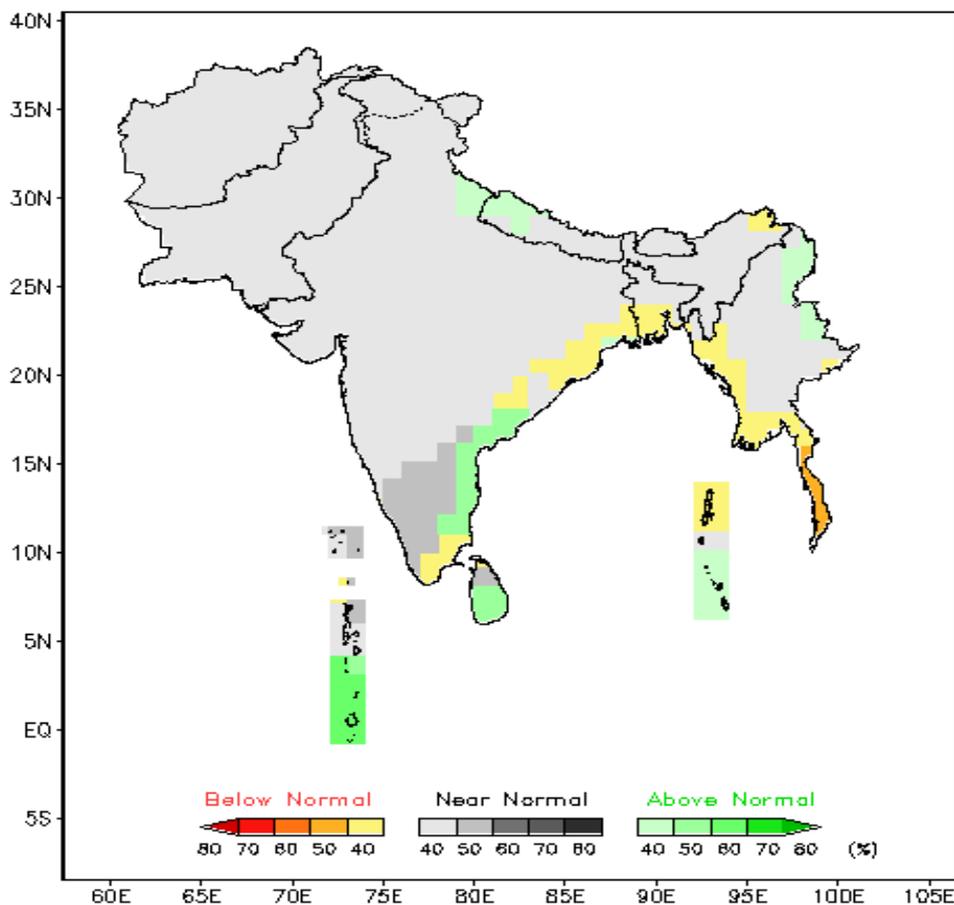


Fig.1.Consensus outlook for the 2018 OND season rainfall over South Asia.

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

Verification of the Consensus Forecast for the 2017 NE Monsoon Season Rainfall

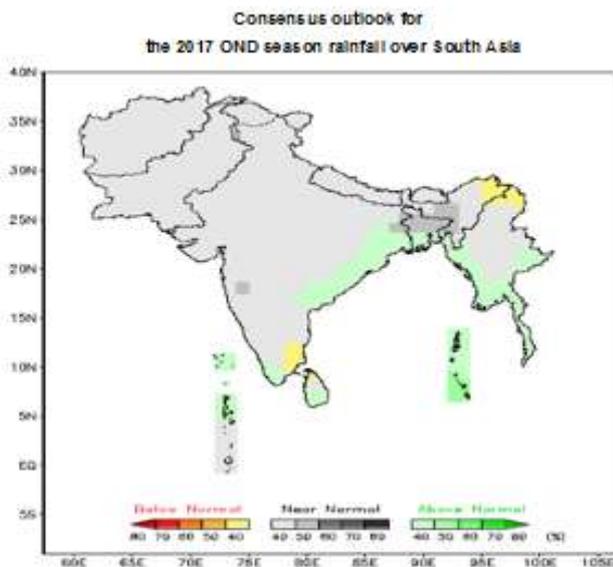


Fig.2. Consensus forecast map of the 2017 Northeast monsoon Rainfall over South Asia.

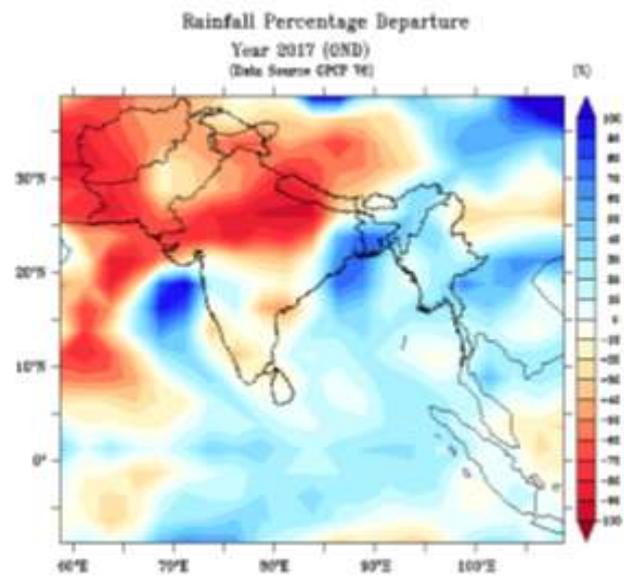


Fig.3. The observed rainfall anomaly (percentage departure) during the 2017 Northeast Monsoon Season over South Asia.

The consensus outlook map (**Fig.2**) for the OND season of 2017, developed in the 11th session of the South Asian Climate Outlook Forum (SASCOF-11) had indicated below normal rainfall over some parts of SE Peninsular India, north Sri Lanka and some northeastern areas of the region, above normal rainfall over southeastern part of the region and along the coastal areas adjacent to the north Bay of Bengal and normal rainfall over remaining areas, The observed rainfall anomaly map (**Fig.3**) shows below normal rainfall over most parts the south Peninsular India and above normal over northeastern and eastern parts of the region including coastal areas adjacent to the Bay of Bengal as indicated by the consensus forecast map. However, it may be noted that the central and northwestern parts of the region showing large below normal observed rainfall are climatologically dry areas during the season.
