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Consensus Seasonal Weather Outlook March, April and May (MAM) 2017 Seasonal Rainfall for Sri Lanka

This forecast was prepared using

- The prevailing global climate conditions.
- Forecasts from different climate models from around the world.
 - Statistical downscaling of GCM output using CPT

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And

Research Division

(a) Prevailing global climate conditions

La Niña conditions are no longer present, with slightly below-average sea surface temperatures (SSTs) observed across the central equatorial Pacific and above-average SSTs increasing in the eastern Pacific (Fig. 1 and 2). Atmospheric convection remained suppressed over the central tropical Pacific and enhanced over Indonesia. The low-level easterly winds were slightly enhanced over the western tropical Pacific, and upper-level westerly winds were near average. Overall, the ocean and atmosphere system is consistent with ENSO-neutral conditions.

Most models predict the continuation of ENSO-neutral through the Northern Hemisphere summer (Fig. 3) (www.cpc.noaa.gov).

Recent forecasts from coupled models suggest neutral IOD conditions will prevail during the March to May 2017 (Fig 3 lower).



Fig 1:Observed Average sea surface temperature (SST) anomalies (°C)



Fig 2 :Weekly Observed Average sea surface temperature (SST) anomalies (°C)



Early-Feb CPC/IRI Official Probabilistic ENSO Forecast

POAMA monthly mean IOD - Forecast Start: 26 FEB 2017



Fig 3: ENSO forecast from Climate Prediction Center (CPC)/ IRI Forecast(above) and IOD forecast from Australian Bureau of Meteorology (below).

(a.) Forecasts from different climate models from around the world.

(a.1) For MAM season

Figure 4 shows the probabilistic multi model ensemble forecast using dynamical models from 12 global producing centers (GPC) for MAM season. There is no signal for MAM season over Sri Lanka (Fig. 4). Climatological probability can be expected for MAM 2017.



Fig 4 : Probabilistic multi model ensemble forecast for MAM using dynamical models from 12 WMO global producing centers (GPC).

(a.2) Forecast for March, April and May 2017

Figure 6 shows the probabilistic multi model ensemble forecast using dynamical models from 12 global producing centers (GPC) for, March, April and May2017. There is no clear signal over Sri Lanka for March, April and May 2017 (Fig 5). It indicates that there are equal chances of receiving below normal, near normal and above normal rainfall for March, April and May 2017.



Fig 5 : Probabilistic multi model ensemble forecast for March (Upper), April (middle) and May 2017 (lower) using dynamical models from 12 WMO global producing centers (GPC).

(c) Statistical downscaling of CFSv2 global forecast output

(c.1) Probabilistic Forecast for MAM season2017 using Climate Predictability tool (CPT)

The probabilistic rainfall forecast for MAM 2017for Sri Lanka by downscaling CFSv2 SST using CPT is given below.

The district wise average rainfall is given in the column 2 of the table 1. Chance (probability) of receiving below/about/above average is given in the columns 3, 4, and 5 respectively in the table 1. Colombo, Kalutara, and Galle, , have more chance (higher probability) of receiving slightly below average rainfall during MAM season 2017. There is no signal for Gampaha, Puttlum, Kurugegala and Kegalle districts for MAM 2017. Rest of the districts has more chances of receiving slightly above average rainfall during MAM season 2017.

D: / : /	Average rainfall		Probability	
District	(mm) –MAM		%	
	1	Below	Normal	Above
Colombo	864.4	45	25	30
Kalutara	1102.7	50	20	30
Galle	939.2	45	20	35
Matara	695.9	25	25	50
Hambantota	279.8	20	20	60
Ampara	245.3	20	20	60
Batticaloa	201.5	20	20	60
Trincomalee	177.0	20	20	60
Mullaithivu	178.7	25	25	50
Jaffna	107.0	20	20	60
Killinochchi	142.5	20	20	60
Mannar	205.2	30	20	50
Puttalam	338.3	35	30	35
Gampaha	739.8	40	30	30
Kegalle	967.9	35	25	40
Ratnapura	880.9	25	25	50
Monaragala	372.7	20	20	60
Badulla	463.1	20	20	60
Pollonnaruwa	265.1	20	20	60
Vavuniya	226.2	30	25	45
Anuradapura	264.0	30	20	50
Kurunegala	443.1	30	35	35
Matale	374.4	20	20	60
Kandy	507.7	25	25	50
Nuwaraeliya	638.1	20	20	60





Fig 6. Probabilistic rainfall forecast for March-May2017 using CPT

(d) (c.2) (c.1) Probabilistic Forecast for MAM season 2017 using RIMES FOCUS System



PROBABILISTIC-FORECAST-FEB-MAM-2017-135673

Fig 11. Probabilistic rainfall forecast for March-May2017 using RIMES FOCUS System

The probabilistic rainfall forecast for MAM 2017for Sri Lanka by downscaling for 3 climatic zones (Fig 11) indicates higher chances of receiving below normal rainfall for the wet zone, and there is no signal for intermediate zone and dry zone.

Summary

SUMMARY of MODEL FORECAST forMAMseason for SRI LANKA						
Season	WMO LC	RIMES	СРТ	Final		
	MME	FOCUS				
For MAM	No Signal	BN for wet	BN in Colombo,	Near Normal		
season		zone and No	Kalutara and Galle			
		signal	districts, No signal in			
		elsewhere	Gampaha, Puttlum ,			
			Kurunegala and			
			Kegalle districts and			
			AN elsewhere			
For March2016	No Signal	AN for Intermediate zone and No signal elsewhere	BN Southwest coastal region, N elsewhere	Near Normal		
For April2016	No Signal			Climatological Probability		
For May 2016	No signal			Climatological		
1.01 wiay2010	ino signai			Probability		
2				Probability		

BN: Below Normal N: Normal AN: Above Normal CP: Climatological Probability

Table 2 : Summary of Model forecasts for Sri Lanka

Most of the global model forecasts provide no clear signal over Sri Lanka for MAM season. The multimodel averages favor ENSO neural conditions during MAM season. Recent forecasts from coupled models suggest to neutral IOD conditions will prevail during the March and April.

Considering the ENSO and IOD neutral conditions and global model predictions, near normal rainfall can be expected for MAM season 2017 (Fig 12).



Fig 12. Consensus Probabilistic rainfall forecast for March-May2017