

Weather Synopsis –August 2020.

Below normal rainfall was reported at most of the principal meteorological stations except Badulla, Bandarawela, Hambantota, Puttalam, Mannar, Katugastota and Nuwara Eliya as well as Ratnapura (Fig 1).

Most of the hydro catchment stations located along western slopes of the central hills reported below normal rainfall. However the hydro catchment stations located along eastern slopes of the central hills such as Victoria, Randenigala, Bowatenna and Ukuwela reported above normal rainfall.

Highest cumulative rainfall was 537.7 mm at Watawala . Highest rainfall received during 24hours, was 97mm at Udaradella on 07th August.

Showery conditions were enhanced over the southwest quarter due active southwest monsoon conditions during the first week of the month. Mainly fair weather prevailed over the island from 12th to 21st August. Isolated afternoon thunderstorms occurred at Eastern and Uva provinces and at Mullativ district from 22nd to 30th August. Afternoon convective showers were enhanced especially over the north-western, north-central and south-eastern parts on 31st August with the formation of cyclonic circulation to the southeast of Sri Lanka at 500 hPa level.

According to Disaster Management Center (DMC), one death was reported from Higurakgoda due to lightning on 31st and several families were affected by strong winds and heavy rain during August 2020 (Table 3).

On the apparent southward relative motion of the sun, it is going to be directly over the latitudes of Sri Lanka during 28th of August to 07th of September in this year.

Date	Time	The nearest towns of Sri Lanka over which the sun is overhead
August 28	12.11	Karampan, Kokuvil and Sarasalai
August 29	12.10	Karaiyamullivaikal and Puthukkudiyirippu
August 30	12.10	Talvupadu, Mannar, Mundumurippu and Tennamaravadi
August 31	12.10	Karadikkuli, Kappachchi, Neriyakulam, Punewa, Pandiggama, Ambagaswewa, Kanniyal, Uppuveli

Below average maximum temperatures were experienced during first half of the month and above average maximum temperatures were reported during second half of the month. Night minimum temperatures over most parts were above normal.

Reported maximum temperature was 38.5 °C at Polonnaruwa on 22nd and reported minimum temperature was 9.7 °C at Nuwara Eliya on 22nd

Borderline La Nina neutral conditions were observed during Month of August 2020. Ocean Nino Index is -.6 during July August and September (NOAA Climate prediction Center). Slightly negative IOD was observed during August 2020 (BoM, Australia). Sea surface waters in tropical Indian Ocean are warmer than average (Fig. 5)

The average position of the shear line was laid between 01°S and Equator from 40°E to 60°E, about Equator from 60°E to 100°E, between Equator and 04°N and from 100°E to 120°E (Fig 4). It was fluctuated about 2° north and south of average position .

Strong Madden-Julian Oscillation (MJO) was at phase 4 during first week, became weak during 2nd week, re-strengthen at the phase 1 during 3rd week and propagated to phase 2 from 28th to 31st August (Fig.6).

Weather Systems

Five low pressure systems formed over north Bay of Bengal during August 4-10, August 9-11, August 13-18, August 19-26 and August 24-31 2020. All these systems moved nearly west-northwestwards across central India up to West Madhya Pradesh/Rajasthan (Source : India Meteorological Department)

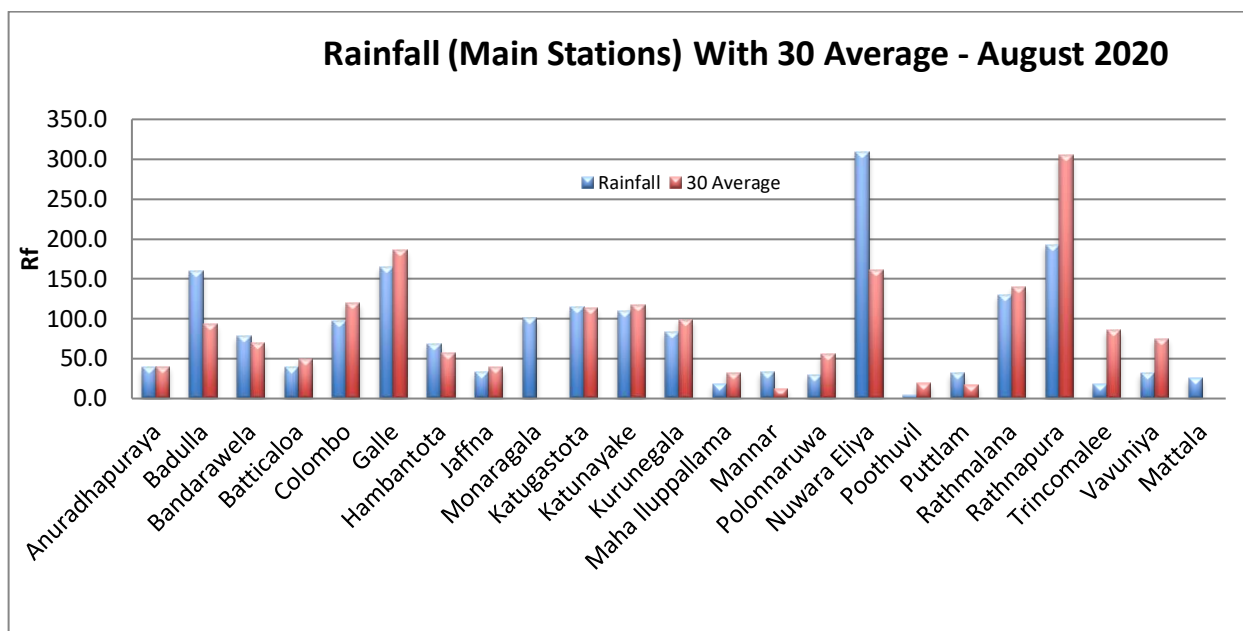


Fig 1: Monthly Total Rainfall(mm) with 30 years (1961-1990) of their averages at Main Meteorological stations areas during August 2020

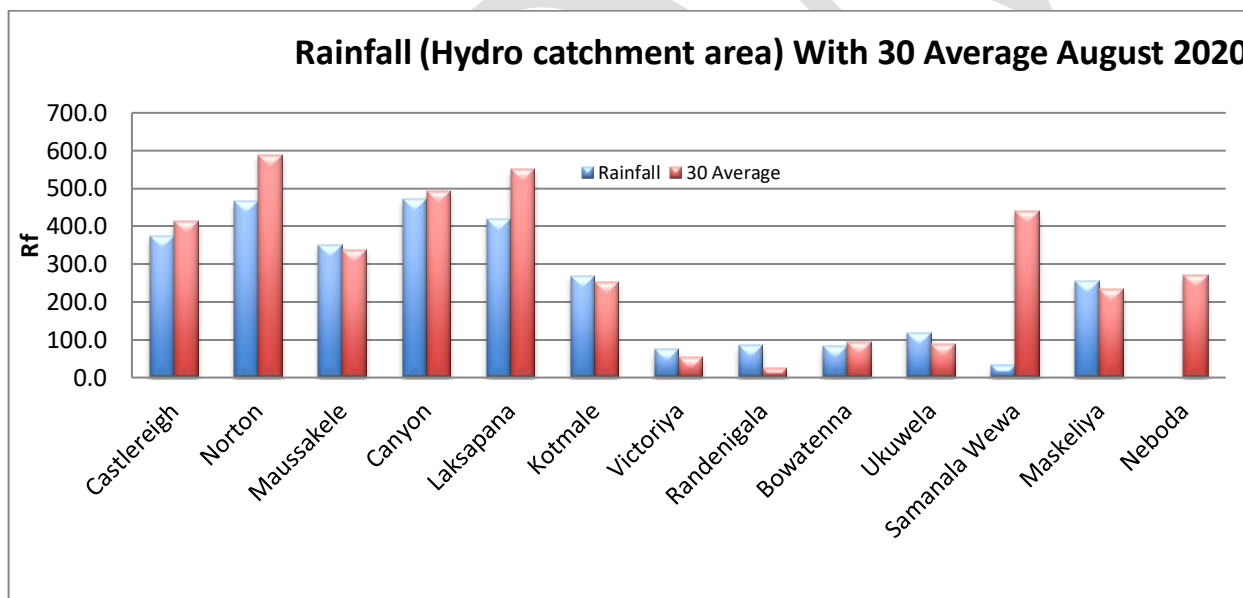


Fig 2: Monthly Total Rainfall(mm) with 30 years (1961-1990) of their averages at Hydro catchment areas during August 2020

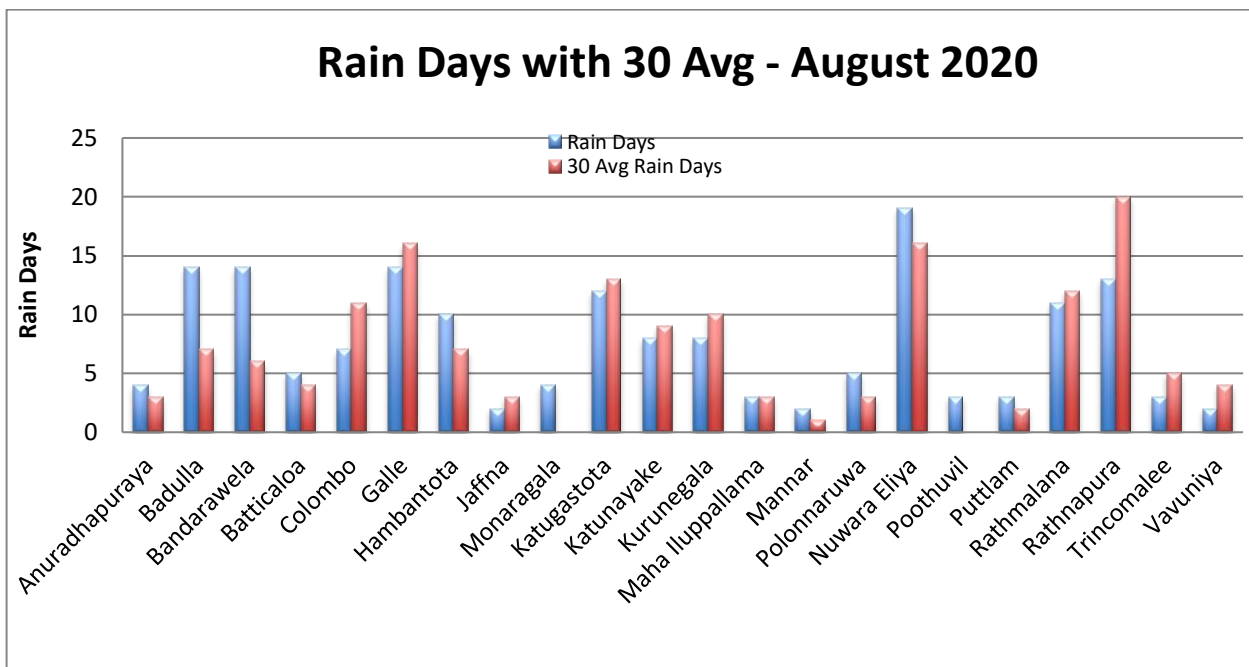


Fig 3: monthly total no of rainy days with 30 years(1961-1990) of their averages at main Meteorological stations during August 2020

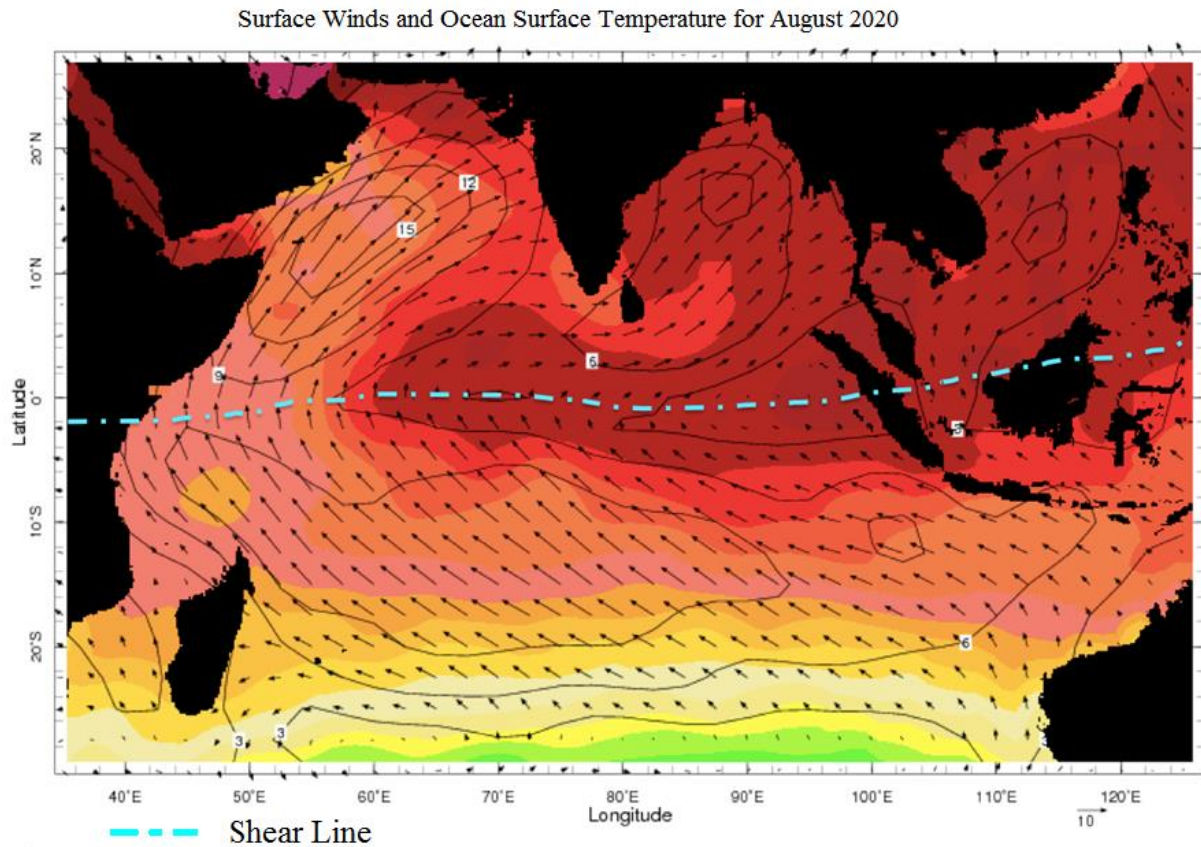


Fig 4: Ocean Surface Winds and Ocean Surface Temperature for August 2020

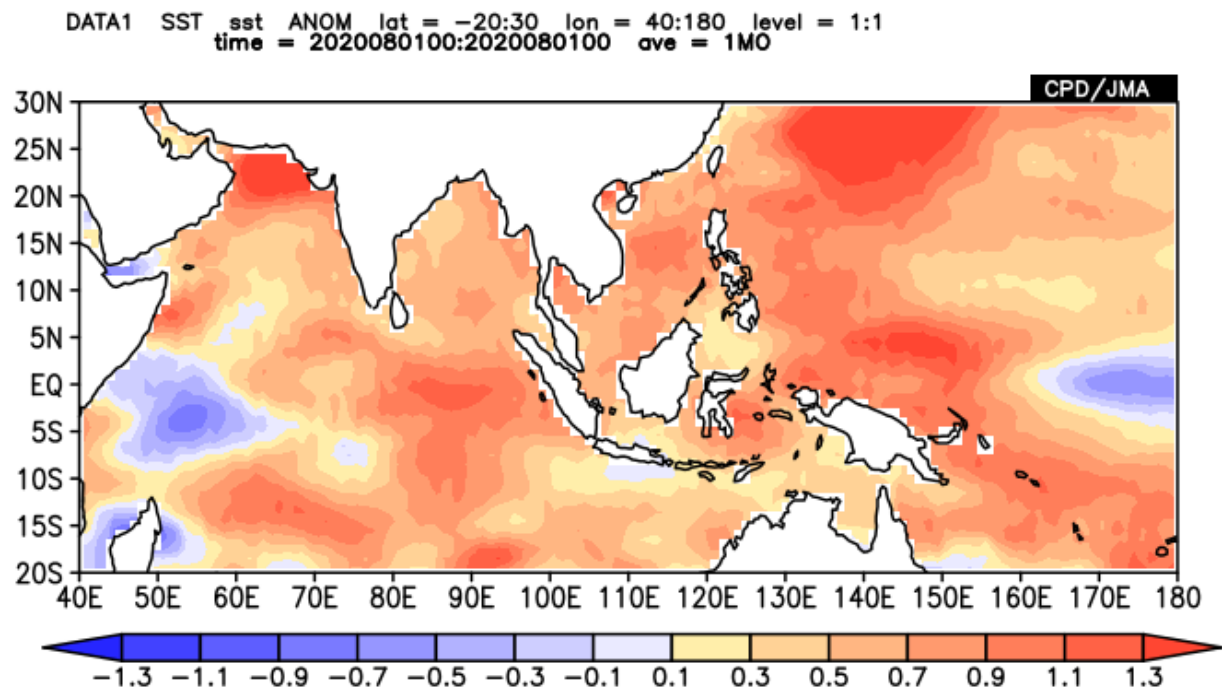
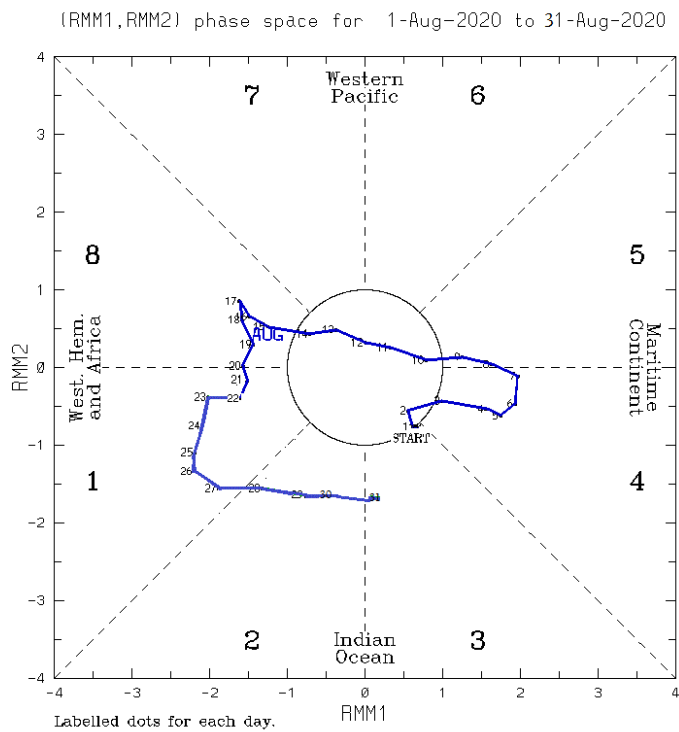


Fig 5: Sea Surface Temperature anomalies for August 2020

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Fig 6: Phase diagram of MJO Index

Surface pressure and winds: The surface pressure was about or below average except 11th, 12th and 25th when it was above average. South-westerly pressure gradient was mild on 22nd to 27th, and 31st; moderate on 05th, 07th to 12th, 15th to 21st, 28th to 30th; and steep on 01st to 04th and 06th. Pressure distribution was fairly even 13th and 14th.

The surface wind was from westerly to south westerly direction and speed varied within 05-15kts. The surface wind was from westerly to south westerly direction and speed varied within 05-20kts during the first week of the month.

Upper winds:

At 850hPa, Westerly wind flow is dominated over the island. Anomalous anti cyclonic circulation appeared over Sri Lanka at 850mb level providing favourable condition for rainfall reduction (Fig 7).

At 700 hPa, Westerly wind flow is dominated over the island. Anomalous anti cyclonic circulation appeared over southeast of Sri Lanka at 700mb level providing favourable condition for rainfall reduction (Fig 8).

At 500 hPa, North westerly wind flow is dominated over the island. Northeast southwest oriented ridge appeared to the west of Sri Lanka providing favourable condition for rainfall reduction. Cyclonic circulation to the southeast of Sri Lanka at 500 hPa level on 31st.

The 200 hpa the upper tropospheric ridge was laid from 29⁰N from 40⁰E to 100⁰E . Tropical easterly jet was appeared in the vicinity of Sri Lanka.

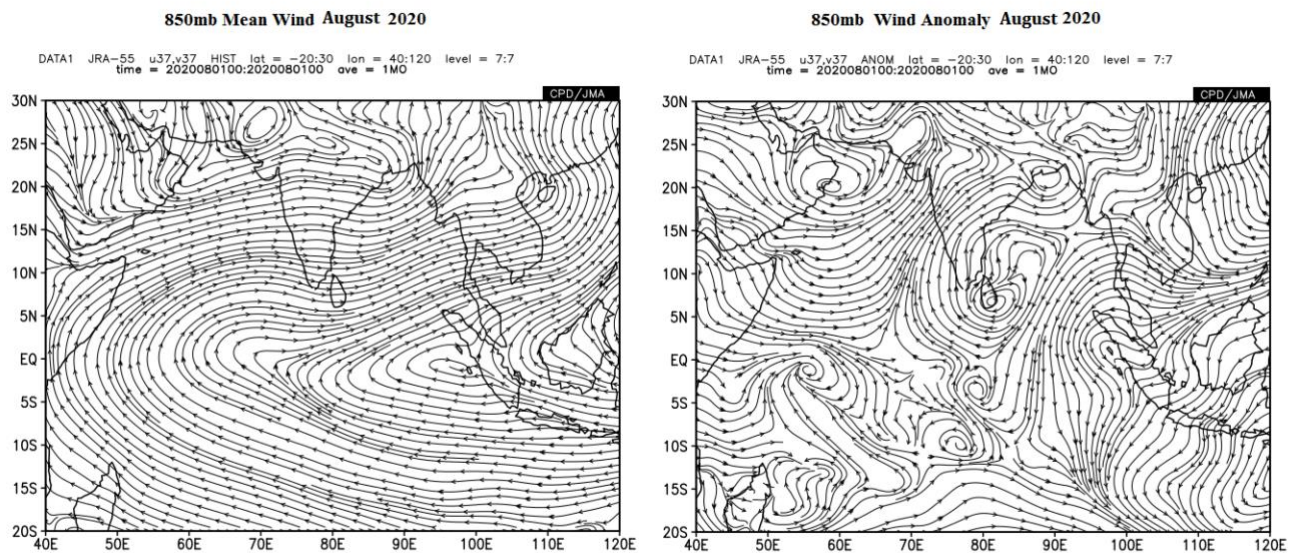


Fig. 7 Monthly average wind pattern at 850hpa level during the month of August2020 (JRA55)

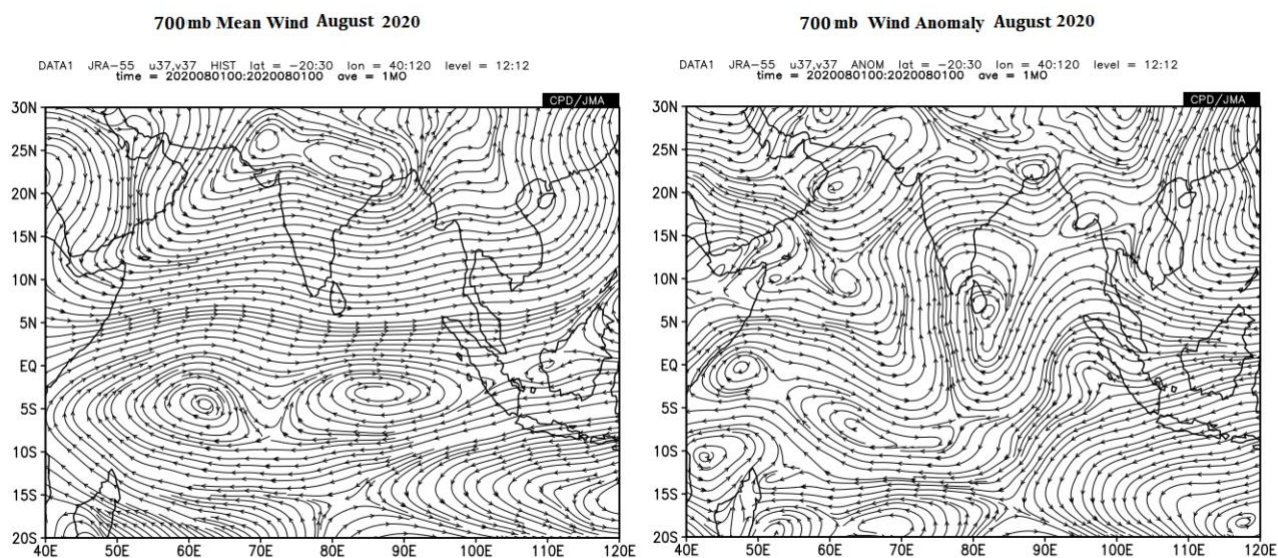


Fig. 8 Monthly average wind pattern at 700hpa level during the month of August2020 (JRA55)

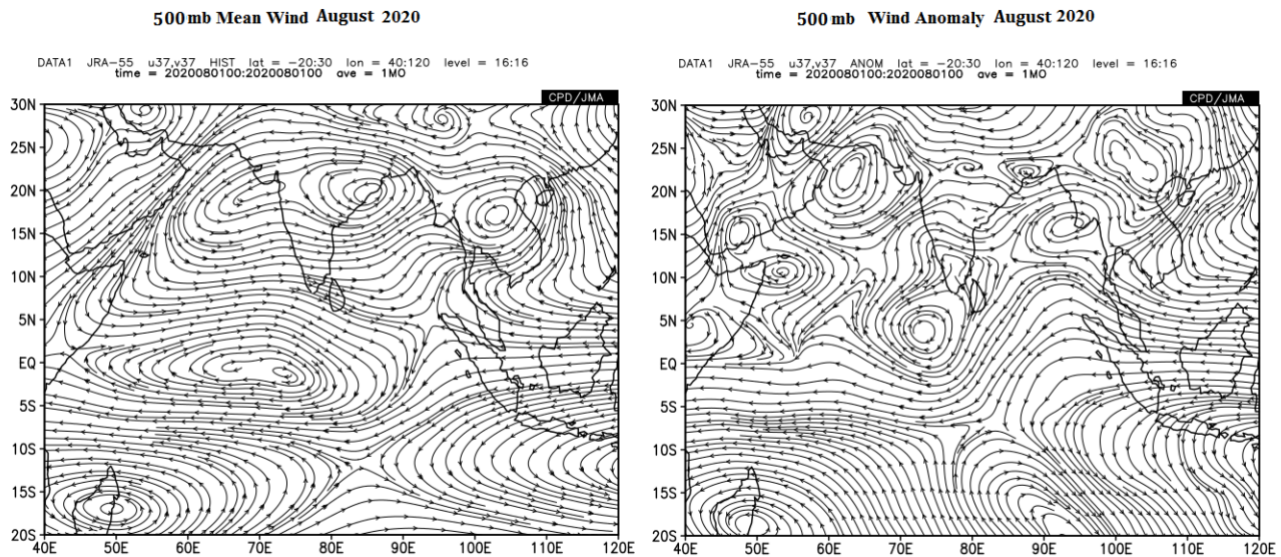


Fig. 9 Monthly average wind pattern at 500hpa level during the month of August 2020 (JRA55)

Temperature Field:

The maximum temperatures in the day were mostly below normal in most places during first 10 days of the month of August 2020. However well above normal day temperatures were reported from Batticaloa and Hambantota during first two weeks of the month. Day temperatures were mostly above normal during last two weeks of the month (Fig. 10). Highest recorded maximum temperature for the month of August 2020 was 38.5 °C at Polonnaruwa on 22nd (Table 4a).

Night minimum temperatures over most parts were above normal especially during the first half of the month (Fig 11). However some stations such as Badulla and Nuwara Eliya reported below average minimum temperatures during last 10 days of the month. Lowest recorded minimum temperature for the month of August 2020 was 9.7 °C at Nuwara Eliya on 22nd (Table 4b).

Maximum and Minimum departures from normal day/night temperature were shown in table 4.

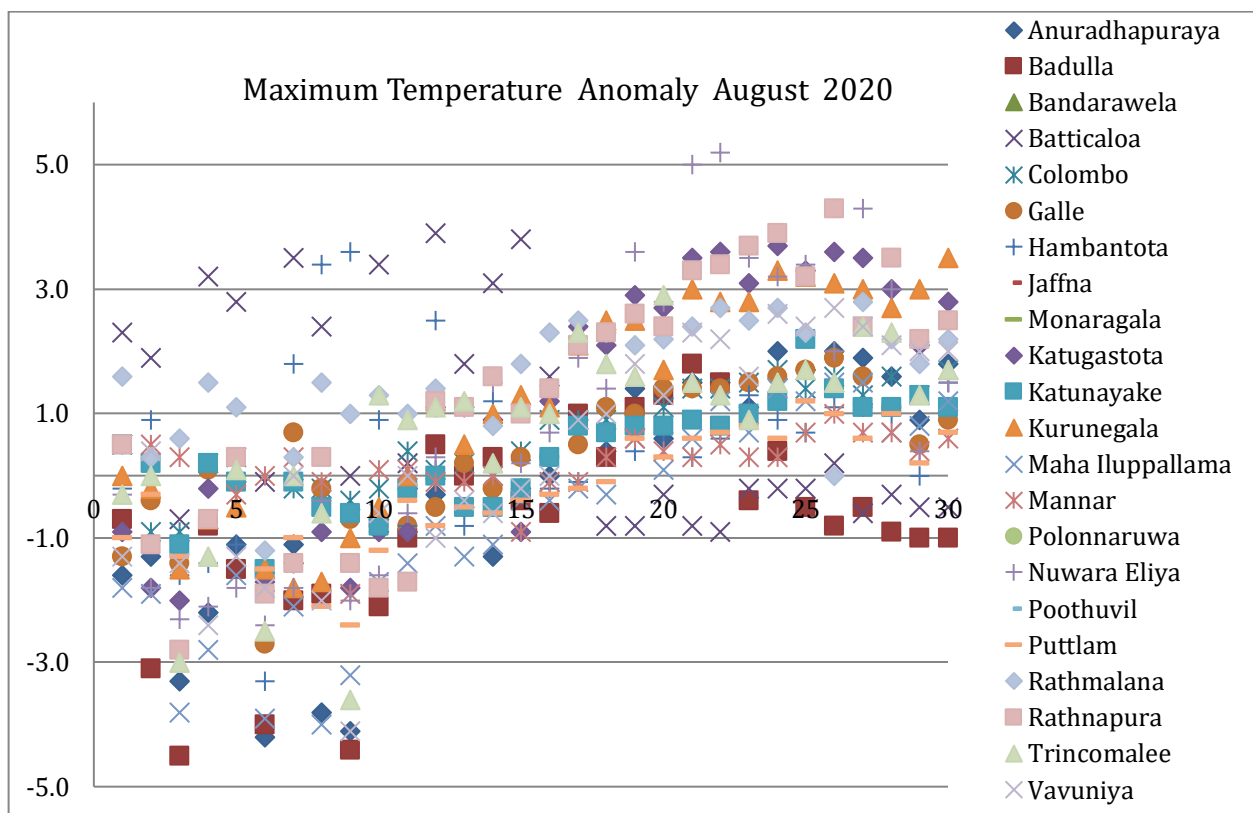


Fig 10 Maximum Temperature anomaly ($^{\circ}\text{C}$) for August 2020

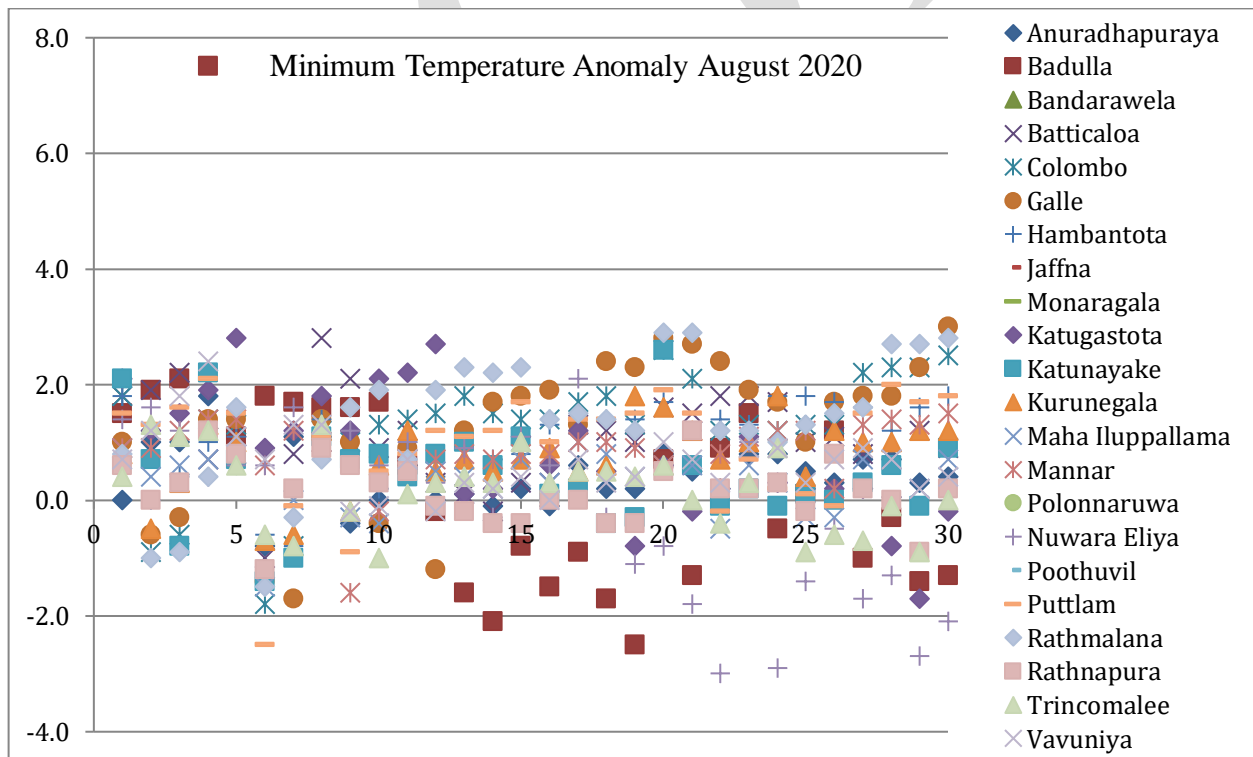


Fig 11 Minimum Temperature anomaly ($^{\circ}\text{C}$) for August 2020

Below average rainfall was reported from most of the main meteorological station except Badulla, Bandarawela, Hambantota, Mannar, Katugastota, NuwaraEliya and Puttalam stations. Maximum percentage was reported from Mannar (266.7%) while minimum from Pottuwil station (18%)(Table 2).

Most of the hydro catchment stations located along western slopes of the central hills reported below normal rainfall. However the hydro catchment stations located along eastern slopes of the central hills such as Victoria, Randenigala, Bowatenna and Ukuwela reported above normal rainfall (Fig 2).

Highest cumulative rainfall was 537.7 mm at Watawala. Highest rainfall received during 24hours, was 97mm at Udardella on 07th August.

The monthly total rainfall and the number of rain days at the principal meteorological stations, total rainfall at hydro catchment areas, are shown in tables 1 and 2.

Table-01-Monthly Total Rainfall (mm) with 30 years (1961-1990) of their averages at Hydro catchment areas

Hydro Catchment	August 2020	Average	% (percentage of average)
Castlereigh	257.7	495.1	52.1%
Norton	394.2	714.0	55.2%
Maussakele	178.9	415.2	43.1%
Canyon	284.7	623.9	45.6%
Laksapana	507.5	629.3	80.6%
Kotmale	211.5	225.2	93.9%
Victoriya	91.2	15.5	588.4%
Randenigala	81.7	21.1	387.8%
Bowatenna	60.1	38.2	157.3%
Ukuwela	174.5	120.5	144.8%
SamanalaWewa	77.0	554.1	13.9%
Maskeliya	152.3	277.1	55.0%
Neboda		272.6	

Note that the meteorological day in this text is reckoned as the 24hr period from 08.30hrs to 08.30hrs following day

Table-02- total rainfall and the number of rain days at the principal meteorological stations recorded in the month against the respective averages (1961-1990).

Meteorological station	Monthly Total rainfall(mm)			Monthly Total No of rainy Days		
	2020- August	Average	%	2020- August	Average	%
Anuradhapuraya	39.0	39.8	98.0%	4	3	133.3%
Badulla	159.0	93.2	170.6%	14	7	200.0%
Bandarawela	77.9	69.3	112.4%	14	6	233.3%
Batticaloa	38.7	48.5	79.8%	5	4	125.0%
Colombo	97.5	119.5	81.6%	7	11	63.6%
Galle	164.9	185.9	88.7%	14	16	87.5%
Hambantota	68.0	56.3	120.8%	10	7	142.9%
Jaffna	33.2	38.7	85.8%	2	3	66.7%
Monaragala	100.4			4		
Katugastota	114.2	112.8	101.2%	12	13	92.3%
Katunayake	108.6	117.6	92.3%	8	9	88.9%
Kurunegala	83.0	98.0	84.7%	8	10	80.0%
MahaIluppallama	18.1	32.0	56.6%	3	3	100.0%
Mannar	32.8	12.3	266.7%	2	1	200.0%
Polonnaruwa	29.6	55.1	53.7%	5	3	166.7%
NuwaraEliya	308.7	161.0	191.7%	19	16	118.8%
Poothuvil	3.4	18.9	18.0%	3	na	
Puttlam	31.8	17.1	186.0%	3	2	150.0%
Rathmalana	129.9	139.3	93.3%	11	12	91.7%
Rathnapura	192.9	304.1	63.4%	13	20	65.0%
Trincomalee	17.5	85.9	20.4%	3	5	60.0%
Vavuniya	32.1	75.0	42.8%	2	4	50.0%
Mattala	25.7			7		

Table 3 hazards caused during August 2020

Date	Lightning	Strong Winds and Heavy Rain	Cutting failure
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01		Panadura Thumpane Pathadumbara	
02		Delthota Medadumbara	
03		Katuwana	
04		Kothmale Kundasale Minipe	
05		Walapane Udapalatha Gangawatakorale Ganga Ihala Korale Pathadumbara Pathahewaheta Pannala Wariyapola Polpitiyagama Giribawa Maho Polgahawela Panduwasnuwara West Galgamuwa Kurunegala Ambanpola Mallawapitiya Mundalama karuwalagaswewa Naththandiya Wanathavilluwa Pallama Anamaduwa Medirigiriya	
06		Hatharaliyadda Hanguranketha Nuwara Eliya Pasbage Korale Udunuwara Akurana Pujapitiya Moratuwa Padukka Maharagama Dehiwala Homagama Thimbirigasyaya Kesbewa Kolonnawa Seethawaka Ingiriya Bulathsinghala Palindanuwara Walallawita Mathugama Millaniya Dodangoda Bandaragama Panadura Agalawatta Beruwala Kalutara Madurawala Horana Kadawathsathara Elpitiya Baddegama Hikkaduwa Thawalama Ambalangoda Bope Poddala Karadeniya Welivitiya Divithura Matara Pitabeddara Thihagoda Thangalla Opanayake Eheliyagoda Ayagama Rathnapura Elapatha Balangoda Kalawana Kuruvita Pelmadulla Weligepola Nivithigala Kiriella Godakawela Dehiowita Mawanella Warakapola 2 Deraniyagala Halawatha	Nuwara Eliya
07		Aranayaka Udunuwara Pathahewaheta Katuwana Mawanella Kalpitiya	Nuwara Eliya
08		Minipe Weeraketiya Walasmulla Mawanella	Nuwara Eliya
09		Udunuwara Pathadumbara Wennappuwa Pathahewaheta Pujapitiya Yatinuwara Katuwana Walasmulla Mahakubukkadawala	
10		Doluwa Walasmulla Yatinuwara SooriyawewaUdapalatha	
11		Gangawatakorale Weeraketiya Ambalantota Hambantota Koralaipattu south Kiran Megahakiula	
12		Udunuwara Beliatta Welikanda	
13		Yatinuwara	
17		Koralaipattu North Minepe Pathahewaheta	
18		Delthota Ududumbara Panwila Uwaparanagama Udapalatha	
20		Chankanai	
27		Thissamaharama	
30		Maritimpattu Morawewa Kinniya	
31	Hingurakgoda	Kanthale, Vavuniya Town, Welikanda , Thamankaduwa, Monaragala Buttala Medagame Bibila Badalkumbura Ridimaliyadda Ella Kolonna,	

Table 4(a) - Extremes of Maximum Temperatures				NoAugust	2020
	Maximum			Highest Std.Div	
	Value	Offsets			
		(-)	(+)		
Value	38.50C	4.5	5.2	2.33	
Station	Polonnaruwa	Badulla	Nuwara Eliya	Polonnaruwa	
Date	22/08	03/08	22/08		
Table 4(b) -Extremes of Minimum Temperature August 2020					
	Minimum			Highest Std. Div	
	Value	Offsets			
		(-)	(+)		
Value	9.70C	3	3.0	1.46	
Station	Nuwara Eliya	Nuwara Eliya	Galle	Nuwara Eliya	
Date	22/08	22/08	30/08		

Prepared by National Meteorological Centre (NMC)

Department of Meteorology