Weather Synopsis –August 2022

Above normal rainfall was reported at most of the principal meteorological stations except Hambantota and Polonnaruwa where below normal rainfall was reported. Colombo, Katunayake, Galle and Trincomalee reported about normal rainfall (Figs 7 and 8).

Most of the hydro catchment stations except Samanalawewa reported above normal rainfall. (Fig 9).

Highest cumulative rainfall was 1061.7 mm at Norton. Highest rainfall received during 24hours, was 247.1mm at Ratnapura on 31st August .

Torrential rain with strong gusty winds were experienced over western slopes of the central hills from 01st August to 06th August with the strengthening of southwest monsoon flow across Sri Lanka (Figs 1, 2 . 3 and 4). Very heavy falls exceeding 150mm also reported at some places in the western slopes of the central hills from 01st August to 03rd August. Rosella, Watawala, Vidulipura North, Welioya, Hatton areas received more than 700mm accumulated rainfall during the from 31st July to 06th August (Fig 1 and 2). According to Disaster Management Centre, 5 people died, 3 people were missing, 17 houses were fully destroyed 1754 houses were partially damaged and a total of 15446 persons of 4000 families were affected by this extreme weather event. Strengthening of Monsoonal flow tother with mid-level cyclonic circulation in the vicinity of Sri Lanka brought very heavy falls over the western slopes of the central hills (Fig 3).
Except for an isolated light showers mainly fair weather prevailed during the second week of the month.

With the formation of low level and mid-level cyclonic circulation , showery conditions were enhanced over the country from 29th to 31st of August (Figs 5 and 6). Very heavy falls exceeding 150mm also reported at some places in Ratnapura, Kegalle and Kalutara districts on 31st August (Fig 5 and Table 2). According to the Disaster Management Centre (DMC) heavy rainfall affected about 1185 people.

Below normal maximum temperatures were experienced in most places during the first and the last week of August 2022. Above average maximum temperatures were reported during second and third weeks Mostly above normal night temperatures were experienced during the month of August 2022. Highest recorded maximum temperature was 36.8^{0}C at Polonnaruwa on 20th while the lowest recorded minimum temperature was 10.9^{0}C at NuwaraEliya on 15th

Table 1 stations received above 100mm rainfall from August 01st to 03rd August, 2022.

Stations received above 100mm rainfall on August 01st , 2022.		
Rain gauge Station	24 hour Rainfall (mm)	Date
Norton	242.2	01st August 2022
Laksapana	224.4	01st August 2022
Watawala	206.4	01st August 2022
Kotagala Rosita	192.5	01st August 2022
Castlereigh	184.5	01st August 2022
Canyon	181.4	01st August 2022
Kotmalee	153.7	01st August 2022
Upper kotmalee	142.5	01st August 2022
Weweltalawa	140.7	01st August 2022
Udaradella	140.5	01st August 2022
Maussakele	128.0	01st August 2022
Guruluwana	127.6	01st August 2022
Maskeliya	124.0	01st August 2022
Helboda North	122.0	01st August 2022
Madulkale	112.9	01st August 2022
Ukuwela	102.0	01st August 2022
Sogama	100.0	01st August 2022
Stations received above 100mm rainfall on August 02nd , 2022.		
Canyon	212.0	02nd August 2022
Norton	184.0	02nd August 2022
Laksapana	175.0	02nd August 2022
Watawala	153.4	02nd August 2022
Castlereigh	133.0	02nd August 2022
Helboda North	128.0	02nd August 2022
Weweltalawa	110.8	02nd August 2022
Kotagala Rosita	110.2	02nd August 2022
NIWITIGALA TEA FAC	100.8	02nd August 2022
Stations received above 100mm rainfall on August 03rd , 2022.		
Castlereigh	121.0	03rd August 2022
Kotagala Rosita	115.4	03rd August 2022
Canyon	106.3	03rd August 2022
Watawala	104.6	03rd August 2022
Norton	103.5	03rd August 2022
Helboda North	101.0	03rd August 2022

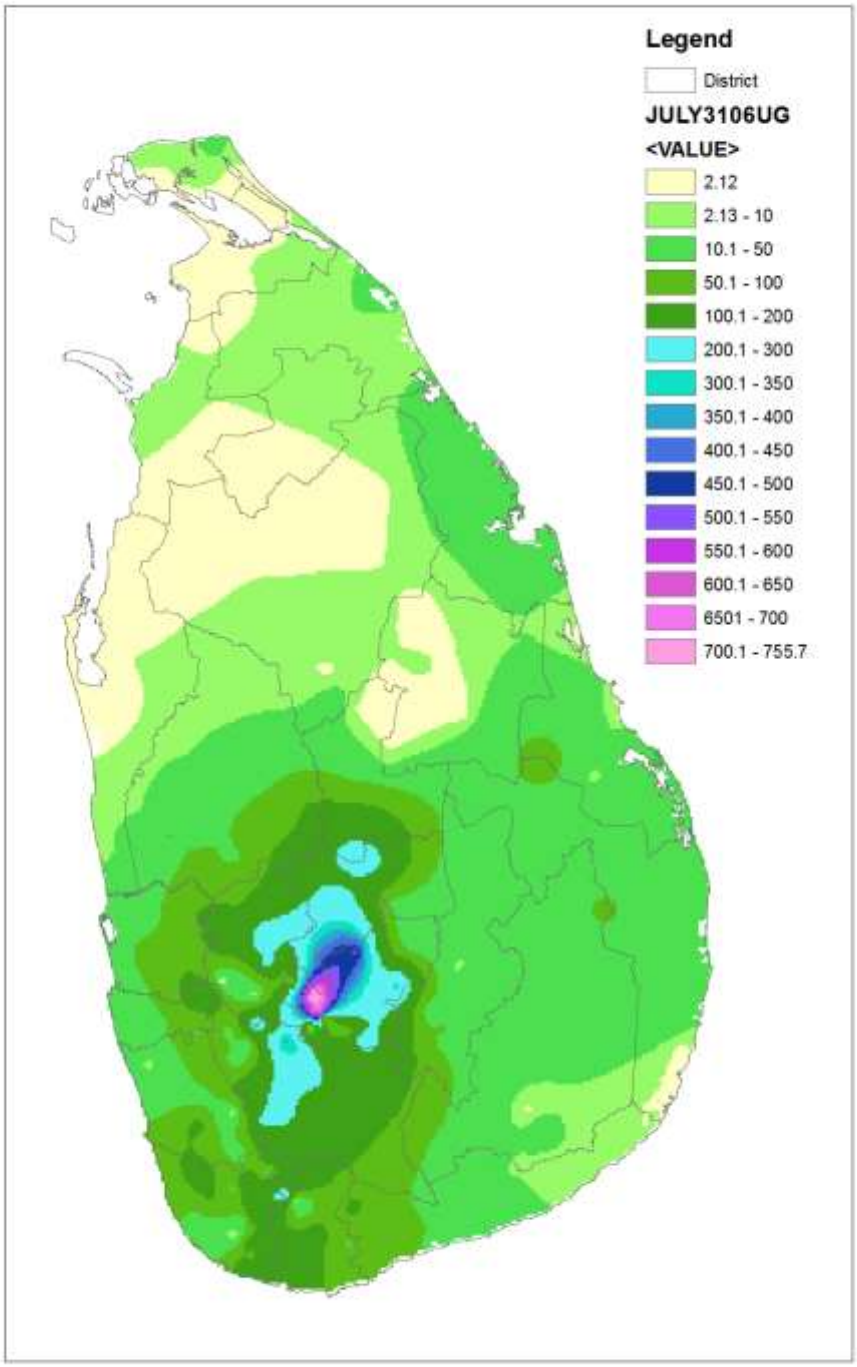

Fig 1: Accumulated rainfall (mm) from 31st July to 06th August 2022

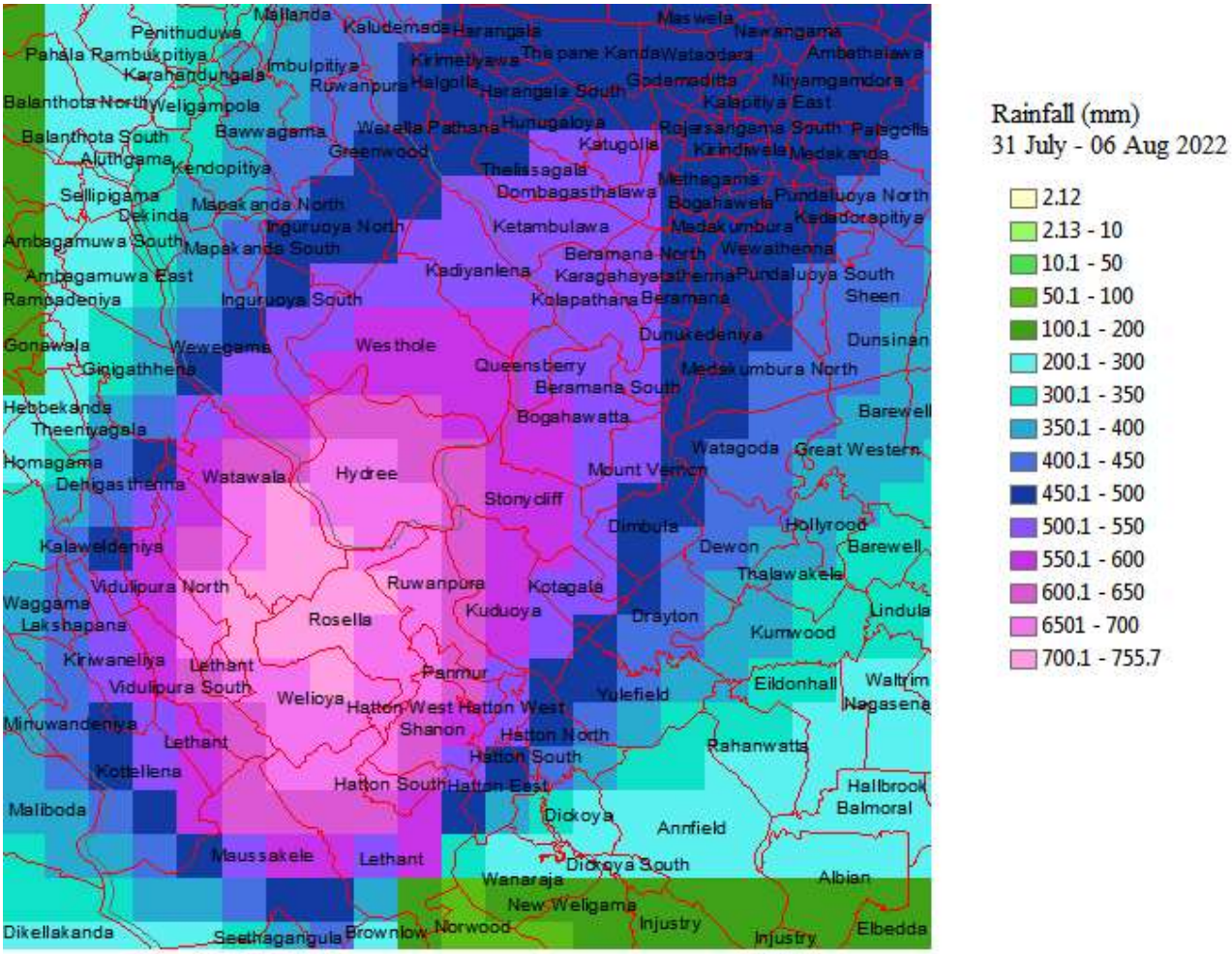

Fig 2 : Fig 1: Accumulated rainfall (mm) from 31st July to 06th August 2022 over central parts

La Nina conditions were observed during Month of August 2022. Ocean Nino Index is -0.8 during June to August (JJA) (NOAA Climate prediction Center). Slightly negative IOD was observed during August 2022 (BoM, Australia).

Sea surface waters in East tropical Indian Ocean were warmer than average while west tropical Indian Ocean were cooler than average reflecting negative IOD conditions. Sea surface waters surrounding Sri Lanka was cooler than average (Fig. 12)

MJO was weak on 01st , strengthened at pahse 3 on 02nd , weaken again till 04th, strengthened at phase 5 from 05 to 07th , weaken again till 20th , strengthened at phase 2 during remaining days of August (Fig. 13).

The average position of the shear line was laid about the Equator from 40^0E to 70^0E , 03^0S80^0E, 03^0S100^0E, and 05^0N,120^0E (Fig 11). It was fluctuated about 02-03 ^{0} north and south of average position.

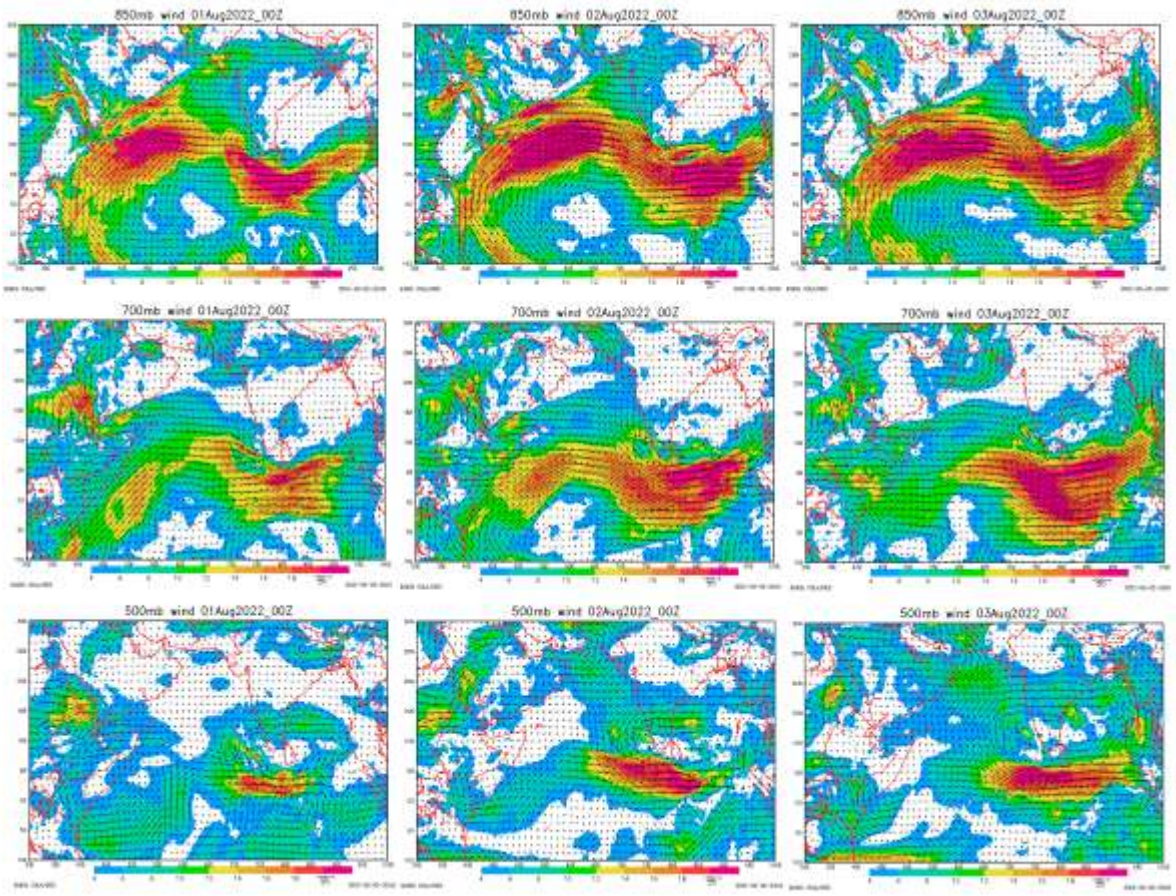

Fig 3: ERA5 wind analysis at 850 mb wind (upper) , 700 mb wind (middle) and 500 mb wind (lower) from 00z 01st August to 00z 03rd August 2022.

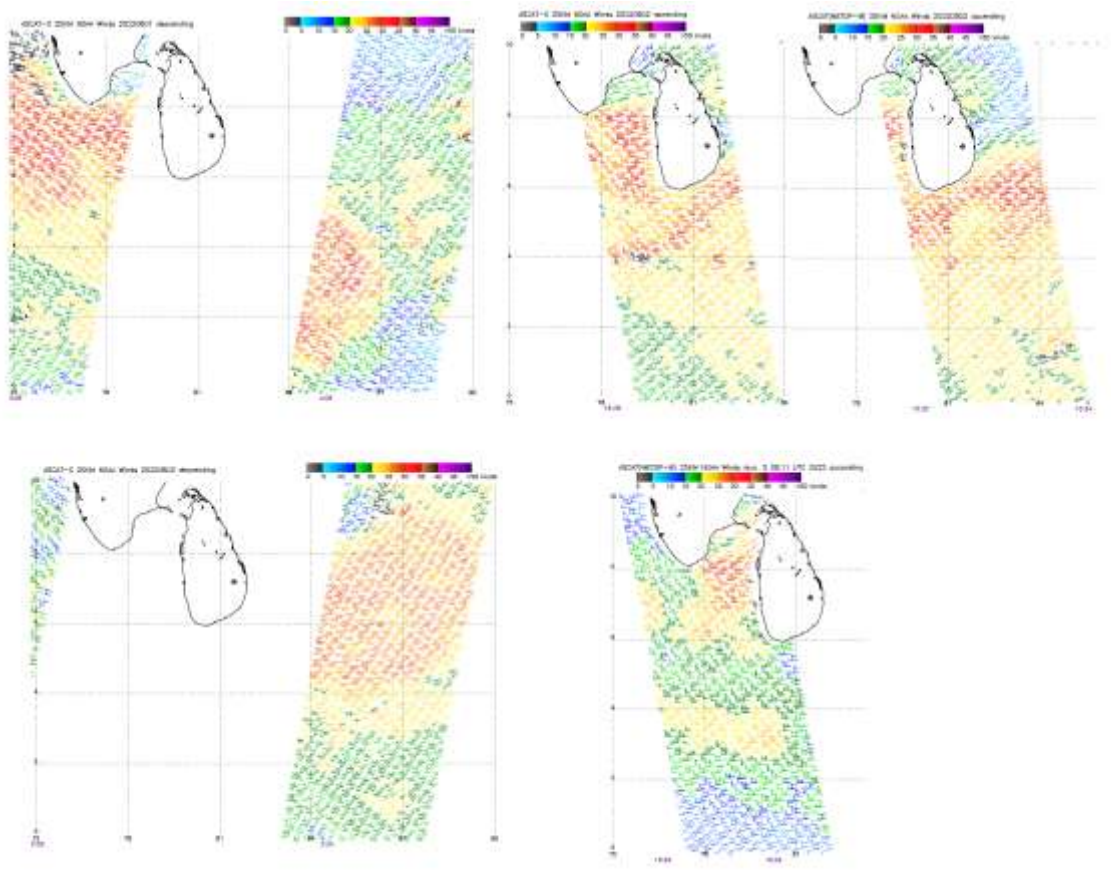

Fig 4: Ascat winds from 01st August to 05th August 2022.

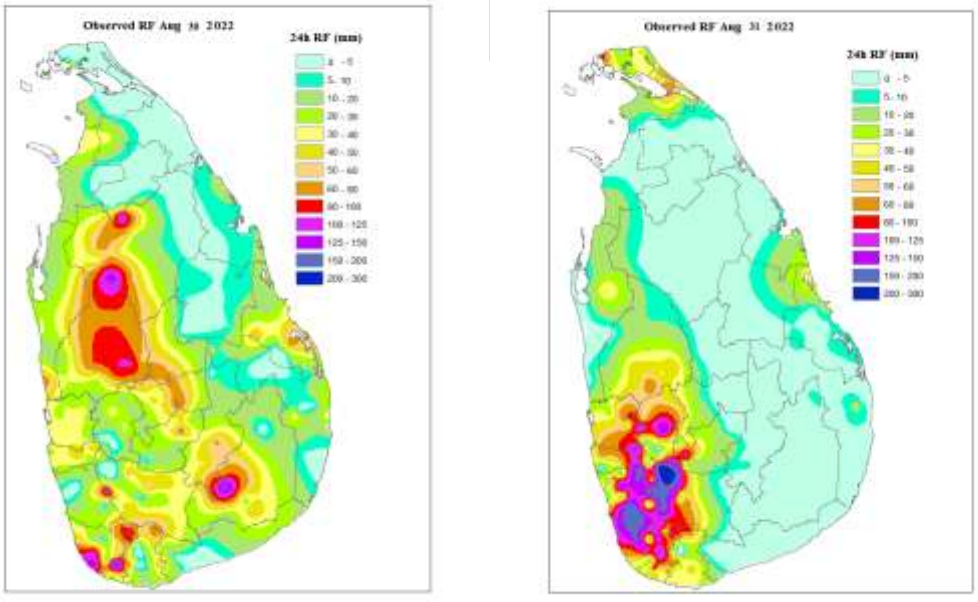

Fig 5: 24hour rainfall (mm) on 30th August 2022 (left) and 31st August 2022 (right) .

Table 2 stations received above 100mm rainfall from 30th August to 31st August, 2022.

Stations received above 100mm rainfall on August 30th , 2022.		
Rain gauge Station	24 hour Rainfall (mm)	Date
Handapanagala	175.5	30th August 2022
Tambuttegama	145.2	30th August 2022
Yakaveva	132.6	30th August 2022
Monrovia	123.7	30th August 2022
Baddegama	115.1	30th August 2022
Batalagoda	104.0	30th August 2022
Stations received above 100mm rainfall on August 31st , 2022.		
Rathnapura	247.1	31st August 2022
Karagala	244.0	31st August 2022
Guruluwana	237.4	31st August 2022
Mathugama	182.7	31st August 2022
Kukuleganga	181.0	31st August 2022
Weweltalawa	180.1	31st August 2022
AYAGAMA	170.8	31st August 2022
PODDIWELA FARM	169.2	31st August 2022
Vogan Estate	163.1	31st August 2022
Bentotawatte	160.4	31st August 2022
Hiniduma	150.5	31st August 2022
Elston	131.0	31st August 2022
Vincit Estate	121.0	31st August 2022
KETENDOLA	118.0	31st August 2022
Beausejour Lower (Talaqngaha Estate)	114.4	31st August 2022
Canyon	109.0	31st August 2022
BATUWANAGALA	106.8	31st August 2022
Kalatuwawa	104.9	31st August 2022
NIWITIGALA TEA FAC	104.9	31st August 2022
Undugoda	102.3	31st August 2022
Laksapana	101.0	31st August 2022

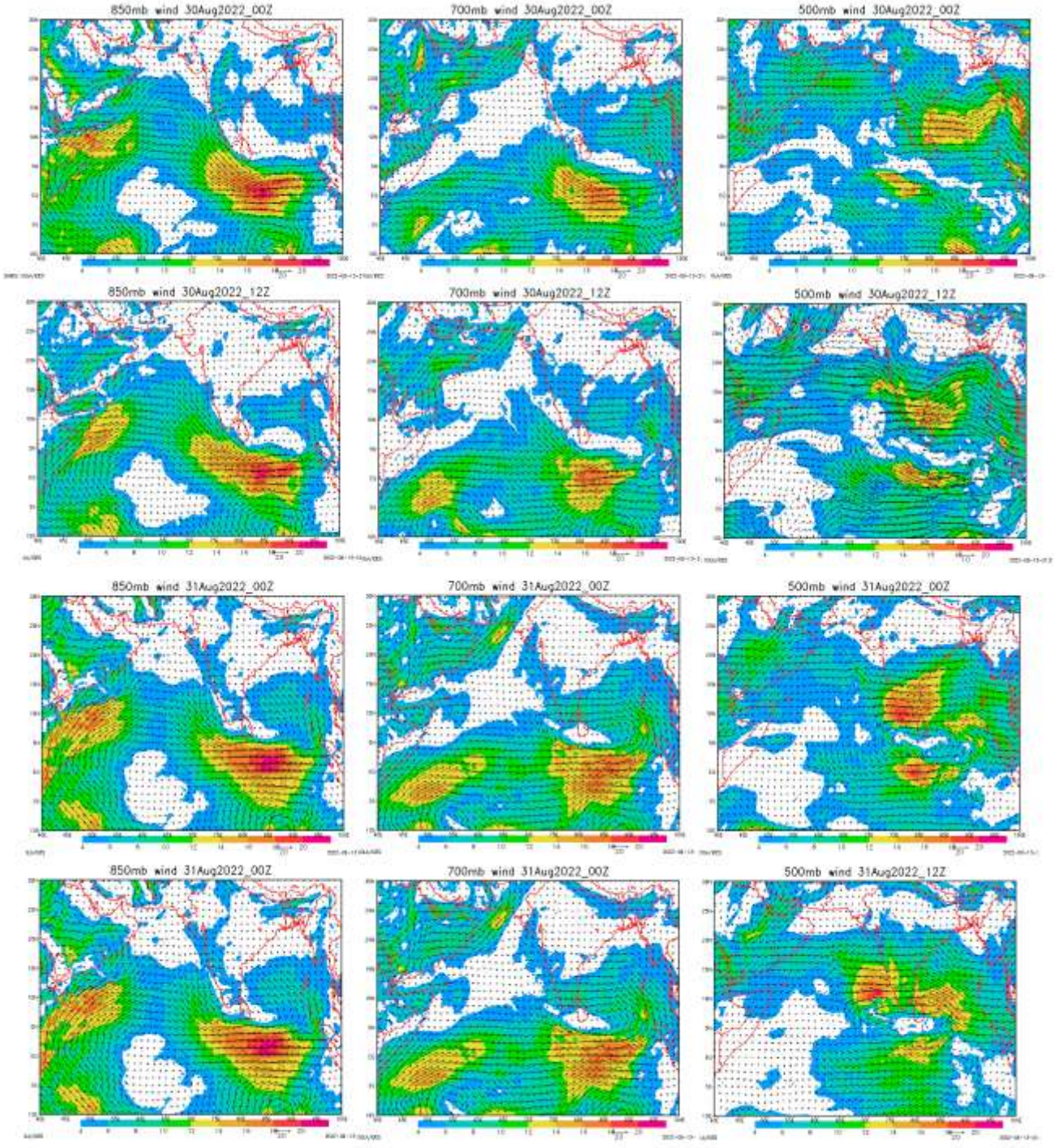

Fig 6: ERA5 wind analysis at 850 mb wind (left) , 700 mb wind (middle) and 500 mb wind (right) from 00z 30th August to 12z 31st August 2022.

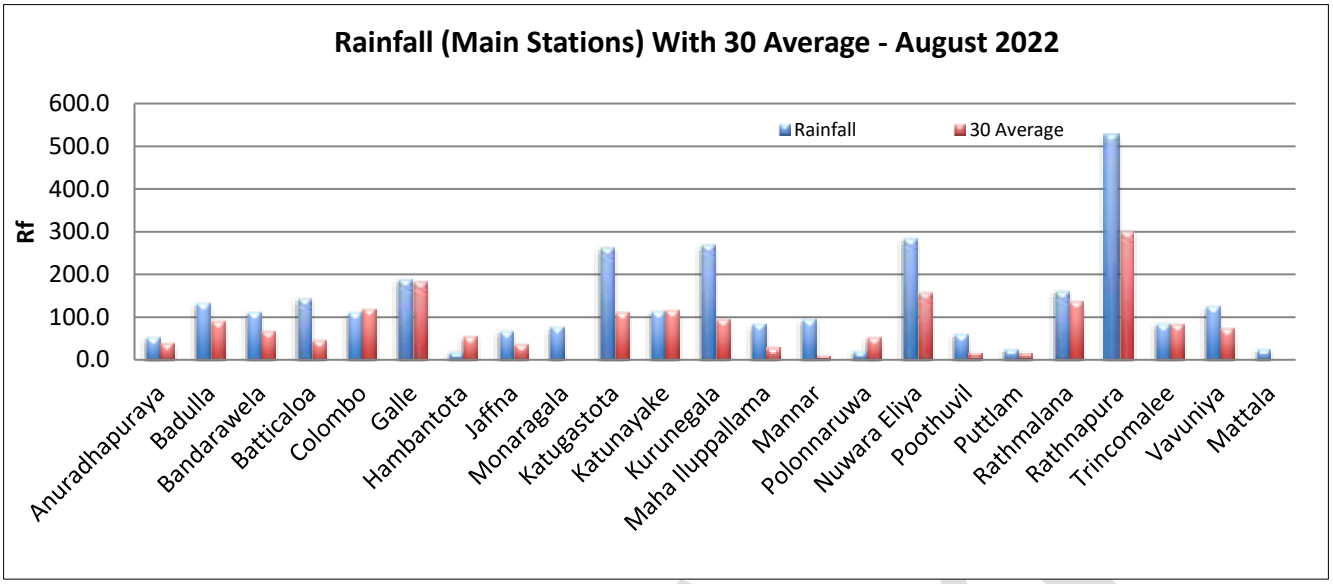

Fig 7: Monthly Total Rainfall(mm) with 30 years (1961-1990) of their averages at Main Meteorological stations areas duringAugust 2022

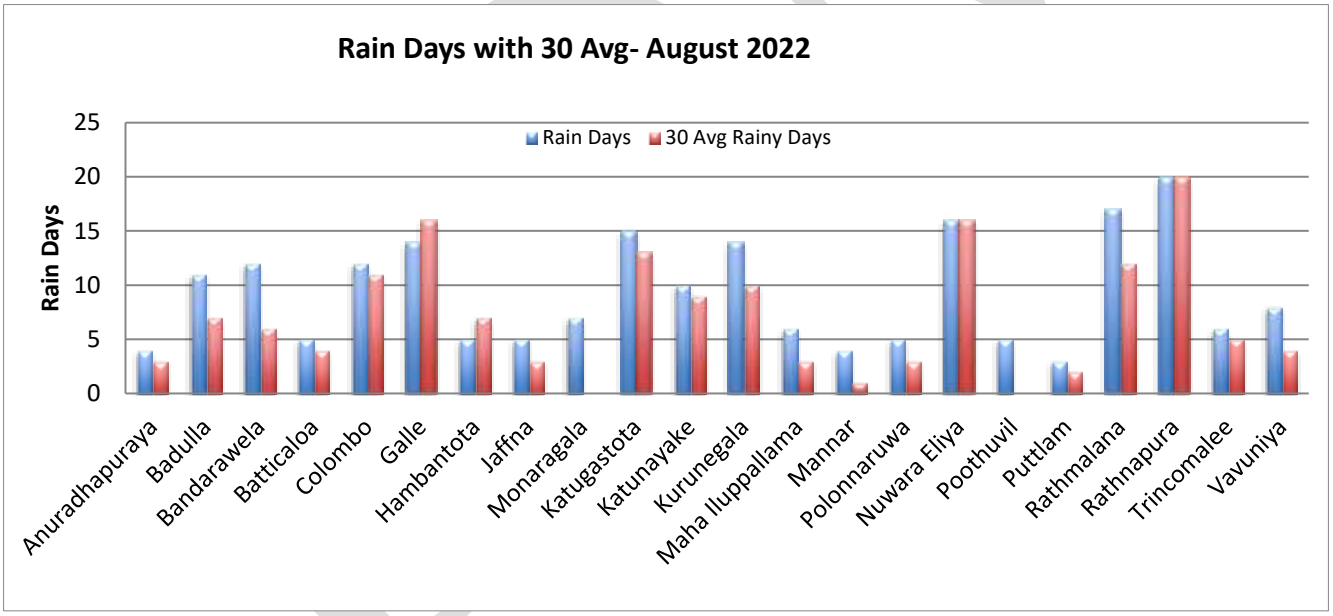

Fig 8: monthly total no of rainy days with 30 years (1961-1990) of their averages at main Meteorological stations during August 2022

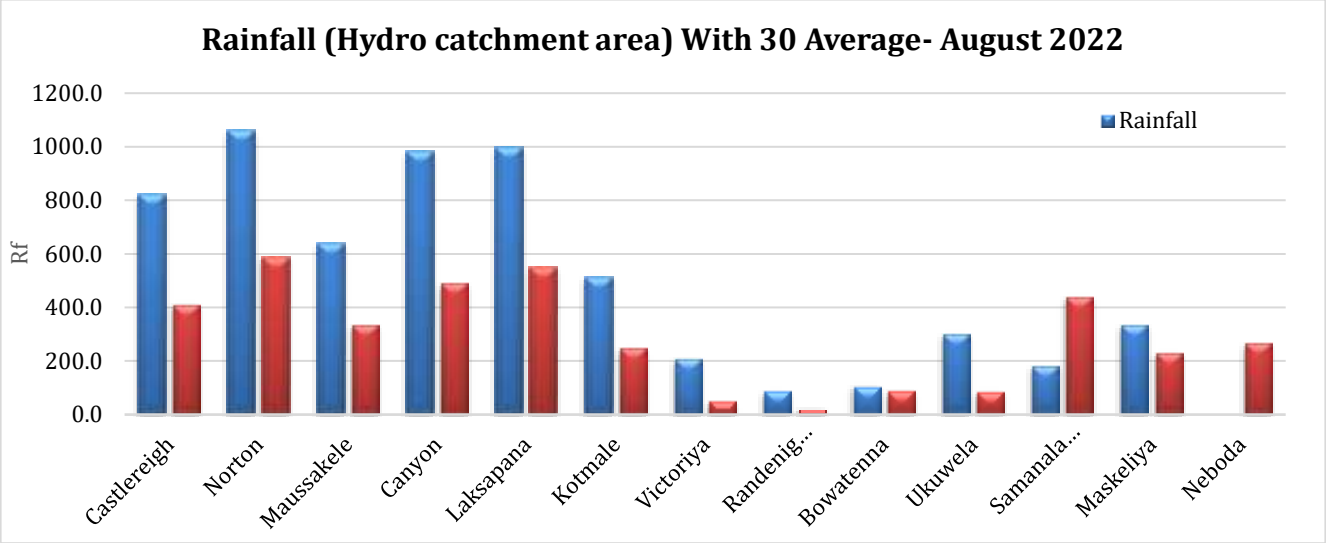

Fig 9: Monthly Total Rainfall(mm) with 30 years (1961-1990) of their averages atHydro catchment areas duringAugust2022

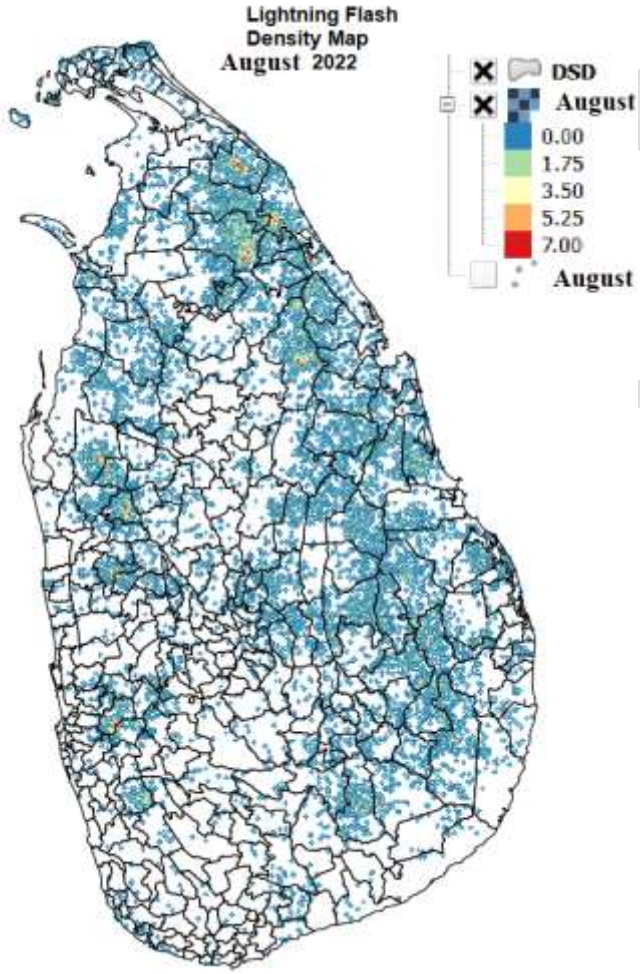

Fig 10 : Lightning flash density map for August 2022

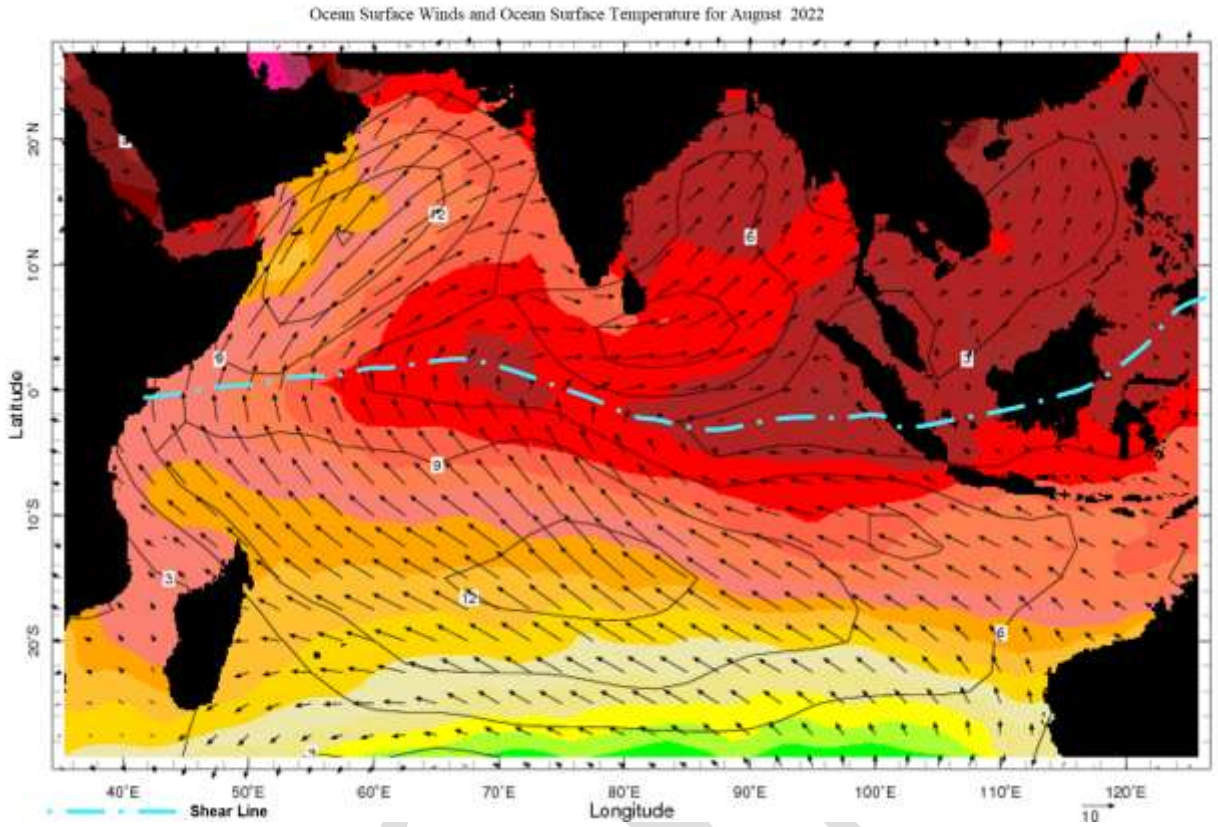

Fig 11: Ocean Surface Winds and Ocean Surface Temperature for August 2022

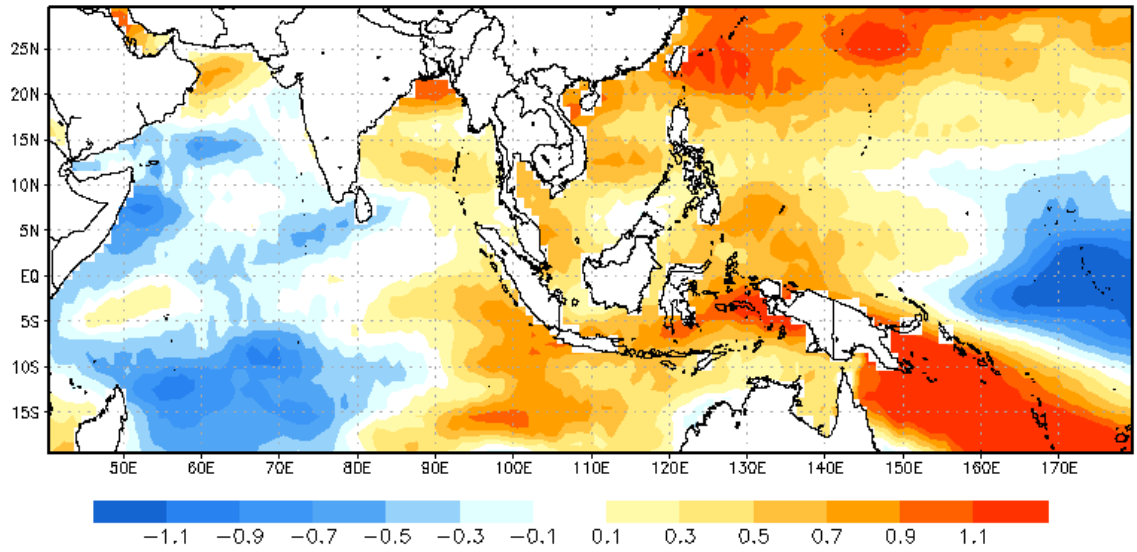

Fig 12: Sea Surface Temperature anomalies for August 2022

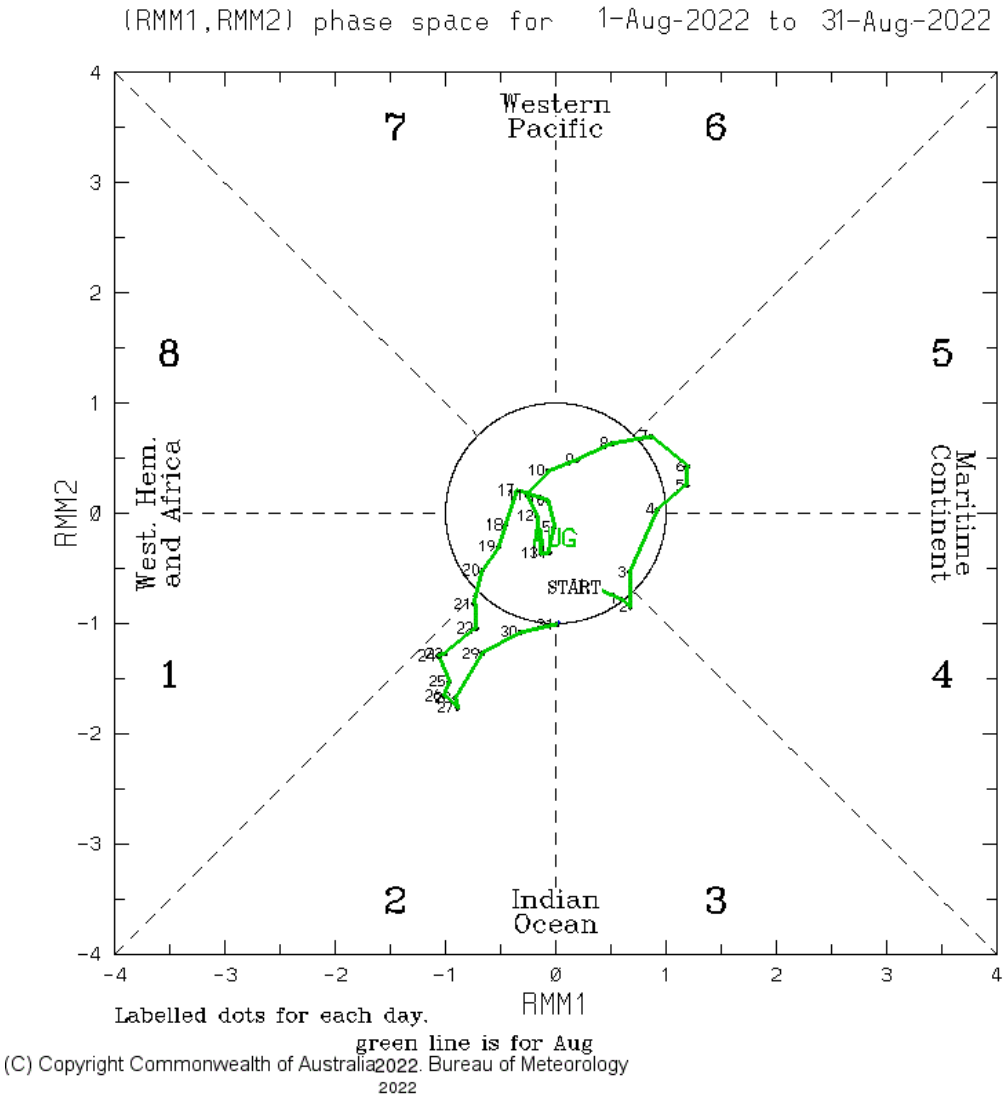

Fig 13: Phase diagram of MJO Index

Surface pressure and winds:The surface pressure was below average during first two weeks and on 19th , from 22nd to 23rd , and from 25th to 31st . It was about or above average from 15th to 17th , from 20th to 21st , and on 24th . Southwesterly pressure gradient was mild on 07th, from 12th to 17th, on 26th , on 29th , and 31st ; moderate on 02nd , on 04th , on 06th, from 10th to 11th, from 18th to 21st , from 23rd to 25th , from 27th to 28th; and steep on 03rd, on 05th, , from 08th to 09th, and on 22nd . Pressure distribution was fairly even on 30th .

The surface wind was from westerly to Southwesterly direction and speed varied within 05-15kts.

Upper winds:

At 850hPa, Westerly wind flow is dominated over the island. Anomalous north-westerly wind flow over southern part indicate the strengthening of monsoonal flow at 850mb level. Anomalous northwest southeast oriented trough appeared over northern part of Sri Lanka (Fig 14).

At 700 hPa, Westerly wind flow is dominated over the island. Anomalous north-westerly wind flow over southern part indicate the strengthening of monsoonal flow at 700mb level. Anomalous northwest southeast oriented trough appeared over northern part of Sri Lanka (Fig 15).

At 500 hPa, North-westerly wind flow is dominated over the island. Anomalous northerly wind flow over indicate the weakening of monsoonal flow at 500mb level. Anomalous northwest southeast oriented trough appeared across Sri Lanka suggesting favourable conditions for convective activity (Fig 16).

The 200 hpa the upper tropospheric ridge was laid from 30^0N40^0E, 28^0N50^0E, 33^0N80^0E to 35^0N100^0E. Tropical easterly jet was appeared in the vicinity of Sri Lanka.

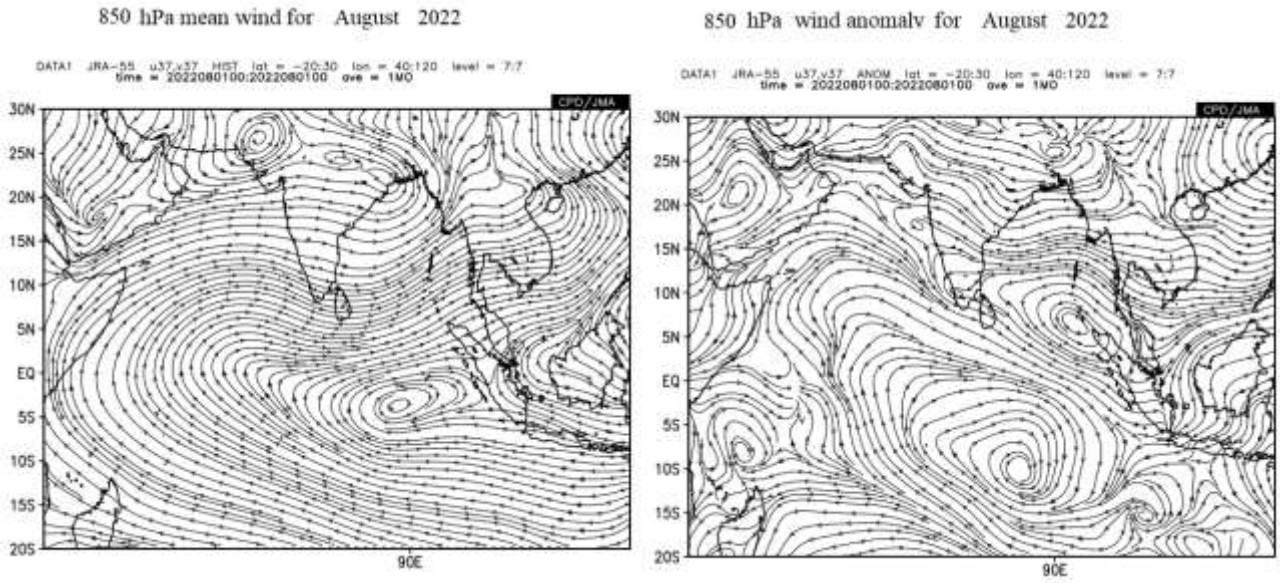

Fig. 14: Monthly average wind pattern at 850hpa level during the month of August 2022 (JRA55)

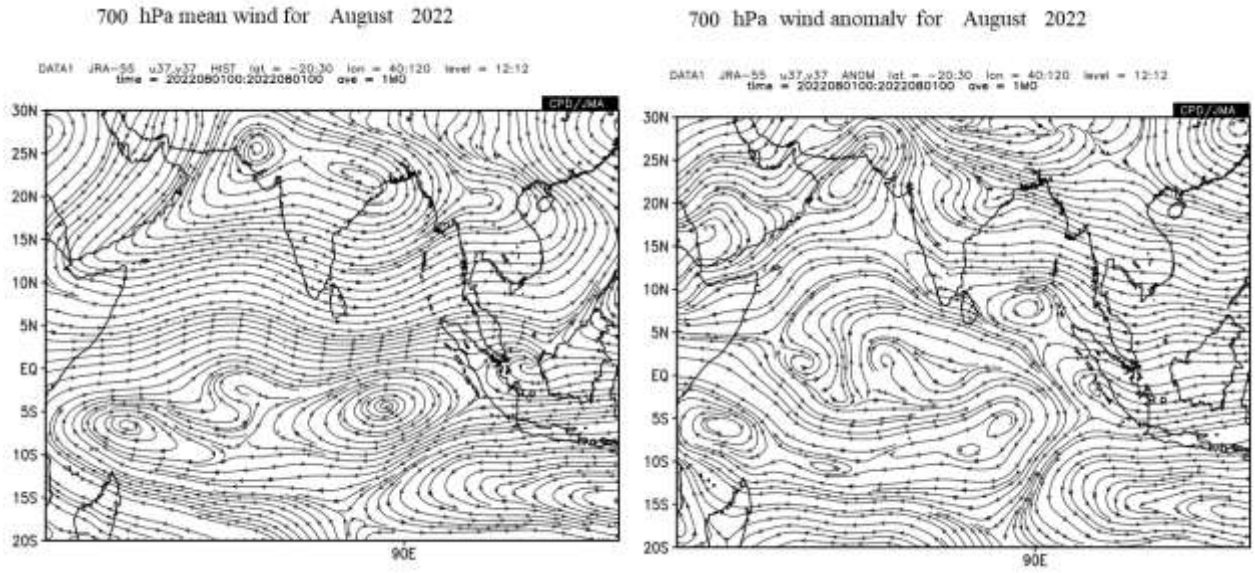

Fig. 15: Monthly average wind pattern at 700hpa level during the month of August 2022 (JRA55)

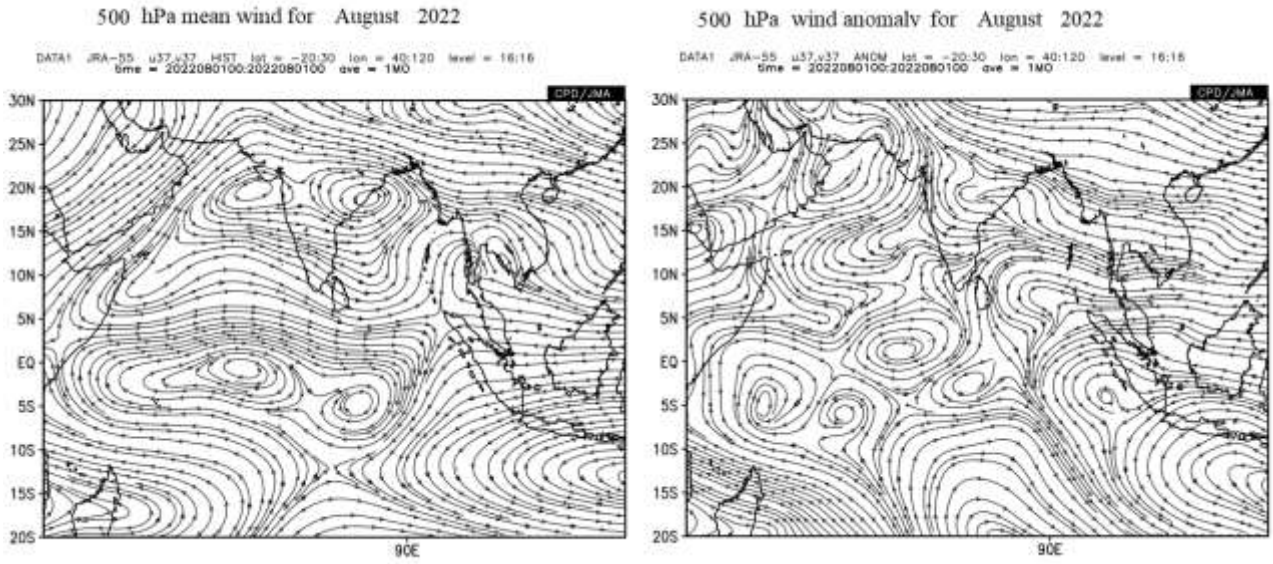

Fig. 16: Monthly average wind pattern at 500hpa level during the month of August 2022 (JRA55)

Temperature Field:

Below normal maximum temperatures were experienced in most places during the first and the last week of August 2022. Above average maximum temperatures were reported during second and third weeks of August (Fig. 17). The maximum temperatures in the day were mostly 2-5^{0}C above normal in Hambantota during most of days of the month of August 2022.

Highest recorded maximum temperature for the month of August 2022 was 36.8^{0}C at Polonnaruwa on 20th (Table4a).

Night minimum temperatures over most parts were above normal during the month (Fig 18). However, some stations reported below average minimum temperatures on 10th and 31st . Lowest recorded minimum temperature for the month of August 2022 was 10.9^{0}C at NuwaraEliya on 15th (Table 5b).

Maximum and Minimum departures from normal day/night temperature were shown in table 5.

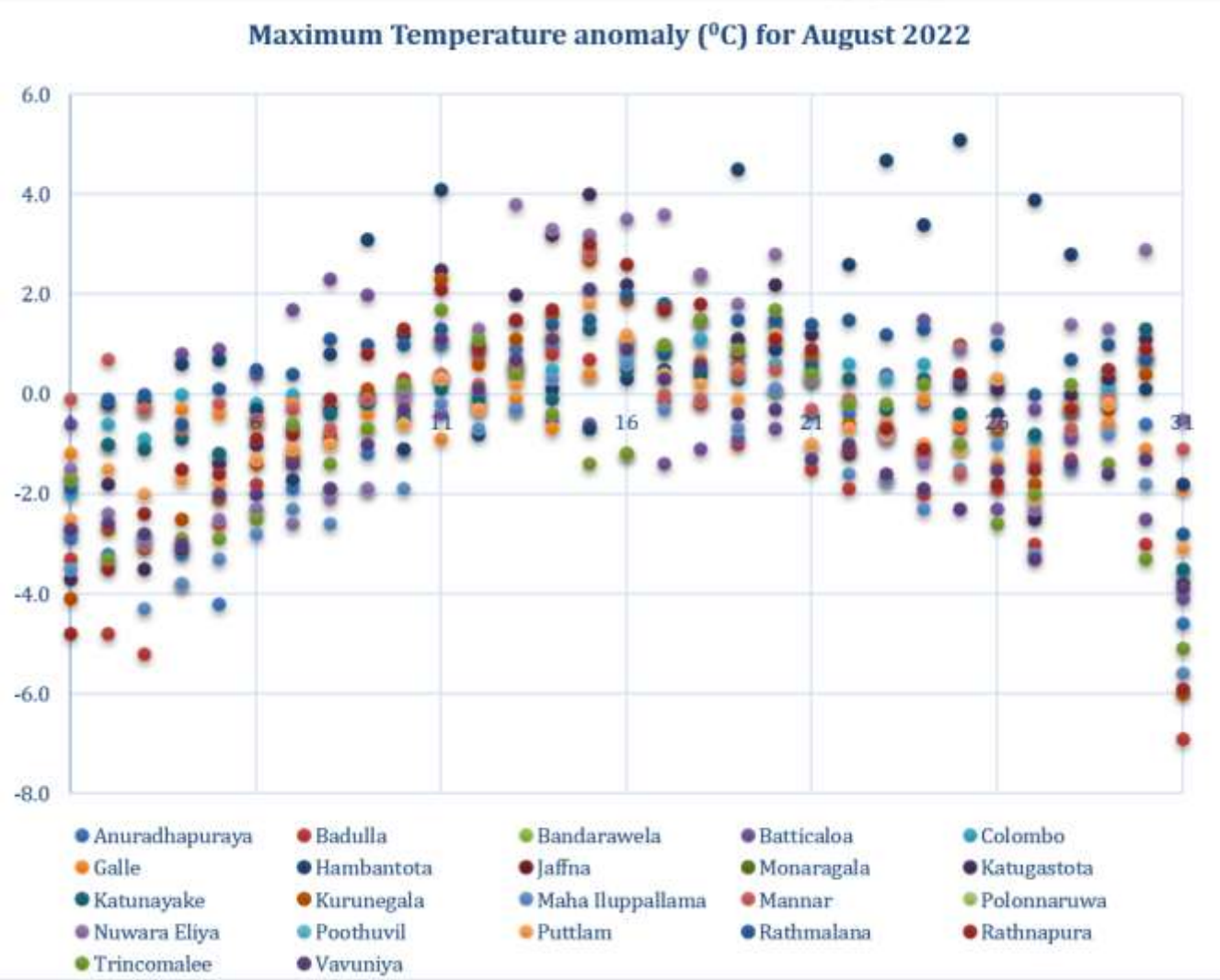

Fig 17: Maximum Temperature anomaly (^{0}C) for August 2022

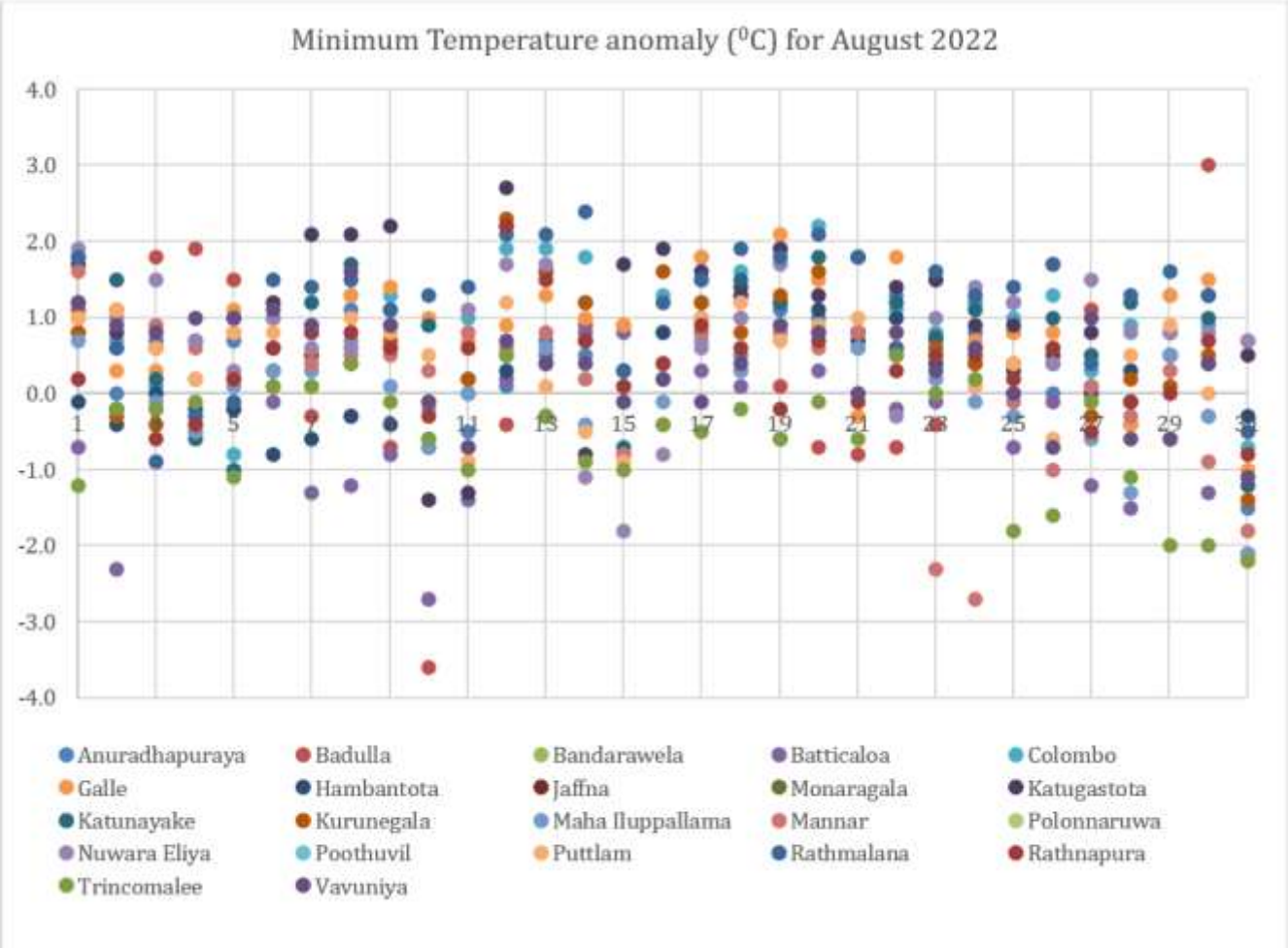

Fig 18: Minimum Temperature anomaly (^{0}C) for August 2022

Above normal rainfall was reported at most of the principal meteorological except Hambantota and Polonnaruwa where below normal rainfall was reported. Colombo, Katunayake, Galle and Trincomalee reported about normal rainfall (Fig 7).

Maximum percentage was reported from Mannar station (790.7%) while minimum from Hambantota station (36.7%) (Table 4). Number of rainy days was above average except Galle and Hambantota (Fig 8) (Table 4). Most of the hydro catchment stations except Samanalawewa reported above normal rainfall. (Fig 9).

Highest cumulative rainfall was 1061.7 mm at Norton. Highest rainfall received during 24hours, was 247.1mm at Ratnapura on 31st 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 3 and 4.

Table-03-Monthly Total Rainfall (mm) with 30 years (1961-1990) of their averages at Hydro catchment areas

Hydro Catchment	August 2022	Average	% (percentage of average)
Castlereigh	822.8	413.0	199.2%
Norton	1061.7	588.9	180.3%
Maussakele	638.6	336.4	189.8%
Canyon	984.2	493.2	199.6%
Laksapana	998.7	551.7	181.0%
Kotmale	513.9	251.0	204.8%
Victoriya	211.1	53.7	392.9%
Randenigala	90.1	24.5	367.5%
Bowatenna	106.8	93.0	114.8%
Ukuwela	303.8	88.2	344.4%
Samanala Wewa	183.3	440.0	41.7%
Maskeliya	336.1	232.5	144.6%

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

Table-04- total rainfall and the number of rain days at the principal meteorological stations recorded in the month against the respective averages (1961-1990).

	Monthly Total rainfall(mm)			Monthly Total No of rainy Days		
Meteorological station	2022-August	Average	%	2022-August	Average	%
Anuradhapuraya	54.4	39.8	136.8%	4	3	133.3%
Badulla	134.8	93.2	144.6%	11	7	157.1%
Bandarawela	113.5	69.3	163.8%	12	6	200.0%
Batticaloa	146.2	48.5	301.5%	5	4	125.0%
Colombo	112.6	119.5	94.2%	12	11	109.1%
Galle	189.6	185.9	102.0%	14	16	87.5%
Hambantota	20.3	56.3	36.1%	5	7	71.4%
Jaffna	69.6	38.7	179.9%	5	3	166.7%
Monaragala	78.3			7		
Katugastota	265.5	112.8	235.4%	15	13	115.4%
Katunayake	115.5	117.6	98.2%	10	9	111.1%
Kurunegala	271.9	98.0	277.5%	14	10	140.0%
Maha Iluppallama	85.6	32.0	267.5%	6	3	200.0%
Mannar	97.3	12.3	790.7%	4	1	400.0%
Polonnaruwa	22.3	55.1	40.5%	5	3	166.7%
Nuwara Eliya	287.1	161.0	178.3%	16	16	100.0%
Poothuvil	61.7	18.9	326.5%	5	na	
Puttlam	25.7	17.1	150.0%	3	2	150.0%
Rathmalana	163.7	139.3	117.5%	17	12	141.7%
Rathnapura	527.4	304.1	173.4%	20	20	100.0%
Trincomalee	86.5	85.9	100.7%	6	5	120.0%
Vavuniya	126.9	75.0	169.1%	8	4	200.0%
Mattala	25.7			4		

Table 5(a) - Extremes of Maximum Temperatures August 2022				
	Maximum			
	Value	Offsets (-)	Offsets (+)	Highest Std.Div
Value	36.8^{0}C	6.9	5.1	2.27
Station	Polonnaruwa	Badulla	Hambanthota	NuwaraElia
Date	20/08	31/08	25/08	

Table 5(b) -Extremes of Minimum Temperature August 2022				
	Minimum			
	Value	Offsets (-)	Offsets (+)	Highest Std.Div
Value	10.9^{0}C	3.6	3.0	1.29
Station	NuwaraEliya	Badulla	Badulla	Monaragala
Date	15/08	10/08	30/08	

Prepared by National Meteorological Centre (NMC)
Department of Meteorology