

Weather Synopsis –March 2023.

Below normal rainfalls were reported at stations located in Northern and Northwestern provinces and some parts of Uva and Southern provinces. Meteorological stations located in Badulla, Bandarawela, Hambantota, Jaffna Kurungala, Mannar and Puttalam reported below normal rainfall. Near or above normal rainfalls were reported elsewhere.

Most of hydro catchment areas reported about or above normal rainfalls except Kothmale, Victoria, Randenigala and Ukuwela where below normal rainfall were observed (Fig 2).

Highest monthly rainfall was reported from Moraliya and it was 534.6mm. The recorded maximum daily rainfall during month of March was 131.7 mm at Handapanagala on 26th.

A few showers were reported from eastern parts till 03rd, on 09th, Widespread showery condition was reported over eastern parts on 04th. Isolated thunderstorm were reported during the afternoon over south western parts on 06th, 07th, 14th, during the last 3 days of the month. Fairly heavy showers with thunder were reported from Western half of the country on 16th, 18th, and over inland areas 15th, 21st and 22nd, 24th. Scattered thunderstorm activity was reported over southern half from 11th to 13th on 19th, 26th.

Except for isolated showers a mainly fair weather was reported on 02nd, 05th, 08th, 17th, 25th, and 27th

High lightning density was reported from Kandavalai, Karachchi, Oddusudan, Vavuniya North, Hingurakgoda, Madirigiya, Welikanda, Dimbulagala, Ipalogama, Galneva, Kotavehera, RasnayakaPura, Ibbagamuwa, Polgahawela, Weerambagedara, Rambukkana, Bulathkohupitiya, Ruwanwella, Dehiowita, Deraniyagala, Hanwella, Biyagama, PalindaNuwara, Kuruvita, Ratnapura, Elapatha, Nivithigala, Balangoda, Haldummulla, Wellawava, Neluwa and Thawalama (Fig 3)

Table 1: Significant Rainfall amounts (24 hour) received in March 2023

| Date | Rain gauge Station | 24 Rainfall (mm) |
|---------------|--------------------------------------|------------------|
| 14 March 2023 | Beausejour Lower (Talaqngaha Estate) | 122.7 |
| 14 March 2023 | Aranayeke | 100.0 |
| 18 March 2023 | Maha Illuppallama | 116.6 |
| 19 March 2023 | Monrovia | 121.2 |
| 19 March 2023 | Wellawaya | 121.0 |
| 19 March 2023 | BALAPITIYA | 109.2 |
| 26 March 2023 | Handapanagala | 131.7 |

Day temperatures were mostly above normal in most places during the last two weeks week of month except 31st March. Night temperatures over most parts were above normal during the month (Figs 11 and 12). The recorded maximum temperature was 36.1⁰C on 13th at Kurunegala, while recorded minimum temperature was 9.4⁰C on 27th and 28th t at NuwaraEliya.

During March 2023, sea surface temperatures (SSTs) were above-average in the western and the far eastern equatorial Pacific . ENSO neutral conditions prevailed in March. Ocean Nino Index is -0.4 during January, February and March ; 0.1 during February, March and April (NOAA Climate prediction Center).

Sea surface waters in tropical Indian Ocean and in the tropical west Pacific Ocean are slightly cooler than average (Fig.4) and IOD neutral conditions were observed during Month of March 2023

Madden-Julian Oscillation (MJO) was at the phase 7 during 1st week , at the phase 8 during 2nd week, at the phase 1 during 3rd week , propagated to phase 2 from 21st to 25th and at phase 3 on 26th and weakened during the remaining of March

During the month, the Inter Tropical Convergence Zone lay between 01⁰N and Equator from 50⁰E to 120⁰E , (Fig 6) with fluctuation to north and south of average position.

Rainfall (Main Stations) With 30 Average - March 2023

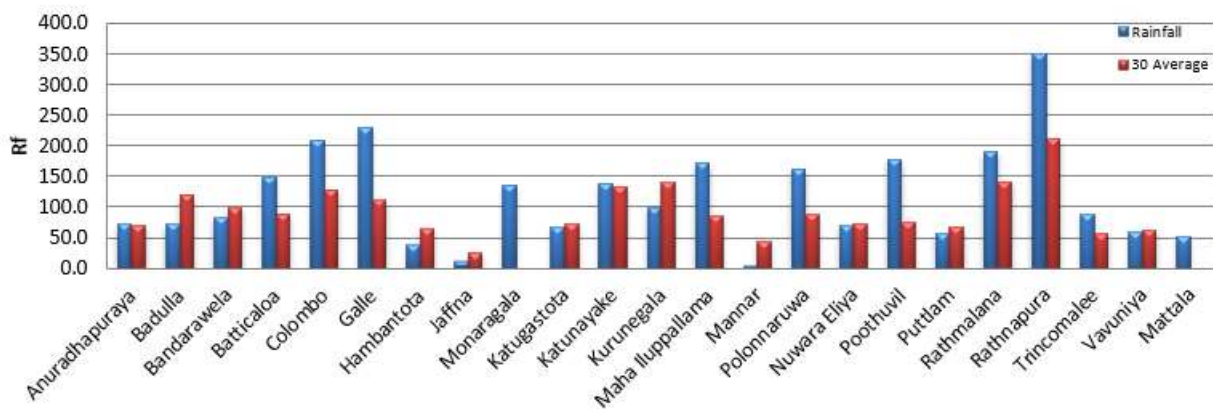


Fig 1a : Monthly Total Rainfall(mm) with 30 years (1961-1990) of their averages at Main Meteorological stations areas during March 2023

Rain Days with 30 Avg- March 2023

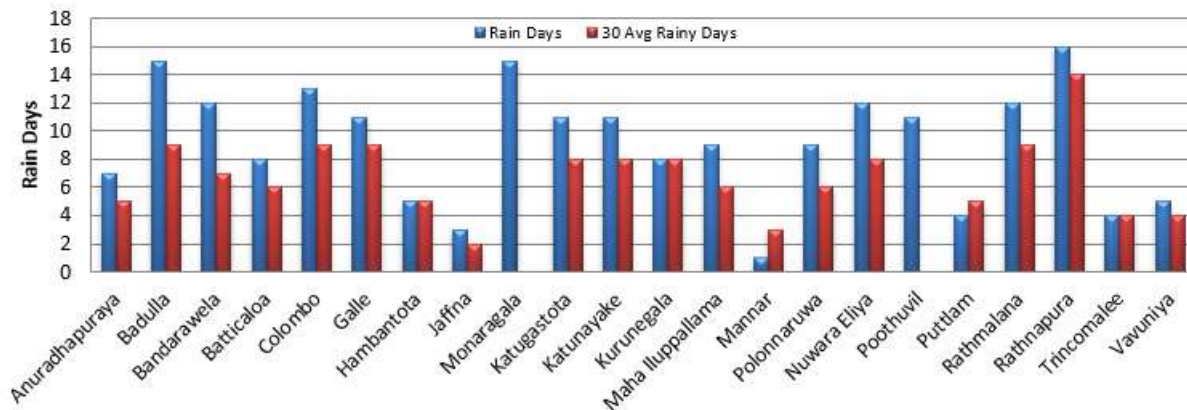


Fig 1b: monthly total no of rainy days with 30 years (1961-1990) of their averages at main Meteorological stations during March 2023

Rainfall (Hydro catchment area) With 30 Average- March 2022

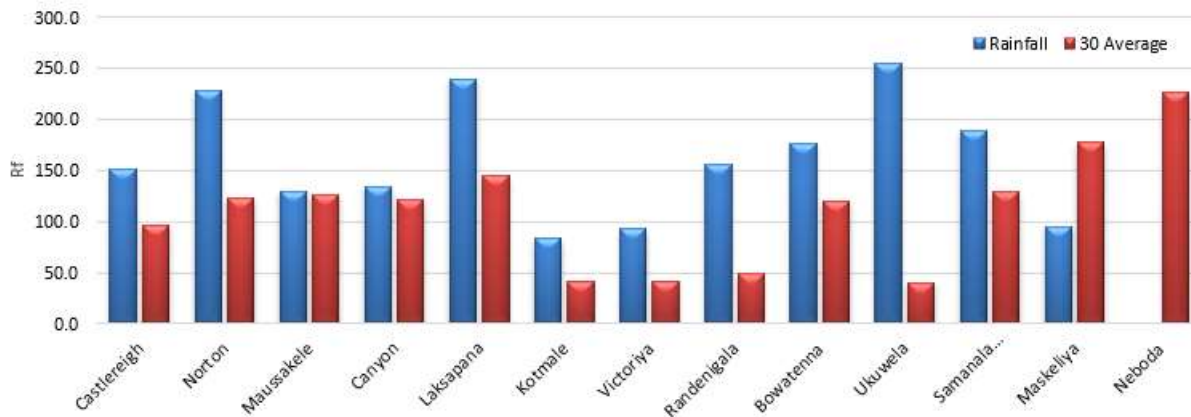


Fig 2 Monthly Total Rainfall(mm) with 30 years (1961-1990) of their averages at **Hydro catchment areas** during March 2023

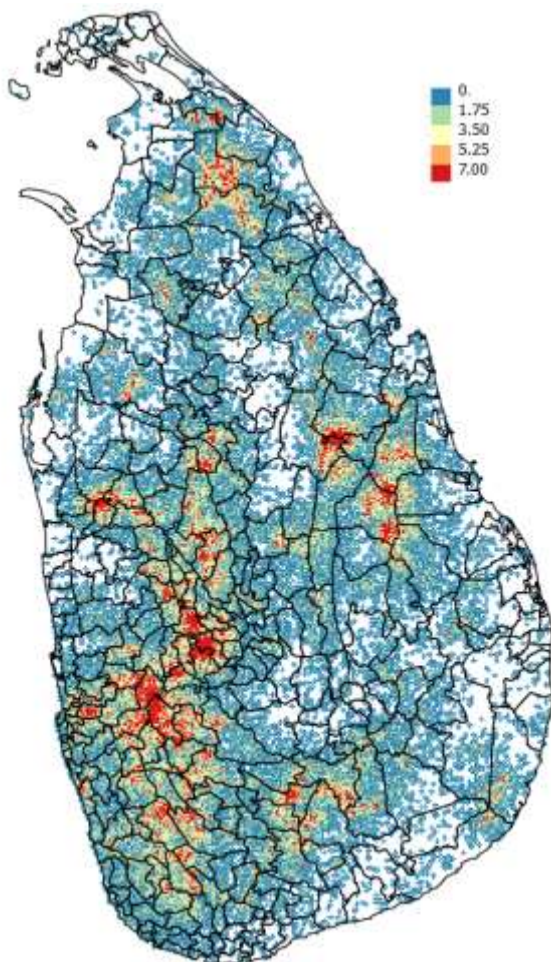


Fig 3: Lightning density map for March 2023

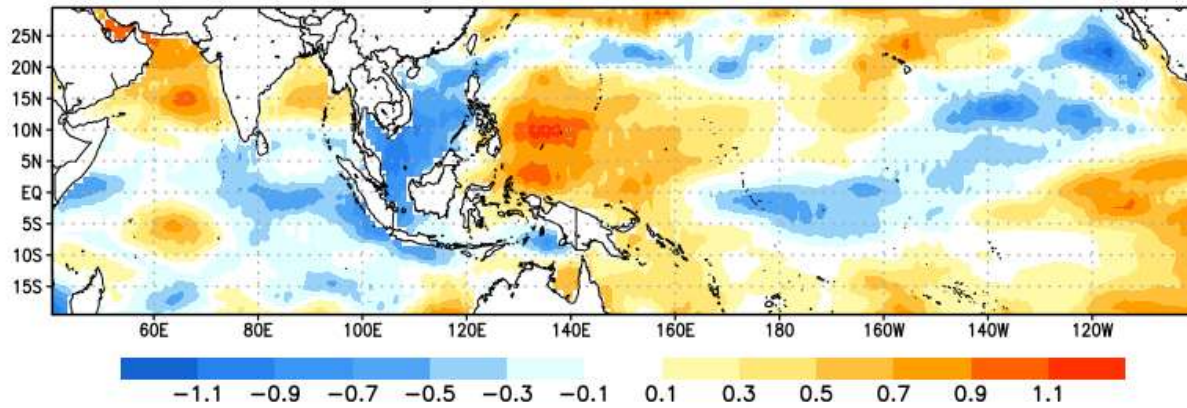


Fig 4 :Sea Surface Temperature anomaly for March 2023

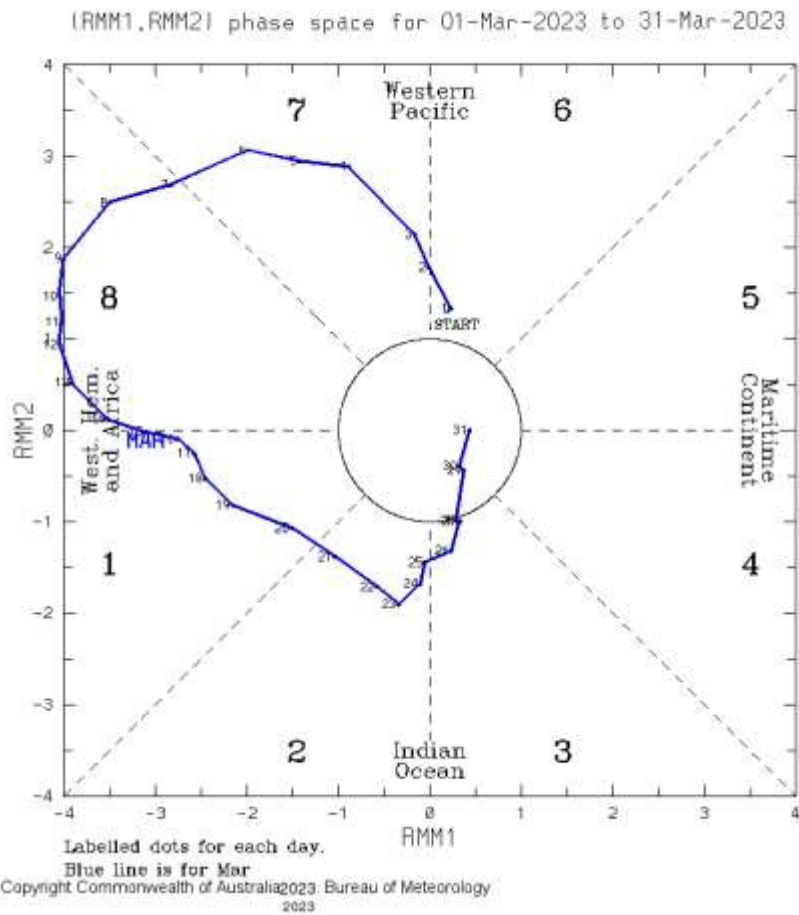


Fig 5 :MJO Phase diagram

Ocean Surface Winds and Ocean Surface Temperature for March 2023

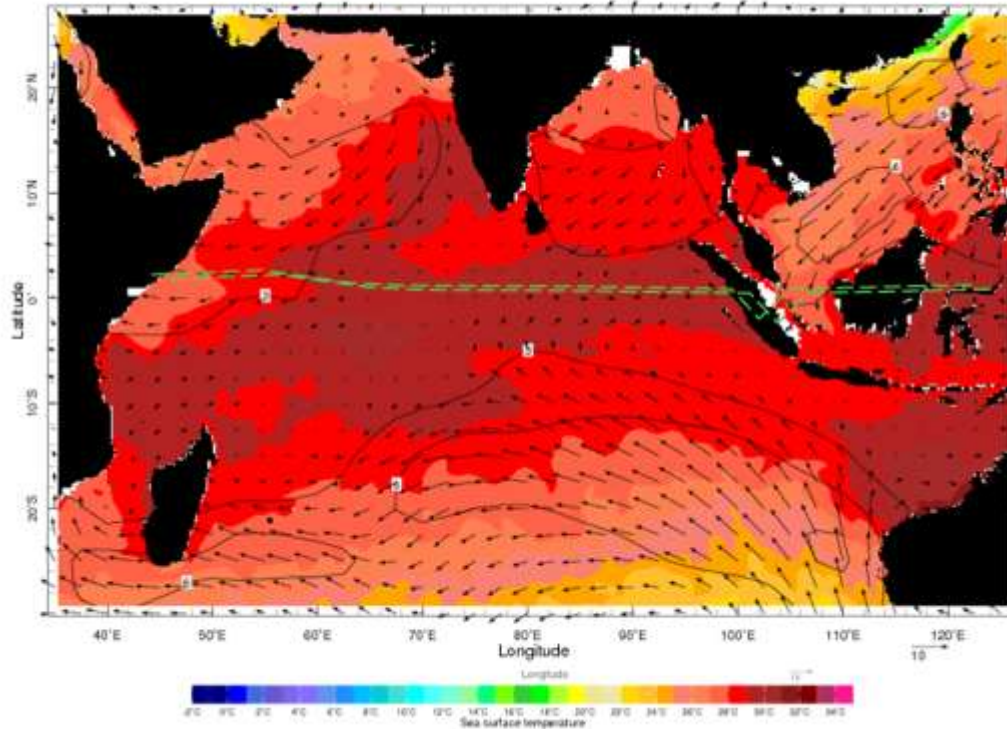


Fig 6 : Ocean Surface Winds and Ocean Surface Temperature for March 2023

Surface pressure and winds: The surface pressure was above average during the first week and below average during remaining days except on 25th March, when about average surface pressure values observed. Pressure distribution was fairly even or even. Mild pressure gradient was observed on 04th, from 08th to 09th March.

The surface wind was predominantly calm/05kts and variable in direction.

Upper winds:

At 850hPa, north-easterly wind flow is dominated over the island. Anomalous north-easterly south-westerly oriented ridge appeared across Sri Lanka for March 2023.

At 700 hPa, North-easterly wind flow dominated across Sri Lanka Anomalous north-easterly south-westerly oriented ridge appeared to the South Sri Lanka for March 2023.

At 500 hPa, Northeast Southwest oriented trough appeared across Sri Lanka Anomalous Westerly wind flow appeared across Sri Lanka.

The 200 hpa the upper tropospheric ridge was shifted further south than compared to the Climatological average position and laid around 05⁰N 40E, 04S70E, EQ 90E and 08N100E bringing predominantly southwesterly winds across Sri Lanka.

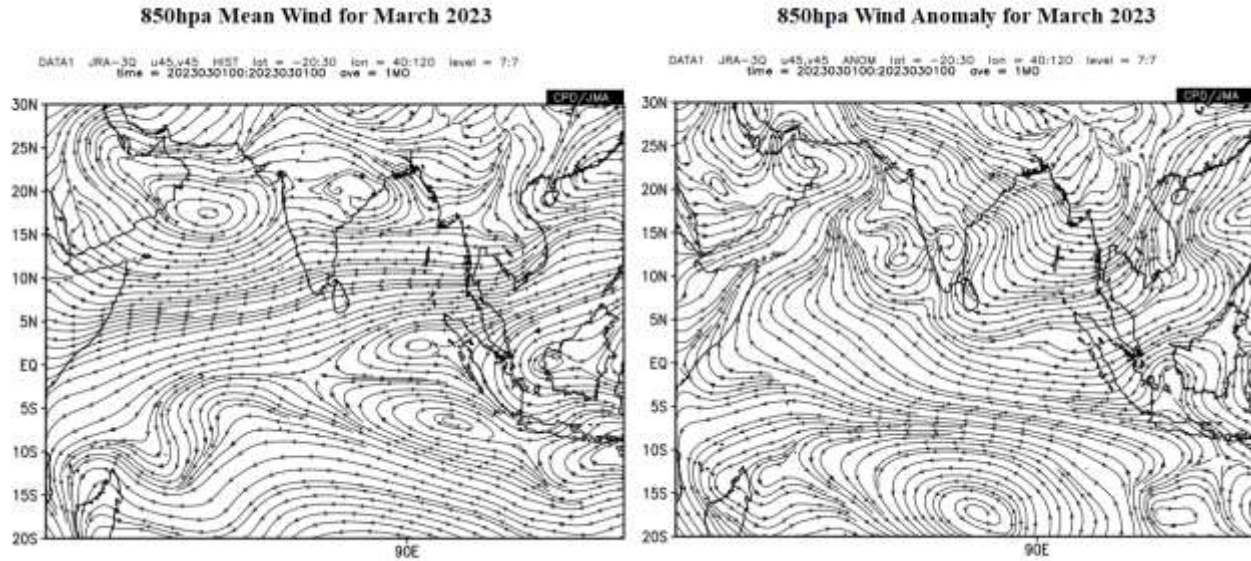


Fig 8: Monthly average wind pattern at 850hpa level during the month of March2023 (JRA55)

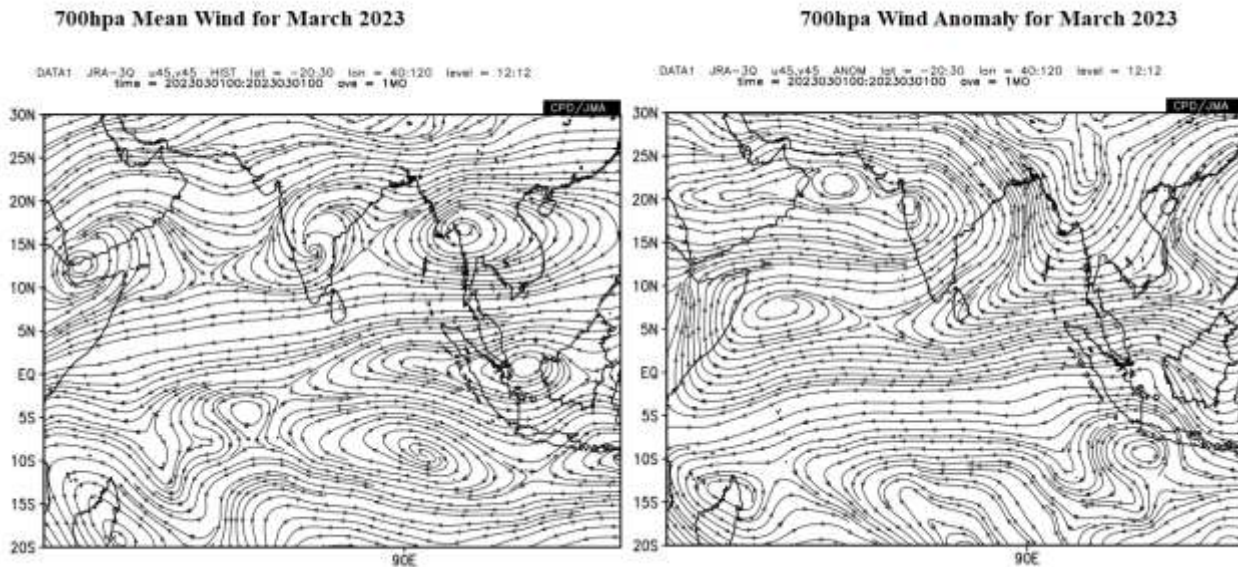


Fig 9 :Monthly average wind pattern at 700hpa level during the month of March2023(JRA55)

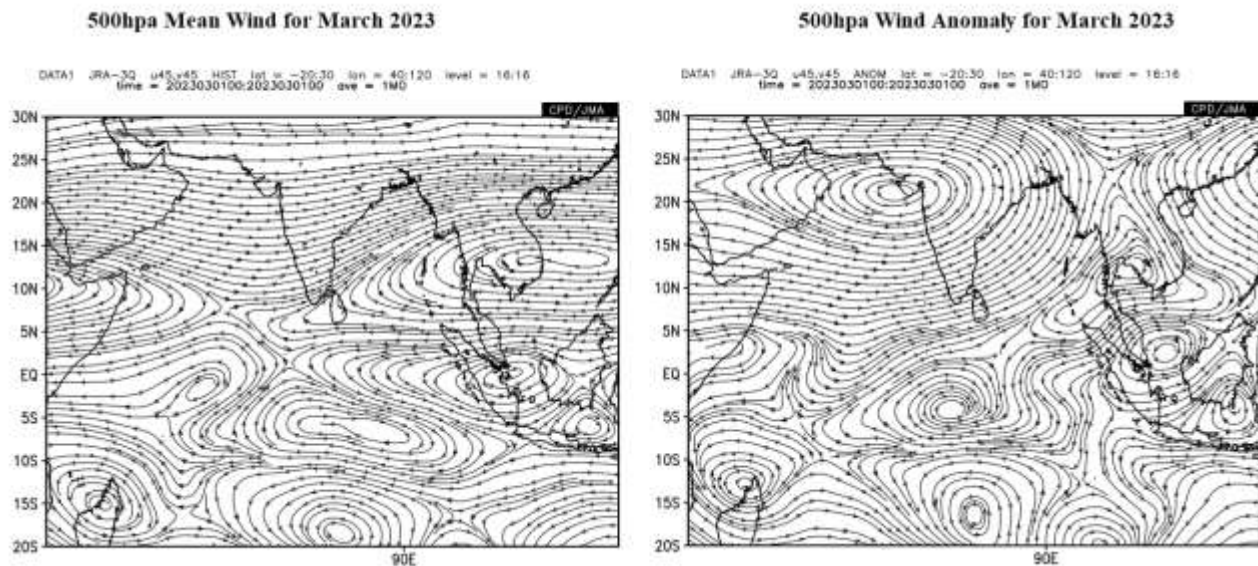


Fig.10: Monthly average wind pattern at 500hpa level during the month of March 2023 (JRA55)

Temperature Field:

The maximum temperatures in the day were mostly above normal in most places during the last two weeks except on 20th and 31st. Below normal temperatures were experienced at some stations during first week of March. Appreciably below normal temperatures were experienced in Polonnaruwa during the first week. Highest recorded maximum temperature for the month of March 2023 was 36.1⁰C on 13th at Kurunegala.

Night minimum temperatures over most parts were above normal during the month. Well above normal temperatures were experienced at Nuwara Eliya during the first two weeks of the month. Lowest recorded minimum temperature for the month of March 2023 was 9.4⁰C on 27th and 28th at Nuwara Eliya.

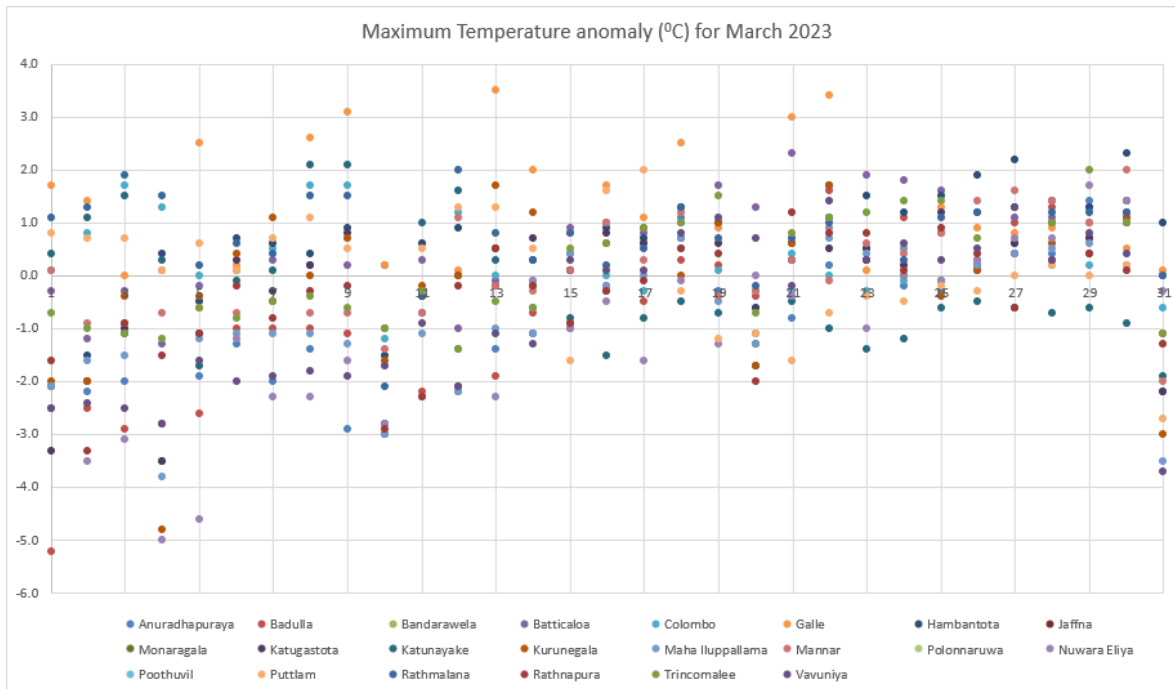


Fig 11 Maximum Temperature anomaly ($^{\circ}\text{C}$) for March 2023

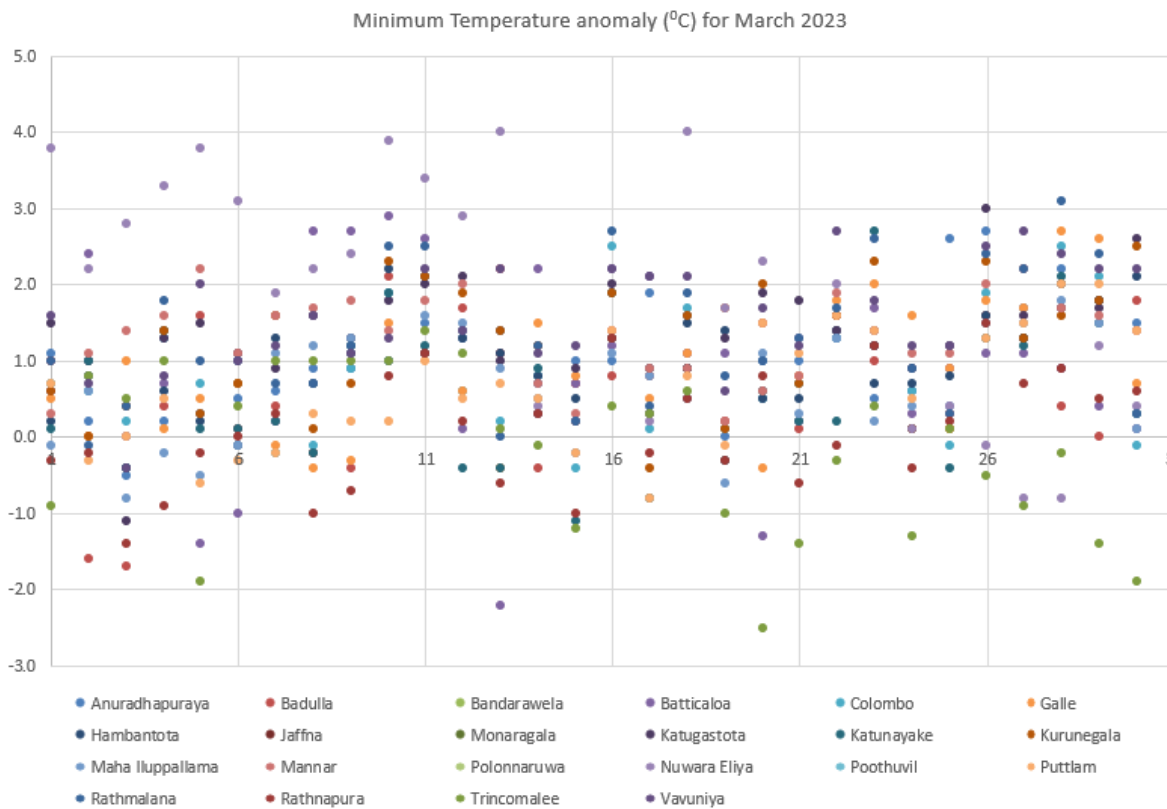


Fig 12 Minimum Temperature anomaly ($^{\circ}\text{C}$) for March 2023

Maximum and Minimum departures from normal day/night temperature were shown in table 1.

Rainfall: Except for meteorological stations located in located in Badulla, Bandarawela, Hambantota, Jaffna Kurungala, Mannar and Puttalam above normal rainfalls were reported from most of Meteorological stations (Fig 1).

Highest monthly rainfall was reported from Moraliya and it was 534.6mm. The recorded maximum daily rainfall during month of March was 131.7 mm at Handapanagala on 26th.

Maximum percentage was reported from Pottuvil (235.3%) while minimum from Mannar station (8.8%).

Number of rain days were about or above average except Mannar, and Puttalam,.

Most of hydro catchment areas reported about or above normal rainfalls except Kothmale, Victoria, Randenigala and Ukuwela where below normal rainfall were observed (Fig 2).

The table 2 and the figures 1 and 3 show the total rainfall and the number of rain days at the principal meteorological stations recorded in the month against the respective averages. .

Table-01-Monthly Total Rainfall(mm) and monthly total no of rainy days with 30 years(1961-1990) of their averages at main Meteorological stations during March 2023

| Meteorological station | Monthly Total rainfall(mm) | | | Monthly Total No of rainy Days | | |
|------------------------|----------------------------|---------|--------|--------------------------------|---------|---------|
| | 2023-March | Average | % | 2023-March | Average | % |
| Anuradhapura | 72.2 | 68.7 | 105.1% | 7 | 5 | 140.0% |
| Badulla | 71.7 | 119.4 | 60.1% | 15 | 9 | 166.7% |
| Bandarawela | 81.7 | 98.5 | 83.0% | 12 | 7 | 171.4% |
| Batticaloa | 149.1 | 89.0 | 167.5% | 8 | 6 | 133.3% |
| Colombo | 208.1 | 128.0 | 162.5% | 13 | 9 | 144.4% |
| Galle | 230.3 | 111.3 | 206.9% | 11 | 9 | 122.2% |
| Hambanthota | 38.8 | 65.4 | 59.4% | 5 | 5 | 100.0% |
| Jaffna | 10.7 | 25.7 | 41.8% | 3 | 2 | 150.0% |
| Monaragala | 135.7 | | | 15 | | |
| Katugasthota | 66.5 | 71.9 | 92.5% | 11 | 8 | 137.5% |
| Katunayake | 137.5 | 132.9 | 103.5% | 11 | 8 | 137.5% |
| Kurunagala | 99.6 | 139.1 | 71.6% | 8 | 8 | 100.0% |
| Maha Iluppallama | 171.6 | 84.9 | 202.2% | 9 | 6 | 150.0% |
| Mannar | 3.9 | 44.4 | 8.8% | 1 | 3 | 33.3% |
| Polonnaruwa | 161.5 | 87.9 | 183.7% | 9 | 6 | 150.0% |
| Nuwara Eliya | 70.6 | 71.5 | 98.8% | 12 | 8 | 150.0% |
| Pothuvil | 178.1 | 75.7 | 235.3% | 11 | na | #VALUE! |
| Puttalam | 57.3 | 67.7 | 84.6% | 4 | 5 | 80.0% |
| Rathmalana | 189.7 | 141.5 | 134.1% | 12 | 9 | 133.3% |
| Rathnapura | 350.4 | 212.2 | 165.1% | 16 | 14 | 114.3% |
| Trincomalee | 87.0 | 55.5 | 156.8% | 4 | 4 | 100.0% |
| Vavuniya | 58.2 | 62.9 | 92.6% | 5 | 4 | 125.0% |

4Note that the meteorological day in this text is reckoned as the 24hr period from 08.30hrs to 08.30hrs following day

Table-02-Monthly Total Rainfall(mm) with 30 years (1961-1990) of averages at Hydro catchment areas during March 2023

| Hydro Catchment | March2023 | Average | % (Percentage of average) |
|-----------------|-----------|---------|---------------------------|
| Castlereigh | 150.8 | 96.6 | 156.1% |
| Norton | 227.3 | 123.1 | 184.6% |
| Maussakele | 129.9 | 126.4 | 102.8% |
| Canyon | 134.1 | 121.0 | 110.9% |
| Laksapana | 239.5 | 144.9 | 165.3% |
| Kotmale | 83.4 | 41.4 | 201.6% |
| Victoriya | 92.4 | 41.0 | 225.6% |
| Randenigala | 155.2 | 48.4 | 320.5% |
| Bowatenna | 175.7 | 120.4 | 146.0% |
| Ukuwela | 254.9 | 40.4 | 630.7% |
| Samanala Wewa | 189.5 | 129.0 | 146.9% |
| Maskeliya | 95.2 | 177.5 | 53.6% |

| Table 3(a) - Extremes of Maximum Temperatures March 2023 | | | | |
|--|------------------|-------------|-----------------|-----------------|
| | Maximum | | | Highest Std.Div |
| | Value | Offsets | | |
| | | (-) | (+) | |
| Value | 36.1 | - 5.2 | 3.5 | 1.93 |
| Station | Kurunegala | Badulla | Galle | NuwaraEliya |
| Date | 13/03/2023 | 01/03/2023 | 13/03/2023 | |
| Table 3(b) -Extremes of Minimum Temperature March2023 | | | | |
| | Minimum | | | Highest Std.Div |
| | Value | Offsets | | |
| | | (-) | (+) | |
| Value | 9.4 | -2.5 | 4 | 1.48 |
| Station | NuwaraEliya | Trincomalee | NuwaraEliya | NuwaraEliya |
| Date | 27 & 28 /03/2023 | 20/03/2023 | 13 & 18/03/2023 | |

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