SEVERE WEATHER REPORT 2024

MALDIVES METEOROLOGICAL SERVICE

January 2024

On 9th of January, a cyclonic circulation has formed over south of Sri Lanka, around 2.8°N and 82.2°E. The trough associated with this system extended to southern part of Maldives. This circulation moved westwards, crossed Maldives and emerged into the Arabian on 12th January (Fig. 1). As a result, torrential rain and thunderstorms, strong winds and rough sea conditions prevailed over the Maldives, particularly in central atolls on 12th and 13th January. This severe weather event was coincided with the enhance phase of Madden Julian Oscillation (MJO). During this period MJO was remaining in the Indian Ocean, over phase 1 and 2 (Fig. 2).

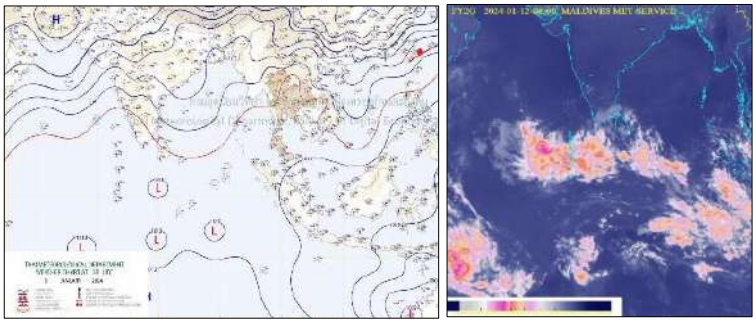

Figure 1: Left - Weather chart showing a surface Low over south of Sri Lanka on 9th Jan 2024. (Thai Met Dept), and Right –Satellite image showing intense convective clouds over Maldives on 12th Jan at 0800hrs. (CMA cast)

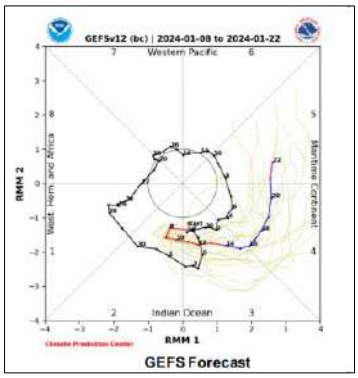

Figure 2: GEFS forecast, showing MJO remains over the Indian Ocean in phase 1 & 2. (NOAA)

Figure 3: Weather information released by MMS on 9th Jan 2024, for informing and advising general public to be cautious of upcoming severe weather events.

MMS released weather information on 9th January, with 3 days lead time of this severe weather event, advising public to be cautious of upcoming adverse weather (Fig. 3).

Due to this circulation, fairly widespread rain with occasional heavy showers were experienced over the country on 12th Jan. Heaviest downpour of 159.3, 143.4, 105.4, 68.3, 62.5, 54.6 and 53.3 mm were registered at the Automatic Weather System (AWS) of Male', National Meteorological Centre in Hulhule', AWS of Hulhumale' K. Kaashidhoo, Adh. Maamigili, AA. Thoddoo and Gdh. Thinadhoo, respectively. Several stakeholders including National Disaster Management Authority (NDMA) reported flood damage across the country (Fig. 4 – 6). It was reported by the NDMA that 227 places in Male' were affected by flood water, including 75 houses which were badly affected due to seeping of flood water into the houses.

Figure 4: Dewatering of flood waters due to torrential rain in Male' on 12th January was reported by MNDF (https://twitter.com/MNDF_Official).

Figure 5: NDMA reported flood events due to torrential rain in Th. Guraidhoo, Th. Dhiyamigili, L. Maamendhoo and Dh. Kudahuvadhoo on 12th Jan 2024. Source: NDMA (https://twitter.com/NDMAmv/status/1745816750451773820)

Figure 6: NDMA reported flood in Sh.Komandoo due to swell wave surges on 12th and 13th January 2024. (https://twitter.com/NDMAmv/status/1746743172636799012)

During the month of January, 32 alerts were issued including 26 white alerts and 6 yellow alerts (Fig. 7). Highest daily rainfall for the month of January was 159.3 mm, which was recorded at the AWS in Male on 12th January 2024 (Fig. 8).

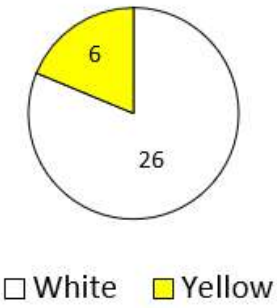

Figure 7: A Pie chart showing the total number of alerts issued during the month of Jan 2024.

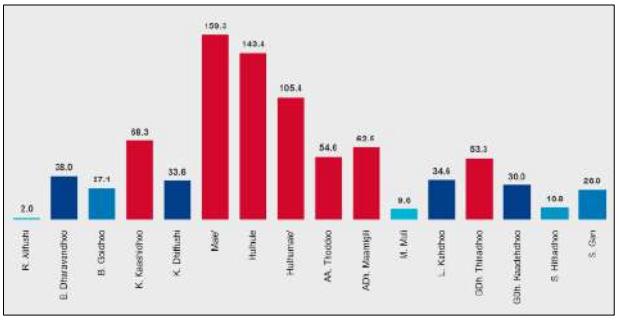

Figure 8: Accumulated rainfall of 12th Jan 2024, showing the heaviest rainfall of the month recorded in Male'.

February 2024

A weak convergence area was seen from the 5th of February onwards, and this caused deep convection over the region. Also, due to a strong easterly wave, moderate to strong easterly winds prevailed over the central and northern parts of the country (Fig. 9). Scattered rain with a few heavy showers and thunderstorms were experienced in central and southern atolls. The heaviest rainfall of 90 mm recorded in M. Muli Automatic Weather Station (AWS) on 13th Feb. On the same day windy and hazy conditions prevailed in northern and central atolls.

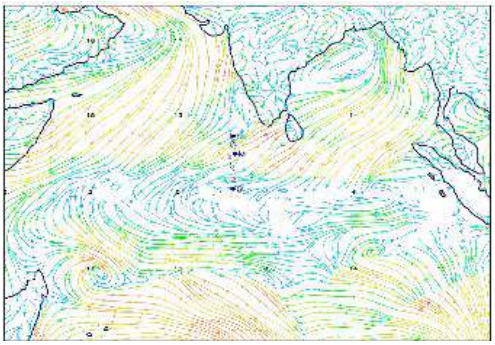

Figure 9: MMS NWP model run on 5th Feb 12Z valid at 00Z of 7th Feb, showing strong easterly winds over Maldives area.

From 16th Feb onwards intense convective clouds formed over the central and southern atolls due to the convergence at low levels over the east of the Maldives. Additionally due to the easterly wave, moderate to strong winds persisted over the country. Scattered showers with a few heavy showers were experienced in the central and southern atolls. Heaviest rainfall of 107.4 and 80.8 mm were recorded at the Meteorological Office, L. Kadhdhoo, and K. Dhiffushi AWS, respectively on 16th, and gust wind speed of 36 miles per hour was recorded at the National Meteorological Centre, Hulhule'. The heaviest rainfall of 74 mm was recorded in M. Muli AWS on the 17th May (Fig. 10).

Figure 10: Flood reports by MNDF due to Heavy rain in Male' on 16th Feb (left) and in L. Isdhoo on 17th Feb (right).

A wind-converging area had formed over the southern part of the Maldives on the 20th of February. Under its influence, scattered rain and a few heavy showers were experienced in the central and southern atolls. A few thunderstorms occurred in the southern atolls. The heaviest rainfall of 156.3 and 112.6 mm was recorded at the AWS of M. Muli and at the Meteorological Office, L. Kadhdhoo, respectively, on the 21st of February (Fig. 11).

On 28th Fairly widespread rain with isolated heavy showers and a few thundershowers was experienced over the southern atolls. The heaviest rainfall recorded was 62 millimetres, registered at the Meteorological Office in Kaadedhdho, followed by 59 and 56 in AWS at Ga. Gamanafushi and Fuvahmulah City, respectively.

Figure 11: Flood reports by MNDF due to Heavy rain in L. Gan (left) and in M. Muli (right) on 21st Feb.

During the month of February, a total of 44 alerts were issued with 38 white alerts and 6 yellow alerts. The highest daily rainfall for the month of February was 156.3 mm, which was recorded M. Muli AWS on 21st of February. A maximum gust wind speed of 36 mph was recorded at the National Meteorological Centre.

March 2024

Mostly fine weather prevailed throughout the country during the month, except for a few spells of showers across the country.

The only heavy rainfall occurred in the central atolls on 1st March. The convergence of moist air masses in the east of the country, under the influence of a circulation in the southeast of the Maldives and the Andaman Sea, caused this sudden outburst of rain in the central atolls.

Daily accumulated rainfall of 78 mm was recorded by the AWS in Male', followed by 56 mm in the National Meteorological Centre, Hulhule'.

The month of March experienced hot and humid weather, with unusually high feels – like temperature reported across the country. This observation aligned with the El Niño event and the subsequent prediction of above normal temperatures during the period globally by the World Meteorological Organization.

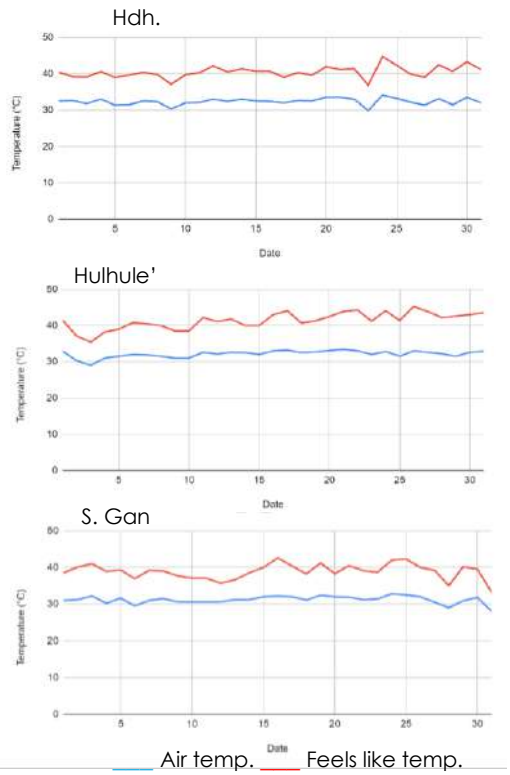

Figure 12: Air and Feel – like temperature for March 2024 in Hdh. Hanimaadhoo (top), Hulhule' (mid) and S. Gan (bottom).

On March 26th, Hulhule' registered its highest daily 'feels like' temperature at 45 °C. For majority of the month, the monthly average maximum "feels-like" temperature remained above 40 °C across the country, signifying persistence of extreme heat throughout March (Fig. 12). Maldives Meteorological Service had cautioned the public in advance about possible soaring temperatures during months of March and April (Fig. 13).

Figure 13: Social Media post on 11 March 2024 about high temperature.

March 2024 can be described as a hot and humid month with isolated spells of showers across the country. During the month of March, a total of 10 alerts were issued, with 9 white alerts and one yellow alert. The highest daily rainfall for the month of March was 78 mm recorded by the AWS in Male', followed by 56 mm in the National Meteorological Centre, Hulhule'.

April 2024

Notable weather drivers during the month were High Pressure Areas over the Arabian Sea and Bay of Bengal, with the enhanced near equatorial trough generating convective activity over south and east of Maldives. Intermediate circulation and wind convergence led to a period of heavy rain, thunderstorms, rough seas and gust from 13th April onwards till the end of the month. Most of the active weather was observed over central and southern atolls during the month.

A total of 46 alerts were issued, including 32 white alerts and 14 yellow alerts.

May 2024

This year May with the onset of Southwest monsoon and moderately strong Madden–Julian Oscillation (MJO) MJO, heavy rainfall with severe winds were observed over the country throughout the month. Cyclonic storm "REMAL" developed over Bay of Bengal. Looking at major climate drivers El Niño–Southern Oscillation (ENSO) was neutral and IOD was also neutral (just below the positive IOD). The MJO was moderately strong and located in the eastern Indian Ocean and expected to track towards the Maritime Continent region by the end of May.

On 3rd May wind convergence area was over the east of northern atolls. Along with that, upper-level convergence was strong over the northeast of northern atolls and west of central atolls. Due to this, dense cloud patches developed over those areas. From 5th cyclonic circulation persisted east of southern atolls which moved future east as month passed. From 6th May cross equatorial flow started establishing over Maldives area. In addition to that two low level circulations were present in south and north of Maldives. Scattered showers were observed over Maldives with flooding reported in N. Maalhendhoo and some areas of Male' on 8th May (Fig. 14).

Figure 14: Floods in N. Maalhendhoo on 8th May.

The onset of Southwest monsoon was declared over southern atolls on 9th May, followed by 14th May and 17th May over central and northern atolls, respectively. With the onset of monsoon fairly widespread rain showers were observed over the country. On 13th May, late at night, a tornado occurred in Ha. Dhidhoo damaging 10 house's roofs, among which 6 house roofs were completely torn off (Fig. 15).

Figure 15: Roof damage in Ha. Dhidhoo on 13th May 2024.

Orange warning was issued from Thaa and Laamu atoll for torrential rain on 14th May. Th. Thimarafushi experienced severe flooding affecting 50 houses as per rapid assessments of NDMA.

Winds remained moderate till 15th May, around 8 – 18 mph with gusts of 35 mph for most of country. Winds started to pick up from 16th May. On May 15th a Weather news briefing was issued to public advising to be cautious as monsoon was expected to strengthen with strong winds and heavy rainfall (Fig. 16). Winds remained very strong rest of the month, with 12 orange alerts issued between 18th – 23rd May. Many islands reported damages to roofs and trees within this period as follows.

On 17th May, flooding was reported in F. Feeali with damage to some houses. On 18th May, Addu City, Fuvahmulah City, several islands of Thaa Atoll and Dh. Atoll reported damage to tree and households. Maximum gust 64 mph was reported at M. Muli AWS.

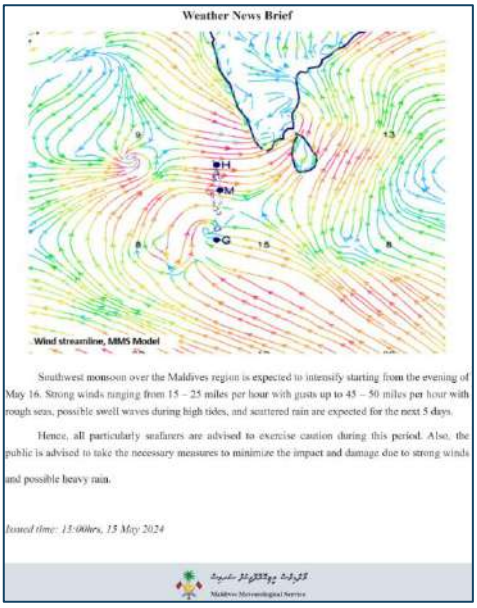

Figure 16: Weather News issued on 15th May 2024

The Low-level circulation over southeast of Addu City located at 2.3S 75.2E on 20th intensified into a cyclone as reported by Joint Typhoon Warning Center (19 May 2130Z), but because of rapid weakening thereafter, it was not classified and named as a cyclone by Regional Specialized Meteorological Center at Reunion.

Figure 17: Damage to V. Fulidhoo Council due to strong winds on 19th May 2024.

Subsequently on 19th May, V. Fulidhoo council reported that a satellite dish fell on the council building damaging roof due to a strong gust, while F. Dharanboodhoo reported damage to farmlands due to strong winds. On the same day, Maradhoo of Addu City reported damage to two houses due to swell waves and roof damage in Feydhoo due to strong wind.

Strong winds continued from 21st – 25th May in central and north atolls, with average winds reaching 23 – 36 mph on 22nd May with gusts of 62 mph and 63mph recorded at B. Dharavandhoo AWS and Hulhule' (Fig. 19). While Sh. Maaungoodhoo reported damages to Health Center Building due to an uprooted tree by strong winds, tree fell damages were reported in B. Eydhafushi, N. Lhohi, R. Angolhitheemu and Lh. Olhuvelifushi. K. Dhifushi Council reported damages to the building on 23rd May and Sh. Funadhoo reported damages to the airport fencing the following day, both due to strong winds (Fig. 18). Additionally, Swell surge intrusion was reported by K. Dhiffushi during high tide on 22nd. Male' City reported floods on 25th May, with 40.4 mm observed at the AWS in Male'.

Figure 18: [Left to right] Wind damage incidents from at Sh. Maaungoodhoo health center (21st May), K. Dhiffushi (23rd May) and Sh. Funadhoo airport (24th May)

While winds weakened slightly on 26th and 27th May, scattered rain showers were reported over the country due to the strengthening of the system in BoB. The deep depression strengthened into cyclonic storm "REMAL" on 26th. On 28th winds picked up again after TC "REMAL" landfall in Bangladesh and weakened. Also,

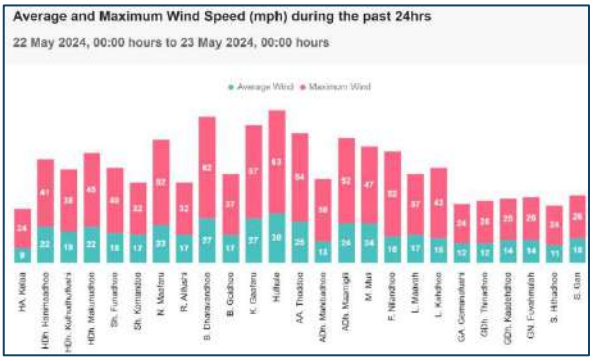

Figure 19: Average and Gust winds (mph) across Maldives on 22nd May 2024.

on 27th May severe flooding was reported in Dh. Maaenboodhoo due to swell waves.

On 28th May Kulhudufushi City reported roof damage to a house. On 29th Feydhoo, Addu City reported severe flooding affecting 10 houses. Lh. Naifaru and Sh. Komandoo reported blown off roofs of one house each island due to strong winds on the same day.

On the month of May 2024 total 123 alerts were issued, 56 white, 54 yellow and 13 oranges (Fig. 20). The highest 24hrs rainfall, 104 mm was reported in L. Kahdhoo on 25th May. Highest gust wind of 64 mph was reported in M. Muli on 18th May followed by 63 mph in Male' on 22nd May.

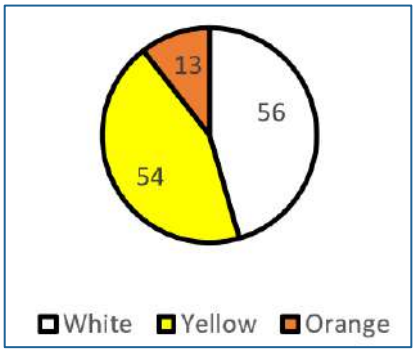

Figure 20: Weather Alerts issued in May 2024.

June 2024

Even though few places experienced some rainfall, but average weather conditions prevailed mostly until 18th of June. As the wind convergence started to develop over the Maldives, coinciding with the enhancement of Somali Jet, from 20th until 26th June, heavy rain spells recorded over the Maldives.

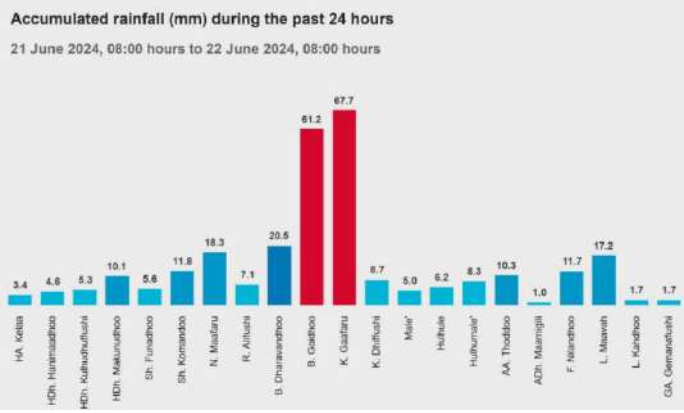

Figure 21: Daily accumulated rainfall on 21 June 2024

Heavy rain persisted over most part of the Maldives from 21st – 26th June. Wind convergence favored convective enhancement, which resulted deep convection over the Maldives. Along with that, average strong winds prevailed over central and northern atolls from 23rd to 26th June (Fig. 22).

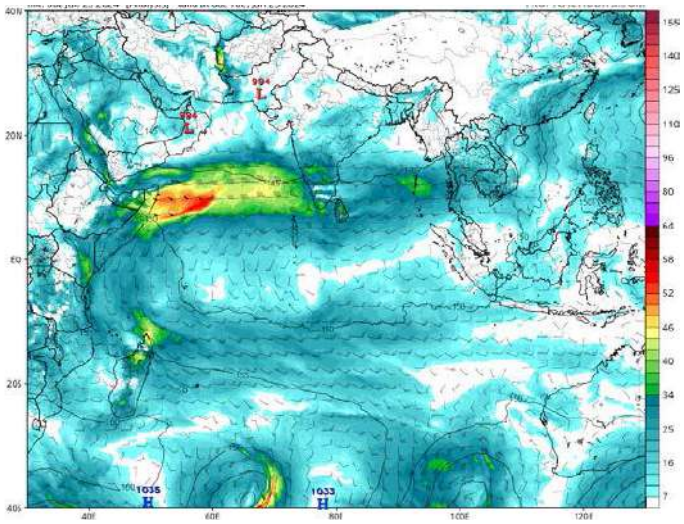

Figure 22: ECMWF IFS model run valid at 25 Jun 00Z for 850hPa, showing wind convergence over northern and central area.

On the month of June, total 13 alerts were issued with 11 white and 2 yellow alerts, respectively. Highest daily rainfall of 102.2 mm was recorded at K.Gaafaru on 22nd June. Maximum gust wind speed of 49 miles per hour was recorded at the Meteorological Office, H.Dh. Hanimadhoo on 22nd June.

July 2024

The first half of July 2024 experienced generally fine weather throughout the country.

One significant event was recorded on 5th of July. It was due to the wind convergence; intense convective clouds were developed over Maldives area giving scattered showers with few heavy showers and thunderstorms over the country. The heaviest rainfall of 62 mm was recorded in Gdh. Kaadedhdhoo.

Notably, on 3rd of July Temperature drop of 6 degree was recorded in National Meteorological Centre Hulhule. The temperature drop was from 33 degrees at 030800z to 27 degrees at 030813z.

On 16th of July, due to a low-pressure trough, intense convective clouds were formed over northern and central atolls, resulting in scattered showers with few heavy showers and thunderstorms. Heaviest rainfall of 53 mm was recorded at AWS of N. Maafaru. A gust wind speed of 46 and 44 miles per hour was recorded at Meteorological Office Hanimaadhoo and National Meteorological Centre Hulhule.

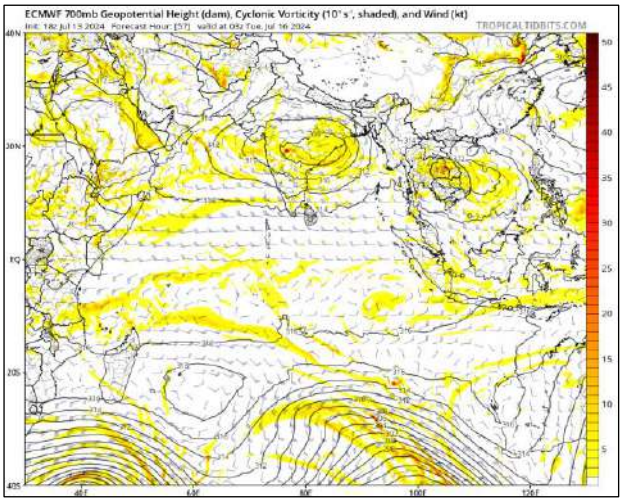

Figure 23: ECMWF IFS model run valid on 16 July 2024 showing the synoptic situation over the Maldives area.

Wind convergence and intense convective clouds on 25th July were formed over Maldives. Scattered rain with few heavy showers and thunderstorms were experienced over the country. Heaviest rainfall of 95.3mm, 70.4mm and 63.6mm were recorded at AWS of B. Goidhoo, K. Dhiffushi and K. Gaafaru respectively.

In the month of July 2024, a total of 21 alerts were issued, 20 white and 1 yellow alerts.

August 2024

The month of August started with fine weather. On August 07, wind convergence formed over northern and central parts of the country.

The MJO emerged into Indian ocean on 12th August, and it enhanced convective activity across the country from 11th August onwards till 17th of August.

A wind convergence area was seen over the northern and central part of the country from the 6th onwards, and this caused deep convection over the region. Scattered showers were experienced over the central and northern atolls. Heavy rainfalls of 118.3, 101.8, 85.8 and 85 millimeters were recorded at Hulhule meteorological office and AWS at AA. Thoddoo, Hulhumale and Male' respectively.

A low-level circulation formed south of Addu City, and another circulation formed over Sri Lanka at the same time. Due to the confluence of wind patterns from the two aforementioned systems, along with the additional influence of an equatorial Rossby wave and the wet phase of the Madden-Julian Oscillation (MJO) over the Indian Ocean, convection has been enhanced over the Maldives. On 9th August a news bulletin was issued to the public regarding the upcoming severe weather. The country has experienced widespread rainfall, accompanied by occasional heavy showers and thunderstorms. The most significant rainfall, exceeding 100 millimeters, was recorded as follows: 231.5 millimeters at HA. Kelaa, 177.5 millimeters at Hdh. Hanimaadhoo, and 102 millimeters at R. Ifuru.

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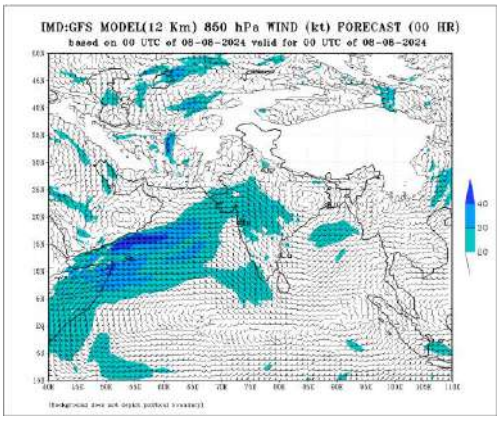


Figure 24: IMD model of Surface winds

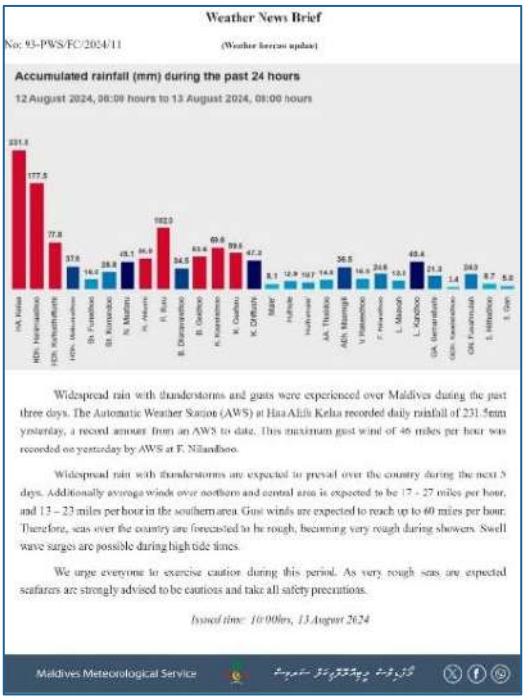


Figure 24: Weather information released by MMS on 13th August 2024, for informing and advising public to be cautious of upcoming severe weather events.

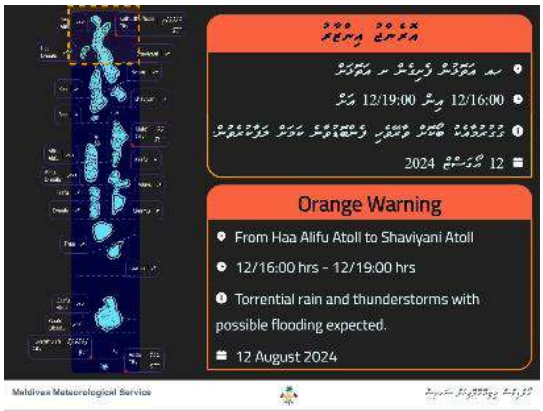


Figure 25 Orange Alert issued on 12 August 2024

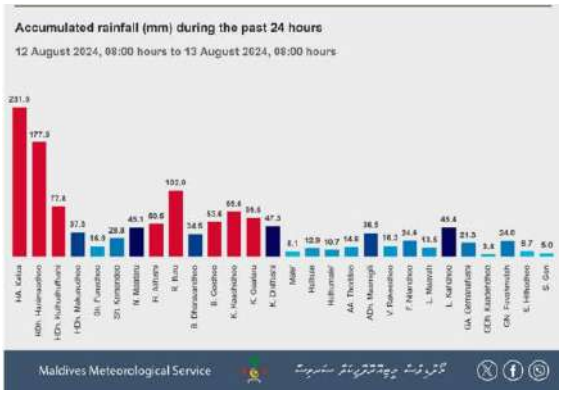


Figure 26: Accumulated rainfall on 12 August 2024

Figure 27: August 14 MNDF photo of flooding in Male'

Figure 28: August 13 MNDF photo of flooding in Addu City, Feydhoo.

A low-pressure gad formed over south of Addu city on 18th August, as a result convective clouds has formed over the west of Maldives. Scattered showers were experienced over the country. Fine weather was experienced in the last week of the month.

During the month of August, total 72 alerts were issued with 33 white alerts, and 36 yellow alerts and 3 Orange warning. Highest daily rainfall for the month of august was 231.5 mm, which was recorded Ha. Kelaa AWS on 12th of August. Maximum gust wind speed of 40 mph was recorded at the National Meteorological Centre.

September 2024

September started with the Cyclonic Storm "Asna" that persisted over northwest and adjoining northeast Arabian Sea. However, the Cyclonic Storm moved southwestwards and weakened gradually to a depression within 24 hours. Hence, the weather of Maldives was not significantly affected by this system although scattered showers were experienced in central and northern atolls. Few heavy showers occurred in southern atolls on the 3rd due to a wind converging area (Figure 1) formed in the region. Heavy rainfall of 62.2 millimeters was recorded in AWS of L. Maavah followed by 51.2 millimeters recorded in Meteorological Office, Laamu Kadhdhoo.

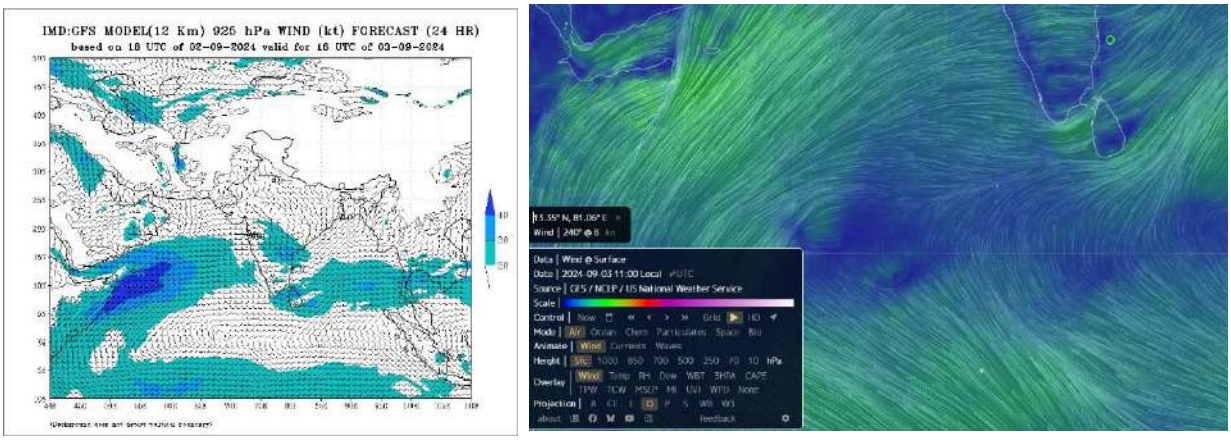


Figure 29: 925 hPa Wind Chart (Source: India Meteorological Department) and Surface wind Model (Source https://earth.nullschool.net/)

Significant weather was not experienced in the first half of the month except on the 3rd.

On the 17th a northeast-southwest oriented wind converging area (Figure 2) was formed over east of Maldives.

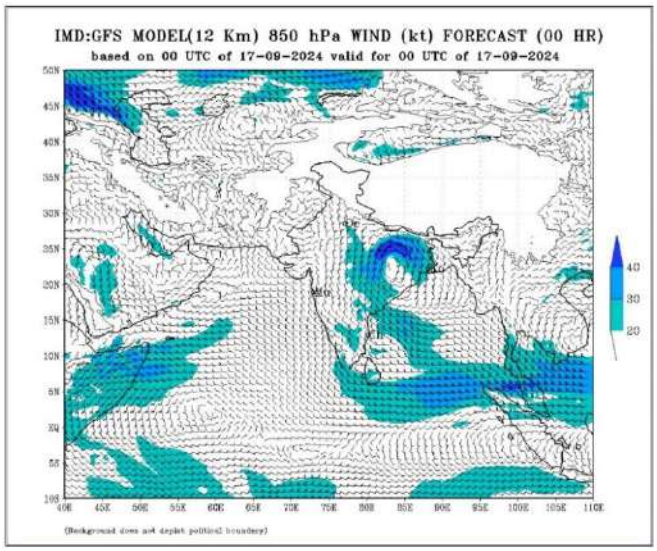


Figure 30: 850 hPa Wind Chart. Source: India Meteorological Department

Under the influence of this system wind convergence was observed from 17th to 25th and convective clouds were formed over the country. Hence, scattered rain was experienced over the country with

isolated heavy showers and thunderstorms in southern atolls. Heavy rainfall of 51 millimetres was recorded in AWS of Ga. Kooddoo on the 18th and 56.7 millimetres was recorded in Meteorological Office. G.Dh. Kaadedhdhoo on 20th. Additionally, strong surface winds were experienced in central and northern atolls in addition to the gusty winds experienced over the country. Surface winds prevailed between 13 – 23 miles per hour in central and northern atolls on 24th and 25th. Maximum gust wind of 39 miles per hour was recorded on 24th in the Meteorological Office Kadhdhoo and Kaadedhdhoo and 50 miles per hour was recorded on 25th in A. Dh.Maamigili, followed by 41 miles per hour and 36 miles per hour in Hulhule and K. Kaashidhoo respectively.

A cyclonic circulation formed (Figure 3) in the southwest of Maldives and over east of Sri Lanka on 26th caused scattered showers on 26th and 27th in southern and central atolls. Strong surface winds of 13 – 23 miles per hour continued in central atolls. Maximum gust winds of 43 miles per hour was recorded on 26th in AWS of Faafu Nilandhoo and 41 miles per hour was recorded in National Meteorological Centre, hulhule'. Furthermore, scattered showers occurred in central and northern atolls in the next 3 days of the month, but heavy showers were not experienced.

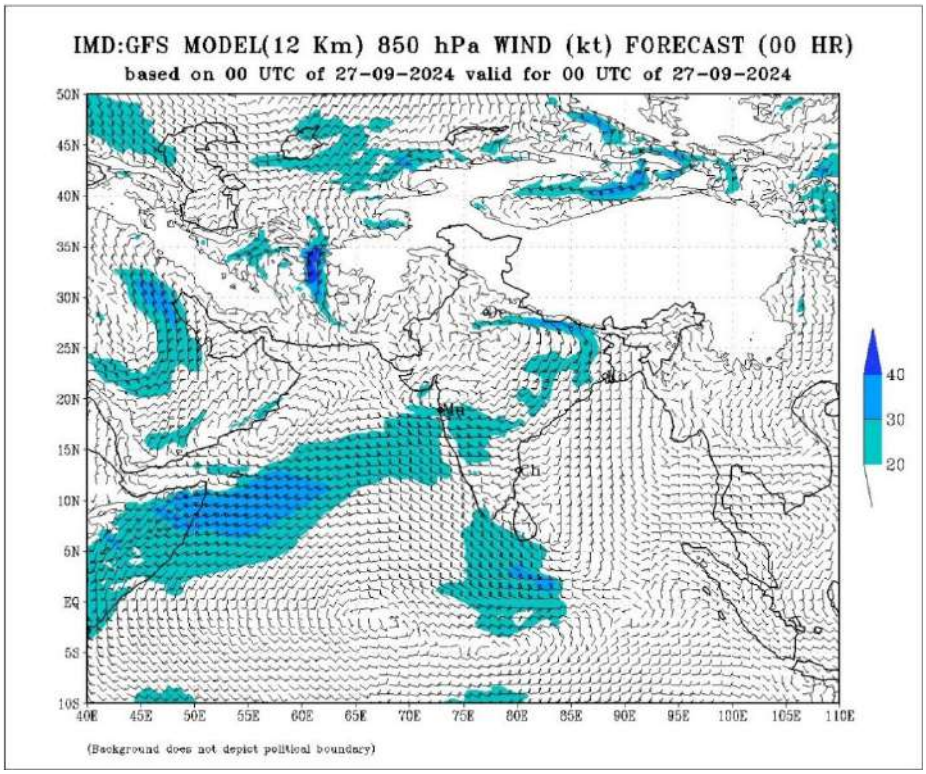


Figure 31: 850 hPa Wind Chart. Source: India Meteorological Department

During the month of September, a total of 19 alerts were issued of which all were white alerts.

October 2024

A low-pressure area formed over north Bay of Bengal and associated cyclonic circulation tilting southwestwards causes formation of intense convection with strong winds over Maldives. Near Equatorial Trough (NET) lies between 52 and 72E, undulating around 3S. The condition for the severe weather episode is favored under the influence of the enhancement of MJO over Indian Ocean. Even though IMD declares gradual withdrawal of SW monsoon over Indian subcontinent, strong monsoon condition prevailed over Maldives area. A cyclonic circulation formed over Lakshadweep & neighborhood extending up to 5.8 km above mean sea level, additionally a trough from southwest Bay of Bengal to cyclonic circulation over Lakshadweep across south Tamil Nadu & south Kerala extending up to 1.5 km above mean sea level also persisted. A low-pressure area formed over Lakshadweep and adjoining Southeast & East central Arabian Sea moved northwestwards. Another cyclonic circulation also formed over south of Addu City. All these synoptic features contributed in favor of the severe weather episode for the period from 4-14 October.

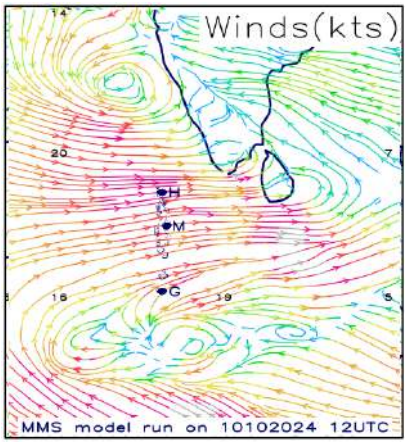
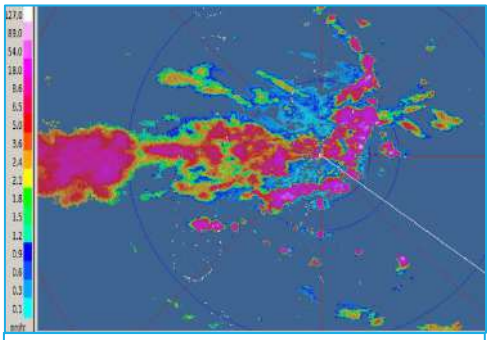


Figure 32: MMS WRF model showing winds of 11 October 2024 12Z run



RADAR image at Hulhule, 10 Oct 2024, 11:05hrs

Figure 33: Doppler Weather Radar image

Under the given synoptic condition, this episode of severe weather started over southern atolls on 4th October and gradually extended over the country with widespread rain and occasionally heavy showers in some islands. Heaviest rainfall during this episode was 129 millimeters recorded in Gan Met Office on 4th October followed by 120 millimeters of rain in Fuvahmulah City on 8th October. Strong winds initially started over southern atolls from 5th October and gradually extended to central and northern atolls from 6th October onwards. Maximum gust wind speed of 65 miles per hour was recorded at the Automatic Weather Station (AWS) of B.Dharavandhoo on 11th October, additionally strong gust wind speed of 61 miles per hour was also recorded at Hulhule Met Office on 10th October.

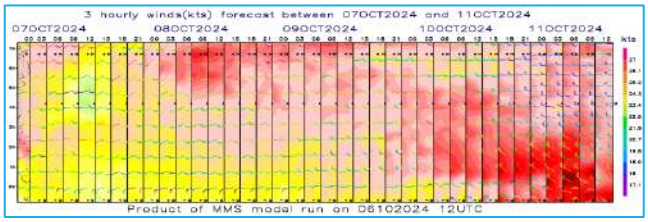
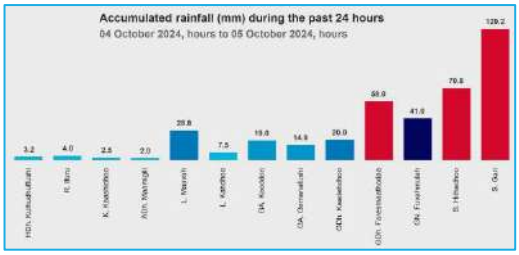


Figure 34: Five days forecast of wind and rain over Maldives from MMS WRF run on 06 October 2024 12 Z



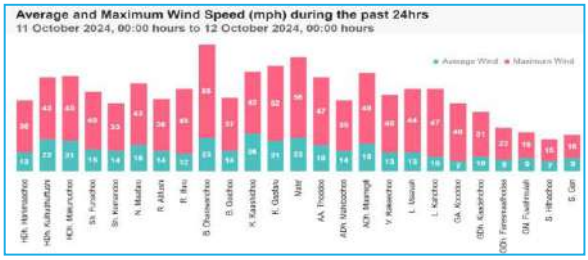


Figure 35 Daily accumulated rain on 4th October and the Average wind and max winds reported during 11th Oct 2024

This episode continued to bring widespread rain and strong winds up to 14th October and the condition gradually improved from 15th October.

While several islands reported flooding and damage to household items, some islands reported damage to crops and farmlands with some incidents of uproot of trees in some islands.

05 October, Addu City Flood

11 October, Addu City

11 October, Male City

Figure 36: Images of flood and wind damage from Addu and Male' City during the 5th and 11th October events.

Images: First responders' group.

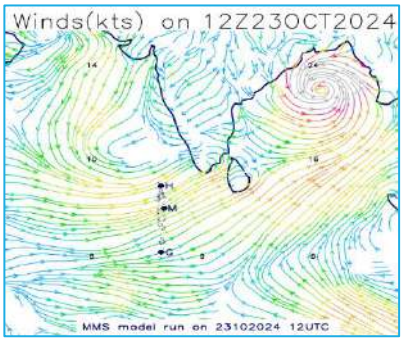


Figure 37: MMS WRF model output of wind for 23 Oct 2024 12Z and Satellite image, showing the Cyclone 'DANA'.

A depression formed in the east central Bay of Bengal further deepened on 24th October to a severe cyclonic storm named "DANA". However, the "DANA" weakened gradually after landfall over Odisha on 25th October. Combined effect of an upper air cyclonic circulation and a low-pressure circulation over the southeast of Addu city caused wind convergence at surface. These were the main cause of severe weather during this period.

Rainfall during this period initially started over central atolls on 23 October and extended to most parts of northern atolls by 24th October. Heaviest rainfall during this episode was 56 millimeters in N.Maafaru on 25th October, followed by 55 millimeters in HDh.Hanimaadhoo on 26th October. Maximum gust wind speed during this period was 33 miles per hour recorded at N. Maafaru on 25th and 28th October.

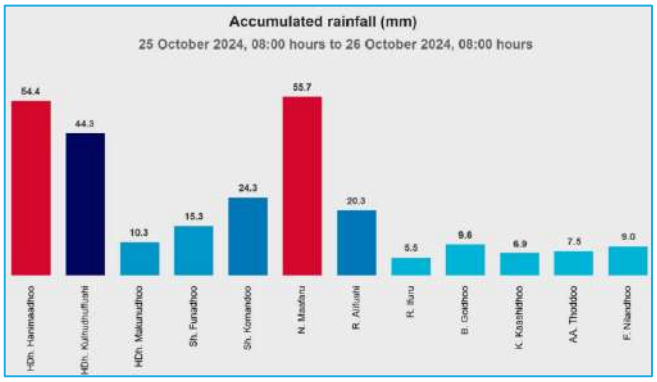


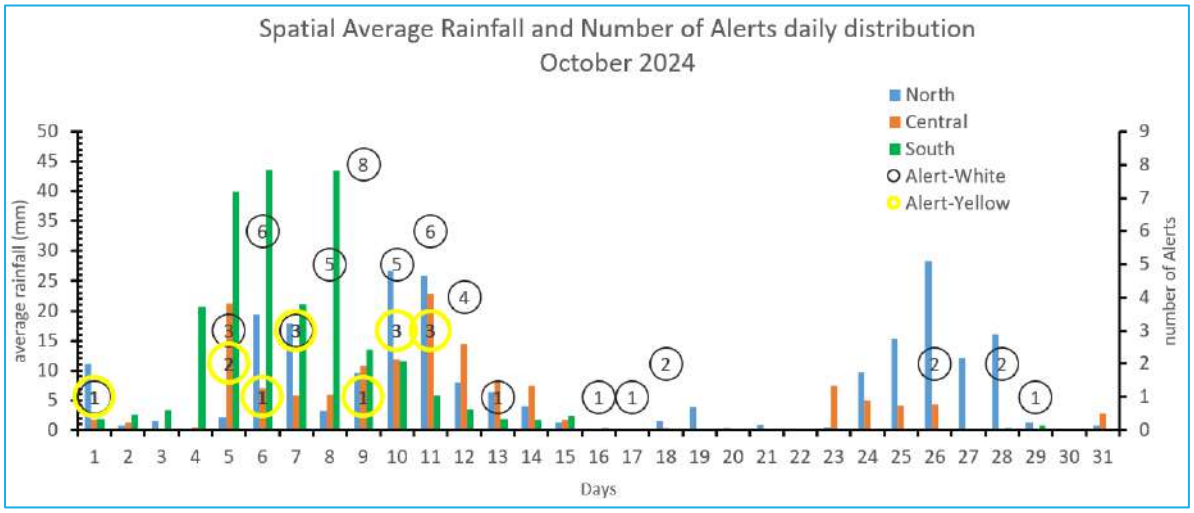
Figure 38: Daily Accumulated rainfall of 25 October 2024

While some islands reported floods of varying magnitude, no major damage was reported during this episode

Records Summary for the month of October

Heaviest Rainfall (mm)	Maximum Gust Wind Speed(mph)	Temperature (ºC)		Number of Alerts		
		Maximum	Minimum	White	Yellow	Orange
129 mm	65 mph	33.8 (ºC) at Hulhule	21.8 (ºC) at Gan Met Office.	51	14	0

Spatial Average Rainfall and Number of Alerts daily distribution



November 2024

This year November good amount of rainfall was observed throughout the month over the country with two major heavy rainfall/flooding event. In addition to that, at end of November with development of Cyclonic storm "FENGAL" (pronounced as FEINJAL) developed over Bay of Bengal and Tropical Cyclone "Robyn" far southeast of Maldives strong winds were observed over the country. Looking at major climate drivers El Niño–Southern Oscillation (ENSO) was neutral. Indian Ocean Dipole (IOD) index was below the negative IOD threshold (−0.40 °C) since mid-October but expected to return to normal in December. Global SSTs remain at near record levels as of 24 November, with temperatures falling since July just short of the record temperatures observed during 2023, yet above all other years since observations began in 1854. The sustained nature of this significant global ocean heat suggests that climate indicators such as ENSO and IOD may not behave or evolve as they have in the past. A moderate to strong pulse of the Madden–Julian Oscillation (MJO) was located in the Indian Ocean from mid-November.

Maldives Meteorological Service

No: 93-PWS/FC/2024/18

Date: 18 November 2024

Weather News Brief

Due to the combined effect of monsoon transition and a low-level circulation over the Maldives, the country experienced widespread rainfall with intermittent heavy showers and thunderstorms over the past 24 hours. The most significant rainfall was recorded at 110.6mm by AWS at Addu City Hithadhoo. Heavy showers and thunderstorms are anticipated to persist over the country for the next three days.

We strongly advise the public to exercise caution during this period.

Issued time: 09:15hrs, 18 November 2024

Contact for more information: Duty forecaster,
Maldives Meteorological Service
Tel: 3323084

Figure 39: News Briefing issued on 18 Nov 2024

Tropical Cyclone BHEKI developed far south of Maldives on 15th November did not have any significant effect on Maldives

Cyclonic circulation over Tamil Nadu extending up to 0.9km above msl moved over the Maldives during this period causing cloud formation and heavy rainfall all over the country. This system became less marked on 18th November. This effect of this circulation was also enhanced by the weak to moderate MJO present over Indian ocean during period. Heavy rainfall and flooding were reported all over the country with the maximum of 104.9 mm reported in V. Rakeedhoo followed by 102.5mm in B. Dharavandhoo.

Figure 40: Flood waters throughout Dh. Hulhudheli

Major flooding was reported in S. Feydhoo, Male', Lh. Kurendhoo, Dh. Bandidhoo, Dh. Hulhudheli by NDMA. Roof damage due to gusty winds were also reported in 2 houses in Dh.

Figure 41: (left) roof damage to a household in Dh. Bandidhoo, (mid – right) Flood waters throughout Lh. Kurendhoo

Bandidhoo.

Cyclonic circulation over the Comorin area extending up to 0.9 km above mean sea level persisted during this period and a low-pressure area southeast Bay of Bengal which later intensified in to tropical cyclone was present during these days. The combined effect of these systems caused isolated heavy showers over northern and some central atolls. N. Maafaru reported 24hrs accumulated rainfall of 96mm from 22nd to 23rd. Severe flooding was reported by NDMA in N. Maafaru.

Figure 42: Flood water in households and roads of N. Maafaru

The upper air circulation which formed around 21st November continued to strengthen over BoB to become tropical cyclone FENGAL on 30th November. The Depression and deep depression stage of this system caused strong winds over Maldives from 27th November. Furthermore, a low-pressure area located far southeast of southern atolls aided the strong winds over southern atolls. This system far southeast of Maldives later intensified into a Tropical Cyclone "Robyn" located near 16.4S, 91.1E on 29th November.

A news bulletin was issued by Maldives meteorological service on 25th November urging seafarers to exercise caution staring 27th November Wednesday for a week. Damage to trees and roof of one house from S. Maradhoo Feydhoo was reported by NDMA during this event.

Figure 43: (left) Addu Link Road blockade due to fallen trees, (right) Roof damage in S. Maradhoofeydhoo

Figure 44: Average and gust winds observed on 30th Nov

Maldives Meteorological Service

No: 93-PWS/FC/2024/19

Date: 25 November 2024

Weather News Brief

A depression over the Bay of Bengal is anticipated to intensify and move northwestward within the next 24 hours. Subsequently, it is likely to continue its northwestward trajectory towards Tamil Nadu and Sri Lanka. Furthermore, a low-pressure area is situated over the far southeast of the Maldives. The combined effects of these systems will result in strong winds impacting the country starting Wednesday and persisting for the following five days. Average winds are projected to reach 15 to 25 miles per hour in southern atolls and 13 to 23 miles per hour in central and northern atolls. During this period, seas will be rough in all areas.

Therefore, all seafarers are strongly advised to exercise caution during this period. Additionally, the public is urged to take appropriate measures to mitigate the potential impact and damage caused by the strong winds and rough seas.

Issued time: 14:00hrs, 25 November 2024

Contact for more information: Duty forecaster,
Maldives Meteorological Service
Tel: 3323084

Figure 45: News Brief issued on 25th Nov, with early warning for bad weather during next five days.

In the month of November 2024, a total of 33 alerts were issued, 28 white, 5 yellow. The highest 24-hour rainfall 104.9 mm was reported in V.Rakeedhoo on 18th November. The highest gust wind of 64 mph was reported in Gn.Fuvahmulah on on 30th November.

December 2024

The month of 2024 started off with Tropical Cyclone 'FENGAL' stationary over Tamil Coast at around 12N/79.8E. The system moved onto ashore by 03rd December and gradually weakened to a well-marked low pressure which later emerged into the Arabian Sea during the next three days. Consequently, the strong winds over the Maldives subsided gradually. The circulation in the Arabian Sea altered the winds over Maldives, causing westerlies to sustain. As a result, few days of hazy conditions coming from the northwest was observed in the north – central Maldives. By 5th December a feeble circulation formed in the Adaman sea which gradually moved northwestward and organized into a Well-marked low-pressure system. After venturing over Gulf of Mannar by 11th December, the system moved closer over the Comorin Area – closer to Maldives. The system persisted in the area till 15th December and weakened thereafter. While a second circulation formed over southeast Bay of Bengal on 16th, another circulation formed on the southwest of Maldives. While the circulation in the west moved further away by the 20th, the circulation in the Bay of Bengal tracked towards Tamil Nadu coast and concentrated to a well-marked low-pressure system by 23rd and gradually weakened over west central Bay of Bengal. A another set of circulations were formed by 27th Dec, one in the Southeast Arabian Sea – west of Maldives, and over Andaman Sea –east of Maldives. The month ended with the circulation in the west moving away, and the circulation in the east moving closer to southeast of Sri Lanka – with a trough over Maldives. The back-to-back circulations, and intermediate col regions, resulted in episodes of adverse weather over the Maldives and delay in the onset of Northeast Monson. The Northeast Monsoon over north – central Maldives was declared on 02nd January 2025.

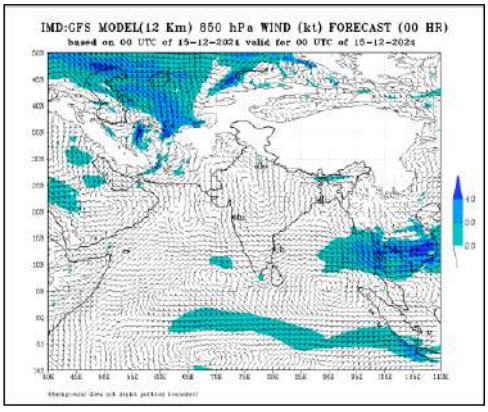


Figure 46: IMD 850hPa winds model forecast of 15th December 2024.

Maldives Meteorological Service

No: 03-PWS/FC/2024/20

Date: 16 December 2024

Weather News Brief

The monsoon transition period frequently observes low pressure circulations in the Maldives area. Subsequently a low-pressure area is likely to form in Bay of Bengal today, and move towards Tamil Nadu coast, India during subsequent two days. Additionally, a low-pressure area is expected to form in the far south of Maldives during this week, with a westward movement.

The combined effects of these systems will result in strong winds impacting the country starting Wednesday, 18 December 2024, and persisting for the following five days. Average winds are projected to reach 17 to 27 miles per hour in southern and central atolls, and 13 to 23 miles per hour in northern atolls. Consequently, seas are expected to be rough in northern atolls and very rough in central and southern atolls. Additionally squally thundershowers with possible gusts up to 40 - 55 miles per hour is expected. Swell waves are possible in south and central atolls.

Therefore all, especially seafarers, are strongly advised to take note of up-to-date weather forecasts and alerts issued by MMS.

Issued time: 12:30hrs, 16 December 2024

Contact for more information: Duty forecaster,
Maldives Meteorological Service
Tel: 3321084

Figure 47: News Brief issued on 16th December 2024

The strong winds continued from November till 03rd December, followed by fine weather and calm winds till 11th December. While scattered showers, thunderstorms, strong winds and gusts were observed

thereafter, a bulletin was issued on 16th December 2024 for expected strong winds from 18th December 2024 for the next 05 days. The heaviest rainfall of 101.55mm in K. Dhiffushi, followed by 98.8mm in AA. Thoddoo was reported on 16th December. Flood related damages were reported from N. Henbadhoo. Another heavy rain episode was observed on 20th December, with several stations reporting more than 50mm rainfall between Baa and Alifu Dhaal Atoll, with maximum of 136.5mm in Male', 117.4mm in Hulhule' and 111.5mm in B. Dharavandhoo. Male' experience severe flooding and 32 people were provided with temporary shelter. The year ended with a news bulletin for adverse weather for the first week of January 2025.

A total of 29 white alerts and 5 yellow alerts were issued during the month.

Figure 48: Severe Floods were reported at N. Henbadhoo on 17th Dec (top), and dewatering was carried out at Male' the same day as well (bottom).