



ދިވެހިސަރުކާރުގެ ގެޒެޓް ގައި ބަޔާންކޮށްފައިވާ ގޮތުން

Maldives Meteorological Service

މަސައްކަތް ރިޖިސްޓްރެޝަން

ANNUAL REPORT

2020

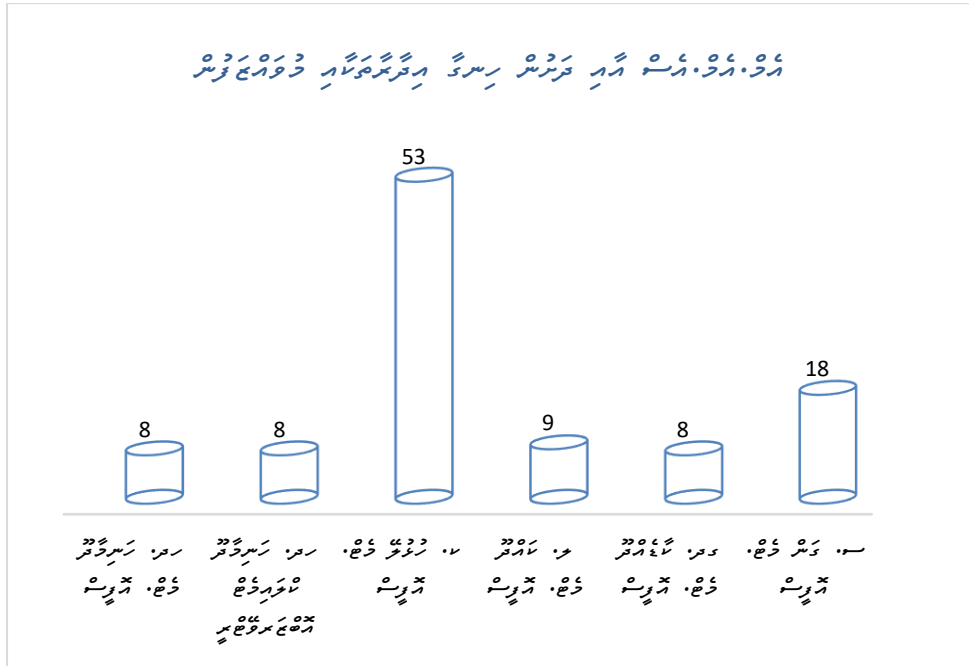


تاریخچه

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- 19..... موزه ملی افغانستان
- 20..... موزه ملی افغانستان

دواړه ژبې سره سمون

- سمون دواړه ژبې سره سمون 104 نوي.
- سمون دواړه ژبې سره سمون 111 نوي.



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2020 ۆسەر ئارىسىدىكى تېمپېراتۇرا

بىرىنچى رايون

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| 2020 16 ئۆكتەبىر | 34.9° C | بىرىنچى رايوندىكى ئىسسىق سۇ تېمپېراتۇرىسى |
| 2020 16 ئۆكتەبىر | 22.0° C | بىرىنچى رايوندىكى سۇ تېمپېراتۇرىسى |
| 2020 5 سەپتىر | ئىسسىق سۇ تېمپېراتۇرىسى 49 كىلوگىرادۇس | ئىسسىق سۇ تېمپېراتۇرىسى |
| 2020 29 ئۆكتەبىر | 158.6 جۈجۈمىتى | 24 كىلوگىرادۇس ئىسسىق سۇ تېمپېراتۇرىسى ۋە ئىسسىق سۇ تېمپېراتۇرىسى |

ئىككىنچى رايون

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| 2020 3 ئۆكتەبىر | 34.9° C | بىرىنچى رايوندىكى ئىسسىق سۇ تېمپېراتۇرىسى |
| 2020 22 سەپتىر | 22.4° C | بىرىنچى رايوندىكى سۇ تېمپېراتۇرىسى |
| 2020 6 سەپتىر | ئىسسىق سۇ تېمپېراتۇرىسى 60 كىلوگىرادۇس | ئىسسىق سۇ تېمپېراتۇرىسى |
| 2020 18 ئۆكتەبىر | 67.6 جۈجۈمىتى | 24 كىلوگىرادۇس ئىسسىق سۇ تېمپېراتۇرىسى ۋە ئىسسىق سۇ تېمپېراتۇرىسى |

ئۈچىنچى رايون

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|------------------|--|---|
| 2020 12 ئۆكتەبىر | 33.6° C | بىرىنچى رايوندىكى ئىسسىق سۇ تېمپېراتۇرىسى |
| 2020 3 ئۆكتەبىر | 22.2° C | بىرىنچى رايوندىكى سۇ تېمپېراتۇرىسى |
| 2020 18 ئۆكتەبىر | ئىسسىق سۇ تېمپېراتۇرىسى 56 كىلوگىرادۇس | ئىسسىق سۇ تېمپېراتۇرىسى |
| 2020 3 ئۆكتەبىر | 81.9 جۈجۈمىتى | 24 كىلوگىرادۇس ئىسسىق سۇ تېمپېراتۇرىسى ۋە ئىسسىق سۇ تېمپېراتۇرىسى |

تۆتىنچى رايون

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| 2020 18 ئۆكتەبىر | | |
| 2020 14 ئۆكتەبىر | 33.0° C | بىرىنچى رايوندىكى ئىسسىق سۇ تېمپېراتۇرىسى |
| 2020 21 ئۆكتەبىر | | |
| 2020 5 ئۆكتەبىر | 22.1° C | بىرىنچى رايوندىكى سۇ تېمپېراتۇرىسى |
| 2020 18 ئۆكتەبىر | ئىسسىق سۇ تېمپېراتۇرىسى 54 كىلوگىرادۇس | ئىسسىق سۇ تېمپېراتۇرىسى |
| 2020 14 ئۆكتەبىر | 118.6 جۈجۈمىتى | 24 كىلوگىرادۇس ئىسسىق سۇ تېمپېراتۇرىسى ۋە ئىسسىق سۇ تېمپېراتۇرىسى |

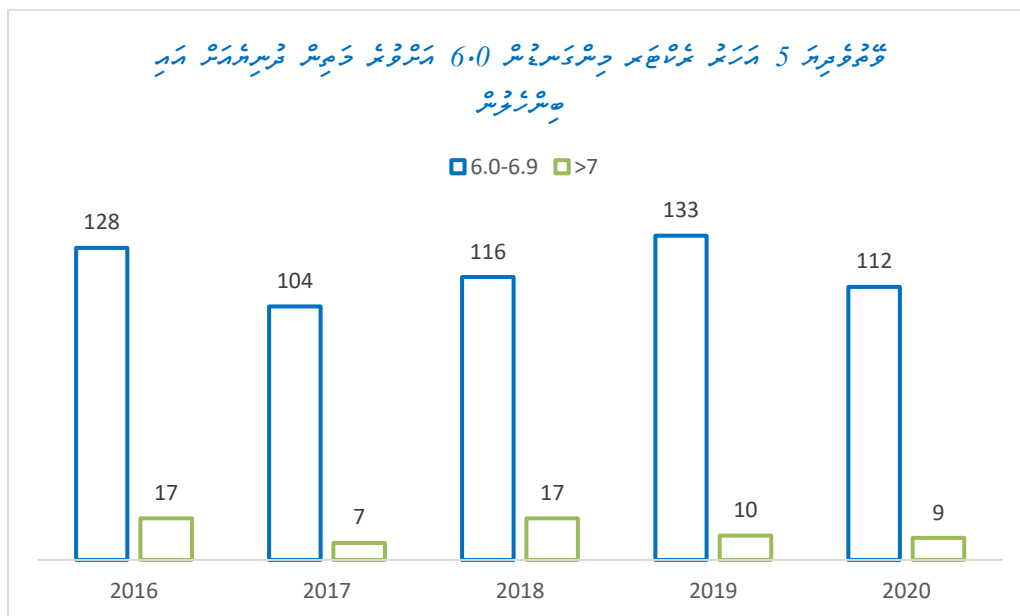
بىرىنچى رايون

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| 2020 7 ئۆكتەبىر | 33.6° C | بىرىنچى رايوندىكى ئىسسىق سۇ تېمپېراتۇرىسى |
| 2020 5 ئۆكتەبىر | 21.6° C | بىرىنچى رايوندىكى سۇ تېمپېراتۇرىسى |
| 2020 17 ئۆكتەبىر | | ئىسسىق سۇ تېمپېراتۇرىسى |
| 2020 17 ئۆكتەبىر | 97.9 جۈجۈمىتى | 24 كىلوگىرادۇس ئىسسىق سۇ تېمپېراتۇرىسى ۋە ئىسسىق سۇ تېمپېراتۇرىسى |

میزان زلزله

2020-2016 میزان زلزله خفیفتر از 6.0 در استان خراسان شمالی

| | |
|-----|--|
| 112 | 2020 میزان زلزله خفیفتر از 6.0 در استان خراسان شمالی |
| 9 | 2020 میزان زلزله خفیفتر از 7.0 در استان خراسان شمالی |
| 0 | 2020 میزان زلزله خفیفتر از 7.0 در استان خراسان شمالی |

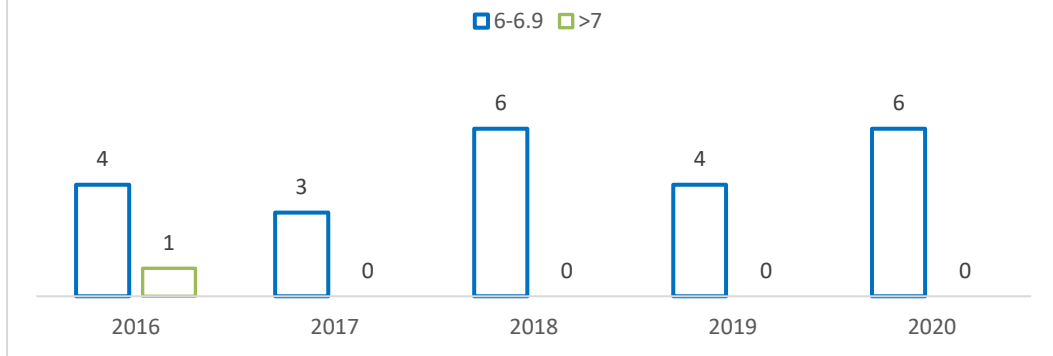


منبع: سازمان زمین‌شناسی و مهندسی زلزله (USGS & Siescomp3-MMS)

2020-2016 میزان زلزله خفیفتر از 6.0 در استان خراسان جنوبی

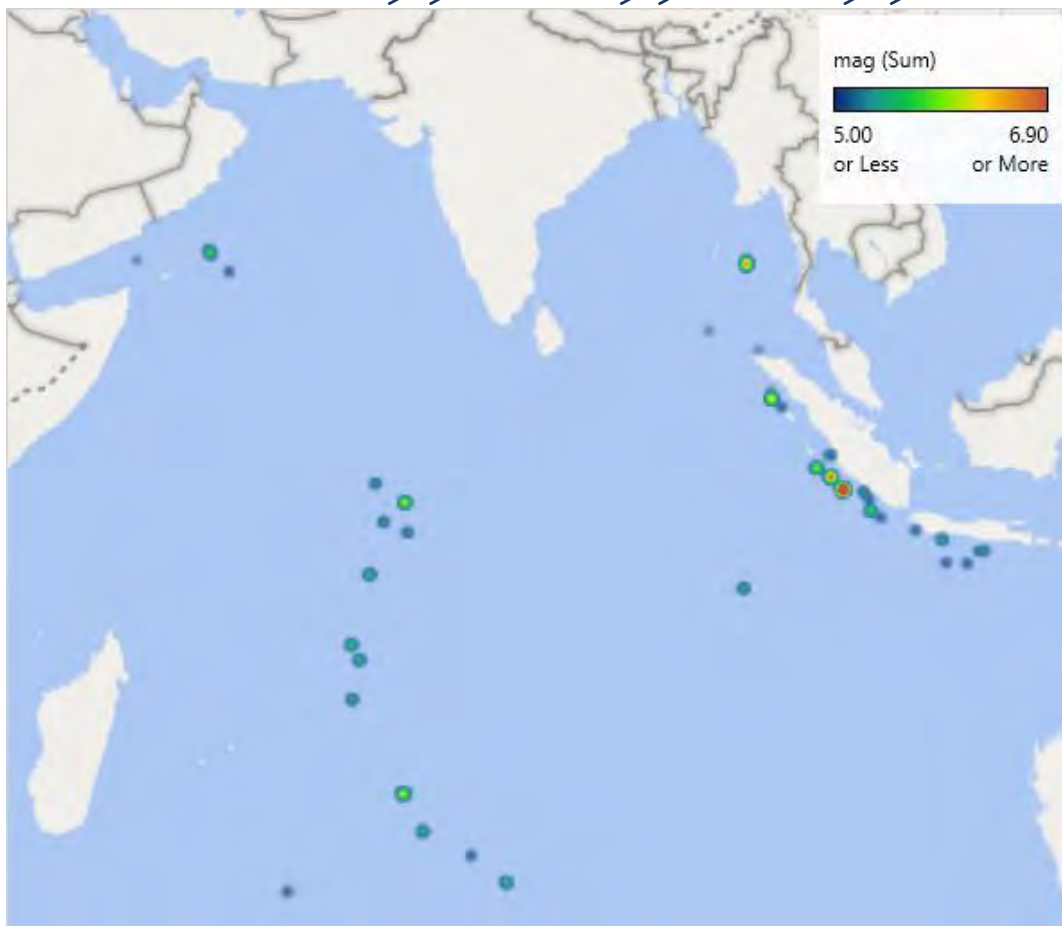
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| 74 | 2020 میزان زلزله خفیفتر از 5.0 در استان خراسان جنوبی |
| 6 | 2020 میزان زلزله خفیفتر از 6.0 در استان خراسان جنوبی |
| 0 | 2020 میزان زلزله خفیفتر از 7.0 در استان خراسان جنوبی |
| 0 | 2020 میزان زلزله خفیفتر از 7.0 در استان خراسان جنوبی |

مگنیٹیوڈ 5 سے زائد کے تمام زلزلوں کی تعداد (6.0) سے زائد کے زلزلوں کی تعداد کے ساتھ ساتھ زلزلوں کی تعداد



ڈیٹا سروسز کے ذریعے (USGS & SiescomP3-MMS)

2020 کے زلزلوں کی تعداد کے ساتھ ساتھ زلزلوں کی تعداد کے ساتھ ساتھ زلزلوں کی تعداد



ڈیٹا سروسز کے ذریعے (USGS & SiescomP3-MMS)

معارف و ادب و تاریخ و جغرافیہ و سائنس

| | | | |
|-------------|---|---------------------|-------------------------------|
| ادب و تاریخ | 5 دسمبر 2020 | بروز سہ روز | معارف و ادب و تاریخ |
| CSTI | 08 دسمبر 2020 | بروز و جمعہ و اتوار | ادب و تاریخ و جغرافیہ و سائنس |
| CSTI | 27 دسمبر 2020 | بروز و جمعہ و اتوار | ادب و تاریخ و جغرافیہ و سائنس |
| CSTI | 17 دسمبر 2020 18 دسمبر 2020 19 دسمبر 2020 | بروز و جمعہ و اتوار | ادب و تاریخ و جغرافیہ و سائنس |
| CSTI | 5 جنوری 2020 | بروز و جمعہ و اتوار | ادب و تاریخ و جغرافیہ و سائنس |
| CSTI | | بروز و جمعہ و اتوار | ادب و تاریخ و جغرافیہ و سائنس |
| CSTI | 7 جنوری 2020 | بروز و جمعہ و اتوار | ادب و تاریخ و جغرافیہ و سائنس |

معارف و ادب و تاریخ و جغرافیہ و سائنس

| | | | |
|-------------|--------------------------------|---------------------|-------------------------------|
| ادب و تاریخ | 08 دسمبر 2020 10 دسمبر 2020 | بروز و جمعہ و اتوار | ادب و تاریخ و جغرافیہ و سائنس |
| ادب و تاریخ | 11 دسمبر 2020 22 دسمبر 2020 | بروز و جمعہ و اتوار | ادب و تاریخ و جغرافیہ و سائنس |

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|----|-----------|----------|----|----|----|
| 15 | EUMETSAT | سنة 2020 | 16 | 20 | 20 |
| 16 | UNEP | سنة 2020 | 22 | 03 | 03 |
| 17 | CAP | سنة 2020 | 28 | 30 | 30 |
| 18 | RSMC | سنة 2020 | 07 | 17 | 17 |
| 19 | WMO/ESCAP | سنة 2020 | 23 | 5 | 5 |
| 20 | WMO/ESCAP | سنة 2020 | 08 | 11 | 11 |

مؤتمرات وندوات دولية

| | | | | | |
|----|-----------|----------|----|----|----|
| 11 | RIMES | سنة 2020 | 20 | 22 | 22 |
| 16 | SASCOF | سنة 2020 | 22 | 23 | 23 |
| 08 | RIMES | سنة 2020 | 08 | | |
| 24 | ICAO | سنة 2020 | 16 | 20 | 20 |
| 47 | WMO/ESCAP | سنة 2020 | 23 | 27 | 27 |
| 9 | WMO/ESCAP | سنة 2020 | 9 | | |

ANNEX 1

COMMERCIAL INVOICE

| | |
|---|--|
| SHIPPER : Proton Energy Systems, Inc. dba Proton On Site 10 Technology Drive Wallingford, CT 06492 USA | Invoice Number: 72693 Date: 7/1/2020 |
| | REASON FOR EXPORT/IMPORT Donated products for Gan Meteorological Service for upper air observation |
| CONSIGNEE : UNDP Maldives Office Attn: Maldives Meteorological Service Mr. Ali SHAREEF Velana International Airport Hulhule, 22000 - Rep. of Maldives Tel: +9603323084 | COUNTRY OF FINAL DESTINATION Maldives |
| | OTHER TRANSPORT INFORMATION AIR WAY BILL #: FREIGHT CHARGES: € 240.00 |

| NO OF PKGS | DESCRIPTION | UNIT PRICE (EUR) | AMOUNT (EUR) |
|-----------------------------------|--------------------------------------|--------------------|-----------------|
| 1 | Power Supply, 33 V @ 160 A, S Series | 4,695.00 | 4,695.00 |
| TOTAL AMOUNT (CNF) | | [€] | 4,695.00 |
| AIR FREIGHT CHARGE | | | 240.00 |
| TOTAL INVOICE AMOUNT (CNF) | | | 4935.00 |

ma Shareef

NOTE:

1. Scientific Equipments has no commercial value and is being donated to Maldives Meteorological Service for Non-Commercial purposes.
2. All the values indicated are only for Customes purposes.



WEATHER REPORT 2020

This report summarizes the significant weather-related events that occurred in Maldives for the year 2020.

Compiled by Maldives Meteorological Service

ABSTRACT

This is a consolidated brief report highlighting significant weather events in a chronological order occurred during the year 2020.

Most of the severe weather during 2020 occurred in the form of Heavy rain, strong winds, rough seas, swell surge, flooding, severe thunderstorms, lightning, water-spouts etc.

Heaviest rainfall for the year was 173.8 millimeters recorded in Kelaa Automatic Weather station on 29 May 2020.

Maximum gust wind of 63 miles per hour was recorded in Muli Automatic Weather station on 15 May 2020.

Highest Maximum temperature was 34.9 degree Celsius recorded at Hanimaadhoo Meteorological Office on 16 April 2020, and at National Meteorological Centre, Hulhule on 03 June 2020.

Lowest Minimum temperature was 21.6 degree Celsius recorded at Gan Meteorological Office on 17 April 2020.

Monsoon onset

Southwest monsoon was declared on 12th May 2020, 18th May and 21st May 2020 for southern, central and northern atolls, respectively.

Northeast monsoon was declared on 22nd December 2020 over northern atolls.

JANUARY

With a warm and sunny first week, no significant weather systems were noticed over Maldives area in the beginning of the month, however, on 5th of January a low-level circulation formed in the southwest of Maldives under its influence a moderate convergence zone formed over the southern atolls. This system deteriorated weather in southernmost atolls and brought spells of heavy downpours on 5th and 6th consequently. The system then moved further away from Maldives.

Perpetually, the ITCZ started shifting to South of Maldives and as a result convective clouds started forming in the South of Maldives in January 5. It further triggered the convective activity and brought heavy rain showers to southernmost atolls for the next couple of days.

On January 19, a low-level cyclonic circulation formed over Maldives area, under the influence of the tropical easterlies surface winds became more significant, mostly, in the central atolls. The condition prevailed till January 25, and weakened thereafter. The persistence of strong winds caused wave surges across the country. And in meantime, another low-level circulation with potential to become a significant tropical cyclone formed in the far southwest of Maldives. Under its influence the weather in southern atolls deteriorated and experienced heavy spells of rain.

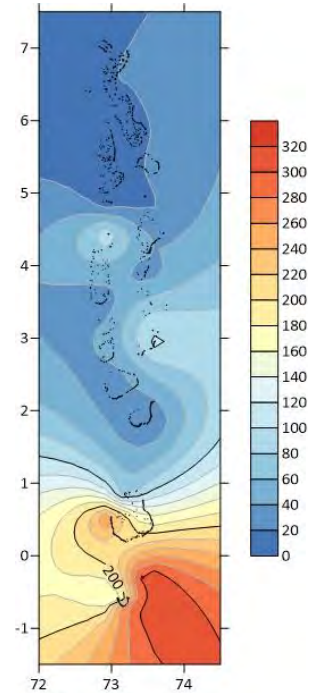


Figure 1 Contour Plot of Monthly accumulated rainfall (mm) distribution over the country for January 2020. A clear north to south gradient is observed.



Figure 2 Aftermath of flooding in Gdh. Thinadhoo on 26 January 2020

In the month of January, Maldives has experienced heavy rainfalls mostly in the southern atolls which led to events flooding in some islands.

Heaviest rainfall during January was 84 millimeters recorded at Muli Automatic Weather Station.

On January 23, swell waves swamped some islands in northern atolls. Particularly, Inguraidhoo Fainu and Kinolhas of Raa Atoll were hit hard and caused some damages according to the respective authorities.

Furthermore, on the evening of January 22, a speed boat capsized in Noonu Atoll which led to the loss of a human life.



Figure 3 Tidal Surge inundation at R. Fainu (top) and R. Kinolhas (bottom) on 23 January 2020

Maldives Meteorological Service issued 21 alerts in total during the month of January which includes 19 White Alerts and 2 Yellow Advisories.

FEBRUARY

The most prominent synoptic feature is the presence of the annual easterly wave which caused some strong winds and convective activity. The first event of significance occurred on the 14th of February. This was a result of the combined effect of a cyclonic circulation in south east of the Maldives along with the prevailing easterlies.

The next event occurred on 21st of February was due to an abrupt trough formed over southern atolls causing significant convective development over the southern atolls. Heavy showers were recorded in isolated places of southern atolls and over a few places in central atolls.

A low-pressure area formed on 26th over the southeast of Maldives with its trough extending over southern atolls brought heaviest rainfall of 94.5 mm for the month of February recorded at Gan Meteorological Office. The second heaviest rainfall was 81mm, reported from the northern atolls, Funadhoo Automatic Weather Station on the 14th.

A total of 24 Alerts were sent during the month of February, including one Yellow Alert sent for Torrential rain and thunderstorms on 26th, and white alerts for swell wave surges sent on the 12th and 13th of February.

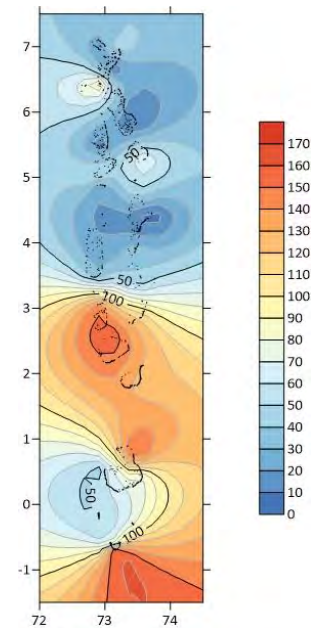


Figure 4 Contour Plot of Monthly accumulated rainfall (mm) distribution over the country for Feb 2020. The rain band shows extension up to south-central atolls.



Figure 5 Tidal surge inundation at N. Holhudhoo with reported damages to 15 households on 12 Feb.

MARCH

During the month of March, there were no significant weather system over the region of Maldives. However, the anti-cyclonic circulation over the northern region of the Bay of Bengal and the high pressure area in the Arabian Sea was seen to be consistent throughout the month. Moreover, the ITCZ had been laying over the southern region of the equator. Under the influence of the ridge which was extended from the high pressure area in the Arabian Sea, and due to the position of the ITCZ, area covering the Maldives had been almost free from convective activities during the majority days of the month.

During the first and last week of March, dry and hot weather prevailed over the country. Highest temperature of 34°C was recorded by the Hanimaadhoo Meteorological Office on the 7th of March. There was a wet spell period from 12th to 24th of March. During the wet spell period, the highest rainfall of 49 millimeter was recorded by the Kaadedhdhoo Meteorological Office. Even though there were not much severe weather activities, a funnel cloud was observed over the west of Gdh. Kaadedhdhoo on 24th of March. However, there was no damage reported due to this. During the month, there were 2 white alerts on the 19th and 20th of March

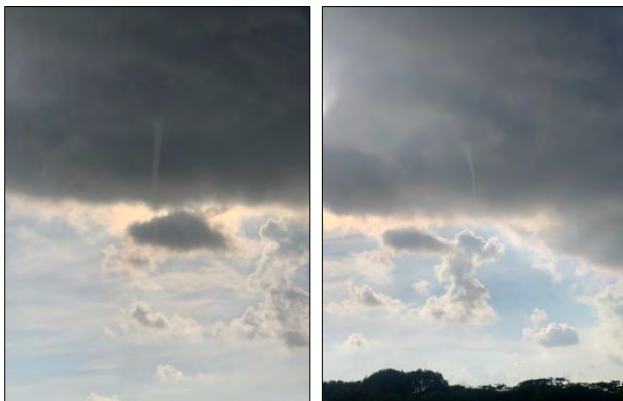


Figure 7 Images showing a funnel cloud observed over the west of Gdh. Kaadedhdhoo on 24 March 2020

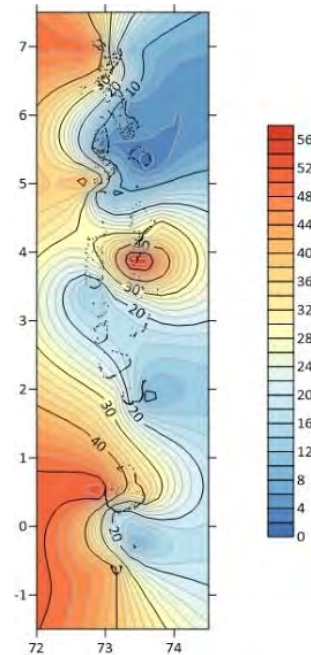


Figure 6 Contour Plot of Monthly accumulated rainfall (mm) distribution over the country for March 2020. Heavy rainfall is mainly along the western rim of the country, and parts of south and central atolls.

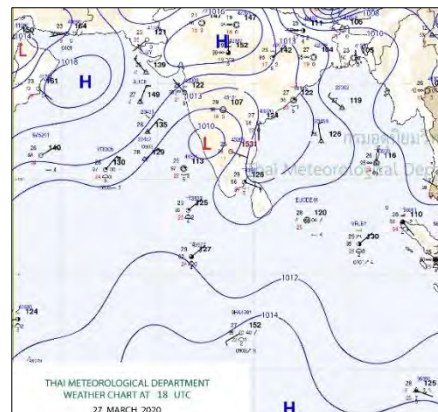


Figure 8 The synoptic analysis weather chart by Thai Meteorological Department on 27 March 2020, showing the seasonal high pressure area in Arabian Sea

APRIL

April considered as the transition month from NE to SW monsoon with light and variable winds across the country. Dry thunderstorms and high temperature are prominent features in this month

This year April began with monsoon trough pattern persisting over 50°-75°E far south of Maldives, and organizing convective activity around the already persisting storm IRONDRO within it and high pressure area dominating over the Arabian Sea. Apart from the significant rainfall event on 5th April, an episode of severe weather occurred during the second half of the month.

Dry thunderstorms were observed over few places in the first 10 days. During the period, Convective Available Potential Energy (CAPE) at the surface was high. On 5th April, a dense cloud cluster formed over southern and central atolls caused rain showers mostly in southern area with downpour of 141 mm in GA. Kolamaafushi in the early morning of 5th April. Though not significant, some swell waves were experienced in Gdh. Faresmaathoda on 9th April.

After a week of generally fine weather the synoptic situations changed and intensive cloud formation followed. During the first week of April the main synoptic systems in the area were, a cyclonic circulation over north of Maldives, near Comorin area, extending up to 1.5 km above mean sea level and the surface high pressure area over the Arabian Sea with an anticyclone circulation aloft.

A weak circulation established over Comorin area on 14th April and its associated trough laid in the east of Maldives, where a cut-off low organized on the next

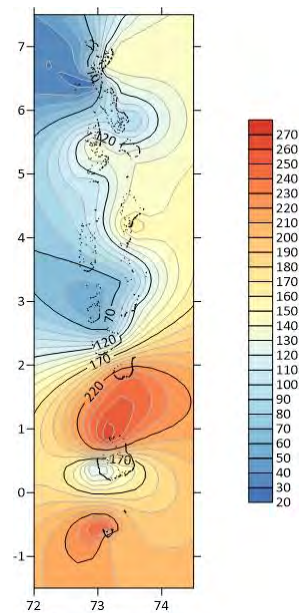


Figure 9 Contour Plot of Monthly accumulated rainfall (mm) distribution over the country for April 2020. Heavy rainfall is mainly along the eastern rim of the country, and southern atolls.

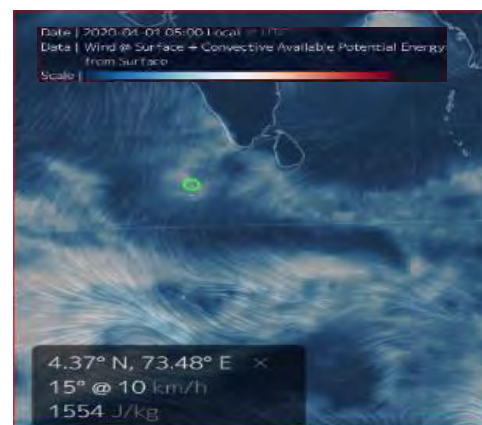


Figure 10 High Convective Available Potential Energy (CAPE) over central and northern atolls. Source: Earthnullschool.net

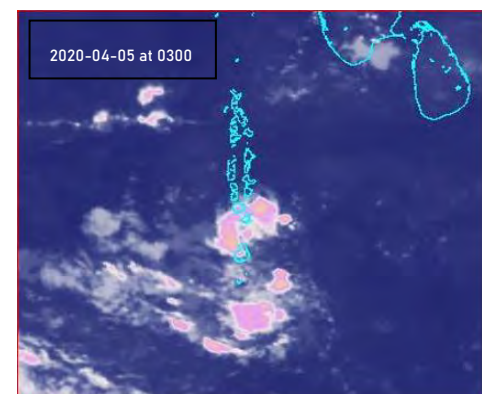


Figure 11 Infra-red Satellite imagery showing dense cloud formation over south and central atolls on 5th April 2020

day. When this system deepened further, a northeast-southwest oriented trough formed over the area and extended over Maldives. This system brought rain showers and thunderstorms to central and southern atolls on both 15 and 16 April. Since then, rain activities increased over Maldives which led to pre-monsoon activities.

On 17th April, a trough in easterlies formed at 0.9km above mean sea level and located from Equatorial Indian Ocean to southeast Arabian Sea. In addition, the circulation over far southeast of Maldives deepened further and shifted to southwestwards. Thus, few heavy showers experienced over the area with downpour of 54 mm in GA. Kolamaafushi on 18 April.

The area west of Maldives became unstable and more organized with formation of a low pressure area and strong wind convergence. Thus, rain showers and thunderstorms brought to the country with few heavy showers in central and northern atolls on both 21 and 22 April. Rainfall of 75 millimeters recorded in Sh. Funadhoo on 21 April, 56 and 53 millimeters in M. Muli and Th. Buruni respectively on 22nd April.

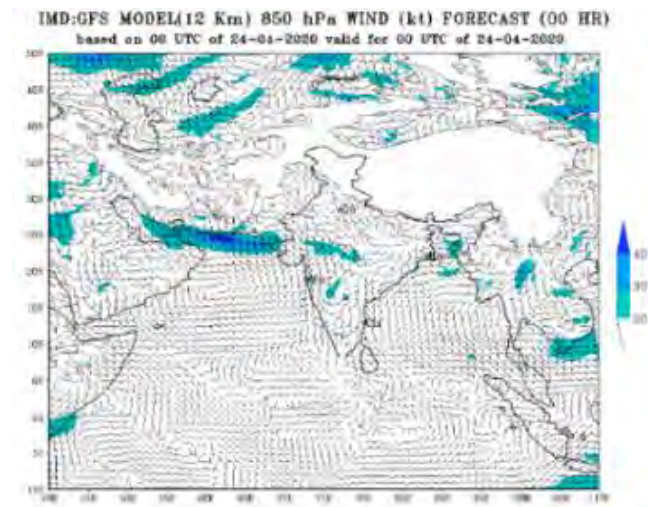


Figure 12 Model forecast outputs showing wind discontinuity over northern parts of Maldives. Source: Indian Meteorological Department

On 23rd April, wind discontinuity extended over north of Maldives, causing increased convection over the country resulting in moderate to heavy showers both 23 and 24 April. Heavy rain of 105 mm recorded in Hithadhoo of Addu City on 23 April. Due to flooding roads of Addu City, daily activities were interrupted.



Figure 13 Flood caused by heavy rain in Gan, Addu City on 23rd April. Photo by Ziyad

A Near Equatorial Trough pattern appeared from 26 April over 80°E and gradually enhanced. Additionally, a cyclonic circulation formed over southeast of Sri Lanka. Combined effect of these systems caused intense convection over the area with increasing rain activities as well as severe thunderstorms across the country on 27 April and some areas on 28 April. On both days, thunderstorm continued for several hours.

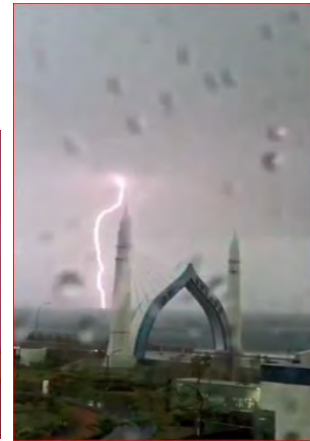


Figure 14 Lightning strikes observed near runway of Velana International Airport (left) and off shore near SinaMale' Bridge (right) on 27th April 2020. Source: Social Media.

Total 38 alerts, 32 WHITE and 6 YELLOW issued for thunderstorms and heavy rain.

Most significant climate condition noted was activity of MJO, emerged in to Indian Ocean with high amplitude on 19 April and persisted till 28 April with peak amplitude on 24 April. Furthermore, OLR Anomaly was significant since 21 April.

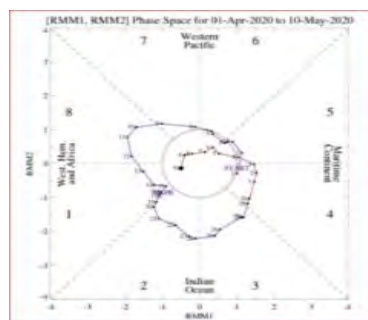


Figure 15 Active MJO signal over Indian Ocean with peak amplitude on 24 April. Source: Climate Prediction Centre/NCEP

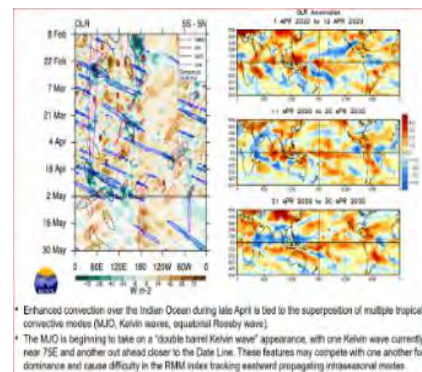


Figure 16 Anomalous convection over Maldives area from 21 April. Source: Climate Prediction Centre/NCEP

Highest maximum temperature of 34.9°C recorded in Hanimaadhoo in three consecutive days, 16-18 April. Highest minimum temperature of 29.4°C recorded in Hulhule on 16th April. Maximum gust wind for the month was 36 miles per hour in Hulhule recorded on 20th April. Daily maximum rainfall occurred in GA.Kolamaafushi with 140.9 millimetres on 5th April followed by 104.6 millimetres in Hithadhoo, Addu City on 23rd April. 38 Weather alerts including 6 Yellow level Alerts were issued for heavy rain and thunderstorm.

May

The month of May is typically a very active month with the ITCZ's northward movement and monsoon onset. This year the fact remains unchanged. In line with the revised alert thresholds, for the very first time two orange alerts were issued due to adverse weather.

In contrast to last year cyclonic activity deemed to be less this year. Major synoptic situations observed in this month were embedded cyclonic circulations within the ITCZ and its movement, Low pressure areas in both Arabian sea and Bay of Bengal, one from which strengthened into a Super cyclone "AMPHAN". This month a staggering daily rainfall of 177.6 mm was observed on 27th May at Kelaa Automatic Weather Station.

On 4th a cyclonic circulation over Andaman sea had gained potential and intensified to a low-pressure area with its trough extending over the country. 04th, 05th and 07th of the month reported heavy showers (>50mm) over isolated parts of the country.

Scattered rain showers continued throughout the country next couple of days. On 8th a new cyclonic circulation had formed over Maldives-Lakshadweep area and is gaining momentum, this cyclonic circulation persisted until the 13th of the month and was the major feature that had brought scattered heavy showers over the country. On the far side, a tropical depression over Sumatra which had no direct influence over Maldives was generating some swell waves that could reach us.

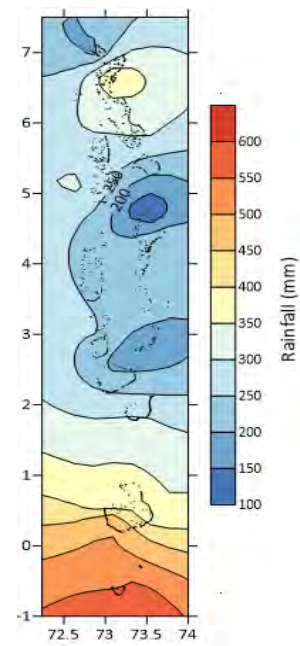


Figure 13 Contour Plot of Monthly accumulated rainfall (mm) distribution over the country for May2020. Most rainfall was concentrated to the south of the country.

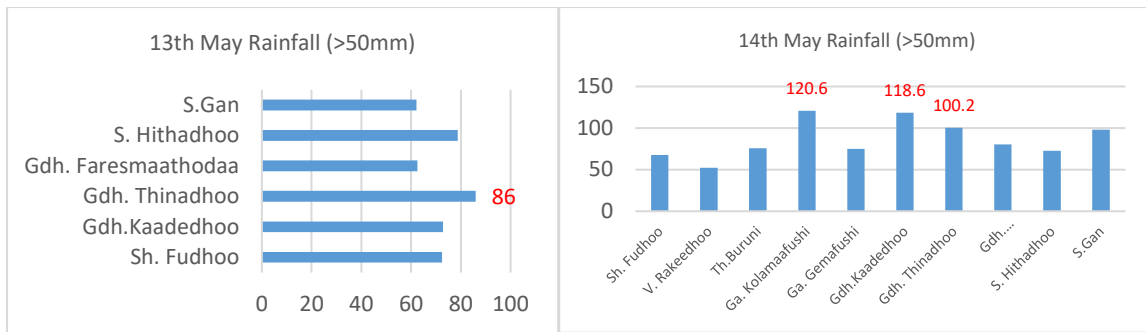


Figure 14 Significant daily rainfall chart of 13th and 14th May. On 14th 3 stations reported >100mm daily rainfall.

From 10th till 19th, the country experienced heavy showers and strong winds throughout. Among these days 14th, 17th and 18th being the most severe. During this period a low-pressure area which had formed over southeast bay of Bengal had deepened into a cyclone which attained the category of a super cyclone which is the highest category in the span of 5 days. This cyclones movement was northwest wards from Bay of Bengal which was the origin point and had made landfall over Bangladesh coast. This cyclone had no direct impacts although high winds and squally showers were generated from overlying rainbands of the system in addition to swell waves that was generated by this cyclone that was observed throughout the country.



Figure 15 Trees uprooted due to wind damage in R. Vaadhoo. Source: Mihaaru



Figure 16 Flood due to heavy rainfall in Addu city. Source: MNDF Twitter



Figure 17 Severe weather impact in Male' City (a) Tree fell due to strong winds (b) Shore wreck due to rough seas (c) damage to Rasfannu area due to Udda and strong winds

The whole of north Indian ocean was active in terms of adverse weather during 14th to 19th May, which is usually the case as these are the normal times of south west monsoon onset over the region. During these days the main synoptic situations that has affected Maldives are as follows, on 14th ITCZ had moved over the southern parts of the country and had stalled, the low pressure that was over Bay of Bengal was deepening and with the aid of another cyclonic circulation south of Maldives which had also intensified, strong winds were prevailing over the country. Not to mention Cross equatorial flow due to Somali Jet being active and MJO in phase 2 during 16, 17, 18 and 19th of May has also generated intense convective activity with heavy downpours.

Southwest monsoon was declared over southern atolls on 12th May 2020.



Figure 18 the very first and second orange alert was sent of the month of May 2020. The first one was for strong winds on 15th may and the second one was for torrential rain and thunderstorms with possible flooding

From 20th onwards the atmosphere regained some stability as the super cyclone “AMPHAN” had also filled up and weakened to a depression and die down in a span of 3 days. However dur to active southwest monsoon and embedded cyclonic circulations within the ITCZ which was still in Maldives area had generated isolated heavy showers over the country.

From 27th onwards the northern limit of southwest monsoon advanced further northwards and crossing Maldives area as a whole (**Southwest monsoon was declared on 18th and 21st May 2020 for central and northern atolls respectively**).

The significant synoptic factor that had affected Maldives during these days was the cyclonic circulation that had formed on 29th May and located around east central Arabian sea. This circulation intensified and to a Low-pressure area and to a depression within the span of 3 days. On 30th a trough from this system was active over northern parts of the country which in turn generated intense clouds over northern and southern atolls.

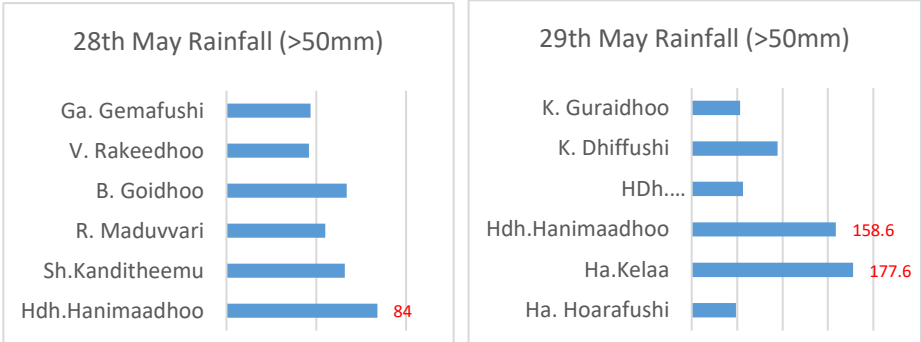


Figure 19 Significant daily rainfall (mm) chart of 28th and 29th May. On these two days northern atolls received widespread heavy showers



Figure 20 Severe weather effects on 19th May 2020 (a) Male' City flood response (b) Speedboat accident due to rough seas.

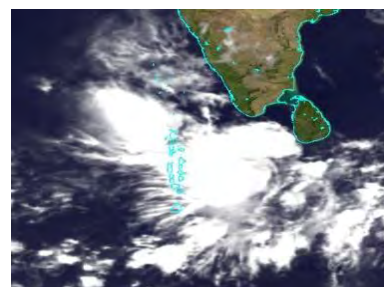


Figure 21 (a) (b) Northern atolls flooded on 30th May, Source MNDF Twitter. (c) Satellite picture from 30th May. Source CMAcast

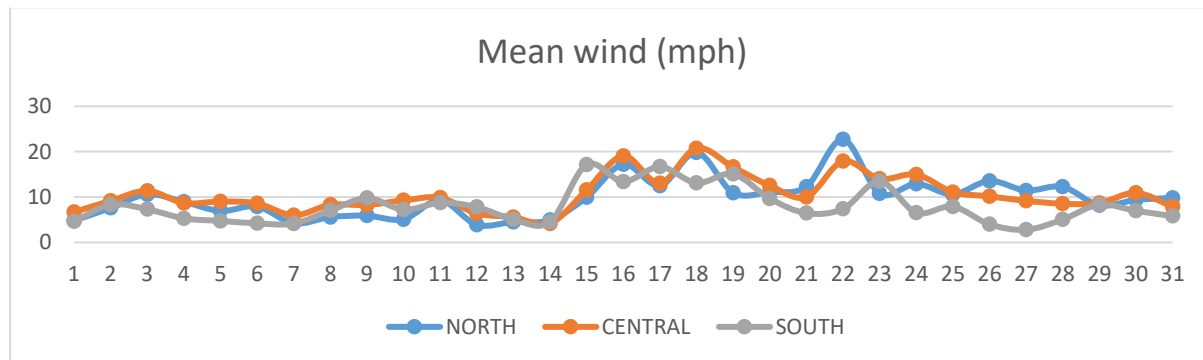


Figure 22 Significant Mean wind chart. Average winds of northern and central atolls were strong on 18th and 22nd May

A total of 182 white alerts, 70 yellow alerts and 2 orange alerts were issued during the month of May.

June

Month of June began with influence of the extended trough from the well-marked low-pressure area, later enhanced to a depression and subsequently to a tropical cyclone (NISARGA), over the Lakshadweep area. Due to this system, enhanced convective activities

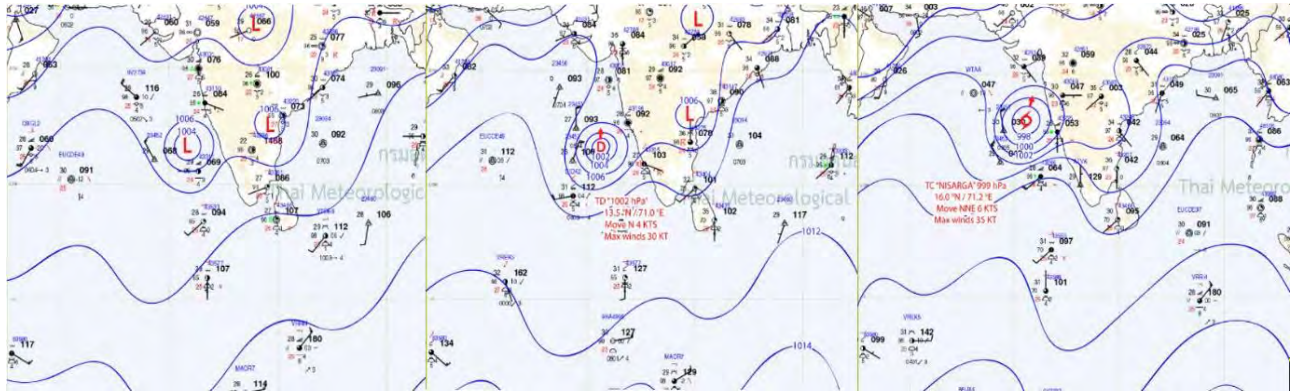


Figure 23 The development of TC Nisarga shown in Thai Met Department weather charts, left to right, Low pressure at 01st June 0000Z, Depression at 01st June 0600Z and Tropical Cyclone at 02nd June 1200Z.

were experienced over the northern atolls, which brought good amount of rainfall over fairly widespread areas of the northern atolls during the first few days of the month. Rainfall recorded for consecutive days to most of the Automatic Weather Stations (AWS) in the northern atolls.

Another low-pressure trough formed over the northern atolls from 5th June onwards that enhanced convective activities over the northern and part of central atolls. Deep convection, over the country, started developing from 6th June onwards. As a result, fairly widespread rainfall was recorded over the country, both on 6th and 7th June, where on 7th June, concentration of rainfall was more over the southern atolls.

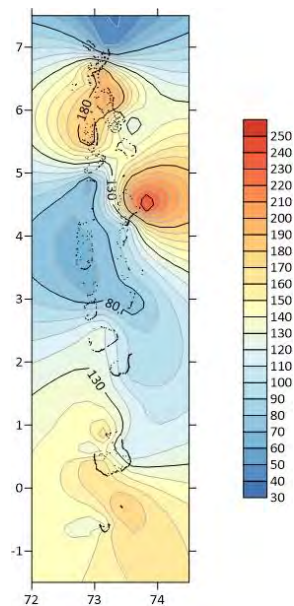


Figure 24 Contour Plot of Monthly accumulated rainfall (mm) over the country for June 2020. Most rainfall was concentrated North and South of the country,

Extending trough from the low-pressure system over the east-central part Indian peninsular triggered convection over the country on the 8th June onwards. This trough, that persisted over the Maldives area till 12th June, brought good amount of rainfall over scattered places from 8th to 12th June.

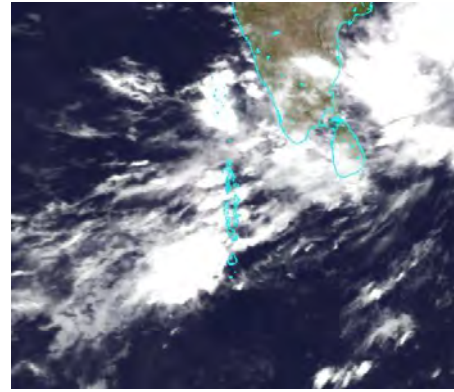


Figure 24 FY2G Sattelite image on 06th June 2000Z

Southwest monsoon was active over the Central Arabian Sea, hence very intense convective clouds

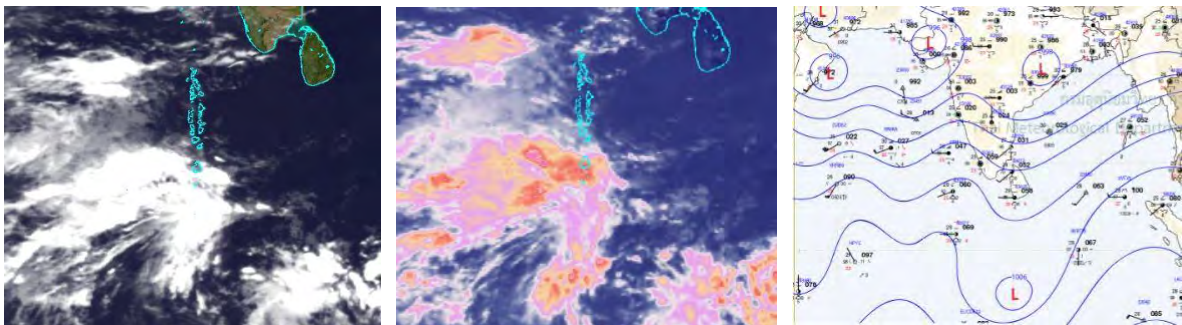


Figure 25 Synoptic situation over country on 13th June, left to right, FY2G composite satellite imagery 13th June 0530Z CMA cast, FY2G IR satellite imagery 13th June 0800Z CMA cast, and Weather chart from Thai Met Dept 13th June 000Z

development was seen over the west of the Maldives. Along with that, the extended trough and the low-pressure area over the south of southern atolls gave a combined effect, which enhanced convective activities over the country on 13th June. Deep convective cloud clusters were concentrated more over the southern atolls.

On 13th June, all the meteorological (manned and AWS) stations in the country recorded rainfall. Heavy falls were recorded mainly in some parts of central and southern atolls, where concentration was high in the southern atolls. Heaviest rainfall for the day was 80 mm recorded in Addu city, Gan. Yellow alert for torrential rain and thunderstorms, along with gusty winds, was issued to the southern atolls on the 13th June.

Along with the heavy falls, average strong winds sustained in the central atolls on the 13th June and maximum gusts of 59 miles per hour was recorded in National Meteorological Centre, Hulhule. Due to high winds in the central atolls, some damages were reported in Male city on the day.

The active southwest monsoon continued over the country till 22nd June. Along with that, a cyclonic circulation in the southwest of Maldives persisted, which produced deep convection over scattered regions of the country.

Extension of a trough over the Maldives from the low-pressure system over the Indian peninsular on the 26th June, triggered deep convection over the north and central atolls. Result of these systems gave good amount of rainfall over those areas on the 25th to 27th June.

A total of 38 alerts (30 white and 8 yellow alerts) were issued during the month of June.

JULY

Cyclonic circulation was persisting over west-central Arabian seas in the beginning of July and shifted northwestwards due to already existing tropical jet became more prominent. Additionally, a COL area formed over the Maldives with an offshore trough over northeast of the country. Though convection formed over northern and part of central atolls during 1-4 July, there were only light to moderate showers over the area. Average winds were light and variable throughout the country with few gusts on 2nd July.

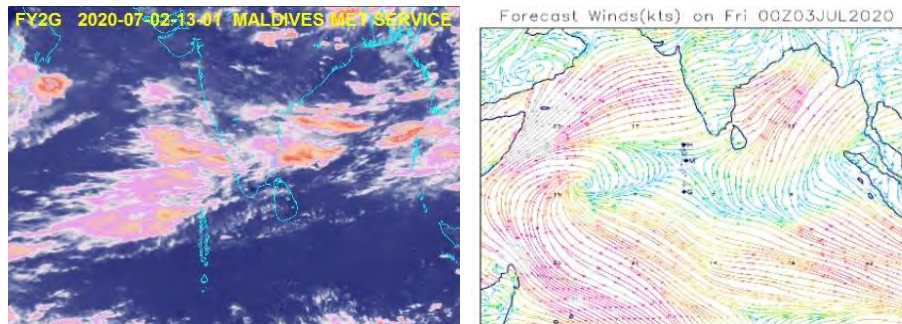


Figure 26 Situation over the country 02nd - 03rd July 2020 (left) FY2G IR imagery 02nd July 1300 local time _ CMAcast,(right) Wind forecast 03rd July 0000Z _ MMS model

From 5th to 6th July, wind converging area formed in the west of Maldives which then shifted eastward. Associated intense convection resulted widespread rain showers over the country on 5th July, with downpour of 60mm in Hulhule. Showers continued in central and northern atolls on 6 July as well with heavy fall of 52mm in Sh. Kanditheemu. Average winds of 13 to 23 miles per hour with moderate to rough seas sustained mostly in central atolls between 1300 and 1800 hours of 6th July. Thereafter, the trough retreated and thus, rain activities gradually decrease from Maldives area. The condition persisted till 9th July.

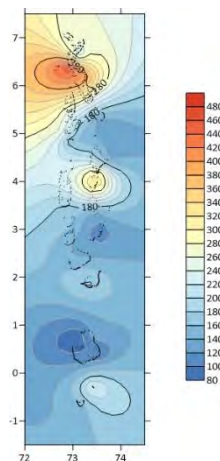


Figure 27 Contour Plot of Monthly accumulated rainfall (mm) over the country for July 2020. Most rainfall was concentrated in the North of the country,

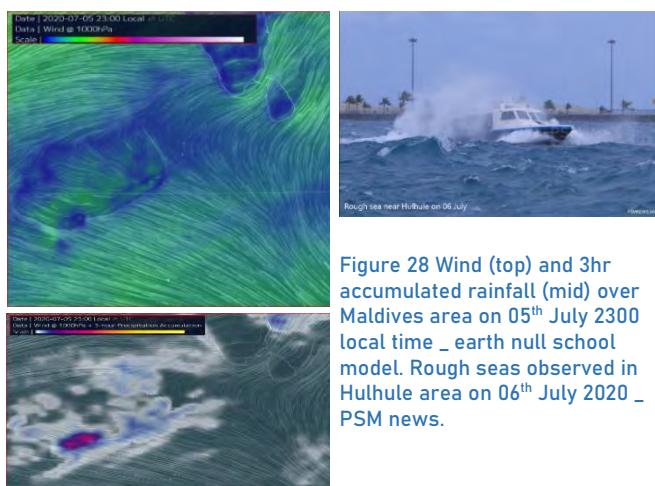


Figure 28 Wind (top) and 3hr accumulated rainfall (mid) over Maldives area on 05th July 2300 local time _ earth null school model. Rough seas observed in Hulhule area on 06th July 2020 _ PSM news.

In addition to rain activity, the first half of July 2020

observed two episodes of severe swell wave surges. First episode was from 5th to 7th July. Initially abnormal waves hit southern atolls mostly Gdh.Thinadhoo on 5th July, resulted damages to fishing

boats, other vessels and sea transportation were also interrupted. On the next day, wave surges experienced across the country including the capital. Severe coastal flooding experienced on that day include R.Vaadho, K.Thulusdhoo, K.Dhiffushi, AA.Rashdhoo, GDh.Thinadhoo. Condition also persisted on 7th July in some islands. including Gdh.Thinadhoo. By then Findlater jet was active and strong with high swells in the area. Additionally, high swells were predicted in the south Indian Ocean. Moreover, the date coincided with full moon. Condition briefed to public through TV channels on 8th July.

Second episode occurred between 10th and 12th July, where wave surges experienced across the country. Severe wave strike in Addu City during low tide hours in the morning. By

afternoon, waves hit in several islands of southern area. According to NDMA, Addu City, Gdh. Nadella, Gdh. Thinadhoo, L. Maavah, L. Kunahandhoo, Tha. Madifushi and AA. Fenfushi experienced some damages due to coastal flooding on 10th July. Waves activities also occurred in Hdh. Vaikaradhoo, L. Maavah on 11th July and Sh. Noomara, Tha. Madifushi, on 12th

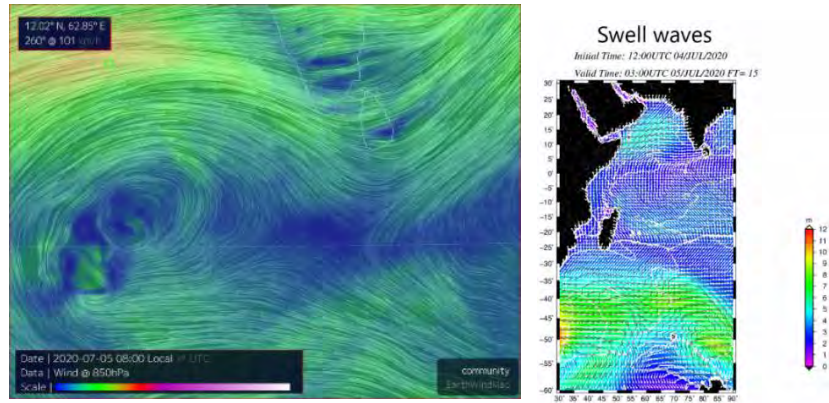


Figure 29 Winds at 850hPa showing the Findlater jet core over Arabian Sea on 05th July (left) and Swell wave model by IMD for 05th July (right)

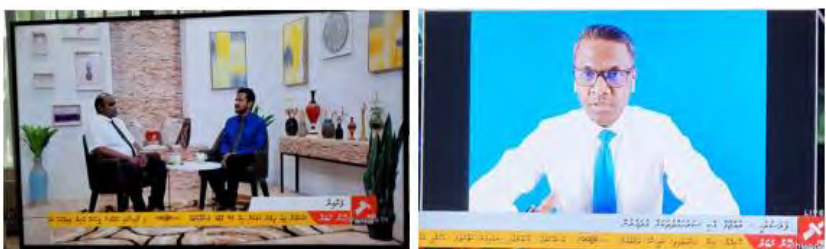


Figure 30 Forecasters on local media on 08th July providing information to public regarding Swell wave event

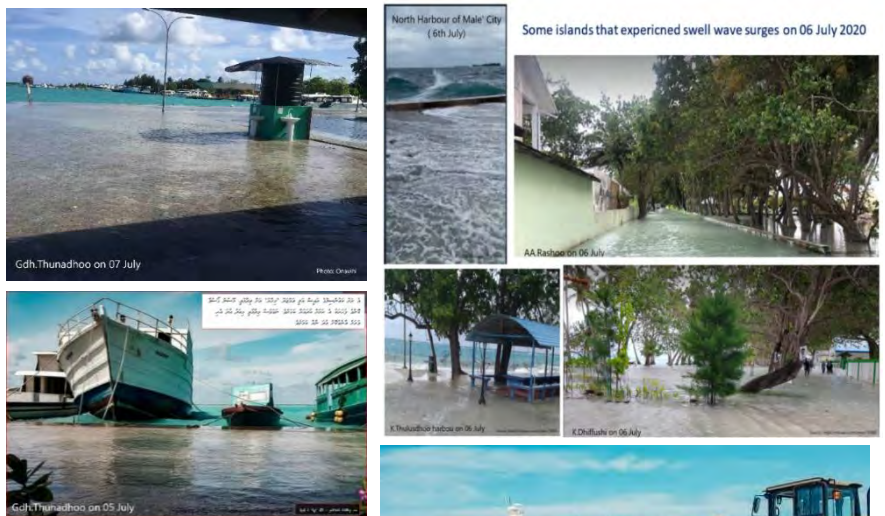


Figure 31 Swell wave inundation from 05th – 07th July in central and southern atolls _ images from local media and social media.



Source: <https://mihaaru.com/news/76959>

July. There were also significant waves from far south Indian Ocean where a low-pressure area was persisted.

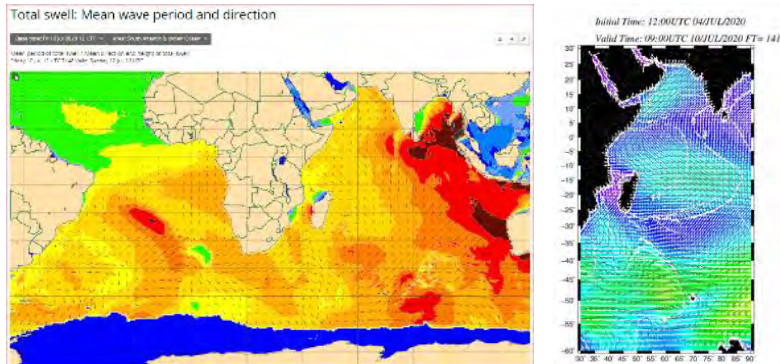


Figure 32 Swell wave and direction forecast for 10 - 11 July (left) ECMWF model (right) IMD model



Figure 33 Swell waves observed at Hdh Vaikaradhoo on 11 July _ image from social media



Figure 34 Swell surge impact observed at Addu City on 10th July 2020 _ images from social media



Figure 25 Swell surge impact observed at Gdh Atoll on 10th and 11th July 2020 _images from media and Met officials



Between 10th and 16th July, an off-shore trough persisted over north of Maldives and associated convection brought rain with few moderate to heavy showers to northern and central atolls, including 55mm in R. Maduvvari on 12th July. Few gusts were also registered in the same area including 44 miles per hour in Hulhule on 13th July.

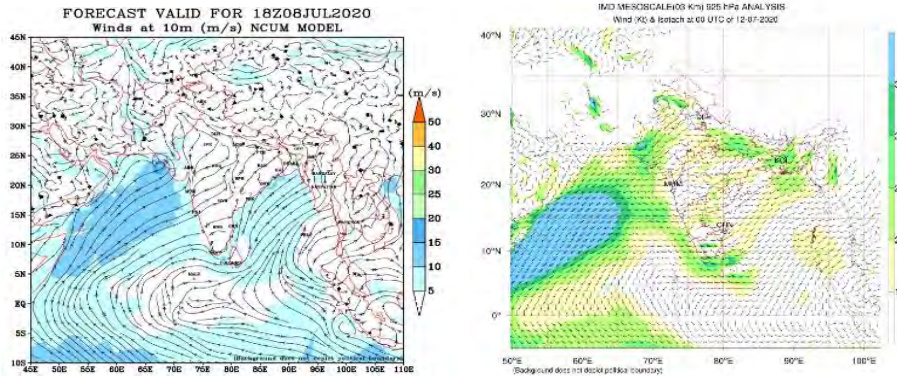


Figure 36 Surface wind forecast on 08th July 1800Z showing formation of off shore trough from south India area (left), Wind forecast at 925hPa showing persisting off shore extending over Northern parts of Maldives.

The period from 17th to 19th July, was a significant weather episode with fairly widespread rain across the country and strong winds in some areas. It was due to enhancement of the persisting trough and southward shifting of Findlater jet as well as formation of a low-level circulation over southwest of Maldives. Daily accumulated rainfall of 62, 60 and 56mm were recorded in Hulhule, K.Guraidhoo and Sh.Kanditheemu

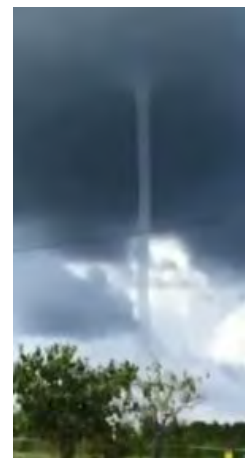


Figure 37 Funnel cloud observed offshore near Fuvahmulah City on 16th July _ image from Social Media



Figure 38 News bulletin issued on 18th July forecasting adverse weather, especially strong average winds, rough seas and tidal surge, for the subsequent 48hrs.

respectively on 17th July, 62mm on 18th July in L.Kadhdhoo. On 19th July rain amounts were significantly high in many islands and heaviest rainfall of 132 mm recorded at AWS in Fuvahmulah City, followed by 78 mm in Addu city Gan. Besides heavy rainfall, strong winds with rough seas experienced mostly in central and northern atolls. Some island in the area also experienced wave surges. Maximum gust wind speed of 47 miles per hour recorded in Kaadeddhoo on 18th July and Hulhule on 19th July. Severe weather impacts reported include flooding in some islands of Addu City

and Fuvahmulah City, damaging of cars in a parking lot of Male' city, interruption to daily activities in Male harbour area due to crashing of huge waves, huge losses caused by a commercial vessel stuck in a reef in Thaa Atoll. Apart from that, minor damages caused to enclosure of Gan Meteorological office.

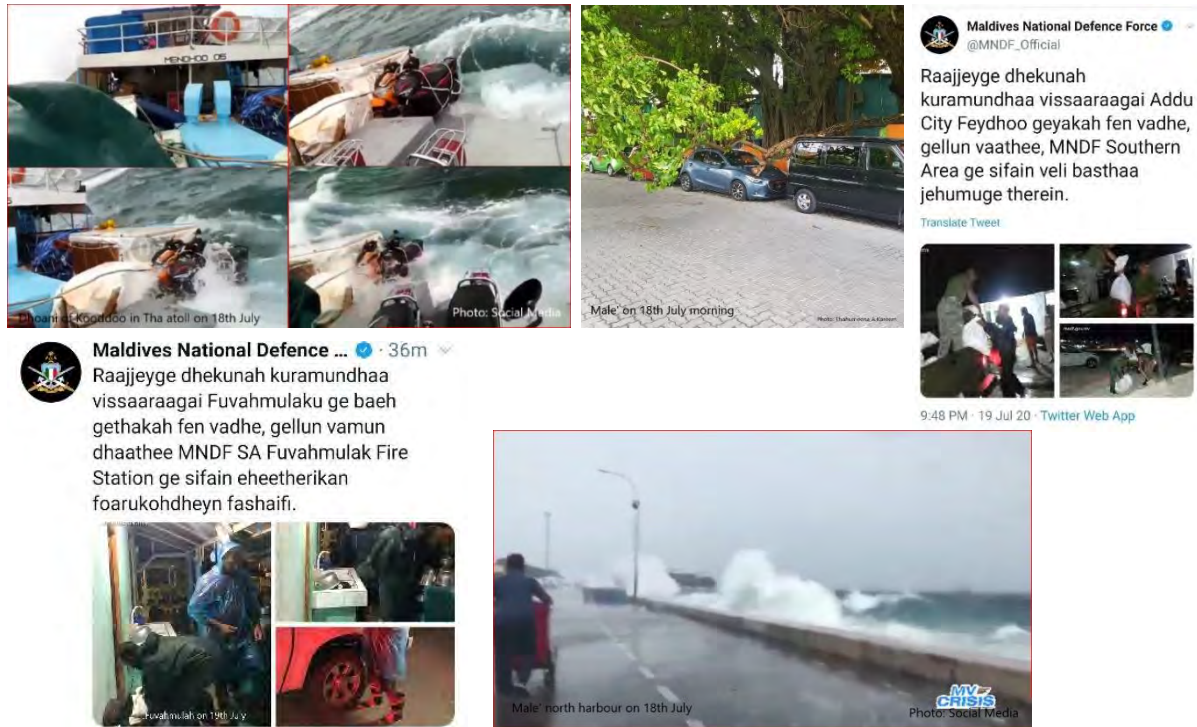


Figure 39 Images showing adverse weather impact and damage from Male', Thaa atoll & Southern area on 18th and 19th July 2020

From 20th to 24th July, two more low level circulations developed over the area, one over southeast of Sri Lanka and another over southeast Arabian Sea on 21st July. Heaviest rainfall during this period was 72 mm recorded in the AWS, K. Guraidhoo, and mean winds were 15-25 miles per hour most of the time, mostly in the central atolls.

From 25th July till end of the month, Maldives area remained active with persisting trough.heaviest rainfall during this period was 54 mm, recorded in Sh. Kanditheemu on 30th July.



Figure 40 Damage from strong winds to instrument enclosure area at S. Gan Metrological Office on 18th July 2020

Highest maximum temperature during July was 33.4°C recorded in Hulhule and highest minimum temperature was 29.0°C recorded in Kadhdhoo... Average winds were strong from 18th July mostly in the central atolls. Daily highest rainfall was 132.0 millimeters recorded in Fuvahmulah City on 19th July. Northern atolls experienced rain throughout the month while central and southern atolls experienced rain mostly latter half of the month. Thunderstorms activities were less in July. 76 Weather alerts including 15 Yellow Alerts were issued for heavy rain, thunderstorms, average winds, gusts, waves and rough sea.

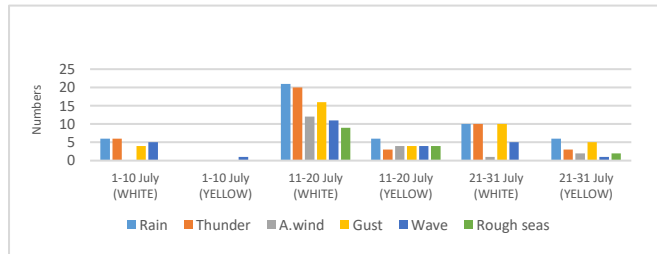


Figure 41 Summary of Alerts issued during the month of July 2020

AUGUST

From the start of the August month till 10th of August most part of the country experienced some significant weather conditions. First it was due to a low-level circulation formed over south of Maldives and second was due to low pressure formed over NW of India and its trough extended to the northern part of the country. Due to these systems widespread rain, some heavy showers with thunderstorms and gust winds were experienced over the country.

On 5th August heaviest rainfall of 94mm, 88mm, 73mm and 51mm were recorded in Koamaafushi AWS, Kaadedhdhoo Met Office, Thinadhoo AWS and Kooddoo AWS respectively. On 8th August heaviest rainfall of 110.7mm, 109.9mm, 105.4mm and 61.9mm was recorded at Funadhoo AWS, Hanimaadhoo Met Office, Kanditheemu AWS and Kulhudhuffushi AWS respectively. On 2nd and 9th August maximum gust wind speed of 46 mph and 47 mph respectively were recorded at National Met Centre, Hulhule.

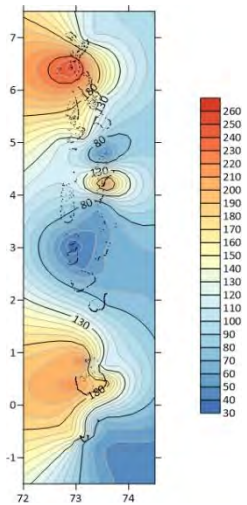


Figure 41 Contour Plot of Monthly accumulated rainfall (mm) over the country for Aug 2020. Most rainfall was concentrated in the North and South of the country.

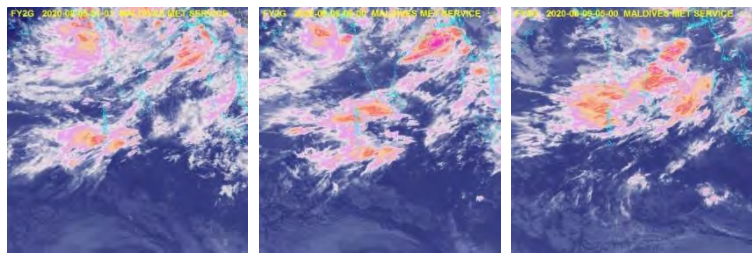


Figure 42 FY2G IR satellite imagery of 05th Aug 2020 2100hrs LT (left) 06th Aug 2020 0600hrs LT (mid) and 09th Aug 2020 0500 hrs LT (right), showing dense convective clouds over the country.

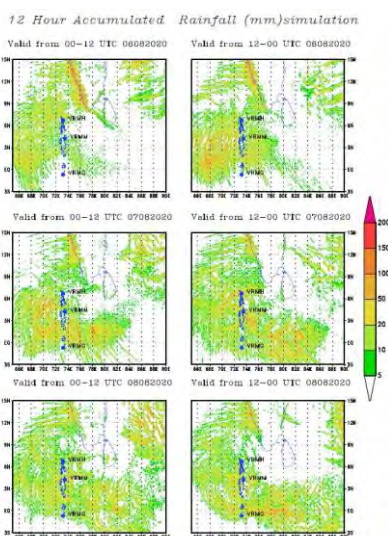


Figure 44 Accumulated rainfall forecast for 06 - 08 August 2020 _ RIMES model

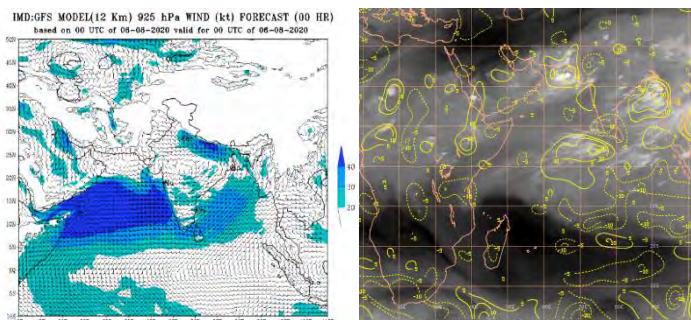


Figure 43 Forecast of wind at 925hPa on 06th July shows strong Findlater jet in Arabian Sea and subsequent wind over Maldives area (left) and Strong upper level divergence area observed over Maldives region on 07th August 2020 _IMD models

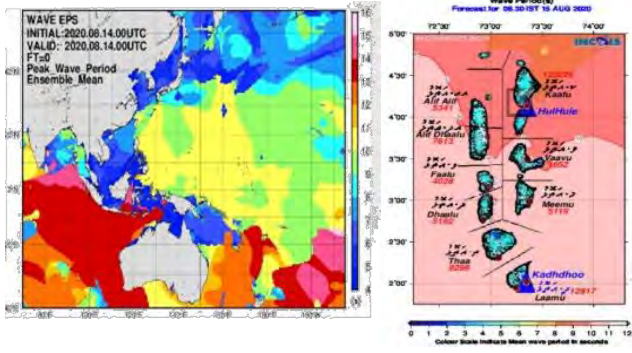


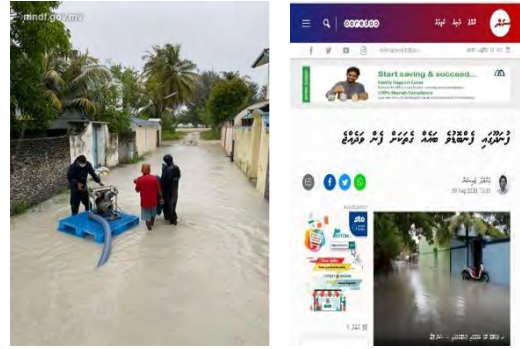
Figure 45 Significant wave period observed at swell wave forecast from Japan Met Administration model (left) and INCOIS model (right) for 14th Aug 2020.



Figure 47 Reports of severe weather impact to northern and central region islands by local media and by MNDF on 8th and 9th Aug 2020



Figure 46 Swell wave surge experienced in Male' on 14th Aug 2020



On 11th of August an anti-cyclonic circulation was formed over the southwest of Maldives and its high pressure ridge extended over the country which leads to less convective activities over the country and this ridge persisted till 24th of August. Rainfall activities are less during this period, however some parts of central and southern atolls experienced Swell wave surges during this time.

On 25th of August a wind converging area formed over Maldives and under its influence intense convective clouds formed over southern part of the country. Due to this intense convection southern atolls experienced Scattered rain, thunderstorms and few heavy showers.



Figure 48 Swell wave surge experienced in L. Kunahandhoo 19th Aug 2020

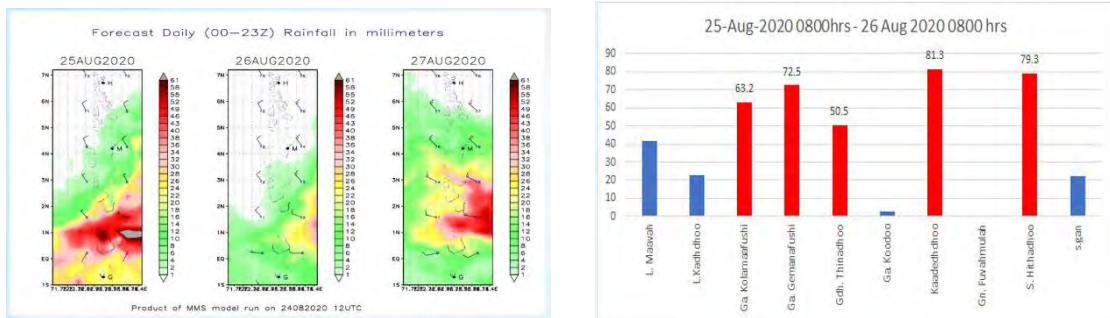


Figure 49 Rain fall forecast by MMS model for 25th – 27th August 2020 (left), and Rainfall recorded at weather stations for 24 hours from 25th Aug 2020 08:00hrs.

Heaviest rainfall during this episode was 81.3mm, recorded at Kaadedhdhoo Met Office.

During the month of August 2020, total of 41 Alerts were sent, among them 8 were yellow alerts and 33 of them were white Alerts. These Alerts were issued for expecting heavy rain, thunderstorms, gusts and swell surges.

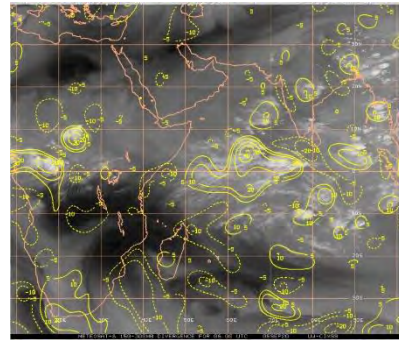


Figure 50 Upper-level divergence of 05th September 0600Z _ CIMSS

SEPTEMBER

September started with active southwest monsoon. A north-south oriented trough was persisting on 1st, along Tamilnadu coast at 0.9 km above mean sea level. In addition, the near equatorial twin circulations (Figure 51) were observed in the far southeast and east of Maldives. Hence, intense convective clouds (Figure 52) formed due to the trough and the wind confluence from the circulations brought fairly widespread rain and heavy showers with a few thunderstorms over the country from 1st to 3rd of the month.

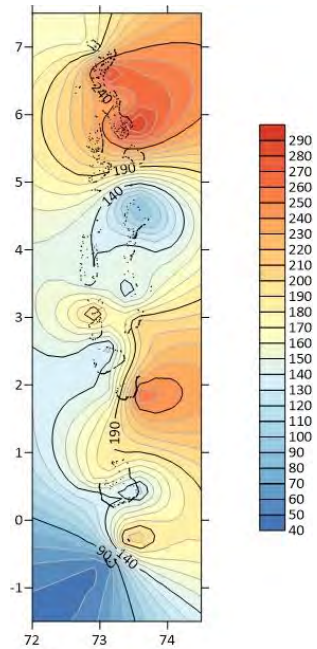


Figure 51 Contour Plot of Monthly accumulated rainfall (mm) over the country for Sept 2020. Most rainfall was concentrated in the North and parts of southern atolls

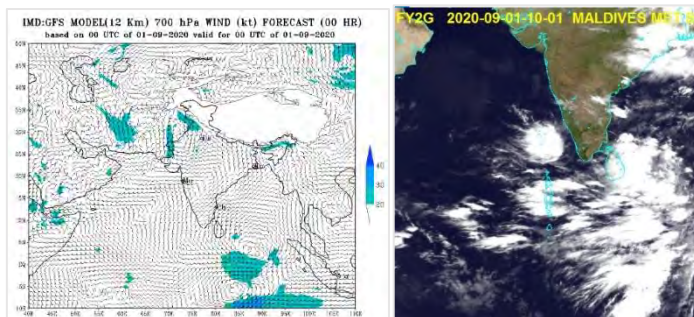


Figure 52 IMD wind forecast at 700hPa showing twin near equatorial circulations on 01st September (left), and FY2G Cloud imagery of 01st September 1000hrs (right)

Furthermore, a cyclonic circulation was formed over east central and adjoining southeast Arabian Sea on the 4th and the associated trough caused formation of convective clouds over Maldives which brought scattered showers on the 4th. The trough extended up to the southern atolls on the 5th with strong upper-level divergence over southern and central atolls (Figure 52).

As a result, very intensive convective clouds were formed over Maldives and brought fairly widespread rain over the country with heavy showers in most places of southern atolls and few places of central atolls (Figure 53). This heavy rain was predicted by the weather models as well (Figure 54).

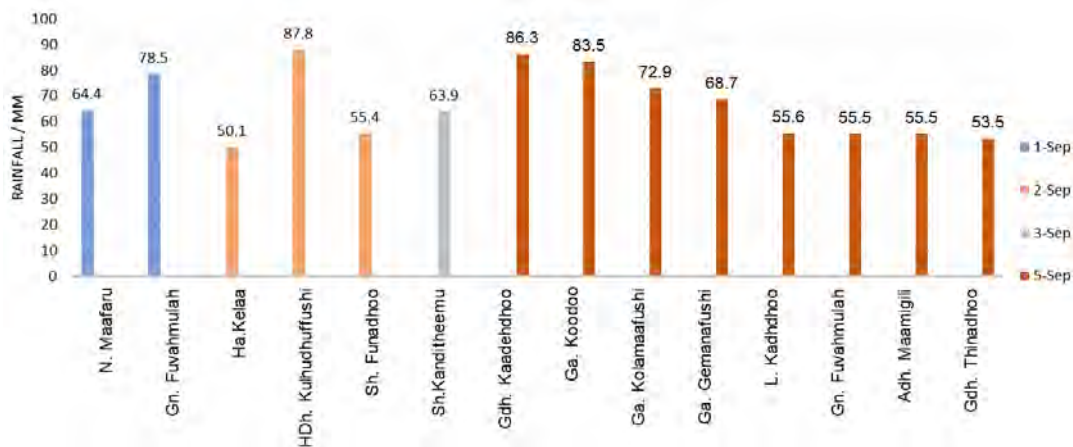


Figure 53 Daily accumulated rainfall exceeding 50mm between 01st and 05th September 2020

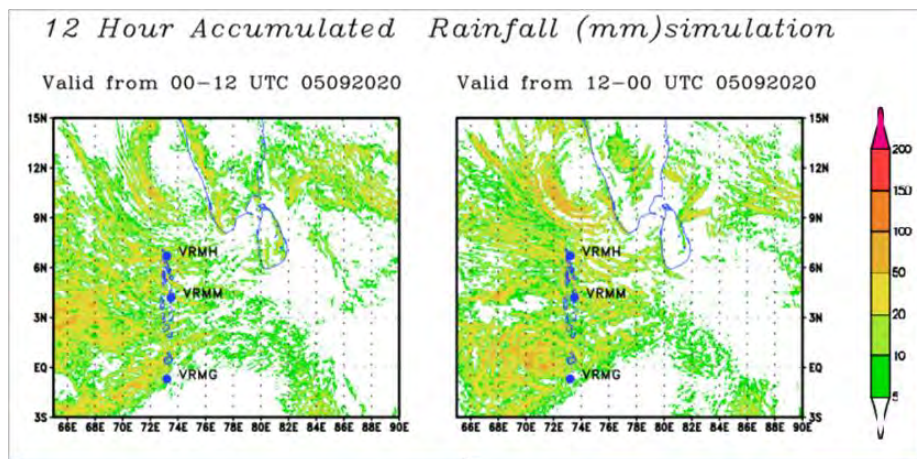


Figure 54 Rainfall model forecasts for 05th September 2020 by RIMES

Windy condition prevailed over the country on 5th and 6th. Average strong winds of 23 – 41 miles per hour had sustained in central atolls from 1700hrs of 5th till 1800hrs of 6th, with maximum winds of between 48 – 60 miles per hour from 2000hrs of 5th till 0500hrs of 6th. the highest maximum wind speed recorded for the month was 62 miles per hour in Baa. Dharavandhu. Gan



Figure 55 Damage due to bad weather in Northern atolls on 5th and 6th September 2020 _ Mihaaru Online news

Meteorological Office had sustained average wind of between 23 – 28 miles per hour from 2000hrs on 5th till 0300hrs of the following day. The windy condition of 5th and 6th caused lots of damages to households and buildings of some islands in all three regions (Figure 55). An orange Alert was also issued on 6th for average strong winds and gusts.

Later, this Cyclonic circulation over southeast Arabian Sea developed in to a Low pressure area (LOPAR) on the 6th but did not bring any significant weather over Maldives. Hence, it weakened over the same region during the next day. Thereafter, the week that followed brought isolated showers and some fine days with only few showers.

A low-pressure area over west central Bay of Bengal formed on the 13th intensified in to a well-marked LOPAR with its associated trough tilting southwestwards and it had extended to lay over northern and central atolls of Maldives (Figure 56). Due to this system, scattered rain was experienced in central and northern atolls with some few heavy showers in central atolls from 15th to 18th. Heaviest rainfall of 52 millimetres on 15th and 58 millimetres on 17th was recorded at the AWS in M. Muli and F. Nilandhoo respectively.



Figure 56 Weather analysis chart of 15th September 2020 0000Z by Thai Met Dept.

Severe weather continued over Maldives area till 27th. A low-pressure area was formed over northeast Bay of Bengal with its associated trough reaching up to Maldives area. As a result, there was strong upper-level divergence (Figure 57) and deep convection over the area which led to the formation of intense convective clouds over Maldives, mostly over northern and central atolls. Hence, fairly widespread rain occurred in northern and central atolls and scattered rain in southern atolls with isolated heavy showers in northern and southern atolls. Heaviest rainfall during this episode was 67.5 mm recorded on 21st at the Kolamaafushi AWS.

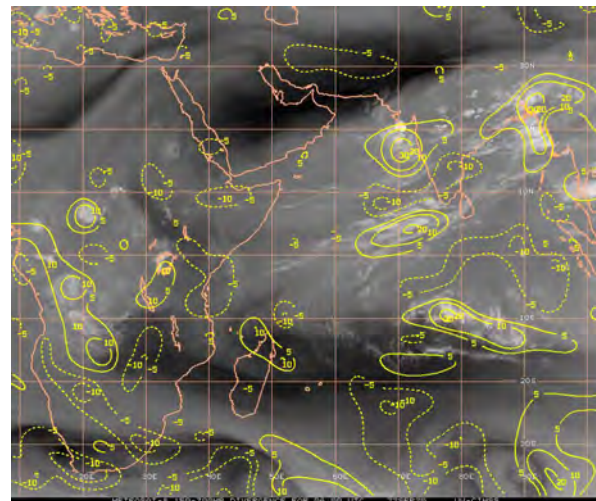


Figure 57 Strong upper-level divergence over Maldives area

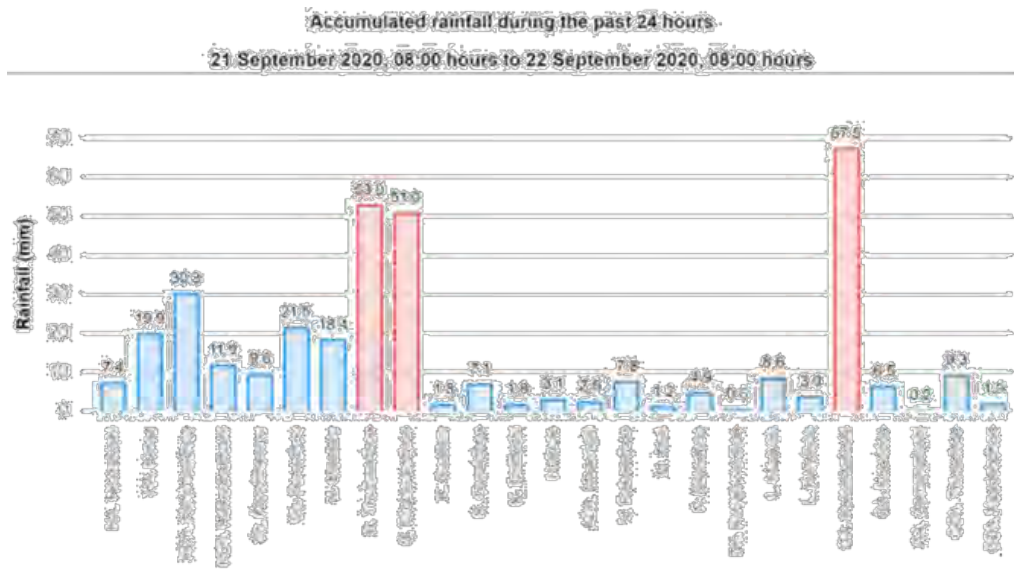


Figure 58 24 hour accumulated rain fall from 21st September 2020 0800hrs.

Additionally, very windy condition prevailed in northern atolls on 21st with the northwestward's movement of the trough. Many AWS in northern region recorded maximum gust winds of more than 40 miles per hour (Figure 59) and some stations on 22nd as well.

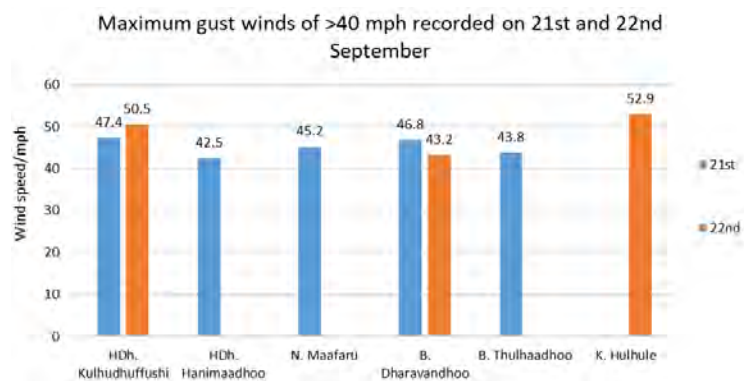


Figure 59 Maximum gust winds recorded on 21st and 22nd September 2020

During the last week of September only few places of northern and southern atolls had experienced moderate showers during a day or two. Whereas apart from few showers in some days it was mainly fine in central atolls that week.

In September 2020, 2 Orange Alerts, 7 yellow alerts and 39 white alerts were issued.

OCTOBER

At the beginning of October, southern part of the country experienced heavy rains and strong winds. A cyclonic circulation formed over the West Central Bay of Bengal area lasted for few days and thereafter this system intensified into a low-pressure area over the same region. The cross-equatorial flow was moderate over Maldives area and the winds enhanced over the country, when the Low-pressure area over the Bay of the Bay of Bengal move towards Odisha (India) coast. The Wind converging area developed over the Maldives area and convective activities were more over the southern

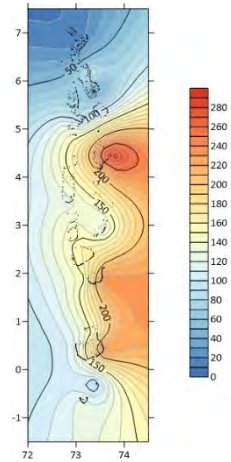
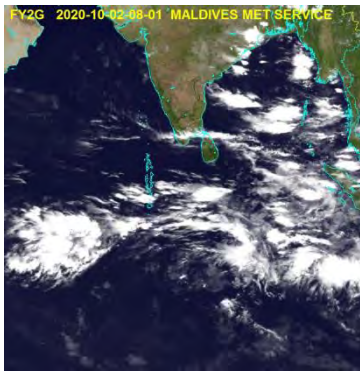


Figure 60 Contour Plot of Monthly accumulated rainfall (mm) over the country for Oct 2020. Most rainfall was concentrated in the central and parts of southern atolls.



Valid from 12-00 UTC 03102020

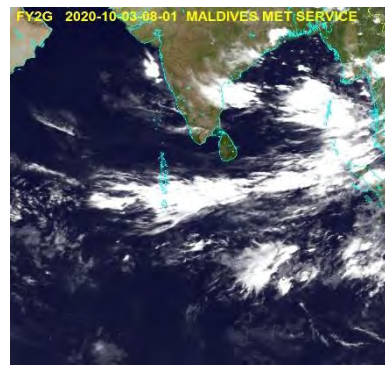
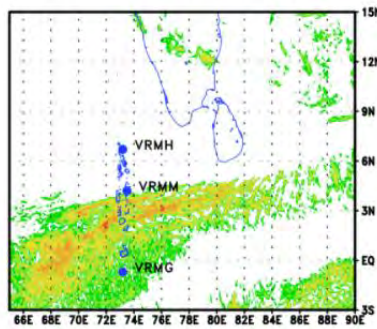


Figure 61 Convective cloud development observed from FY2G cloud imagery on 02nd Oct 0800hrs (left) and subsequent development on 03rd Oct 0800hrs (right). 12-hour Rainfall forecast for 03rd October by RIMES (mid).

parts of the country. As a result, heavy downpours were experienced mostly over the southern areas during the first week of October, hence 72 and 54mm of rainfall was observed in Kooddoo and Kolamaafushi AWS, respectively, on 02nd October.



Figure 62 Flood due to heavy rain on 03rd - 04th Sept 2020 in Th. Thimarafushi

Another low-pressure area formed over the East central Arabian Sea on 2nd October. The low-pressure area over the Bay of Bengal and East central Arabian Sea persisted for 3 days and the wind convergence became strong over the country. Squally showers were experienced over southern atolls on 3rd October with heavy rainfall of 82mm,70mm, and 55mm recorded in Kadhdhoo, Gemanafushi and Maavah AWS, respectively.

A well-marked low-pressure area developed over west central Bay of Bengal on 20th October and moved westwards. On 23rd October this system lies over west central Bay of Bengal and its associated trough extended over Maldives area. Another low-level circulation also formed in the south east of Addu City; thus, this created wind convergence over the central areas. Due to low level wind convergence intense convective clouds formed over the central atolls on 22nd and 23rd October. On 22nd October, heavy down pour was reported in K. Dhiffushi measuring 79 mm of rain fall in 24hrs.

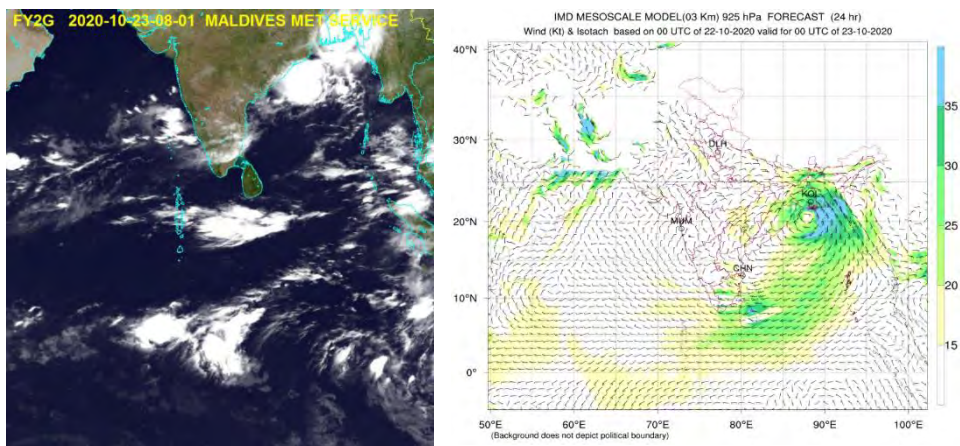


Figure 63 FY2G cloud imagery on 23rd October 2020 0800hrs (left) and Wind forecast model for 23rd October by IMD (right)

A total of 36 alerts (30 white and 06 yellow) were issued during October 2020.

NOVEMBER

The month of November is considered to be a transitional month between SW and NE monsoon as well as a month of post cyclone season. Prominent synoptic features of the month of November includes an intense convergence area which had persisted over southern atolls, a low-level circulation which had formed east of Maldives which persisted while intensifying and crossing over the country emerging to East Arabian Sea to a full-fledged Low-pressure Area and a Low-pressure area which had formed over southwest Bay of Bengal which had intensified to Cyclone “NIVAR”

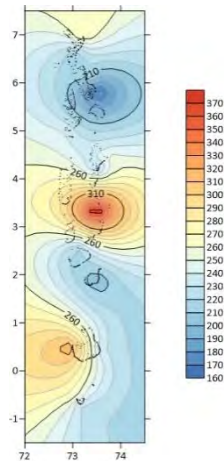


Figure 64 Contour Plot of Monthly accumulated rainfall (mm) over the country for Oct 2020. Most rainfall was concentrated in the central and parts of southern atolls.

The month started off with a cyclonic circulation over south east Arabian sea off the coast of Kerala along with another cyclonic circulation south of Addu atoll. Thus, forming a wind convergence area over the country affecting southern atolls more so than other regions. Heavy showers were recorded over southern atolls with a significant rainfall of 100.5mm at Gn. Fuvahmulah on 2nd, which was the highest rainfall recorded for the month of November.

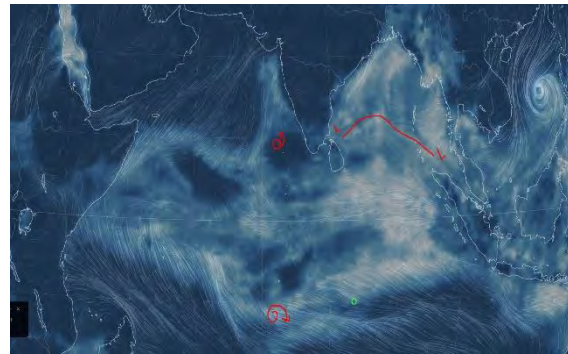


Figure 65 Dual circulations observed north and south of Maldives, creating an area of convergence over the country during the start of November 2020.

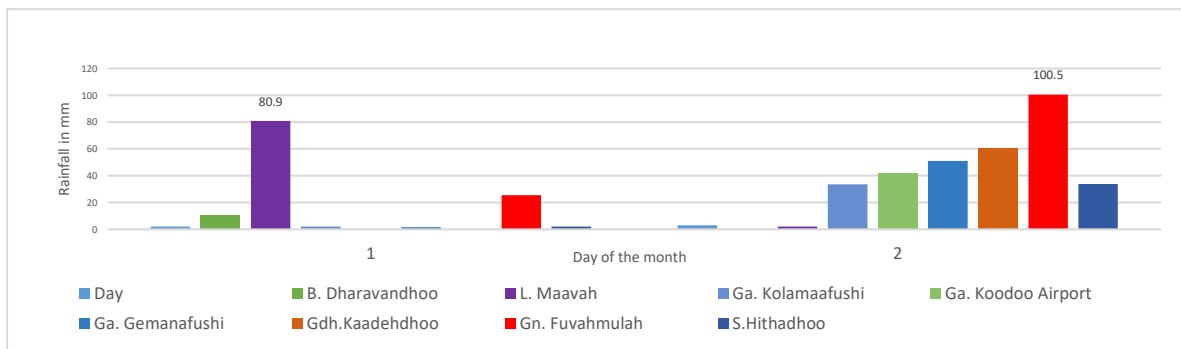


Figure 66 Significant rainfall recorded on 01st and 02nd November 2020

This situation maintained for a couple days until 7th November. The circulation south of Addu atoll had a southwest ward track while gaining momentum with the aid of the ITCZ which was in effect then. The circulation over northeast of Maldives off the coast of Srilanka had moved closer to the country towards Lakshadweep area. Heavy downpours were recorded over northern atolls during this period.

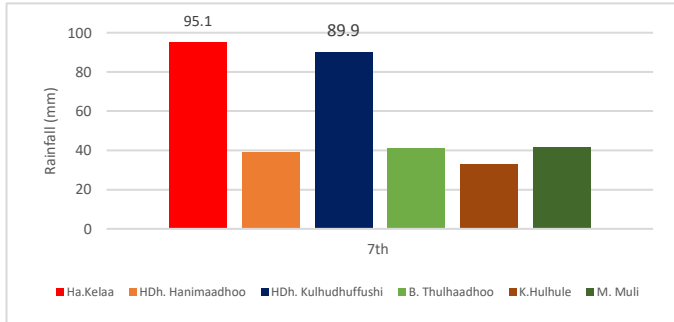


Figure 67 Significant rainfall recorded on 7th Nov 2020



Figure 68 Flood response following heavy rainfall at Lh. Naifaru _ MNDF twitter

A cyclonic circulation had formed over southwest Bay of Bengal which was intensifying at a rapid rate and its trough was the main synoptic feature over the country for the period from 10th till 14th while the above-mentioned circulation over southern hemisphere had gained much more momentum and intensified to a deep depression and was heading towards Diego Garcia away from Maldives. At around 15th November a new circulation has developed over east of Maldives under the influence of the trough extending from the circulation over southwest Bay of Bengal. This circulation was a prominent feature as this had maintained for several days while crossing the country at around 18th and emerging to Arabian sea as a low pressure and then as a deep depression subsequently around 22nd November, ultimately this deep depression gained more momentum and intensified to cyclone "GATI" around 23rd

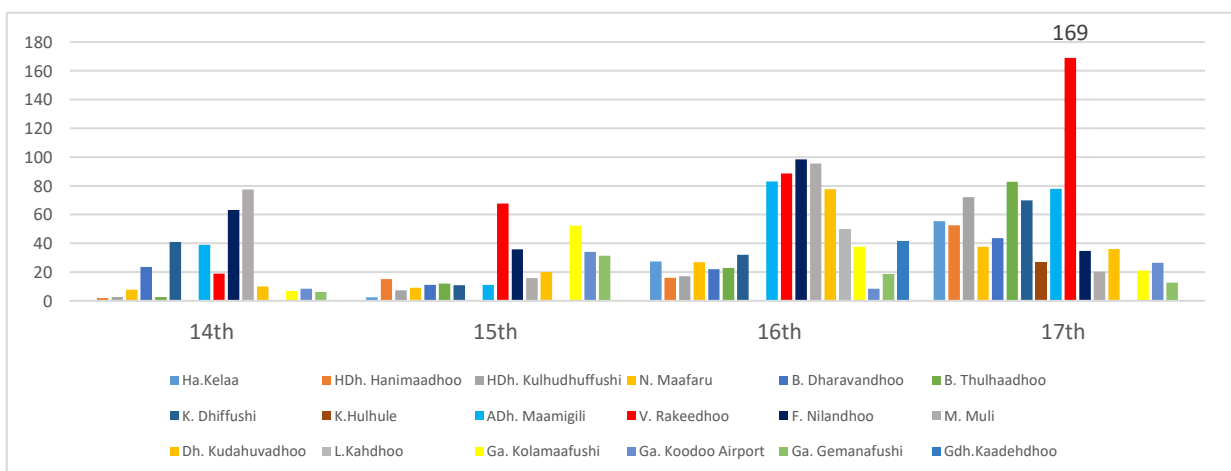


Figure 69 Significant rainfall during 14th - 17th Nov 2020



Figure 70 Male city flooded Source: MNDF twitter (left), weather chart of a circulation east of Maldives by Thai Met Dept (mid) and FY2G Satellite image over Maldives on 17th Nov, CMAcast (right)

November, which had a west ward track away from Maldives and its effect diminished over the country.

Meanwhile a fresh low-pressure system was brewing over Bay of Bengal with the potential of becoming a cyclonic storm around 21st November. This system became well marked had attained the stage of deep depression with a west ward track towards Sri Lanka on 23rd. With a rapid intensification this deep depression intensified into cyclone "NIVAR" on 24th which had not affected Maldives due to its weak trough blocking from high terrain over Sri Lanka extending over Maldives.

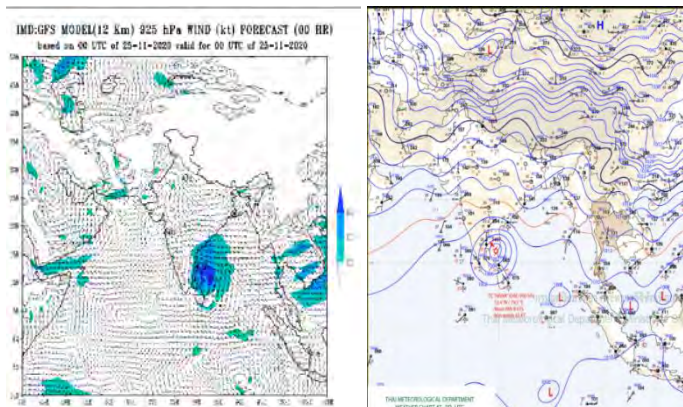


Figure 71 Wind forecast by IMD (left) and Weather chart by Thai Met Dept (right) for 25th Nov 2020 showing Cyclone Nivar off the east coast of India

Cyclone "NIVAR: which had a westward track mostly crossed Tamilnadu coast on 26th November as a Severe Cyclonic storm and had a more northwest track towards north east Indian subcontinent after that which then diminished any indirect effect of this system.

The reminder of the of energy over Bay of Bengal since cyclone "NIVAR" had birthed a new Low-pressure system at around 29th November which had almost the same west ward track from southwest Bay of Bengal towards Sri Lankan coast. This system had also the potential of becoming a cyclonic storm which would be named "BUREVI" incidentally had more impact than the previous cyclone.



Figure 72 Fishermen advisory by Indian Met Department

In addition to moderate to heavy showers across the country during the movement of the two systems on either side of the country, most notably, on 4th December 2020, average strong winds of 15 – 25 mph sustained in southern most atolls with maximum gust of 48 mph and 41 mph measured at Fuvahmulah City AWS and Gan Met Office, respectively.

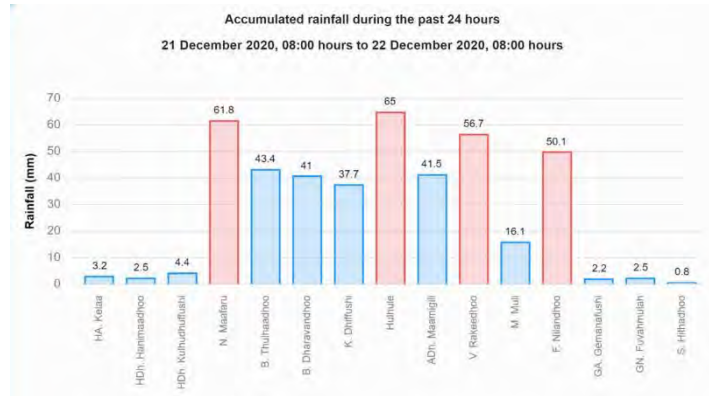


Figure 74 Accumulated rainfall for 21 – 22 December 2020, where intense rainfall activity was observed in the central atolls.

During the process of weakening and dissipation of both systems, majority of the Maldives area was primarily dominated by the resultant COL region.

The rest of the month observed weak yet persisting circulations in southwest Bay of Bengal and Comorin area, which resulted in convective activity in Maldives region. Particularly 20th to 23rd December 2020 observed significant rainfall over central and some parts of south-central atolls (Figure 74).

Weak to moderate easterly wind flow was observable over northern atolls, and extending to central atolls at times, after about first week of December 2020. However westerly flow persisted over southern atolls throughout the month.

North east monsoon was declared 22nd December 2020 over northern atolls.

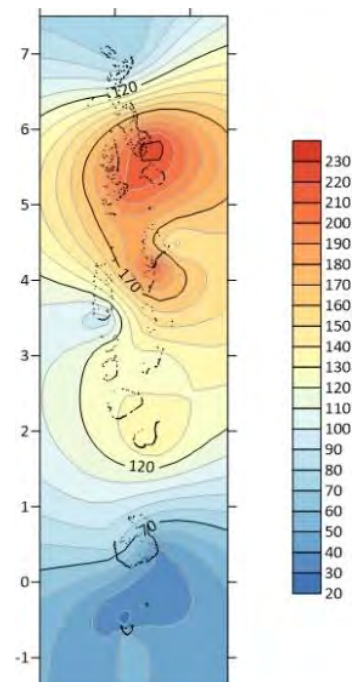


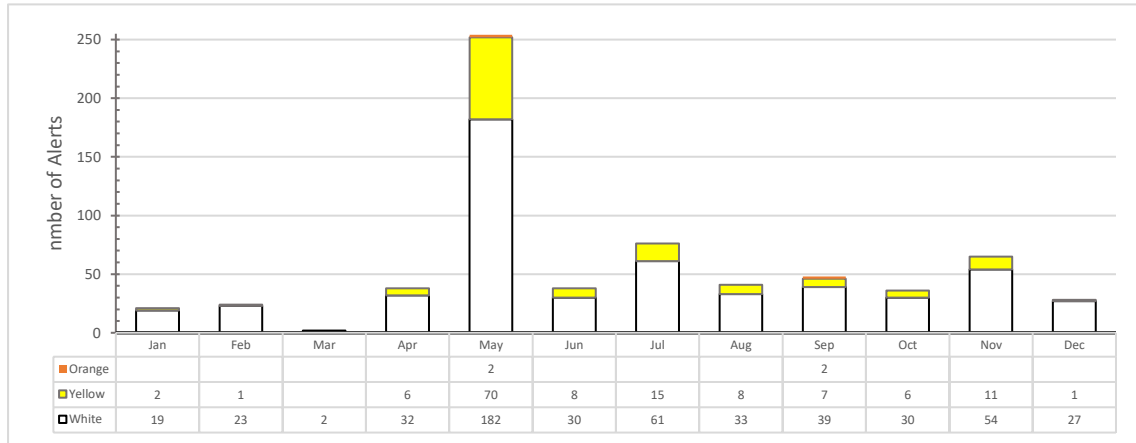
Figure 75 Contour Plot of Monthly accumulated rainfall (mm) over the country for Dec 2020. Most rainfall was concentrated in the north – central atolls, extending till Laamu atoll.

A total of 28 Alerts (27 White Alerts and 01 Yellow Alert) were issued during December 2020

This concludes this report.

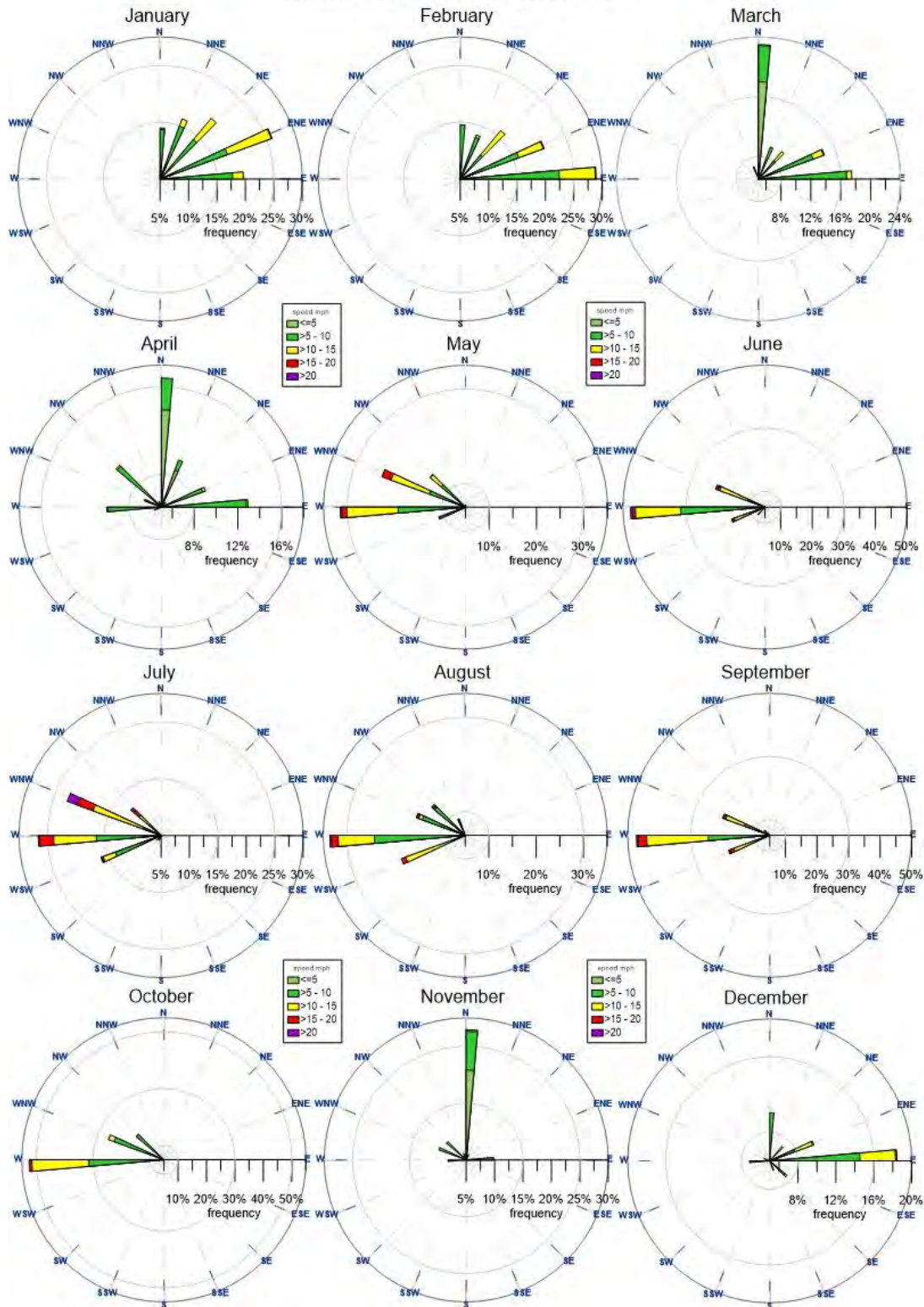
Annex 1

Table below shows the monthly distribution of weather alerts issued in year 2020 and their categories.

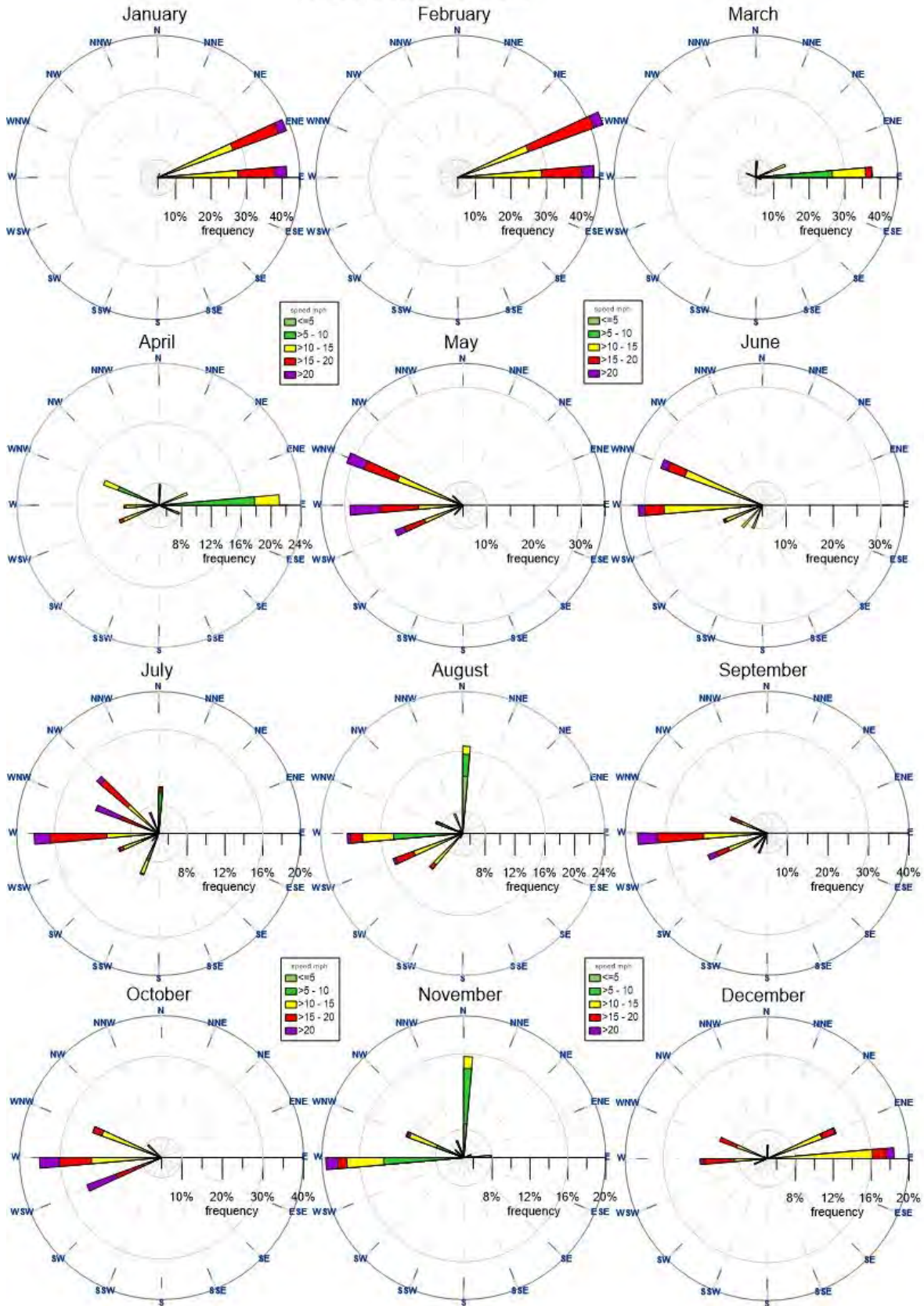


Annex 2: Monthly Wind rose for North (Hanimaadhoo Met Office), Central (National Met Center, Hulhule') and South (Gan Met Office).

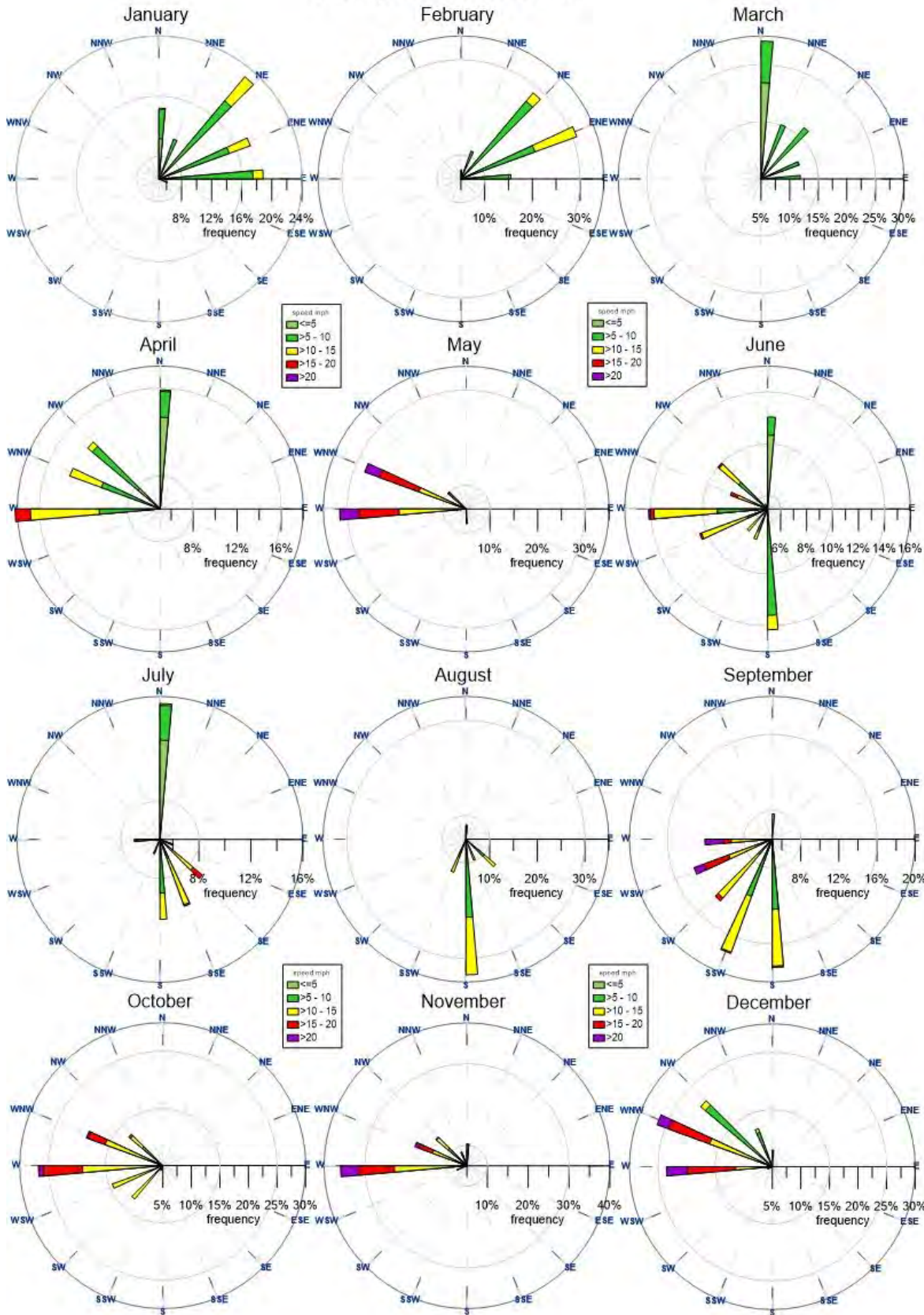
HDh.Hanimaadhoo Windrose 2020



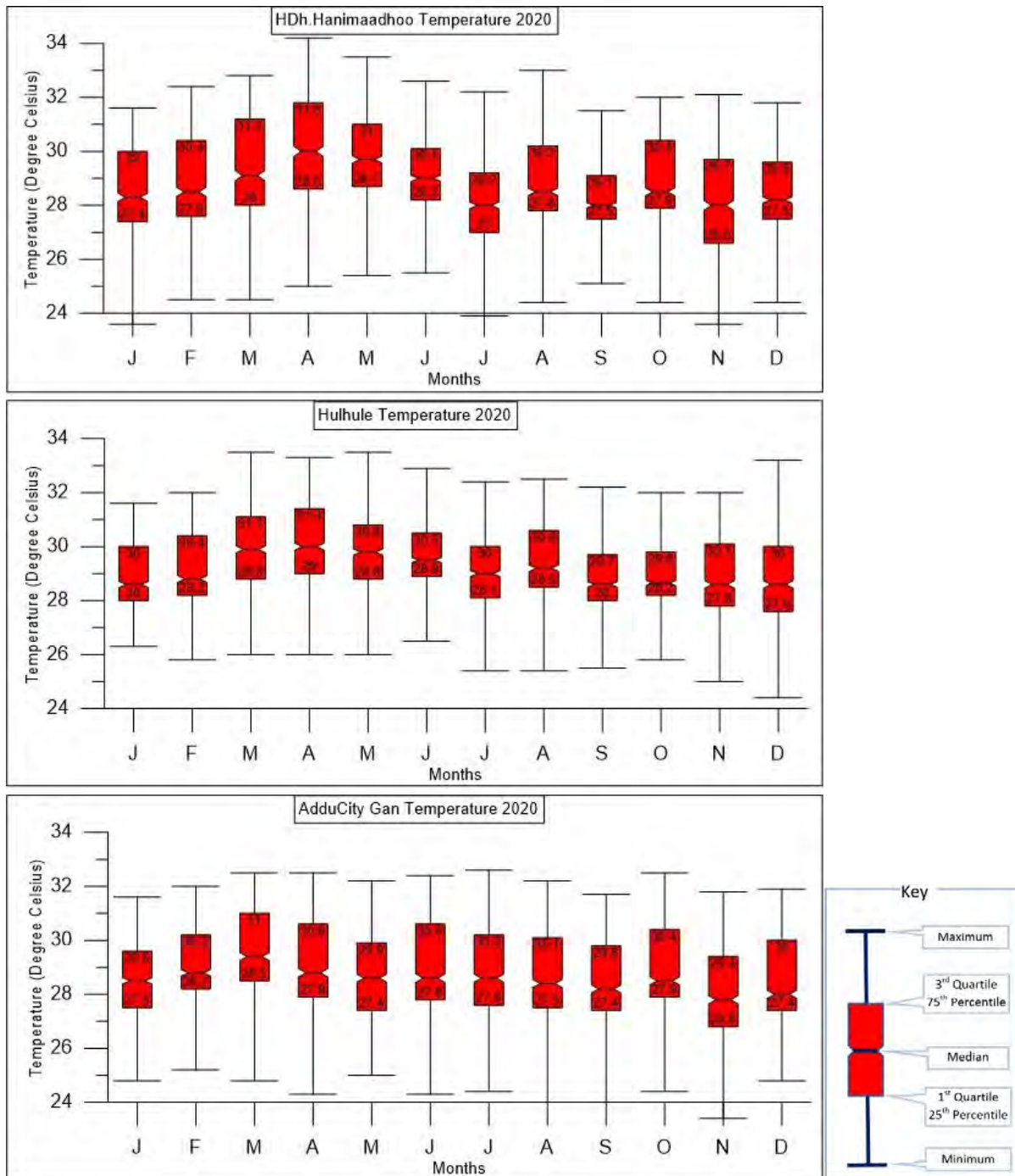
Hulhule Windrose 2020



AdduCity Gan Windrose 2020



Annex 3: Monthly Temperature distribution for North (Hanimaadhoo Met Office), Central (National Met Center, Hulhule') and South (Gan Met Office).





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