



Country Report Maldives

Second KMA/WMO workshop on impact
Based forecasts in Asia

Korean Meteorological Administration(KMA)
Seoul, Korea

Nasooth Ismail
Maldives Meteorological Service

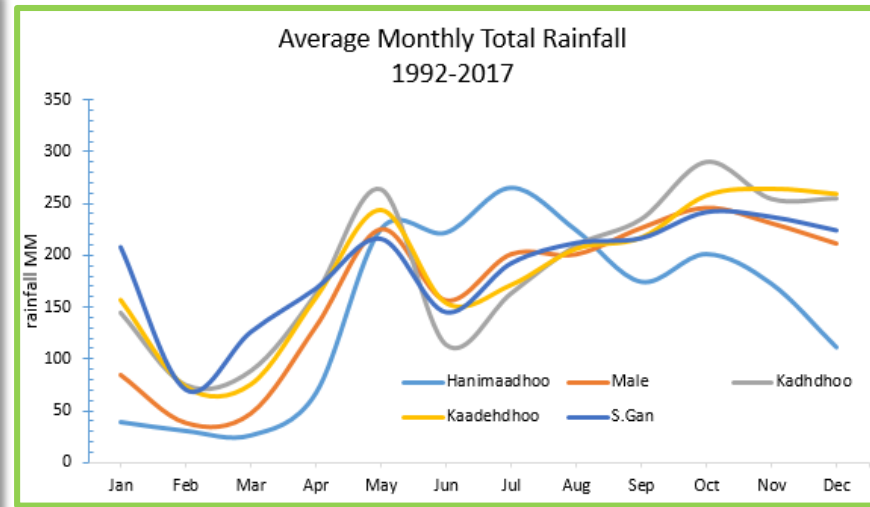
Outline

Country Overview

Current Weather Alert system / SOP

Impact Based Forecasting in Maldives





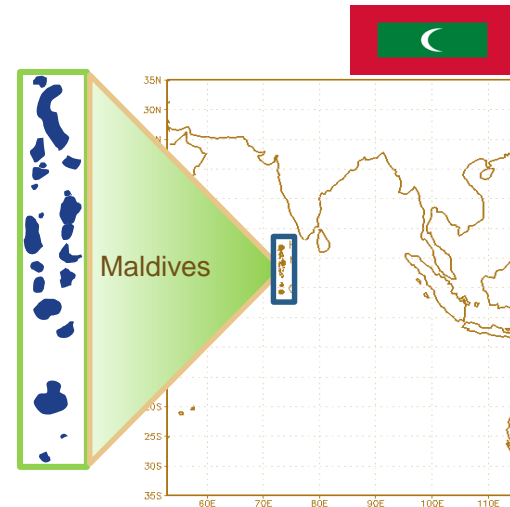
Maldives is located near the equator which results in the tropical climate that we embrace through out the year, warm and humid.

The country experiences two distinct seasons.

South-west monsoon : mid-May to November (Rainy)

North-East monsoon : January to march

Average temperature through out the year stays constant varying from 26 – 32 degrees,





Country Overview

Maldives is an island nation in the Indian ocean composed of 26 ring shaped atolls, comprising of 1200 coral islands

About 99% of the country's area is the ocean

Average elevation of the islands are at 1.5 meters above sea level.

In term of elevation from MSL, The Maldives is considered to be the lowest and the flattest country

Hence it is prone to climate change, global warming, sea level rise and multiple meteorological hazards and risks.





Major hydrometeorological disasters include:



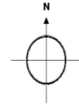
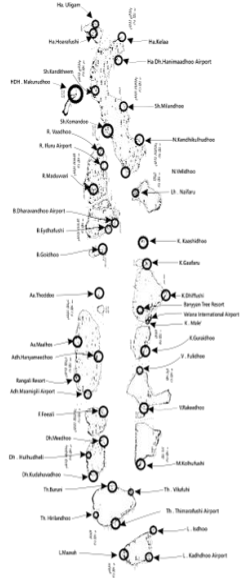
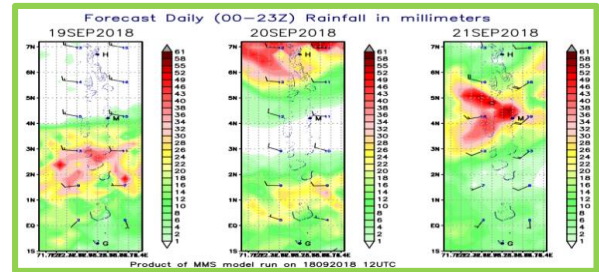
- Torrential/Heavy Rain*
- Flooding*
- Thunderstorms
- Gust winds
- Swell waves & Storm surges*
- Tropical Cyclones (Indirect)



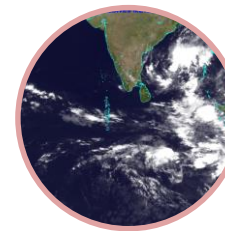
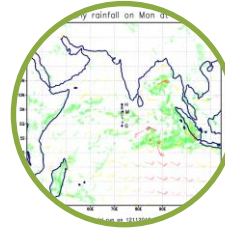
Maldives Meteorological Service

Current Capacity and Operations

Current Capacity



○ New project approved AWS
 ⊗ AWS (Airport Weather)
 ⊕ Existing AWS location



- ~ 5 Manned Meteorological Office
- ~ 36 Operational AWS
- ~ 3 Tide gauge station
- ~ Upper air observation platform

Several Numerical Weather Prediction Models

- INCOIS*
- RIMES*
- ECMWF*
- FNMOC
- IMD NWP
- Internal MMS WRF 27km NWP *

CMACast FY-2E & FY-2G satellite data and products

Satellite Weather Application Platform (SWAP)

INSAT – 3D satellite imagery (IMD website)

Meteosat-8 imagery (EUMETSAT website)

Doppler Weather Radar 270 km radius

FY2-MMS - 30 Nov 2017, TC Ockhi

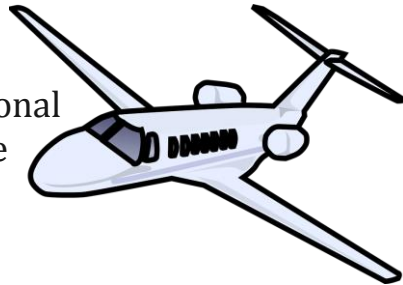




MMS Daily Operations

MMS provides public weather services to the general public of Maldives in the form of weather forecast (also maritime) and severe weather alerts etc.

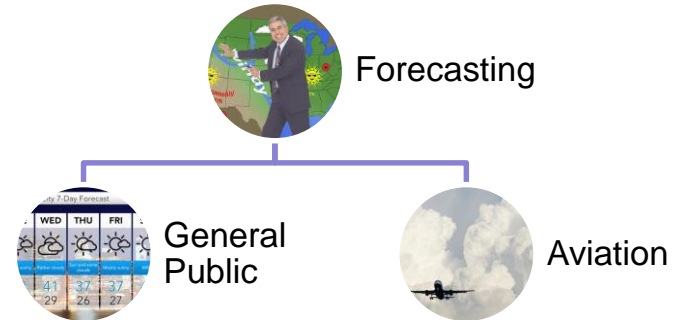
Along with providing operational meteorological services to the aviation industry.



■ Vision

Provide accurate, timely and reliable meteorological information to minimize the impact on life and property while supporting sustainable socio-economic development of the Maldives

Aviation Weather Service of MMS is ISO 9001:2015 QMS Compliant.





Alert System & SOP

Alert Levels, Dissemination &
Operational Procedures



- National Meteorological Service in Velana International Airport acts as National Multi-Hazard Early Warning Centre (NMHEWC) To provide procedural guidance and action steps to be followed in responding to a Tsunami Warning/Advisory Bulletins, Meteorological Hazard/Advisory Bulletins due to a seismic and weather hazards.
- An Alert system has been set in place, Color codes of White Yellow Red & Green in accordance with the level of warning / Advisory
- A Standard Operating Procedure has been set place on how to act on these warnings. How information about these warnings will be disseminated to concerned authorities and general public.



Level 1 (White)

- Mean wind prevailed or observed at 23 - 29 mph
- Rainfall of 50mm expected within 24 hours
- Moderate / Heavy Thunderstorm expected
- Tidal Waves / Swell surge expected



Level 2 (Yellow)

- Mean wind is prevailed or expected at 30 – 40 mph
- Continuous rain occurred for 2 hours and heavy rain is expected
- Tropical Cyclone formation within effective areas of the country
- Severe thunderstorms occurring or expected
- Significant storm surge, tidal or swell waves expected



Level 3 (Red)

- Mean Wind speed of 40 mph is prevailing or expected
- Torrential rain occurred for more than 4 hours and in expected to continue
- Violent tornado observed within effective area of the country
- Tropical cyclone tracked towards Maldives
- Storm surge / Tidal wave or swell wave ≥ 3 meters occurring or expected



Step Down (Green)

- Cancellation bulletin

Alert Criteria's



Dissemination of information / SOP

White

- Regarded as information
- Sent through SMS, and social media

Yellow

- Advisory
- Fax , SMS and disseminated through social media
- National Disaster management center issues advisory to relevant focal points
- Concerned authorities and general public will be advised to be on alert and ready to take necessary action. Not safe to travel by sea in this condition

Red

- Fax . SMS various hotlines are to b engaged in dissemination of the alert
- Evacuation of population from threatened areas or islands to safe shelters (as directed by NDMC)
- Prohibition of sea transport is highly recommended

■ Currently MMS uses various hotlines, Fax services SMS services and along with social media (Facebook, Twitter and Viber group community's) to disseminate information on alerts

■ Intra-government agencies and major stakeholders include

- National disaster management center (NDMC)
- Maldives Police service , Maldives National defense service (MPS .MNDF)
- Public service media (Television Maldives TVM, Voice of Maldives VOM)
- Other concerned government agencies



Impact based forecasting in Maldives



- Currently, We do not provide impact based forecasts
- However we are moving towards the goal
- WMO conducted Stakeholders Workshop to initiate the implementation of impact-based forecasting and risk-based warnings on September 2016

- We are in the process of using Common Alert Protocol (CAP) based alert messages rather than traditional alert message structure.
- Island Research and further development of impact based framework is necessary
- Public awareness programs need to be held as to understand the phases of early warning
- Extensive knowledge of Vulnerability and exposure are needed.
- Synergized Standard Operating Procedures (SSOPs) involving MMS & other stakeholders need to prepared.



Figure 3: Participants discuss in groups the impacts of hazards common in Maldives, during the Workshop

A large, stylized graphic of two quotation marks, rendered in a dark teal color, centered on the page. The text "Thank You !" is positioned within the space between the two quotation marks.

Thank You !