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Maldives Meteorological Service

Rainfall and Temperature Outlook over Maldives

For January 2023

Summary

Rainfall is expected to be above-normal over northern and part of central atolls, and below-normal over rest of the country.

Temperature is likely to be normal across the country.

Introduction

This consensus outlook on rainfall and temperature for Maldives has been prepared through assessments including prevailing regional and global climate condition and prediction of various climate models, seasonal forecast of WMO Lead Centre for Long-Range Forecast Multi-Model Ensemble (LC-LRFMME), North American Multi-Model Ensemble (NMME) Forecasts of Monthly Climate Anomalies, climate driver update of Bureau of Meteorology (BoM) and monthly forecasts of European Centre for Medium-Range Weather Forecasts (ECMWF).

Current status of major climate drivers.

El Niño Southern Oscillation (ENSO): La Niña condition continues with below average equatorial Sea Surface Temperatures across most of the Pacific Ocean. Some global models suggest equal chances for La Niña and ENSO-neutral condition during January-March 2023.

Indian Ocean Dipole (IOD): Global models indicate the neutral IOD to persist during January 2023.

Madden-Julian Oscillation (MJO): Active MJO over Western Pacific at the beginning of the month is expected low amplitude during the 1st week and become stronger by 2nd week with eastward propagation into the Western Hemisphere. Enhanced MJO is likely over Indian Ocean by 3rd week. This may cause increase rain activities over Maldives area towards end of the month.



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Calibration of climate models

Climate Predictability Tool (CPT) was used to downscale global model outputs to local scale. These results indicate above-normal rainfall over northern atolls and below-normal over rest of the country for January 2023.

Global Producing Centres and WMO Lead Centre Forecasts

Probabilistic Multi-Model Ensemble of WMO LC-LRFMME indicates below-normal rainfall over southern atolls and part of central atolls with climatological probability over rest of the country for January 2023. Temperatures are slightly above-normal over southern-most area and normal over rest of the country during the month.

Climatic condition over Maldives

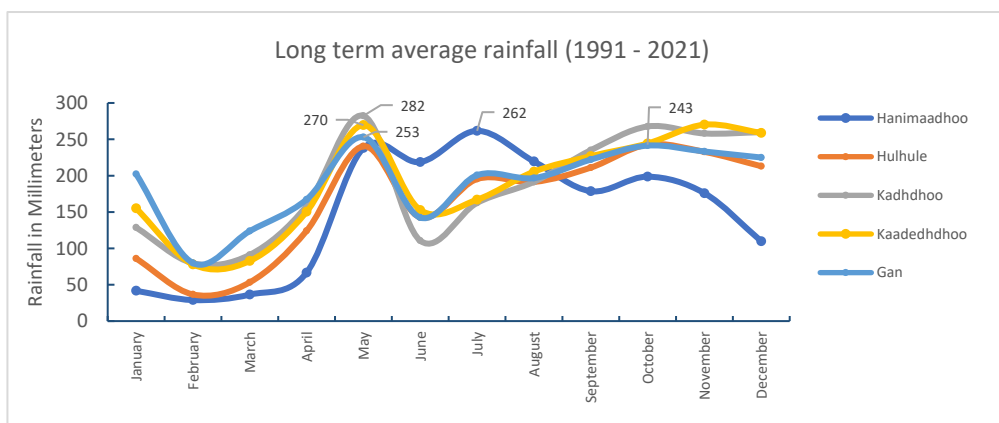


Figure 1- Mean monthly rainfall for the period 1991-2021 shows variation of rainfall in different part of the country, where southern and central atolls have high rainfall peaks during May, beginning of southwest monsoon and towards end of the monsoon period, while northern atolls have peak rainfall during July, mid of the season.

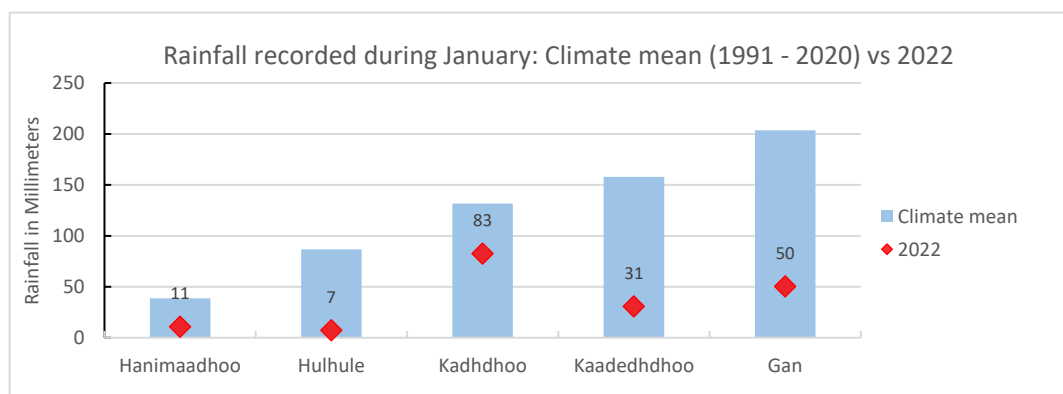


Figure 2- In January 2022, all stations received below-normal rainfall for the month.

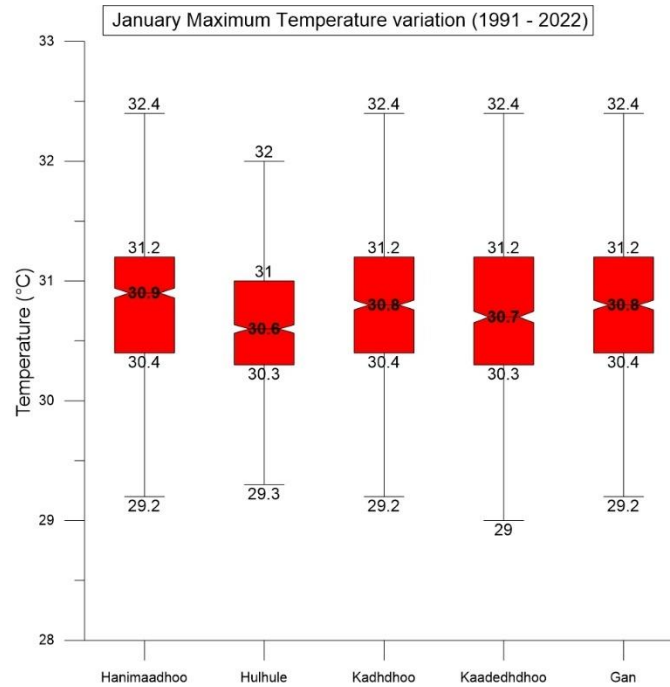


Figure 3: Daily Maximum Temperature range at Meteorological stations during January for the period 1991-2022 showing highest maximum Temperature of 32.4°C recorded at Meteorological Offices Hanimaadhoo, Kadhdhoo, Kaadedhdhoo and Gan.

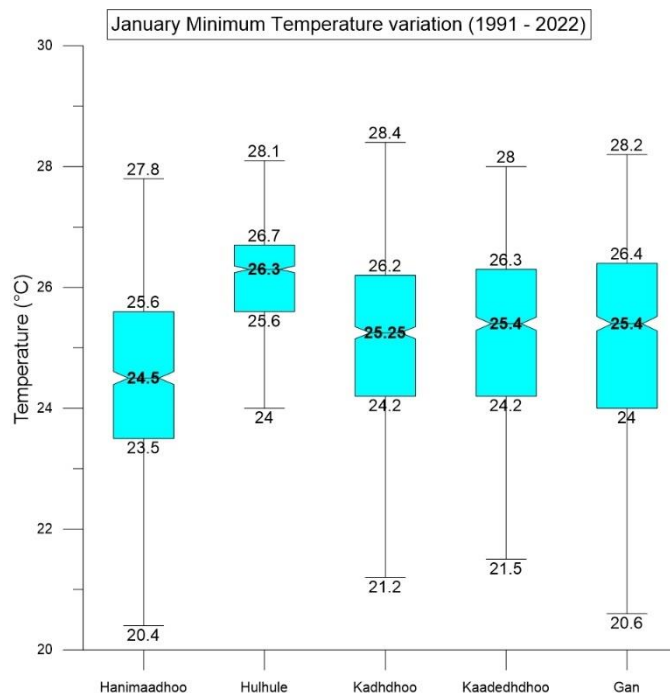


Figure 4: Daily Minimum Temperature range at Meteorological stations during January for the period 1991-2022, showing lowest minimum Temperature of 20.4°C at the Meteorological Office, Hanimaadhoo.

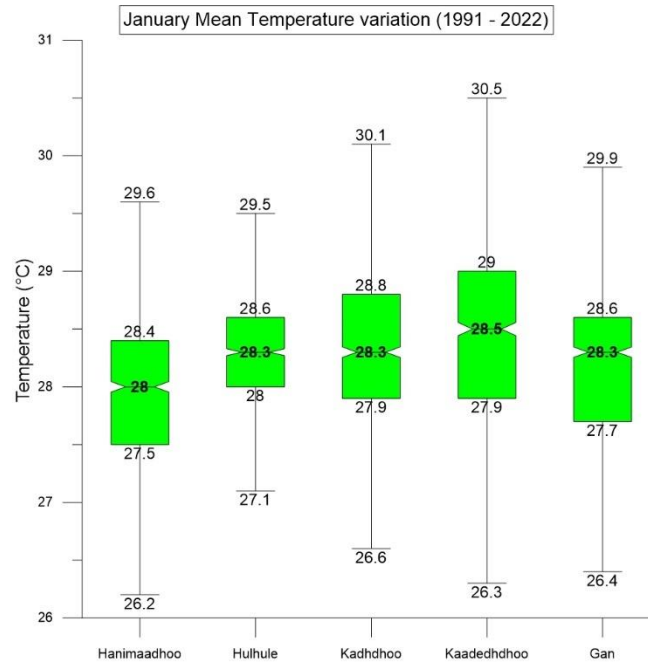


Figure 5: Daily Mean Temperature range at Meteorological stations during January for the period 1991-2022 shows most (50%) of the times daily average temperature lies between 28.4– 27.5°C in Hanimaadhoo, 28.6 – 28.0°C in Hulhule, 28.8 – 27.9°C in Kadhdhoo, 29.0– 27.9°C in Kaadedhdhoo and 28.6 - 27.7°C in Gan.

Conclusion

By considering the active La Niña and neutral IOD condition, active MJO condition over Indian Ocean for the later half of the month, Multi-Model Ensemble of WMO Lead Centre forecasts, NMME forecasts, CPT analysis and climate data of Maldives, rainfall is expected to be above-normal over northern and part of central atolls, and below-normal over rest of the country.

Temperature is likely to be normal across the country.

Note:

Normal: Amount of rainfall between 90% - 110% of the average for the period.

Above normal: Amount of rainfall more than 110% of the average for the period.

Below Normal: Amount of rainfall less than 90% of the average for the period