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Maldives Meteorological Service

Rainfall Outlook over Maldives

For June 2019

Summary

Average amount of rainfall likely in central atolls while rest of the country most likely to receive higher than average rainfall. Monsoonal rainfall normally occurs across the country during this month. Additionally, global climatic features such as Madden Julian Oscillation (MJO) shows favourable condition for enhanced convective activities over Indian Ocean region.

Introduction

This consensus rainfall outlook for Maldives has been developed through an expert assessment of the prevailing regional and global climate conditions and forecasts from different climate models of World Meteorological Organization (WMO) lead centers around the world.

El Niño -Southern Oscillation (ENSO): Weak El Niño is currently present with above average sea surface temperatures (SSTs) through most of equatorial Pacific Ocean. Additionally, anomalous convection and wind pattern persists over relevant areas. El Niño condition expected to continue throughout this month (Climate Prediction Center /NCEP, 2019 May 27).

Indian Ocean Dipole (IOD): IOD is currently in its neutral phase. However, it is likely to turn into positive for June and is expected to remain throughout the month. (Bureau of Meteorology, Australia, 2019 May 28).

Observed rainfall over Maldives show that, when IOD is positive, a lower than average rainfall across Maldives during June.

Madden-Julian Oscillation (MJO): MJO with enhanced phase is over western Hemisphere since 3rd week of this month and remains there due to slow eastward propagation. Consequently, its suppressed phase has shifted from Indian Ocean to Maritime Continent and far western Pacific. ECMWF model predict MJO signal across Africa and Western Indian Ocean in next two weeks. However, its signal expected to weaken gradually during the 2nd week. GEFS model predict MJO signal to remain over Western Hemisphere and Africa with enhanced convection during the two weeks. However, it shows a less coherent evolution. (Climate Prediction Center /NCEP, 2019 May 27). As MJO contributes to the eastward propagation of low level winds, it can be a favourable condition for convective activities over Maldives area.





Other features that influence variability of weather over Maldives during June include persistent and break of Inter Tropical Convergence Zone (ITCZ), position and strength of the High Pressure system (Mascarene High), location and orientation of monsoon trough, strength of the East-African Jet, Meso-scale Convective Complexes (MCC), Squall lines and localised convective clouds. These systems bring severe thunderstorms and lightning strikes, floods, strong average and gusty winds from westerly direction and consequent moderate to rough seas. Additionally, swell surge is also a phenomenon that sometimes intrude inland and affect fresh water lens, especially when stormy weather coincides with high tide. Moreover, sea state observes to be moderate when currents and winds are in different direction during the seasonal transition of the current.

Apparently, Southwest monsoon onset over southern and central parts on 20th and 24th May respectively and has advanced to northern atolls. During the month of June, rainfall on average accounts for 12%, 08% and 07% of annual rainfall in northern, central and southern atolls respectively.

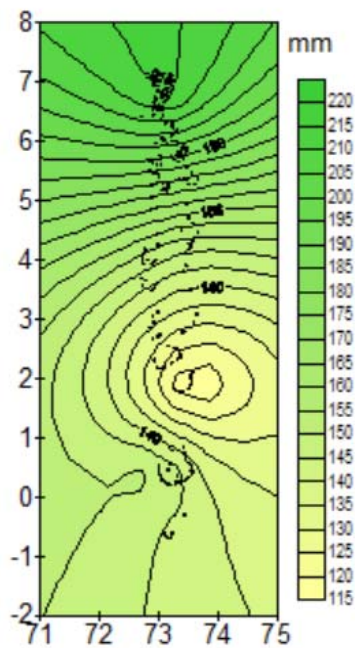


Figure 1: Average rainfall distribution over the country during the month of June

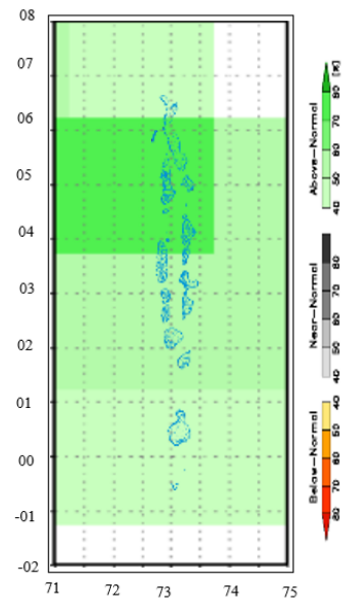


Figure 2: Probability of rainfall departure from mean for the month of June 2019

During June, *Hanimaadhoo* area is observed to receive relatively higher rainfall than rest of the country.

Most of the global models indicate above normal rainfall over southern and central atolls during June, northern atolls have equal chances for above-normal and below-normal rainfall. Additionally,



Probabilistic Multi-Model Ensemble of WMO lead centres for long-range climate prediction predict above-normal rainfall throughout the country during this month.

Conclusion

By considering establishment of south-west monsoon across the country, expected enhanced phase of MJO over Indian Ocean as well as the dynamical prediction of climate models, above normal rainfall likely to receive throughout the country during June 2019.

References

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