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Satellite Based Rainfall Monitoring
for Maldives

Summary

This poster introduces the satellite based rainfall estimates that is available daily from the CMORPH (Climate Merged Observed and Remotely sensed Precipitation) system. These data are available at a grid of 10 km from 2002 onwards. We have developed a web-based tool to develop interpretive products for the Maldives. Some examples of what this tool and others can produce are shown for one day (to the left) an one location (shown with a red pin to further to the left) and in aggregate by month for one year (below) . These estimates are skillful unless one requires high resolution estimated in space and time. Here, examples of the data, its representation in dekads (3 per month), comparison of current years dekadal rainfall with previous years, dekadal rainfall anomalies and cumulative rainfall deficits and excess over the last 365 days, are presented. The month by month deficits for the last 12 months are also shown.

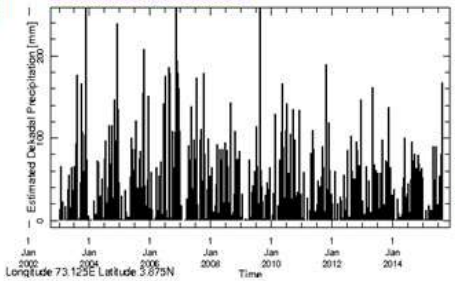
Data Sources

Rainfall data from CMORPH algorithm (NOAA CPC Morphing) which combines satellite based gridded data with available ground observation is used along with bias corrections. The data is available on a 0.1 degree grid (~10 km) at a diurnal, daily time steps. The dekadal and monthly precipitation on a 0.1 x 0.1 degree grid, is obtained by aggregated from daily estimates While the higher resolution RFE rainfall data is available as well for the Maldives North of 5ºN, we have to rely on CMORPH for coverage of Central and Southern Maldives.

The dekadal precipitation estimates have been aggregated from the daily data. Every month has three dekads, such that the first two dekads have 10 days (i.e., 1-10, 11-20), and the third is comprised of the remaining days of the month and varies from 8-11 days.

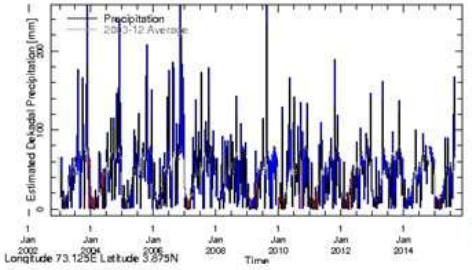
Example of CMORPH precipitation estimates over the Maldives for 8th September 2015.

Dekadal Anomalies



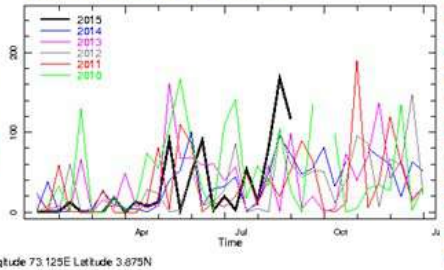
Dekadal precipitation estimates for the selected location from Jan 2002 to the present.*

Time Series



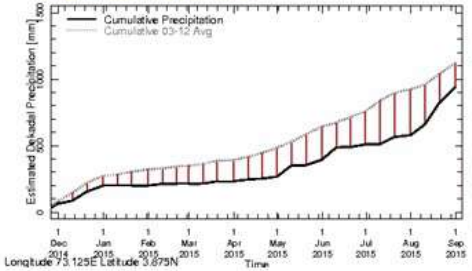
Same as (left) (solid black line) with the addition of the recent short-term average precipitation for the same region (grey dotted line). The blue (red) bars are indicative of estimates that are above (below) the short-term average. Note that the short-term average precipitation data has been smoothed.

Year to Year Comparison



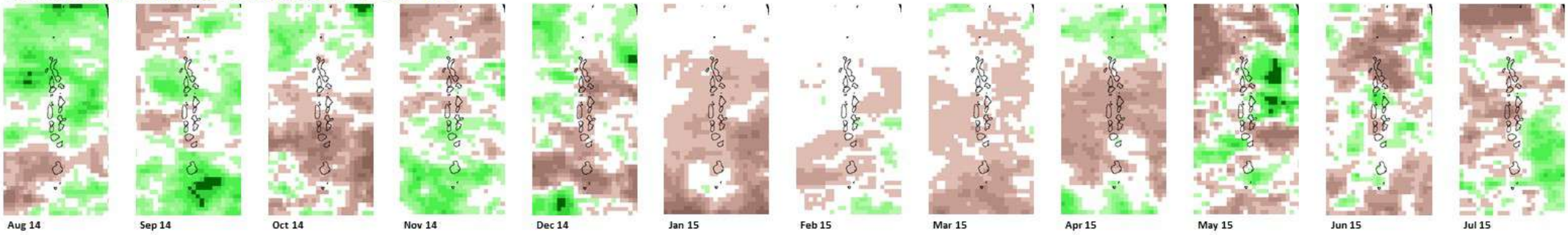
Same as (a) for the current calendar year (thick black line), as indicated by the axis labels. Precipitation estimates from previous years are also shown. (blue- 1 year from present; magenta- 2 years from present; grey- 3 years from present; red- 4 years from present; green- 5 years from present).

Cumulative Rainfall

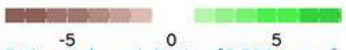


Cumulative dekadal satellite-derived precipitation estimates (solid black line) and the cumulative recent short-term average precipitation (grey dotted line) for the most recent 12-month period in the selected region. The blue (red) bars are indicative of estimates that are above (below) the short-term average.

Monthly Rainfall Anomalies from August 2014 to July 2015



Monthly rainfall anomalies for Maldives and surrounding seas from August 2014 to July 2015. The anomalies are estimated from the current month's rainfall and the long term average from 2002 to 2012.



Estimated precipitation [0.024 meter]

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