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Climate Monitoring and Prediction for the Maldives – September2017

Prepared by Staff from Foundation for Environment, Climate and Technology, Sri Lanka and USA, Maldives Meteorological Service, and Columbia University
(Ruchira Lokuhetti, Lareef Zubair, Janan Visvanathan, Zahid and Michael Bell)

November 6, 2017

PACIFIC SEAS STATE

October 19, 2017

In mid-October 2017, the tropical Pacific remained in an ENSO-neutral state but near the borderline of weak La Niña, as SSTs in the east-central tropical Pacific have cooled to the threshold for La Niña and the atmosphere has also shown patterns suggestive of near-La Niña conditions. The collection of latest ENSO prediction models indicates weak La Niña as a likely scenario during Northern Hemisphere fall and winter. The official CPC/IRI outlook favors La Niña development, and carries a La Niña watch.
(Text Courtesy IRI)

INDIAN OCEAN STATE

October 25, 2017

0.5 ^{0}C above average SST was observed around Maldives.

MJO INDEX

The MJO was in Phase 4 from 8-11 Oct, and was significant in Phase 5 from 12-19 Oct; in Phase 6 from 20-22 Oct and in Phase 7 from 24-31 Oct.

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Highlights

Monitored: *During October, the whole country received below average rainfall. The cumulative rainfall deficit over the last year compared to the average annual cumulative rainfalls since 2003 has been increased to 9% in the Northern and to 10% in the Southern and Central Islands. The Northern Islands have a deficit by 200 mm; and the Southern islands by 180 mm.*
The sea surface temperature around Maldives is 0.5 ^{0}C above average.

Predictions: *IMD GFS model predicts up to 40 mm of rainfall in the central islands in the coming week. El Nino prediction models suggest of ENSO-neutral conditions for the coming months. Long Range Weather prediction models simulations anticipate total rainfall up to 75 mm in southern islands this next week.*

Summary

CLIMATOLOGY

Monthly Climatology: In November, the whole country usually receives up to 200 mm rain. Wind is westerly. Usually in December, northern islands receive up to 150 mm while central and southern islands receive up to 200 and 250 mm rain respectively. Northern islands get north easterly wind while southern islands get northerly wind. In January northern islands receive up to 50 mm rain while central and southern islands receive up to 100mm and 250 mm rain respectively. Wind is north easterly.

MONITORING

Weekly Rainfall Monitoring:

Date	Rainfall
21st October 2017	Up to 50 mm in a few northern islands.
22nd - 24th October 2017	No Rainfall.
25th October 2017	Up to 10 mm in a few southern islands.
26th- 28th October 2017	No Rainfall.
29th October 2017	Up to 10 mm in a few northern and central islands.
30th October 2017	Up to 20 mm in a few central islands and up to 10 mm in northern islands.
31st October 2017	Up to 50 mm in a few northern islands and up to 30 mm in central islands.
1st November 2017	Up to 100 mm in a few central islands and up to 30 mm in northern islands.
2nd November 2017	Up to 15 mm in northern islands and up to 10 mm in southern islands.

Monthly and Seasonal Rainfall Monitoring: In October, southern islands received up to 180 mm below average rainfall; and northern and central islands up to 150 mm. The whole country received up to 50 mm of total rainfall during this period.

PREDICTIONS

Weekly Rainfall Forecast: According to IMD GFS model up to 40 mm of rain is expected during November 7-10 in the southern islands; and up to 20 mm and 10 mm in central and northern islands respectively. On the 11th and 12th central islands expected to receive up to 20 mm of rainfall and northern and southern islands up to 10 mm.

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   a. Daily Satellite derived Rainfall Estimates
   b. Monthly Rainfall derived from Satellite Rainfall Estimate
   c. Monthly and Seasonal Monitoring
2. Ocean Surface Monitoring
3. Rainfall Predictions
   a. Weekly Predictions from NOAA/NCEP
   b. Seasonal Predictions from IRI[1]

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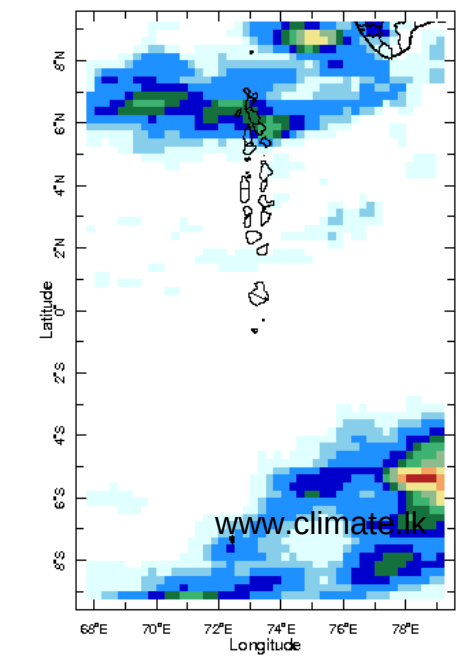
Daily Rainfall Monitoring

The following figures show the observed rainfall in the last 15 days in Maldives.



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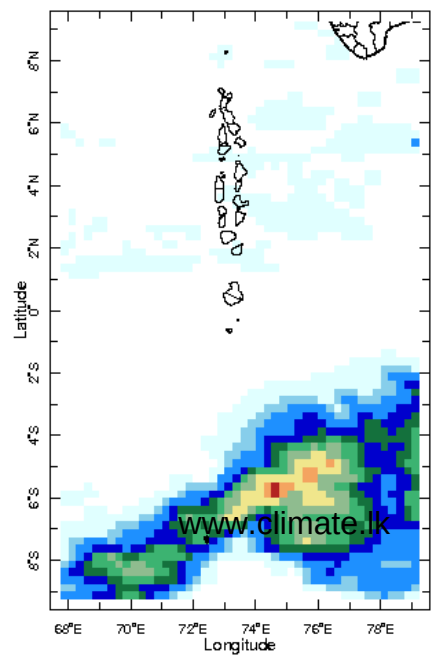

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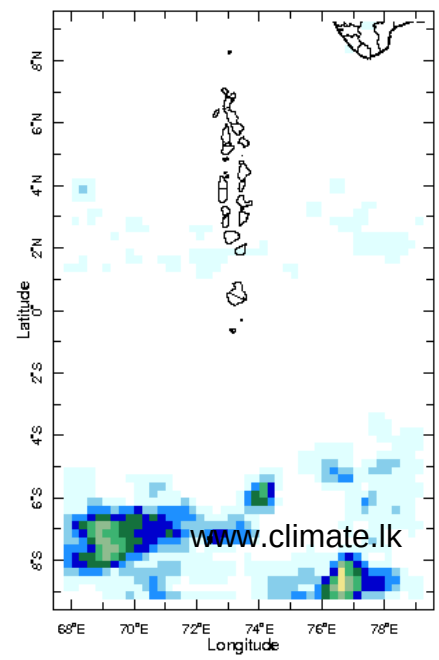

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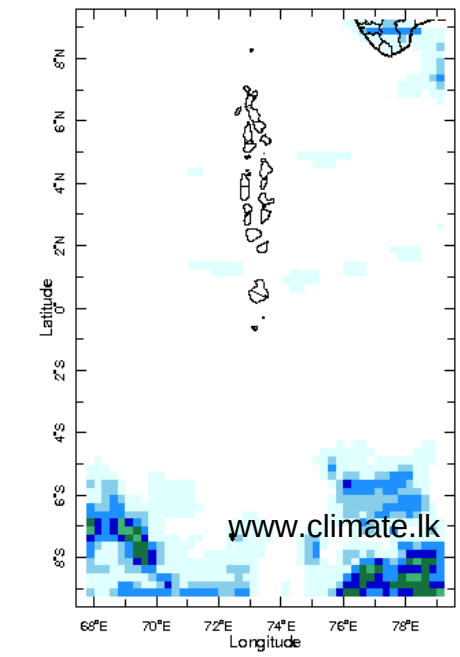

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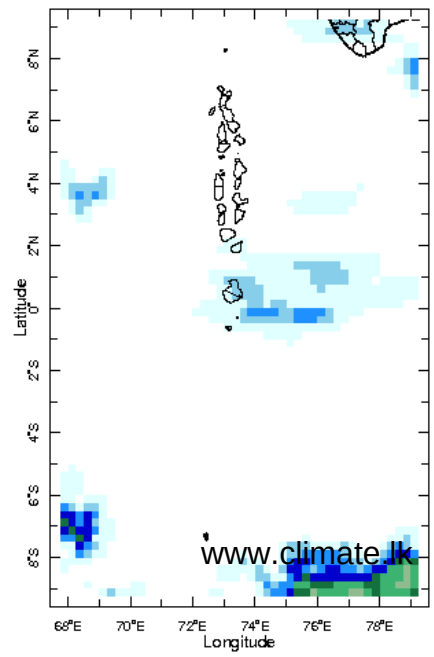

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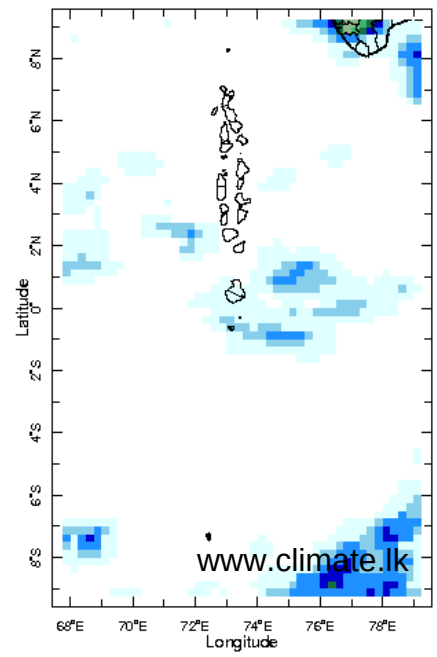

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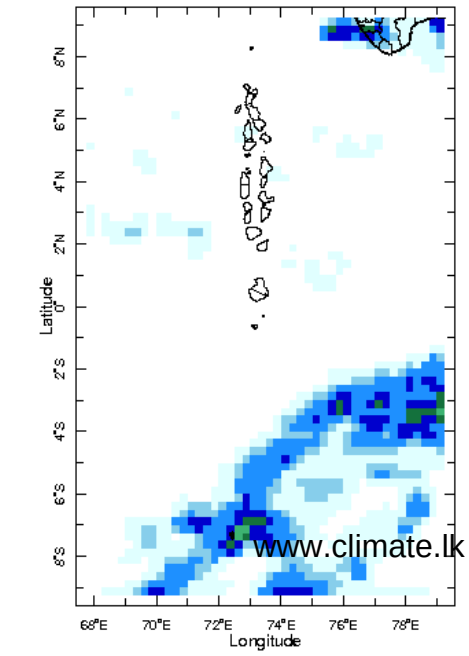

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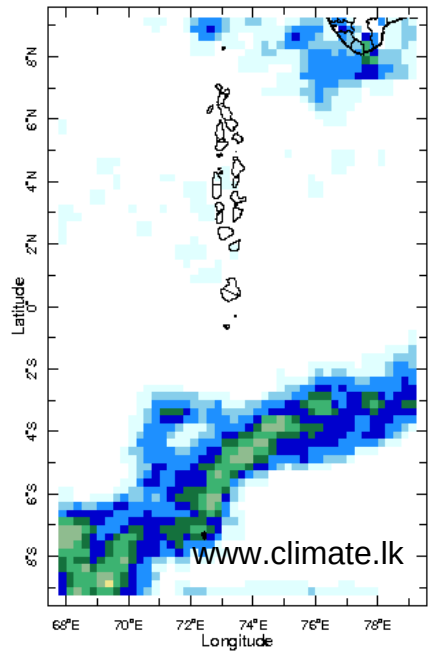

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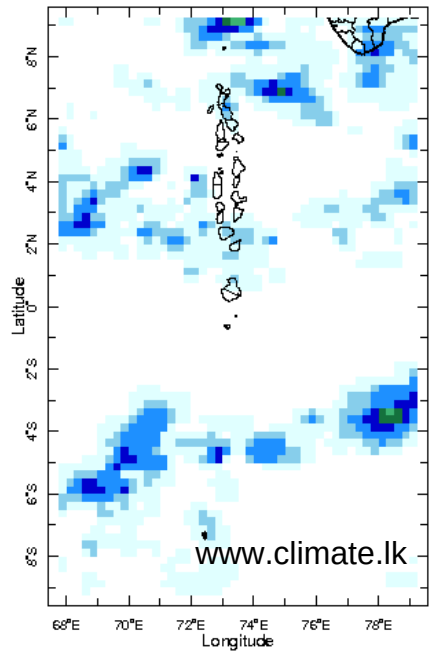

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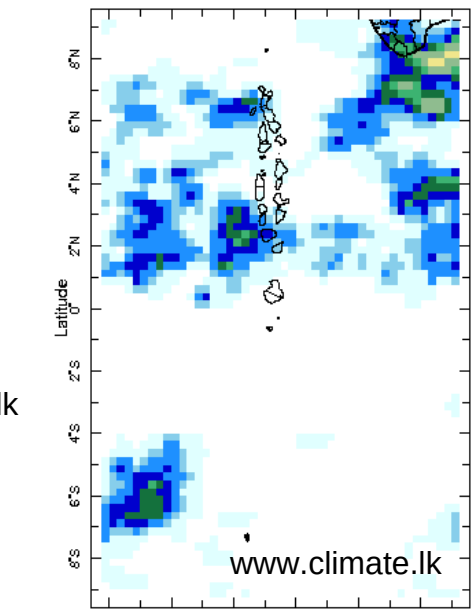

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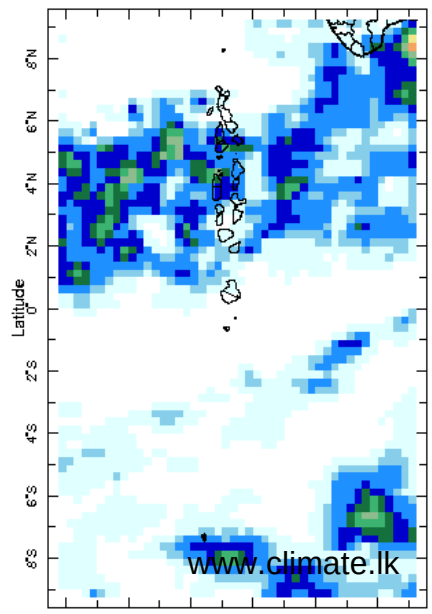

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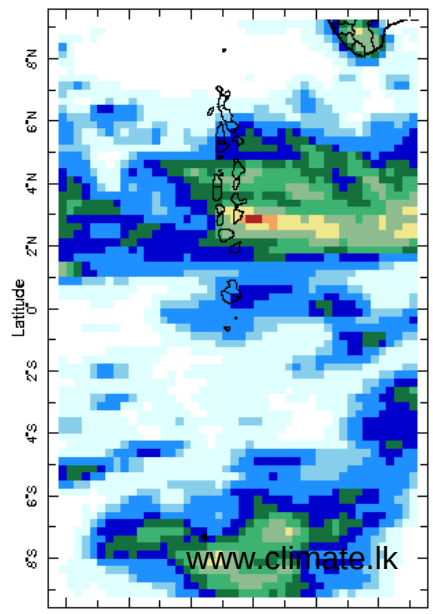

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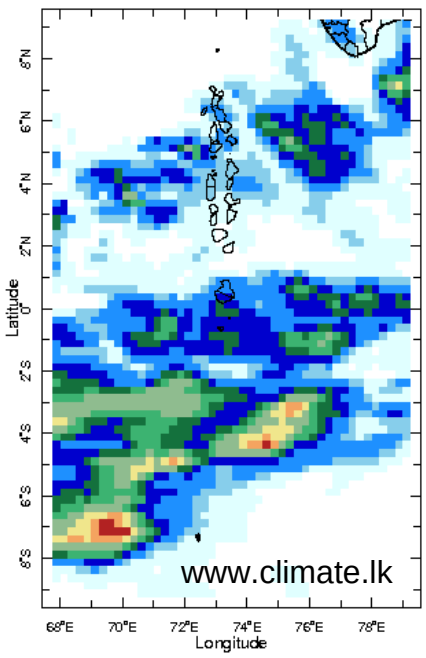

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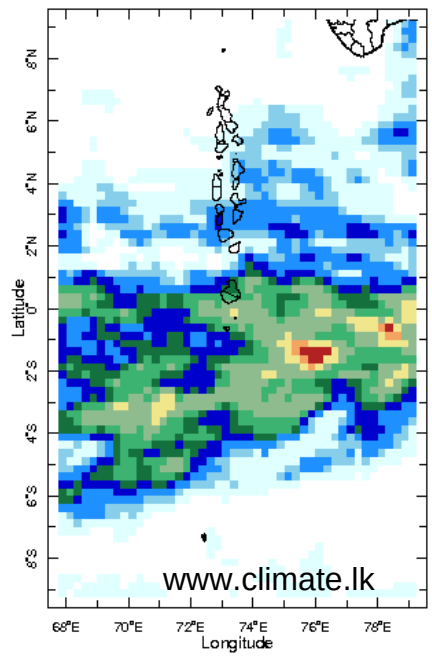

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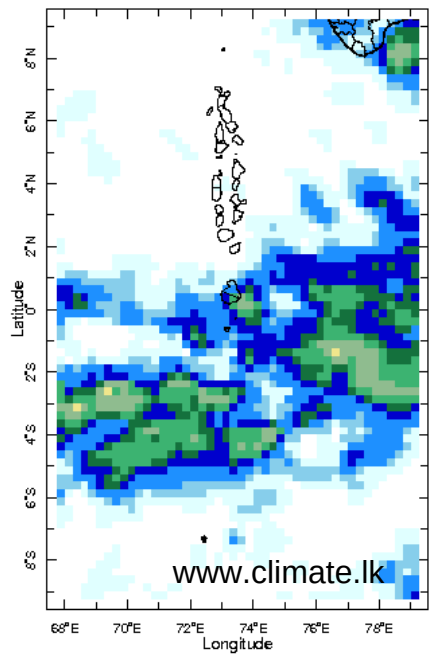

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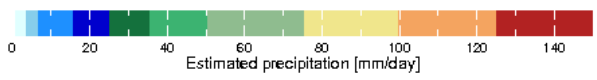

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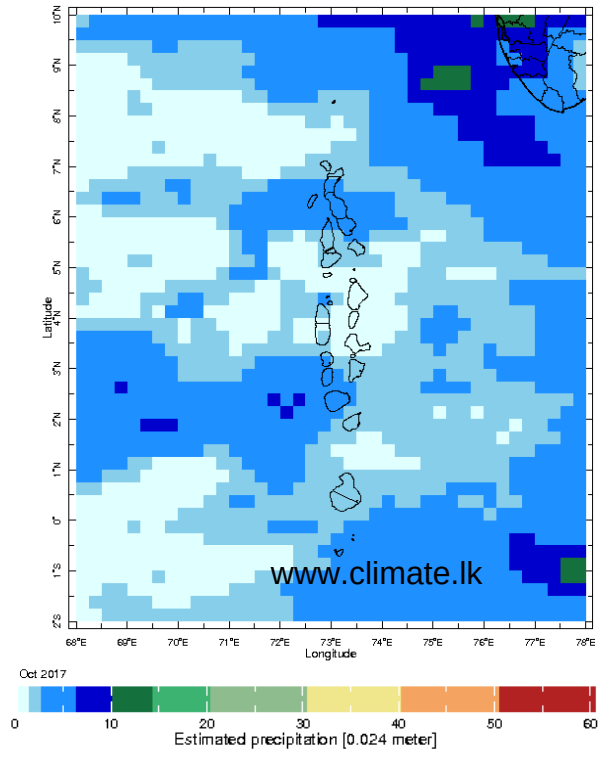
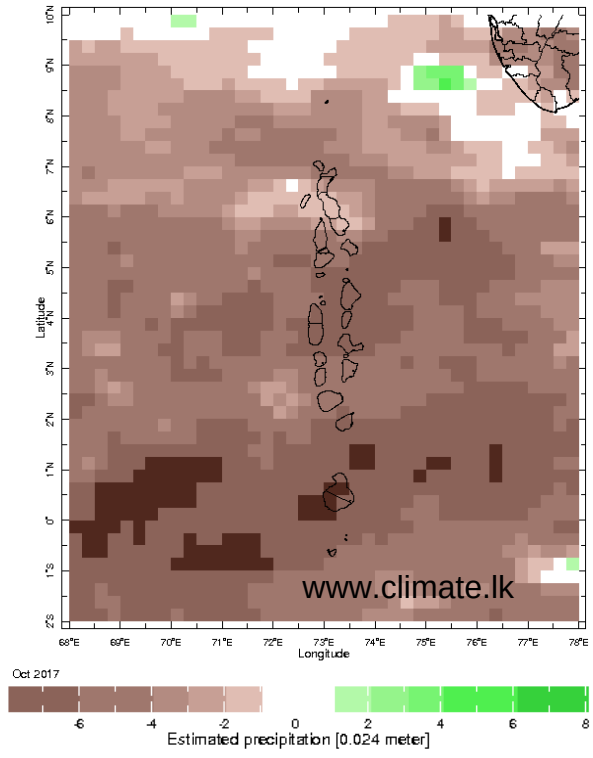
Monthly Rainfall Monitoring

The figure in the left shows the average observed rainfall in the previous month. The rainfall anomaly in the previous month is shown in the figure to the right. The brown color in the anomaly figure shows places which received less rainfall than the historical average while the green color shows places with above average rainfall. Darker shades show higher magnitudes in rainfall



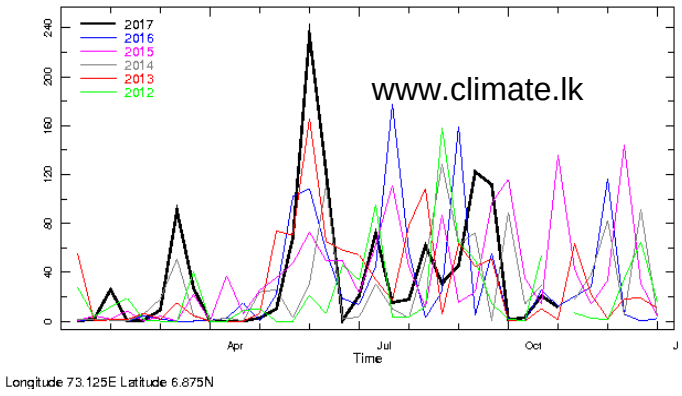
Monthly Average



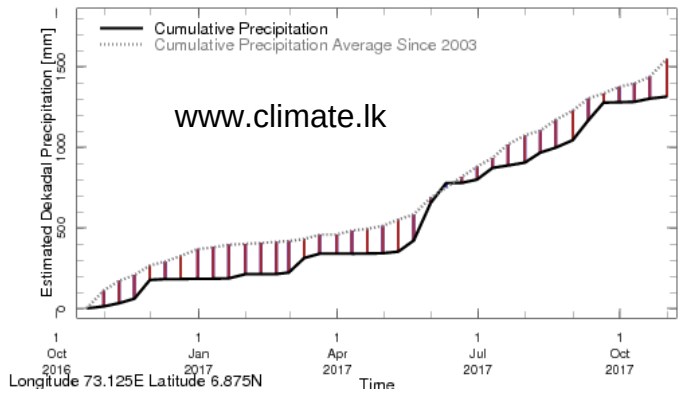
Monthly Anomaly

Monthly and Seasonal Monitoring

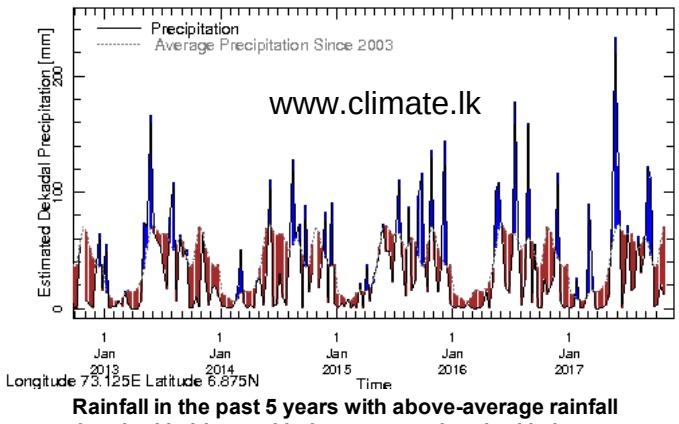
Northern Maldives:



Rainfall in the current year (black) compared to rainfall in previous 5 years

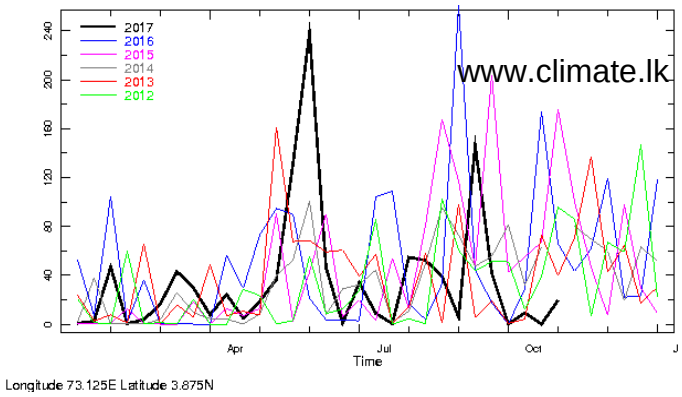


Rainfall of past 365 days (black) compared to average rainfall since 2003.

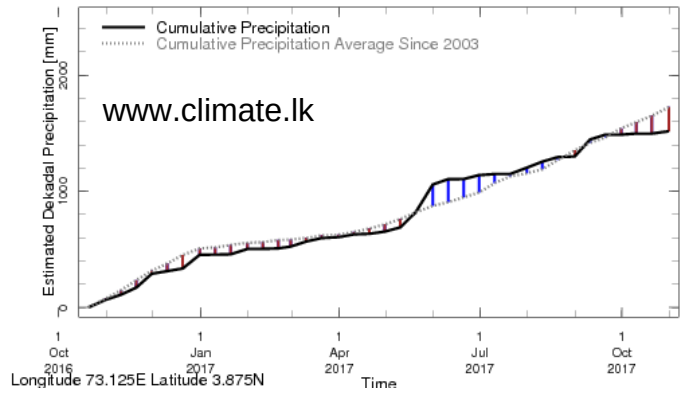


Rainfall in the past 5 years with above-average rainfall hatched in blue and below-average hatched in brown

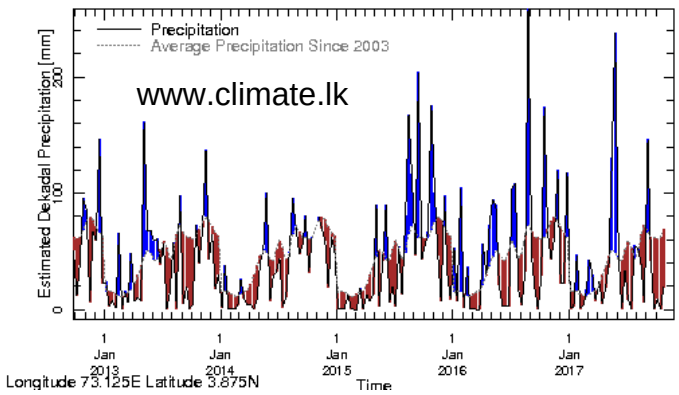
Central Maldives:



Rainfall in the current year (black) compared to rainfall in previous 5 years

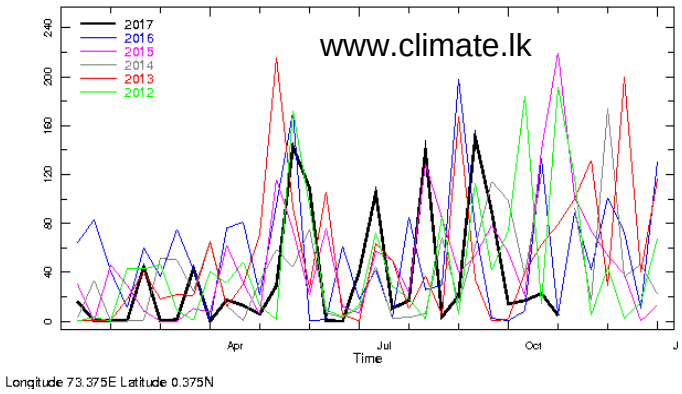


Rainfall of past 365 days (black) compared to average rainfall since 2003.

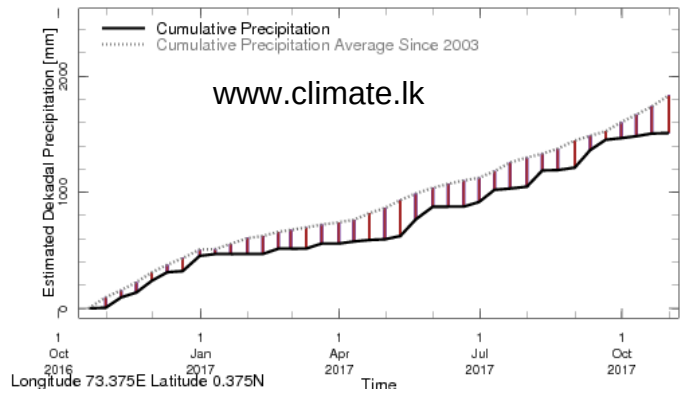


Rainfall in the past 5 years with above-average rainfall hatched in blue and below-average hatched in brown

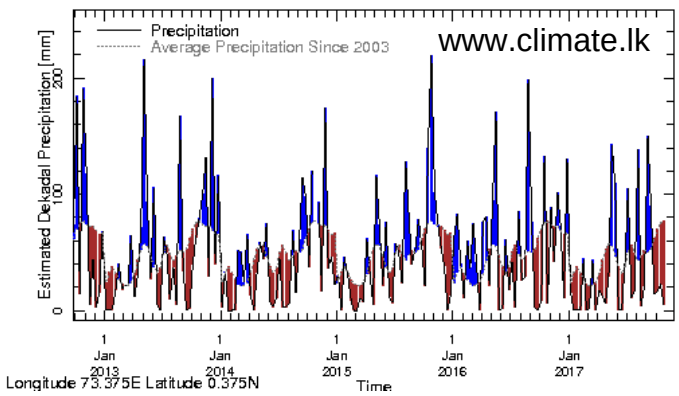
Southern Maldives:



Rainfall in the current year (black) compared to rainfall in previous 5 years

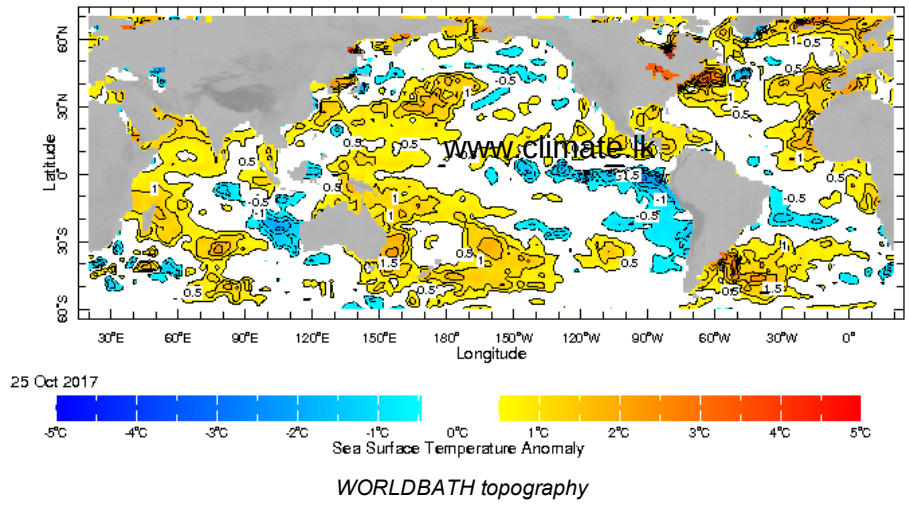


Rainfall of past 365 days (black) compared to average rainfall since 2003.



Rainfall in the past 5 years with above-average rainfall hatched in blue and below-average hatched in brown

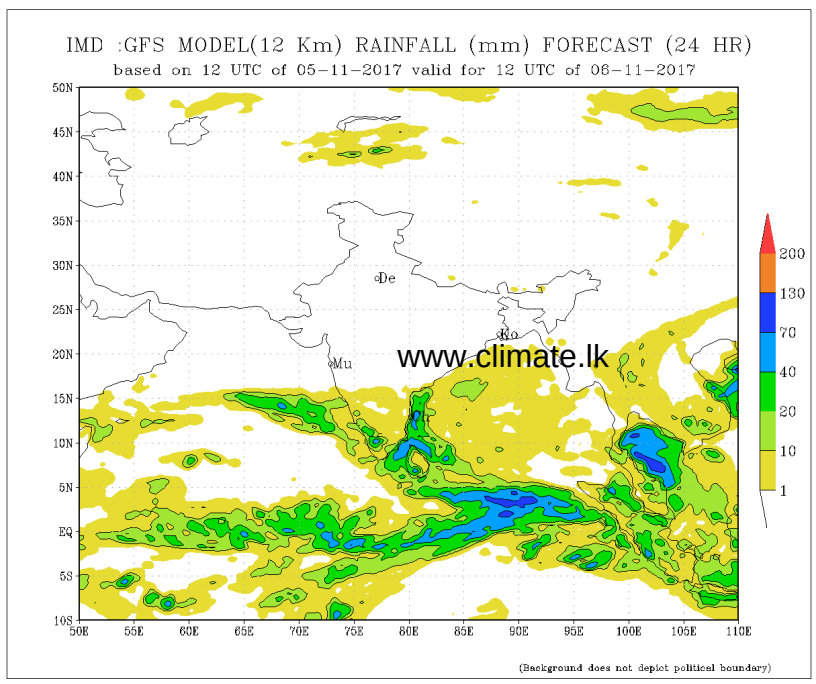
Ocean Surface Monitoring

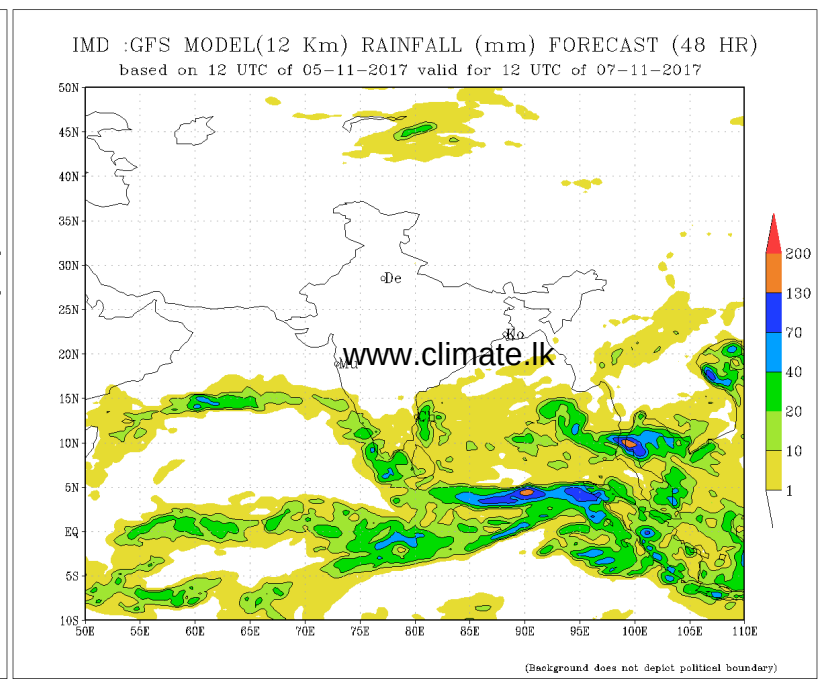


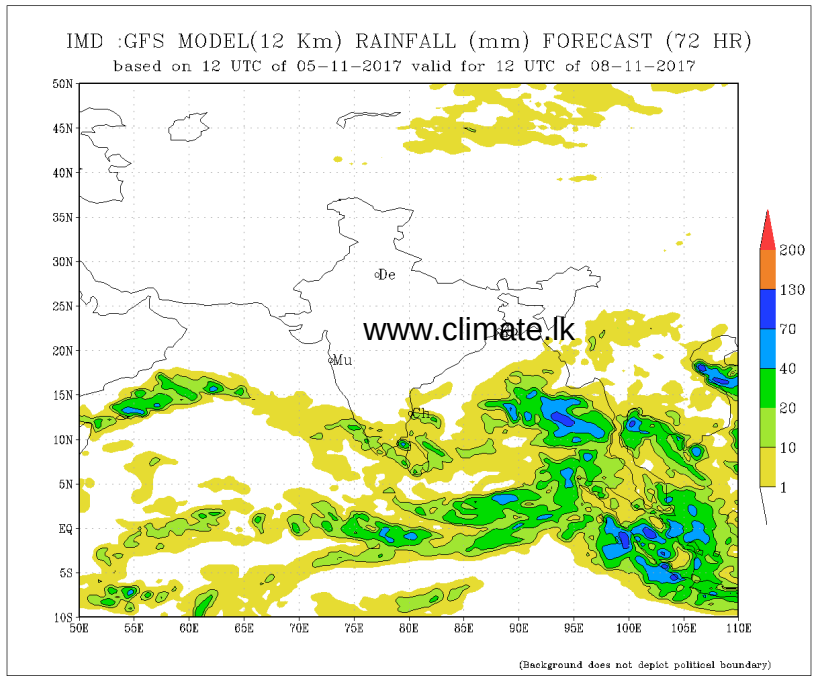
WORLDBATH topography

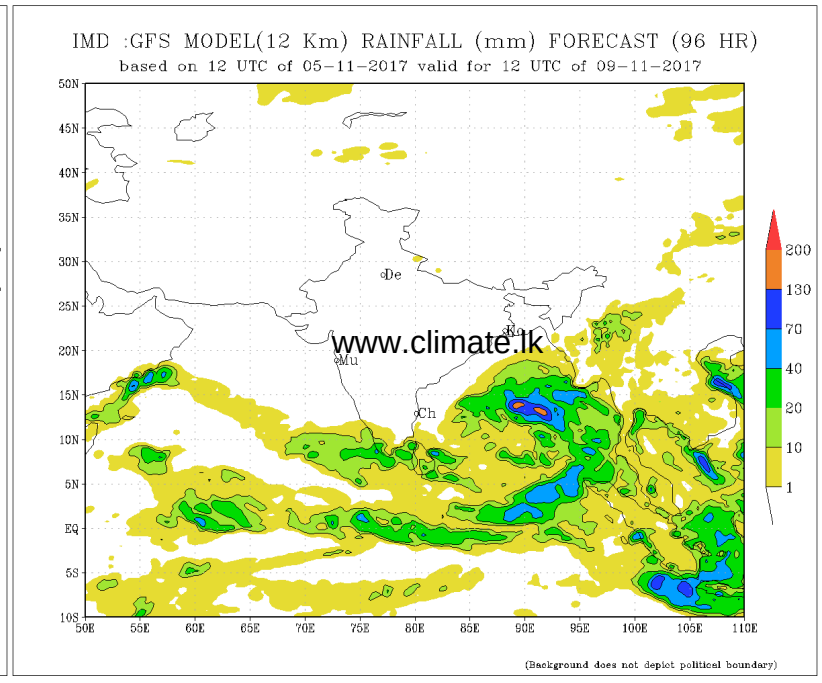
Daily Rainfall Forecast

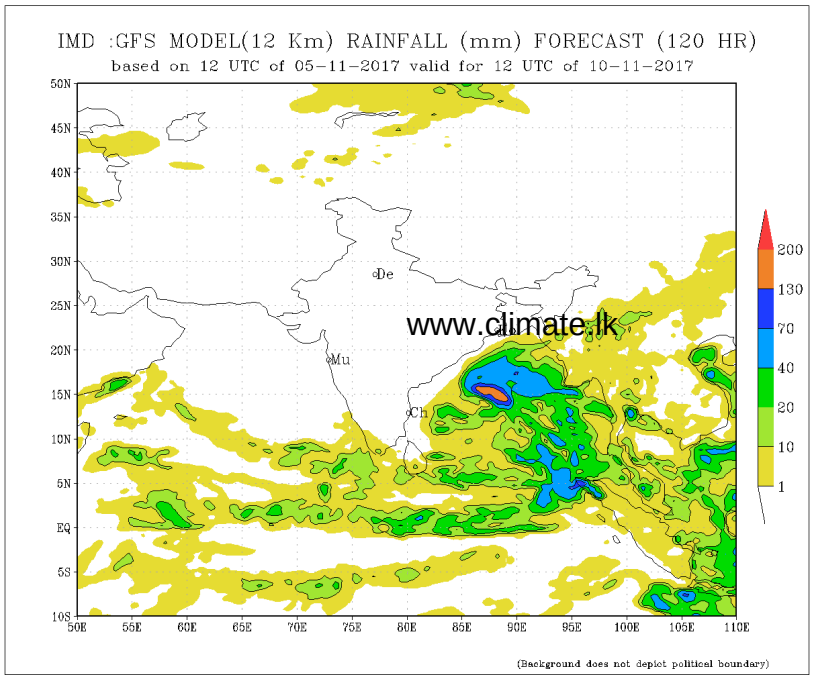
Daily Rainfall forecasts (up to 7 days ahead) from the IMD is provided in figures below. These predictions are from the GFS (T1534) model covering the entire south Asian region.

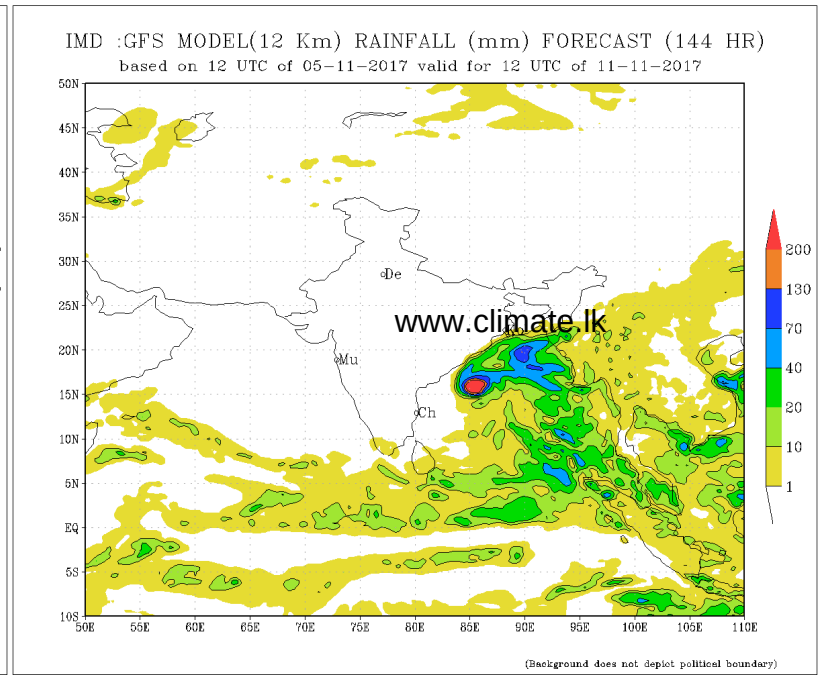


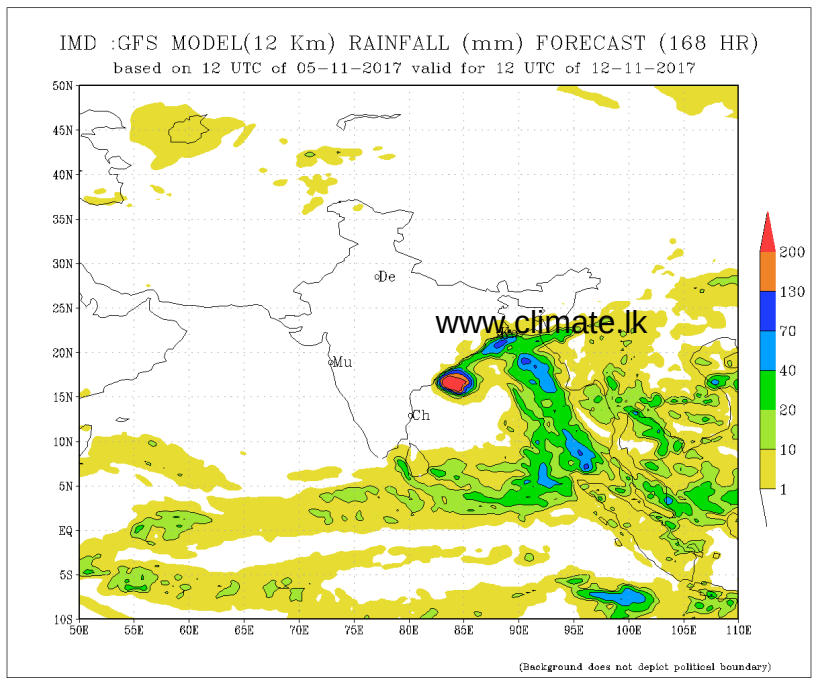






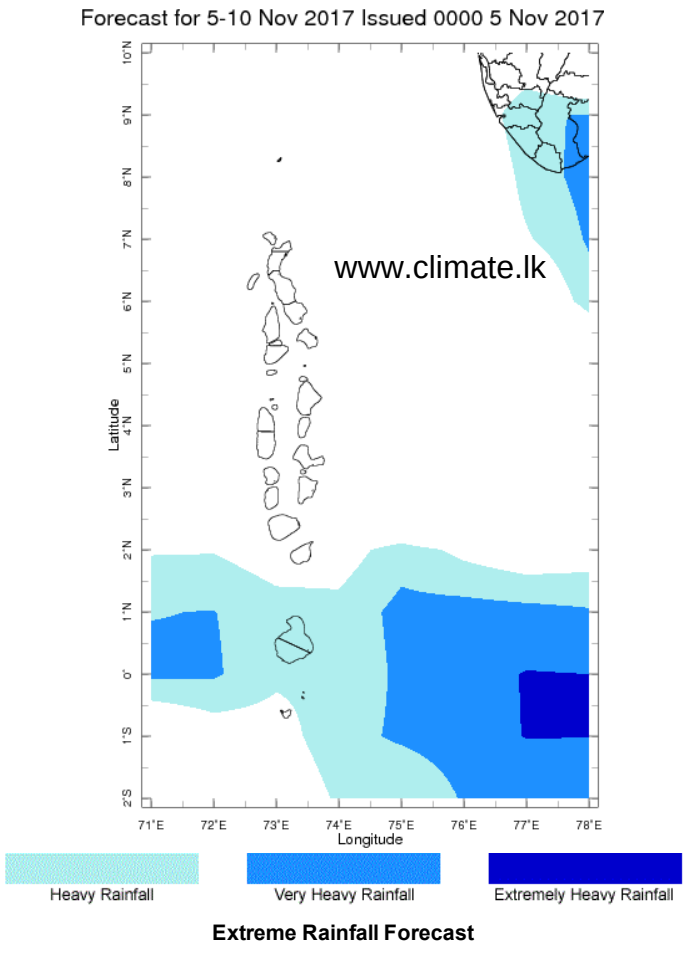




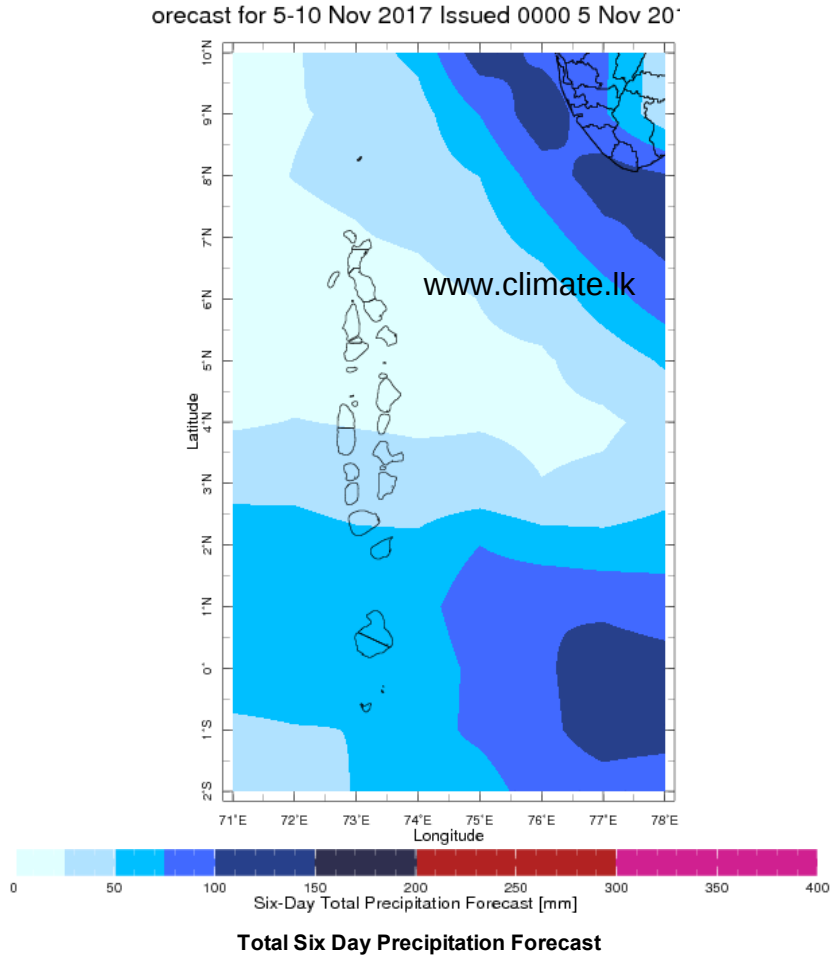


Weekly Rainfall Forecast

Total rainfall forecast from the IRI for next six days is provided in figures below. The figure to the left shows the expectancy of heavy rainfall events during these six days while the figure to the right is the prediction of total rainfall amount during this period.



Extreme Rainfall Forecast



Total Six Day Precipitation Forecast

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