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Climate Monitoring and Prediction for the Maldives – April 2018

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)

May 4, 2018

PACIFIC SEAS STATE

April 19, 2018

The official CPC/IRI outlook calls for a transition from La Niña to neutral conditions during the March-May season, with a further warming tendency later in the year. The latest forecasts of statistical and dynamical models support this scenario.

(Text Courtesy IRI)

INDIAN OCEAN STATE

April 25, 2018

Average SST was observed in seas around Maldives.

MJO INDEX

The MJO was significant in Phase 2 from 12-14 Apr and in Phase 3 from 15-20 Apr. Usually rainfall in Maldives is augmented in Phase 2.

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Highlights

Monitored: *During April, The northern islands received up to 150 mm of total rainfall; central and southern islands up to 450 mm. The cumulative rainfall for the last 365 days shows a significant deficit for the northern islands and an excess for the Southern Islands.*

The sea surface temperature around Maldives is Normal.

Predictions: *IMD GFS model predicts up to 40 mm of daily rain is expected in southern and up to 10 mm in the northern and central islands during May 3rd-4th. Long Range Weather prediction models simulations anticipate total rainfall up to 75 mm for the central and southern islands during April 30th- May 5th. May is a month with a history of turbulent weather in the Maldives with the risks being enhanced by the MJO signal being in phase 2.*

Summary

CLIMATOLOGY

Monthly Climatology: In May, average rainfall is about 200 mm in the entire country. The wind direction is westerly and the speed is higher than in April. The rainfall in northern islands usually increases up to 250 mm in June, while it decreases to 150 mm in southern islands. Wind direction in June is usually easterly but with low speeds. In July, the entire country receives up to 200 mm rainfall and the wind speed and direction does not change.

MONITORING

Weekly Rainfall Monitoring:

Date	Rainfall
19th April 2018	Up to 75 mm in southern and central islands and up to 20 mm in northern islands.
20th April 2018	Up to 100 mm in southern islands and up to 10 mm in central islands.
21st April 2018	Up to 75 mm in central islands and up to 10 mm in southern islands.
22nd– 26th April 2018	No Rainfall.
27th April 2018	Up to 10 mm in central islands.
28th April 2018	Up to 75 mm in central islands and up to 20 mm in the northern and southern islands.
29th April 2018	Up to 20 mm in northern and central islands.
30th April 2018	Up to 5 mm rainfall in central and southern islands.

Monthly and Seasonal Rainfall Monitoring: In April, central and southern islands received rainfall up to 180 mm above the monthly average; and the northern islands up to 90 mm below the average. The northern islands received up to 150 mm of total rainfall; *central and southern islands up to 450 mm.*

PREDICTIONS

Weekly Rainfall Forecast: According to IMD GFS model up to 40 mm of daily rain is expected in southern and up to 10 mm in the northern and central islands during May 3rd-4th. Up to 20 mm of rainfall is expected in the central and southern islands; and up to 10 mm in the northern islands on the 5th and 6th. On the 6th, up to 70 mm rainfall is expected in the central islands; and up to 10 mm in the northern islands. Up to 40 mm of rainfall is expected in the central islands; and up to 10 mm in the northern islands on the 7th. On the 8th, up to 40 mm of rainfall is expected in the central islands; and up to 10 mm in the northern and southern islands.

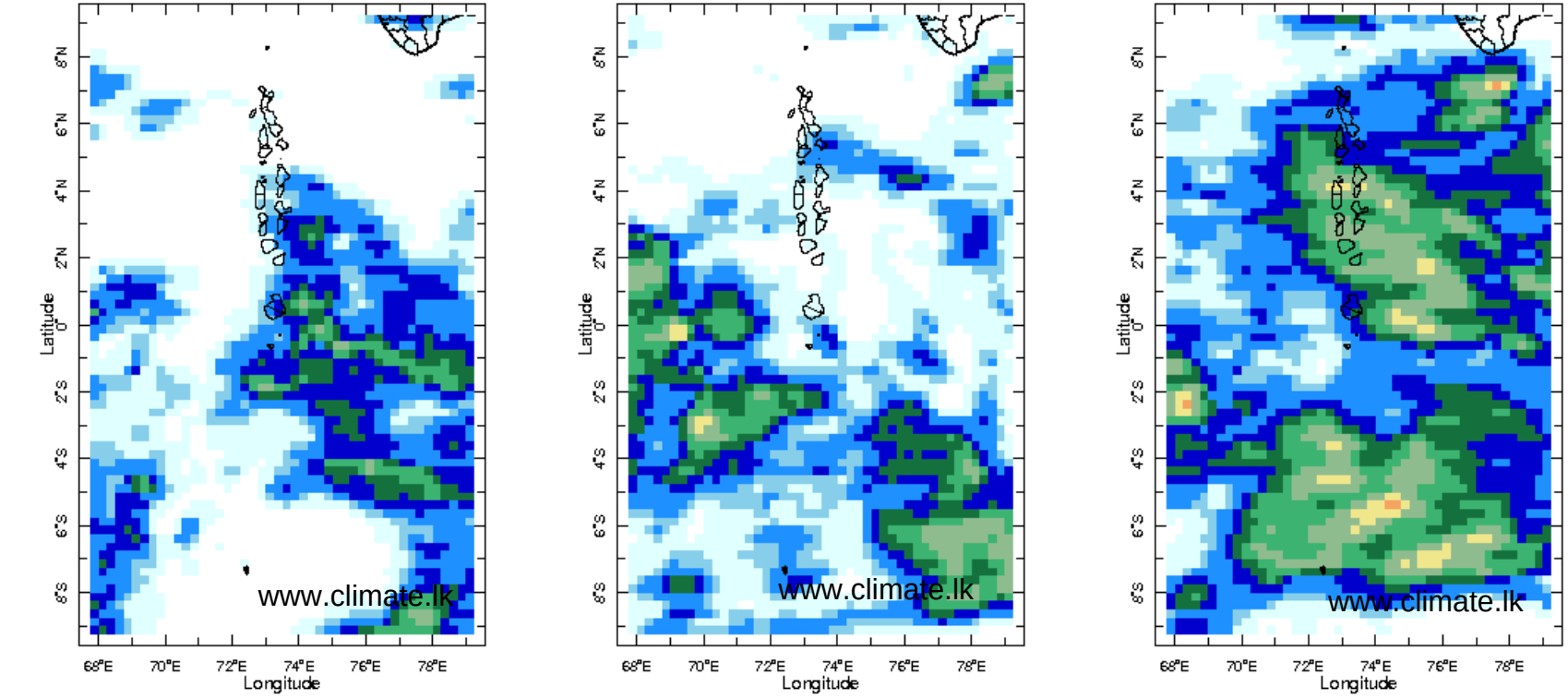
In general the variability of rainfall from year to year is highest in with a greater chance of extremes. Please pay attention to weather predictions – we shall try to update by tweet.

Inside this Issue

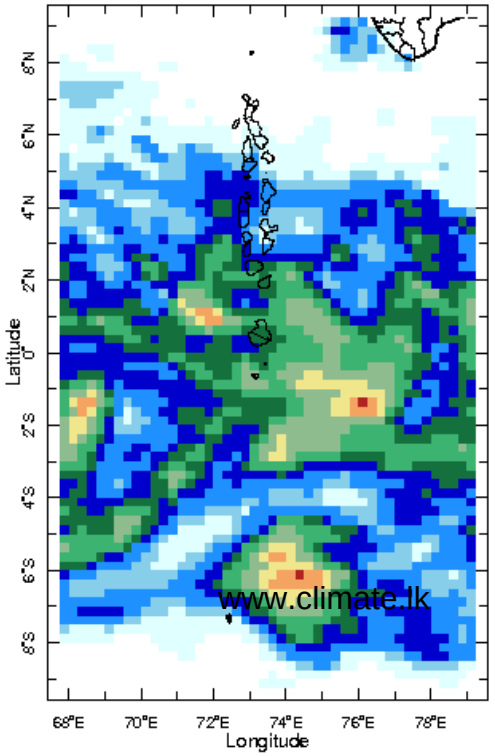
1. Rainfall Monitoring
   a. Daily Satellite derived Rainfall Estimates
   b. Monthly Rainfall derived from Satellite Rainfall Estimate
   c. Monthly and Seasonal Monitoring
2. Ocean Surface Monitoring
3. Rainfall Predictions
   a. Weekly Predictions from NOAA/NCEP
   b. Seasonal Predictions from IRI[1]

Daily Rainfall Monitoring

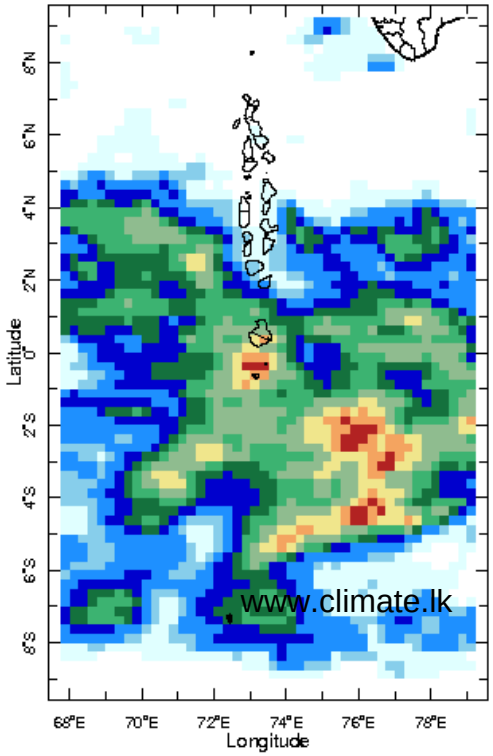
The following figures show the observed rainfall in the last 15 days in Maldives.



16 Apr 2018 17 Apr 2018 18 Apr 2018



19 Apr 2018



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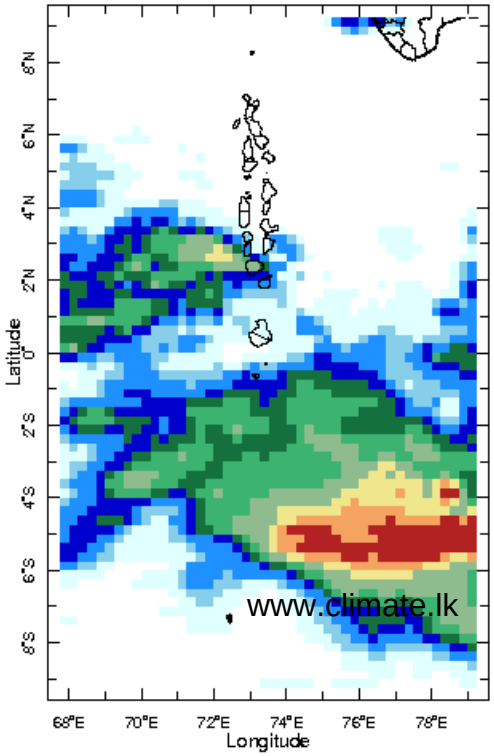

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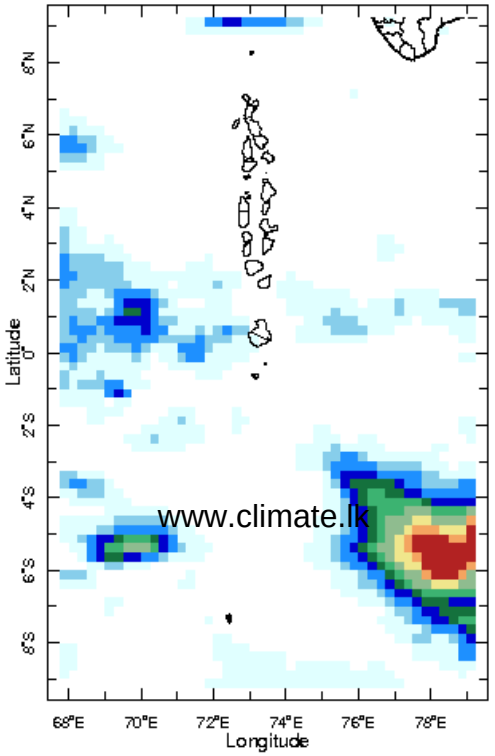

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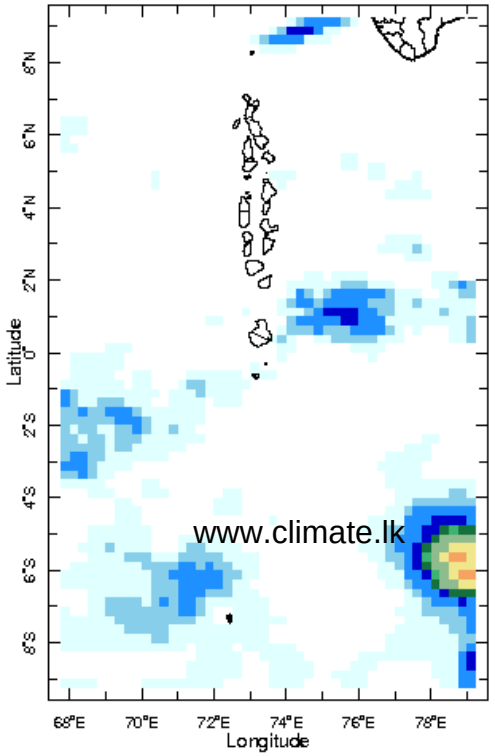

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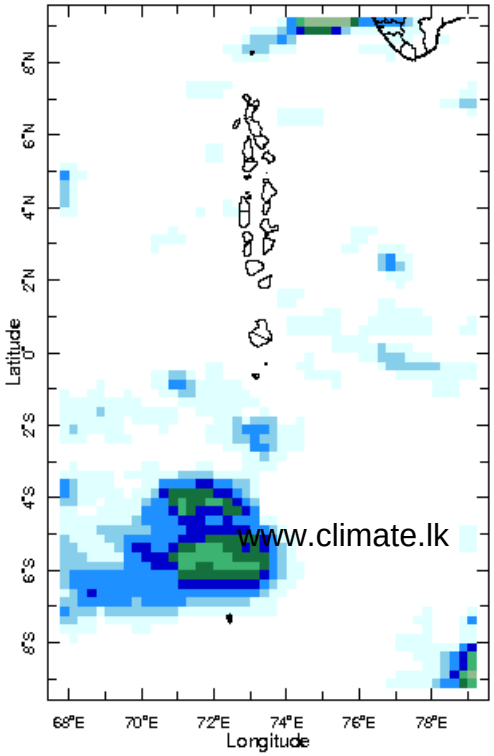

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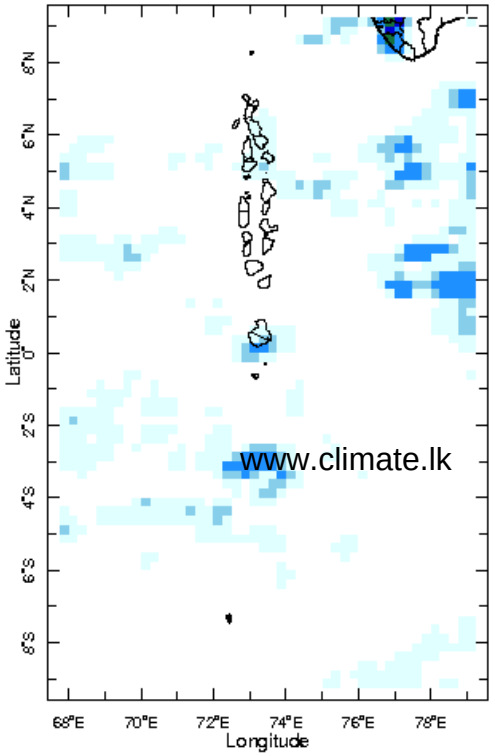

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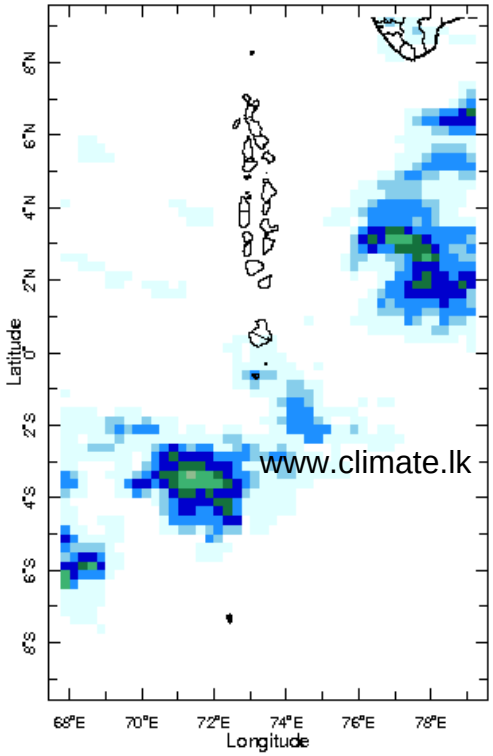

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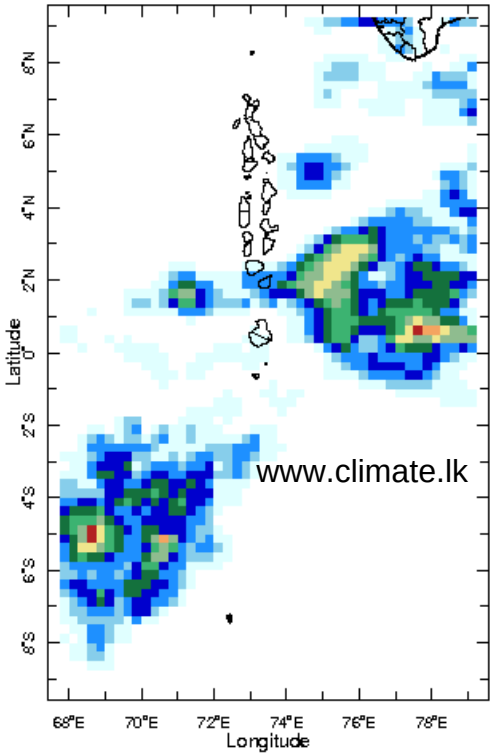
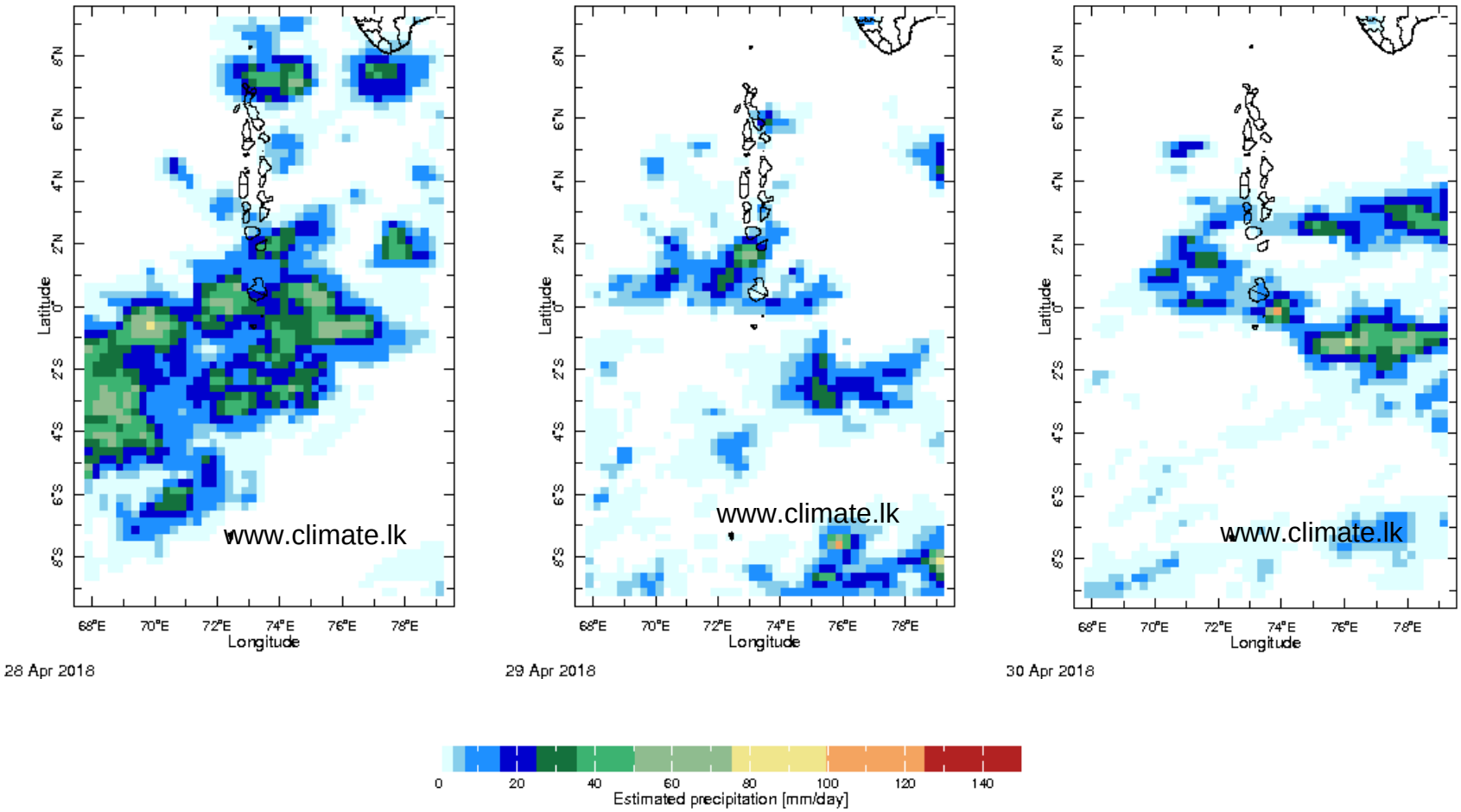


27 Apr 2018


8°N
6°N
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2°S
4°S
6°S
8°S
Latitude
68°E
70°E
72°E
74°E
76°E
78°E
Longitude
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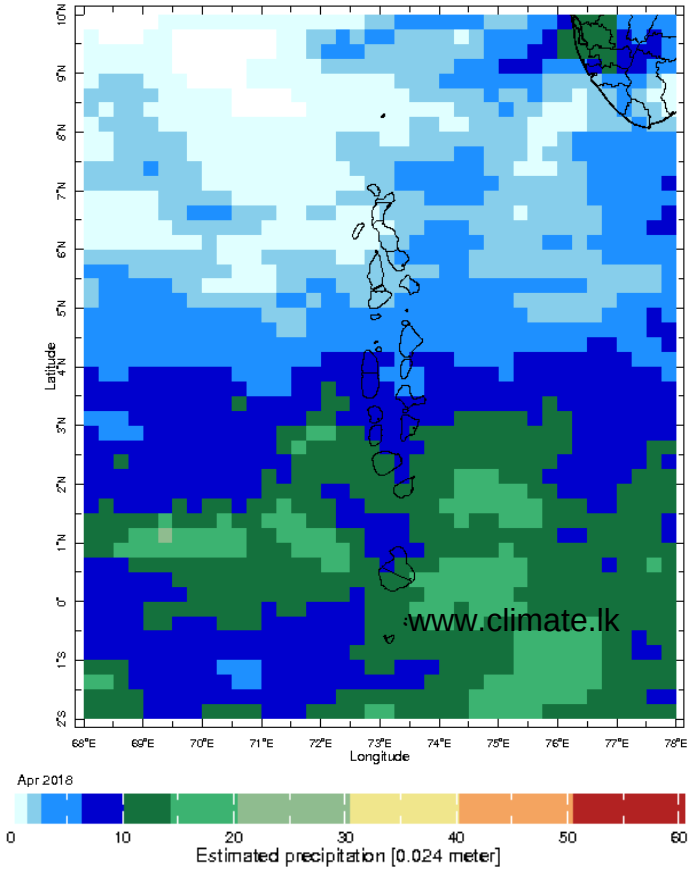
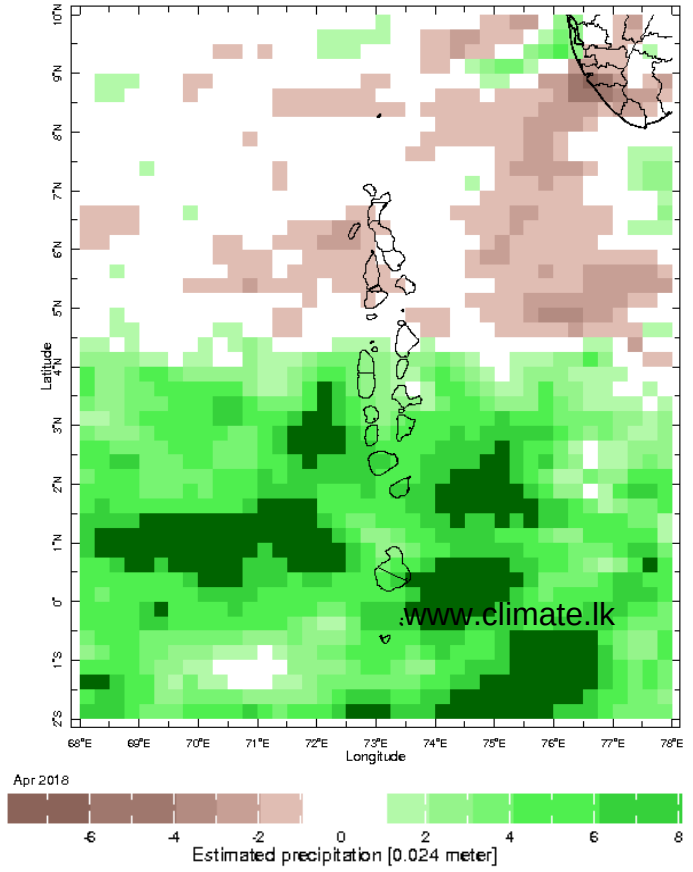
28 Apr 2018
29 Apr 2018
30 Apr 2018
0
20
40
60
80
100
120
140
Estimated precipitation [mm/day]

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



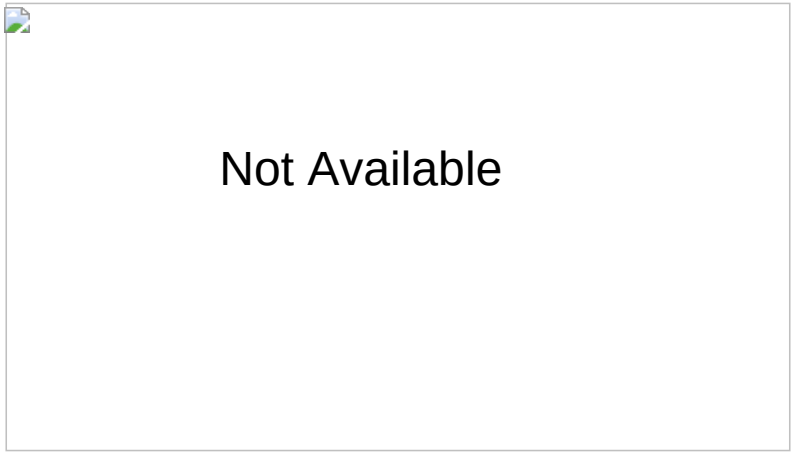
Monthly Average



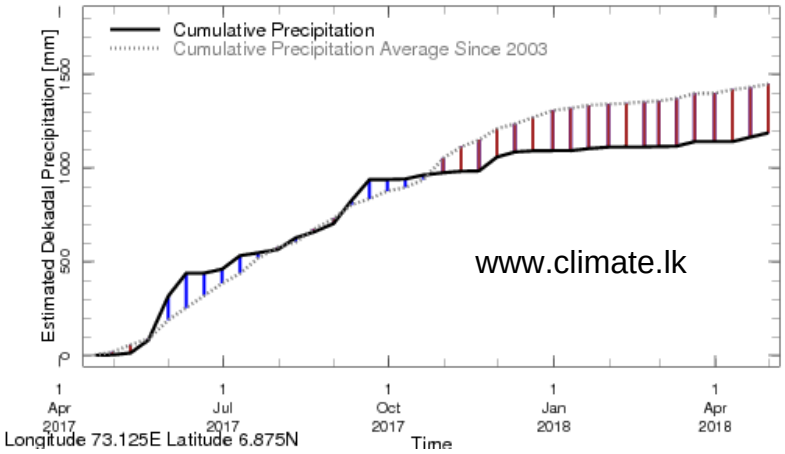
Monthly Anomaly

Monthly and Seasonal Monitoring

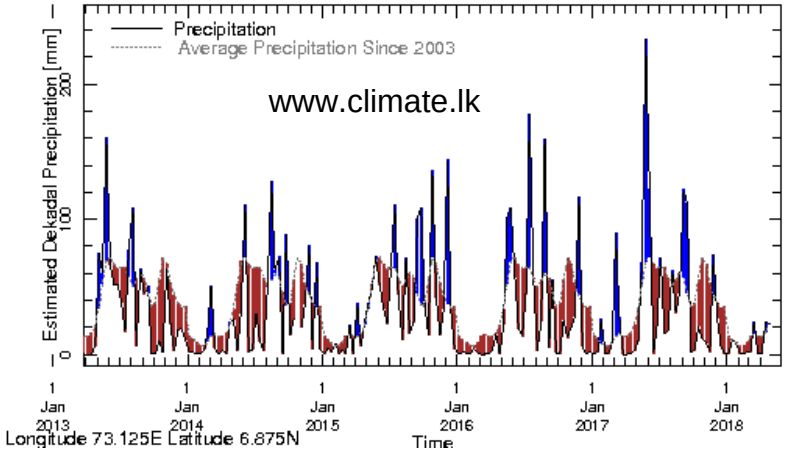
Northern Maldives:



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.

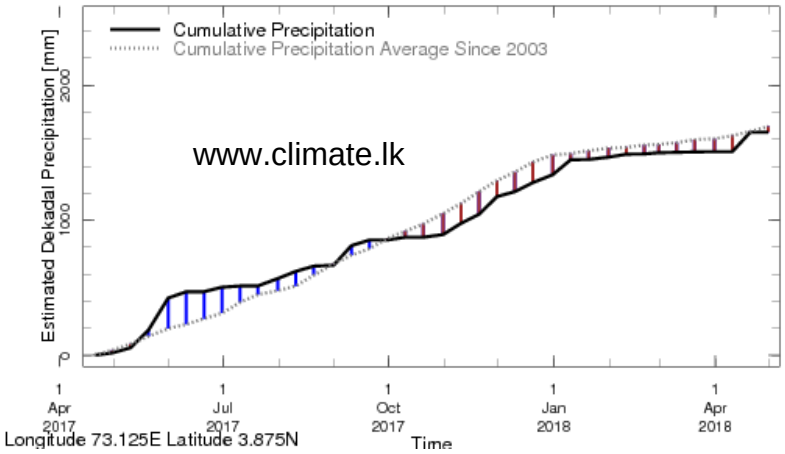


Rainfall in the past 5 years with above-average rainfall hatched in blue and below-average hatched in brown

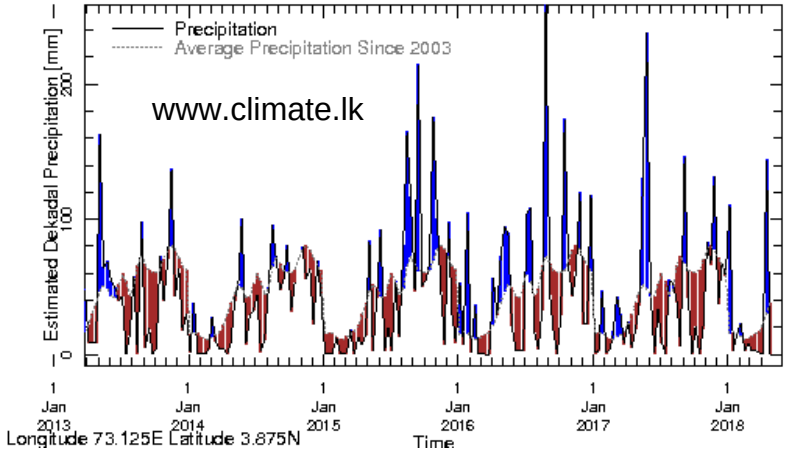
Central Maldives:

Not Available

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

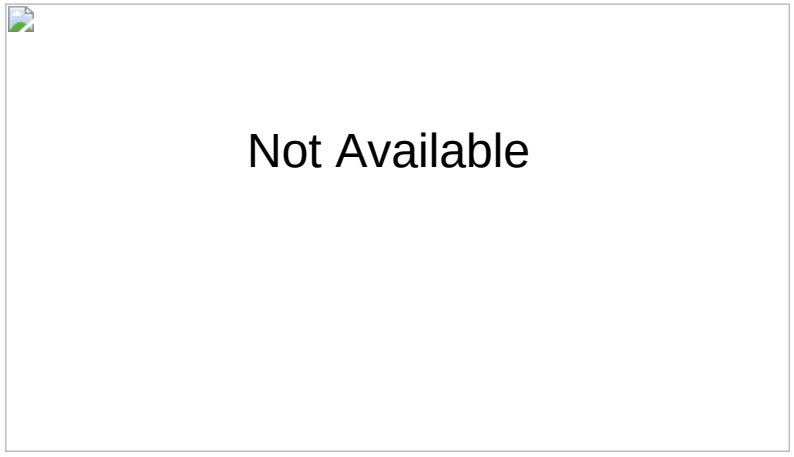


Rainfall of past 365 days (black) compared to average rainfall since 2003.

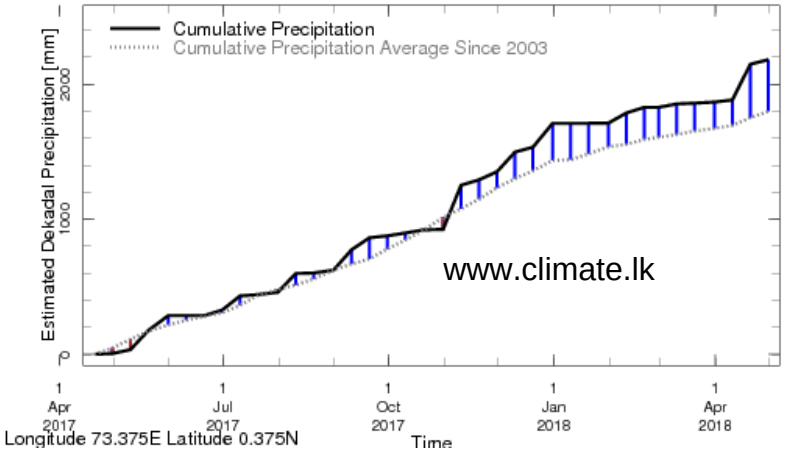


Rainfall in the past 5 years with above-average rainfall hatched in blue and below-average hatched in brown

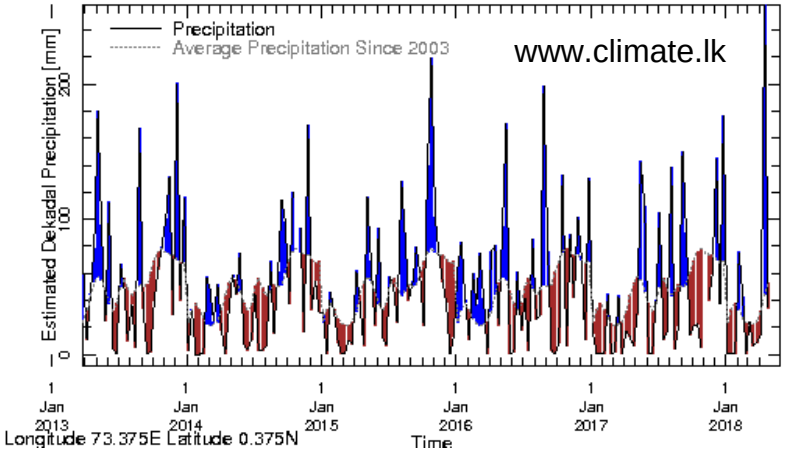
Southern Maldives:



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

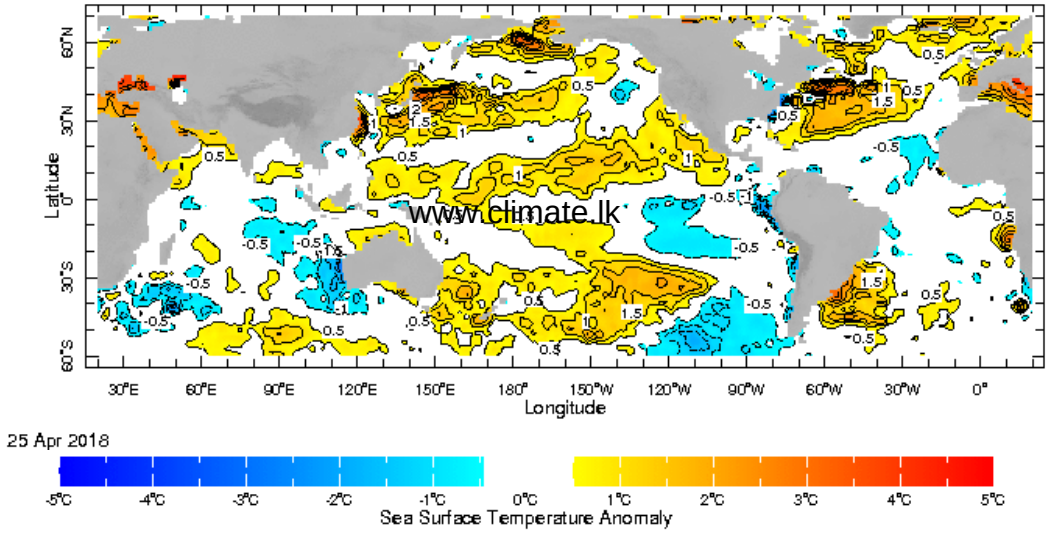


Rainfall of past 365 days (black) compared to average rainfall since 2003.



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

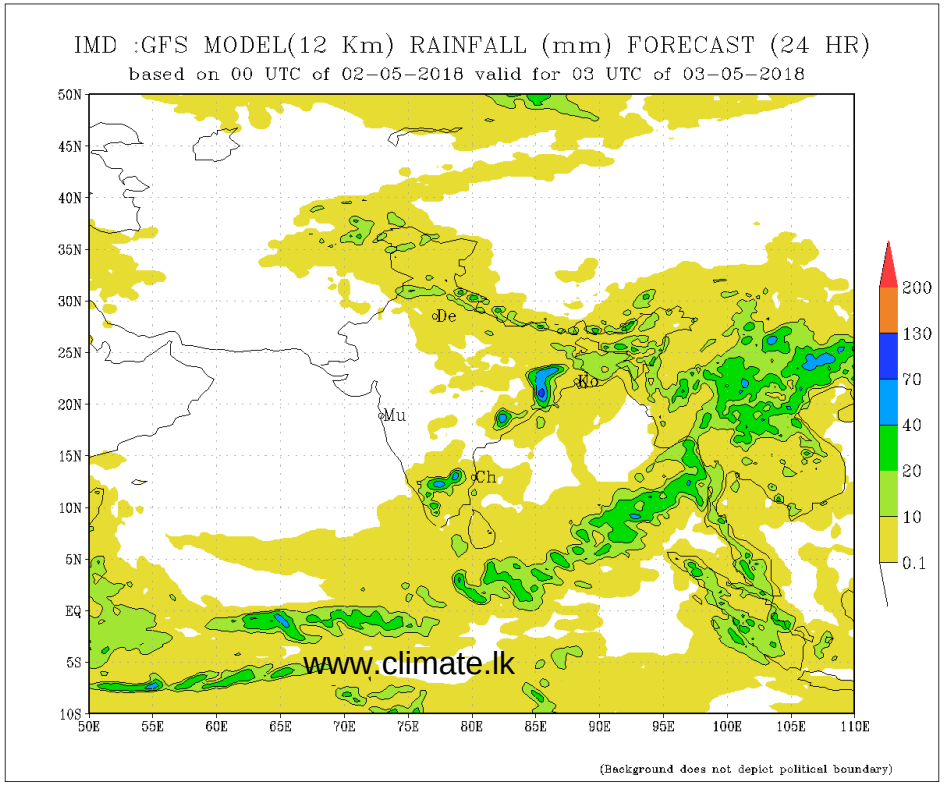
Ocean Surface Monitoring

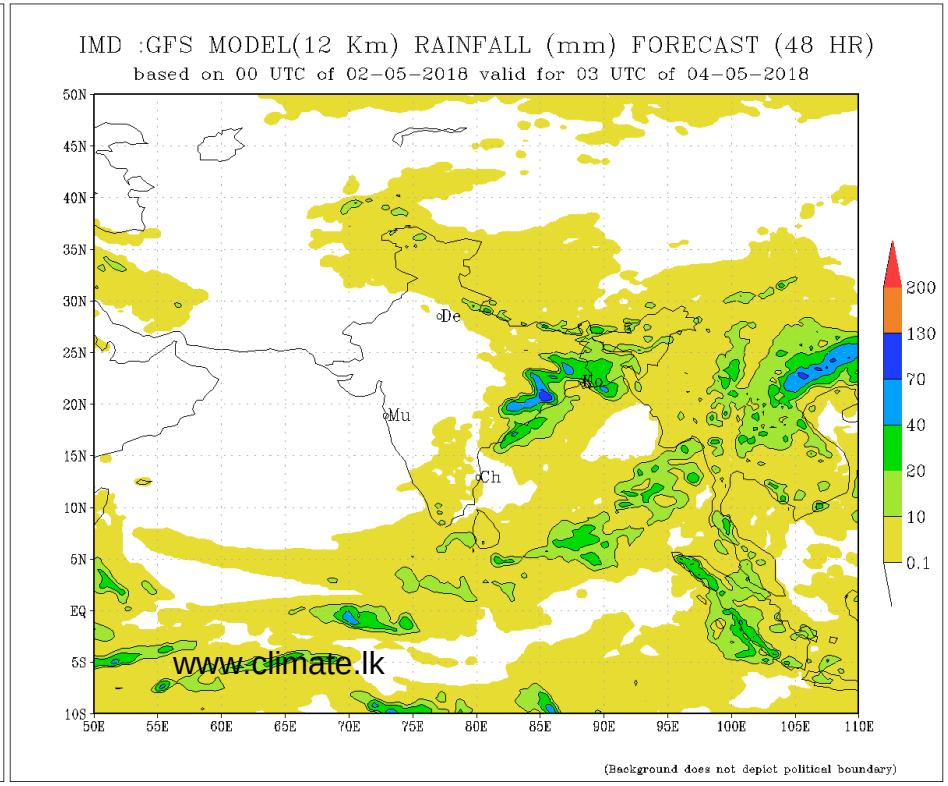


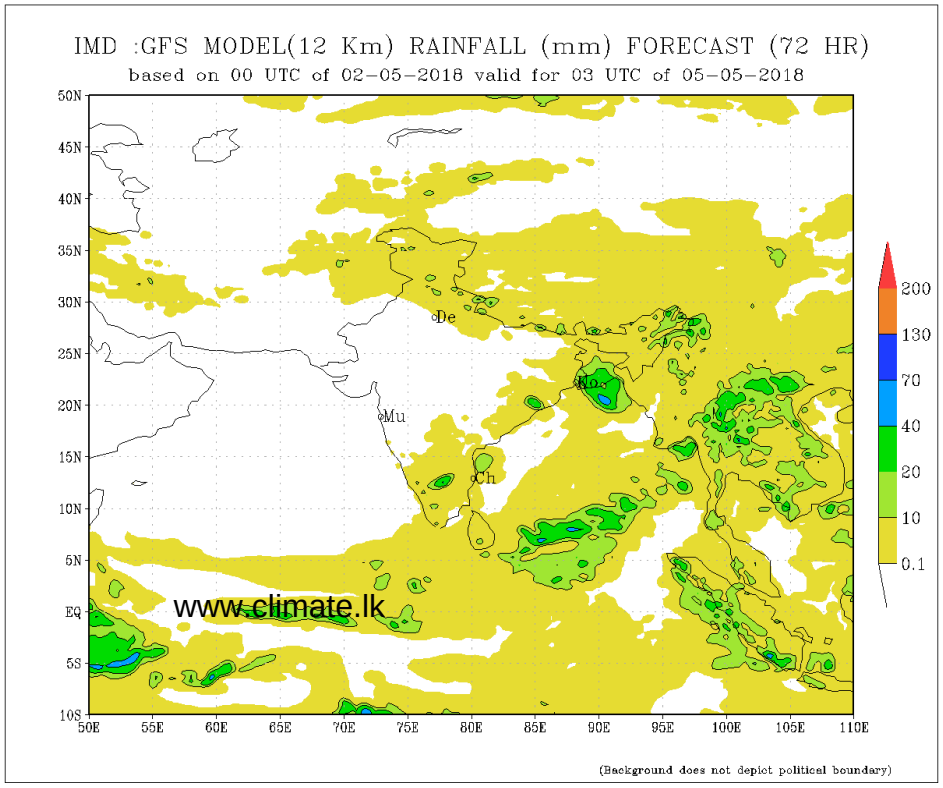
WORLDBATH topography

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.






IMD :GFS MODEL(12 Km) RAINFALL (mm) FORECAST (72 HR)
based on 00 UTC of 02-05-2018 valid for 03 UTC of 05-05-2018
50N
45N
40N
35N
30N
25N
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5N
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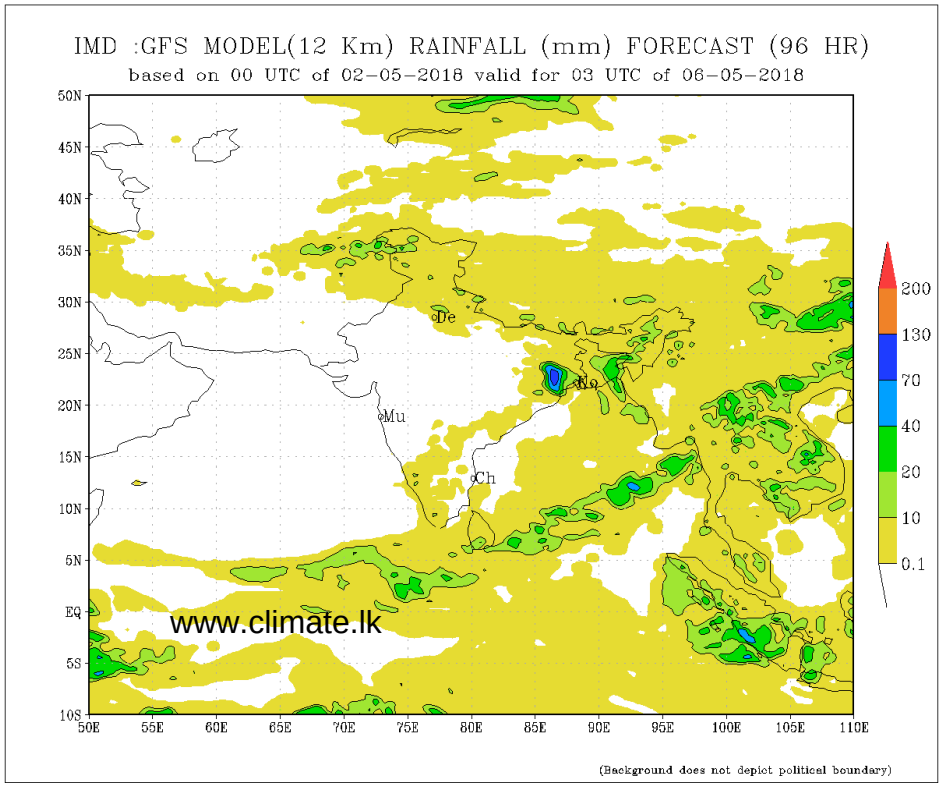
www.climate.lk
(Background does not depict political boundary)


IMD :GFS MODEL(12 Km) RAINFALL (mm) FORECAST (96 HR)
based on 00 UTC of 02-05-2018 valid for 03 UTC of 06-05-2018
50N
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40N
35N
30N
25N
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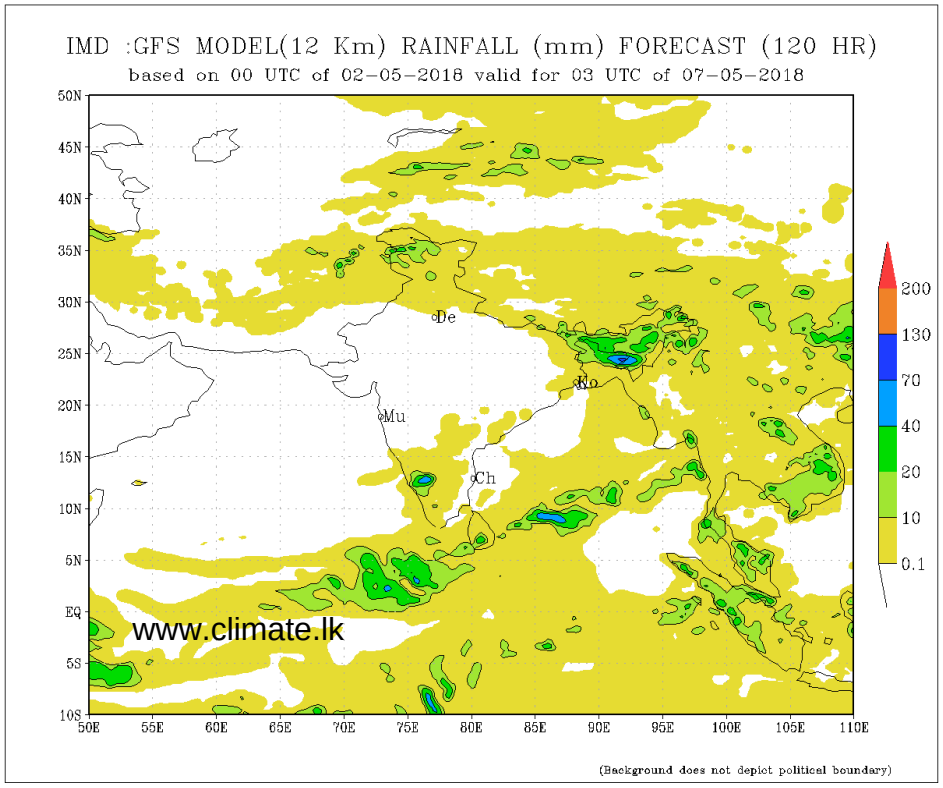
IMD :GFS MODEL(12 Km) RAINFALL (mm) FORECAST (120 HR)
based on 00 UTC of 02-05-2018 valid for 03 UTC of 07-05-2018
50N
45N
40N
35N
30N
25N
20N
15N
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70E
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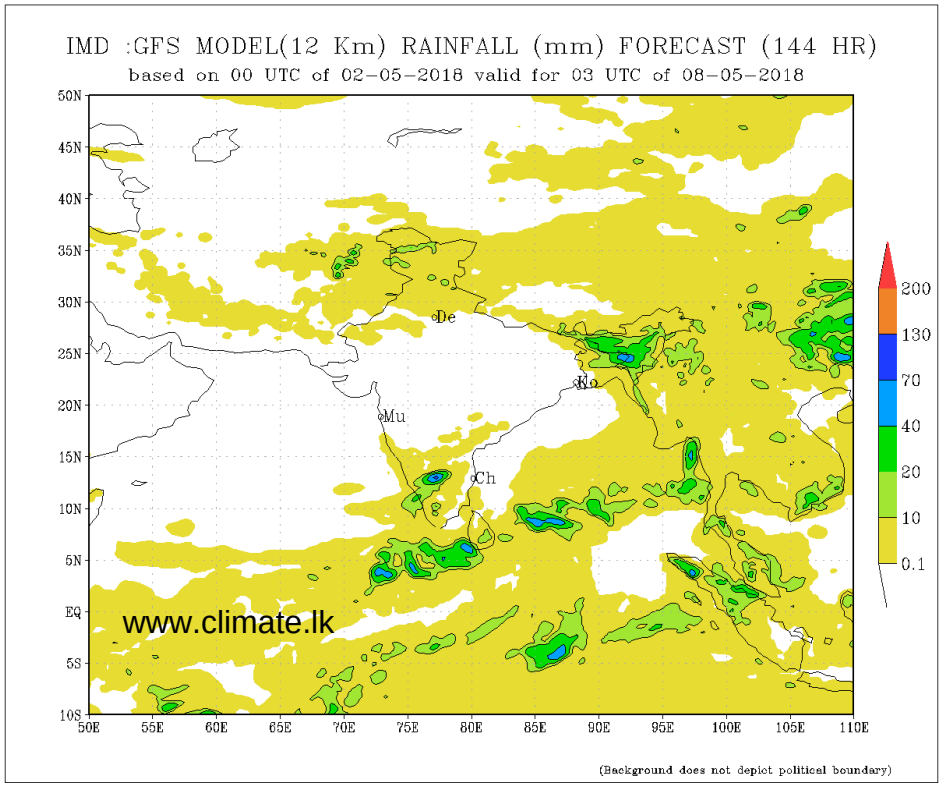
IMD :GFS MODEL(12 Km) RAINFALL (mm) FORECAST (144 HR)
based on 00 UTC of 02-05-2018 valid for 03 UTC of 08-05-2018
50N
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40N
35N
30N
25N
20N
15N
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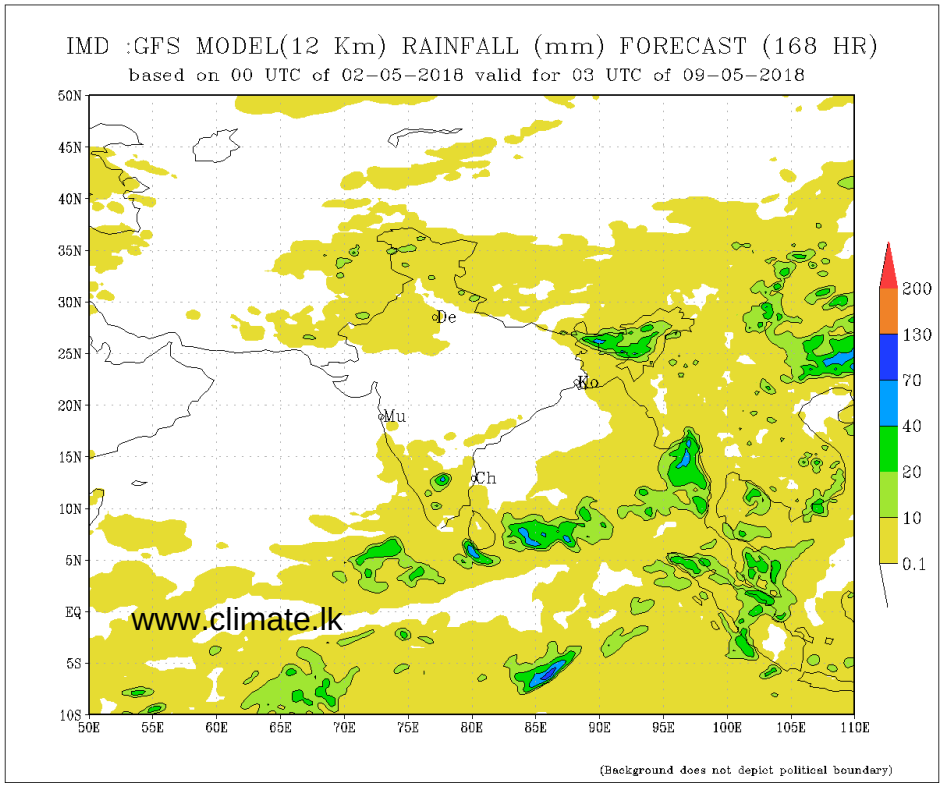
IMD :GFS MODEL(12 Km) RAINFALL (mm) FORECAST (168 HR)
based on 00 UTC of 02-05-2018 valid for 03 UTC of 09-05-2018
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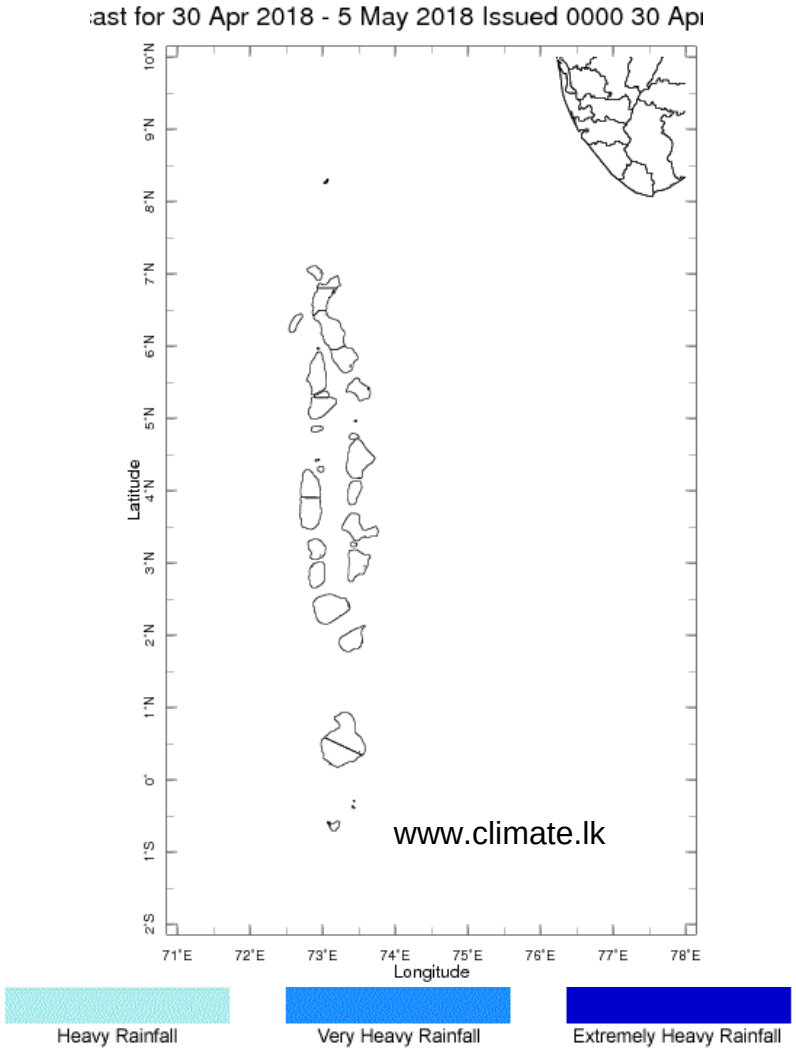
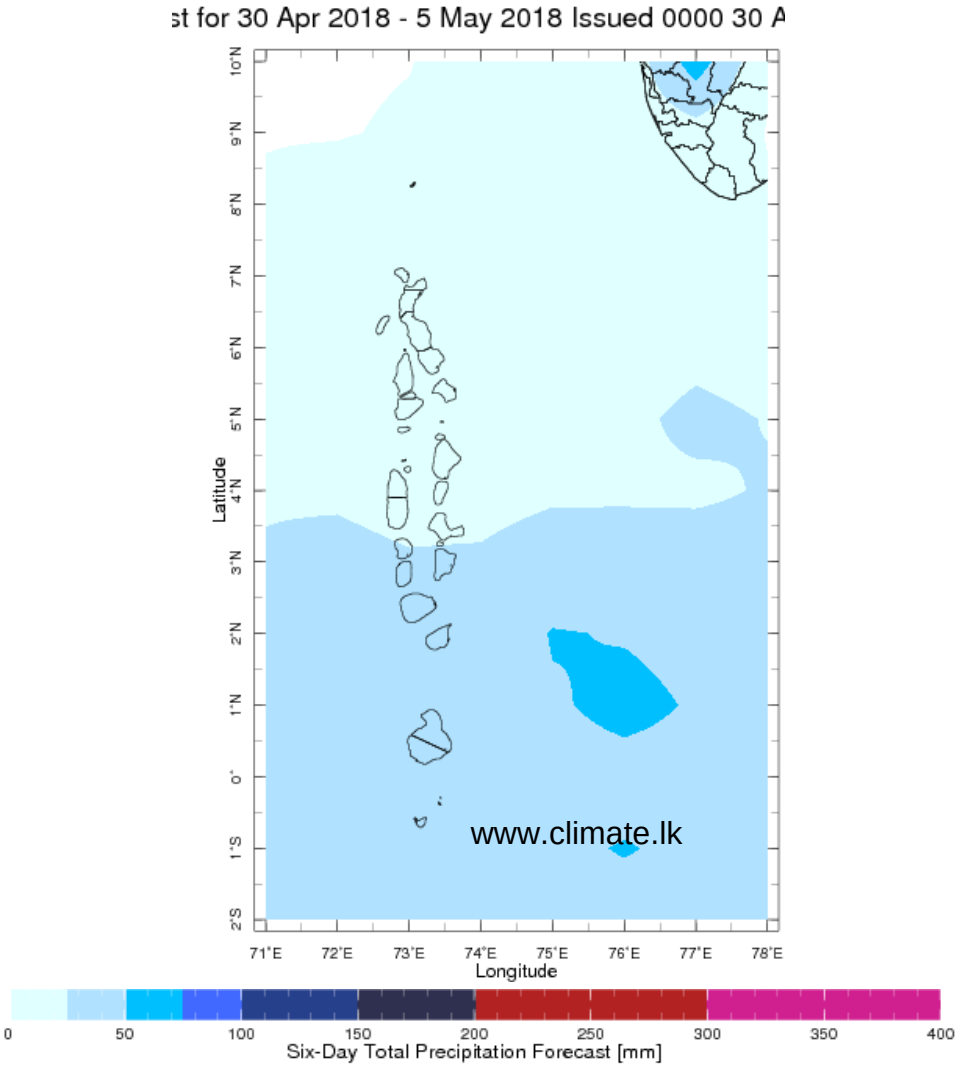
Weekly Rainfall Forecast

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