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Experimental Climate Monitoring and Prediction

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7 December 2017

Highlights

- ***The IRI weekly rainfall forecast predicts total rainfall between 25-50 mm in Badulla and Nuwara Eliya districts during 6-11 December.***
- ***Between 28 Nov- 4 Dec: Rainfall up to 120 mm was recorded in Matara district on November 29th and 30th.***
- ***From 26 Nov- 2 Dec: minimum temperature of 15 ^{o}C was recorded from Nuwara Eliya district while most parts of the island recorded a maximum temperature between 30-35 ^{o}C.***
- ***From 28 Nov- 4 Dec: up to 18 km/h, westerly winds were experienced by the entire island.***
- ***0.5 ^{o}C above average sea surface temperature was observed in the seas around Sri Lanka.***

Monitoring

Rainfall

***Weekly Monitoring*:** On November 28th, Polonnaruwa and Batticaloa districts received up to 80 mm of rainfall; Badulla, Monaragala, Kandy, Matale and Nuwara Eliya districts up to 60 mm; Jaffna, Kilinochchi, Anuradhapura, Trincomalee, Kegalla, Ratnapura, Matara, Hambantota and Ampara districts up to 50 mm; Mannar, Vavuniya, Mullaitivu and Kurunegala districts up to 30 mm; and most parts of the island up to 20 mm. On the 29th Matara and Ratnapura districts received up to 120 mm of rainfall; Badulla district up to 100 mm; Gampaha, Colombo, Kalutara, Galle, Kegalla, Hambantota, Monaragala and Nuwara Eliya districts up to 60 mm; Puttalam, Kurunegala, Kandy, Batticaloa and Ampara districts up to 50 mm; Matale district up to 30 mm; and most parts of the island up to 20 mm. On the 30th, Matara district received up to 120 mm of rainfall; Galle and Hambantota districts up to 100 mm; Jaffna, Kalutara, Ratnapura, and Trincomalee districts up to 60 mm; Kilinochchi, Mullaitivu, Vavuniya, Gampaha, Colombo, Kegalla, Nuwara Eliya, Badulla and Monaragala districts up to 50 mm; Anuradhapura, Puttalam and Kurunegala districts up to 30 mm; and most parts of the island up to 20 mm. On December 1st, Gampaha, Colombo and Ratnapura districts received up to 30 mm of rainfall; and Kalutara, Galle, Matara, Kegalla and Hambantota districts up to 20 mm. On the 2nd, Batticaloa district received up to 50 mm of rainfall; Jaffna and Kilinochchi districts received up to 30 mm; and Mullaitivu district up to 20 mm. On the 3rd, Badulla, Monaragala and Ampara districts received up to 80 mm; Hambantota district up to 50 mm; Matale, Kandy, Nuwara Eliya, Ratnapura and Batticaloa districts up to 30 mm; Polonnaruwa, Anuradhapura and Kurunegala districts up to 20 mm. On the 4th, Monaragala district received up to 50 mm of rainfall; Badulla, Ratnapura, Hambantota and Batticaloa districts up to 30 mm; and Kurunegala, Polonnaruwa, Kegalla, Kandy, Nuwara Eliya, Galle, Matara and Ampara districts up to 20 mm.

Total Rainfall for the Past Week: The RFE 2.0 tool shows total rainfall of 200-300 mm in Galle, Matara, Colombo and Ratnapura districts; up to 150-200 mm in Hambantota and Monaragala districts; up to 75-100 mm Jaffna, Batticaloa, Gampaha, Kegalla, Nuwara Eliya, Badulla and Ampara districts. It shows above average rainfall up to 100-200 mm in Kalutara, Colombo, Ratnapura, Galle, Matara, Hambantota, Monaragala and Badulla districts; and up to 50 -100 mm in Jaffna, Gampaha, Nuwara Eliya and Ampara districts. It also shows below average rainfall up to 10-25 mm in Vavuniya, Anuradhapura, Polonnaruwa and Trincomalee districts.

***Monthly Monitoring*:** During November - below average rainfall conditions were experienced in the western and central regions of the island and above average rainfall in northern, southern and eastern regions. Kurunegala, Puttalam, Anuradhapura, Polonnaruwa, Matale, and Vavuniya districts received up to 180 mm below average rainfall. Galle, Matara, Ratnapura, Hambantota, Badulla, Monaragala and Ampara districts received up to 180 mm of above average rainfall. The CPC Unified Precipitation Analysis tool shows ~500 mm of total rainfall in Colombo, Ratnapura, Galle, Matara, Hambantota, Badulla, Monaragala and Ampara districts; up to ~300 mm in Jaffna, Trincomalee, Matale, Kandy, Nuwara Eliya, Kegalla and Polonnaruwa districts.

Ocean State (*Text Courtesy IRI*)

Pacific sea state: November 20, 2017

In mid-November 2017, the tropical Pacific reflected weak La Niña conditions, with SSTs in the east-central tropical Pacific past the threshold of La Niña and most atmosphere variables showing patterns suggestive of weak La Niña conditions. The collection of latest ENSO prediction models indicates a weak La Niña as the most likely scenario for the remainder of the Northern Hemisphere fall and for the winter. The official CPC/IRI outlook favours continuation of La Niña through winter, and carries a La Niña advisory.

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Indian Ocean State
0.5 ^{0}C above average sea surface temperature was observed in the seas around Sri Lanka.

Predictions

Rainfall

14-day prediction:
NOAA NCEP models:

From 05th – 11th Dec: Total rainfall between 5-15 mm in Ratnapura, Galle and Matara districts; Up to 5 mm total rainfall rest of the island.

From 12th – 18th Dec: Total rainfall between 65-75 mm in Ampara and Batticaloa districts; between 55-65 mm in Monaragala and Badulla districts; between 45-55 mm in Trincomalee, Polonnaruwa, Nuwara Eliya and Ratnapura districts; between 35-45 mm in Matale, Kandy, Kegalle, Galle, Matara, Hambantota and Jaffna districts; between 25-35 mm in Kilinochchi, Anuradhapura, Gampaha and Colombo districts; Up to 25 mm total rainfall rest of the island.

IMD WRF Forecast:
08th Dec: Up to 7.5 mm of rainfall in Kilinochchi and Mullaitivu districts; Up to 2.5 mm rainfall in rest of the island.

09th Dec: Up to 2.5 mm of rainfall in Jaffna, Kilinochchi, Mannar, Vavuniya, Anuradhapura, Trincomalee, Puttalam, Polonnaruwa, Batticaloa, Ampara, Hambantota, Colombo and Kalutara districts.

IRI Model Forecast:
6th – 11th Dec: Total rainfall between 25-50 mm in Badulla and Nuwara Eliya districts; Up to 25 mm total rainfall rest of the island.

MJO based OLR predictions

For the next 15 days:
MJO shall suppress the rainfall in Sri Lanka.

[1] International Research Institute for Climate and Society, Earth Institute at Columbia University, New York.
Official hydro-meteorological statements are provided by the Sri Lanka Department of Meteorology and Department of Irrigation.

FOUNDATION FOR ENVIRONMENT, CLIMATE AND TECHNOLOGY

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Weekly Hydro- Meteorological Report for Sri Lanka

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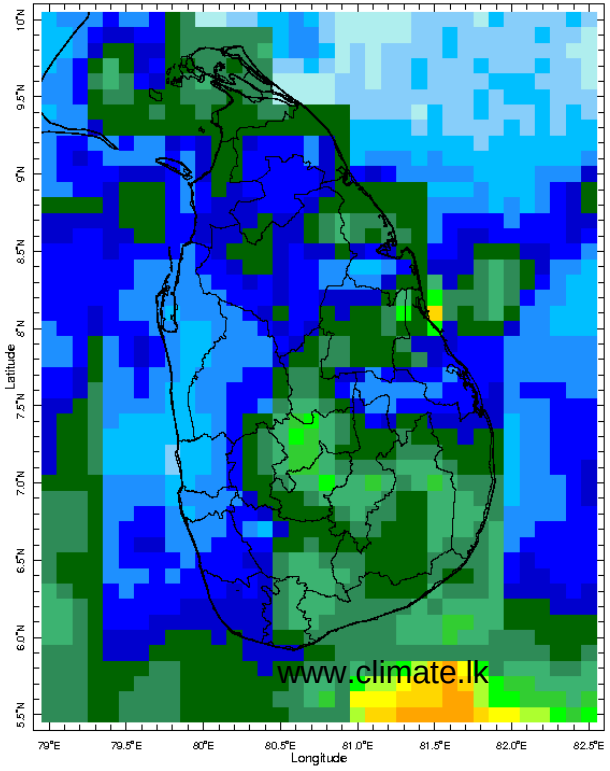
MONITORING

Daily Rainfall Monitoring

The following figures show the satellite observed rainfall in the last 7 days in Sri Lanka.



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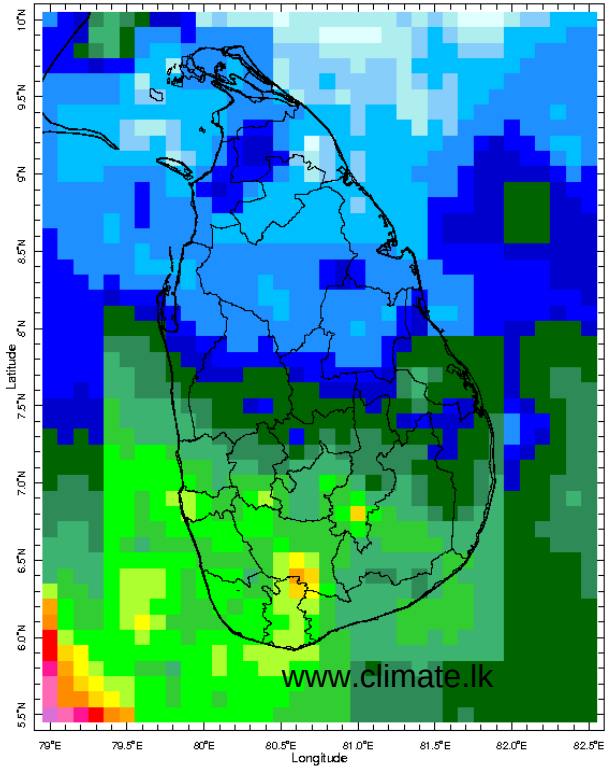

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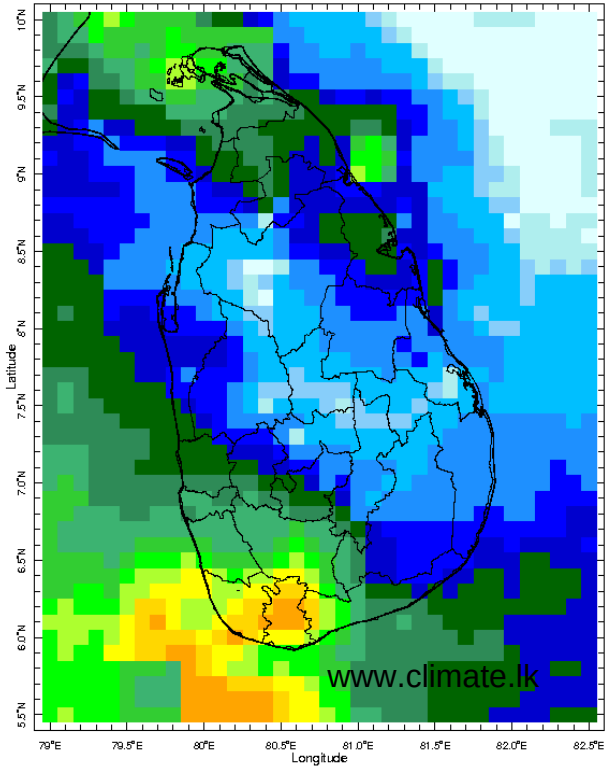

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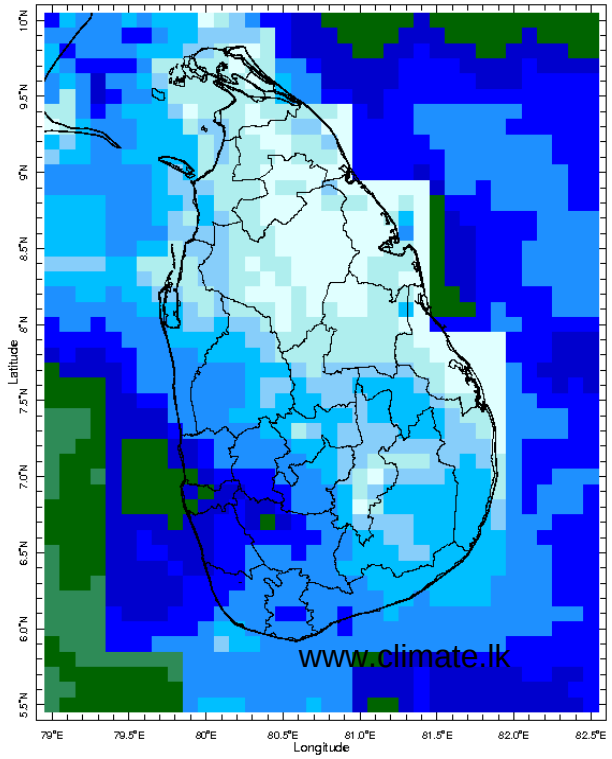
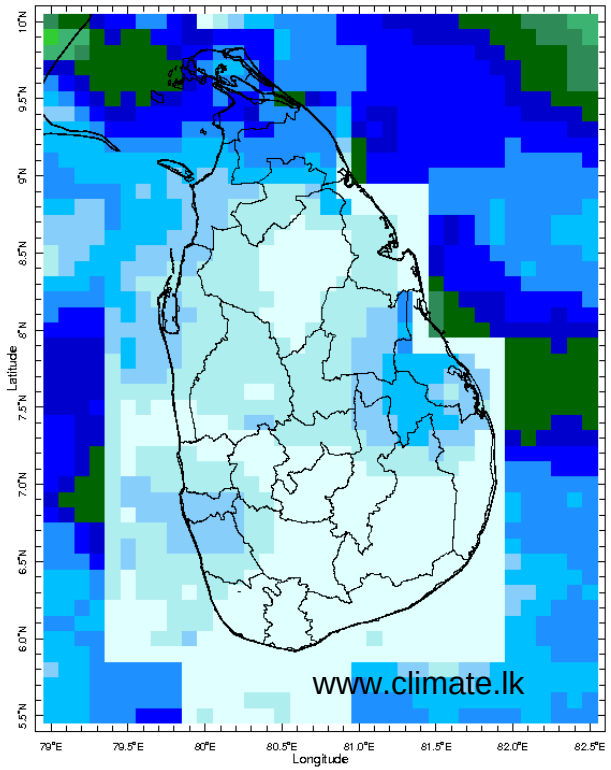


1 Dec 2017



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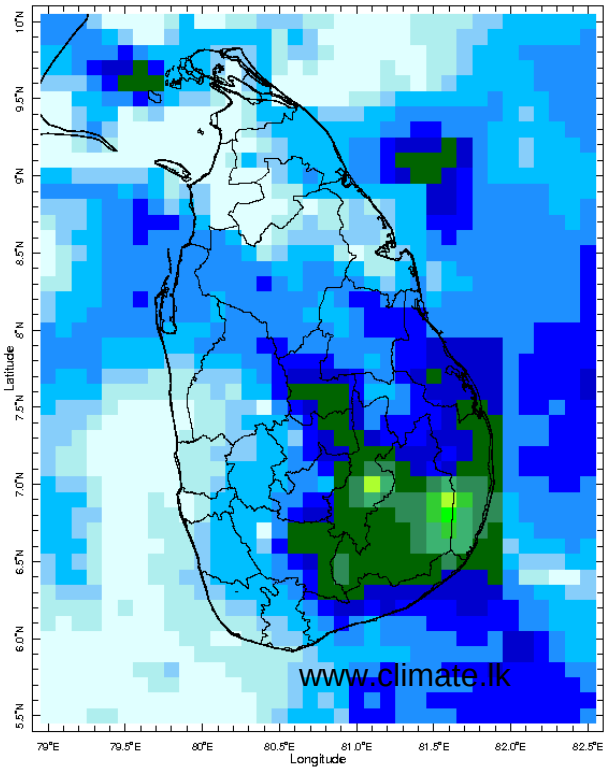

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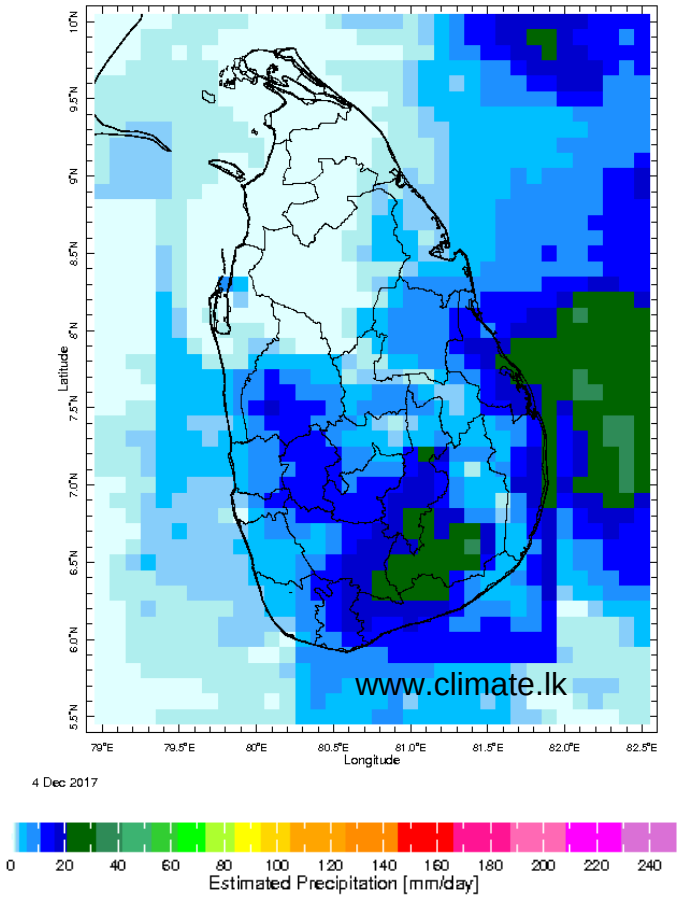
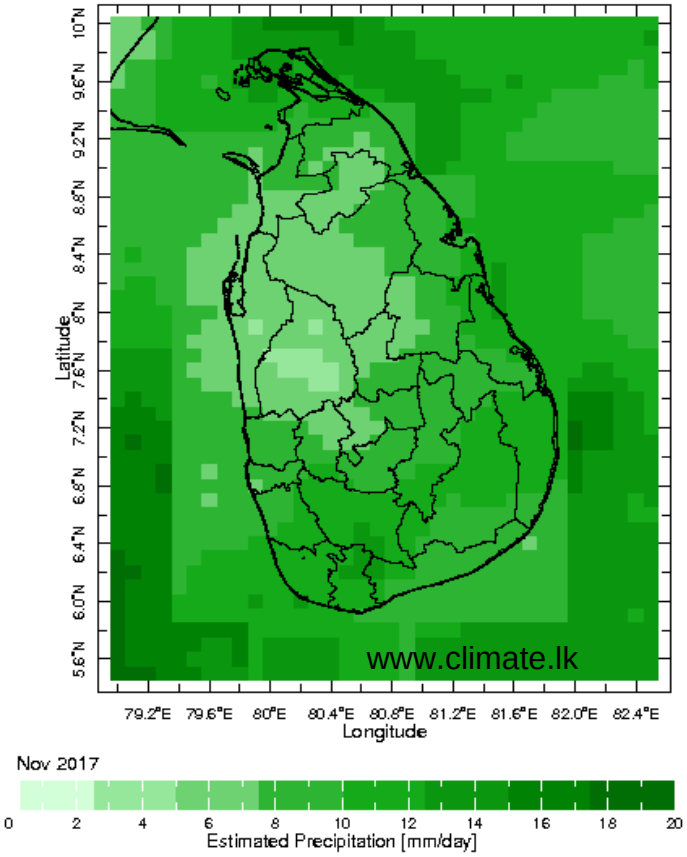
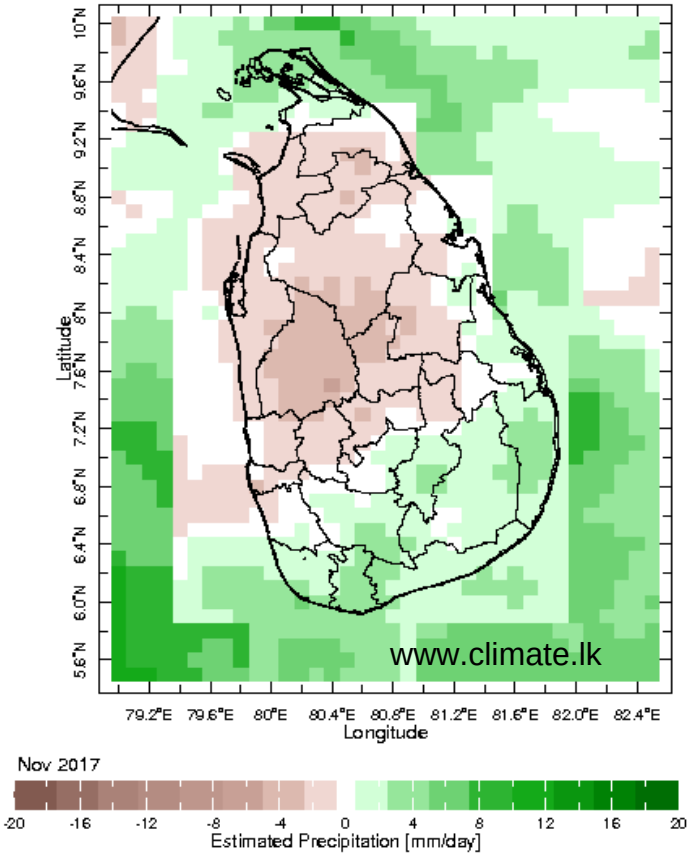

10°N
9.5°N
9°N
8.5°N
8°N
7.5°N
7.0°N
6.5°N
6.0°N
5.5°N
Latitude
79°E
79.5°E
80°E
80.5°E
81.0°E
81.5°E
82.0°E
82.5°E
Longitude
www.climate.lk
4 Dec 2017
0
20
40
60
80
100
120
140
160
180
200
220
240
Estimated Precipitation [mm/day]

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

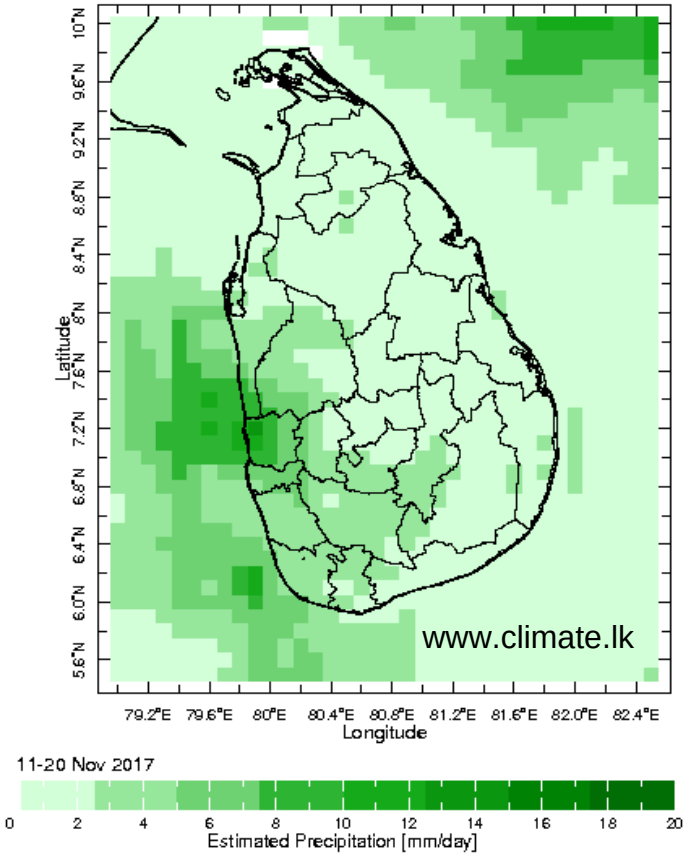


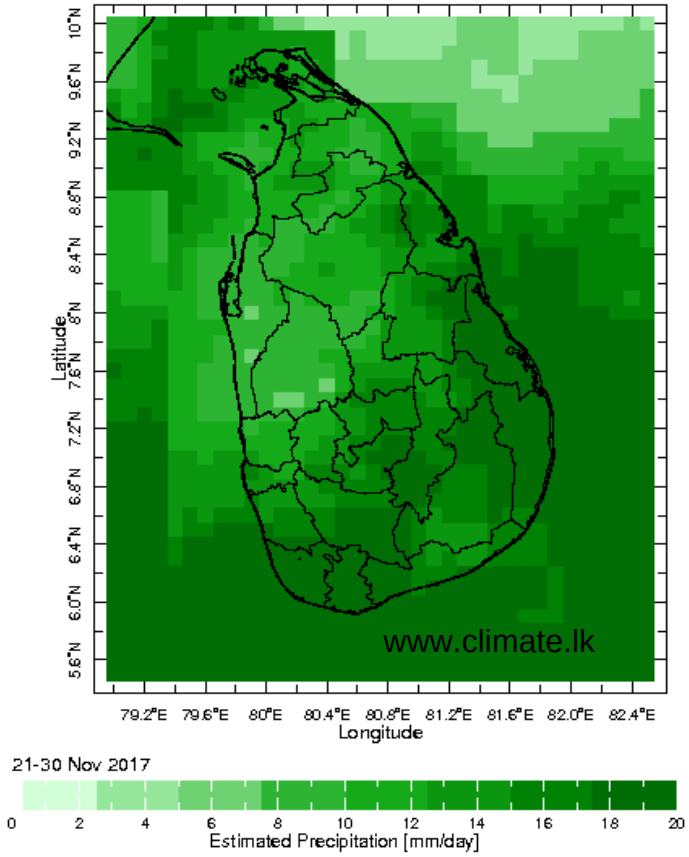
Monthly Average



Monthly Anomaly

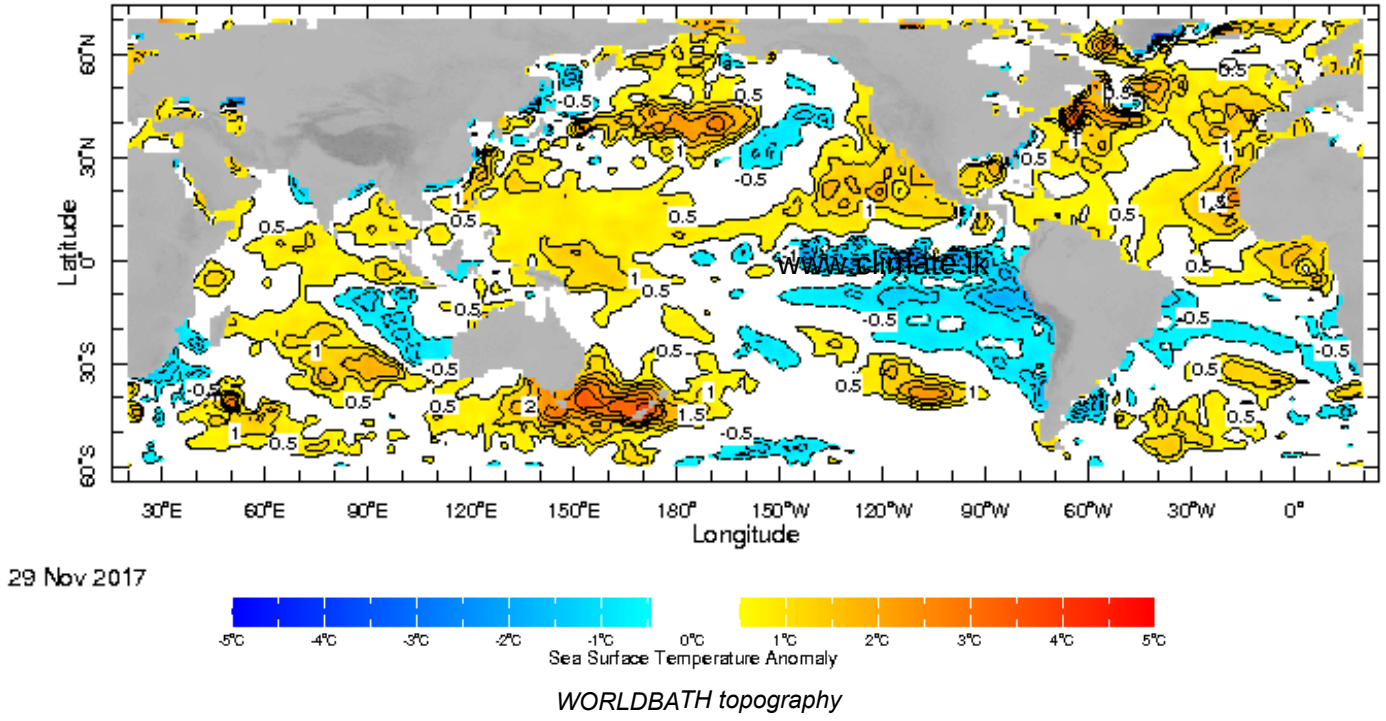
Dekadal (10 Day) Satellite Derived Rainfall Estimates





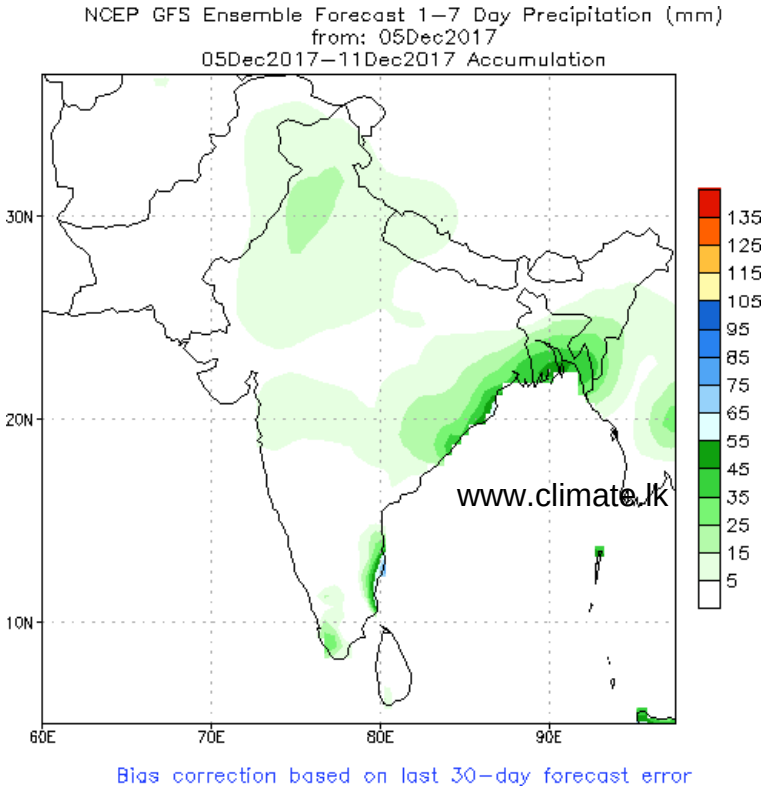
Weekly Average SST Anomalies

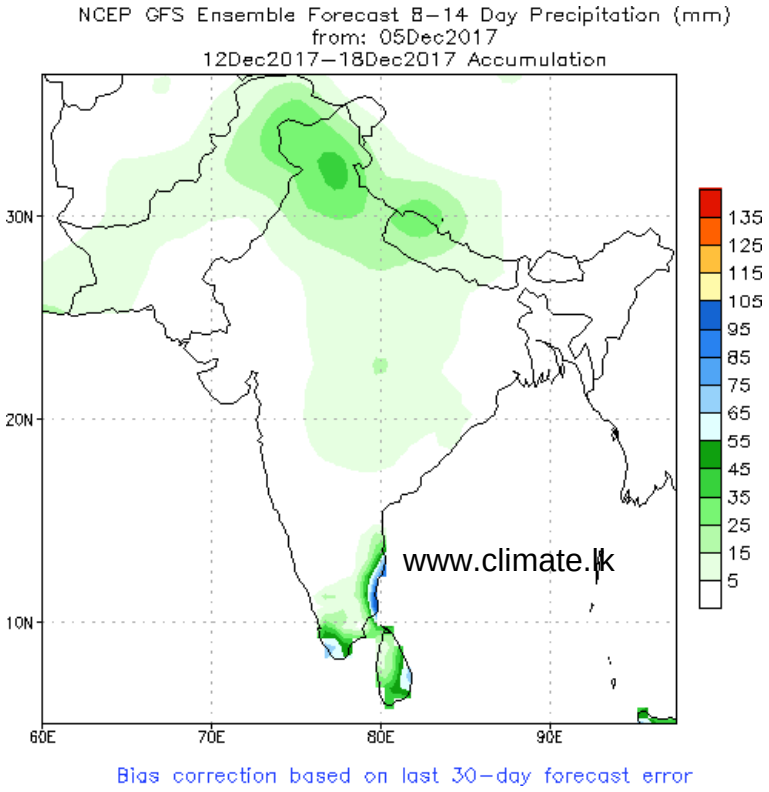
Weekly average Sea Surface Temperature (SST) anomaly in the world from NOAA NCEP



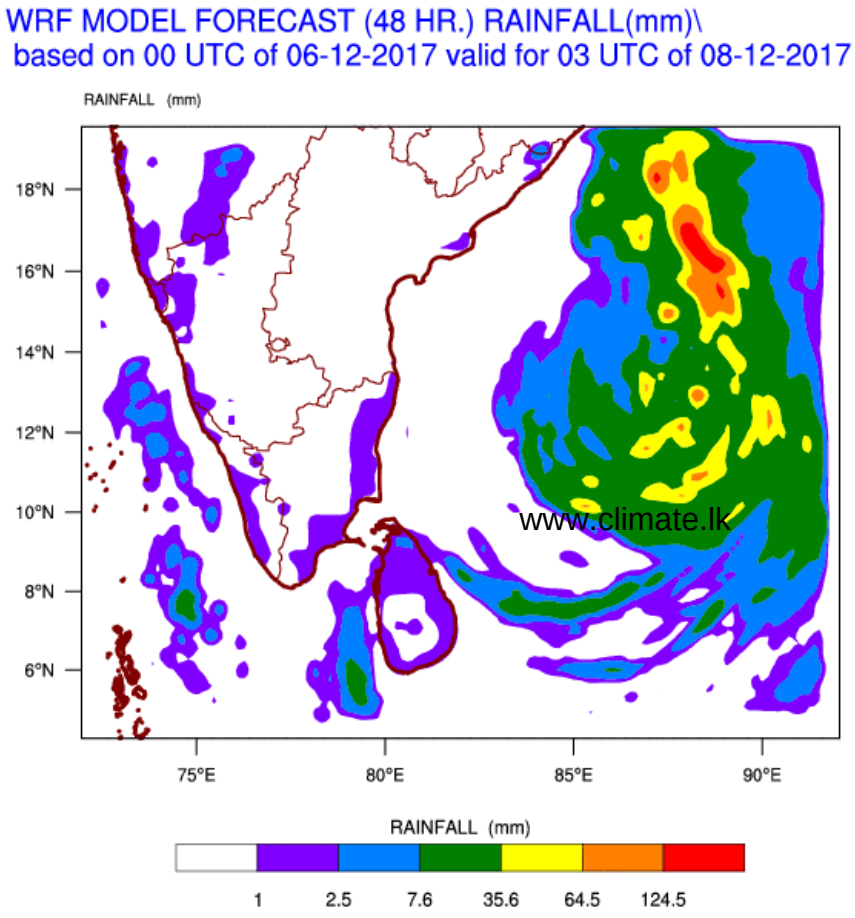
PREDICTIONS

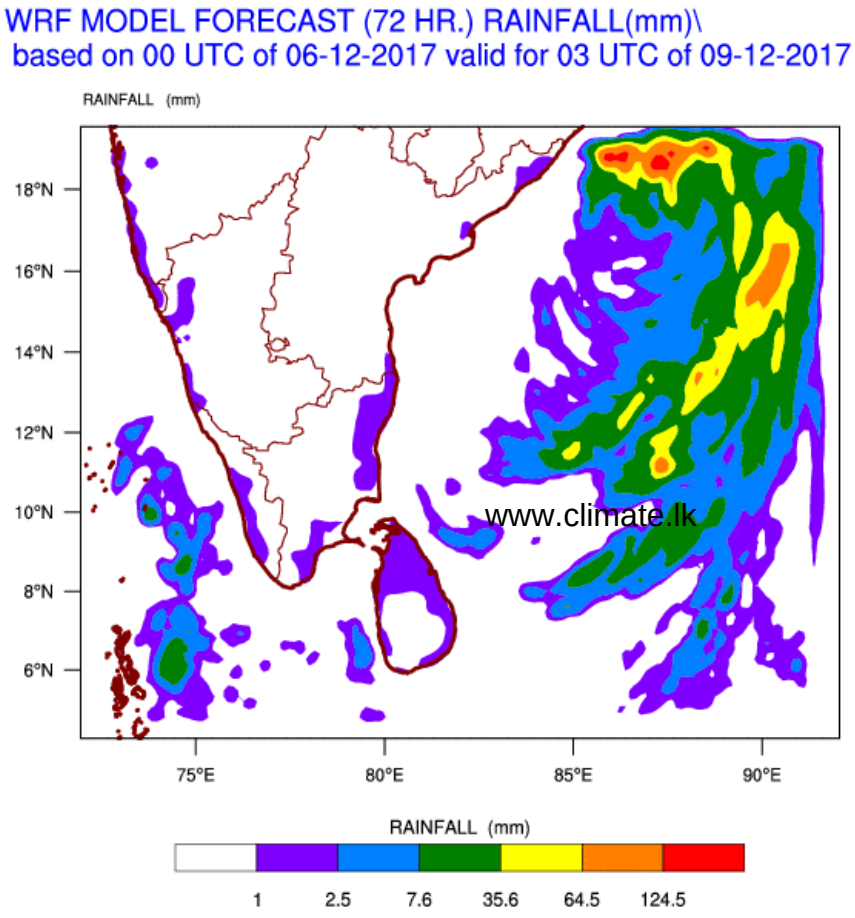
NCEP GFS 1- 14 Day prediction





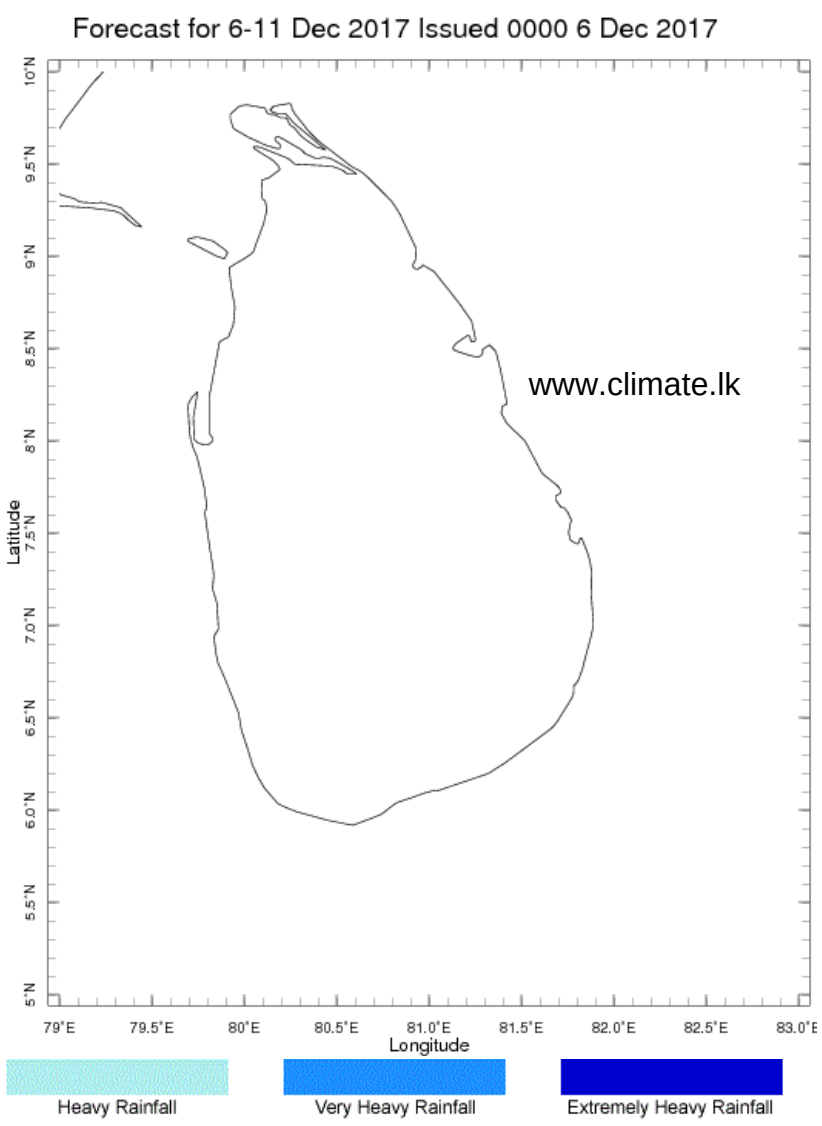
WRF Model Forecast (from IMD Chennai)



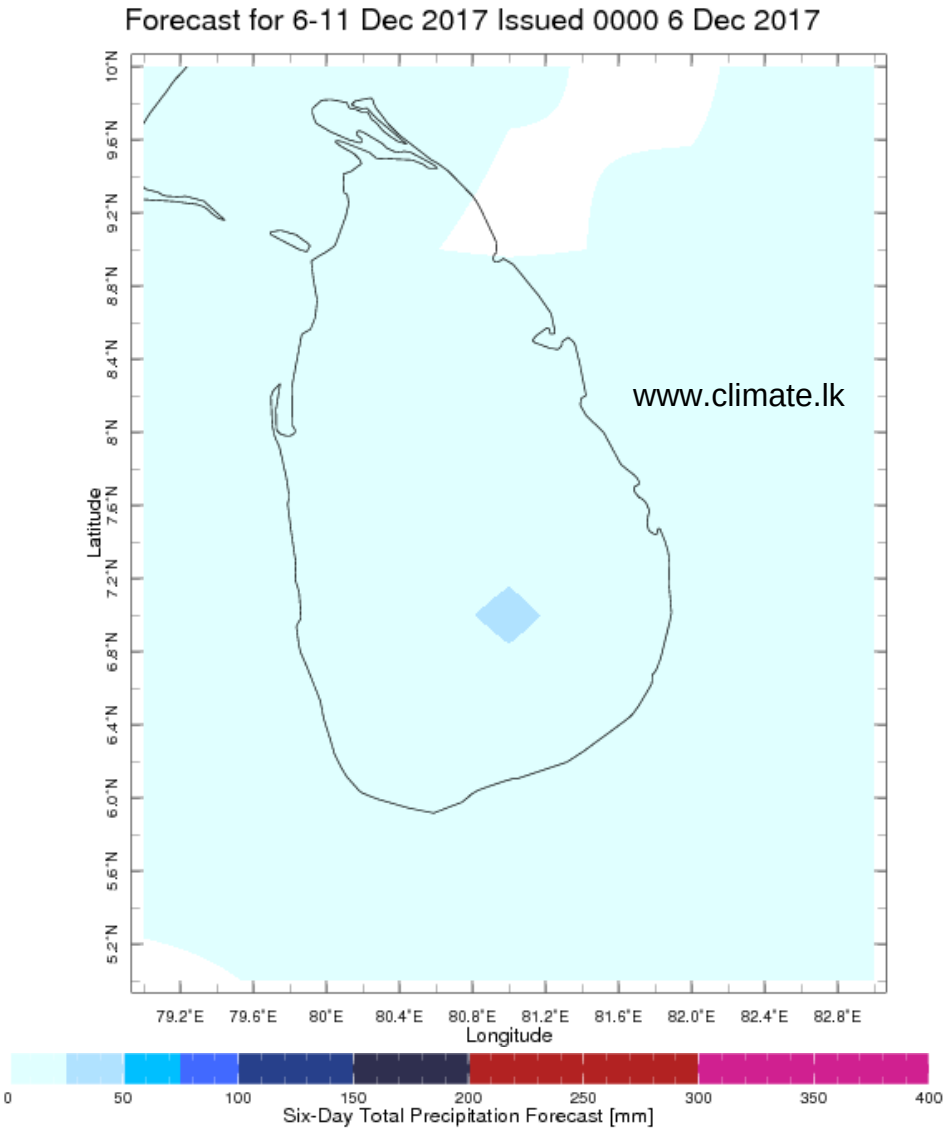


Weekly Rainfall Forecast from IRI

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