

Experimental Climate Monitoring and Prediction

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Highlights

- *The IRI Model predicts total rainfall between 50-75 mm in Kandy, Nuwara Eliya, Badulla, Ratnapura and Monaragala districts during 27th Dec 2017-01st Jan 2018.*
- *Between 20 - 25 Dec: Rainfall up to 60 mm was recorded in Hambantota, Nuwara Eliya, Ratnapura and Badulla districts on December 20th.*
- *From 17- 23 Dec: minimum temperature of 15 °C was recorded from Nuwara Eliya district while western and southern parts of the island recorded a maximum temperature between 30-35 °C.*
- *From 19- 25 Dec: up to 36 km/h, northeasterly winds were experienced by the entire island.*
- *0.5 °C above average sea surface temperature was observed in the southern seas of Sri Lanka.*

Monitoring

Rainfall

Weekly Monitoring: On December 20th, Hambantota, Nuwara Eliya, Ratnapura and Badulla districts received up to 60 mm of rainfall; Kegalla, Ampara and Monaragala districts up to 50 mm; Batticaloa, Polonnaruwa, Gampaha, Colombo, Kalutara, Matara, Matale and Kandy districts up to 30 mm; Mannar, Vavuniya, Anuradhapura, Puttalam, Kurunegala, Trincomalee and Galle districts up to 20 mm; and rest of the island up to 10 mm. On the 21st Gampaha, Colombo, Kalutara, Ratnapura, Galle and Matara districts received up to 30 mm of rainfall; and Jaffna, Kilinochchi, Nuwara Eliya, Ampara and Monaragala districts up to 10 mm. No significant rainfalls were recorded in any part of the island during 22nd-23rd. On the 24th, Ratnapura district received up to 50 mm of rainfall; and several regions of Kalutara, Matara, Badulla and Monaragala districts up to 20 mm. On the 25th, Jaffna and Kilinochchi districts received up to 20 mm of rainfall.

Total Rainfall for the Past Week: The RFE 2.0 tool shows total rainfall of 75-100 mm in Nuwara Eliya, Kegalla, Ratnapura, Badulla and Monaragala districts; up to 50-75 mm in Gampaha, Colombo, Kalutara, Galle, Ampara and Hambantota districts; up to 25-50 mm Matara, Matale, Kandy and Batticaloa districts. It shows above average rainfall up to 50-100 mm in Ratnapura, Badulla, and Nuwara Eliya districts; and up to 25-50 mm in Colombo, Kegalla, Kandy, Monaragala and Hambantota districts. It also shows below average rainfall up to 50-100 mm in Trincomalee, Polonnaruwa, Batticaloa and Ampara districts; and up to 25-50 mm in Mannar, Mullaitivu, Kilinochchi, Mullaitivu, Vavuniya, Anuradhapura and Matale 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: December 19, 2017

In mid-December 2017, the tropical Pacific reflected La Niña conditions, with SSTs in the east-central tropical Pacific in the range of weak to moderate La Niña and all atmosphere variables showing patterns suggestive of La Niña conditions. The collection of latest ENSO prediction models indicates weak, but not far from threshold of moderate, La Niña as the most likely scenario for the Northern Hemisphere winter, lasting into spring. The official CPC/IRI outlook favors continuation of La Niña through middle or late spring.

Indian Ocean State

0.5 °C above average sea surface temperature was observed in the southern seas of Sri Lanka.

Predictions

Rainfall

14-day prediction:

NOAA NCEP models:

From 27th Dec 2017 – 02nd Jan 2018: Total rainfall between 65-75 mm in Ratnapura, Matara, Hambantota, Monaragala and Ampara districts; between 55-65 mm in Galle and Badulla districts; between 45-55 mm in Kalutara and Nuwara Eliya districts; between 25-35 mm in Colombo, Gampaha, Kegalle, Kandy and Batticaloa districts; Up to 5 mm total rainfall rest of the island.

From 03rd Jan – 09th Jan: Total rainfall between 65-75 mm in Hambantota, Monaragala, Badulla and Ampara districts; between 55-65 mm in Galle, Matara and Ratnapura districts; between 45-55 mm in Nuwara Eliya and Batticaloa districts; between 35-45 mm in Colombo, Kegalle and Kandy districts; between 25-35 mm in Gampaha, Matale and Polonnaruwa districts; between 15-25 mm in Puttalam, Kurunegala and Trincomalee districts; Up to 15 mm total rainfall rest of the island.

IMD WRF Forecast:

29th Dec: Up to 7.6 mm of rainfall in Hambantota, Monaragala, Badulla, Ampara, Batticaloa, Trincomalee, Polonnaruwa, Anuradhapura, Vavuniya and Mullaitivu districts; Up to 2.5 mm in Jaffna, Kilinochchi, Mannar, Puttalam, Matale, Kandy, Gampaha, Colombo, Kalutara, Galle and Matara districts.

30th Dec: Up to 7.6 mm of rainfall in Hambantota, Monaragala, Ampara, Kilinochchi and Mullaitivu districts; Up to 2.5 mm in Colombo, Kalutara, Jaffna, Mannar, Vavuniya, Puttalam, Anuradhapura, Trincomalee, Polonnaruwa and Batticaloa districts.

IRI Model Forecast:

27th Dec 2017– 1st Jan 2018: Total rainfall between 50-75 mm in Kandy, Nuwara Eliya, Badulla, Ratnapura and Monaragala districts; between 25-50 mm in Matale, Kurunegala, Gampaha, Kegalle, Colombo, Kalutara, Galle, Matara, Hambantota, Ampara, Batticaloa and Polonnaruwa districts; Up to 25 mm total rainfall rest of the island.

MJO based OLR predictions

For the next 15 days:

MJO shall not have impact on the rainfall in Sri Lanka in the next 5 days and shall enhance the rainfall in following 10 days.

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.

FECT BLOG

Past reports available at <http://fectsl.blogspot.com/> and <http://fectsl.wordpress.com/>

FECT WEBSITES

<http://www.climate.lk> and <http://www.tropicalclimate.org/>



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Weekly Hydro- Meteorological Report for Sri Lanka

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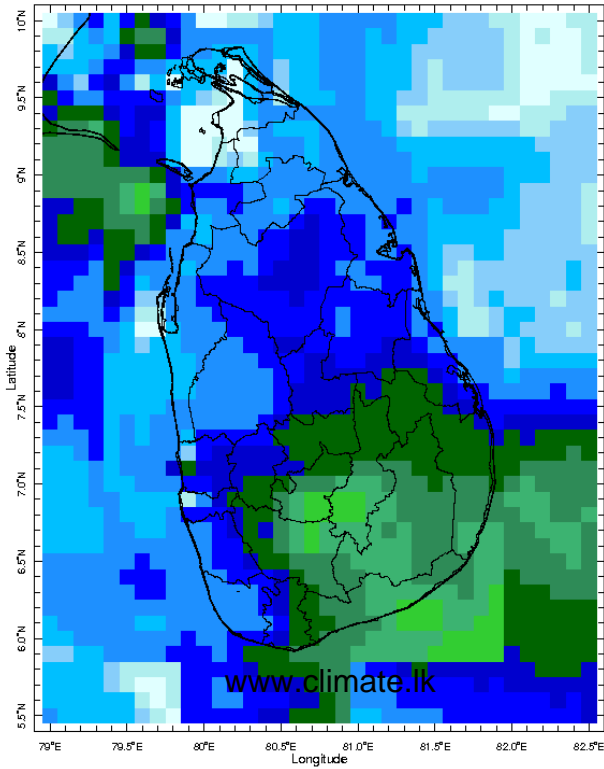
2. Predictions

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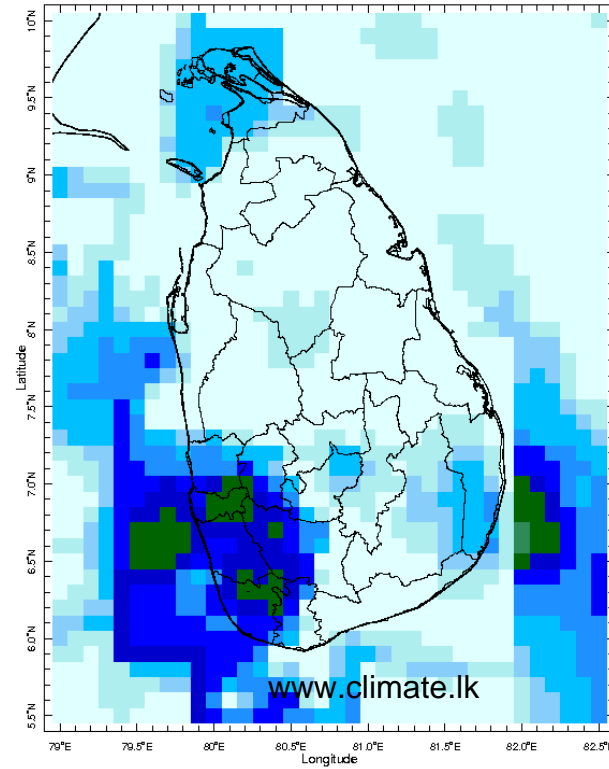
MONITORING

Daily Rainfall Monitoring

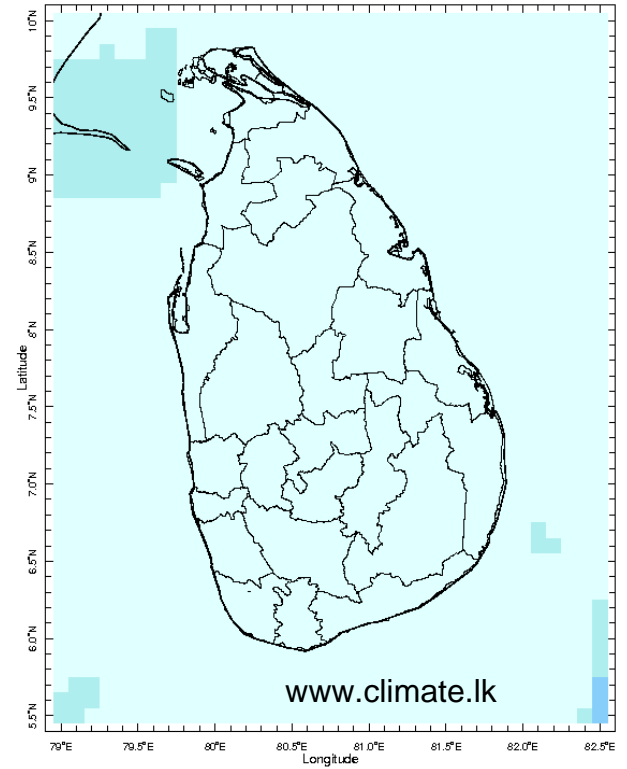
The following figures show the satellite observed rainfall in the last 7 days in Sri Lanka.



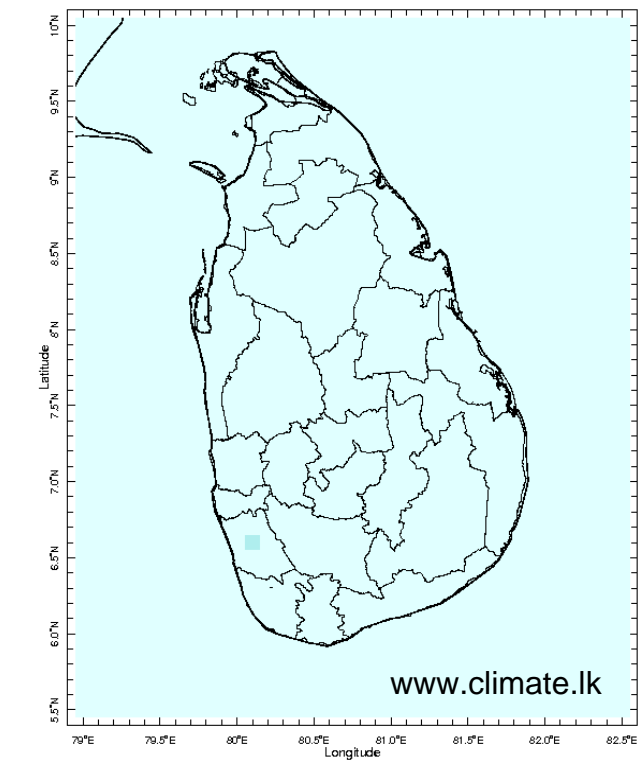
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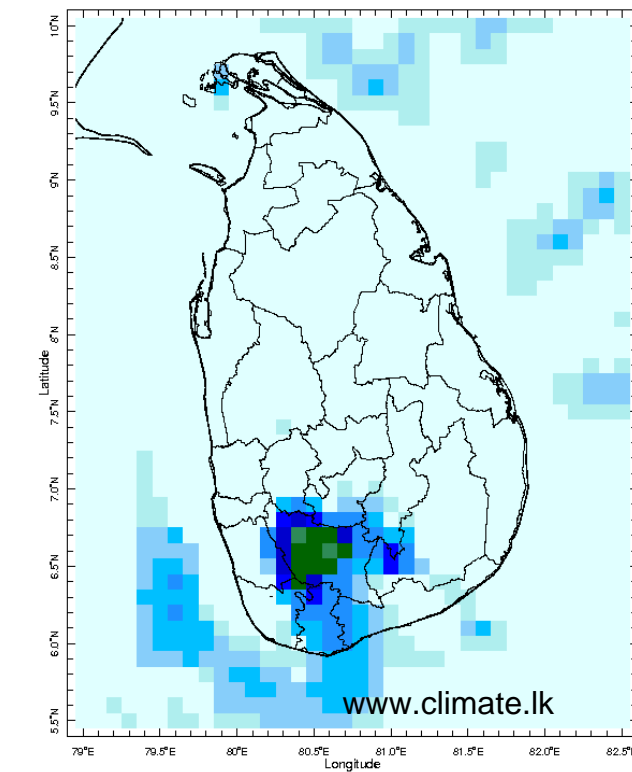
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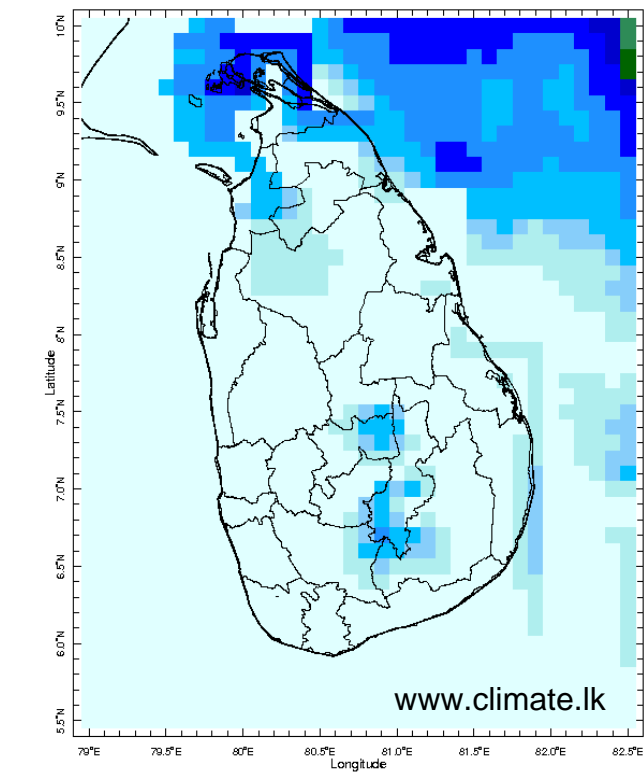
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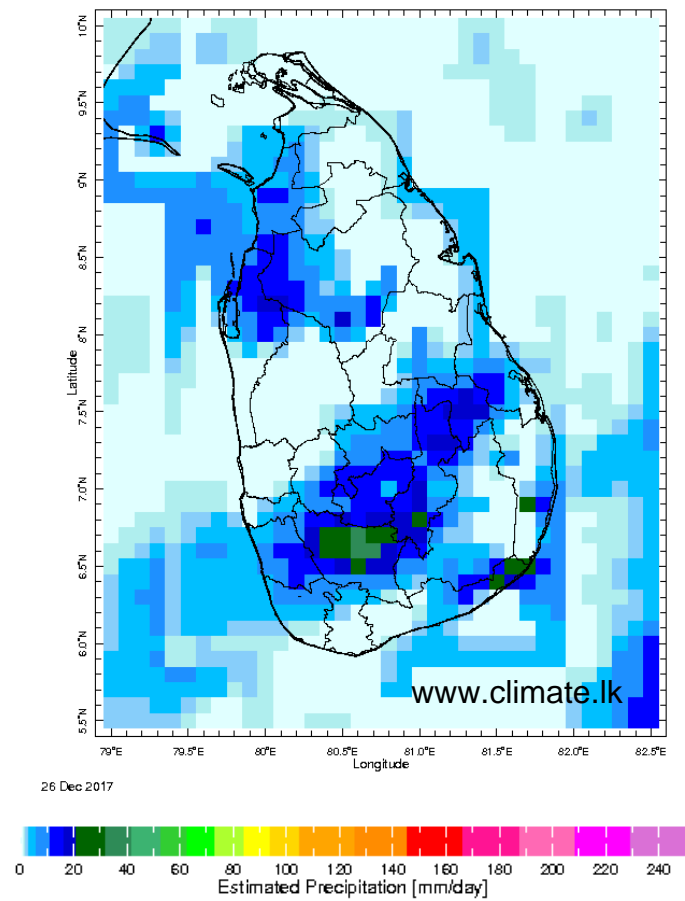
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24 Dec 2017

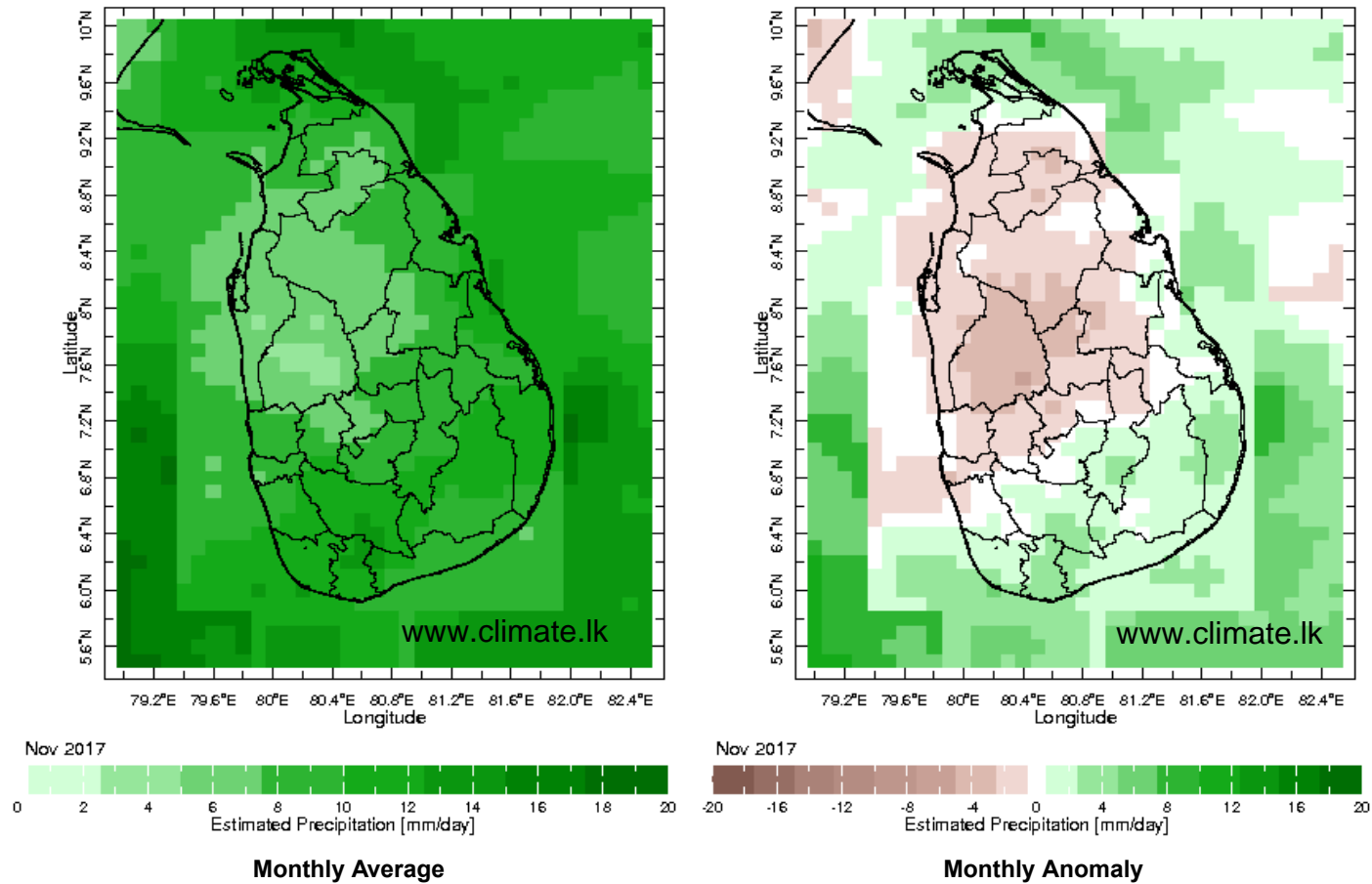


25 Dec 2017

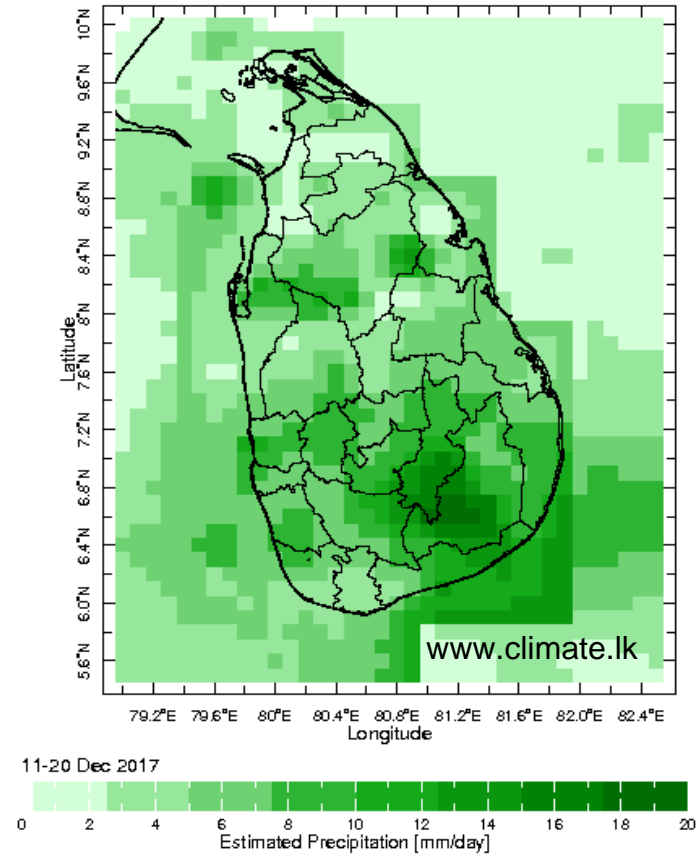
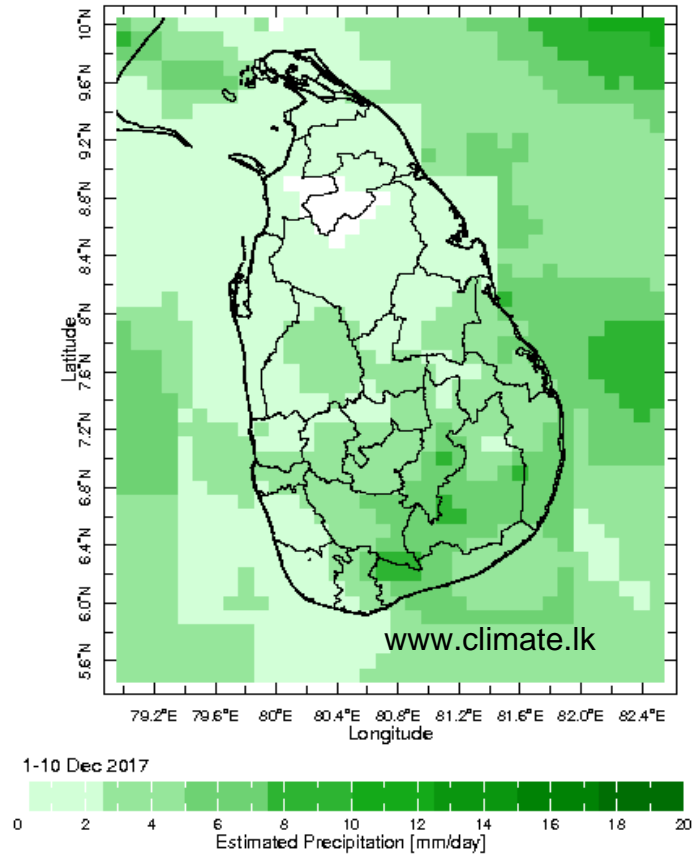


Monthly Rainfall Monitoring

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

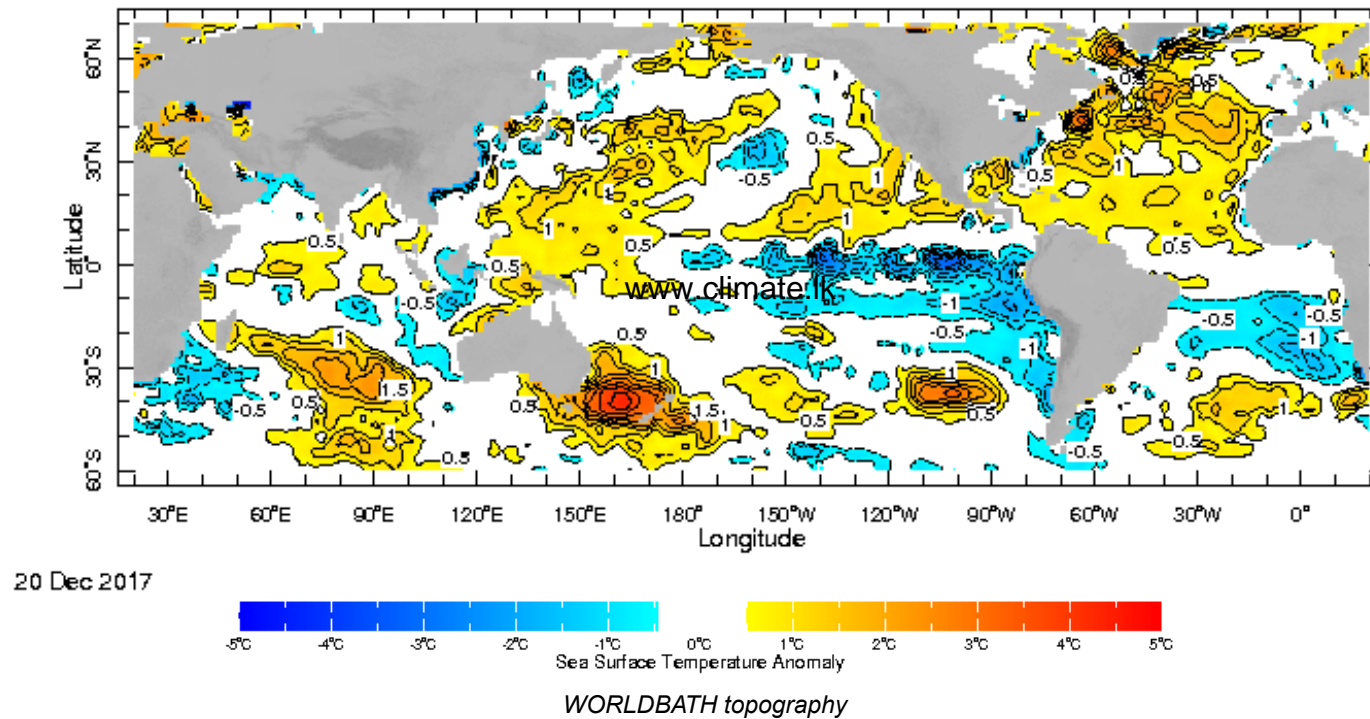


Dekadal (10 Day) Satellite Derived Rainfall Estimates



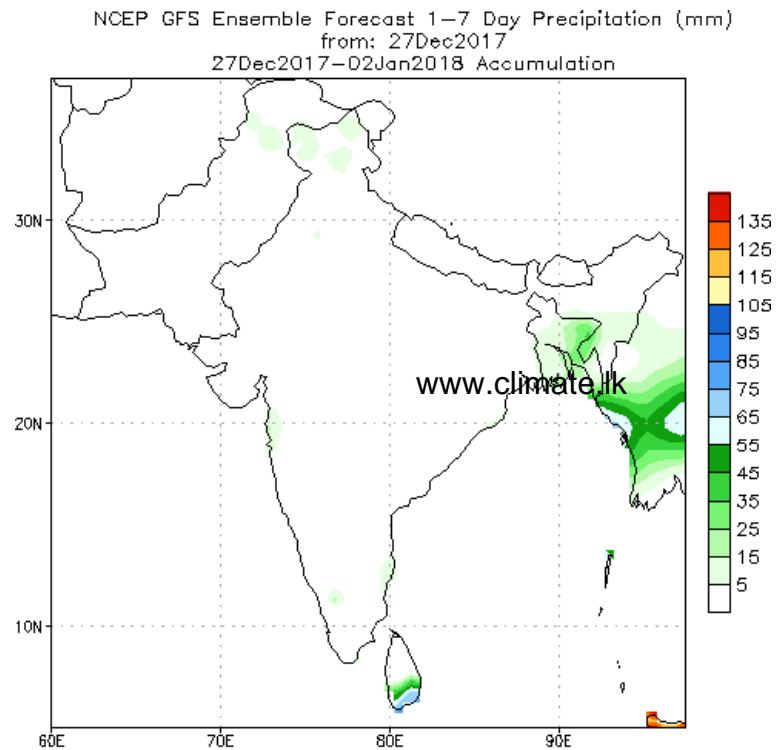
Weekly Average SST Anomalies

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

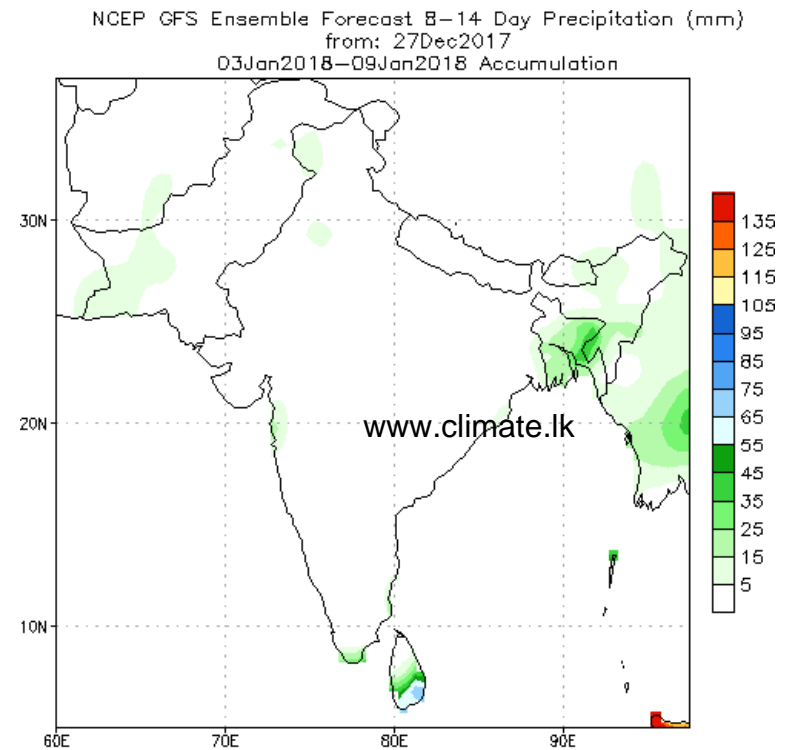


PREDICTIONS

NCEP GFS 1-14 Day prediction



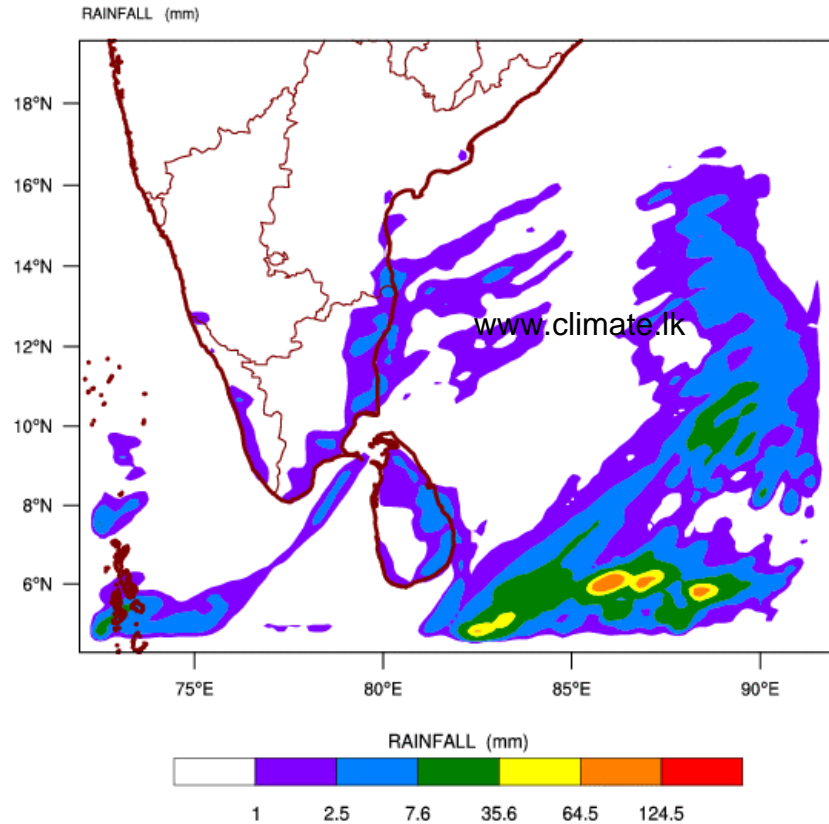
Bias correction based on last 30-day forecast error



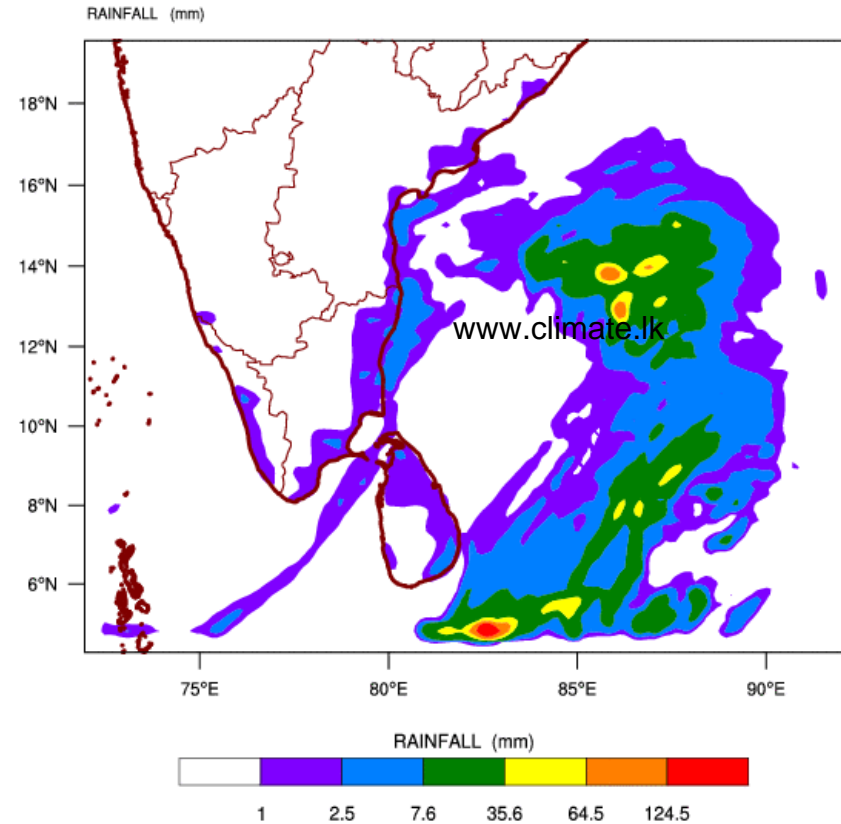
Bias correction based on last 30-day forecast error

WRF Model Forecast (from IMD Chennai)

WRF MODEL FORECAST (48 HR.) RAINFALL(mm)\
based on 00 UTC of 27-12-2017 valid for 03 UTC of 29-12-2017



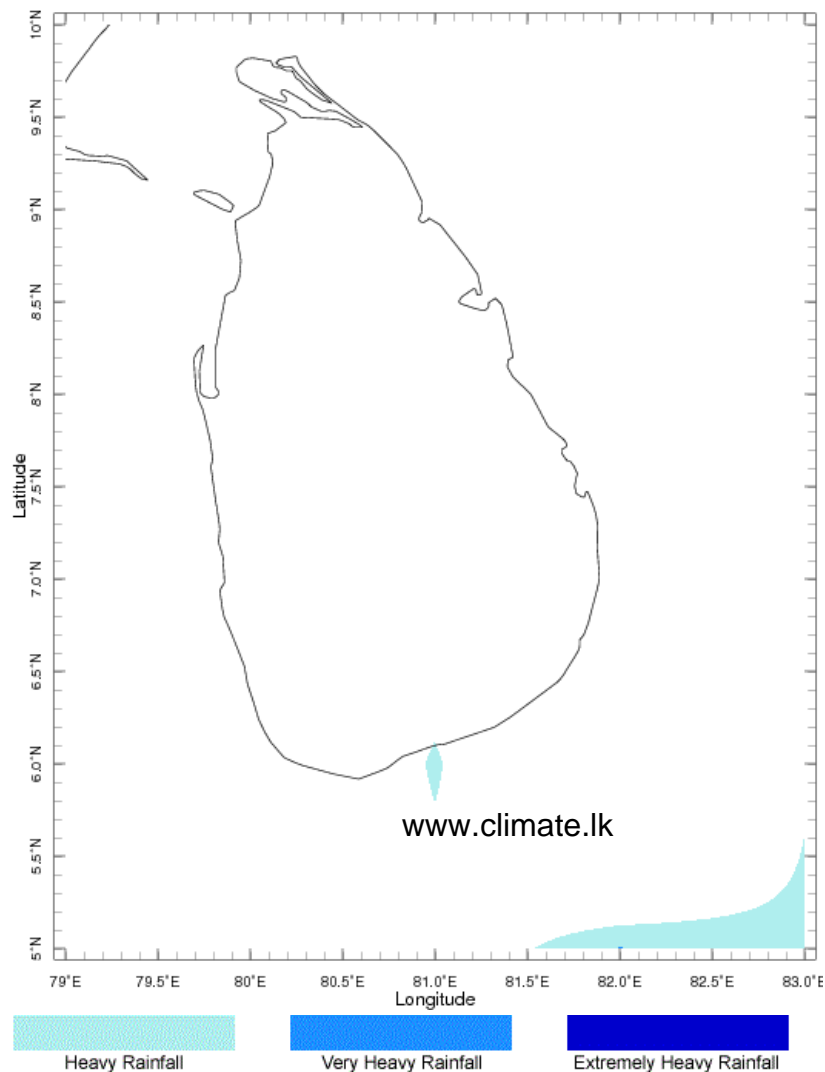
WRF MODEL FORECAST (72 HR.) RAINFALL(mm)\
based on 00 UTC of 27-12-2017 valid for 03 UTC of 30-12-2017



Weekly Rainfall Forecast from IRI

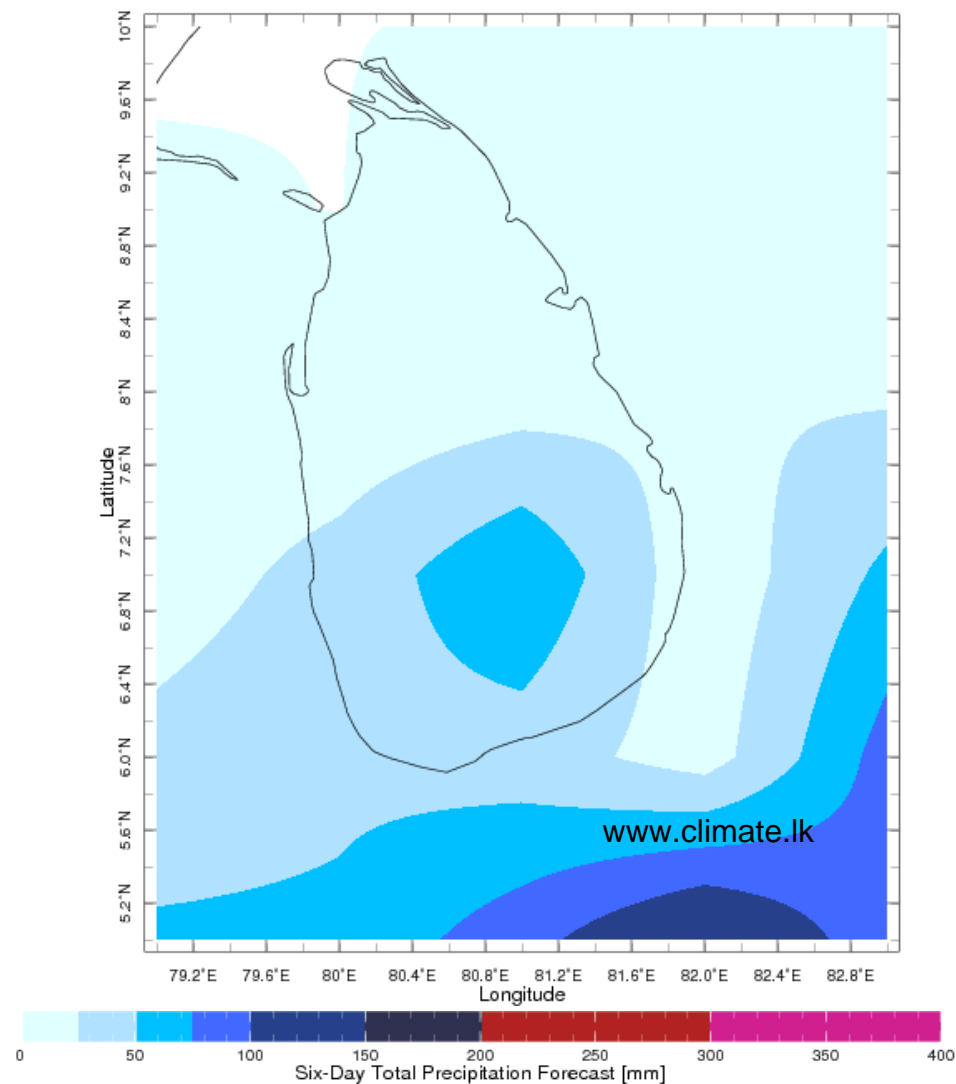
Total rainfall forecast from the IRI for next six days is provided in figures below. The figure to the left shows the expectancy of heavy rainfall events during these six days while the figure to the right is the prediction of total rainfall amount during this period.

Forecast for 27 Dec 2017 - 1 Jan 2018 Issued 0000 27 Dec 2017



Extreme Rainfall Forecast

Forecast for 27 Dec 2017 - 1 Jan 2018 Issued 0000 27 Dec 2017



Total Six Day Precipitation Forecast