Experimental Climate Monitoring and Prediction

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2 February 2017

Highlights

- *The WRF model predicts up to 3.5 mm of rainfall in Northern and Eastern coastal regions of Sri Lanka on the 2nd and 3rd.*
- *Between 25-31 Jan: highest rainfall of 120 mm was recorded in Hambantota district on the 26th.*
- *From 22-28 Jan: minimum temperature of 15 ⁰C was recorded from Nuwara Eliya district while North Central, Wayamba, Western and Southern Provinces of the island recorded a maximum temperature between 30-35 ⁰C.*
- *From 24-30 Jan: up to 25 km/h easterly winds were experienced by the entire Island.*

Monitoring

Rainfall

Weekly Monitoring: On 25th Polonnaruwa, Matale, Anuradhapura districts and Kankasanturai region of Jaffna district received up to 50 mm of rainfall; several regions of Kurunegala, Monaragala and Ampara districts up to 20 mm; and adjacent northern and south western sea received up to 140 mm of rainfall. On the 26th coastal regions of Hambantota district received up to 120 mm of rainfall; Galle and Matara districts up to 90 mm; Batticaloa district up to 70 mm; Puttalam, Polonnaruwa, Ampara and Badulla up to 50 mm; Anuradhapura, Kalutara, Matale and Ratnapura up to 40 mm; Mannar, Mullaitivu, Vavuniya, Trincomalee, Colombo and Kandy districts up to 30 mm; and rest of the districts up to 20 mm. On 27th Mannar district received up to 50 mm of rainfall; Kilinochchi, Mullaitivu, Anuradhapura and Vavuniya districts up to 30 mm; Trincomalee district up to 20 mm; and adjacent north eastern sea received up to 80 mm. On 28th Kalutara, Ratnapura and Matara districts received up to 30 mm of rainfall; and Kuranegala and Matale districts received up to 20 mm of rainfall. On 29th Gampaha, Colombo and Kegalla districts received up to 10 mm of rainfall. No significant rainfalls were recorded during the period 30th-31st.

Total Rainfall for the Past Week: The RFE 2.0 tool shows total rainfall up to 75 mm for Anuradhapura, Mannar, Polonnaruwa, Ampara Galle, Hambantota and Matara districts; up to 50 mm of rainfall Mullaitivu, Trincomalee, Kurunegala, Vavuniya, Matale, Ratnapura, Badulla, Monaragala, Monaragala, and Kalutara districts; and up to 25 mm in rest of the island. It shows above average rainfall 100-200 mm for Hambantota district; and 50-100 mm for Galle district; and 25-50 mm in Mannar, Vavuniya, Ampara, Batticaloa, Matara Anuradhapura and Polonnaruwa districts.

Monthly Monitoring: During January - above average rainfall conditions were experienced in Jaffna, Kilinochchi, Mannar, and several regions of Anuradhapura, Polonnaruwa, Matale, Puttalam, Matara and Hambantota districts. These regions received up to 60 mm above average rainfall. Batticaloa, Ampara and Badulla districts received up to 150 mm below average rainfall; and up to 90 mm below average rainfall in many parts of the island. Monthly average rainfall for Anuradhapura, Polonnaruwa, Batticaloa, Ampara, Ratnapura, Galle, Matara and Hambantota amounted to 150 mm/month; and 90 mm/month for many parts of the island. The CPC Unified Precipitation Analysis tool shows ~100 mm of total rainfall in Mannar, Anuradhapura, Polonnaruwa, Galle, Batticaloa, Ampara, Hambantota, Ratnapura and Matale districts; and up to ~75 mm for many parts of the island.

Ocean State (*Text Courtesy IRI*)
Pacific sea state: January 19, 2016
During mid-January 2016 the tropical Pacific SST anomaly was near -0.5C, the threshold for weak La Niña. Many of the atmospheric variables across the tropical Pacific also remain consistent with weak La Niña conditions, although some have become only weakly so. The upper and lower atmospheric winds have continued to be weakly suggestive of a strengthened Walker circulation, and the cloudiness and rainfall remain suggestive of La Niña conditions. The collection of ENSO prediction models indicates SSTs, now near the threshold of La Niña, is in the process of dissipating to neutral levels by February.

Indian Ocean State
0.5 ⁰C below average sea surface temperature was observed in the northern seas of Sri Lanka.

Predictions

Rainfall

14-day prediction:

NOAA NCEP models:

From 31st Jan – 7th Feb: No rainfall.
From 8th – 14th Feb   : No rainfall.

IMD WRF & IRI Model Forecast:
2nd Feb: Rainfall up to 7.6 mm in Galle districts; and up to 2.5 mm in Kilinochchi, Mullaittivu, Vavuniya, Mannar and Trincomalee districts.

3rd Feb: Rainfall up to 2.5 mm in Vavuniya, Trincomalee and Batticaloa districts.

Seasonal Prediction: IRI Multi Model Probability Forecast
February to April: the total 3-month precipitation shall be climatological for the whole island. The 3-month temperature has more than 70-80% likelihood in the entire country of being in the above-normal tercile.

MJO based OLR predictions

For the next 15 days:
MJO shall enhance the rainfall of Sri Lanka in next 5 days and shall not have a significant impact on the rainfall in the 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.

Weekly Hydro- Meteorological Report for Sri Lanka

Inside This Issue
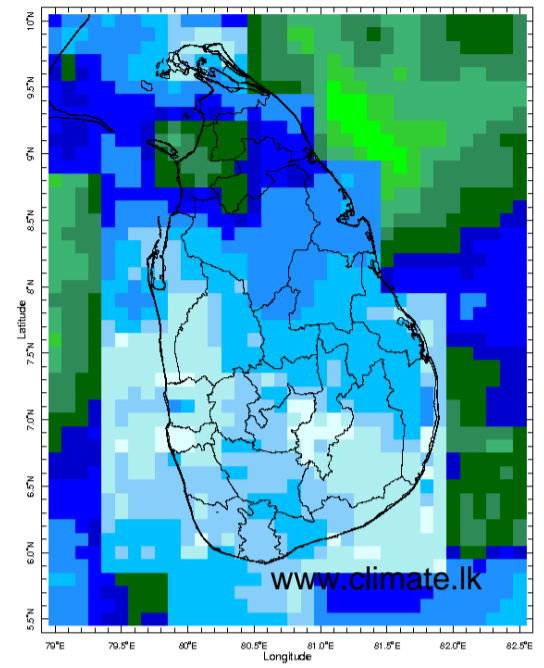
Daily Rainfall Monitoring

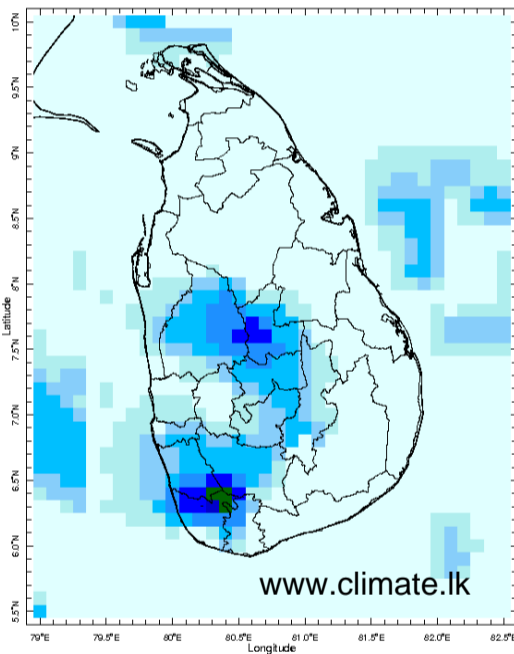**The following figures show the satellite observed rainfall in the last 7 days in Sri Lanka.**
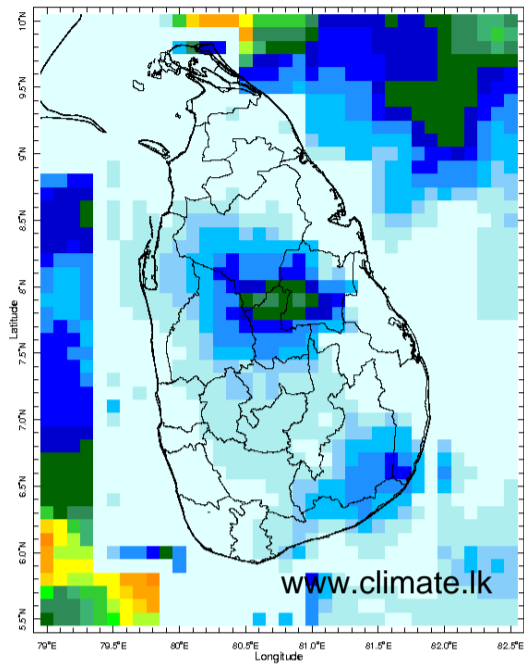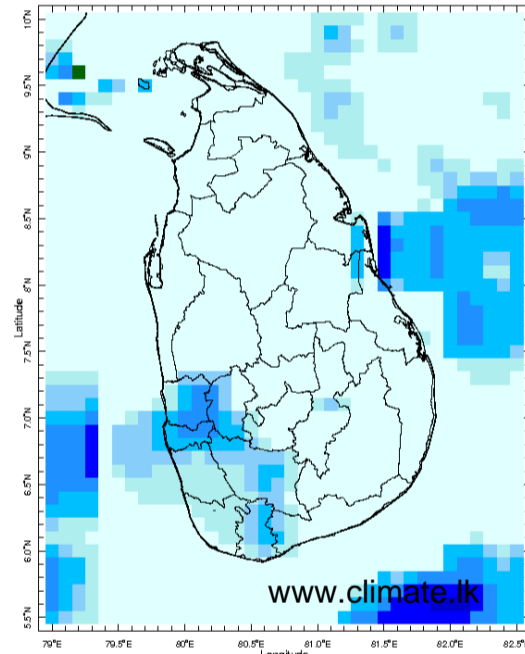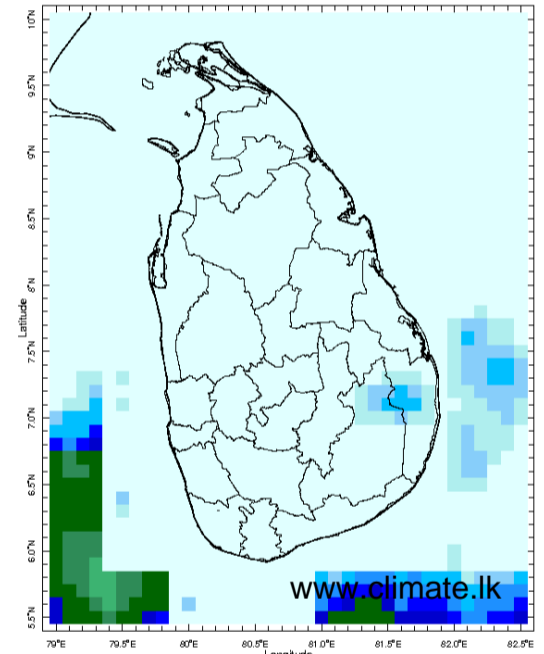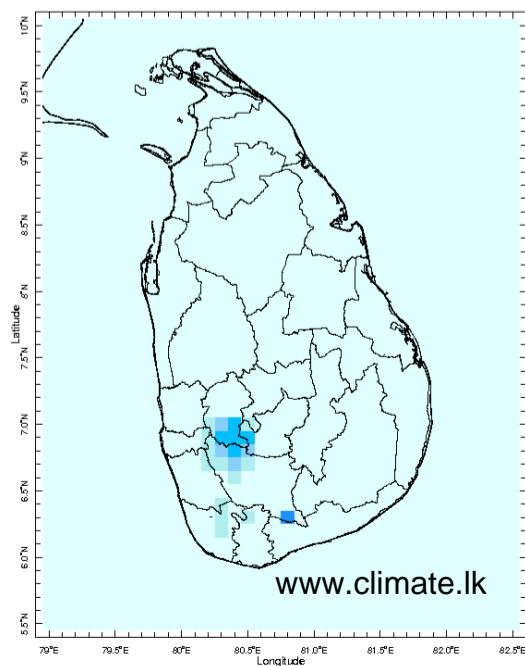

25 Jan 2017
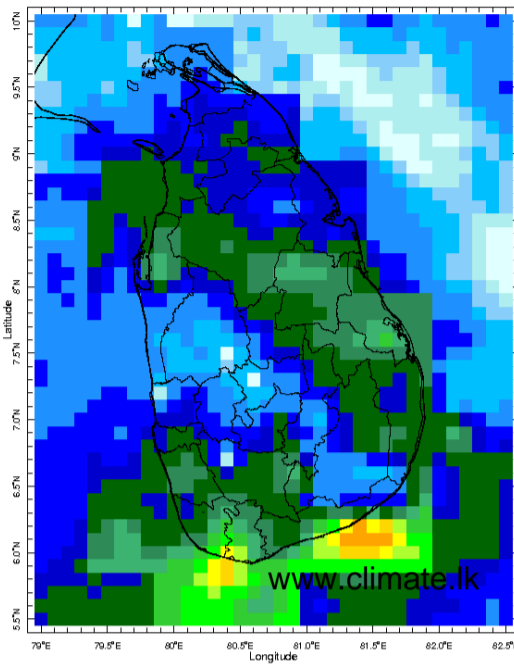
26 Jan 2017

27 Jan 2017

28 Jan 2017

29 Jan 2017

30 Jan 2017

31 Jan 2017

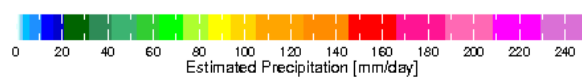Estimated Precipitation [mm/day]

0   20   40   60   80   100   120   140   160   180   200   220   240

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
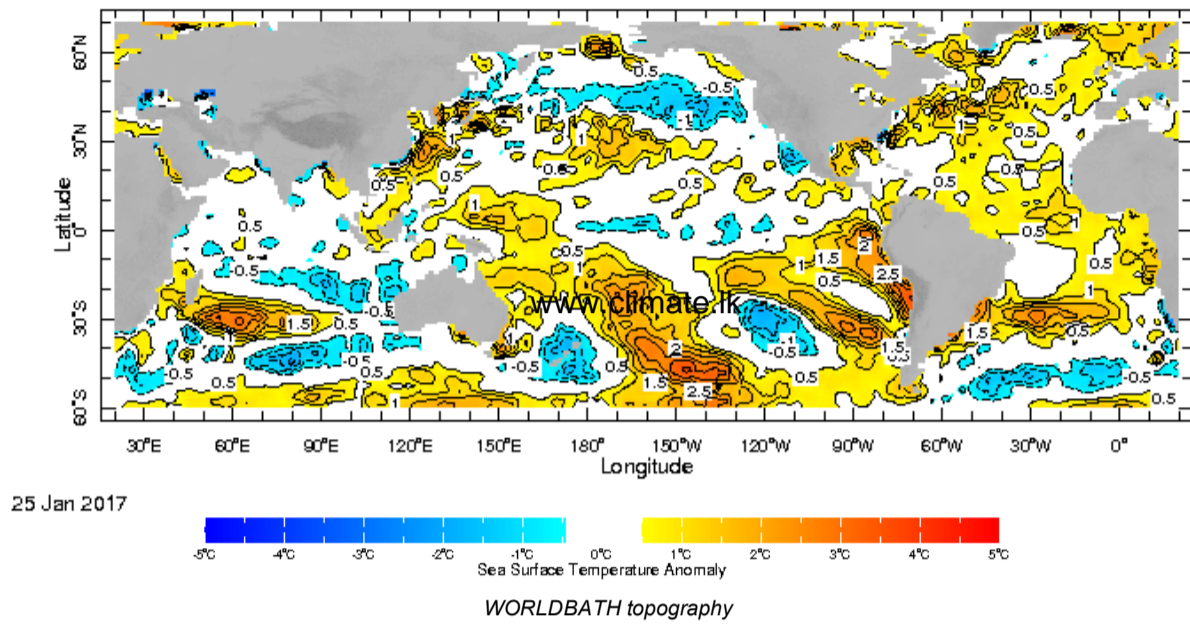

Monthly Average

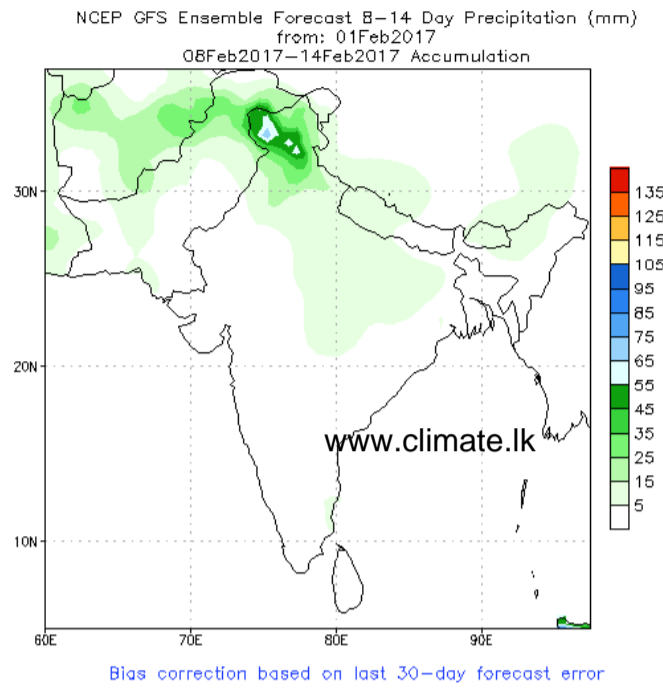**Monthly Anomaly**
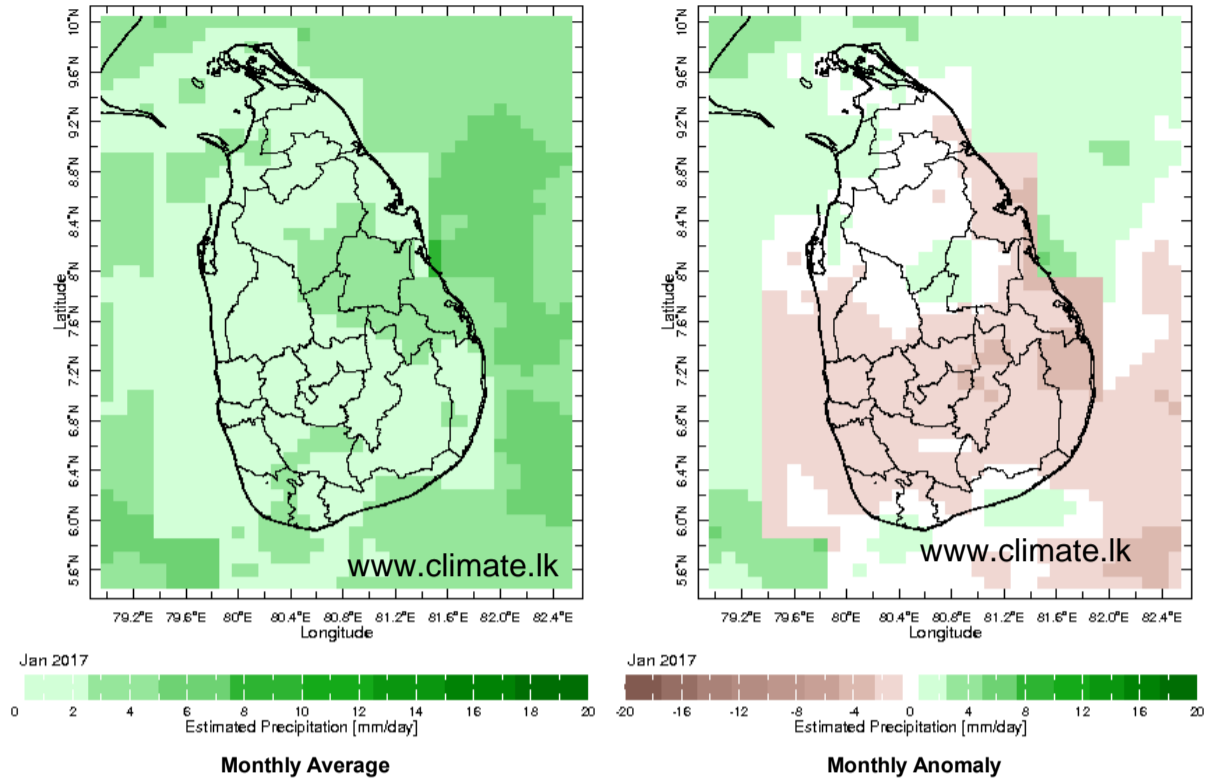
Dekadal (10 Day) Satellite Derived Rainfall Estimates
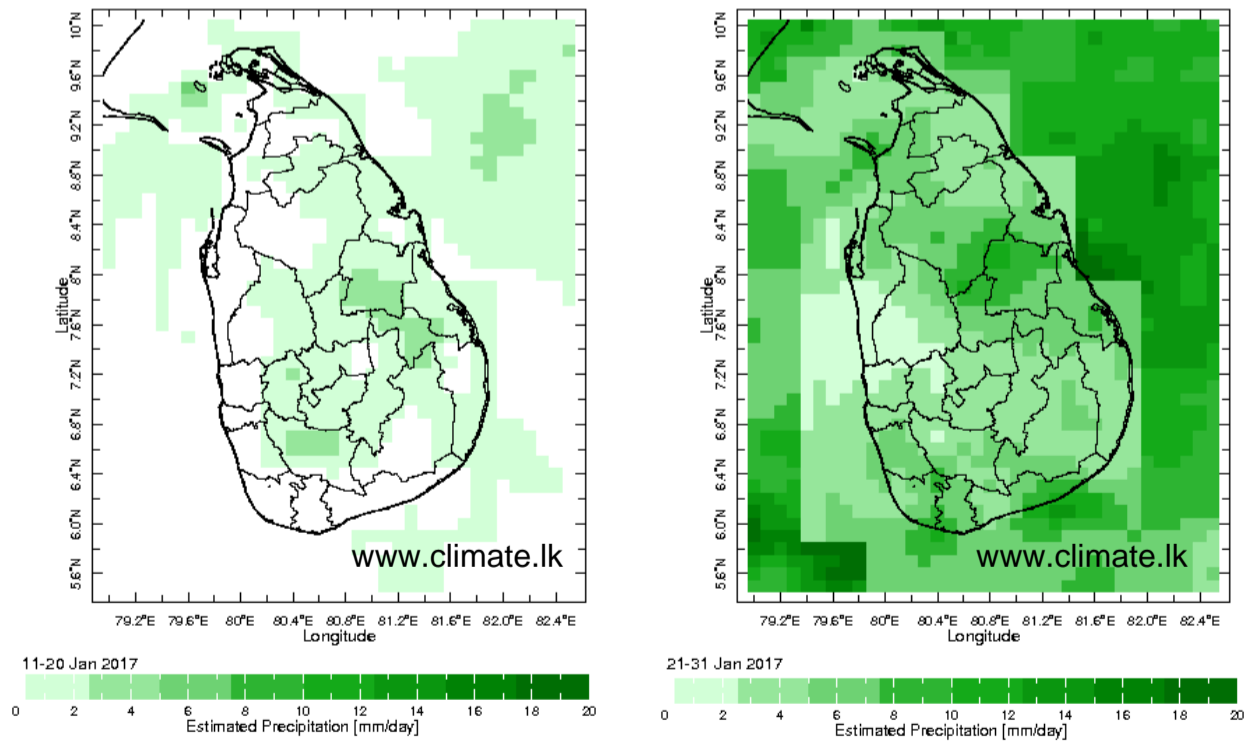
Weekly Average SST Anomalies

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

25 Jan 2017

Sea Surface Temperature Anomaly

WORLDBATH topography

NCEP GFS 1- 14 Day prediction

NCEP GFS Ensemble Forecast 1-7 Day Precipitation (mm)
from: 01Feb2017
01Feb2017-07Feb2017 Accumulation

Bias correction based on last 30-day forecast error

NCEP GFS Ensemble Forecast 8-14 Day Precipitation (mm)
from: 01Feb2017
08Feb2017-14Feb2017 Accumulation

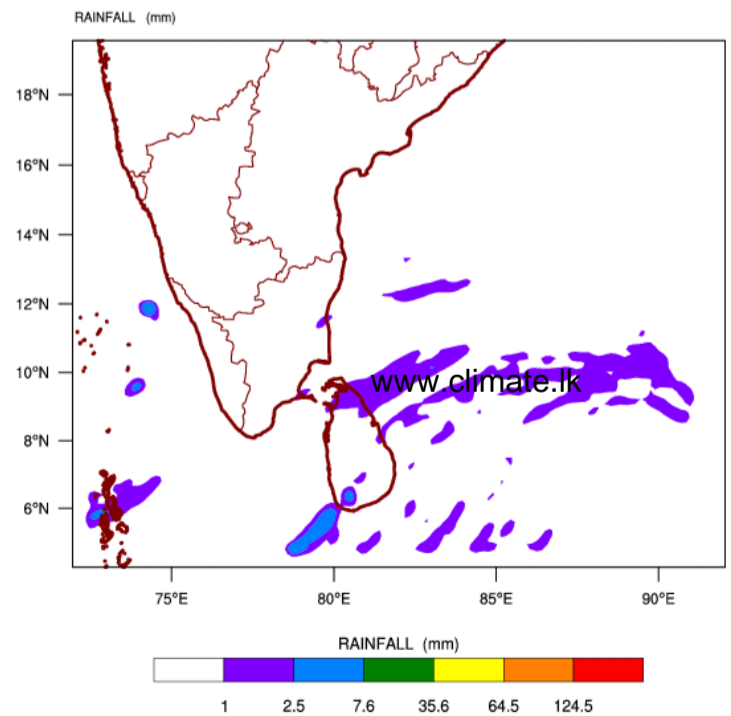Bias correction based on last 30-day forecast error
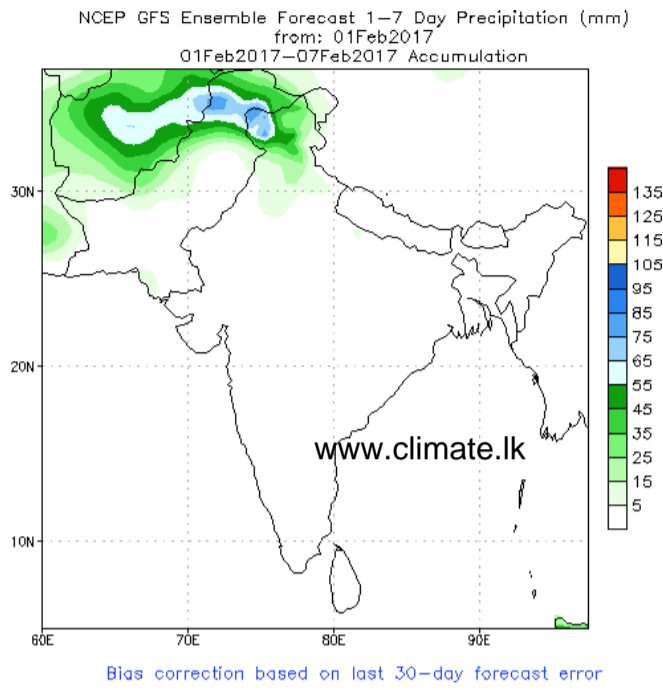
WRF Model Forecast (from IMD Chennai)

WRF MODEL FORECAST (48 HR.) RAINFALL(mm)\
based on 00 UTC of 01-02-2017 valid for 03 UTC of 03-02-2017
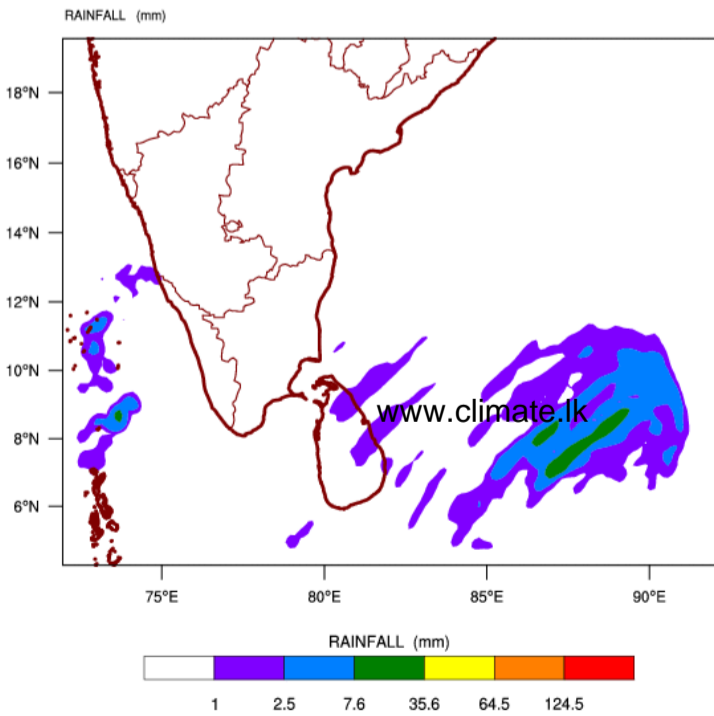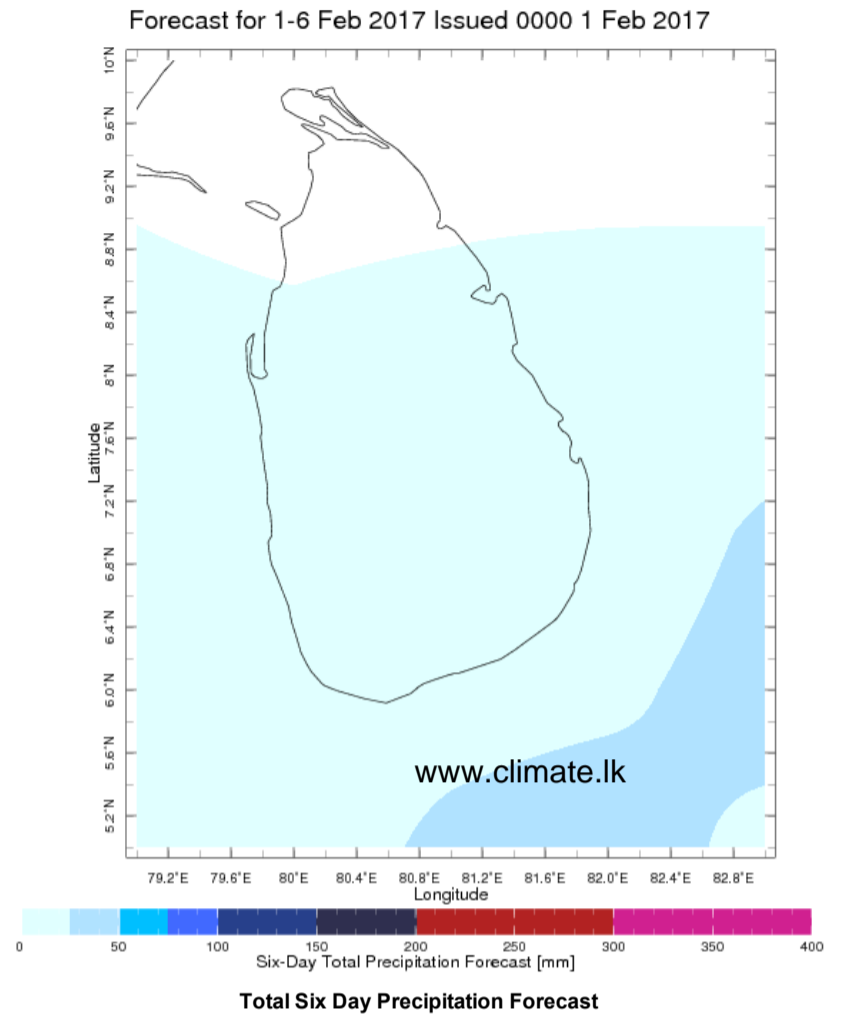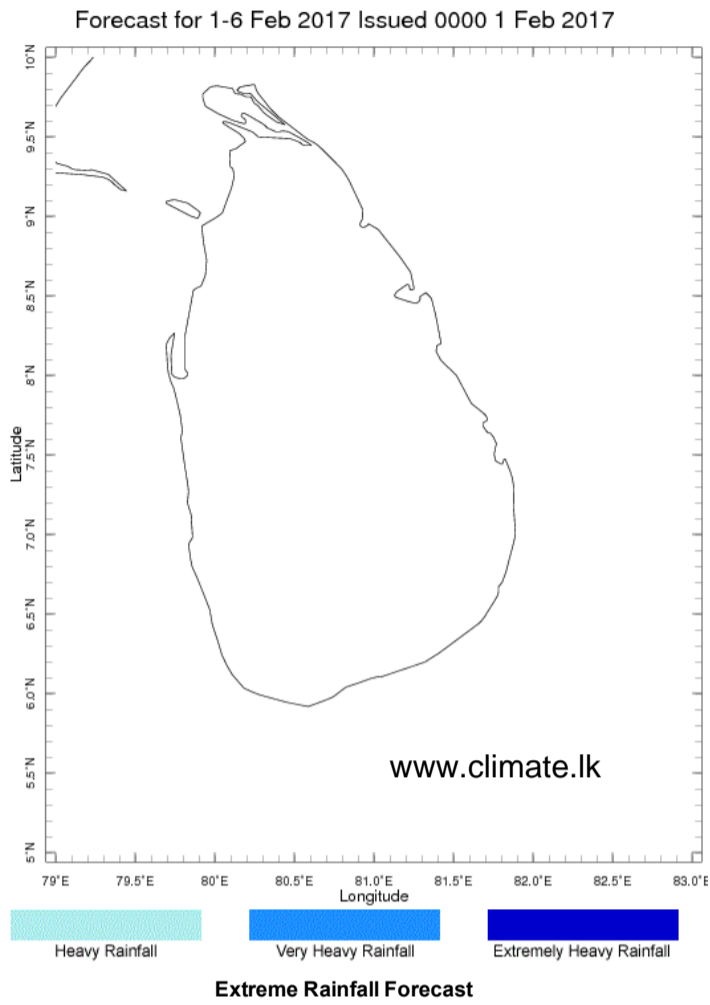

WRF-RegGSI MODEL FORECAST(72 HR.) RAINFALL(mm)\
based on 00 UTC of 30-01-2017 valid for 03 UTC of 02-02-2017

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 1-6 Feb 2017 Issued 0000 1 Feb 2017

www.climate.lk

Heavy Rainfall   Very Heavy Rainfall   Extremely Heavy Rainfall

Extreme Rainfall Forecast

Forecast for 1-6 Feb 2017 Issued 0000 1 Feb 2017

www.climate.lk

0   50   100   150   200   250   300   350   400
Six-Day Total Precipitation Forecast [mm]

Total Six Day Precipitation Forecast
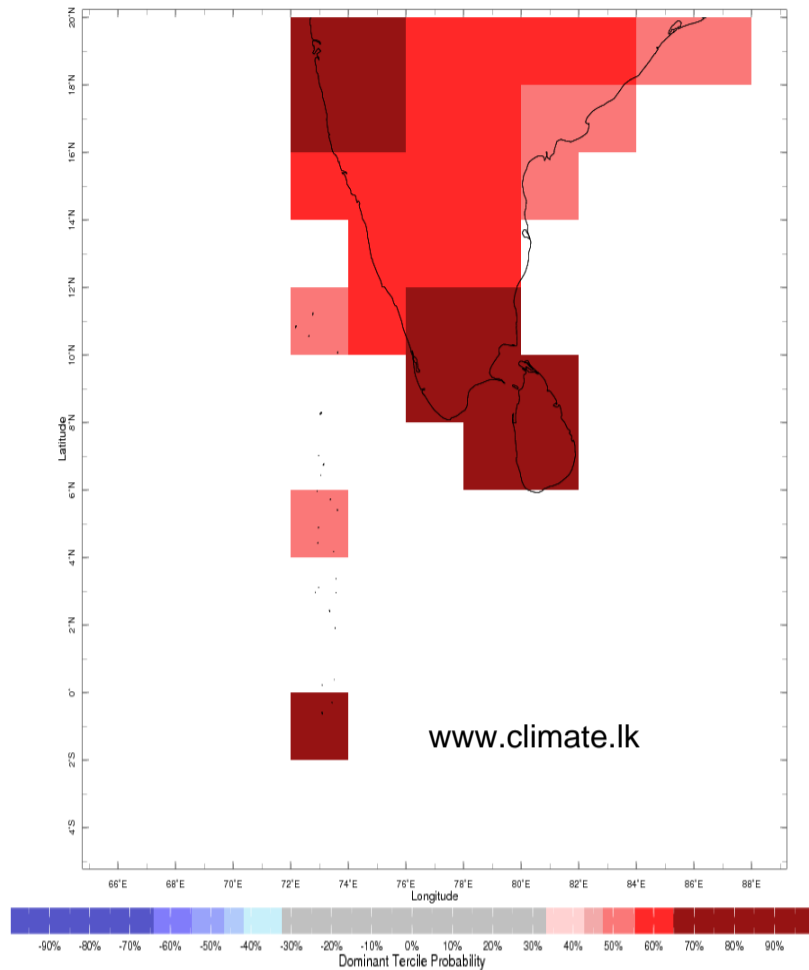
Seasonal Rainfall and Temperature Forecast

Following is the latest seasonal precipitation and temperature prediction for the next 3 months by the IRI. The color shading indicates the probability of the most dominant tercile -- that is, the tercile having the highest forecast probability. The color bar alongside the map defines these dominant tercile probability levels. The upper side of the color bar shows the colors used for increasingly strong probabilities when the dominant tercile is the above-normal tercile, while the lower side shows likewise for the below-normal tercile. The gray color indicates an enhanced probability for the near-normal tercile (nearly always limited to 40%).

Feb-Apr 2017 IRI Seasonal Precipitation Forecast issued Jan 2017
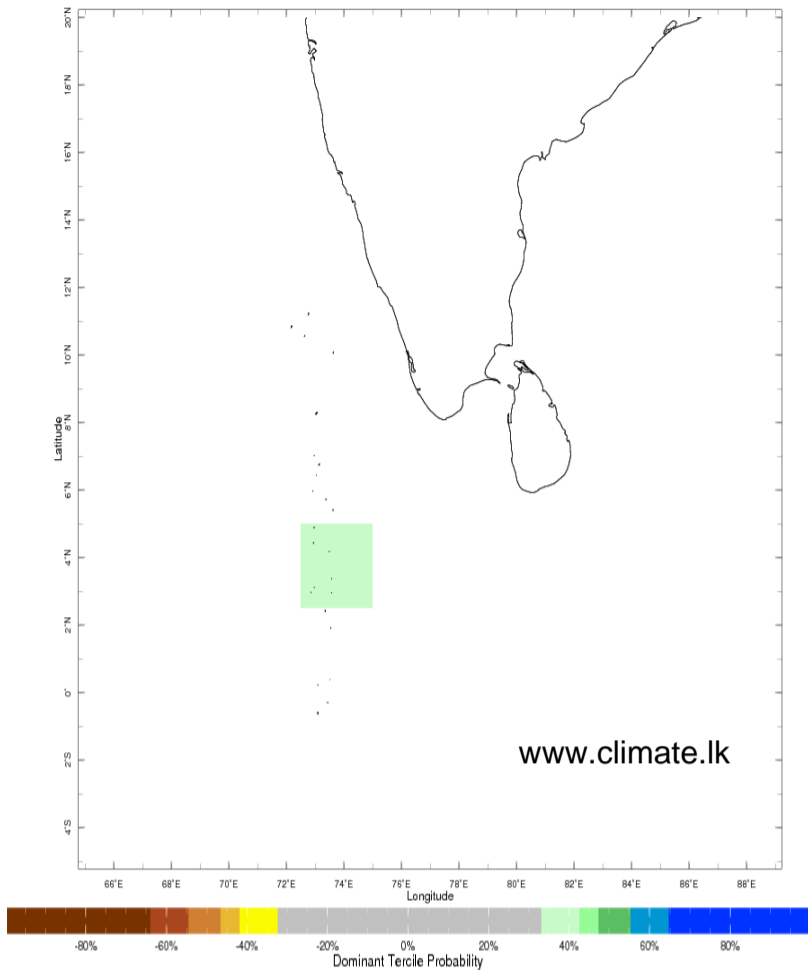
Precipitation Forecast

Feb-Apr 2017 IRI Seasonal Temperature Forecast issued Jan 2017

Temperature Forecast