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Experimental Climate Monitoring and Prediction for the Maldives – April 2015

Prepared by Staff from Foundation for Environment, Climate and Technology, Sri Lanka and USA, Maldives Meteorological Service, and Columbia University
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20 April 2015

PACIFIC SEAS STATE

April 16, 2015

During March through early-April 2015 the SST met the threshold for weak Niño conditions. Most of the atmospheric variables now indicate an El Niño pattern, including weakened trade winds, low Southern Oscillation Index and excess rainfall in the vicinity of the dateline. The consensus of ENSO prediction models indicate weak El Niño conditions during the April-June 2015 season in progress, likely strengthening during summer and lasting through 2015.

(Text Courtesy IRI)

INDIAN OCEAN STATE

April 18, 2014

Warmer than usual Sea surface temperature was observed particularly around Southern half of Maldives

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Highlights

After a relatively dry January, February and March some rainfall was observed in the first two weeks of April. This is the highest observed rainfall this year in the entire country. This rainfall coincided with the atmospheric phenomenon known as Madden Julian Oscillation being strong and in phase 3 (and over the Indian Ocean) which is usually associated with higher rainfall over Maldives. But as the MJO transited to phase 5 over the Pacific in the previous week (11th onwards) was once again dry. The NOAA CFS long range weather prediction models predict dry conditions in the next week as well. Usually in April relatively high rainfall can be observed (about 200 mm- 400 mm monthly). Moderate El Nino conditions have set in and as is typical there is warmer than usual seas around the Maldives. The rainfall in a typical El Nino episode over Maldives is lower than usual in Northern and Central Maldives until mid-September.

Summary

CLIMATOLOGY

Monthly Climatology: Usually in April rainfall usually increases throughout the country with northern islands receiving rainfall up to 100 mm and southern islands receiving rainfall up to 200 mm. The average precipitation in May normally increases further throughout the country. High precipitation is usually observed closer to south-western coast of India in June and gradually decreases from north to south of Maldives (about 400 mm in northern island and about 200 mm in southern islands). Wind direction is usually south-westerly in March and in April northern islands receive south-easterly wind while southern islands receive easterly wind. Strong easterly wind is usually observed in May and June.

MONITORING

Weekly Rainfall Monitoring: Between 11th and 18th of April it did not rain across the Maldives.

Monthly and Seasonal Rainfall Monitoring: Less than average rainfall was observed throughout Maldives in March 2015 with less than 100 mm total monthly rainfall observed in most parts of the country. But higher rainfall compared to previous months was observed in the first two weeks of April in the entire country. This observed rainfall in the first two weeks is the highest observed rainfall this year.

PREDICTIONS

Weekly Rainfall Forecast: According to NOAA models, significant amount of rainfall is not expected during 19th- 24th April 2015.

Seasonal Rainfall and Temperature Prediction: As per IRI Multi Model Probability Forecast for May to July, the total 3 month precipitation shall be climatological. The 3 month average temperature has a 50-60% likelihood for northern islands and about 60% likelihood for southern-most islands of being in the above-normal tercile during this period.

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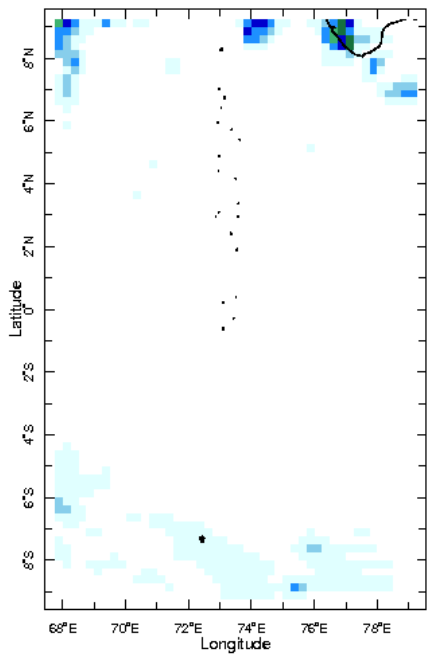
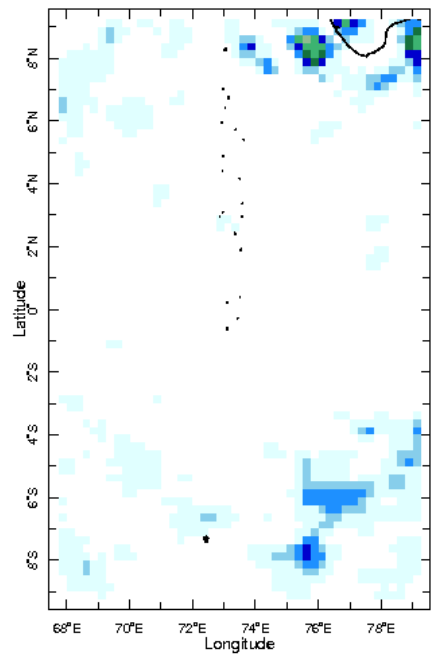
Daily Rainfall Monitoring

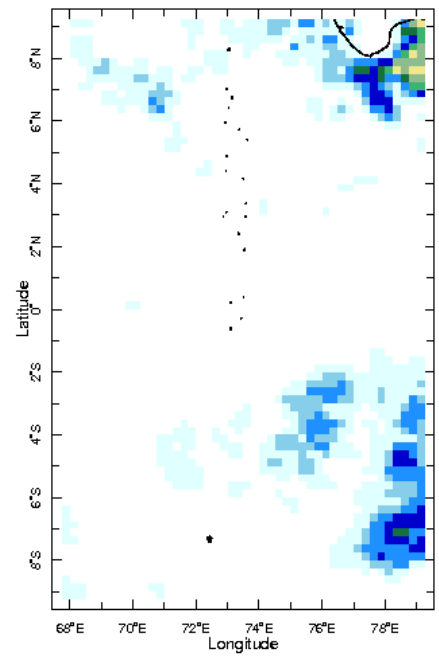
The following figures show the observed rainfall in the last 7 days in Maldives.



11 Apr 2015



12 Apr 2015



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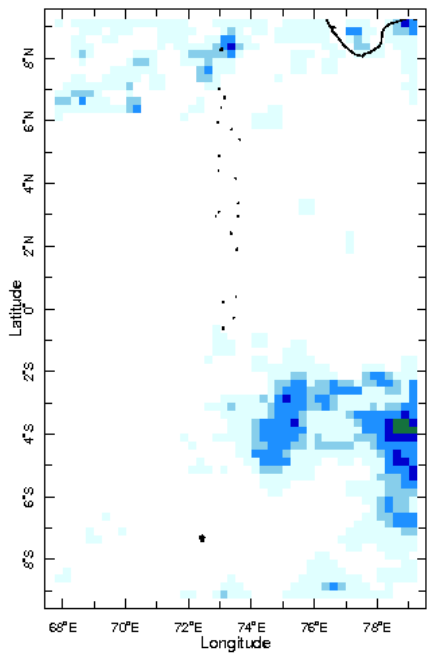

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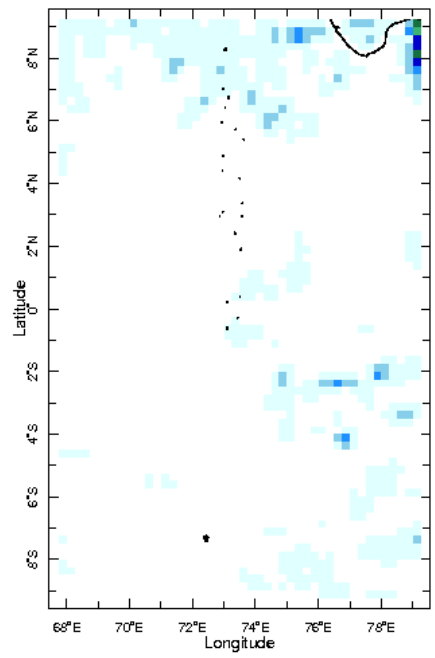
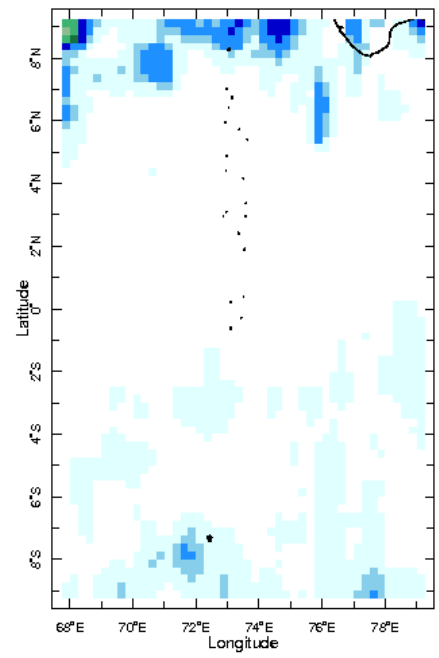
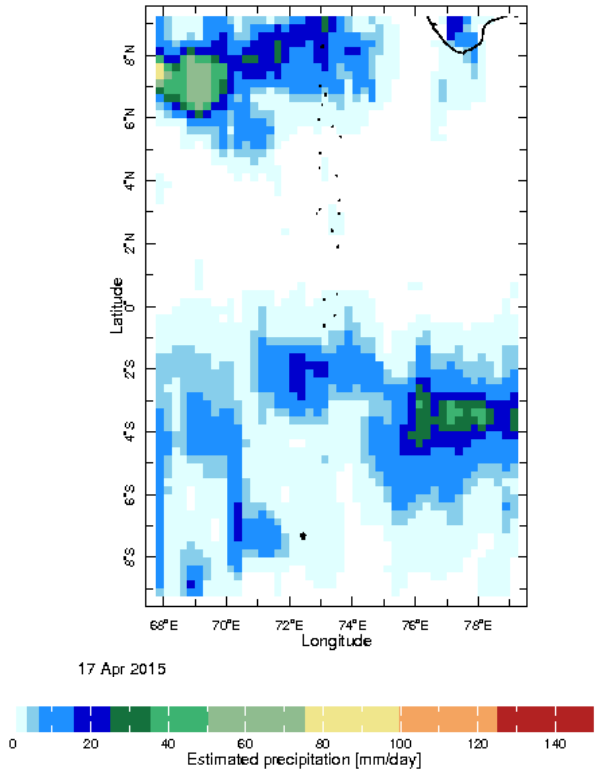


15 Apr 2015

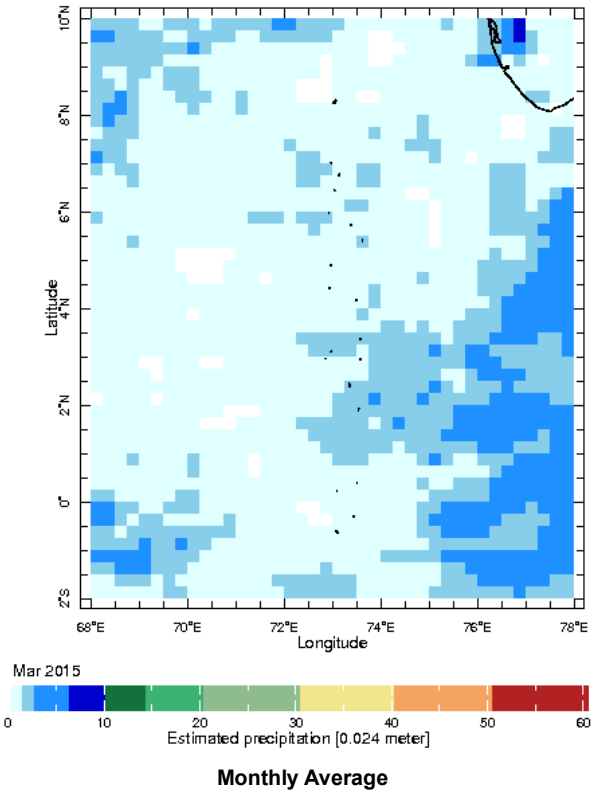


16 Apr 2015

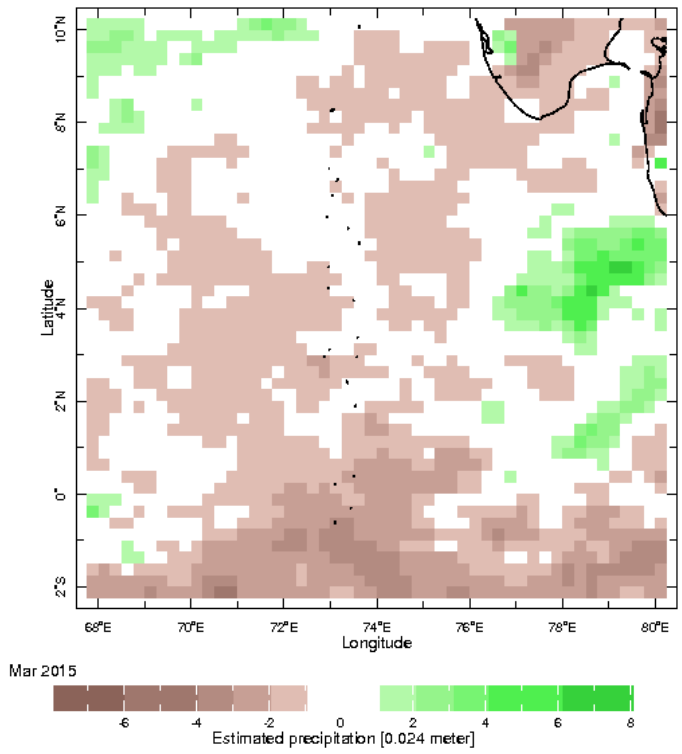

8°N
6°N
4°N
2°N
0°
2°S
4°S
6°S
8°S
Latitude
68°E
70°E
72°E
74°E
76°E
78°E
Longitude
17 Apr 2015
0
20
40
60
80
100
120
140
Estimated precipitation [mm/day]

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



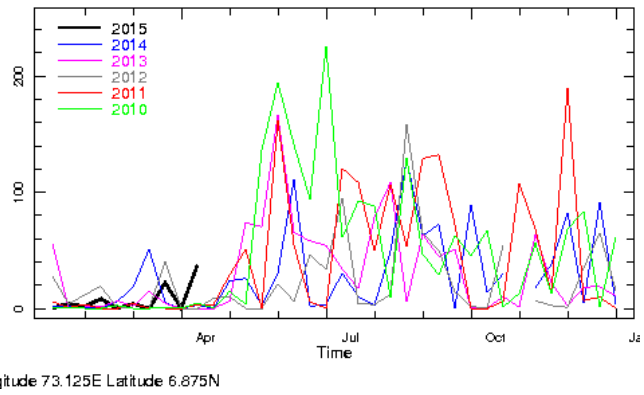
Monthly Average



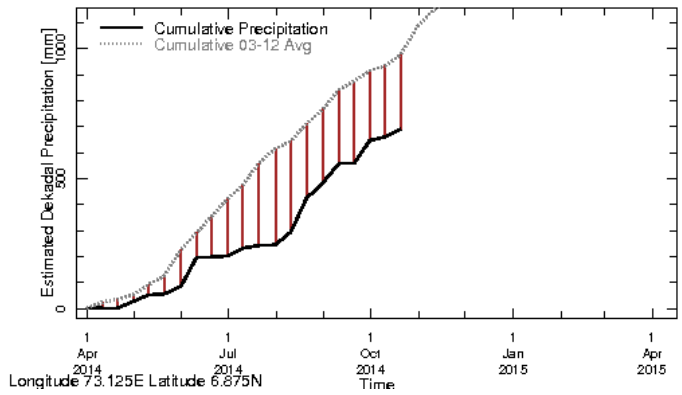
Monthly Anomaly

Monthly and Seasonal Monitoring

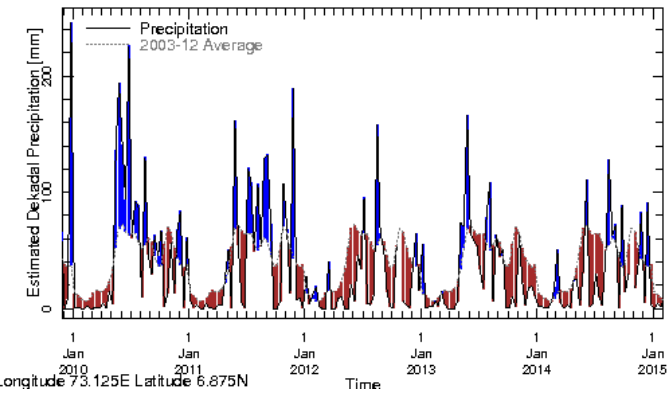
Northern Maldives:



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

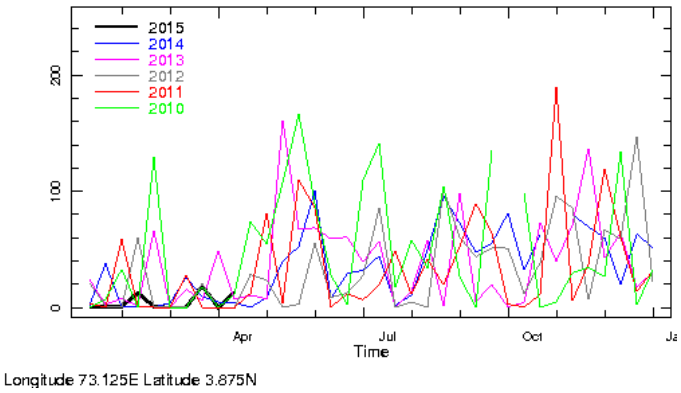


Rainfall of past 365 days (black) compared to average rainfall in previous 8 years.



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

Central Maldives:



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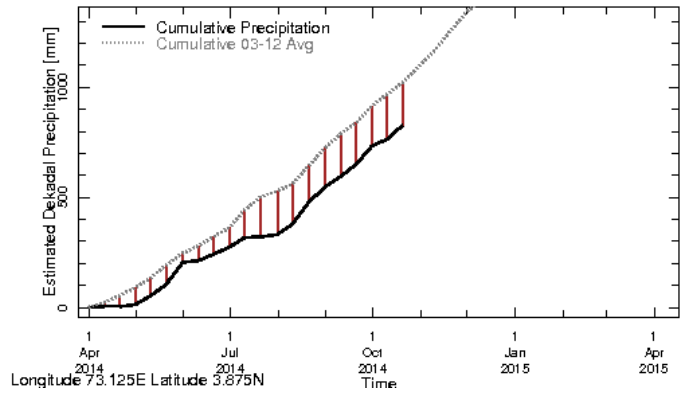

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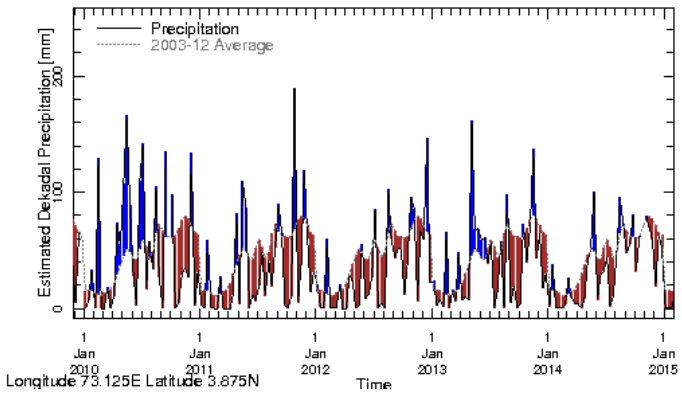
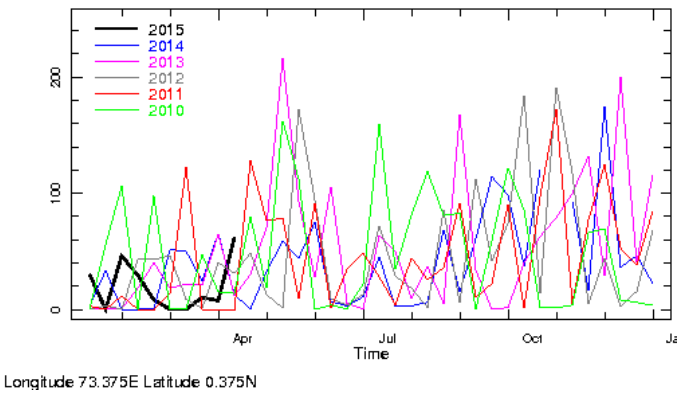


Rainfall in the past 5 years with above-average rainfall hatched in blue and below-average hatched in brown

Southern Maldives:



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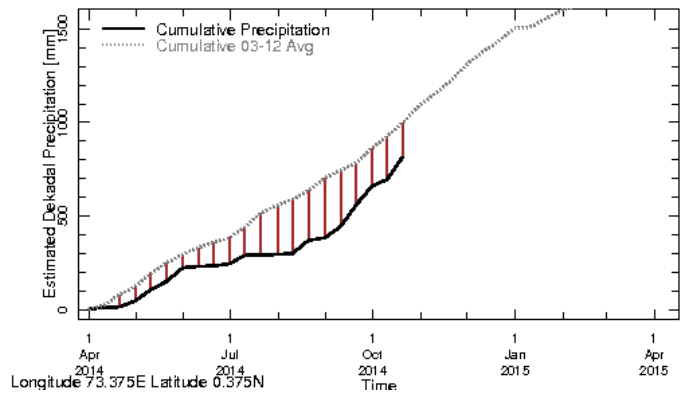

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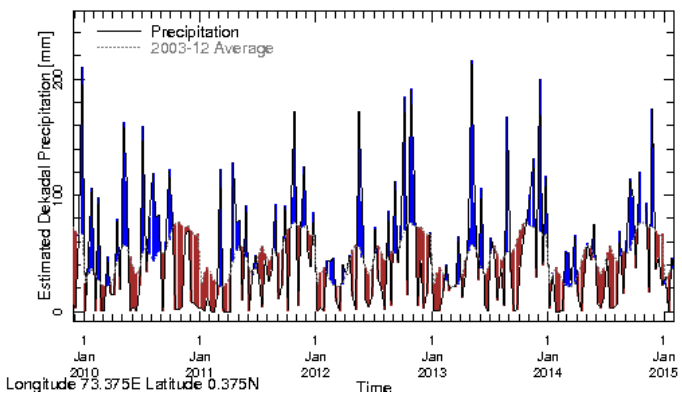
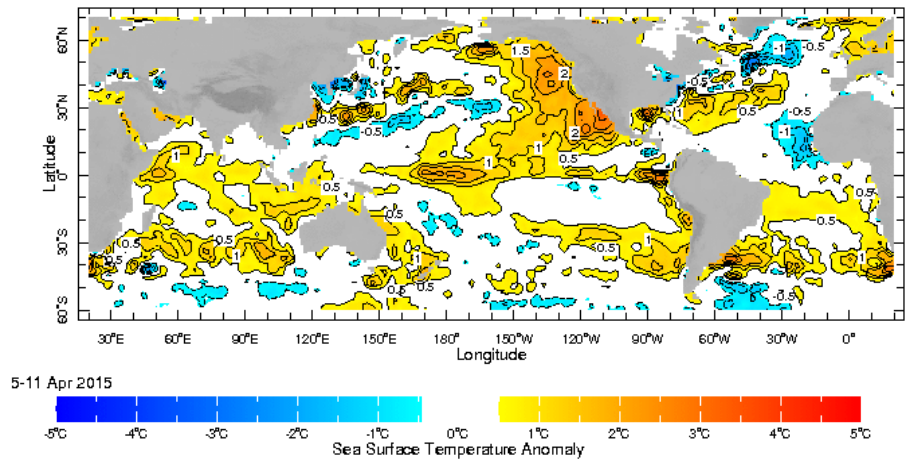


Rainfall in the past 5 years with above-average rainfall hatched in blue and below-average hatched in brown

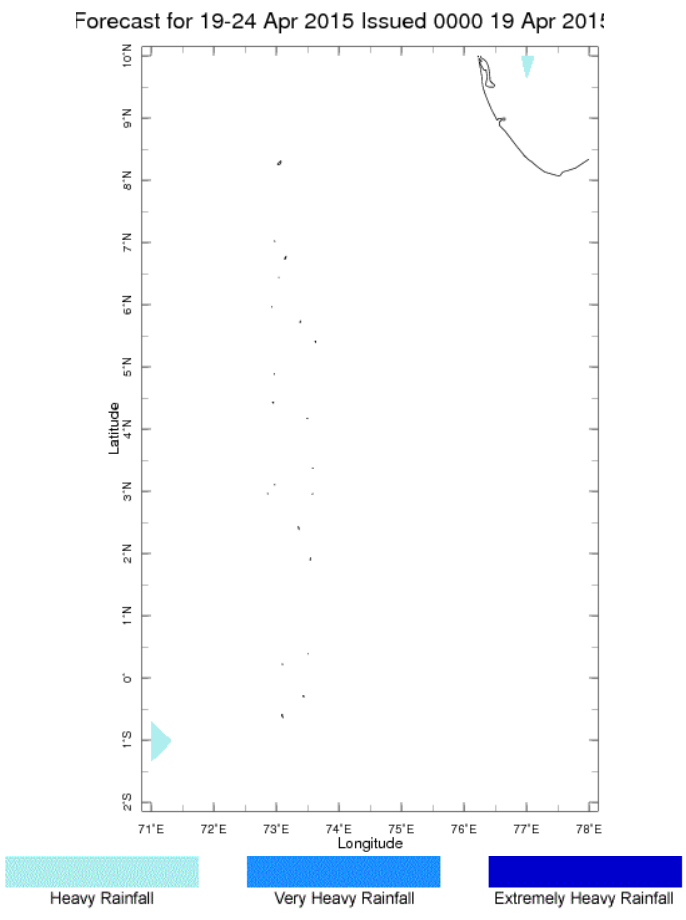
Ocean Surface Monitoring



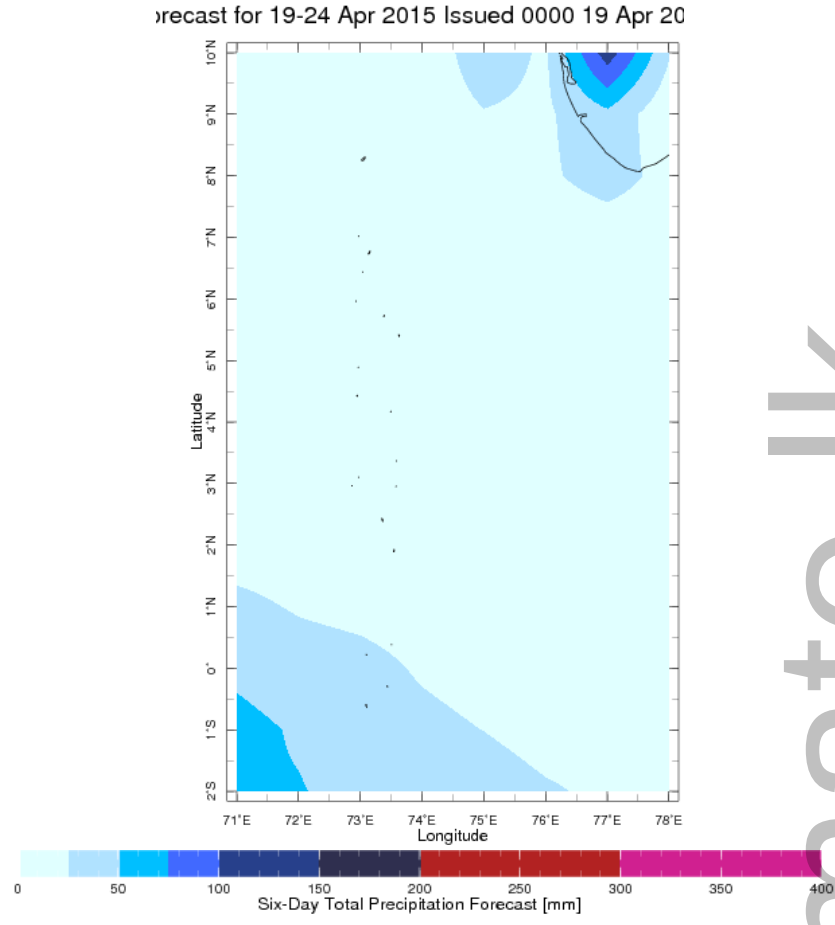
WORLDBATH topography

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.



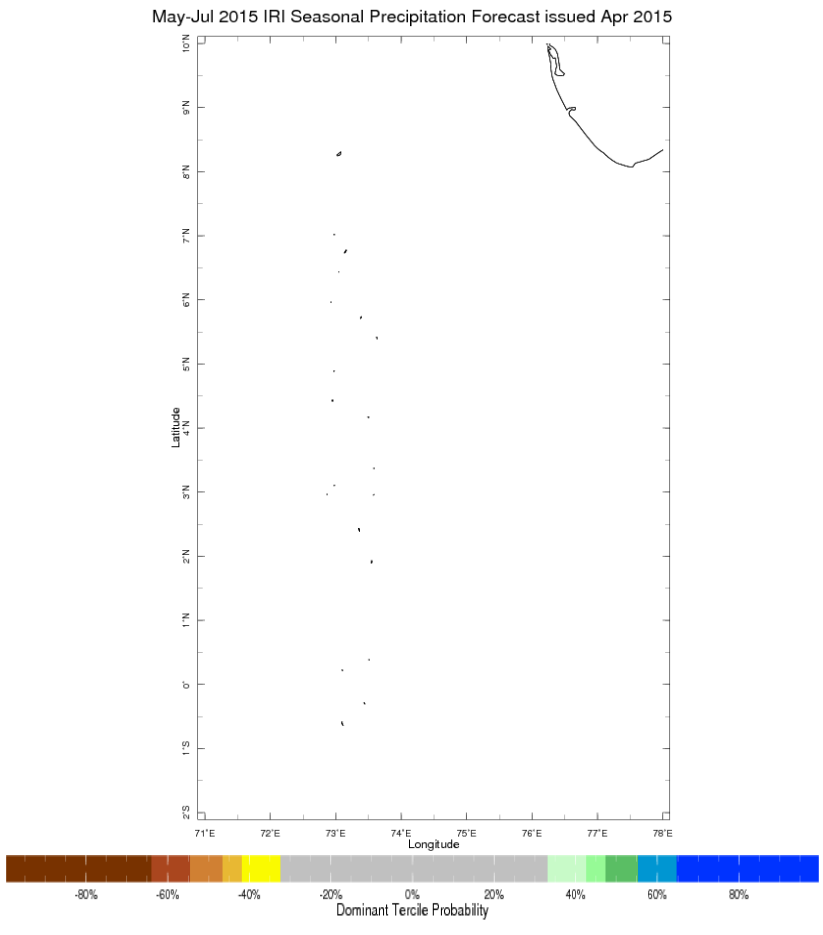
Extreme Rainfall Forecast



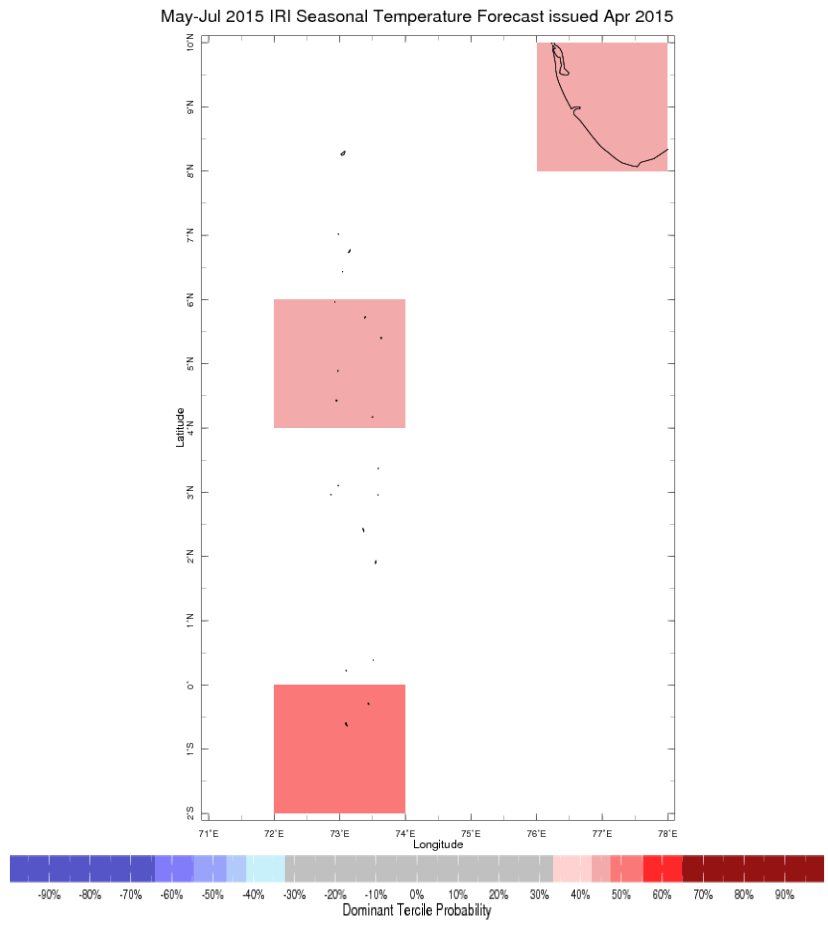
Total Six Day Precipitation Forecast

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%).



Precipitation Forecast



Temperature Forecast

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