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Experimental Climate Monitoring and Prediction for the Maldives – February 2016

Prepared by Staff from Foundation for Environment, Climate and Technology, Sri Lanka and USA, Maldives Meteorological Service, and Columbia University
(Prabodha Agalawatte, Zeenas Yahiya, Janan Visvanathan, Lareef Zubair, Zahid and Michael Bell)

February 24, 2016

PACIFIC SEAS STATE

February 18, 2016

During mid-February 2016 the tropical Pacific SST was still at a very strong El Niño level, having peaked in November and December. All atmospheric variables continue to support the El Niño pattern, including weakened trade winds and excess rainfall in the east-central tropical Pacific. Most ENSO prediction models indicate slowly weakening El Niño conditions over the coming several months, returning to neutral by May or early summer 2016, with a chance for La Niña development during September

(Text Courtesy IRI)

INDIAN OCEAN STATE

February 17, 2016

~0.5 C^0 Warmer than usual Sea surface temperature was observed around Maldives as is typical for an El Nino.

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Highlights

High rainfall compared to previous five Januaries was observed in January 2016 in southern and central islands. Southern and central islands received up to 100 and 120 mm rainfall in the final week of January 2016. February 2016 up to now has been dry compared to January and according to the IRI CFS models shall remain dry in the next few days as well. There shall be a continuation of El Nino conditions in March which shall contribute to the usual relatively dry weather during March for Central and particularly Northern Islands. The El Nino conditions and the warmer Indian Ocean conditions are leading to warmer conditions across the Maldives for the next 3 months.

Summary

CLIMATOLOGY

Monthly Climatology: In January the rainfall in Southern islands of the Maldives usually ranges from 150- 200 mm while in central and southern islands it is 100- 150 mm and 50- 100 mm respectively. Thereafter in February rainfall usually decreases to 100- 150 mm in southern islands, 50- 100 mm in central islands and less than 50 in northern islands. In March, normally, similar a rainfall pattern continues in central and southern islands while rainfall in the northern islands increases to 50- 100 mm. During January to March strong south-westerly wind is usual in the entire country.

MONITORING

Weekly Rainfall Monitoring: During 8th- 17th February, it did not rain in any part of the Maldives but throughout this period heavy rainfall was seen in the sea south of the Maldives towards Chagos. On the 18th there was up to 40 mm rainfall in central and southern islands while northern islands received light rainfall. It rained up to 140 mm in the sea close to Gan on the same day. Rainfall increased up to 100 mm on the 19th in southern islands while northern and central islands received light rainfall. The entire country received light rainfall on the 20th. Thereafter rainfall ceased on the 21st and dry conditions continued on the 22nd.

Monthly and Seasonal Rainfall Monitoring: In January 2016 central and southern islands mostly received about 10 mm/ day rainfall while some islands towards south received up to 20 mm/ day rainfall. Northern islands received up to 5 mm/ day light rainfall. Furthermore, southern and central islands received excess rainfall than the historical average during January while northern islands received below average rainfall. The sea west of southern islands received heavy rainfall (up to 20 mm/ day) during this month. In central islands there was heavy rainfall up to 120 mm in the final week of January 2016. Up to 100 mm rainfall was also observed in southern islands in that week which are the highest of rainfalls in January in the past 6 years. In January, usually it does not rain much In the Maldives.

PREDICTIONS

Weekly Rainfall Forecast: According to NOAA CFS models, significantly heavy rainfall is not expected in any atoll of the Maldives during 23- 28th February 2016. Central islands shall get up to 75 mm total rainfall during this period.

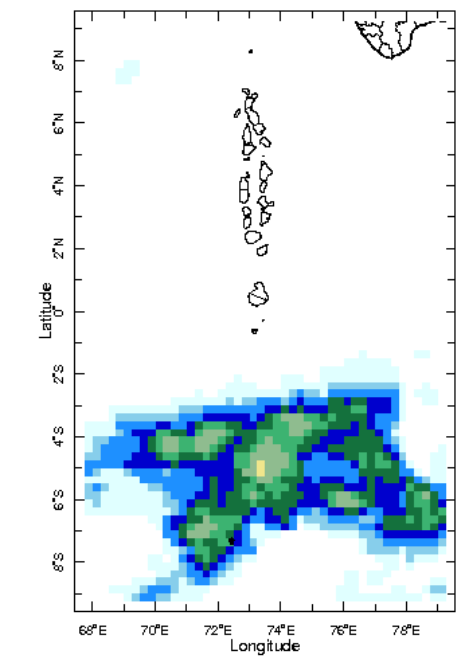
Seasonal Rainfall and Temperature Prediction: As per IRI Multi Model Probability Forecast for March to May 2016, the rainfall shall be 40- 50% below normal for Central Islands. During an El Nino the usually dry tendency in January- March in the Central and Northern Islands is likely to prevail. The 3-month average temperature has a 70-80% likelihood to be in the above-normal tercile during these 3 months for all islands in the Maldives.

Inside this Issue

www.climate

Daily Rainfall Monitoring

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



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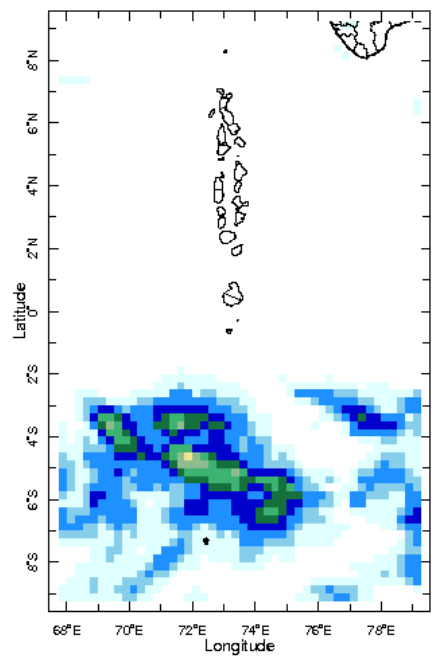

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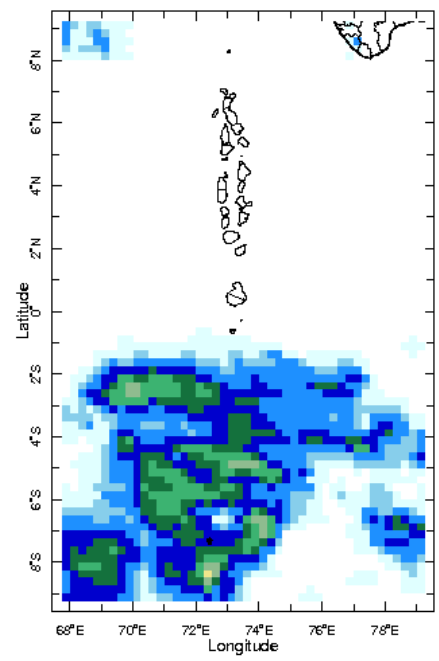

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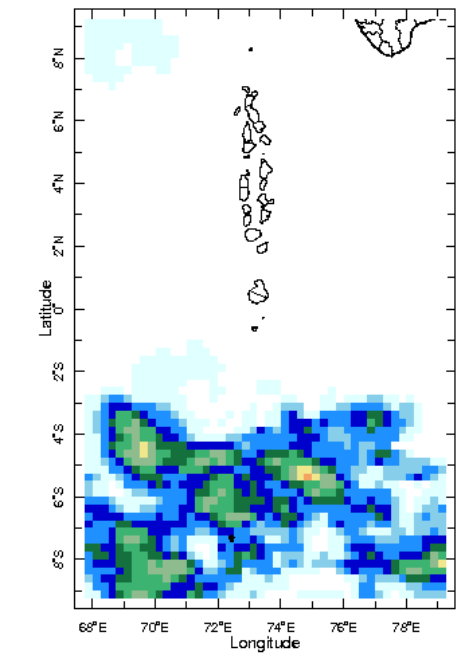

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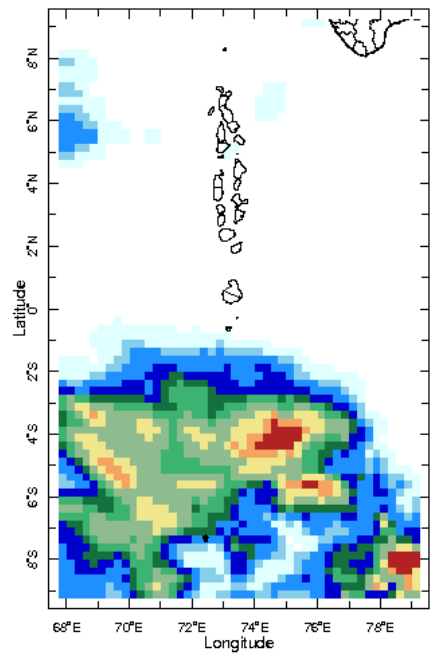

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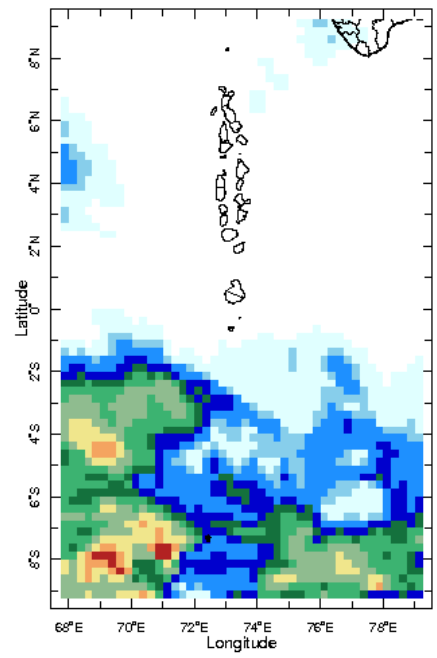

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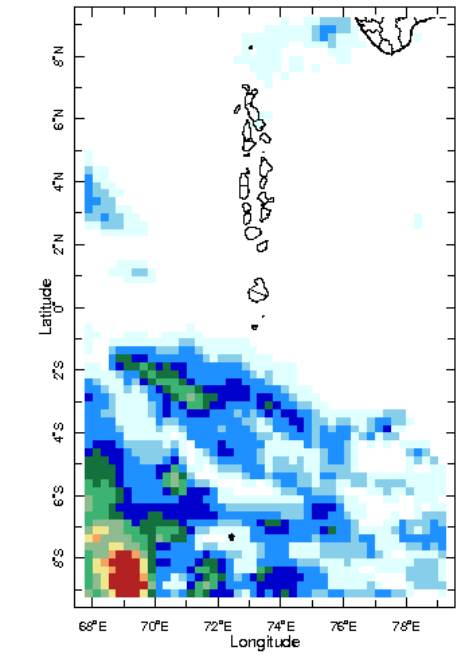

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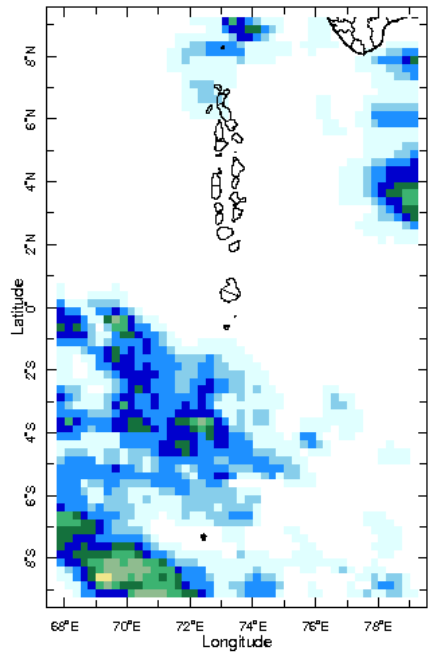

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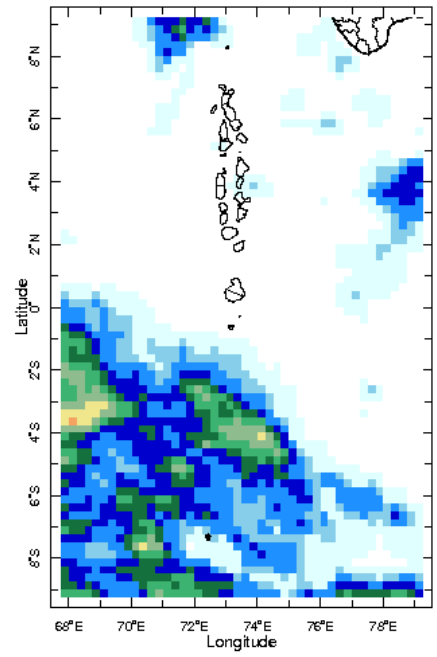

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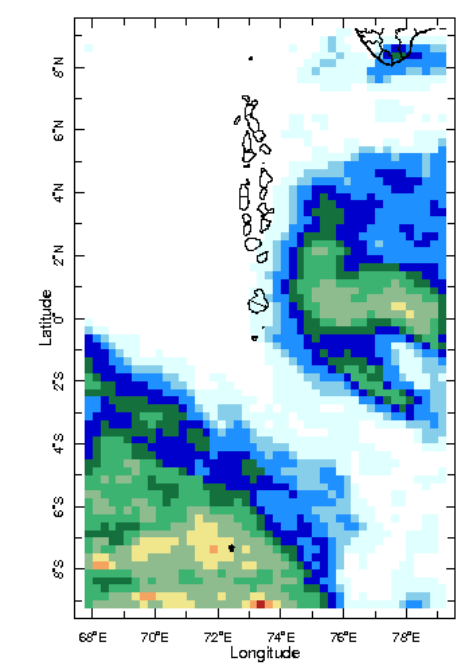

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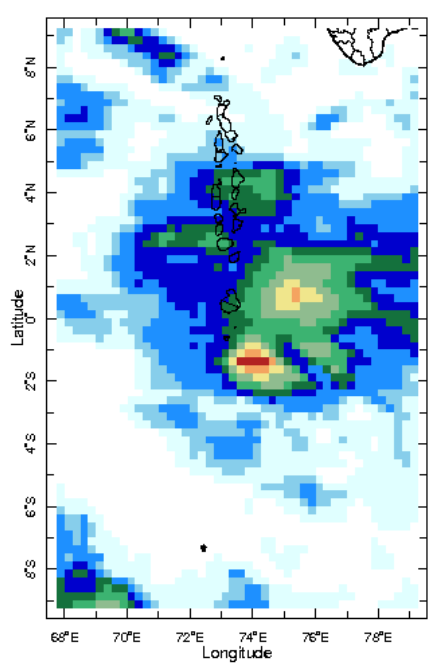

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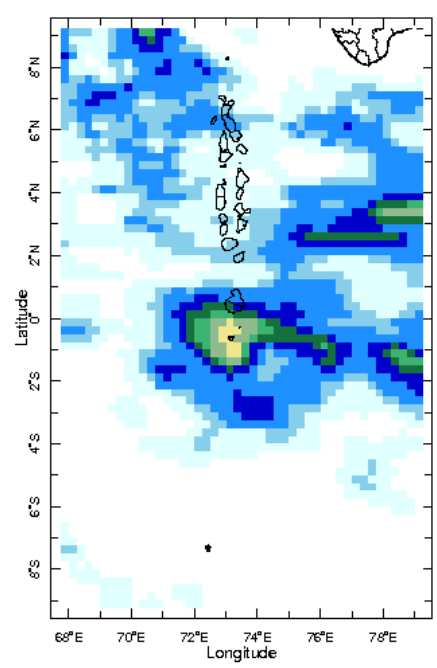

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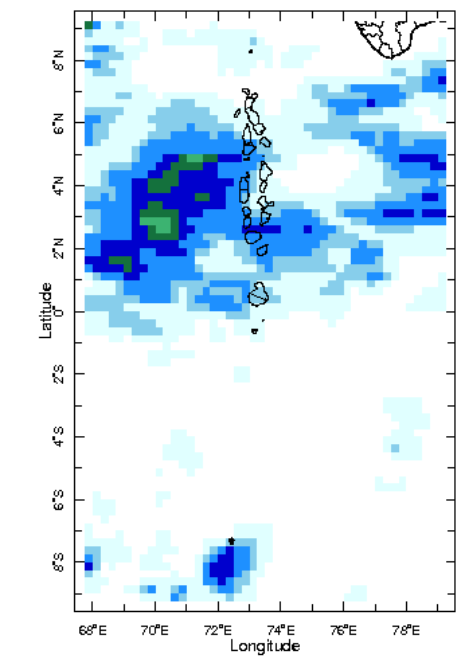

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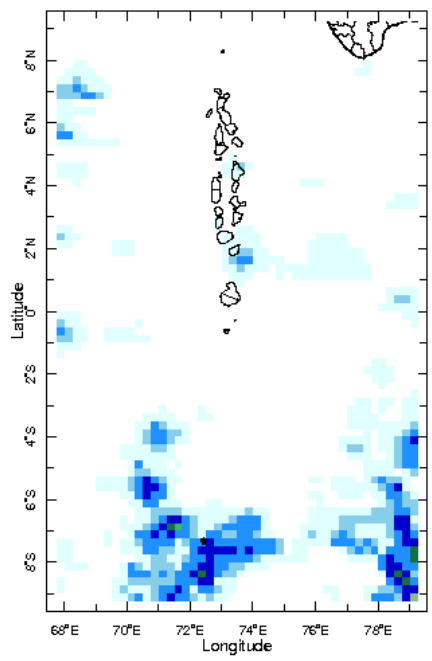

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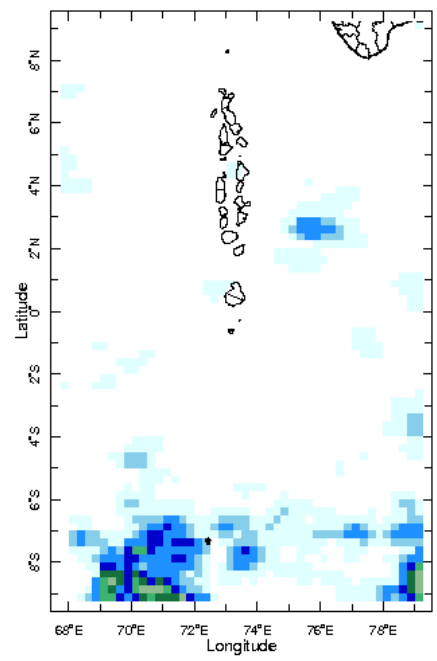

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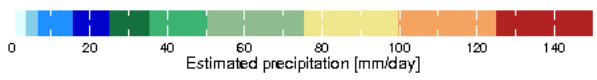
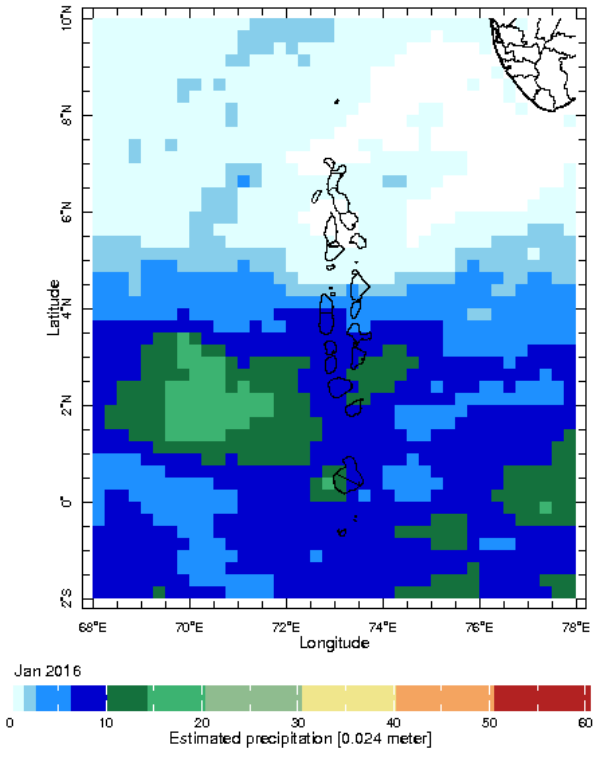
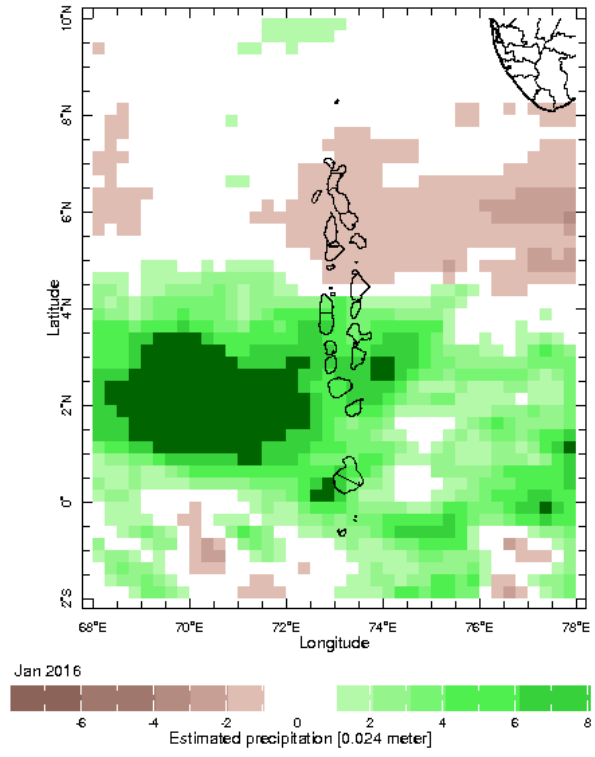


Monthly Rainfall Monitoring

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



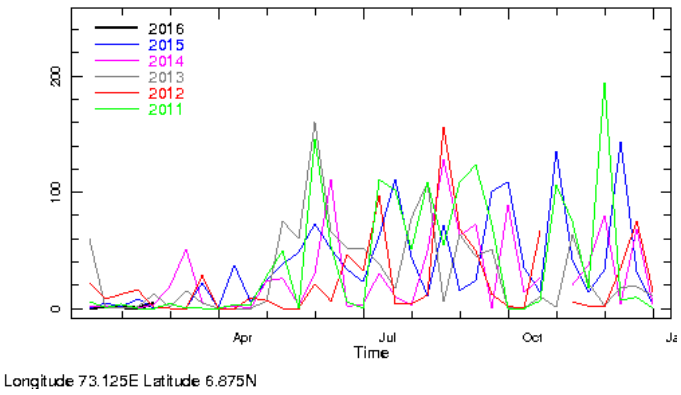
Monthly Average



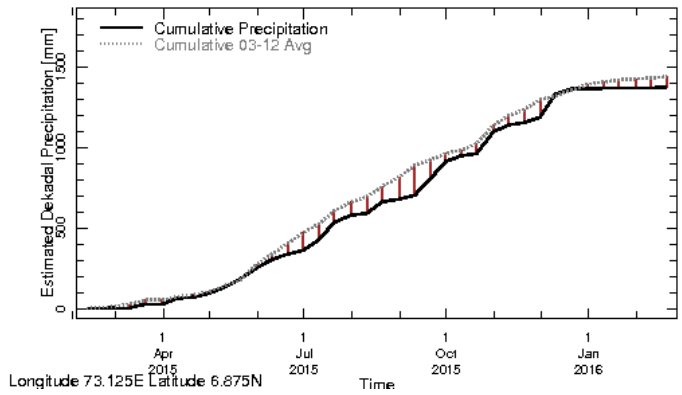
Monthly Anomaly

Monthly and Seasonal Monitoring

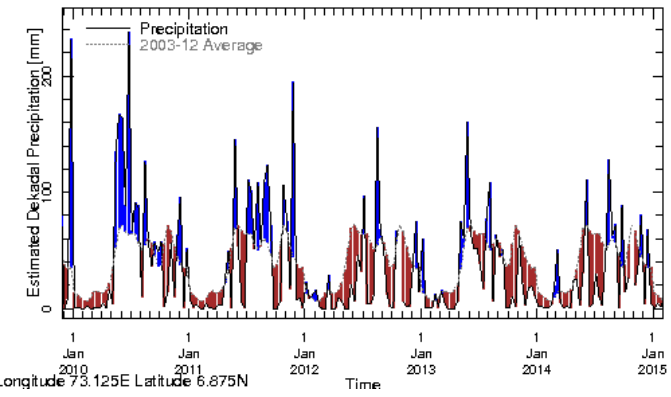
Northern Maldives:



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

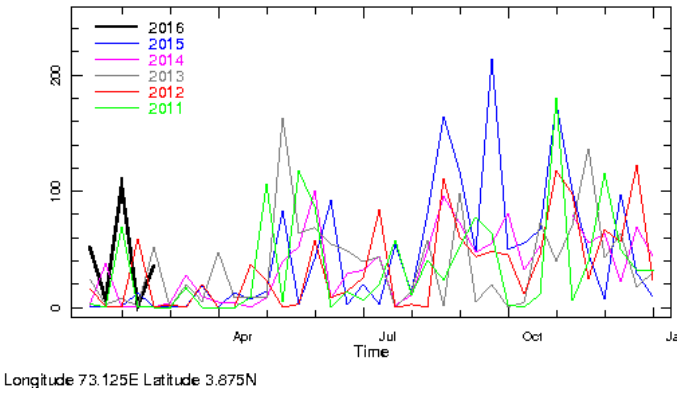


Rainfall of past 365 days (black) compared to average rainfall in previous 8 years.

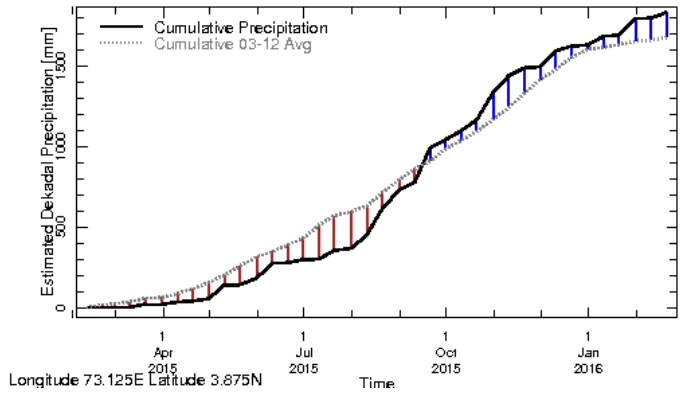


Rainfall in the past 5 years with above-average rainfall hatched in blue and below-average hatched in brown

Central Maldives:



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



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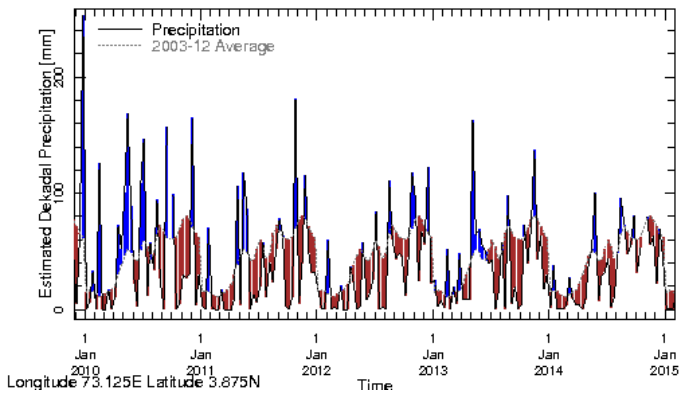
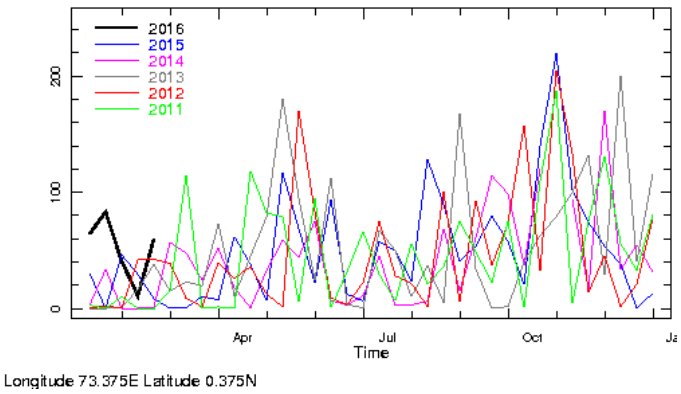
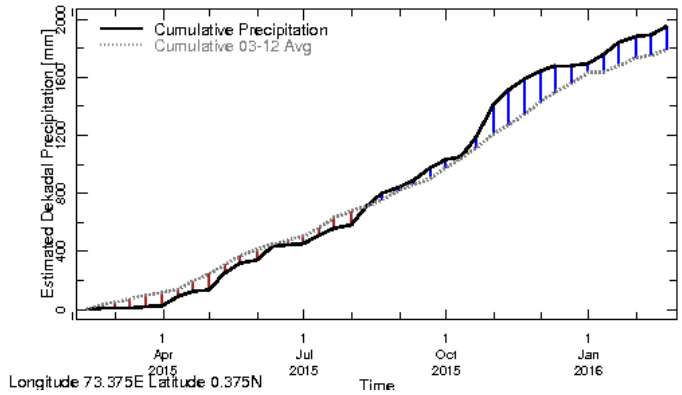


Rainfall in the past 5 years with above-average rainfall hatched in blue and below-average hatched in brown

Southern Maldives:



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



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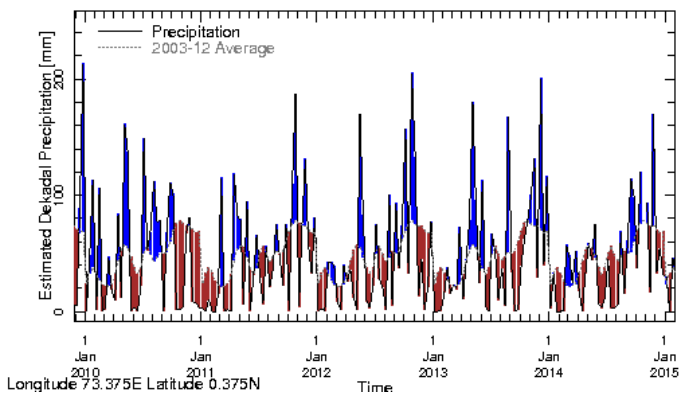
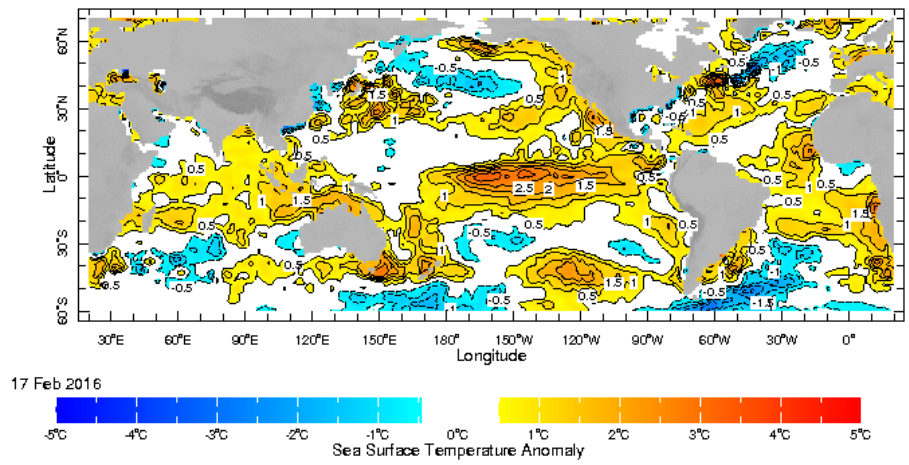


Rainfall in the past 5 years with above-average rainfall hatched in blue and below-average hatched in brown

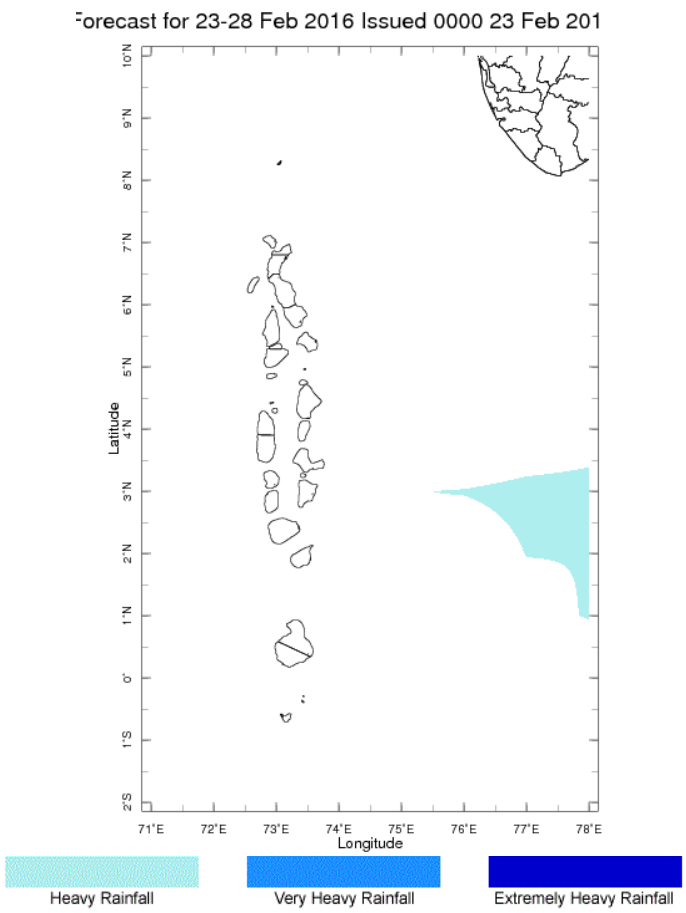
Ocean Surface Monitoring



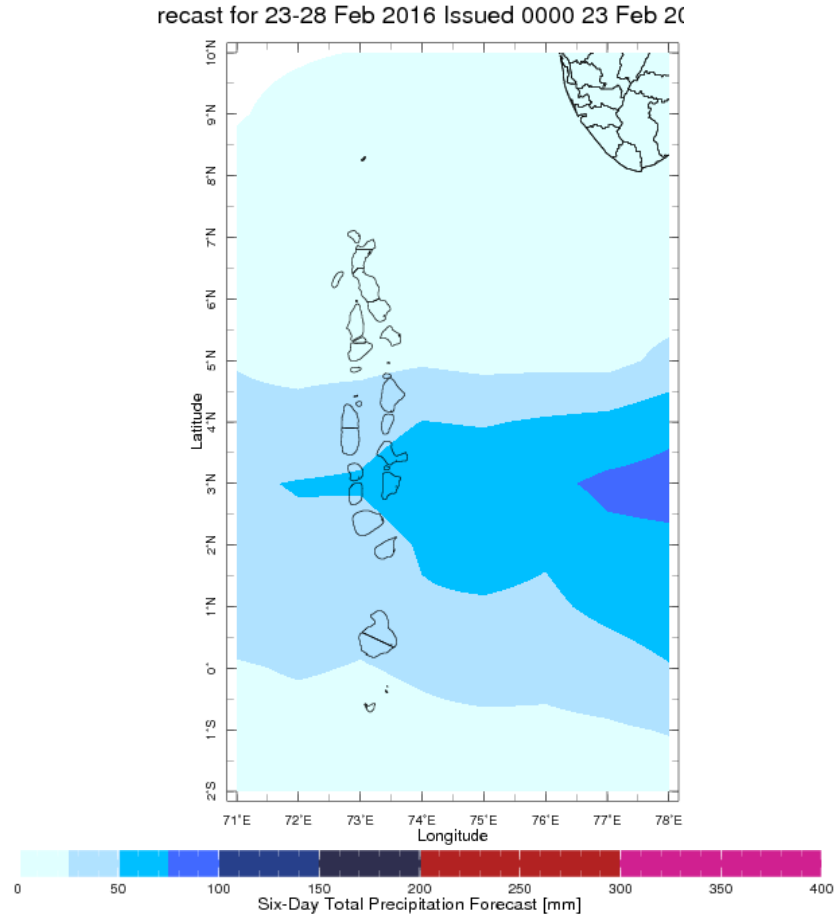
WORLDBATH topography

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.



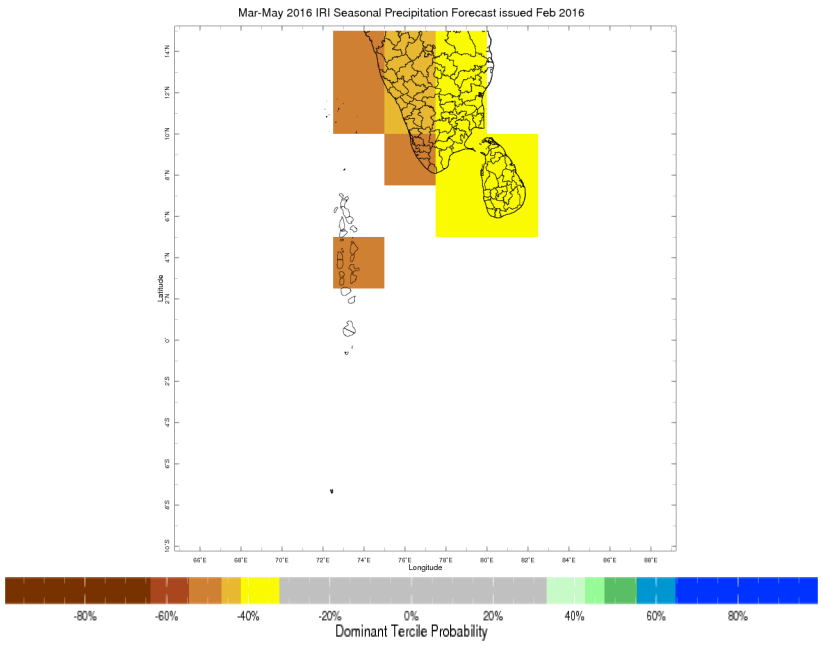
Extreme Rainfall Forecast



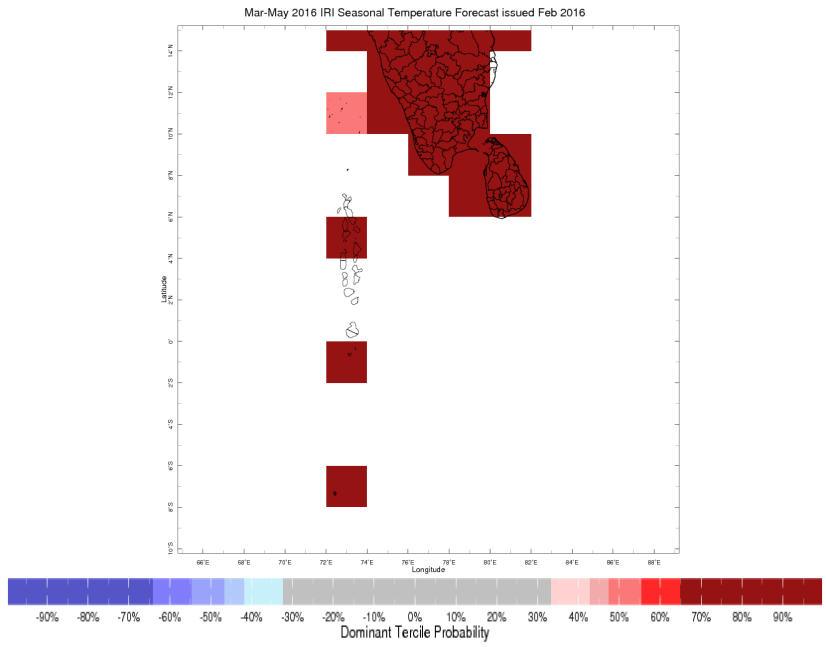
Total Six Day Precipitation Forecast

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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