

## SEASONAL PREDICTION BY ECMWF MODEL FOR THE PERIOD JANUARY TO JUNE 2012

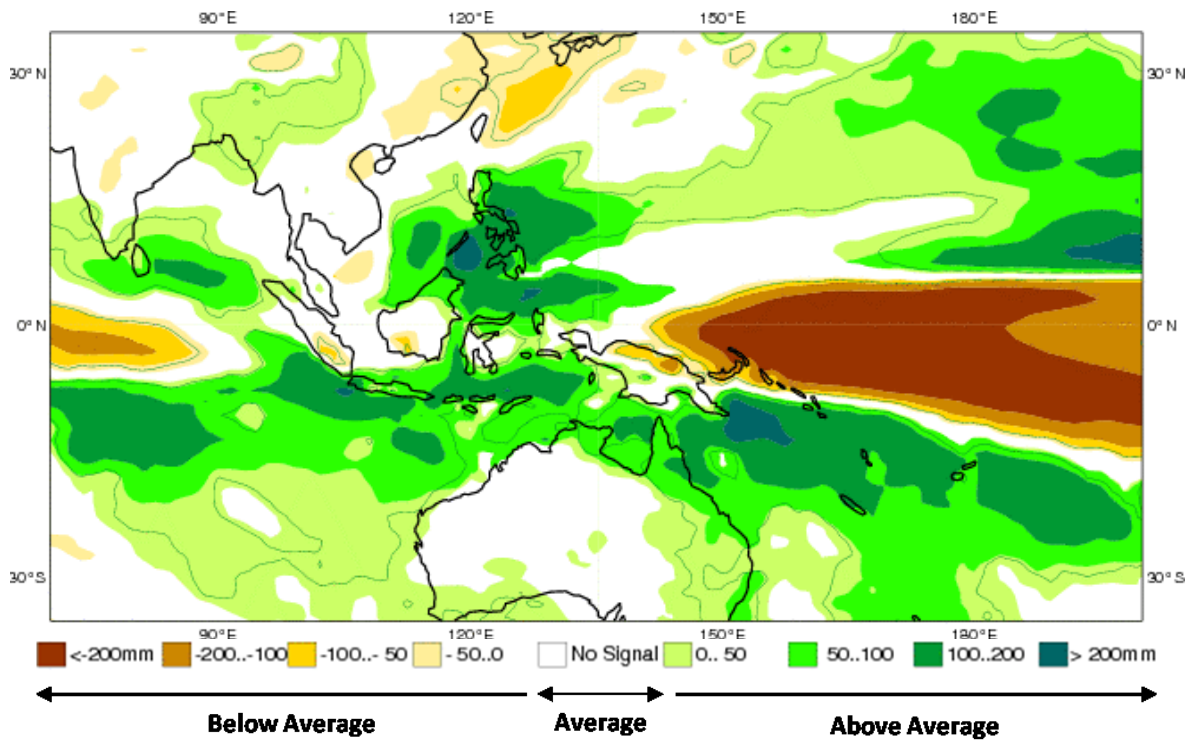
**Figures 1a, 1b, 1c, and 1d** represent the mean of total precipitation anomalies, that is, the differences between predicted precipitation and the long-term mean precipitation, for three monthly periods; January-February-March, February-March-April, March-April-May and April-May-June respectively, from the European Centre for Medium-Range Weather Forecast (ECMWF) seasonal forecast model.

The three-month mean prediction for January-February-March period shows average rainfall amount is expected over the entire Peninsular Malaysia and Sarawak while Sabah will get slightly above average of rainfall amount during the same period.

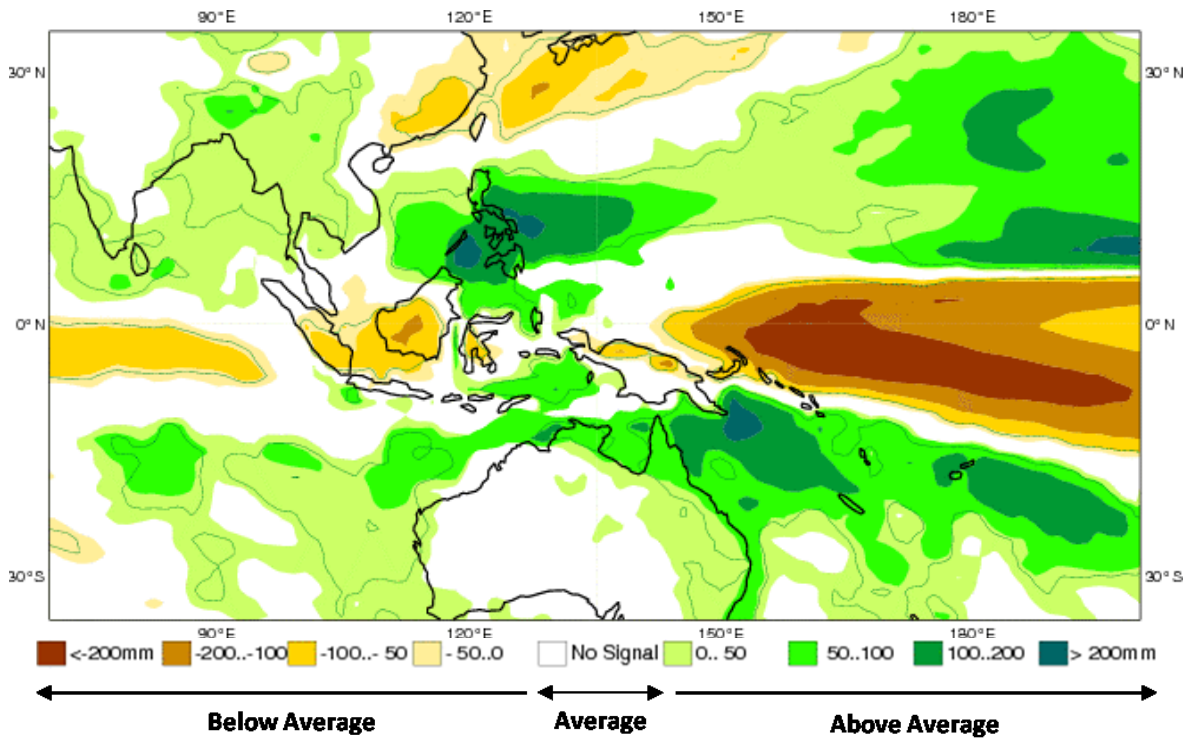
The three-month mean prediction for February-March-April period depicts average rainfall amount in Peninsular Malaysia and slightly below average of rainfall amount in Sarawak. Meanwhile some areas in Sabah will receive slightly above average of rainfall amount throughout the forecast period.

The three-month mean prediction for March-April-May period indicates that Peninsular Malaysia will continue to have average rainfall amount. Improved weather condition is also expected over Sabah during the same period. Meanwhile, slightly below average of rainfall amount is still being forecasted over Sarawak.

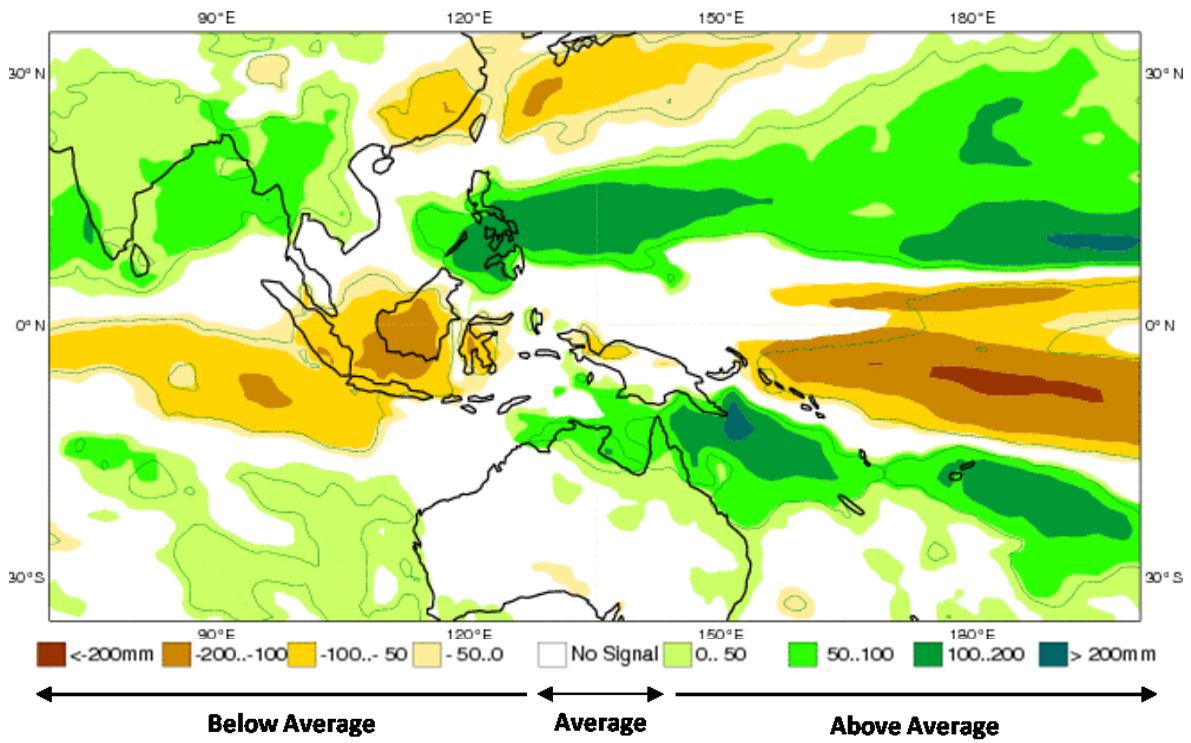
The three-month mean prediction for April-May-June period shows that entire Peninsular Malaysia and Sabah are expected to have normal weather condition while Sarawak is still forecasted to receive slightly below average of rainfall amount.



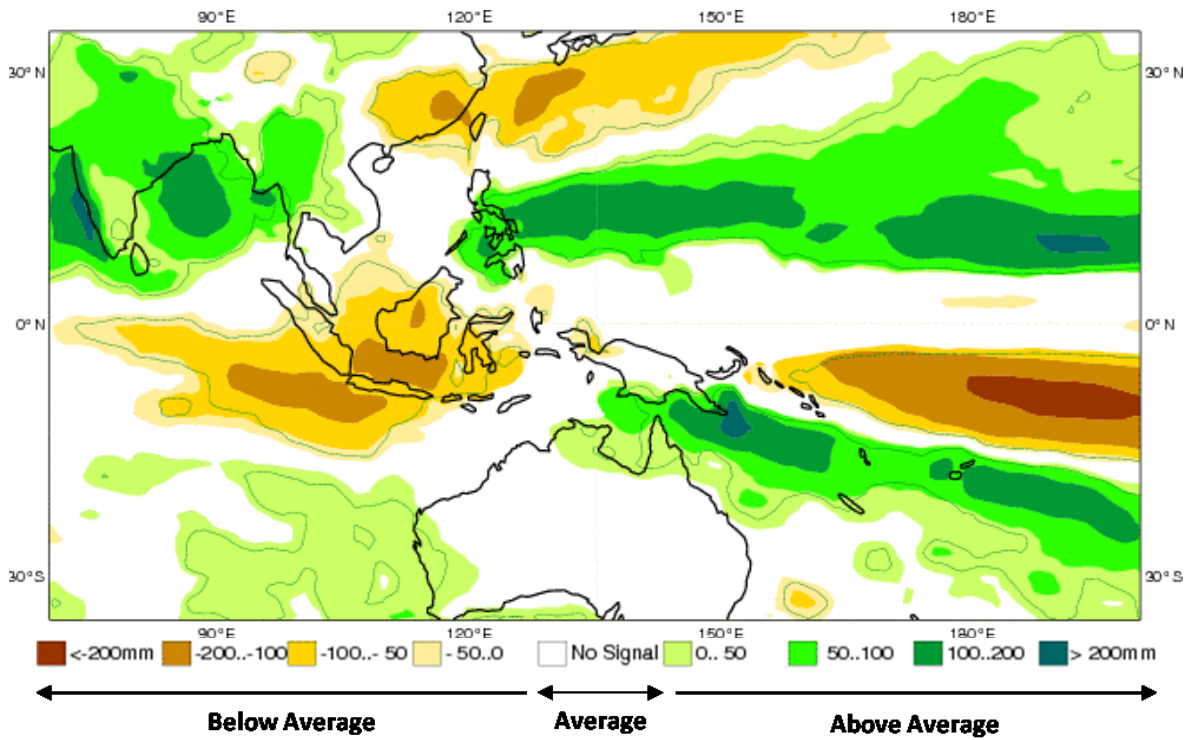
**Figure 1a:** Predicted Seasonal Mean Precipitation Anomaly (mm) by ECMWF Model for January-February-March



**Figure 1b:** Predicted Seasonal Mean Precipitation Anomaly (mm) by ECMWF Model for February-March-April



**Figure 1c:** Predicted Seasonal Mean Precipitation Anomaly (mm) by ECMWF Model for March-April-May



**Figure 1d:** Predicted Seasonal Mean Precipitation Anomaly (mm) by ECMWF Model for April-May-June

## WEATHER OUTLOOK FROM JANUARY UNTIL JUNE 2012

Based on a combination of information extracted from seasonal predictions issued by ECMWF<sup>1</sup>, entire Peninsular Malaysia is expected to experience normal weather condition throughout the forecast period.

Over Sarawak, normal weather condition is expecting to occur throughout the forecast period except during February to May where Kuching, Samarahan, Sri Aman, Betong, Mukah, Sarikei and Sibu divisions are expected to experience slightly dry weather condition. The same weather condition is also expected over Kapit, Bintulu, Miri and Limbang divisions during March.

In general, the Labuan Federal Territory is expected to have normal weather condition throughout the forecast period except for January and February. Slightly above average of rainfall amount is expected to occur during these months.

Over Sabah, most of the divisions are expected to experience wet weather conditions. Slightly above average to above average of rainfall amount is expected over Pedalaman, Pantai Barat, Kudat and Sandakan during January, February and April. The same weather condition is also forecasted over Tawau division during January and April.

**Tables 1 and 2** show the summary and detail explanations respectively on weather outlook from January until June 2012 according to states in Malaysia.

**Note:**

[1] European Centre for Medium-Range Weather Forecast (ECMWF)

**Table 1: Summary on Weather Outlook from January until June 2012**

State		Monthly Rainfall Amount (mm) Forecast	Period	Weather Outlook (In terms of Rainfall)
Perlis		20 – 30	January	Average
		40 – 60	February	Average
		80 – 130	March	Average
		140 – 220	April	Average
		130 – 200	May	Average
		90 – 150	June	Average
Kedah	Mainland	30 – 40	January	Average
		40 – 70	February	Average
		90 – 140	March	Average
		150 – 240	April	Average
		170 – 270	May	Average
		120 – 190	June	Average
	Langkawi	20 – 30	January	Average
		20 – 40	February	Average
		80 – 120	March	Average
		160 – 240	April	Average
		160 – 240	May	Average
		190 – 290	June	Average
Penang		50 – 80	January	Average
		60 – 110	February	Average
		90 – 160	March	Average
		170 – 260	April	Average
		160 – 290	May	Average
		130 – 210	June	Average

<b>Perak</b>	110 – 180	January	Average
	110 – 180	February	Average
	100 – 230	March	Average
	140 – 320	April	Average
	90 – 260	May	Average
	70 – 170	June	Average
<b>Selangor</b>	130 – 240	January	Average
	140 – 260	February	Average
	100 – 330	March	Average
	220 – 360	April	Average
	90 – 280	May	Average
	90 – 170	June	Average
<b>Kuala Lumpur</b>	140 – 240	January	Average
	140 – 260	February	Average
	190 – 330	March	Average
	220 – 340	April	Average
	160 – 290	May	Average
	100 – 170	June	Average
<b>Putrajaya</b>	140 – 240	January	Average
	150 – 260	February	Average
	100 – 330	March	Average
	220 – 360	April	Average
	90 – 280	May	Average
	90 – 170	June	Average
<b>Negeri Sembilan</b>	80 – 200	January	Average
	80 – 220	February	Average
	100 – 180	March	Average
	130 – 360	April	Average
	90 – 210	May	Average
	90 – 200	June	Average

<b>Malacca</b>		70 – 110	January	Average
		80 – 120	February	Average
		120 – 180	March	Average
		130 – 190	April	Average
		140 – 210	May	Average
		130 – 200	June	Average
<b>Kelantan</b>	<b>Pasir Mas, Tanah Merah, Jeli, Gua Musang, Kuala Krai</b>	100 – 160	January	Average
		50 – 80	February	Average
		90 – 140	March	Average
		70 – 110	April	Average
		110 – 170	May	Average
		130 – 200	June	Average
	<b>Tumpat, Bachok, Kota Bharu, Pasir Puteh, Machang</b>	110 – 170	January	Average
		50 – 80	February	Average
		90 – 140	March	Average
		180 – 290	April	Average
		90 – 140	May	Average
		100 – 150	June	Average
<b>Terengganu</b>		100 – 150	January	Average
		60 – 90	February	Average
		120 – 200	March	Average
		80 – 120	April	Average
		80 – 130	May	Average
		90 – 140	June	Average
<b>Pahang</b>	<b>Kuantan, Pekan, Rompin</b>	210 – 370	January	Average
		90 – 160	February	Average
		140 – 250	March	Average
		80 – 230	April	Average
		120 – 230	May	Average
		100 – 190	June	Average

<b>Pahang</b>	<b>Lipis, Jerantut, Raub, Maran, Temerloh</b>	100 – 170	January	Average
		90 – 140	February	Average
		120 – 200	March	Average
		130 – 230	April	Average
		130 – 200	May	Average
		100 – 160	June	Average
	<b>Cameron Highlands</b>	80 – 120	January	Average
		80 – 120	February	Average
		170 – 260	March	Average
		220 – 330	April	Average
		220 – 330	May	Average
		140 – 210	June	Average
<b>Johor</b>	<b>Mersing, Kota Tinggi</b>	270 – 400	January	Average
		110 – 170	February	Average
		110 – 170	March	Average
		150 – 240	April	Average
		110 – 170	May	Average
		110 – 170	June	Average
	<b>Kluang, Batu Pahat, Segamat, Muar, Ledang</b>	120 – 210	January	Average
		100 – 150	February	Average
		150 – 230	March	Average
		150 – 250	April	Average
		150 – 230	May	Average
		100 – 160	June	Average
	<b>Pontian, Johor Bahru, Nusajaya</b>	140 – 210	January	Average
		100 – 160	February	Average
		160 – 250	March	Average
		180 – 280	April	Average
		170 – 270	May	Average
		120 – 180	June	Average

<b>Sarawak</b>	<b>Kuching Samarahan</b>	550 – 820	January	Average
		300 – 400	February	Slightly Below Average
		140 – 210	March	Below Average
		70 – 100	April	Slightly Below Average
		150 – 200	May	Slightly Below Average
		160 – 250	June	Average
	<b>Sri Aman Betong</b>	300 – 450	January	Average
		130 – 170	February	Slightly Below Average
		110 – 170	March	Below Average
		160 – 210	April	Slightly Below Average
		140 – 190	May	Slightly Below Average
		160 – 250	June	Average
	<b>Mukah Sarikei Sibu</b>	300 – 450	January	Average
		170 – 220	February	Slightly Below Average
		120 – 180	March	Below Average
		170 – 230	April	Slightly Below Average
		130 – 180	May	Slightly Below Average
		150 – 230	June	Average
	<b>Kapit Bintulu</b>	330 – 500	January	Average
		220 – 320	February	Average
		170 – 220	March	Slightly Below Average
		200 – 300	April	Average
		180 – 280	May	Average
		210 – 310	June	Average
<b>Miri Limbang</b>	240 – 350	January	Average	
	130 – 200	February	Average	
	90 – 120	March	Slightly Below Average	
	140 – 210	April	Average	
	150 – 240	May	Average	
	180 – 280	June	Average	

<b>Labuan</b>		260 – 300	January	Slightly Above Average
		140 – 160	February	Slightly Above Average
		100 – 150	March	Average
		170 – 260	April	Average
		240 – 360	May	Average
		230 – 350	June	Average
<b>Sabah</b>	<b>Pedalaman Pantai Barat</b>	150 – 170	January	Slightly Above Average
		80 – 100	February	Slightly Above Average
		60 – 90	March	Average
		150 – 170	April	Slightly Above Average
		170 – 260	May	Average
		230 – 350	June	Average
	<b>Kudat</b>	500 – 570	January	Above Average
		200 – 230	February	Slightly Above Average
		80 – 120	March	Average
		90 – 110	April	Above Average
		70 – 120	May	Average
		90 – 150	June	Average
	<b>Sandakan</b>	500 – 580	January	Slightly Above Average
		330 – 390	February	Slightly Above Average
		140 – 220	March	Average
		130 – 160	April	Slightly Above Average
		100 – 160	May	Average
		150 – 230	June	Average
	<b>Tawau</b>	160 – 180	January	Slightly Above Average
		90 – 130	February	Average
		80 – 120	March	Average
		120 – 140	April	Slightly Above Average
		100 – 160	May	Average
		130 – 210	June	Average

**Table 2: Detail Explanations on Weather Outlook from January until June 2012**

<b>State</b>	<b>Weather Outlook</b>
<b>Perlis</b>	Average rainfall amount is expected throughout the forecast period. Total monthly amounts would be expected between 20 – 30 mm in January, 40 – 60 mm in February, 80 – 130 mm in March, 140 – 220 mm in April, 130 – 200 mm in May and 90 – 150 mm in June.
<b>Kedah</b>	Average rainfall amount is expected throughout the forecast period. Mainland Kedah is expected to receive total monthly amounts between 30 – 40 mm in January, 40 – 70 mm in February, 90 – 140 mm in March, 150 – 240 mm in April, 170 – 270 mm in May and 120 – 190 mm in June. Langkawi would receive total monthly rainfalls between 20 – 30 mm in January, 20 – 40 mm in February, 80 – 120 mm in March, 160 – 240 mm in April, 160 – 240 mm in May and 190 – 290 mm in June.
<b>Penang</b>	Average rainfall amount is expected throughout the forecast period. Total monthly amounts would be expected between 50 – 80 mm in January, 60 – 110 mm in February, 90 – 160 mm in March, 170 – 260 mm in April, 160 – 290 mm in May and 130 – 210 mm in June.
<b>Perak</b>	Average rainfall amount is expected throughout the forecast period. Total monthly amounts would be expected between 110 – 180 mm in January, 110 – 180 mm in February, 100 – 230 mm in March, 140 – 320 mm in April, 90 – 260 mm in May and 70 – 170 mm in June.
<b>Selangor</b>	Average rainfall amount is expected throughout the forecast period. Total monthly amounts would be expected between 130 – 240 mm in January, 140 – 260 mm in February, 100 – 330 mm in March, 220 – 360 mm in April, 90 – 280 mm in May and 90 – 170 mm in June.
<b>Putrajaya</b>	Average rainfall is expected throughout the forecast period. Total monthly amounts would be expected between 140 – 240 mm in January, 150 – 260 mm in February, 100 – 330 mm in March, 220 – 360 mm in April, 90 – 280 mm in May and 90 – 170 mm in June.
<b>Kuala Lumpur</b>	Average rainfall is expected throughout the forecast period. Total monthly amounts would be expected between 140 – 240 mm in January, 140 – 260 mm in February, 190 – 330 mm in March, 220 – 340 mm in April, 160 – 290 mm in May and 100 – 170 mm in June.
<b>Negeri Sembilan</b>	Average rainfall is expected throughout the forecast period. Total monthly amounts would be expected between 80 – 200 mm in January, 80 – 220 mm in February, 100 – 180 mm in March, 130 – 360 mm in April, 90 – 210 mm in May and 90 – 200 mm in June.

<b>Malacca</b>	Average rainfall amount is expected throughout the forecast period. Total monthly amounts would be expected between 70 – 110 mm in January, 80 – 120 mm in February, 120 – 180 mm in March, 130 – 190 mm in April, 140 – 210 mm in May and 130 – 200 mm in June.
<b>Kelantan</b>	Average rainfall amount is expected throughout the forecast period. For Pasir Mas, Tanah Merah, Jeli, Gua Musang and Kuala Krai districts, monthly rainfall amount would be expected between 100 – 160 mm in January, 50 – 80 mm in February, 90 – 140 mm in March, 70 – 110 mm in April, 110 – 170 mm in May and 130 – 200 mm in June. Tumpat, Bachok, Kota Bharu, Pasir Puteh and Machang are expected to receive monthly rainfall amount between 110 – 170 mm in January, 50 – 80 mm in February, 90 – 140 mm in March, 180 – 290 mm in April, 90 – 140 mm in May and 100 – 150 mm in June.
<b>Terengganu</b>	Average rainfall amount is expected throughout the forecast period. Total monthly amounts would be expected between 100 – 150 mm in January, 60 – 90 mm in February, 120 – 200 mm in March, 80 – 120 mm in April, 80 – 130 mm in May and 90 – 140 mm in June.
<b>Pahang</b>	Average rainfall amount is expected throughout the forecast period. Total monthly rainfall amount for Kuantan, Pekan and Rompin would be expected between 210 – 370 mm in January, 90 – 160 mm in February, 140 – 250 mm in March, 80 – 230 mm in April, 120 – 230 mm in May and 100 – 190 mm in June. For Lipis, Jerantut, Raub, Maran and Temerloh districts are expected to receive monthly rainfall amount between 100 – 170 mm in January, 90 – 140 mm in February, 120 – 200 mm in March, 130 – 230 mm in April, 130 – 200 mm in May and 100 – 160 mm in June. Cameron Highlands is expected to receive monthly rainfall amount between 80 – 120 mm in January, 80 – 120 mm in February, 170 – 260 mm in March, 220 – 330 mm in April, 220 – 330 mm in May and 140 – 210 mm in June.
<b>Johore</b>	Average rainfall amount is expected throughout the forecast period for all districts in Johor. Monthly rainfall for Mersing and Kota Tinggi districts would be expected between 270 – 400 mm in January, 110 – 170 mm in February, 110 – 170 mm in March, 150 – 240 mm in April, 110 – 170 mm in May and 110 – 170 mm in June. For Kluang, Batu Pahat, Segamat, Muar and Ledang districts are expected to receive monthly rainfall amount between 120 – 210 mm in January, 100 – 150 mm in February, 150 – 230 mm in March, 150 – 250 mm in April, 150 – 230 mm in May and 100 – 160 mm in June. Pontian, Johor Bahru and Nusajaya districts are expected to receive monthly rainfall amount between 140 – 210 mm in January, 100 – 160 mm in February, 160 – 250 mm in March, 180 – 280 mm in April, 170 – 270 mm in May and 120 – 180 mm in June.
<b>Labuan</b>	Slightly above average of rainfall amount is expected from January to February while average amount of rainfall is expected for the rest of the forecast period. Monthly rainfall amounts would be between 260 – 300 mm in January, 140 – 160 mm in February, 100 – 150 mm in March, 170 – 260 mm in April, 240 – 360 mm in May and 230 – 350 mm in June.

<p style="text-align: center;"><b>Sarawak</b></p>	<p>Slightly dry weather conditions are expected from February to May over Kuching, Samarahan, Sri Aman, Betong, Mukah Sarikei and Sibü divisions. The same condition is also expected over Kapit, Bintulu, Miri and Limbang during March. The rest of the areas are expected to experience normal weather condition throughout the forecast period. The total monthly rainfalls would be between 550 – 820 mm in January, 300 – 400 mm in February, 140 – 210 mm in March, 70 – 100 mm in April, 150 – 200 mm in May and 160 – 250 mm in June over Kuching and Samarahan; 300 – 450 mm in January, 130 – 170 mm in February, 110 – 170 mm in March, 160 – 210 mm in April, 140 – 190 mm in May and 160 – 250 mm in June over Sri Aman and Betong; 300 – 450 mm in January, 170 – 220 mm in February, 120 – 180 mm in March, 170 – 230 mm in April, 130 – 180 mm in May and 150 – 230 mm in June over Mukah, Sarikei and Sibü; 330 – 500 mm in January, 220 – 320 mm in February, 170 – 230 mm in March, 200 – 300 mm in April, 180 – 280 mm in May and 210 – 310 mm in June over Kapit and Bintulu; and 240 – 350 mm in January, 130 – 200 mm in February, 90 – 120 mm in March, 140 – 210 mm in April, 150 – 240 mm in May and 180 – 280 mm in June over Miri and Limbang.</p>
<p style="text-align: center;"><b>Sabah</b></p>	<p>Over Sabah, most of the divisions are expected to experience wet weather conditions. Slightly above average to above average of rainfall amount is expected over Pedalaman, Pantai Barat, Kudat and Sandakan during January, February and April. The same weather condition is also forecasted over Tawau division during January and April. The total monthly rainfalls would be between 150 – 170 mm in January, 80 – 100 mm in February, 60 – 90 mm in March, 150 – 170 mm in April, 170 – 260 mm in May and 230 – 350 mm in June over Pedalaman and Pantai Barat; 500 – 570 mm in January, 200 – 230 mm in February, 80 – 120 mm in March, 90 – 110 mm in April, 70 – 120 mm in May and 90 – 150 mm in June over Kudat; 500 – 580 mm in January, 330 – 390 mm in February, 140 – 220 mm in March, 130 – 160 mm in April, 100 – 160 mm in May and 150 – 230 mm in June over Sandakan and 160 – 180 mm in January, 90 – 130 mm in February, 80 – 120 mm in March, 120 – 140 mm in April, 100 – 160 mm in May and 130 – 210 mm in June over Tawau.</p>

**Note:**

Malaysian Meteorological Department would continue to issue update of weather outlook should there be any significant changes in the forecast.

**Updated by:**

Research Section  
 Technical Development Division  
 Malaysian Meteorological Department  
 Ministry of Science, Technology and Innovation

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