

SEASONAL PREDICTION BY ECMWF MODEL FOR THE PERIOD OCTOBER 2009 TO MARCH 2010

Figures 1a, 1b, 1c, and 1d depict the mean precipitation anomalies, that is, the differences between predicted precipitation and the long-term mean precipitation, for three monthly periods; October-November-December, November-December-January, December-January-February and January-February-March respectively, from the European Centre for Medium-Range Weather Forecast (ECMWF) seasonal forecast model.

The three-month mean prediction for the period October-November-December depicts that entire Peninsular Malaysia except (except the northern part) would be getting average amount of rainfall. The northern part of Peninsular Malaysia is expected to receive slightly below average rainfall during the forecast period. Entire Sabah and Sarawak are expected to receive average amounts of rainfall.

The three-month mean prediction for the period November-December-January indicates that entire Peninsular Malaysia (except the northern part) would still be getting average rainfall. The northern part of Peninsular Malaysia is still expected to receive slightly below average rainfall. Entire Sabah and Sarawak are also expected to receive average amounts of rainfall during the forecast period.

The three-month mean prediction for the period December-January-February indicates that entire Peninsular Malaysia and Sarawak would be getting average rainfall. Northern and western parts of Sabah are expected to receive slightly below average rainfall while other areas are still expected to experience average rainfall.

The three-month mean prediction for the period January-February-March indicates that entire Peninsular Malaysia (except the northern part) would still be getting average rainfall. The northern part of Peninsular Malaysia is expected to receive slightly below average rainfall. In Sarawak, central part of interior Sarawak is expected to receive slightly above average rainfalls while other areas of Sarawak are still expected to experience average amount of rainfall throughout the forecast period. Northern and western parts of Sabah are expected to receive below average rainfall while other areas are expected to experience average rainfall.

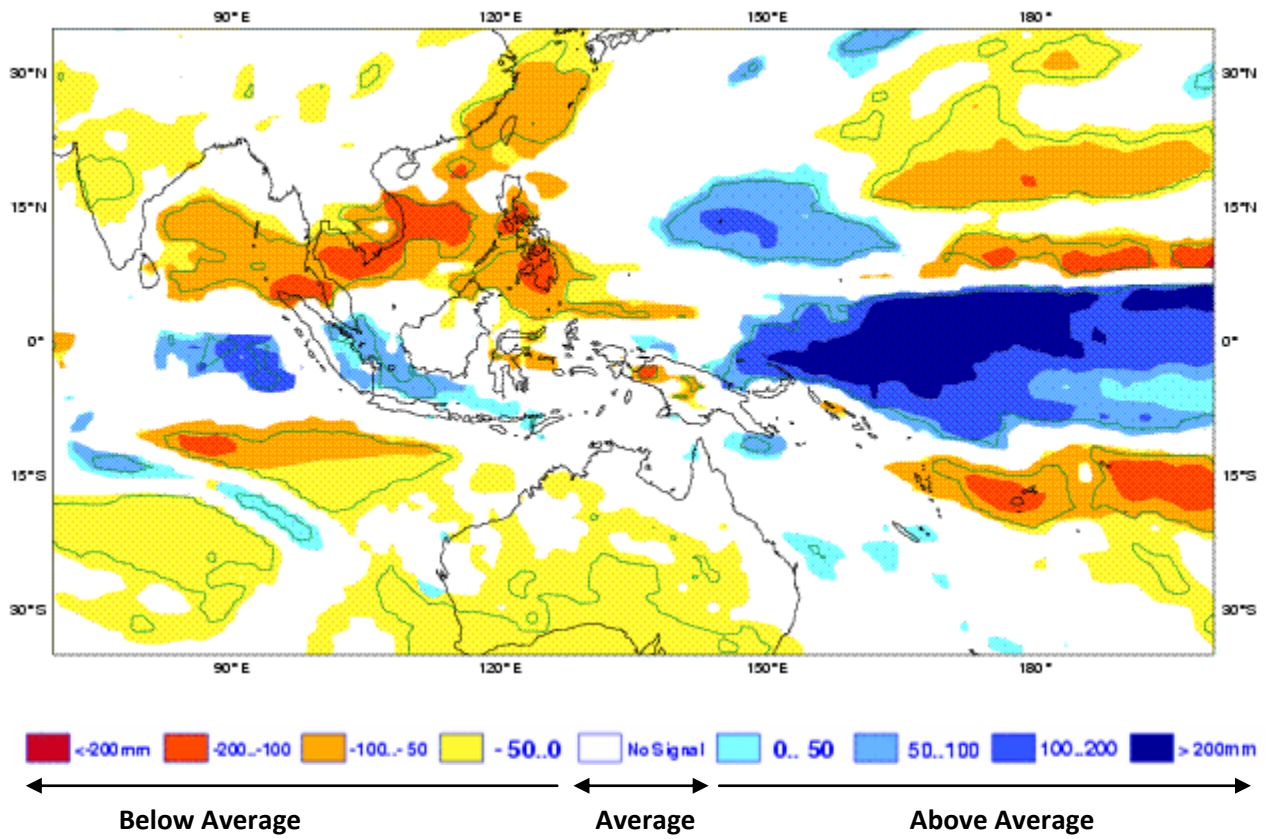


Figure 1a: Predicted Seasonal Mean Precipitation Anomaly (mm) by ECMWF Model for October-November-December

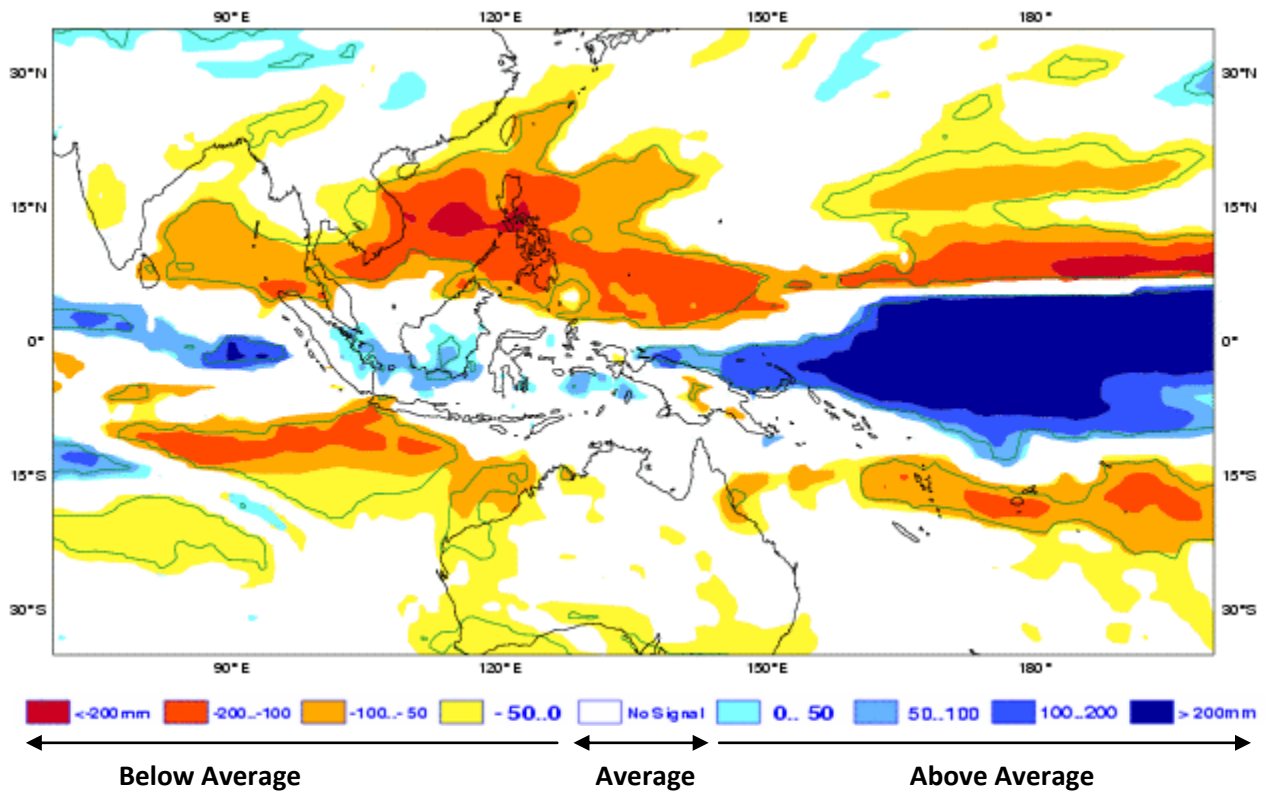


Figure 1b: Predicted Seasonal Mean Precipitation Anomaly (mm) by ECMWF Model for November-December-January

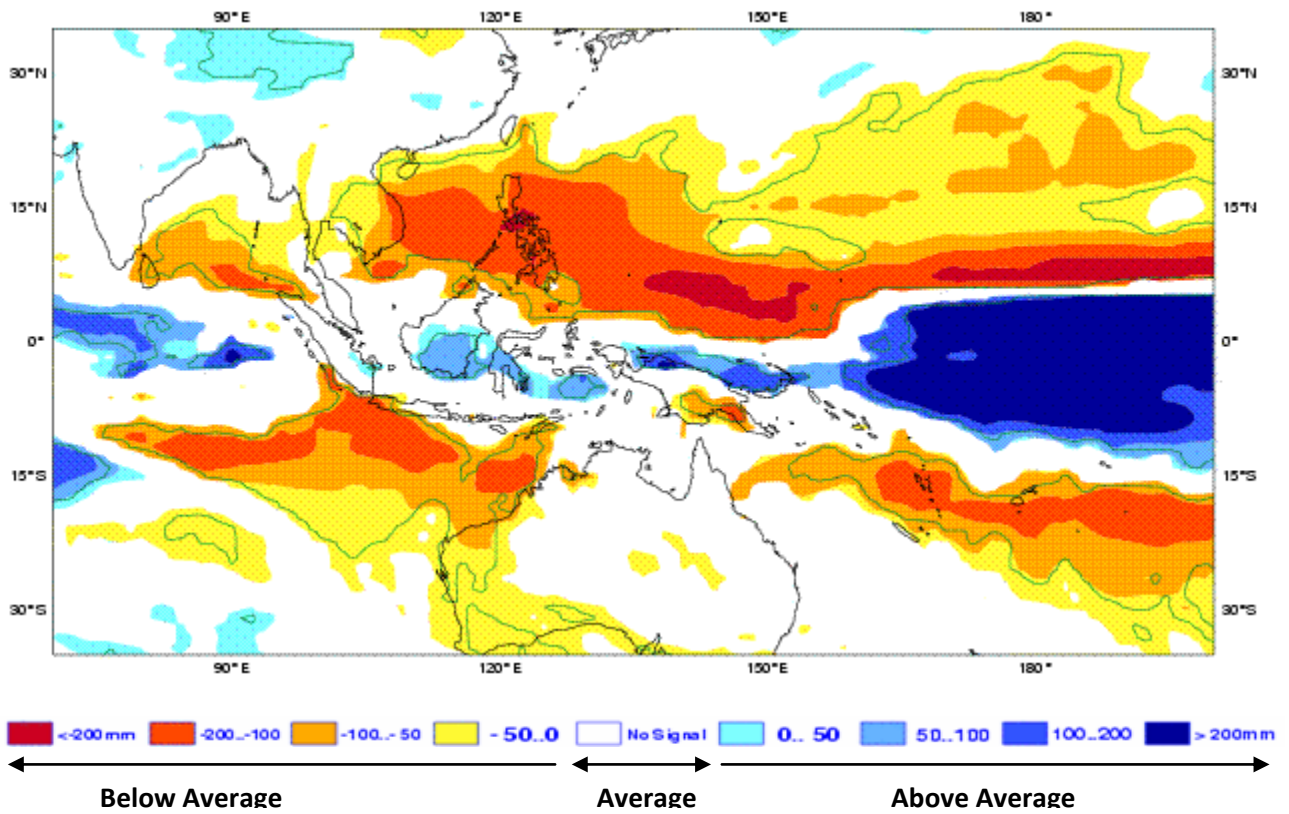


Figure 1c: Predicted Seasonal Mean Precipitation Anomaly (mm) by ECMWF Model for December-January-February

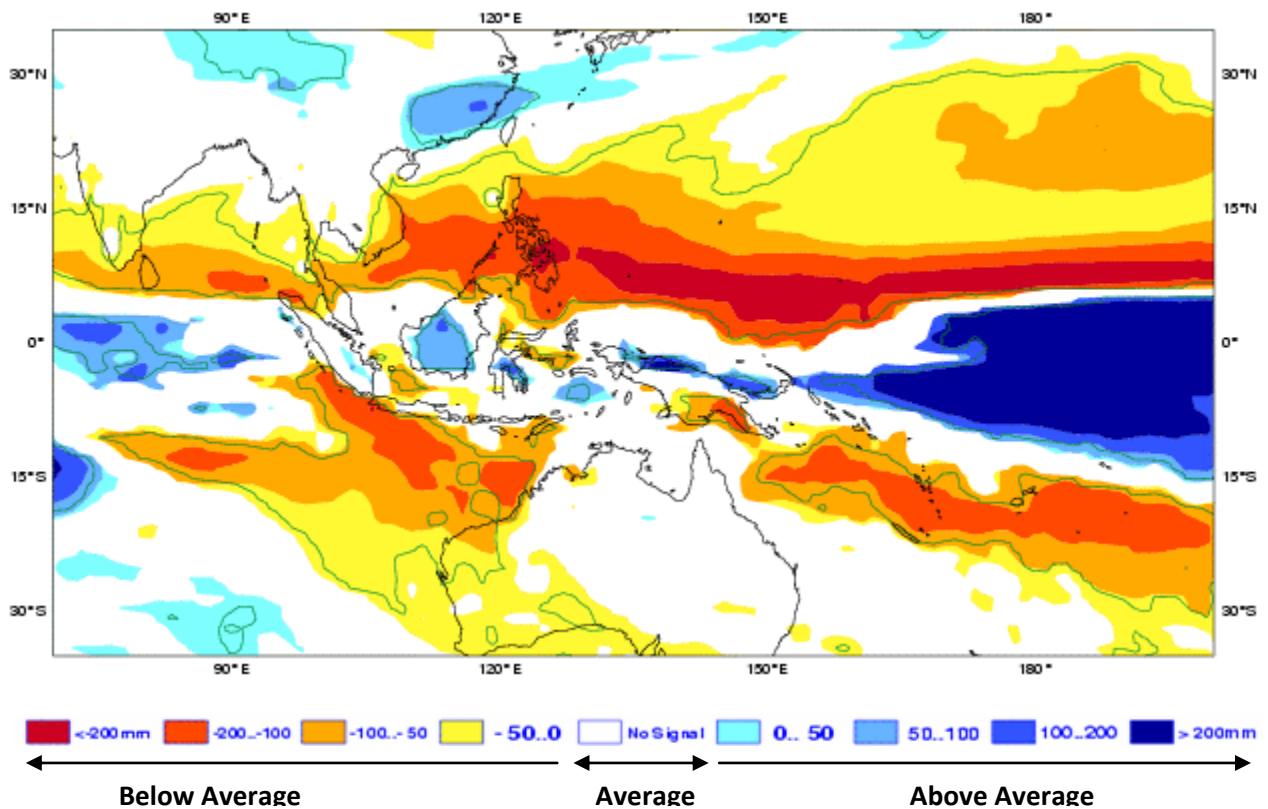


Figure 1d: Predicted Seasonal Mean Precipitation Anomaly (mm) by ECMWF Model for January-February-March

WEATHER OUTLOOK FROM OCTOBER 2009 UNTIL MARCH 2010

Based on a combination of information extracted from seasonal predictions issued by ECMWF¹, entire Peninsular Malaysia would be experiencing normal weather conditions throughout the forecast period except for several states in the northern part of Peninsular Malaysia would be getting dry weather conditions. Perlis and Kedah would be getting slightly drier weather during October to December and for the period of January to March 2010, the weather conditions in these states are expected to be more drier. Penang is expected to experience slightly drier weather during November 2009 to March 2010. Northern part of Perak is also expected to experience the same weather condition for the period of October to November 2009 and January to February 2010.

Entire Sarawak is expected to experience normal conditions during October 2009 to March 2010 except for Bintulu and Kapit divisions. These divisions are would be getting slightly wetter weather conditions during February to March 2010.

Labuan Federal Territory is expected to get normal weather condition from October to December 2009, while for the period of January to March 2010, entire Labuan F.T is expected to experience dry weather condition.

Entire Sabah is expected to experience normal weather throughout the forecast period. However, Pantai Barat, Pedalaman and Kudat Divisions are expected to experience drier weather conditions from January to March 2010.

Tables 1 and 2 show the summary and detail explanations respectively on weather outlook from October 2009 until March 2010 according to states in Malaysia.

Note:

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

Table 1: Summary on Weather Outlook from October 2009 until March 2010

State		Monthly Rainfall Amount (mm) Forecast	Period	Weather Outlook (In terms of Rainfall)
Perlis		140 – 200	October	Slightly Below Average
		110 – 140	November	Slightly Below Average
		50 – 70	December	Slightly Below Average
		10 – 20	January	Below Average
		20 – 30	February	Below Average
		70 – 90	March	Slightly Below Average
Kedah	Mainland	170 – 230	October	Slightly Below Average
		130 – 170	November	Slightly Below Average
		50 – 70	December	Slightly Below Average
		10 – 20	January	Below Average
		20 – 30	February	Below Average
		70 – 90	March	Slightly Below Average
Kedah	Langkawi	220 – 300	October	Slightly Below Average
		120 – 160	November	Slightly Below Average
		40 – 50	December	Slightly Below Average
		10 – 20	January	Below Average
		10 – 20	February	Below Average
		60 – 80	March	Slightly Below Average
Penang		270 – 450	October	Average
		130 – 190	November	Slightly Below Average
		50 – 90	December	Slightly Below Average
		40 – 50	January	Slightly Below Average
		40 – 70	February	Slightly Below Average
		70 – 110	March	Slightly Below Average

Perak	120 – 240	October	Slightly Below Average
	130 – 220	November	Slightly Below Average
	130 – 290	December	Average
	80 – 120	January	Slightly Below Average
	80 – 120	February	Slightly Below Average
	100 – 220	March	Average
Selangor	150 – 340	October	Average
	180 – 400	November	Average
	170 – 320	December	Average
	130 – 240	January	Average
	140 – 250	February	Average
	100 – 330	March	Average
Putrajaya	140 – 220	October	Average
	180 – 270	November	Average
	160 – 250	December	Average
	130 – 200	January	Average
	150 – 220	February	Average
	100 – 150	March	Average
Kuala Lumpur	220 – 340	October	Average
	270 – 400	November	Average
	210 – 320	December	Average
	160 – 240	January	Average
	170 – 250	February	Average
	220 – 330	March	Average
Negeri Sembilan	140 – 250	October	Average
	180 – 290	November	Average
	120 – 250	December	Average
	70 – 200	January	Average
	80 – 220	February	Average
	100 – 150	March	Average

Malacca		160 – 250	October	Average
		190 – 290	November	Average
		120 – 170	December	Average
		70 – 110	January	Average
		800 – 120	February	Average
		120 – 180	March	Average
Kelantan	Inland Areas	190 – 290	October	Average
		320 – 490	November	Average
		360 – 540	December	Average
		100 – 160	January	Average
		50 – 80	February	Average
		90 – 140	March	Average
	Coastal Areas	220 – 330	October	Average
		540 – 810	November	Average
		460 – 680	December	Average
		110 – 170	January	Average
		50 – 70	February	Average
		90 – 130	March	Average
Terengganu		170 – 260	October	Average
		580 – 860	November	Average
		440 – 650	December	Average
		100 – 150	January	Average
		60 – 90	February	Average
		130 – 200	March	Average
Pahang	East	180 – 320	October	Average
		230 – 430	November	Average
		340 – 730	December	Average
		210 – 380	January	Average
		900 – 160	February	Average
		130 – 250	March	Average

Pahang	West	160 – 270 200 – 310 150 – 300 100 – 170 90 – 140 120 – 200	October November December January February March	Average Average Average Average Average Average
	Cameron Highlands	300 – 450 260 – 390 170 – 250 80 – 120 80 – 120 170 – 260	October November December January February March	Average Average Average Average Average Average
Johor	Northeast	160 – 240 290 – 430 490 – 750 260 – 390 110 – 170 110 – 170	October November December January February March	Average Average Average Average Average Average
	Northwest	140 – 210 180 – 270 180 – 280 130 – 210 100 – 150 140 – 220	October November December January February March	Average Average Average Average Average Average
	South	170 – 260 190 – 290 200 – 300 140 – 210 110 – 160 160 – 250	October November December January February March	Average Average Average Average Average Average

Sarawak	Kuching Samarahan	260 – 400	October	Average
		280 – 430	November	Average
		370 – 560	December	Average
		540 – 820	January	Average
		400 – 600	February	Average
		270 – 410	March	Average
Sri Aman Betong	250 – 370	October	Average	
	280 – 420	November	Average	
	290 – 430	December	Average	
	300 – 450	January	Average	
	170 – 260	February	Average	
	220 – 340	March	Average	
Mukah Sarikei Sibu	220 – 340	October	Average	
	240 – 360	November	Average	
	290 – 440	December	Average	
	300 – 450	January	Average	
	220 – 330	February	Average	
	240 – 360	March	Average	
Kapit Bintulu	280 – 430	October	Average	
	330 – 500	November	Average	
	350 – 530	December	Average	
	330 – 500	January	Average	
	320 – 380	February	Slightly Above Average	
	330 – 380	March	Slightly Above Average	
Miri Limbang	260 – 390	October	Average	
	250 – 380	November	Average	
	270 – 400	December	Average	
	230 – 350	January	Average	
	130 – 190	February	Average	
	110 – 180	March	Average	

Labuan		330 – 500	October	Average		
		300 – 450	November	Average		
		240 – 370	December	Average		
		130 – 170	January	Slightly Below Average		
		50 – 70	February	Below Average		
		40 – 70	March	Below Average		
		Sabah		Pedalaman Pantai Barat		280 – 420
				240 – 360	November	Average
				180 – 280	December	Average
				70 – 100	January	Slightly Below Average
				30 – 40	February	Below Average
				30 – 50	March	Below Average
Kudat				150 – 220	October	Average
				240 – 360	November	Average
				320 – 490	December	Average
				280 – 430	January	Average
				60 – 100	February	Below Average
				40 – 60	March	Below Average
Sandakan				220 – 330	October	Average
				280 – 410	November	Average
		360 – 550	December	Average		
		330 – 500	January	Average		
		220 – 330	February	Average		
		140 – 210	March	Average		
Tawau		140 – 210	October	Average		
		120 – 190	November	Average		
		130 – 190	December	Average		
		100 – 150	January	Average		
		80 – 120	February	Average		
		70 – 120	March	Average		

Table 2: Detail Explanations on Weather Outlook from October 2009 to March 2010

State	Weather Outlook
Perlis	Slightly below average amount of rainfall is expected for the period of October to December 2009 and during March 2010. From January to February 2010, below average amount of rainfall is expected. Total monthly rainfall amount would be expected between 140 – 200 mm in October, 110 – 140 mm in November, 50 – 70 mm in December, 10 – 20 mm in January, 20 – 30 mm in February and 70 – 90 mm in March 2010.
Kedah	Slightly below average amount of rainfall is expected for the period of October to December 2009 and during March 2010. From January to February 2010, below average amount of rainfall is expected. Mainland Kedah is expected to receive total monthly amount between 170 – 230 mm in October, 130 – 170 mm in November, 50 – 70 mm in December, 10 – 20 mm in January, 20 – 30 mm in February and 70 – 90 mm in March. Langkawi would receive total monthly rainfall between 220 – 300 mm in October, 120 – 160 mm in November, 40 – 50 mm in December, 10 – 20 mm in January and February and 60 – 80 mm in March.
Penang	Average amount of rainfall is expected during October 2009. Meanwhile, slightly below average amount of rainfall is expected from November 2009 until March 2010. Total monthly rainfall amount would be expected between 270 – 450 mm in October, 130 – 190 mm in November, 50 – 90 mm in December, 40 – 50 mm in January, 40 – 70 mm in February and 70 – 110 in March.
Perak	Slightly below average amount of rainfall is expected for the period of October to November 2009 and January to February 2010. Average amount of rainfall is expected during December 2009 and March 2010. Total monthly rainfall amount would be expected between 120 – 240 mm in October, 130 – 220 mm in November, 130 – 290 mm in December, 80 – 120 mm in January and February and 100 – 220 mm in March.
Selangor	Average amount of rainfall is expected throughout the forecast period. Total monthly rainfall amount would be expected between 150 – 340 mm in October, 180 – 400 mm in November, 170 – 320 mm in December, 130 – 240 mm in January , 140 – 250 mm in February and 100 – 330 mm in March.
Putrajaya	Average amount of rainfall is expected throughout the forecast period. Total monthly rainfall amount would be expected between 140 – 220 mm in October, 180 – 270 mm in November, 160 – 250 mm in December, 130 – 200 mm in January, 150 – 220 mm in February and 100 – 150 mm in March.
Kuala Lumpur	Average amount of rainfall is expected throughout the forecast period. Total monthly rainfall amount would be expected between 220 – 340 mm in October, 270 – 400 mm in November, 210 – 320 mm in December, 160 – 240 mm in January, 170 – 250 mm in February and 220 – 330 mm in March.

Negeri Sembilan	Average amount of rainfall is expected throughout the forecast period. Total monthly rainfall amount would be expected between 140 – 250 mm in October, 180 – 290 mm in November, 120 – 250 mm in December, 70 – 200 mm in January, 80 – 220 mm in February and 100 – 150 mm in March.
Malacca	Average amount of rainfall is expected throughout the forecast period. Total monthly rainfall amount would be expected between 160 – 250 mm in October, 190 – 290 mm in November, 120 – 170 mm in December, 70 – 110 mm in January, 800 – 120 mm in February and 120 – 180 mm in March.
Kelantan	Average amount of rainfall is expected throughout the forecast period. Inland areas are expected to receive total monthly amount between 190 – 290 mm in October, 320 – 490 mm in November, 360 – 540 mm in December, 100 – 160 mm in January, 50 – 80 mm in February and 90 – 140 mm in March. Coastal areas would receive rainfall amount between 220 – 330 mm in October, 540 – 810 mm in November, 460 – 680 mm in December, 110 – 170 mm in January, 50 – 70 mm in February and 90 – 130 mm in March.
Terengganu	Average amount of rainfall is expected throughout the forecast period. Total monthly rainfall amount would be expected between 170 – 260 mm in October, 580 – 860 mm in November, 440 – 650 mm in December, 100 – 150 mm in January, 60 – 90 mm in February and 130 – 200 mm in March.
Pahang	Average amount of rainfall is expected throughout the forecast period. Eastern Pahang would be expected to receive total monthly amount between 180 – 320 mm in October, 230 – 430 mm in November, 340 – 730 mm in December, 210 – 380 mm in January, 900 – 160 mm in February and 130 – 250 mm in March; western Pahang would receive between 160 – 270 mm in October, 200 – 310 mm in November, 150 – 300 mm in December, 100 – 170 mm in January, 90 – 140 mm in February and 120 – 200 mm in March while Cameron Highlands would receive between 300 – 450 mm in October, 260 – 390 mm in November, 170 – 250 mm in December, 80 – 120 mm in January and February and 170 – 260 mm in March.
Johor	Average amount of rainfall is expected throughout the forecast period. Northeastern Johor would receive total monthly amount between 160 – 240 mm in October, 290 – 430 mm in November and 490 – 750 mm in December, 260 – 390 mm in January, 110 – 170 mm in February and 110 – 170 mm in March; Northwestern Johor would receive 140 – 210 mm in October, 180 – 270 mm in November, 180 – 280 mm in December, 130 – 210 mm in January, 100 – 150 mm in February and 140 – 220 mm in March. Southern Johor would receive 170 – 260 mm in October, 190 – 290 mm in November, 200 – 300 mm in December, 140 – 210 mm in January, 110 – 160 mm in February and 160 – 250 mm in March.
Labuan	Average amount of rainfall is expected during October to December 2009. For January 2010, slightly below average amount of rainfall is expected, while from February until March 2010, rainfall amount is expected to be below average. Total monthly rainfall amount would be expected between 330 – 500 mm in October, 300 – 450 mm in November, 240 – 370 mm in December, 130 – 170 mm in January, 50 – 70 mm in February and 40 – 70 mm in March.

<p>Sarawak</p>	<p>Average amount of rainfall is expected over most of the divisions in Sarawak throughout the forecast period except during February to March 2010, slightly above average rainfall is expected over Kapit dan Bintulu. Total monthly rainfall would be between 260 – 400 mm in October, 280 – 430 mm in November, 370 – 560 mm in December, 540 – 820 mm in January, 400 – 600 mm in February and 270 – 410 mm in March over Kuching and Samarahan; 250 – 370 mm in October, 280 – 420 mm in November, 290 – 430 mm in December, 300 – 450 mm in January, 170 – 260 mm in February and 220 – 340 mm in March over Sri Aman and Betong; 220 – 340 mm in October, 240 – 360 mm in November, 290 – 440 mm in December, 300 – 450 mm in January, 220 – 330 mm in February and 240 – 36 mm in March over Mukah, Sarikei and Sibiu; 280 – 430 mm in October, 330 – 500 mm in November, 350 – 530 mm in December, 330 – 500 mm in January, 320 – 380 mm in February and 330 – 380 mm in March over Kapit and Bintulu and 260 – 390 mm in October, 250 – 380 mm in November, 270 – 400 mm in December, 230 – 350 mm in January and 130 – 190 mm in February and 110 – 180 mm in March over Miri and Limbang.</p>
<p>Sabah</p>	<p>Average amount of rainfall is expected during October to December 2009. For January 2010, slightly below average amount of rainfall is expected over Pedalaman and Pantai Barat, while from February until March 2010, below average rainfall amount is expected over Kudat, Pedalaman and Pantai Barat. Total monthly rainfall amount would be expected between 280 – 420 mm in October, 240 – 360 mm in November, 180 – 280 mm in December, 70 – 100 mm in January, 30 – 40 mm in February and 30 – 50 mm in March over Pedalaman and Pantai Barat; 150 – 220 mm in October, 240 – 360 mm in November, 320 – 490 mm in December, 280 – 430 mm in January, 60 – 100 mm in February and 40 – 60 mm in March over Kudat; 220 – 330 mm in October, 280 – 410 mm in November, 360 – 550 mm in December, 330 – 500 mm in January, 220 – 330 mm in February and 140 – 210 mm in March over Sandakan and 140 – 210 mm in October, 120 – 190 mm in November, 130 – 190 mm in December, 100 – 150 mm in January, 80 – 120 mm in February and 70 – 120 mm in March 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

On: 23 September 2009