



**LAPORAN PEMANTAUAN KEMARAU
UNTUK SEMENANJUNG MALAYSIA**
(BERDASARKAN ANALISIS HIDROLOGI)

30 September 2010

Bahagian Pengurusan Sumber Air dan Hidrologi
Jabatan Pengairan dan Saliran Malaysia

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Ringkasan

Purata keseluruhan jumlah hujan 3 bulan dari Jun hingga Ogos 2010 adalah sebanyak 545.9mm, perbezaan sebanyak -6.68 % dengan jumlah hujan tiga bulan sebelumnya sebanyak 585mm, dan 21.61 % dengan purata jangka panjang sebanyak 448.9mm. Daripada 41 stesen yang dipantau, dua (2) stesen merekodkan defisit hujan melebihi -35 % iaitu Stesen Kampung Melayu Subang (B8) (-69%) dan Stesen Stor JPS Kuala Terengganu (T5) (-39%).

Bagi jumlah hujan 6 bulan dari Mac hingga Ogos 2010, purata keseluruhan adalah sebanyak 1125.59mm, perbezaan sebanyak 9.14 % dengan jumlah hujan 6 bulan sebelumnya sebanyak 1031.33mm, dan 11.84 % dengan purata jangka panjang sebanyak 1006.40mm. Bagi analisis tempoh 6 bulan ini, tiada stesen merekodkan defisit hujan melebihi -35 %.

Analisis Hujan

a) Analisis berdasarkan Jumlah Hujan 3 Bulan

Keputusan analisis hujan untuk tempoh Jun hingga Ogos 2010 diterangkan di dalam Jadual 1 dan Rajah 1 hingga Rajah 2.

WATER RESOURCES STATUS MONITORING PROGRAM IN PENINSULAR MALAYSIA Jun, Julai, Ogos 2010

NO	NO STESEN	Jun-10	Jul-10	Ogos-10	Total Rainfall	(3Mth Cum Rf)	Diff(mm)	% Dev
1	6501005 (R1)	191.0	246.0	123.0	560.00	575.2	-15.2	-3
2	6206035 (K1)	145.0	232.5	260.0	637.50	428.6	208.9	49
3	6103047 (K3)	306.1	195.7	192.5	694.30	638.3	56.0	9
4	6207032 (K4)	351.5	207.3	115.5	674.30	545.3	129.0	24
5	6108062 (K5)	228.0	215.9	205.6	649.51	641.4	8.1	1
6	5505033 (P1)	315.0	136.5	202.0	653.50	525.8	127.7	24
7	5304045 (P2)	254.5	186.5	123.5	564.50	437.9	126.6	29
8	5302003 (P3)	440.0	228.0	260.0	928.00	578.9	349.1	60
9	4109095 (A4)	109.0	113.5	103.0	325.50	338.6	-13.1	-4
10	4011139 (A6)	257.5	191.5	98.0	547.00	443.6	103.4	23
11	4011144 (A8)	192.0	232.5	123.5	548.00	451.7	96.3	21
12	4511111 (A12)	207.5	284.0	152.5	644.00	453.0	191.0	42
13	5006021 (A14)	166.5	162.0	135.0	463.50	473.6	-10.1	-2
14	5003028 (A15)	214.5	127.0	54.5	396.00	459.4	-63.4	-14
15	5210069 (A16)	328.5	147.5	407.5	883.50	340.0	543.5	160
16	3411017 (B3)	194.0	80.0	53.5	327.50	272.6	54.9	20
17	2917001 (B4)	120.5	158.0	336.5	615.00	400.9	214.1	53
18	2818110 (B5)	141.5	113.0	260.0	514.50	354.9	159.6	45
19	3516022 (B6)	300.0	330.5	318.0	948.50	544.6	403.9	74
20	3117070 (B7)	126.0	191.5	109.9	427.40	482.0	-54.6	-11
21	3115079 (B8)	0.0	77.0	52.0	129.00	412.2	-283.2	-69
22	2719001 (N1)	270.0	160.5	279.0	709.50	379.2	330.3	87
23	3023098 (N3)	195.0	171.5	99.0	465.50	361.2	104.3	29
24	2321006 (M1)	115.0	145.0	29.5	289.50	423.4	-133.9	-32
25	2526001 (J1)	214.0	86.0	104.0	404.00	308.0	96.0	31
26	2033001 (J2)	251.0	148.5	197.0	596.50	424.1	172.4	41
27	1437116 (J5)	393.0	306.0	188.5	887.50	494.4	393.1	80
28	1829001 (J7)	251.0	155.5	165.0	571.50	525.6	45.9	9
29	2528002 (J8)	151.0	78.3	258.5	487.80	284.1	203.7	72
30	2536168 (J9)	109.5	162.0	95.5	367.00	512.0	-145.0	-28
31	2527004 (J10)	238.0	81.5	134.5	454.00	335.6	118.4	35
32	3424081 (C3)	127.0	140.0	87.0	354.00	290.4	63.6	22
33	3533102 (C4)	264.5	206.5	82.0	553.00	342.4	210.6	61
34	4414036 (C8)	144.2	54.0	256.0	454.20	369.1	85.1	23
35	3930012 (C9)	236.0	205.5	380.5	822.00	502.0	320.0	64
36	4726001 (D1)	239.0	202.0	180.5	621.50	667.3	-45.8	-7
37	4819027 (D2)	326.0	330.0	104.0	760.00	582.3	177.7	31
38	5921009 (D6)	166.0	246.5	111.5	524.00	605.8	-81.8	-14
39	4234109 (T1)	20.0	196.0	204.0	420.00	447.0	-27.0	-6
40	4734079 (T2)	41.0	164.0	79.0	284.00	378.6	-94.6	-25
41	5331048 (T5)	52.0	86.0	88.0	226.00	372.9	-146.9	-39
	MEAN	204.68	175.16	166.07	545.9	448.9	97.0	21.6

Jadual 1 : Analisis Hujan Bagi Tempoh Jun hingga Ogos 2010

ISOHYET OF RAINFALL DEVIATION FROM LTM

YEAR 2010

PERIOD : APRIL , MAY & JUN

ISOHYET OF RAINFALL DEVIATION FROM LTM

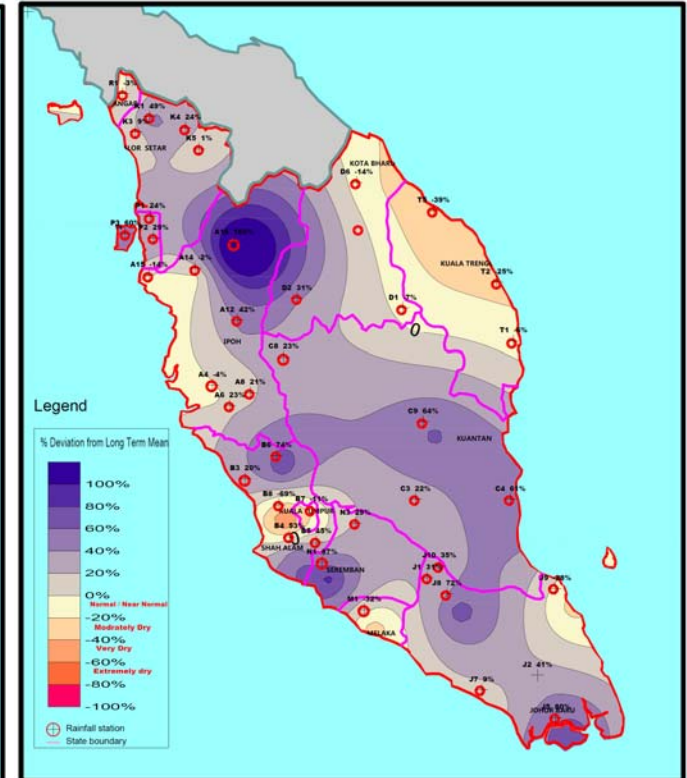
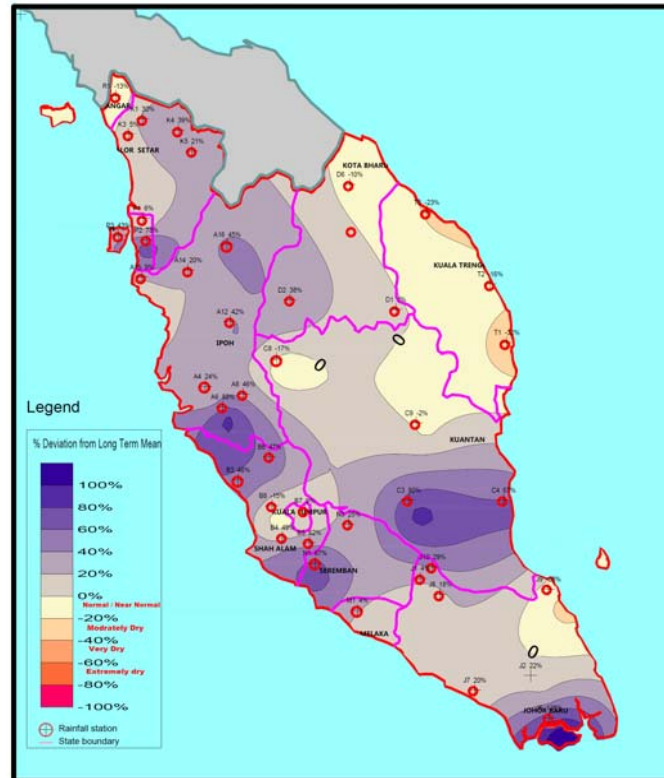
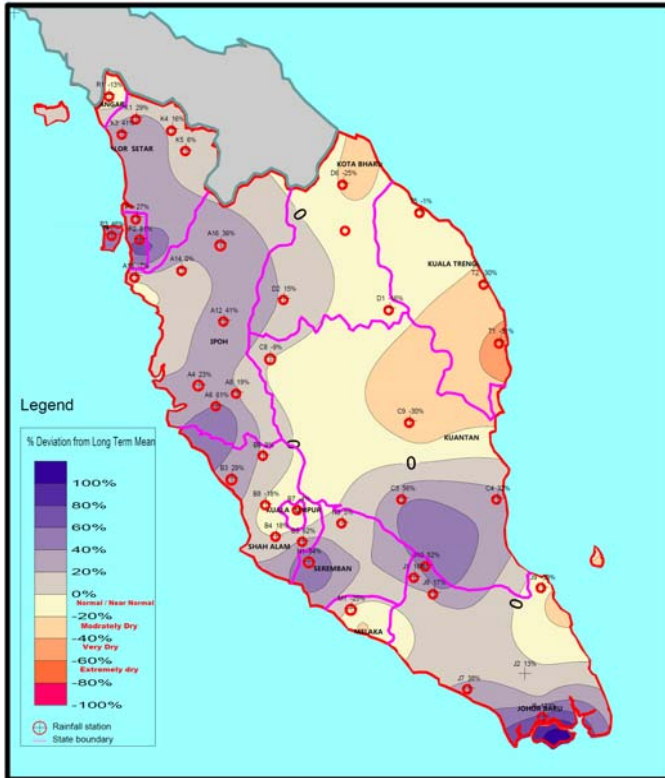
YEAR 2010

PERIOD : MAY, JUN & JULAI

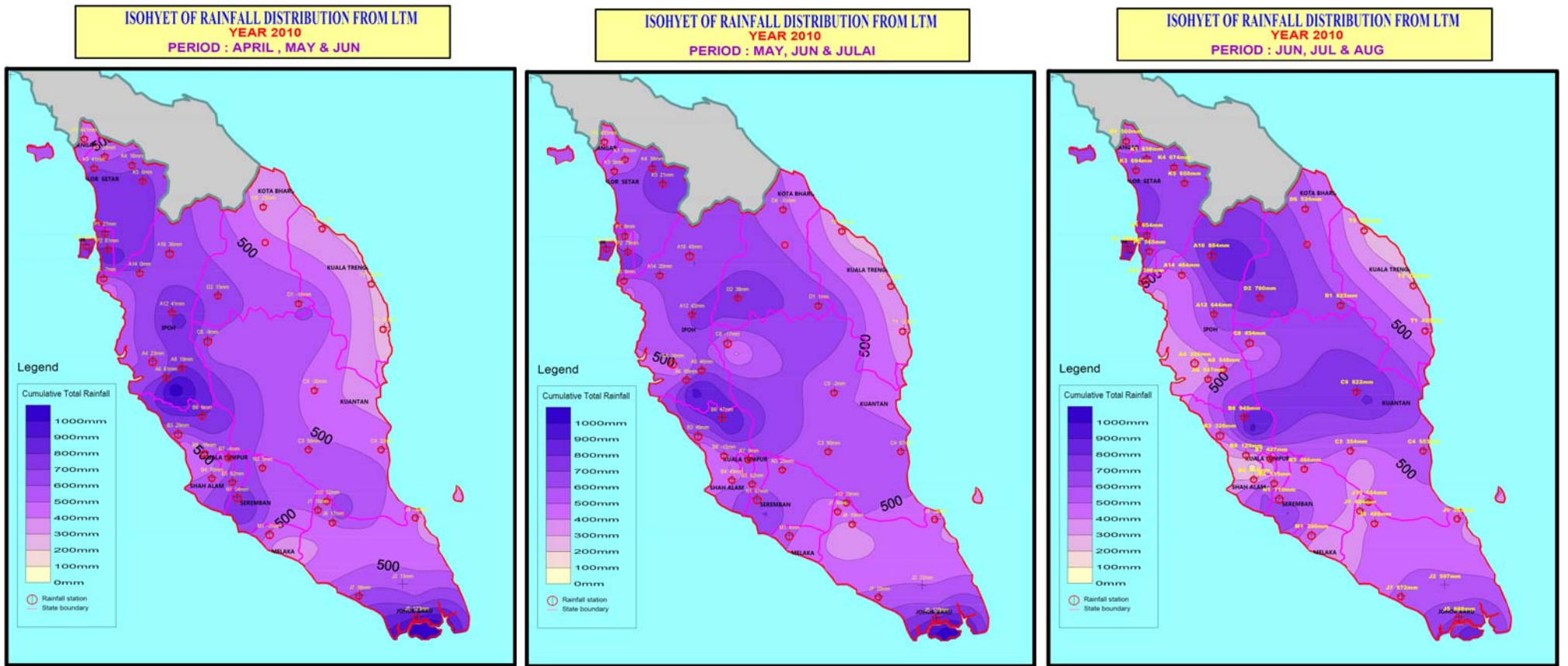
ISOHYET OF RAINFALL DEVIATION FROM LTM

YEAR 2010

PERIOD : JUN, JUL & AUG



Rajah 1 : Peta Isohyet Menunjukkan Peratus Perbezaan Hujan (3 Bulan) Dengan Purata Jangka Panjang bagi bulan Jun hingga Ogos 2010



Rajah 2 : Peta Isohyet Menunjukkan Jumlah Hujan Kumulatif (3 Bulan) bagi bulan Jun hingga Ogos 2010

b) Analisis berdasarkan Jumlah Hujan 6 Bulan

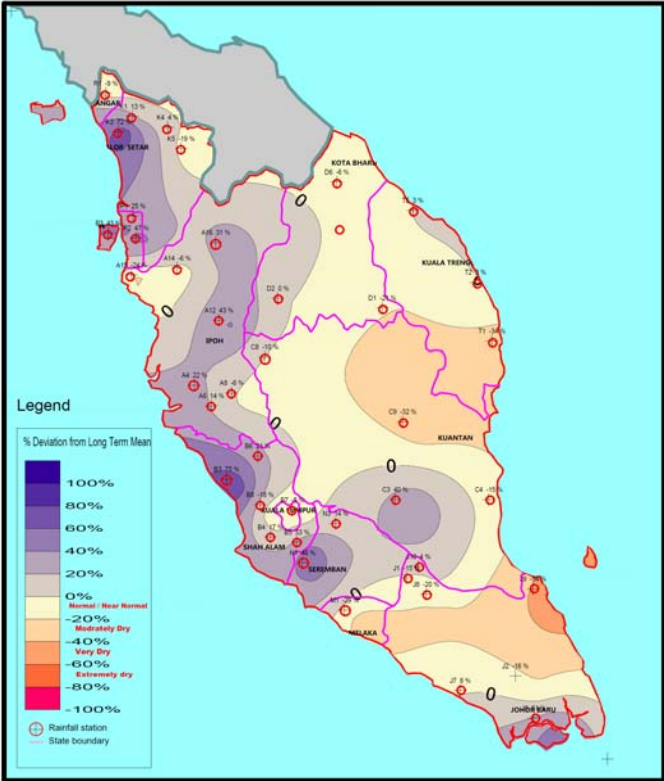
Keputusan analisis hujan untuk tempoh Mac hingga Ogos 2010 diterangkan di dalam Jadual 2, Rajah 3 dan Rajah 4.

WATER RESOURCES STATUS MONITORING PROGRAM IN PENINSULAR MALAYSIA
Mac, Apr, May, Jun, Jul, Aug 2010

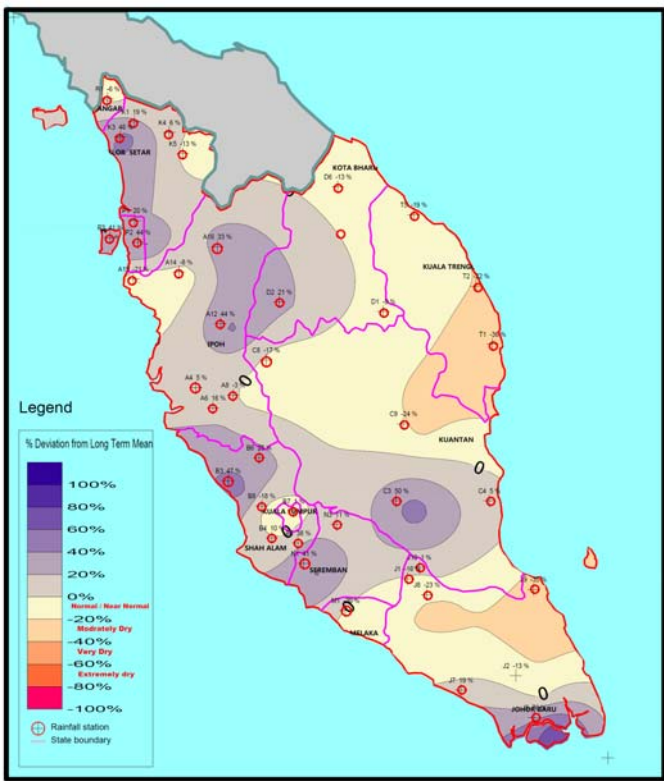
NO	NO STESEN	Mac-10	Apr-10	Mei-10	Jun-10	Jul-10	Ogos-10	Total Rainfall	(6Mth Cum Rf)	Diff(mm)	% Dev
1	6501005 (R1)	84.0	202.0	48.0	191.0	246.0	123.0	894.00	1030.2	-136.2	-13
2	6206035 (K1)	84.5	283.5	173.0	145.0	232.5	260.0	1178.50	919.9	258.6	28
3	6103047 (K3)	304.5	332.0	115.0	306.1	195.7	192.5	1445.80	1091.8	354.0	32
4	6207032 (K4)	103.3	128.0	231.0	351.5	207.3	115.5	1136.60	1125.6	11.0	1
5	6108062 (K5)	28.8	153.8	333.0	228.0	215.9	205.6	1165.11	1276.0	-110.8	-9
6	5505033 (P1)	171.0	281.5	100.0	315.0	136.5	202.0	1206.00	1047.5	158.5	15
7	5304045 (P2)	87.0	312.5	339.5	254.5	186.5	123.5	1303.50	956.6	346.9	36
8	5302003 (P3)	182.0	248.0	129.0	440.0	228.0	260.0	1487.00	1094.1	392.9	36
9	4109095 (A4)	223.5	252.5	245.0	109.0	113.5	103.0	1046.50	912.4	134.1	15
10	4011139 (A6)	206.0	337.0	496.0	257.5	191.5	98.0	1586.00	1279.7	306.3	24
11	4011144 (A8)	222.0	336.5	369.0	192.0	232.5	123.5	1475.50	1393.5	82.0	6
12	4511111 (A12)	215.0	383.0	253.5	207.5	284.0	152.5	1495.50	1098.2	397.3	36
13	5006021 (A14)	241.5	205.0	299.5	166.5	162.0	135.0	1209.50	1247.8	-38.3	-3
14	5003028 (A15)	103.0	89.0	135.5	214.5	127.0	54.5	723.50	949.8	-226.3	-24
15	5210069 (A16)	88.5	199.0	115.0	328.5	147.5	407.5	1286.00	814.0	472.0	58
16	3411017 (B3)	294.8	81.7	153.0	194.0	80.0	53.5	857.00	641.3	215.7	34
17	2917001 (B4)	259.0	190.7	335.5	120.5	158.0	336.5	1400.20	1058.1	342.1	32
18	2818110 (B5)	320.7	256.5	366.0	141.5	113.0	260.0	1457.70	922.6	535.1	58
19	3516022 (B6)	231.5	219.6	241.0	300.0	330.5	318.0	1640.60	1249.8	390.8	31
20	3117070 (B7)	284.5	253.0	262.0	126.0	191.5	109.9	1226.90	1219.2	7.7	1
21	3115079 (B8)	174.0	174.0	302.0	0.0	77.0	52.0	779.00	1109.3	-330.3	-30
22	2719001 (N1)	373.0	234.5	282.0	270.0	160.5	279.0	1599.00	978.3	620.7	63
23	3023098 (N3)	305.0	162.0	150.5	195.0	171.5	99.0	1083.00	926.6	156.4	17
24	2321006 (M1)	156.5	41.4	172.0	115.0	145.0	29.5	659.40	905.1	-245.7	-27
25	2526001 (J1)	66.0	183.0	60.0	214.0	86.0	104.0	713.00	764.5	-51.5	-7
26	2033001 (J2)	70.5	203.0	166.0	251.0	148.5	197.0	1036.00	1014.7	21.3	2
27	1437116 (J5)	223.5	429.5	473.0	393.0	306.0	188.5	2013.50	1185.0	828.5	70
28	1829001 (J7)	258.5	287.5	218.5	251.0	155.5	165.0	1336.00	1098.3	237.7	22
29	2528002 (J8)	49.0	124.0	145.0	151.0	78.3	258.5	805.80	748.4	57.4	8
30	2536168 (J9)	146.5	144.5	110.5	109.5	162.0	95.5	768.50	1072.5	-304.0	-28
31	2527004 (J10)	95.0	239.0	184.0	238.0	81.5	134.5	972.00	822.2	149.8	18
32	3424081 (C3)	245.0	110.5	312.0	127.0	140.0	87.0	1021.50	682.0	339.5	50
33	3533102 (C4)	122.0	122.5	91.0	264.5	206.5	82.0	888.50	773.9	114.6	15
34	4414036 (C8)	171.5	197.5	171.0	144.2	54.0	256.0	994.20	1022.3	-28.1	-3
35	3930012 (C9)	145.0	114.0	61.0	236.0	205.5	380.5	1142.00	1102.0	40.0	4
36	4726001 (D1)	293.0	114.0	264.0	239.0	202.0	180.5	1292.50	1403.8	-111.3	-8
37	4819027 (D2)	72.0	167.0	142.0	326.0	330.0	104.0	1141.00	1042.9	98.1	9
38	5921009 (D6)	115.5	72.5	85.0	166.0	246.5	111.5	797.00	941.3	-144.3	-15
39	4234109 (T1)	111.0	111.0	77.0	20.0	196.0	204.0	719.00	876.2	-157.2	-18
40	4734079 (T2)	92.0	121.0	86.0	41.0	164.0	79.0	583.00	757.3	-174.3	-23
41	5331048 (T5)	112.0	127.0	119.0	52.0	86.0	88.0	584.00	708.0	-124.0	-18
	MEAN	173.94	200.59	205.15	204.68	175.16	166.07	1125.59	1006.40	119.19	12.09

Jadual 2 : Analisis Hujan Bagi Tempoh Mac hingga Ogos 2010

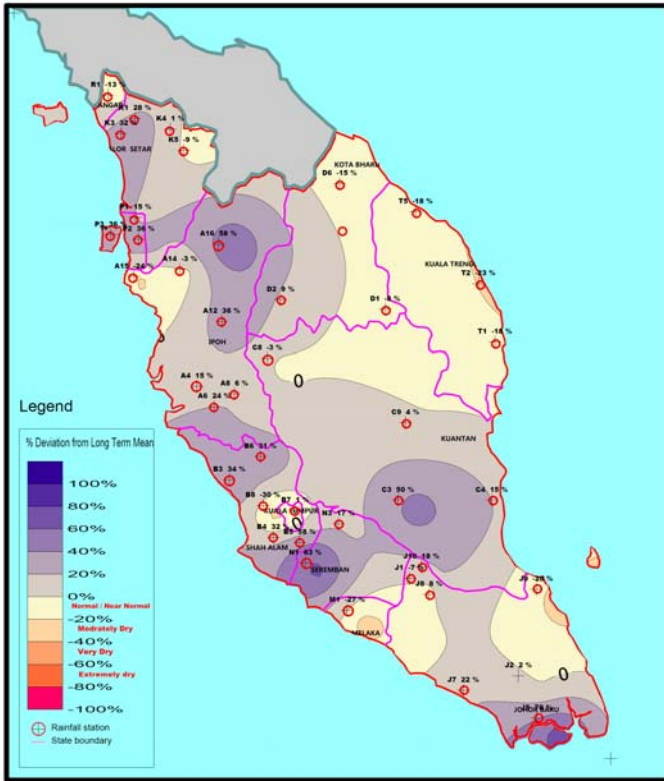
ISOHYET OF RAINFALL DEVIATION FROM LTM
YEAR : 2010
PERIOD : JAN, FEB, MAR, APRIL, MAY, JUN



ISOHYET OF RAINFALL DEVIATION FROM LTM
YEAR : 2010
PERIOD : FEB, MAR, APR, MAY, JUN, JUL

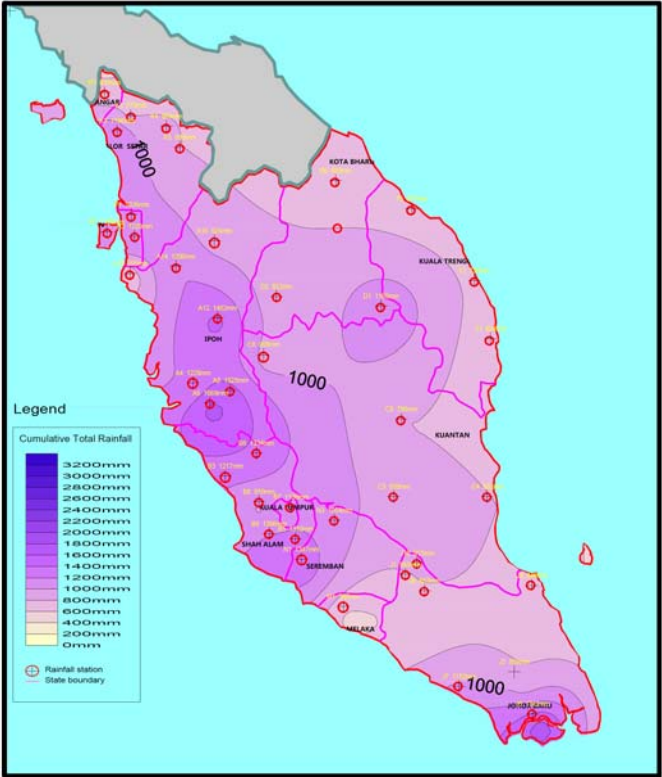


ISOHYET OF RAINFALL DEVIATION FROM LTM
YEAR : 2010
PERIOD : MAR, APR, MAY, JUN, JUL, AUG

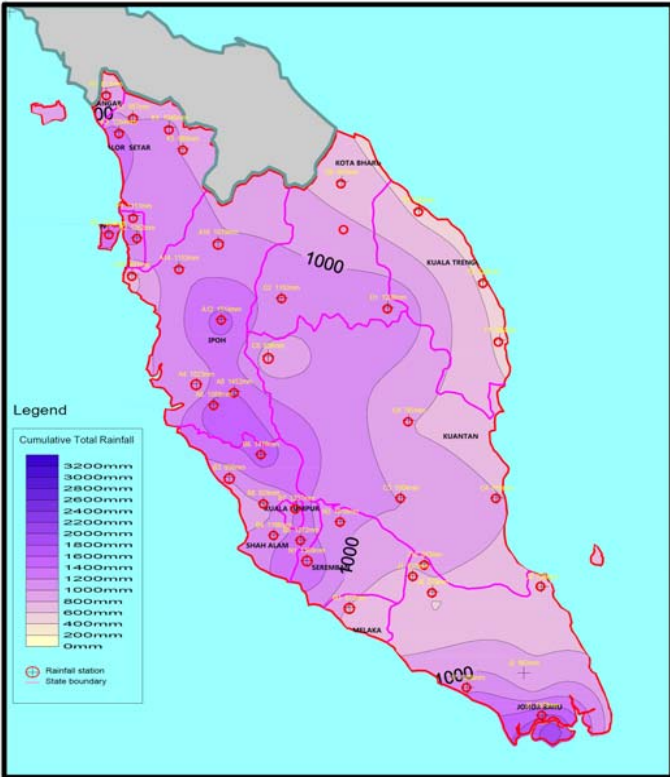


Rajah 3 : Peta Isohyet Menunjukkan Peratus Perbezaan Hujan (6 Bulan)
 Dengan Purata Jangka Panjang bagi bulan Mac hingga Ogos 2010

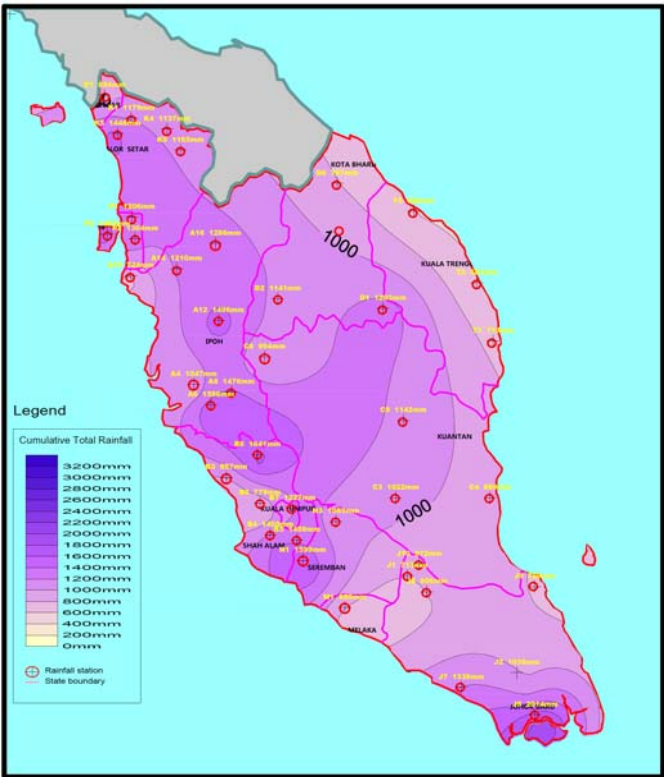
ISOHYET OF RAINFALL DISTRIBUTION FROM LTM
 YEAR : 2010
 PERIOD : JAN, FEB, MAC, APR, MAY, JUN



ISOHYET OF RAINFALL DISTRIBUTION FROM LTM
 YEAR : 2010
 PERIOD : FEB, MAC, APR, MAY, JUN, JUL



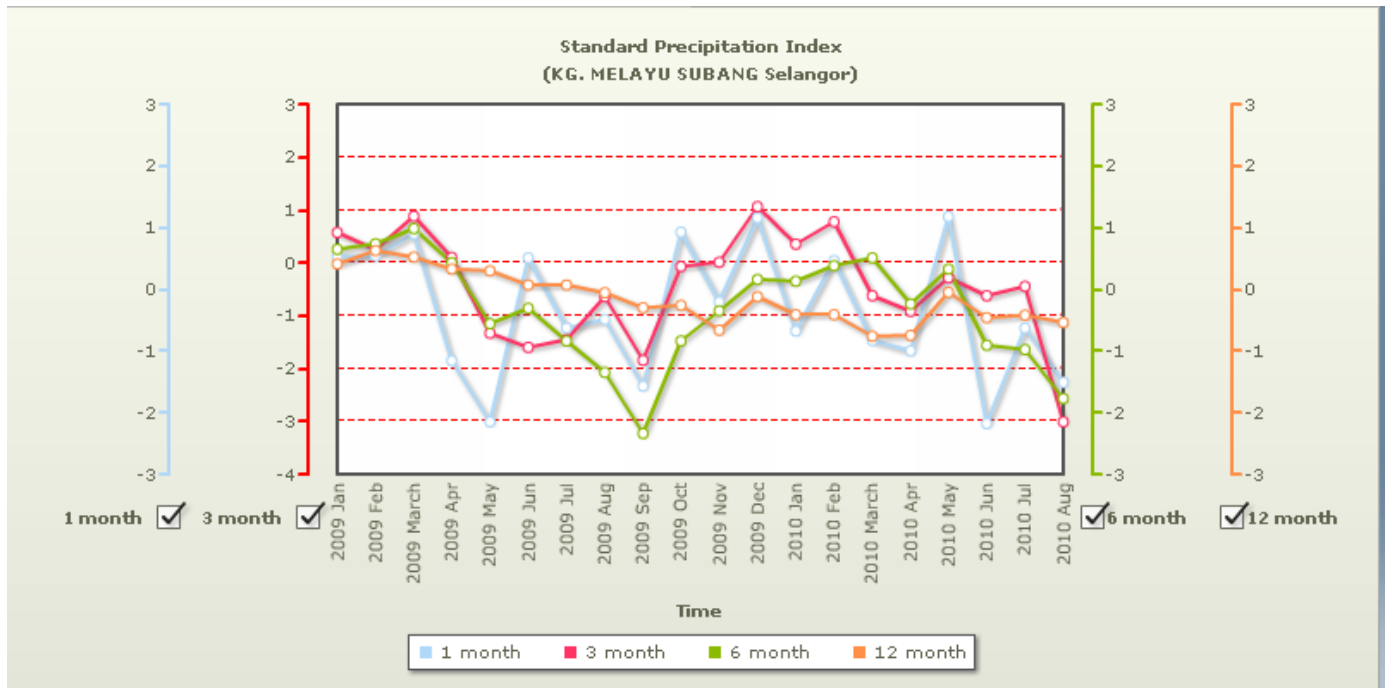
ISOHYET OF RAINFALL DISTRIBUTION FROM LTM
 YEAR : 2010
 PERIOD : MAC, APR, MAY, JUN, JUL, AUG



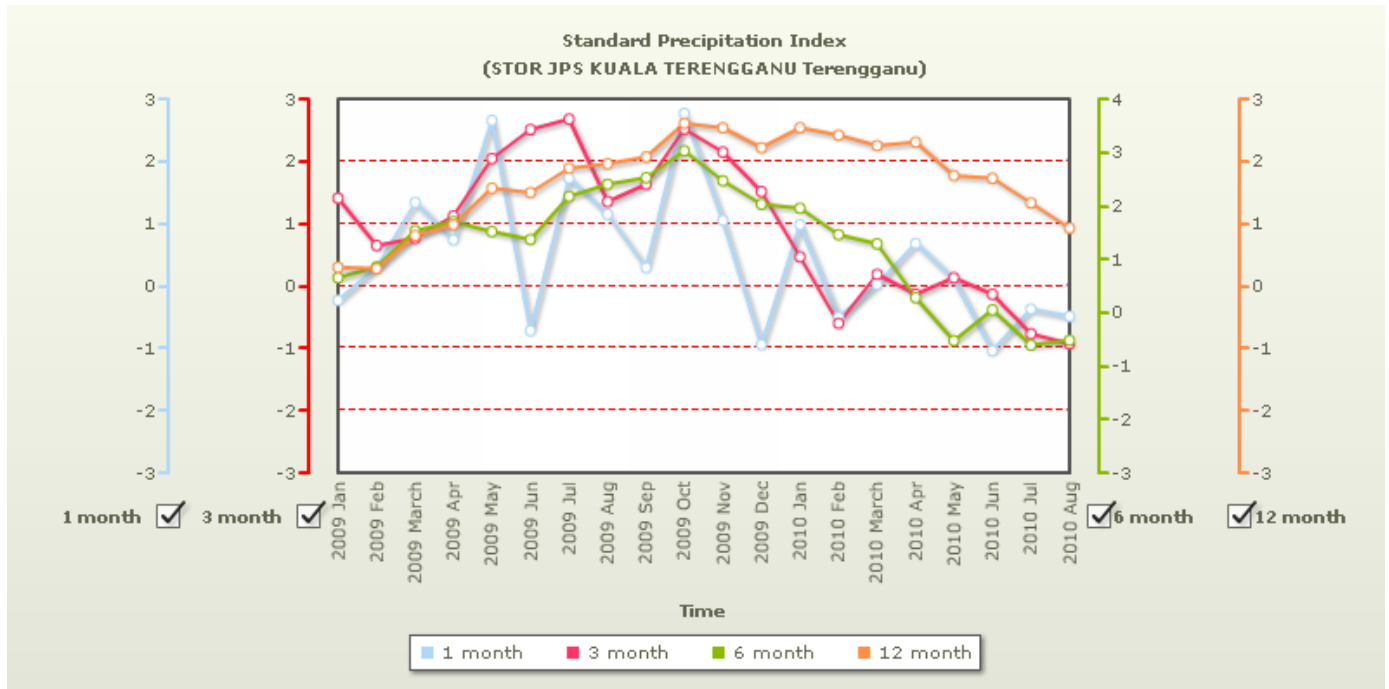
Rajah 4 : Peta Isohyet Menunjukkan Jumlah Hujan Kumulatif (6 Bulan) bagi bulan Mac hingga Ogos 2010

c) Index SPI (Standardized Precipitation Index)

Berdasarkan kepada analisis di bahagian a) dan b) di atas sehingga 31 Ogos 2010, terdapat dua (2) stesen merekodkan defisit hujan melebihi -35 %.



1. Stesen Kampung Melayu Subang B8 (-69%)



2. Stesen Setor JPS Kuala Terengganu T5 (-39%)

Analisis Kadaralir Sungai

Jadual 3 di bawah menunjukkan data luahan sungai-sungai yang dipantau pada akhir bulan Ogos 2010.

Select Date :

StationID (Flow Duration Graph)	Station Name	State	Last Update	Water Level	River Flow (m3/s)	Drought Flow For Various Return Periods (m3/s)			
						2-year	5-year	10-year	20-year
2816441	Sg.Langat di Dengkil	SEL	31/08/2010-23:40	2.69	2.09	5	3	2	1
3813411	Sg.Bernam di Jambatan SKC	SEL	31/08/2010-23:45	16.84	15.66	15	12	10	9
4809443	Sg.Perak di Jam. Iskandar	PRK	31/08/2010-23:01	-99.99	-99.99	66	36	22	14
5007421	Sg.Kurau di Pondok Tanjung	PRK	31/08/2010-23:02	-99.99	-99.99	3.4	2.4	1.9	1.5
5206432	Sg. Kerian di Selama	PRK	31/08/2010-23:02	8.51	8.12	10.9	7.7	6.2	4.9
3424411	Sg.Pahang di Temerloh (Lubuk Pasu)	PHG	31/08/2010-23:05	24.43	22.41	180	125	10	80
0000000	Kampung Laloh	KEL	31/08/2010-23:00	-99.99	-99.99	0	0	0	0
5721442	Sg.Kelantan di Kusial	KEL	31/08/2010-23:00	8.80	7.75	154	114	88	69
5606410	Sg.Muda di Jam.Syed Omar	KDH	31/08/2010-23:00	6.61	5.87	13	8	5	3
1737451	Sg.Johor di Rantau Panjang	JHR	31/08/2010-23:45	3.16	2.60	7.2	4.2	2.9	2

- : Normal Level
- : 2-year
- : 5-year
- : 10-year
- : 20-year

Jadual 3 : Rekod Aras Sungai Pada Akhir Ogos 2010

II. Analisis Storan Empangan

Merujuk kepada Jadual 4, aras air bagi empangan-empangan yang dipantau pada akhir bulan Ogos 2010.

StationID	Station Name	State	Last Update Time	Dam Level	Alert Level (m)	Remaining Dam Storage (MCM)	Remaining Dam Storage (%)
2030401	SG.BEKOK DI EMP.BEKOK	JHR	-00:	-99.99	13.5	n/a	n/a
1832401	KOLAM AIR DI EMP.MACHAP	JHR	31/08/2010-23:45	16.27	13	13.06	124.90
1931425	KOLAM AIR DI EMP.SEMBRONG	JHR	31/08/2010-23:45	9.05	8	22.26	126.46
6502436	SG.KOROK DI HULU TIMAH TASUH DAM	PLS	31/08/2010-23:45	28.61	27	26.80	81.32
5006401	KOLAM AIR BUKIT MERAH	PRK	31/08/2010-23:03	-99.99	6.68	n/a	n/a
3216403	SG.BATU DI EMP. BATU	WLH	31/08/2010-16:46	102.59	100	31.73	98.56
3217435	SG.KELANG DI EMP.GENTING KELANG	WLH	31/08/2010-23:46	92.42	93	4.74	47.36

Jadual 4 : Rekod Aras Empangan Pada Akhir Ogos 2010.

Laporan Disediakan Oleh:

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 Jabatan Pengairan & Saliran Malaysia

Laporan Disahkan Oleh:

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 Ketua Penolong Pengarah,
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