

ข้อมูลอากาศประเทศไทยสำหรับงานอนุรักษ์พลังงาน
จังหวัดอุบลราชธานี



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สถาบันวิทยบริการ
จุฬาลงกรณ์มหาวิทยาลัย

สิงหาคม 2543

เล่ม

สารบัญ

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ตารางสรุปผลของข้อมูลทุกประเภทจังหวัดอุบลราชธานี

CLIMATOLOGICAL DATA FOR THE PERIOD 1981-1998 station : **UBON RATCHATHANI**

Elevation of station above MSL

123 Meters

Latitude: 15 15 N

Longitude: 104 52 E

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
TEMPERATURE (°C)													
Averages													
Daily Maximum	31.2	32.9	35.2	35.4	34.0	32.2	31.4	30.9	30.6	30.7	30.4	29.8	32.1
Monthly Mean	24.0	26.1	28.8	29.8	29.2	28.2	27.8	27.4	27.1	26.3	25.1	23.8	27.0
Daily Minimum	18.0	20.4	23.2	25.1	25.5	25.2	25.0	24.7	24.5	22.9	20.6	18.8	22.8
Dry bulb Standard Deviation	5.2	5.1	4.8	4.5	3.7	3.0	2.6	2.6	2.6	3.2	4.0	4.6	3.8
Extremes													
Highest	35.6	39.3	40.2	40.7	39.7	36.7	37.8	35.0	34.6	34.4	35.2	34.4	40.7
Lowest	11.3	13.6	14.7	18.7	21.6	22.4	22.0	21.3	20.3	16.6	14.4	13.3	11.3
Monthly Dew Point	16.2	18.2	19.9	22.2	23.6	24.0	23.9	24.0	23.8	22.1	19.4	16.6	21.2
Dew Point Standard Deviation	2.8	3.1	2.9	1.9	1.3	1.0	0.9	0.9	1.1	2.3	2.8	3.0	2.0
Monthly Wet bulb Temperature	19.1	21.2	22.9	24.7	25.3	25.3	25.1	25.1	24.9	23.6	21.5	19.1	23.2
DEGREE DAY BASE 18.3 °C													
Heating	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cooling	175.8	223.9	323.4	345.0	337.0	295.2	292.0	280.5	262.8	246.8	202.0	168.7	3,153.1
RELATIVE HUMIDITY (%)													
Averages													
Monthly Mean	64.7	63.3	61.0	65.3	74.1	79.2	80.0	81.9	82.3	78.3	71.8	68.2	72.5
Hour 01:00-06:00	80.6	78.0	73.8	77.4	85.9	88.9	89.5	90.7	91.4	88.4	83.7	82.2	84.2
Hour 07:00-12:00	73.0	71.0	67.7	70.1	76.7	81.3	82.2	84.1	84.4	80.6	75.3	74.1	76.7
Hour 13:00-18:00	42.3	42.6	43.0	48.5	58.1	65.7	66.5	69.0	68.7	63.7	55.3	48.4	56.0
Hour 19:00-24:00	62.8	61.7	59.4	65.2	75.8	81.0	81.7	83.6	84.7	80.5	73.0	68.1	73.1
WIND													
Average Speed (m/s)	1.7	1.6	1.6	1.6	1.6	2.0	1.9	2.1	1.3	1.5	2.9	2.8	1.9
Prevailing wind	N	N	S	S	S	SW	SW	SW	SW	N	N	N	N, SW
Maximum Speed (m/s)	41.1	11.3	18.0	19.5	18.0	12.9	15.4	25.7	18.5	13.4	15.4	15.4	41.1
SKY COVER (0-10)													
Average Sky Condition	3.4	3.9	4.6	5.7	7.1	7.9	8	8.4	8	6.6	5	3.8	6.0
Percentage of Sky cover													
Clear sky (0-3)	52	41	30	15	5	2	2	1	1	10	29	46	20
Partly Cloudy sky (4-7)	43	49	56	59	47	34	33	26	35	49	50	44	44
Cloudy sky (8-10)	6	9	14	26	48	63	65	73	64	41	21	10	37
SUNSHINE DURATION* (hours)													
Average Monthly total	285.8	246.9	259.7	239.4	222.8	163.6	159.1	154.9	142.8	194.3	224.5	256.0	2,549.8
Percentage of Sunshine	76.8	70.9	69.8	66.5	59.9	45.4	42.8	41.6	39.7	52.2	62.3	68.8	58.1
SOLAR RADIATION* (W/m²)													
Average Hourly max	777.6	753.0	881.8	880.2	876.2	814.5	869.9	839.4	765.2	791.0	680.9	791.1	810.1
Average Hourly mean	340.4	336.5	396.3	385.5	378.5	376.3	387.1	337.1	289.5	328.3	282.0	349.3	348.9
Average Daily Total	5,105.9	5,046.8	5,944.7	5,782.0	5,677.0	5,644.4	5,805.9	5,056.5	4,343.2	4,923.9	4,229.8	5,239.6	5,233.3
RAINFALL (mm)													
Average Monthly total	3.8	24.8	28.2	85.2	222.9	246.9	238.5	316.8	309.1	147.3	33.6	0.9	1,658.0
Daily record high	44.0	87.5	58.8	77.9	114.7	259.3	129.6	152.4	122.6	92.1	133.0	5.9	259.3
Average Number of rainy days (0.1 mm. Or more)	0	2	3	7	15	17	18	20	19	12	3	1	117
EVAPORATION (mm)													
Average Monthly total	148.5	153.6	190.1	189.1	172.7	142.8	141.6	128.3	118.5	129.9	138.4	144.9	1,798.4

remark: 1 m/s = 3.597 km/h, = 2.237 mph, = 196.85 fpm, = 1.9455 knots

(*) data base on 1997 - 1998 recorded period

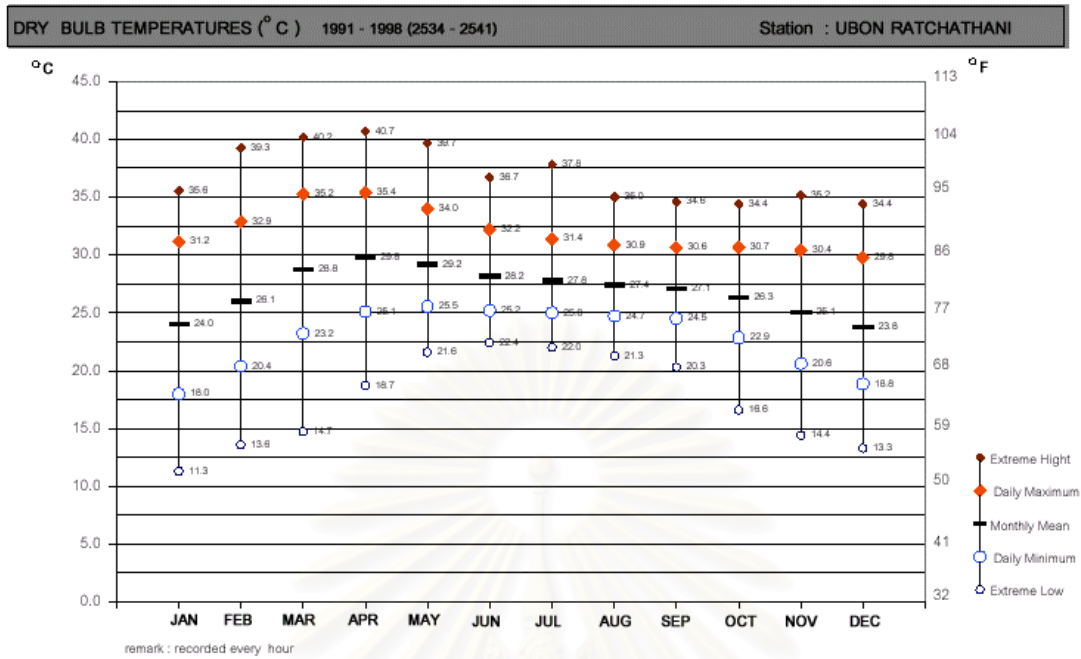
1 W/m2 = 0.317 Btu/h.ft2

(-) missing value or no data report

ตารางแสดงผลข้อมูลอุณหภูมิกระเปาะแห้ง (dry bulb temperatures)

DRY BULB TEMPERATURES (°C) 1981 - 1998 (2524 - 2541)													Station : UBON RATCHATHANI																										
MONTH	JANUARY			FEBRUARY			MARCH			APRIL			MAY			JUNE			JULY			AUGUST			SEPTEMBER			OCTOBER			NOVEMBER			DECEMBER			ANNUAL		
DAY	min	mean	max	min	mean	max	min	mean	max	min	mean	max	min	mean	max	min	mean	max	min	mean	max	min	mean	max	min	mean	max	min	mean	max	min	mean	max	min	mean	max	min	mean	max
1	17.8	23.9	30.9	18.3	24.0	31.2	21.3	26.8	34.0	24.5	29.8	35.9	26.3	30.7	35.9	26.0	28.5	32.0	25.0	27.8	31.2	24.6	27.1	30.6	25.0	27.8	31.7	24.2	27.1	31.3	20.5	24.7	29.9	21.0	25.8	31.5	22.9	27.0	32.2
2	17.4	23.9	31.4	18.8	24.1	30.8	20.7	26.7	33.7	24.7	29.5	35.4	26.5	30.4	36.2	25.4	28.9	33.9	25.3	27.9	31.6	24.7	27.2	30.4	24.8	27.5	31.4	23.7	26.6	30.5	20.7	24.9	29.8	20.3	25.3	30.9	22.7	26.9	32.2
3	18.6	24.5	31.6	19.0	24.7	31.5	20.9	27.0	34.1	24.0	29.3	34.9	26.0	30.5	35.8	25.0	28.5	32.5	24.6	27.4	31.9	24.7	27.8	31.8	24.9	27.0	30.7	23.9	26.8	30.8	20.8	24.2	28.1	20.1	25.2	30.9	22.7	26.9	32.1
4	18.6	24.5	32.0	19.5	24.9	31.4	20.3	26.5	33.5	24.4	29.9	36.1	26.1	30.3	35.6	25.7	28.8	33.2	24.6	27.5	31.7	24.9	27.2	30.4	24.4	27.3	31.0	24.0	26.3	29.3	20.5	24.5	29.6	20.5	25.0	30.5	22.8	26.9	32.0
5	18.4	23.9	30.5	19.0	24.6	31.6	20.3	26.8	34.6	24.5	30.3	36.1	25.6	29.9	34.5	25.4	28.0	31.9	24.9	28.2	32.0	24.9	27.6	31.4	25.2	27.3	30.2	23.4	26.3	30.2	20.1	24.8	30.1	20.3	24.8	30.3	22.7	26.9	32.0
6	17.5	23.9	30.9	18.9	24.4	31.3	20.7	27.6	35.4	25.6	30.2	36.6	25.9	30.5	36.2	24.7	28.6	33.4	25.1	28.3	32.4	24.9	27.5	30.8	24.3	27.2	31.1	23.2	26.5	30.7	20.6	25.5	31.4	20.3	24.2	29.7	22.6	27.0	32.5
7	18.0	23.9	30.8	18.7	24.9	32.1	21.6	28.3	35.6	25.5	29.8	34.7	26.2	31.0	36.5	25.6	28.7	32.9	25.4	28.3	32.1	24.7	27.6	30.8	25.0	27.4	31.0	23.5	26.7	31.0	20.9	25.7	31.3	18.9	23.3	28.8	22.8	27.1	32.3
8	18.0	23.7	30.3	19.1	25.6	32.9	22.4	28.8	35.8	25.2	29.7	35.6	26.4	30.4	35.5	25.1	28.2	32.6	24.8	27.9	31.4	24.8	27.9	31.7	24.8	27.6	31.1	23.5	26.7	30.8	20.9	25.5	31.2	18.2	23.1	29.1	22.8	27.1	32.3
9	18.2	24.0	30.8	19.9	25.6	32.3	23.1	29.2	36.4	25.0	29.8	35.6	26.2	29.7	35.0	24.8	27.9	32.2	24.9	27.4	30.4	24.8	28.2	32.3	24.4	27.8	31.8	23.8	26.6	30.6	20.9	25.1	30.3	19.0	23.4	28.7	22.9	27.0	32.2
10	18.5	24.2	31.2	21.5	25.9	32.0	23.4	28.8	34.8	25.0	30.3	37.1	25.1	28.7	32.9	24.8	27.8	32.2	24.9	27.6	31.7	25.0	27.9	31.6	25.1	27.0	29.8	23.6	27.2	31.3	20.5	25.2	30.3	19.0	23.8	29.6	23.0	27.0	32.0
11	18.0	24.0	31.4	20.5	26.1	32.9	23.6	28.9	35.1	25.8	30.7	36.4	25.6	28.8	33.1	24.8	27.9	32.4	24.5	27.6	31.3	24.7	27.8	31.5	24.9	27.0	30.6	24.0	27.0	31.2	20.4	25.3	30.7	19.1	24.2	30.3	23.0	27.1	32.2
12	18.0	24.4	31.9	20.5	26.3	32.9	24.0	29.1	35.3	25.9	30.6	36.0	25.4	29.7	35.2	24.7	28.1	32.4	24.6	28.1	31.6	25.1	27.7	31.5	24.7	27.1	30.5	23.8	26.7	30.7	20.5	25.3	30.8	19.4	24.3	30.3	23.1	27.3	32.4
13	19.0	24.8	31.9	20.7	26.8	33.7	24.0	29.0	35.1	25.0	29.3	34.1	25.1	28.8	33.0	25.1	28.5	32.5	24.9	27.8	31.5	24.6	27.4	31.4	24.0	26.6	30.3	23.4	27.4	32.1	20.3	25.2	30.4	19.8	24.5	30.1	23.0	27.2	32.2
14	18.6	24.5	31.3	21.3	27.2	34.3	24.0	28.7	34.2	24.6	29.7	35.9	25.6	29.1	33.6	25.1	27.7	31.6	24.9	27.6	31.5	24.9	27.3	31.0	24.8	27.1	30.5	23.5	27.2	31.7	20.7	25.1	30.1	19.5	24.1	29.9	23.1	27.1	32.1
15	18.6	24.1	30.9	22.6	27.9	34.5	22.9	28.8	35.6	24.6	29.7	35.3	25.5	29.3	34.3	25.3	28.6	32.0	25.1	27.7	31.2	24.6	26.9	29.8	24.4	27.6	31.7	23.3	27.0	31.9	20.9	25.2	30.8	19.4	24.0	29.7	23.1	27.2	32.3
16	18.1	23.7	30.7	22.7	27.8	34.3	23.3	29.2	36.1	24.7	29.6	35.2	25.6	28.8	33.8	25.8	29.0	32.6	24.9	27.3	30.9	24.7	27.4	30.9	24.9	27.3	31.1	23.7	27.4	32.0	20.4	25.3	30.9	18.9	23.8	29.6	23.1	27.2	32.3
17	17.1	23.5	31.1	23.0	28.0	34.5	24.4	29.4	35.8	25.6	29.1	33.1	24.8	27.7	32.5	26.0	28.7	32.3	24.9	27.9	31.3	24.8	27.2	30.6	24.4	26.9	30.4	23.7	27.0	31.2	21.0	25.7	31.6	19.2	23.8	29.8	23.2	27.1	32.0
18	17.7	23.9	31.5	22.4	27.9	34.7	23.9	29.2	35.3	24.8	30.0	35.7	24.8	27.9	32.5	25.5	28.4	32.4	25.1	27.9	31.9	24.1	27.1	30.9	24.2	26.7	29.4	23.3	26.9	31.1	20.9	25.4	31.0	19.1	23.8	29.7	23.0	27.1	32.2
19	17.5	24.0	31.2	21.6	27.3	34.2	24.1	29.3	35.4	25.8	30.7	35.9	25.1	28.6	33.2	25.2	28.5	32.8	25.3	28.4	33.2	24.5	27.1	31.3	24.6	27.2	30.9	22.8	26.8	31.5	20.4	25.1	30.4	18.4	23.5	29.9	22.9	27.2	32.5
20	18.0	24.5	32.2	20.9	26.6	33.7	22.9	29.1	35.6	25.9	28.8	33.1	25.2	28.8	33.3	25.5	28.3	32.3	25.4	28.6	32.4	24.2	27.1	30.6	24.5	26.7	29.7	22.3	26.0	30.5	20.9	25.1	30.1	18.5	23.8	30.2	22.8	26.9	32.0
21	18.5	24.4	31.5	19.9	26.0	33.0	24.1	29.6	35.9	25.1	29.2	34.9	25.5	29.2	33.8	25.4	28.3	32.3	25.5	28.1	31.4	24.8	27.2	29.9	24.2	26.6	29.8	22.0	25.4	29.9	20.4	24.8	29.9	19.0	23.5	29.4	22.9	26.9	31.8
22	18.2	24.4	32.1	20.4	25.7	32.4	24.7	29.9	35.9	23.7	28.0	33.0	25.7	29.4	34.4	25.5	28.5	32.5	25.3	28.1	32.0	25.0	27.4	30.4	24.4	26.8	30.5	21.8	25.6	30.7	20.2	25.0	30.8	18.4	23.3	29.6	22.8	26.8	31.9
23	18.9	24.1	30.9	19.9	25.7	32.7	24.0	29.1	34.7	24.3	29.3	35.0	26.0	29.2	33.6	25.3	28.1	32.1	25.3	27.2	30.5	24.3	26.8	29.8	24.5	27.0	30.8	21.3	25.2	29.6	20.6	25.0	30.6	18.3	23.3	29.5	22.7	26.7	31.6
24	17.8	23.9	30.5	19.6	25.7	32.8	24.1	29.0	35.0	25.3	29.8	35.7	25.9	29.3	34.6	24.8	27.0	30.8	24.6	27.3	30.5	24.4	27.2	30.8	24.6	27.3	30.8	22.1	25.6	30.0	21.0	24.2	28.9	18.0	22.8	29.0	22.7	26.6	31.6
25	18.1	24.0	30.8	20.0	26.4	33.3	24.5	29.3	35.3	24.8	30.1	35.5	25.7	28.5	32.5	24.8	27.5	31.7	24.9	27.5	31.1	24.8	27.6	31.7	24.5	27.0	30.2	22.2	25.3	29.9	19.4	24.4	30.3	16.8	22.3	28.8	22.5	26.7	31.8
26	18.0	24.2	31.1	20.4	26.0	32.4	23.6	29.1	35.6	25.9	30.2	35.6	25.3	28.4	32.3	24.7	27.6	31.8	25.2	27.6	30.7	25.2	27.8	31.4	23.9	26.7	29.9	21.3	25.2	30.2	19.7	24.2	29.3	16.7	22.7	29.5	22.5	26.6	31.6
27	18.8	24.1	30.7	20.3	26.7	33.8	24.2	29.8	36.0	25.0	29.8	35.5	25.3	28.1	31.9	24.8	27.7	30.8	25.1	28.3	32.4	25.1	27.7	30.9	23.7	26.7	30.1	21.7	25.7	30.9	20.3	24.8	30.3	17.6	23.1	29.9	22.6	26.9	31.9
28	17.6	23.2	30.6	20.2	26.0	32.5	24.9	29.9	35.8	25.5	30.2	35.9	25.1	28.6	33.2	25.5	27.9	31.2	25.5	27.7	30.9	24.7	27.2	30.3	24.0	26.9	30.5	21.5	25.4	30.1	21.3	25.5	30.9	18.3	22.9	28.7	22.8	26.8	31.7
29	16.6	22.8	30.7	21.4	26.9	34.0	24.2	30.0	36.2	25.9	30.8	36.7	24.8	28.0	32.4	25.2	27.7	31.4	24.7	27.2	30.9	24.7	27.0	30.0	24.2	27.0	31.0	21.6	25.4	30.3	21.0	25.7	31.3	17.3	22.7	29.5	22.6	26.8	32.0
30	16.6	23.3	31.2	24.7	29.9	36.0	26.4	30.8	35.9	25.2	28.6	33.2	25.0	27.6	31.5	25.0	27.0	30.1	24.8	27.2	30.4	23.8	26.5	30.4	22.0	25.5	30.5	21.5	26.0	31.9	17.1	23.1	30.3	22.9	26.9	31.9			
31	17.5	23.9	31.6	25.4	29.2	34.5	24.7	28.6	33.1	25.0	27.2	30.9	24.7	26.9	30.0	25.0	27.2	30.9	24.7	26.9	30.0	24.7	26.9	30.0	20.7	24.8	29.6	18.1	23.7	30.0	22.3	26.3	31.4						
Average	18.0	24.0	31.2	20.4	26.1	32.9	23.2	28.8	35.2	25.1	29.8	34.4	25.5	29.2	34.0	25.2	28.2	32.2	25.0	27.8	31.4	24.7	27.4	30.9	24.5	27.1	30.6	22.9	26.3	30.7	20.6	25.1	30.4	18.8	23.8	29.8	22.8	27.0	32.1
Extremes	11.3	35.6	13.6	39.3	14.7	40.2	18.7	40.7	21.6	39.7	22.4	36.7	22.0	37.8	21.3	35.0	28.3	34.6	16.6	34.4	14.4	35.2	13.3	34.4															

แผนภูมิอุณหภูมิกระเปาะแห้ง (dry bulb temperatures)



สถาบันวิทยบริการ
จุฬาลงกรณ์มหาวิทยาลัย

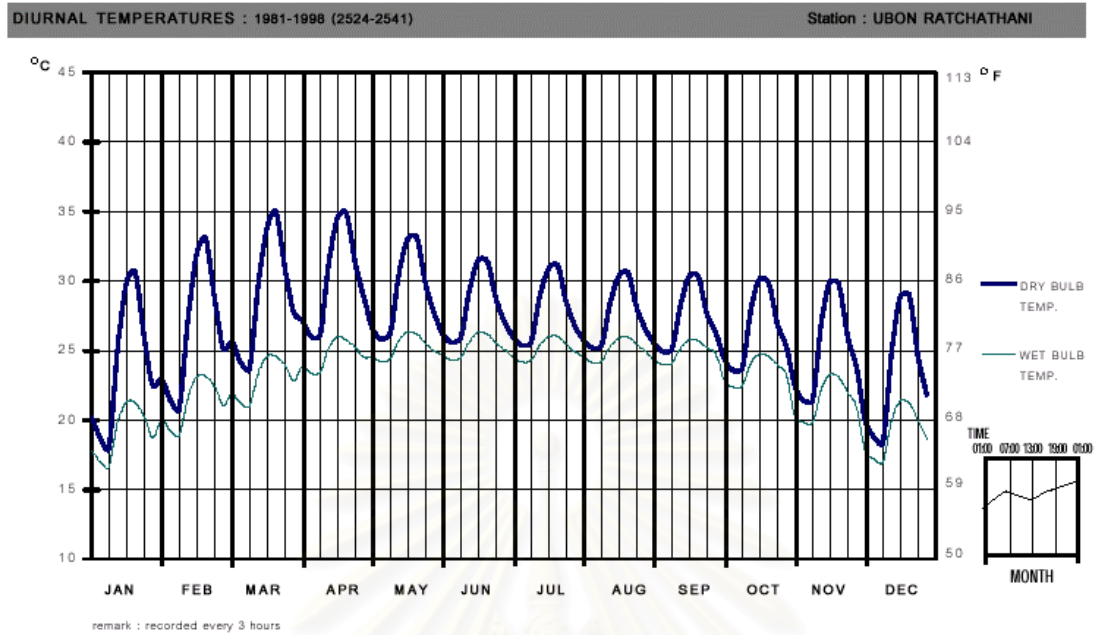
ตารางแสดงผลข้อมูลอุณหภูมิจุดน้ำค้าง (dew point temperatures)

DEW POINT TEMPERATURES (°C) 1981 - 1998 (2524 - 2541)													Station : UBON RATCHATHANI																										
MONTH DAY	JANUARY			FEBRUARY			MARCH			APRIL			MAY			JUNE			JULY			AUGUST			SEPTEMBER			OCTOBER			NOVEMBER			DECEMBER			ANNUAL		
	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max
1	15.8	16.5	17.0	15.0	15.9	16.4	18.2	18.9	19.5	21.3	21.7	22.1	22.4	23.0	23.3	24.0	24.3	24.8	23.8	24.0	24.2	23.3	23.9	24.4	23.8	24.3	24.8	23.3	23.5	24.0	19.3	20.0	20.7	16.4	17.1	17.8	20.5	21.1	21.6
2	16.1	16.9	18.1	15.9	16.5	17.3	17.7	18.3	19.0	21.6	22.0	22.5	21.9	23.0	23.4	23.8	24.3	24.8	23.8	24.0	24.3	23.8	24.0	24.2	23.7	24.1	24.4	23.0	23.4	23.7	19.7	20.3	20.8	16.4	17.2	17.9	20.6	21.2	21.7
3	16.7	17.4	18.2	15.7	16.8	17.5	17.4	18.1	18.6	21.6	22.1	22.6	22.6	23.1	23.4	24.1	24.4	24.6	23.7	24.0	24.3	23.7	24.2	24.8	23.7	24.1	24.4	22.8	23.1	23.5	19.8	20.3	20.7	16.6	17.4	18.1	20.7	21.2	21.7
4	16.7	17.3	17.9	16.6	17.3	18.2	17.2	17.8	18.4	20.9	21.6	22.0	22.3	23.0	23.4	24.0	24.3	24.5	23.5	23.8	24.2	23.7	24.1	24.5	23.3	23.9	24.3	22.6	23.0	23.4	19.4	19.9	20.4	17.0	17.9	18.5	20.6	21.2	21.6
5	15.6	16.7	17.5	17.0	17.7	18.4	17.1	17.5	17.9	21.1	21.6	22.0	22.5	22.9	23.3	23.9	24.1	24.5	23.5	23.9	24.2	23.7	24.0	24.6	23.9	24.1	24.3	22.3	22.7	23.2	19.3	20.0	20.9	17.1	17.8	18.3	20.6	21.1	21.6
6	15.4	16.3	16.7	16.9	17.5	18.2	16.4	17.3	18.4	20.8	21.8	22.3	22.0	22.5	23.3	23.5	24.1	24.6	23.4	23.7	24.1	23.6	23.9	24.4	23.7	24.1	24.5	22.4	22.8	23.4	19.8	20.4	21.2	16.7	17.0	17.4	20.4	20.9	21.5
7	15.5	16.5	17.0	16.3	17.1	18.1	16.8	18.0	18.8	21.4	21.9	22.3	22.5	23.0	23.4	24.0	24.2	24.4	23.4	23.8	24.1	23.4	23.9	24.4	23.7	23.9	24.3	22.5	23.1	23.7	19.9	20.3	20.7	15.9	16.3	16.9	20.4	21.0	21.5
8	16.1	16.5	17.0	16.9	17.5	18.1	17.8	18.6	19.2	21.0	21.7	22.0	22.8	23.3	23.8	24.0	24.3	24.6	23.7	23.9	24.2	23.6	23.9	24.2	23.8	24.0	24.2	22.8	23.1	23.6	19.4	20.0	20.7	15.4	16.2	16.9	20.6	21.1	21.6
9	15.4	16.2	17.6	17.0	17.8	18.7	17.8	18.9	19.4	20.6	21.7	22.2	22.9	23.4	23.6	24.0	24.2	24.4	23.6	23.9	24.2	23.6	24.0	24.5	23.6	24.0	24.3	22.6	23.1	23.6	18.6	19.6	20.3	15.9	17.0	18.1	20.5	21.1	21.7
10	15.9	16.6	17.7	17.7	18.3	19.0	18.8	19.4	20.2	21.3	21.8	22.7	23.0	23.4	23.8	23.8	24.1	24.4	23.7	23.9	24.1	23.5	24.0	24.2	23.7	24.0	24.3	22.1	22.5	23.0	18.2	18.9	19.3	16.6	17.3	17.9	20.7	21.2	21.7
11	15.6	16.5	17.4	17.6	18.1	18.7	19.3	20.0	21.1	20.9	22.0	22.5	23.3	23.4	23.6	23.7	23.9	24.3	23.4	23.6	23.8	23.6	23.9	24.1	23.8	24.0	24.4	22.1	22.5	22.8	18.2	19.0	19.8	16.6	17.2	17.8	20.7	21.2	21.7
12	14.4	16.0	16.6	17.3	18.2	19.5	19.8	20.4	21.2	21.0	22.0	22.4	22.7	23.5	23.8	23.6	23.9	24.1	23.8	23.8	24.3	23.6	23.9	24.1	23.7	24.1	24.5	22.4	22.8	23.6	19.0	19.9	20.6	16.6	17.0	17.4	20.6	21.3	21.8
13	15.2	16.3	17.1	18.1	18.8	19.7	19.9	20.6	21.2	21.5	22.1	22.8	23.3	23.6	24.1	23.8	24.1	24.4	23.6	23.9	24.1	23.4	23.8	24.1	23.6	24.1	24.6	22.5	22.8	23.5	19.3	20.1	20.8	16.5	17.2	17.9	20.9	21.4	22.0
14	14.8	15.6	16.0	17.6	18.7	19.5	19.7	20.4	21.0	21.8	22.4	23.1	22.9	23.5	23.8	23.7	24.1	24.4	23.6	23.9	24.3	23.7	24.0	24.4	23.9	24.2	24.5	22.5	22.9	23.3	19.8	20.2	20.6	16.5	17.1	17.6	20.9	21.4	21.9
15	15.3	16.0	16.8	17.9	18.9	19.7	19.4	20.3	20.9	21.7	22.2	22.7	23.4	23.5	23.8	24.0	24.2	24.4	23.6	23.9	24.3	23.9	24.1	24.4	23.4	23.9	24.5	22.4	22.9	23.6	19.5	20.3	20.9	16.4	16.8	17.3	20.9	21.4	21.9
16	15.5	15.9	16.5	18.4	19.1	19.9	19.8	20.5	21.2	21.4	22.0	22.7	23.5	23.8	24.1	23.9	24.1	24.3	23.9	24.1	24.5	23.7	24.1	24.3	23.8	24.0	24.3	22.7	23.3	23.7	19.6	20.3	20.7	15.9	16.7	17.3	21.0	21.5	22.0
17	15.1	15.9	16.9	17.7	19.0	19.5	20.2	20.7	21.3	22.0	22.4	22.7	23.2	23.7	24.2	23.6	24.0	24.3	23.9	24.1	24.2	23.5	23.9	24.3	23.6	23.9	24.4	22.7	23.2	23.5	19.6	20.2	20.7	16.0	16.6	17.1	20.9	21.5	21.9
18	15.6	16.4	17.3	18.0	18.8	19.3	20.4	20.8	21.4	21.5	22.4	22.9	23.4	23.8	24.3	23.6	23.8	24.0	23.9	24.1	24.4	23.7	23.9	24.1	23.4	23.7	24.0	22.3	22.8	23.2	18.9	19.4	19.7	16.2	16.8	17.4	20.9	21.4	21.8
19	15.5	16.4	17.3	17.9	18.7	19.8	19.4	20.5	21.0	21.9	22.6	23.0	23.6	23.9	24.1	23.5	24.0	24.5	23.8	24.0	24.5	23.6	23.9	24.2	23.6	23.8	24.0	22.3	22.5	23.1	18.4	19.0	19.5	16.0	16.5	17.1	20.8	21.3	21.8
20	15.6	16.3	17.0	18.2	19.0	19.5	19.3	20.0	20.7	21.9	22.6	23.1	23.2	23.9	24.2	23.6	23.9	24.3	23.9	24.1	24.4	23.4	23.9	24.2	23.4	23.7	24.3	21.4	21.9	22.4	18.3	19.0	19.6	15.3	16.1	16.8	20.6	21.2	21.7
21	15.6	16.3	16.9	17.6	18.3	19.1	19.7	20.5	21.3	21.7	22.4	22.9	23.3	23.8	24.2	23.7	24.0	24.5	23.7	23.9	24.1	23.6	24.0	24.7	23.4	23.5	23.7	20.9	21.4	21.7	18.2	18.9	19.6	15.7	16.2	16.8	20.6	21.1	21.6
22	14.8	15.7	16.4	17.7	18.3	19.3	19.9	20.8	21.9	21.7	22.2	22.7	23.3	23.9	24.2	23.9	24.0	24.2	23.6	23.8	24.0	23.7	24.0	24.4	23.2	23.6	24.1	20.8	21.2	21.9	18.4	19.0	19.4	15.5	16.1	16.8	20.6	21.1	21.6
23	15.1	15.7	16.3	18.3	18.9	19.4	20.3	21.0	21.5	21.1	22.2	23.1	23.6	23.9	24.2	23.5	24.0	24.4	23.7	23.9	24.2	23.5	23.8	24.3	23.4	23.7	24.1	20.6	21.0	21.5	18.6	18.8	19.3	15.5	15.9	16.5	20.6	21.1	21.6
24	15.0	15.8	16.8	18.1	18.7	19.8	20.1	20.9	21.5	22.2	22.5	22.9	23.7	24.1	24.5	23.3	23.7	24.1	23.5	23.8	24.3	23.5	24.0	24.4	23.3	23.7	24.2	20.7	21.0	21.5	17.9	18.2	18.6	14.8	15.6	16.3	20.5	21.0	21.6
25	15.4	15.8	16.4	18.4	19.2	20.2	20.2	21.0	21.5	22.4	22.7	23.2	23.4	23.8	24.0	23.4	23.8	24.1	23.7	23.9	24.2	23.8	24.0	24.2	23.3	23.5	23.9	20.4	20.8	21.2	17.7	18.2	18.7	14.8	15.4	16.3	20.6	21.0	21.5
26	15.3	15.8	16.6	18.7	19.3	20.0	20.2	20.6	21.1	22.0	22.7	23.0	23.9	24.1	24.3	23.6	23.9	24.1	23.6	23.9	24.6	23.8	24.0	24.4	23.2	23.5	23.9	19.9	20.6	21.1	17.6	18.4	19.1	15.0	15.4	16.1	20.6	21.0	21.5
27	14.8	15.5	16.0	18.0	19.0	20.1	20.3	20.7	20.9	21.7	22.4	23.0	23.8	24.1	24.4	23.6	23.8	24.0	23.6	23.9	24.4	23.9	24.2	24.6	23.0	23.5	23.9	20.1	20.8	21.4	18.3	19.0	19.6	15.3	15.9	16.6	20.5	21.1	21.6
28	14.7	15.3	16.0	18.5	19.3	20.2	20.3	20.9	21.5	21.8	22.8	23.3	23.9	24.1	24.3	23.6	23.9	24.3	23.6	24.0	24.2	23.6	24.1	24.8	23.0	23.4	24.0	20.1	20.8	21.5	18.1	18.7	19.2	15.6	16.1	17.0	20.6	21.1	21.7
29	14.6	15.4	16.1	17.8	18.4	19.8	20.5	21.0	21.9	21.9	22.9	23.3	23.9	24.1	24.4	23.6	23.9	24.3	23.4	23.8	24.3	23.8	24.0	24.2	23.0	23.3	23.7	20.5	20.9	21.4	17.9	18.4	18.9	15.2	15.9	16.8	20.5	21.0	21.5
30	14.9	15.6	16.3	21.0	21.5	22.2	22.0	23.0	23.9	24.0	24.2	24.4	23.6	24.0	24.4	23.5	23.8	24.0	23.7	24.0	24.3	22.8	23.4	24.1	19.9	20.3	20.7	17.4	17.9	18.6	15.1	15.9	16.9	20.7	21.2	21.8			
31	14.9	15.8	16.7	20.9	21.5	21.9	23.9	24.2	24.6	23.9	24.2	24.6	23.5	23.9	24.1	23.8	24.1	24.5	23.8	24.1	24.5	23.8	24.1	24.5	19.5	20.0	20.4	15.8	16.5	17.4	20.3	20.8	21.4	20.6	21.2	21.7			
Average	15.4	16.2	16.9	17.5	18.2	19.0	19.2	19.9	20.6	21.5	22.2	22.7	23.1	23.6	23.9	23.7	24.0	24.4	23.6	23.9	24.2	23.6	24.0	24.4	23.5	23.8	24.2	21.7	22.1	22.6	18.8	19.4	20.0	15.9	16.6	17.2	20.6	21.2	21.7
Extremes	-1.7	26.6	9.2	25.8	4.1	29.4	12.8	27.1	15.3	28.9	19.7	27.9	18.9	26.8	18.4	28.3	16.8	26.9	8.7	26.3	5.6	25.9</																	

ตารางแสดงผลข้อมูลอุณหภูมิกระเปาะเปียก (wet bulb temperatures)

WET BULB TEMPERATURES (°C) 1981 - 1998 (2524 - 2541)													Station : UBON RATCHATHANI																										
MONTH	JANUARY		FEBRUARY		MARCH		APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER		OCTOBER		NOVEMBER		DECEMBER		ANNUAL														
DAY	min	mean	max	min	mean	max	min	mean	max	min	mean	max	min	mean	max	min	mean	max	min	mean	max	min	mean	max	min	mean	max	min	mean	max									
1	16.9	19.2	21.3	16.9	19.2	21.5	19.5	21.7	24.0	22.8	24.3	25.8	24.1	25.2	26.4	24.6	25.7	26.7	24.3	25.2	26.2	23.9	25.0	26.2	24.2	25.3	26.4	23.8	24.6	25.5	20.3	21.9	23.6	17.8	19.6	21.8	21.6	23.1	24.6
2	16.8	19.5	21.7	17.0	19.5	21.9	19.1	21.3	23.4	23.1	24.5	26.2	24.3	25.2	26.2	24.4	25.6	26.5	24.3	25.2	26.1	24.3	25.0	25.8	24.1	25.1	26.1	23.4	24.4	25.2	20.5	22.1	23.8	17.6	19.6	21.8	21.6	23.1	24.5
3	17.4	19.9	22.1	17.4	19.9	22.1	19.0	21.2	23.2	23.2	24.6	26.0	24.3	25.3	26.4	24.7	25.7	26.9	24.2	25.1	26.3	24.2	25.3	26.2	24.1	25.0	26.2	23.3	24.2	25.2	20.7	22.1	23.6	17.6	19.7	21.9	21.7	23.2	24.7
4	17.6	19.9	22.0	17.7	20.2	22.3	18.6	21.0	23.1	22.8	24.3	25.9	24.1	25.1	26.4	24.7	25.6	26.7	24.0	25.0	26.2	24.2	25.1	26.1	23.7	24.9	26.0	23.5	24.2	24.9	20.3	21.9	23.6	17.9	20.0	22.2	21.6	23.1	24.6
5	17.5	19.5	21.4	18.0	20.5	22.8	18.5	20.7	22.8	22.9	24.4	25.9	23.6	24.9	26.1	24.7	25.4	26.5	24.0	25.0	26.0	24.1	25.1	26.2	24.3	25.0	25.8	22.9	23.9	25.1	20.2	22.0	23.7	18.0	20.0	22.2	21.6	23.0	24.5
6	16.5	19.1	21.2	18.2	20.4	22.3	18.1	20.6	22.9	23.2	24.6	26.1	23.4	24.7	25.9	24.0	25.4	26.6	24.0	25.1	26.2	24.0	25.0	25.8	24.1	25.0	26.0	22.9	24.1	25.2	20.6	22.3	23.9	17.8	19.5	21.6	21.4	23.0	24.5
7	17.2	19.2	21.3	17.8	20.2	22.2	18.8	21.3	23.4	23.3	24.5	26.0	23.9	25.0	25.9	24.5	25.4	26.4	24.0	25.2	26.3	24.0	25.1	26.1	24.1	25.0	25.9	23.0	24.3	25.4	20.7	22.2	23.9	17.0	18.9	21.1	21.5	23.0	24.5
8	16.9	19.2	21.3	17.9	20.5	22.6	19.6	21.8	23.7	23.2	24.2	25.5	24.1	25.2	26.3	24.5	25.5	26.6	24.2	25.2	26.1	24.1	25.1	25.9	24.2	25.0	25.9	23.2	24.3	25.4	20.4	22.0	23.8	16.5	18.8	21.2	21.6	23.1	24.5
9	16.4	19.1	21.4	18.4	20.7	22.6	20.2	22.2	23.9	22.7	24.2	25.7	24.1	25.1	26.4	24.5	25.3	26.5	24.1	25.1	26.0	24.1	25.1	26.2	23.9	24.9	25.9	23.1	24.2	25.4	20.3	21.6	23.5	17.1	19.3	21.7	21.6	23.1	24.6
10	16.8	19.3	21.6	19.2	21.1	22.8	20.4	22.5	24.2	22.8	24.5	26.0	24.1	25.1	26.2	24.2	25.2	26.5	24.2	25.2	26.1	24.1	25.0	26.0	24.1	24.8	25.7	22.7	23.8	24.9	19.3	21.0	22.8	17.4	19.6	21.8	21.6	23.1	24.6
11	16.5	19.3	21.6	18.6	20.9	23.0	21.3	23.1	24.7	23.4	24.8	25.8	24.2	25.1	26.2	24.2	25.2	26.3	24.0	24.8	25.7	24.1	25.0	25.9	24.3	25.0	25.8	22.8	23.8	25.0	19.2	21.2	23.1	17.6	19.7	21.9	21.7	23.1	24.6
12	16.6	19.1	21.3	18.5	21.1	23.1	21.5	23.4	25.1	23.6	24.8	26.0	24.2	25.3	26.5	24.0	25.0	26.2	23.9	25.0	26.2	24.2	25.0	26.1	24.6	25.2	25.9	22.9	24.0	25.0	19.9	21.7	23.6	17.5	19.5	21.1	21.8	23.3	24.7
13	17.0	19.2	21.3	19.1	21.7	23.7	21.4	23.4	25.0	23.1	24.5	25.7	24.1	25.2	26.2	24.3	25.2	26.1	24.2	25.1	26.1	24.0	24.9	25.1	24.4	25.1	26.0	23.0	24.1	25.3	20.1	21.9	23.7	17.3	19.6	21.8	21.8	23.3	24.8
14	16.3	18.7	20.9	19.4	21.7	23.6	21.5	23.3	25.2	23.2	24.8	26.0	24.4	25.2	26.1	24.3	25.2	26.4	24.1	25.2	26.1	24.3	25.1	26.0	24.3	25.2	26.3	23.1	24.1	25.1	20.6	22.1	23.7	17.4	19.6	21.7	21.9	23.3	24.7
15	16.3	18.9	21.2	19.9	21.9	23.6	21.6	23.3	25.1	23.1	24.5	26.0	24.1	25.2	26.5	24.6	25.6	26.4	24.2	25.1	26.0	24.4	25.2	26.0	23.9	25.0	25.9	23.0	24.1	25.1	20.3	22.2	24.1	17.3	19.3	21.3	21.9	23.4	24.8
16	16.5	18.9	21.3	20.0	22.1	23.9	21.4	23.4	25.1	22.8	24.4	25.8	24.3	25.3	26.4	24.5	25.5	26.5	24.5	25.3	26.2	24.1	25.0	26.0	24.2	25.1	25.9	23.2	24.4	25.8	20.5	22.1	23.9	16.9	19.2	21.5	21.9	23.4	24.8
17	16.1	18.9	21.4	20.0	22.0	23.9	21.8	23.6	25.5	23.6	24.7	26.0	24.3	25.2	26.2	24.5	25.3	26.2	24.3	25.2	26.1	23.9	25.0	26.0	24.0	24.9	25.8	23.3	24.3	25.4	20.5	22.1	24.0	16.8	19.1	21.2	21.9	23.4	24.8
18	16.9	19.3	21.5	19.9	22.0	24.1	21.9	23.7	25.5	23.5	24.8	26.1	23.9	25.2	26.3	24.3	25.1	26.2	24.3	25.2	26.2	24.2	25.0	26.0	23.9	24.8	25.7	22.9	24.2	25.3	20.1	21.5	23.3	17.2	19.3	21.6	21.9	23.3	24.8
19	17.0	19.4	21.3	19.5	21.8	23.7	21.8	23.5	24.9	24.0	25.1	26.3	24.3	25.3	26.2	24.3	25.2	26.2	24.4	25.2	26.2	24.2	25.0	25.9	24.1	24.9	25.6	22.8	24.0	25.4	19.4	21.1	23.0	17.0	19.1	21.4	21.9	23.3	24.7
20	16.6	19.3	21.6	19.7	21.9	23.7	21.1	23.2	25.0	23.9	24.9	26.2	24.5	25.5	26.5	24.1	25.2	26.2	24.5	25.3	26.2	23.8	24.9	25.9	23.9	24.7	25.6	22.1	23.4	24.9	19.3	21.1	23.0	16.5	18.9	21.3	21.7	23.2	24.7
21	16.8	19.3	21.6	19.6	21.5	23.3	21.5	23.5	25.3	23.6	24.8	26.2	24.3	25.5	26.6	24.3	25.2	26.6	24.2	25.1	26.1	24.1	25.1	26.0	23.9	24.6	25.6	21.7	23.0	24.4	19.3	21.0	23.1	16.8	18.9	21.1	21.7	23.1	24.6
22	16.2	18.8	21.0	18.9	21.3	23.5	21.7	23.7	25.4	23.0	24.5	25.7	24.6	25.6	26.7	24.5	25.4	26.4	24.1	24.9	25.8	24.1	25.1	26.0	23.9	24.8	25.7	21.6	22.8	24.0	19.3	21.1	23.0	16.5	18.7	21.1	21.5	23.1	24.5
23	16.4	18.8	21.0	19.5	21.7	23.7	22.0	23.8	25.2	23.4	24.7	26.1	24.4	25.5	26.6	24.2	25.3	26.4	24.1	24.9	25.7	24.0	24.9	25.7	23.9	24.8	25.6	21.4	22.7	24.0	19.4	21.0	22.7	16.4	18.6	20.8	21.6	23.1	24.5
24	16.2	19.0	21.3	19.3	21.8	23.7	22.4	23.9	25.2	23.5	24.8	26.0	24.7	25.6	26.9	24.0	24.9	25.9	24.0	25.0	26.0	23.9	25.1	26.2	23.8	24.9	25.9	21.4	22.8	24.1	19.1	20.5	22.3	15.8	18.2	20.5	21.5	23.0	24.5
25	16.6	19.0	21.3	19.7	22.1	24.2	22.6	24.0	25.3	23.5	24.9	26.4	24.4	25.2	26.3	24.2	25.0	26.0	24.2	25.2	26.3	24.2	25.1	26.1	23.8	24.8	25.6	21.2	22.5	23.9	18.7	20.4	22.5	15.8	18.2	20.6	21.6	23.0	24.5
26	16.4	18.8	21.1	19.8	22.0	23.9	22.1	23.8	25.2	24.0	24.9	26.2	24.4	25.3	26.4	24.1	25.1	26.2	24.2	25.2	26.1	24.3	25.2	26.1	23.7	24.6	25.4	20.8	22.4	24.0	18.8	20.7	22.6	15.9	18.3	20.5	21.5	23.0	24.5
27	16.5	18.7	21.0	19.4	21.8	23.9	21.9	23.7	25.4	23.3	24.7	26.0	24.3	25.4	26.5	24.1	25.0	25.9	24.3	25.3	26.3	24.4	25.2	26.1	23.5	24.7	25.8	21.0	22.5	24.1	19.3	21.1	23.1	16.3	18.6	21.1	21.5	23.1	24.6
28	16.0	18.5	21.0	19.6	21.8	23.8	22.2	23.9	25.4	24.0	25.0	26.1	24.4	25.4	26.5	24.2	25.1	26.2	24.3	25.2	26.2	24.1	25.1	26.1	23.5	24.6	25.7	21.0	22.5	24.0	19.2	21.0	22.8	16.6	18.8	20.9	21.6	23.1	24.6
29	16.0	18.6	21.1	19.3	21.4	23.4	22.1	24.0	25.6	24.1	25.1	26.4	24.3	25.3	26.6	24.2	25.1	26.0	23.9	25.0	26.0	24.2	25.0	25.9	23.5	24.5	25.3	21.1	22.6	24.1	18.9	20.6	22.5	16.1	18.7	21.0	21.5	23.0	24.5
30	16.3	18.9	21.3	22.4	24.2	25.6	24.2	25.1	26.4	24.5	25.5	26.7	24.2	25.2	26.3	24.1	24.9	25.7	24.2	25.1	26.2	24.2	25.1	26.2	23.3	24.5	25.4	20.8	22.1	23.7	18.5	20.3	22.4	15.9	18.7	21.2	21.7	23.1	24.6
31	16.5	19.2	21.4	22.7	24.1	25.6	24.4	25.5	26.7	24.4	25.5	26.7	24.4	25.5	26.7	24.4	25.5	26.7	24.1	24.9	25.8	24.3	25.1	25.9	20.3	21.9	23.6	19.8	21.5	23.3	16.9	19.1	21.4	21.6	23.1	24.6			
Average	16.6	19.1	21.4	18.9	21.2	23.2	21.0	22.9	24.7	23.4	24.7	26.0	24.2	25.3	26.4	24.3	25.3	26.3	24.2	25.1	26.1	24.1	25.1	26.0	24.0	24.9	25.8	22.4	23.6	24.8	19.8	21.5	23.3	16.9	19.1	21.4	21.6	23.1	24.6
Extremes	9.2	26.3	11.6	29.7	9.4	29.6	15.8	29.5	18.2	29.8	20.0	29.5	21.0	28.8	21.3	29.0	19.6	28.1	15.3	27.6	12.6	27.1	9.1	26.7	9.1	29.													

แผนภูมิความแตกต่างระหว่างอุณหภูมิกระเปาะแห้งและอุณหภูมิกระเปาะเปียก (diurnal temperatures)



สถาบันวิทยบริการ
จุฬาลงกรณ์มหาวิทยาลัย

ตารางแสดงผลข้อมูลปริมาณของศวัน การทำความร้อนและการทำความร้อน (heating and cooling degree days)

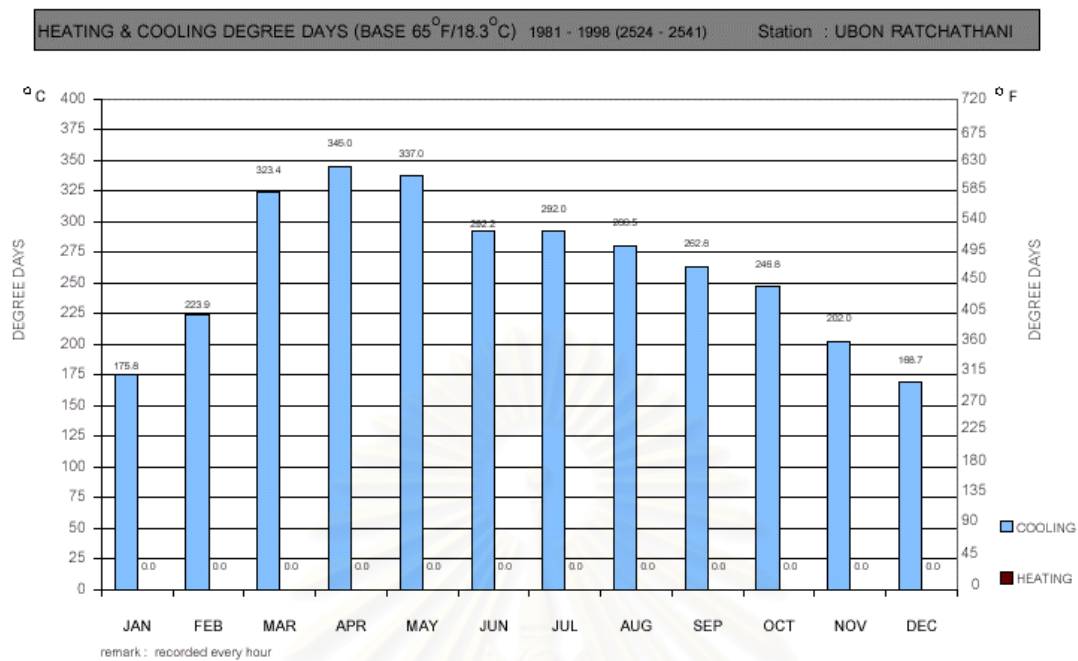
HEATING & COOLING DEGREE DAYS BASE RANGE 35 - 100 °F (1.7 - 37.8 °C) 1981 - 1998 (2524 - 2541)														Station : UBON RATCHATHAM													
MONTH	JANUARY		FEBRUARY		MARCH		APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER		OCTOBER		NOVEMBER		DECEMBER		ANNUAL		
Degree	Cooling	Heating	Cooling	Heating	Cooling	Heating	Cooling	Heating	Cooling	Heating	Cooling	Heating	Cooling	Heating	Cooling	Heating	Cooling	Heating	Cooling	Heating	Cooling	Heating	Cooling	Heating	Cooling	Heating	
35	1.7	692.4	0.0	707.3	0.0	840.1	0.0	845.0	0.0	853.6	0.0	795.2	0.0	808.7	0.0	797.2	0.0	762.8	0.0	763.5	0.0	702.0	0.0	685.4	0.0	9,253.2	0.0
36	2.2	675.2	0.0	691.2	0.0	822.9	0.0	828.4	0.0	836.4	0.0	778.5	0.0	791.4	0.0	779.9	0.0	746.1	0.0	746.3	0.0	685.3	0.0	668.2	0.0	9,049.9	0.0
37	2.8	658.0	0.0	675.0	0.0	805.6	0.0	811.7	0.0	819.2	0.0	761.9	0.0	774.2	0.0	762.7	0.0	729.5	0.0	729.1	0.0	668.6	0.0	651.0	0.0	8,846.5	0.0
38	3.3	640.8	0.0	658.9	0.0	788.4	0.0	795.0	0.0	802.0	0.0	745.2	0.0	757.0	0.0	745.5	0.0	712.8	0.0	711.8	0.0	652.0	0.0	633.7	0.0	8,643.2	0.0
39	3.9	623.6	0.0	642.8	0.0	771.2	0.0	778.4	0.0	784.8	0.0	728.5	0.0	739.8	0.0	728.3	0.0	696.1	0.0	694.6	0.0	635.3	0.0	616.5	0.0	8,439.9	0.0
40	4.4	606.3	0.0	626.7	0.0	754.0	0.0	761.7	0.0	767.5	0.0	711.9	0.0	722.6	0.0	711.0	0.0	679.5	0.0	677.4	0.0	618.6	0.0	599.3	0.0	8,236.5	0.0
41	5.0	589.1	0.0	610.6	0.0	736.8	0.0	745.0	0.0	750.3	0.0	695.2	0.0	705.3	0.0	693.8	0.0	662.8	0.0	660.2	0.0	602.0	0.0	582.1	0.0	8,033.2	0.0
42	5.6	571.9	0.0	594.5	0.0	719.5	0.0	728.4	0.0	733.1	0.0	678.5	0.0	688.1	0.0	676.6	0.0	646.1	0.0	643.0	0.0	585.3	0.0	564.9	0.0	7,829.9	0.0
43	6.1	554.7	0.0	578.4	0.0	702.3	0.0	711.7	0.0	715.9	0.0	661.9	0.0	670.9	0.0	659.4	0.0	629.5	0.0	625.7	0.0	568.6	0.0	547.6	0.0	7,626.5	0.0
44	6.7	537.4	0.0	562.3	0.0	685.1	0.0	695.0	0.0	698.6	0.0	645.2	0.0	653.7	0.0	642.2	0.0	612.8	0.0	608.5	0.0	552.0	0.0	530.4	0.0	7,423.2	0.0
45	7.2	520.2	0.0	546.2	0.0	667.9	0.0	678.4	0.0	681.4	0.0	628.5	0.0	636.4	0.0	624.9	0.0	591.3	0.0	591.3	0.0	535.3	0.0	513.2	0.0	7,219.9	0.0
46	7.8	503.0	0.0	530.0	0.0	650.6	0.0	661.7	0.0	664.2	0.0	611.9	0.0	619.2	0.0	607.7	0.0	579.5	0.0	574.1	0.0	518.6	0.0	496.0	0.0	7,016.5	0.0
47	8.3	485.8	0.0	513.9	0.0	633.4	0.0	645.0	0.0	647.0	0.0	595.2	0.0	602.0	0.0	590.5	0.0	562.8	0.0	556.8	0.0	502.0	0.0	478.7	0.0	6,813.2	0.0
48	8.9	468.6	0.0	497.8	0.0	616.2	0.0	628.4	0.0	629.8	0.0	578.5	0.0	584.8	0.0	573.3	0.0	546.1	0.0	539.6	0.0	485.3	0.0	461.5	0.0	6,609.9	0.0
49	9.4	451.3	0.0	481.7	0.0	599.0	0.0	611.7	0.0	612.5	0.0	561.9	0.0	567.6	0.0	556.0	0.0	529.5	0.0	522.4	0.0	468.6	0.0	444.3	0.0	6,406.5	0.0
50	10.0	434.1	0.0	465.6	0.0	581.8	0.0	595.0	0.0	595.3	0.0	545.2	0.0	550.3	0.0	538.8	0.0	512.8	0.0	505.2	0.0	452.0	0.0	427.1	0.0	6,203.2	0.0
51	10.6	416.9	0.0	449.5	0.0	564.5	0.0	578.4	0.0	578.1	0.0	528.5	0.0	533.1	0.0	521.6	0.0	496.1	0.0	488.0	0.0	435.3	0.0	409.9	0.0	5,999.9	0.0
52	11.1	399.7	0.0	433.4	0.0	547.3	0.0	561.7	0.0	560.9	0.0	511.9	0.0	515.9	0.0	504.4	0.0	479.5	0.0	470.7	0.0	418.6	0.0	392.6	0.0	5,796.5	0.0
53	11.7	382.4	0.0	417.3	0.0	530.1	0.0	545.0	0.0	543.6	0.0	495.2	0.0	498.7	0.0	487.2	0.0	462.8	0.0	453.5	0.0	402.0	0.0	375.4	0.0	5,593.2	0.0
54	12.2	365.2	0.0	401.2	0.0	512.9	0.0	528.4	0.0	526.4	0.0	478.5	0.0	481.4	0.0	469.9	0.0	446.1	0.0	436.3	0.0	385.3	0.0	358.2	0.0	5,389.9	0.0
55	12.8	348.0	0.0	385.0	0.0	495.6	0.0	511.7	0.0	509.2	0.0	461.9	0.0	464.2	0.0	452.7	0.0	429.5	0.0	419.1	0.0	368.6	0.0	341.0	0.0	5,186.5	0.0
56	13.3	330.8	0.0	368.9	0.0	478.4	0.0	495.0	0.0	492.0	0.0	445.2	0.0	447.0	0.0	435.5	0.0	412.8	0.0	401.8	0.0	352.0	0.0	323.7	0.0	4,983.2	0.0
57	13.9	313.6	0.0	352.8	0.0	461.2	0.0	478.4	0.0	474.8	0.0	428.5	0.0	429.8	0.0	418.3	0.0	396.1	0.0	384.6	0.0	335.3	0.0	306.5	0.0	4,779.9	0.0
58	14.4	296.3	0.0	336.7	0.0	444.0	0.0	461.7	0.0	457.5	0.0	411.9	0.0	412.6	0.0	401.0	0.0	379.5	0.0	367.4	0.0	318.6	0.0	289.3	0.0	4,576.5	0.0
59	15.0	279.1	0.0	320.6	0.0	426.8	0.0	445.0	0.0	440.3	0.0	395.2	0.0	395.3	0.0	383.8	0.0	362.8	0.0	350.2	0.0	302.0	0.0	272.1	0.0	4,373.2	0.0
60	15.6	261.9	0.0	304.5	0.0	409.5	0.0	428.4	0.0	423.1	0.0	378.5	0.0	378.1	0.0	366.6	0.0	346.1	0.0	333.0	0.0	285.3	0.0	254.9	0.0	4,169.9	0.0
61	16.1	244.7	0.0	288.4	0.0	392.3	0.0	411.7	0.0	405.9	0.0	361.9	0.0	360.9	0.0	349.4	0.0	329.5	0.0	315.7	0.0	268.6	0.0	237.6	0.0	3,966.5	0.0
62	16.7	227.4	0.0	272.3	0.0	375.1	0.0	395.0	0.0	388.6	0.0	345.2	0.0	343.7	0.0	332.2	0.0	312.8	0.0	298.5	0.0	252.0	0.0	220.4	0.0	3,763.2	0.0
63	17.2	210.2	0.0	256.2	0.0	357.9	0.0	378.4	0.0	371.4	0.0	328.5	0.0	326.4	0.0	314.9	0.0	296.1	0.0	281.3	0.0	235.3	0.0	203.2	0.0	3,559.9	0.0
64	17.8	193.0	0.0	240.0	0.0	340.6	0.0	361.7	0.0	354.2	0.0	311.9	0.0	309.2	0.0	297.7	0.0	279.5	0.0	264.1	0.0	218.6	0.0	186.0	0.0	3,356.5	0.0
65	18.3	175.8	0.0	223.9	0.0	323.4	0.0	345.0	0.0	337.0	0.0	295.2	0.0	292.0	0.0	280.5	0.0	262.8	0.0	246.8	0.0	202.0	0.0	168.7	0.0	3,153.2	0.0
66	18.9	158.6	0.0	207.8	0.0	306.2	0.0	328.4	0.0	319.8	0.0	278.5	0.0	274.8	0.0	263.3	0.0	246.1	0.0	229.6	0.0	185.3	0.0	151.5	0.0	2,949.9	0.0
67	19.4	141.3	0.0	191.7	0.0	289.0	0.0	311.7	0.0	302.5	0.0	261.9	0.0	257.6	0.0	246.0	0.0	229.5	0.0	212.4	0.0	168.6	0.0	134.3	0.0	2,746.5	0.0
68	20.0	124.1	0.0	175.6	0.0	271.8	0.0	295.0	0.0	285.3	0.0	245.2	0.0	240.3	0.0	228.8	0.0	212.8	0.0	195.2	0.0	152.0	0.0	117.1	0.0	2,543.2	0.0

สถาบันวิทยบริการ
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HEATING & COOLING DEGREE DAYS BASE RANGE 35 - 100 °F (1.7 - 37.8 °C) 1981 - 1998 (2524 - 2541)														Station : UBON RATCHATHANI													
MONTH		JANUARY		FEBRUARY		MARCH		APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER		OCTOBER		NOVEMBER		DECEMBER		ANNUAL	
Degree		Cooling Heating		Cooling Heating		Cooling Heating		Cooling Heating		Cooling Heating		Cooling Heating		Cooling Heating		Cooling Heating		Cooling Heating		Cooling Heating		Cooling Heating		Cooling Heating		Cooling Heating	
°F	°C																										
69	20.6	106.9	0.0	159.5	0.0	254.5	0.0	278.4	0.0	268.1	0.0	228.5	0.0	223.1	0.0	211.6	0.0	196.1	0.0	178.0	0.0	135.3	0.0	99.9	0.0	2,339.9	0.0
70	21.1	89.7	0.0	143.4	0.0	237.3	0.0	261.7	0.0	250.9	0.0	211.9	0.0	205.9	0.0	194.4	0.0	179.5	0.0	160.7	0.0	118.6	0.0	82.6	0.0	2,136.5	0.0
71	21.7	72.4	0.0	127.3	0.0	220.1	0.0	245.0	0.0	233.6	0.0	195.2	0.0	188.7	0.0	177.2	0.0	162.8	0.0	143.5	0.0	102.0	0.0	65.4	0.0	1,933.2	0.0
72	22.2	55.2	0.0	111.2	0.0	202.9	0.0	228.4	0.0	216.4	0.0	178.5	0.0	171.4	0.0	159.9	0.0	146.1	0.0	126.3	0.0	85.3	0.0	48.2	0.0	1,729.9	0.0
73	22.8	38.0	0.0	95.0	0.0	185.6	0.0	211.7	0.0	199.2	0.0	161.9	0.0	154.2	0.0	142.7	0.0	129.5	0.0	109.1	0.0	68.6	0.0	31.6	-0.7	1,527.2	-0.7
74	23.3	21.5	-0.7	78.9	0.0	168.4	0.0	195.0	0.0	182.0	0.0	145.2	0.0	137.0	0.0	125.5	0.0	112.8	0.0	91.8	0.0	52.0	0.0	17.8	-4.1	1,327.9	-4.7
75	23.9	6.8	-3.2	62.8	0.0	151.2	0.0	178.4	0.0	164.8	0.0	128.5	0.0	119.8	0.0	108.3	0.0	96.1	0.0	74.6	0.0	35.3	0.0	8.6	-12.1	1,135.2	-15.3
76	24.4	0.6	-14.3	47.6	-0.9	134.0	0.0	161.7	0.0	147.5	0.0	111.9	0.0	102.6	0.0	91.0	0.0	79.5	0.0	57.4	0.0	19.5	-0.9	3.9	-24.6	957.1	-40.6
77	25.0	0.0	-30.9	34.0	-3.4	116.8	0.0	145.0	0.0	130.3	0.0	95.2	0.0	85.3	0.0	73.8	0.0	62.8	0.0	40.3	-0.2	6.7	-4.8	1.3	-39.2	791.6	-78.4
78	25.6	0.0	-48.1	21.8	-7.3	99.5	0.0	128.4	0.0	113.1	0.0	78.5	0.0	68.1	0.0	56.6	0.0	46.1	0.0	25.1	-2.2	0.9	-15.6	0.2	-55.3	638.4	-128.5
79	26.1	0.0	-65.3	12.4	-14.0	82.3	0.0	111.7	0.0	95.9	0.0	61.9	0.0	50.9	0.0	39.4	0.0	29.5	0.0	13.9	-8.1	0.0	-31.4	0.0	-72.4	497.7	-191.2
80	26.7	0.0	-82.6	6.5	-24.2	65.2	-0.1	95.0	0.0	78.6	0.0	45.2	0.0	33.7	0.0	22.2	0.0	13.1	-0.3	4.5	-16.0	0.0	-48.0	0.0	-89.6	363.9	-260.8
81	27.2	0.0	-99.8	2.7	-36.6	50.1	-2.2	78.4	0.0	61.4	0.0	28.8	-0.3	16.7	-0.3	7.0	-2.1	2.6	-6.5	0.4	-29.1	0.0	-64.7	0.0	-106.8	248.2	-348.4
82	27.8	0.0	-117.0	0.5	-50.4	35.9	-5.2	61.7	0.0	44.3	-0.1	13.5	-1.7	4.7	-5.5	0.7	-13.0	0.0	-20.5	0.0	-45.9	0.0	-81.4	0.0	-124.0	161.3	-464.8
83	28.3	0.0	-134.2	0.0	-66.1	22.0	-8.6	45.4	-0.3	28.7	-1.7	3.6	-8.4	0.4	-18.4	0.0	-29.5	0.0	-37.2	0.0	-63.2	0.0	-98.0	0.0	-141.3	100.1	-606.9
84	28.9	0.0	-151.4	0.0	-82.2	9.2	-13.0	29.3	-0.9	16.3	-6.5	0.1	-21.5	0.0	-35.2	0.0	-46.7	0.0	-53.9	0.0	-80.4	0.0	-114.7	0.0	-158.5	54.9	-765.0
85	29.4	0.0	-168.7	0.0	-98.3	2.4	-23.4	14.8	-3.1	8.5	-16.0	0.0	-38.1	0.0	-52.4	0.0	-64.0	0.0	-70.5	0.0	-97.6	0.0	-131.4	0.0	-175.7	25.7	-939.1
86	30.0	0.0	-185.9	0.0	-114.4	0.0	-38.3	4.9	-9.9	3.6	-28.3	0.0	-54.8	0.0	-69.7	0.0	-81.2	0.0	-87.2	0.0	-114.8	0.0	-148.0	0.0	-192.9	8.5	-1,125.4
87	30.6	0.0	-203.1	0.0	-130.5	0.0	-55.5	0.9	-22.5	0.5	-42.4	0.0	-71.5	0.0	-86.9	0.0	-98.4	0.0	-103.9	0.0	-132.0	0.0	-164.7	0.0	-210.1	1.4	-1,321.5
88	31.1	0.0	-220.3	0.0	-146.6	0.0	-72.7	0.0	-38.3	0.0	-59.1	0.0	-88.1	0.0	-104.1	0.0	-115.6	0.0	-120.5	0.0	-149.3	0.0	-181.4	0.0	-227.4	0.0	-1,523.5
89	31.7	0.0	-237.6	0.0	-162.7	0.0	-89.9	0.0	-55.0	0.0	-76.4	0.0	-104.8	0.0	-121.3	0.0	-132.8	0.0	-137.2	0.0	-166.5	0.0	-199.0	0.0	-244.6	0.0	-1,726.8
90	32.2	0.0	-254.8	0.0	-178.8	0.0	-107.1	0.0	-71.6	0.0	-93.6	0.0	-121.5	0.0	-138.6	0.0	-150.1	0.0	-153.9	0.0	-183.7	0.0	-214.7	0.0	-261.8	0.0	-1,930.1
91	32.8	0.0	-272.0	0.0	-195.0	0.0	-124.4	0.0	-88.3	0.0	-110.8	0.0	-138.1	0.0	-155.8	0.0	-167.3	0.0	-170.5	0.0	-200.9	0.0	-231.4	0.0	-279.0	0.0	-2,133.5
92	33.3	0.0	-289.2	0.0	-211.1	0.0	-141.6	0.0	-105.0	0.0	-128.0	0.0	-154.8	0.0	-173.0	0.0	-184.5	0.0	-187.2	0.0	-218.2	0.0	-248.0	0.0	-296.3	0.0	-2,336.8
93	33.9	0.0	-306.4	0.0	-227.2	0.0	-158.8	0.0	-121.6	0.0	-145.2	0.0	-171.5	0.0	-190.2	0.0	-201.7	0.0	-203.9	0.0	-235.4	0.0	-264.7	0.0	-313.5	0.0	-2,540.1
94	34.4	0.0	-323.7	0.0	-243.3	0.0	-176.0	0.0	-138.3	0.0	-162.5	0.0	-188.1	0.0	-207.4	0.0	-219.0	0.0	-220.5	0.0	-252.6	0.0	-281.4	0.0	-330.7	0.0	-2,743.5
95	35.0	0.0	-340.9	0.0	-259.4	0.0	-193.2	0.0	-155.0	0.0	-179.7	0.0	-204.8	0.0	-224.7	0.0	-236.2	0.0	-237.2	0.0	-269.8	0.0	-298.0	0.0	-347.9	0.0	-2,946.8
96	35.6	0.0	-358.1	0.0	-275.5	0.0	-210.5	0.0	-171.6	0.0	-196.9	0.0	-221.5	0.0	-241.9	0.0	-253.4	0.0	-253.9	0.0	-287.0	0.0	-314.7	0.0	-365.1	0.0	-3,150.1
97	36.1	0.0	-375.3	0.0	-291.6	0.0	-227.7	0.0	-188.3	0.0	-214.1	0.0	-238.1	0.0	-259.1	0.0	-270.6	0.0	-270.5	0.0	-304.3	0.0	-331.4	0.0	-382.4	0.0	-3,353.5
98	36.7	0.0	-392.6	0.0	-307.7	0.0	-244.9	0.0	-205.0	0.0	-231.4	0.0	-254.8	0.0	-276.3	0.0	-287.8	0.0	-287.2	0.0	-321.5	0.0	-348.0	0.0	-399.6	0.0	-3,556.8
99	37.2	0.0	-409.8	0.0	-323.8	0.0	-262.1	0.0	-221.6	0.0	-248.6	0.0	-271.5	0.0	-293.6	0.0	-305.1	0.0	-303.9	0.0	-338.7	0.0	-364.7	0.0	-416.8	0.0	-3,760.1
100	37.8	0.0	-427.0	0.0	-340.0	0.0	-279.4	0.0	-238.3	0.0	-265.8	0.0	-288.1	0.0	-310.8	0.0	-322.3	0.0	-320.5	0.0	-355.9	0.0	-381.4	0.0	-434.0	0.0	-3,963.5

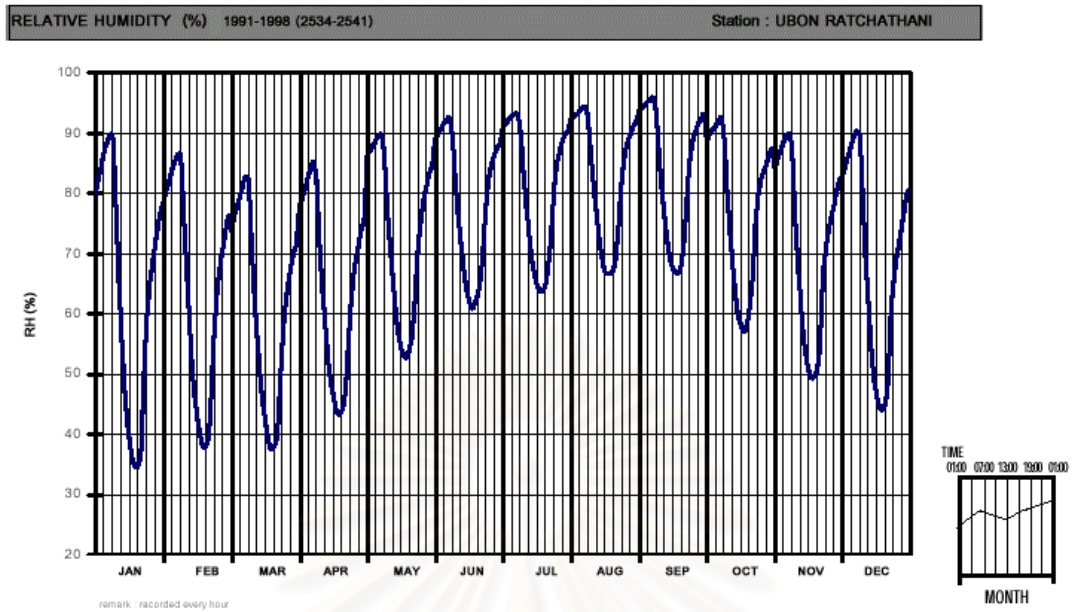
สถาบันวิทยบริการ
จุฬาลงกรณ์มหาวิทยาลัย

แผนภูมิปริมาณองศาวัน การทำความร้อนและการทำความเย็น (heating and cooling degree days)



สถาบันวิทยบริการ
จุฬาลงกรณ์มหาวิทยาลัย

แผนภูมิความชื้นสัมพัทธ์ (relative humidity)



สถาบันวิทยบริการ
จุฬาลงกรณ์มหาวิทยาลัย

ตารางแสดงผลข้อมูลจำแนกความถี่ของลม ในแต่ละความเร็วและทิศทาง ที่เกิดลมรายเดือน (monthly frequency distribution of wind in each speed and direction)

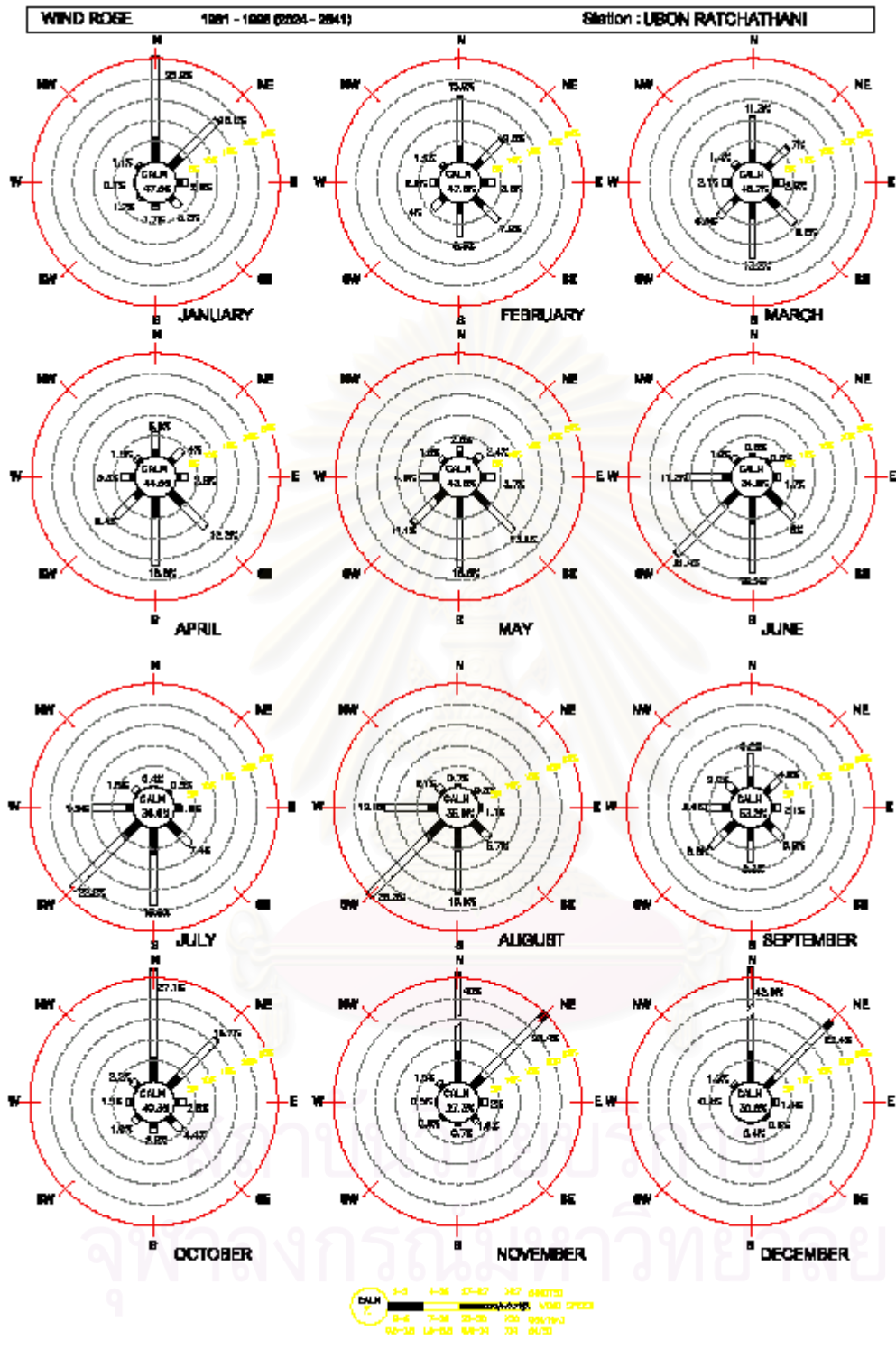
MONTHLY FREQUENCY DISTRIBUTION OF WIND IN EACH SPEED AND DIRECTION 1981 - 1998 (2524 - 2541)													Station : UBON RATCHATHANI																																										
January			N	NE	E	SE	S	SW	W	NW	Calm	Total	February			N	NE	E	SE	S	SW	W	NW	Calm	Total	March			N	NE	E	SE	S	SW	W	NW	Calm	Total																	
kts	km/h	m/s											kts	km/h	m/s										kts	km/h	m/s								kts	km/h	m/s																		
1-3	2.6	0.8-1.5	6.9	3.6	1.4	1.1	0.7	0.3	0.2	0.5	47.5	47.5	1-3	2.6	0.8-1.5	3.7	2.6	1.7	2.7	2.6	1.3	0.7	0.5	15.7	47.6	47.6	1-3	2.6	0.8-1.5	3	1.5	1.1	3.2	3.7	1.7	0.9	0.5	15.6	46.7	46.7	1-3	2.6	0.8-1.5	3	1.5	1.1	3.2	3.7	1.7	0.9	0.5	15.6	46.7	46.7	
4-16	7.30	1.6-8.5	19.7	12.5	1.4	2.1	1	0.4	0.3	0.6	38	4-16	7.30	1.6-8.5	12	6.8	1.8	5.2	5.7	2.7	1.5	0.7	36.4	4-16	7.30	1.6-8.5	7.9	6.3	1.5	5.9	9.5	4.8	1.2	0.9	37	4-16	7.30	1.6-8.5	7.9	6.3	1.5	5.9	9.5	4.8	1.2	0.9	37	4-16	7.30	1.6-8.5					
17-27	31-50	8.6-14	0.3	0.5	0	0	0	0	0	0	0.8	17-27	31-50	8.6-14	0.2	0.2	0	0	0	0	0	0	0.4	17-27	31-50	8.6-14	0.4	0.2	0.1	0	0	0	0	0	0.7	17-27	31-50	8.6-14	0.4	0.2	0.1	0	0	0	0	0	0.7	17-27	31-50	8.6-14					
>27	>50	>14	0	0	0	0	0	0	0	0	0	>27	>50	>14	0	0	0	0	0	0	0	0	0	>27	>50	>14	0	0	0	0	0	0	0	0	0	>27	>50	>14	0	0	0	0	0	0	0	0	0	>27	>50	>14					
Total			26.9	16.5	2.8	3.2	1.7	0.7	0.5	1.1	47.5	100	Total			15.9	9.5	3.5	7.9	8.3	4	2.2	1.2	47.6	100	Total			11.3	7	2.6	9.2	13.2	6.5	2.1	1.4	46.7	100	Total			11.3	7	2.6	9.2	13.2	6.5	2.1	1.4	46.7	100				
April			N	NE	E	SE	S	SW	W	NW	Calm	Total	May			N	NE	E	SE	S	SW	W	NW	Calm	Total	June			N	NE	E	SE	S	SW	W	NW	Calm	Total																	
kts	km/h	m/s											kts	km/h	m/s										kts	km/h	m/s								kts	km/h	m/s																		
1-3	2.6	0.8-1.5	1.5	0.9	1	4	4.8	1.9	1.1	0.6	15.8	44.5	44.5	1-3	2.6	0.8-1.5	1.1	0.9	1.5	5	4.5	2.8	1.3	0.6	17.7	43.9	43.5	1-3	2.6	0.8-1.5	0.3	0.3	0.9	4.7	6.5	4.1	2.1	0.5	19.4	34.9	34.9	1-3	2.6	0.8-1.5	0.3	0.3	0.9	4.7	6.5	4.1	2.1	0.5	19.4	34.9	34.9
4-16	7.30	1.6-8.5	4.4	3.1	1.8	8.2	11.8	6.5	2.2	1.1	39.1	4-16	7.30	1.6-8.5	1.5	1.5	2.2	8.2	12.1	8	3.6	1	38.1	4-16	7.30	1.6-8.5	0.5	0.2	0.8	4.3	11.8	17.1	8.9	1.4	45	4-16	7.30	1.6-8.5	0.5	0.2	0.8	4.3	11.8	17.1	8.9	1.4	45	4-16	7.30	1.6-8.5					
17-27	31-50	8.6-14	0	0	0	0	0	0	0	0.1	0.1	17-27	31-50	8.6-14	0	0	0	0	0	0.3	0	0	0.3	17-27	31-50	8.6-14	0	0	0	0	0	0	0.2	0.2	0	17-27	31-50	8.6-14	0	0	0	0	0	0	0.2	0.2	0	17-27	31-50	8.6-14					
>27	>50	>14	0	0	0	0	0	0	0	0	0	>27	>50	>14	0	0	0	0	0	0	0	0	0	>27	>50	>14	0	0	0	0	0	0	0	0	0	>27	>50	>14	0	0	0	0	0	0	0	0	0	>27	>50	>14					
Total			5.9	4	2.8	12.2	16.6	8.4	3.3	1.8	44.5	100	Total			2.6	2.4	3.7	13.2	16.6	11.1	4.9	1.6	43.5	100	Total			0.8	0.5	1.7	9	18.3	21.4	11.2	1.9	34.9	100	Total			0.8	0.5	1.7	9	18.3	21.4	11.2	1.9	34.9	100				
July			N	NE	E	SE	S	SW	W	NW	Calm	Total	August			N	NE	E	SE	S	SW	W	NW	Calm	Total	September			N	NE	E	SE	S	SW	W	NW	Calm	Total																	
kts	km/h	m/s											kts	km/h	m/s										kts	km/h	m/s								kts	km/h	m/s																		
1-3	2.6	0.8-1.5	0.2	0.3	0.9	3.7	6.5	5.3	1.7	0.5	19.1	36.6	36.6	1-3	2.6	0.8-1.5	0.3	0.1	0.7	3.1	5.4	5.2	2.3	0.5	17.6	35.9	35.9	1-3	2.6	0.8-1.5	2.5	1.5	1	2.2	3.1	3.1	1.8	0.9	16.1	53.2	53.2	1-3	2.6	0.8-1.5	2.5	1.5	1	2.2	3.1	3.1	1.8	0.9	16.1	53.2	53.2
4-16	7.30	1.6-8.5	0.2	0.2	0.7	3.7	12.3	17.5	8.2	1.3	44.1	4-16	7.30	1.6-8.5	0.4	0.2	0.4	2.6	10.3	19.8	10.4	1.6	45.7	4-16	7.30	1.6-8.5	5.6	3.2	1.1	3.7	5.2	5.6	4.1	2	39.5	4-16	7.30	1.6-8.5	5.6	3.2	1.1	3.7	5.2	5.6	4.1	2	39.5	4-16	7.30	1.6-8.5					
17-27	31-50	8.6-14	0	0	0	0	0	0	0	0	0	17-27	31-50	8.6-14	0	0	0	0	0.2	0.3	0.2	0	0.7	17-27	31-50	8.6-14	0.1	0.1	0	0	0	0.1	0	0	0.3	17-27	31-50	8.6-14	0.1	0.1	0	0	0	0.1	0	0	0.3	17-27	31-50	8.6-14					
>27	>50	>14	0	0	0	0	0	0	0	0	0	>27	>50	>14	0	0	0	0	0	0	0	0	0	>27	>50	>14	0	0	0	0	0	0	0	0	0	>27	>50	>14	0	0	0	0	0	0	0	0	0	>27	>50	>14					
Total			0.4	0.5	1.6	7.4	18.8	22.9	9.9	1.8	36.6	100	Total			0.7	0.3	1.1	5.7	15.9	25.3	12.9	2.1	35.9	100	Total			8.2	4.8	2.1	5.9	8.3	8.8	5.9	2.9	53.2	100	Total			8.2	4.8	2.1	5.9	8.3	8.8	5.9	2.9	53.2	100				
October			N	NE	E	SE	S	SW	W	NW	Calm	Total	November			N	NE	E	SE	S	SW	W	NW	Calm	Total	December			N	NE	E	SE	S	SW	W	NW	Calm	Total																	
kts	km/h	m/s											kts	km/h	m/s										kts	km/h	m/s								kts	km/h	m/s																		
1-3	2.6	0.8-1.5	5.9	3.4	1.1	1.7	1	0.6	0.6	0.7	15	40.3	40.3	1-3	2.6	0.8-1.5	7.4	3.3	0.9	0.8	0.3	0.2	0.3	0.8	14	27.3	27.3	1-3	2.6	0.8-1.5	7.3	2.8	0.8	0.3	0.2	0	0.1	0.6	12.1	30.6	30.6	1-3	2.6	0.8-1.5	7.3	2.8	0.8	0.3	0.2	0	0.1	0.6	12.1	30.6	30.6
4-16	7.30	1.6-8.5	20.8	12.9	1.7	2.7	1.6	1.3	0.9	1.5	43.4	4-16	7.30	1.6-8.5	31.7	20.2	1.1	0.8	0.4	0.2	1	55.8	4-16	7.30	1.6-8.5	34.5	17.9	1	0.3	0.2	0	0.1	0.7	54.7	4-16	7.30	1.6-8.5	34.5	17.9	1	0.3	0.2	0	0.1	0.7	54.7	4-16	7.30	1.6-8.5						
17-27	31-50	8.6-14	0.4	0.4	0	0	0	0	0	0	0.8	17-27	31-50	8.6-14	0.9	1.8	0	0	0	0	0	0	2.7	17-27	31-50	8.6-14	1.1	1.6	0	0	0	0	0	0	2.7	17-27	31-50	8.6-14	1.1	1.6	0	0	0	0	0	0	2.7	17-27	31-50	8.6-14					
>27	>50	>14	0	0	0	0	0	0	0	0	0	>27	>50	>14	0	0.1	0	0	0	0	0	0	0.1	>27	>50	>14	0	0.1	0	0	0	0	0	0	0.1	>27	>50	>14	0	0.1	0	0	0	0	0	0	0.1	>27	>50	>14					
Total			27.1	16.7	2.8	4.4	2.6	1.9	1.5	2.2	40.3	100	Total			40	25.4	2	1.6	0.7	0.6	0.5	1.6	27.3	100	Total			42.9	22.4	1.8	0.6	0.4	0	0.2	1.3	30.6	100	Total			42.9	22.4	1.8	0.6	0.4	0	0.2	1.3	30.6	100				

remark : kts = KNOTS
1 kts = 1.853 km/h = 0.514 m/s

* this label shows the frequency of wind speed & direction in percent

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แผนภูมิจำแนกความถี่ของลม ในแต่ละความเร็วและทิศทาง ที่เกิดลมรายเดือน (wind rose)



ตารางแสดงผลข้อมูลสภาพท้องฟ้าและสัดส่วนเปอร์เซ็นต์สภาพท้องฟ้า (sky cover and percentage of sky condition)

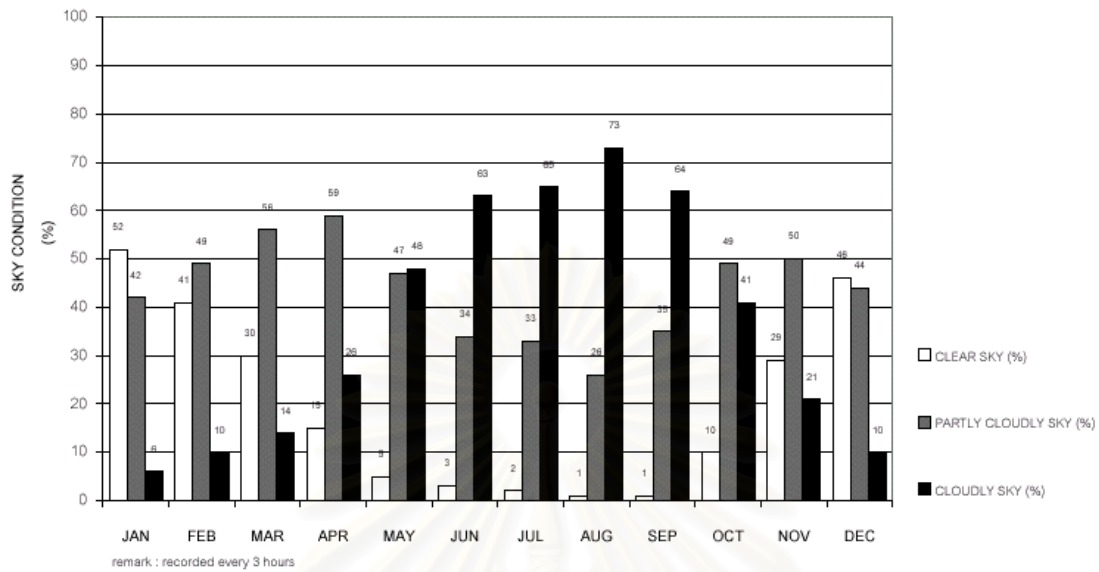
SKY COVER (%) & SKY CONDITION 1981 - 1998 (2524 - 2541)															Station : UBON RATCHATHANI																								
MONTH	JANUARY			FEBRUARY			MARCH			APRIL			MAY			JUNE			JULY			AUGUST			SEPTEMBER			OCTOBER			NOVEMBER			DECEMBER			ANNUAL		
DAY	Sky Condition			Sky Condition			Sky Condition			Sky Condition			Sky Condition			Sky Condition			Sky Condition			Sky Condition			Sky Condition			Sky Condition			Sky Condition			Sky Condition					
	Clr	Part	Cld	Clr	Part	Cld	Clr	Part	Cld	Clr	Part	Cld	Clr	Part	Cld	Clr	Part	Cld	Clr	Part	Cld	Clr	Part	Cld	Clr	Part	Cld	Clr	Part	Cld	Clr	Part	Cld	Clr	Part	Cld	Clr	Part	Cld
1	58%	36%	6%	57%	38%	6%	37%	54%	9%	19%	59%	22%	7%	60%	33%	4%	40%	57%	4%	31%	65%	0%	25%	75%	0%	37%	63%	2%	48%	50%	26%	57%	17%	33%	54%	13%	21%	45%	35%
2	63%	35%	2%	49%	38%	14%	26%	65%	9%	16%	66%	18%	15%	56%	29%	4%	46%	51%	4%	35%	60%	0%	24%	76%	0%	27%	73%	0%	38%	63%	32%	41%	26%	40%	48%	13%	21%	43%	36%
3	43%	50%	7%	50%	38%	12%	32%	53%	15%	26%	57%	16%	13%	51%	35%	3%	38%	59%	1%	32%	66%	1%	26%	73%	0%	19%	81%	0%	40%	60%	31%	42%	27%	31%	60%	10%	19%	42%	38%
4	53%	41%	6%	52%	37%	11%	35%	53%	12%	23%	62%	15%	10%	51%	39%	1%	46%	53%	3%	30%	67%	0%	25%	75%	1%	27%	71%	1%	33%	66%	40%	42%	18%	37%	48%	15%	21%	41%	37%
5	50%	43%	7%	50%	41%	9%	35%	50%	15%	20%	63%	17%	4%	51%	45%	1%	32%	66%	1%	30%	69%	0%	27%	73%	0%	16%	84%	7%	38%	55%	35%	51%	15%	42%	49%	9%	20%	41%	39%
6	57%	37%	6%	51%	35%	14%	40%	43%	16%	22%	61%	17%	7%	51%	41%	0%	41%	59%	1%	51%	48%	1%	24%	75%	1%	16%	83%	7%	46%	46%	32%	45%	23%	36%	57%	7%	22%	42%	36%
7	54%	40%	5%	48%	47%	5%	32%	53%	15%	16%	57%	26%	10%	51%	40%	1%	33%	65%	4%	48%	49%	1%	32%	67%	1%	21%	77%	11%	43%	46%	29%	47%	24%	33%	50%	17%	20%	44%	36%
8	43%	49%	9%	49%	44%	7%	33%	57%	10%	13%	60%	27%	1%	51%	49%	1%	44%	55%	2%	42%	56%	1%	32%	66%	0%	29%	71%	6%	54%	40%	21%	51%	28%	43%	44%	13%	18%	47%	36%
9	43%	51%	5%	49%	42%	9%	24%	70%	7%	13%	64%	24%	1%	51%	48%	3%	29%	68%	1%	33%	65%	0%	38%	62%	0%	29%	71%	9%	42%	49%	17%	54%	29%	40%	46%	14%	17%	46%	37%
10	53%	40%	7%	40%	42%	18%	27%	66%	7%	21%	68%	11%	1%	40%	59%	1%	26%	73%	1%	35%	64%	0%	31%	69%	1%	25%	74%	6%	49%	45%	24%	55%	21%	50%	41%	9%	19%	43%	38%
11	48%	49%	3%	38%	52%	10%	43%	50%	7%	24%	57%	19%	3%	44%	53%	0%	24%	76%	2%	25%	73%	1%	32%	68%	1%	40%	59%	6%	47%	47%	35%	46%	18%	46%	52%	2%	20%	43%	36%
12	41%	54%	5%	40%	52%	8%	36%	49%	15%	18%	65%	17%	8%	51%	40%	1%	38%	62%	2%	34%	64%	2%	24%	74%	1%	43%	57%	4%	36%	60%	25%	47%	28%	44%	46%	10%	18%	45%	37%
13	45%	54%	1%	46%	43%	11%	35%	54%	12%	14%	49%	38%	5%	46%	49%	2%	38%	60%	0%	24%	76%	1%	26%	73%	2%	41%	57%	7%	53%	40%	26%	53%	21%	42%	43%	15%	19%	44%	38%
14	61%	35%	4%	45%	46%	9%	34%	54%	12%	5%	68%	27%	9%	44%	47%	7%	35%	57%	1%	32%	67%	0%	20%	80%	1%	43%	57%	10%	50%	40%	22%	59%	19%	43%	44%	13%	20%	44%	36%
15	60%	35%	5%	40%	54%	6%	35%	52%	13%	16%	51%	32%	4%	57%	39%	4%	41%	54%	4%	32%	64%	1%	21%	78%	1%	46%	53%	11%	51%	38%	21%	56%	23%	42%	46%	12%	20%	45%	35%
16	59%	39%	2%	35%	59%	6%	32%	54%	15%	11%	57%	32%	1%	49%	50%	2%	47%	51%	1%	35%	65%	0%	18%	82%	2%	45%	53%	5%	52%	43%	27%	48%	25%	51%	37%	13%	19%	45%	36%
17	51%	45%	4%	30%	65%	4%	26%	58%	15%	8%	55%	37%	3%	40%	57%	1%	34%	65%	0%	42%	58%	1%	30%	69%	0%	40%	60%	2%	51%	46%	23%	54%	24%	56%	33%	11%	17%	46%	37%
18	46%	47%	5%	43%	49%	8%	25%	63%	13%	13%	65%	23%	2%	41%	57%	4%	28%	68%	1%	38%	61%	2%	23%	75%	2%	38%	60%	1%	57%	42%	35%	58%	7%	53%	39%	8%	19%	45%	35%
19	62%	32%	6%	51%	40%	10%	24%	59%	16%	15%	71%	15%	4%	47%	49%	3%	38%	60%	4%	26%	70%	1%	26%	74%	0%	35%	65%	10%	58%	32%	36%	43%	21%	46%	51%	3%	21%	44%	35%
20	54%	41%	4%	38%	56%	7%	39%	53%	8%	8%	63%	29%	7%	47%	46%	2%	43%	55%	4%	37%	60%	0%	23%	77%	4%	36%	60%	6%	68%	25%	30%	49%	21%	47%	41%	12%	20%	46%	34%
21	56%	40%	4%	41%	56%	3%	26%	55%	19%	14%	60%	26%	13%	43%	45%	3%	39%	58%	1%	40%	60%	0%	34%	66%	2%	38%	60%	15%	53%	32%	35%	45%	20%	51%	41%	8%	21%	45%	33%
22	54%	43%	4%	32%	59%	10%	27%	55%	18%	15%	51%	34%	5%	59%	36%	3%	47%	50%	4%	29%	68%	0%	22%	78%	1%	40%	59%	13%	51%	36%	38%	39%	24%	52%	41%	7%	20%	45%	35%
23	47%	45%	8%	35%	57%	8%	23%	60%	18%	18%	61%	21%	7%	51%	42%	2%	40%	58%	3%	35%	62%	1%	21%	78%	0%	27%	73%	14%	45%	41%	31%	53%	16%	53%	41%	6%	19%	45%	36%
24	40%	50%	10%	43%	49%	7%	25%	54%	21%	14%	46%	40%	1%	46%	52%	2%	21%	76%	4%	47%	49%	0%	26%	74%	1%	30%	69%	16%	49%	35%	24%	54%	22%	60%	34%	6%	19%	42%	38%
25	34%	58%	8%	38%	50%	12%	29%	52%	18%	10%	54%	36%	1%	43%	56%	1%	20%	79%	4%	38%	59%	0%	29%	71%	4%	40%	56%	19%	41%	40%	33%	49%	18%	62%	26%	13%	20%	42%	39%
26	46%	42%	10%	35%	46%	20%	31%	56%	13%	8%	54%	38%	0%	35%	65%	3%	18%	79%	4%	40%	55%	1%	32%	68%	1%	43%	56%	22%	44%	34%	29%	50%	21%	57%	36%	7%	20%	41%	39%
27	47%	46%	7%	25%	61%	14%	37%	51%	13%	13%	61%	26%	1%	28%	71%	3%	21%	76%	3%	40%	57%	1%	26%	73%	2%	44%	54%	10%	66%	24%	18%	55%	26%	41%	52%	7%	17%	46%	37%
28	62%	32%	6%	26%	58%	15%	19%	61%	20%	8%	67%	25%	0%	43%	57%	1%	29%	70%	0%	23%	77%	0%	22%	78%	8%	33%	59%	18%	57%	25%	29%	50%	21%	54%	41%	4%	19%	43%	38%
29	57%	37%	7%	19%	78%	3%	20%	67%	13%	19%	56%	25%	0%	40%	60%	1%	26%	72%	1%	10%	89%	1%	25%	74%	3%	46%	57%	15%	55%	29%	30%	51%	19%	53%	39%	8%	18%	44%	38%
30	59%	36%	5%				15%	60%	24%	6%	54%	40%	2%	41%	57%	5%	28%	67%	2%	10%	89%	0%	22%	78%	1%	46%	54%	27%	51%	21%	33%	51%	15%	56%	37%	7%	19%	40%	42%
AVG %	52%	43%	6%	41%	49%	9%	39%	56%	14%	15%	59%	26%	5%	47%	48%	2%	34%	63%	2%	33%	65%	1%	26%	73%	1%	35%	64%	18%	49%	41%	29%	50%	21%	46%	44%	10%	26%	44%	37%
condition	3.4			3.9			4.6			5.7			7.1			7.9			8.0			8.4			8.0			6.6			5.0			3.8			6.0		

remark : condition (SKY CONDITION) 0-3 = Clear Sky, 4-7 = Partly Cloudy Sky, 8-10 = Cloudy Sky, AVG % = AVERAGE PERCENTAGE OF SKY CONDITION

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แผนภูมิสภาพท้องฟ้าและสัดส่วนเปอร์เซ็นต์สภาพท้องฟ้า (sky cover and percentage of sky condition)

SKY CONDITION (%) 1981 - 1998 (2524-2541) Station : UBON RATCHATHANI



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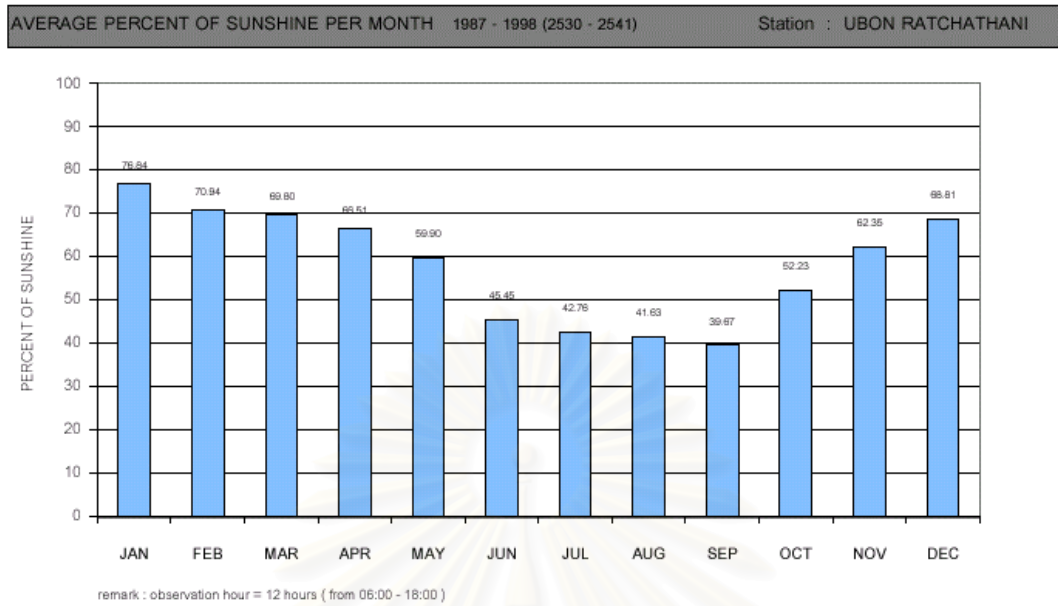
ตารางแสดงผลข้อมูลระยะเวลาของแสงแดด (duration of sunshine)

DURATION OF SUNSHINE (hours) 1981 - 1998 (2524 - 2541)														Station : UBON RATCHATHANI	
MONTH	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	ANNUAL		
DAY	hours avg %	hours avg %	hours avg %	hours avg %	hours avg %	hours avg %	hours avg %	hours avg %	hours avg %	hours avg %	hours avg %	hours avg %	hours avg %	hours avg %	hours avg %
1	9.2 76.7%	9.3 77.1%	9.0 75.0%	7.5 62.2%	7.9 65.6%	5.2 42.9%	6.2 51.9%	4.5 37.2%	6.2 51.5%	6.1 50.5%	8.0 66.9%	8.3 69.4%	7.3 60.5%		
2	9.5 79.1%	8.9 73.9%	8.3 69.4%	7.4 61.6%	8.3 69.5%	4.5 37.2%	4.7 39.2%	5.4 44.8%	4.1 34.4%	5.2 43.7%	7.4 61.7%	7.5 62.6%	6.8 56.4%		
3	8.9 74.3%	8.5 70.5%	8.7 72.2%	7.7 63.8%	8.7 72.5%	6.3 52.2%	3.8 31.5%	5.4 44.8%	5.1 42.2%	4.6 38.5%	6.6 55.1%	8.7 72.8%	6.9 57.5%		
4	9.0 75.3%	8.3 69.5%	8.2 68.1%	8.2 68.0%	7.8 65.0%	6.6 54.8%	5.1 42.9%	4.1 33.8%	4.8 39.6%	3.7 30.5%	7.7 63.8%	8.2 68.6%	6.8 56.6%		
5	9.0 75.1%	9.1 76.1%	7.3 60.8%	8.3 68.9%	7.1 58.9%	5.3 44.0%	5.3 44.4%	6.0 50.3%	3.9 32.8%	4.3 35.8%	8.0 66.9%	8.6 71.9%	6.9 57.2%		
6	9.5 79.4%	8.4 70.3%	8.5 70.5%	8.1 67.6%	8.4 69.9%	6.7 56.0%	6.9 57.4%	5.3 44.3%	3.9 32.2%	5.4 44.7%	7.3 60.6%	8.2 68.4%	7.2 60.1%		
7	9.3 77.7%	8.7 72.3%	8.0 66.8%	6.4 53.2%	8.7 72.5%	5.4 45.1%	7.5 62.5%	6.5 54.2%	3.8 31.9%	4.7 39.3%	7.3 60.6%	7.9 66.0%	7.0 58.5%		
8	9.0 75.2%	9.5 79.5%	8.3 69.3%	6.0 49.9%	8.2 68.7%	7.2 60.3%	6.8 56.7%	7.5 62.6%	5.8 48.3%	6.1 50.6%	6.8 56.4%	8.6 71.3%	7.5 62.4%		
9	8.9 74.4%	8.5 71.1%	8.7 72.5%	7.4 61.9%	6.6 54.6%	5.8 48.3%	5.2 43.6%	7.5 62.2%	5.3 44.2%	5.4 44.9%	7.4 61.3%	7.3 60.6%	7.0 58.3%		
10	9.1 75.5%	7.7 64.1%	9.1 76.0%	8.8 73.1%	7.0 58.3%	5.4 45.3%	5.8 48.0%	5.6 46.9%	3.8 31.3%	6.6 54.7%	7.9 66.1%	8.3 69.1%	7.1 59.0%		
11	9.2 77.0%	8.8 73.7%	8.8 73.4%	8.6 71.6%	6.0 50.1%	6.0 49.6%	5.2 43.5%	5.7 47.8%	4.6 38.2%	5.4 45.2%	8.5 70.8%	8.9 74.2%	7.2 59.6%		
12	9.5 79.4%	8.8 73.6%	8.5 71.1%	7.9 65.7%	8.1 67.7%	5.1 42.2%	5.6 47.0%	5.4 44.8%	5.0 41.5%	4.8 39.6%	6.9 57.5%	8.4 70.2%	7.0 58.4%		
13	8.9 74.3%	8.6 71.8%	7.8 64.6%	6.5 54.4%	7.6 63.3%	5.1 42.4%	3.8 31.5%	5.8 48.3%	4.8 39.9%	6.8 56.7%	7.7 63.8%	7.7 64.1%	6.8 56.3%		
14	9.2 76.4%	9.1 76.0%	7.5 62.7%	8.5 71.1%	6.7 55.9%	5.0 41.6%	5.6 46.3%	4.1 34.0%	4.3 36.2%	5.8 48.5%	7.6 63.3%	6.8 56.9%	6.7 55.7%		
15	8.9 73.8%	8.9 74.5%	8.6 71.5%	7.6 63.3%	7.5 62.7%	5.8 48.5%	4.9 40.5%	4.0 33.3%	5.7 47.3%	5.2 43.0%	7.9 66.0%	7.6 63.3%	6.9 57.3%		
16	9.3 77.1%	8.7 72.5%	8.4 70.3%	8.6 71.3%	6.6 54.7%	5.6 46.5%	5.0 41.5%	3.8 31.5%	4.6 38.7%	6.7 56.0%	7.8 64.6%	7.9 65.9%	6.9 57.5%		
17	9.6 79.8%	8.8 73.2%	8.2 68.1%	7.8 64.7%	6.7 55.8%	4.5 37.3%	6.0 50.3%	4.7 39.3%	3.9 32.4%	6.6 54.9%	7.9 65.8%	7.8 65.0%	6.9 57.2%		
18	9.1 76.0%	9.1 75.6%	8.5 70.6%	8.8 73.2%	5.7 47.4%	4.4 36.3%	5.9 49.5%	5.2 43.1%	4.1 34.4%	6.7 55.7%	9.0 74.7%	8.1 67.8%	7.0 58.7%		
19	9.0 74.9%	9.3 77.6%	8.1 67.4%	9.2 76.5%	6.6 55.2%	5.3 44.5%	5.1 42.7%	6.0 50.0%	3.5 28.9%	7.4 61.9%	6.4 53.7%	8.5 70.4%	7.0 58.6%		
20	9.5 79.4%	9.1 76.0%	9.1 75.7%	7.2 60.3%	7.5 62.4%	6.1 51.1%	4.8 39.6%	5.5 45.7%	4.0 33.3%	7.3 60.6%	6.9 57.6%	8.6 71.9%	7.1 59.5%		
21	9.2 76.3%	9.2 76.7%	8.1 67.6%	9.2 76.3%	8.7 72.2%	5.3 44.4%	5.5 45.6%	4.2 34.8%	4.7 39.4%	6.8 57.0%	7.2 60.3%	7.8 64.9%	7.2 59.6%		
22	9.6 80.3%	9.0 74.8%	8.4 69.7%	7.4 61.5%	8.4 70.2%	7.0 58.3%	5.1 42.2%	3.4 28.2%	4.3 36.0%	7.2 59.8%	7.6 63.7%	8.7 72.8%	7.2 59.8%		
23	8.7 72.2%	9.0 75.3%	8.3 69.0%	9.5 79.4%	7.4 61.8%	6.1 50.7%	3.9 32.4%	2.9 23.8%	4.7 39.4%	6.9 57.6%	8.3 69.4%	9.0 74.7%	7.1 58.8%		
24	9.0 74.9%	8.5 70.5%	8.4 70.3%	8.1 67.7%	7.3 60.8%	4.2 34.9%	5.2 43.6%	5.9 49.2%	5.4 45.2%	6.4 53.1%	6.7 56.2%	8.4 70.3%	7.0 58.1%		
25	8.7 72.4%	8.5 70.8%	8.9 74.1%	7.5 62.2%	5.8 48.5%	4.3 35.4%	4.9 41.2%	4.9 41.0%	4.5 37.3%	6.8 56.9%	7.5 62.4%	8.5 71.2%	6.7 56.1%		
26	8.9 73.8%	7.5 62.4%	8.6 71.8%	7.6 63.2%	5.9 48.8%	4.7 39.0%	5.5 46.1%	6.0 49.7%	5.4 44.8%	7.4 61.9%	7.4 61.6%	8.2 68.2%	6.9 57.6%		
27	9.2 76.7%	8.0 66.8%	9.1 75.6%	8.8 73.2%	4.4 36.7%	5.0 41.5%	6.1 50.6%	5.2 43.6%	6.2 51.4%	7.9 65.8%	6.7 56.0%	8.3 68.9%	7.1 58.9%		
28	9.6 80.1%	7.1 58.9%	7.9 65.7%	8.7 72.6%	7.0 58.3%	5.5 45.6%	4.9 40.7%	2.8 23.2%	5.8 48.1%	7.6 63.7%	7.4 61.5%	8.4 70.1%	6.9 57.4%		
29	9.6 80.0%	3.9 32.1%	8.9 74.5%	8.6 71.4%	5.7 47.2%	5.0 41.3%	3.4 28.5%	4.0 33.6%	5.6 46.6%	6.7 55.6%	7.0 58.0%	9.0 74.7%	6.4 53.6%		
30	9.9 82.8%		8.2 68.5%	7.9 65.6%	7.0 58.1%	5.6 46.3%	2.2 18.0%	3.9 32.6%	5.2 43.0%	7.7 64.4%	7.7 64.0%	8.9 74.0%	6.7 56.1%		
31	9.8 81.9%		7.4 61.5%		7.6 63.7%		3.3 27.4%	3.8 31.9%		8.2 68.6%		8.7 72.7%	7.0 58.2%		
Average	9.2 76.8%	8.5 70.9%	8.4 69.8%	8.0 66.5%	7.2 59.9%	5.5 45.4%	5.1 42.8%	5.0 41.6%	4.8 39.7%	6.3 52.2%	7.5 62.3%	8.3 68.8%	7.0 58.1%		
Total	285.8	246.9	250.7	239.4	222.8	163.6	159.1	154.9	142.8	194.3	224.5	256.0	2,549.7		

Remark : observation hour = 12 hours (from 06:00 - 07:00 to 17:00 - 18:00)

สถาบันวิทยบริการ
จุฬาลงกรณ์มหาวิทยาลัย

แผนภูมิระยะเวลาของแสงแดด (average percent of sunshine per month)



สถาบันวิทยบริการ
จุฬาลงกรณ์มหาวิทยาลัย

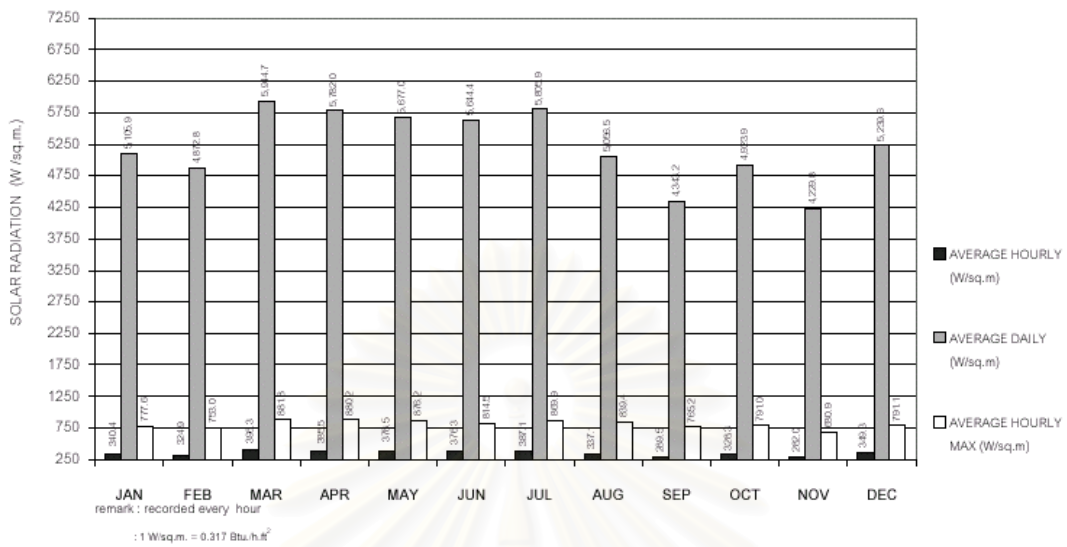
ตารางแสดงผลข้อมูลปริมาณรังสีรวมดวงอาทิตย์ (solar radiation)

SOLAR RADIATION (W / m ²) 1998 (2541)														Station : UBON RATCHATHANI													
MONTH	JANUARY		FEBRUARY		MARCH		APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER		OCTOBER		NOVEMBER		DECEMBER		ANNUAL		
	DAY	hourly	daily	hourly	daily	hourly	daily	hourly	daily	hourly	daily	hourly	daily	hourly	daily	hourly	daily	hourly	daily	hourly	daily	hourly	daily	hourly	daily	hourly	daily
1	350.7	5,259.8	376.7	5,650.3	340.3	5,104.1	330.9	4,963.2	421.4	6,320.9	310.5	4,656.9	200.5	3,007.4	342.6	5,139.2	348.3	5,224.1	345.5	5,163.0	411.2	6,168.1	358.1	5,371.2	344.7	5,170.7	
2	353.7	5,306.2	375.5	5,632.3	348.1	5,220.8	373.6	5,604.6	444.3	6,664.5	397.6	5,964.1	219.1	3,286.5	383.6	5,754.2	391.1	5,866.7	220.9	3,313.5	376.4	5,645.4	272.0	4,079.8	346.3	5,194.9	
3	360.3	5,404.0	357.9	5,368.9	406.6	6,098.5	396.9	5,952.9	449.7	6,745.9	371.6	5,574.3	236.6	3,548.8	292.6	4,388.4	420.6	6,309.6	327.1	4,905.9	399.3	5,989.0	355.0	5,324.3	364.5	5,467.5	
4	358.6	5,378.3	350.7	5,260.8	386.7	5,800.4	374.1	5,611.3	357.9	5,368.4	418.2	6,273.4	274.2	4,112.6	325.5	4,882.6	304.1	5,761.6	158.4	2,375.9	385.0	5,775.4	347.6	5,214.4	343.4	5,151.3	
5	327.3	4,909.6	361.4	5,420.5	338.4	5,076.5	405.8	6,066.9	373.4	5,601.4	366.2	5,492.4	348.8	5,231.5	348.7	5,229.8	278.3	4,174.1	366.3	5,494.3	354.8	5,321.3	362.1	5,431.1	352.6	5,289.1	
6	366.1	5,491.4	357.7	5,365.5	399.9	5,848.7	433.6	6,504.5	433.9	6,508.0	332.5	4,987.4	415.4	6,230.4	354.3	5,314.2	222.7	3,340.8	380.6	5,708.9	349.9	5,248.5	350.2	5,252.7	365.6	5,483.4	
7	325.3	4,880.0	358.7	5,380.8	373.7	5,605.4	407.9	6,118.0	493.0	7,395.0	394.3	5,913.9	383.2	5,447.6	308.1	4,621.7	304.0	4,560.4	315.4	4,731.5	351.1	5,266.9	367.1	5,506.2	383.5	5,452.3	
8	354.3	5,314.6	362.1	5,430.9	344.3	5,164.1	359.0	5,384.7	454.9	6,823.9	429.2	6,438.3	402.5	6,037.9	243.4	3,651.6	305.9	4,588.7	391.1	5,865.9	324.8	4,872.7	366.4	5,495.8	361.5	5,422.4	
9	351.5	5,272.7	272.3	4,084.8	429.8	6,447.5	420.6	6,309.3	389.3	5,839.9	439.0	6,585.7	370.8	5,562.0	289.9	4,348.8	311.6	4,674.1	258.5	3,877.6	378.1	5,672.2	354.0	5,309.5	355.5	5,332.0	
10	335.3	5,029.8	239.1	3,587.2	425.6	6,383.6	368.0	5,520.2	359.0	5,384.5	366.3	5,494.8	391.7	5,875.0	238.3	3,574.1	115.2	1,728.7	307.5	4,611.9	370.4	5,556.1	361.3	5,419.5	323.1	4,847.1	
11	313.5	4,701.8	293.1	4,396.5	421.3	6,319.2	396.0	5,940.6	389.3	5,839.1	456.8	6,852.7	473.2	7,097.8	179.6	2,694.4	179.4	2,690.4	261.5	3,922.8	358.3	5,374.0	354.9	5,323.0	339.7	5,096.0	
12	327.1	4,906.2	358.9	5,383.7	402.3	6,034.3	442.2	6,632.4	445.1	6,677.0	483.3	7,250.1	464.0	6,960.7	139.9	2,098.6	368.8	5,532.0	265.2	3,978.7	362.1	5,431.8	360.8	5,412.1	388.3	5,524.8	
13	315.1	4,726.5	334.9	5,023.9	383.2	5,748.3	456.9	6,853.8	340.0	5,099.7	461.0	6,914.7	313.4	4,700.5	395.2	5,927.9	288.5	4,327.9	402.5	6,037.9	226.2	3,383.3	340.5	5,106.8	354.0	5,321.8	
14	257.9	3,868.6	339.7	5,096.2	402.0	6,029.4	453.7	6,806.1	416.7	6,250.8	343.8	5,156.9	427.3	6,409.8	400.9	6,013.6	328.7	4,929.8	402.8	6,041.9	143.3	2,149.3	359.9	5,398.6	356.4	5,345.9	
15	304.5	4,567.0	360.1	5,401.5	408.6	6,128.6	421.7	6,325.1	359.8	5,396.8	479.1	7,187.1	495.5	7,433.2	359.1	5,386.3	351.3	5,268.9	408.4	6,125.8	315.7	4,735.4	317.5	4,761.8	381.8	5,726.5	
16	336.7	5,049.8	296.2	4,442.4	387.9	5,818.1	358.0	5,370.7	380.5	5,707.3	429.6	6,443.7	426.5	6,395.2	230.7	3,460.9	269.3	4,040.0	376.9	5,653.5	347.9	5,218.2	351.0	5,264.8	349.2	5,238.7	
17	323.7	4,855.3	377.4	5,661.2	390.2	5,852.4	65.6	984.5	311.3	4,669.0	418.3	6,273.9	386.2	5,792.6	448.8	6,731.9	255.6	3,834.0	291.6	4,373.4	298.4	4,476.3	357.0	5,354.6	327.0	4,904.9	
18	318.2	4,773.6	336.4	5,045.4	395.3	5,929.4	299.4	4,491.5	308.1	4,621.6	349.0	5,234.7	396.9	5,953.5	362.8	5,442.4	152.3	2,284.6	336.0	5,039.3	379.1	5,686.0	358.3	5,373.9	332.6	4,989.7	
19	258.8	3,881.6	380.9	5,713.7	404.7	6,071.1	322.1	4,831.9	403.5	6,052.1	395.1	5,926.9	458.8	6,882.5	334.5	5,016.9	240.0	3,599.7	392.8	5,892.7	260.4	3,906.1	355.8	5,337.6	350.6	5,259.4	
20	323.7	4,854.8	379.2	5,688.1	409.2	6,138.5	368.4	5,525.4	385.3	5,779.9	411.1	6,166.9	411.9	6,179.2	279.4	4,190.6	93.8	1,406.9	214.5	3,217.8	50.6	759.7	359.8	5,396.3	307.2	4,608.7	
21	349.8	5,247.7	396.7	5,949.9	407.1	6,107.2	280.1	4,202.2	385.5	5,782.6	428.2	6,423.0	409.5	6,142.3	314.4	4,716.0	254.6	3,818.7	213.2	3,197.4	85.6	1,284.1	351.5	5,273.2	323.0	4,845.4	
22	367.8	5,517.5	223.7	3,355.2	372.7	5,589.8	363.3	5,449.1	483.5	7,251.9	386.8	5,801.7	416.2	6,243.4	255.9	3,837.9	241.4	3,620.4	294.0	4,409.8	190.1	2,851.1	344.0	5,160.1	328.3	4,924.0	
23	328.4	4,925.7	395.4	5,931.7	408.2	6,123.7	455.7	6,834.8	439.1	6,586.5	406.5	6,097.2	357.6	5,364.6	340.9	5,113.9	277.3	4,159.1	331.2	4,968.2	332.2	4,962.7	332.7	4,991.1	367.1	5,506.6	
24	335.9	5,039.2	408.3	6,124.7	425.5	6,382.4	437.6	6,563.5	394.1	5,911.2	350.7	5,260.5	425.1	6,376.0	456.6	6,849.0	381.1	5,717.0	394.2	5,912.7	256.7	3,850.7	339.6	5,042.2	383.8	5,756.8	
25	361.1	5,416.7	349.5	5,242.3	432.8	6,491.7	383.1	5,746.1	247.9	3,718.2	347.8	5,216.7	430.4	6,456.5	477.4	7,161.5	384.3	5,764.5	411.0	6,164.7	195.0	2,924.5	336.6	5,049.3	363.1	5,446.0	
26	369.0	5,534.8	78.6	1,178.5	434.1	6,511.4	452.4	6,785.6	177.5	2,663.1	256.8	3,852.5	402.6	6,038.4	338.4	5,076.5	293.6	4,404.2	401.4	6,020.5	55.5	832.3	323.0	4,845.2	298.6	4,478.6	
27	369.9	5,548.4	359.7	5,394.9	383.6	5,754.5	411.6	6,173.3	327.4	4,910.4	305.2	4,577.7	444.1	6,661.0	441.2	6,617.7	365.3	5,479.1	371.7	5,575.3	280.4	3,994.8	340.3	5,104.1	357.8	5,366.7	
28	384.4	5,765.8	340.0	5,099.9	380.1	5,701.4	408.9	6,133.3	402.7	6,040.4	247.9	3,719.1	426.6	6,399.7	427.1	6,406.8	333.2	4,998.2	315.2	4,728.3	280.4	3,994.8	364.7	5,470.6	359.2	5,388.6	
29	387.0	5,804.8	0.0	-	394.9	5,923.3	463.4	6,951.5	282.9	4,244.0	334.7	5,020.4	454.8	6,821.7	448.3	6,724.7	331.8	4,976.8	328.4	4,925.4	188.4	2,826.3	365.6	5,483.9	331.7	4,975.2	
30	368.9	5,534.1			434.5	6,516.9	453.5	6,802.9	338.3	5,073.8	171.5	2,572.8	362.6	5,438.5	428.5	6,427.2	214.4	3,215.3	304.4	4,566.1	259.5	3,892.1	365.7	5,495.7	336.5	5,047.8	
31	367.8	5,516.8			424.3	6,364.8			337.2	5,058.0			393.1	5,896.9	263.5	3,952.4			388.1	5,821.6			355.7	5,335.9	361.4	5,420.9	
Average	340.4	5,105.9	324.9	4,872.8	386.3	5,944.7	385.5	5,782.0	378.5	5,677.0	376.3	5,644.4	387.1	5,805.9	337.1	5,056.5	289.5	4,343.2	328.3	4,923.9	282.0	4,229.8	349.3	5,239.6	348.4	5,225.3	
Avg. max	777.6		753.0		881.8		880.2		876.2		814.5		869.9		839.4		765.2		791.0		680.9		791.1		810.1		

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แผนภูมิปริมาณรังสีรวมดวงอาทิตย์ (solar radiation)

SOLAR RADIATION (W/sq.m.) ONE YEAR ROUND 1997 - 1998 (2540 - 2541) Station : UBON RATCHATHANI



สถาบันวิทยบริการ
จุฬาลงกรณ์มหาวิทยาลัย

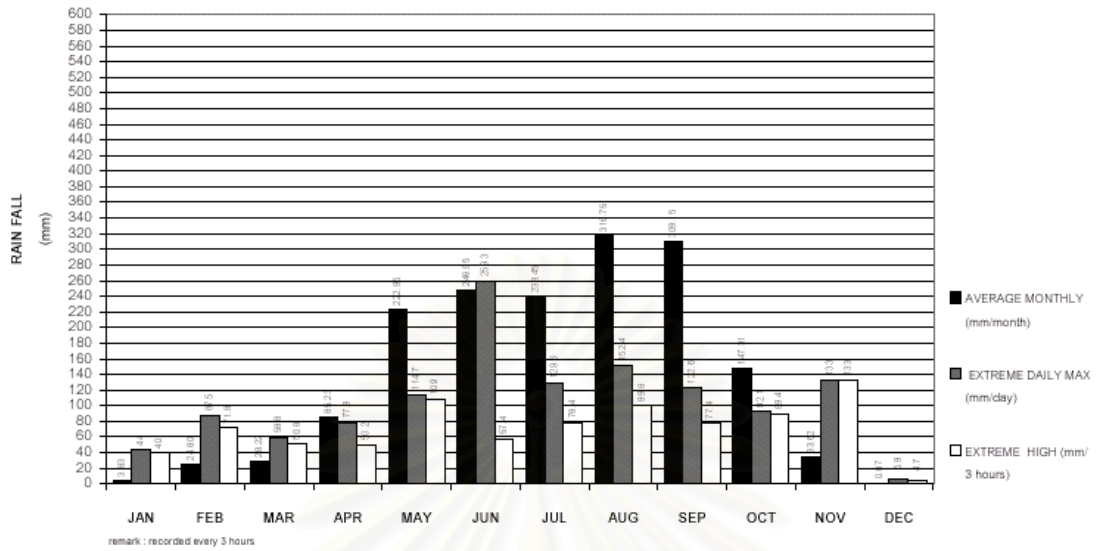
ตารางแสดงผลข้อมูลปริมาณน้ำฝน (rain fall)

RAIN FALL (mm) 1981 - 1998 (2524 - 2541)													Station : UBON RATCHATHANI	
MONTH	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	ANNUAL	
DAY	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	
1	0.0	0.6	0.0	3.0	1.7	5.6	7.2	12.5	7.5	8.5	2.0	0.0	48.7	
2	0.1	0.0	0.8	0.9	3.5	8.2	2.3	7.6	6.8	10.2	1.9	0.0	42.3	
3	0.0	0.0	0.6	1.4	0.3	4.5	8.2	5.3	14.4	7.4	3.2	0.2	45.5	
4	0.0	0.0	0.0	1.5	2.2	6.1	21.3	13.9	14.6	9.8	0.5	0.0	70.0	
5	1.0	0.0	0.0	3.1	3.9	7.5	8.8	9.3	13.1	11.1	0.0	0.0	57.8	
6	0.0	0.1	0.1	0.0	5.4	5.8	2.3	13.9	19.4	5.5	0.0	0.0	52.4	
7	0.1	2.0	0.5	3.9	4.2	9.5	3.0	4.5	13.8	3.8	0.0	0.0	45.2	
8	0.0	0.5	0.2	3.1	2.1	9.2	4.3	6.5	14.5	3.6	1.6	0.0	45.7	
9	0.0	0.7	0.1	2.4	12.0	10.3	8.1	19.3	18.8	8.4	3.2	0.3	83.5	
10	0.0	0.3	0.0	0.1	3.7	5.2	10.3	15.9	13.7	4.8	0.0	0.0	54.1	
11	0.0	0.1	0.1	0.2	5.2	16.3	7.7	9.2	7.9	3.4	0.0	0.0	50.1	
12	0.0	0.0	0.1	2.8	5.4	13.9	5.2	6.7	5.1	4.5	0.8	0.0	44.5	
13	0.0	0.0	2.1	6.4	5.2	11.9	6.6	8.9	17.6	3.1	9.2	0.1	71.2	
14	0.0	5.4	1.0	1.5	8.5	8.9	6.3	5.5	14.9	11.4	1.3	0.0	64.7	
15	0.0	0.0	0.7	1.8	8.5	4.6	7.1	14.0	7.1	10.4	1.1	0.2	55.4	
16	0.0	1.6	0.3	1.0	7.0	2.5	12.5	23.4	7.1	8.5	0.5	0.0	64.4	
17	0.0	0.0	0.4	3.9	15.2	2.3	8.3	10.9	13.6	6.3	0.2	0.0	61.1	
18	0.0	0.0	2.3	3.8	16.8	9.0	9.2	7.9	12.2	1.8	0.0	0.0	62.8	
19	0.2	0.0	0.2	0.5	3.7	5.0	4.1	8.8	7.0	3.0	0.0	0.0	32.5	
20	0.0	0.0	0.1	4.5	4.3	8.9	12.4	17.1	9.1	1.0	1.0	0.0	58.4	
21	0.0	0.0	6.6	1.1	4.2	6.4	10.7	4.5	8.4	1.7	2.6	0.0	46.2	
22	0.0	2.5	0.8	8.2	2.6	10.4	7.3	8.7	3.2	5.6	1.9	0.0	51.3	
23	0.0	0.6	0.2	0.2	17.2	4.2	11.4	7.7	6.6	2.4	0.0	0.0	50.5	
24	0.0	0.0	0.3	1.7	7.4	5.6	4.3	13.9	1.9	0.5	0.1	0.0	35.6	
25	0.0	0.0	0.1	2.0	18.7	12.1	2.7	7.6	8.6	0.4	0.1	0.0	52.3	
26	2.5	4.0	0.0	5.0	10.1	22.8	6.0	3.3	8.6	1.7	1.0	0.0	65.0	
27	0.0	3.5	1.9	4.8	9.0	12.7	4.3	6.8	4.6	0.1	0.2	0.0	47.8	
28	0.0	2.9	1.0	5.5	10.1	6.7	8.7	18.8	8.9	1.0	0.6	0.0	64.2	
29	0.0	0.0	0.0	4.3	8.1	3.7	13.2	9.7	9.1	3.9	0.1	0.0	52.2	
30	0.0	4.1	7.0	7.6	7.2	9.3	9.3	9.0	11.1	2.7	0.4	0.0	58.4	
31	0.0	3.6	9.1	9.1	5.2	5.6	5.6	5.6	1.0	1.0	0.0	0.0	24.5	
Monthly	3.8	24.8	28.2	85.2	222.9	246.9	238.5	316.8	309.1	147.3	33.6	0.9	1,638.1	
Daily record high	44.0	87.5	58.8	77.9	114.7	259.3	129.6	152.4	122.6	92.1	133.0	5.9	259.3	
3 hr. Extremes	40.0	71.8	50.8	50.2	109.0	57.4	78.4	99.8	77.4	89.4	133.0	4.7	133.0	
No. of rainy days	1	2	2	5	15	16	17	20	22	17	6	1	125	

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แผนภูมิปริมาณน้ำฝน (rain fall)

RAIN FALL (mm) 1981 - 1998 (2524 - 2541) Station : UBON RATCHATHANI



สถาบันวิทยบริการ
 จุฬาลงกรณ์มหาวิทยาลัย

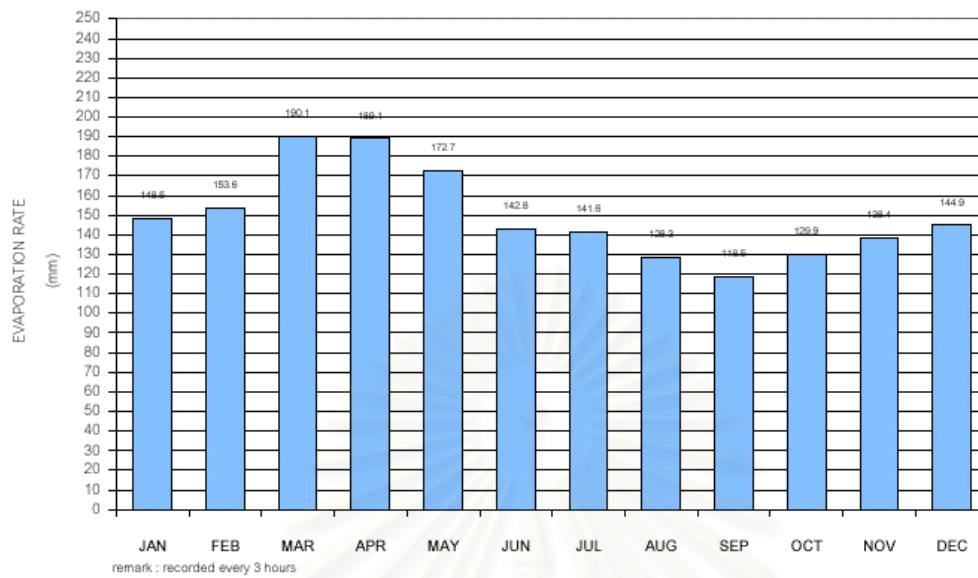
ตารางแสดงผลข้อมูลค่าเฉลี่ยอัตราการระเหยของน้ำรายวัน (evaporation)

EVAPORATION (mm) 1981 - 1998 (2524 - 2541)													Station : UBON RATCHATHANI	
MONTH	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	ANNUAL	
DAY	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	
1	4.3	5.5	6.1	6.8	6.1	4.6	4.6	4.3	4.3	4.2	4.7	5.2	60.8	
2	4.3	5.2	5.9	6.4	5.8	5.0	4.8	3.9	3.7	4.0	4.6	4.6	58.2	
3	5.1	5.2	5.7	6.0	6.5	5.2	4.7	4.4	3.9	3.8	4.3	4.3	59.2	
4	4.2	4.9	5.7	6.5	6.7	5.4	5.1	3.2	3.6	4.4	4.7	4.6	59.1	
5	5.1	4.8	5.7	6.4	5.9	4.4	4.1	4.6	3.5	4.0	4.6	5.2	58.3	
6	4.6	4.7	5.4	6.4	6.5	4.9	4.5	4.4	4.0	4.0	4.5	4.9	58.7	
7	4.9	5.3	5.9	6.5	5.9	4.7	4.7	4.7	4.2	3.7	4.6	4.8	60.0	
8	4.6	4.9	6.1	6.4	5.7	5.7	4.5	4.5	3.9	4.6	4.5	5.1	60.5	
9	4.6	4.9	5.8	6.4	5.7	4.6	4.3	4.7	3.4	3.8	5.1	4.2	57.7	
10	4.0	5.1	5.8	6.5	5.2	4.4	4.6	4.5	3.7	4.0	4.9	4.6	57.3	
11	4.6	5.3	5.6	6.6	5.5	5.1	4.5	4.0	4.2	4.1	4.6	4.5	58.7	
12	4.8	4.7	6.2	6.6	5.9	4.7	4.5	4.6	3.9	3.8	3.8	4.3	57.8	
13	4.9	4.7	5.8	6.2	5.4	4.7	4.5	4.3	4.3	4.9	4.4	4.9	58.8	
14	4.7	5.0	5.7	6.5	5.6	4.6	4.7	3.7	3.9	4.0	4.5	4.6	57.5	
15	4.5	5.0	6.7	6.5	5.5	5.4	4.7	3.8	3.9	3.6	4.6	4.9	58.6	
16	5.2	5.4	6.7	5.7	5.5	4.7	4.4	4.1	4.4	3.5	4.6	4.6	58.6	
17	4.5	5.8	6.5	6.7	5.3	4.8	4.7	3.8	3.9	3.8	4.3	4.8	58.8	
18	4.3	5.7	6.2	6.3	5.0	4.4	4.5	4.3	4.0	3.9	5.0	4.8	58.4	
19	4.7	5.5	6.4	6.7	5.4	4.6	4.7	4.7	4.0	4.3	4.9	5.1	61.0	
20	4.8	5.8	5.7	6.2	5.8	5.0	4.9	4.0	4.1	4.5	4.5	4.5	59.9	
21	5.1	5.6	6.0	7.2	5.8	4.7	5.0	4.1	3.7	4.7	4.5	5.0	61.4	
22	4.8	5.8	6.2	5.9	5.3	4.9	4.7	3.5	4.0	4.3	4.4	4.5	58.3	
23	4.8	5.7	5.7	6.1	5.9	5.0	4.0	3.6	3.9	4.0	5.4	4.8	58.9	
24	4.7	5.6	6.3	5.9	5.4	4.5	4.6	4.4	4.0	4.6	4.9	4.7	59.5	
25	5.2	6.0	6.8	5.9	5.1	4.5	4.6	4.2	4.1	4.6	4.5	4.1	59.4	
26	4.5	4.8	6.8	6.2	4.9	4.5	4.8	4.7	4.3	4.2	4.4	5.1	59.2	
27	5.6	5.3	7.0	6.1	4.7	4.5	4.4	4.2	3.9	4.6	4.5	4.8	59.4	
28	5.0	5.0	6.7	6.2	5.4	4.5	4.6	3.7	4.2	4.2	4.3	4.2	58.0	
29	5.0	6.5	6.3	6.2	4.9	4.4	4.4	3.7	4.2	4.6	4.9	4.3	59.4	
30	5.4		6.2	5.7	5.3	4.7	4.6	4.1	3.5	4.5	4.9	4.3	53.1	
31	5.8		6.3		5.1		3.6	3.7		4.7		4.5	33.7	
AVG Monthly	148.5	153.6	190.1	189.1	112.7	142.8	141.6	128.3	118.5	129.9	138.4	144.9	1,798.2	
Daily Mean	4.8	5.3	6.1	6.3	5.6	4.8	4.6	4.1	4.0	4.2	4.6	4.7	4.9	
Extremes	10.7	11.0	11.7	11.3	11.5	10.3	9.7	10.1	10.0	8.8	10.1	9.7	11.7	

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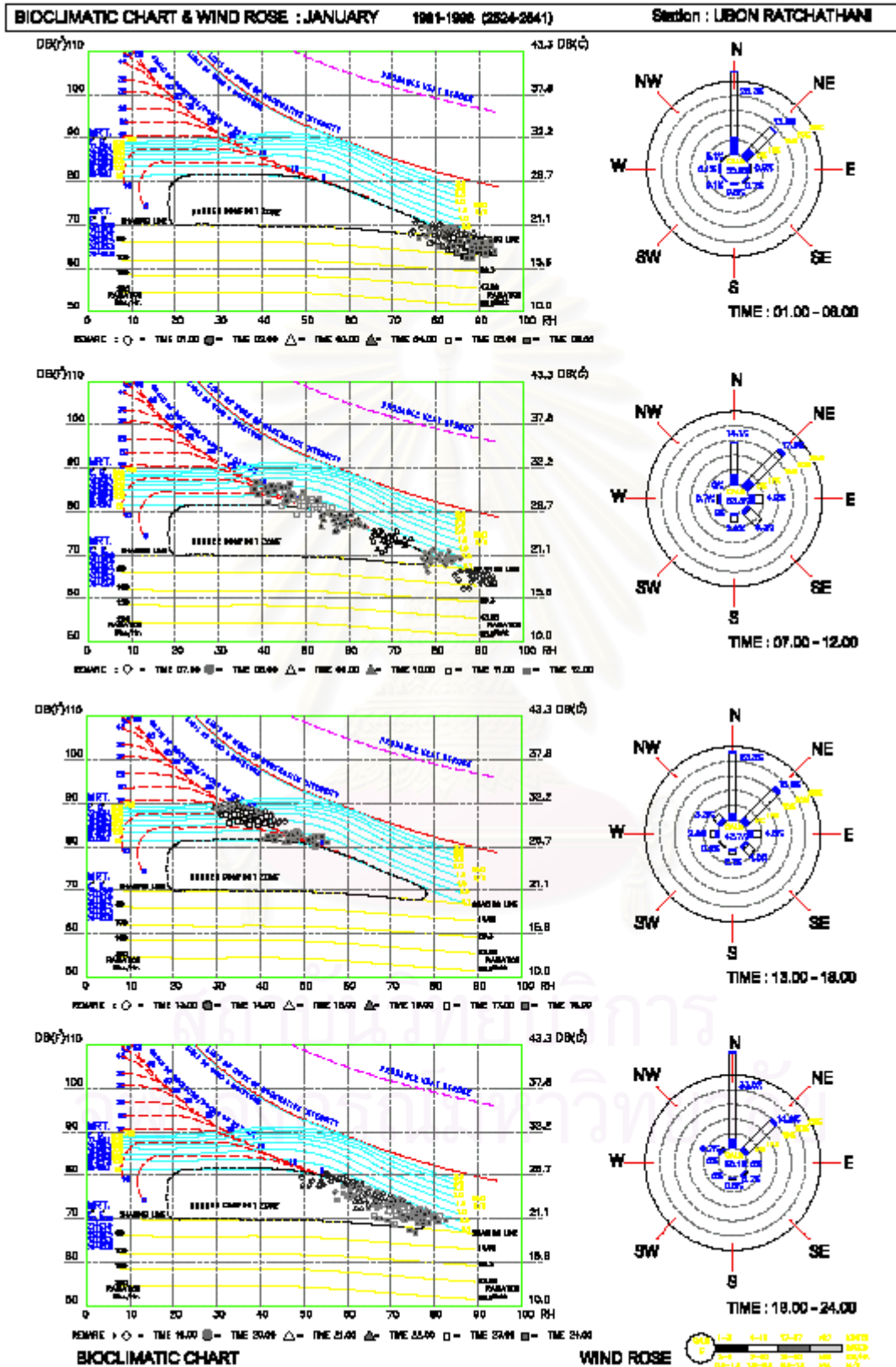
แผนภูมิค่าเฉลี่ยอัตราการระเหยของน้ำรายเดือน (average monthly evaporation from U.S. class "A" pan)

AVERAGE MONTHLY EVAPORATION (mm) from U.S. class "A" pan 1981 - 1998 (2524 - 2541) Station : UBON RATCHATHANI

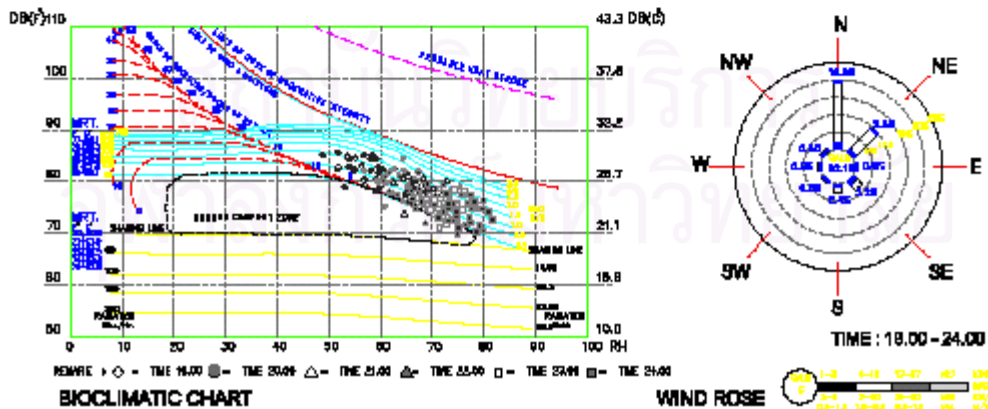
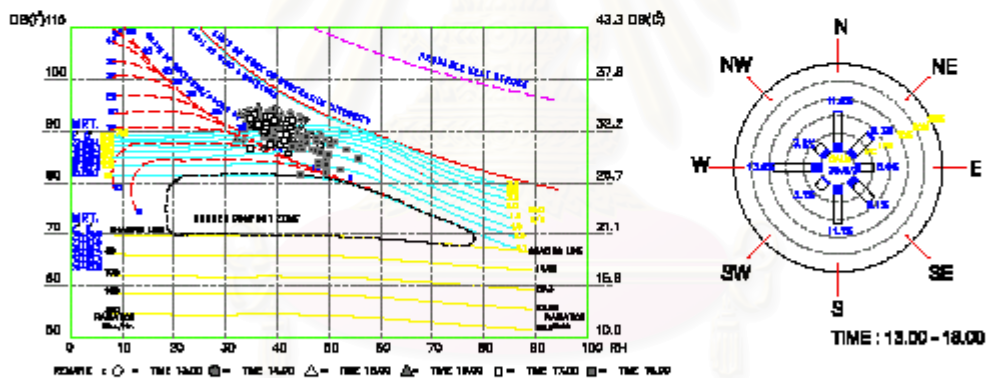
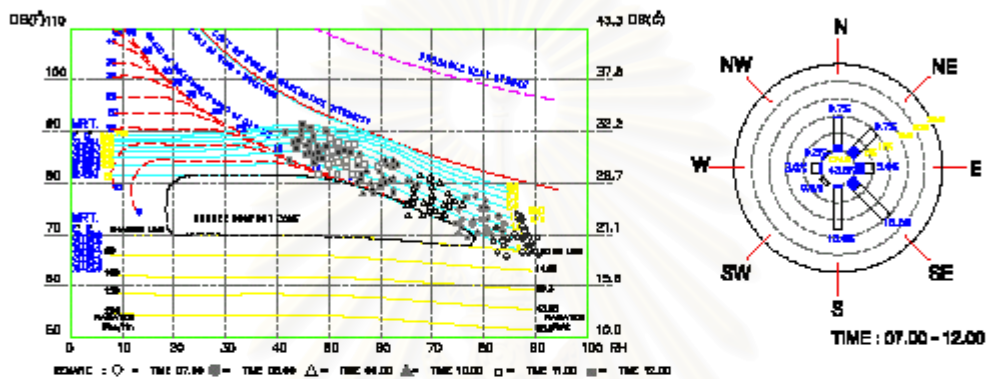
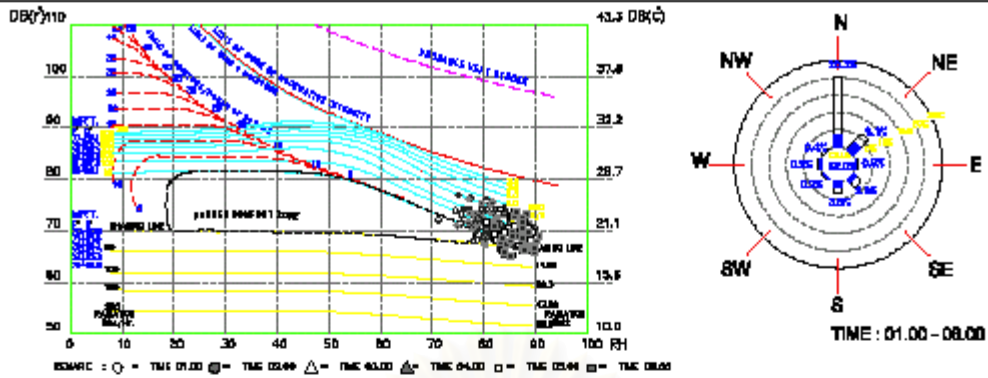


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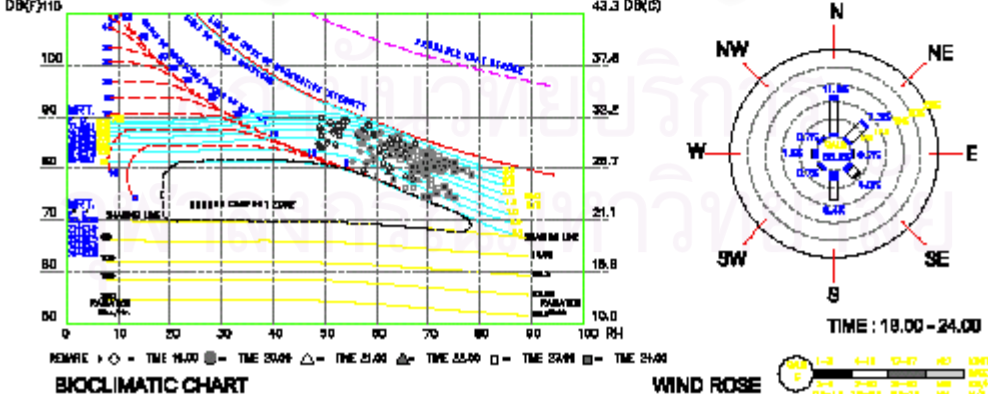
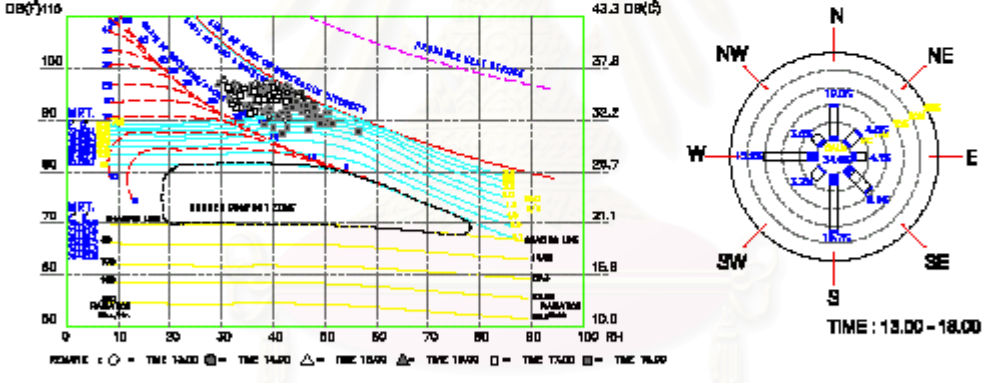
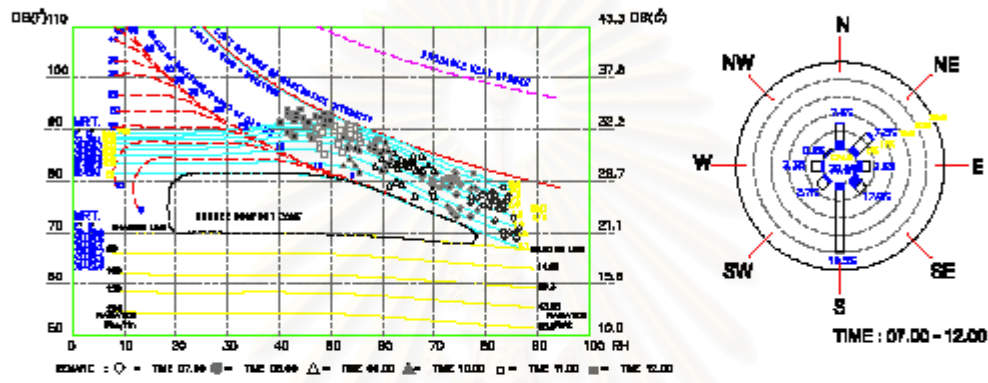
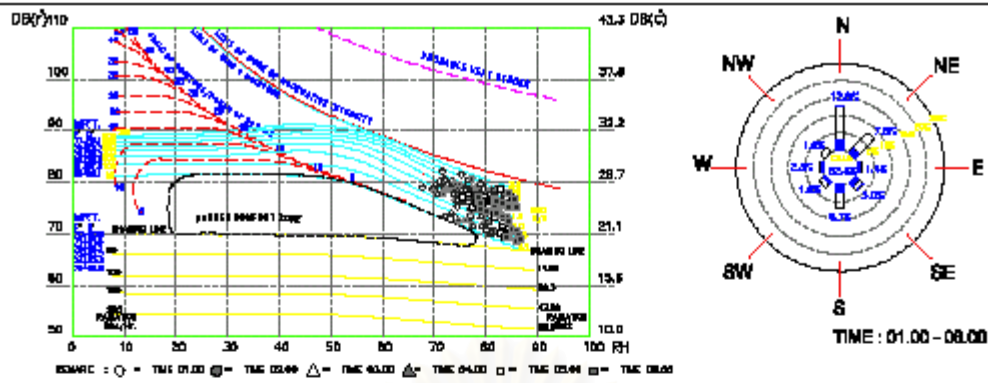
แผนภูมิความสัมพันธ์ระหว่างข้อมูลสภาพอากาศในแผนภูมิไบโอคลิเมตริก (bioclimatic chart) กับแผนภูมิแสดงความเร็วและทิศทางที่พัดลมรายเดือน (wind rose) แยกตามช่วงเวลา



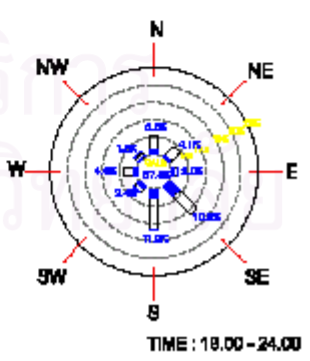
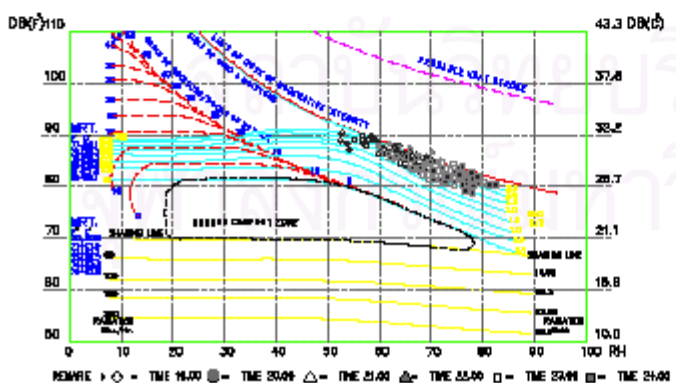
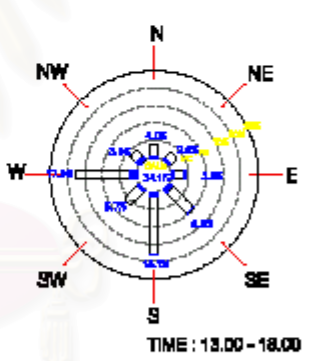
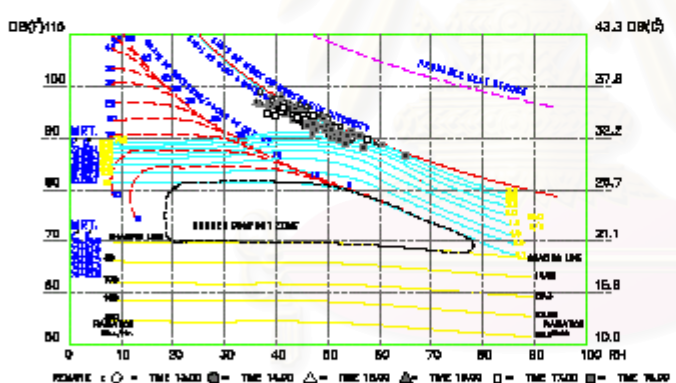
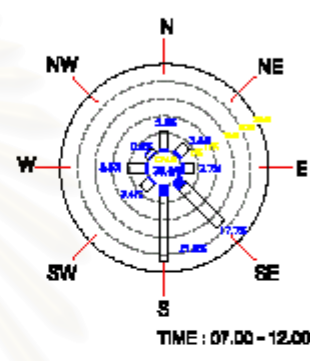
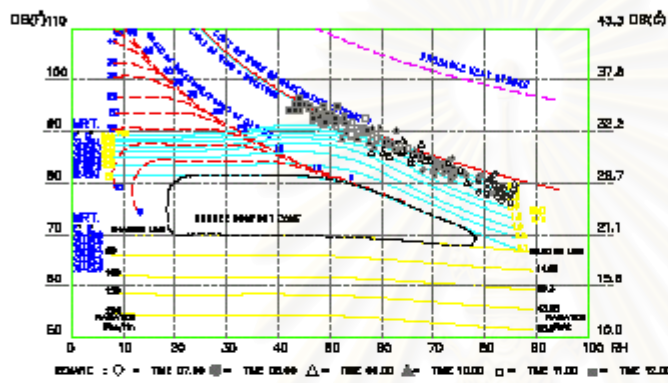
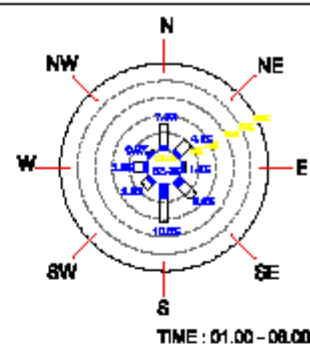
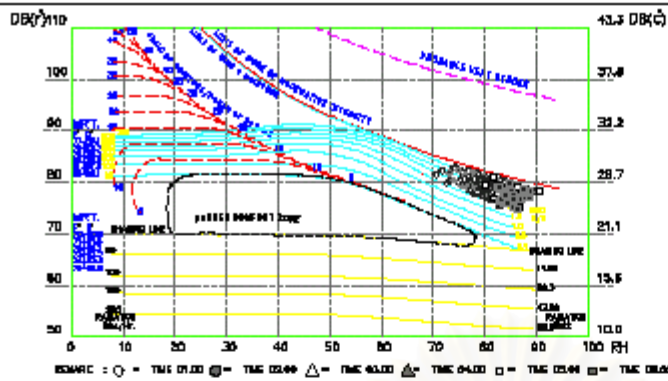
BIOCLIMATIC CHART & WIND ROSE : FEBRUARY 1981-1988 (2524-2541) Station : **UBON RATCHATHANI**



BIOCLIMATIC CHART & WIND ROSE : MARCH 1981-1996 (2524-2541) Station : UBON RATCHATHANI



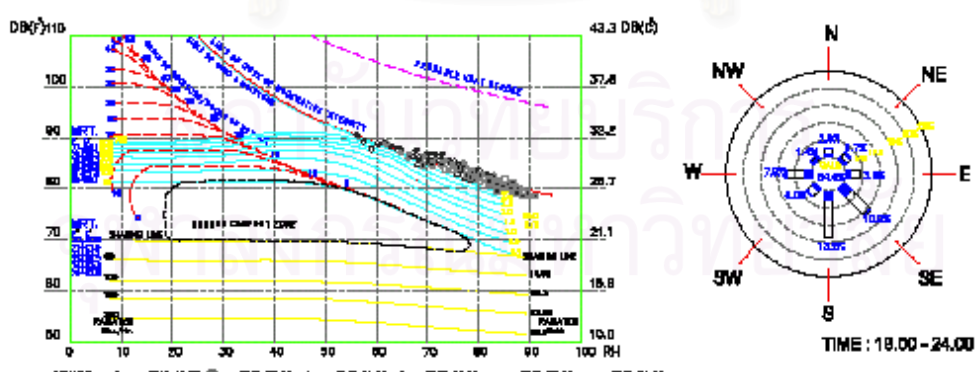
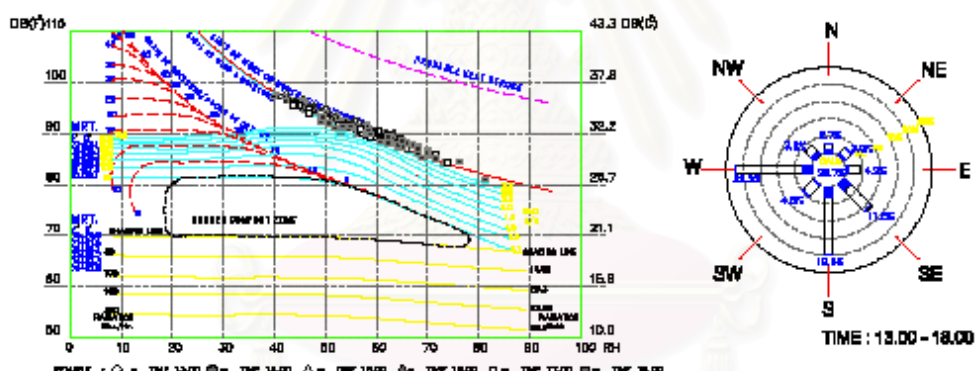
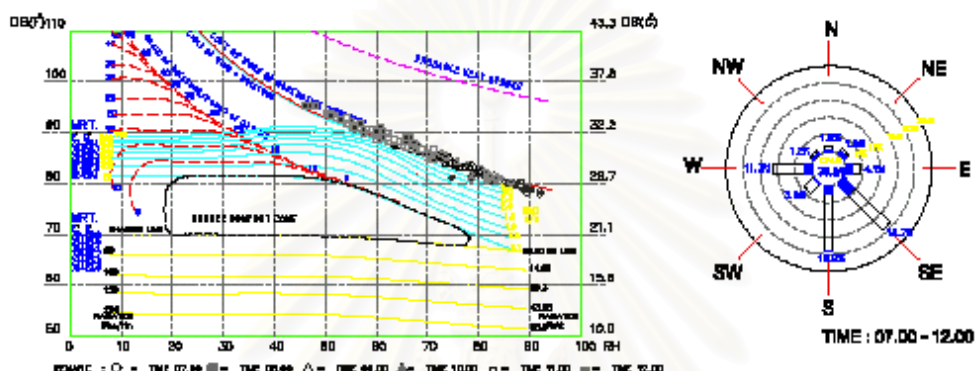
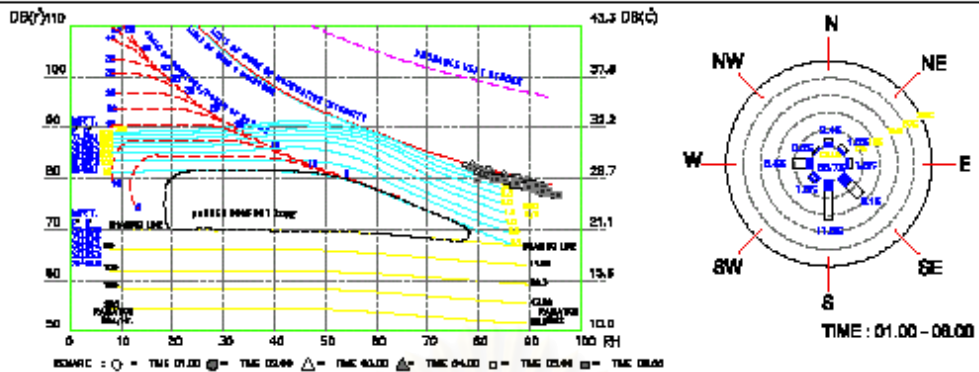
BIOCLIMATIC CHART & WIND ROSE : APRIL 1981-1988 (2824-2841) Station : LIBON RATCHATHANI



BIOCLIMATIC CHART

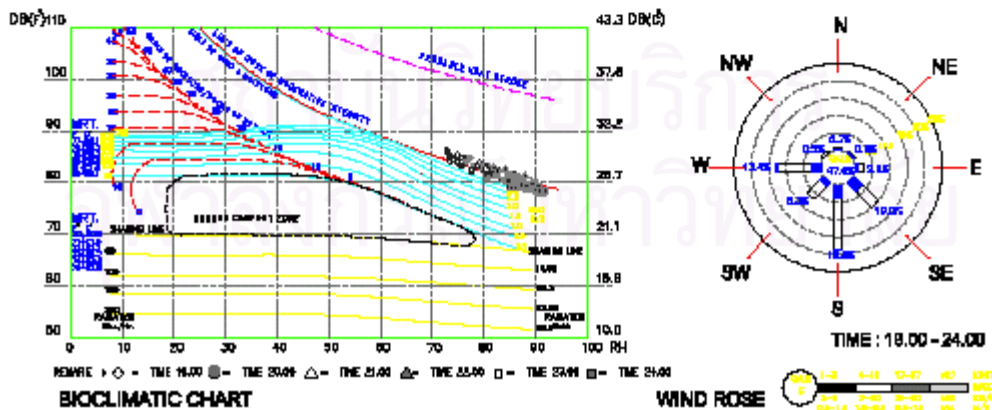
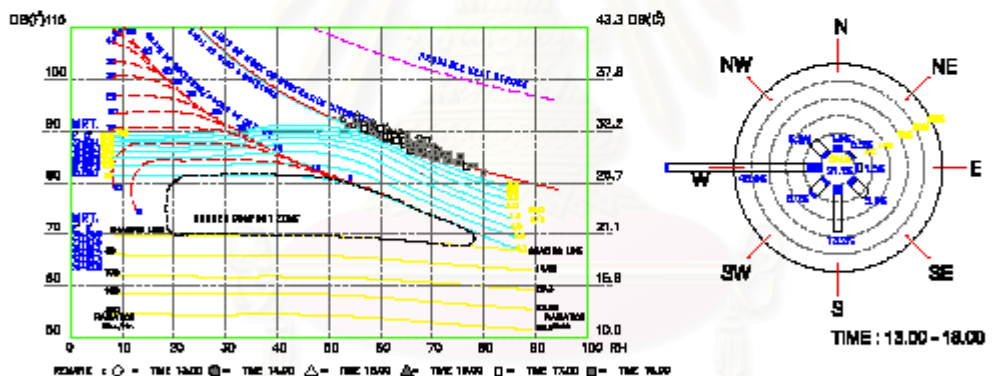
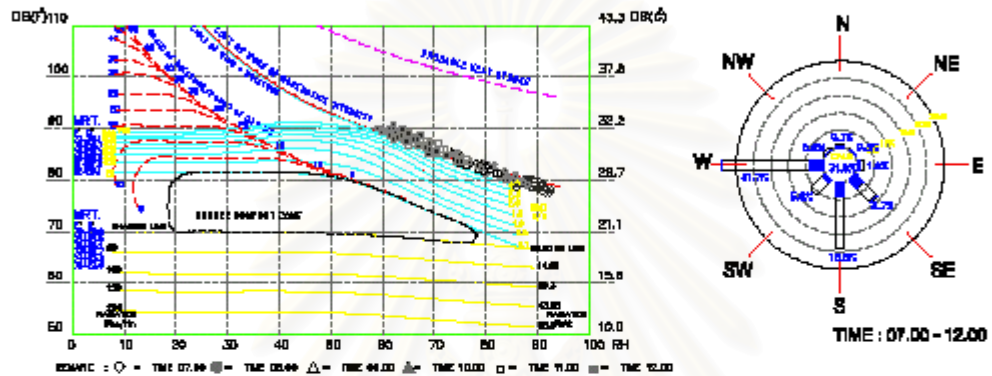
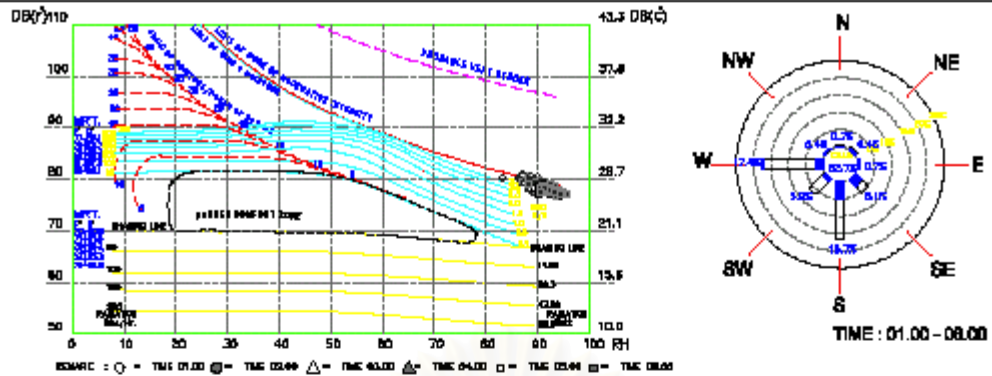
WIND ROSE

BIOCLIMATIC CHART & WIND ROSE : MAY 1981-1990 (2524-2641) Station : UBON RATCHATHANI



BIOCLIMATIC CHART WIND ROSE

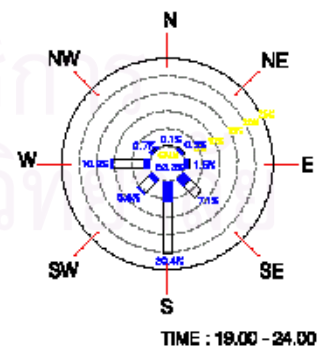
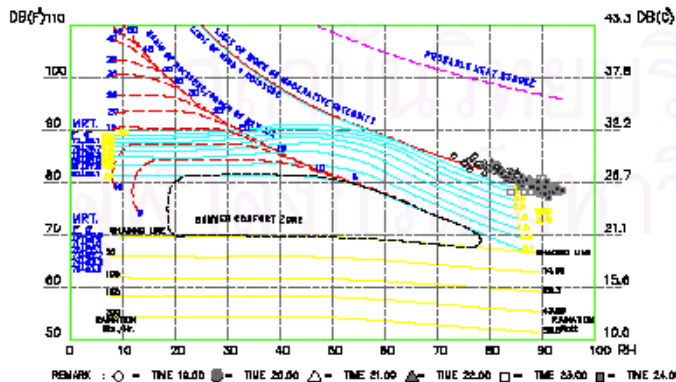
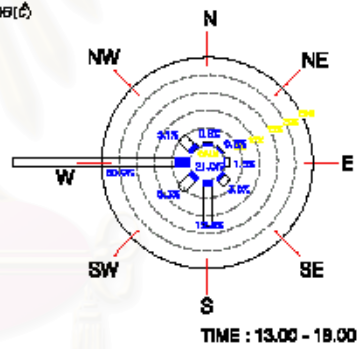
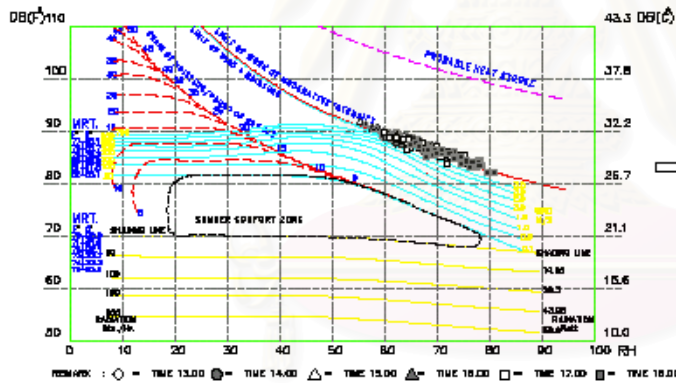
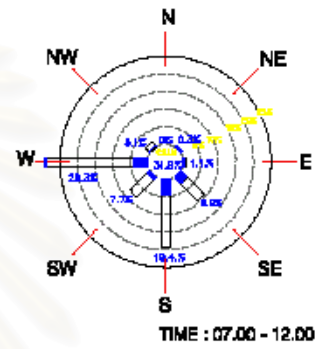
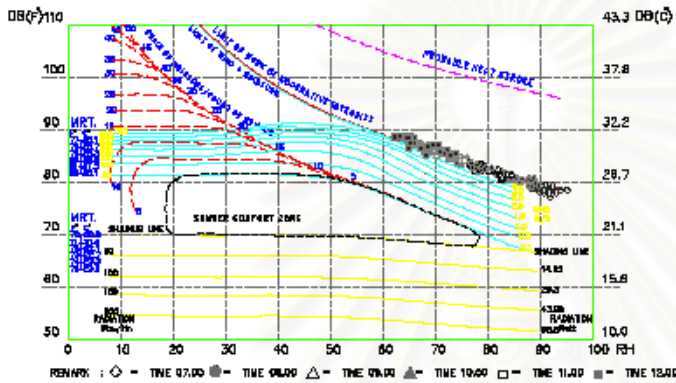
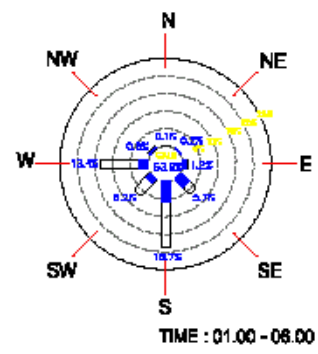
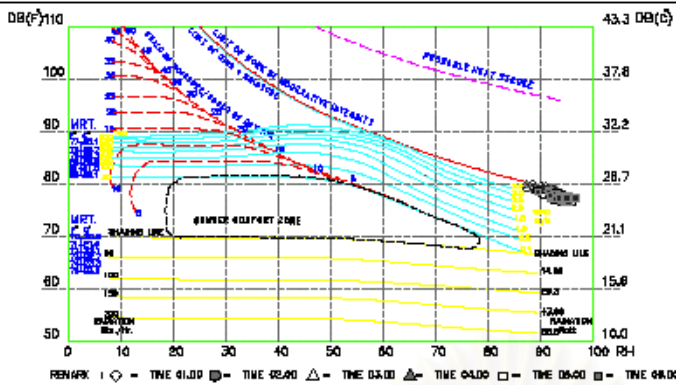
BIOCLIMATIC CHART & WIND ROSE : JUNE 1981-1998 (2824-2841) Station : UBON RATCHATHANI



BIOCLIMATIC CHART

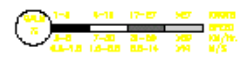
WIND ROSE

BIOCLIMATIC CHART & WIND ROSE : JULY 1991-1999 (2524-2541) Station : UBON RATCHATHANI

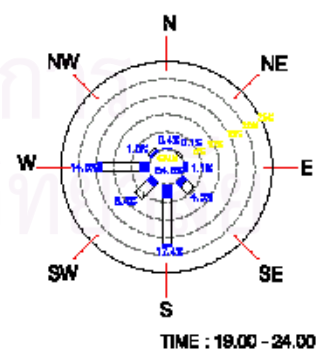
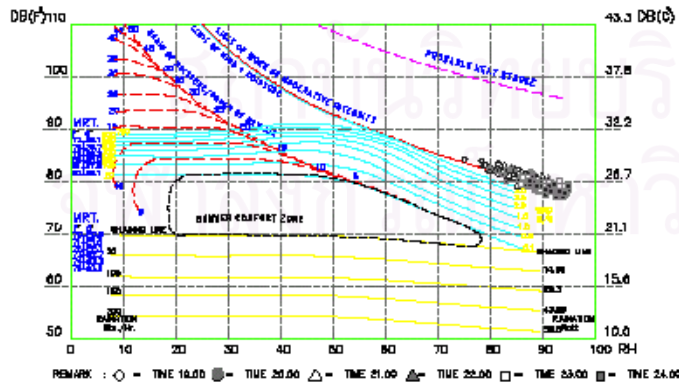
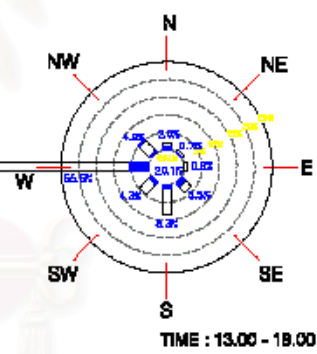
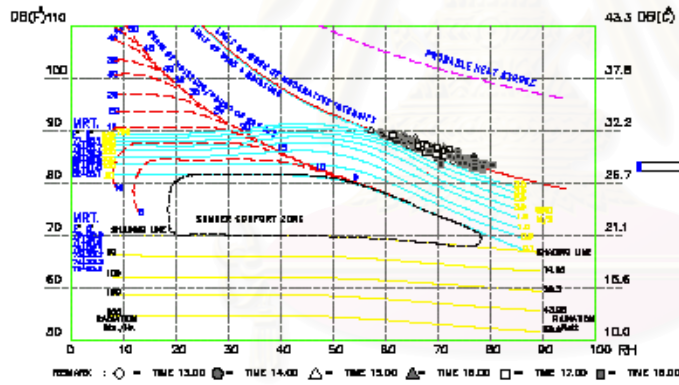
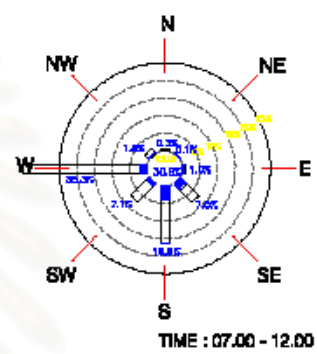
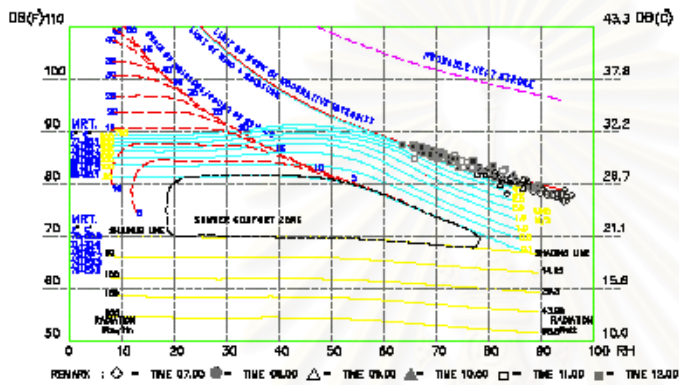
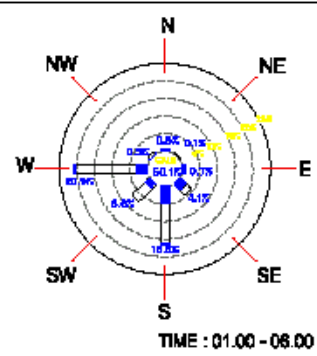
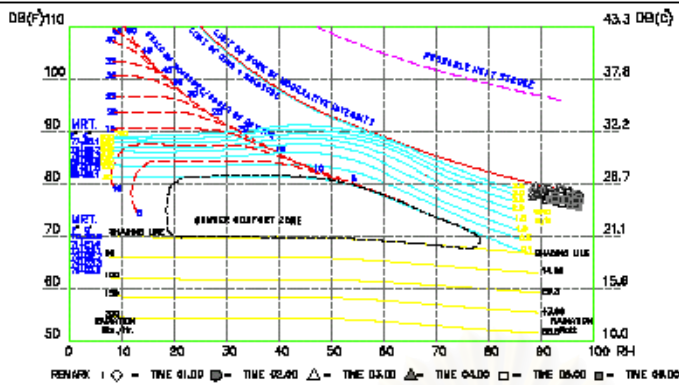


BIOCLIMATIC CHART

WIND ROSE



BIOCLIMATIC CHART & WIND ROSE : AUGUST 1981-1999 (2524-2541) Station : UBON RATCHATHANI

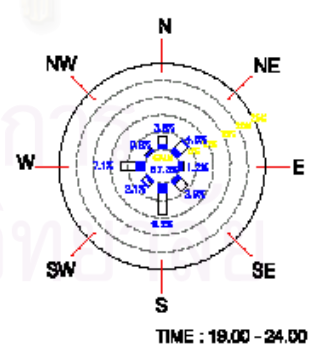
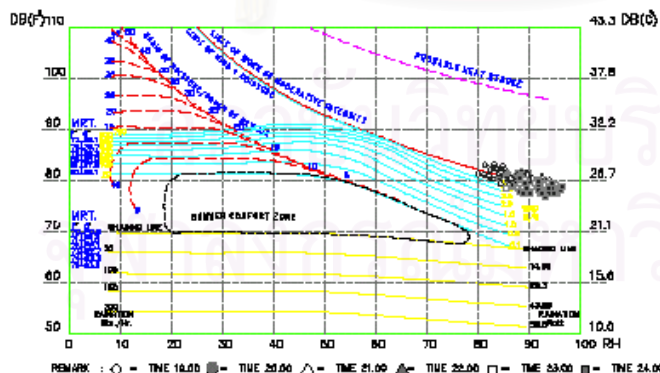
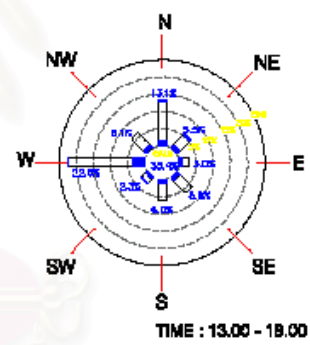
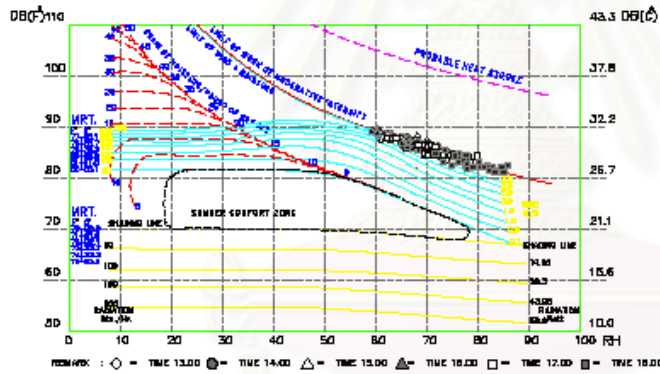
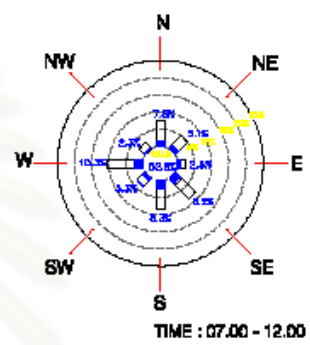
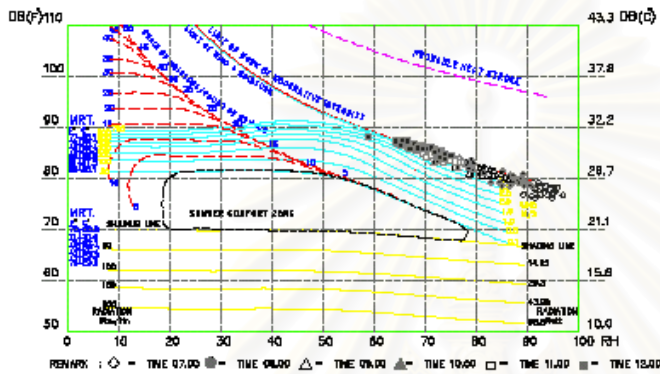
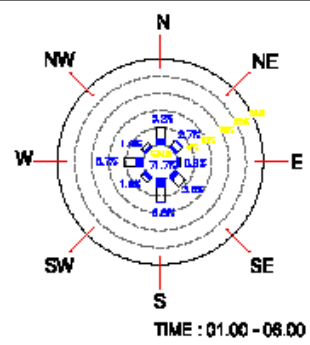
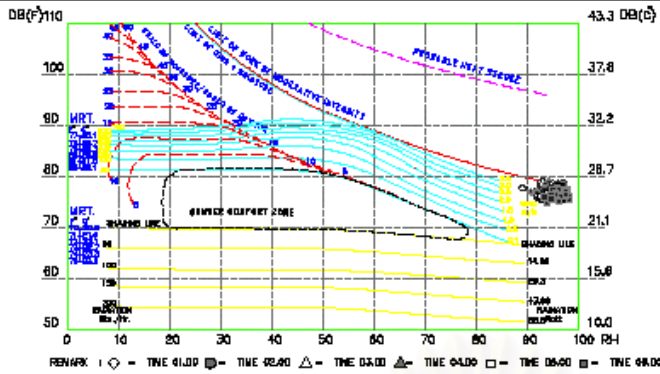


BIOCLIMATIC CHART

WIND ROSE



BIOCLIMATIC CHART & WIND ROSE : SEPTEMBER 1061-1006 (2524-2541) Station : UBON RATCHATHANI

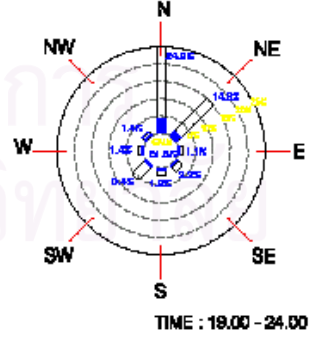
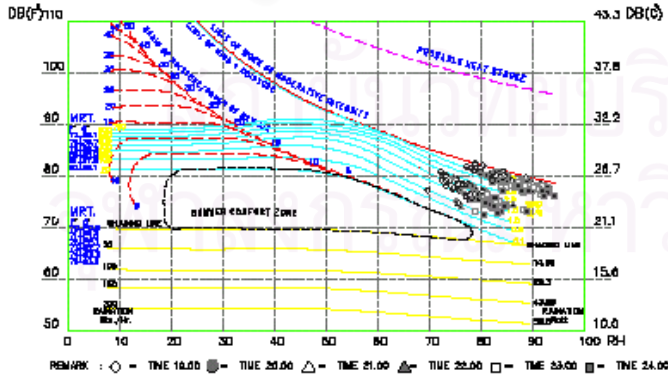
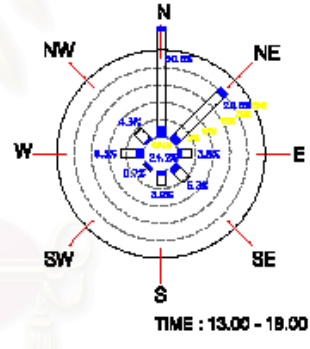
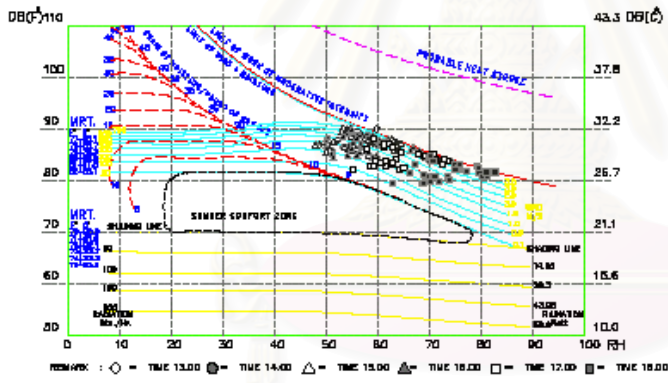
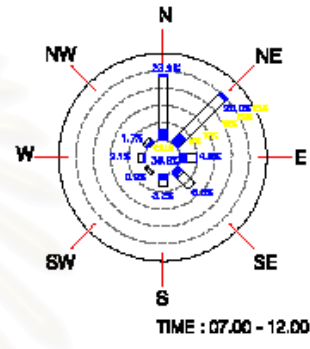
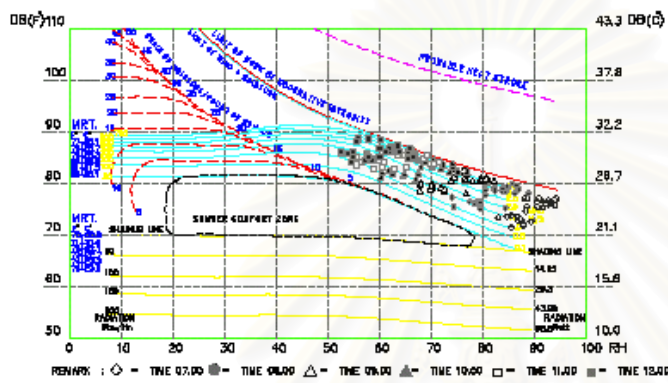
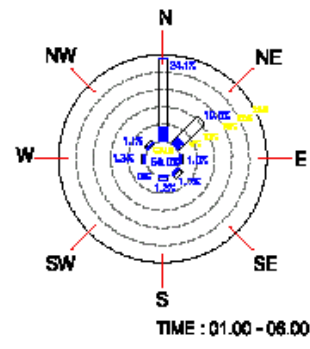
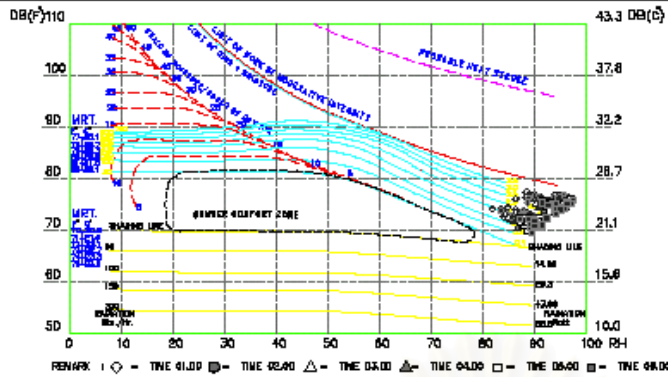


BIOCLIMATIC CHART

WIND ROSE



BIOCLIMATIC CHART & WIND ROSE : OCTOBER 1991-1999 (2524-2541) Station : UBON RATCHATHANI

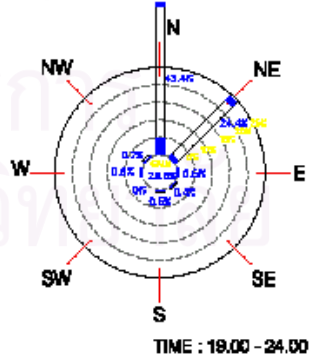
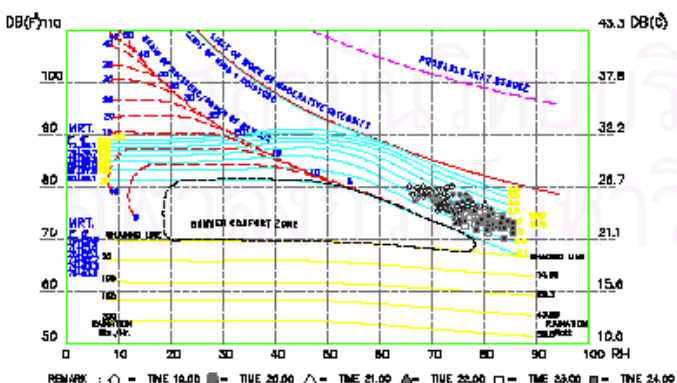
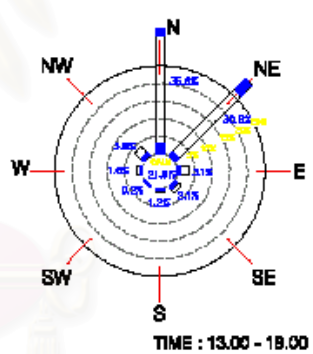
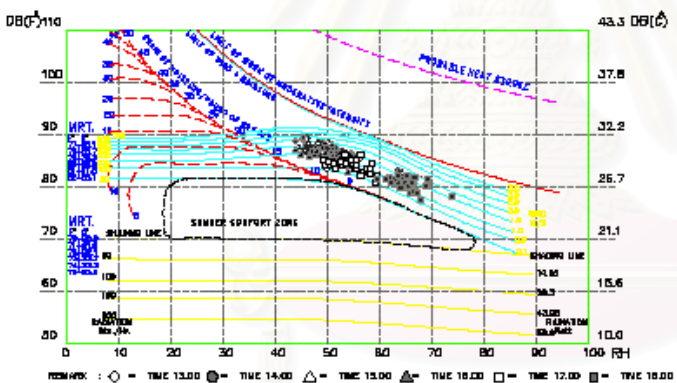
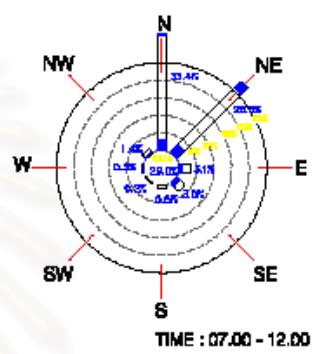
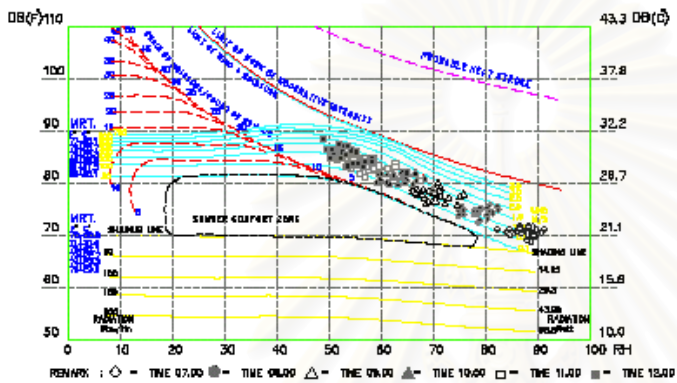
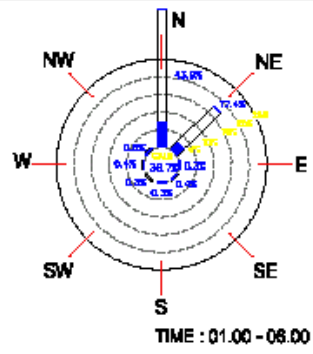
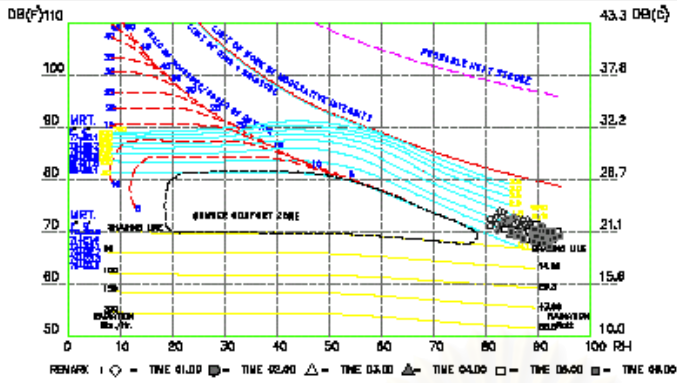


BIOCLIMATIC CHART

WIND ROSE



BIOCLIMATIC CHART & WIND ROSE : NOVEMBER 1881-1888 (2524-2541) Station : UBON RATCHATHANI

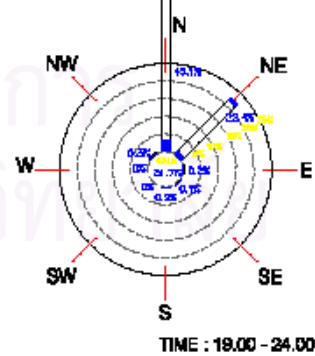
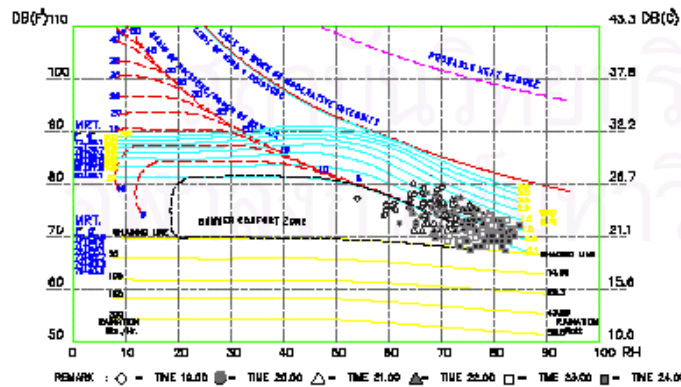
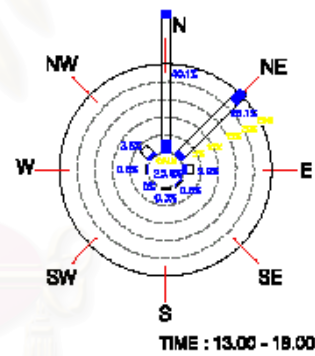
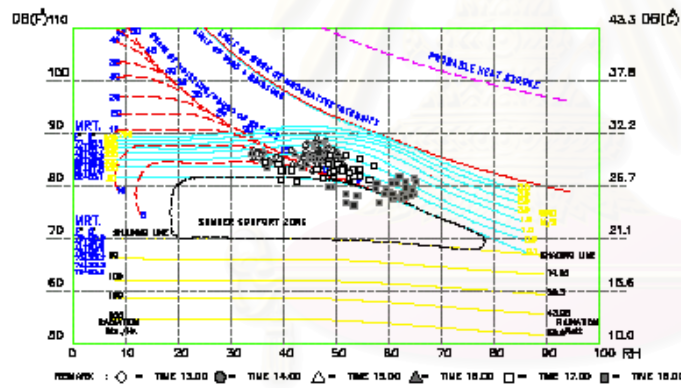
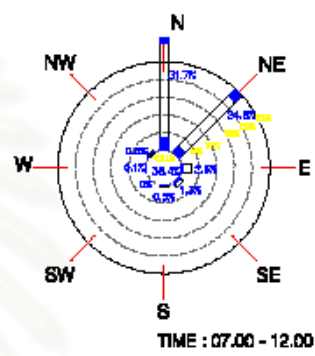
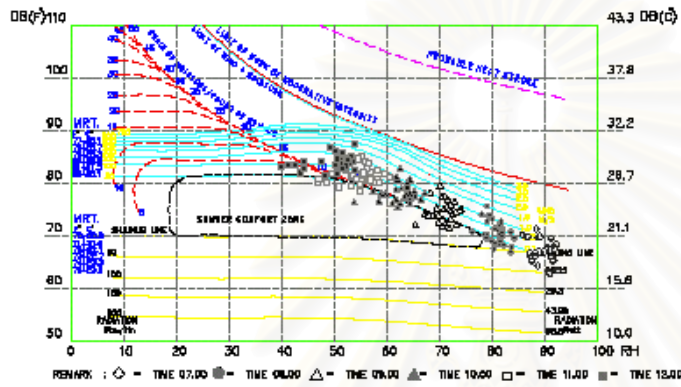
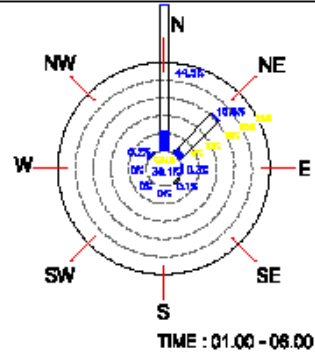
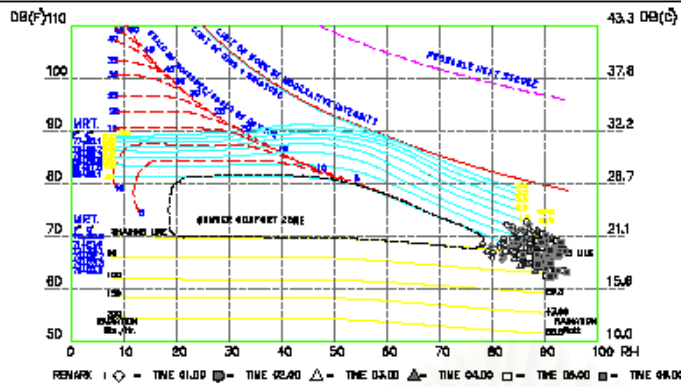


BIOCLIMATIC CHART

WIND ROSE



BIOCLIMATIC CHART & WIND ROSE : DECEMBER 1991-1999 (2524-2541) Station : UBON RATCHATHANI



BIOCLIMATIC CHART

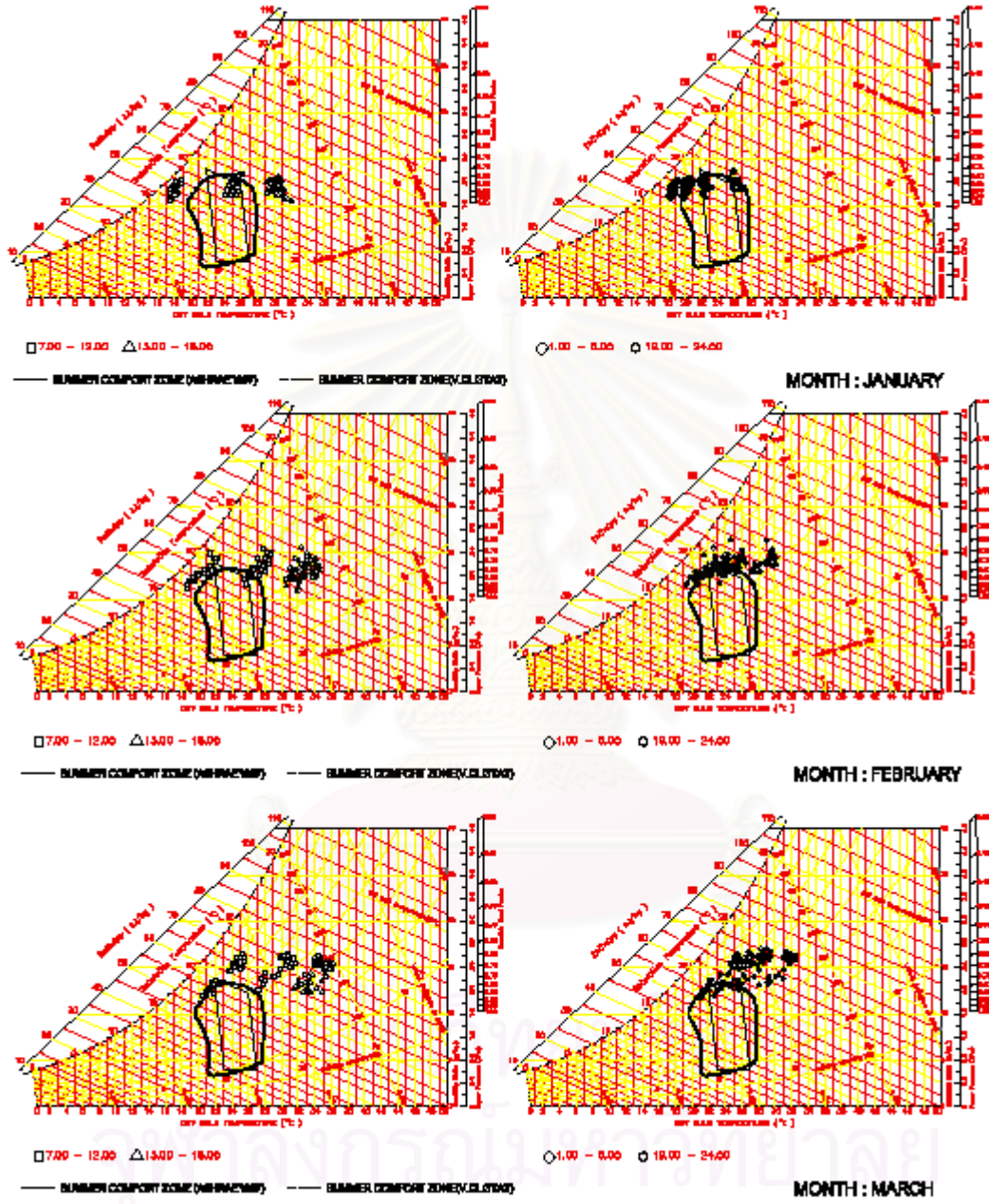
WIND ROSE



แผนภูมิความสัมพันธ์ระหว่างข้อมูลสภาพอากาศ ในแผนภูมิไซโครเมตริก (psychrometric chart) แยกตามช่วงเวลา

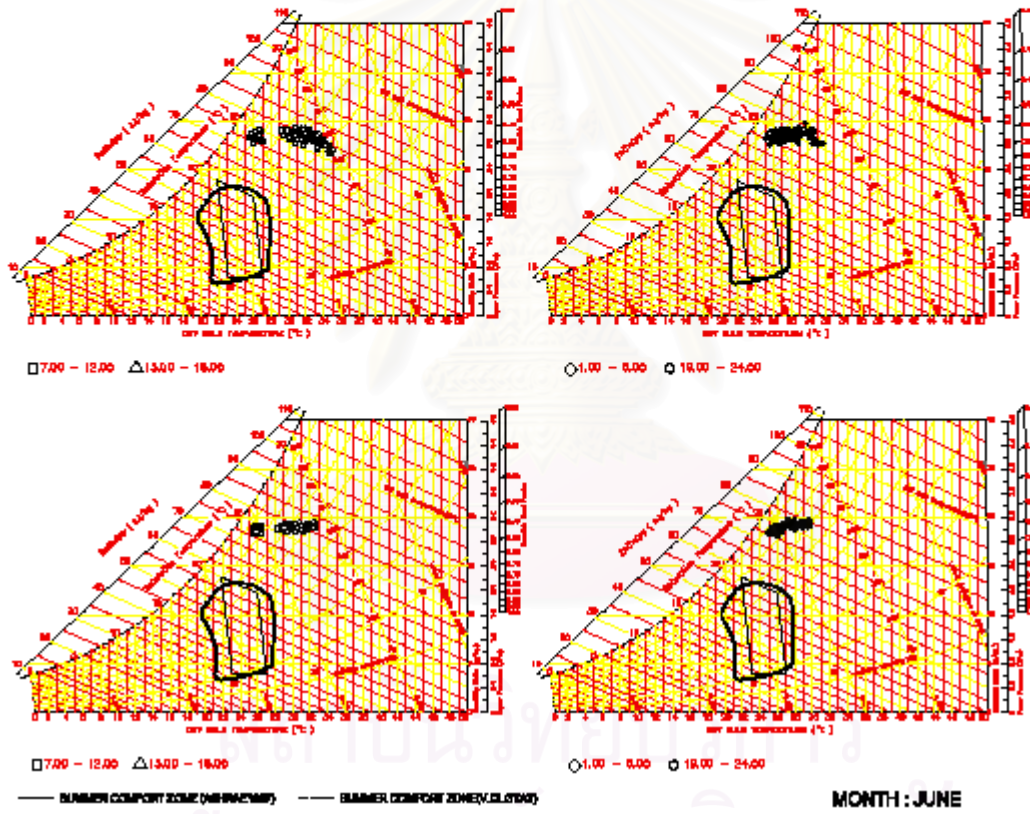
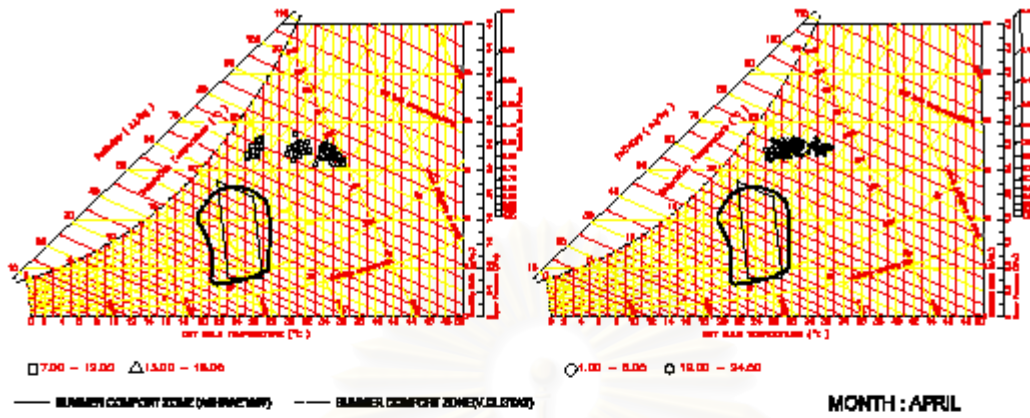
PSYCHROMETRIC CHART 1986-1998(2529-2541)

STATION : UBON RATCHATHANI



PSYCHROMETRIC CHART 1986-1998(2529-2541)

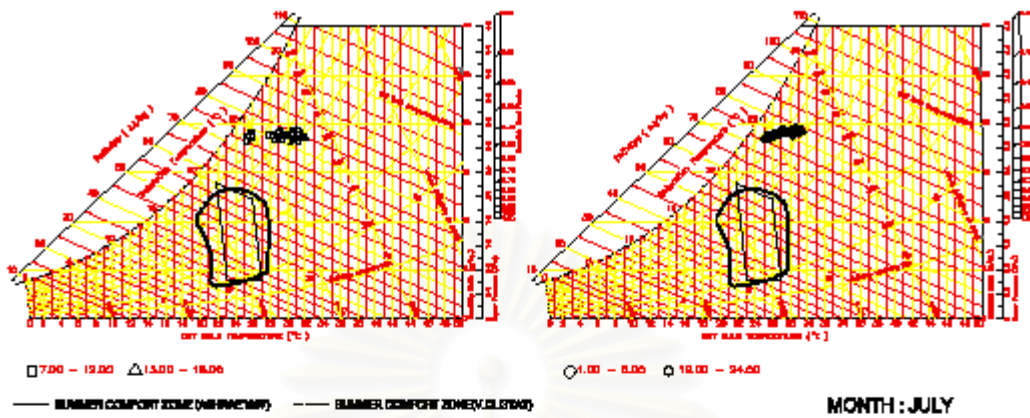
STATION : UBON RATCHATHANI



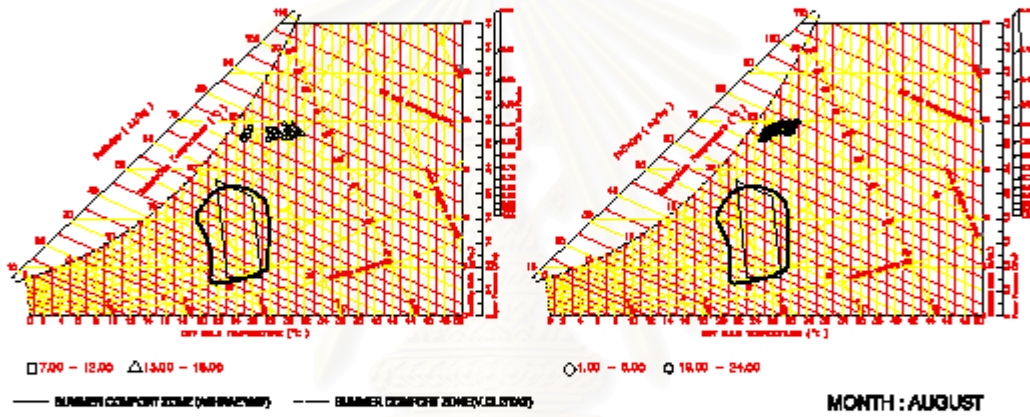
จุฬาลงกรณ์มหาวิทยาลัย

PSYCHROMETRIC CHART 1986-1998(2529-2541)

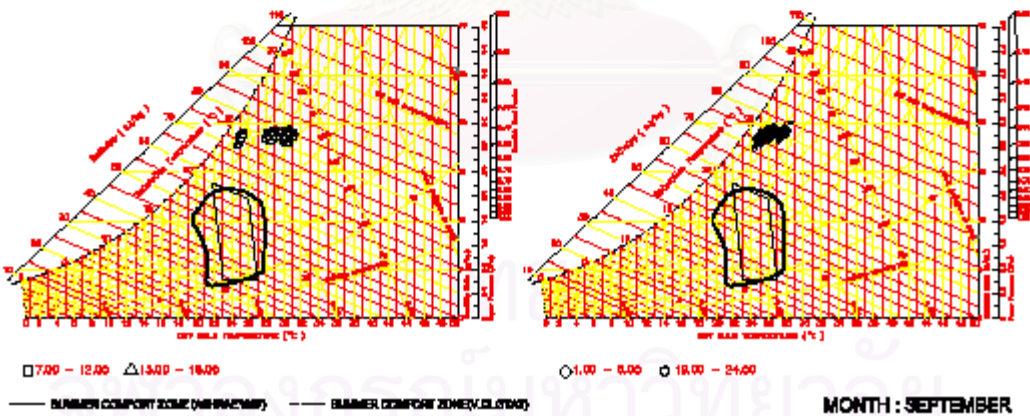
STATION : UBON RATCHATHANI



MONTH : JULY



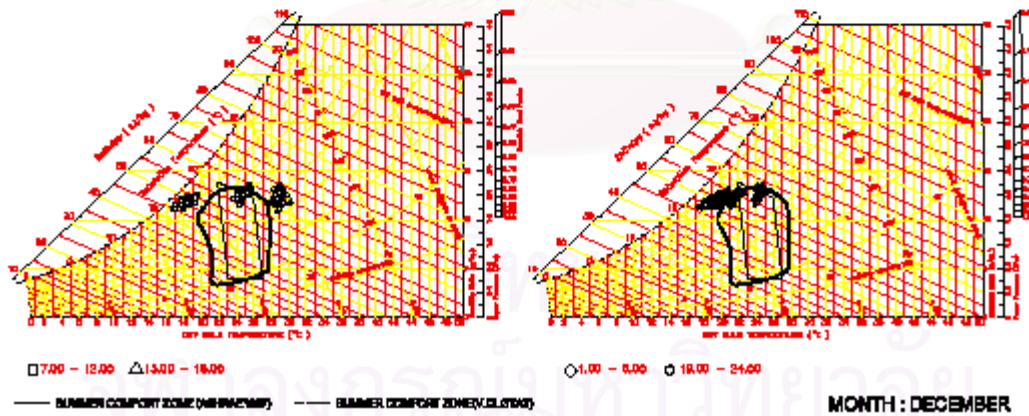
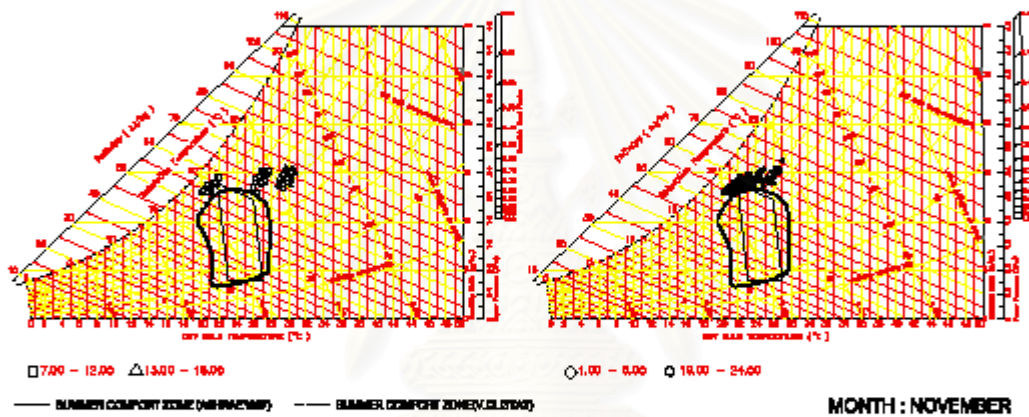
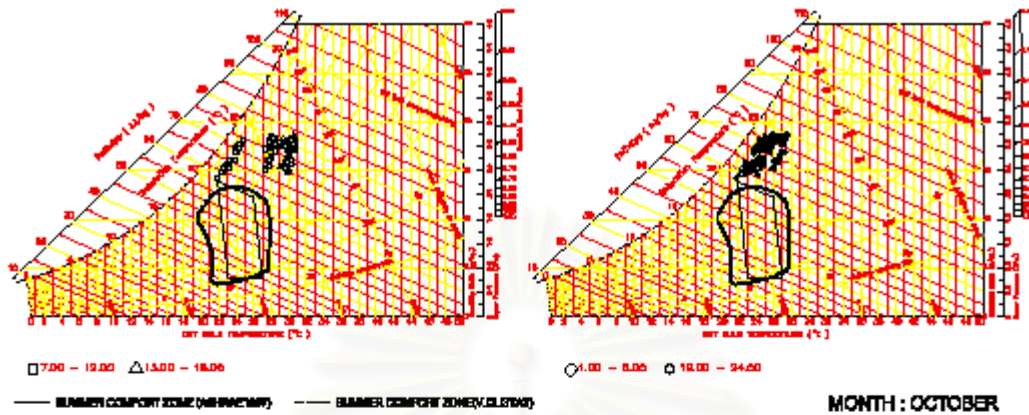
MONTH : AUGUST



MONTH : SEPTEMBER

PSYCHROMETRIC CHART 1986-1998(2529-2541)

STATION : UBON RATCHATHANI



ตารางแสดงผลข้อมูลจำนวนรายชั่วโมงอุณหภูมิกระเปาะแห้ง และค่าเฉลี่ยอุณหภูมิกระเปาะเปียกที่เกิดขึ้น
จำแนกตามช่วงอุณหภูมิกระเปาะแห้ง (bin data) ในแต่ละช่วงเวลา

ANNUAL BIN-HOUR WEATHER DATA							STATION : UBON RATCHATHANI		
Hours of occurrence of DB in each bin with MCWB in parentheses							year : 1994		
Temperature range	Observation hour group						Total Observation	MCWB	Temperature range
	01:00 to 04:00	05:00 to 08:00	09:00 to 12:00	13:00 to 16:00	17:00 to 20:00	21:00 to 24:00			
$^{\circ}\text{C}$	Annual							$^{\circ}\text{F}$	
	DB MCWB	DB MCWB	DB MCWB	DB MCWB	DB MCWB	DB MCWB	Total MCWB		
40.6 / 42.8								105 / 109	
37.8 / 40.0				17 (26.2)	7 (25.6)		24 (25.9)	100 / 104	
35.0 / 37.2			22 (26.1)	187 (25.7)	54 (25.9)		263 (25.9)	95 / 99	
32.2 / 34.4			151 (25.8)	477 (25.5)	184 (25.4)	7 (25.6)	819 (25.6)	90 / 94	
29.4 / 31.7	11 (24.4)	18 (24.0)	516 (24.8)	566 (24.5)	436 (25.0)	116 (24.6)	1,663 (24.5)	85 / 89	
26.7 / 28.9	286 (24.9)	238 (24.6)	529 (23.8)	178 (23.6)	519 (24.1)	524 (24.5)	2,274 (24.3)	80 / 84	
23.9 / 26.1	673 (23.2)	661 (23.3)	175 (22.5)	26 (23.1)	222 (22.5)	571 (23.0)	2,328 (22.9)	75 / 79	
21.1 / 23.3	290 (21.2)	285 (21.4)	51 (19.4)	4 (19.5)	31 (19.8)	185 (20.4)	846 (20.3)	70 / 74	
18.3 / 20.6	161 (17.5)	173 (18.0)	10 (16.9)	5 (20.7)	7 (16.3)	50 (16.9)	406 (17.7)	65 / 69	
15.6 / 17.8	31 (15.4)	70 (15.8)	6 (15.7)			6 (13.5)	113 (15.1)	60 / 64	
12.8 / 15.0	8 (12.4)	14 (12.6)				1 (12.4)	23 (12.4)	55 / 59	
10.0 / 12.2		1 (10.8)					1 (10.8)	50 / 54	
7.2 / 9.4								45 / 49	
4.4 / 6.7								40 / 44	
1.7 / 3.9								35 / 39	

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BIN-HOUR WEATHER DATA Hours of occurrence of DB in each bin with MCWB in parentheses																	STATION : UBON RATCHATHANI										
Temperature range	Observation hour group						Total Observation	MCWB	Observation hour group						Total Observation	MCWB	Temperature range										
	01:00 to 04:00	05:00 to 08:00	09:00 to 12:00	13:00 to 16:00	17:00 to 20:00	21:00 to 24:00			01:00 to 04:00	05:00 to 08:00	09:00 to 12:00	13:00 to 16:00	17:00 to 20:00	21:00 to 24:00				01:00 to 04:00	05:00 to 08:00	09:00 to 12:00	13:00 to 16:00	17:00 to 20:00	21:00 to 24:00				
°C	January							February							March							°F					
40.6 / 42.8																											105 / 109
37.8 / 40.0																											100 / 104
35.0 / 37.2																											95 / 99
32.2 / 34.4																											90 / 94
29.4 / 31.7																											85 / 89
26.7 / 28.9																											80 / 84
23.9 / 26.1																											75 / 79
21.1 / 23.3																											70 / 74
18.3 / 20.6																											65 / 69
15.6 / 17.8																											60 / 64
12.8 / 15.0																											55 / 59
10.0 / 12.2																											50 / 54
7.2 / 9.4																											45 / 49
4.4 / 6.7																											40 / 44
1.7 / 3.9																											35 / 39
°C	April							May							June							°F					
40.6 / 42.8																											105 / 109
37.8 / 40.0																											100 / 104
35.0 / 37.2																											95 / 99
32.2 / 34.4																											90 / 94
29.4 / 31.7																											85 / 89
26.7 / 28.9																											80 / 84
23.9 / 26.1																											75 / 79
21.1 / 23.3																											70 / 74
18.3 / 20.6																											65 / 69
15.6 / 17.8																											60 / 64
12.8 / 15.0																											55 / 59
10.0 / 12.2																											50 / 54
7.2 / 9.4																											45 / 49
4.4 / 6.7																											40 / 44
1.7 / 3.9																											35 / 39

NOTE: MCWB = Mean coincident wet-bulb temperature (number in parentheses) °C Temperature (Celsius deg.) °C = (deg F-32) * 5 / 9

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BIN-HOUR WEATHER DATA Hours of occurrence of DB in each bin with MCWB in parentheses																				STATION : UBON RATCHATHANI					
Temperature range	Observation hour group						Total Observation	MCWB	Observation hour group						Total Observation	MCWB	Observation hour group						Total Observation	MCWB	Temperature range
	01.00	05.00	09.00	13.00	17.00	21.00			01.00	05.00	09.00	13.00	17.00	21.00			01.00	05.00	09.00	13.00	17.00	21.00			
	to	to	to	to	to	to			to	to	to	to	to	to			to	to	to	to	to	to			
	04.00	08.00	12.00	16.00	20.00	24.00		04.00	08.00	12.00	16.00	20.00	24.00		04.00	08.00	12.00	16.00	20.00	24.00					
°C	July						August						September						°F						
40.6 / 42.8																					105 / 109				
37.8 / 40.0																					100 / 104				
35.0 / 37.2																					95 / 99				
32.2 / 34.4																					90 / 94				
29.4 / 31.7																					85 / 89				
26.7 / 28.9																					80 / 84				
23.9 / 26.1																					75 / 79				
21.1 / 23.3																					70 / 74				
18.3 / 20.6																					65 / 69				
15.6 / 17.8																					60 / 64				
12.8 / 15.0																					55 / 59				
10.0 / 12.2																					50 / 54				
7.2 / 9.4																					45 / 49				
4.4 / 6.7																					40 / 44				
1.7 / 3.9																					35 / 39				
°C	October						November						December						°F						
40.6 / 42.8																					105 / 109				
37.8 / 40.0																					100 / 104				
35.0 / 37.2																					95 / 99				
32.2 / 34.4																					90 / 94				
29.4 / 31.7																					85 / 89				
26.7 / 28.9																					80 / 84				
23.9 / 26.1																					75 / 79				
21.1 / 23.3																					70 / 74				
18.3 / 20.6																					65 / 69				
15.6 / 17.8																					60 / 64				
12.8 / 15.0																					55 / 59				
10.0 / 12.2																					50 / 54				
7.2 / 9.4																					45 / 49				
4.4 / 6.7																					40 / 44				
1.7 / 3.9																					35 / 39				

NOTE: MCWB = Mean coincident wet-bulb temperature (number in parentheses) °C

Temperature (Celsius deg.) C = (deg F-32) * 5 / 9

สถาบันวิทยบริการ
จุฬาลงกรณ์มหาวิทยาลัย

ตารางแสดงผลข้อมูลปริมาณองศาชั่วโมง การทำความร้อนและการทำความเย็น (degree hours and hours of occurrence)

DEGREE HOURS & HOURS OF OCCURRENCE						Station :UBON RATCHATHANI		
						YEARS : 1981 - 1998 (2524-2541)		
TEMPERATURE		MEAN TEMP.DEGREE (°F)	NO. OF HOURS BELOW TEMPERATURE	NO. OF DEGREE HOURS OF HEATING BELOW TEMPERATURE		NO. OF HOURS ABOVE TEMPERATURE	NO. OF DEGREE HOURS OF COOLING ABOVE TEMPERATURE	
Degree		HOURS OF OCCURRENCE						
°F	°C			°F	°C		°F	°C
35	1.7	(37.5)	-	-	-	8,784.00	404,271.60	224,370.74
36	2.2		-	-	-	8,784.00	395,487.60	219,495.62
37	2.8	0	-	-	-	8,784.00	386,703.60	214,620.50
38	3.3		-	-	-	8,784.00	377,919.60	209,745.38
39	3.9		-	-	-	8,784.00	369,135.60	204,870.26
40	4.4	(42.5)	-	-	-	8,784.00	360,351.60	199,995.14
41	5.0		-	-	-	8,784.00	351,567.60	195,120.02
42	5.6	0	-	-	-	8,784.00	342,783.60	190,244.90
43	6.1		-	-	-	8,784.00	333,999.60	185,369.78
44	6.7		-	-	-	8,784.00	325,215.60	180,494.66
45	7.2	(47.5)	-	-	-	8,784.00	316,431.60	175,619.54
46	7.8		-	-	-	8,784.00	307,647.60	170,744.42
47	8.3	0	-	-	-	8,784.00	298,863.60	165,869.30
48	8.9		-	-	-	8,784.00	290,079.60	160,994.18
49	9.4		-	-	-	8,784.00	281,295.60	156,119.06
50	10.0	52.5	-	-	-	8,784.00	272,511.60	151,243.94
51	10.6		-	-	-	8,784.00	263,727.60	146,368.82
52	11.1	0	-	-	-	8,784.00	254,943.60	141,493.70
53	11.7		-	-	-	8,784.00	246,159.60	136,618.58
54	12.2		-	-	-	8,784.00	237,375.60	131,743.46
55	12.8	(57.5)	-	-	-	8,784.00	228,591.60	126,868.34
56	13.3		-	-	-	8,784.00	219,807.60	121,993.22
57	13.9	0	-	-	-	8,784.00	211,023.60	117,118.10
58	14.4		-	-	-	8,784.00	202,239.60	112,242.98
59	15.0		-	-	-	8,784.00	193,455.60	107,367.86
60	15.6	(62.5)	21.00	-	-	8,784.00	184,671.60	102,492.74
61	16.1		42.00	62.60	29.14	8,763.00	175,887.60	97,617.62
62	16.7	105	63.00	106.00	68.28	8,742.00	167,103.60	92,742.50
63	17.2		84.00	167.60	87.41	8,721.00	158,319.60	87,867.38
64	17.8		105.00	210.00	116.55	8,700.00	149,535.60	82,992.26
65	18.3	(67.5)	217.80	262.60	146.69	8,679.00	140,751.60	78,117.14
66	18.9		330.60	349.60	200.00	8,566.20	131,967.60	73,242.02
67	19.4	564	443.40	1,036.60	575.28	8,453.40	123,183.60	68,366.90
68	20.0		556.20	1,423.60	790.04	8,340.60	114,399.60	63,491.78
69	20.6		669.00	1,810.60	1,004.83	8,227.80	105,615.60	58,616.66

หมายเหตุ : วิธีการหาค่า degree hours ได้จากการคำนวณจากจำนวนชั่วโมง hours of occurrence ที่เกิดขึ้นในแต่ละช่วงอุณหภูมิจุดสมมูลย์ที่พิจารณา โดยอาศัยข้อมูลสภาพอากาศราย 3 ชั่วโมง

DEGREE HOURS & HOURS OF OCCURRENCE									Station :UBON RATCHATHANI		
									YEARS : 1981 - 1998 (2524-2541)		
TEMPERATURE		MEAN TEMP.DEGREE (°F)	NO. OF HOURS BELOW TEMPERATURE	NO. OF DEGREE HOURS OF HEATING BELOW TEMPERATURE		NO. OF HOURS ABOVE TEMPERATURE	NO. OF DEGREE HOURS OF COOLING ABOVE TEMPERATURE				
Degree		HOURS OF OCCURRENCE		°F	°C		°F	°C			
°F	°C										
70	21.1	(72.5)	825.60	2,197.60	1,219.61	8,115.00	99,029.10	54,961.15			
71	21.7		982.20	3,268.00	1,808.19	7,958.40	91,306.60	50,674.61			
72	22.2	783	1,138.80	4,318.60	2,396.77	7,801.80	83,582.10	46,388.07			
73	22.8		1,295.40	5,379.00	2,966.36	7,645.20	75,858.60	42,101.62			
74	23.3		1,452.00	6,439.60	3,573.92	7,488.60	68,136.10	37,814.98			
75	23.9	(77.5)	1,966.80	7,600.00	4,162.60	7,332.00	60,411.60	33,528.44			
76	24.4		2,481.60	10,239.00	5,682.65	6,817.20	54,366.60	30,173.46			
77	25.0	2574	2,996.40	12,978.00	7,202.79	6,302.40	48,321.60	26,818.49			
78	25.6		3,511.20	15,717.00	8,722.94	5,787.60	42,276.60	23,463.61			
79	26.1		4,026.00	18,466.00	10,243.08	5,272.80	36,231.60	20,108.64			
80	26.7	(82.5)	4,437.00	21,196.00	11,763.23	4,758.00	30,186.60	16,763.66			
81	27.2		4,848.00	26,248.60	14,567.92	4,347.00	26,456.10	14,683.14			
82	27.8	2055	5,259.00	31,302.00	17,372.61	3,936.00	22,726.60	12,612.71			
83	28.3		5,670.00	36,366.60	20,177.30	3,525.00	18,996.10	10,542.28			
84	28.9		6,081.00	41,409.00	22,962.00	3,114.00	15,264.60	8,471.86			
85	29.4	(87.5)	6,474.60	46,462.60	25,786.89	2,703.00	11,534.10	6,401.43			
86	30.0		6,868.20	53,527.60	29,707.76	2,309.40	9,816.10	5,447.38			
87	30.6	1968	7,261.80	60,592.60	33,628.84	1,915.80	8,096.10	4,493.34			
88	31.1		7,655.40	67,657.60	37,549.91	1,522.20	6,377.10	3,639.29			
89	31.7		8,049.00	74,722.60	41,470.99	1,128.60	4,658.10	2,586.25			
90	32.2	(92.5)	8,155.20	81,787.60	45,392.06	735.00	2,939.10	1,631.20			
91	32.8		8,261.40	90,102.00	50,006.61	628.80	2,469.60	1,370.63			
92	33.3	531	8,367.60	98,416.60	54,821.16	522.60	2,000.10	1,110.06			
93	33.9		8,473.80	106,731.00	59,236.71	416.40	1,530.60	849.48			
94	34.4		8,580.00	115,045.60	63,860.26	310.20	1,061.10	588.91			
95	35.0	(97.5)	8,620.80	123,360.00	68,484.80	204.00	691.60	328.34			
96	35.6		8,661.60	132,042.00	73,283.31	163.20	448.80	249.08			
97	36.1	204	8,702.40	140,724.00	78,101.82	122.40	306.00	169.83			
98	36.7		8,743.20	149,406.00	82,920.33	81.60	163.20	90.68			
99	37.2		8,784.00	158,088.00	87,738.84	40.80	20.40	11.32			

หมายเหตุ : วิธีการหาค่า degree hours ได้จากการคำนวณจากจำนวนชั่วโมง hours of occurrence ที่เกิดขึ้นในแต่ละช่วงอุณหภูมิจุดสมดุลงที่พิจารณา โดยอาศัยข้อมูลสภาพอากาศราย 3 ชั่วโมง