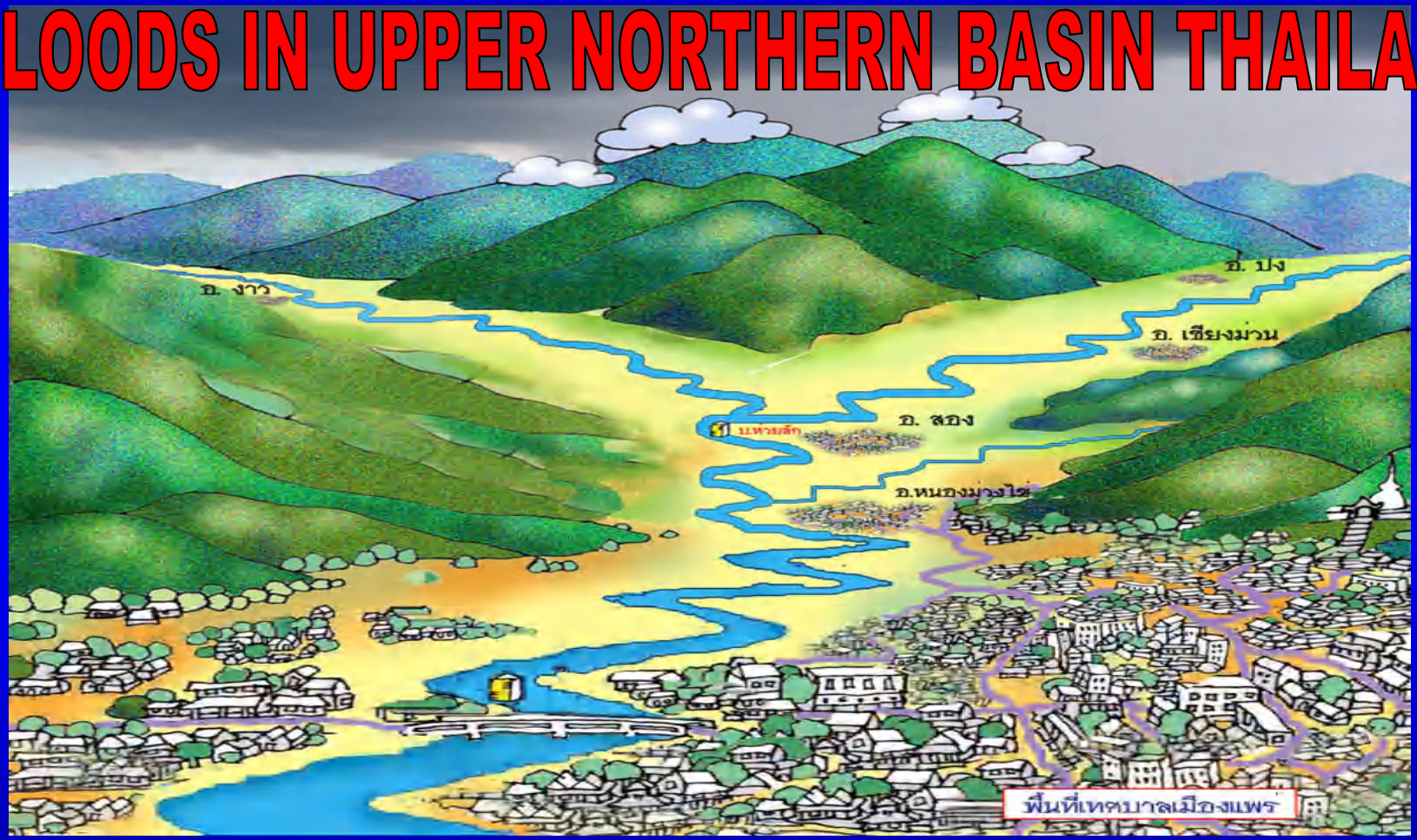
The 7th International Coordination Group (ICG) Meeting

GEOSS Asian Water Cycle Initiative (AWCI)

Tokyo, Japan, 5-6 October 2010

FLOODS IN UPPER NORTHERN BASIN THAILAND



Thada Sukhapunnaphan

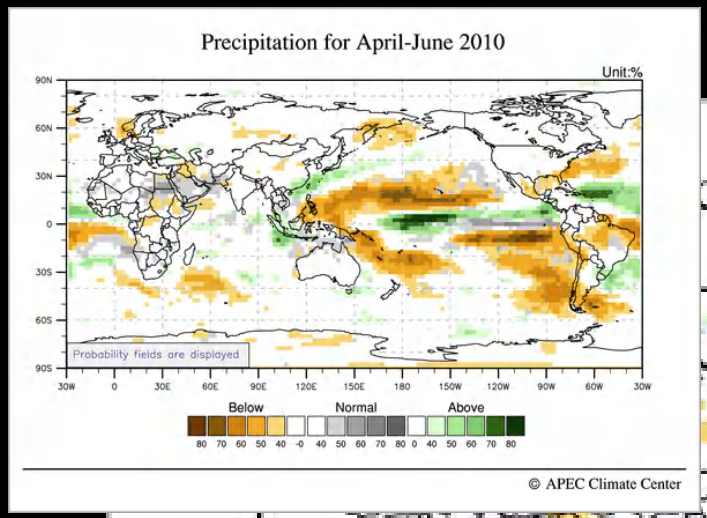
Royal Irrigation Department THAILAND

Factors of flood in Northern Thailand.

Flash flood and over-bank flow inundation trended to occur mostly in the wet season from May to October of each year.

When continuous heavy rain influenced by southwest monsoon from Indian Ocean, tropical storm from South China Sea, low pressure trough or frontal encounter of different pressure air masses.

GLOBAL CLIMATE MONTHLY FORECAST



cipitation for April-June 2010

Unit:%

Probability fields are displayed

30N
0
30S
60S
90S

30W 0 30E 60E 90E 120E 150E 180 150W 120W 90W 60W 30W

Below Normal Above

80 70 60 50 40 -0 40 50 60 70 80 0 40 50 60 70 80

© APEC Climate Center

GLOBAL CLIMATE MONTHLY FORECAST

Precipitation for April-June 2010

Unit:%

90N
60N
30N
0
30S
60S
90S

30W 0 30E 60E 90E 120E 150E 180 150W 120W 90W 60W 30W

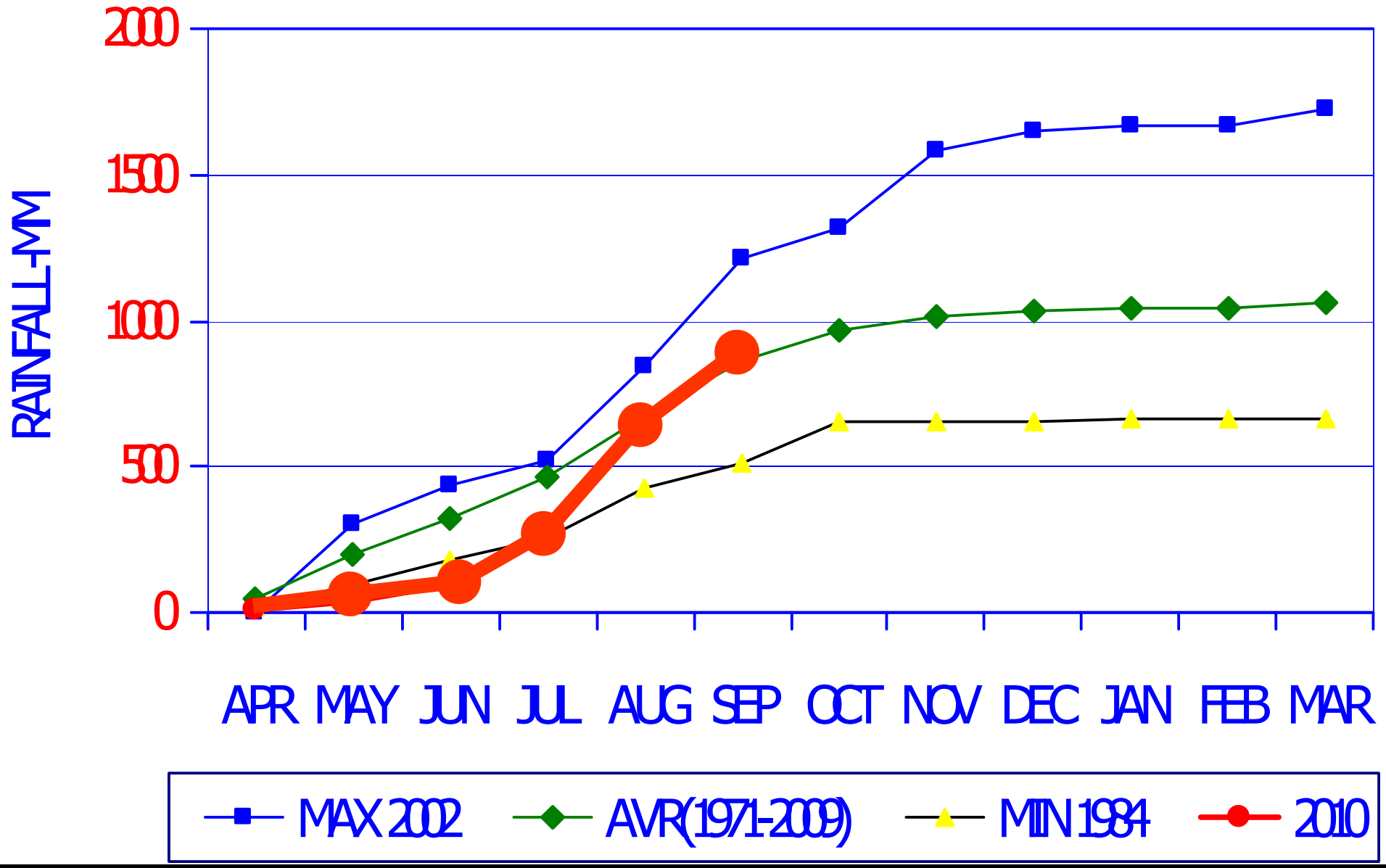
Probability fields are displayed

Below Normal Above

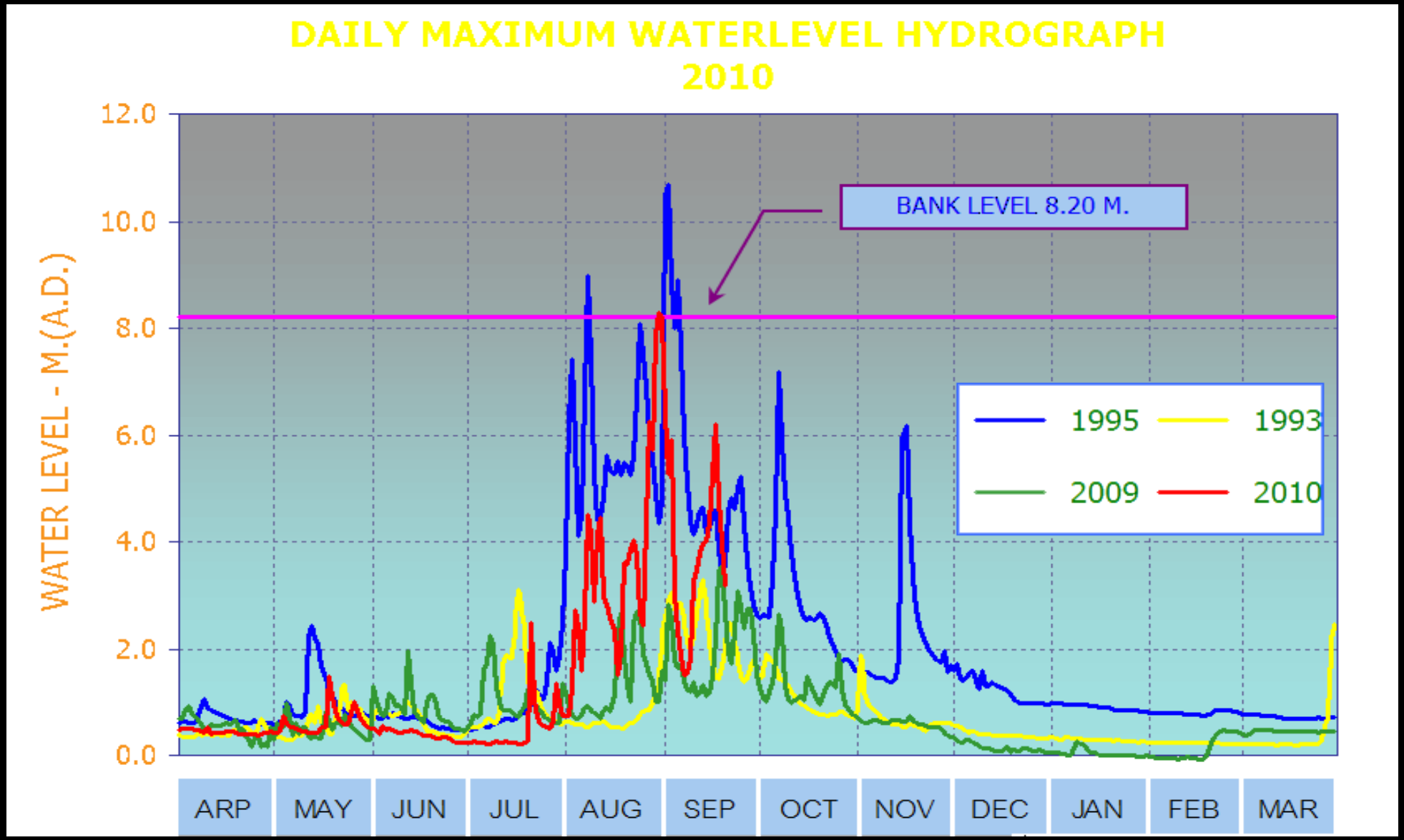
80 70 60 50 40 -0 40 50 60 70 80 0 40 50 60 70 80

CHIANG MAI

ACCUMULATED MONTHLY RAINFALL

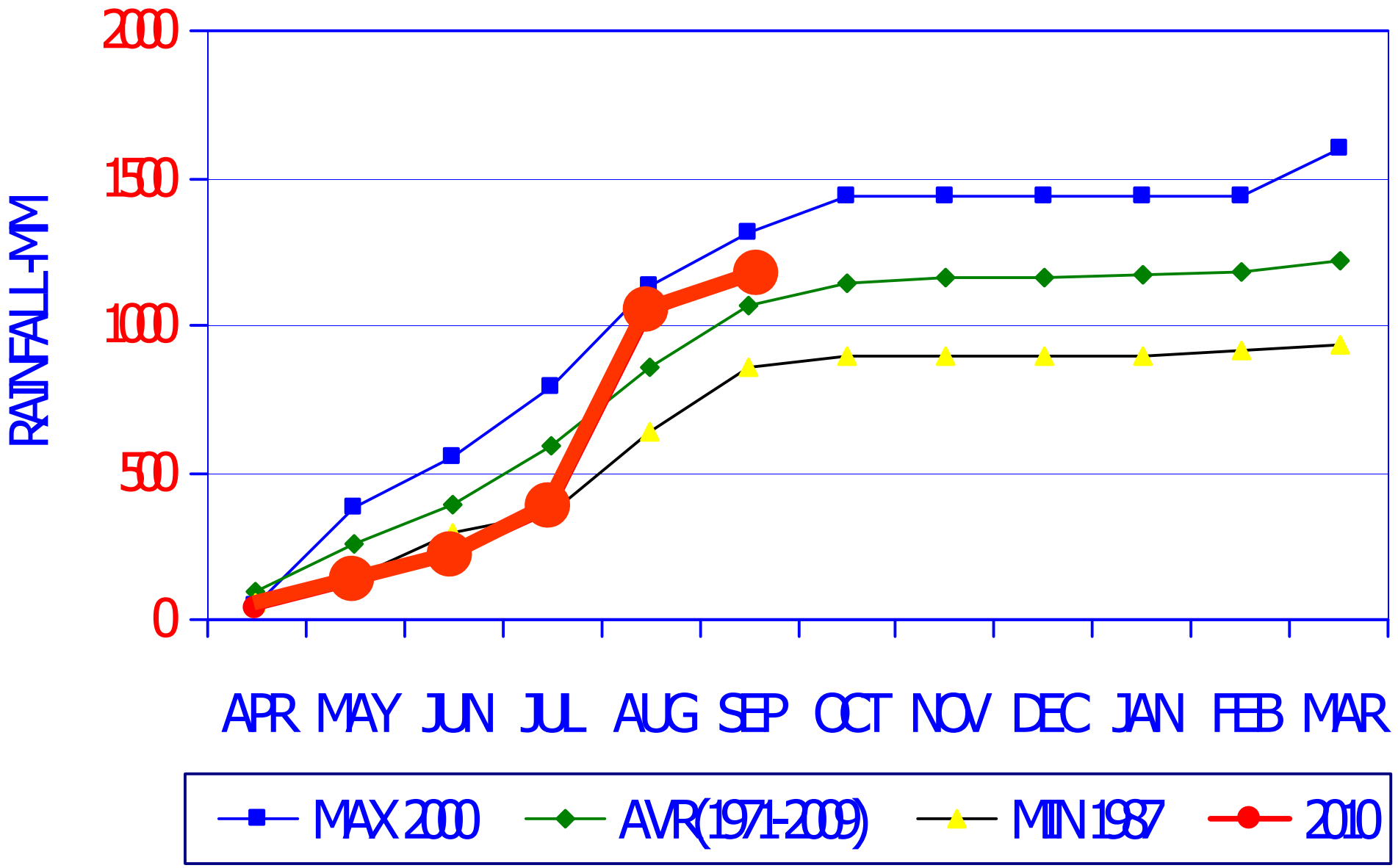


STATION Y.1C YOM RIVER
BAN NAM KHONG, MUANG DIST. PHRAE

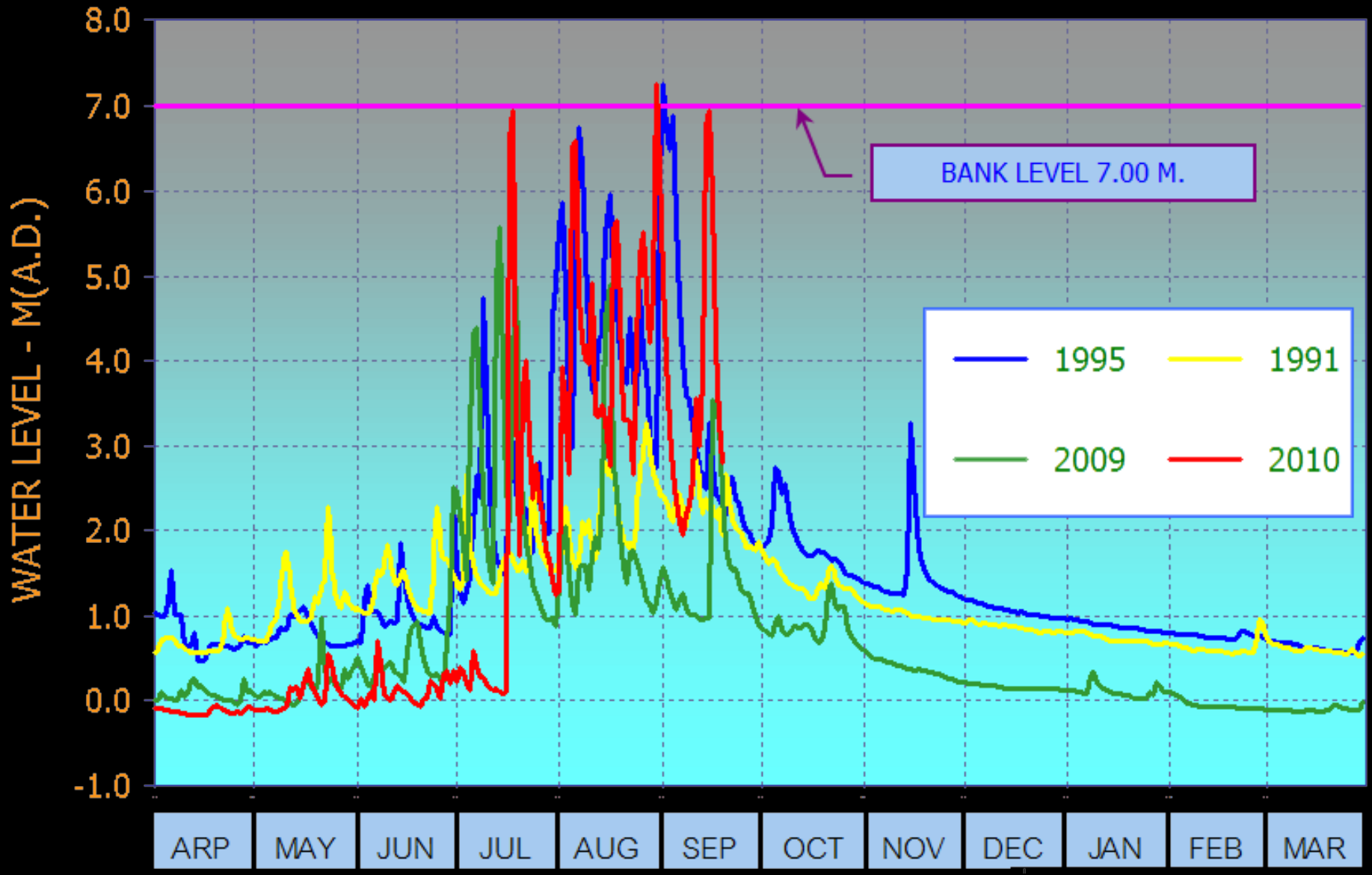


NAN

ACCUMULATED MONTHLY RAINFALL

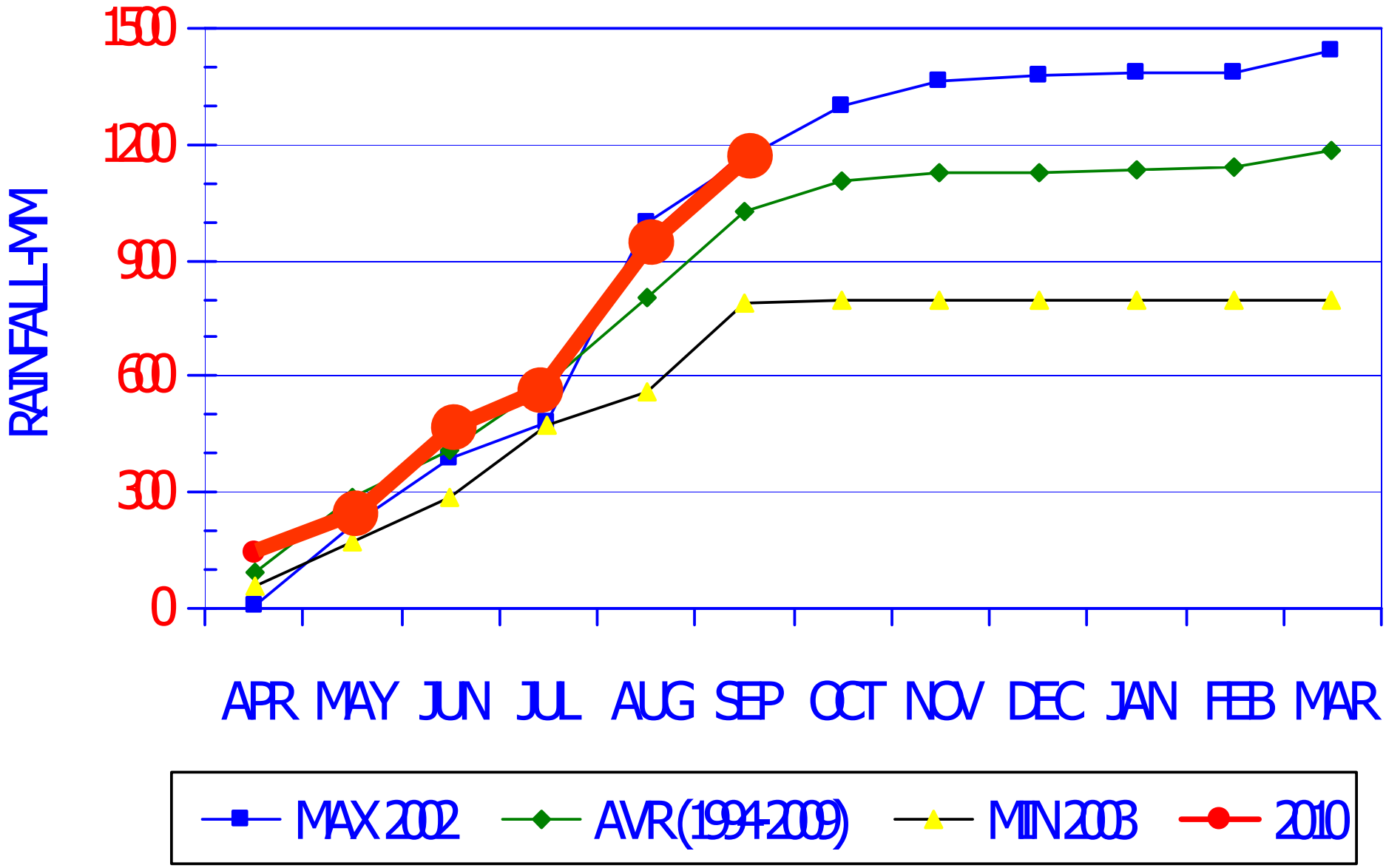


STATION N.1 NAN RIVER
MUANG DISTRICT, NAN
DAILY MAXIMUM WATER LEVEL HYDROGRAPH
2010

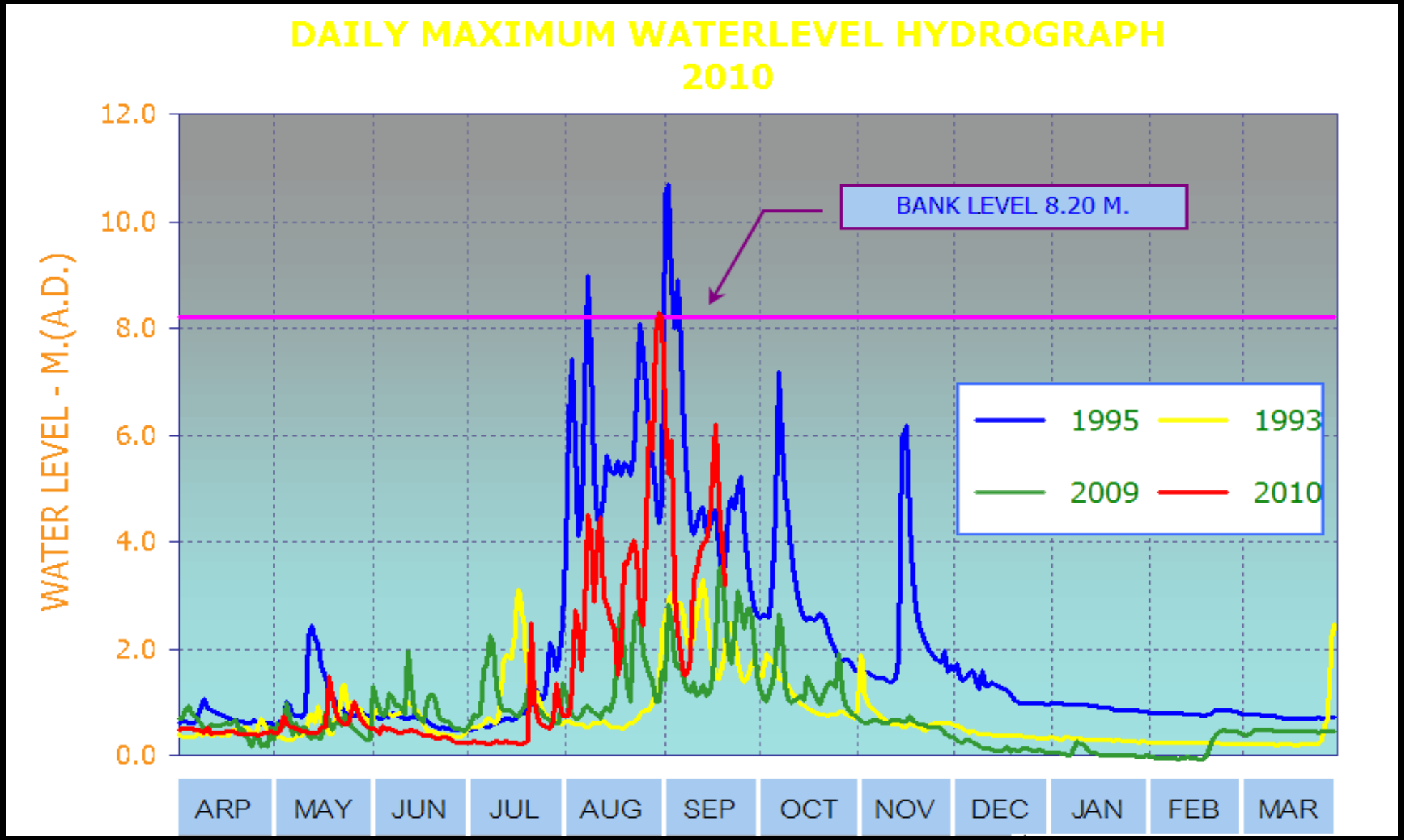


PHRAE

ACCUMULATED MONTHLY RAINFALL



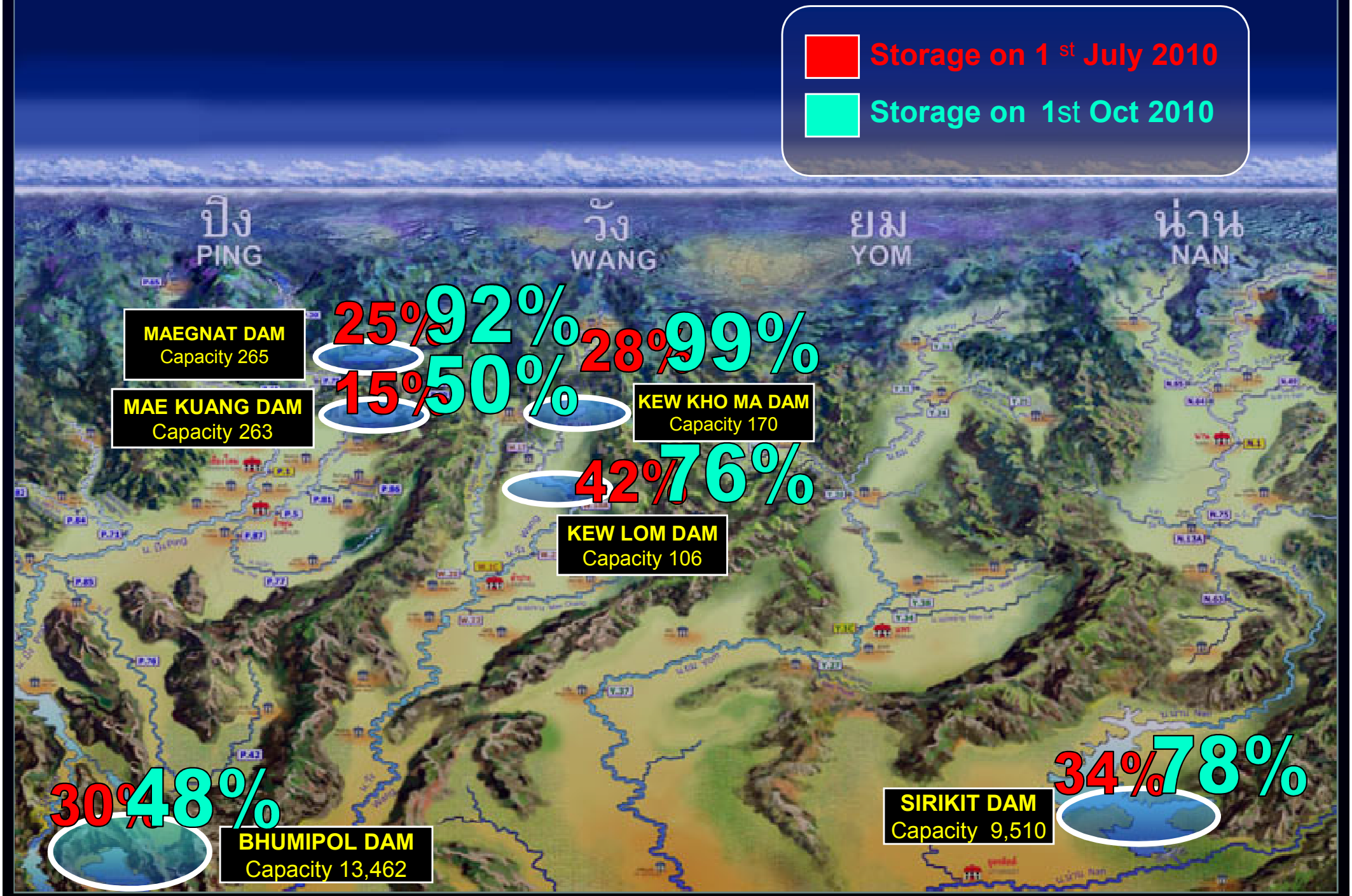
STATION Y.1C YOM RIVER
BAN NAM KHONG, MUANG DIST. PHRAE



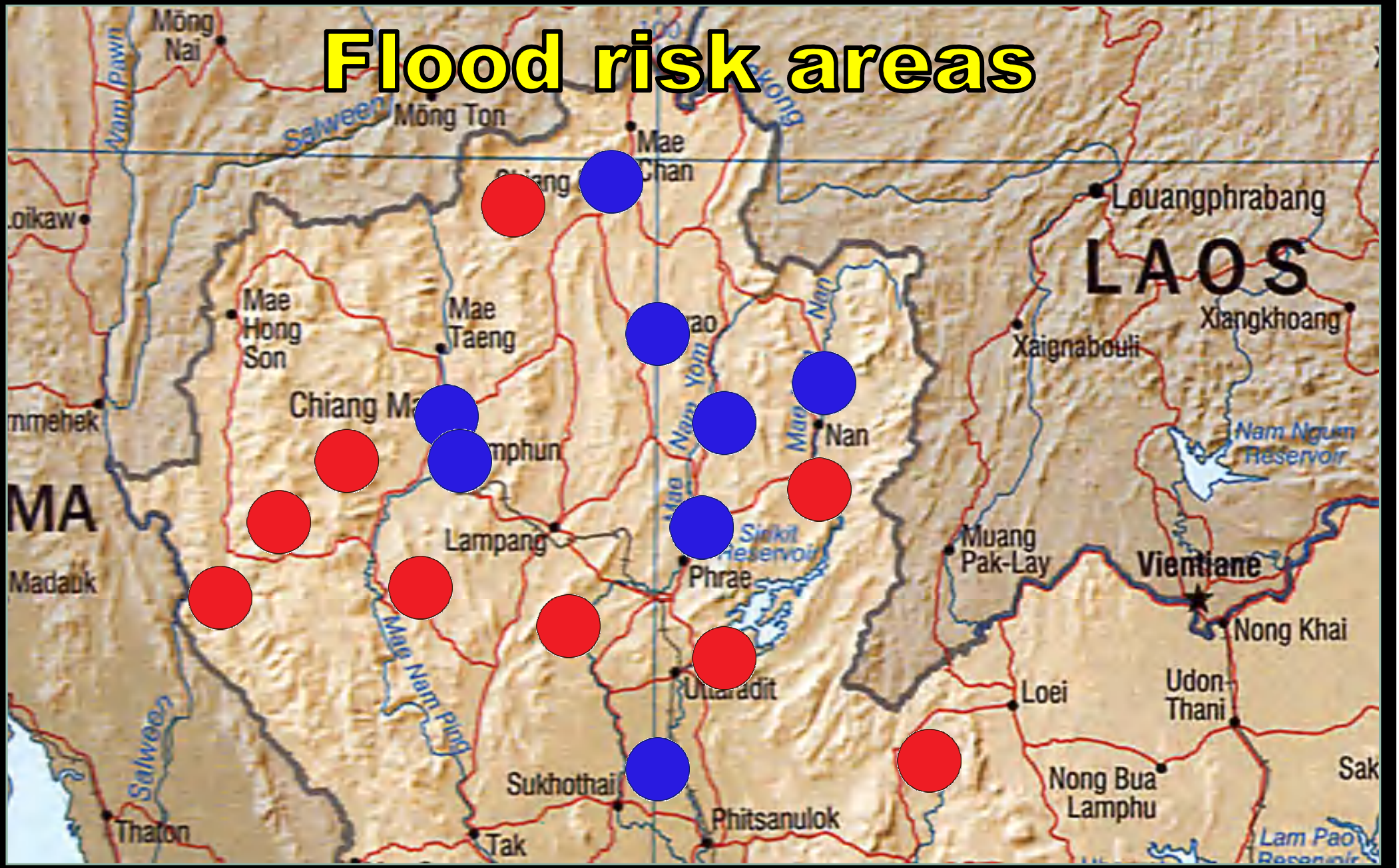
RESERVOIR STORAGE

Early and late rainy season period comparison

LARGE RESERVOIRS IN NORTHERN REGION



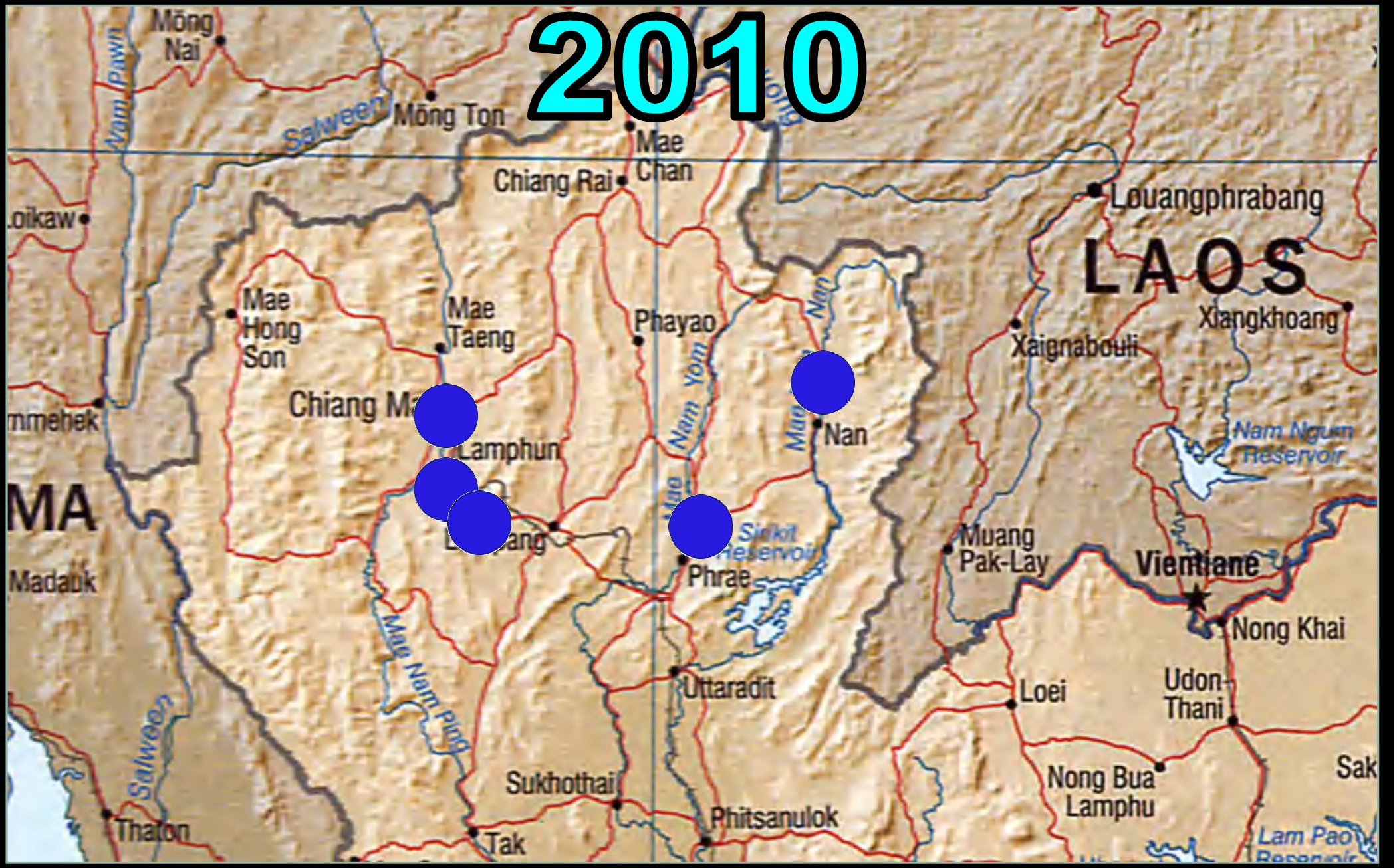
UPPER NORTHERN REGION FLOODS



Over-bank flow flood

Flash flood

UPPER NORTHERN REGION FLOODS



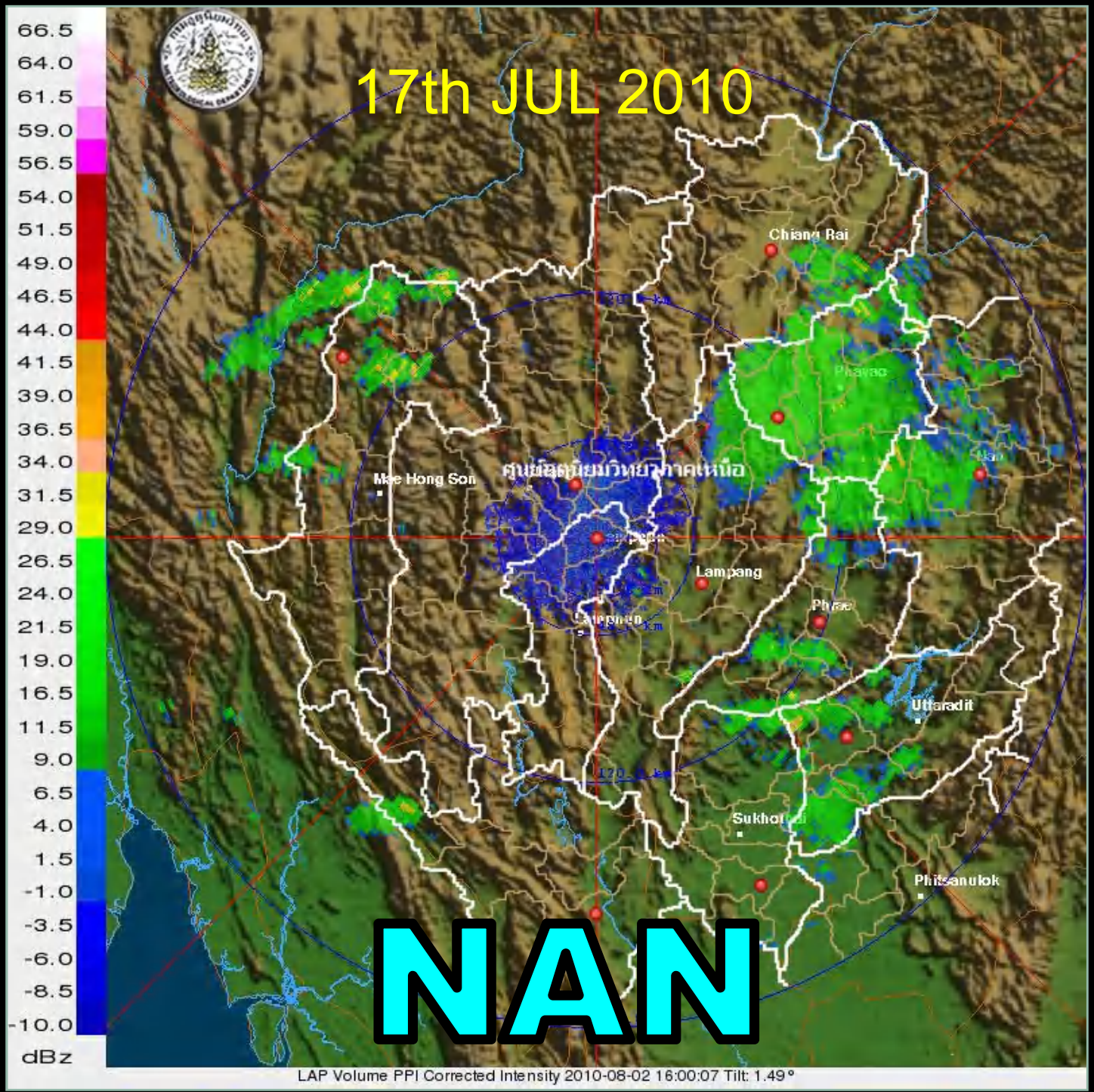
Over-bank flow flood

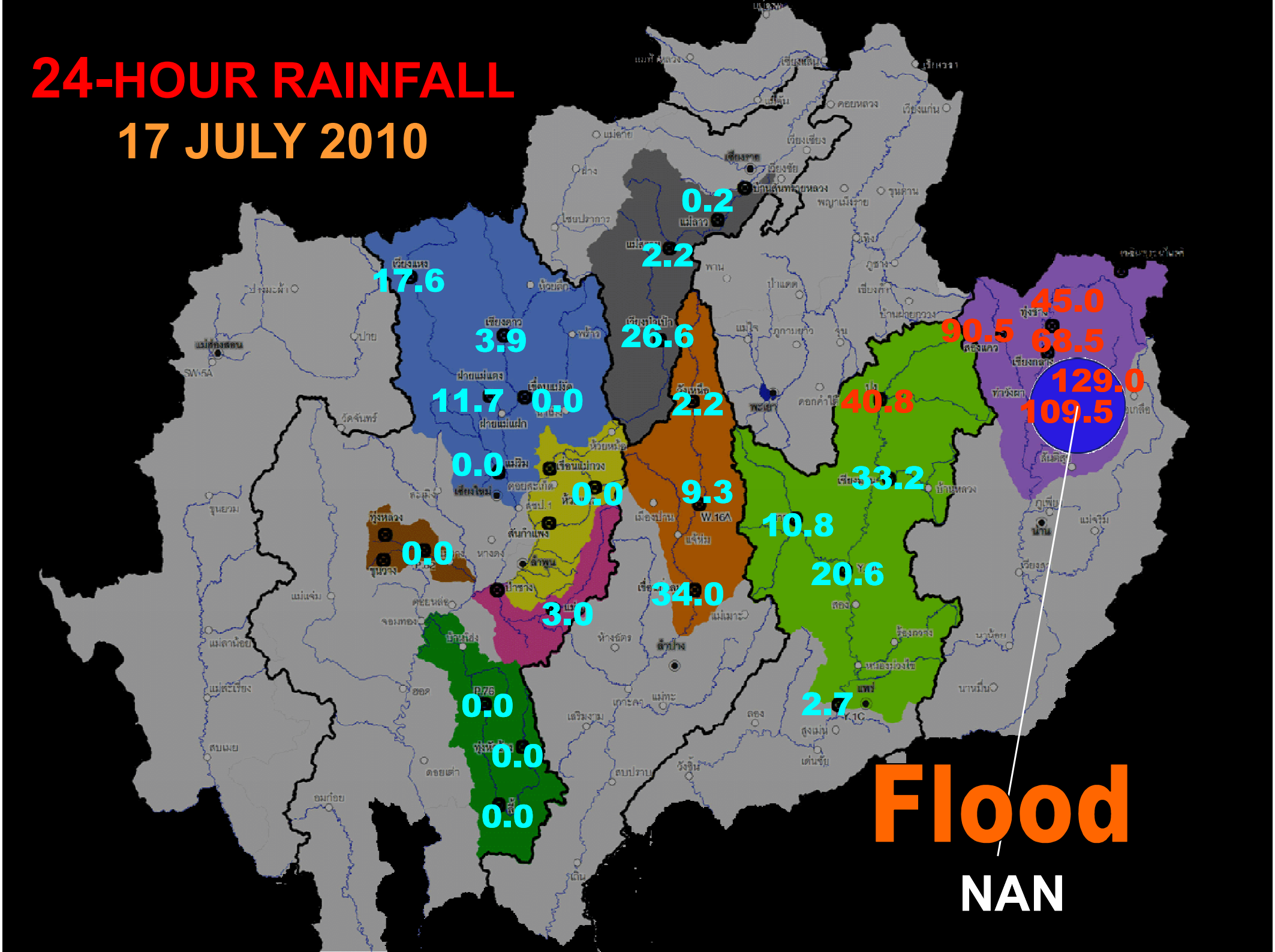
Flash flood

RAINFALL

correlation with floods

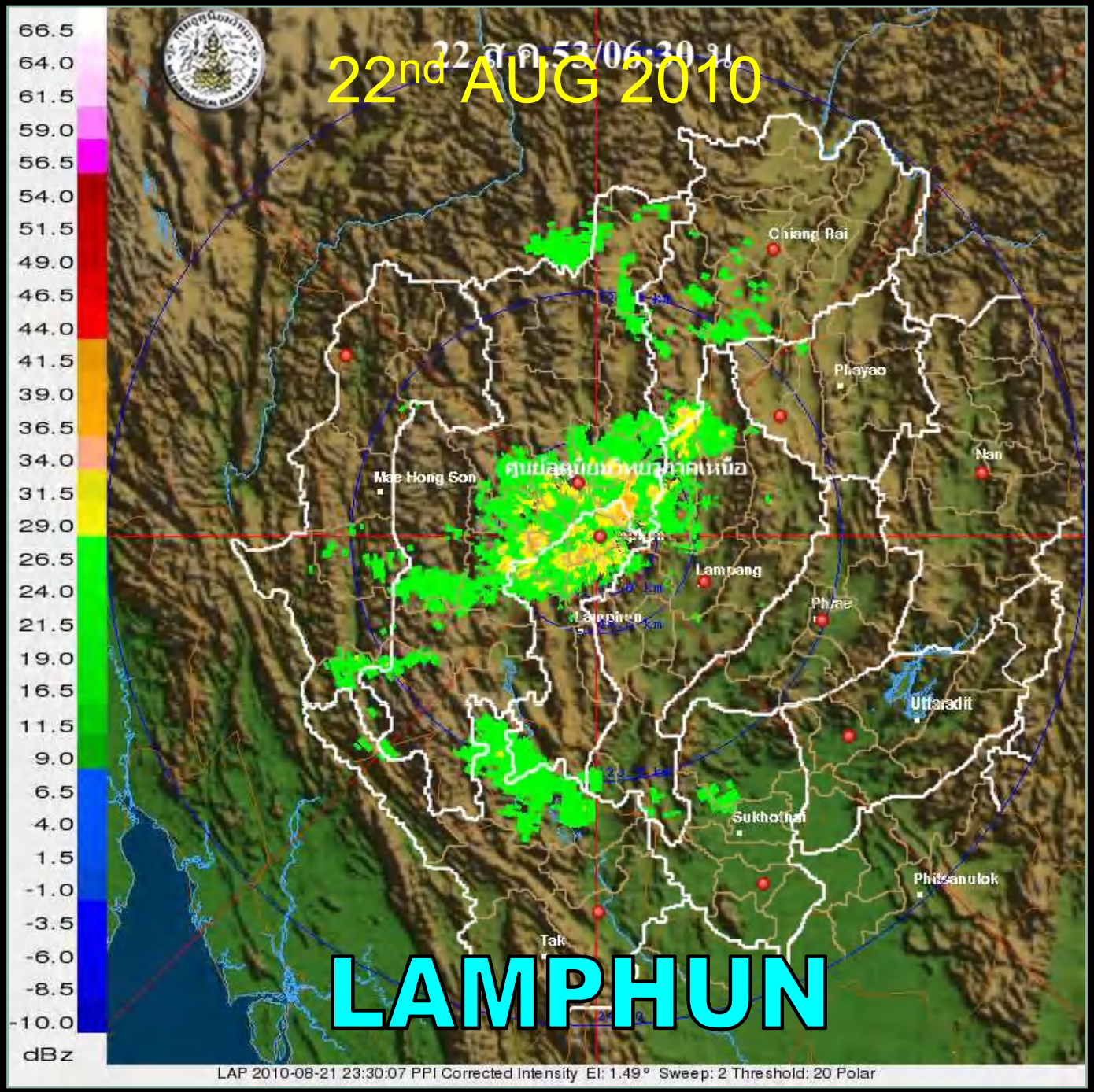
RAIN RADAR

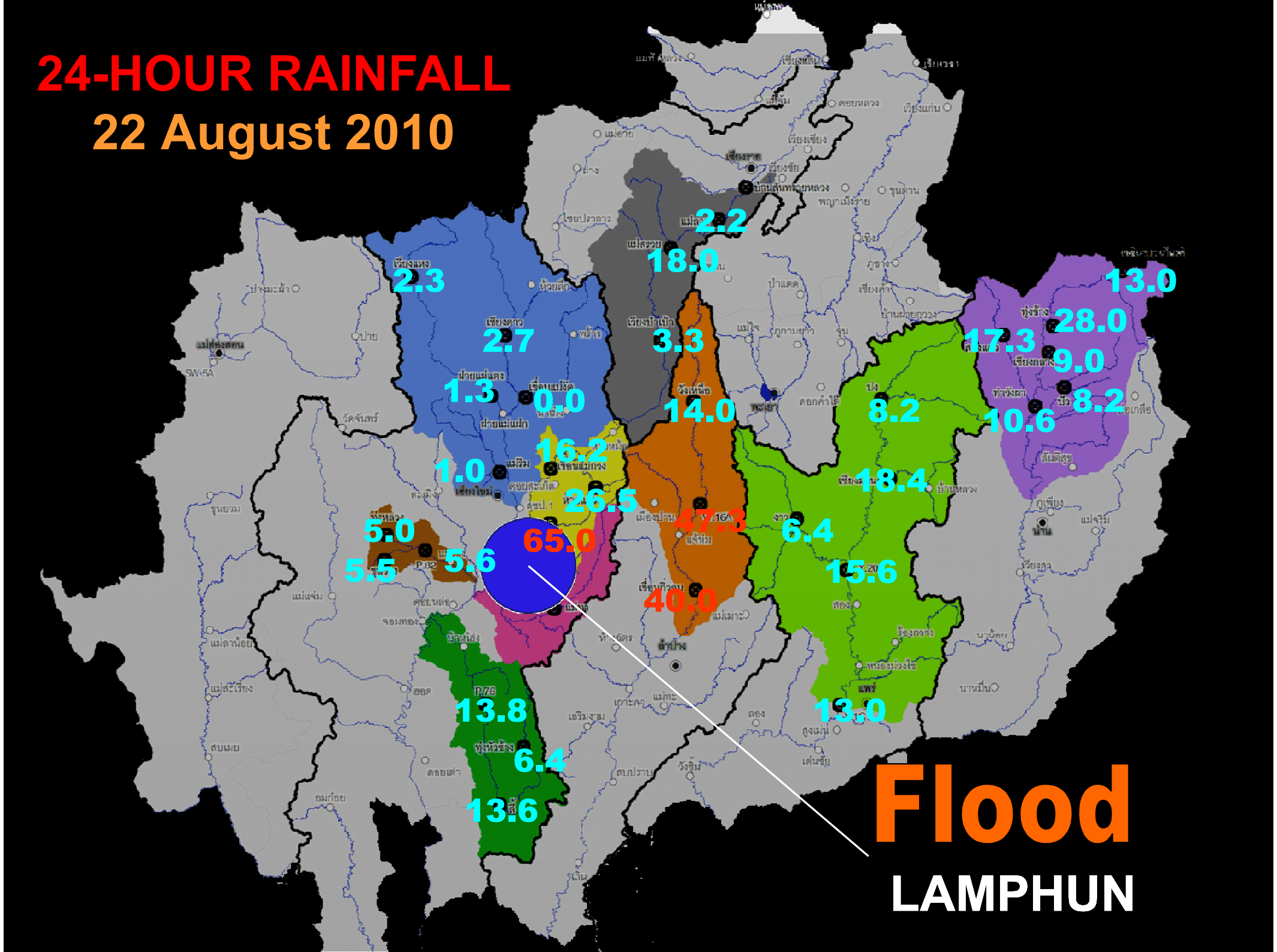

17th JUL 2010
66.5
64.0
61.5
59.0
56.5
54.0
51.5
49.0
46.5
44.0
41.5
39.0
36.5
34.0
31.5
29.0
26.5
24.0
21.5
19.0
16.5
11.5
9.0
6.5
4.0
1.5
-1.0
-3.5
-6.0
-8.5
-10.0
dBz
Chiang Rai
Phayao
Mae Hong Son
Lampang
Phrae
Utfaradit
Phitsanulok
NAN
LAP Volume PPI Corrected Intensity 2010-08-02 16:00:07 Tilt: 1.49°


24-HOUR RAINFALL
17 JULY 2010
0.2
2.2
17.6
3.9
26.6
11.7
0.0
2.2
40.8
45.0
90.5
68.5
129.0
109.5
0.0
0.0
9.3
33.2
10.8
0.0
20.6
34.0
3.0
0.0
2.7
0.0
0.0
Flood
NAN

FLOOD IN NAN

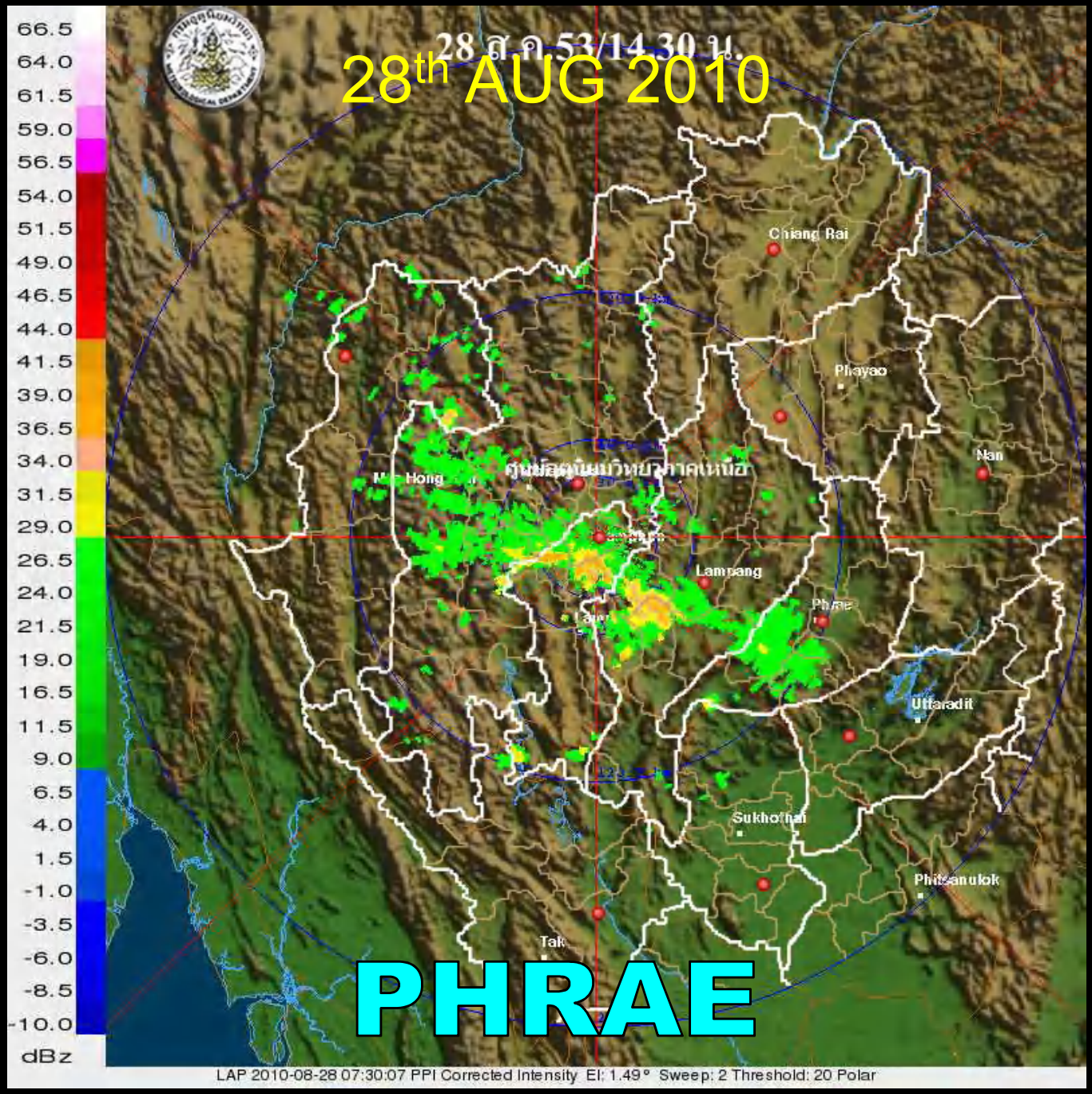
RAIN RADAR

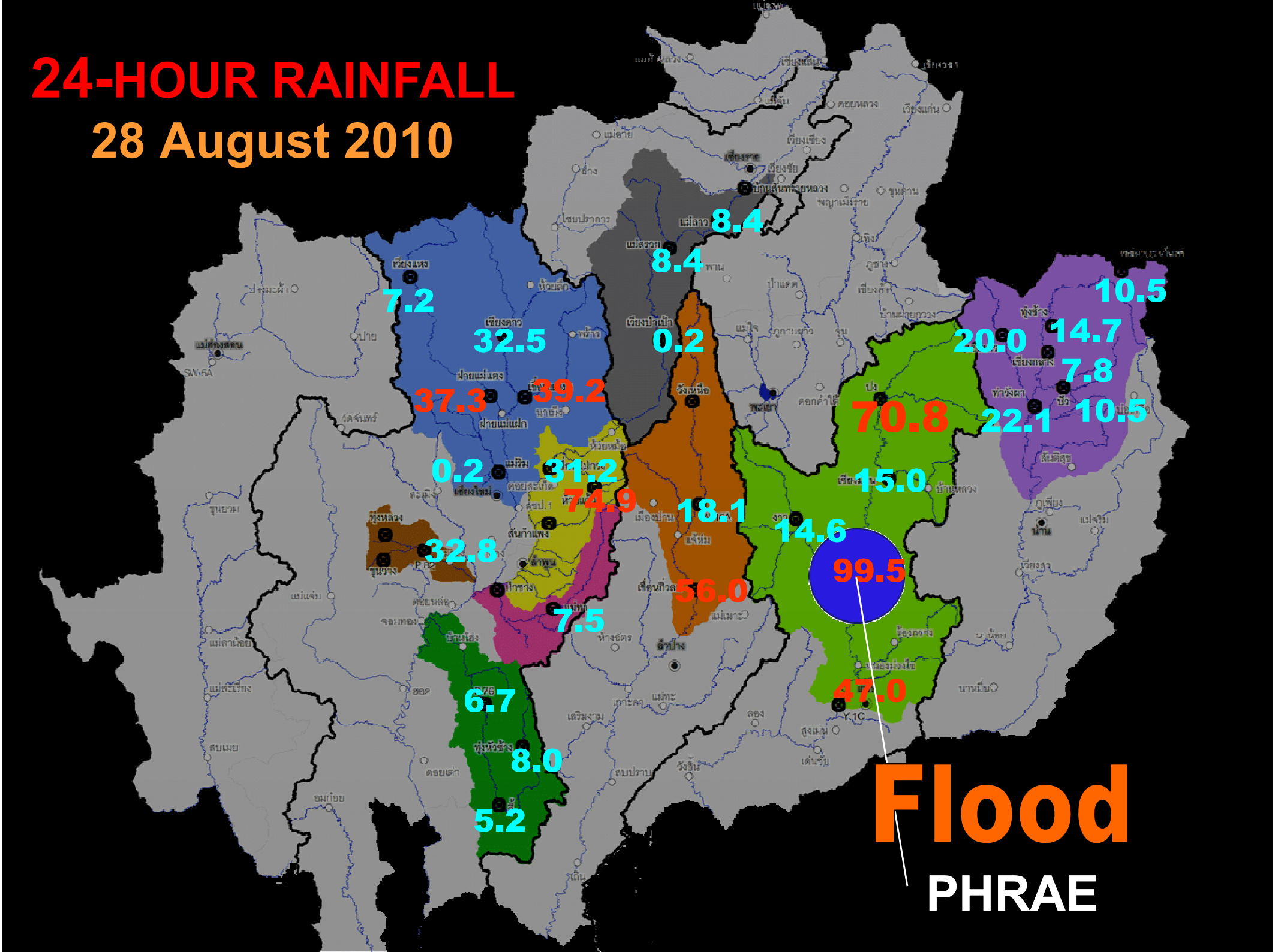

22nd AUG 2010
66.5
64.0
61.5
59.0
56.5
54.0
51.5
49.0
46.5
44.0
41.5
39.0
36.5
34.0
31.5
29.0
26.5
24.0
21.5
19.0
16.5
11.5
9.0
6.5
4.0
1.5
-1.0
-3.5
-6.0
-8.5
-10.0
dBz
Chiang Rai
Phayao
Nan
Mae Hong Son
Lampang
Phrae
Uttaradit
Sukhothai
Phitsanulok
Tak
LAMPHUN
LAP 2010-08-21 23:30:07 PPI Corrected Intensity El: 1.49° Sweep: 2 Threshold: 20 Polar


24-HOUR RAINFALL
22 August 2010
2.2
18.0
2.3
13.0
28.0
17.3
9.0
2.7
3.3
1.3
0.0
14.0
8.2
8.2
10.6
16.2
1.0
18.4
26.5
5.0
65.0
6.4
5.5
5.6
15.6
40.0
13.8
13.0
6.4
13.6
Flood
LAMPHUN

FLOOD IN PASANG LAMPHUN

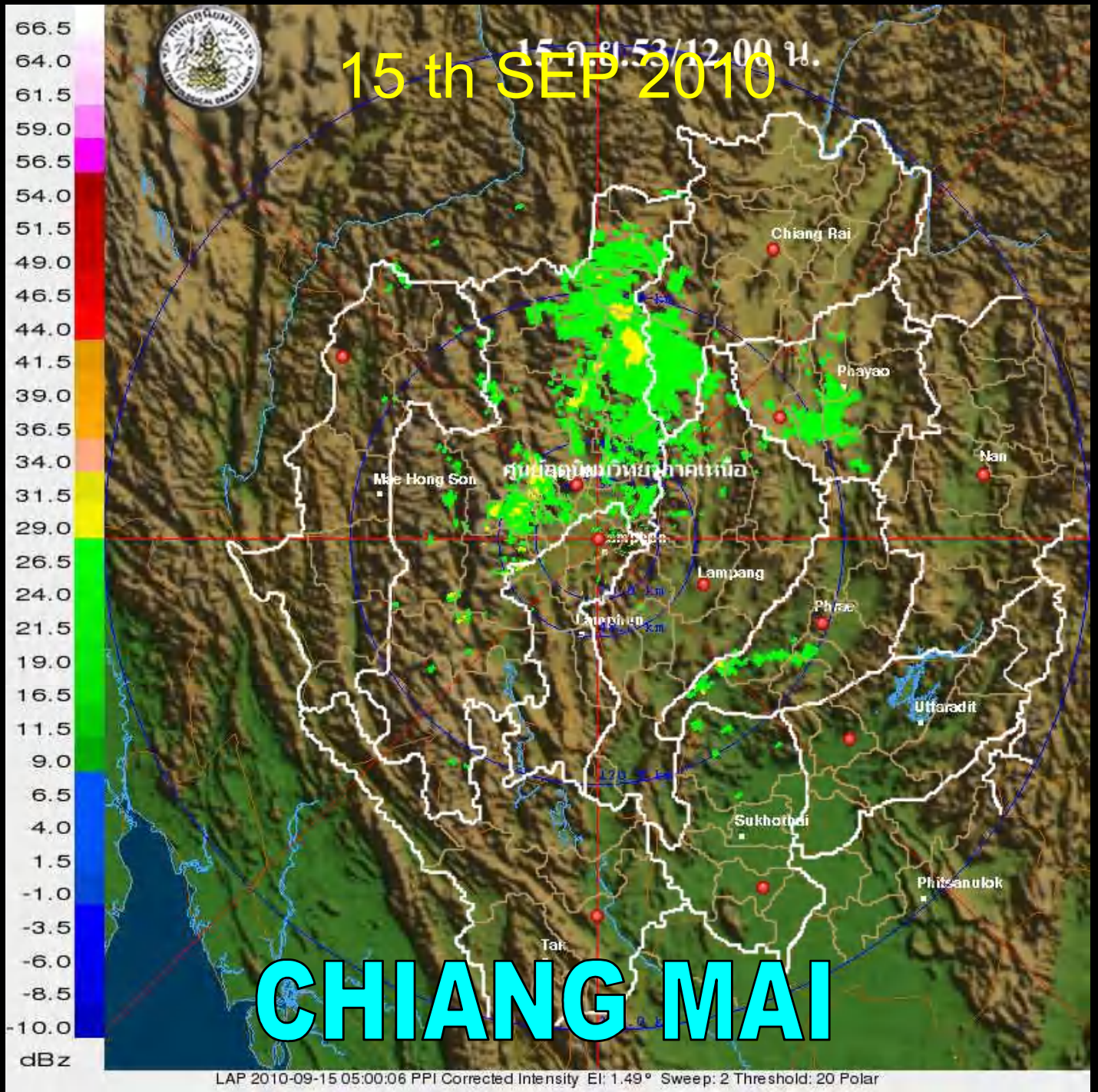
RAIN RADAR

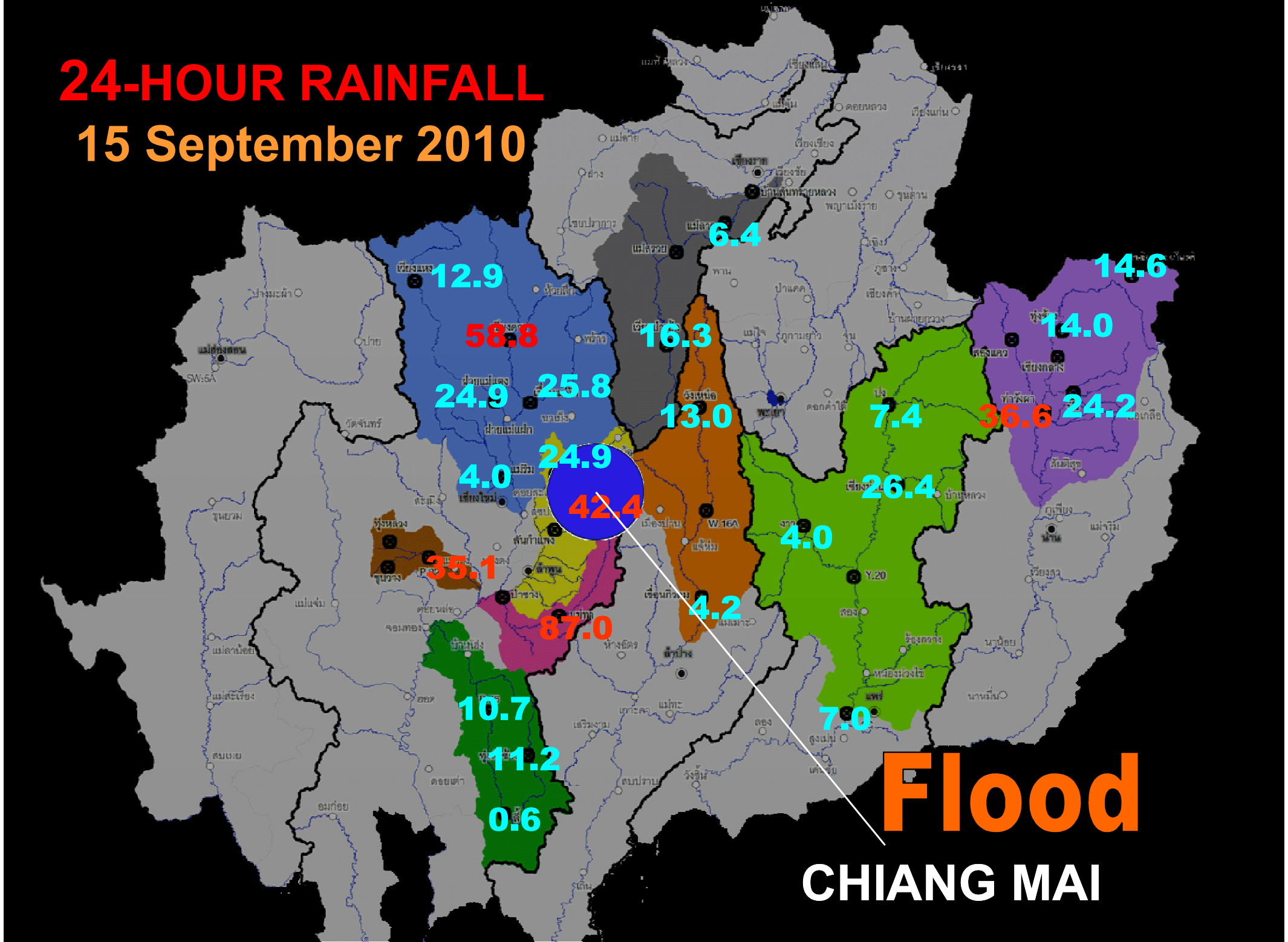

66.5
64.0
61.5
59.0
56.5
54.0
51.5
49.0
46.5
44.0
41.5
39.0
36.5
34.0
31.5
29.0
26.5
24.0
21.5
19.0
16.5
11.5
9.0
6.5
4.0
1.5
-1.0
-3.5
-6.0
-8.5
-10.0
dBz
28 ส.ค. 53/14:30 น.
28th AUG 2010
Chiang Rai
Phayao
Nan
Lampang
Phrae
Uttaradit
Sukhothai
Phitsanulok
PHRAE
LAP 2010-08-28 07:30:07 PPI Corrected Intensity El: 1.49° Sweep: 2 Threshold: 20 Polar


24-HOUR RAINFALL
28 August 2010
8.4
8.4
7.2
32.5
0.2
10.5
14.7
20.0
7.8
39.2
37.3
70.8
22.1
10.5
0.2
31.2
74.9
18.1
15.0
14.6
32.8
99.5
56.0
7.5
47.0
6.7
8.0
5.2
Flood
PHRAE

FLOOD IN PHRAE

RAIN RADAR


15 th SEP 2010
66.5
64.0
61.5
59.0
56.5
54.0
51.5
49.0
46.5
44.0
41.5
39.0
36.5
34.0
31.5
29.0
26.5
24.0
21.5
19.0
16.5
11.5
9.0
6.5
4.0
1.5
-1.0
-3.5
-6.0
-8.5
-10.0
dBz
Chiang Rai
Phayao
Nan
Mae Hong Son
Lampang
Phrae
Uttaradit
Sukhothai
Phitsanulok
Tak
CHIANG MAI
LAP 2010-09-15 05:00:06 PPI Corrected Intensity El: 1.49° Sweep: 2 Threshold: 20 Polar


24-HOUR RAINFALL
15 September 2010
6.4
12.9
14.6
14.0
58.8
16.3
24.9
25.8
13.0
7.4
36.6
24.2
24.9
4.0
42.4
26.4
4.0
35.1
4.2
87.0
10.7
7.0
11.2
0.6
Flood
CHIANG MAI

Flood information digital board at station P.1 Navarat Bridge, Chiang Mai City


ระดับน้ำปิงที่ P.1 สะพานนวรัฐ
17 September 2010


BUS STOP
17 September 2010


17 September 2010


17September 2010


การเตือนภัยน้ำท่วมเมืองเชียงใหม่
ระดับน้ำปิงที่ P.1 สะพานนวรัฐ
ความสัมพันธ์ของระดับน้ำและระยะเวลาเดินทางของน้ำ
จากสถานี P.67 ถึง P.1
P.1
P.67
4.80 ม.
4.20 ม.
3.70 ม.
6.00 ม.
5.00 ม.
4.00 ม.
6-7 ชั่วโมง
แม่น้ำปิง
17 September 2010


17 September 2010

CONCLUSION

2010 RAINFALL CHARACTERISTICS

1. Rainy season started a little bit late (normally starting from May but this year started from July so it is about 2 months delay)

2. Rainfall mostly spotted heavily only on some areas not spread widely and sometimes caused unexpected floods

THANK YOU

For your kind attentions