Mekong River Commission

Regional Flood Management and Mitigation Centre

Weekly Flood Situation Report for the Mekong River Basin

Prepared on: 26/07/2010, covering the week from the 19th to the 25th July 2010

Weather Patterns, General Behaviour of the Mekong River and Flood Situation

General weather patterns

During the week of the 19th to the 25th July 2010, seven weather bulletins were issued by the Department of Meteorology (DOM) of Cambodia and made available to the MRC-RFMMC. The weather patterns of the 19th July and the 25th July bulletins are shown below:

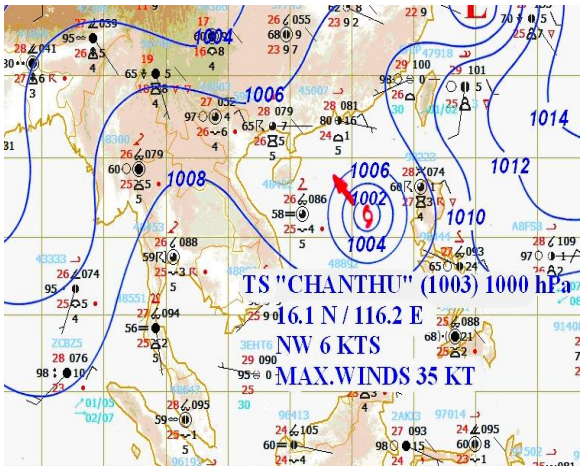


Figure 1: Weather map for 19th July 2010

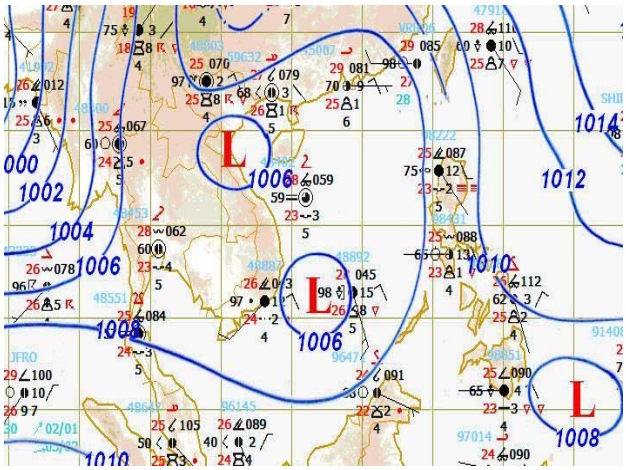


Figure 2: Weather map for 25th July 2010

Strong South-West (SW) Monsoon

Strong SW monsoon prevailed over Andaman Sea, Myanmar, Thailand, Cambodia, Lao PDR, Viet Nam and the Lower Mekong Basin (LMB) during last week.

Inter Tropical Convergence Zone (ITCZ)

ITCZ laid across the upper part of the LMB, Myanmar and Viet Nam during 24 – 25 July (figure 2).

Tropical depressions (TD), tropical storms (TS) or typhoons (TY)

The Tropical Storm (TS) ***"CHANTHU"*** (1003) with central pressure of 1000 hPa and a near central maximum wind speed of 64.82 km/h (figure 1), which located at latitude 16.1^{0}N and longtitude 116.2^{0}E on 19th July, upgraded into Typhoon (TY) when travelling through South China Sea and landed over the South of Guangxi, China on 23th July. It downgraded into low pressure on 24th July when moving deep into China territory.

Other weather phenomena that affect the discharge

No other weather phenomena affecting the discharge were observed.

Over weather situation

During last week, strong and intensive Southwest monsoon prevailed over the Andaman Sea, Myanmar, Thailand, Cambodia, Lao PDR, Viet Nam and LMB. Inter Tropical Convergence Zone

over upper reach of LMB, Myanmar and Viet Nam was observed from the 24th to the 25th July. As the result of these phenomena, moderate thundershowers to heavy shower occurred in Myanmar, Thailand, Lao PDR, Cambodia, and Viet Nam and in the LMB.

General behaviour of the Mekong River

Water levels were rising in upper and middle reaches of the Lower Mekong River during the monitoring period and most stations were recording levels that are somewhat below long-term average except Chiang Saen, where the water level was recording around long-term average. Meanwhile, water levels at stations in lower reach of the LMB from Phnom Penh to Koh Khel were more or less stable during the beginning to the mid of the week and rising toward the end of the week. The water levels in downstream at Tan Chau and Chau Doc monitoring stations were affected by tidal.

Water levels at most forecast stations in middle and lower parts of the LMB were below long-term average from 2 m to 3 m during this time of the year.

For stations from Chiang Saen to Vientiane/Nong khai

Water levels were rising towards the end of the week. The stations were recording levels that were slightly below long-term average for this time of the year.

For station Paksane

Water levels were dropping from the beginning to the mid of the week end then rising to the end of the week. The stations were recording levels that were slightly below long-term average for this time of the year.

For stations from Thakkhet/Nakon Phanom to Pakse

Water levels were rising and then dropping from the beginning to the mid of the week and then steadily rising towards the end of the week as the result of heavy rain caused by "***CHANTHU***" Typhoon and active Southwest mosoon activity. The stations were recording levels that were below long-term average for this time of the year.

For stations from Stung Treng to Kampong Cham

Water levels were rising from the beginning of the week, then more-or-less stable at the end of the week. All of the stations were recording levels that are below the long-term average level for this time of the year.

For stations from PhnomPenh Bassac to KohKhel and Prekdam

Water levels were more-or-less stable from the beginning to the mid of the week, then rising to the end of the week. All of the stations were recording levels that are below the long-term average level for this time of the year.

Stations Tan Chau and Chau Doc

Water levels at these stations have been significantly affected by tide, were rising from the beginning to the mid of the week and then slightly falling to the end of the week. The stations were recording levels that are below the long-term average for this time of the year.

Note: for areas between forecast stations, please refer to the nearest forecast station.

The situation of low water level could be explained by the following analysis of hydro-meteorological condition covered the period from the 1st to the 22nd July 2010 as below:

A. Meteorological Condition of the Lower Mekong Basin

From the beginning of July 2010, heavy rains occurred at some sub-catchments of the LMB with high intensity in the northern and central parts of Lao PDR. The significant rainfalls were observed at rain gauges of Se Ban Fai, Se Ban Hieng, Se Done sub-catchments of Lao PDR from 17th to 18th July 2010 with a 24-hour accumulative rainfall (from 7:00 am of 17th July to 7:00 am of 18th July) at Mahaxai of 144 mm, at Kuangpho of 127 mm, at Vang Vieng of 75 mm, at Moung Mai of 135 mm, at Ban Phonesi of 168 mm, at Moung Kao of 132 mm and at Xieng Khoung of 55 mm. The accumulative rainfall of rain gauges mentioned above is illustrated by figure 1 to 4.

The result from Sacramento Soil Moisture Model of the MRC Flash Flood Guidance System (MRCFFGS) on 17th July at 12:00 UTC (19:00 Cambodia Local Time) showed saturated soil moisture condition of the Se Ban Fai, Se Ban Hieng and Se Done sub- catchments (figure 5 to 8). It is therefore be warned that if heavy rains are continuing to occur at those sub-catchments the amount of run-off and water levels at the tributaries of those sub-catchments will be increasing rapidly leading to flash flood occurrences and flooding.

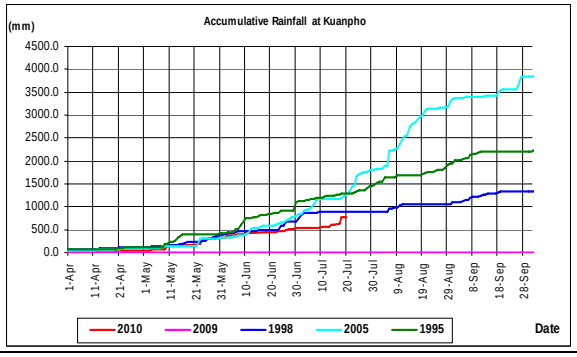


Figure 1: Accumulative Rainfall at Kuanpho (Se Ban Fai)

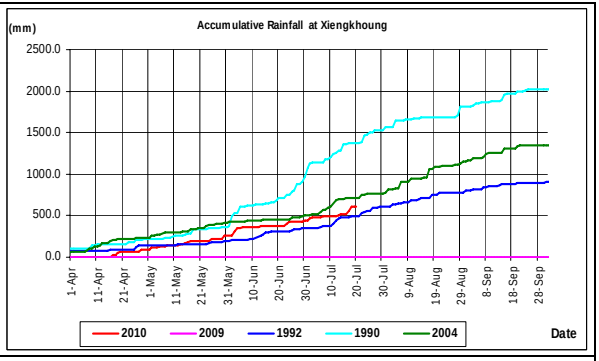


Figure 2: Accumulative Rainfall at Xiengkhoung (Nam Nhiep)

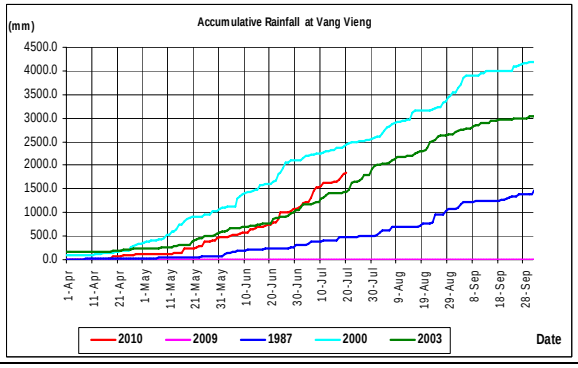


Figure 3: Accumulative Rainfall at Vang Vieng (Nam Ngum)

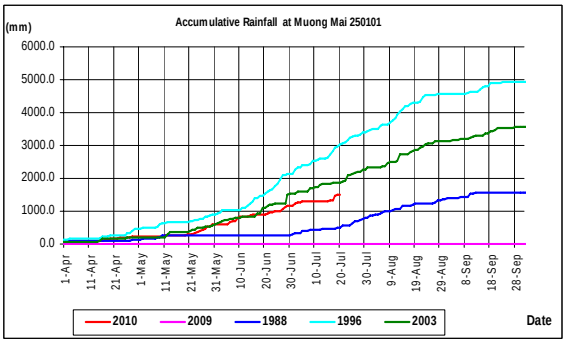


Figure 4: Accumulative Rainfall at Moung Mai (Nam Nhiep)

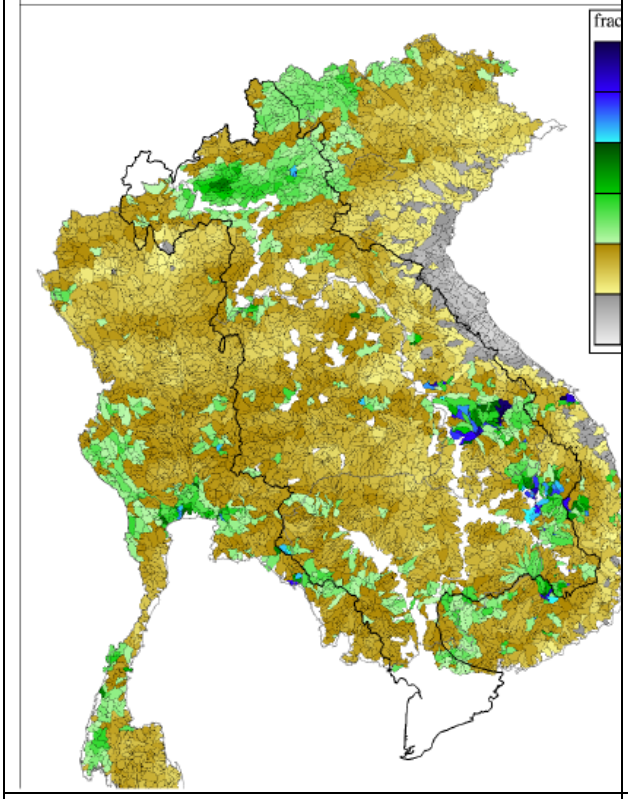


Figure 5: Average Soil Moisture in the LMB on 16th July at 00:00 UTC

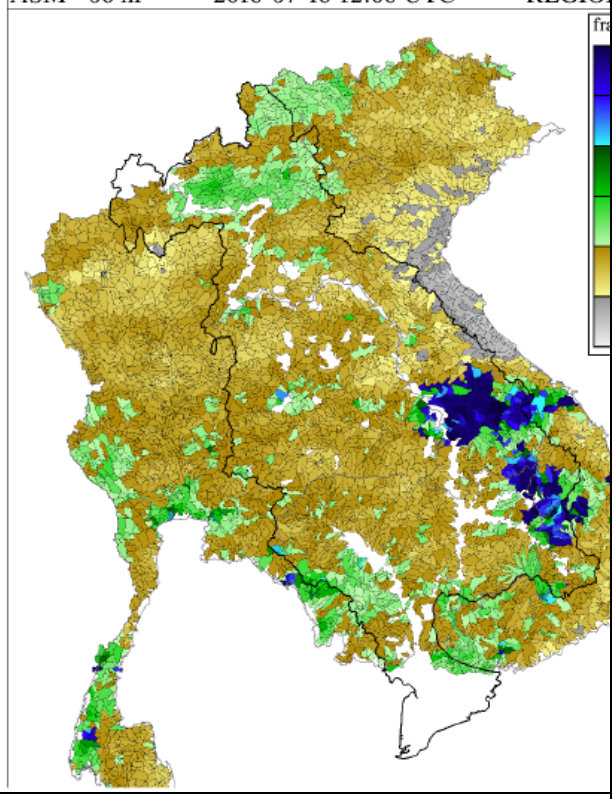


Figure 6: Average Soil Moisture in the LMB on 16th July at 12:00 UTC

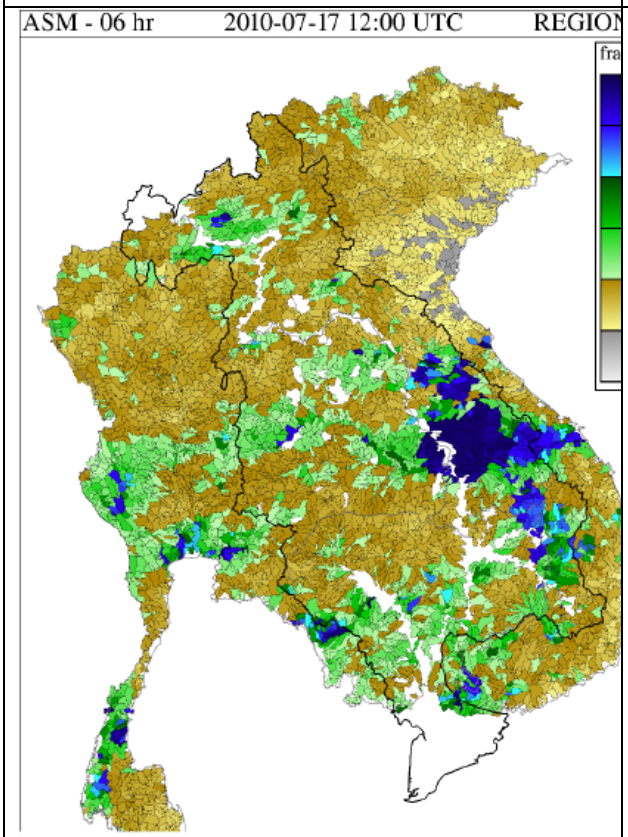


Figure 7: Average Soil Moisture in the LMB on 17th July at 12:00 UTC

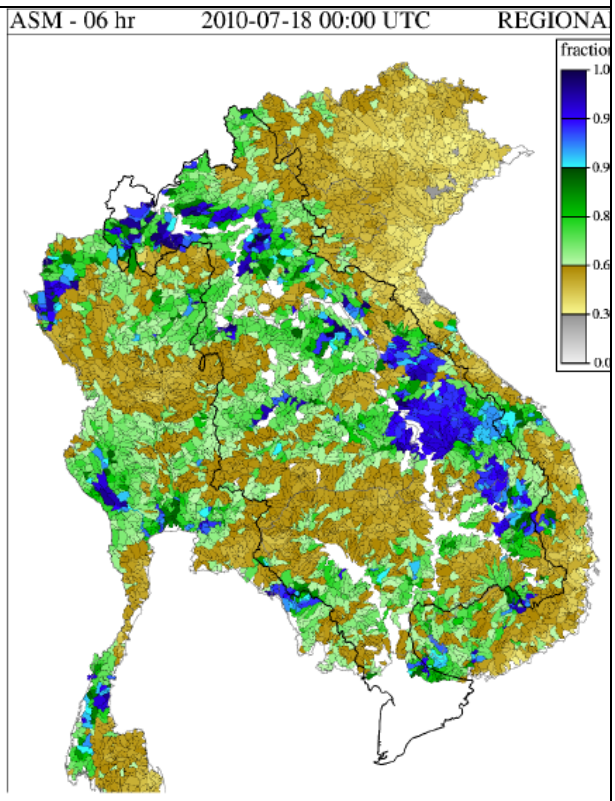


Figure 8: Average Soil Moisture in the LMB on 18th July at 00:00 UTC

B - Hydrological Condition of the Mekong Mainstream

Water levels at some stations on the Mekong mainstream in the upper reach such as Luang Prabang and Vientiane started rising from the 18th July 2010. In figure 9 and 10, the water levels at those stations were higher than long-term daily minimum but still lower than water level at the same period in 2009.

Water level at stations in middle reach of the LMB started rising on 18th July, in which water level at Pakse was higher than long-term daily minimum level, however, water level at Kratie just started rising from 21st July and still lower than long-term daily minimum level.

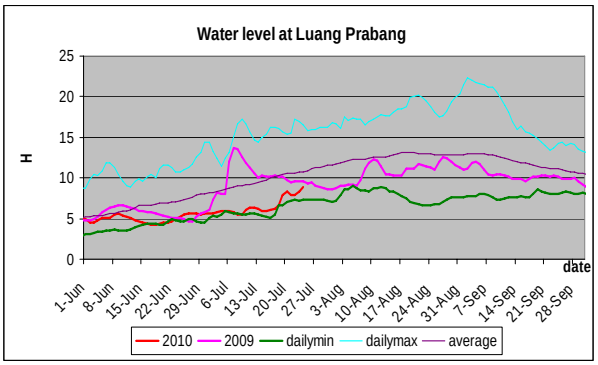


Figure 9: Water Level at Luang Prabang from 1st June to 24th July 2010

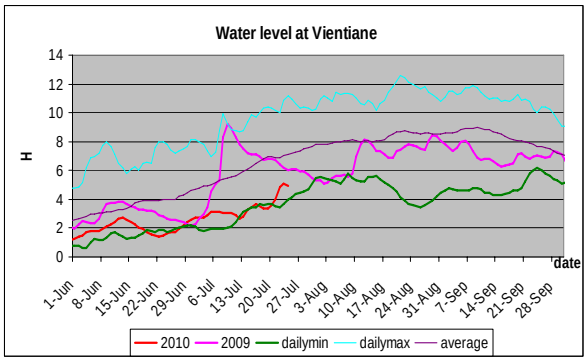


Figure 10: Water Level at Vientiane from 1st June to 24th July 2010

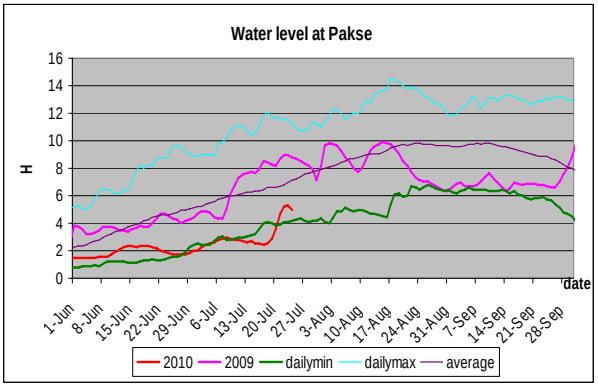


Figure 11: Water Level at Pakse from 1st June to 24th July 2010

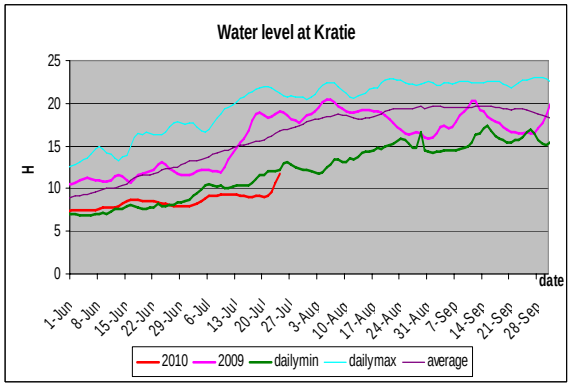


Figure 12: Water Level at Kratie from 1st June to 24th July 2010

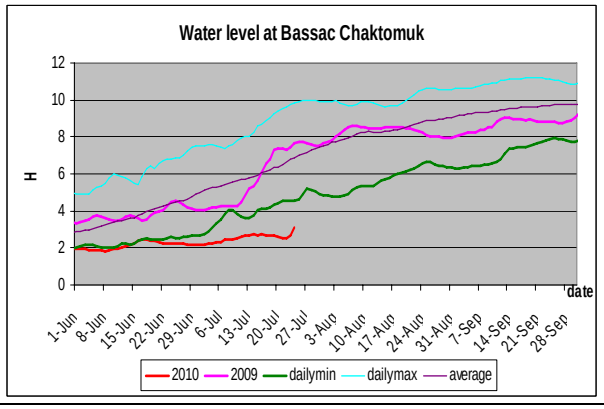


Figure 13: Water Level at Chaktomuk from 1st June to 24th July 2010

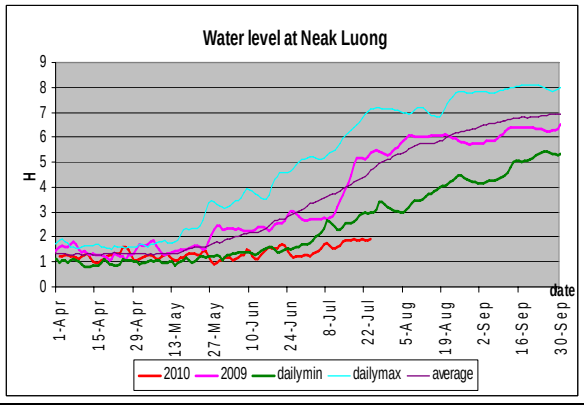


Figure 14: Water Level at Neak Luong from 1st June to 24th July 2010

For all stations on the mainstream located in the lower reach of the LMB, water level for each station is still lower than long-term daily minimum level. Figure 13 and 14 present water level situation in the downstream of the Mekong River at Bassac, Chaktomuk and Neak Luong.

3 - Hydrological Condition of the Mekong Tributaries

As discussed in the above hydrometeorological analysis, heavy rains occurred at some sub-catchments of the LMB especially in the central part of Lao PDR have led to significnat increases of soil moisture saturation that could be detected by the MRCFFGS in some sub-catchements such as Se Ban Fai, Nam Nhiep, Se Ban Hieng, Se Done. Figure 15 to 18 show rapid rises of water levels with 2 m to 3 m at hydrological stations located in those sub-catchments on 18th July 2010.

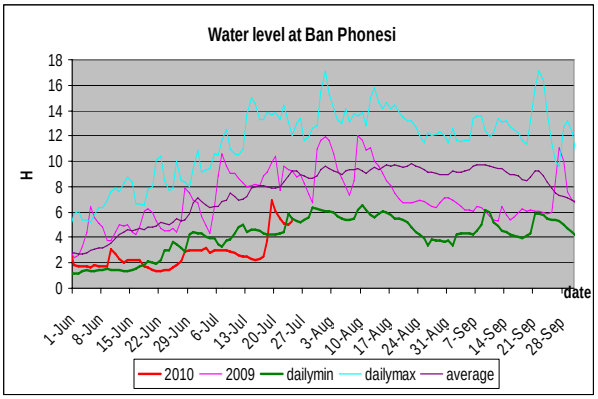


Figure 15 : Water level at Ban Phonesi (Name Cadine)

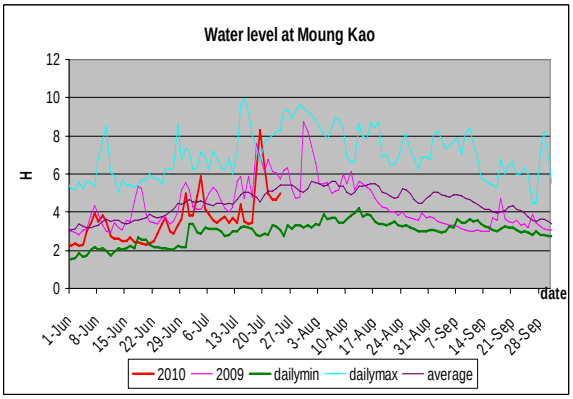


Figure 16 : Water level at Moung Kao (Nam Sane)

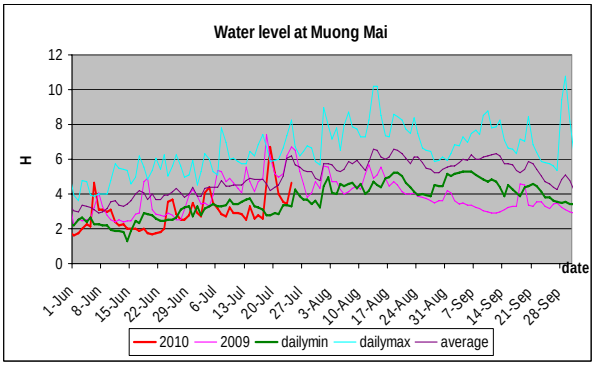


Figure 17: Water level at Moung Mai (Nam Nhiep)

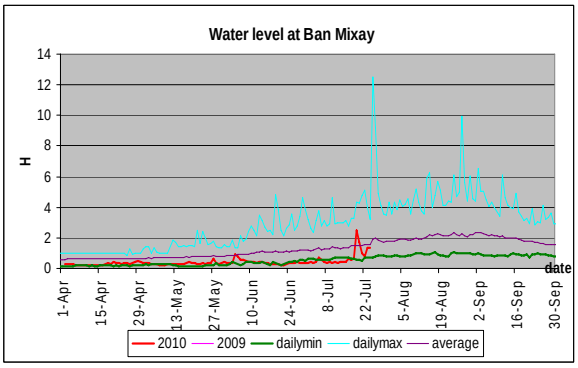


Figure 18 : Water level at Ban Mixai (Nam Khan)

Flood Situation

- Flood stage or alarm stage:

No alarm stage (where the forecast is expected to reach flood level within three days) was reported anywhere on the mainstream of the Mekong River during the past week. Water levels are still significanlyt below flood levels (as defined by the national agency) at all forecast stations.

- Damage or victims:

No damage or loss of life due to river flooding was recorded anywhere along the Mekong River during the past week.

For more details see the following annex:

- tables and graphs for water level and rainfall for the last week in Annex A
- a graph for accuracy in Annex B
- a table of forecast achievement in Annex B
- tables and graphs for performance in Annex B
- the water level graphs showing the observed water level for the season in Annex C

Annex A: Graphs and Tables

Table A1: observed water levels

unit in m

2010	Jinghong	Chiang Saen	Luang Prabang	Chiang Khan	Vientiane	Nongkhai	Paksane	Nakhon Phanom	Thakhek	Mukdahan	Savannakhet	Khong Chiam	Pakse	Stung Treng	Kratie	Kompong Cham	Phnom Penh (Bassac)	Phnom Penh Port	Koh Khel	Neak Luong	Prek Kdam	Tan Chau	Chau Doc
19/07	536.31	3.94	7.90	6.74	3.33	4.26	7.74	4.59	6.79	4.90	2.77	4.07	2.86	3.42	9.11	4.47	2.69	1.79	2.57	1.88	1.79	0.50	0.38
20/07	536.56	4.30	8.30	7.15	3.58	4.40	7.55	6.53	7.79	6.28	5.30	5.08	3.57	3.48	9.05	4.43	2.63	1.71	2.52	1.86	1.74	0.59	0.51
21/07	536.60	4.63	7.88	8.06	3.98	4.81	7.21	6.38	7.53	6.46	5.57	6.33	4.68	3.74	9.14	4.40	2.55	1.64	2.48	1.90	1.66	0.79	0.75
22/07	537.21	4.93	7.88	8.30	4.85	5.61	7.06	5.94	7.10	6.10	5.10	6.69	5.27	4.32	9.59	4.52	2.52	1.62	2.46	1.85	1.66	0.93	0.95
23/07	537.48	4.65	8.39	8.13	5.10	6.08	7.57	5.74	6.92	5.74	4.75	6.50	5.28	4.86	10.67	5.10	2.67	1.71	2.58	1.88	1.81	0.90	0.93
24/07	538.17	5.21	8.90	8.24	4.94	5.98	8.45	6.26	7.44	5.84	4.90	6.19	4.94	4.98	11.73	6.06	3.08	2.09	2.87	1.90	2.17	0.86	0.86
25/07	537.06	6.55	9.60	8.68	5.05	6.04	9.12	7.27	8.64	6.61	5.68	6.23	4.83	4.88	11.98	6.65	3.50	2.52	3.30	2.17	2.63	0.82	0.78
26/07	537.48	6.26	10.60	9.15	5.48	6.42	9.13	7.84	8.85	7.42	6.58	6.91	5.22	4.85	11.90	6.78	3.76	2.78	3.49	2.31	2.81	0.79	0.74
Flood level		11.80	18.00	17.40	12.50	12.20	14.50	12.70	14.00	12.60	13.00	16.20	12.00	12.00	23.00	16.20	12.00	11.00	7.90	8.00	10.00	4.20	3.50

Table A2: observed rainfall

Unit in mm

2010	Jinghong	Chiang Saen	Luang Prabang	Chiang Khan	Vientiane	Nongkhai	Paksane	Nakhon Phanom	Thakhek	Mukdahan	Savannakhet	Khong Chiam	Pakse	Stung Treng	Kratie	Kompong Cham	Phnom Penh (Bassac)	Phnom Penh Port	Koh Khel	Neak Luong	Prek Kdam	Tan Chau	Chau Doc
19/07	0.0	27.4	20.0	4.6	20.8	4.6	4.8	12.5	29.4	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
20/07	21.0	1.2	0.0	5.7	38.5	6.0	22.4	2.0	4.2	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
21/07	1.0	0.5	0.0	8.9	0.0	0.0	0.0	8.1	6.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4		0.0	7.2	0.0	0.0	0.0
22/07	10.0	64.7	21.0	6.3	0.0	2.1	17.0	3.7	6.8	7.4	34.2	20.5	27.1	0.0	17.4	0.0	65.6		18.5	4.5	0.0	0.0	0.0
23/07	87.0	13.1	19.0	3.1	15.8	13.0	34.6	24.8	40.9	1.5	0.0	51.0	41.0	13.0	0.0	0.3	0.0		0.0	0.0	0.0	27.0	0.0
24/07	16.0	25.8	20.6	0.0	21.5	11.1	183.0	55.0	55.4	1.0	4.8	7.8	0.0	0.5	53.8	1.5	0.0		0.0	2.4	0.0	0.0	0.6
25/07	1.0	9.5	20.2	0.0	11.2	0.6	10.7	1.1	0.8	0.0	0.0	0.0	14.0	0.0	0.0	4.0	1.4		8.9	6.6	7.4	11.0	0.0
26/07	14.0	0.0	5.2	0.0	0.0	1.5	0.0	0.0	0.0	3.7	16.6	7.5	0.5	9.0	25.6	28.7	6.5		2.7	4.2	9.2	0.0	0.8

Figure A1: Water level and rainfall for Jinghong, Chiang Saen, and Luang Prabang

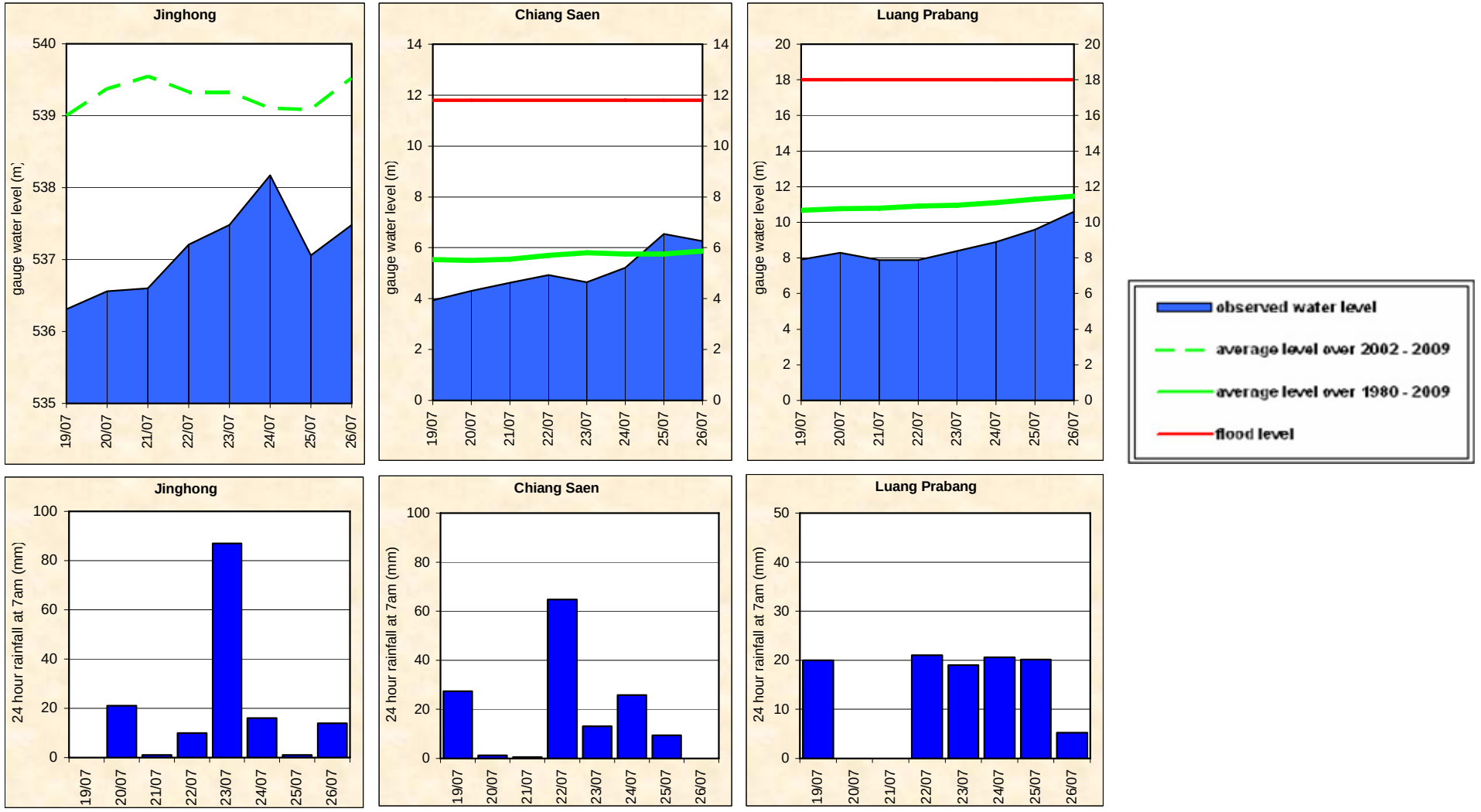


Figure A2: Water level and rainfall for Chiang Khan, Vientiane, Nongkhai, and Paksane

Figure A3: Water level and rainfall for Nakhon Phanom, Thakhek, Mukdahan and Savannakhet

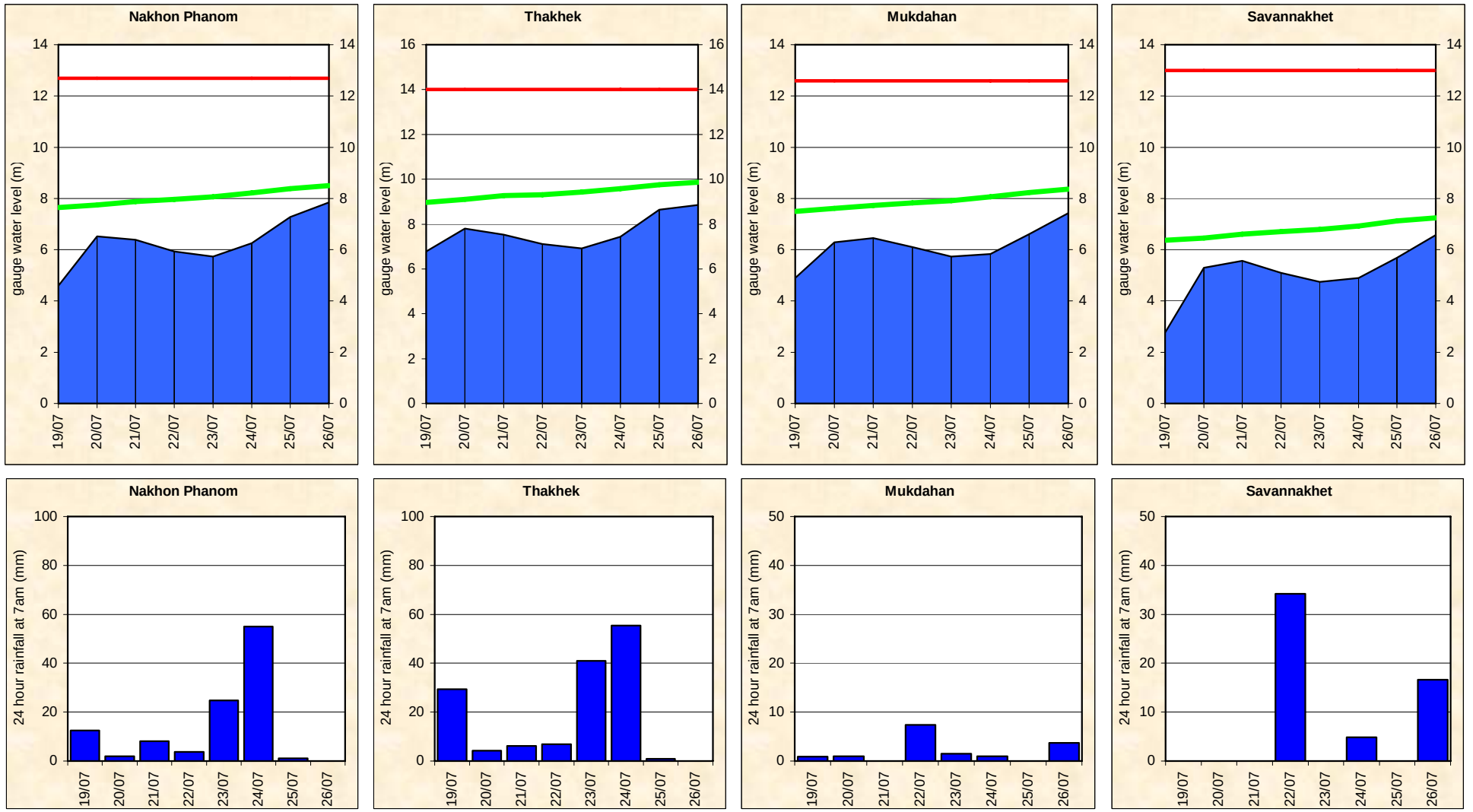


Figure A4: Water level and rainfall for Khong Chiam, Pakse, Stung Treng, and Kratie

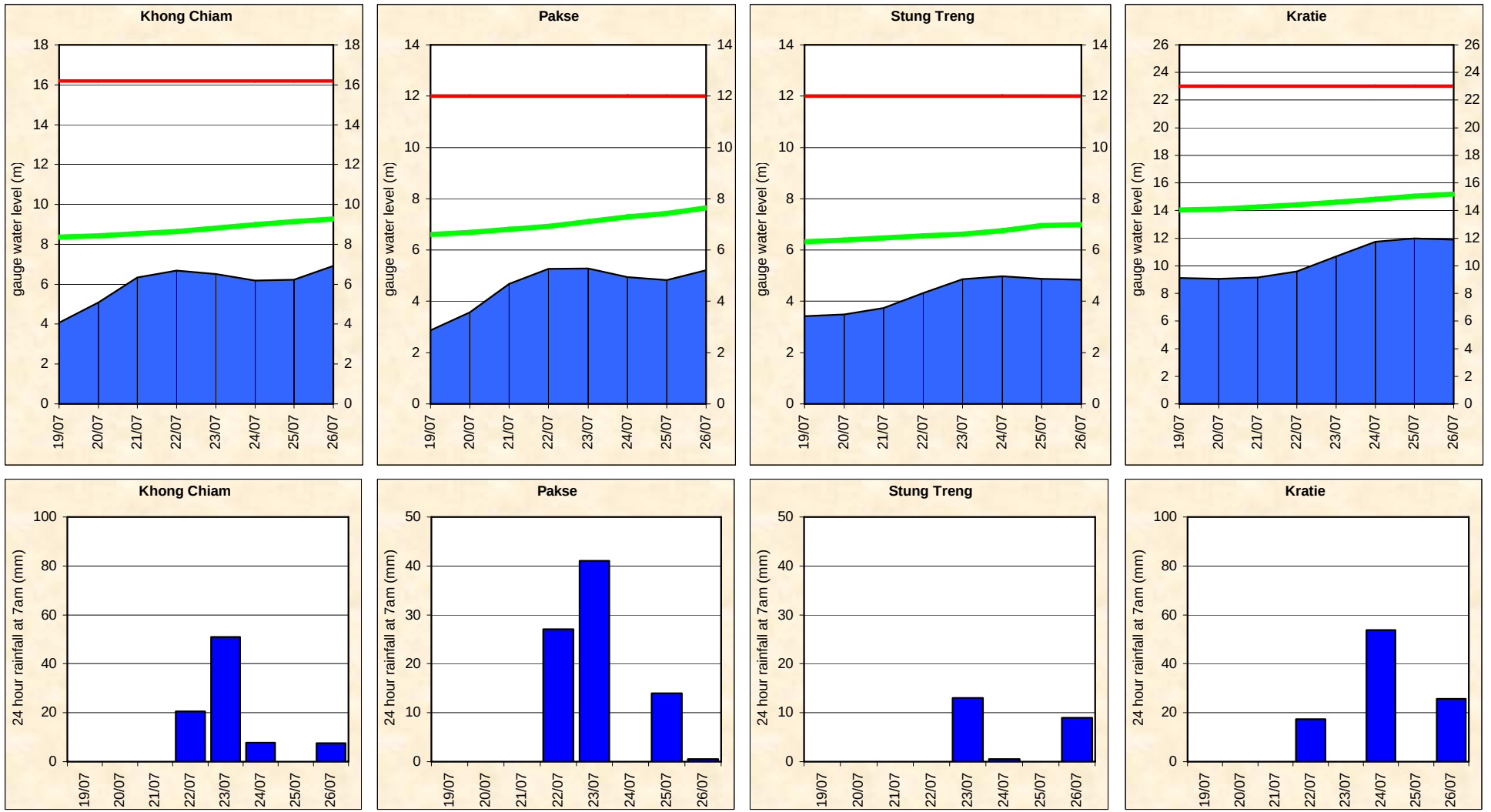


Figure A5: Water level and rainfall for Kampong Cham, Phnom Penh (Bassac and Port), and Koh Khel

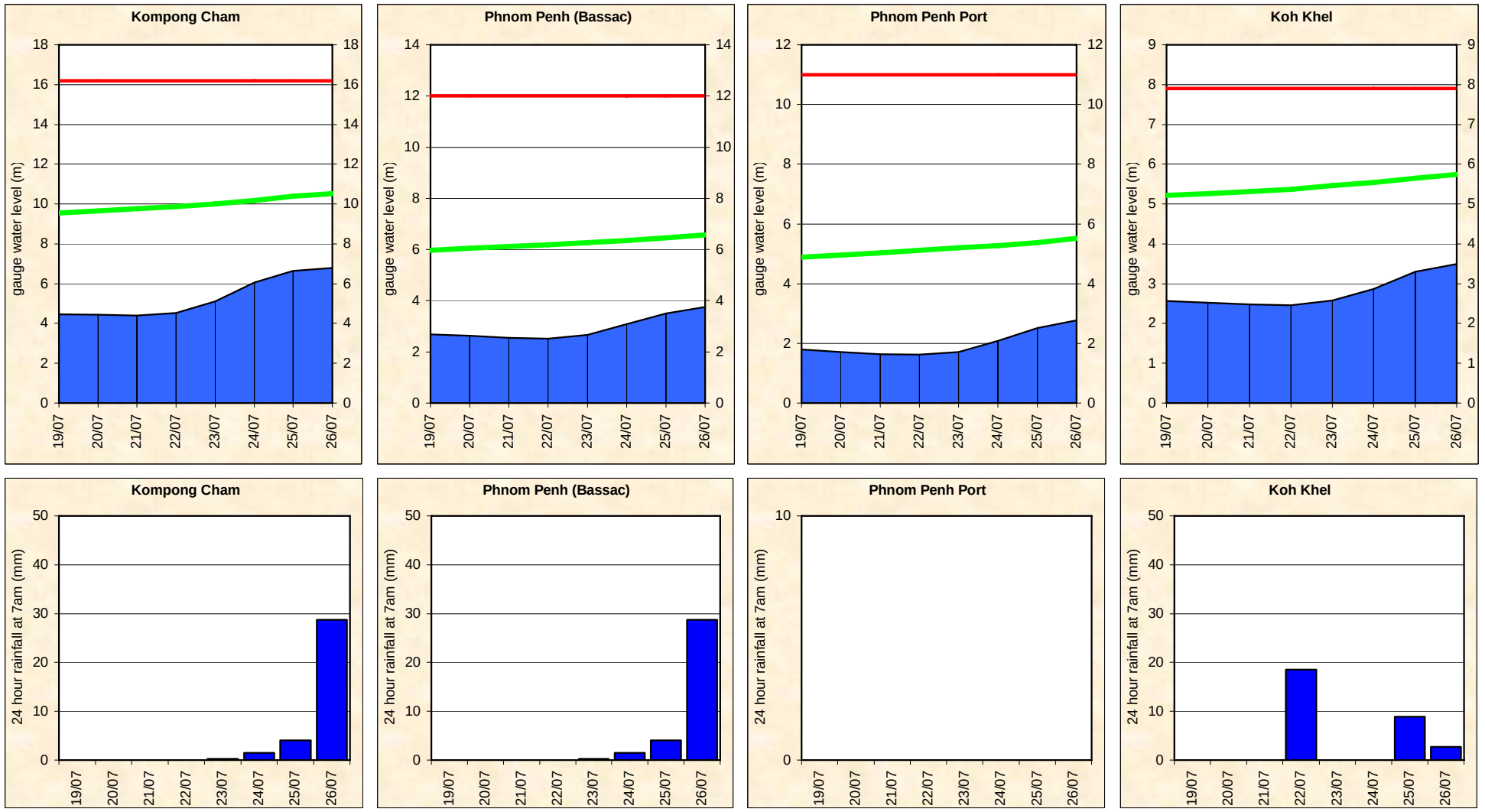
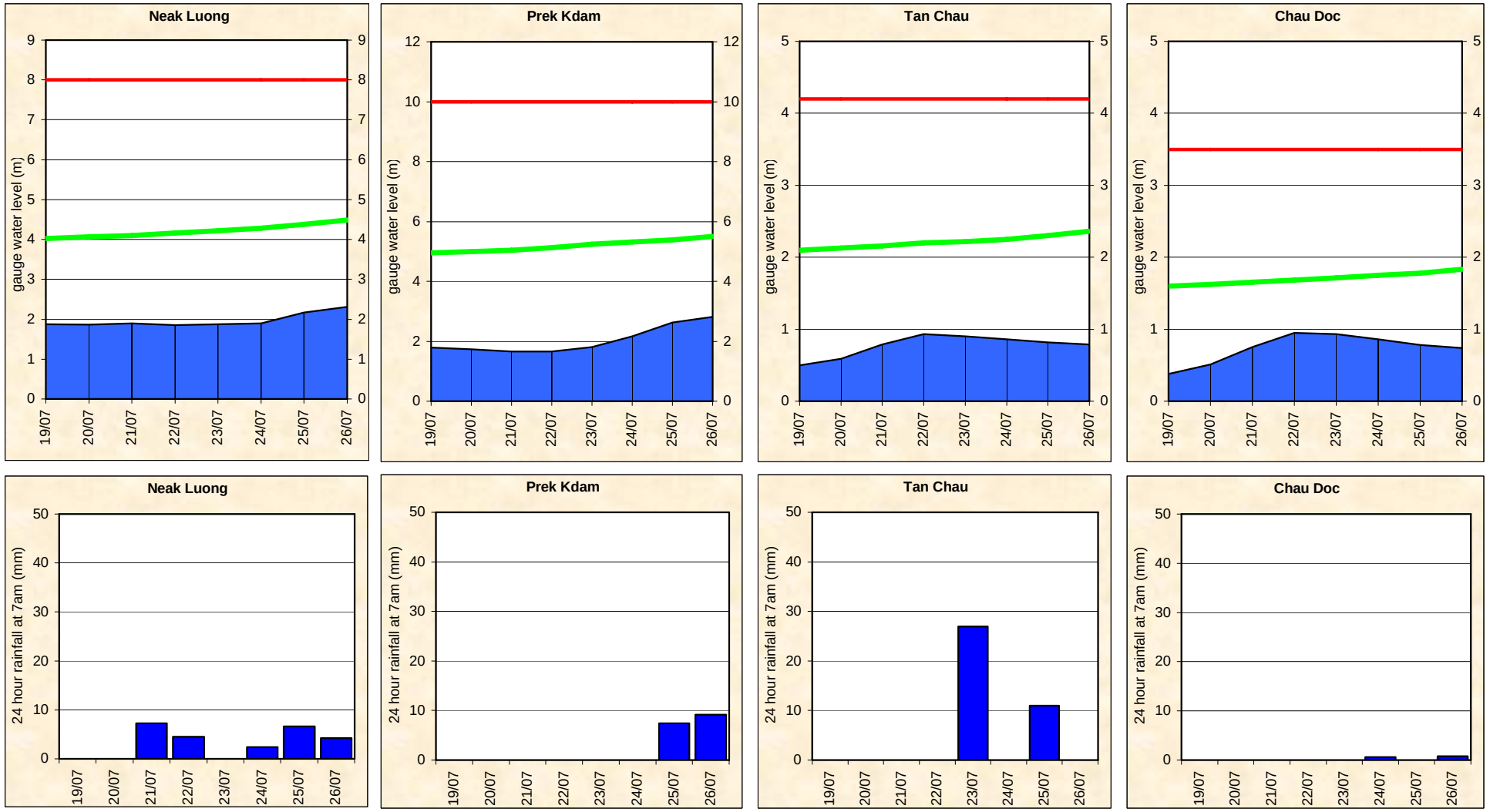


Figure A6: Water level and rainfall for Neak Luong, Prek Kdam, Tan Chau and Chau Doc



Annex B: Accuracy and performance

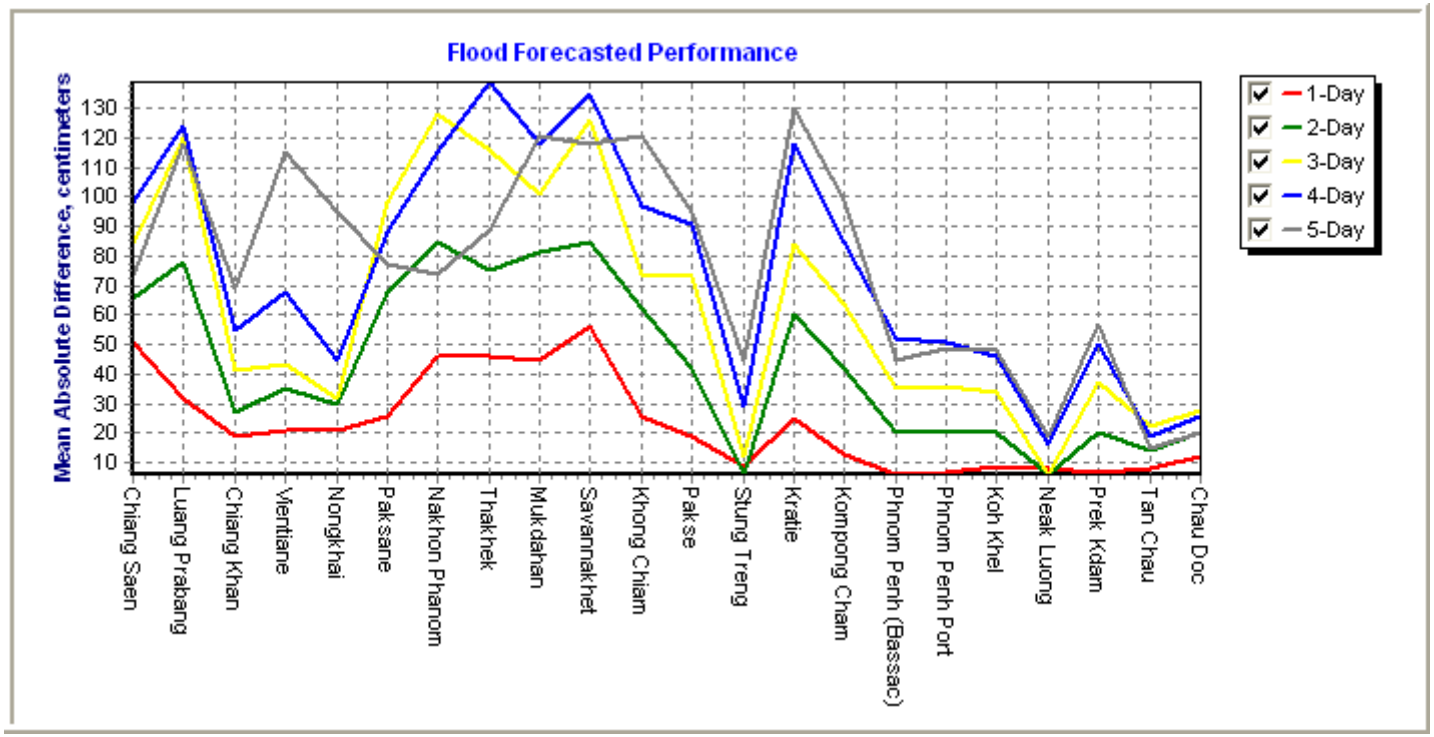
Accuracy

"Accuracy" describes the accuracy of the adjusted and published forecast, based on the results of the MRC Mekong Flood Forecasting System, which are then adjusted by the Flood Forecaster-In-Charge taking into consideration the known biases in input data, the knowledge of model response and the experience with hydrometeorological conditions of the Mekong River Basin. The information presented as a graph below shows the average flood forecasting accuracy along the Mekong mainstream.

The graph of average difference between forecast and actual water levels for the past week shows the abnormal pattern in which the accuracy at stations in upper reach of the LMB was better than that in the middle reach. The peaks at Chiang Khan and Savannakhet for 5 day forecast lead time, at Kratie for 2-day to 5-day forecast lead time were less than expected.

The above differences are due to two main factors: (1) internal model functionality in forecasting for upper and middle reaches of the LMB because of high variability of rainfall forecast from the Numerical Weather Prediction model (NOAA) and inability to adjust the model parameters; (2) the knowledge and experience of forecaster-in-charge in adjusting the forecast results taking into account the rapid flow of some major tributaries that flow into the Mekong mainstream stations in the middle reach of the LMB resulted from the influence of TY "*CHANTHU*" and ITCZ.

Figure B1: Average flood forecast accuracy along the Mekong mainstream



Forecast Achievement

The forecast achievement indicates the % of days that the forecast at a particular station for a lead-time is successful against a respective benchmark (Table B2).

Table B1: Achievement of daily forecast against benchmarks unit in %

	Chiang Saen	Luang Prabang	Chiang Khan	Vientiane	Nongkhai	Paksane	Nakhon Phanom	Thakhek	Mukdahan	Savannakhet	Khong Chiam	Pakse	Stung Treng	Kratie	Kompong Cham	Phnom Penh (Bassac)	Phnom Penh Port	Koh Khel	Neak Luong	Prek Kdam	Tan Chau	Chau Doc	*Average*
1-day	50.0	83.3	66.7	66.7	50.0	50.0	50.0	50.0	33.3	50.0	83.3	50.0	66.7	50.0	50.0	66.7	83.3	50.0	66.7	66.7	66.7	50.0	*59.1*
2-day	80.0	40.0	60.0	40.0	60.0	0.0	20.0	20.0	20.0	60.0	80.0	80.0	100.0	20.0	60.0	0.0	40.0	40.0	100.0	20.0	20.0	20.0	*44.5*
3-day	25.0	50.0	75.0	75.0	75.0	0.0	0.0	25.0	50.0	25.0	50.0	75.0	100.0	50.0	25.0	25.0	25.0	25.0	75.0	25.0	25.0	25.0	*42.0*
4-day	33.3	66.7	66.7	33.3	33.3	33.3	33.3	0.0	33.3	33.3	33.3	33.3	66.7	0.0	66.7	66.7	66.7	66.7	0.0	66.7	33.3	0.0	*39.4*
5-day	50.0	100.0	50.0	0.0	0.0	50.0	100.0	50.0	50.0	50.0	0.0	0.0	0.0	0.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	*40.9*

Table B2: Benchmarks of success (Indicator of accuracy in mean absolute error) Unit in cm

	Chiang Saen	Luang Prabang	Chiang Khan	Vientiane	Nongkhai	Paksane	Nakhon Phanom	Thakhek	Mukdahan	Savannakhet	Khong Chiam	Pakse	Stung Treng	Kratie	Kompong Cham	Phnom Penh (Bassac)	Phnom Penh Port	Koh Khel	Neak Luong	Prek Kdam	Tan Chau	Chau Doc
1-day	50	50	25	25	25	25	25	25	25	25	25	25	10	10	10	10	10	10	10	10	10	10
2-day	75	75	25	25	25	25	50	50	50	50	50	50	25	25	25	10	10	10	10	10	10	10
3-day	75	100	50	50	50	50	50	50	50	50	75	75	50	50	25	10	10	10	10	10	10	10
4-day	100	*125*	75	50	50	50	50	50	75	75	75	75	50	50	50	25	25	25	10	25	10	10
5-day	100	*150*	75	75	75	75	75	75	75	75	75	75	50	50	50	25	25	25	10	25	10	10

Performance

Performance is assessed by evaluating a number of performance indicators, see table and graphs below:

Table B3: Overview of performance indicators for the past 8 days including the current report date

	Flood Forecast: time sent				Arrival time of input data (average)							Missing data (number)						
2010	FF completed and sent (time)	stations without forecast	FF2 completed and sent (time)	Weather information available (number)	NOAA data	China	Cambodia - DHRW	Cambodia - DOM	Lao PDR - DMH	Thailand - DWR	Viet Nam - NCHMF	NOAA data	China	Cambodia - DHRW	Cambodia - DOM	Lao PDR - DMH	Thailand - DWR	Viet Nam - NCHMF
week	*11:10*	*0*	*-*	*8*	*08:13*	*-*	*08:09*	*08:02*	*08:52*	*08:16*	*07:10*	*0*	*2*	*1*	*144*	*137*	*2*	*26*
month	*10:50*	*2*	*-*	*10*	*13:26*	*-*	*08:02*	*07:43*	*08:33*	*08:24*	*07:28*	*0*	*8*	*13*	*549*	*448*	*15*	*185*
season	*10:46*	*2*	*-*	*54*	*20:04*	*-*	*08:08*	*07:51*	*08:38*	*08:25*	*07:31*	*0*	*8*	*36*	*1451*	*1064*	*31*	*437*

Week is the week for which this report is made; *Month* is actually the last 30 days (or less if the flood season has just begun); *Season* is the current flood season up to the date of this report.

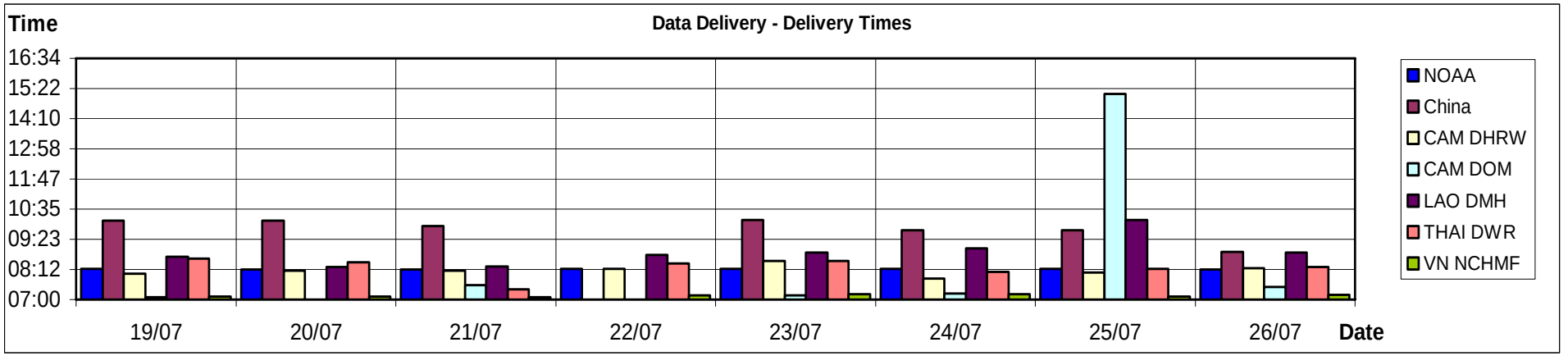


Figure B2: Data delivery times for the past 8 days including the current report date

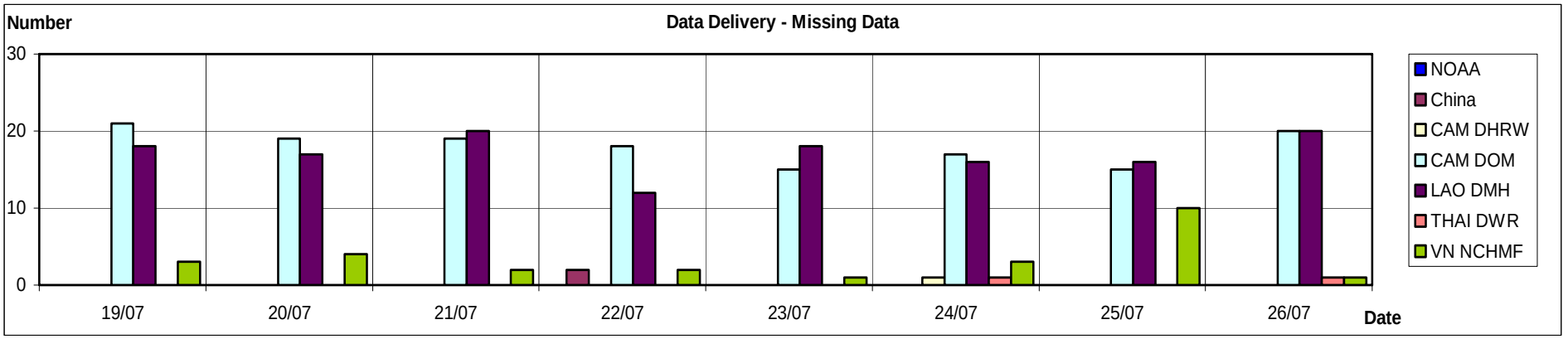


Figure B3: Missing data for the past 8 days including the current report date

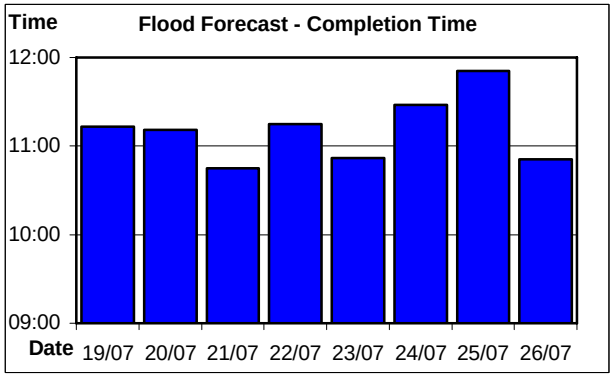


Figure B4: Flood forecast completion time

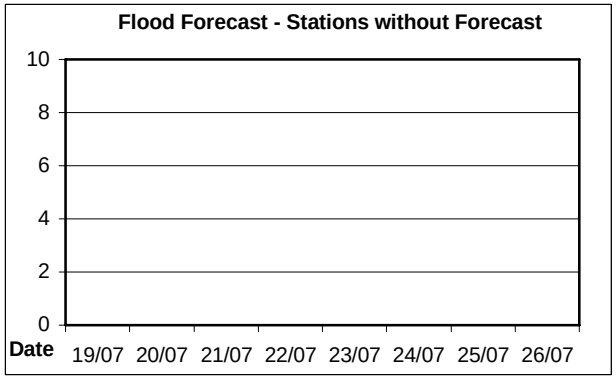


Figure B5: Flood forecast stations without forecast

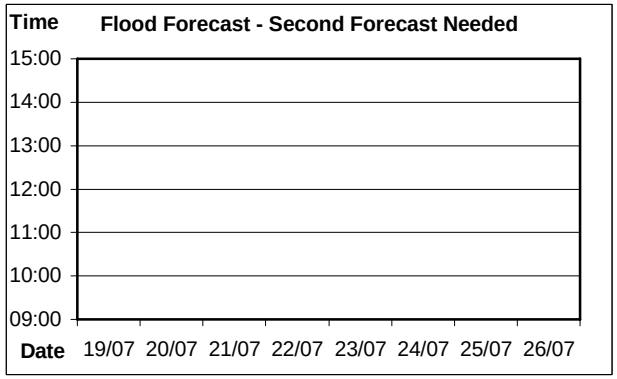


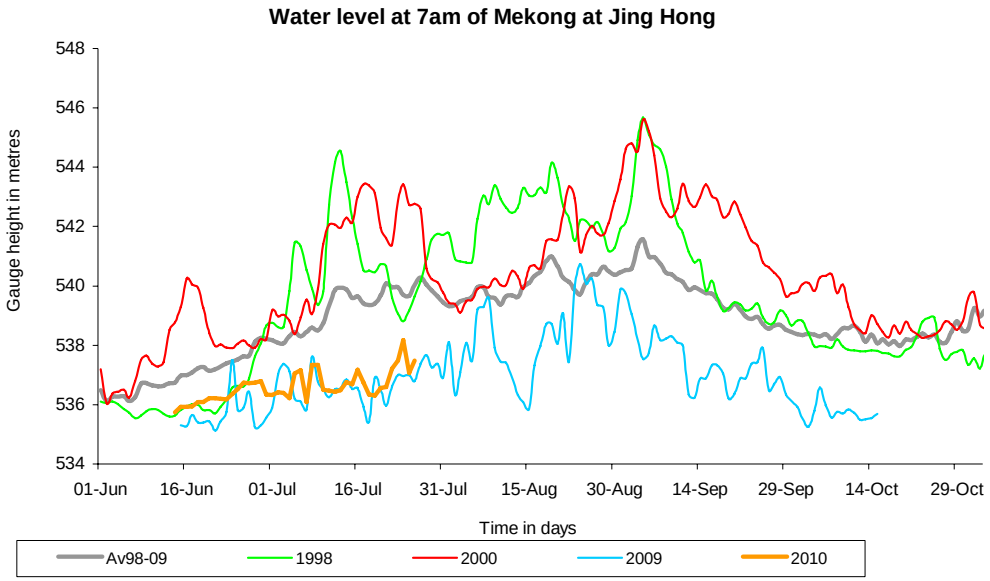
Figure B6: Second forecast needed

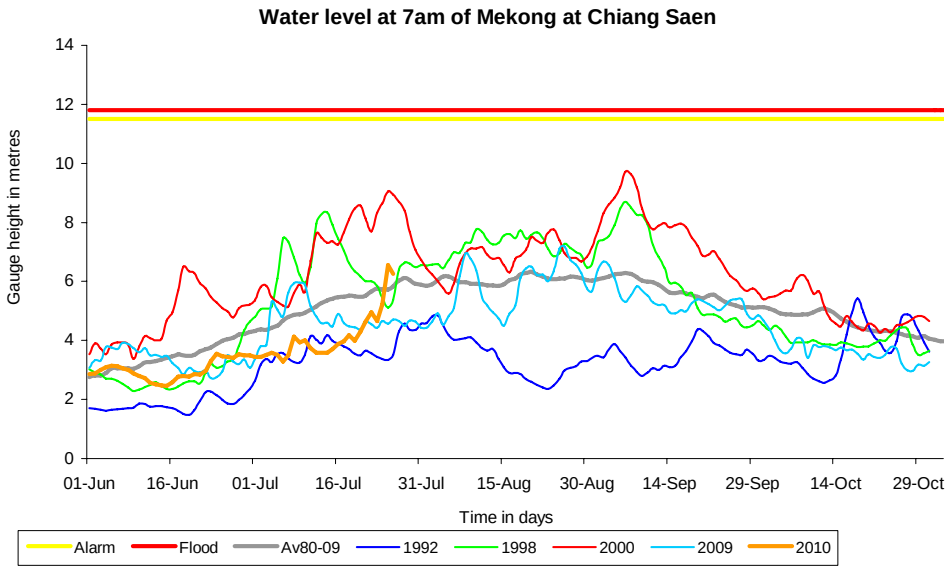
Annex C: Season Water Level Graphs

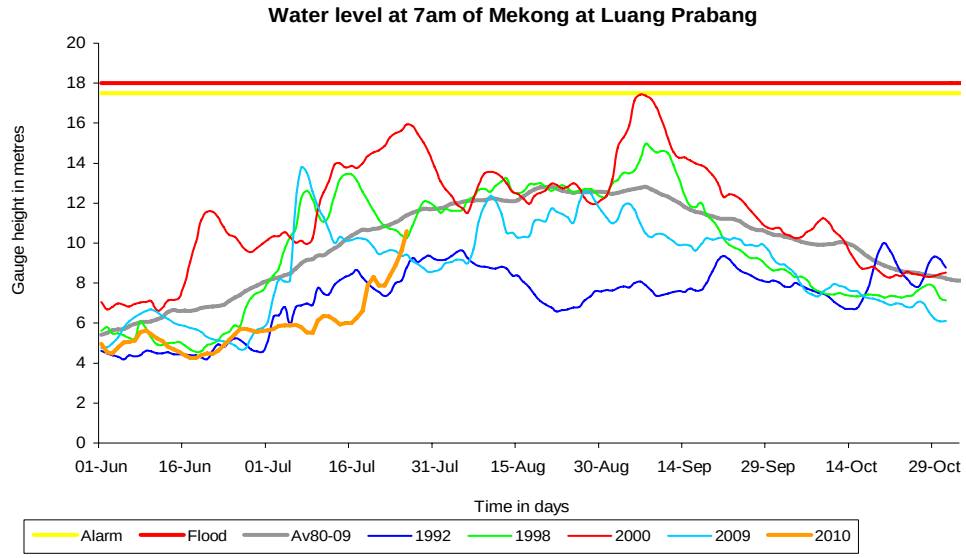
This Annex has the water level graphs of the report date. These graphs are distributed daily by email together with the Flood Bulletins.

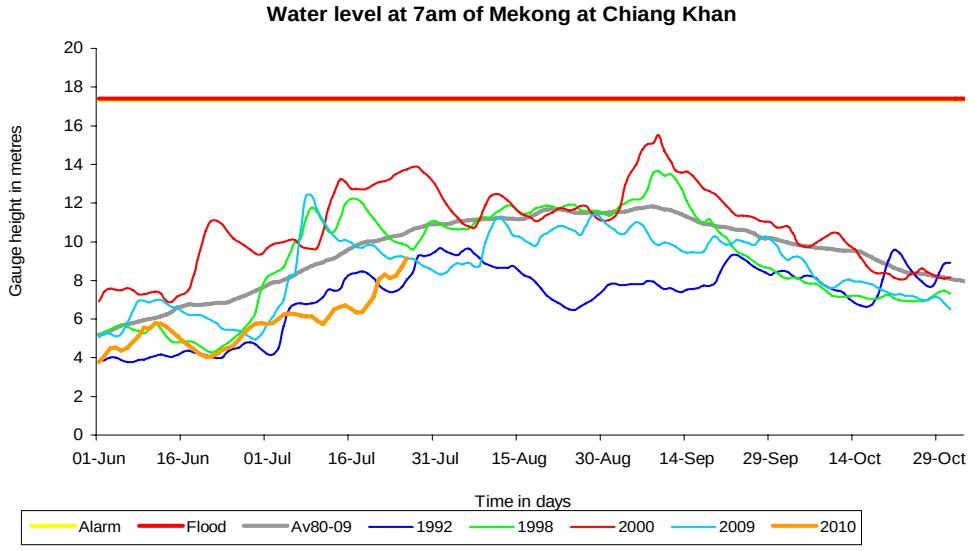
HYDROGRAPHS OF THE MEKONG AT MAINSTREAM STATIONS

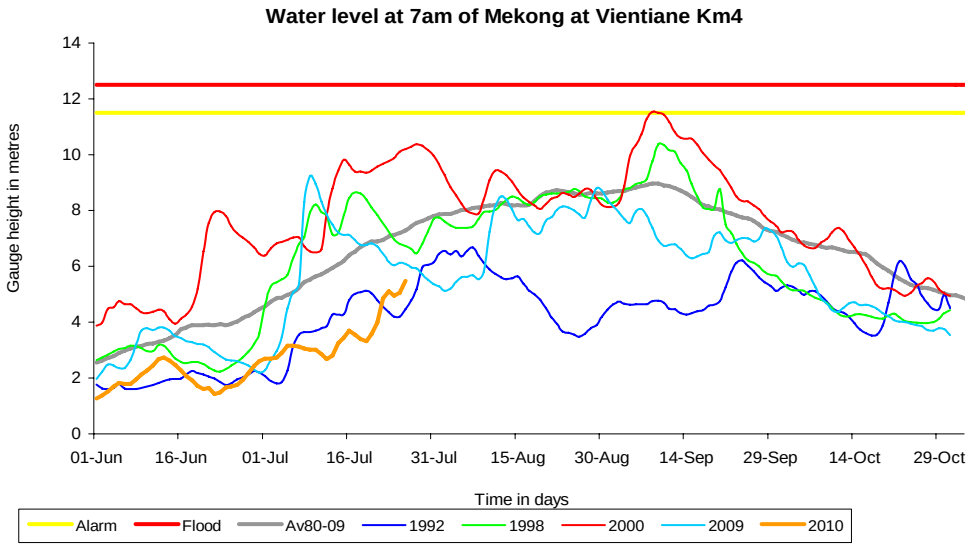
IN WET SEASON FROM 1 JUNE TO 31 OCTOBER

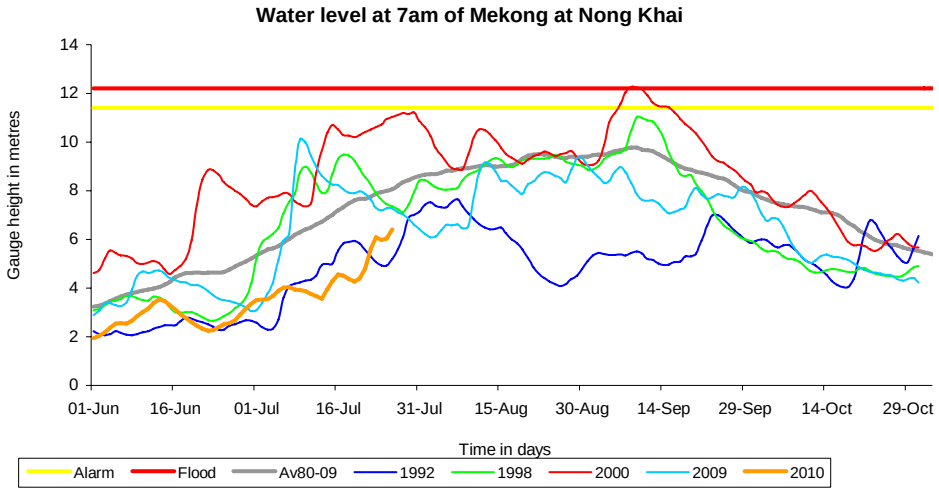


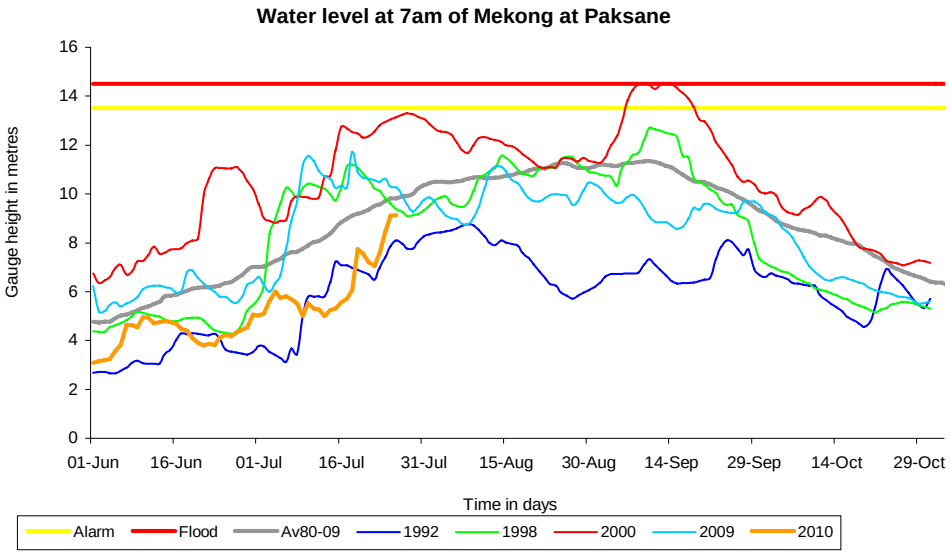


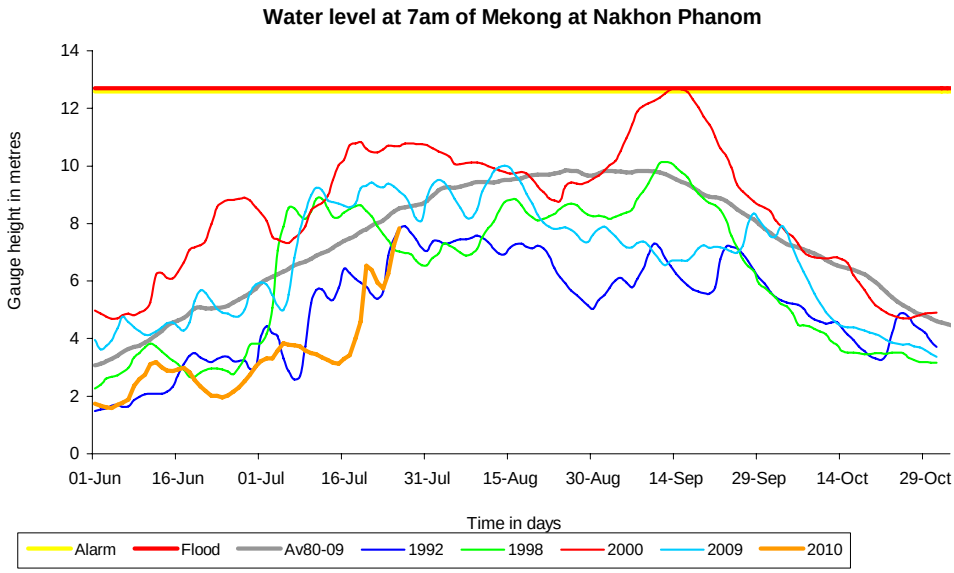

Water level at 7am of Mekong at Luang Prabang
Gauge height in metres
20
18
16
14
12
10
8
6
4
2
0
01-Jun
16-Jun
01-Jul
16-Jul
31-Jul
15-Aug
30-Aug
14-Sep
29-Sep
14-Oct
29-Oct
Time in days
Alarm
Flood
Av80-09
1992
1998
2000
2009
2010

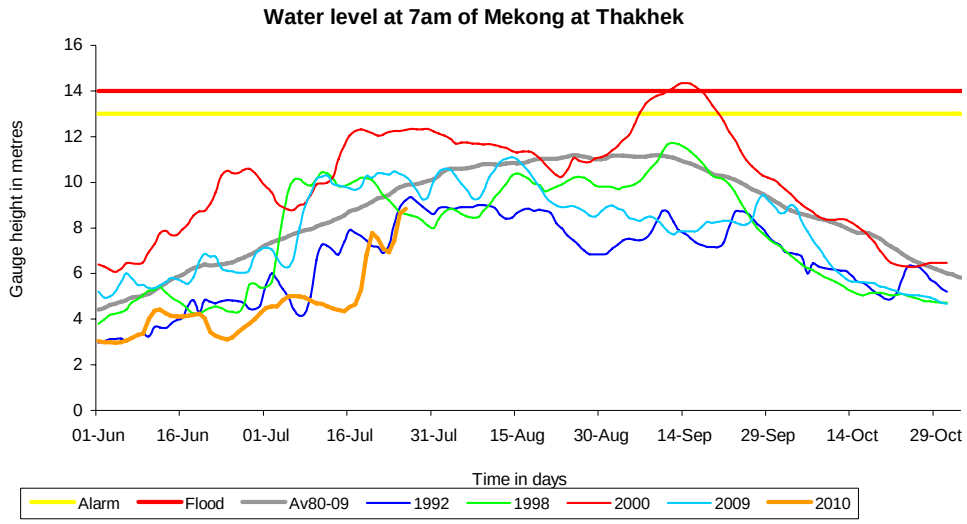

Water level at 7am of Mekong at Chiang Khan
Gauge height in metres
20
18
16
14
12
10
8
6
4
2
0
01-Jun
16-Jun
01-Jul
16-Jul
31-Jul
15-Aug
30-Aug
14-Sep
29-Sep
14-Oct
29-Oct
Time in days
Alarm
Flood
Av80-09
1992
1998
2000
2009
2010

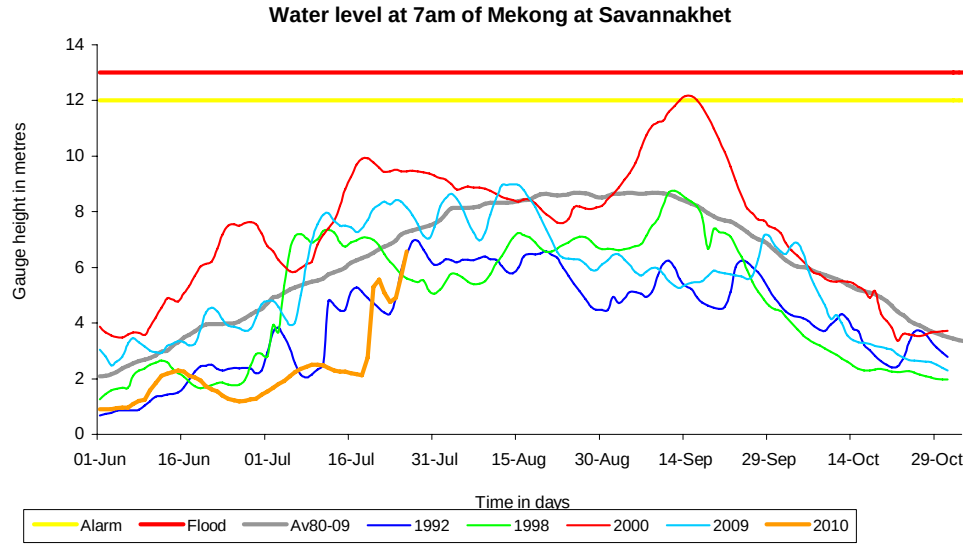

Water level at 7am of Mekong at Vientiane Km4
Gauge height in metres
14
12
10
8
6
4
2
0
01-Jun
16-Jun
01-Jul
16-Jul
31-Jul
15-Aug
30-Aug
14-Sep
29-Sep
14-Oct
29-Oct
Time in days
Alarm
Flood
Av80-09
1992
1998
2000
2009
2010

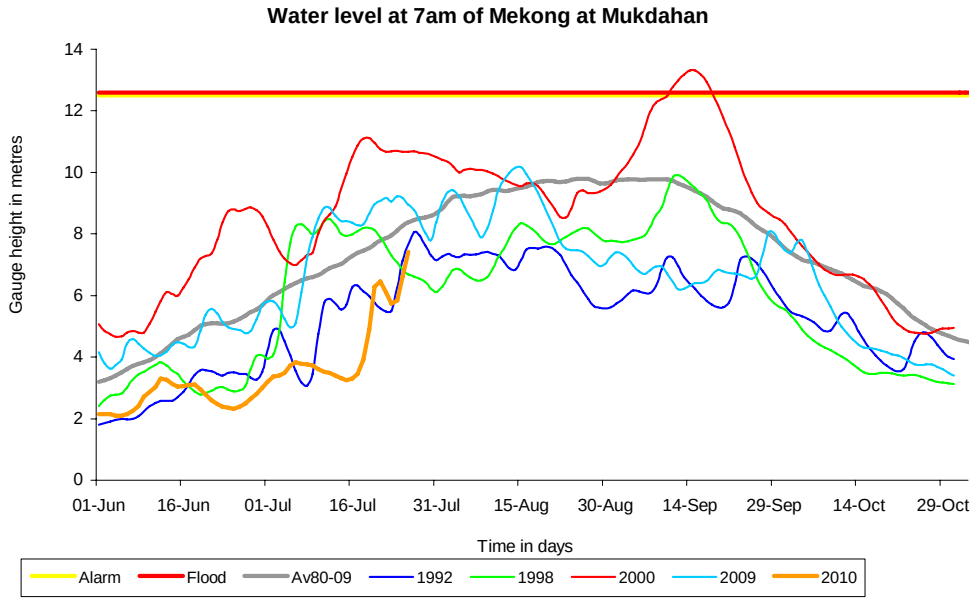

Water level at 7am of Mekong at Nong Khai
Gauge height in metres
0
2
4
6
8
10
12
14
01-Jun
16-Jun
01-Jul
16-Jul
31-Jul
15-Aug
30-Aug
14-Sep
29-Sep
14-Oct
29-Oct
Time in days
Alarm
Flood
Av80-09
1992
1998
2000
2009
2010


Water level at 7am of Mekong at Paksane
Gauge height in metres
0
2
4
6
8
10
12
14
16
01-Jun
16-Jun
01-Jul
16-Jul
31-Jul
15-Aug
30-Aug
14-Sep
29-Sep
14-Oct
29-Oct
Time in days
Alarm
Flood
Av80-09
1992
1998
2000
2009
2010

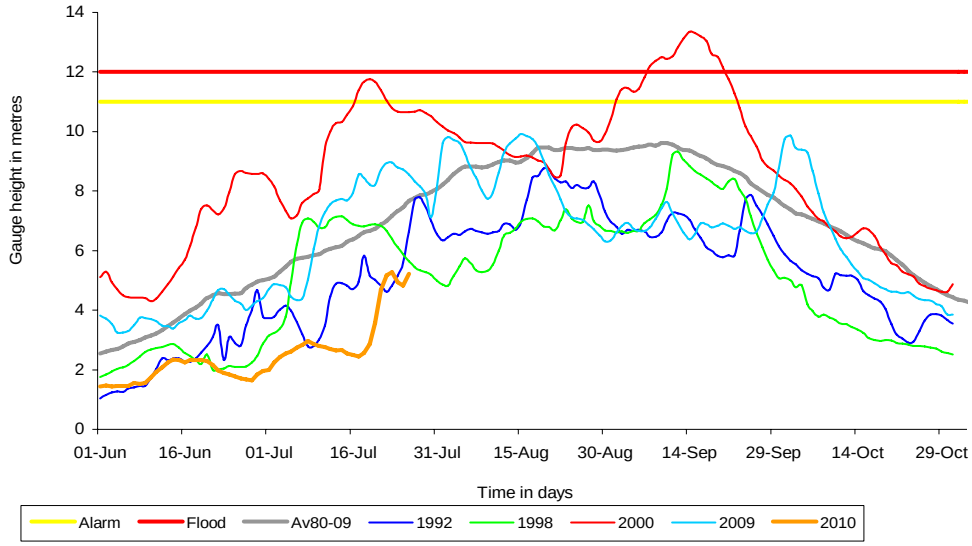

Water level at 7am of Mekong at Nakhon Phanom
Gauge height in metres
0
2
4
6
8
10
12
14
01-Jun
16-Jun
01-Jul
16-Jul
31-Jul
15-Aug
30-Aug
14-Sep
29-Sep
14-Oct
29-Oct
Time in days
Alarm
Flood
Av80-09
1992
1998
2000
2009
2010


Water level at 7am of Mekong at Thakhek
Gauge height in metres
0
2
4
6
8
10
12
14
16
01-Jun
16-Jun
01-Jul
16-Jul
31-Jul
15-Aug
30-Aug
14-Sep
29-Sep
14-Oct
29-Oct
Time in days
Alarm
Flood
Av80-09
1992
1998
2000
2009
2010

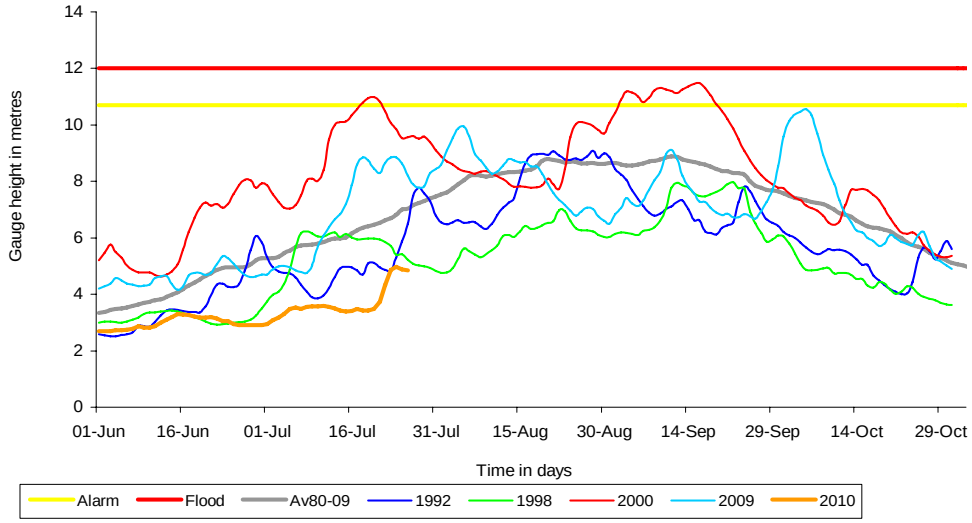

Water level at 7am of Mekong at Savannakhet
Gauge height in metres
0
2
4
6
8
10
12
14
01-Jun
16-Jun
01-Jul
16-Jul
31-Jul
15-Aug
30-Aug
14-Sep
29-Sep
14-Oct
29-Oct
Time in days
Alarm
Flood
Av80-09
1992
1998
2000
2009
2010


Water level at 7am of Mekong at Mukdahan
Gauge height in metres
0
2
4
6
8
10
12
14
01-Jun
16-Jun
01-Jul
16-Jul
31-Jul
15-Aug
30-Aug
14-Sep
29-Sep
14-Oct
29-Oct
Time in days
Alarm
Flood
Av80-09
1992
1998
2000
2009
2010

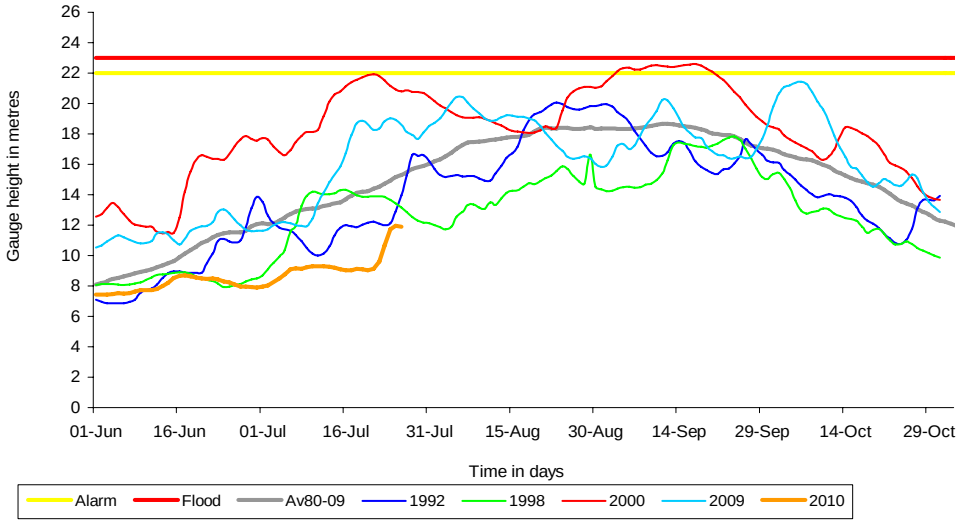
Water level at 7am of Mekong at Paksé

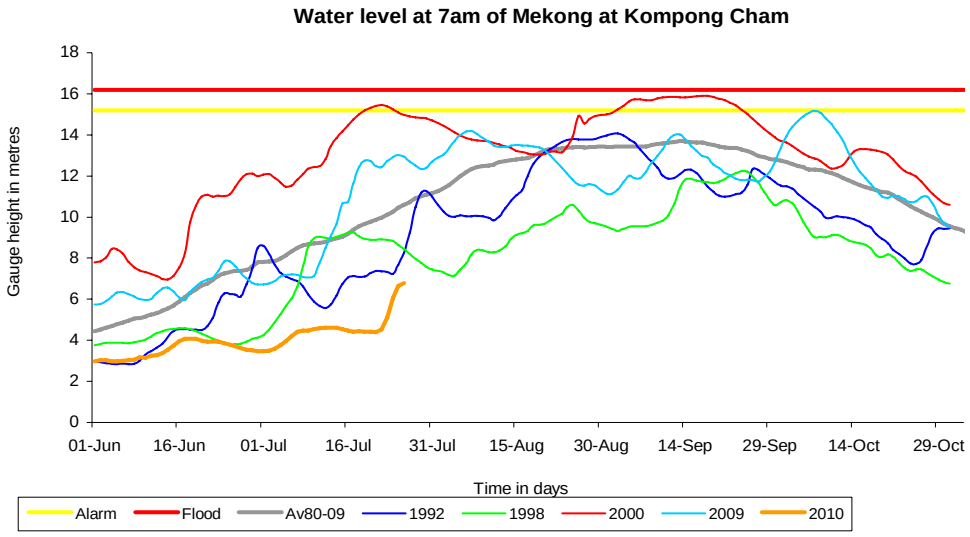


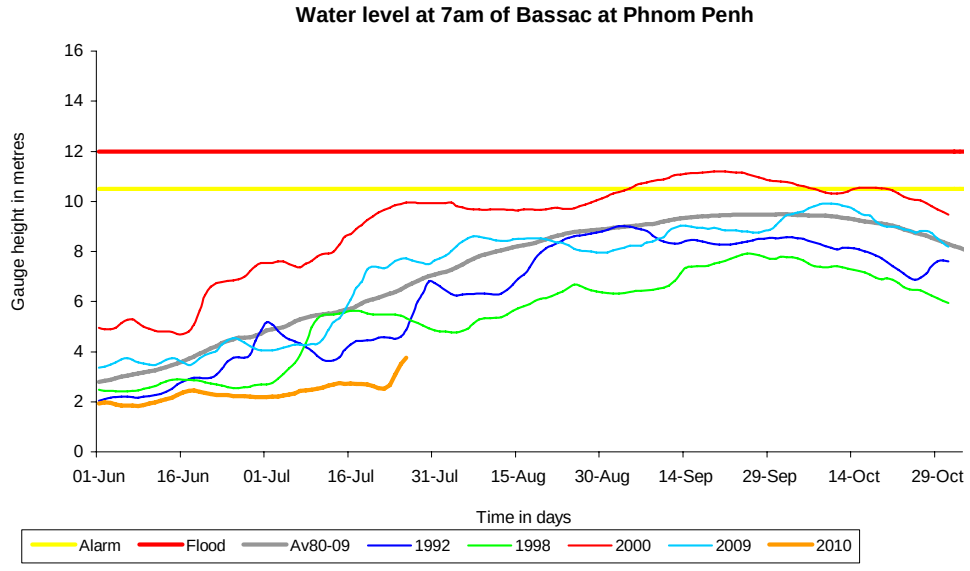
Water level at 7am of Mekong at Stung Treng

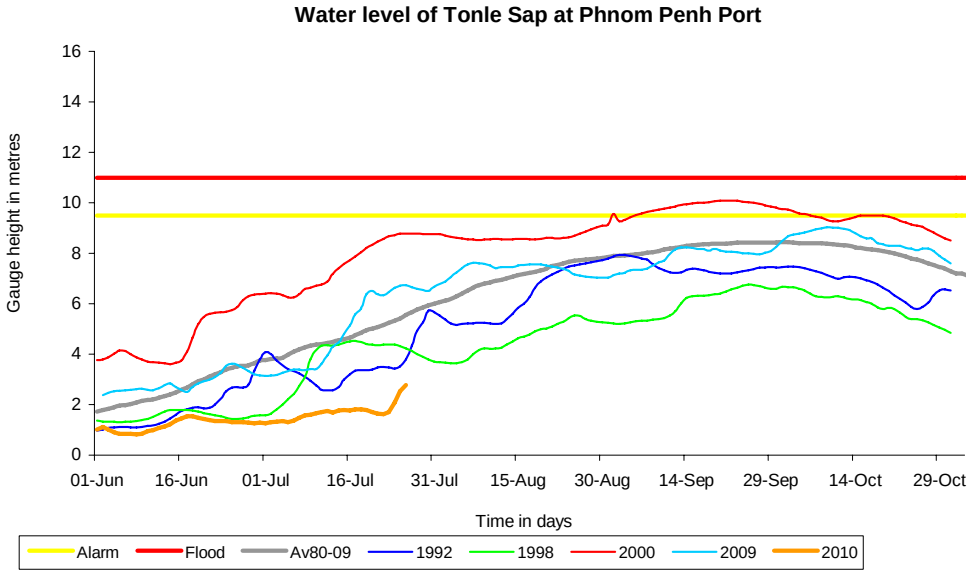


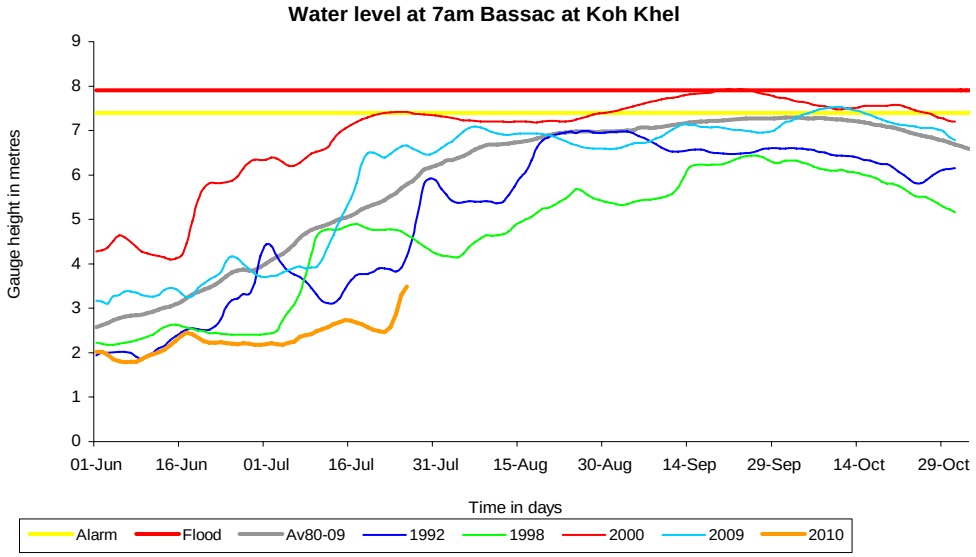
Water level at 7am of Mekong at Kratie

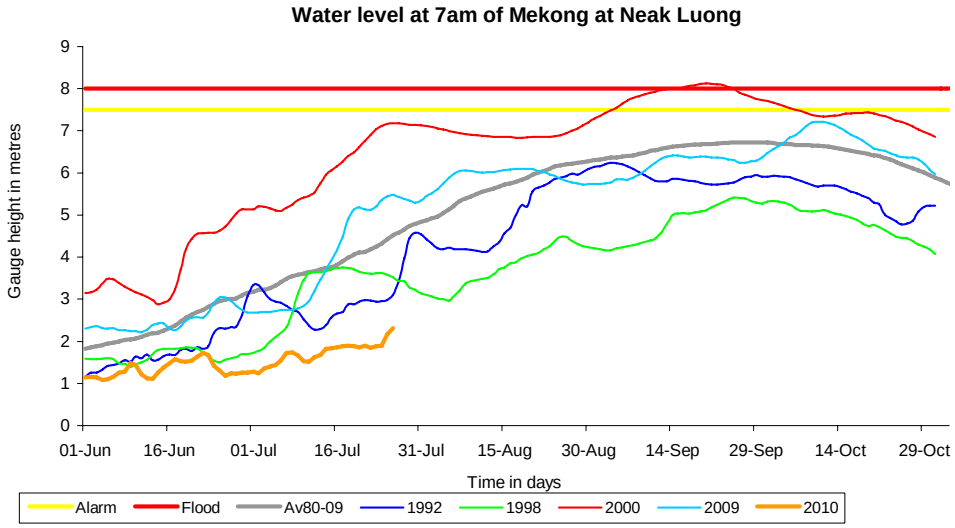


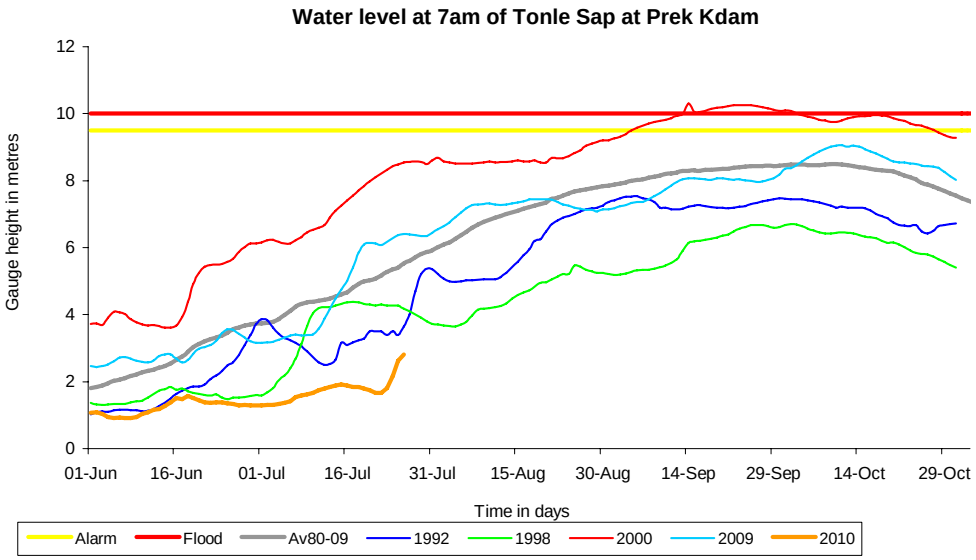

Water level at 7am of Mekong at Kompong Cham
Gauge height in metres
18
16
14
12
10
8
6
4
2
0
01-Jun
16-Jun
01-Jul
16-Jul
31-Jul
15-Aug
30-Aug
14-Sep
29-Sep
14-Oct
29-Oct
Time in days
Alarm
Flood
Av80-09
1992
1998
2000
2009
2010

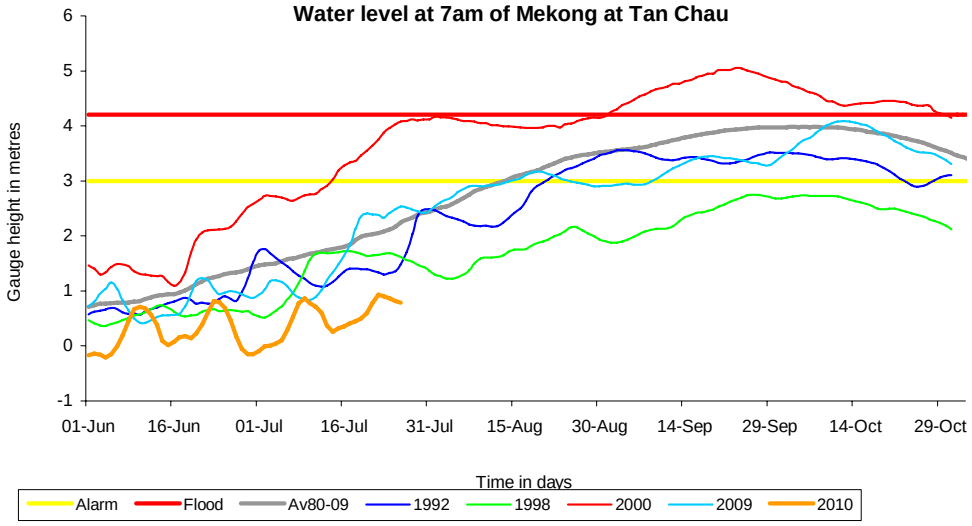

Water level at 7am of Bassac at Phnom Penh
Gauge height in metres
16
14
12
10
8
6
4
2
0
01-Jun
16-Jun
01-Jul
16-Jul
31-Jul
15-Aug
30-Aug
14-Sep
29-Sep
14-Oct
29-Oct
Time in days
Alarm
Flood
Av80-09
1992
1998
2000
2009
2010

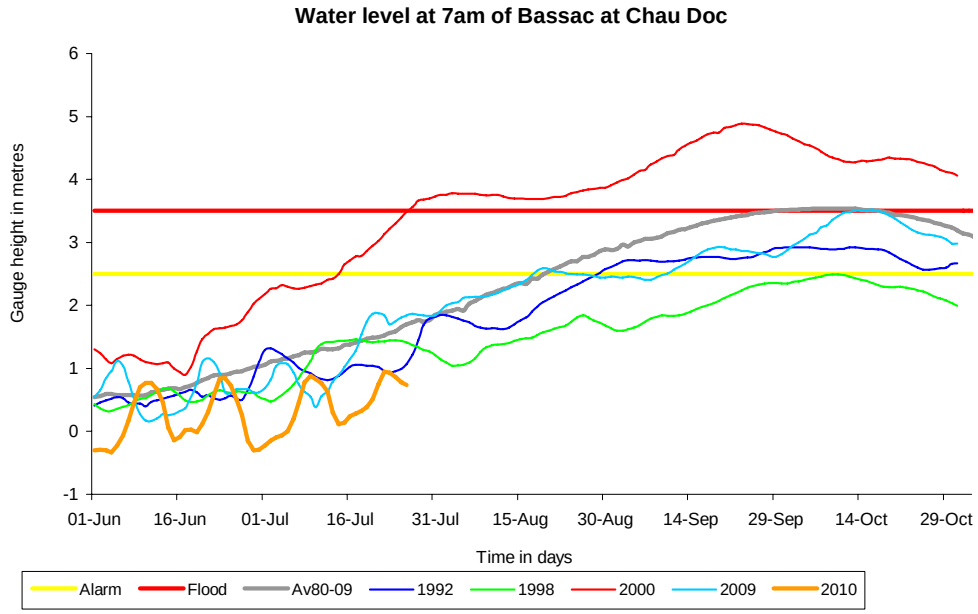

Water level of Tonle Sap at Phnom Penh Port
Gauge height in metres
16
14
12
10
8
6
4
2
0
01-Jun
16-Jun
01-Jul
16-Jul
31-Jul
15-Aug
30-Aug
14-Sep
29-Sep
14-Oct
29-Oct
Time in days
Alarm
Flood
Av80-09
1992
1998
2000
2009
2010


Water level at 7am Bassac at Koh Khel
Gauge height in metres
0
1
2
3
4
5
6
7
8
9
01-Jun
16-Jun
01-Jul
16-Jul
31-Jul
15-Aug
30-Aug
14-Sep
29-Sep
14-Oct
29-Oct
Time in days
Alarm
Flood
Av80-09
1992
1998
2000
2009
2010


Water level at 7am of Mekong at Neak Luong
Gauge height in metres
0
1
2
3
4
5
6
7
8
9
01-Jun
16-Jun
01-Jul
16-Jul
31-Jul
15-Aug
30-Aug
14-Sep
29-Sep
14-Oct
29-Oct
Time in days
Alarm
Flood
Av80-09
1992
1998
2000
2009
2010


Water level at 7am of Tonle Sap at Prek Kdam
Gauge height in metres
0
2
4
6
8
10
12
01-Jun
16-Jun
01-Jul
16-Jul
31-Jul
15-Aug
30-Aug
14-Sep
29-Sep
14-Oct
29-Oct
Time in days
Alarm
Flood
Av80-09
1992
1998
2000
2009
2010


Water level at 7am of Mekong at Tan Chau
Gauge height in metres
6
5
4
3
2
1
0
-1
01-Jun
16-Jun
01-Jul
16-Jul
31-Jul
15-Aug
30-Aug
14-Sep
29-Sep
14-Oct
29-Oct
Time in days
Alarm
Flood
Av80-09
1992
1998
2000
2009
2010


Water level at 7am of Bassac at Chau Doc
Gauge height in metres
6
5
4
3
2
1
0
-1
01-Jun
16-Jun
01-Jul
16-Jul
31-Jul
15-Aug
30-Aug
14-Sep
29-Sep
14-Oct
29-Oct
Time in days
Alarm
Flood
Av80-09
1992
1998
2000
2009
2010