# Mekong River Commission
## Regional Flood Management and Mitigation Centre

**Weekly Flood Situation Report for the Mekong River Basin**

**Prepared at: 18/09/2018, covering the week from the 10th to 17th September 2018**

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

**General weather patterns**

This weekly report is prepared from 10th to 17th September 2018, the weather bulletins were issued by the Department of Meteorology (DOM) of Cambodia. The weather maps were referenced from Thailand Meteorology Department (TMD) on 13th and 17th September 2018 as presented in the **Figures 1 & 2** as follows:

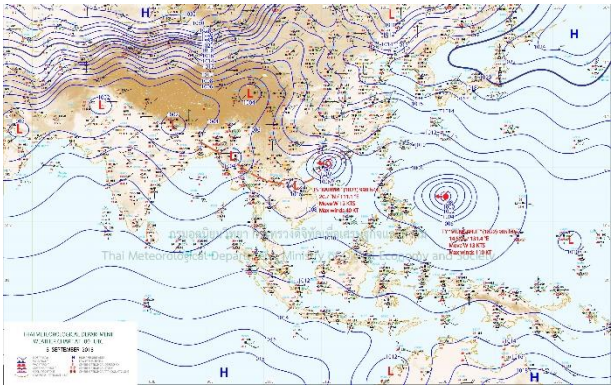


**Figure 1: Weather map for 13th Sept 2018**

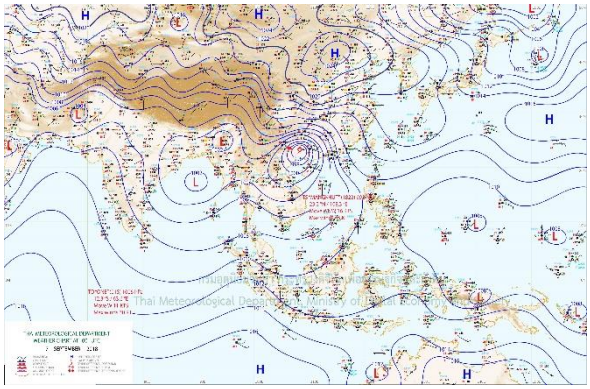


**Figure 2: Weather map for17th Sept 2018**

**Moderate South-West (SW) Monsoon**

During the last week, the low pressure was nominated in the upper part of the Lower Mekong Basin (LMB) which resulted in abundant rainfall occurring. **Figure 1** and **2** shown the low-pressure effect in the LMB.

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

Based on the National Center for Hydrometeorological Forecasting (NCHMF) from 15th September 2018, the Typhon Storm "Mangkhut" was move forwarded from the Philippine and hit Northern part of Vietnam on 17th September 2018. Although, this supper typhoon was not affected in the Mekong region, but it was affected in SW-Monsoon that caused moderated rainfall in the upper part of Lao PDR and some parts of the 3S area.

**Other weather phenomena that affect the discharge**

According to the Thai Meteorological Department (TMD), there will influence the prevailing southwest monsoon over Mekong region, including the Gulf of Thailand to become more rainfall. The low pressure was hit the upper part of the Mekong region, during that time (see **Fig.1**).

**Over weather situation**

During last week, the weather was scattered thundershowers with moderate rain of the Southwest monsoon. Consequently, in this week there was moderate rainfall covered from upper part of Naphon Phanom and to Khong Chaim and Pakse. The observed rainfall at Paksane to Pakse and the 3S area showed high rainfall between 100 mm to 250mm, which slightly effected by the Typhoon Mangkhut from Vietnam. The weekly rainfall distribution is shown in **Figure 3** and daily rainfall at key stations in the Lower Mekong Basin are shown **Table A2**.

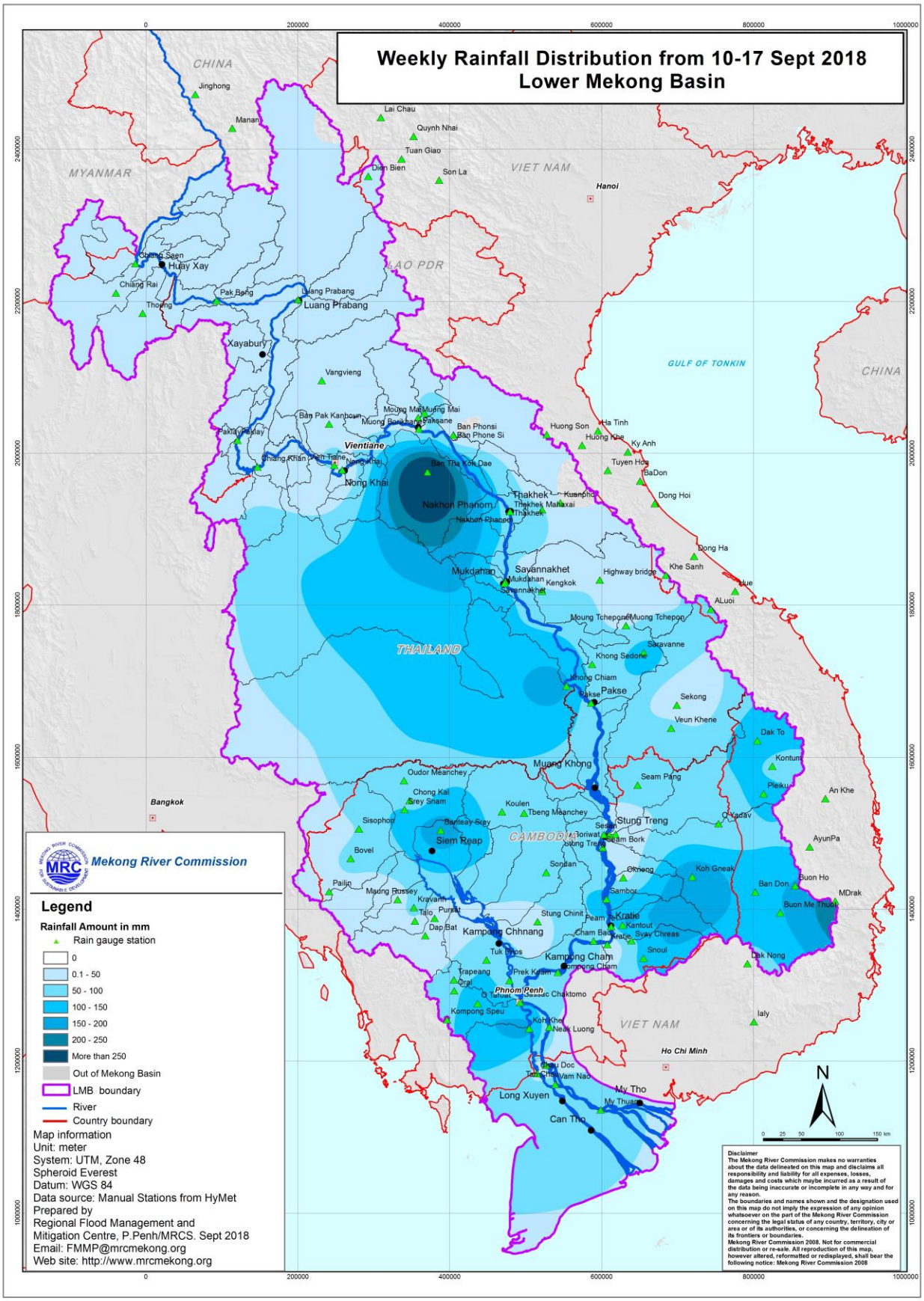



**Figure 3: Weekly Rainfall Distribution over the LMB from 10th to 17th September 2018**

## General behaviour of the Mekong River

During the last week, the water levels at stations from upper to middle part of LMB has been decreasing due to inflow operation upstream part, while at downstream part has been slightly rising.

### *For stations from Chiang Saen and Luang Prabang*

Water levels from 10th to 17th September 2018 at Chiang Sean station were fluctuated over its long-term average (LTA), which mostly effected by the inflow from Jinghon station in China. For Luang Prabang station, water levels were nominated by upstream inflow from Chiang Sean and tributaries. This week water levels were decreased from 13.32 m to 12.49 m from 11th to 17th September 2018.

### *For stations from Chiang Khan, Vientiane and Nong Khai and Paksane*

Water levels at these stations were continued to decrease significantly at Chiang Khan, which drooped 1.14 m from 12. 12 m to 10. 98 m between 15th and 16th September 2018. This was considered influence by the upstream hydro-power operation (maybe in Xayaburi dam). From Vientiane, Nong Khai to Paksane this week decreased significantly based on upstream inflows. However, water levels at these stations are still stayed over their Long-Term Averages (LTAs).

### *For stations from Nakon Phanom/Thakhet to Mukdaha/Sovannakhet*

Water levels from Nakhon Phanom/Thakhet to Mukdahan/Sovannakhet stations were continued to decrease since a week before. Based on out monitoring, water levels at Nakhon Phanom were dropped down from the alarm level after 10th September 2018. However, water levels at these stations are still stayed over their Long-Term Averages (LTAs).

### *For stations from Khong Chiam to Pakse*

Water levels from Khong Chiam to Pakse stations were continued to decrease, based on inflows from upstream and their tributaries. However, water levels at these stations are still stayed over their Long-Term Averages (LTAs).

### *For stations from Stung Treng to Kompong Cham/ Phnom Penh to Koh Khel/Neak Luong*

Water levels at Stung Treng, Kratie, Kompong Cham and Phnom Penh stations were also continued to decrease from 10th to 17th September 2018. However, water levels at Koh Khel were remained over the alarm levels. However, water levels at these stations are still stayed over their Long-Term Averages (LTAs).

### *Tan Chau and Chau Doc*

Water level at these 2 tidal stations were also maintained over the alarm levels since last week and are expecting to stay over their alarm levels in next week.

***Note:*** For more detail the flood situation during the last week, please see the hydrographic in Annex C.

## Flood Situation

This week the water levels decreased significantly from upstream to downstream of the Mekong River, but some stations are still remained over alarm level at some stations.

- Alarm stage: This week, the alarm levels were still found at Koh Khel, Tan Chau and Chau Doc.

For more details see the following annexes:

- 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

| 2018 | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10/09/2018 | 536.03 | 5.70 | 13.60 | 12.90 | 10.15 | 11.66 | 13.81 | 11.77 | 12.88 | 11.72 | 10.49 | 13.28 | 11.00 | 9.49 | 20.70 | 14.73 | 9.79 | 8.80 | 7.72 | 7.36 | 8.84 | 3.96 | 3.58 |
| 11/09/2018 | 536.65 | 5.49 | 13.36 | 12.50 | 9.65 | 11.19 | 13.51 | 11.61 | 12.66 | 11.46 | 10.34 | 13.01 | 10.72 | 9.46 | 20.65 | 14.66 | 9.79 | 8.80 | 7.71 | 7.34 | 8.86 | 3.93 | 3.53 |
| 12/09/2018 | 536.98 | 5.25 | 12.75 | 12.10 | 9.30 | 10.84 | 13.26 | 11.39 | 12.45 | 11.18 | 10.00 | 12.81 | 10.53 | 9.43 | 20.63 | 14.61 | 9.78 | 8.79 | 7.70 | 7.33 | 8.87 | 3.88 | 3.49 |
| 13/09/2018 | 536.99 | 5.36 | 12.96 | 11.66 | 8.82 | 10.40 | 13.02 | 11.17 | 12.25 | 11.05 | 9.94 | 13.02 | 10.66 | 9.33 | 20.64 | 14.59 | 9.79 | 8.82 | 7.70 | 7.35 | 8.88 | 3.88 | 3.49 |
| 14/09/2018 | 537.25 | 5.64 | 13.46 | 11.76 | 8.55 | 10.10 | 12.72 | 10.92 | 12.02 | 10.85 | 9.74 | 13.23 | 11.10 | 9.48 | 20.59 | 14.58 | 9.78 | 8.83 | 7.70 | 7.33 | 8.89 | 3.87 | 3.50 |
| 15/09/2018 | 538.11 | 5.63 | 13.00 | 12.12 | 8.75 | 10.17 | 12.45 | 10.62 | 11.71 | 10.53 | 9.34 | 12.71 | 10.69 | 9.70 | 20.85 | 14.64 | 9.81 | 8.86 | 7.71 | 7.33 | 8.93 | 3.89 | 3.51 |
| 16/09/2018 | 537.48 | 5.62 | 12.60 | 10.98 | 8.95 | 10.38 | 12.31 | 10.35 | 11.44 | 10.17 | 9.08 | 12.10 | 10.10 | 9.42 | 20.84 | 14.70 | 9.83 | 8.81 | 7.71 | 7.34 | 8.95 | 3.90 | 3.52 |
| 17/09/2018 | 536.91 | 5.89 | 12.49 | 11.64 | 8.10 | 9.52 | 12.12 | 10.16 | 11.26 | 9.93 | 8.82 | 11.66 | 9.66 | 9.14 | 20.59 | 14.64 | 9.85 | 8.89 | 7.72 | 7.34 | 8.98 | 3.89 | 3.52 |

Table A2: observed rainfall Unit in mm

| 2018 | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10/09/2018 | 0.00 | 19.00 | 20.80 | 0.00 | nr | 0.00 | nr | 0.00 | nr | 0.00 | nr | 0.00 | 1.70 | 1.50 | nr | nr | 2.50 | - | nr | nr | nr | 11.50 | 0.00 |
| 11/09/2018 | 0.00 | 0.00 | nr | 0.00 | nr | 6.70 | 4.00 | 0.00 | 11.60 | 0.00 | nr | 0.00 | nr | nr | nr | 6.80 | 44.10 | - | 2.10 | 0.00 | 47.50 | 0.70 | 0.00 |
| 12/09/2018 | 0.00 | 0.00 | nr | 0.00 | 3.60 | 0.00 | 2.00 | 75.20 | 18.60 | 7.80 | nr | 17.50 | 51.00 | 1.00 | nr | 33.30 | 9.00 | - | nr | nr | 4.20 | 0.50 | 3.00 |
| 13/09/2018 | | 0.00 | 0.60 | 18.60 | 32.80 | 0.20 | 22.00 | 16.90 | 5.60 | 51.50 | 35.00 | 44.50 | 8.20 | 29.00 | nr | 25.70 | 0.70 | - | 48.00 | 10.40 | 3.20 | 3.40 | nr |
| 14/09/2018 | 20.00 | 3.50 | nr | 11.40 | 18.50 | 4.40 | nr | 0.10 | 0.10 | 0.90 | nr | 95.20 | 15.90 | 7.00 | 26.60 | nr | 8.80 | - | 52.80 | 38.20 | 9.60 | 0.40 | 0.00 |
| 15/09/2018 | 0.50 | 0.00 | nr | 0.00 | 8.60 | 0.30 | 0.30 | 4.90 | 1.00 | 0.00 | nr | 2.00 | nr | nr | nr | nr | 12.10 | - | 0.50 | nr | 5.30 | 10.70 | 4.00 |
| 16/09/2018 | 0.00 | 0.00 | nr | 0.00 | nr | 0.00 | nr | 0.00 | nr | 0.00 | nr | 1.00 | nr | nr | nr | nr | 24.20 | - | 36.50 | nr | nr | 5.10 | 33.00 |
| 17/09/2018 | 0.00 | 0.00 | nr | 0.00 | nr | 0.00 | 4.60 | 17.50 | 19.00 | 75.50 | 84.40 | 0.00 | nr | 1.00 | nr | nr | nr | - | 24.00 | 11.20 | nr | 0.30 | 2.70 |

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

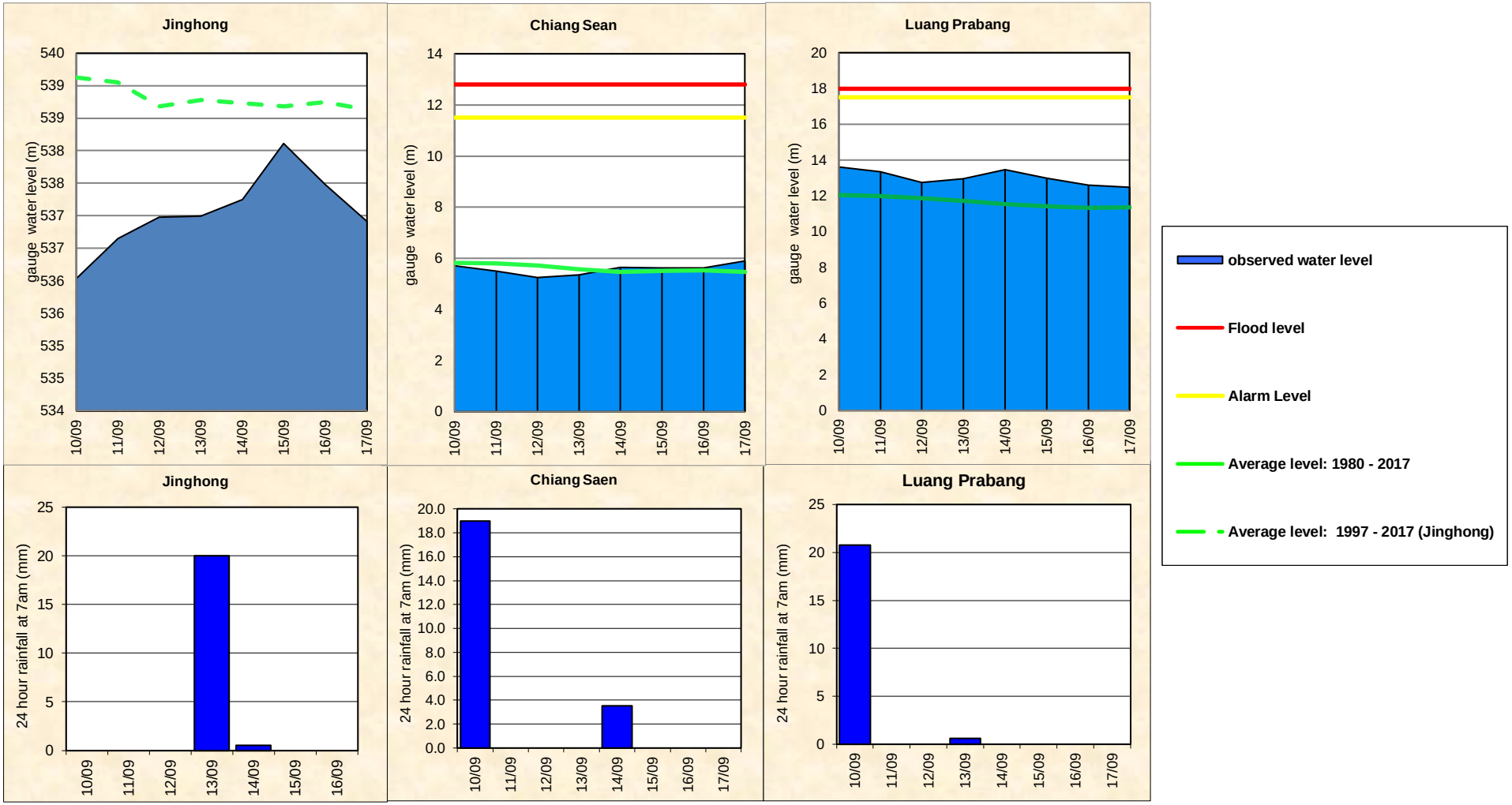


Figure A2: Observed water level and rainfall for Chiang Khan, Vientiane, Nongkhai, and Paksane

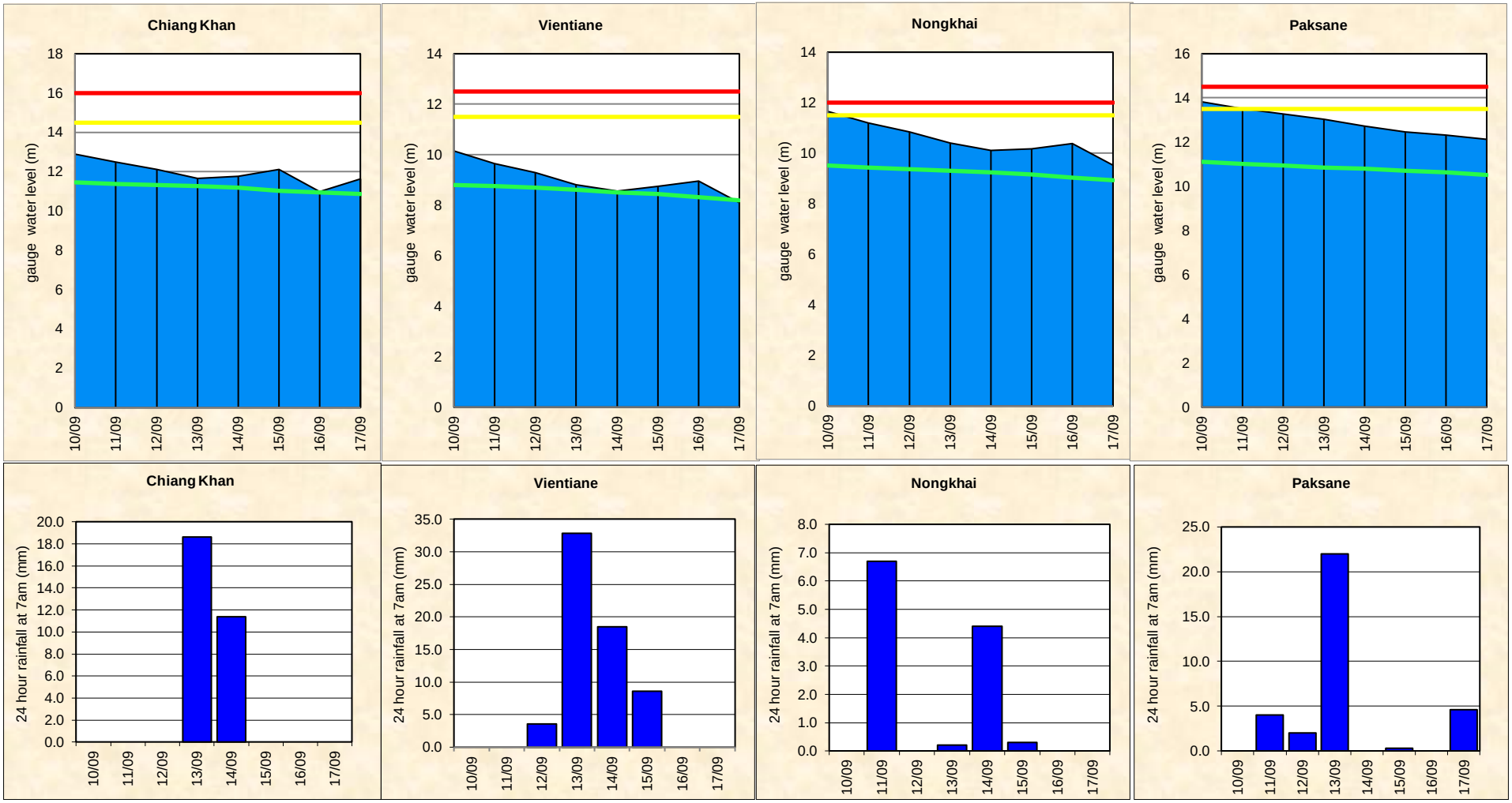


Figure A3: Observed water level and rainfall for Nakhon Phanom, Thakhek, Mukdahan and Savannakhet

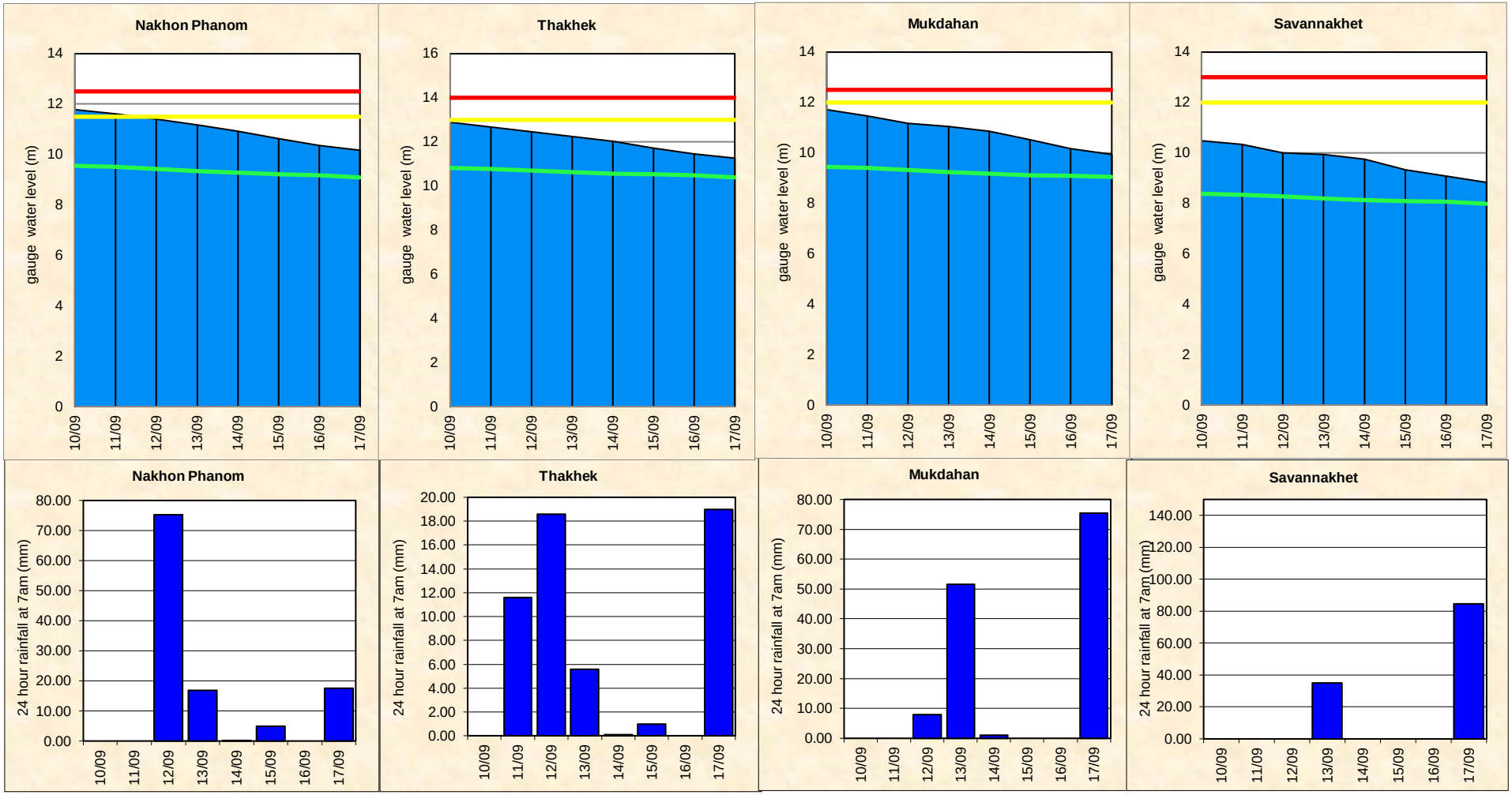


Figure A4: Observed water level and rainfall for Khong Chiam, Pakse, Stung Treng, and Kratie

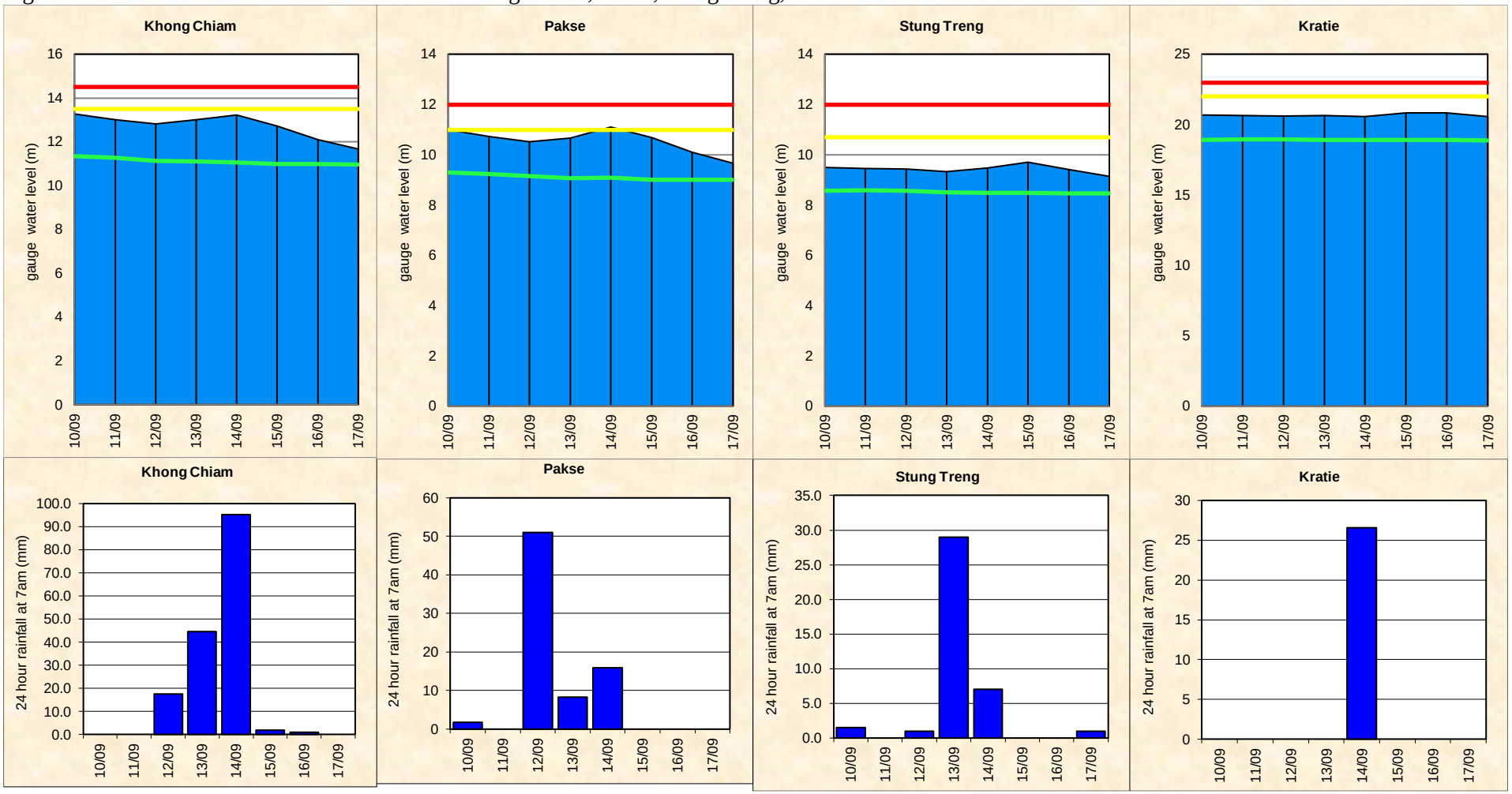


Figure A5: Water level and rainfall for Kompong Cham, Phnom Penh (Bassac and Port), and Koh Khel

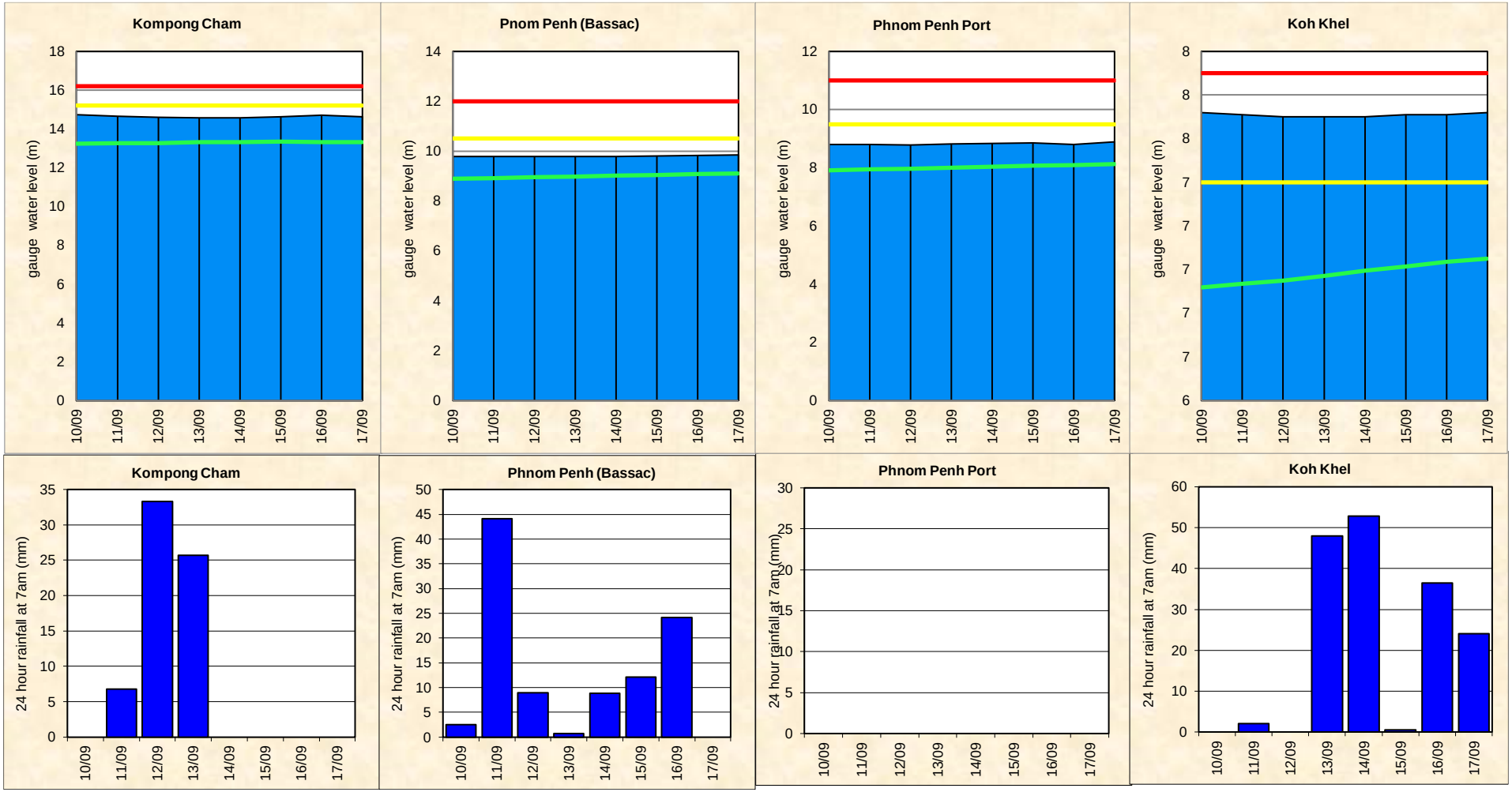
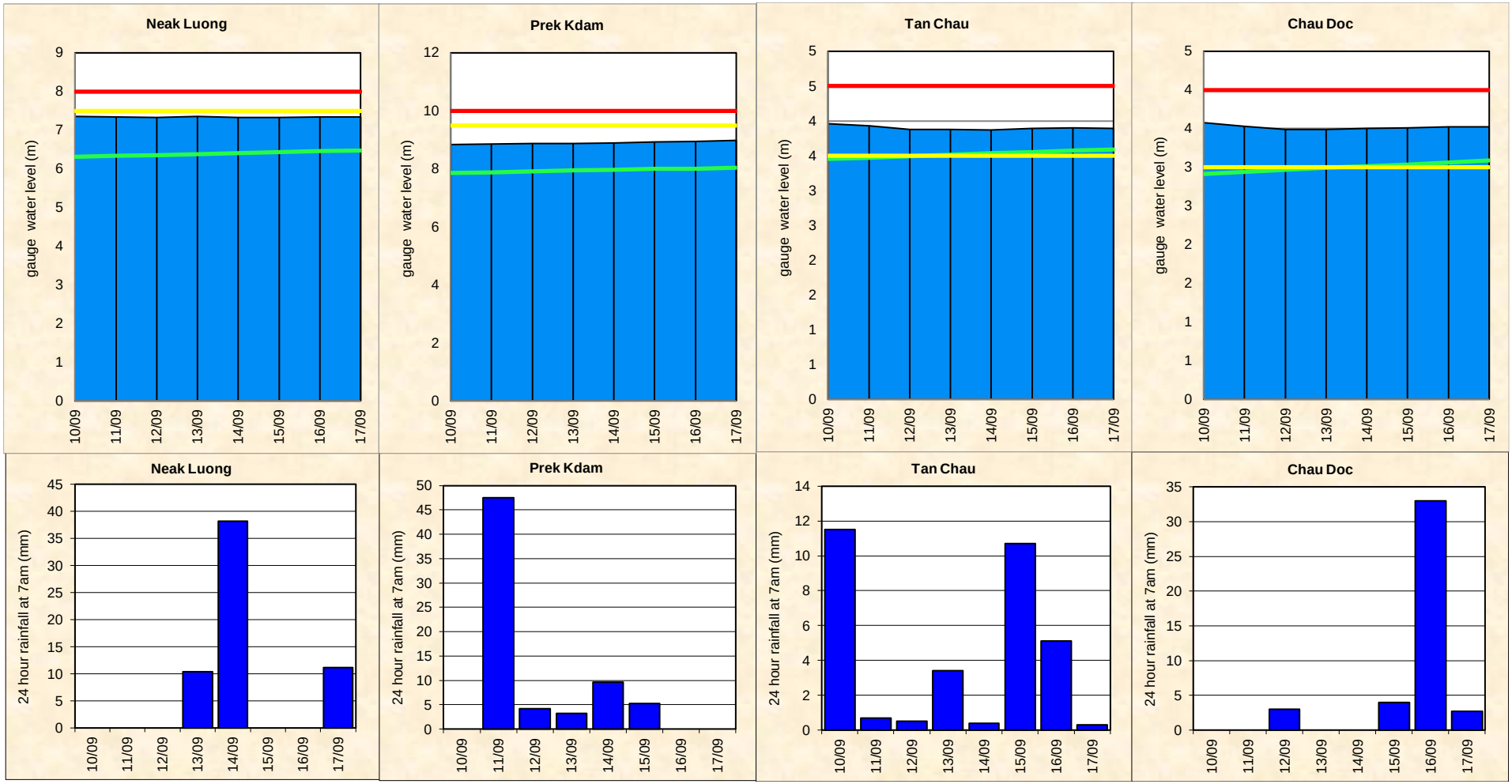


Figure A6: Water level and rainfall for Neak Luong, Prek Kdam, Tan Chau and Chau Doc



## 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 known biases in input data and his/her knowledge of the response of the model system and the hydrology of the Mekong River Basin. The information is presented as a graph below, showing the average flood forecasting accuracy along the Mekong mainstream.

In general, the overall accuracy is fair for 1-day to 5-day forecast lead time at stations in the upper and lower parts of the LMB. However, the accuracies at upper and middle reaches of the LMB stations from Chaing Sean to Khong Chaim stations for 4-day to 5-day forecast were considered large.

The above differences due to three main factors: (1) the effect by manmade (hydro-power operation: without provided information)

(2) internal model functionality in forecasting; for which the parameter adjustment in the model is not possible especially at stations in the upper part and in the Mekong delta where are affected by tidal; (3) the adjustment by utilizing the practical knowledge and experience of flood forecaster-in-charge; and (4) the forecasted accumulated rainfall was not well represented.

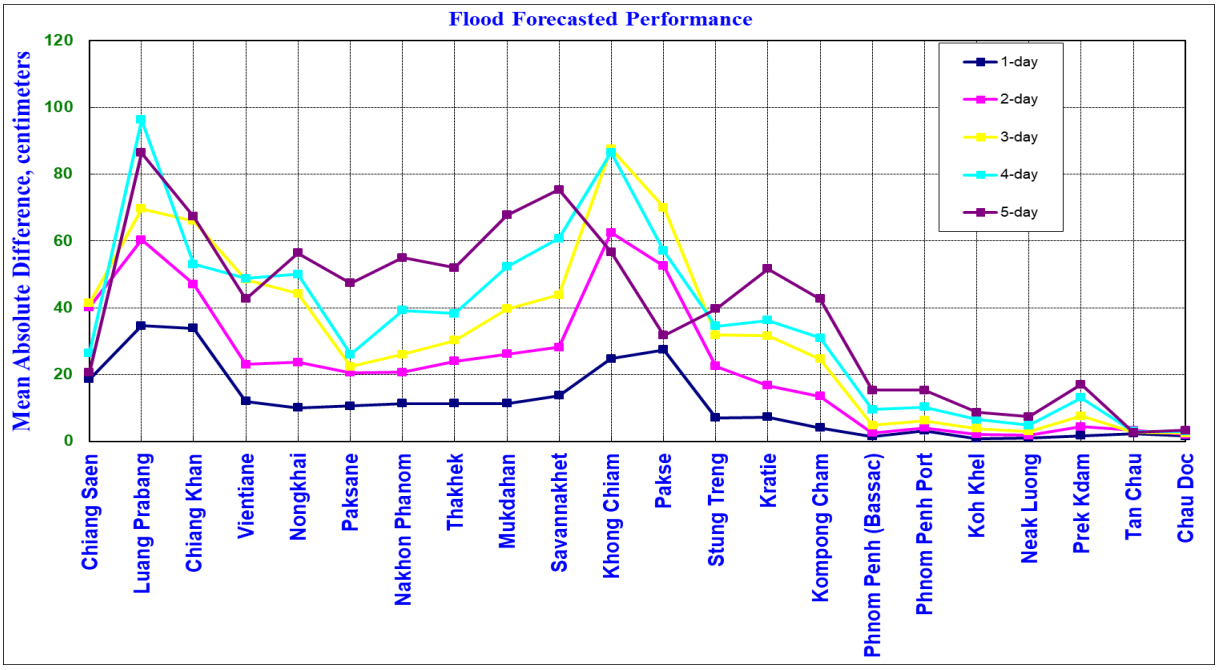



Figure B1: Average flood forecast accuracy along the Mekong mainstream

## 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: Evaluation performance forecasting (from 10th to 17th September 2018) base on New Benchmark (%).

Unit in %

| Lead time Forecast | 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 | 57.14 | 57.14 | 57.14 | 100.00 | 100.00 | 85.71 | 85.71 | 85.71 | 100.00 | 85.71 | 71.43 | 42.86 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | ***87.66*** |
| 2-day | 50.00 | 50.00 | 66.67 | 83.33 | 83.33 | 83.33 | 83.33 | 83.33 | 100.00 | 66.67 | 33.33 | 50.00 | 83.33 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | ***82.58*** |
| 3-day | 80.00 | 60.00 | 40.00 | 80.00 | 80.00 | 80.00 | 80.00 | 80.00 | 80.00 | 40.00 | 40.00 | 40.00 | 60.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | ***79.09*** |
| 4-day | 100.00 | 50.00 | 75.00 | 75.00 | 75.00 | 100.00 | 75.00 | 75.00 | 50.00 | 50.00 | 50.00 | 75.00 | 75.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | ***82.95*** |
| 5-day | 100.00 | 66.67 | 66.67 | 100.00 | 100.00 | 100.00 | 66.67 | 66.67 | 66.67 | 66.67 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | ***90.91*** |

Unit in cm

| Lead time Forecast | 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 | 22 | 31 | 22 | 23 | 23 | 23 | 20 | 20 | 20 | 20 | 24 | 22 | 18 | 28 | 20 | 9 | 9 | 6 | 7 | 9 | 6 | 6 |
| 2-day | 39 | 55 | 41 | 42 | 43 | 42 | 38 | 39 | 39 | 38 | 46 | 41 | 33 | 52 | 38 | 18 | 18 | 12 | 14 | 17 | 11 | 11 |
| 3-day | 51 | 76 | 57 | 59 | 59 | 58 | 54 | 54 | 55 | 54 | 65 | 58 | 46 | 73 | 54 | 26 | 26 | 18 | 20 | 24 | 16 | 16 |
| 4-day | 60 | 93 | 70 | 72 | 74 | 72 | 68 | 68 | 70 | 68 | 82 | 73 | 57 | 92 | 69 | 34 | 34 | 22 | 26 | 31 | 20 | 21 |
| 5-day | 66 | 107 | 81 | 84 | 86 | 85 | 81 | 81 | 83 | 80 | 98 | 87 | 67 | 109 | 82 | 41 | 41 | 27 | 31 | 38 | 24 | 24 |

Table B2: Evaluation performance forecasting (from 10th to 17th September 2018) base on Old Benchmark (%).

Unit in %

| Lead time Forecast | 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 | 71.43 | 42.86 | 57.14 | 57.14 | 57.14 | 57.14 | 85.71 | 85.71 | 57.14 | 28.57 | 42.86 | 14.29 | 100.00 | 71.43 | 85.71 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | ***73.38*** |
| 2-day | 83.33 | 50.00 | 66.67 | 66.67 | 83.33 | 66.67 | 66.67 | 66.67 | 16.67 | 50.00 | 33.33 | 33.33 | 66.67 | 100.00 | 83.33 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | ***74.24*** |
| 3-day | 80.00 | 60.00 | 20.00 | 20.00 | 40.00 | 80.00 | 60.00 | 60.00 | 20.00 | 40.00 | 0.00 | 20.00 | 40.00 | 60.00 | 80.00 | 100.00 | 80.00 | 100.00 | 100.00 | 80.00 | 100.00 | 100.00 | ***60.91*** |
| 4-day | 100.00 | 25.00 | 50.00 | 25.00 | 50.00 | 100.00 | 75.00 | 75.00 | 50.00 | 50.00 | 25.00 | 25.00 | 75.00 | 50.00 | 100.00 | 75.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | ***70.45*** |
| 5-day | 100.00 | 33.33 | 66.67 | 33.33 | 33.33 | 66.67 | 66.67 | 66.67 | 33.33 | 0.00 | 33.33 | 100.00 | 66.67 | 33.33 | 66.67 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | ***68.18*** |

Unit in cm

| Lead time Forecast | 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 | 25 | 25 | 25 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 |
| 2-day | 50 | 50 | 50 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 10 | 10 | 10 | 10 | 10 | 10 | 10 |
| 3-day | 50 | 50 | 50 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 10 | 10 | 10 | 10 | 10 | 10 | 10 |
| 4-day | 75 | 75 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 10 | 25 | 10 | 25 | 25 | 10 | 10 |
| 5-day | 75 | 75 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |

***Note:*** *An indication of the accuracy given in the Table B2 is based on the performance of the forecast made in 2008 from the new flood forecasting system and the configuration for the 2009 flood season and is published on the website of MRC (http://ffw.mrcmekong.org/accuracy.htm).*

*A new set of performance indicators that is established by combining international standards and the specific circumstances in the Mekong River Basin, is applied officially for the flood season of 2011 onward.*

## 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 7 days including the current report date

| | FF time sent | | | | Arrival time of input data | | | | | | | | Missing data (number-mainstream and trib.st.) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2018 | FF completed and sent (time) | Stations without forecast | FF2 completed and sent (time) | Weather data available (time) | NOAA data | China | Cambodia - DHRW | Cambodia - DOM | Lao PDR - DMH | Thailand - DWR | Viet Nam - SRHMC | Viet Nam - HMS | NOAA data/2dataset | China/2 | Cambodia - DHRW/15 | Cambodia - DOM/34 | Lao PDR - DMH/32 | Thailand - DWR/13 | Viet Nam - SRHMC/6 | Viet Nam - HMS/39 |
| *week* | *10:20* | *00:00* | - | - | *08:15* | *07:10* | *07:04* | *07:49* | *08:36* | *08:06* | *07:01* | *08:12* | *0* | *0* | *0* | *0* | *96* | *0* | *4* | *0* |
| *month* | *10:16* | *00:00* | - | - | *08:14* | *07:10* | *07:24* | *07:55* | *08:24* | *08:08* | *07:01* | *08:12* | *0* | *0* | *1* | *0* | *325* | *0* | *2* | *0* |

*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.

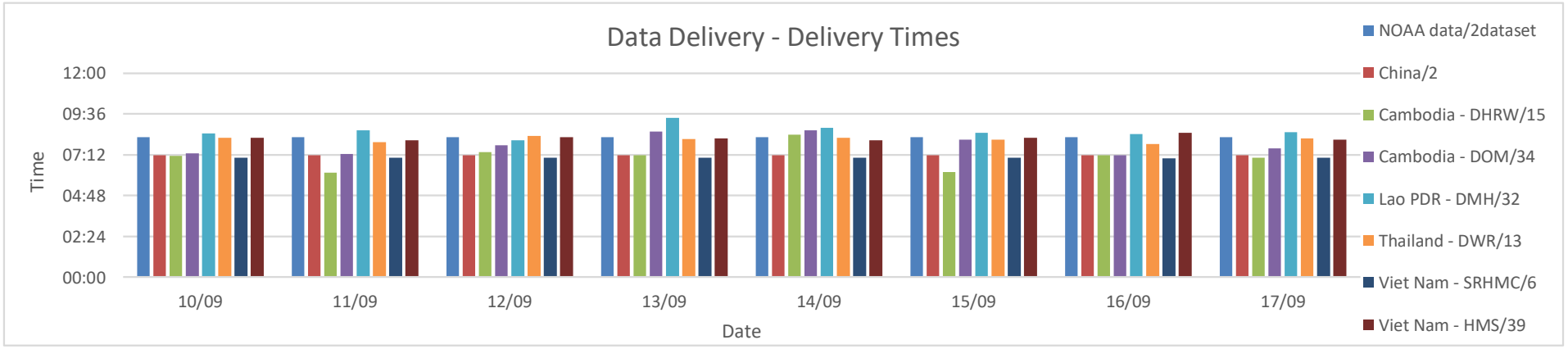



Figure B2: Data delivery times for the past 8 days including the current report date

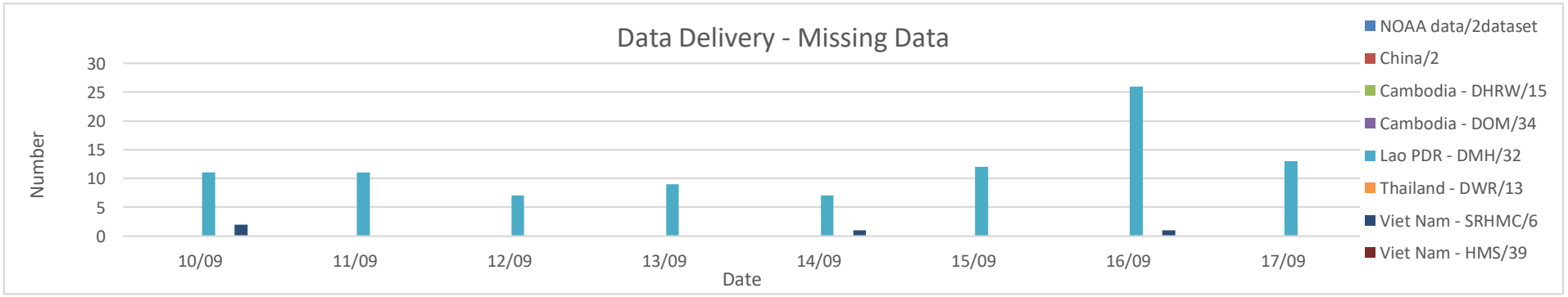



Figure B3: Missing data for the past 8 days including the current report date

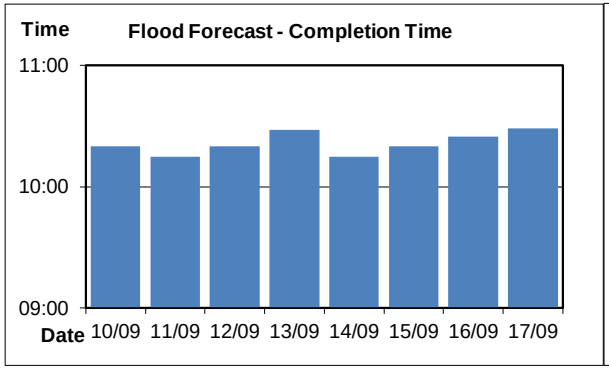



Figure B4: Flood forecast completion time

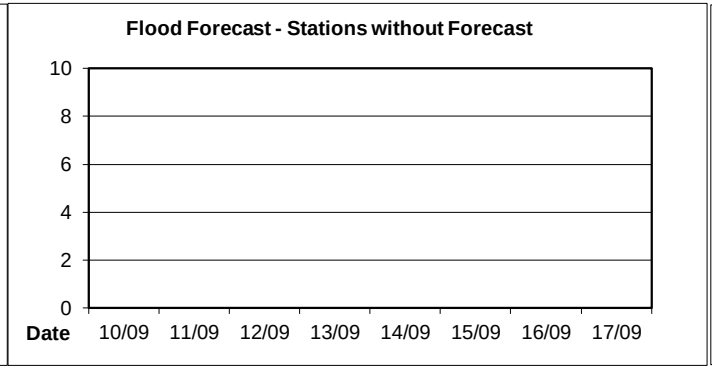



Figure B5: Flood forecast stations without forecast

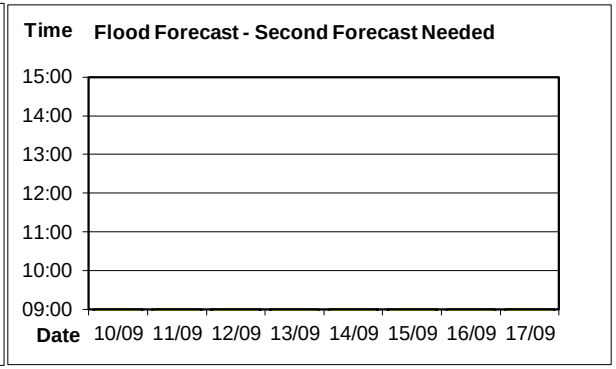
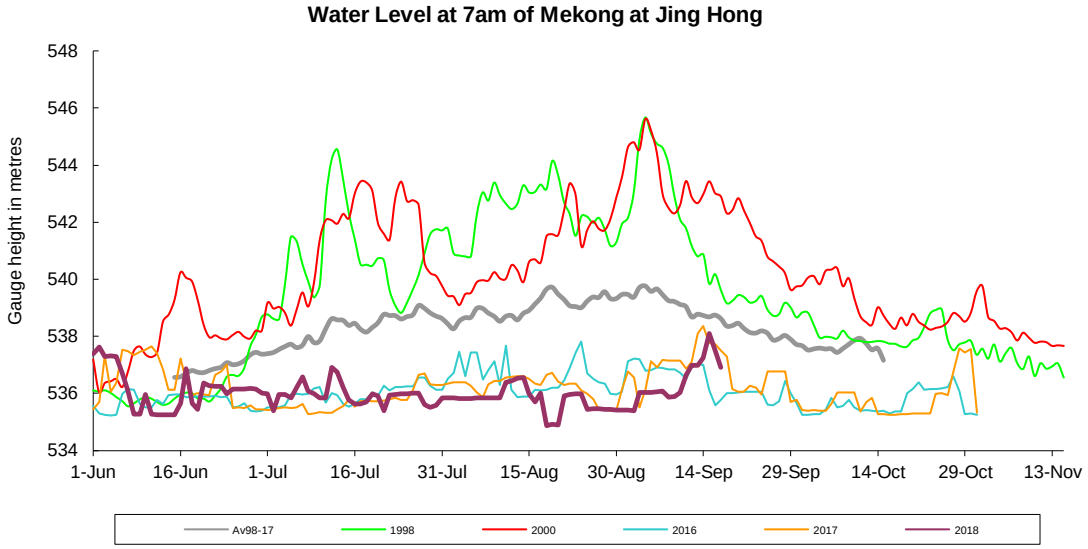


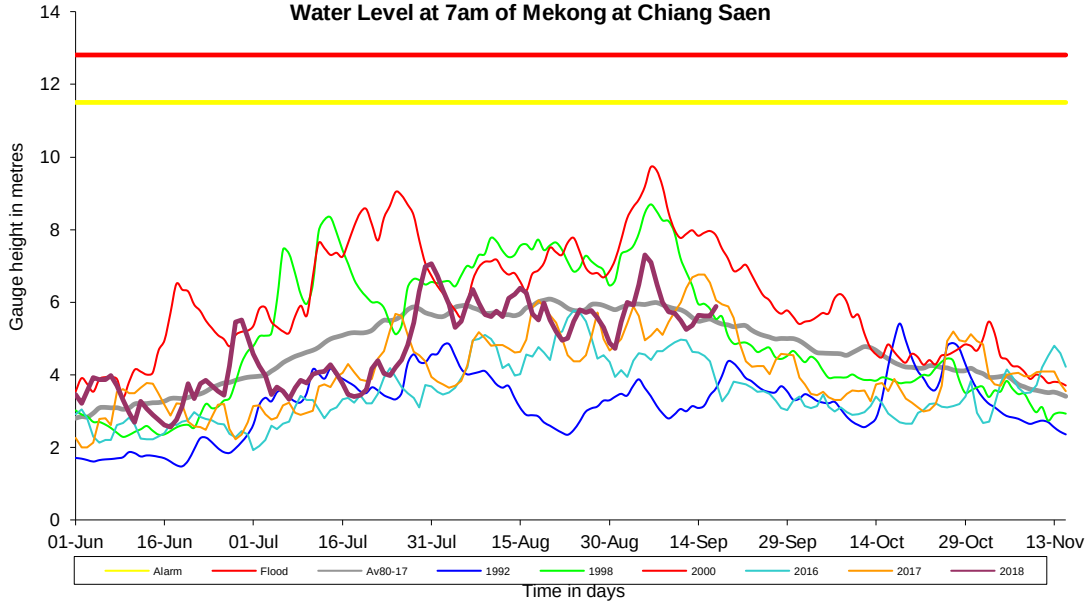

Figure B6: Second forecast needed

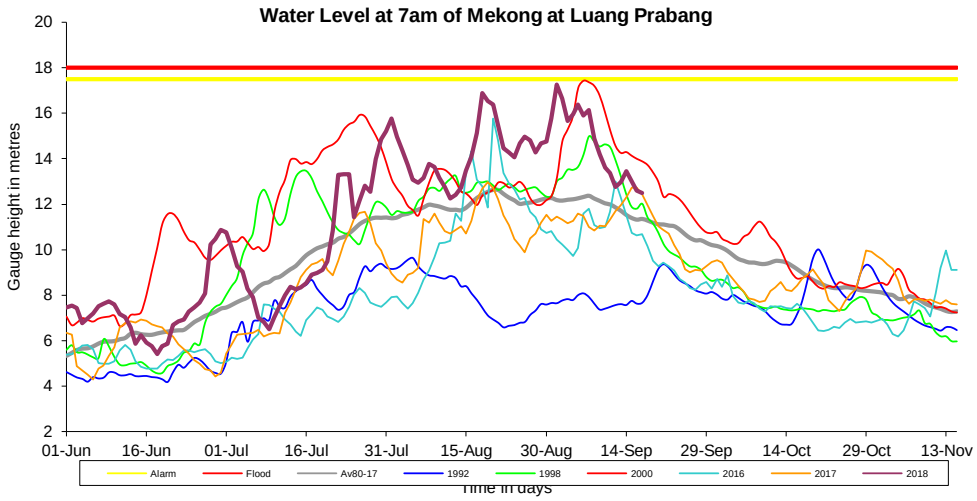
## Annex C: Season Water Level Graphs

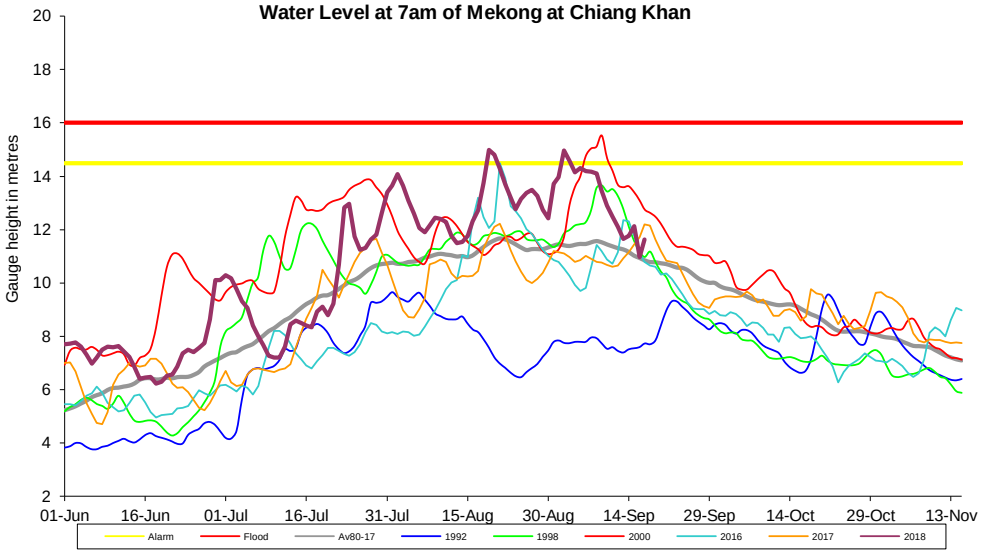
This Annex has the water level graphs of the report date. These graphs are distributed daily by email together with the Flood Bulletins.

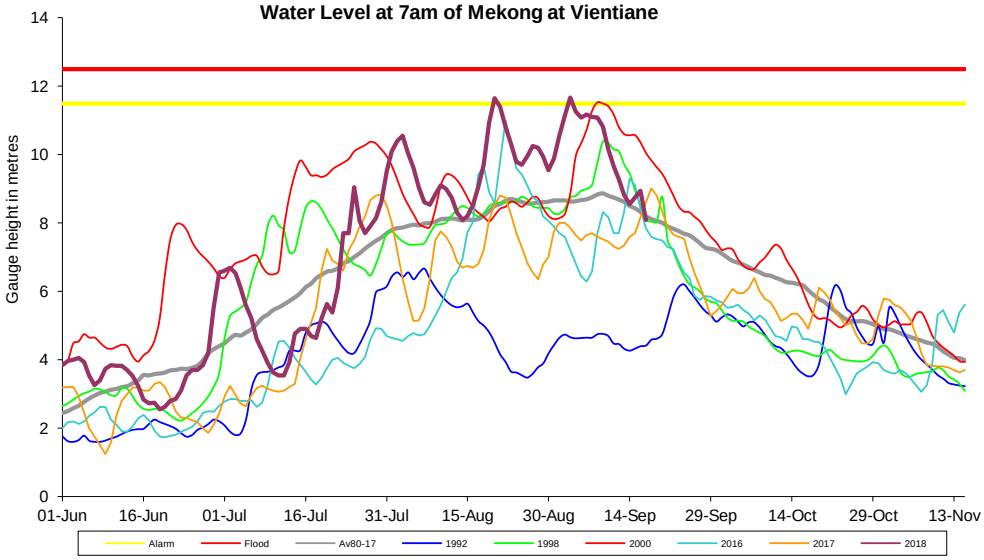
### HYDROGRAPHS OF THE MEKONG AT MAINSTREAM STATIONS IN FLOOD SEASON FROM 1 JUNE TO 31 OCTOBER

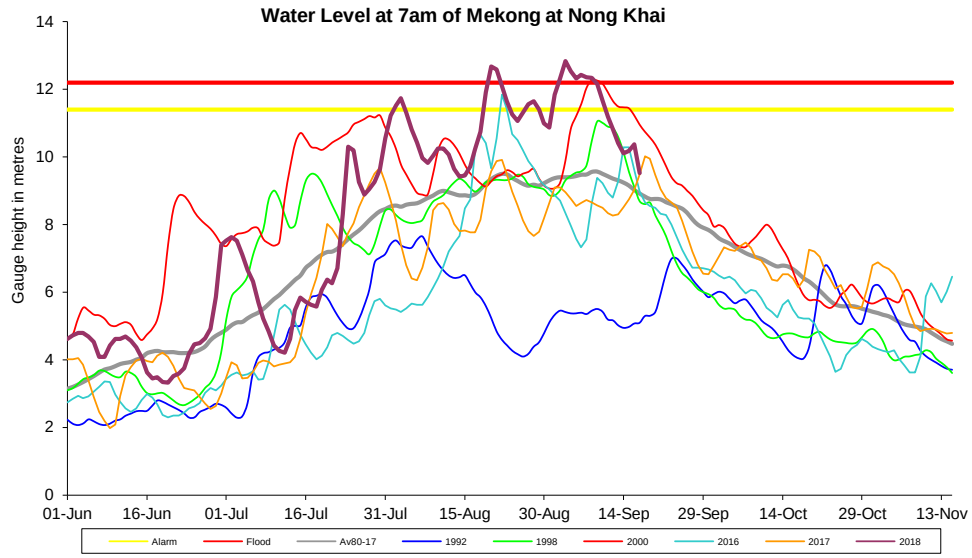


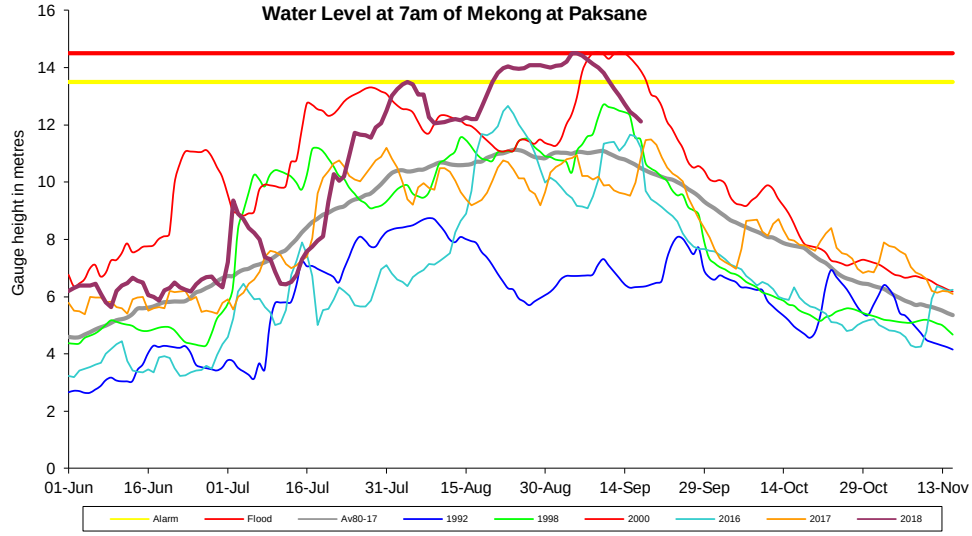



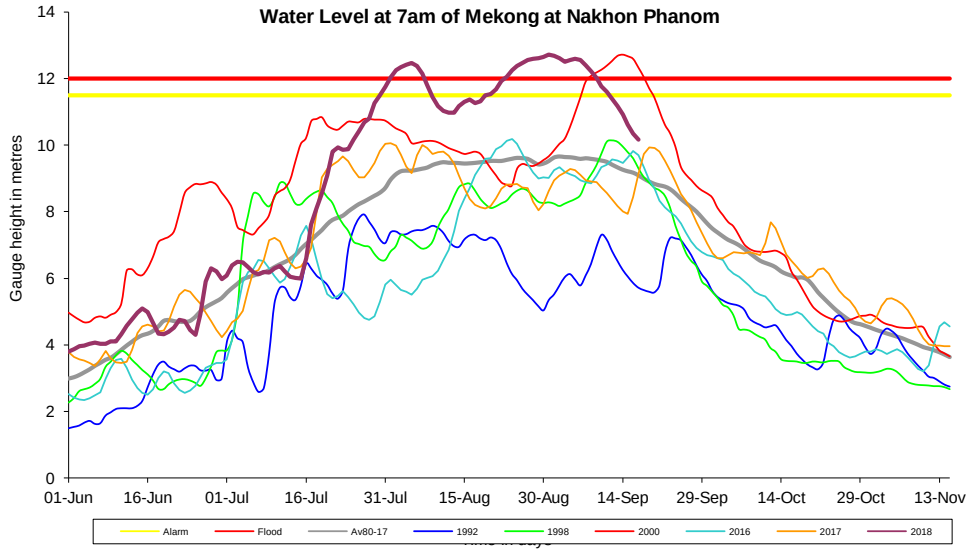

Water Level at 7am of Mekong at Luang Prabang
Gauge height in metres
20
18
16
14
12
10
8
6
4
2
01-Jun
16-Jun
01-Jul
16-Jul
31-Jul
15-Aug
30-Aug
14-Sep
29-Sep
14-Oct
29-Oct
13-Nov
Alarm
Flood
Av80-17
1992
1998
2000
2016
2017
2018
Time in days

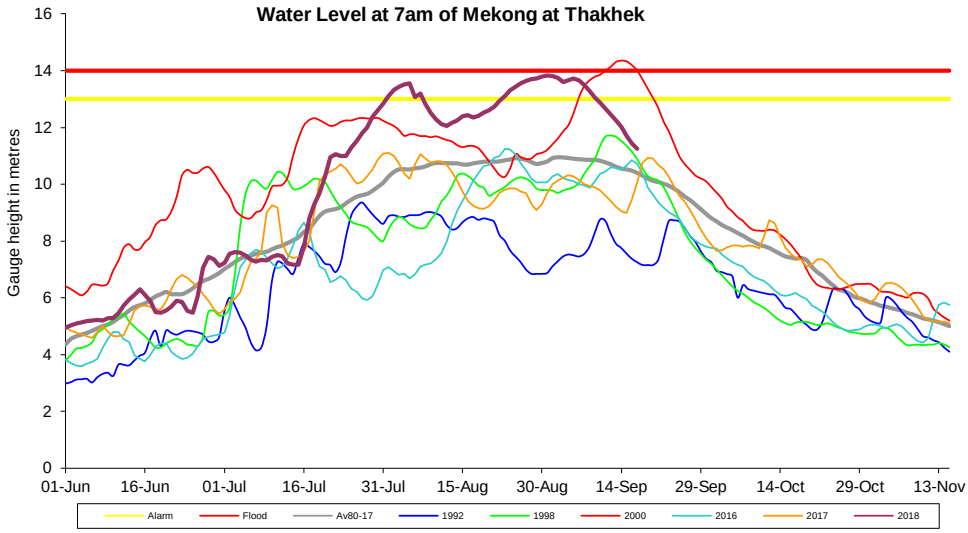

Water Level at 7am of Mekong at Chiang Khan
Gauge height in metres
20
18
16
14
12
10
8
6
4
2
01-Jun
16-Jun
01-Jul
16-Jul
31-Jul
15-Aug
30-Aug
14-Sep
29-Sep
14-Oct
29-Oct
13-Nov
Alarm
Flood
Av80-17
1992
1998
2000
2016
2017
2018

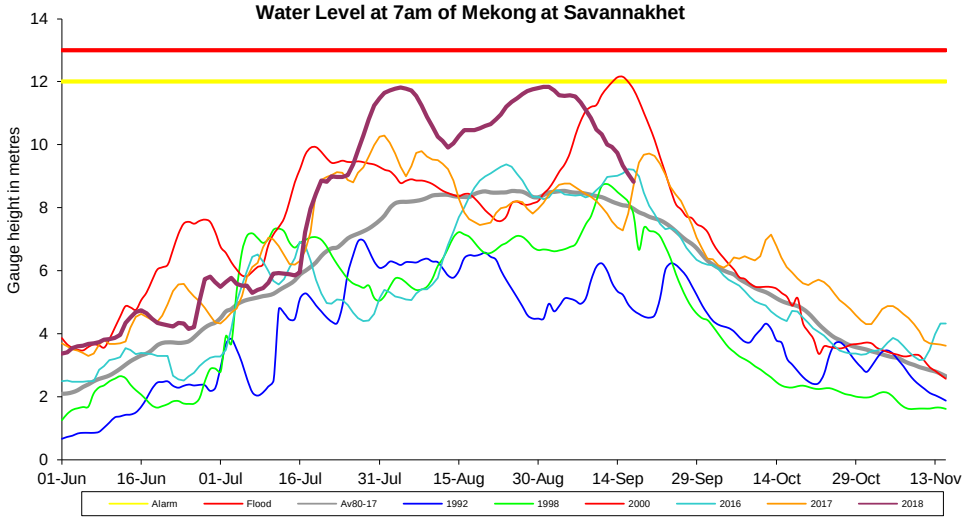

Water Level at 7am of Mekong at Vientiane
Gauge height in metres
14
12
10
8
6
4
2
0
01-Jun
16-Jun
01-Jul
16-Jul
31-Jul
15-Aug
30-Aug
14-Sep
29-Sep
14-Oct
29-Oct
13-Nov
Alarm
Flood
Av80-17
1992
1998
2000
2016
2017
2018

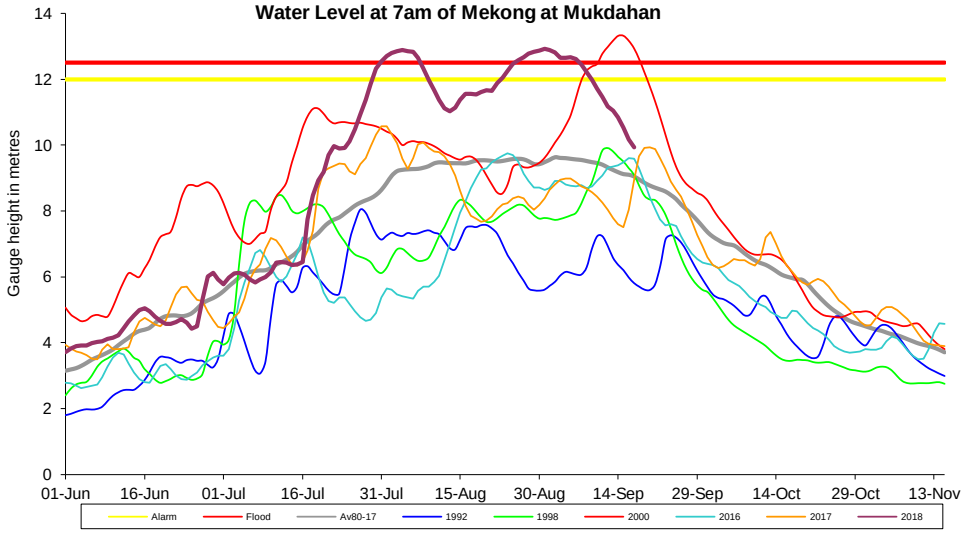

Water Level at 7am of Mekong at Nong Khai
Gauge height in metres
0
2
4
6
8
10
12
14
01-Jun
16-Jun
01-Jul
16-Jul
31-Jul
15-Aug
30-Aug
14-Sep
29-Sep
14-Oct
29-Oct
13-Nov
Alarm
Flood
Av80-17
1992
1998
2000
2016
2017
2018

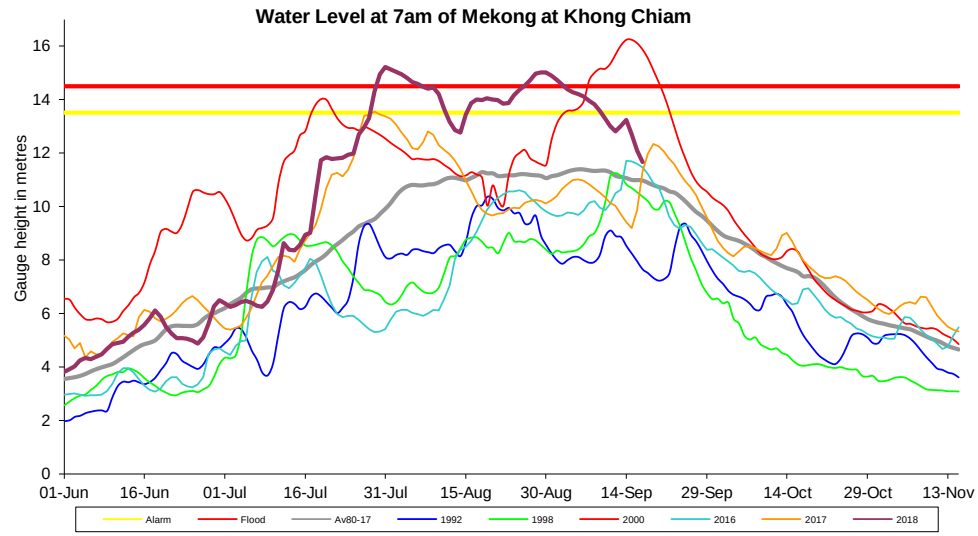

Water Level at 7am of Mekong at Paksane
Gauge height in metres
0
2
4
6
8
10
12
14
16
01-Jun
16-Jun
01-Jul
16-Jul
31-Jul
15-Aug
30-Aug
14-Sep
29-Sep
14-Oct
29-Oct
13-Nov
Alarm
Flood
Av80-17
1992
1998
2000
2016
2017
2018

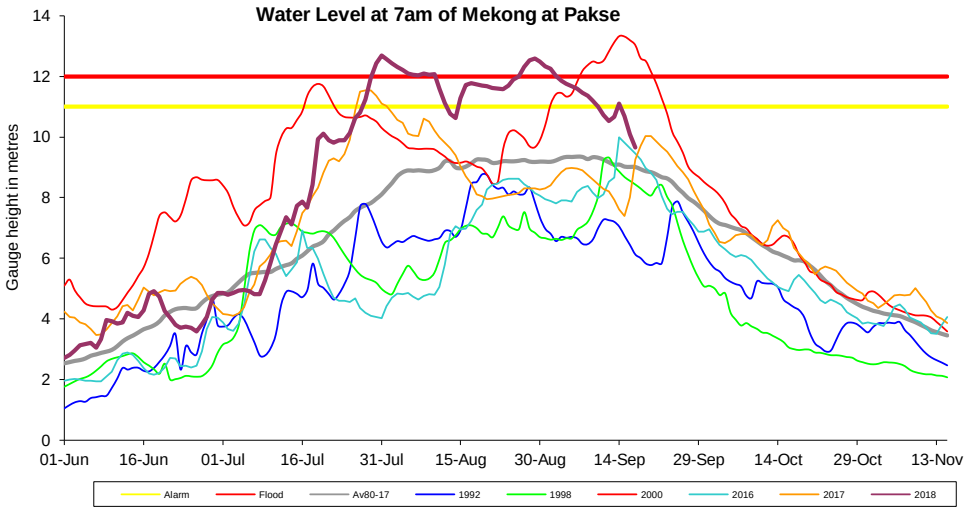

Water Level at 7am of Mekong at Nakhon Phanom
Gauge height in metres
0
2
4
6
8
10
12
14
01-Jun
16-Jun
01-Jul
16-Jul
31-Jul
15-Aug
30-Aug
14-Sep
29-Sep
14-Oct
29-Oct
13-Nov
Alarm
Flood
Av80-17
1992
1998
2000
2016
2017
2018

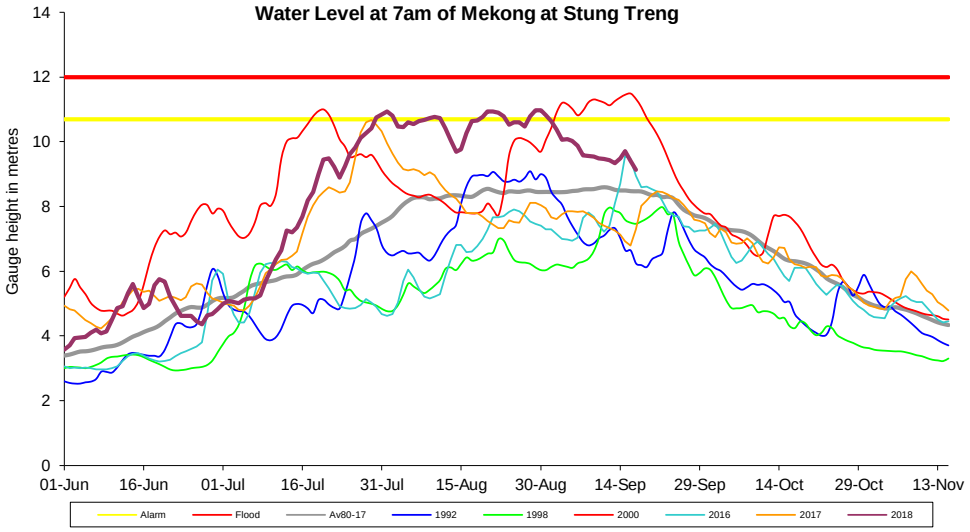

Water Level at 7am of Mekong at Thakhek
Gauge height in metres
16
14
12
10
8
6
4
2
0
01-Jun
16-Jun
01-Jul
16-Jul
31-Jul
15-Aug
30-Aug
14-Sep
29-Sep
14-Oct
29-Oct
13-Nov
Alarm
Flood
Av80-17
1992
1998
2000
2016
2017
2018


Water Level at 7am of Mekong at Savannakhet
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
13-Nov
Alarm
Flood
Av80-17
1992
1998
2000
2016
2017
2018

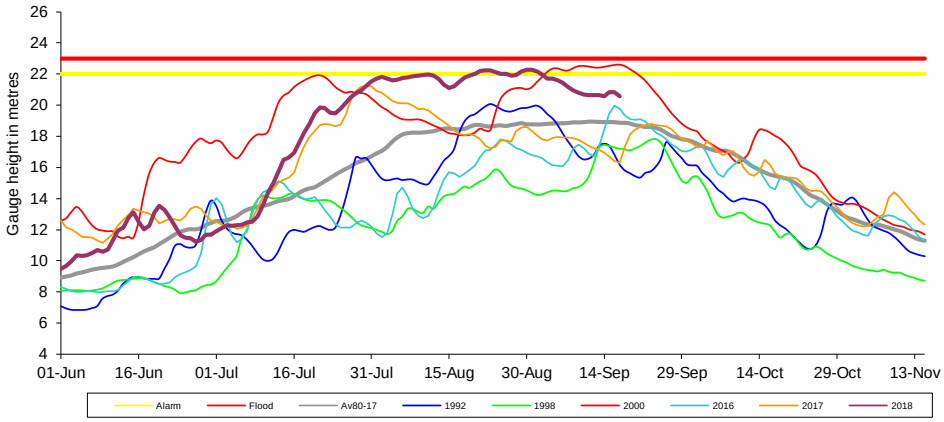

Water Level at 7am of Mekong at Mukdahan
Gauge height in metres
14
12
10
8
6
4
2
0
01-Jun
16-Jun
01-Jul
16-Jul
31-Jul
15-Aug
30-Aug
14-Sep
29-Sep
14-Oct
29-Oct
13-Nov
Alarm
Flood
Av80-17
1992
1998
2000
2016
2017
2018


Water Level at 7am of Mekong at Khong Chiam
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
13-Nov
Alarm
Flood
Av80-17
1992
1998
2000
2016
2017
2018

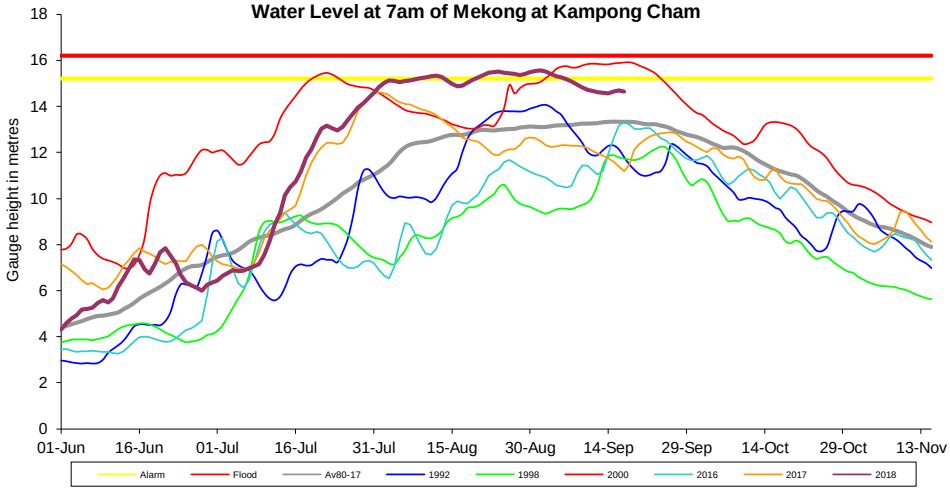

Water Level at 7am of Mekong at Pakse
Gauge height in metres
0
2
4
6
8
10
12
14
01-Jun
16-Jun
01-Jul
16-Jul
31-Jul
15-Aug
30-Aug
14-Sep
29-Sep
14-Oct
29-Oct
13-Nov
Alarm
Flood
Av80-17
1992
1998
2000
2016
2017
2018


Water Level at 7am of Mekong at Stung Treng
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
13-Nov
Alarm
Flood
Av80-17
1992
1998
2000
2016
2017
2018

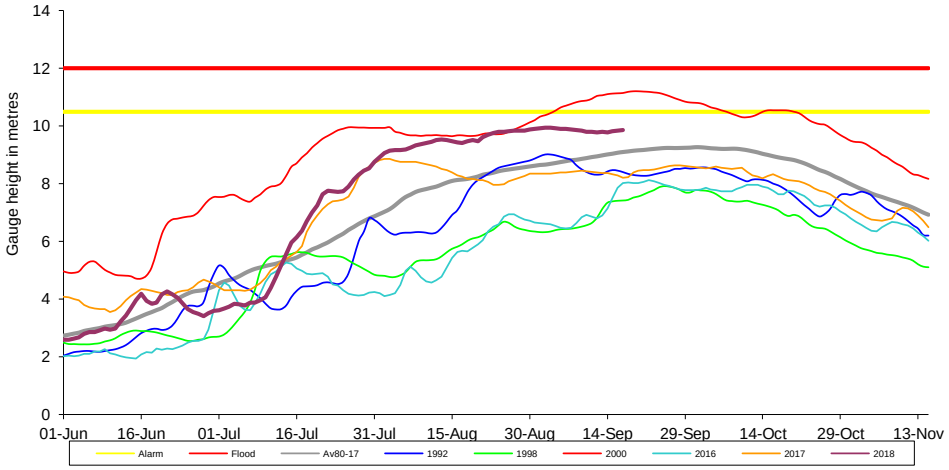
**Water Level at 7am of Mekong at Kratie**

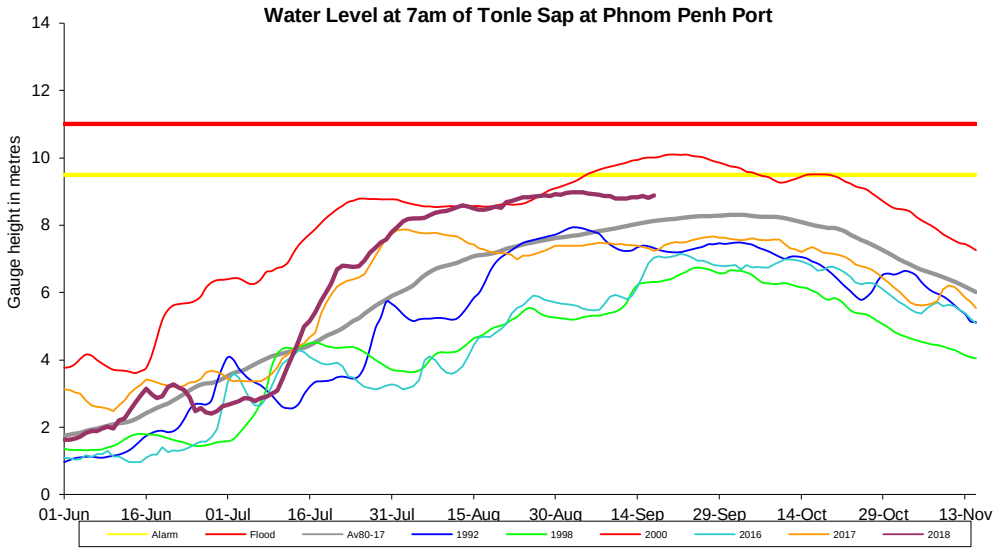


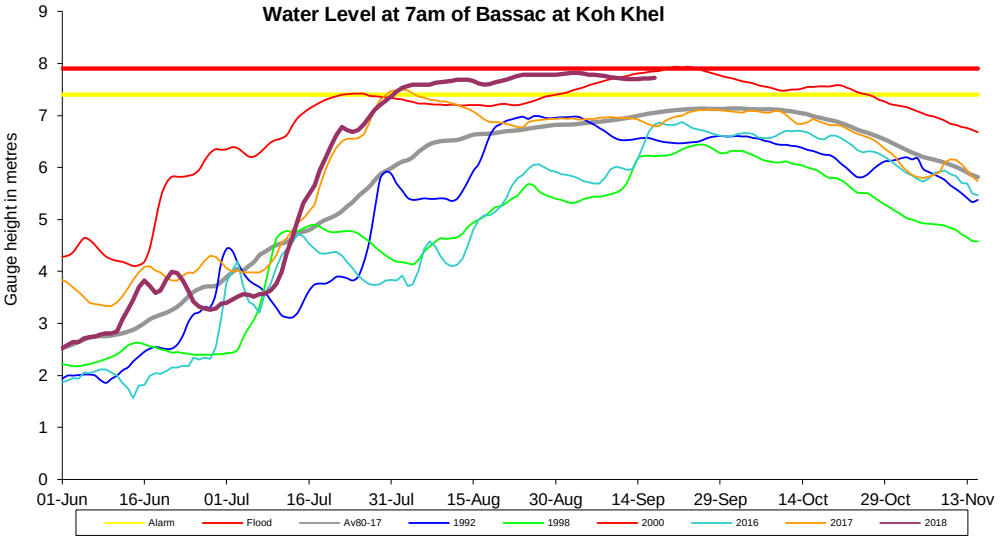

**Water Level at 7am of Mekong at Kampong Cham**

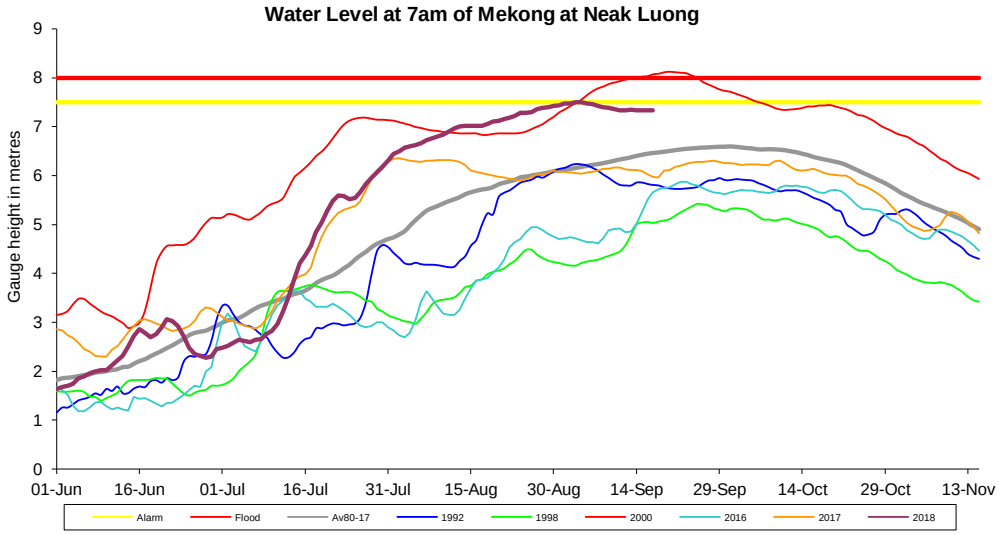


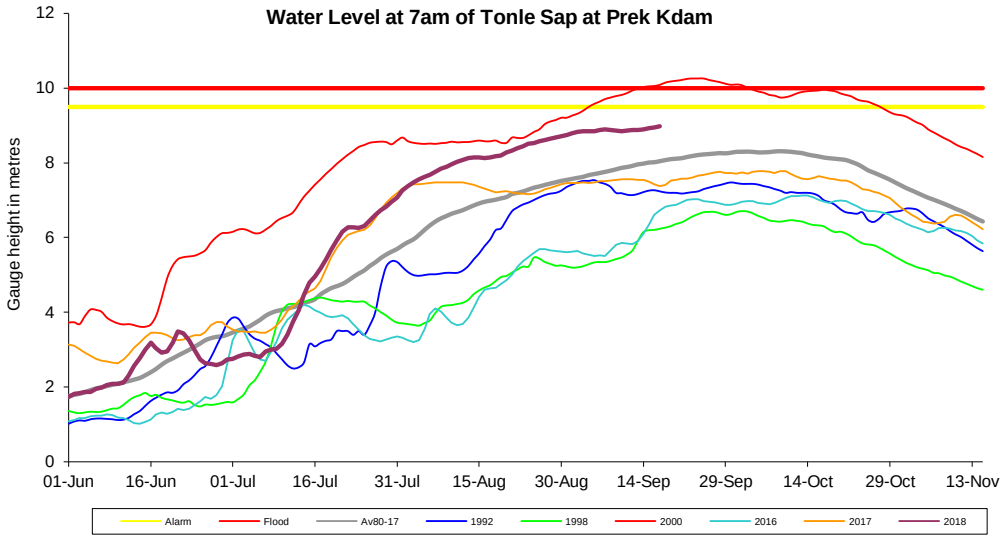

**Water Level at 7am of Mekong at Phnom Penh Chaktomuk**

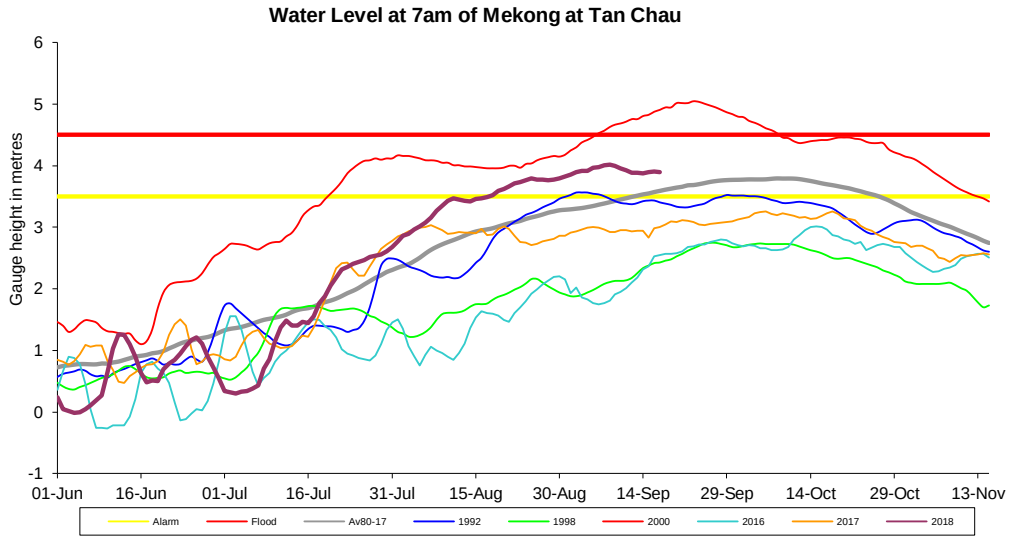


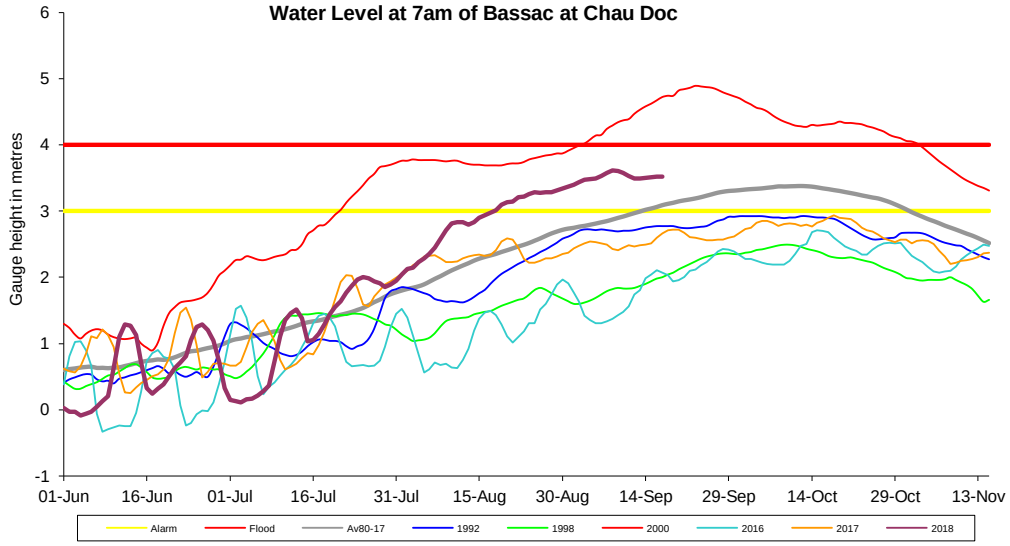

Water Level at 7am of Tonle Sap at Phnom Penh Port
Gauge height in metres
14
12
10
8
6
4
2
0
01-Jun
16-Jun
01-Jul
16-Jul
31-Jul
15-Aug
30-Aug
14-Sep
29-Sep
14-Oct
29-Oct
13-Nov
Alarm
Flood
Av80-17
1992
1998
2000
2016
2017
2018


Water Level at 7am of Bassac at Koh Khel
Gauge height in metres
9
8
7
6
5
4
3
2
1
0
01-Jun
16-Jun
01-Jul
16-Jul
31-Jul
15-Aug
30-Aug
14-Sep
29-Sep
14-Oct
29-Oct
13-Nov
Alarm
Flood
Av80-17
1992
1998
2000
2016
2017
2018


Water Level at 7am of Mekong at Neak Luong
Gauge height in metres
9
8
7
6
5
4
3
2
1
0
01-Jun
16-Jun
01-Jul
16-Jul
31-Jul
15-Aug
30-Aug
14-Sep
29-Sep
14-Oct
29-Oct
13-Nov
Alarm
Flood
Av80-17
1992
1998
2000
2016
2017
2018


Water Level at 7am of Tonle Sap at Prek Kdam
Gauge height in metres
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
13-Nov
Alarm
Flood
Av80-17
1992
1998
2000
2016
2017
2018


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
13-Nov
Alarm
Flood
Av80-17
1992
1998
2000
2016
2017
2018


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
13-Nov
Alarm
Flood
Av80-17
1992
1998
2000
2016
2017
2018