



**Mekong River Commission**

# **Weekly Dry Season Situation Report in the Lower Mekong River Basin 17-23 May 2022**

Prepared by  
The Regional Flood and Drought Management Centre  
24 May 2022

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# Contents

- Figures..... 2
- Table ..... 3
- Key Messages ..... 4
- 1 Introduction ..... 6
- 2 General Weather Patterns ..... 7
- 3 Water Levels in the Lower Mekong River ..... 11
- 4 Flash Flood in the Lower Mekong Basin ..... 18
- 5 Drought Monitoring in the Lower Mekong Basin..... 19
- 6 Weather and Water Level Forecast and Flash Flood Information ..... 22
  - 6.1 *Weather and rainfall forecast* ..... 22
  - 6.2 *Water level forecast* ..... 23
  - 6.3 *Flash Flood Information*..... 24
  - 6.4 *Drought forecast*..... 25
- 7 Summary and Possible Implications ..... 27
  - 7.1 *Rainfall and its forecast*..... 27
  - 7.2 *Water level and its forecast*..... 27
  - 7.3 *Flash flood and its trends*..... 28
  - 7.4 *Drought condition and its forecast*..... 28

## Figures

<b>Figure 1: Summary of weather conditions over the LMB.</b> .....	7
<b>Figure 2: Outlook of wet and dry conditions over the Asian countries by ASMC.</b> .....	8
<b>Figure 3: No tropical storm risk observed on 23 May 2022.</b> .....	8
<b>Figure 4: Weekly total rainfall at key stations in the LMB.</b> .....	9
<b>Figure 5: Weekly rainfall distribution over the LMB.</b> .....	10
<b>Figure 6: Key stations and model application for River Monitoring and Flood Forecasting.</b>	11
<b>Figure 7. Water level at the Jinghong hydrological station during 15 Oct 2021 to 23 May 2022.</b> .....	12
<b>Figure 8. Water levels at Chiang Saen in Thailand and Luang Prabang in Lao PDR.</b> .....	13
<b>Figure 9. Water levels Vientiane and Paksane in Thailand and Lao PDR.</b> .....	14
<b>Figure 10: Water levels at Nakhon Phanom and Pakse of Thailand and Lao PDR.</b> .....	14
<b>Figure 11: Water levels at Stung Treng and Kratie on the Mekong River.</b> .....	15
<b>Figure 12: Seasonal change of inflows and outflows of Tonle Sap Lake.</b> .....	16
<b>Figure 13. The seasonal change in monthly flow volume of Tonle Sap Lake.</b> .....	17
<b>Figure 14: Weekly standardised precipitation index from May 15 to 21.</b> .....	19
<b>Figure 15: Weekly Index of Soil Water Fraction from May 15 to 21.</b> .....	20
<b>Figure 16: Weekly Combined Drought Index during May 15-21.</b> .....	21
<b>Figure 17: Accumulated rainfall forecast (24 hrs) of model GFS.</b> .....	23
<b>Figure 18. Daily average of monthly rainfall anomaly forecast from May to July 2022.</b> .....	25

**Table**

**Table 1. The monthly change in the flow volume of Tonle Sap Lake. .... 17**

**Table 2. Weekly River Monitoring Bulletin. .... 26**

## Key Messages

Key messages for this weekly report are presented below.

### Rainfall and its forecast

- This week, rainfall was observed from Chiang Saen in Thailand to Tan Chau in Viet Nam, varied from 14.00 mm to 230.60 mm over the Mekong region.
- There will be rainfall for the next 7 days over the Mekong region from 24 to 30 May 2022.

### Water level and its forecast

- According to MRC's observed water level at Jinghong, it showed a decreasing water level (WL) of about 0.10 m from 536.63 m to 536.53 m during the weekly monitoring period from 17 to 23 May 2022.
- Water level along the lower Mekong River in Thailand's Chiang Saen was **increasing** about 0.35 m and staying about 1.54 m higher than its Long-Term Average (LTA) level, **which is considered normal**. WL at Lao PDR's Luang Prabang rapidly decreased 0.09 m compared with last week and stayed 0.22 m higher than its historical maximum value. WL at the monitoring stations at Chiang Khan in Thailand increased by about 0.05 m, while at Vientiane in Lao PDR it decreased about and 0.18 m. The current WLs at these stations are about 2.72 and 2.28 m respectively higher than their LTA value, **which considered abnormal**. WLs at Nong Khai and Paksane increased 0.06 m and 1.05 m, respectively, and stayed about 1.31 m higher at Nong Khai while at Paksane it is about 0.53 m lower than its maximum value.
- Water levels from Thailand's Nakhon Phanom to Pakse were staying close to their maximum value. The water levels at these stations were **considered abnormal**, except that at Savannakhet which was higher than its LTA value. Water levels from Cambodia's Stung Treng to Kompong Cham were staying close to their maximum value. Water levels at Chaktomuk and Koh Khel on the Bassac River and Prekdam on the Tonle Sap River and also at Neak Luong on the Mekong were increasing about 0.20 m and staying higher than their LTA value.
- The water volume of the Tonle Sap Lake up to 23 May 2022 was slightly higher than its LTA and higher than the levels in 2019, 2020 and 2021 during the report period, and considered normal.
- For the tidal stations at Viet Nam's Tan Chau and Chau Doc, WLs fluctuated between their LTA and Minimum levels due to daily tidal effects from the sea and considered critical.
- Over the next seven days, the water levels across the monitoring stations are expected to go up from Chiang Saen to downstream from Nakhon Phanom to Pakse and from Stung Treng to Kompong Cham in Cambodia.
- The current WLs higher than or close to their maximum value are at **Luang Prabang, Chiang Khan, Vientiane, Paksane, from Nakhon Phanom to Pakse, and from Stung Treng to Kompong Cham, while the rest of the key stations have WL higher than their LTA value.**

### Drought condition and its forecast

- Drought conditions of the LMB from 15 to 21 May 2022 were normal in all areas from the north to the south. There was no drought threat over the region, except some little moderate meteorological drought in the northern part of the region.
- For the upcoming three months' forecast, the LMB is likely to receive ample amount of rainfall in May and below average rainfall in both June and July 2022 from the middle to the lower part of the region. Based on the weather forecast, May is likely to be much wetter than normal year especially in the north and central parts of the LMB.

# 1 Introduction

This Weekly Dry Season Situation Report presents a preliminary analysis of the weekly hydrological situation in the Lower Mekong River Basin (LMB) for **17-23 May 2022**. The trend and outlook for water levels are also presented.

This analysis is based on the daily hydro-meteorological data provided by the Mekong River Commission (MRC) Member Countries – Cambodia, Lao PDR, Thailand, and Viet Nam – and on satellite data. Water level indicated in this report refers to an above zero gauge of each station.

The report covers the following topics that are updated weekly:

- General weather patterns, including rainfall patterns over the LMB
- Water levels in the LMB, including in the Tonle Sap
- Flash flood and drought situation in the LMB
- Weather, water level and flash flood forecast, and
- Possible implications.

Mekong River water levels are updated daily and can be accessed from:  
[http://ffw.mrcmekong.org/bulletin\\_wet.php](http://ffw.mrcmekong.org/bulletin_wet.php).

Drought monitoring and forecasting information is available at:  
<http://droughtforecast.mrcmekong.org>

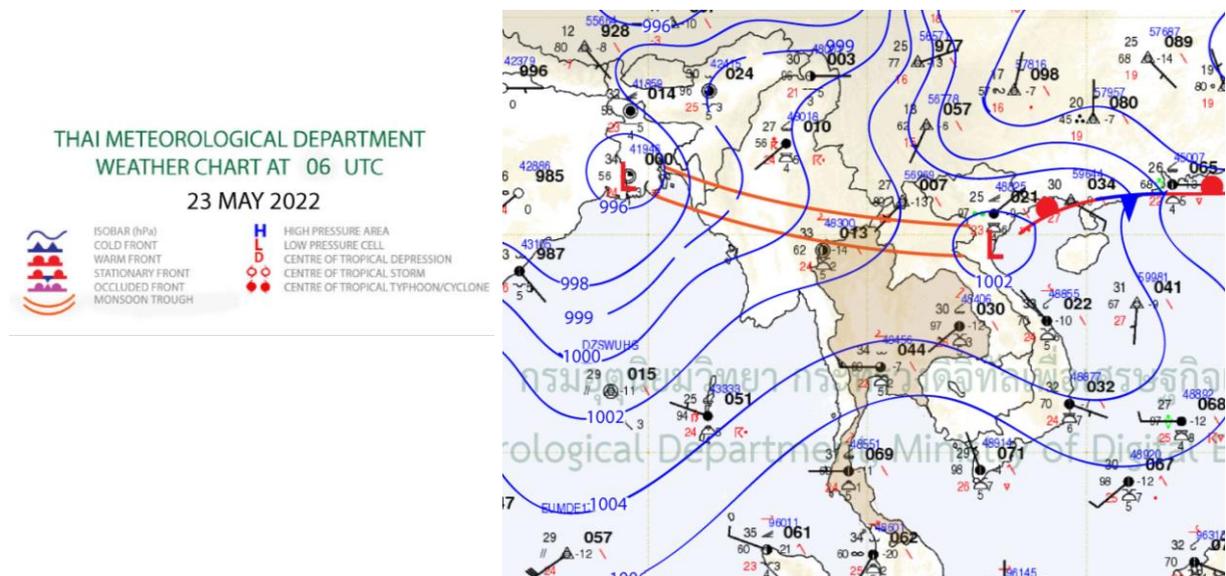
Flash flood information is accessible at: <http://ffw.mrcmekong.org/ffg.php>

## 2 General Weather Patterns

The weather outlook bulletins for three months (March April and May) and the weather maps issued by the Thai Meteorological Department (TMD) were used to verify weather conditions in the LMB.

Since the end of April 2022, the wet weather has come because the influentially high-pressure air mass areas prevailed over the LMB with gradually decreasing water levels in both mainstream and tributaries. The data from the TMD predict that low pressure of air-mass will reduce temperature and increased rainfall in LMB. From May to July, the low-pressure trough is going to prevail over the Mekong region bring rainfalls for the start of rainy season period in 2022.

[Figure 1](#) presents the weather map of 23 May 2022, showing a low-pressure point dominating the upper part of the Mekong region, which might have some rains for the next few days.



**Figure 1: Summary of weather conditions over the LMB.**

According to the ASEAN Specialised Meteorological Centre (ASMC), the highest probability of wet condition is predicted over the lower part of the Mekong region from 16 to 29 May 2022. Moreover, the Mekong region is likely dominated by wet condition, which may bring rainfall and warm temperatures in general to the lower part of the LMB. **Figure 2** shows the outlook of weather condition from 16 to 29 May 2022 in Southeast Asia based on results from the NCEP model (National Centres for Environmental Prediction).

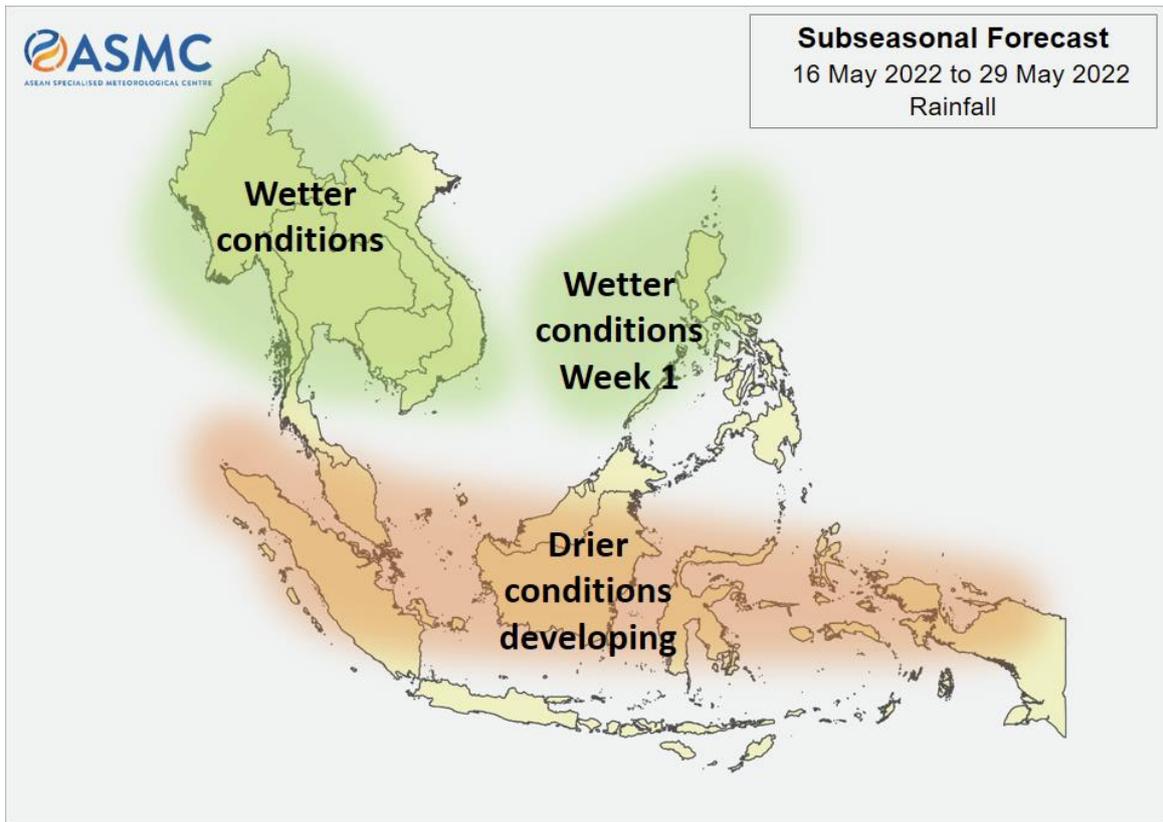


Figure 2: Outlook of wet and dry conditions over the Asian countries by ASMC.

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

There was no tracking storm covering the LMB during 17-23 May 2022, meaning no movement of storm directed from the South Sea of Viet Nam to the Mekong region, as displayed in [Figure 3](#).

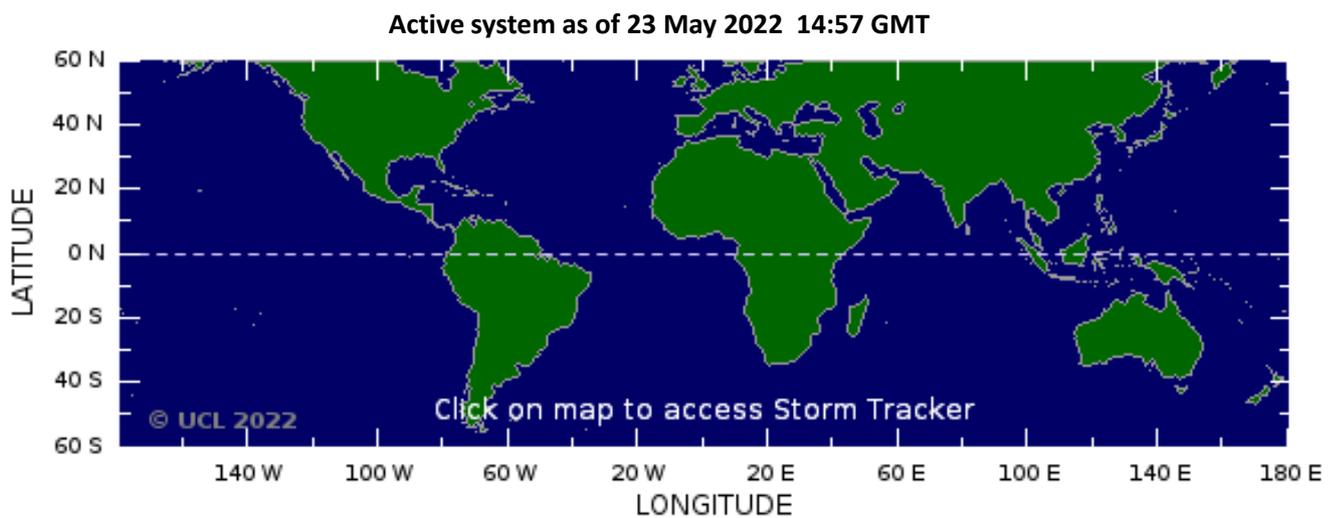
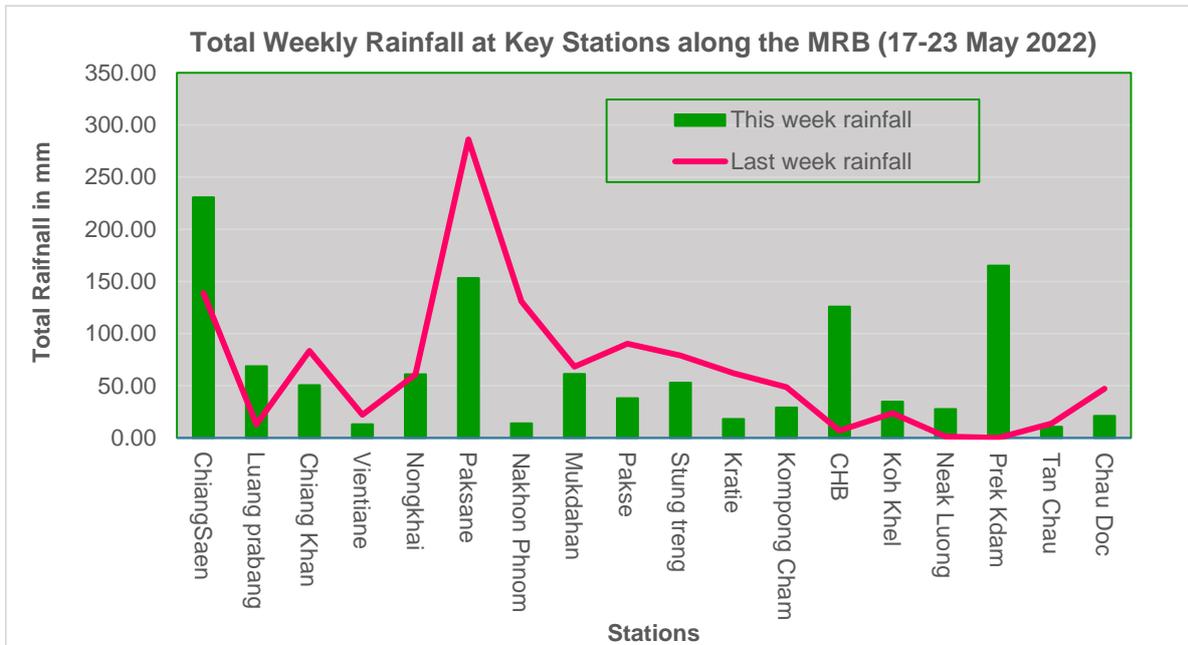


Figure 3: No tropical storm risk observed on 23 May 2022.

## Rainfall patterns over the LMB

This week from 17 to 23 May 2022, rainfall was observed from the upper to lower part starting from Chiang Saen in Thailand to Tan Chau and Chau Doc in Viet Nam of the Lower Mekong Basin, varied from 14.00 mm to 230.60 mm. The highest rainfall of this week report was concentrated at Chiang Saen which reached about 230.60 mm. The total rainfall of this week report, compared with last week rainfall occurred in the Mekong region, is shown in [Figure 4](#).



**Figure 4: Weekly total rainfall at key stations in the LMB.**

To verify area rainfall distribution, [Figure 5](#) shows a map of the weekly accumulated rainfall based on the observed data provided by the MRC Member Countries – Cambodia, Lao PDR, Thailand, and Viet Nam – from 17 to 23 May 2022.

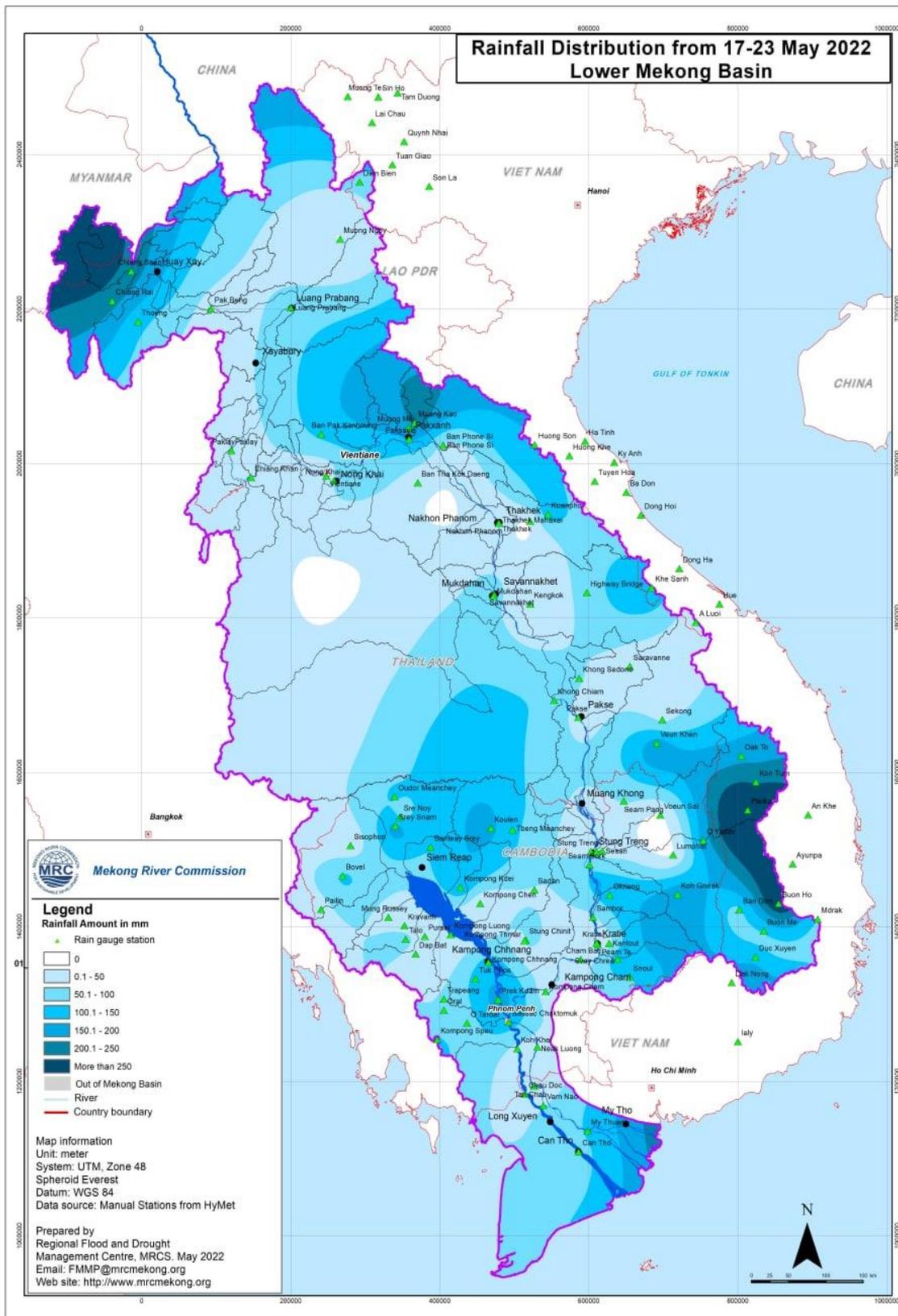


Figure 5: Weekly rainfall distribution over the LMB.

### 3 Water Levels in the Lower Mekong River

The hydrological regimes of the Mekong mainstream are illustrated by recorded water levels and flows at key mainstream stations: at Chiang Saen to capture mainstream flows entering from the Upper Mekong Basin (UMB); at Vientiane to present flows generated by climate conditions in the upper part of the LMB; at Pakse to investigate flows influenced by inflows from the larger Mekong tributaries; at Kratie in Cambodia to capture overall flows of the Mekong Basin; and at Viet Nam’s Tan Chau and Chau Doc to monitor flows to the Delta.

The key stations along the LMB and their respective model application for River Flood Forecasting during the wet season from June to October and River Monitoring during the dry season from November to May are presented in [Figure 6](#). The hydrograph for each key station is available from the MRC’s River Flood Forecasting: <http://ffw.mrcmekong.org/overview.php>. The weekly water levels and rainfall at each key station are summarised in **Annex A**.

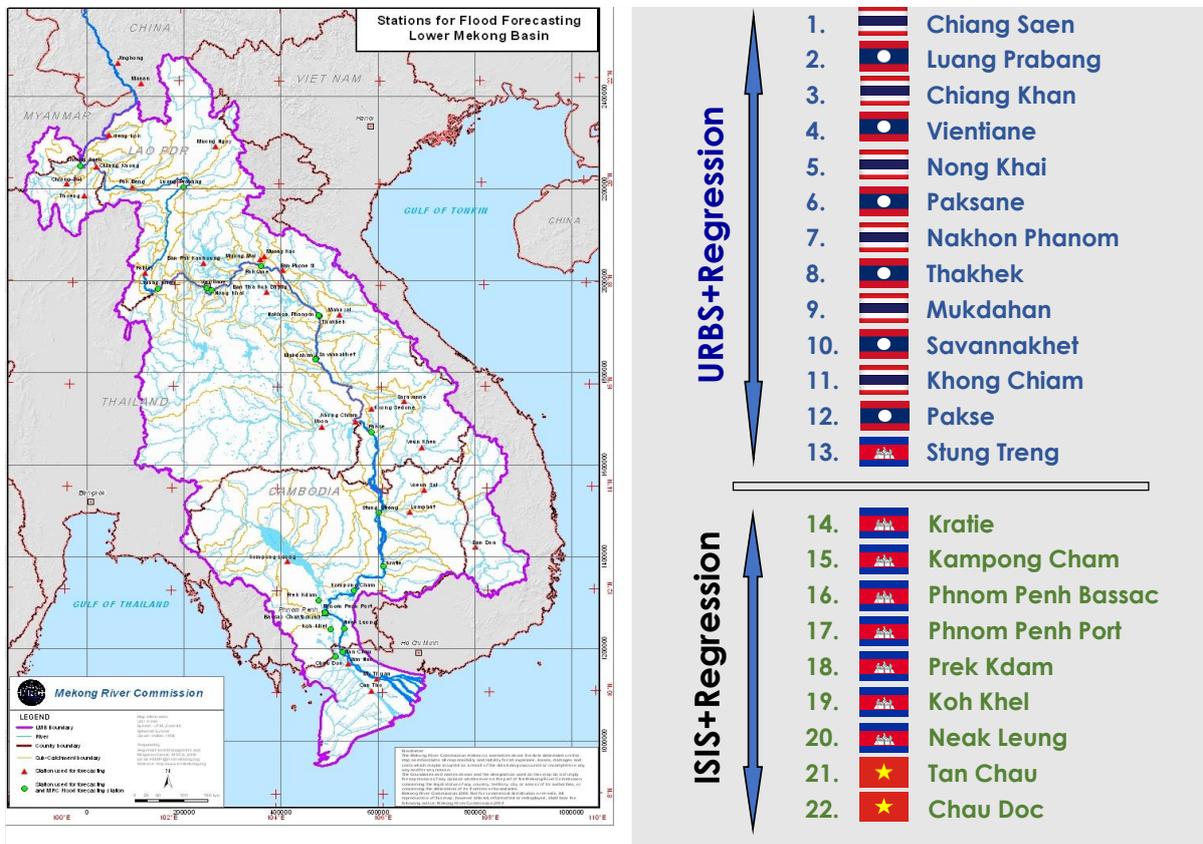
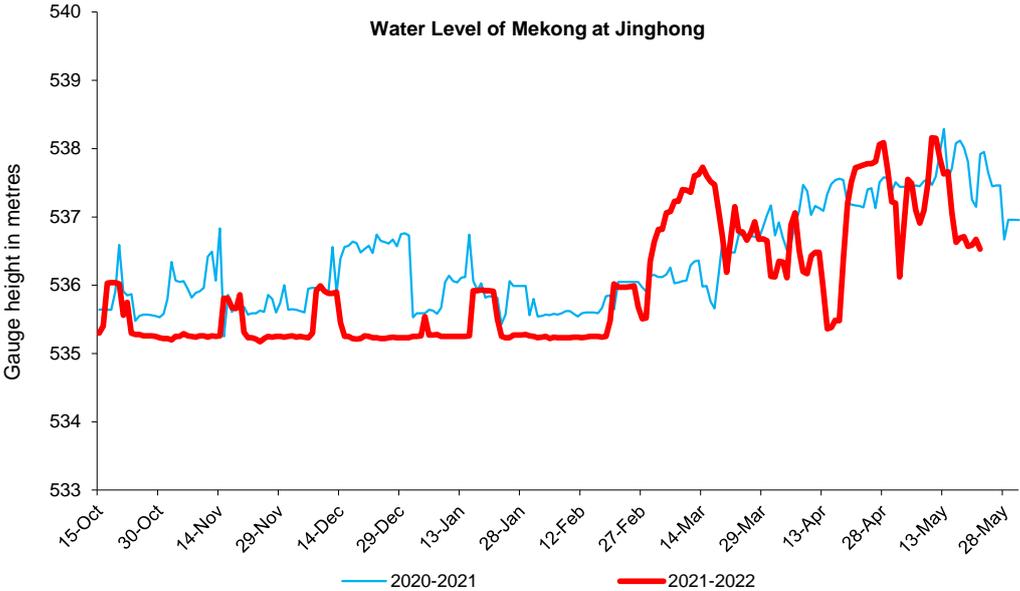


Figure 6: Key stations and model application for River Monitoring and Flood Forecasting.

According to MRC’s observed water level at Jinghong, it showed a **decreasing WL of about 0.10 m from 536.63 m to 536.53 m during the weekly monitoring period from 17 to 23 May 2022 (recorded on 7:00 am)** and staying about 1.39 m lower than its two-year average (2020-2021) value. The Eyes on Earth (Mekong Dam Monitor) mentioned that during the dry season, river flow contributions from China account for the largest portion of sub-basins. In April, 36% of flow came from snowmelt and dam releases in China. The outflow at Jinghong station decreased from 1,791.81 m<sup>3</sup>/s to 1,724.76 m<sup>3</sup>/s from 17 to 23 May 2022. [Figure 7](#) below presents water level that increased at the Jinghong hydrological station<sup>1</sup>, indicating the trend of fluctuating water level up to 23 May 2022.



**Figure 7. Water level at the Jinghong hydrological station during 15 Oct 2021 to 23 May 2022.**

Last week, from 17 to 23 May 2022, water level along the lower Mekong River in Thailand’s Chiang Saen was **increasing** about 0.35 m and staying about 1.54 m higher than its Long-Term Average (LTA) level, **which is considered normal**. WL at Lao PDR’s Luang Prabang rapidly decreased 0.09 m compared with last week and stayed 0.22 m higher than its historical maximum value. WLs at the monitoring stations of Chiang Khan in Thailand increased by about 0.05 m, while at Vientiane in Lao PDR decreased about 0.18 m. The current WLs at these stations are about 2.72 and 2.28 m respectively higher than their LTA value, **which considered abnormal**. WLs at Nong Khai and Paksane increased 0.06 m and 1.05 m, respectively, and staying about 1.31 m higher at Nong Khai while at Paksane it is about 0.53 m lower than its Maximum value.

From Nakhon Phanom in Thailand to Pakse in Lao PDR, WLs increased between 0.65 m and 1.15 m during the monitoring report. The current WLs from Nakhon Phanom to Pakse were staying close to their maximum level, considering **abnormal**. WLs from Cambodia’s Stung Treng to Kompong Cham increased between 0.65 m and 0.97 m, staying slightly lower than their maximum levels. From Chaktomuk, Koh Khel on the Bassac River and Prek Kdam on the Tonle Sap River increased about 0.50 m, staying higher their LTA value. For the tidal stations at Viet Nam’s Tan Chau and Chau Doc, WLs fluctuated between their minimum and LTA levels,

<sup>1</sup> Near-real time data of hydro-meteorological monitoring at the Jinghong hydrological station is available at <https://portal.mrcmekong.org/monitoring/river-monitoring-telemetry>.

due to daily tidal effects from the sea and considered critical. The current WLs higher than and close to their maximum value are at **Luang Prabang, Chiang Khan, Vientiane, Paksane, from Nakhon Phanom to Pakse and from Stung Treng to Kompong Cham, while the rest of the key stations have WL higher than their LTA value.**

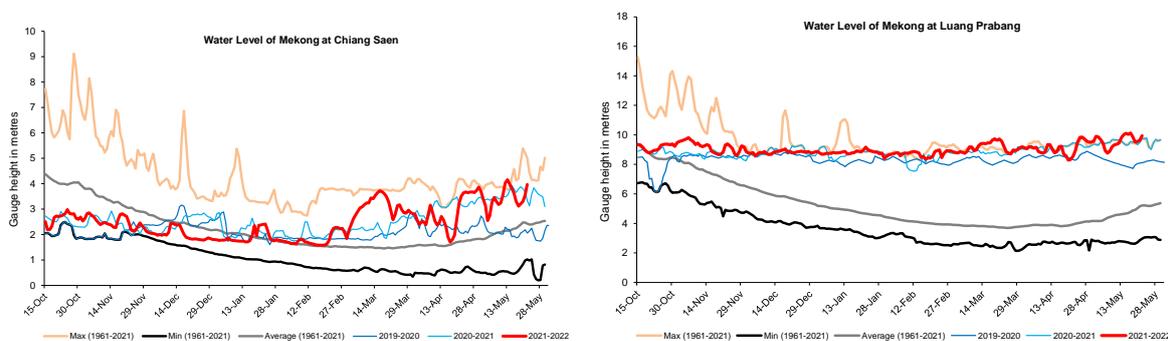
Based on hydrological phenomenon, the contribution of inflow water from the upstream of Lancang-Mekong in China to the Mekong mainstream is about 16% in total during the wet season from June to October and about 25% in total during the dry season from November to May. The whole inflow of water into the LMB is influenced by rainfall at the Mekong mainstream and its tributaries during the wet season.

### Chiang Saen and Luang Prabang

Water level during May 17-23 at Thailand’s Chiang Saen increased from 3.62 m to 3.97 m and stayed about 1.54 m higher than its Long-Term-Average (LTA), **which was considered normal (about 1.05 m below its maximum value).** When compared to last week, this week’s water level is higher.

Water level at the Luang Prabang station in Lao PDR decreased about 0.09 m during the reporting period. Compared to last week, the figure shows that water level this week is about 0.22 m higher than its maximum value. The water levels at Chiang Saen and Luang Prabang are shown in [Figure 8](#) below.

Being situated between the upstream (Nam Beng, Nam Ou, Nam Suong, and Nam Khan) and downstream (Xayaburi) hydropower dams, the Luang Prabang station has a unique characteristic as it is influenced by the operations of all its surrounding dams. **Thus, the water level at this station can possibly change very rapidly during the early dry season.**

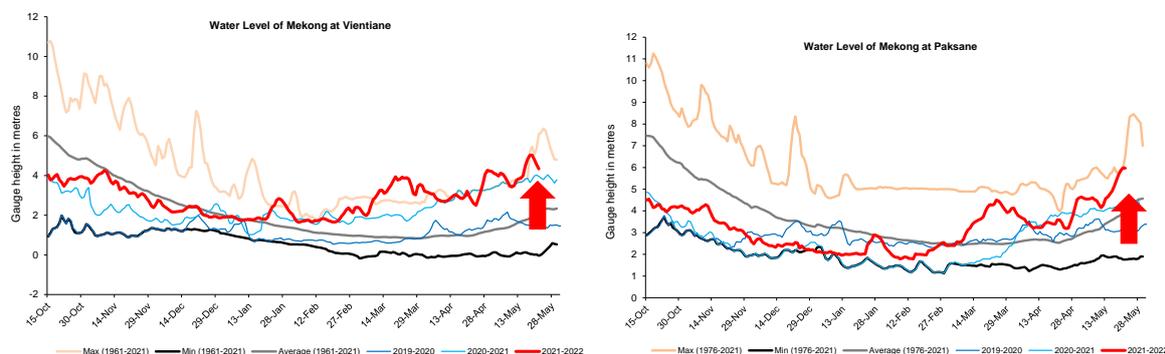


**Figure 8. Water levels at Chiang Saen in Thailand and Luang Prabang in Lao PDR.**

### Chiang Khan, Vientiane-Nong Khai and Paksane

The water level at Chiang Khan in Thailand (downstream of the Xayaburi dam) increased about 0.05 m while at Vientiane in Lao PDR decreased about 0.18 m during the reporting week. Water levels at Chiang Khan and Vientiane reached about 2.72 m and 2.28 m higher than their LTA value, respectively, during May 17-23, which are still **considered abnormal**. At Nong Khai station in Thailand water levels increased about 0.06, while at Paksane in Lao PDR, water level significantly increased about 1.05 m during the reporting period. The water level at Paksane was about 0.50 m lower than its maximum value. The recently increased water levels at

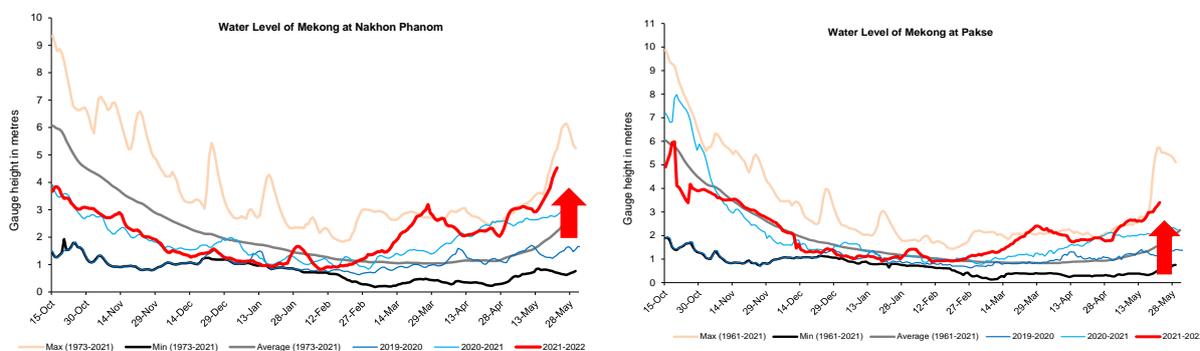
Paksane were obviously fluctuating due to hydropower operation and water released from upstream and the above-average rainfall in that area. The water levels at Vientiane and Paksane are shown in [Figure 9](#) below.



**Figure 9. Water levels Vientiane and Paksane in Thailand and Lao PDR.**

### Nakhon Phanom to Pakse

Water levels from Nakhon Phanom in Thailand to Pakse in Lao PDR significantly increased between 0.63 m and 1.19 m, due to above-average rainfall in the catchment area of these stations during the reporting period. Water levels from Nakhon Phanom to Pakse were staying close and higher to their maximum level, **considered abnormal**. However, water level at Savannakhet in Lao PDR remained higher than their LTA value, which considered normal. [Figure 10](#) shows the water levels at Nakhon Phanom and Pakse stations.

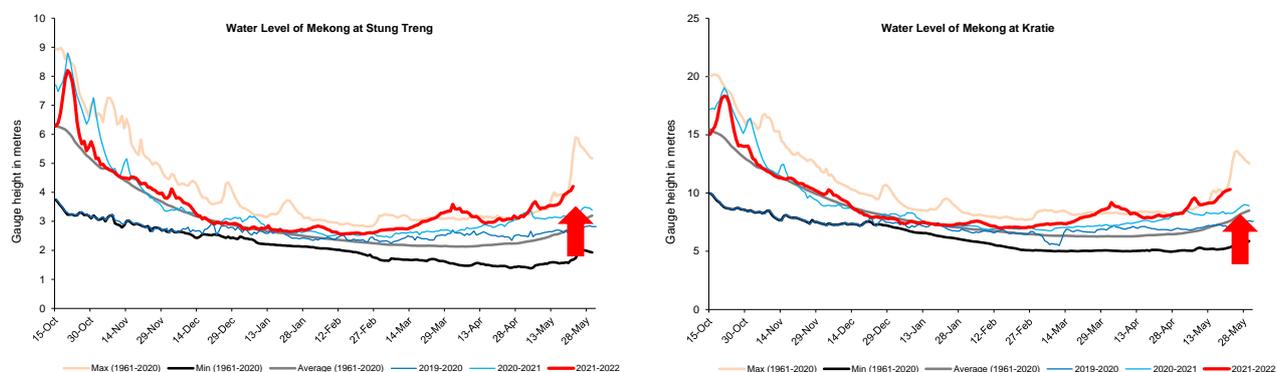


**Figure 10: Water levels at Nakhon Phanom and Pakse of Thailand and Lao PDR.**

### Stung Treng to Kompong Cham/Phnom Penh to Koh Khel/Neak Luong

With some contributed inflow from the upstream part of the Mekong River and the 3S river (Sekong, Se San, and Sre Pok), the water levels from Stung Treng to Kompong Cham in Cambodia were significantly increasing during 17-23 May 2022. This week water level from Stung Treng to Kompong Cham increased from 0.61 m to 0.97 m, due to above-average rainfall and inflow from upstream. The current water levels at Stung Treng, Kratie and Kompong Cham are staying close to their maximum value, **considering abnormal**.

This week the water levels at Stung Treng and Kratie, compared with recent years and their Max, Min and LTA are shown in [Figure 11](#).



**Figure 11: Water levels at Stung Treng and Kratie on the Mekong River.**

At Chaktomuk on the Bassac River, due to less rainfall and inflows from upstream catchment during the report period, the water level increased about 0.46 m and stayed 0.70 m higher than its LTA value; while at Koh Khel, water level increased about 0.30 m and stayed 0.71 m higher than its LTA value. The water level at Prek Kdam on the Tonle Sap Lake increased about 0.63 m and was about 0.84 m higher than its LTA value. The water level at the Tonle Sap Lake (observed at Kompong Luong) was similar to Prek Kdam station's water level. The recently increased water level was due to above-average rainfall and inflow contributed from upstream of the Tonle Sap Lake area during the reporting period. The water level at the Tonle Sap Lake (observed at Kompong Luong) followed the same trend of Prek Kdam station's water level. **Water levels at these stations were staying higher than their LTA level, which still considered normal.**

#### Tidal stations at Tan Chau and Chau Doc

This week, the water levels from 17 to 23 May 2022 at Viet Nam's Tan Chau and Chau Doc were fluctuating between their LTA and maximum levels due to daily tidal effects from the sea. The fluctuation was between 0.24 m and 0.94 m. The current water levels at **Tan Chau and Chau Doc are higher than their LTA level, which considered abnormal.**

#### The Tonle Sap Flow

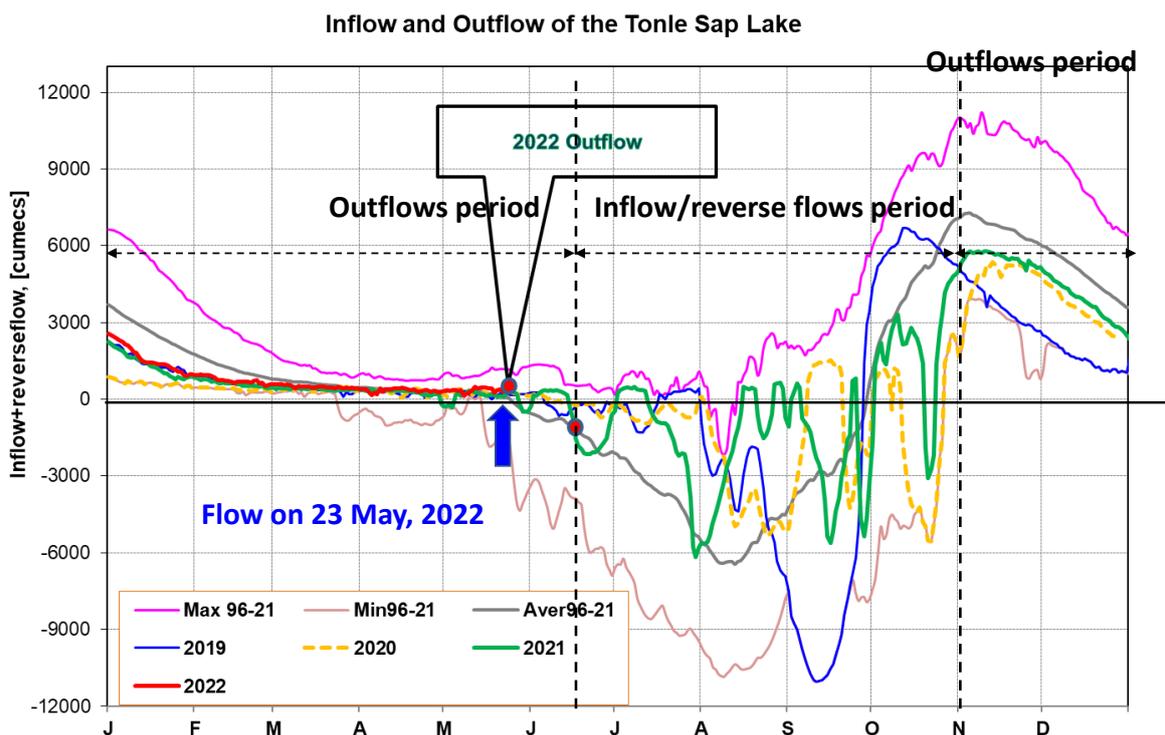
At the end of the wet season, when water levels along the Mekong River subside, the outflows of the Tonle Sap Lake return into the Mekong River and then to the Delta. This phenomenon normally takes place from end of September to October. Based on flow observation at Prek Kdam, the outflow of the Tonle Sap Lake was taking place since 10 October 2021.

[Figure 12](#) shows the seasonal changes of the inflow/reverse flow and the outflow of the TSL at Prek Kdam in comparison with the flows of 2019 and 2020, and their LTA level (1997-2020). Up to May 23 of this reporting period, **it was observed that the main outflow to Tonle Sap Lake slightly increased due to rainfall and inflows from upstream.** This increased outflow of Tonle Sap Lake was most likely caused by inflows and rainfall from the catchment area. Up to

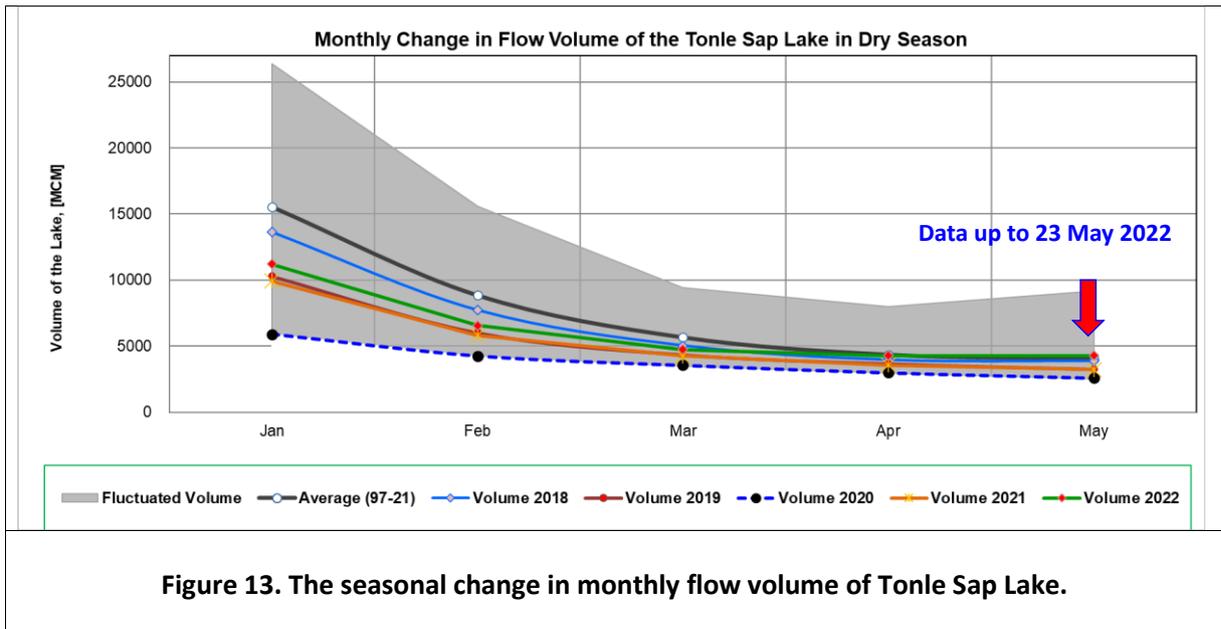
present, the outflow from the Tonle Sap Lake condition in 2022 is higher than 2019, 2020, 2021 and even its LTA (1997-2021) outflow conditions. For next week, some rainfall is forecasted for the Tonle Sap area; thus, the outflow from the Tonle Sap Lake is likely continuing to slightly increase from the current level.

[Figure 13](#) shows seasonal changes in monthly flow volumes up to 23 May 2022 for the Lake compared with the volumes in 2019, 2020, 2021 and their LTA, and the fluctuation levels (1997–2021). It shows that up to May 23, **the water volume of the Tonle Sap Lake was slightly higher than 2019, 2020, 2021 and even higher than its LTA (106%), during the same period.** The figure is displayed in [Table 1](#), which indicates that the Tonle Sap Lake has been affected by water levels from the tributaries and rainfall in the surrounding sub-catchments and ***considered normal.***

This demonstrates the influence of the relationships of the reverse and out flows, water levels of the Mekong River, inflows from tributaries, and the flow direction in the complex hydraulic environment of the Tonle Sap Lake during the wet and dry seasons. The data show that about half of the annual inflow volume into the Tonle Sap Lake has originated from the Mekong mainstream. Thus, flow alterations in the mainstream could have direct impact on the Tonle Sap Lake water levels and on its hydrology.



**Figure 12: Seasonal change of inflows and outflows of Tonle Sap Lake.**



**Table 1. The monthly change in the flow volume of Tonle Sap Lake.**

Month	Average Volume (97-21) [MCM]	Max Volume [MCM]	Min Volume [MCM]	Volume 2018 [MCM]	Volume 2019 [MCM]	Volume 2020 [MCM]	Volume 2021 [MCM]	Volume 2022 [MCM]	Percentage of Volume in 2021 [%]
Jan	15523.23	26357.53	5906.80	13633.41	10285.31	5906.80	9923.80	11214.32	72.24
Feb	8837.89	15596.22	4198.60	7729.72	6019.30	4264.19	5832.97	6558.79	74.21
Mar	5654.18	9438.24	3347.07	5037.06	4354.62	3553.99	4264.88	4736.52	83.77
Apr	4346.65	8009.14	2866.91	3956.47	3667.47	2992.61	3556.68	4288.31	98.66
May	4030.23	9176.93	2417.81	3864.00	3266.43	2594.92	3240.78	4276.77	106.12
Jun	5708.30	13635.01	2468.70	5919.18	3517.06	2641.88	3798.29		
Jul	11493.25	28599.56	2925.86	12024.96	4001.99	2925.86	5346.73		
Aug	24666.69	39015.12	4433.46	22399.65	7622.71	5941.07	10547.80		
Sep	39634.03	65632.35	12105.31	53639.54	24194.19	12105.31	16382.34		
Oct	46873.44	73757.23	19705.50	48193.08	30358.38	20799.13	27318.21		
Nov	37823.16	60367.33	18534.61	31036.07	19112.65	27546.80	28982.93		
Dec	25126.11	38888.95	10563.49	18469.21	10577.29	18251.65	20170.76		
	Critical situation, compared with historical Min values								
	Normal condition, compared with LTA (Long term average)								
	Low volume situation, compared with LTA values								

Unit: Million Cubic Meter (1 MCM= 0.001 Km<sup>3</sup>)

## 4 Flash Flood in the Lower Mekong Basin

During May 17-23, the LMB was affected by three main weather factors. These include (i) The high-pressure area from China extended its ridge to cover north-eastern part during the first half of the week, (ii) the moderate southwest monsoon prevailed over the Gulf of Thailand during the first half of the week, and (iii) the active low-pressure cell covered upper part during May 19-20 then moved to cover the middle part on the weekend.

These conditions caused moderate and heavy rainfall in the upper and middle parts on the last days of the week.

According to the MRC-Flash Flood Guidance System (MRC-FFGS) and analysis, flash flood events were not detected during the reporting period over the LMB.

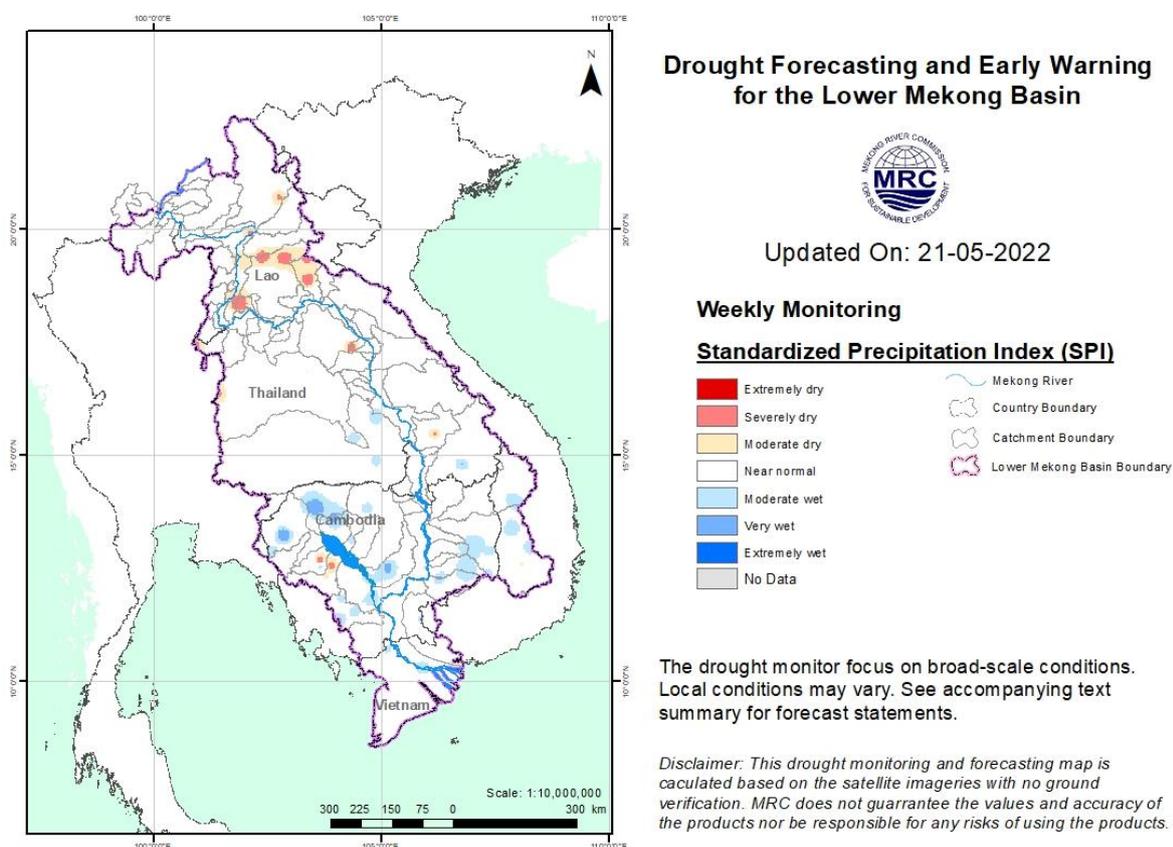
## 5 Drought Monitoring in the Lower Mekong Basin

### Weekly drought monitoring from 15 to 21 May 2022

Drought monitoring data for 2022 are available from Sunday to Saturday every week; thus, the reporting period is normally delayed by two days compared to Flood and Flash Flood reports. We adopt the Index of Soil Water Fraction (ISWF) data obtained from FFGS to represent soil moisture of agricultural indicator for both dry and wet seasons.

- **Weekly Standardised Precipitation Index (SPI1)**

Meteorological drought conditions of the LMB from May 15 to 21, as shown in [Figure 11](#), were mostly normal all over the region. There was some moderate drought, however, taking place in the northern part covering Lao PDR's Luang Prabang, Vientiane, Xieng Khuang, and Xaysomboun. However, the region did not face any serious meteorological drought.

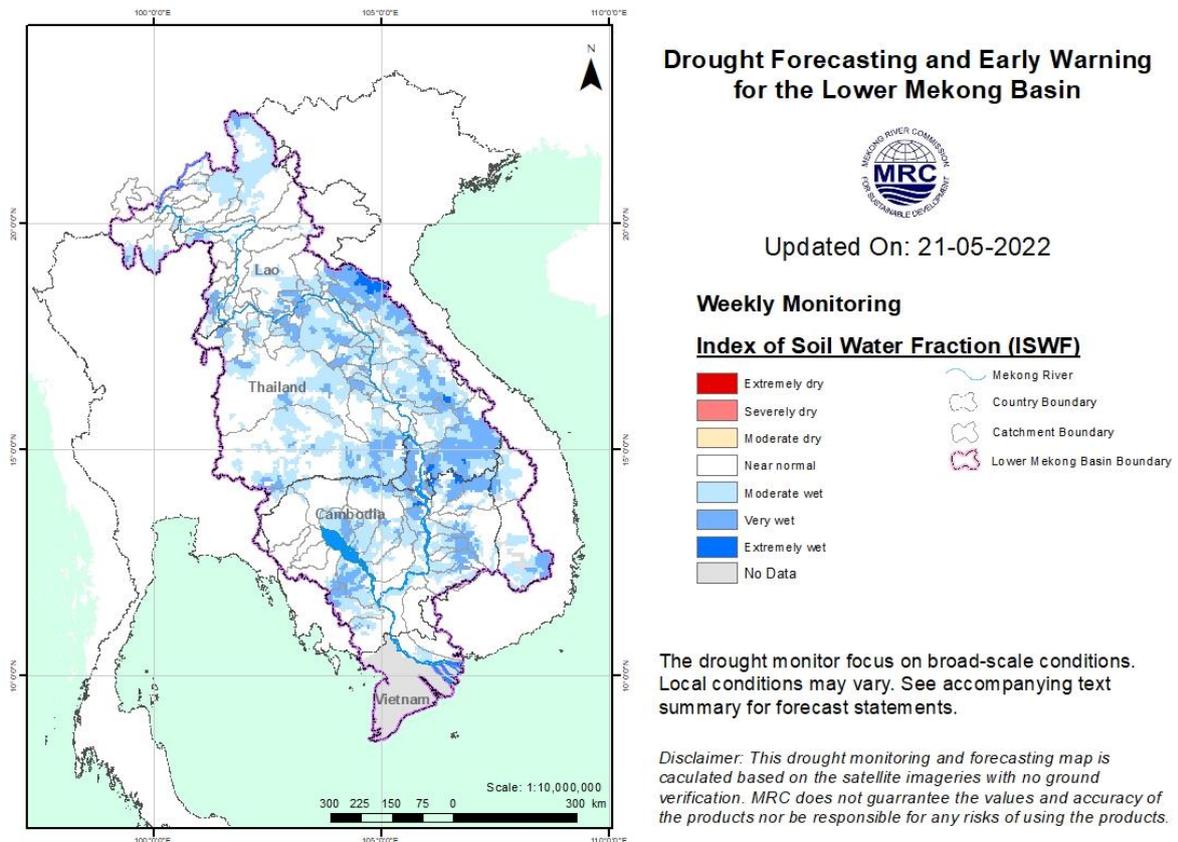


**Figure 14: Weekly standardised precipitation index from May 15 to 21.**

- **Weekly Index of Soil Water Fraction (ISWF)**

Unlike SPI conditions, the ISWF shows that from May 15 to 21, as displayed in [Figure 12](#), the LMB was relatively wet all over the place from north to the south. There was no agricultural drought during the monitoring week.

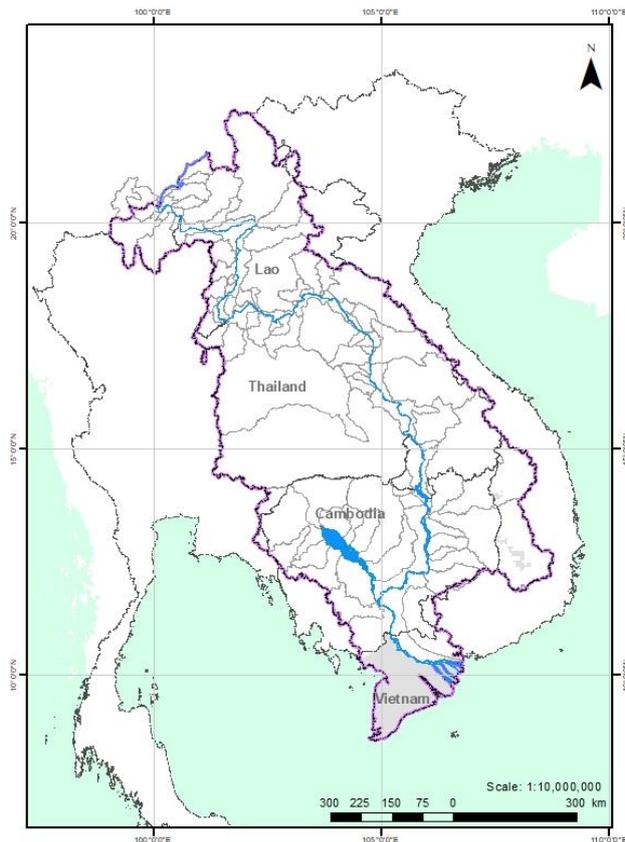
**Note:** The index of soil water fraction presents the current soil water fraction conditions compared with normal month; therefore, it normally shows extremely dry during dry season which is completely different from SPI that is standardized to its specific month of the years. However, this does not mean that the areas are threatened by agricultural drought as generally during transition period of wet and dry seasons and dry season only the irrigated areas are used for agricultural plantation.



**Figure 15: Weekly Index of Soil Water Fraction from May 15 to 21.**

- **Weekly Combined Drought Index (CDI)**

The combined drought indicator, as displayed in [Figure 13](#), reveals that during May 15-21 the LMB was in normal condition all over the region. No drought threat was found.



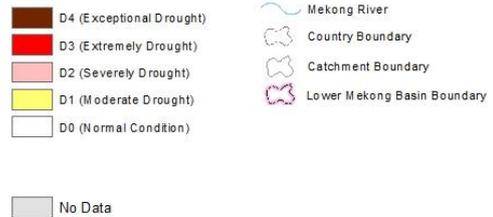
## Drought Forecasting and Early Warning for the Lower Mekong Basin



Updated On: 21-05-2022

### Weekly Monitoring

#### Combined Drought Index (CDI)



The drought monitor focus on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

*Disclaimer: This drought monitoring and forecasting map is calculated based on the satellite imageries with no ground verification. MRC does not guarantee the values and accuracy of the products nor be responsible for any risks of using the products.*

**Figure 16: Weekly Combined Drought Index during May 15-21.**

More information on Drought Forecasting and Early Warning (DFEW) as well as the explanation is available here: <http://droughtforecast.mrcmekong.org/templates/view/our-product>. DFEW provides not only weekly monitoring and forecasting information but also a three-month forecast of drought indicators with seasonal outlook which are updated every month based on international weather forecast models. Details on drought forecast are described in section [6.4](#) of this report.

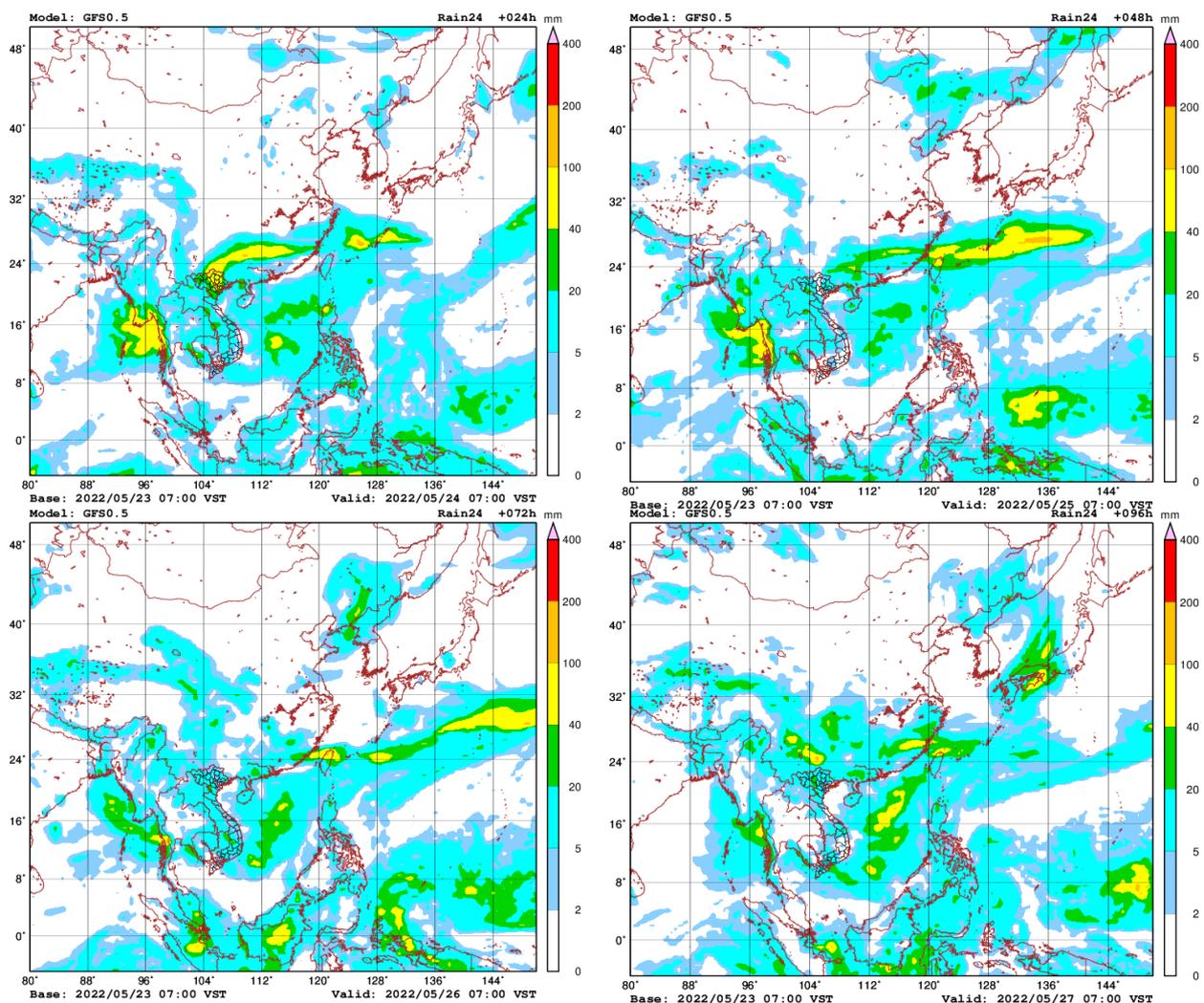
## 6 Weather and Water Level Forecast and Flash Flood Information

### 6.1 Weather and rainfall forecast

Based on the analysis of the synoptic meteorological information and result from the Global Forecast System (GFS) Model, in the coming week there may be two main factors affecting the LMB. They include (i) high pressure from China in the upper part and (ii) the prevailing weak Southwest Monsoon from the Gulf of Thailand to the lower part of the LMB.

During May 24-30, in general, small rainfall (5-20 mm/24h) or no rain may occur in some areas of the LMB. However, the moderate rainfall (20 -50 mm/24h) may occur in some areas in the upper part on 24 May.

[Figure 14](#) shows accumulated rainfall forecast (24hrs) of the GFS model during May 24-30.



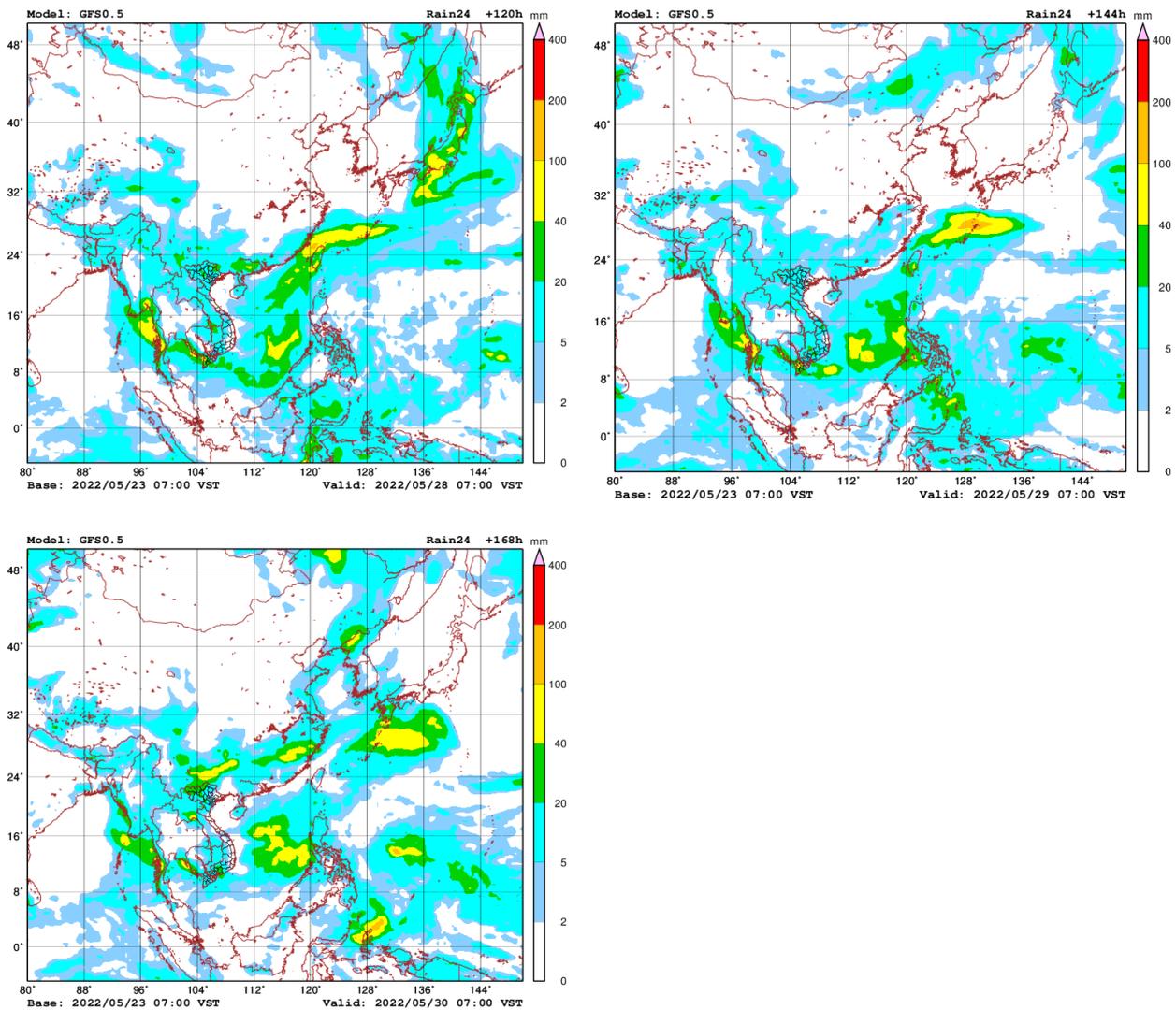


Figure 17: Accumulated rainfall forecast (24 hrs) of model GFS.

## 6.2 Water level forecast

### Chiang Saen and Luang Prabang

Based on May 23's weekly river monitoring bulletin, the weekly forecast water level at Chiang Saen in Thailand is expected to decrease about 0.33 m in the next seven days from 3.97 m to 3.64 m. The trend of water level at these stations will continue staying higher than its LTA. Rainfall is forecasted in the area in the next seven days.

For Luang Prabang in Lao PDR, the water level is likely to significantly increase about 0.85 m in the next seven days. The water level will remain higher than its maximum value. Rainfall is forecasted in the area in the next seven days.

### **Chiang Khan, Vientiane-Nong Khai and Paksane**

Water level at Chiang Khan station in Thailand is forecasted to suddenly go up about 1.38 m for the next seven days. From Vientiane in Lao PDR to Nong Khai in Thailand, water levels will also significantly increase about 1.80 m in the next seven days. At Paksane in Lao PDR, water level will also increase about 1.90 m due to rainfall and inflows from the upper catchments and hydropower dam operation. Rainfall is forecasted in this area in the next seven days. The water levels at Nong Khai and Paksane will remain higher than their LTA level.

### **Nakhon Phanom to Pakse**

Water levels from Nakhon Phanom to Mukdahan in Thailand will significantly increase about 1.70 m in the next seven days. The water levels from Khong Chiam in Thailand to Pakse in Lao PDR will significantly increase about 1.50 m. Water levels at these stations will remain higher than their LTA level. Next week rainfall is forecasted in the area.

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

From Stung Treng to Kompong Cham on the Mekong River in Cambodia, the water levels will go up about 1.50 m over the next seven days. Water level from Chaktomuk to downstream at Neak Luong will be up about 0.60 m. Rainfall is forecasted for the area between Stung Treng and Kompong Cham during next week.

The water levels of the Tonle Sap Lake at Prek Kdam and Phnom Penh Port as well as at Phnom Penh's Chaktomuk on the Bassac River will increase about 0.60 m over the next seven days.

Water levels at these stations will continue to stay higher than their LTA value, particularly in the lower part of the region from the Bassac at Phnom Penh to Koh Khel as well as from Tonle Sap at Prek Kdam to Phnom Penh Port, including the Tonle Sap Lake. Rainfall is forecasted for the low-lying area of Cambodia next week.

### **Tidal stations at Tan Chau and Chau Doc**

For Viet Nam's Tan Chau on the Mekong River and Chau Doc on the Bassac River, water levels will be moving up and down between their Minimum and Maximum values following daily tidal effects from the sea.

[Table 3](#) shows the weekly River Monitoring Bulletin issued on May 23. Results of the started weekly river monitoring bulletin are also available at [http://ffw.mrcmekong.org/bulletin\\_wet.php](http://ffw.mrcmekong.org/bulletin_wet.php).

### **6.3 Flash Flood Information**

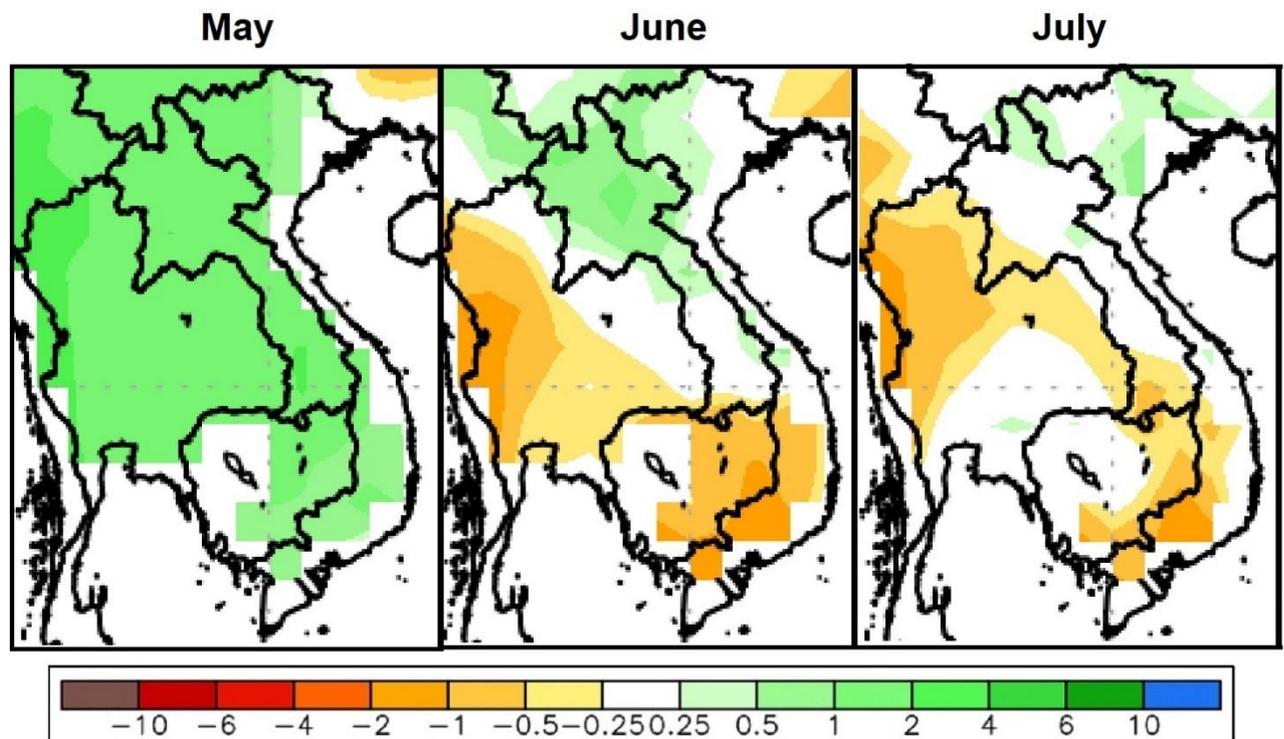
Flash flood events are not likely to happen in the LMB. However, local heavy rain in a short period of time might still be possible with unexpected short flash floods. During the dry season if extreme weather occurs, the information on flash flood guidance for the next one, three, and six hours is updated at <http://ffw.mrcmekong.org/ffg.php>.

Further detailed information on Flash Flood Information Warning, as well as on its explanation, is available for download [here](#).

#### 6.4 Drought forecast

There are several climate-prediction models with different scenarios on the upcoming months until July 2022. The MRC's DFEWS adopts an ensemble model called the North America Multi-Model Ensemble (NMME), which averages all scenarios.

The global scale of rainfall prediction is used to see how the rain distribution looks like for the coming months. [Figure 15](#) shows the ensemble mean of daily average precipitation (mm/day) each month from May to July 2022 produced by the NMME.



**Figure 18. Daily average of monthly rainfall anomaly forecast from May to July 2022.**

The ensemble prediction model based on the initial conditions in April 2022 reveals that the LMB is likely to receive ample amount of rainfall in May and below average rainfall in both June and July 2022 from the middle to the lower part of the region. Based on the weather forecast, May is likely to be much wetter than normal year especially in the north and central parts of the LMB.

The 2021 dry season is relatively wetter than that of 2020 and the monsoon rain in 2022 might come on time or even earlier than normal year.

Table 2. Weekly River Monitoring Bulletin.



## Mekong Bulletin

Mekong River Commission Secretariat (MRCS)  
Regional Flood and Drought Management Centre (RFDMC)

P.O. Box 623 #576, National Road #2, Chak Angre Krom, Meanchey, Phnom Penh, Cambodia  
Tel: (855-23) 425353, Fax: (855-23) 425363, Email: floodforecast@mrcmekong.org

Forecast period from: 24 May to 30 May 2022

Date: 23 May 2022

LOCATION	Country	Observed Rainfall (mm)	Zero gauge above M.S.L (m)	Min water level against zero gauge (m)	Observed W. level against zero gauge (m)		Forecasted Water Levels (m)						
					22-May	23-May	24-May	25-May	26-May	27-May	28-May	29-May	30-May
Jinhong		26.5	-	-	536.67	536.53							
Chiang Saen		9.0	357.110	0.00	3.54	3.97	4.30	4.21	4.00	4.20	4.10	3.89	3.64
Luang Prabang		27.8	267.195	2.53	9.64	9.94	10.28	10.71	11.04	10.94	10.71	10.92	10.82
Chiang Khan		0.0	194.118	1.91	6.77	7.62	8.14	8.41	8.76	9.03	8.96	8.78	9.00
Vientiane		4.6	158.040	-0.28	4.55	4.33	5.11	5.61	5.88	6.23	6.50	6.42	6.24
Nongkhai		8.2	153.648	0.33	4.31	4.01	4.73	5.20	5.45	5.77	6.02	5.92	5.74
Paksane		59.2	142.125	0.10	5.99	5.97	6.18	6.72	7.12	7.33	7.61	7.83	7.76
Nakhon Phanom		11.4	130.961	0.18	4.37	4.53	4.56	4.78	5.30	5.68	5.89	6.15	6.36
Thakhek		7.5	129.629	1.38	5.54	5.68	5.72	5.94	6.47	6.87	7.10	7.37	7.60
Mukdahan		10.0	124.219	0.72	4.15	4.35	4.45	4.48	4.70	5.20	5.58	5.78	6.03
Savannakhet		8.0	125.410	-0.65	2.60	2.78	2.85	2.86	3.06	3.53	3.88	4.05	4.26
Khong Chiam		0.0	89.030	1.02	4.58	4.80	5.02	5.15	5.20	5.45	6.00	6.41	6.66
Pakse		0.0	86.490	0.03	3.26	3.40	3.55	3.63	3.68	3.90	4.40	4.77	5.00
Stung Treng		nr	36.790	0.32	4.06	4.21	4.37	4.52	4.6	4.65	4.86	5.33	5.68
Kratie		0.5	-1.080	3.06	10.24	10.31	10.50	10.69	10.87	10.98	11.05	11.30	11.80
Kompong Cham		1.7	-0.930	0.65	4.90	4.94	5.02	5.20	5.41	5.60	5.73	5.82	6.09
Phnom Penh (Bassac)		nr	-1.020	1.58	2.93	2.95	3.00	3.10	3.21	3.32	3.39	3.44	3.57
Phnom Penh Port		-	0.000	0.14	1.68	1.70	1.75	1.85	1.96	2.07	2.14	2.19	2.32
Koh Khel		0.9	-1.000	1.52	2.98	2.87	2.84	2.85	2.90	2.94	2.99	3.04	3.15
Neak Luong		1.0	-0.330	0.81	2.08	2.10	2.10	2.12	2.17	2.21	2.26	2.31	2.36
Prek Kdam		nr	0.080	0.58	2.04	2.08	2.15	2.25	2.35	2.46	2.51	2.57	2.69
Tan Chau		3.9	0.000	-0.37	0.18	0.24	0.33	0.49	0.68	0.82	1.00	1.06	1.10
Chau Doc		8.0	0.000	-0.60	0.22	0.27	0.37	0.55	0.75	0.88	1.06	1.13	1.17

**REMARKS:**

-: not available.  
\*: reference stations without forecast.  
nr: no rain.

River Flood Forecaster

KHEM Sothea

**NOTE:** Discharge at Luang Prabang may be influenced by hydropower operations (at both upstream and downstream).  
For more info, please refer to this link:  
<http://www.mrcmekong.org/>; [http://ffw.mrcmekong.org/bulletin\\_wet.php](http://ffw.mrcmekong.org/bulletin_wet.php); <http://ffw.mrcmekong.org/reportflood.php>

## 7 Summary and Possible Implications

### 7.1 Rainfall and its forecast

This week, rainfall was observed from Chiang Saen in Thailand from the upper part to Tan Chau and Chau Doc in Viet Nam at the lower part of the Mekong region. Compared with last week's amount, the highest rainfall in this week was focussed at Chiang Saen in Thailand of the LMB.

Based on the forecasted rainfall from satellite using GFS data, rainfall is likely to take place in the areas from the upper to the lower part of the Mekong region including the 3S area and Mekong Delta of Viet Nam during 24-30 May 2022, varying from 0.50 mm to 150.00 mm. This indicates that the early starting wet season over the LMB.

### 7.2 Water level and its forecast

According to MRC's observed water level at Jinghong, it showed a **decreasing WL of about 0.10 m from 536.63 m to 536.53 m during the weekly monitoring period from 17 to 23 May 2022 (recorded on 7:00 am)** and staying about 1.39 m lower than its two-year average (2020-2021) value. The outflow at Jinghong station decreased from 1791.81 m<sup>3</sup>/s to 1724.76 m<sup>3</sup>/s at the same period.

Water levels in the lower part of the monitoring locations in the LMB, during this reporting week, were increasing from Chiang Saen down to Nakhon Phanom and Pakse. Water levels at each key station along the Mekong mainstream from Chiang Saen to Pakse were rising and remaining higher than their LTA value and even reaching higher and close to their maximum value in some specific stations. In Cambodia, water levels from Stung Treng to Kompong Cham also increased and were close to their maximum level. Water levels at Neak Luong, Bassac at Phnom Penh and Prek Kdam in Cambodia were higher than their LTA level. Water level at Koh Khel was also higher than its LTA level during this week. The increased level in these stations was due to higher rainfall (above-average rainfall) and inflows from upstream in the region from 17 to 23 May 2022. Generally, this week's water levels were relatively higher than those of last week in the middle and the lower parts in the LMB.

The current WLs higher than and close to their maximum value are at **Luang Prabang, Chiang Khan, Vientiane, Paksane, from Nakhon Phanom to Pakse and from Stung Treng to Kompong Cham, while the rest of the key stations have WL higher than their LTA value.**

The flow volume of the Tonle Sap Lake was slightly higher than its LTA. From next week, the flow is expected to increase due to the above-average rainfall forecasted in the inflow catchments of the Tonle Sap Lake.

From Stung Treng to Kompong Cham, water levels will go up and from Chaktomuk in Phnom Penh the water levels will increase for the next 7 days. The water levels – at Neak Luong on the Mekong River, from Prek Kdam to Phnom Penh Port on the Tonle Sap, and Koh Khel on the Bassac – are forecasted to continue staying higher than their LTA level.

The situation in Tan Chau on the Mekong River and Chau Doc on the Bassac River is expected to remain fluctuating. The current fluctuation of water level is in between their Minimum and Maximum levels, which considered critical.

Since the fourth week of October 2021, water levels across most monitoring stations in the LMB have significantly dropped to the level lower than their LTA (from upper to lower stretches within the LMB). For a more complete preliminary analysis of the hydrological conditions in the LMB over July–December 2020, November 2020 to May 2021 and June to October 2021 see this [Situation Report](#).

The contribution to the Mekong River’s flow from the UMB in China (Yunnan component) is about 16% by the time the river discharges through the Mekong Delta into the Sea. By far the major contribution comes from the two major ‘left-bank’ (Eastern) tributaries between Vientiane – Nakhon Phanom and Pakse – Stung Treng, which together contribute more than 40% of the flows.

### **7.3 Flash flood and its trends**

With the predicted rainfall for the coming week as mentioned earlier in [section 6.1](#), major flash floods are not likely to happen in the LMB.

### **7.4 Drought condition and its forecast**

Drought conditions of the LMB from 15 to 21 May 2022 were normal in all areas from north to the south. There was no drought threat over the region, except some little moderate meteorological drought in the northern part of the region.

For the upcoming three months’ forecasts, the LMB is likely to receive ample amount of rainfall in May and below average rainfall in both June and July 2022 from the middle to the lower part of the region. Based on the weather forecast, May is likely to be much wetter than normal year especially in the north and central parts of the LMB.

**Annex A: Tables for weekly updated water levels and rainfall at the Key Stations**

Table A1: Weekly observed water levels

2022	Jinghong	Chiang Saen	Luang Prabang	Chiang Khan	Vientiane	Nongkhai	Paksane	Nakhon Phanom	Mukdahan	Pakse	Stung Treng	Kratie	Kompong Cham	Phnom Penh (Bassac)	Koh Khel	Neak Luong	Prek Kdam	Tan Chau	Chau Doc
17-05-2022	536.63	3.62	10.03	7.57	4.51	3.95	4.92	3.34	3.41	2.78	3.60	9.34	4.08	2.49	2.36	1.56	1.45	0.85	0.94
18-05-2022	536.69	3.30	10.13	7.75	4.83	4.44	5.15	3.49	3.49	2.98	3.72	9.61	4.24	2.53	2.51	1.66	1.67	0.54	0.43
19-05-2022	536.71	3.12	9.86	7.76	5.02	4.62	5.42	3.64	3.60	2.99	3.91	9.78	4.50	2.67	2.68	1.80	1.73	0.14	-0.05
20-05-2022	536.57	3.21	9.52	7.50	5.02	4.75	5.68	3.80	3.73	3.00	3.96	10.01	4.61	2.78	2.77	1.92	1.88	0.03	0.02
21-05-2022	536.59	3.30	9.56	7.17	4.80	4.50	5.86	4.14	3.92	3.16	4.02	10.16	4.80	2.85	2.85	2.02	1.97	0.09	0.12
22-05-2022	536.67	3.54	9.64	6.77	4.55	4.31	5.99	4.37	4.15	3.26	4.06	10.24	4.90	2.93	2.98	2.08	2.04	0.18	0.22
23-05-2022	536.53	3.97	9.94	7.62	4.33	4.01	5.97	4.53	4.35	3.40	4.21	10.31	4.94	2.95	2.87	2.10	2.08	0.24	0.27

Table A2: Weekly observed rainfall

2022	Jinghong	Chiang Saen	Luang Prabang	Chiang Khan	Vientiane	Nongkhai	Paksane	Nakhon Phanom	Mukdahan	Pakse	Stung Treng	Kratie	Kompong Cham	Phnom Penh (Bassac)	Koh Khel	Neak Luong	Prek Kdam	Tan Chau	Chau Doc
17-05-2022	24.5	35.5	13.4	7.4	0	2.7	4.4	0.4	49.3	0	50.5	4	18.8	5.1	0	3.6	0	0	0.2
18-05-2022	2	44	0.2	0	0	0	0	0	0	0	0	0.8	1.5	70.5	0	21.5	72.3	0.4	3
19-05-2022	0	2	0	0	0	0	0	0	0	0	0	1	6	47	29.3	0	75.4	0	5
20-05-2022	0.5	7.1	0	19.1	0.4	0	48.6	0	1.9	38	0.5	11.8	1	3.1	0	0	17.4	0	0
21-05-2022	22	9	3	15.6	1.8	8.5	27.9	1	0	0	0	0	0	0	0	0	0	0	0
22-05-2022	51.5	124	24.2	8.5	6.4	41.6	13.1	1.2	0	0	2	0	0	0	4.5	1.6	0	6.4	5
23-05-2022	26.5	9	27.8	0	4.6	8.2	59.2	11.4	10	0	0	0.5	1.7	0	0.9	1	0	3.9	8



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