



**Mekong River Commission**

**Weekly Dry Season Situation Report in  
the Lower Mekong River Basin  
29 March- 04 April 2022**

Prepared by  
The Regional Flood and Drought Management Centre  
05 April 2022

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## Key Messages

Key messages for this weekly report are presented below.

### Rainfall and its forecast

- Rainfall was observed from the upper to the lower part of the Mekong Basin, from Chiang Saen in Thailand to Tan Chau and Chau Doc in Viet Nam, varying from 0.20 mm to 167.90 mm. The highest rainfall focused in the Chau Doc area of Viet Nam.
- There will be no rain for the next 7 days over the Mekong region from 05 to 11 April 2022 in the Mekong region.

### Water level and its forecast

- According to MRC's observed data, water level (WL) at Jinghong decreased about 0.33 m from 29 Mar to 04 Apr 2022 and stayed lower than its two-year average (2020-2021) value.
- Last week, from 29 Mar to 04 Apr 2022, water level of monitoring station at Chiang Saen in Thailand decreased about 0.44 m but still about 0.81 m higher than its long-term average (LTA), considered normal. Water level at Lao PDR's Luang Prabang increased about 0.26 m compared with last week and about 0.23 m lower than its historical maximum value. WL at the monitoring station at Vientiane remained about 0.02 m lower than its historical maximum value, considered abnormal. Water levels at Nong Khai in Thailand and Paksane in Lao PDR were staying about 1.21 m higher than their LTA value, which considered normal at this stage. WLs from Thailand's Nakhon Phanom to Pakse in Lao PDR remained close to their Maximum level, except at Savannakhet in Lao PDR where WL was staying higher than its LTA level. This rising water level at these stations were **considered abnormal**. WLs from Cambodia's Stung Treng to Kompong Cham were staying higher than their maximum value. Water levels from Chaktomuk and Koh Khel on the Bassac River and Prekdam on the Tonle Sap River and also at Neak Luong on the Mekong were also increasing and staying higher than their historical maximum value.
- The water volume of the Tonle Sap Lake up to 04 April 2022 was close to its LTA but 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 Maximum and Minimum levels at Chau Doc, due to daily tidal effects from the sea and considered as critical.
- Over the next seven days, the water levels across the monitoring stations are expected to go down from Nakhon Phanom to Pakse and from Stung Treng to Chaktomuk and Prek Kdam in Cambodia.
- The current WLs that are higher than or about their maximum value are at **Vientiane, Nakhon Phanom, Khong Chaim, Pakse, Stung Trend, Kratie Kompomg Cham and Koh Khel**.

### Drought condition and its forecast

- Drought conditions of the LMB from 27 March to 02 April 2022 were normal and wet over all parts of the LMB. All moderate and severe soil moistures in the past weeks have disappeared due to accumulated rainfall starting from the second week of March. The region showed no significant threat.
- For the upcoming three months' forecasts, the LMB is likely to receive ample amount of rainfall in April and May, while it receives below average rain in June 2022 from the middle to the lower parts. 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 **29 March -04 April 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>

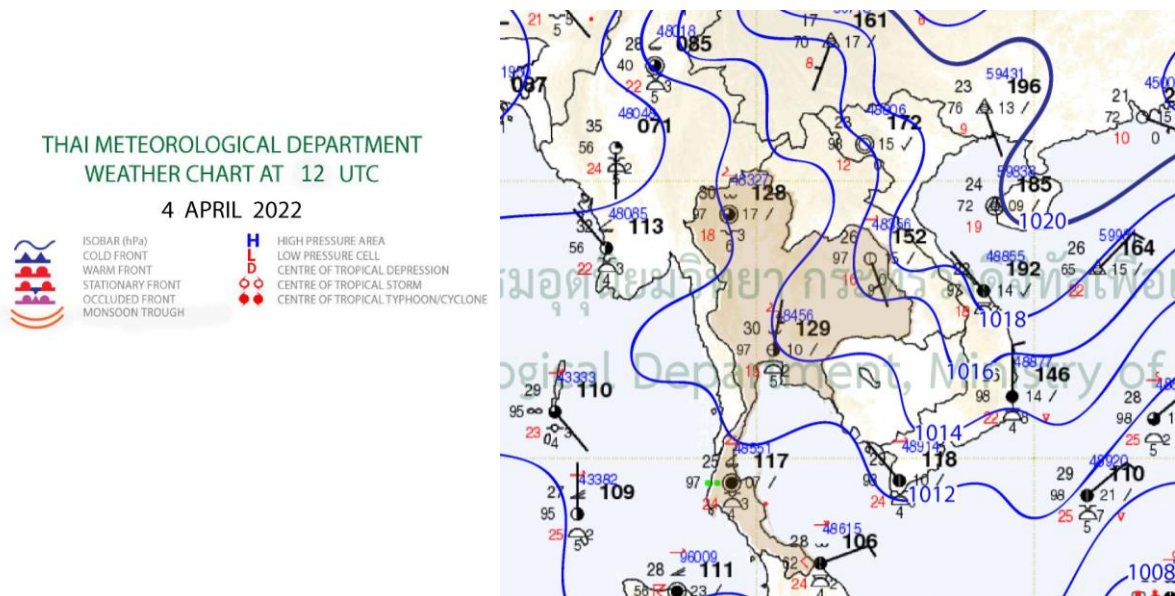
Flash flood information is accessible at: <http://ffw.mrcmekong.org/ffg.php>

## 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 middle of March 2022, the warm weather has come because the influentially high-pressure air mass areas prevail 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 bring warm and wet weather conditions to the upper part and lower parts of LMB. From March to May, it is the period of summer when the high-pressure air mass areas prevailing over the Mekong region bring some rainfalls for the transitional period between dry and wet seasons.

[Figure 1](#) presents the weather map of 04 April 2022, showing no any low-pressure points dominating the Mekong region, which will have no rain 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 and warm conditions is predicted over the lower part of the Mekong region during the 1<sup>st</sup> and 2<sup>nd</sup> weeks of April 2022. Moreover, the Mekong region is likely dominated by warm conditions, which may bring warmer temperatures in general to the lower part of the LMB. **Figure 2** shows the outlook of weather condition from 04 to 17 April 2022 in Southeast Asia based on results from the NCEP model (National Centres for Environmental Prediction).

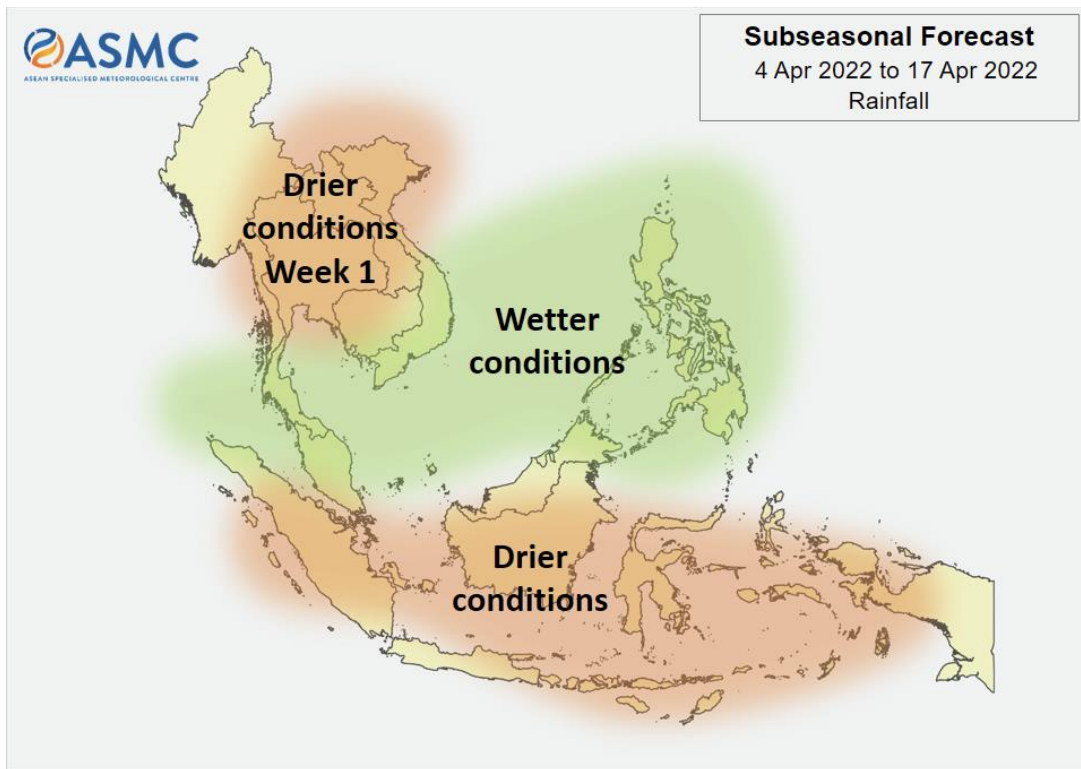


Figure 2: Outlook of wet and dry conditions over the Asian countries by ASMC.

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

There was no tracking storm covering the LMB during 29 March-04 April 2022, meaning no movement of storm detected from the South Sea of Viet Nam, as displayed in [Figure 3](#).

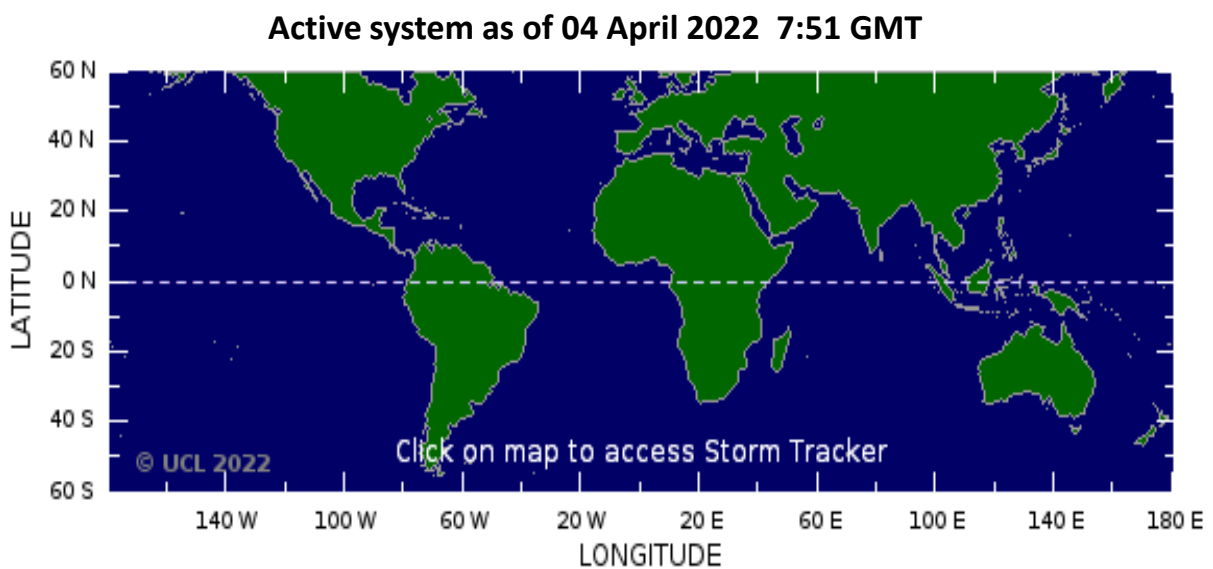
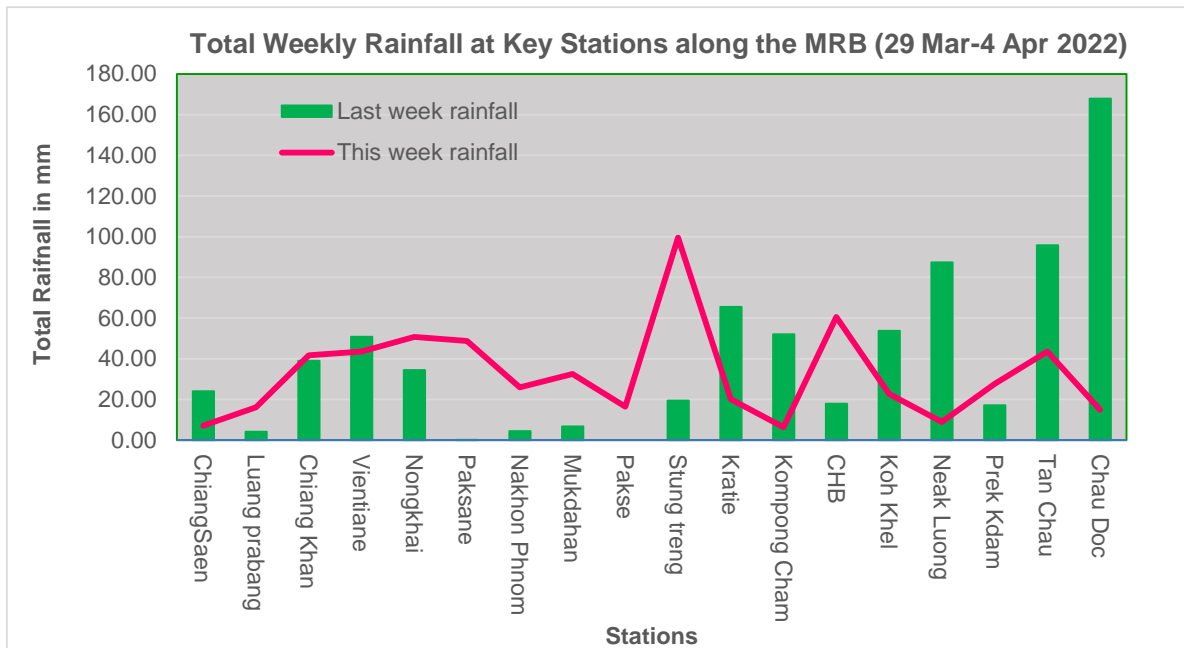


Figure 3: No tropical storm risk observed on 04 April 2022.

## Rainfall patterns over the LMB

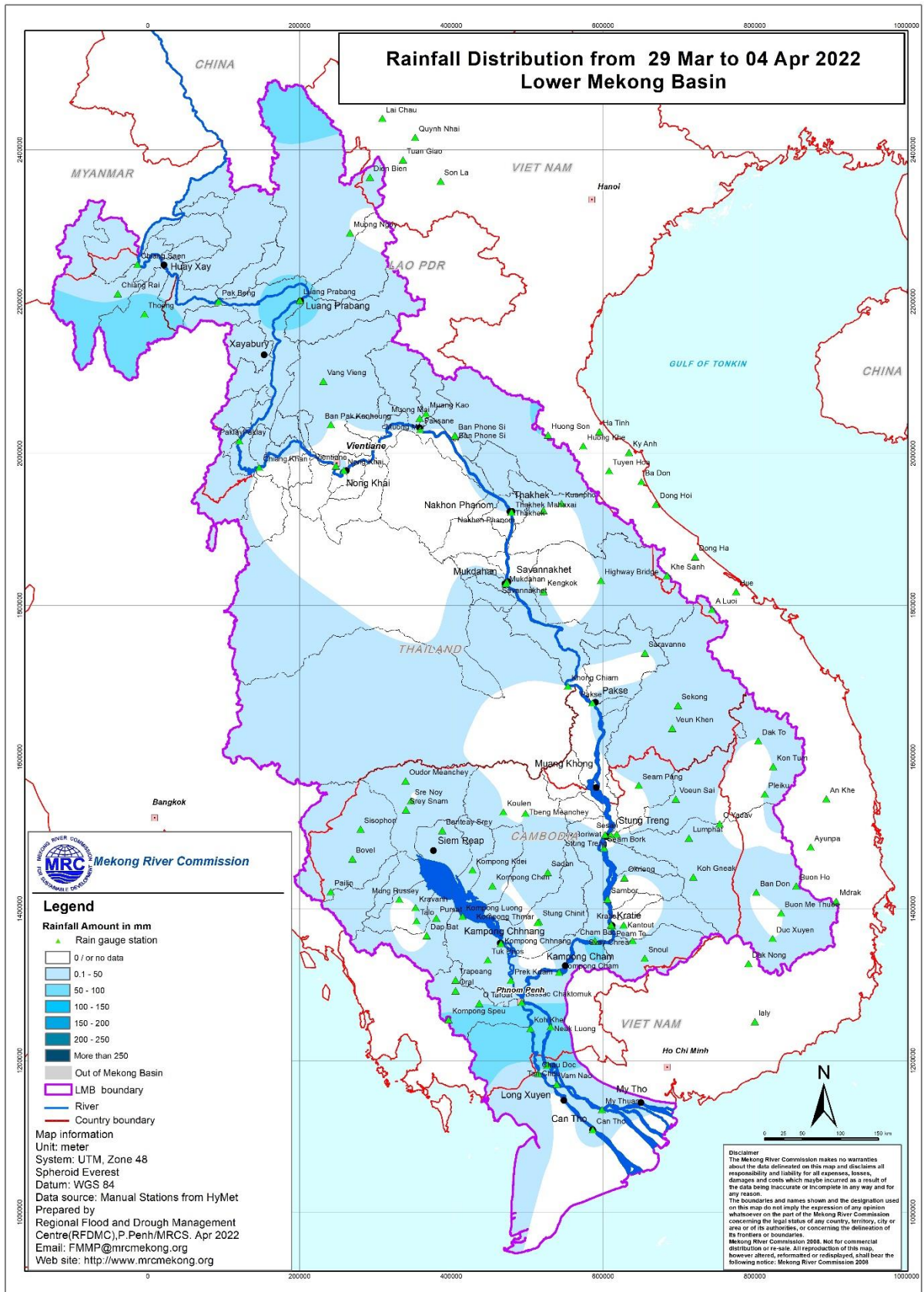
This week from 29 March to 04 April 2022, rainfall was observed over the entire Lower Mekong Basin, from Chiang Saen in Thailand to Tan Chau and Chau Doc in Viet Nam, varying from 0.20 mm to 167.90 mm. The rainfall from 29 March to 04 April focused at Chau Doc. The total rainfall of this week report, 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 29 March to 04 April 2022.

Small amount of rain this week is an indication of the end of the rainy season in the LMB.



**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**.

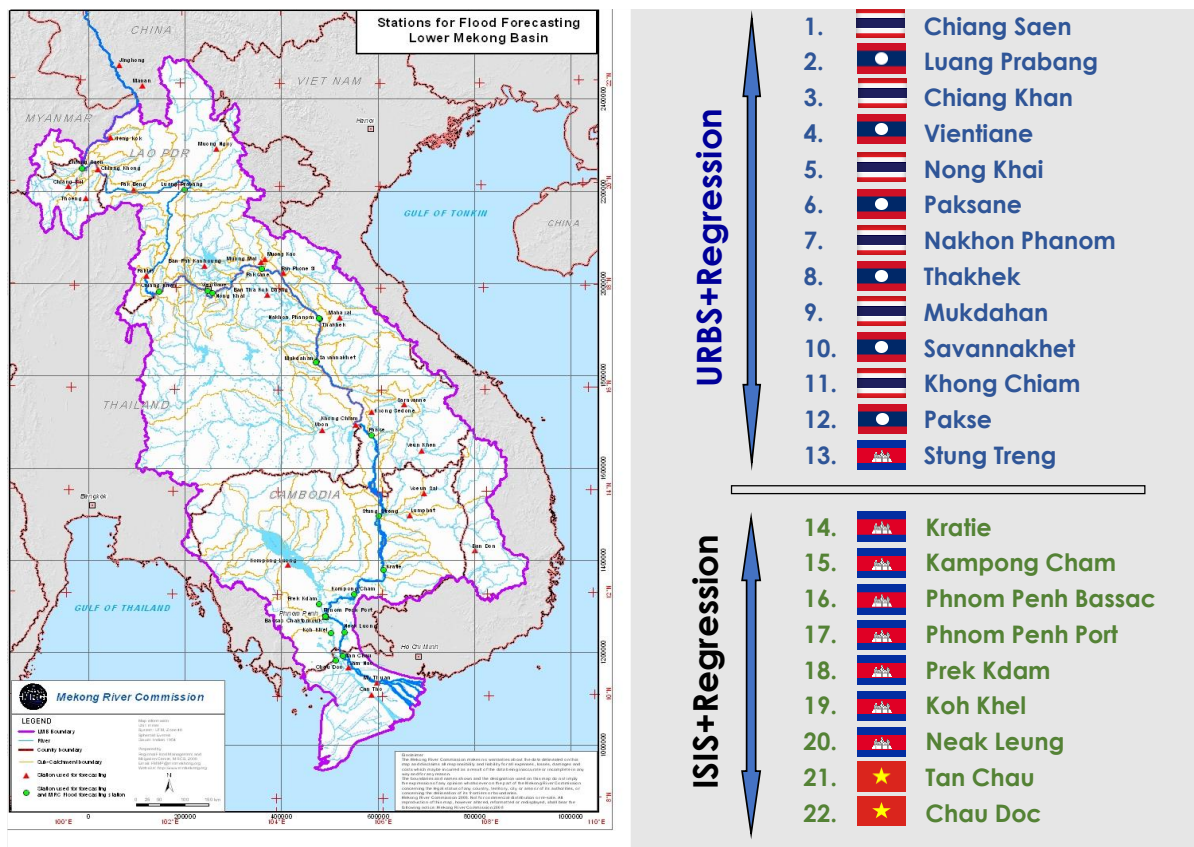
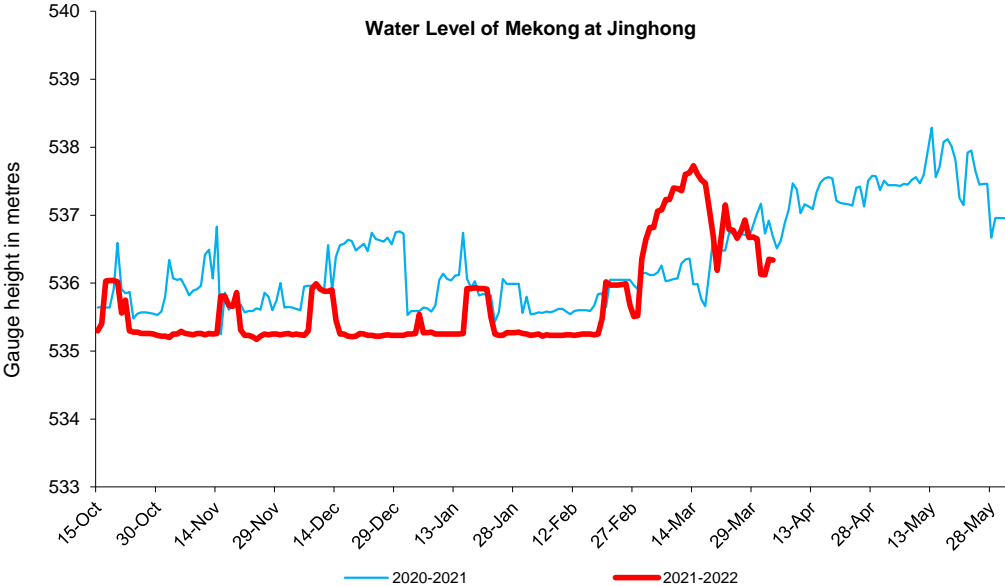


Figure 6: Key stations and model application for River Monitoring and Flood Forecasting.

According to MRC’s observed data, water level at Jinghong decreased about 0.33 m from 536.67 m to 536.34 m during 29 Mar-04 Apr 2022 (recorded on 7:00 am) and stayed about 0.33 m lower than its two-year average (2020-2021) value. According to the Eyes on Earth (Mekong Dam Monitor), WL was down about 0.50 m at Chiang Saen in Thailand during its monitoring period.

The outflow at Jinghong station decreased from 1,829.06.21 m<sup>3</sup>/s to 1,583.21 m<sup>3</sup>/s from 29 March to 04 April 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 04 April 2022.



**Figure 7. Water level at the Jinghong hydrological station during 15 Oct 2021 to 04 April 2022.**

Along with some fluctuation of outflow at Jinghong upstream, water level of monitoring station at Chiang Saen in Thailand decreased about 0.44 m but was still about 0.81 m higher than its long-term average (LTA), considered normal. Water level at Lao PDR’s Luang Prabang increased about 0.26 m compared with last week and about 0.23 m lower than its historical maximum value. WL at the monitoring station at Vientiane remained about 0.02 m lower than its historical maximum value, considered abnormal. Water levels at Nong Khai in Thailand and Paksane in Lao PDR were staying about 1.21 m higher than their LTA value, which considered normal at this stage. WLs from Thailand’s Nakhon Phanom to Pakse in Lao PDR remained close to their Maximum level, except at Savannakhet in Lao PDR where water level was staying higher than its LTA level. This rising water level at these stations were **considered abnormal**. WLs from Cambodia’s Stung Treng to Kompong Cham were staying higher than their maximum value. Water levels from Chaktomuk and Koh Khel on the Bassac River and Prekdam on the Tonle Sap River and also at Neak Luong on the Mekong were also increasing and staying higher than their historical maximum value. For the tidal stations at Viet Nam’s Tan Chau and Chau Doc, WLs fluctuated between their Maximum and Minimum levels due to daily tidal effects from the sea and considered critical. The current WLs that are higher than or about with their maximum value are at **Vientiane, Nakhon Phanom, Khong Chaim, Pakse, Stung Trend, Kratie Kompomg Cham and Koh Khel**.

<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>.

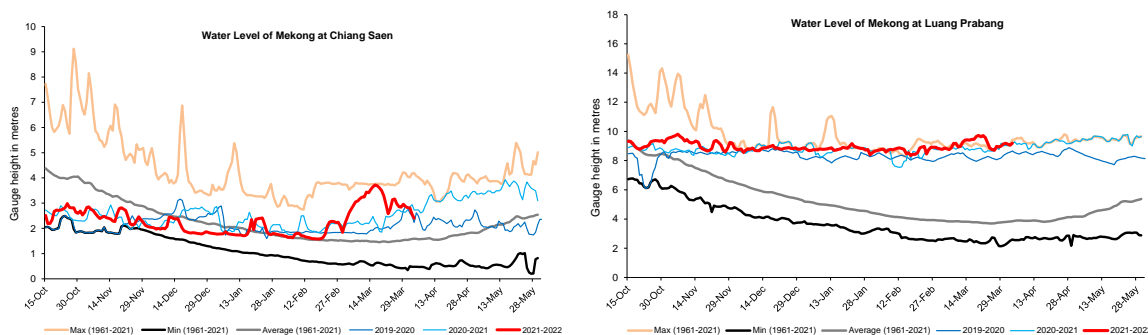
Based on hydrological phenomenon, the contribution of inflow water from the upstream of Lancang-Mekong in China to the Mekong mainstream is about 16% in total during the wet season from June to October and about 25% in total during the dry season from November to May. The whole inflow of water into the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

### Chiang Saen and Luang Prabang

Water level during Mar 29-Apr 4 at Thailand’s Chiang Saen decreased from 2.84 m to 2.40 m and still remained about 0.81 m higher than its Long-Term-Average (LTA), which was considered normal. When compared to last week, this week’s water level is lower.

Water level at the Luang Prabang station in Lao PDR was up about 0.26 m during the reporting period. Compared to last week, the figure shows that water level this week is still about 0.23 m lower 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) decreased 0.23 m while at Vientiane in Lao PDR it increased about 0.11 m during the reporting week. Water level at Vientiane still remained about 0.02 m lower than its maximum level during Mar 29-Apr 4, which still **considered abnormal**. At Nong Khai station in Thailand and Paksane in Lao PDR, the water level were down about 0.02 m and 0.27 m, respectively, during the reporting period. The water levels at these two stations were about 1.21 m higher than their LTA value. The recently decreased water levels from Chiang Khan to Nong Khai and Paksane were obviously fluctuating due to hydropower operation and water released from upstream. The water levels at Vientiane and Paksane are shown in [Figure 9](#) below.



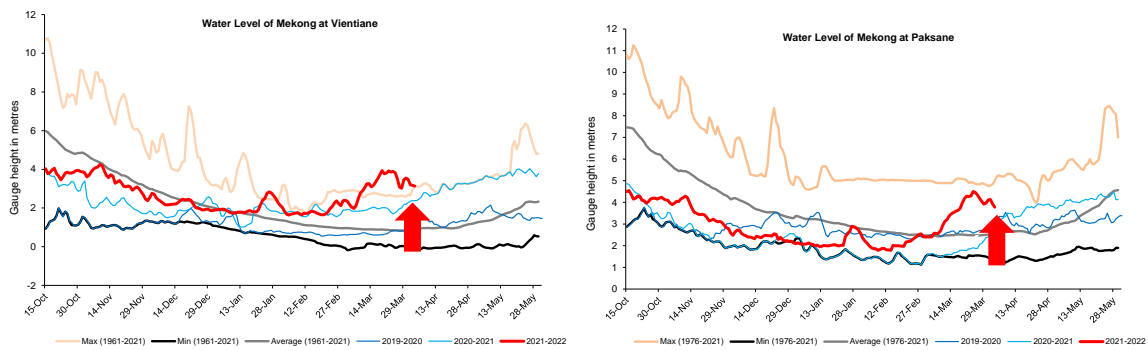


Figure 9. Water levels Nong Khai and Paksane in Thailand and Lao PDR.

### Nakhon Phanom to Pakse

Water levels from Nakhon Phanom in Thailand to Pakse in Lao PDR decreased about 0.30 m during the reporting period. Water levels at these stations are remaining close to their maximum level, except at Savannakhet in Lao PDR which remained higher than its LTA value. **The current WLS from Nakhon Phanom to Pakse are about 0.03 m higher than their maximum level, which considered abnormal.** [Figure 10](#) shows the water levels at Nakhon Phanom and Pakse stations.

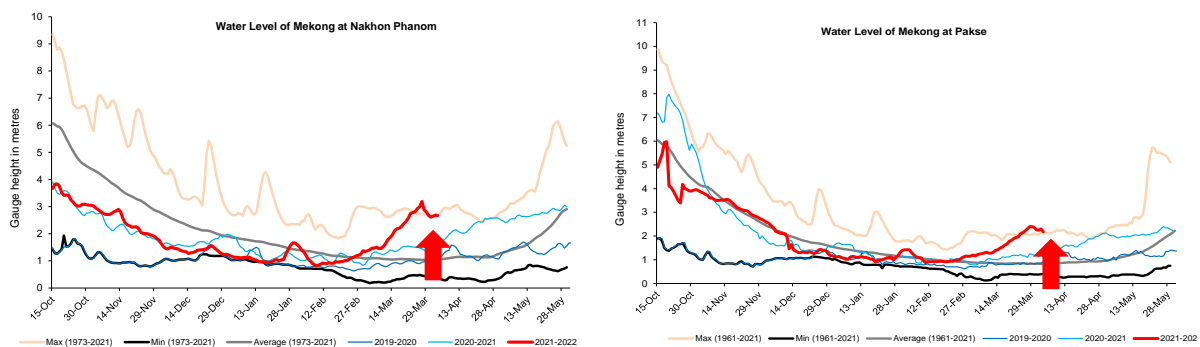
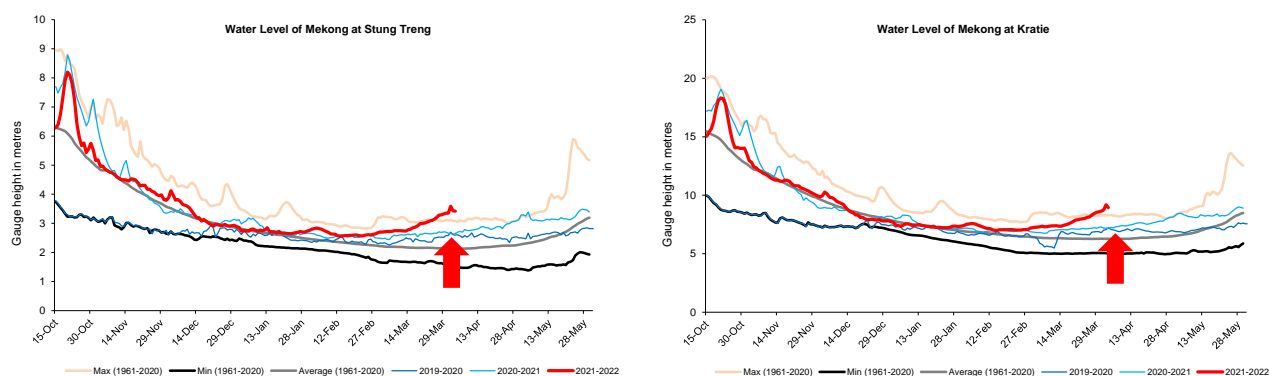


Figure 10: Water levels at Nakhon Phanom and Pakse of Thailand and Lao PDR.

### 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, Kratie to Kompong Cham in Cambodia were increasing during 29 March-04 April 2022. This week water level from Stung Treng to Kompong Cham increased between 0.13 m and 0.76 m. The current water levels at Stung Treng, Kratie and Kompong Cham are staying 0.34 m, 0.64 m and 0.40 m higher than their maximum value, respectively, which **considered abnormal**.

This week, the water levels at Stung Treng and Kratie were still higher than their LTA, which considered normal (as 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 some rainfall and inflows from upstream catchment, the water level was up about 0.46 m and stayed 0.06 m lower than its maximum value; while at Koh Khel, water level increased about 0.60 m and staying 0.21 m higher than its maximum value. The water level at Prek Kdam on the Tonle Sap Lake increased about 0.30 m and was about 0.09 m lower than its maximum 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 some 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 close to their maximum level, except at Koh Khel which is higher than its maximum level which still considered normal.**

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

This week, the water levels from 29 March to 04 April 2022 at Viet Nam's Tan Chau and Chau Doc were fluctuating between their Maximum and LTA values due to daily tidal effects from the sea. The fluctuation was between 0.61 m and 1.46 m. The current water levels at **Tan Chau and Chau Doc were higher than their LTA level, which considered normal.**

#### **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 April 4 of this reporting period, **it was observed that the main outflow to Tonle Sap Lake slightly increased due to some rainfall and inflows from upstream.** This increased outflow of Tonle Sap Lake was most likely caused by inflows and some rainfall from the catchment area. Up to present, the outflow from the Tonle Sap Lake condition in 2022 is higher than 2019, 2020 and 2021 outflow conditions. However, the outflow of 2022 is staying close with its LTA (1997-2020). 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 04 April 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 April 4, **the water volume of the Tonle Sap Lake was close to its LTA (about 83%) and higher than 2019, 2020, 2021 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 between 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.

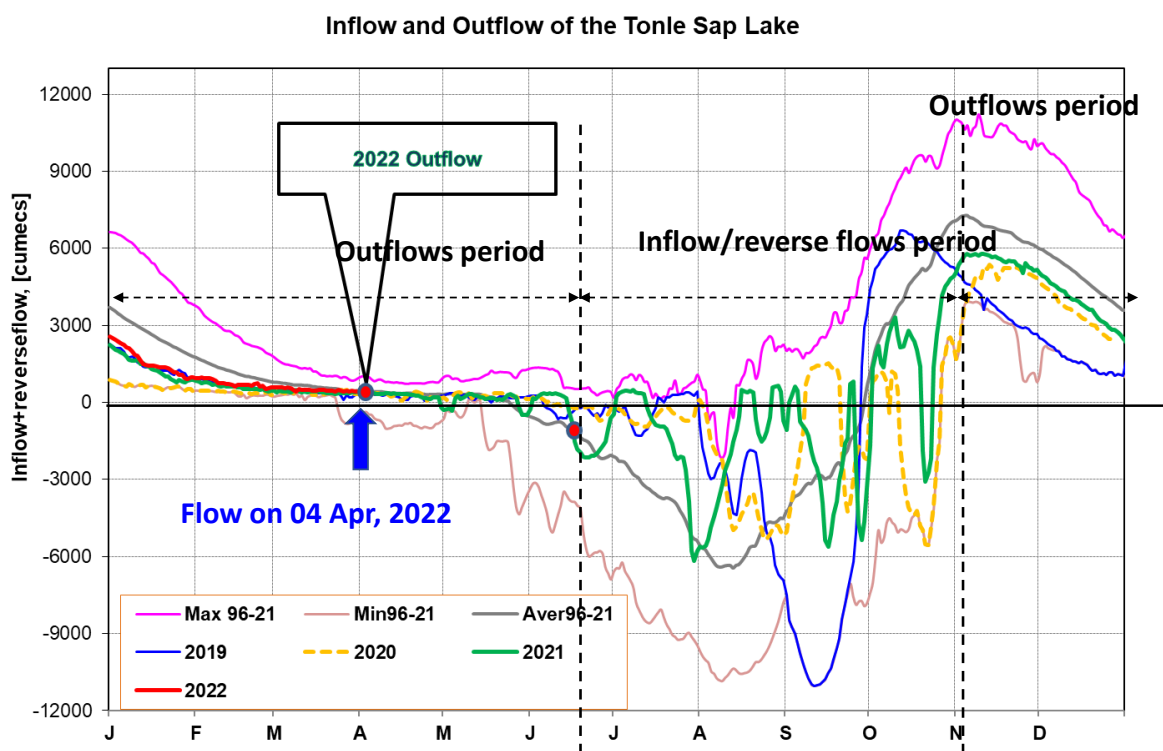
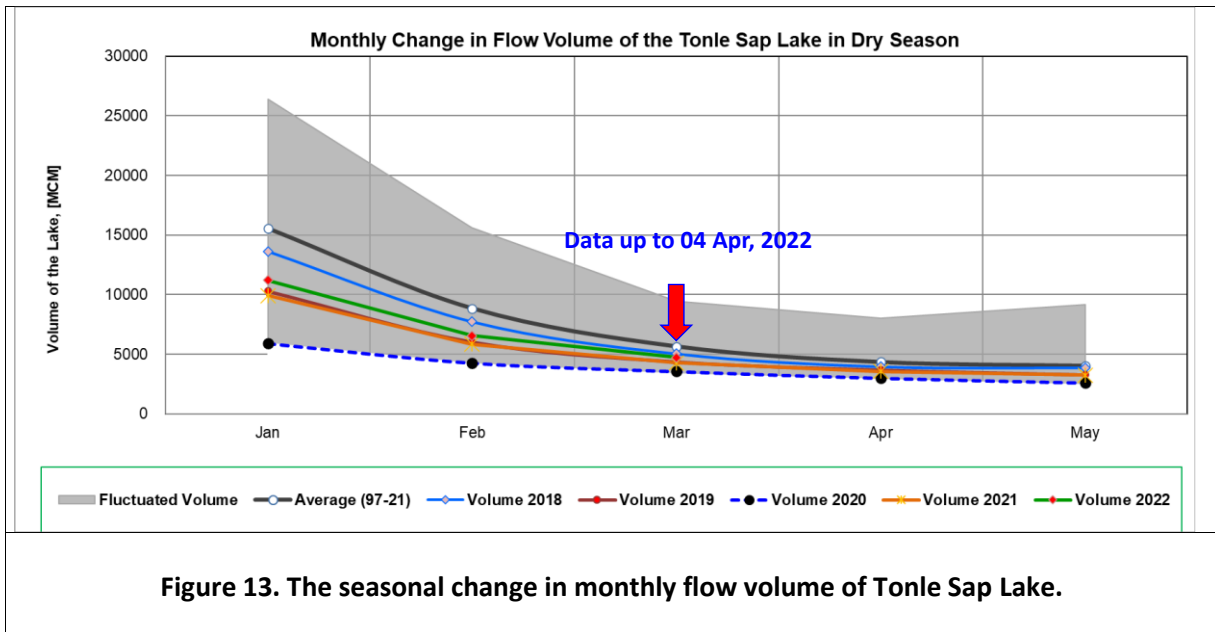


Figure 12: Seasonal change of inflows and outflows of Tonle Sap Lake.



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

Month	Average Volume-AV (97-21) [MCM]	Max Volume [MCM]	Min Volume [MCM]	Volume 2018 [MCM]	Volume 2019 [MCM]	Volume 2020 [MCM]	Volume 2021 [MCM]	Volume 2022 [MCM]	Volume in 2022 [%] with AV
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	4720.27	83.48
Apr	4346.65	8009.14	2866.91	3956.47	3667.47	2992.61	3556.68		
May	4030.23	9176.93	2417.81	3864.00	3266.43	2594.92	3240.78		
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

From March 29 to April 4, the LMB was affected by three main weather factors. These include (i) the high-pressure area from China extending its ridge to cover the north-eastern part, (ii) the low-pressure cell over the middle sea moved to cover Viet Nam and Cambodia during Mar 31- Apr 1, and (iii) the strong easterly and north-easterly winds prevailed over the Gulf of Thailand and southern part during the weekend.

These conditions caused hot weather in most areas of the upper part during the beginning and the middle of the week then low temperature in some areas on the last day of the week. Unusual rainfall occurred over many parts of the LMB from the middle to the end 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.

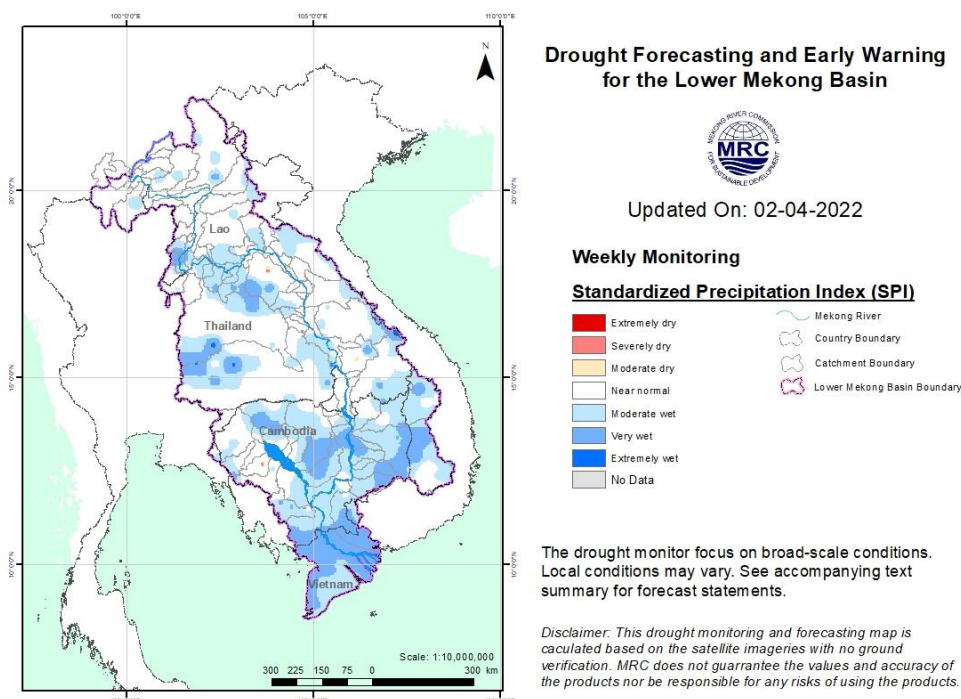
## 5 Drought Monitoring in the Lower Mekong Basin

### Weekly drought monitoring from 27 March to 02 April 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 March 27 to April 1, as shown in [Figure 11](#), were relatively wet all over the region. Rainfall took place from the north to the south with significant amount. Weekly SPI map shows that the LMB was wet everywhere and the lower part was the wettest area.

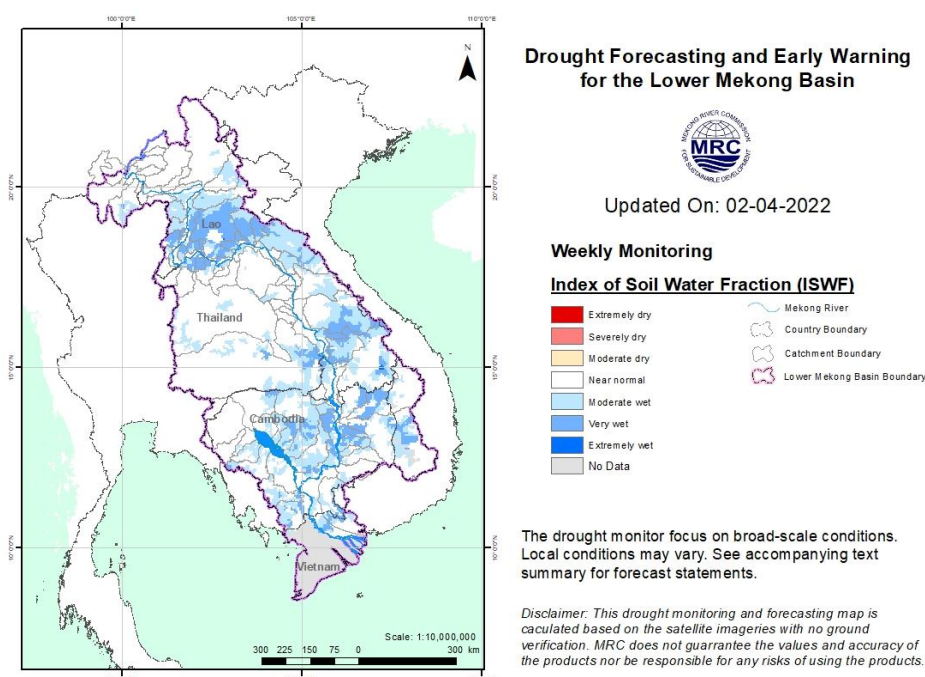


**Figure 14: Weekly standardised precipitation index from Mar 27 to April 2.**

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

ISWF shows that from Mar 27 to April 2, as displayed in [Figure 12](#), the LMB was relatively wet in the northern part's bordering area between Lao and Thailand and the southern part. The conditions were very preferable for agricultural crop.

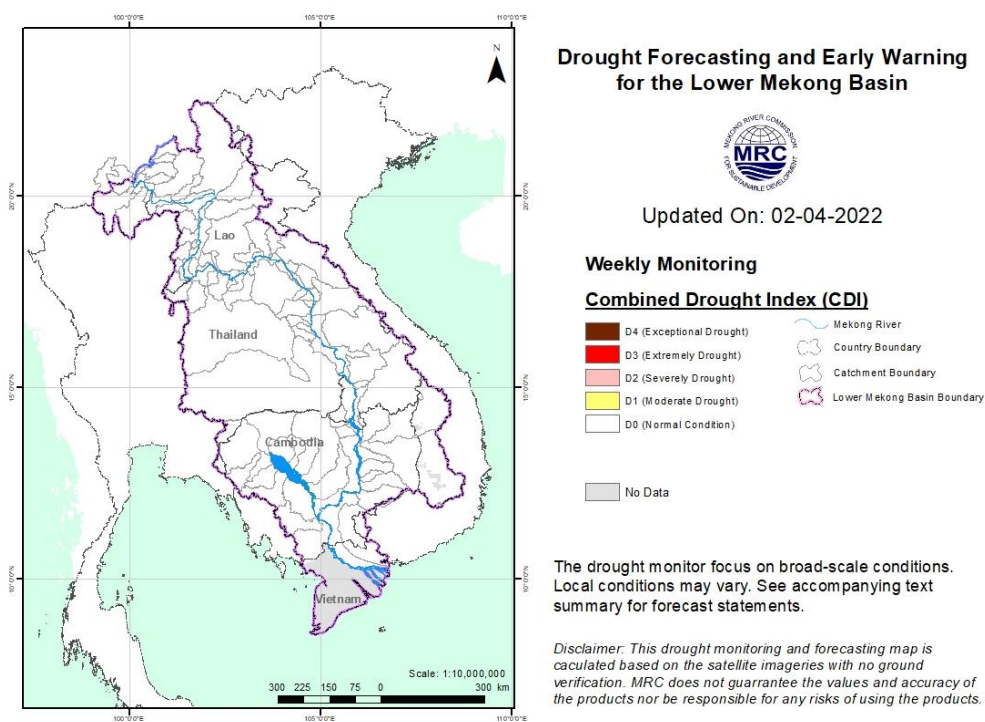
**Note:** The index of soil water fraction presents the current soil water fraction conditions compared with normal month; therefore, it normally shows extremely dry during dry season which is completely different from SPI that is standardized to its specific month of the years. However, this does not 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. Unlike other weeks during this transition period, this week soil moisture was extremely saturated.



**Figure 15: Weekly Index of Soil Water Fraction from Mar 27 to April 2.**

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

With a better condition, the combined drought indicator, as displayed in [Figure 13](#), reveals that during March 27-April 2 the LMB was at normal and wet conditions in all parts of the region. Moderate and severe droughts in the previous weeks completely disappeared due to ample amount of accumulated rainfall caused by low pressures.



**Figure 16: Weekly Combined Drought Index during Mar 27-Apr 2.**

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.



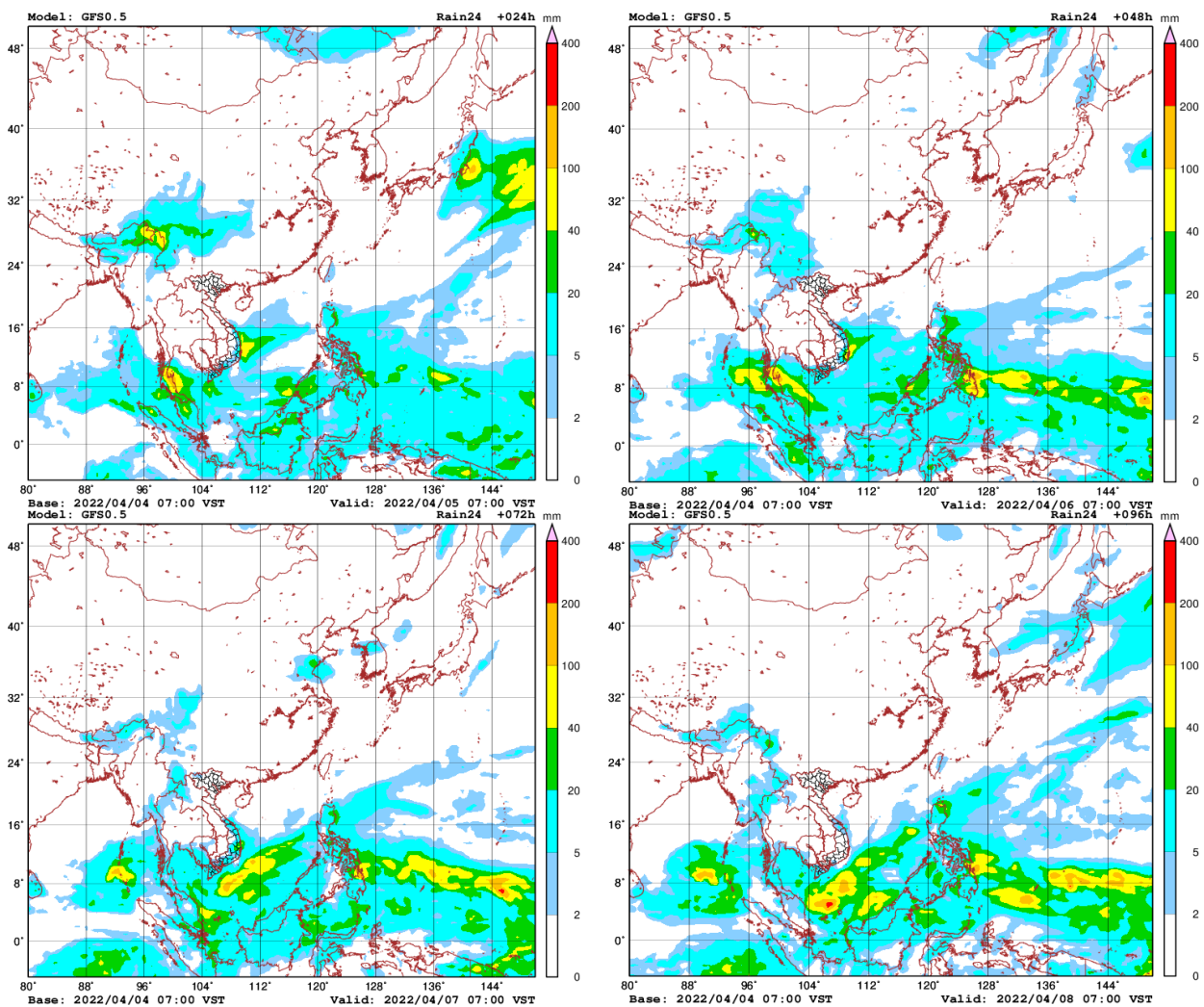
## 6 Weather and Water Level Forecast and Flash Flood Information

### 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, two main factors might affect 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 April 5-11, in general, small rainfall (5-20 mm/24h) or no rain may occur in some areas of the LMB.

[Figure 14](#) shows accumulated rainfall forecast (24hrs) of the GFS model during April 5-11.



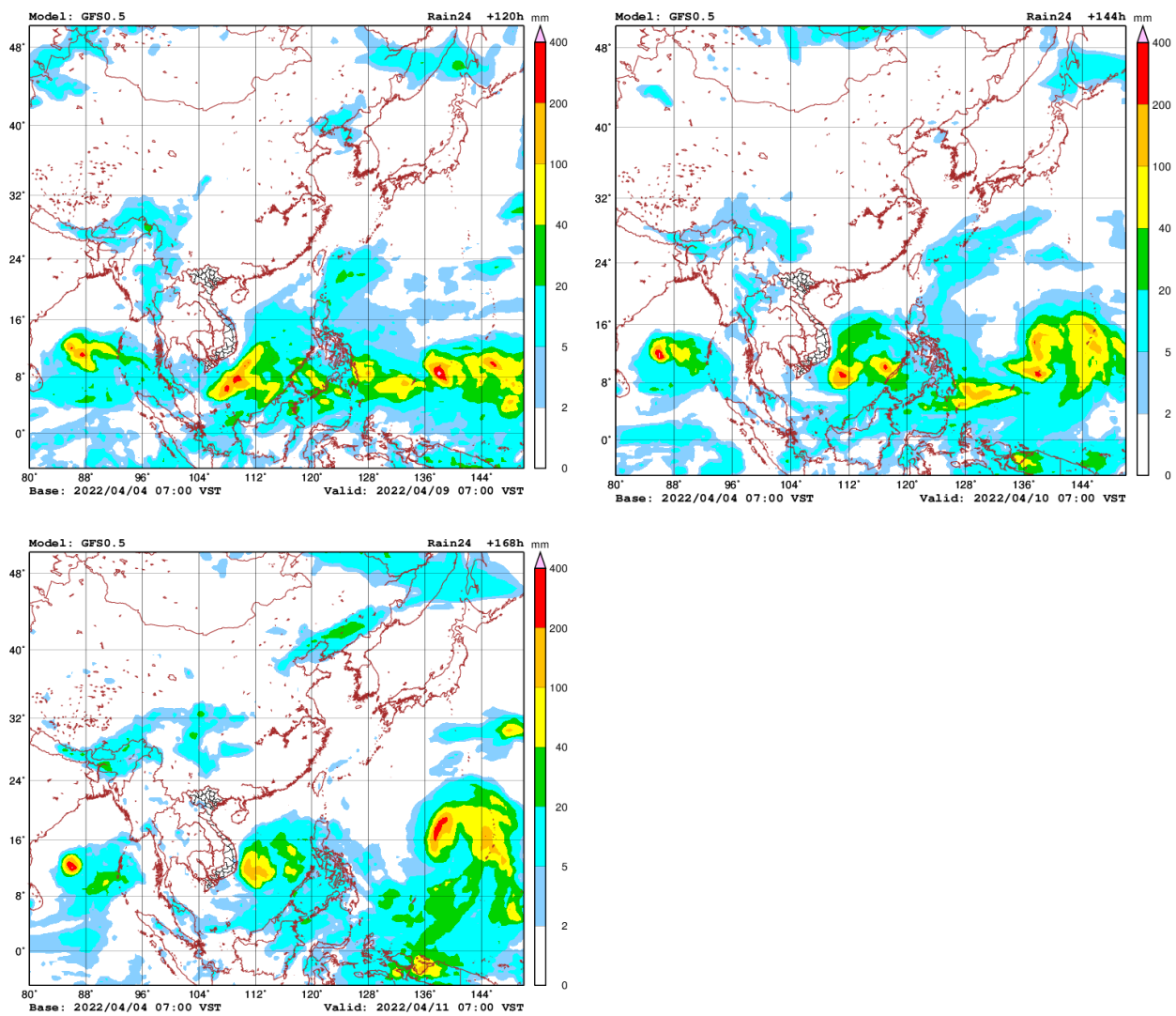


Figure 17: Accumulated rainfall forecast (24 hrs) of model GFS.

## 6.2 Water level forecast

### Chiang Saen and Luang Prabang

Based on April 4's weekly river monitoring bulletin, the weekly forecast water level at Chiang Saen in Thailand is expected to increase about 0.50 m in the next seven days. The trend of water level at these stations will continue staying higher than its LTA. No rainfall is forecasted in the area in the next seven days.

For Luang Prabang in Lao PDR, the water level is likely to increase about 0.10 m in the next seven days. The water level will remain higher than its maximum value. No 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 go up about 0.15 m for the next seven days. From Vientiane in Lao PDR and Nong Khai in Thailand, WLS will increase about 0.02 m in the next seven days. At Paksane in Lao PDR, water level will decrease about 0.15 m due to no rainfall and inflows from the upper catchments and hydropower dam operation. No 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 drop about 0.30 m in the next seven days. The water levels from Khong Chiam in Thailand to Pakse in Lao PDR will decrease about 0.50 m. Water levels at these stations will remain higher than their LTA levels. Next week no rainfall is forecasted in the area.

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

From Stung Treng to Kratie on the Mekong River in Cambodia, the water levels will go down about 0.60 m over the next seven days. WLS from Kompong Cham to downstream at Neak Luong will be down about 0.60 m. No 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 decrease about 0.40 m over the next seven days.

Water levels at most of the 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. No 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 in between their Minimum and Maximum values following daily tidal effects from the sea.

[Table 3](#) shows the weekly River Monitoring Bulletin issued on April 4. 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**

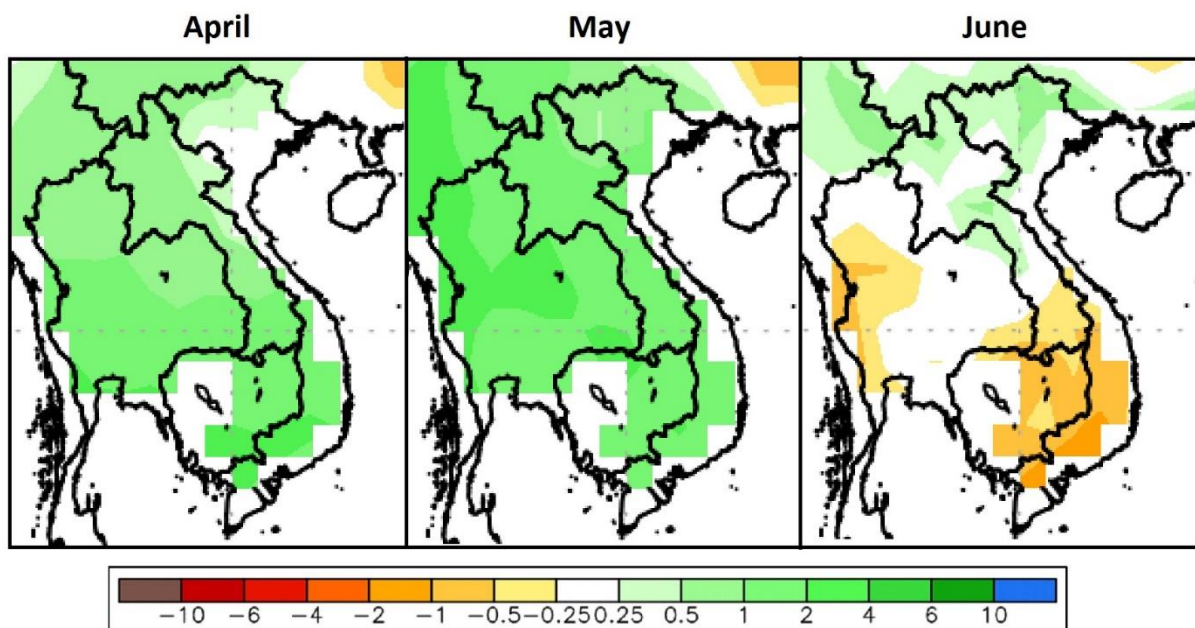
Flash flood events are not likely to happen in the LMB. However, local heavy rain in a short period of time might still be possible with unexpected short flash floods. During the dry season if extreme weather occurs, the information on flash flood guidance for the next one, three, and six hours is updated 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 June 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 April to June 2022 produced by the NMME.



**Figure 18. Daily average of monthly rainfall anomaly forecast from April to June 2022.**

The ensemble prediction model based on the initial conditions in March 2022 reveals that the LMB is likely to receive ample amount of rainfall in April and May, while it receives below average rain in June 2022 from the middle to the lower parts. 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: 05 April to 11 April 2022

Date: 04 April 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)							
					03-Apr	04-Apr	05-Apr	06-Apr	07-Apr	08-Apr	09-Apr	10-Apr	11-Apr	
Jinhong		0.0	-	-	536.35	536.34								
Chiang Saen		0.0	357.110	0.00	2.57	2.40	2.50	2.55	2.60	2.67	2.72	2.82	2.90	
Luang Prabang		0.0	267.195	2.53	9.06	9.20	9.12	9.00	9.10	9.14	9.18	9.24	9.30	
Chiang Khan		0.0	194.118	1.91	5.67	5.60	5.67	5.62	5.57	5.63	5.66	5.70	5.75	
Vientiane		0.0	158.040	-0.28	3.17	3.13	3.05	3.13	3.07	3.00	3.06	3.10	3.15	
Nongkhai		0.0	153.648	0.33	2.65	2.62	2.55	2.61	2.55	2.50	2.55	2.58	2.61	
Paksane		0.0	142.125	0.10	3.93	3.78	3.72	3.63	3.66	3.60	3.55	3.58	3.61	
Nakhon Phanom		0.0	130.961	0.18	2.69	2.67	2.58	2.53	2.47	2.50	2.47	2.43	2.44	
Thakhek		0.0	129.629	1.38	3.92	3.80	3.67	3.60	3.52	3.57	3.53	3.48	3.50	
Mukdahan		0.0	124.219	0.72	2.86	2.82	2.70	2.58	2.52	2.45	2.48	2.44	2.40	
Savannakhet		0.0	125.410	-0.65	1.50	1.39	1.30	1.21	1.15	1.10	1.13	1.10	1.07	
Khong Chiam		0.0	89.030	1.02	3.35	3.20	3.10	2.94	2.78	2.69	2.60	2.62	2.56	
Pakse		0.0	86.490	0.03	2.30	2.18	2.10	1.97	1.83	1.78	1.72	1.73	1.68	
Stung Treng		nr	36.790	0.32	3.43	3.42	3.30	3.23	3.10	3.00	2.96	2.92	2.90	
Kratie		nr	-1.080	3.06	9.18	8.94	8.90	8.75	8.66	8.50	8.38	8.32	8.27	
Kompong Cham		nr	-0.930	0.65	3.90	4.06	3.87	3.82	3.67	3.58	3.42	3.30	3.23	
Phnom Penh (Bassac)		nr	-1.020	1.58	2.52	2.64	2.56	2.53	2.43	2.38	2.30	2.25	2.22	
Phnom Penh Port		-	0.000	0.14	1.54	1.66	1.58	1.55	1.45	1.40	1.32	1.27	1.24	
Koh Khel		nr	-1.000	1.52	2.35	2.70	2.75	2.77	2.72	2.66	2.56	2.50	2.44	
Neak Luong		nr	-0.330	0.81	1.70	1.88	1.95	2.00	2.03	2.00	1.90	1.82	1.72	
Prek Kdam		nr	0.080	0.58	1.57	1.52	1.45	1.42	1.35	1.30	1.23	1.18	1.13	
Tan Chau		0.0	0.000	-0.37	1.02	0.85	0.72	0.50	0.19	0.05	0.00	-0.08	-0.02	
Chau Doc		0.3	0.000	-0.60	1.19	0.92	0.70	0.43	0.11	-0.05	-0.11	-0.20	-0.13	

**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 in the upper and lower parts of the Mekong region from Chiang Saen in Thailand, Vientiane in Lao PDR, Kratie in Cambodia to Tan Chau and Chau Doc in Viet Nam, varied from 0.20 mm to 167.90 mm. Compared with last week's amount, the rainfall this week focussed in Chau Doc area with the highest quantity in 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 parts of the Mekong region including the 3S area and Mekong Delta of Viet Nam during 4-11 April 2022, varying from 0.10 mm to 40.00 mm. This indicates that the wet and warm weather has started over the LMB.

### 7.2 Water level and its forecast

Water level at Jinghong was decreased about 0.33 m from 29 Mar to 04 Apr 2022 and stayed lower than its two-year average (2020-2021) value. The outflows were decreased from 1,829.06.21 m<sup>3</sup>/s to 1,583.21 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 at the stations from Nakhon Phanom to Pakse. Also, the current water levels at Vientiane are about 0.02 m higher than their maximum level. At Nakhon Phanom, Thakhek, Mukdahan, Khong Chaim and Pakse, water levels remained slightly higher than their maximum value. In Cambodia, water levels at Stung Treng, Kratie and Kompong Cham were higher than their maximum value. Water levels at Neak Luong, Bassac at Phnom Penh and Prek Kdam in Cambodia are higher than their LTA level. Water level at Koh Khel is higher than its maximum level during this week. The high level in some specific stations was due to inflows from abnormal inflow from upstream and some rainfall in the region from 29 March to 04 April 2022. Generally, this week's water levels were relatively higher than those of last week from the middle and the lower parts in the LMB.

The current WLs that are higher than their maximum value at **Vientiane, Nakhon Phanom, Khong Chaim, Pakse, Stung Trend, Kratie Kompomg Cham and Koh Khel, while those that are higher than their LTA value are at the remaining stations.**

The flow volume of the Tonle Sap Lake was lower than its LTA. From next week, the flow is expected to decrease due to no rainfall forecasted in the inflow catchments of the Tonle Sap Lake.

From Stung Treng to Kompong Cham water levels will go down and from Chaktomuk in Phnom Penh the water levels will also decrease. 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 very 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 of 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 27 March to 02 April 2022 were normal and wet over all parts of the LMB. All moderate and severe soil moistures in the past weeks have disappeared due to accumulated rainfall starting from the second week of March. The region showed no significant threat.

For the upcoming three months’ forecasts, the LMB is likely to receive ample amount of rainfall in April and May, while it receives below average rain in June 2022 from the middle to the lower parts. 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 Khei	Neak Luong	Prek Kdam	Tan Chau	Chau Doc
29-03-2022	536.67	2.84	8.94	5.83	3.02	2.64	4.05	2.88	3.09	2.40	3.29	8.44	3.30	2.18	2.10	1.78	1.22	0.61	0.76
30-03-2022	536.68	2.96	9.00	6.03	3.46	2.80	3.92	2.80	3.04	2.40	3.32	8.55	3.46	2.24	2.20	2.00	1.31	1.09	1.27
31-03-2022	536.65	2.87	9.14	5.98	3.55	3.00	3.97	2.67	2.95	2.36	3.35	8.58	3.58	2.22	2.24	1.74	1.32	1.29	1.50
01-04-2022	536.13	2.82	9.19	5.67	3.48	3.04	4.12	2.61	2.85	2.26	3.35	8.65	3.63	2.33	2.30	1.64	1.33	1.29	1.46
02-04-2022	536.12	2.81	9.12	5.71	3.20	2.75	4.13	2.65	2.83	2.24	3.59	8.74	3.72	2.42	2.45	1.64	1.52	1.23	1.38
03-04-2022	536.35	2.57	9.06	5.67	3.17	2.65	3.93	2.69	2.86	2.30	3.43	9.18	3.90	2.52	2.35	1.70	1.57	1.02	1.19
04-04-2022	536.34	2.40	9.20	5.60	3.13	2.62	3.78	2.67	2.82	2.18	3.42	8.94	4.06	2.64	2.70	1.88	1.52	0.85	0.92

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 Khei	Neak Luong	Prek Kdam	Tan Chau	Chau Doc
29-03-2022	2.5	5.8	4.2	0	2	0	0.2	0	0	0	0	0	0	4.1	5	0	0	19.9	81.6
30-03-2022	5.5	12	0	39	48.8	34.5	0	0	0	0	0	29	41	0.4	6	50.6	0	0	0
31-03-2022	0	0	0	0	0	0	0	0	0	0	0	0	3.5	0	0	2.4	0	0	1
01-04-2022	0	0	0	0	0	0	0	0	0	0	1	0.5	3.4	1.9	17	30.8	0	67.2	37
02-04-2022	13.5	5	0	0	0	0	0	3.5	3.1	0	4	36	0	0	2.2	3.6	17.2	0	0
03-04-2022	1	1.3	0	0	0	0	0	0.9	3.7	0	14.5	0	4.1	11.5	23.5	0	0	8.7	48
04-04-2022	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.3





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