



Mekong River Commission

**Weekly Dry Season Situation Report in
the Lower Mekong River Basin
12-18 April 2022**

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

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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 0.80 mm to 78.70 mm over the Mekong region.
- There will be rain for the next 7 days over the Mekong region from 19 to 25 April 2022.

Water level and its forecast

- According to MRC's observed data, water level (WL) at Jinghong decreased about 1.00 m from 12 to 18 April 2022 and stayed 2.08 m lower than its two-year average (2020-2021) value.
- From 12 to 18 April 2022, water level of monitoring station at Chiang Saen in Thailand decreased about 0.68 m but was still about 0.10 m higher than its long-term average (LTA), considered normal. Water level at Lao PDR's Luang Prabang decreased about 0.11 m and about 0.11 m lower than its historical maximum value. Water level at the monitoring stations at Chaing Khan and Vientiane remained about 2.04 m and 1.86 m higher than their LTA value, considered normal. Water levels at Nong Khai in Thailand and Paksane in Lao PDR were staying about 0.80 m higher than their LTA value, which considered normal at this stage. Water levels from Thailand's Nakhon Phanom to Pakse in Lao PDR were remaining higher than their LTA level. The water levels at these stations were **considered normal**. Water levels from Cambodia's Stung Treng to Kompong Cham were staying higher than their LTA 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 decreasing but still staying higher than their LTA value.
- The water volume of the Tonle Sap Lake up to 18 April 2022 was 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 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 up from Chaing Khan to downstream from Nakhon Phanom to Pakse and from Stung Treng to Chaktomuk and Prek Kdam in Cambodia.
- The current water levels that are higher than or about its maximum value is found at **Luang Prabang, while the rest are higher than their LTA level.**

Drought condition and its forecast

- Drought conditions of the LMB from 10 to 16 April 2022 were moderately dry in some areas of the middle part covering Thailand and normal in other places. The moderate drought was caused by below-average rainfall during the week. 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 **12-18 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.

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 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 18 April 2022, showing a low-pressure point dominating the Mekong region, which will have some rains for the next few days.

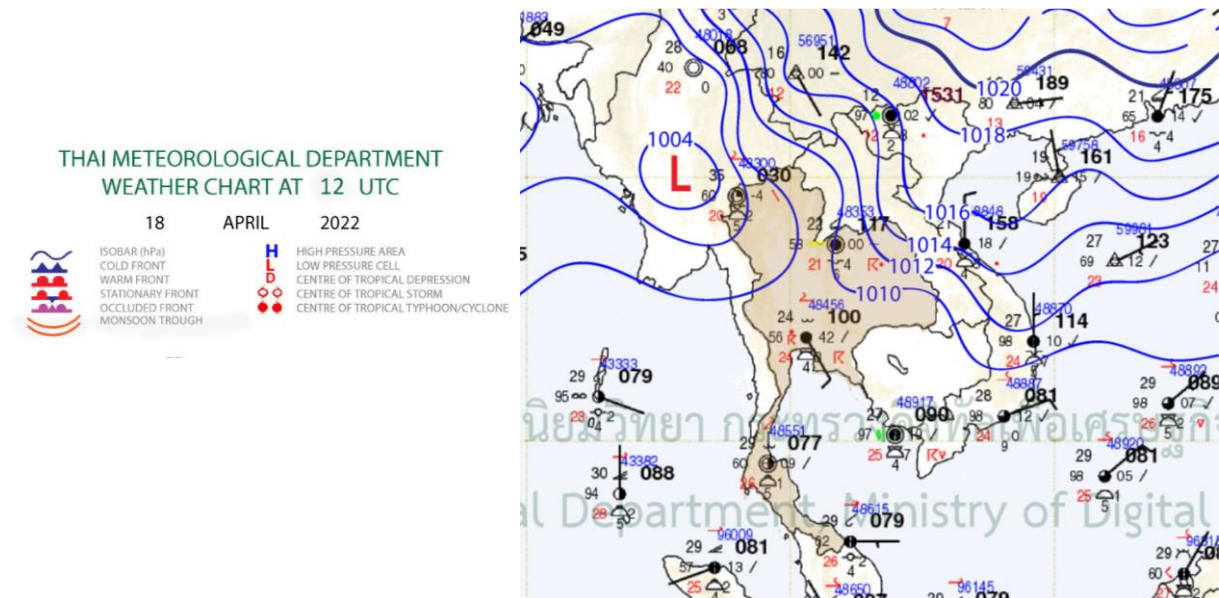


Figure 1: Summary of weather conditions over the LMB.

According to the ASEAN Specialised Meteorological Centre (ASMC), the highest probability of wet condition is predicted over the lower part of the Mekong region during the 4th week of April and 1st week of May 2022. Moreover, the Mekong region is likely dominated by wet condition, which may bring rainfall and warmer temperatures in general to the lower part of the LMB. **Figure 2** shows the outlook of weather condition from 18 April to 1 May 2022 in Southeast Asia based on results from the NCEP model (National Centres for Environmental Prediction).

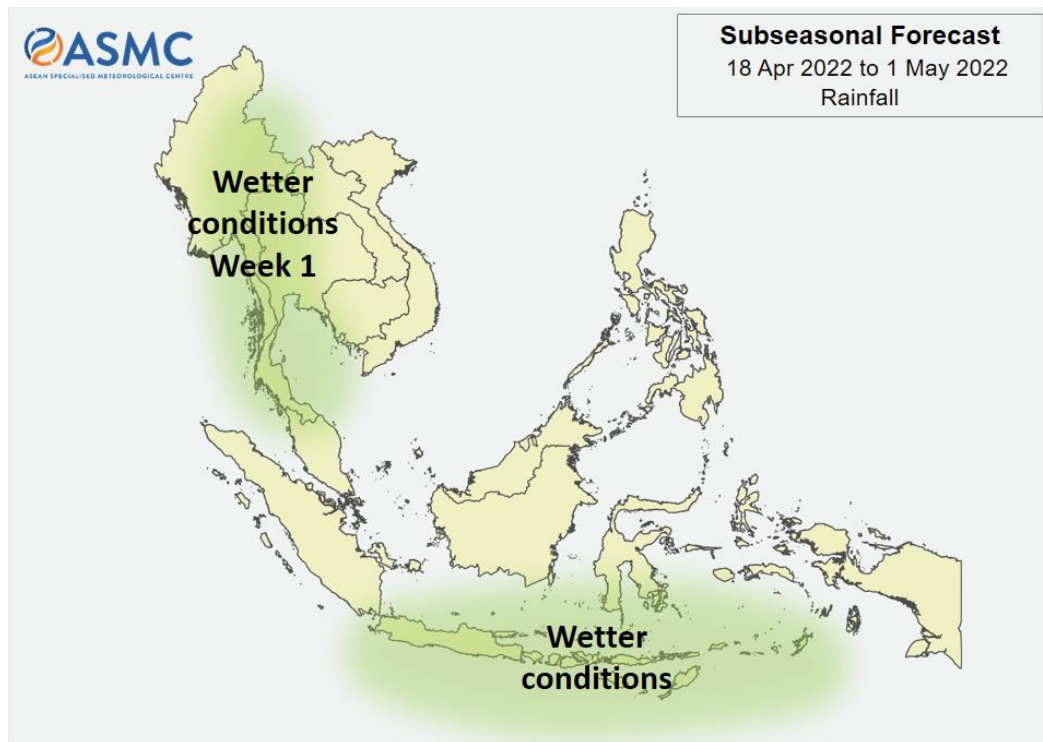


Figure 2: Outlook of wet and dry conditions over the Asian countries by ASMC.

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

There was no tracking storm covering the LMB during 12-18 April 2022, meaning no movement of storm directed from the South Sea of Viet Nam to the Mekong region, as displayed in [Figure 3](#).

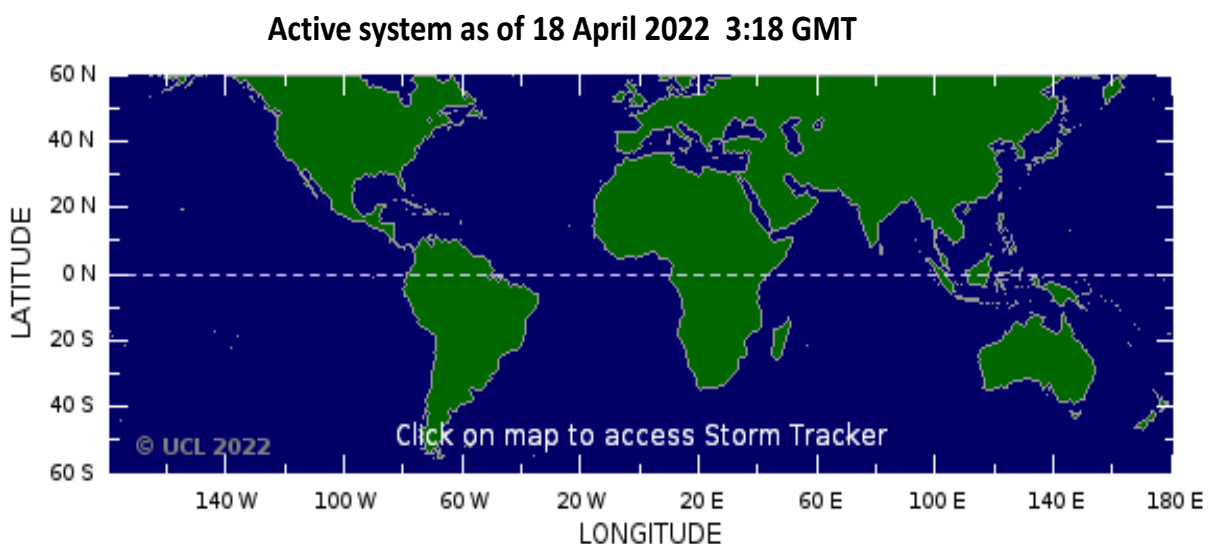


Figure 3: No tropical storm risk observed on 18 April 2022.

Rainfall patterns over the LMB

This week from 12 to 18 April 2022, rainfall was observed from the upper to lower parts from Chiang Saen in Thailand to Tan Chau in Viet Nam of the Lower Mekong Basin, varied from 0.80 mm to 78.70 mm. The total rainfall of this week report, compared with last week rainfall occurred in the Mekong region, is shown in [Figure 4](#).

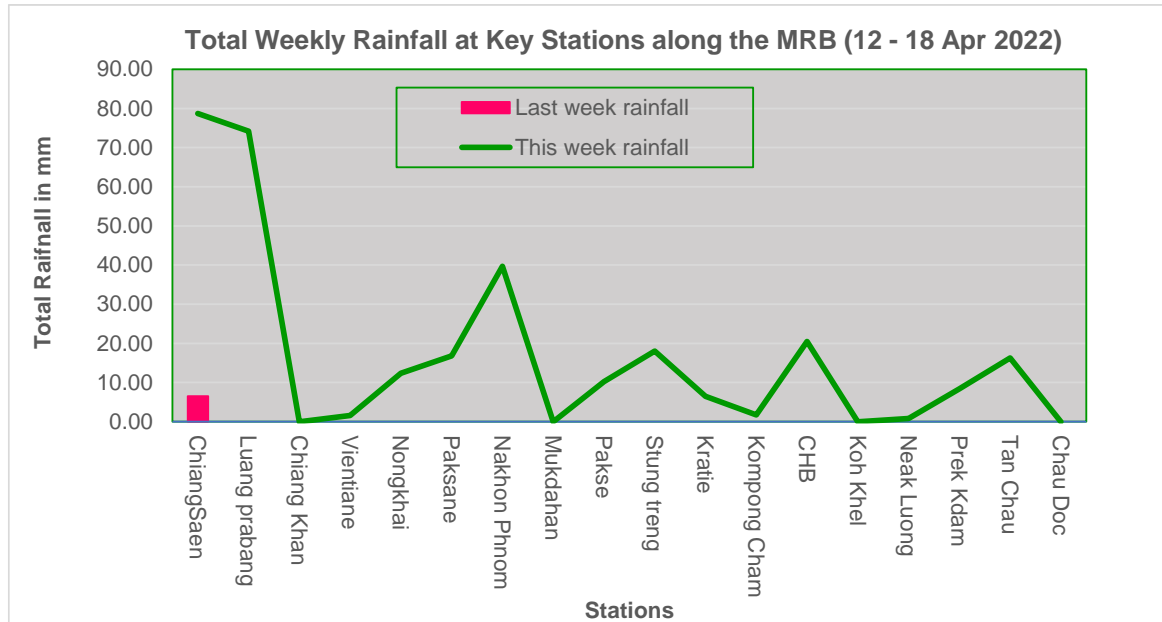


Figure 4: Weekly total rainfall at key stations in the LMB.

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 12 to 18 April 2022.

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

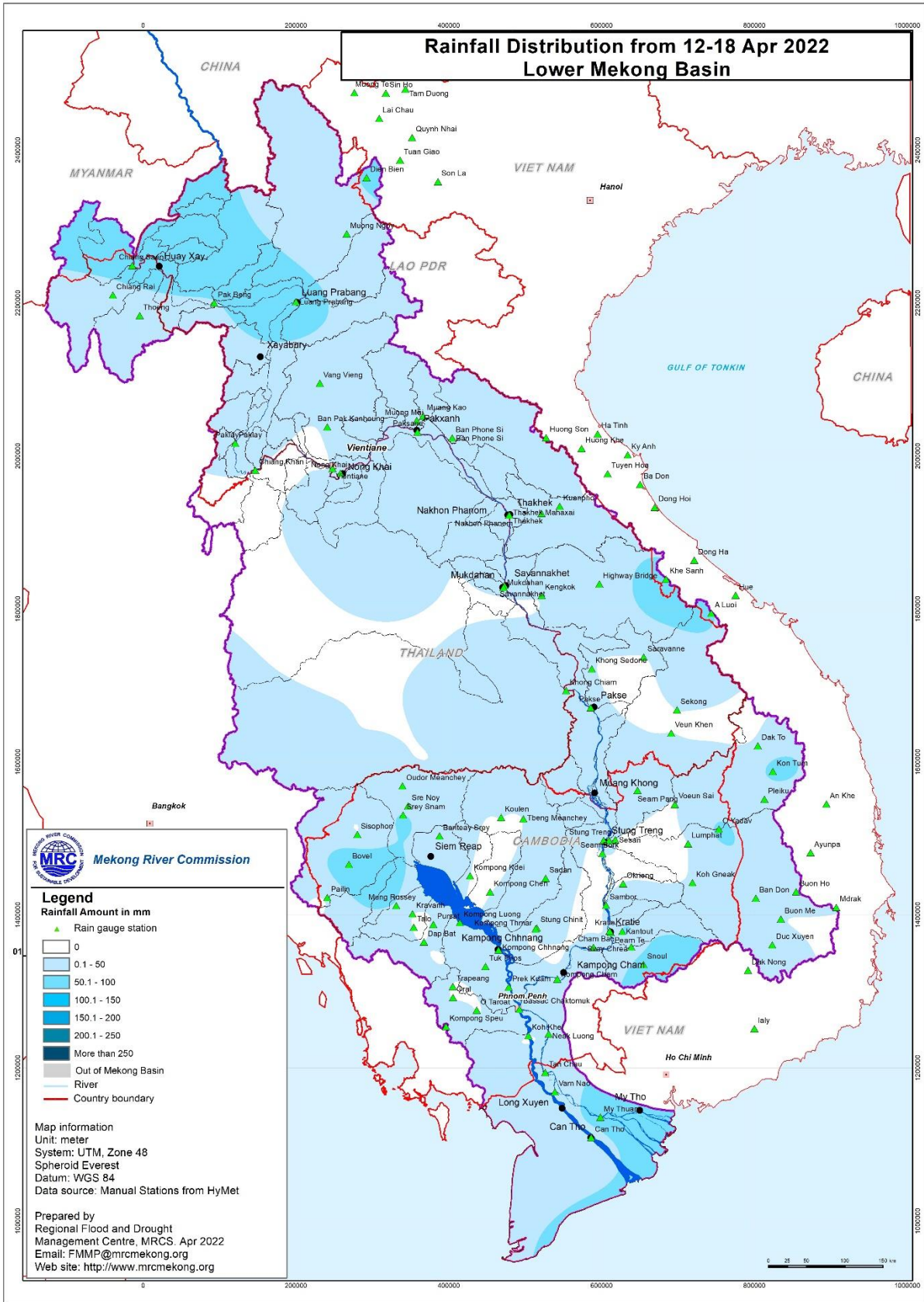


Figure 5: Weekly rainfall distribution over the LMB.

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**.

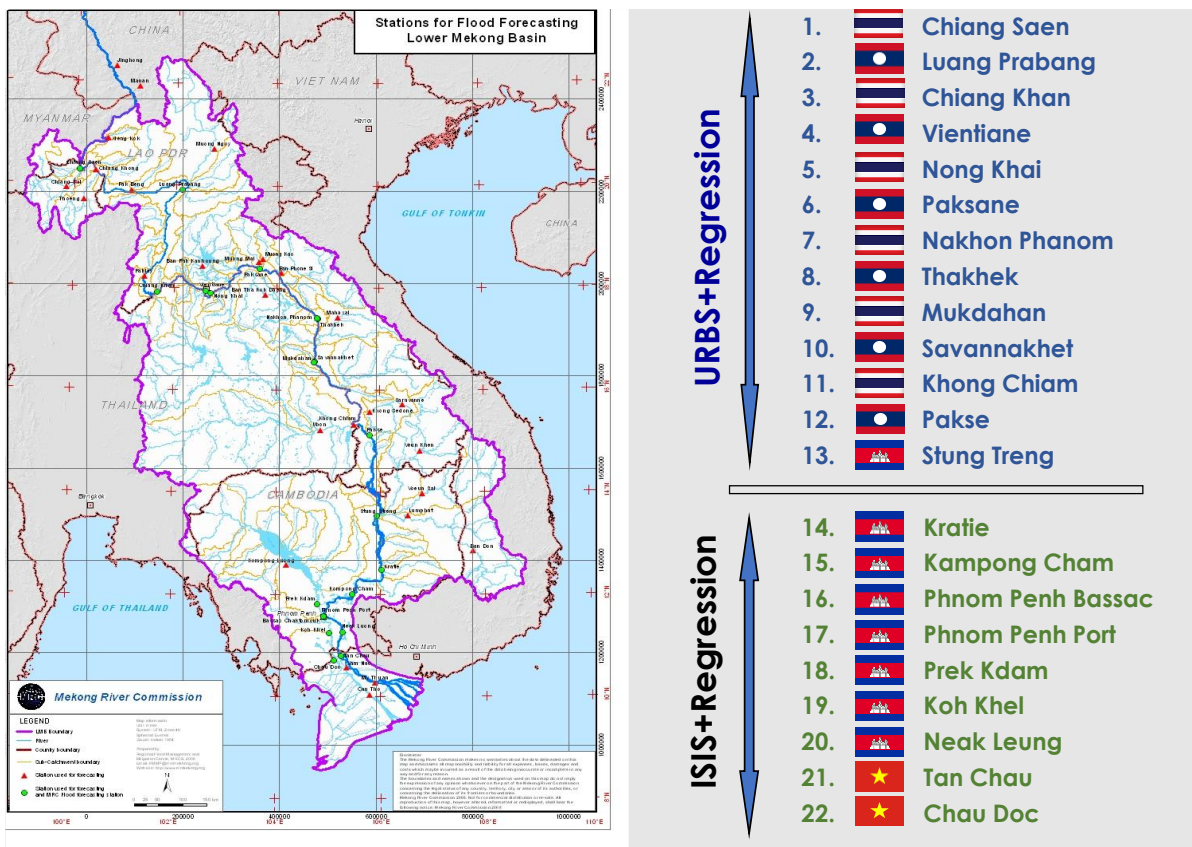


Figure 6: Key stations and model application for River Monitoring and Flood Forecasting.

According to MRC’s observed water level at Jinghong, it shows a **significant decrease of about 1.00 m from 536.48 m to 535.48 m during the weekly monitoring period from 12 to 18 April 2022 (recorded on 7:00 am)** and stayed 2.08 m lower than its two-year average (2020-2021) value. For further reference, the Eyes on Earth (Mekong Dam Monitor) alerted that a sudden flow restriction from China’s upstream dams will cause the river level go down at Chiang Saen. The outflow at Jinghong station decreased from 1687.51 m³/s to 972.47 m³/s from 12 to 18 April 2022. [Figure 7](#) below presents water level that increased at the Jinghong hydrological station¹, indicating the trend of fluctuating water level up to 18 April 2022.

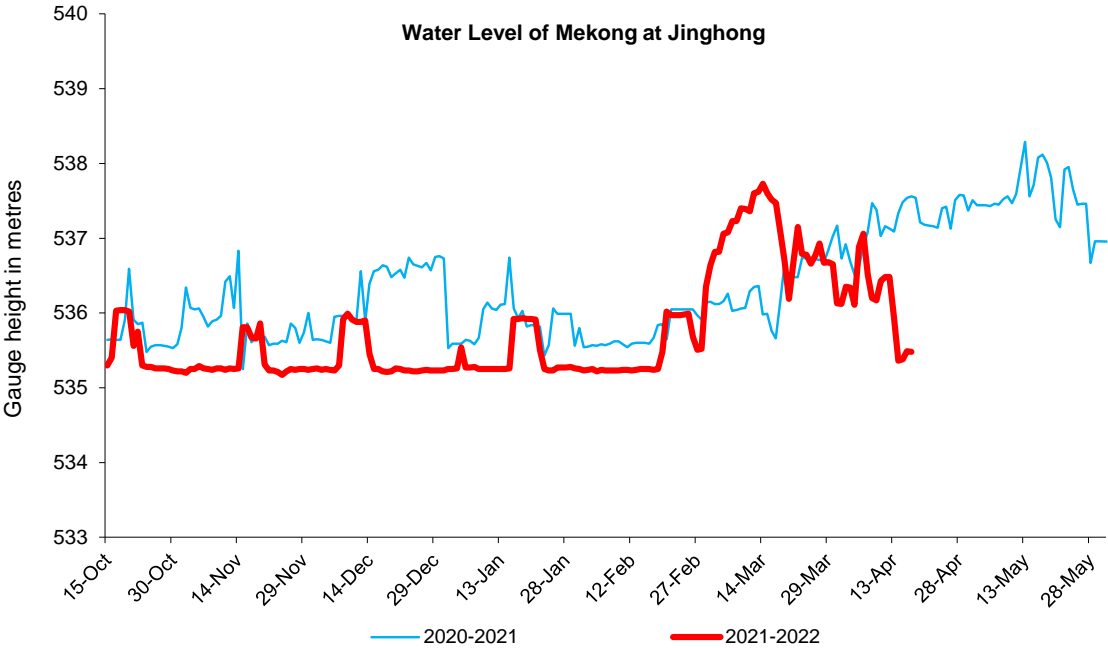


Figure 7. Water level at the Jinghong hydrological station during 15 Oct 2021 to 18 April 2022.

Last week, from 12 to 18 Apr 2022, WLs along the lower Mekong River in Thailand’s Chiang Saen decreased about 0.68 m but still stayed 0.10 m higher than its long-term average (LTA), **considered normal**. WL at Lao PDR’s Luang Prabang decreased 0.11 m compared with last week and stayed 0.11 m higher than its historical maximum value. WL at the monitoring stations at Chiang Khan in Thailand decreased about 0.02 m, while WL at Vientiane in Lao PDR increased about 0.13 m. The current WLs at these stations are about 2.04 m and 1.86 m respectively higher than their LTA value, **which considered normal**. WLs at Nong Khai and Paksane increased about 0.20 m and stayed 0.80 m and 0.83 m higher than their LTA level. Moreover, WLs from Nakhon Phanom to Pakse in Lao PDR increased between 0.06 m and 0.20 m, staying higher than their LTA level **which considered normal**. WLs in Cambodia’s Stung Treng to Kompong Cham decreased between 0.20 m and 0.36 m, which remained about 1.00 m higher than its LTA value **considering normal**. From Chaktomuk, Koh Khel on the Bassac River and Prekdam on the Tonle Sap River decreased 0.20 m, staying higher their LTA value. For the tidal stations at Viet Nam’s Tan Chau and Chau Doc, WLs fluctuated between their maximum and LTA levels, due to daily tidal effects from the sea and considered critical. The current WL is higher than its maximum value at **Luang Prabang, while the rest of the key stations are higher than their LTA value**.

¹ 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 Apr 12-18 at Thailand’s Chiang Saen decreased from 2.28 m to 1.70 m and still remained about 0.10 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 down about 0.11 m during the reporting period. Compared to last week, the figure shows that water level this week is still about 0.11 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.**

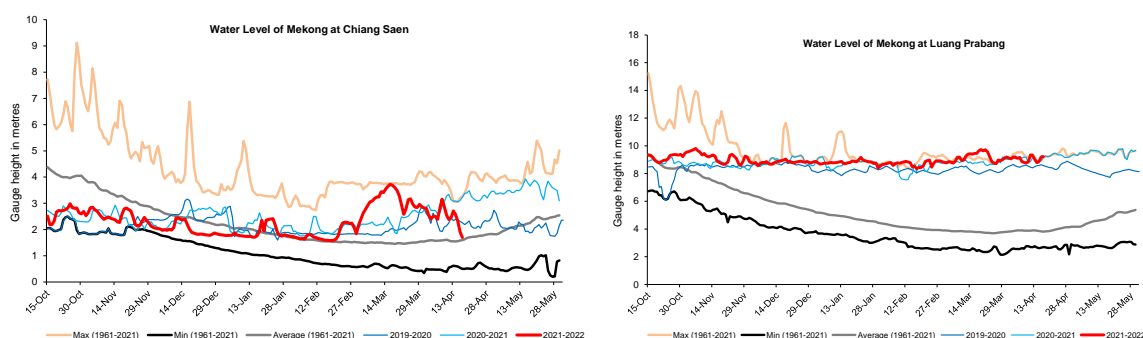


Figure 8. Water levels at Chiang Saen in Thailand and Luang Prabang in Lao PDR.

Chiang Khan, Vientiane-Nong Khai and Paksane

The water level at Chiang Khan in Thailand (downstream of the Xayaburi dam) decreased 0.02 m while at Vientiane in Lao PDR increased about 0.13 m during the reporting week. Water level at Chaing Khan and Vientiane still remained about 2.04 m and 1.86 m respectively higher than their LTA level during Apr 12-18, which **considered normal**. At Nong Khai station in Thailand and Paksane in Lao PDR, the water levels were up about 0.20 m, during the reporting period. The water levels at these two stations were about 0.80 m higher than their LTA value. The recently decreased and increased 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.

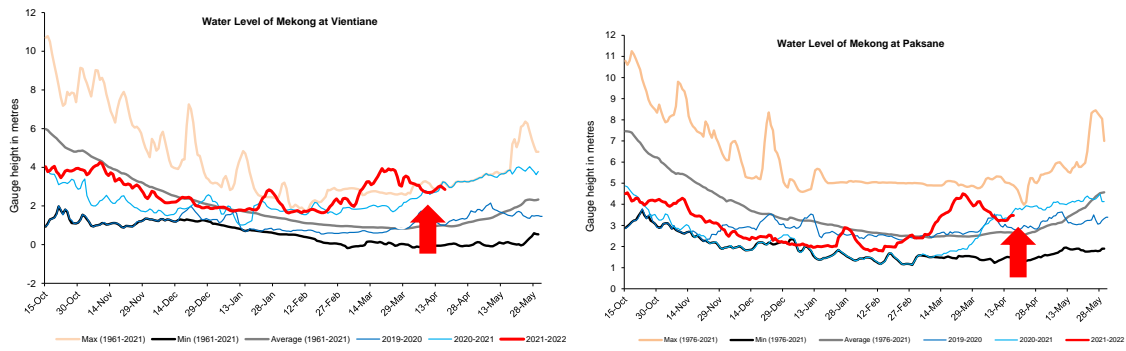


Figure 9. Water levels Vientiane and Paksane in Thailand and Lao PDR.

Nakhon Phanom to Pakse

Water levels from Nakhon Phanom in Thailand to Pakse in Lao PDR decreased between 0.06 m and 0.20 m during the reporting period. Water levels at these stations remained higher than their LTA value, which considered normal. [Figure 10](#) shows the water levels at Nakhon Phanom and Pakse stations.

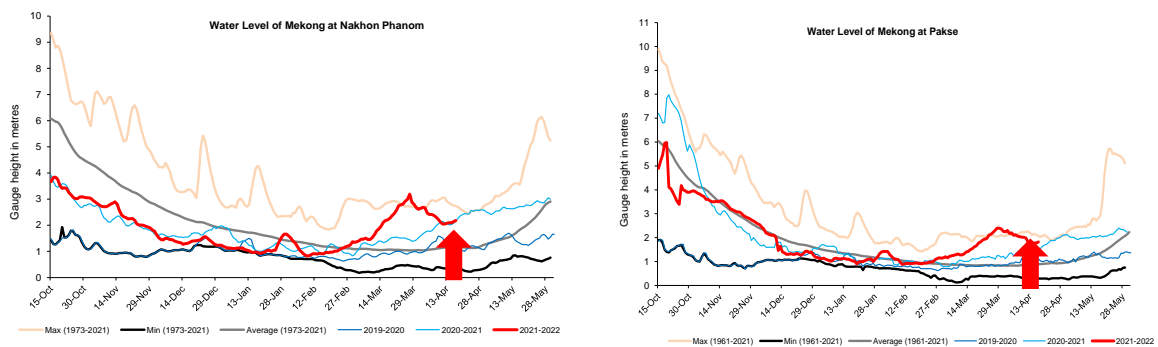


Figure 10: Water levels at Nakhon Phanom and Pakse of Thailand and Lao PDR.

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, Kratie to Kompong Cham in Cambodia were decreasing during 12-18 April 2022. This week water level from Stung Treng to Kompong Cham decreased between 0.20 m and 0.36 m. The current water levels at Stung Treng and Kratie are remaining about 0.78 m and 1.55 m higher than their LTA value, while at Kompong Cham is about 0.55 m higher than its LTA value which is **considered normal**.

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](#).

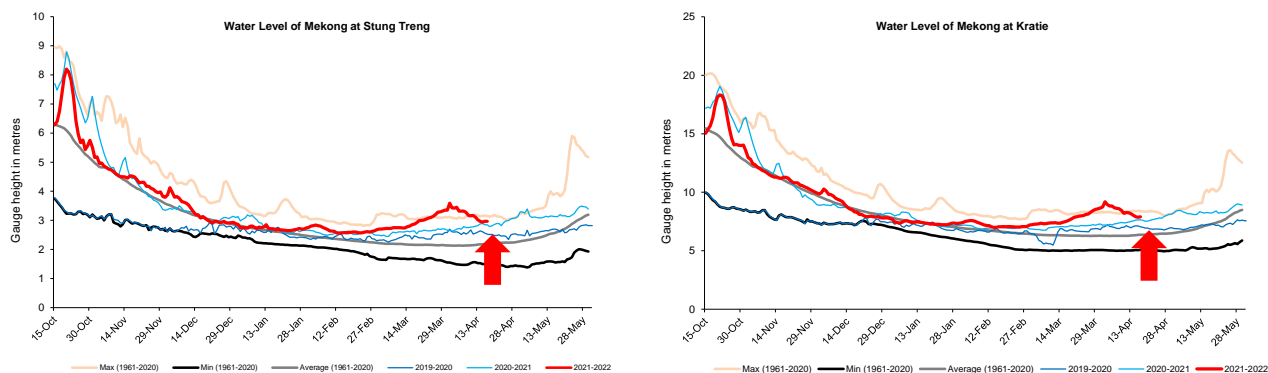


Figure 11: Water levels at Stung Treng and Kratie on the Mekong River.

At Chaktomuk on the Bassac River, due to some rainfall and inflows from upstream catchment, the water level was down about 0.22 m and stayed 0.16 m higher than its LTA value; while at Koh Khel, water level decreased about 0.14 m and stayed 0.11 m higher than its LTA value. The water level at Prek Kdam on the Tonle Sap Lake decreased about 0.14 m and was about 0.16 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 decreased water level was due to less 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 12 to 18 April 2022 at Viet Nam’s Tan Chau and Chau Doc were fluctuating between their maximum and LTA levels due to daily tidal effects from the sea. The fluctuation was between 0.11 m and 1.11 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 18 of this reporting period, **it was observed that the main outflow to Tonle Sap Lake slightly decreased due to less rainfall and inflows from upstream.** This decreased outflow of Tonle Sap Lake was most likely caused by less 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 18 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 18, **the water volume of the Tonle Sap Lake was higher than its LTA (about 102 %) 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.

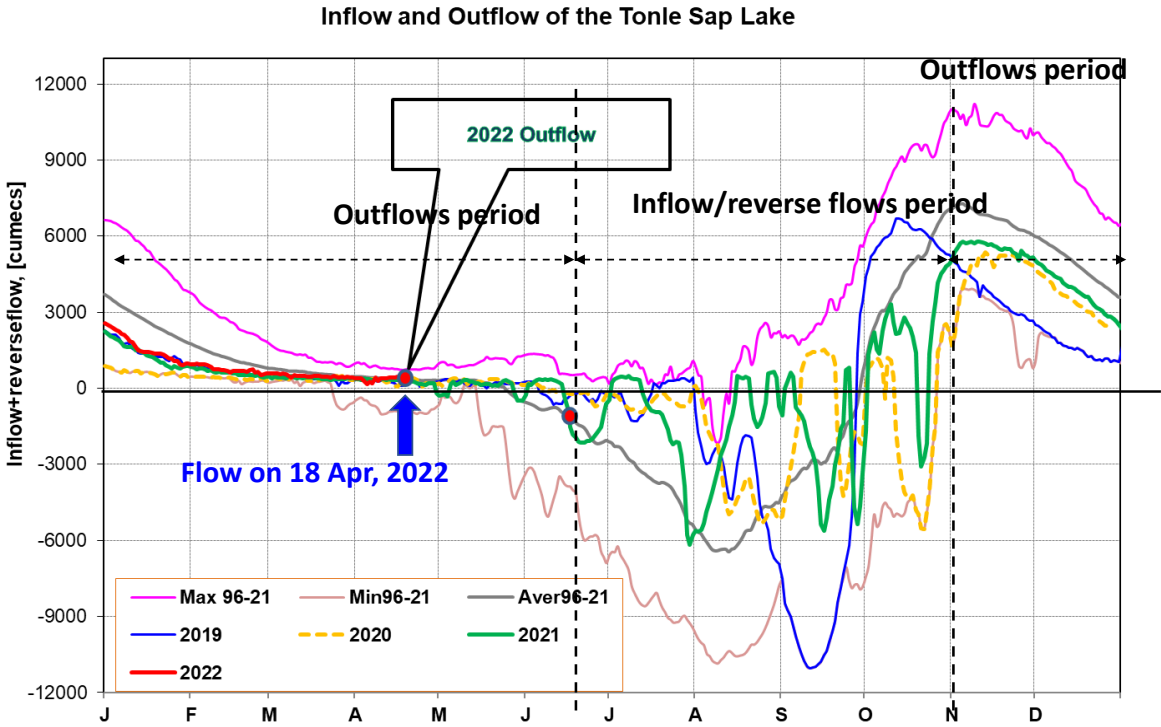


Figure 12: Seasonal change of inflows and outflows of Tonle Sap Lake.

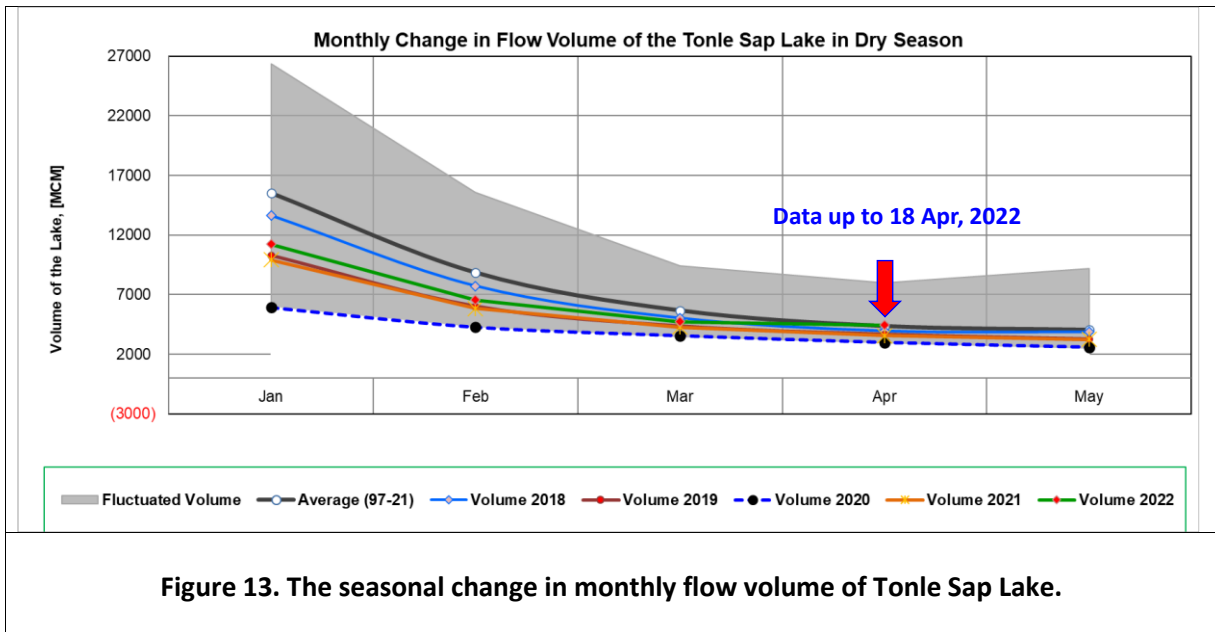


Figure 13. The seasonal change in monthly flow volume of Tonle Sap Lake.

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	4437.56	102.09
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 ³)									

4 Flash Flood in the Lower Mekong Basin

During April 12-18, the LMB was affected by three main weather factors. These include (i) the heat low pressure cell covered upper parts throughout the week, (ii) the southerly and south-easterly winds prevailed over the upper part during the first half of the week and during the weekend; for the middle week the westerly and south-westerly winds prevailed over the mentioned areas, (iii) the moderate high pressure area from China extended its ridge to cover the north-easterly part during the weekend, and (iv) the strong easterly and north-easterly wind prevailed over the Gulf of Thailand and southern part during the weekend.

These conditions caused hot weather in almost entire area of the LMB during last week. The upper part received small rain almost the entire week while during the last day of the week the amount and distribution of rain increased from the upper to middle part.

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 10 to 16 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 April 10 to 16, as shown in [Figure 11](#), were drier than the previous week especially in the northern and middle parts of the region covering Lao PDR and Thailand. The conditions there were moderately and severely dry. While the lower part covering Cambodia and Viet Nam was normal and wet. However, the situation was not critical.

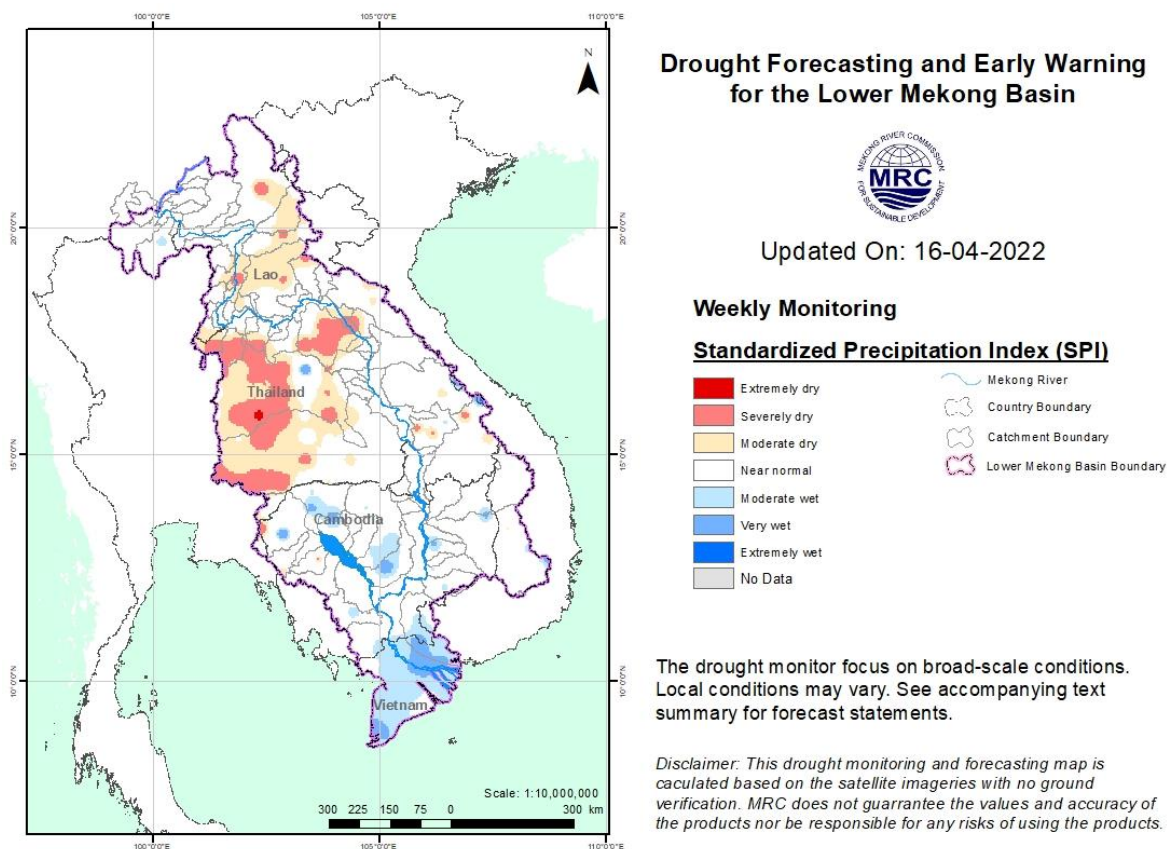


Figure 14: Weekly standardised precipitation index from April 10 to 16.

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

ISWF shows that from April 10 to 16, as displayed in [Figure 12](#), the LMB was normal almost everywhere. The Mekong Delta was relatively wet. There was no agricultural drought threat 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. Unlike other weeks during this transition period, this week soil moisture was not dry.

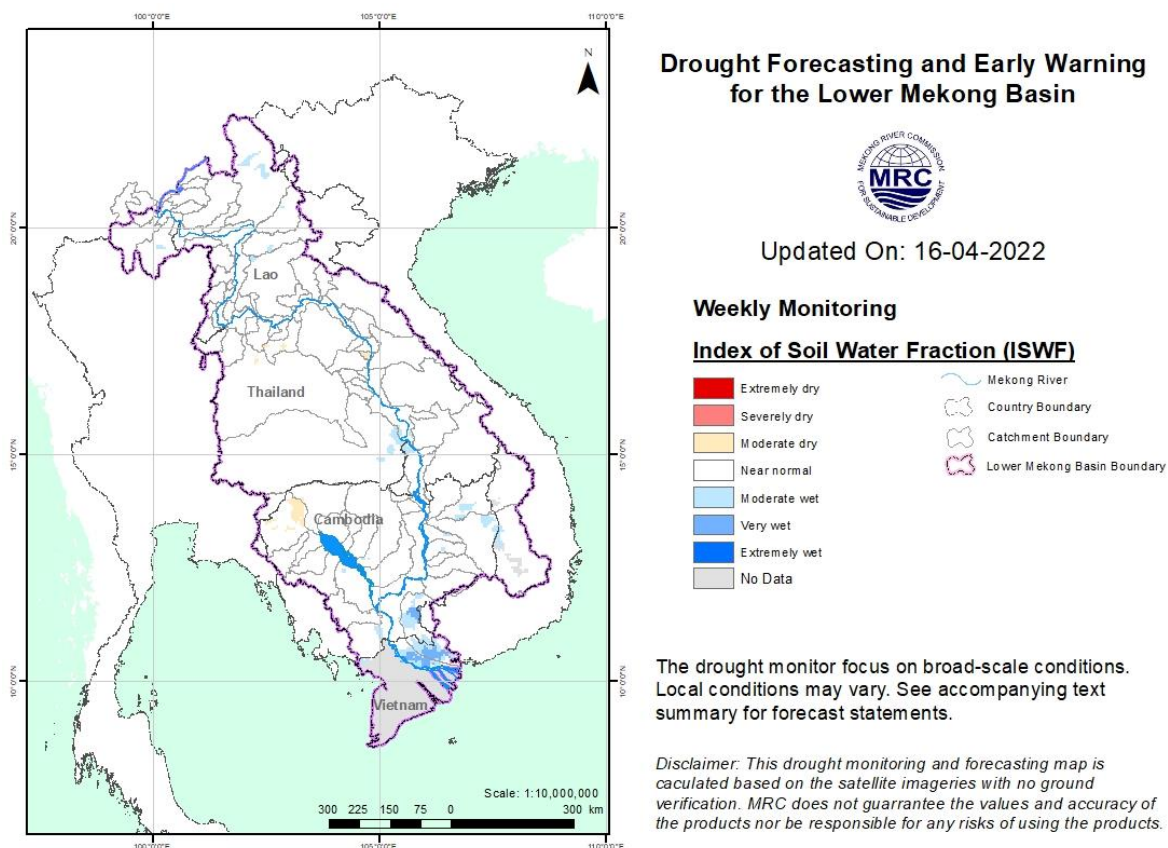


Figure 15: Weekly Index of Soil Water Fraction from April 10 to 16.

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

The combined drought indicator, as displayed in [Figure 13](#), reveals that during April 10-16 the LMB was at moderate dry in the central part and normal in other areas of the region. This moderate drought was caused by below-average rainfall which brought some moderate and severe meteorological droughts---though they were not serious.

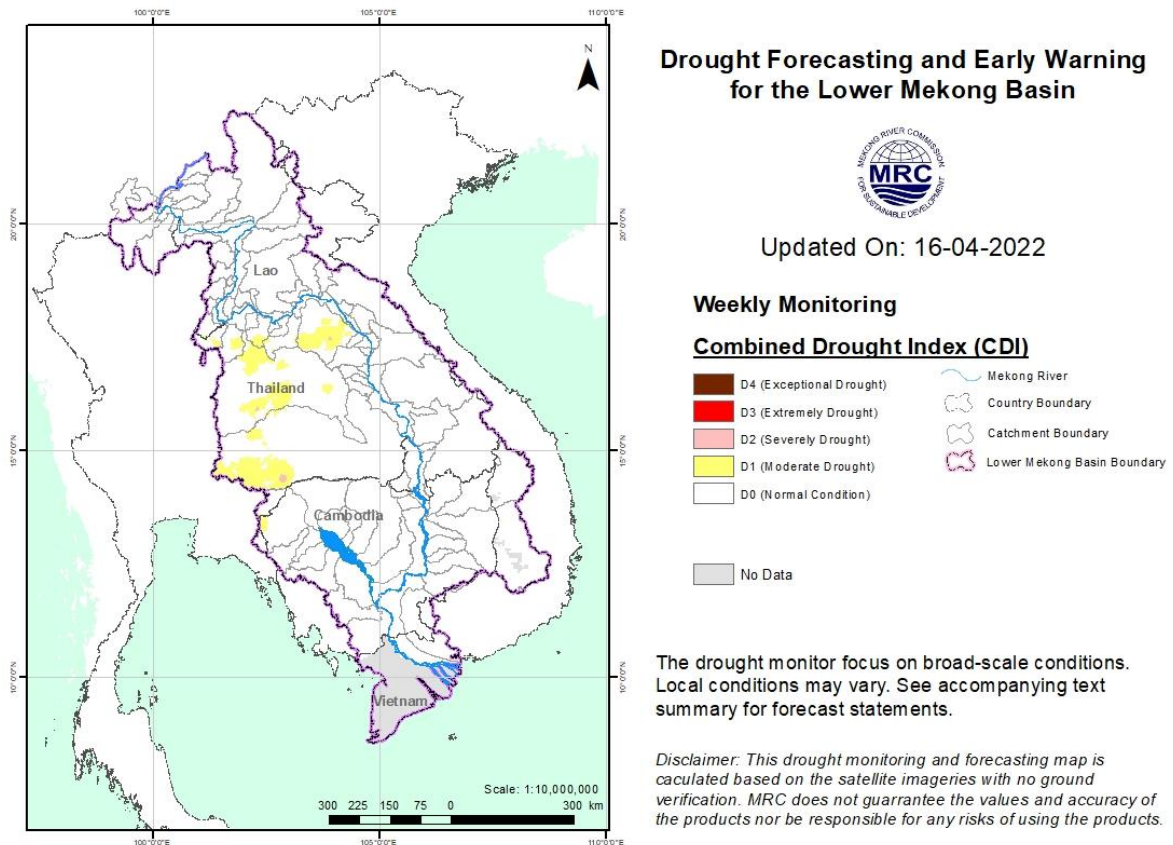


Figure 16: Weekly Combined Drought Index during April 10-16.

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.

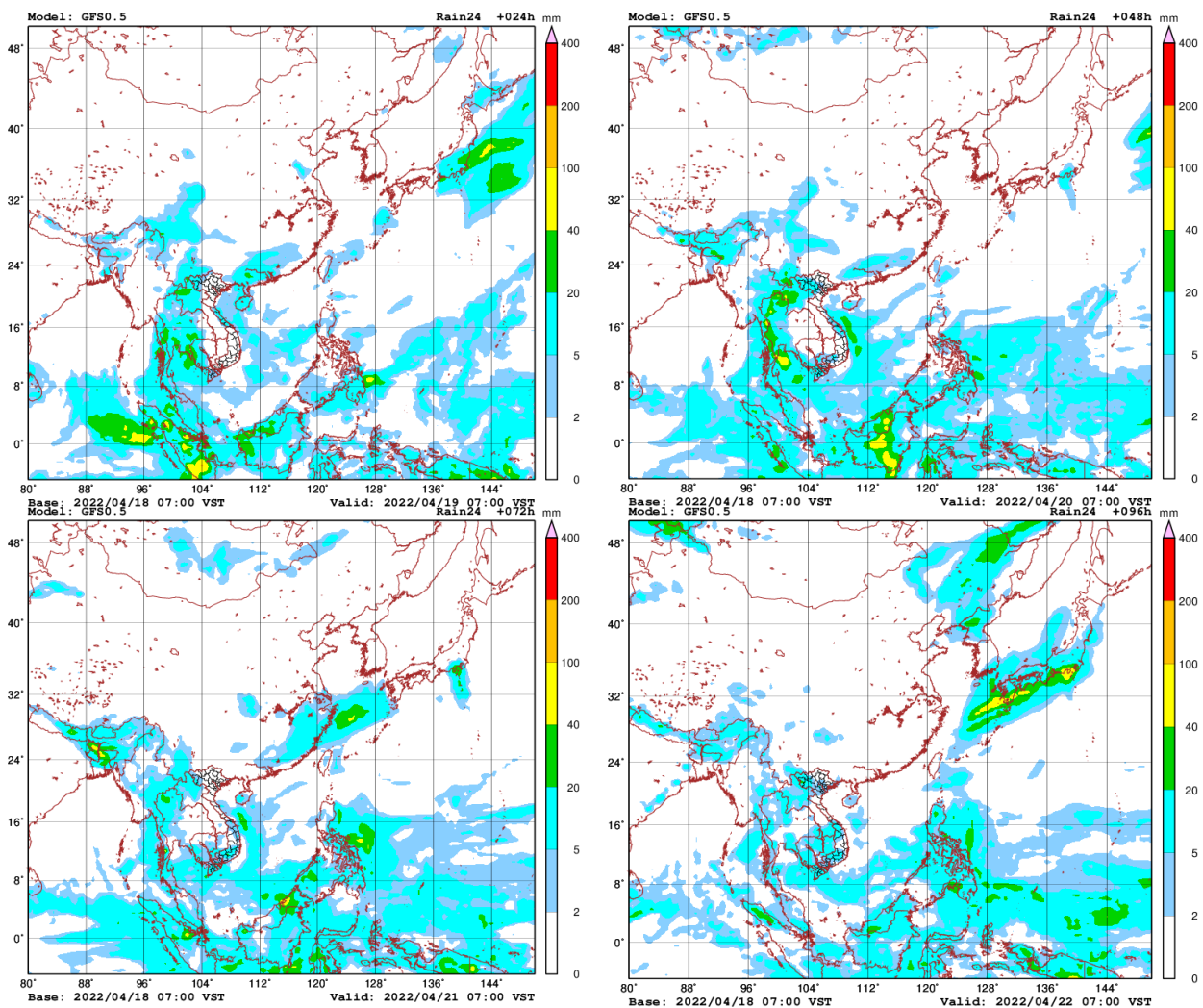
6 Weather and Water Level Forecast and Flash Flood Information

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 April 19-25, 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 19-25.



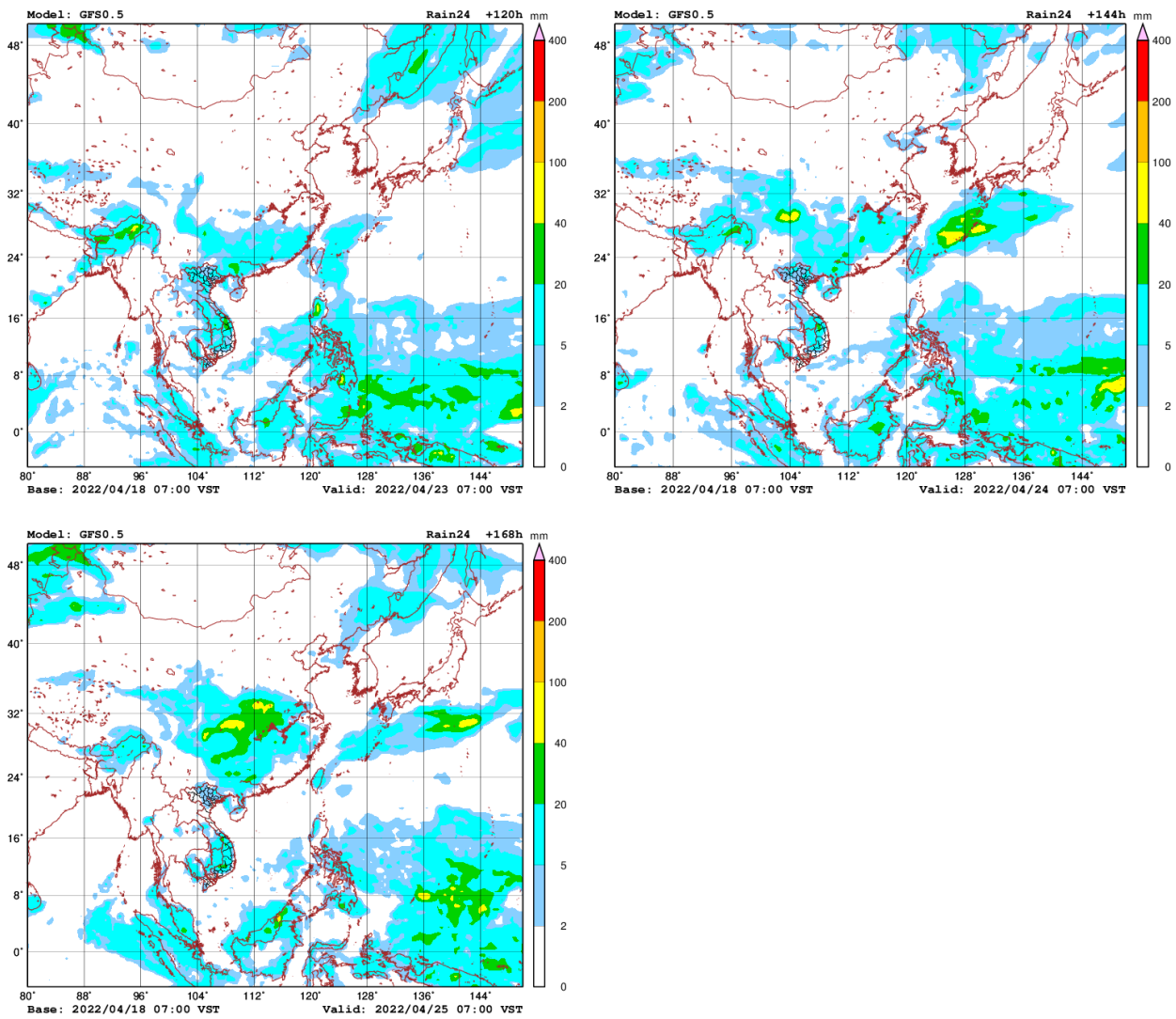


Figure 17: Accumulated rainfall forecast (24 hrs) of model GFS.

6.2 Water level forecast

Chiang Saen and Luang Prabang

Based on April 18's weekly river monitoring bulletin, the weekly forecast water level at Chiang Saen in Thailand is expected to decrease about 0.36 m in the next seven days. 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 decrease about 0.18 m in the next seven days. The water level will remain lower 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 go up about 0.10 m for the next seven days. From Vientiane in Lao PDR and Nong Khai in Thailand, WLs will slightly increase about 0.05 m in the next seven days. At Paksane in Lao PDR, water level will decrease about 0.25 m due to less 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 drop about 0.20 m in the next seven days. The water levels from Khong Chiam in Thailand to Pakse in Lao PDR will increase about 0.10 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 Kratie on the Mekong River in Cambodia, the water levels will go up about 0.20 m over the next seven days. WLs from Kompong Cham to downstream at Neak Luong will be up about 0.30 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 0.15 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. 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 18. Results of the started weekly river monitoring bulletin are also available at 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.

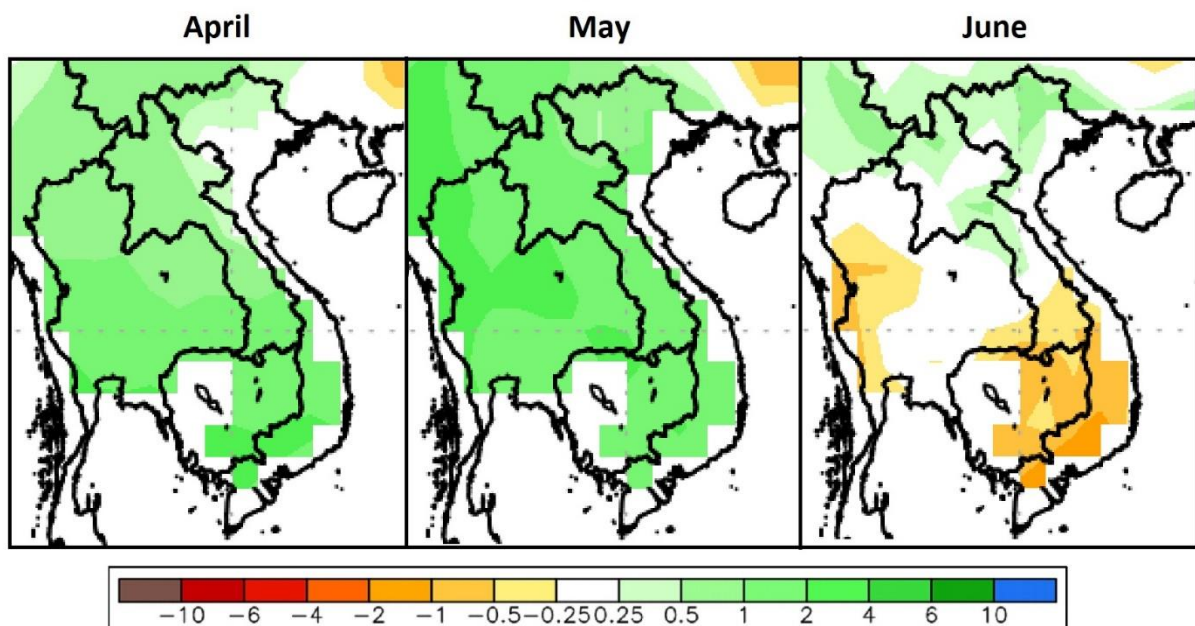


Figure 18. Daily average of monthly rainfall anomaly forecast from April to June 2022.

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: 19 April to 25 April 2022

Date: 18 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)							
					17-Apr	18-Apr	19-Apr	20-Apr	21-Apr	22-Apr	23-Apr	24-Apr	25-Apr	
Jinhong		12.5	-	-	535.49	535.48								
Chiang Saen		40.5	357.110	0.00	1.90	1.70	1.67	1.65	1.75	1.85	1.94	2.01	2.06	
Luang Prabang		28.6	267.195	2.53	9.20	9.23	9.00	8.83	8.80	8.77	8.87	8.97	9.05	
Chiang Khan		0.0	194.118	1.91	5.32	5.26	5.42	5.43	5.33	5.25	5.22	5.30	5.36	
Vientiane		1.4	158.040	-0.28	2.94	2.85	2.78	2.95	2.96	2.85	2.74	2.70	2.88	
Nongkhai		1.0	153.648	0.33	2.42	2.32	2.25	2.42	2.43	2.32	2.20	2.15	2.33	
Paksane		9.5	142.125	0.10	3.47	3.47	3.37	3.32	3.42	3.43	3.34	3.26	3.22	
Nakhon Phanom		1.4	130.961	0.18	2.14	2.18	2.16	2.10	2.05	2.13	2.13	2.07	2.02	
Thakhek		0.0	129.629	1.38	3.38	3.44	3.40	3.33	3.26	3.35	3.36	3.28	3.21	
Mukdahan		0.0	124.219	0.72	2.42	2.46	2.53	2.50	2.43	2.37	2.43	2.45	2.40	
Savannakhet		0.0	125.410	-0.65	0.80	0.78	0.83	0.82	0.77	0.73	0.77	0.78	0.75	
Khong Chiam		0.0	89.030	1.02	2.76	2.75	2.80	2.90	2.85	2.78	2.70	2.78	2.82	
Pakse		10.2	86.490	0.03	1.78	1.82	1.88	2.00	2.02	2.00	1.95	2.00	2.02	
Stung Treng		nr	36.790	0.32	2.97	2.97	3	3.04	3.14	3.16	3.14	3.1	3.13	
Kratie		nr	-1.080	3.06	7.86	7.90	7.91	7.96	8.01	8.12	8.15	8.12	8.06	
Kompong Cham		nr	-0.930	0.65	3.11	3.12	3.18	3.21	3.27	3.33	3.46	3.50	3.45	
Phnom Penh (Bassac)		nr	-1.020	1.58	2.03	2.12	2.15	2.15	2.18	2.22	2.32	2.34	2.31	
Phnom Penh Port		-	0.000	0.14	1.05	1.14	1.17	1.17	1.20	1.24	1.34	1.36	1.33	
Koh Khel		nr	-1.000	1.52	2.00	2.05	2.07	2.10	2.12	2.15	2.22	2.24	2.20	
Neak Luong		nr	-0.330	0.81	1.28	1.32	1.36	1.38	1.40	1.41	1.42	1.43	1.44	
Prek Kdam		nr	0.080	0.58	1.13	1.12	1.13	1.14	1.17	1.21	1.28	1.30	1.28	
Tan Chau		0.0	0.000	-0.37	0.95	0.88	0.72	0.55	0.46	0.40	0.34	0.32	0.28	
Chau Doc		nr	0.000	-0.60	1.20	1.11	0.93	0.73	0.61	0.55	0.45	0.43	0.36	

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/reportflood.php>

7 Summary and Possible Implications

7.1 Rainfall and its forecast

This week, rainfall was observed from Chaing Saen in Thailand at the upper part to Tan Chau in Vietnam at the lower part of the Mekong region. Compared with last week's amount, the rainfall this week focussed in Chaing Saen with high 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 part of the Mekong region including the 3S area and Mekong Delta of Viet Nam during 19-25 April 2022, varying from 0.10 mm to 80.00 mm. This indicates that the early wet weather has started over the LMB.

7.2 Water level and its forecast

Water level at Jinghong significantly decreased about 1.00 m from 12 to 18 Apr 2022 and stayed about 2.08 m lower than its two-year average (2020-2021) value. The outflows decreased from 1687.51 m³/s to 972.47 m³/s during the same period.

Water levels in the lower part of the monitoring locations in the LMB during this reporting week were decreasing at the stations from Chaing Saen, Chaing Khan, Nakhon Phanom to Pakse. Water levels at each key station along the Mekong mainstream from Chaing Saen to Pakse were dropping but remaining higher than their LTA value. In Cambodia, water levels from Stung Treng to Kompong Cham are remaining higher than their LTA 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 decreased level in some specific stations was due to less inflows from upstream and below-average rainfall in the region from 12 to 18 April 2022. Generally, this week's water levels were relatively lower than those of last week in the middle and the lower parts in the LMB.

The current water level that close to its maximum value is at **Luang Prabang, while the rest of the stations are higher than their LTA value.**

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 up and from Chaktomuk in Phnom Penh the water levels will also 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 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 10 to 16 April 2022 were moderately dry in some areas of the middle part covering Thailand and normal in other places. The moderate drought was caused by below-average rainfall during the week. 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 Khel	Neak Luong	Prek Kdam	Tan Chau	Chau Doc
12-04-2022	536.48	2.38	9.34	5.28	2.72	2.12	3.25	2.05	2.40	1.98	3.17	8.26	3.32	2.34	2.19	1.59	1.26	0.17	0.28
13-04-2022	536.48	2.45	9.33	5.46	2.79	2.30	3.24	2.05	2.38	1.80	3.11	8.25	3.26	2.15	2.00	1.62	1.17	0.35	0.48
14-04-2022	535.95	2.71	9.02	5.53	2.89	2.28	3.23	2.08	2.38	1.74	3.02	8.16	3.21	2.08	1.98	1.62	1.14	0.71	0.86
15-04-2022	535.36	2.57	8.78	5.60	2.99	2.40	3.25	2.10	2.38	1.72	2.97	8.02	3.17	2.03	2.02	1.66	1.08	1.03	1.18
16-04-2022	535.38	2.32	8.85	5.41	3.04	2.50	3.39	2.10	2.40	1.78	2.94	7.90	3.11	2.00	1.96	1.50	1.12	1.10	1.24
17-04-2022	535.49	1.90	9.20	5.32	2.94	2.42	3.47	2.14	2.42	1.78	2.97	7.86	3.11	2.03	2.00	1.28	1.13	0.95	1.20
18-04-2022	535.48	1.70	9.23	5.26	2.85	2.32	3.47	2.18	2.46	1.82	2.97	7.90	3.12	2.12	2.05	1.32	1.12	0.88	1.11

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
12-04-2022	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13-04-2022	0	0	0	0	0	0	0	38.3	0	0	0	0	0	0	0	0	0	0	0
14-04-2022	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15-04-2022	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5.1	0
16-04-2022	0	2.2	0	0	0	0	0	0	0	0	0	0	0.8	0	0	0	0	11.2	0
17-04-2022	0	36	45.6	0	0.2	11.4	7.3	0	0	0	18	6.5	0.9	20.5	0	0.8	8.4	0	0
18-04-2022	12.5	40.5	28.6	0	1.4	1	9.5	1.4	0	10.2	0	0	0	0	0	0	0	0	0



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