



LAO PEOPLE'S DEMOCRATIC REPUBLIC SEASONAL MONITOR AND FORECAST

August 2025



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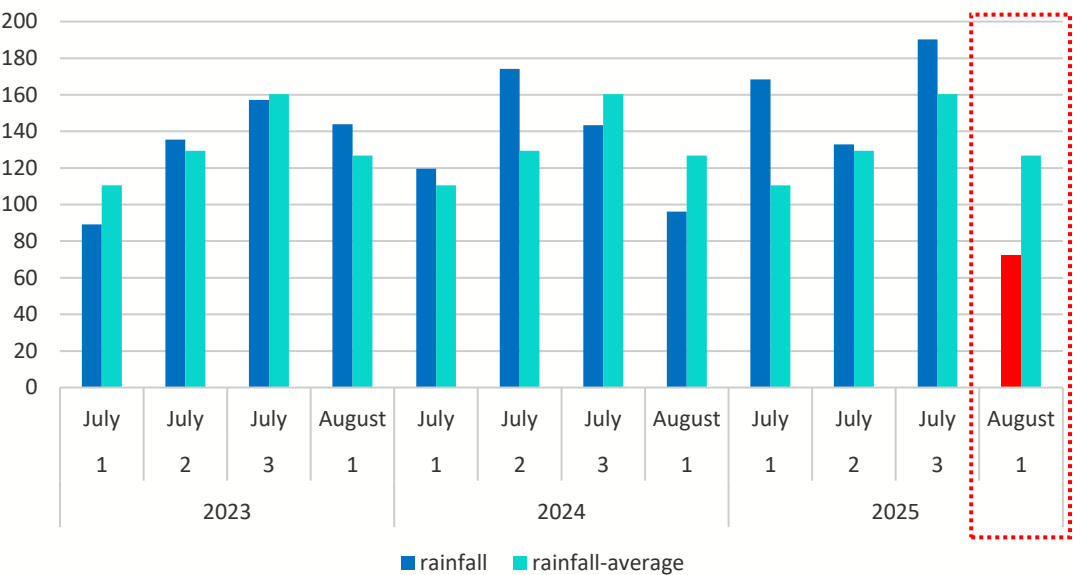
KEY MESSAGES

- July has been consistently wetter than average, but August 2025 was drier (about 43% below the long-term mean), having the potential to increase the risk of rain-fed agriculture in the south.
- According to the Standardized Precipitation Index (SPI), a marked north-south imbalance persists, with accumulated precipitation in the northwestern and central regions and deficiencies in the southern region, highlighting the need for dual risk management (soil moisture stress vs local flooding).
- September and the September–October–November (SON) periods are expected to be wetter than average in Lao PDR, with moderate confidence. Additionally, above-normal temperatures are anticipated in September.
- Nationwide advisories were issued for Typhoons Lingling (16–19 August) and Kajiki (25–28 August), though widespread damage was limited. As typhoon impacts typically peak in September, early warning systems and cross-border collaboration remain essential.

Rainfall Analysis of July and August in Lao PDR

Rainfall Patterns in July vs. August (2023–2025)

Figure 1. . Observed vs. Average Rainfall (July–August 2023–2025)



Analysis of recent rainfall data shows some noticeable differences between July and August over the past three years. July has recorded higher-than-average rainfall, particularly in 2025, when the third dekadal of the month reached 190.2 mm, about 18.6% above the long-term average (160.4 mm). Similarly, July 2024 saw a peak of 174.2 mm, roughly 34.6% above average (129.5 mm) in the second dekadal. July tends to exceed or align closely with its historical averages, pointing to a stronger than expected monsoon performance during this month. By comparison, August rainfall has been relatively weaker than its historical average. August 2024 recorded only 96.2 mm, which was 24% below the average, while August 2025 dropped dramatically to 72.4 mm, nearly 43% below the average. Rainfall in August 2025 was approximately half of the long term expected average, reflecting a discernible departure from the usual seasonal pattern.

In particular, in rural communities that rely on rainfed agriculture, such deficits are likely to have direct impacts on crop yields and could exacerbate risks of food insecurity. The contrast between the surplus rainfall in July and the deficit in August also illustrates the dynamics of recent years, which have been influenced by external climatological events such as typhoons. Indeed, the rainfall pattern of August 2025 coincided with the passage of tropical depressions LingLing and KAJIKI-25, which affected regional rainfall distribution. While such systems typically bring localized heavy downpours, their trajectory and intensity tend to be short-lived. The subsequent sections of this report will further analyze and project the impacts of LingLing and KAJIKI-25 observed during August.

Rainfall in Lao PDR: Forecast of monsoon activity

Rainfall in Asia : focused on Lao PDR

August still remains within the peak monsoon period for South and Southeast Asia, when large-scale atmospheric circulation transports moisture-laden winds from the Indian Ocean and Bay of Bengal inland. This process is further enhanced by the northward stepwise advance of the Intertropical Convergence Zone (ITCZ) and the seasonal northward shifts of the Western Pacific Subtropical High (WPSH), both of which sustain intense convective activity across East and Southeast Asia¹. As a result, widespread rainfall continues to dominate much of the Asian continent during this month, maintaining the climatological expectation of heavy precipitation throughout the monsoon core months (June to September). According to the World Meteorological Organization (WMO), above-normal rainfall has been forecasted for several parts of Asia during the current monsoon season, underscoring the persistent strength of this circulation system and its importance for regional water and food security².

In Lao PDR, this regional pattern is also evident, with rainfall distributions following the broader monsoon pattern. A closer look at the spatial rainfall map (Figure 2) indicates that northern and central areas spanning Myanmar, Lao PDR, and northern Viet Nam recorded 150–350 mm of cumulative rainfall during August 2025, consistent with the expected monsoon influence. Moreover, southern Lao PDR, southern Viet Nam, and parts of Cambodia registered significantly higher totals, with localized accumulations exceeding 400 mm. This variation highlights the heterogeneity of rainfall within the monsoon belt. In terms of the Lao PDR, while the northern provinces received moderate to high rainfall consistent with seasonal norms, the southern provinces experienced a much more intense accumulation.

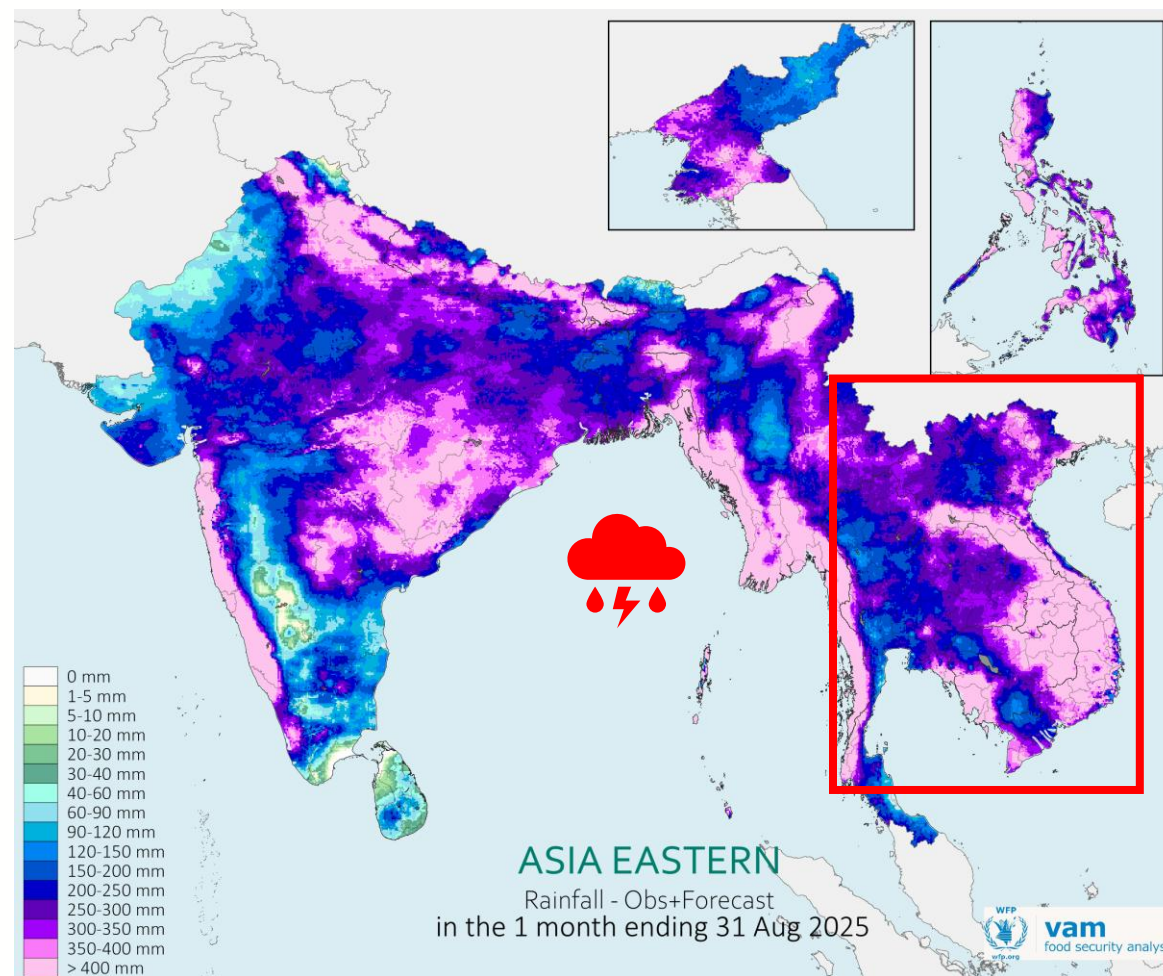


Figure 2. Rainfall (in the 1 month ending 31 Aug 2025)

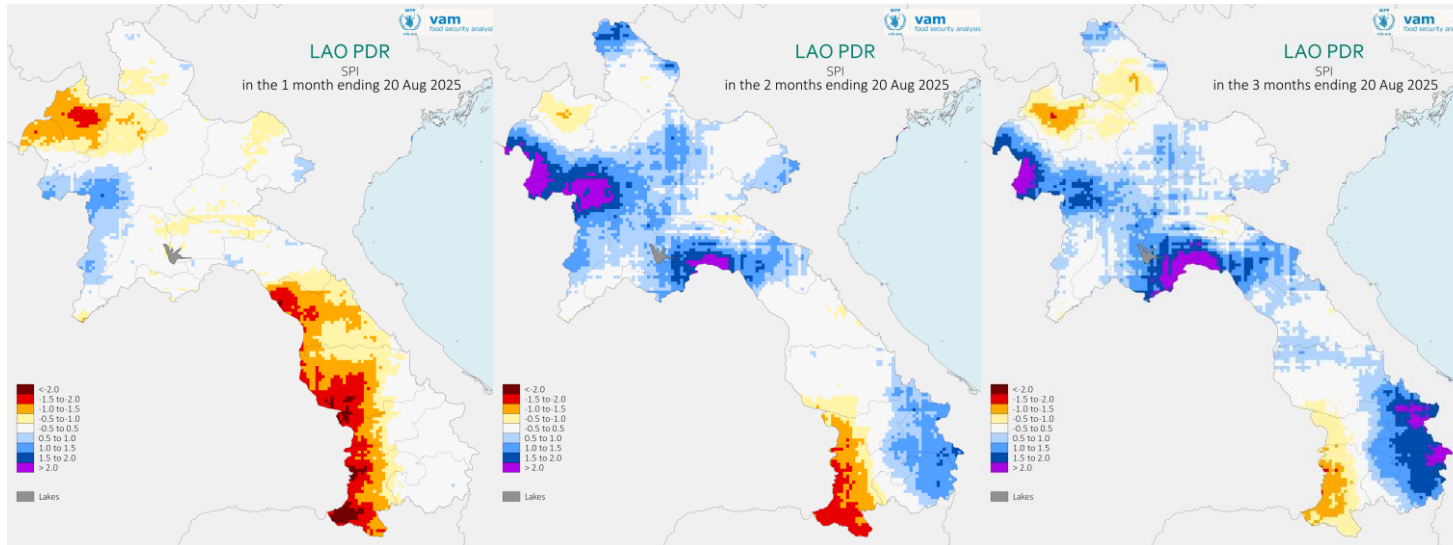
1. Webster Peter J. and Fasullo John T. Monsoon: Dynamical theory. 2003

2. World Meteorological Organization. Above-normal rainfall forecast for the southwest monsoon in Asia. 2025 Available at: https://wmo.int/media/news/above-normal-rainfall-forecast-southwest-monsoon-asia?utm_source=chatgpt.com

Analysis of SPI (Standardized Precipitation Index)

SPI

Figure 3. SPI maps in the 1, 2, 3 months periods ending 20 August 2025



As of 20 August, the 1-month SPI shows widespread negative anomalies across the south-central belt such as Khammouane, Savannakhet, Salavan, and parts of Champasak with values ≤ -1.5 and pockets below -2.0 . Despite being within the monsoon season, this indicates a pronounced August rainfall deficit relative to the long-term average. In contrast, Northern provinces like Xaignabouli and Houaphan register $\geq +1.0$, pointing to short term anomalous wetness and a marked spatial divergence.

The 2-month SPI accentuates this contrast. The southern provinces remain within the -1.5 to ≤ -2.0 band, implying that shortfalls have accumulated into a persistent rainfall deficit.

Conversely, the Xaignabouli, Vientiane corridor and adjacent central/north-western areas exhibit $\geq +1.5$, indicating above the average cumulative rainfall. These signals suggest a north and south precipitation asymmetry that has persisted through much of the monsoon period.

On the 3-month SPI, the cumulative signal becomes clearer. The north-western and central-western zones maintain $\geq +1.5$, with some areas exceeding $+2.0$, underscoring the seasonal accumulation of monsoon rainfall. In these spots, localized flooding and waterlogging risks may be elevated, particularly in downstream lowlands and river adjacent croplands. Meanwhile, parts of the southern provinces and pockets of the northern highlands (Luang Namtha, Phongsaly) retain mild to moderate negative anomalies (around -1.0 to -1.5), indicating a residual rainfall shortfall on the seasonal timescale.

In other words, August SPI in Lao PDR is characterized by a spatially two-part pattern. The pattern of persistent cumulative wetness across the north-west/central belt versus sustained rainfall deficits across the south. Given the seasonal context, it is more appropriate to frame southern conditions as suppressed monsoon rainfall or a monsoon rainfall shortfall rather than 'drought'. Operationally, this calls for continued short-term hydrometeorological monitoring for localized flooding in the wetter north-west, central areas, alongside vigilance for soil moisture stress and planting schedule sensitivities where the southern rainfall shortfall persists.

Rainfall Outlook for Lao PDR AUG 2025

Short-Term Rainfall Analysis Forecast and Implications

These short-term (10-day) rainfall deficits are consistent with the 1-month SPI signal of negative anomalies across the south–south-central belt, suggesting delayed soil-moisture recovery in late August and higher irrigation demand. From an agricultural perspective, this raises the risk of water stress during transplanting/active growth, and reduced inflows in rivers and tributaries may strain downstream irrigation schemes. Note that this is a 10-day snapshot; the track and intensity of forecast tropical cyclones over the western Pacific and the South China Sea could alter both the magnitude and spatial distribution of rainfall and, consequently, the impacts. In the map, brown shades denote below-average rainfall, while light-to-dark blue shades indicate above-average rainfall (see Figure 4).

Figure 4. Rainfall in the 10 days ending 20 August

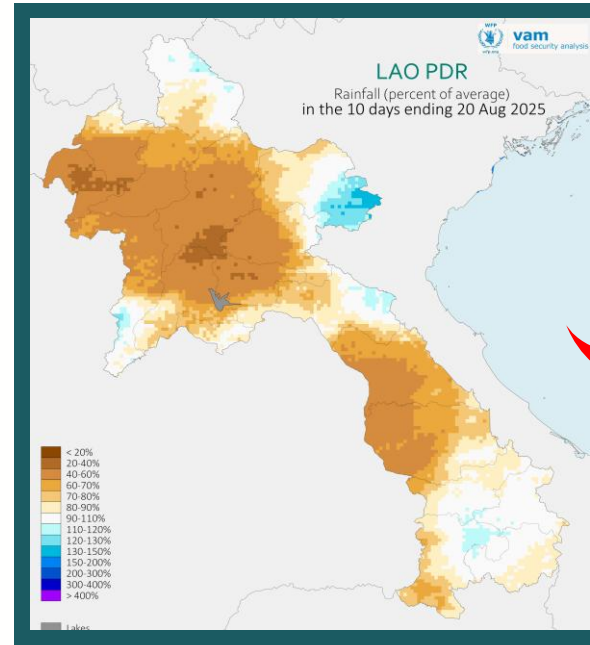
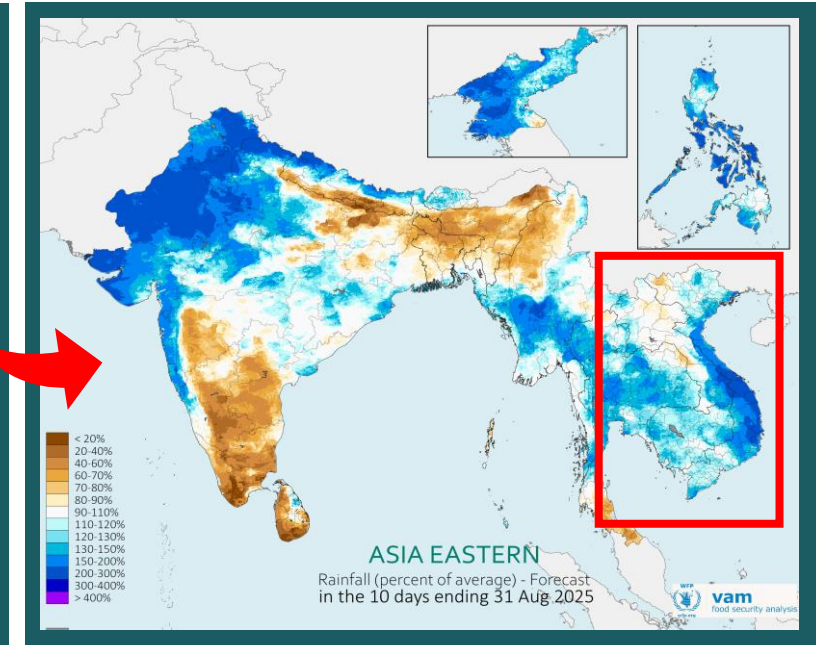


Figure 5. Rainfall-Forecast in the 10 days ending 20 August



From a forecast perspective (see Figure 5), most areas of Lao PDR are expected to receive above-average rainfall (roughly 110–150%), which would be favorable for soil-moisture recovery and could partially offset the recent 10-day deficit observed in the south. However, in northern and central zones that are already seasonally wet, additional rainfall may increase localized flood and waterlogging risks.

C3S Seasonal Outlook: SEP-OCT-NOV

C3S multi-system seasonal forecast ECMWF/Met Office/Météo-France/CMCC/DWD/NCEP/JMA/ECCC/BOM
Prob(most likely category of precipitation)
Nominal forecast start: 01/08/25
Unweighted mean

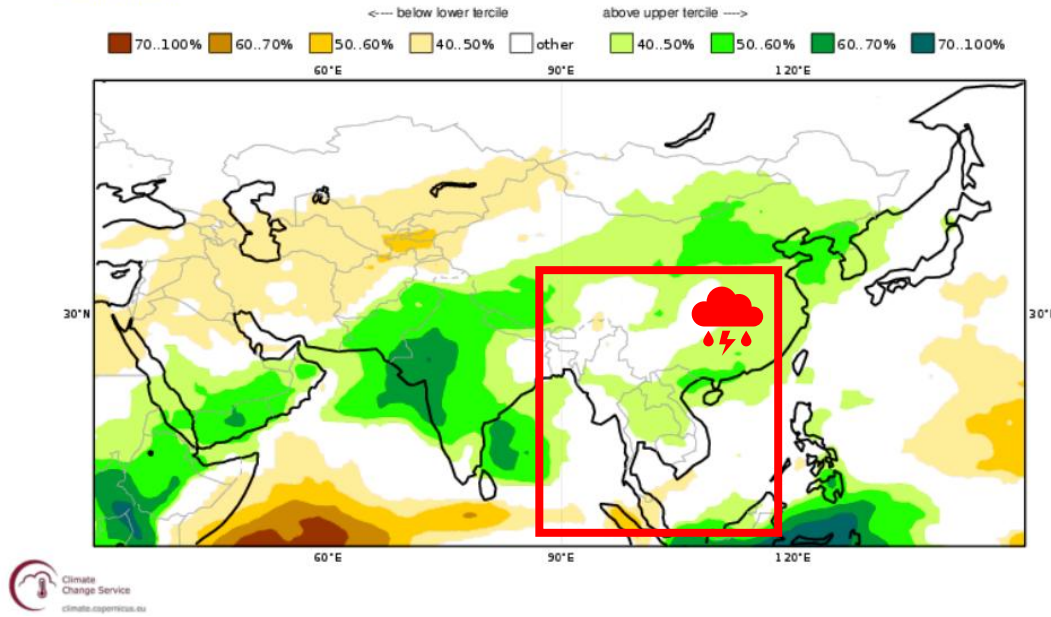


Figure 6: precipitation tercile for September 2025 from the C3S multisystem forecast (source: Copernicus Climate Change Service)

C3S multi-system seasonal forecast ECMWF/Met Office/Météo-France/CMCC/DWD/NCEP/JMA/ECCC/BOM
Prob(most likely category of precipitation)
Nominal forecast start: 01/08/25
Unweighted mean

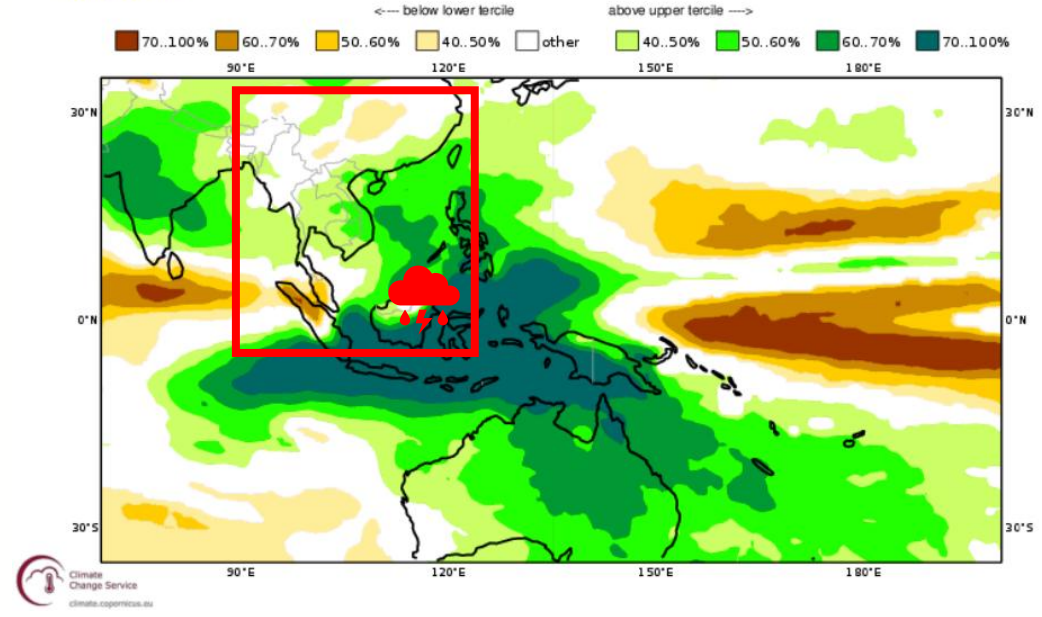


Figure 7: seasonal precipitation tercile for SON 2025 from the C3S multi-system forecast (source: Copernicus Climate Change Service)

September, single-month outlook(see the figure 6.), the likelihood of above-average rainfall is elevated (green = above average, brown = below average on the map). The recent rainfall shortfall in the south may partly ease. However, the confidence level is only moderate (about 40–60%), and the tracks of tropical cyclones or depressions could shift the intensity and location of rainfall.

September to November outlook (see the figure 7.), for Lao PDR along with Thailand and Viet Nam above-average rainfall is likely to persist, so there may be more rainy days than usual even into the late monsoon and early dry season (Oct–Nov). Because conditions are sensitive to short-term climate events, precise outcomes remain uncertain; the agriculture sector should stay alert for harvest delays and potential access constraints to infrastructure.

Long Range Outlook Temperature : SEP-OCT-NOV

C3S multi-system seasonal forecast ECMWF/Met Office/Météo-France/CMCC/DWD/NCEP/JMA/ECCC/BOM
Prob(most likely category of 2m temperature)
SEP 2025

Nominal forecast start: 01/08/25
Unweighted mean

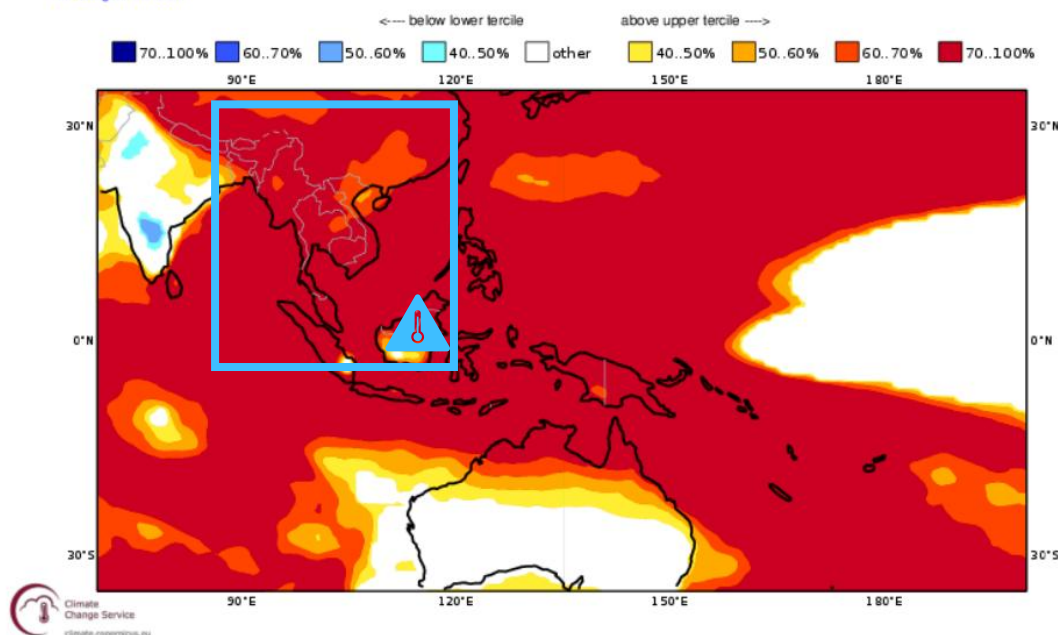


Figure 8: Forecasted temperature anomaly classes for September 2025 (Copernicus Climate Change Service)

C3S multi-system seasonal forecast ECMWF/Met Office/Météo-France/CMCC/DWD/NCEP/JMA/ECCC/BOM
Prob(most likely category of 2m temperature)
SON 2025

Nominal forecast start: 01/08/25
Unweighted mean

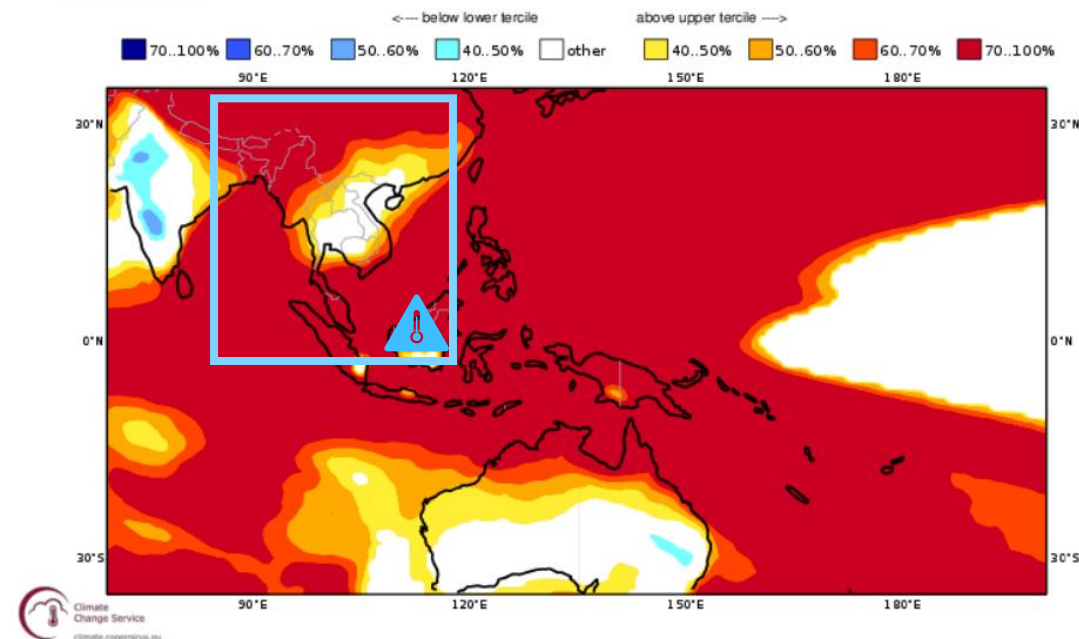


Figure 9: Forecasted temperature anomaly classes for SON 2025 (Copernicus Climate Change Service)

According to the C3S multi-system seasonal forecast, Above-normal temperatures are very likely across Lao PDR which is 60–100% probability for the upper tercile in September(see figure 8.). With heat persisting from day into night, cumulative heat stress becomes a concern. If the concurrent rainfall tilt remains above average, the warm-humid combination will further strain outdoor working conditions as well as crop production.

For the September to November season(see the figure 9.), Lao PDR leans toward normal temperatures, while much of Southeast Asia such as Malaysia, some part of Viet Nam, Indonesia and Cambodia in particular tilts warm (above normal) through the period. Nevertheless, it is important to maintain heat risk response preparedness such as support for vulnerable populations, maintain flexible agricultural value chain schedules, and prepare for hydro electricity and water resource management needs.

El Nino-Southern Oscillation (ENSO) OUTLOOK

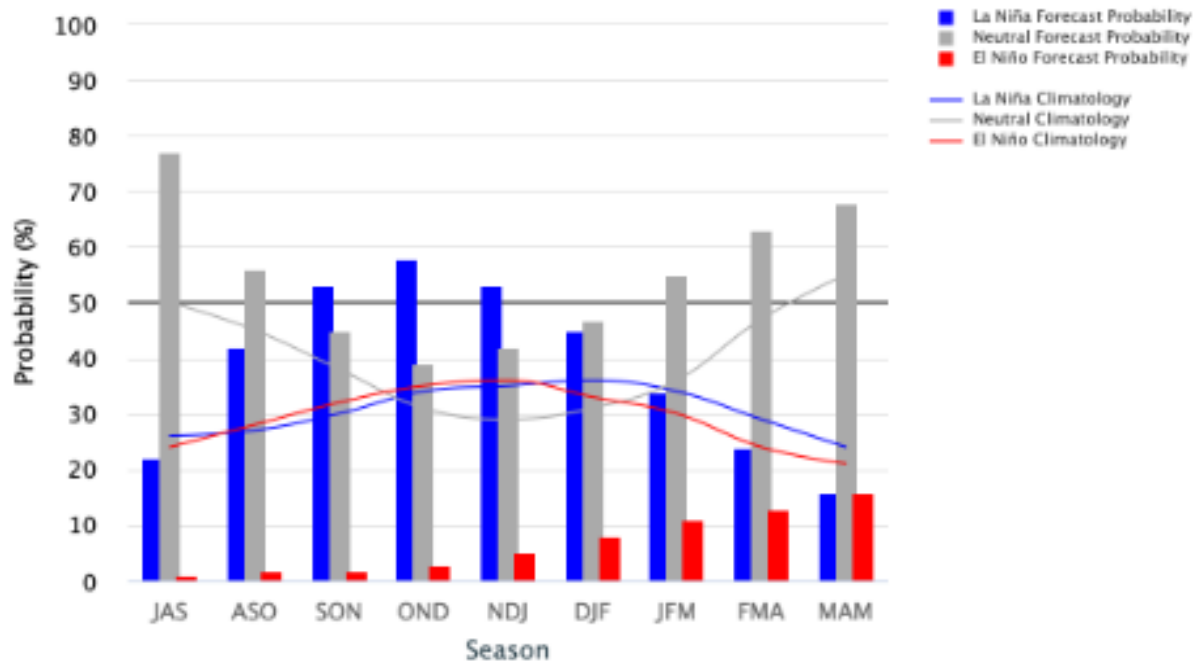


Figure 10: Early-August 2025 CPC Official Probabilistic ENSO Forecasts
(source : CPC Official Probabilistic ENSO Forecast. IRI. published Aug 19, 2025)

The CPC forecast for early August 2025 indicates ENSO-neutral conditions in the equatorial Pacific. According to IRI, ENSO-neutral remains the most likely scenario through the late boreal summer (56% probability for August–October). However, the likelihood of neutral conditions gradually declines to 49% for September–November and 50% for October–December, while the probability of La Niña increases to 39% and 44%, respectively³. Recent studies also note weakly negative subsurface anomalies in the eastern Pacific, easterly low-level wind anomalies over the east central eastern tropical Pacific, westerly anomalies aloft, and convection enhanced near parts of Indonesia with suppression over the western tropical Pacific which features consistent with an overall neutral state.⁴

In case of Lao PDR, the rainfall and river changes in August were likely influenced more by local and short term factors, such as monsoon patterns or the paths of individual tropical storms, rather than by a strong ENSO signal. As the probability of La Niña increases into Sep–Nov-Oct (SON) and Oct–Nov–Dec (OND), a wetter-than-average tilt over parts of Mainland Southeast Asia becomes more plausible, which is consistent with the seasonal rainfall outlook from the previous report. Therefore, preparedness plans continue to emphasize flood, waterlogging risk management while keeping irrigation and harvest schedules.

3. International Research Institute for Climate and Society (IRI). ENSO Forecast. 2025. Available at: <https://iri.columbia.edu/our-expertise/climate/forecasts/enso/current/>

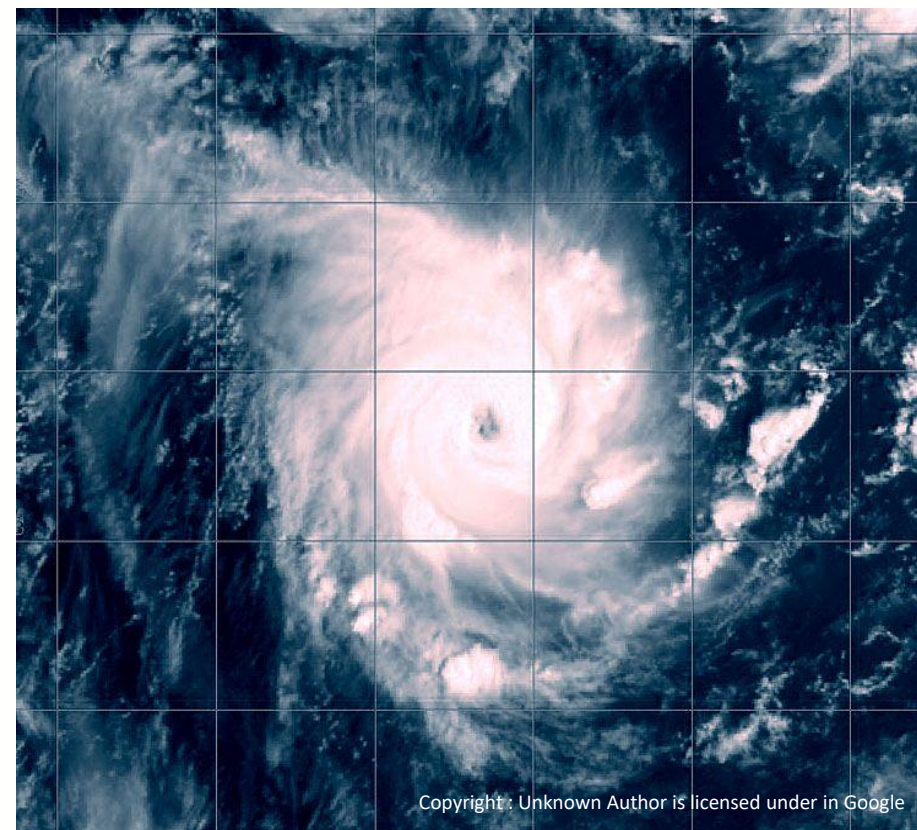
4. Climate Prediction Center. El Niño-Southern Oscillation (ENSO) Diagnostic Discussion. 2025.

Available at: https://www.cpc.ncep.noaa.gov/products/analysis_monitoring/enso_advisory/ensodisc.shtml?utm_source=chatgpt.com

LingLing Tropical Storm in August

LingLing 16-19 August

In August, there were advisories for two tropical storms as notable climate events. The first covered 16–19 August and related to the evolution and warnings for Tropical Storm Lingling. A low-pressure area over the southern South China Sea intensified into a tropical depression on 16 August, then strengthened into Tropical Storm Lingling on 17 August, with a projected track toward waters off central Viet Nam. In response, the Department of Meteorology and Hydrology (DMH) issued warnings for many provinces nationwide, advising caution for heavy rain, thunderstorms, and strong gusts. The media also mentioned risks of urban flooding, landslides, and flash floods during this period. Indeed, Actual impacts in Lao PDR were limited. Conditions largely amounted to localized heavy rainfall potential, with authorities emphasizing short-term monitoring rather than reporting widespread damage.



Kajiki Tropical Storm in August

Kajiki 25-28 August

'Kajiki' rapidly organized over the South China Sea and tracked westward, making landfall over north-central Viet Nam on 25 August before weakening as it moved inland and into Lao PDR.

As shown in the map (see figure 10 and 11), tracking data and warnings indicate the system strengthened to typhoon intensity (approx. 65–80 kt) around landfall, then weakened quickly thereafter⁵. Meteorological authorities and media warned of widespread heavy rain, thunderstorms, and strong winds across Lao PDR especially in the northern and eastern regions during 25–28 August. However, there were no reports of sustained or large-scale damage in the capital Vientiane and the central region. As a precaution, Lao–China Railway (LCR) suspended passenger services 25–26 August, with extensions announced as needed⁶.

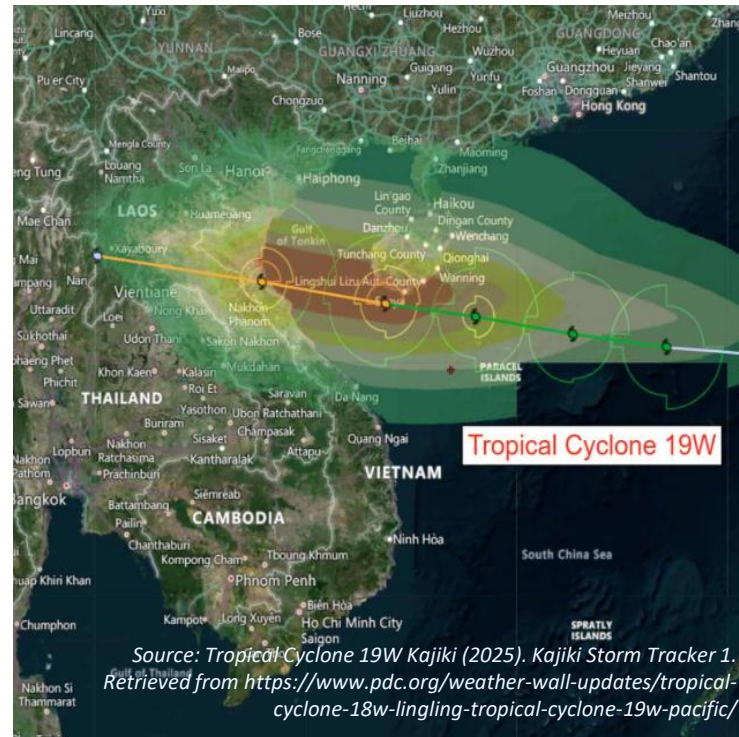


Figure 11: Kajiki Tracker 1

19W NINETEEN - Model Track Guidance

Initialized at 06z Aug 22 2025

Levi Cowan - tropicaltidbits.com

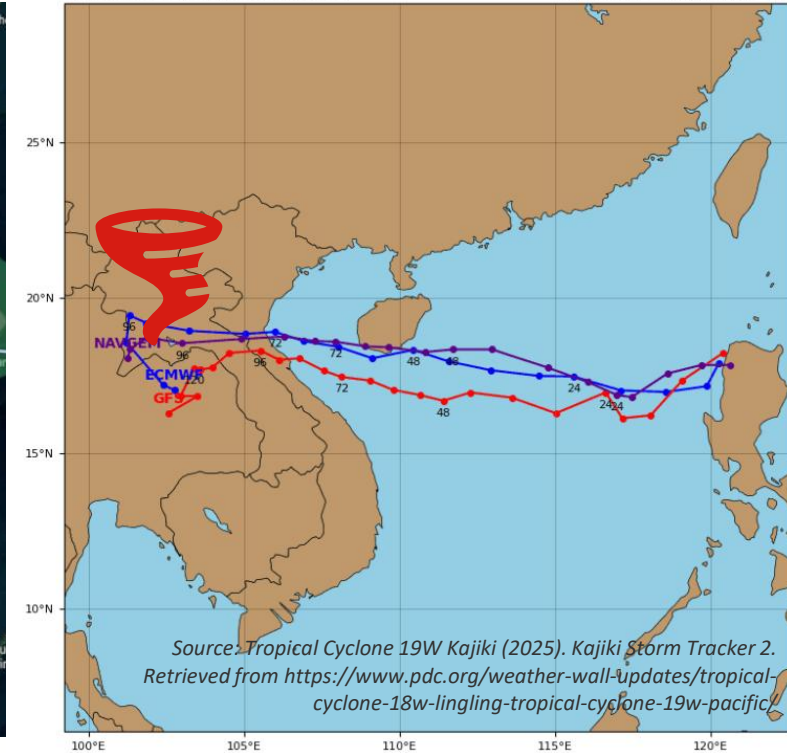


Figure 12: Kajiki Tracker 2

5.. Pacific Disaster Center (PDC), "Tropical Cyclone 18W (Lingling); Tropical Cyclone 19W (Pacific)," Weather Wall Updates, accessed August 27, 2025,

6. The Lao Times, "Northern Laos Braces for Heavy Rains as Typhoon Kajiki Prompts Railway Halt," August 25, 2025, accessed August 27, 2025, <https://laotiantimes.com/2025/08/25/northern-laos-braces-for-heavy-rains-as-typhoon-kajiki-prompts-railway-halt/>.

Mekong river monitoring

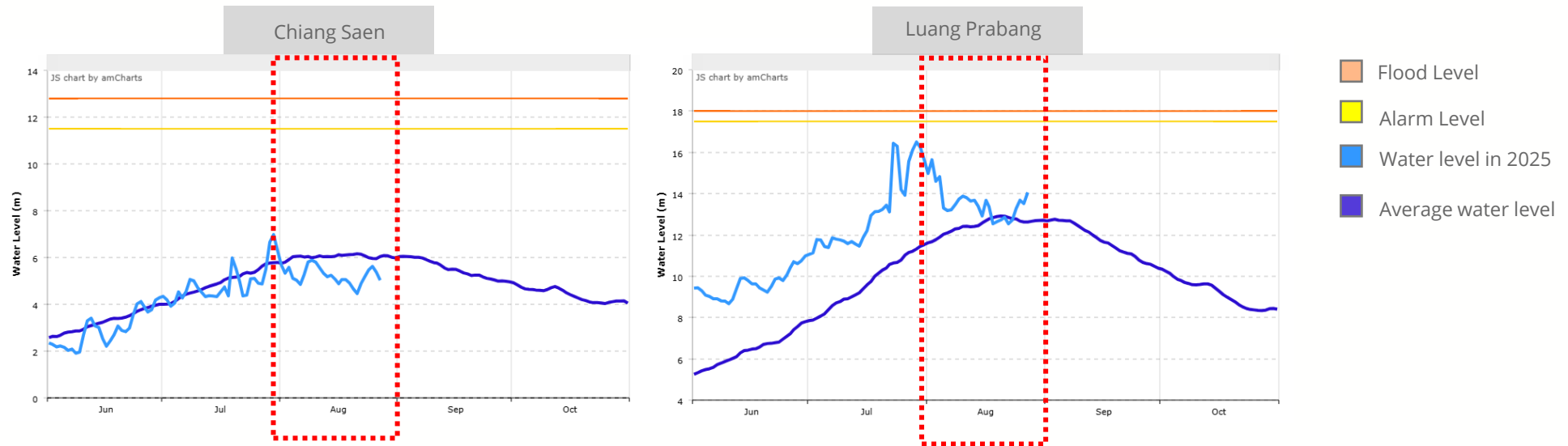


Figure 13: Observed water levels at the upper Mekong
(source : MRC, Retrieved from <https://ffw.mrcmekong.org/overview.php>)

Water levels in early August started near to slightly above the seasonal average at the Chiang Saen, followed by a brief mid-month uptick likely linked to localized inflows. The curve fluctuated and remained below the alarm and flood thresholds. Similarly, at Luang Prabang, after markedly high levels in July (above average), levels declined through early August and then rebounded modestly in mid–late August. On a monthly basis they were near or slightly above the average, with no indications of flood-stage exceedance. In short, Luang Prabang appears to be settling from July’s high stage toward stabilization, and upper Mekong levels remained broadly stable through August. However, concurrent rainfall outlooks indicate above average precipitation over northern and central Viet Nam and the eastern coast (120–150%). Moisture transport across the Annamite Range could enhance inflows from eastern, central Lao tributaries, potentially increasing water level variability along the Luang Prabang to Vientiane reach.

Water Levels in the Mekong River

This section presents monitored water-level graphs for the Central and Lower Mekong. In Vientiane, after the July flood crest (12.5 m), levels fell sharply in early August, then showed a brief mid-month rebound before gently fluctuating around the long-term average through late August. This is a typical recession phase, driven by a rapid tapering of upstream inflows with only short pulses from localized rainfall.

In Savannakhet and Pakse, water levels were temporarily above average in early August, then dropped markedly during mid- to late August to below average, followed by a small rebound at month-end. Both stations spent more time below the average and showed no approach to alarm or flood thresholds.

In other words, the central and lower Mekong shifted into a post-peak recession in August, with all three gauges remaining below thresholds and displaying stable variability. Tropical typhoons passing in mid to late August such as Lingling, Kajiki likely produced short water level pulses, so continued monitoring is advisable.

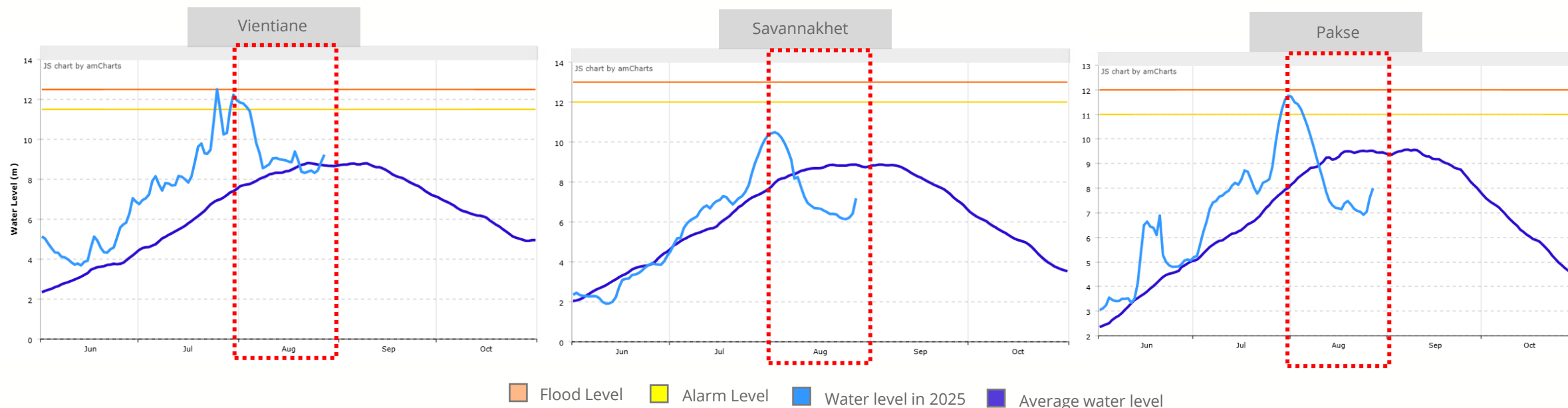


Figure 14: Observed water levels at 3 points in August
(source : MRC, Retrieved from <https://ffw.mrcmekong.org/overview.php>)

Implications for Agriculture and Food Security

Rainfall patterns in July and August 2025, which contrast with those of last year, could impact agriculture and food security in Lao PDR. Above-average rainfall in July ensured adequate water supply for crop growth. However, the drop in rainfall in August, particularly in southern provinces such as Khammouane, Savannakhet, and Salavan, could have led to insufficient soil moisture during the critical growth stages of key crops, including rice. Sufficient irrigation is particularly important for crops like rice, which require a lot of water. If water is not handled properly, it could increase the likelihood of reduced yields during the third quarter harvest and exacerbate food insecurity in already vulnerable communities.

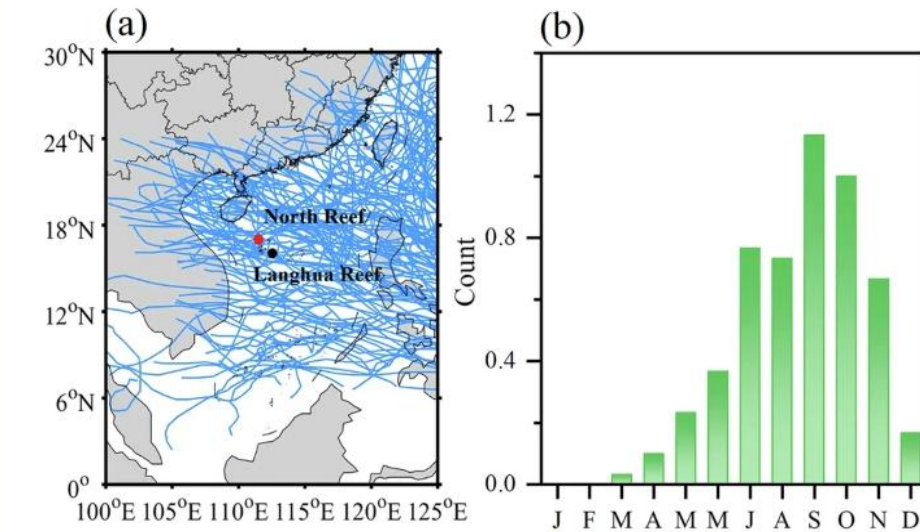
On the other hand, northern and central areas experienced above-average rainfall, raising the risks of flood. These conditions point to a two-fold challenge, potential production shortfalls in the south due to insufficient rainfall, and infrastructure or harvest disruptions in the north from excessive wetness.



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Short-Term Preparedness Recommendations

Figure 15: Site location and local TC frequency⁸



a Location of North Reef (Red dot, 17°05', 111°30'E) and Langhua Reef (black dot, 16°33'N, 112°33'E). Blue lines are TC pathways during 1991–2020 AD. **b** Monthly mean TC frequency based on TC best track data from 1991 to 2020 AD.

Climatological patterns indicate that systems most likely to affect Lao PDR typically form in the South China Sea, making landfall in Viet Nam before moving inland. Tropical cyclones in the East Vietnam Sea peak in September and may persist along Viet Nam's central coast through October and November⁷. Additionally, Vietnam's typhoon season in this region runs from June to November, while the period with the highest risk of inland impacts on Lao PDR is September, when typhoons making landfall in north-central Vietnam are most frequent and when the storms maintain significant humidity while passing through the Annamite Mountains⁸. Therefore, considering the seasonal peaks, rainfall outlook, and late monsoon environment described in the report, Lao PDR should expect more frequent storm-related rainfall pulses through October, particularly in the northern-eastern-central regions exposed to moisture surges over Vietnam and in mountainous regions.

In the short term, preparedness efforts should focus on balancing the dual risks of flood and Insufficient water supply across different parts of the country. In the northern and central regions, preparations must be made for flash flooding and related infrastructure failure following the next tropical storms. In the southern regions, where rainfall shortages persist, close monitoring of irrigation systems and river inflow with Mekong is also crucial to maintain crop growth. At the individual household level, farmers should adopt flexible planting schedules and prepare accordingly to minimize yield losses. At the national level, better integration of climate forecasts into agricultural advisories and early warning systems will support timely responses.

7. Pham, T. T. H., Nguyen, B. T., Nguyen, V. H., & Mai, V. K. (2024). Distribution characteristics of tropical cyclones affecting the Vietnam region during 1992–2022. *Vietnam Journal of Marine Science and Technology*, 24(4), 335–348

8. Zhao, N., Yan, H., Shi, G. et al. (2025) Prehistoric shifts in tropical cyclone season in the South China sea: evidence from daily resolution records of giant clam shells. *npj Clim Atmos Sci* 8, 218.

FOR FURTHER INFORMATION

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