

FLOOD & DROUGHT BULLETIN

JULY 2026



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INTRODUCTION

The Flood and Drought bulletin is a monthly analysis of rainfall in Ghana prepared and released by the Ghana Meteorological Agency (GMet). The bulletin provides an authoritative and scientific understanding of rainfall variability which is essential for accurate hydrological modeling, climate change assessments, and effective water resource planning to mitigate risks associated with extreme events like droughts and floods.

Among other services and products, the Flood and Drought bulletin complements the objectives of GMet in line with the National Framework for Climate Services (NFCS) to improve co-production, tailoring, delivery and use of science-based climate predictions and services focused on the five pillars of the Global Framework for Climate Services (GFCS) by the World Meteorological Organization (WMO): agriculture and food security, disaster risk reduction, energy, health and water.

The analysis in the Flood and Drought bulletin is based on the Standardized Precipitation Index (SPI) developed by McKee et al. (1993) for the purpose of defining and monitoring drought. Drought is an insidious natural hazard that results from lower levels of precipitation than what is considered normal. When this phenomenon extends over a season or a longer period of time, water becomes increasingly insufficient to meet the demands of human activities and the environment. Drought must be considered a relative, rather than absolute, condition. Drought means different things to different users such as water managers, agricultural producers, hydroelectric power plant operators and wildlife biologists. Even within sectors, there are many different perspectives of drought because impacts may differ markedly. Droughts are commonly classified by type as meteorological, agricultural and hydrological, and differ from one another in intensity, duration and spatial coverage (WMO, 2012).

THE STANDARDIZED PRECIPITATION INDEX (SPI)

SPI indicator, which was developed by McKee et al. (1993), and described in detail by Edwards and McKee (1997), measures precipitation anomalies at a given location, based on a comparison of observed total precipitation amounts for an accumulation period of interest (e.g. 1, 3, 12, 48 months), with the long-term historic rainfall record for that period. This indicator measures anomalies of accumulated precipitation during a given period. In calculating SPI, precipitation is the only required input parameter (McKee and others, 1993, 1995). The SPI calculation for any location is based on the long-term precipitation record for a desired period. This long-term record is fitted to a probability distribution, which is then transformed into a normal distribution so that the mean SPI for the location and desired period is zero (Edwards and McKee, 1997).

The SPI is designed to quantify the precipitation deficit for multiple timescales and can be calculated from 1 month up to 72 months. Statistically, 1–24 months is the best practical range of

application (Guttman, 1994, 1999). The Flood and Drought bulletin of Ghana considers only the 1-month, 3-month, 6-month and 12-month SPI due to limited availability of data.

1-month SPI: The 1-month SPI compares the precipitation of a specific month with the precipitation totals from the same month for all the years included in the historical record.

3-month SPI: The 3-month SPI provides a comparison of the precipitation over a specific 3 consecutive month period with the precipitation totals from the same 3-month period for all the years included in the historical record.

6-month SPI: The 6-month SPI compares the precipitation for a specific 6 consecutive months with the same 6-month period over the historical record.

12-month SPI: The 12-month SPI is a comparison of the precipitation for 12 consecutive months with that recorded in the same 12 months in all previous years of available data.

These timescales reflect the impact of drought on the availability of the different water resources. Meteorological and soil moisture conditions (agriculture) respond to precipitation anomalies on relatively short timescales, for example 1 to 3 months (SPI-1 to SPI-3), whereas streamflow, reservoirs, and groundwater respond to longer-term precipitation anomalies, for example 3 months to 12 months (SPI-3 to SPI-12) or longer (EDO, 2020). A real strength of the SPI is its ability to be calculated for many timescales, which makes it possible to deal with many of the drought types described above. The ability to compute the SPI on multiple timescales allows for temporal flexibility in the evaluation of precipitation conditions in relation to water supply.

In the Flood and Drought bulletin, the SPI values for any given location and accumulation period, are classified into nine different precipitation regimes (from dry to wet), as shown in Table 1. As can be seen, increasingly severe rainfall deficits (i.e., meteorological droughts) are indicated as SPI decreases below -0.5, while increasingly severe excess rainfall is indicated as SPI increases above 0.5.

<i>ANOMALY</i>	<i>RANGE OF SPI VALUES</i>	<i>PRECIPITATION REGIME</i>	<i>COLOUR</i>
Negative	Min $\leq$ SPI $\leq$ -2.0	Extreme dry	
	-2.0 $<$ SPI $\leq$ -1.5	Severe dry	
	-1.5 $<$ SPI $\leq$ -1.0	Moderate dry	
	-1.0 $<$ SPI $\leq$ -0.5	Mild dry	
None	-0.5 $<$ SPI $\leq$ 0.5	Normal precipitation	
Positive	0.5 $<$ SPI $\leq$ 1.0	Mild wet	
	1.0 $<$ SPI $\leq$ 1.5	Moderate wet	
	1.5 $<$ SPI $\leq$ 2.0	Severe wet	
	2.0 $<$ SPI $\leq$ Max	Extreme wet	

Table 1: SPI classification scheme used in the Flood and Drought bulletin

SPI ANALYSIS FOR JULY 2026

The SPI analysis for rainfall in July 2026 has been generated in multiple timescales of 1-month (July 2026), 3-month (May 2026 – July 2026), 6-month (February 2026 - July 2026) and 12-month (August 2025 – July 2026). The maps generated depict the severity (positive or negative) of rainfall anomalies under review.

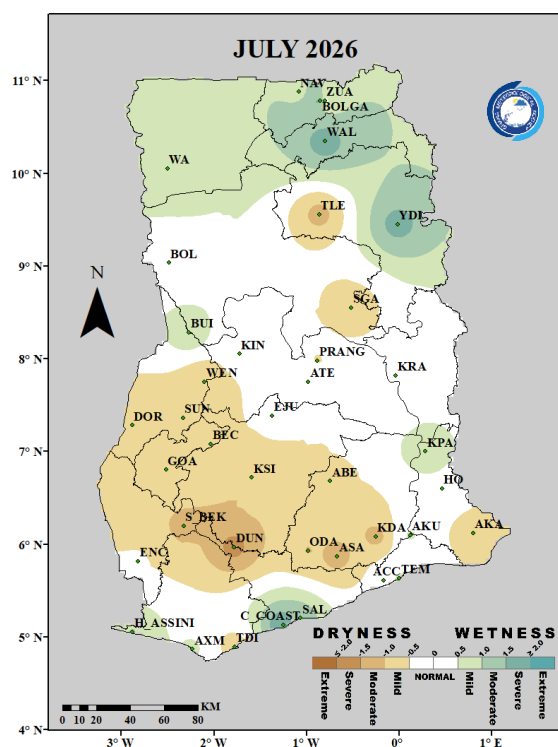


Fig. 1(a): 1-Month SPI (for meteorological drought): July 2026

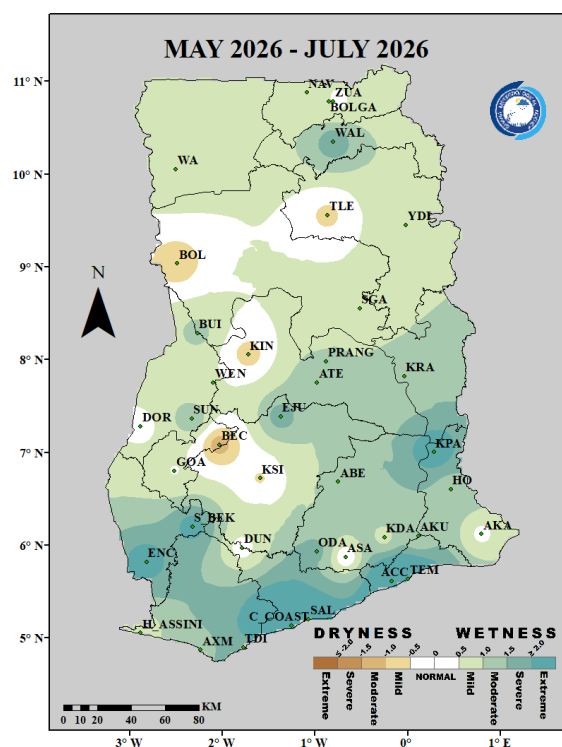


Fig. 1(b): 3-Month SPI (for agricultural drought): May 2026 – July 2026

1-Month SPI (July 2026).

The 1-month SPI for July 2026, illustrated in Fig. 1(a), indicates that normal to dry conditions prevailed across much of the country. In the Savannah zone, mild wet conditions were observed in Wa, Navrongo, Zuarungu and Bolgatanga while Walewale and Yendi depicted moderate wet conditions with other areas experiencing normal conditions. A pocket of moderate dry condition was observed around Tamale. Within the Transition zone, conditions were predominantly normal, with mild wet conditions seen around Bui. Mild dry conditions were evident around Wenchi, Prang, Sunyani and Salaga. The Forest zone generally experienced normal to mild dry conditions, particularly around Dormaa, Abetifi, Bechem, Goaso, Kumasi, with Sefwi Bekwai, Dunkwa, Asamankese and Koforidua depicting moderate dryness. Isolated mild wet conditions occurred around Kpando. In the Coastal zone, conditions were generally normal along the western coast, with severe wetness seen in Cape Coast and Saltpond, while Takoradi, showed mild dryness. The

eastern coastal sector, particularly Akatsi experienced mild dryness with all other areas remaining normal.

3-Month SPI (May 2026 – July 2026)

The 3-month SPI for May to July 2026, illustrated in Fig. 1(b), indicates predominantly wet conditions in most parts of the country. Across the Savannah zone, mild wet conditions were observed around Wa, Navrongo, Zuarungu, Bolgatanga and Yendi, while Walewale experienced moderate to severe wet conditions. However, mild dry conditions were observed around Tamale and Bole. Within the Transition zone, mild to moderate wet conditions prevailed around Bui, Sunyani, Prang, Atebubu and Kete Krachi, while mild dry condition was observed around Kintampo. The Forest zone generally experienced mild to severe wet conditions, particularly around Enchi, Sefwi Bekwai, and Ejura while Kpando experienced extreme Wetness. However, pockets of mild to moderate dry conditions were observed around Bechem and Kumasi, while Dormaa and Goaso experienced generally normal conditions. In the Coastal zone, moderate to severe wet conditions prevailed across most areas, particularly around Cape Coast, Saltpond, and Accra.

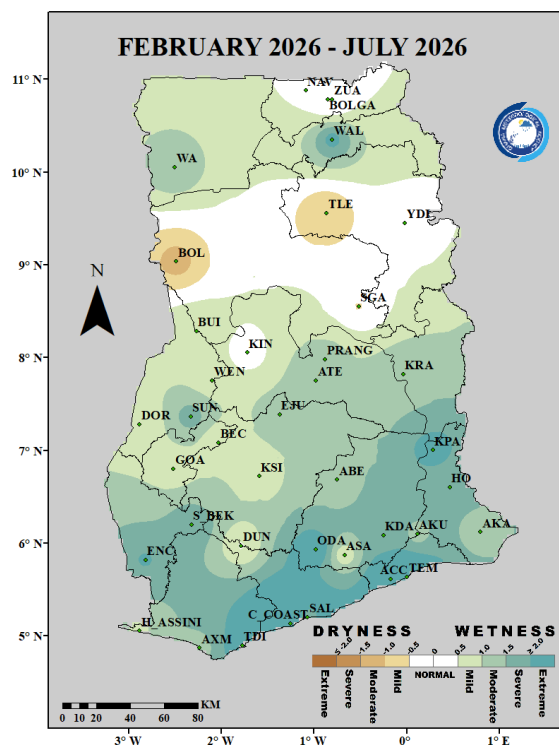


Fig. 2(a): 6-Month SPI (for hydrological drought): February 2026 - July 2026

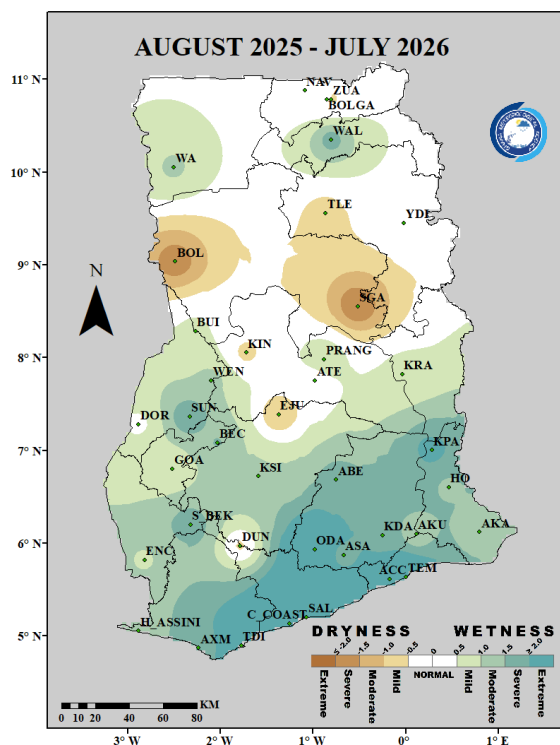


Fig. 2(b): 12-Month SPI (for streamflow and lake storage drought): August 2025 – July 2026

6-Month SPI (February 2026 - July 2026)

The 6-month SPI for February to July 2026, illustrated in Fig. 2(a), indicates predominantly wet conditions across much of the country. In the Savannah zone, mild conditions were observed in most areas with Wa and Walewale, depicting moderate to severe wet conditions. Mild to moderate dry conditions were observed around Tamale and Bole. Within the Transition zone, mild wet

conditions prevailed around Bui, Wenchi, Sunyani, Prang, Atebubu and Kete Krachi, while Sunyani recorded severe wetness with generally normal conditions seen in Kintampo. The Forest zone was predominantly wet, with moderate to severe wet conditions observed around Sefwi Bekwai, Enchi, Akim Oda and Kpando. In the Coastal zone, moderate to severe wet conditions prevailed across Takoradi, Cape Coast, Saltpond, Accra and Tema.

12-Month SPI (August 2025 - July 2026)

The 12-month SPI for August 2025 to July 2026, illustrated in Fig. 2(b), indicates varied conditions across the country, with predominantly wet conditions over the southern sector and pockets of dry conditions across parts of the north. Across the Savannah zone, moderate wet conditions were observed around Wa and Walewale. In contrast, moderate to severe dry conditions were observed around Bole, while Tamale experienced mild dry condition. Within the Transition zone, moderate to severe dry conditions were evident around Salaga, Kintampo and Ejura. Bui, Wenchi, Prang, Atebubu and Kete Krachi recorded generally normal to mild wet conditions. The Forest zone was predominantly wet, with moderate to severe wet conditions observed around Sefwi Bekwai, Abetifi, Akim Oda and Kpando. However, a pocket of mild dry condition was observed around Dunkwa. In the Coastal zone, moderate to severe wet conditions prevailed particularly around Axim, Takoradi, Cape Coast, Saltpond, Accra and Tema.

STATIONS

Station	Abbreviation	Station	Abbreviation	Station	Abbreviation
Abetifi	ABE	Enchi	ENC	Sunyani	SUN
Accra	ACC	Goaso	GOA	Takoradi	TDI
Akatsi	AKA	Half Assini	H ASSINI	Tamale	TLE
Akim Oda	ODA	Ho	HO	Tema	TEM
Akuse	AKU	Kade	KADE	Wa	WA
Asamankese	ASA	Kete Krachi	KRA	Walewale	WAL
Atebubu	ATE	Kintampo	KIN	Wenchi	WEN
Axim	AXM	Koforidua	KDA	Yendi	YDI
Bechem	BEC	Kpandu	KPA	Zuarungu	ZUA
Bole	BOL	Kumasi	KSI		
Bolga	BOLGA	Mim	MIM		
Bui	BUI	Navrongo	NAV		
Cape Coast	C_COAST	Prang	PRANG		
Dormaa	DOR	Salaga	SGA		
Dunkwa	DUN	Saltpond	SAL		
Ejura	EJU	Sefwi Bekwai	BEK		



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