



# GHANA METEOROLOGICAL AGENCY

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## GHANA METEOROLOGICAL AGENCY'S SEASONAL RAINFALL FORECAST FOR THE MINOR RAINY SEASON: SEPTEMBER-NOVEMBER (SON) FOR, 2023.

Ref. No: Met.

***Date Issued: 18<sup>th</sup> August, 2023***

### ***Summary***

*In the 2023 Minor Season, the Rains are expected to have a normal onset in most inland places in the southern part of the country with the coastal areas likely to have an early onset. Early to normal cessation is predicted for coastal areas in the country, whereas the forested areas will have a normal to late end of the season. Mostly, short dry spells are expected to characterize the early parts of the season whilst getting to the end of the season there will be normal to longer dry spells for most places in the country. The SON season will be mostly above normal for the entire country. At the end of these forecasts, recommendations are made to the various stakeholders to help manage risks and take advantage of the season.*

### **2023 SON (MINOR) SEASONAL FORECAST**

Observed atmospheric conditions over land and oceans coupled with outputs from the World Meteorological Organization (WMO) recommended Leading forecast Centers like International Research Institute for Climate and Society (IRI), Climate Prediction Centre (NCEP-CPC, NOAA), the European Centre for Medium-Range Weather Forecast (ECMWF), UK Met Office, Meteo France, North American Multi-Model Ensemble (NMME), North Carolina Institute for Climate Studies together with the output of the Agency's model with local climatology experience, do suggest that the minor rainy season over the country is expected to be as follows:

## Cumulative and Probability Forecast Maps for 2023 SON Season

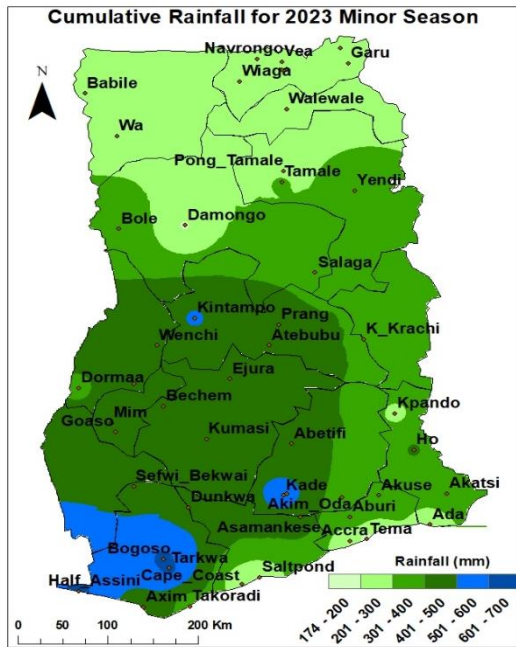


Fig. 5 Seasonal rainfall total for the 2023 minor season

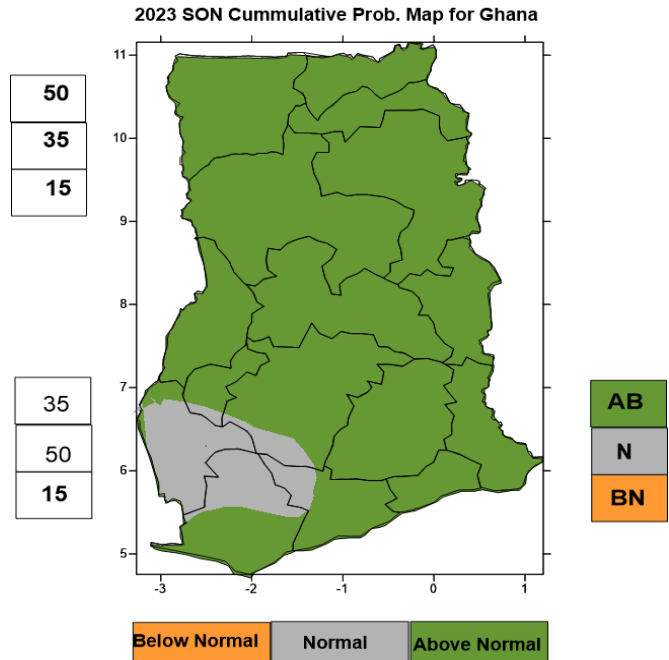


Fig. 6 Prob. Forecast for the SON rainfall total for the 2023 minor season

**Table 3. Forecast of Total Rainfall Amount for September – November (SON) Season**

ZONE	LTM (mm)	SON (mm)
East Coast	125 – 210	180 – 350
West Coast	270 – 450	350 -- 600
Forest	280 – 470	300 – 650
Transition	300 – 500	360 – 520

## Onset Dates and Probability Forecast Maps for 2023 SON Season

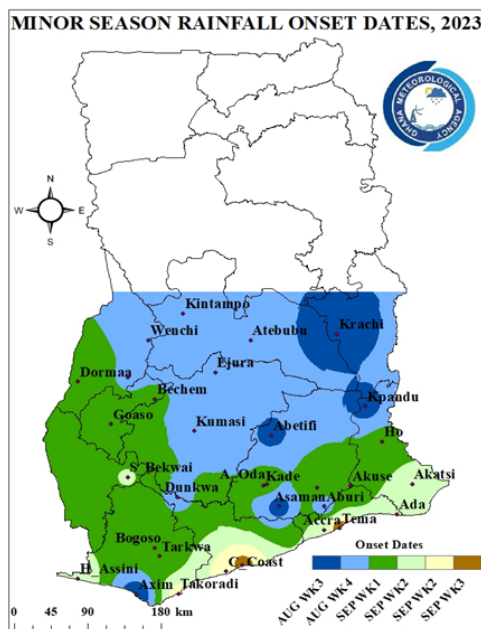


Fig. 1 Onset dates for the 2023 minor season

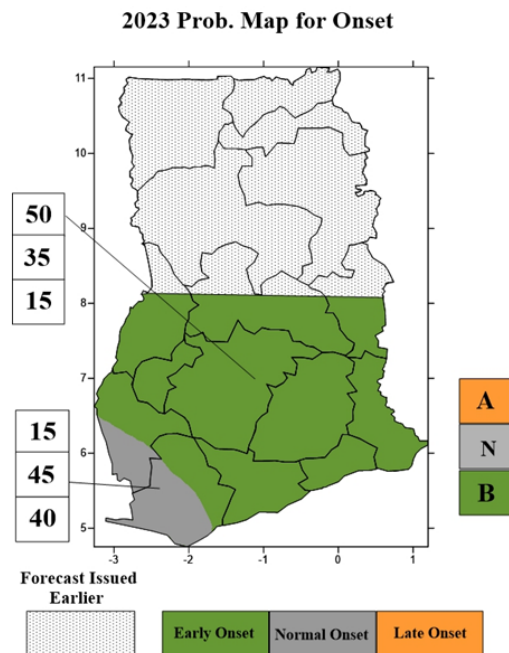


Fig. 2 Prob. forecast for Onset dates for the 2023 minor season

**Table 1. Long Term Mean (Normal) of Onset and Onset Dates for 2023 Minor Rainfall Season**

ZONE	Normal Onset Dates (LTM)	Forecasted Onset Dates
East Coast	1 <sup>st</sup> Week of Sept. – 3 <sup>rd</sup> Week of Sept	4 <sup>th</sup> Week of Aug - 2 <sup>nd</sup> Week of Sept.
West Coast	4 <sup>th</sup> Week of Aug. – 2 <sup>nd</sup> Week of Sept	3 <sup>rd</sup> Week of Aug.– 2 <sup>nd</sup> Week of Sept.
Forest Zone	3 <sup>rd</sup> Week of Aug – 1 <sup>st</sup> Week of Sept	2 <sup>nd</sup> Week of Aug – 1 <sup>st</sup> Week of Sept
Transition Zone	3 <sup>rd</sup> Week of Aug – 1 <sup>st</sup> Week of Sept	3 <sup>rd</sup> Week of Aug – 4 <sup>th</sup> Week of Aug.

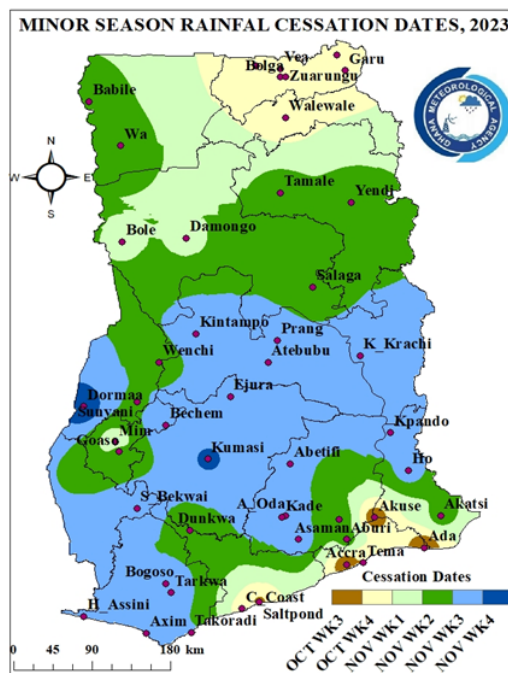
**Cessation Dates and Probability Forecast Maps for 2023 SON Season**

Fig. 3 cessation dates for the 2023 minor season

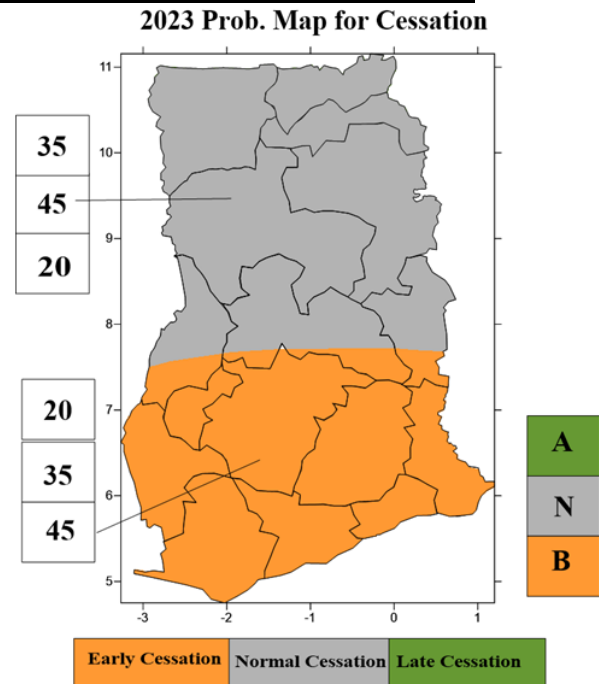


Fig. 4 Prob. forecast for cessation dates for the 2023 season

**Table 2. Long Term Mean of Cessation and Cessation Dates for 2023 Minor Rainfall Season**

ZONE	Normal Cessation dates (LTM)	Forecasted Cessation dates
East Coast	3 <sup>rd</sup> Week of Oct – 4 <sup>th</sup> Week of Oct.	1 <sup>st</sup> Week of Oct – 3 <sup>rd</sup> Week of Oct.
West Coast	4 <sup>th</sup> Week of Oct – 4 <sup>th</sup> Week of Nov	1 <sup>st</sup> Week of Nov – 3 <sup>rd</sup> Week of Nov.
Forest Zone	1 <sup>st</sup> Week of Nov – 1 <sup>st</sup> Week of Dec.	1 <sup>st</sup> Week of Nov – 3 <sup>rd</sup> Week of Nov.
Transition Zone	1 <sup>st</sup> Week of Nov – 3 <sup>rd</sup> Week of Nov	1 <sup>st</sup> Week of Nov – 3 <sup>rd</sup> Week of Nov

**Note:** Normal (Long-term mean (LTM)) is the 30-year average condition of the given Zone from 1991-2020

## Early Dry Spell (EDS) and EDS Probability Forecast Maps for 2023 SON Season

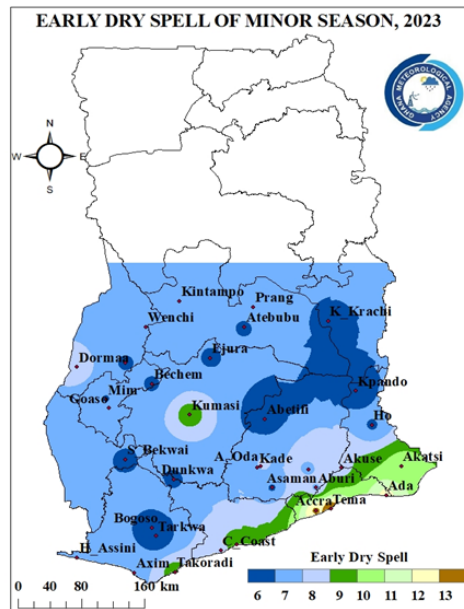


Fig. 7 Early Dry Spell  
for the 2023 minor season

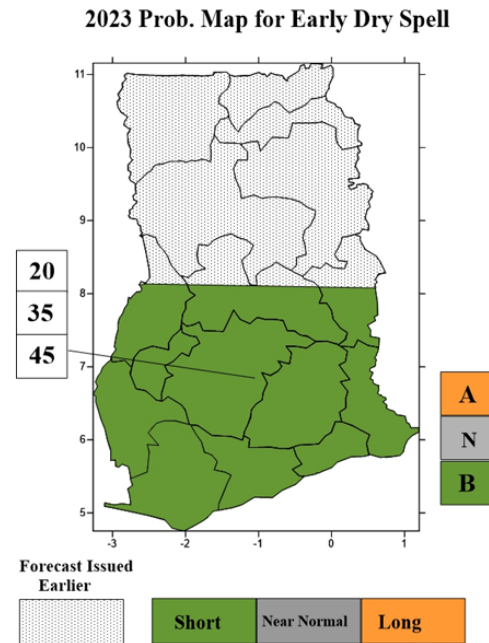


Fig. 8 Prob. Forecast for the Early Dry Spell  
for the 2023 minor season

NB: Early Dry Spell is defined as the longest successive dry days during the first 50 days after the start of the season.

**Table 4. Forecast of Early Dry Spell and its LTM for SON Season**

ZONE	LTM of Early Dry Spell(days)	Forecast of Early Dry Spell(days)
East Coast	16	9-14
West Coast	9	6-9
Forest Zone	7	5-8
Transition Zone	6	5-8

## Late Dry Spell (LDS) and LDS Probability Forecast Maps for 2023 SON Season

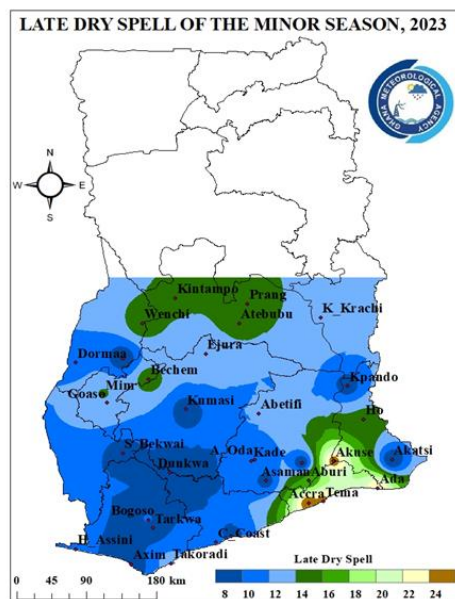


Fig. 9 Late Dry Spell  
for the 2023 minor season

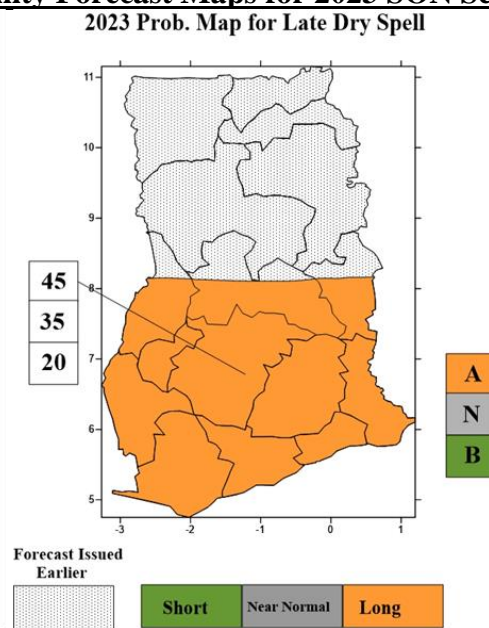


Fig. 10 Prob. Forecast for the Late Dry Spell  
for the 2023 minor season

**NB: Late Dry Spell is defined as the longest successive dry days from the 51<sup>st</sup> day after the start of the season to the end of the season.**

**Table 5. Forecast of Late Dry Spell and its LTM for SON Season**

ZONE	Normal of Late Spell(days)	Forecast of Late Spell(days)
West Coast	10	10-13
Forest Zone	10	4-12
Transition Zone	17	13-15

\*\*\*The East Coast mostly does not have the length of season-spanning beyond 50 days.

**Table 4. Forecast of Length of Season and LTM for September – November (SON) Season**

ZONE	LTM (Days)	SON (Days)
East Coast	30-45	28 - 50
West Coast	55-80	63 - 82
Forest	65-100	60 - 100
Transition	65-95	65 - 85

## **SUMMARY OF SON SEASONAL FORECAST, 2023**

### **1. Cumulative Rainfall Distribution**

#### **a. Southern Ghana Rainfall Season**

The distribution of SON seasonal cumulative rainfall, both in time and space is expected to be above normal for most places in the country, except for some areas in the south western and the transition portions of the country where the rains is expected to be normal. Most of the rains will be in the form of light to moderate rain but spread over several hours, with some few heavy incidences to be recorded.

#### **b. Update of Northern Ghana Rainfall Season**

Many places in the North will experience mostly above normal rainfall. (*Table 3 for normal rainfall amount*).

### **2. Onset**

Early to normal Onset dates are expected over most places in the southern areas of Ghana, whilst some places in the south western forest areas as well as the transition areas will experience a normal onset for this SON season. (*See Table 1 for Normal Onset dates*)

### **3. Dry Spells**

At the beginning of the minor season, short to Normal dry spells are expected while towards the end of the season, longer to normal dry spells are expected over most places in the southern regions of Ghana.

### **4. Cessation**

The 2023 rainfall season, for coastal towns and its surrounding inland areas, is likely to end earlier as compared to their Normal dates (*See Table 2 for Normal end/cessation dates*). It is expected that most places in the forest areas will have their season ending on the normal dates.

### **5. Length of the Season**

The 2023 SON seasonal length is expected to be Normal to shorter days (between 32-98 days) (*See Table 4 for normal seasonal length*) for most places in south of Ghana.

## **POTENTIAL IMPACTS AND RECOMMENDATIONS (ADVISORIES)**

*At the peak of the SON season, there is a high probability of a few incidences of heavy rains accompanied by strong winds and lightning which could lead to localized floods. There is also a high probability of experiencing shorter to normal dry spells during the beginning of the season and relatively long dry spells towards the end of the season. The minor Season, characteristically, has a shorter length of season and this year is no exception. Therefore, to mitigate any risk that might occasion to people, animals, crops, and material goods, it is recommended that:*

#### **a. Disaster Management Sector**

- i. **In the face of flood risk: (There is a high chance of occurrence this year, 2023, in the Northern half of Ghana due to the impact of the rains and the likelihood of the spillage of the Bagre dam in Burkina Faso)**
  - a. Establish and operationalize integrated monitoring and early warning systems for flood risk.
  - b. Exchanges between the agencies in charge of flood monitoring, disaster risk reduction, and humanitarian aid should be escalated.
  - c. Sensitize the populace of the exposed areas about the impending danger.
  - d. Settlers in flood-prone areas should be relocated. (Domestic / Farming / Commercial places)

**b. Transport and Public Safety**

- i. Flash Floods may occur especially in the month of October in places like low laying areas of Accra and Kumasi during the September to November period. This may lead to some roads becoming impassable when it rains. Road users should be mindful when plying those roads. Drivers should resist driving through flood waters.

**c. National/Local Authorities**

*Municipal Authorities in areas where deficit rainfall is expected are advised to;*

- i. Ensure the Control/maintenance of dams/dug outs for irrigation as well as for livestock.
- ii. Ensure enough food storage.
- iii. Collaborate with Meteorological Agency, National Disaster Management Organization (NADMO) and Health Services to disseminate warnings and create awareness on climate-related diseases.
- iv. Monitor the quality of water and, sanitation in towns and villages.
- v. Promote irrigation and ensure rational management of water resources for crops and other uses.

**d. General Public**

- i. Must be mindful of the impact of deficit rainfall on dams and its attendant challenges to the energy sector. The general public is therefore advised to use energy prudently.
- ii. Avoid wastage of water to prevent water rationing.
- iii. Wear protective clothing to avoid any sickness arising from the relatively cool conditions that may prevail.

**e. Health Sector – Facing the risk of diseases**

*In places where the rainy season is wetter, there are higher levels of the risk of Cholera, malaria, dengue fever, bilharzia, and diarrhoea. To mitigate the development of germs and reduce the risk of diseases, it is strongly recommended that:*

- i. Public Education should be intensified through national platforms on disaster risk reduction through the radio, TV, information vans, etc.
- ii. Dissemination of bulletins on climate-sensitive diseases,
- iii. Intensify collaboration with stakeholders such as the meteorological, hydrological, and the disaster organizations



- iv. Prevent diseases by vaccinating people and animals.

**f. Agriculture, Food Security and Livestock Sectors**

*For areas where it is likely to observe normal to deficit (below normal) rainfall, late season start dates, normal to longer dry spells and deficit river/dam flows, it is recommended that farmers, breeders, authorities, projects and NGOs:*

- i. Focus on short maturation crops, especially those in the eastern coastal areas, since the season is shorter.
- ii. Invest more in the seeds of improved varieties. They are also advised to practise the development of yield enhancement techniques for both food crops and cash crops;
- iii. Be mindful of the decisions and choices they make since there is the likelihood of moisture deficit towards the end of the season coupled with the fact that the season is shorter.
- iv. Diversify income-generating activities and promote agricultural practices such as no-tillage, mulching, market gardening and agroforestry to offset the production deficit that could affect areas exposed to dry spells at the tail end of the season.
- v. Adopt farming techniques/practises for the conservation of soil water
- vi. Liaise with national Meteorological, Agricultural and Hydrological Authorities for information and expert advice;
- vii. Device plans to protect farm produce due to the likelihood of rains during harvest time which could lead to post-harvest losses.

**NB. This outlook should be used with the 24-hour and regular updates issued by the Agency.**

For further enquiries, clarification, information or assistance  
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