



GHANA METEOROLOGICAL AGENCY

P. O. Box LG 87, Legon-Accra, Ghana
Tel: +233-030-7010019
Fax: +233-0302-701 2519

Digital Address: GA-485-3581
E-mail: gmet@meteo.gov.gh
Website: www.meteo.gov.gh



GHANA METEOROLOGICAL AGENCY'S SEASONAL FORECAST FOR THE NORTHERN SECTOR AND UPDATE FOR SOUTHERN SECTOR OF GHANA: MAY JUNE JULY (MJJ), JUNE JULY AUGUST (JJA) AND JULY AUGUST SEPTEMBER (JAS) FOR GHANA, 2024.

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Summary

The 2024 rainy season (agro-climatic characteristics) of the northern part of Ghana indicates a higher likelihood of late onset, with significant probability of normal to long early dry spells, long to normal late dry spells, and late cessation. Normal to above – normal total rainfall is expected in most parts of the country except for some parts of the forest zone which will be below normal to normal during the MJJ season. During the JJA season, the extreme Northern sector of the country is forecasted to be above normal to normal rainfall and normal to below – normal for the rest of the country. For JAS season, above normal to normal rainfall is expected over the extreme northern part of the country and normal to above for the rest of the country.

2024 SEASONAL FORECAST

Observed atmospheric conditions over land and oceans and outputs from leading world forecast centers like the International Research Institute for Climate and Society (IRI), Climate Prediction Centre (NCEP-CPC) of NOAA, the European Centre for Medium-Range Weather Forecast (ECMWF), UK Met Office, Copernicus Climate Change Service (C3S) and Meteo France.

Consensus from Continental Centre ACMAD, Regional Climate Centre (RCC) during the Agro-Hydro-Climate characteristics of the PRESASS forum, together with the expertise and downscaled models output from the Ghana Meteorological Agency do suggest that the rainy season over the country is expected to be as follows:

2024 Forecast Maps of Onset Dates for the Season

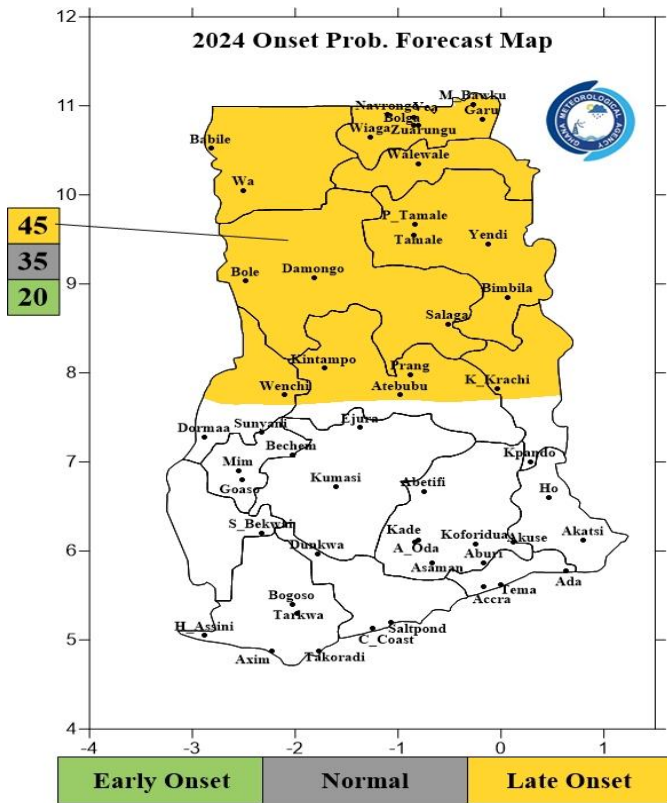


Fig.1 Onset Dates Probability Map, 2024

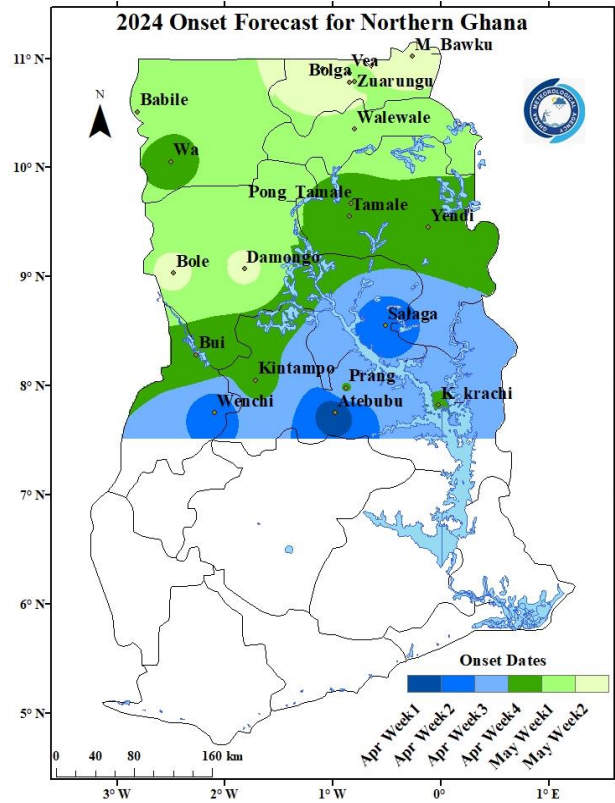


Fig.2 Onset Dates Forecast Map, 2024

Table 1. Onset Dates for 2024 Season & Long-Term Mean (Normal) of the Onset Dates

| ZONE | LTM Onset Dates | 2024 Onset Dates |
|-----------------|---|---|
| Transition Zone | 4 th Week of March – 2 nd Week of April | 1 st Week of April – 3 rd Week of April |
| North | 2 nd Week of April – 4 th Week of April | 2 nd Week of April – 1 st Week of May |
| Upper West | 3 rd Week of April – 1 st Week of May | 4 th Week of April – 2 nd Week of May |
| Upper East | 4 th Week of April – 2 nd Week of May | 1 st Week of May – 3 rd Week of May |

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

Cumulative Rainfall Forecast Map of the MJJ Season, 2024

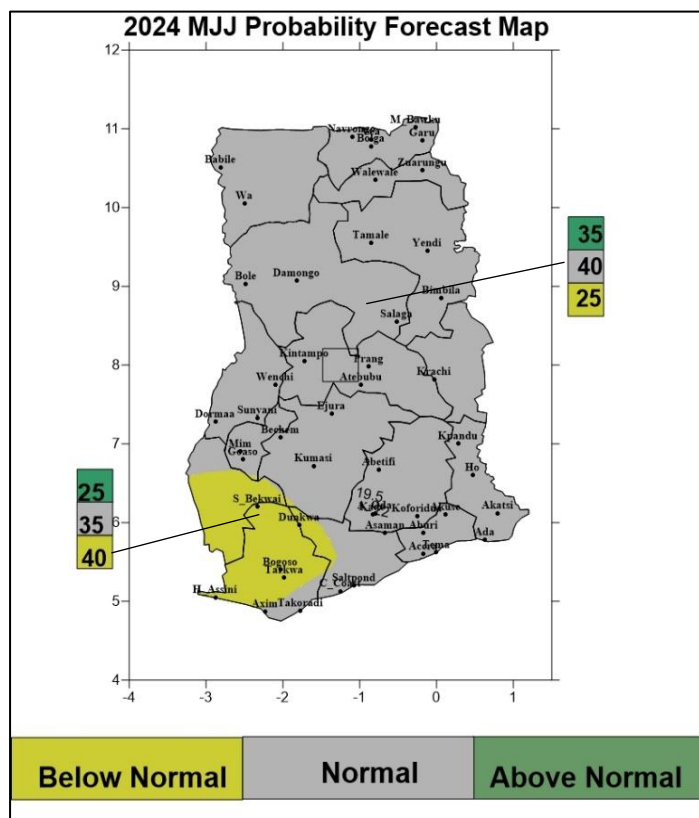


Fig.3 MJJ Rainfall Probability Map, 2024

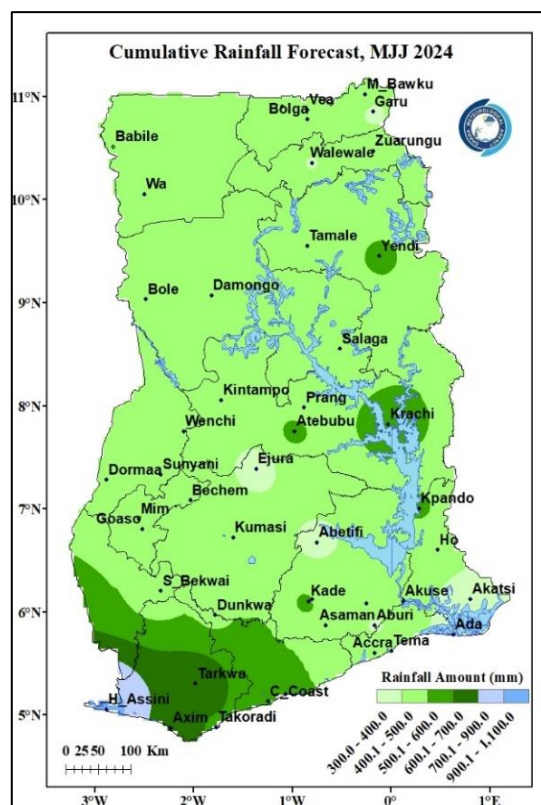


Fig.4 MJJ Rainfall Forecast Map, 2024

Table 2. Expected Rainfall Amount for May – July (MJJ) Season, 2024

| ZONE | LTM (mm) | 2024 MJJ (mm) |
|------------|------------|---------------|
| East Coast | 286 -569 | 375 – 550 |
| West Coast | 504 - 1055 | 450 – 1005 |
| Forest | 360 – 790 | 348 – 696 |
| Transition | 386 - 601 | 414 – 545 |
| North | 358 – 500 | 399 – 515 |
| Upper East | 345 – 460 | 383 – 473 |
| Upper West | 387 - 483 | 401 – 431 |

Cumulative Rainfall Forecast Map of the JJA Season, 2024

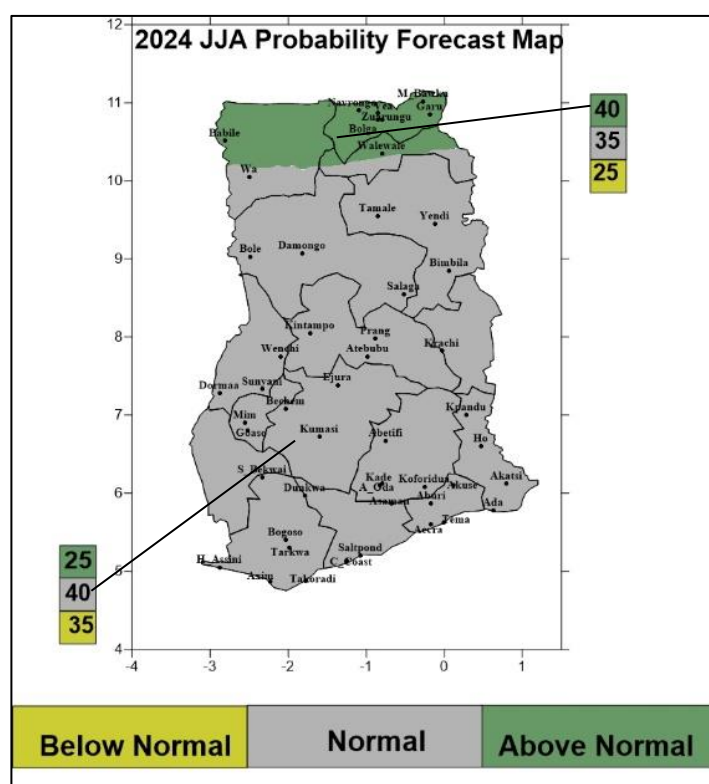


Fig.5 JJA Rainfall Probability Map, 2024

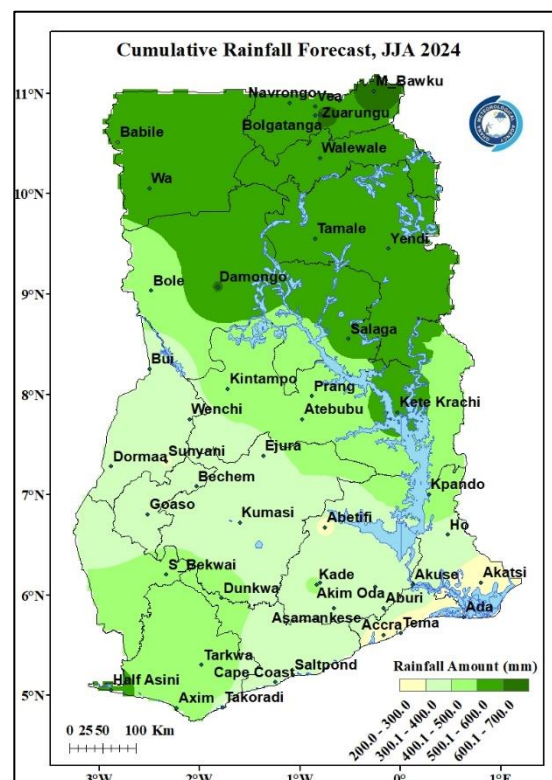


Fig.6 JJA Rainfall Forecast Map, 2024

Table 3. Expected Rainfall Amount for June – August (JJA) Season, 2024

| ZONE | LTM (mm) | 2024 JJA (mm) |
|------------|-----------|---------------|
| East Coast | 176 – 357 | 216 – 310 |
| West Coast | 369 – 742 | 388 – 537 |
| Forest | 255 – 618 | 287 – 494 |
| Transition | 292 – 702 | 303 – 540 |
| North | 394 – 642 | 455 – 604 |
| Upper East | 497 – 643 | 548 – 672 |
| Upper West | 458 - 546 | 490 - 600 |

Cumulative Rainfall Forecast Map for the JAS Season, 2024

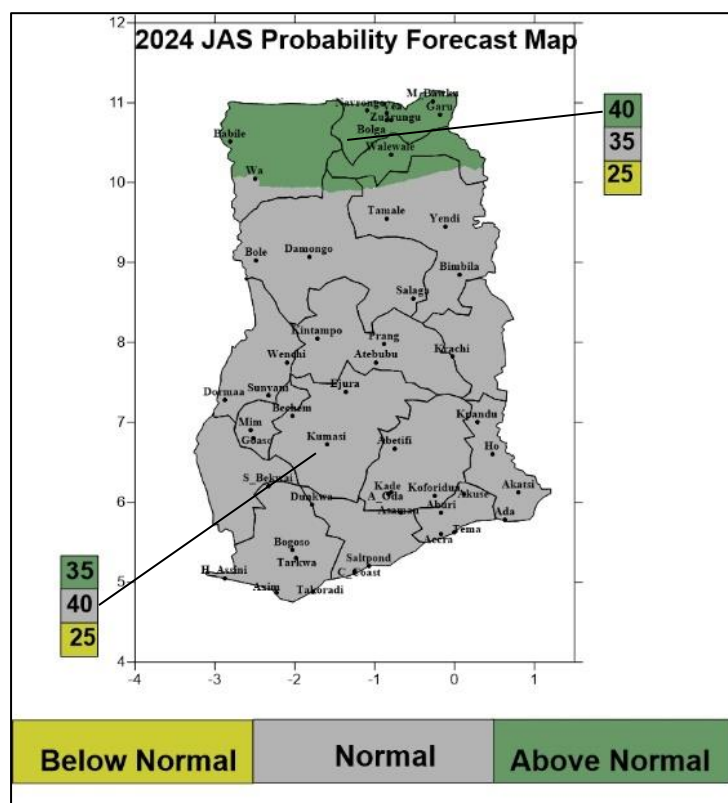


Fig.7 JAS Rainfall Probability Map, 2024

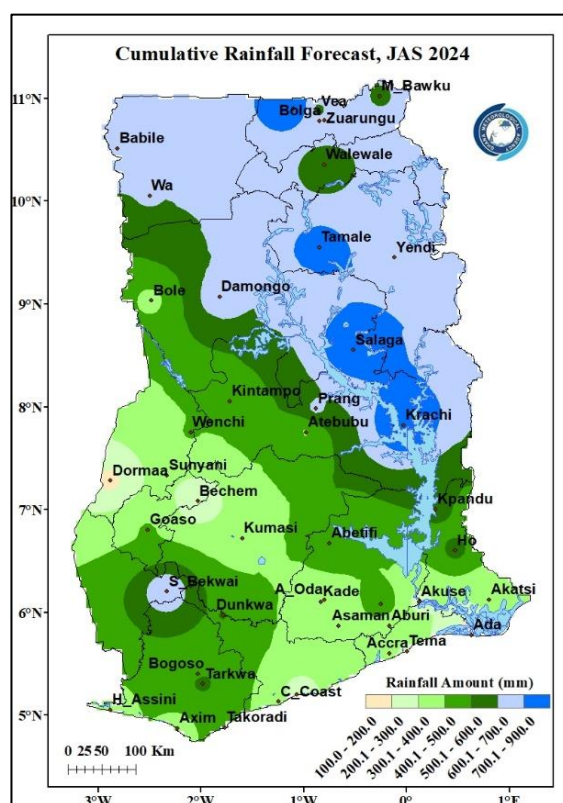


Fig.8 JAS Rainfall Forecast Map, 2024

Table 4. Expected Rainfall Amount for July – September (JAS) Season, 2024

| ZONE | LTM (mm) | 2024 JAS (mm) |
|------------|-----------|---------------|
| East Coast | 68 – 213 | 105 – 400 |
| West Coast | 143 – 338 | 250 – 357 |
| Forest | 192 – 831 | 180 – 715 |
| Transition | 305 – 697 | 304 – 716 |
| North | 465 – 710 | 500 – 792 |
| Upper East | 527 – 674 | 477 – 854 |
| Upper West | 512 – 596 | 550 – 620 |

Early (1st) Dry Spell Forecast Map, 2024

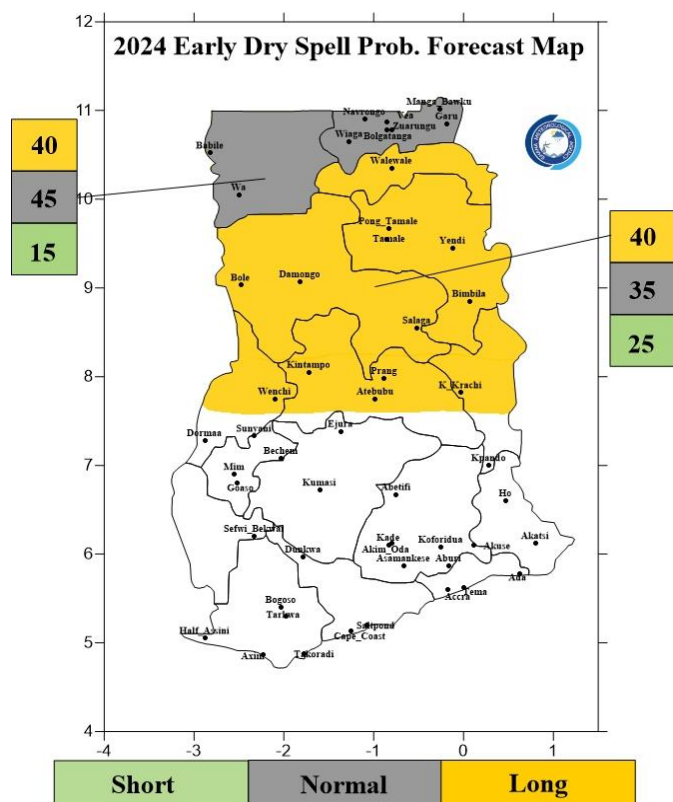


Fig.9 Early (1st) Dry Spell Probability Map, 2024

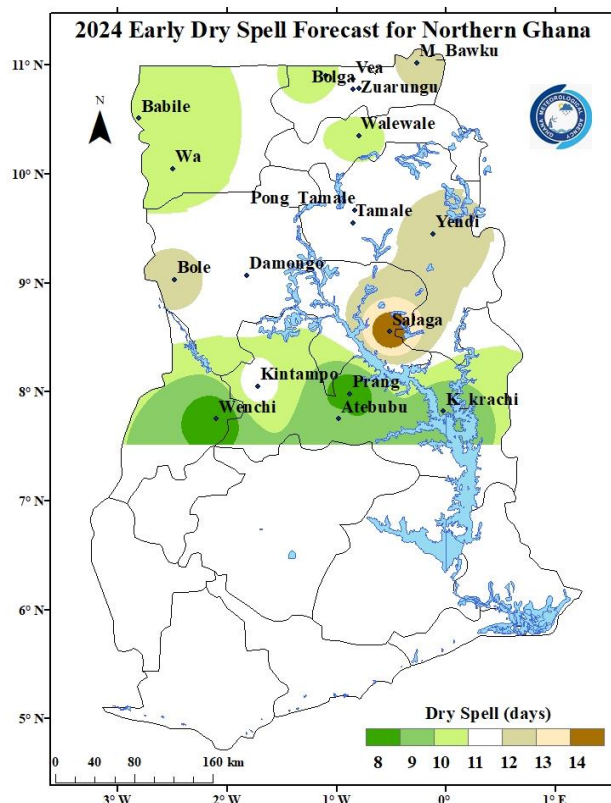


Fig.10 Early (1st) Dry Spell Forecast Map, 2024

NB: Early(1st) Dry Spell is defined as the longest successive dry days during the first 50 days after the start of the season.

Table 5. Forecast of Early Dry Spell for the 2024 Season and LTM

| ZONE | LTM (days) | Forecast of Early Spell (days), 2024 |
|-----------------|------------|--------------------------------------|
| Transition Zone | 8 | 8 - 10 |
| North | 11 | 11 - 14 |
| Upper West | 10 | 10 - 11 |
| Upper East | 11 | 11 - 12 |

Late (2nd) Dry Spell Forecast Map, 2024

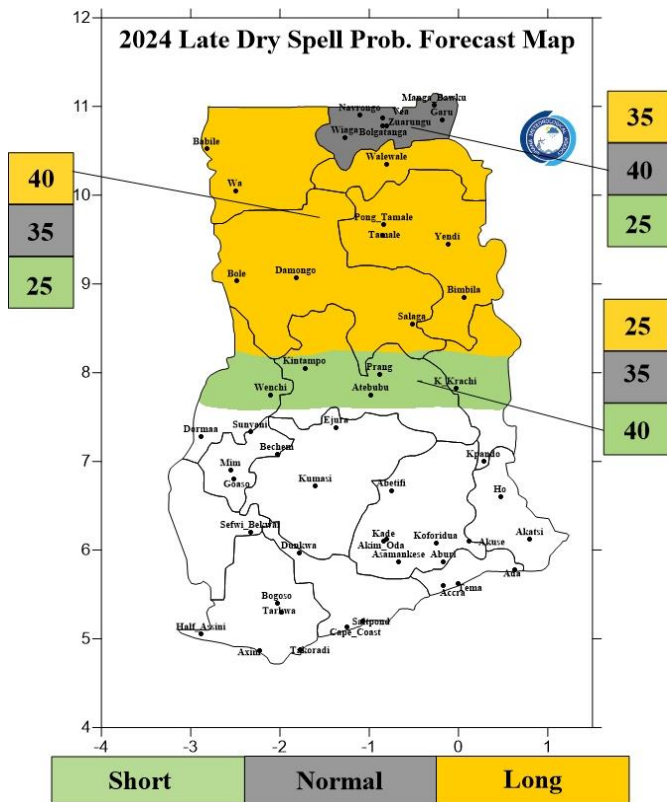


Fig.11 Late (2nd) Dry Spell Probability Map, 2024

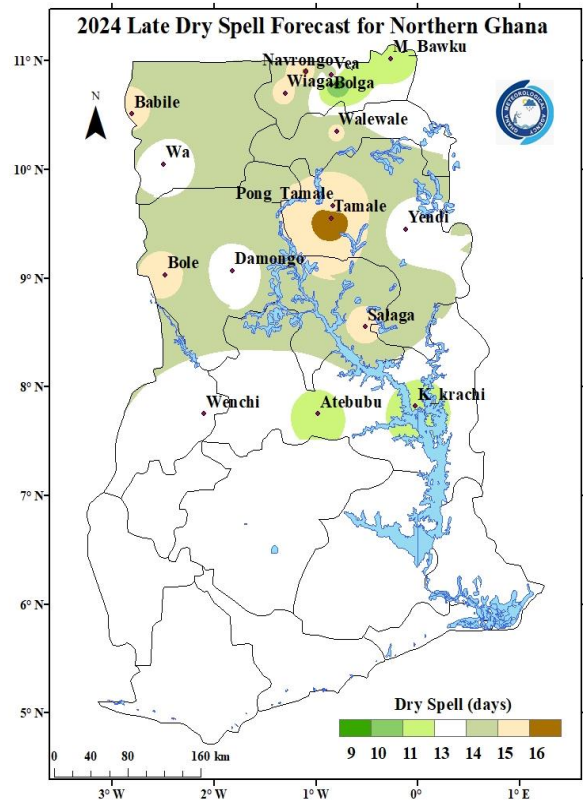


Fig.12 Late(2nd) Dry Spell Forecast Map, 2024

NB: Late (2nd) Dry Spell is defined as the longest successive dry days from the 51st day after the start of the season to the end of the season.

Table 6. Forecast of Late Dry Spell for the 2024 Season and LTM

| ZONE | LTM (days) | Forecast of Late Spell (days) |
|-----------------|------------|-------------------------------|
| Transition Zone | 15 | 11 - 13 |
| North | 14 | 14 - 16 |
| Upper West | 15 | 13 - 15 |
| Upper East | 15 | 11 - 15 |

Forecast Maps of Cessation Dates for the Season, 2024

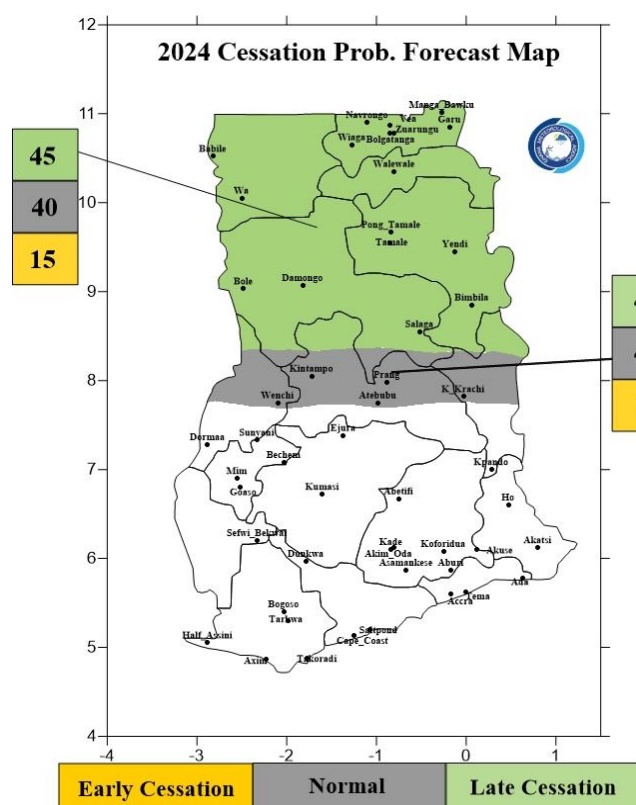


Fig.13 Cessation Dates Probability Map, 2024

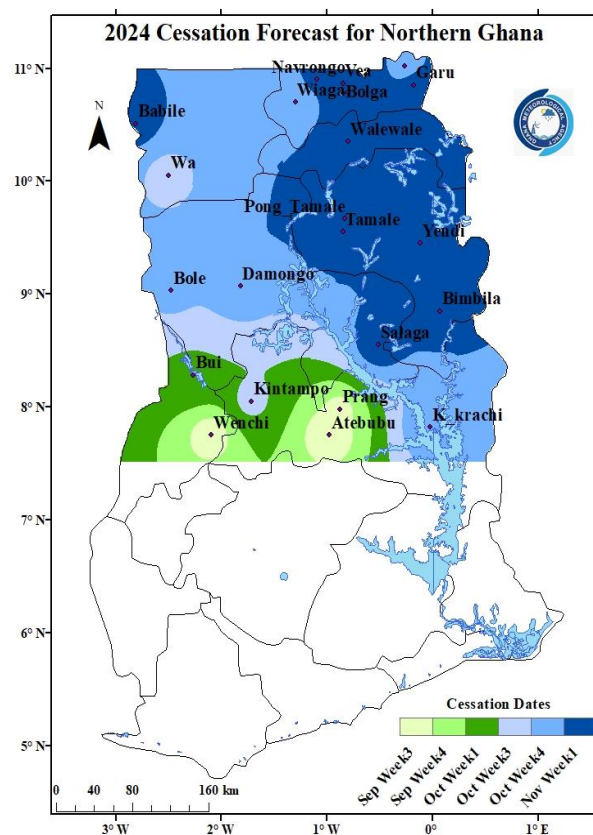


Fig.14 Cessation Dates Forecast Map, 2024

Table 7. Cessation Dates for 2024 Season & Long-Term Mean of the Cessation Dates

| ZONE | Average Cessation Dates | 2024 Cessation Dates |
|-----------------|--|---|
| Transition Zone | 4 th Week of July – 2 nd Week of August | 2 nd Week of September – 4 th Week of September |
| North | 1 st Week of October – 1 st Week of November | 3 rd Week of October – 4 th Week of October |
| Upper West | 1 st Week of October – 4 th Week of October | 3 rd Week of October – 1 st Week of November |
| Upper East | 1 st Week of October – 3 rd Week of October | 4 th Week of October – 1 st Week of November |

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

Length of Growing Season Forecast Map, 2024

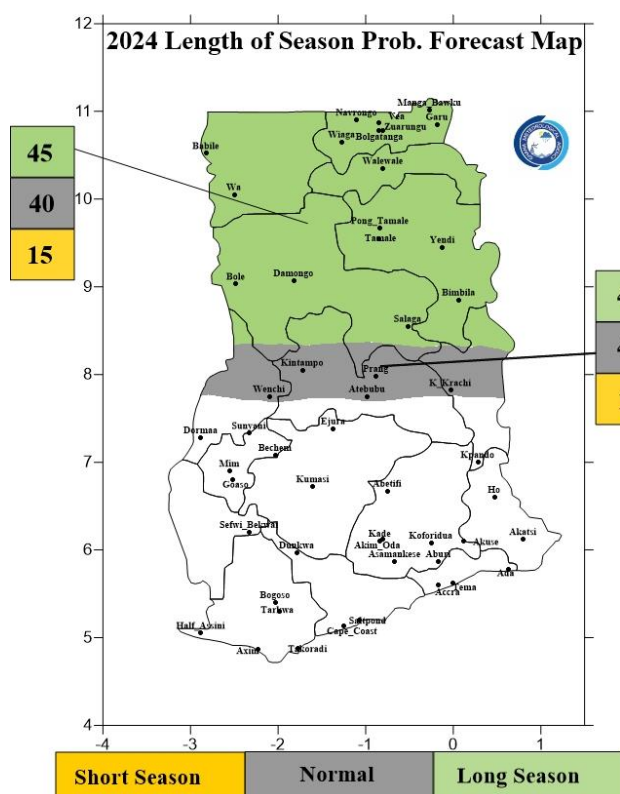


Fig.15 Length of season Probability Map, 2024

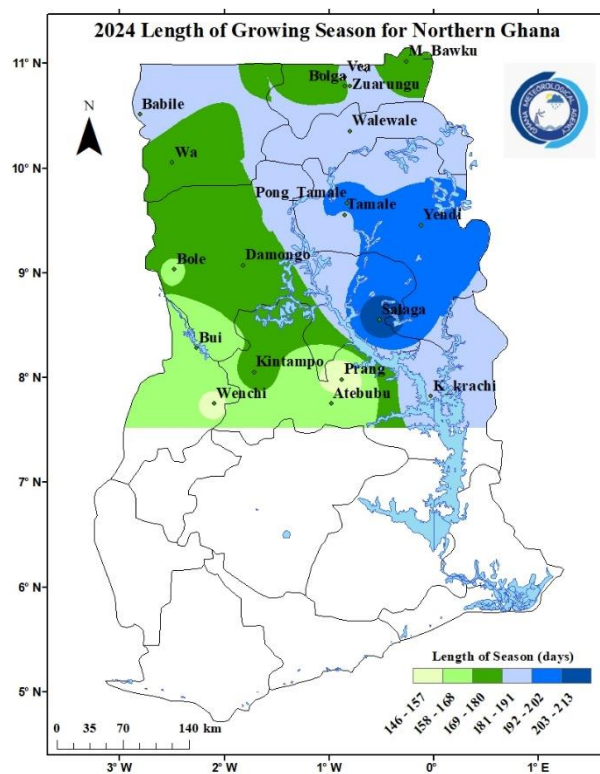


Fig.16 Length of Season Forecast Map, 2024

Table 8. Forecast for 2024 Length of Growing Season & Long-Term Mean

| ZONE | LTM (days) | 2024 Length of Season (days) |
|-----------------|------------|------------------------------|
| Transition Zone | 162 - 188 | 146 - 191 |
| North | 181 - 193 | 168 - 203 |
| Upper West | 175 - 184 | 180 - 191 |
| Upper East | 164 - 171 | 169 - 192 |

SUMMARY OF EXPECTED SEASONAL FORECAST FOR MJJ, JJA & JAS, 2024

Cumulative Rainfall Distribution

May June July (MJJ)

Most parts of the country are expected to receive **normal to above - normal** rainfall with some portions of the forest zone anticipated to have **below - normal to normal** rainfall. (See *Table 2 for 2024 MJJ & its LTM*)

June July August (JJA)

In the upper portion of Northern Ghana, the total rainfall during this season is forecasted to be **mostly above – normal to normal**. However, the remaining sectors of the country are expected to experience **normal to below - normal** rainfall. (See *Tables 3 for 2024 JJA & its LTM*)

July August September (JAS)

The season is expected to experience **above – normal to normal** rainfall for the upper parts of the northern sector whereas the rest of the country will experience **normal to above – normal** rainfall. (See *Tables 4 for 2024 JAS & its LTM*)

(** The JJA & JAS is the peak of the season for the northern part of Ghana).

Onset

The onset dates of the season are expected to be **late to normal** in the northern and transition areas of the country. (See *Table 1 for normal Onset & 2024 Onset Dates*).

Dry Spells

1st Dry Spell

Normal to long dry spells is expected to be between **10 - 12** days for places in the Upper regions. However, the remaining parts of the northern sector will experience **long dry spells** (between **11 and 14 days**).

(See *Table 5 for 2024 Early Dry Spell & its LTM*)

2nd Dry spell

Towards the end of the season, dry spells are expected to be **long to normal** in most areas. On the other hand, it is expected to be **normal to long** in the Upper East whereas places within the transition will experience **short to normal** dry spells. (See *Table 6 for 2024 Late Dry Spell & its LTM*)

Cessation

Generally **late to normal** cessation dates are expected in the entire northern sector whilst transition areas are likely to have a **normal to late** cessation. (See *Table 7* for normal Cessation & Cessation Dates)

Length of Season

The whole of the northern sector is expected to have a **long to normal** length of growing season whereas the transition areas are anticipated to have **normal to long** length of season compared to its long-term mean. (See *Table 8* for Length of Season & its LTM)

POTENTIAL IMPACTS AND RECOMMENDATIONS (ADVISORIES)

July – October is the major rainfall season for the north of the country, i.e., (8°N and above).

At the peak of the JAS season, there is a high probability of heavy rain accompanied by strong winds and lightning which could lead to flooding and damage to infrastructure. There is also a high probability of experiencing relatively long dry spells at the beginning and towards the end of the season. It is therefore expected that most places in the northern parts of the country will be above. Therefore, to mitigate any risk and maximize any opportunity that might occur to people, animals, crops, material goods, infrastructure, and reduce the impacts to be felt, it is recommended that:

Disaster Management Sector

In the event of risk due to flooding, which is likely:

- a. Establish and operationalize integrated monitoring and early warning systems for flood risk.
- b. Collaboration between the agencies in charge of flood monitoring, disaster risk reduction, and humanitarian aid should be improved.
- c. Sensitize the populace in the exposed areas about the impending danger.
- d. As much as feasible, settlers in endemic flood-prone areas should be relocated.(Domestic / Farming / Commercial places)
- e. The Municipal and Metropolitan authorities and the National disaster Agency are advised to put in place the necessary measures to ensure communities and livelihoods are safeguarded.
- f. Authorities should provide emergency/temporal sites for the victims and assist the homeless and vulnerable groups in society during this period.
- g. Ensure the Control/maintenance of dams and road infrastructure.
- h. Promote the cultivation of hydrophilic plants (Plants that absorb high amounts of water) in endemic flood-prone areas as well as swampy and buffer sites (An all-year- round activity)

In the face of long dry spell risk (a likely event in the northern parts of the country):

- i. Step up education and sensitization of the people on the likelihood of bush fires.
- j. Liaise with national meteorological, agricultural, and hydrological experts for information and advice to provide relief to affected areas.
- k. Support the most vulnerable in the affected areas to pursue alternate livelihoods. Some examples are market facilitation, small-scale cottage industries like basket, matweaving, pot making, etc. People should be trained in bee making.
- l. Prudent use of available water and storage of water whenever it rains.

Transport and Public Safety

- i. Flash Floods are likely to occur especially in Cosmopolitan areas and city centers during the May to July period. Some of the most vulnerable places likely to be affected include Accra, Kumasi, Takoradi. This may lead to some roads becoming impassable when it rains. Road users should be mindful when plying those roads. Drivers are advised to refrain from driving through floodwaters.
- ii. Light aircraft are advised to take utmost care and avoid flying through deep convective clouds that are associated with severe turbulence and lightning, especially in the afternoon hours.
- iii. Motorists should be mindful of fallen trees and objects on roads during or after a storm.

National/Local Authorities

Local authorities in areas where Heavy rainfall is expected especially during the June July August rainfall period are advised to.

- i. Provide emergency/temporal sites for the victims.
- ii. Ensure the control/maintenance of dams and road infrastructure.
- iii. Work hand in hand with the communities through the local authorities (assembly members) to sensitize the populace on sustained community clean-up exercises and activities.
- iv. Encourage the cultivation of hydrophilic plants (Plants that absorb high amounts of water) through the departments of Agric.
- v. Ensure enough food storage.
- vi. Desilt the drains before the rains set in to avoid flash flooding due to surface runoff.
- vii. Build the capacity of national health systems and national platforms for disaster risk management.
- viii. Provision of mosquito nets, antimalarial drugs in affected areas.
- ix. Collaborate with Meteorological Agency, National Disaster Management Organization (NADMO) and Health Services to disseminate warnings and create awareness on climate-related diseases.
- x. Monitor the quality treatment of water and sanitation in towns and villages.
- xi. Strengthening the dissemination and communication of hydro-climatic information (including seasonal forecasts) and raising community awareness through radio, television, mobile phones, and information platforms for disaster risk reduction management.
- xii. Monitor the use of treated water for commercial purposes.

General Public

- i. Taking advantage of average to above average runoff situations to develop fish farming and optimize fishing yields in river basins,
- ii. Continuously desilting drains, especially in front of our homes and shops, before and during the season.
- iii. Monitor water quality and report any suspicions to the environmental offices of the assemblies or to the standard authority.
- iv. People should move to higher ground in case they stay in flood-prone areas.
- v. Citizens should move to safer places in case there is an approaching storm and strong winds.
- vi. Avoid contact with sewage.

Health Sector – Facing the risk of diseases.

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

- i. Public Education should be intensified through national platforms on disaster risk reduction such as the radio, tv, information vans, churches, mosques etc.
- ii. Dissemination of bulletins on climate-sensitive diseases.
- iii. Prevent diseases by vaccinating people and animals.
- iv. Set up stocks of mosquito-proofed nets, anti-malaria drugs,
- v. Provision of mosquito nets, antimalarial drugs in affected areas.

Agriculture, Food Security and Livestock Sectors

For areas where it is more likely to observe normal to surplus rainfall, early season start dates, shorter dry spells, and excess flows, it is recommended that farmers, breeders, authorities, project and NGOs:

- i. Invest more in improved seed varieties and the development of yield enhancement techniques for both food crops and cash crops.
- ii. Provide fertilizers (organic and mineral fertilizer).
- iii. Increase vigilance against crop pests (e.g., armyworm and other pests).
- iv. In pastoral areas, put in place appropriate technology for pasture for abundant water resources for livestock.
- v. Monitor and follow the updates of these seasonal forecasts and the short- and medium-term forecasts produced and disseminated by the national meteorological and hydrological services.
- vi. Taking advantage of average to above average runoff situations to develop fish farming and optimize fishing yields in river basins.

For areas likely to experience water deficits, which arise because of below normal rainfall to longer dry spells expected at the beginning and towards the end of the season, which could affect the planting and growth of crops and promote the development of crop pests.

- i. Focus on drought-tolerant crops and early maturing varieties.
- ii. Diversify agricultural practices, through the promotion of irrigation, market gardening and the association of crops (mixed cropping).
- iii. Choose short-cycle crop species and varieties that are most tolerant to water deficit.
- iv. Promote and encourage the transfer of risks related to rainfall to protect producers against the effects of crop losses, through the subscription to index-based agricultural insurance.
- v. Promote the establishment of food stocks/ buffer stocks.
- vi. Strengthen monitoring of food and nutrition security in at-risk areas.
- vii. Implement early warning systems to mitigate the impact of the long dry spells anticipated.
- viii. Promote climate-smart agricultural practices such as minimum tillage, mulching, selective pruning, and agroforestry to offset the production deficit that could affect areas exposed to dry spells.
- ix. Collaborate with the National Meteorological, Agricultural extension and Hydrological agencies for specific information and agro-hydro-meteorological advice on the actions to be taken.
- x. Promote irrigation and ensure rational management of water resources for crops and other uses.

Water Resources Management Sector

Due to the anticipated season, below normal flows are expected for the southwestern areas whilst other basins having normal to above conditions, hence, water resources sectors are expected to be impacted negatively over places in mostly the southwestern parts of the country.

- a. Monitor the use of treated water for commercial purposes.
- b. Ensure the regulations of buffer zones along the water bodies are enforced.

Power

- a. Where necessary and would cause danger in case of heavy rains accompanied by strong winds and lightning which could lead to localized floods, the power companies should switch off power to avoid electrocutions.
- b. Continuous monitoring of forecasts from the Meteorological Agency to ensure efficient management of the dam.

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

For further inquiries, clarification, information or assistance
Contact: Head, Research and Applied Meteorology Directorate
Tel. +233 (0)30 701 0019 or clients@meteo.gov.gh/info@meteo.gov.gh