Ghana Meteorological Agency’s Seasonal Forecast for the Northern Sector and Seasonal Forecast Update for the Southern Sector of Ghana: June-Aug (JJA) and Jul - Sept (JAS) for the Country, 2022.

Ref. No: Met. 9.3/207
Date Issued: 16th May, 2022

Summary
In the 2022 rainfall season (Agro climatic characteristics) for the Northern parts of the country, an early to normal Onset, mostly late to near normal cessation, with significant probabilities of shorter dry spells are expected within the season. Generally, normal to below normal rainfall is expected for both the JJA & JAS over most places in Southern Ghana with above normal rainfall for most parts of the Upper East, Upper West, and parts of the North East and Savanna regions of the country. At the end of these forecasts, advisories are made to the various stakeholders to help minimize risks and maximize opportunities within the season.

2022 Seasonal Forecast

Observed atmospheric conditions over land and oceans and outputs from major World forecast Centers like the International Research Institute for Climate and Society (IRI), Climate Prediction Centre (NCEP-CPC, NOAA), WMO global Forecast Centres, the European Centre for Medium Range Weather Forecast (ECMWF), UK Met Office, Meteo France, together with the output of the Agency’s model (CPT) and the known climatological experience, do suggest that the rainy season over the country is expected to be as:

Table 1. Updated Onset Dates for 2022 Season & Long-Term Mean (Normal) of the Onset Dates
*Note: Long term mean (LTM) is the 30-year average/normal condition of the given Zone from 1991-2020. (Note: Emphasis on the Northern part of Ghana).

<table>
<thead>
<tr>
<th>ZONE</th>
<th>Normal/Average Onset Dates</th>
<th>2022 Onset Dates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transition Zone</td>
<td>4th Week of March – 2nd Week of April</td>
<td>4th Week of March – 2nd Week of April</td>
</tr>
<tr>
<td>North</td>
<td>2nd Week of April – 4th Week of April</td>
<td>2nd Week of April – 4th Week of April</td>
</tr>
<tr>
<td>Upper East</td>
<td>4th Week of April – 2nd Week of May</td>
<td>2nd Week of April – 4th Week of April</td>
</tr>
<tr>
<td>Upper West</td>
<td>3rd Week of April – 1st Week of May</td>
<td>2nd Week of April – 4th Week of April</td>
</tr>
</tbody>
</table>
Onset Forecast Earlier Issued for this zone is Still Valid

Figure 1: 2022 Forecast Map of Onset Dates for the Season

Onset Forecast for this Zone issued earlier on is still Valid

Figure 2: 2022 Probability Forecast Map of Onset Dates for the Season
Table 2. Cessation Dates for 2022 Season & Long-Term Mean (Normal) of the Cessation Dates

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

<table>
<thead>
<tr>
<th>ZONE</th>
<th>Average Cessation Dates (Major Season)</th>
<th>2021 Cessation Dates (Major Season)</th>
</tr>
</thead>
<tbody>
<tr>
<td>East Coast</td>
<td>2nd Week of July – 3rd Week of July</td>
<td>2nd Week of July - 4th Week of July</td>
</tr>
<tr>
<td>West Coast</td>
<td>3rd Week of July – 1st Week of August</td>
<td>3rd Week of July – 1st Week of August</td>
</tr>
<tr>
<td>Forest Zone</td>
<td>3rd Week of July - 1st Week of August</td>
<td>3rd Week of July - 1st Week of August</td>
</tr>
<tr>
<td>Transition Zone</td>
<td>4th Week of July – 2nd Week of August</td>
<td>4th Week of July – 2nd Week of August</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ZONE</th>
<th>Average Cessation Dates (Northern Ghana)</th>
<th>2021 Cessation Dates (Northern Ghana)</th>
</tr>
</thead>
<tbody>
<tr>
<td>North</td>
<td>1st Week of October – 1st Week of November</td>
<td>1st Week of October – 1st Week of November</td>
</tr>
<tr>
<td>Upper East</td>
<td>1st Week of October – 3rd Week of October</td>
<td>3rd Week of October – 4th Week of October</td>
</tr>
<tr>
<td>Upper West</td>
<td>1st Week of October – 4th Week of October</td>
<td>3rd Week of October – 4th Week of October</td>
</tr>
</tbody>
</table>

Cessation Forecast Earlier Issued for this zone is Still Valid

Figure 3: 2022 Forecast Maps of Cessation Dates for the Season
Figure 4: 2022 Prob. Forecast Maps of Cessation Dates for the Season

Table 3. Early Dry Spell Forecast for 2022 Season & Long-Term Mean (Normal) for 1991-2020

<table>
<thead>
<tr>
<th>ZONE</th>
<th>Forecast of Early Spell(days)</th>
<th>Normal of Early Spell(days)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transition Zone</td>
<td>6/7</td>
<td>8</td>
</tr>
<tr>
<td>North</td>
<td>9</td>
<td>11</td>
</tr>
<tr>
<td>Upper East</td>
<td>10</td>
<td>11</td>
</tr>
<tr>
<td>Upper West</td>
<td>8</td>
<td>10</td>
</tr>
</tbody>
</table>

**Early Dry Spell is defined as the longest successive dry days during the first 50 days from the start of the season**

Figure 5: Early Dry Spell Forecast Map for 2022 Season
Table 3. Late Dry Spell Forecast for 2022 Season & Long-Term Mean (Normal) for 1991-2020

<table>
<thead>
<tr>
<th>ZONE</th>
<th>Forecast of Late Dry Spell(days)</th>
<th>Normal of Late Dry Spell(days)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transition Zone</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td>North</td>
<td>14</td>
<td>14</td>
</tr>
<tr>
<td>Upper East</td>
<td>13</td>
<td>15</td>
</tr>
<tr>
<td>Upper West</td>
<td>14</td>
<td>15</td>
</tr>
</tbody>
</table>

Table 4: Late 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.

Figure 6: Prob Forecast Map for Early Dry Spell, 2022 Season

Figure 7: Late Dry Spell Forecast Map for 2022 Season
Figure 8: Prob Forecast Map for Late Dry Spell, 2022 Season

Cumulative Rainfall

Table 5. Expected Forecast of Rainfall Amount for June – August (JJA) Season, 2022

<table>
<thead>
<tr>
<th>ZONE</th>
<th>LTM (mm)</th>
<th>2022 JJA (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>East Coast</td>
<td>200 - 310</td>
<td>174 - 300</td>
</tr>
<tr>
<td>West Coast</td>
<td>400 - 700</td>
<td>350 - 700</td>
</tr>
<tr>
<td>Forest</td>
<td>300 - 550</td>
<td>195 - 600</td>
</tr>
<tr>
<td>Transition</td>
<td>350 - 650</td>
<td>300 - 650</td>
</tr>
<tr>
<td>North</td>
<td>440 - 570</td>
<td>390 - 600</td>
</tr>
<tr>
<td>Upper East</td>
<td>490 - 590</td>
<td>500 - 670</td>
</tr>
<tr>
<td>Upper West</td>
<td>450 - 530</td>
<td>470 - 550</td>
</tr>
</tbody>
</table>
Figure 9: Cumulative Rainfall Forecast Map for 2022 JJA Season

Figure 10: Prob. Cumulative Rainfall Forecast Map for 2022 JJA Season
Table 6. Expected Forecast of Rainfall Amount for July – Sept. (JAS) Season, 2022

<table>
<thead>
<tr>
<th>ZONE</th>
<th>LTM (mm)</th>
<th>2021 JAS (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>East Coast</td>
<td>230 - 320</td>
<td>100 – 300</td>
</tr>
<tr>
<td>West Coast</td>
<td>400 - 680</td>
<td>200 – 400</td>
</tr>
<tr>
<td>Forest</td>
<td>350 - 570</td>
<td>300 – 500</td>
</tr>
<tr>
<td>Transition</td>
<td>370 - 520</td>
<td>400 – 600</td>
</tr>
<tr>
<td>North</td>
<td>500 - 680</td>
<td>400 – 690</td>
</tr>
<tr>
<td>Upper East</td>
<td>520 - 620</td>
<td>500 – 650</td>
</tr>
<tr>
<td>Upper West</td>
<td>430 - 570</td>
<td>500 – 620</td>
</tr>
</tbody>
</table>

Figure 11: Cumulative Rainfall Forecast Map for 2022 JAS Season

Figure 12: Prob. Cumulative Rainfall Forecast Map for 2021 JAS Season
SUMMARY OF EXPECTED SEASONAL FORECAST FOR 2021 JJA & JAS.

1. Cumulative Rainfall Distribution

JUNE - AUGUST (JJA)

The total cumulative rainfall amount for June July August (JJA) both in time and space will be mostly near normal to below normal for most places in southern parts of Ghana. However, most places in the Upper East, and Upper West Regions and a few places in the North East and Savanna regions will experience above normal to near normal rainfall for the JJA season. The Season will be near normal for most places in the Transition areas, Savanna and North East Regions. (** The JJA & JAS is the peak of the season for the northern part of Ghana).

JULY - SEPTEMBER (JAS)

July August September (JAS) season is expected to be near normal for most places around the coast and some inland areas in the middle parts of the country. Most places in the middle and transition parts of the country will also experience near normal rainfall. However, most places in the upper east region and portions of Upper West and the North East will experience above normal to near normal rainfall. (See Tables 3&4 for normal Onset & Cessation Dates).

2. Onset

Early Onset dates are expected over most places in the Upper East and West parts as well as some places in both the North East and Savannah regions of the country. The rest of the country will experience near normal onset dates. (See Table 1 for normal Onset & Onset Dates).

3. Dry Spells

i. 1st Dry Spell

At the beginning of the season, an early dry spell is expected to be short, between 7 to 9 days for most places in the Southern part of the country. The East Coast and most parts of the North will however experience between 9 and 10 days of dry spells.

ii. 2nd Dry spell

In the later stages of the season (after the 50th day from the Onset date to the end of the season), a short dry spell of between 9 to 12 days is expected over most parts of the forest areas. About 12 to 15 days of dry spells (short to near normal dry spells) are expected to occur around the coastal and most places in the northern parts of the Country.

4. Cessation

Most places in the Northern part of Ghana are expected to experience late cessation of the rainfall season. However, normal Cessation dates are forecasted for most places in the southern parts of Ghana. (See Table 2 for normal Cessation & Cessation Dates)
POTENTIAL IMPACTS AND RECOMMENDATIONS (ADVISORIES)

July-October is the major rainfall season for the North of the country, i.e., latitude 8°N and above of Ghana. At the peak of the JAS season, there is a high probability of heavy rains which is expected to be erratic, accompanied by strong winds and lightning which could lead to localized floods. There is also a high probability of experiencing relatively short 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 wetter than normal. Therefore to mitigate any risk that might occur to people, animals, crops and material goods, it is recommended that:

a. **Disaster Management Sector**

i. **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. 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)
   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. Provide emergency/temporal sites for the victims.
   g. Ensure the Control/maintenance of dams and road infrastructure.
   h. Promote the cultivation of hydrophilic plants (Plants that absorb high amounts of water)
   i. Harvest runoff water.
   j. Ensure enough food is stored.

ii. **In the face of long dry spell risk (a likely event in the southern-eastern parts of the country):**
   a. Step Up education and sensitization of the people on the likelihood of bush fires.
   b. Liaise with national meteorological, agricultural and hydrological experts for information and advice to provide relief to affected areas.
   c. Support the most vulnerable in the affected areas to pursue alternate livelihoods. Some examples are market facilitation, small-scale cottage industries like weaving, pot making etc.

b. **Transport and Public Safety**

i. Flash Floods are likely to occur especially in low lying areas like Accra and its environs and some other places during the June to Sept period. These incidences of heavy rains may lead to some roads becoming impassable when it rains. Road users should be mindful when plying those roads. Drivers should resist and desist from driving through flood waters.
ii. Light aircrafts 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.

c. National/Local Authorities

Municipal Authorities in areas where Heavy rainfall is expected especially during the July August September rainfall period are advised to

i. Provide emergency/temporal sites for the victims.
ii. Ensure the Control/maintenance of dams and road infrastructure.
iii. Promote the cultivation of hydrophilic plants (Plants that absorb high amounts of water) through the departments of Agric.
iv. Enforce land and special use codes to minimise the impact of disasters.
v. Desilt the drains before the rains set in to avoid water due to surface runoff that leads to flash flooding.
vi. Build the capacity of national health systems and national platforms for disaster risk reduction.
vii. Collaborate with Meteorological Agency, National Disaster Management Organization (NADMO) and Health Services to disseminate warnings and create awareness on climate-related diseases.
viii. Provision of mosquito nets, antimalarial drugs, chlorine and other water treatment products.
ix. Monitor the quality of water and sanitation in towns and villages.
x. Promote irrigation and ensure rational management of water resources for crops and other uses.

d. General Public

i. Harvest runoff water for storage.
ii. Desilt the drains before the rains set in and avoid indiscriminate disposal of solid and liquid waste.
iii. Monitor water quality and clean up communities through water drainage and gutter cleaning operations
iv. Listen to daily weather forecast before leaving home and the updates that are released.
v. People are advised to move to higher grounds in case they stay in flood prone areas

e. Health Sector – Facing the risk of diseases

In places where the rainy season is wetter, there are high levels of risk of water borne diseases such as Cholera, dengue fever, bilharzia, and diarrhoea. With the high temperatures as well as wet conditions prevailing at these times, there is a higher chance of malaria upsurge. To mitigate the development of germs and reduce the risk of diseases and infections, it is strongly recommended that;

i. Ghana Health Service Public-Led Education should be intensified through national platforms on disaster risk reduction through the radio, TV, information vans etc.
ii. There should be the intensification of disseminating bulletins on climate-sensitive diseases to create awareness among the literate population.
iii. Intensify collaboration with stakeholder such as the meteorological, hydrological and the disaster organisations to develop early warning systems to mitigate the impact of the forecast.
iv. Prevent diseases by vaccinating people and animals.
v. Set up stocks of mosquito-proofed nets, anti-malaria drugs, chlorine and other water treatment products.

f. **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, projects and partner CSOs:*

i. Invest more in the varieties of improved seeds and in the development of yield enhancement techniques for both food crops and cash crops.

ii. Provide fertilizers (organic fertilization 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 and abundant water resources for livestock.

v. Farmers should listen to daily weather forecast to support in tactical decision making. (to avoid washing away of fertilizer, washing away of spray chemicals, etc.)

*For areas likely to experience water deficits, which arises as a result 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 species.

ii. Diversify income-generating activities and promote agricultural practices such as tillage, mulching, market gardening and agroforestry to offset the production deficit that could affect areas exposed to dry spells.

iii. Adopt farming techniques/practises for the conservation of soil water.

iv. Liaise with national Meteorological, Agricultural and Hydrological Authorities for information and expert advice

**Water Resources Management Sector**

Water resources are expected to be replenished over most of the forest zone of the country due to the expected rainfall. Efficient water management should be carried out to ensure enough water resources for human and animal population.

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

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**For further enquiries, clarification, information or assistance**

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