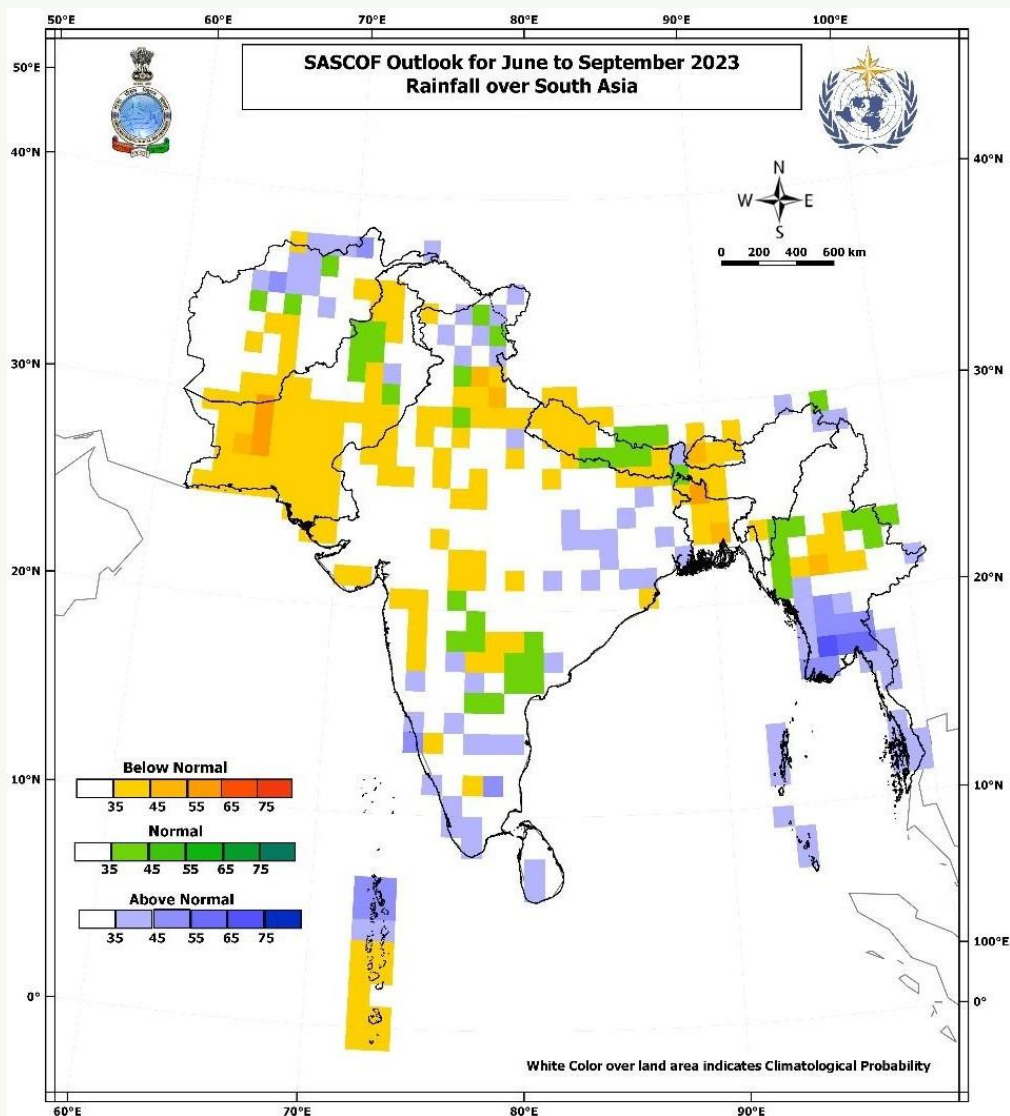


Seasonal Outlook 2023

Guidance for Decision Makers

July and JAS 2023



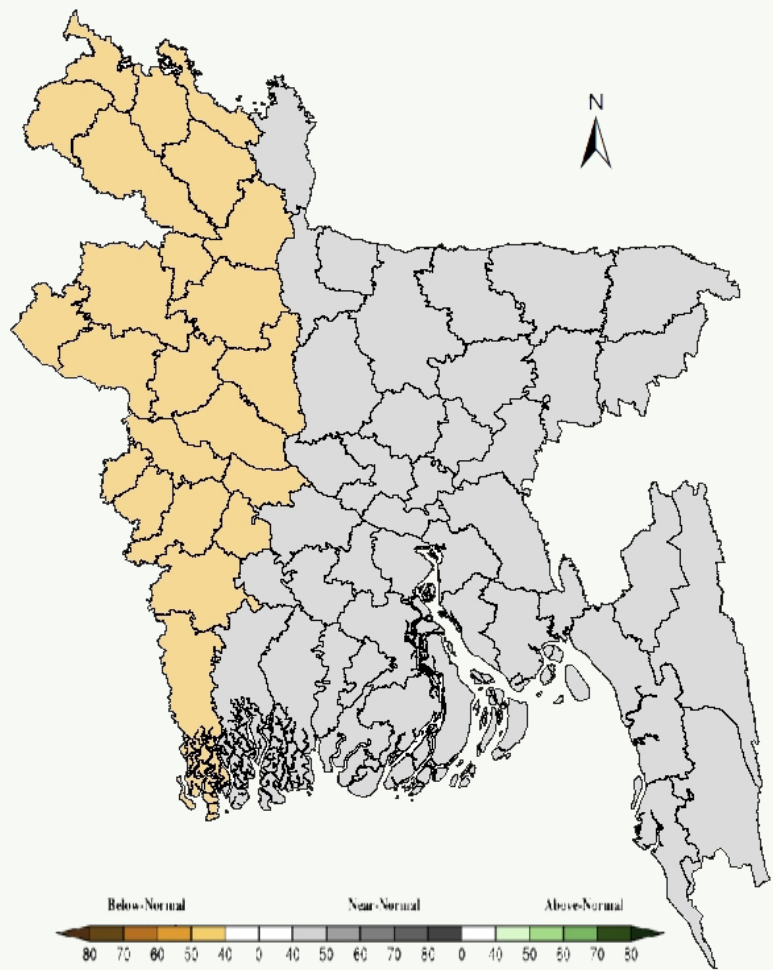


Rainfall (JJAS) outlook 2023 for South Asia

According to the SASCOF forecast, Bangladesh Northwestern and Part of Bangladesh are likely to receive below normal rainfall. Overall the country is expected to receive normal to below normal rainfall during the southwest monsoon season (JJAS). And overall the mean temperature is expected to be above normal during this period. There is a strong consensus among experts that El Nino conditions are likely to develop over the equatorial Pacific during the southwest monsoon season. Further, it is well-known that ENSO predictions at this time of the year generally have substantial uncertainty due to the so-called spring barrier in seasonal predictability. It is also recognized that El Nino conditions contribute to the normal to below normal southwest monsoon rainfall over most parts of South Asia

Rainfall (July), 2023

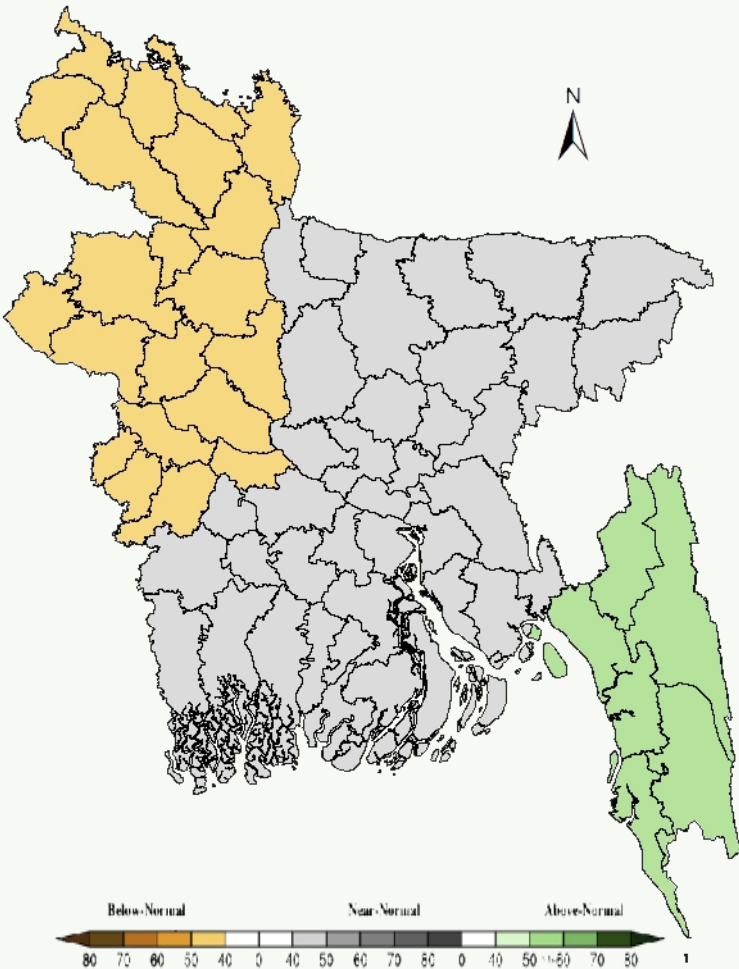
As per the available climate model outputs, near normal (50%) rainfall is expected over Dhaka, Sylhet, Mymensingh, Barisal, Chattogram divisions, and a few districts of Khulna and Rangpur divisions (green shaded area). And the rest of the region of the country is expected to be below normal (yellow shaded area). Overall, the whole country is expected to receive near normal rainfall in the month of July.



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Rainfall (Jul-Aug-Sep) 2023

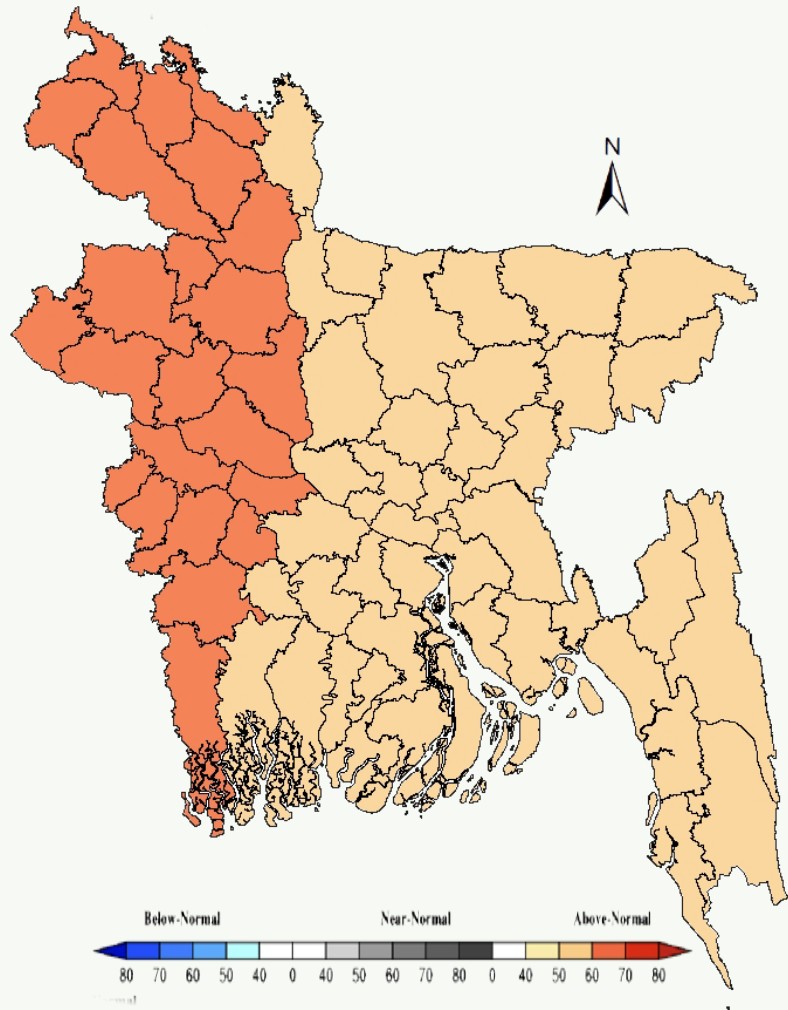
As per the available climate model outputs, above normal (50%) rainfall is expected over Chattogram division (green shaded area). Also analyzing the global model output, there is a possibility of below normal (40-50%) rainfall is expected over Rangpur, Rajshahi, and a few districts of Khulna division (light yellow shaded area). Also there is a possibility that Mymensingh, Khulna, Barisal Sylhet and rest of the districts of Dhaka division could get Near Normal rainfall (light grey shaded area). Overall, the whole country is highly likely to receive near normal to below normal rainfall during the Jul-Aug-Sep season.



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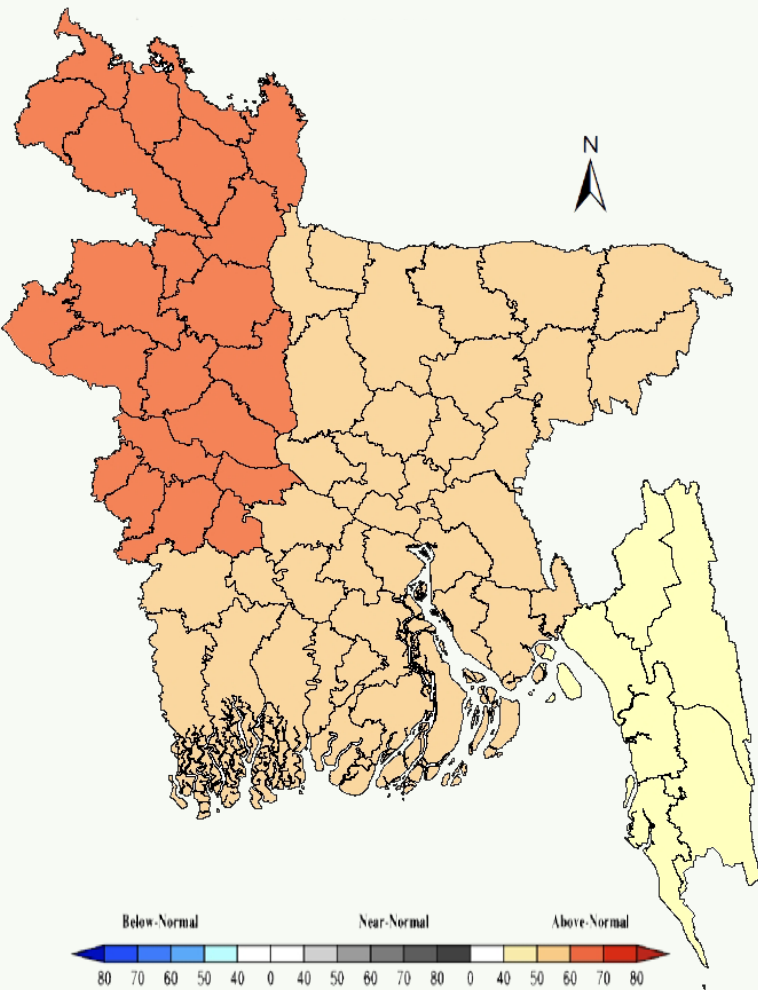
Mean Temperature (July) 2023

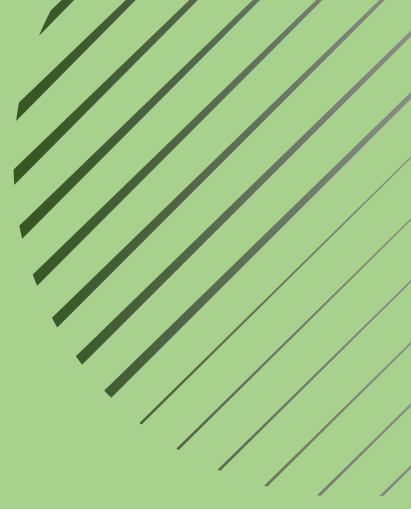
Considering the available climate model outputs, it is expected that the mean temperature of July is likely to be above normal (60-70%) over Rajshahi division and a few districts of Rangpur and Khulna divisions (dark yellow shaded area). Also analyzing the global model outputs, it is likely to be above normal (40-60%) mean temperature over rest of the divisions (orange shaded area) during the month of July. Overall, the country is highly likely to receive above normal mean temperature in the month of July.



Mean Temperature (Jul-Aug-Sep) 2023

Considering the available climate model outputs, it is expected that the mean temperature of JAS period is likely to be above normal (60-70%) over Rajshahi, Rangpur and a few part of Khulna divisions (dark yellow shaded area). Also analyzing the global model outputs, it is likely to be above normal (40-60%) mean temperature over the rest of the divisional (yellow shaded area) during this JAS season. Overall, the country is highly likely to receive above normal mean temperature during this Jul-Aug-Sep season.





Expected Impact and Sectoral Advisories, Agriculture Sector

Expected Impact	Location	Advisories	Action Needed/Responsible Organization
Prolonged Dry Spell, Drought Condition, Pest and Disease outbreak	North & Southwestern Region (Rajshahi, Khulna divisions and a few districts of Rangpur division such as Dinajpur & Panchagarh)	Utilization of hose pipes or plastic pipes in absence of proper irrigation canal during T. Aman season and also to prevent wastage of irrigation	DAE
		Rainwater harvesting and using various conventional methods. For example field levees around the land should be raised to retain maximum rainwater	
		Regular monitoring of the field for pest and disease and utilization of pesticide if needed	

Expected Impact and Sectoral Advisories, Livestock Sector



Expected Impact	Location	Advisories	Action Needed/Responsible Organization
Heat stress and Disease Outbreak	North and Southwestern Region (Rajshahi, Khulna division and a few districts of Rangpur division such as Dinajpur & Panchagarh), and North & Northeastern Region (Mymensingh, Sylhet and rest of the districts of Rangpur division)	Advise farmer to keep the shed clean and disinfected, provide adequate supply of drinking water	DLS
		Advise farmer to feed balanced diet for example mixture of grass and grain feed and clean water	
		Advise farmer to maintain proper ventilation in the shade if necessary provide fan.	
		Monitor and advise	



Expected Impact and Sectoral Advisories, Health Sector

Expected Impact	Location	Advisories	Action Needed/Responsible Organization
Heat Stroke, vector borne and water and food borne disease	North & Southwestern regions (Rajshahi, Khulna division and a few districts of Rangpur division such as Dinajpur & Panchagarh), North & Northeastern region (Mymensingh, Sylhet divisions, and a few districts of Rangpur division) and a few major cities including Dhaka and Chattogram	Advise mass people to wear loose-fitting and light weight cloth, limit outdoor activities or use umbrella during the maximum temperature of the day and drink pure and clean water.	DGHS/ IEDCR
		Destroy possible Aedes mosquito (dengue/chikungunya carrying) breeding grounds like old tires, discarded coconut shells or clay pots, etc.	City Corporation
		Regular fogging or spraying to destroy mosquito rest/breeding places	
		Advise mass people to avoid unhygienic street food, wash	

Expected Impact and Sectoral Advisories, Water Sector



Expected Impact	Location	Advisories	Action Needed/Responsible Organization
		<p>User should access and understand the periodic warning and advisories issued at short and medium ranges.</p>	<p>FFWC</p>
<p>Normal Flooding in Brahmaputra Basin, Short Term Inundation in Meghna Basin</p>	<p>North & Northeastern (Mymensingh, Sylhet divisions, and a few districts of Rangpur division) Southeastern Region (a few districts of Chattogram division)</p>	<p>Monitor embankment of the flood vulnerable areas and if necessary take proper action</p>	<p>BWDB</p>



Expected Impact and Sectoral Advisories, Fisheries Sector

Expected Impact	Location	Advisories	Action Needed/Responsible Organization
<p>Prolonged Heatwave and temporary flooding situation in the low-lying Charland</p>	<p>Northwestern & Southwestern region(Rajshahi, Khulna division and a few districts of Rangpur division such as Dinajpur & Panchagarh), North & Northeastern region(Mymensingh, Sylhet divisions and rest of the districts of Rangpur division</p>	<p>Advise farmers to supply safe cool water from deep tube wells/ submersible pumps/ other sources to ponds/reservoirs by fountain-like mode to regulate temperature and increase the required depth of water in the afternoon</p>	<p>DoF</p>
		<p>Before flood advise farmers to monitor pond dike and repair. And during flood apply branches of tree, palm or date leaves known as kata locally to keep fish in the pond, and make a buffer zone beside kata using lime and oxygen-generating substances.</p>	
		<p>Advise farmers to culture fishes resilient with flood-like cage and pen culture and netting the pond. Advise farmers to apply polychaete,</p>	

Division wise Climatology of Monthly Rainfall (mm)

Division	June	July	August	September
Dhaka	345	364	345	277
Chittagong	590	720	590	312
Barisal	482	518	482	315
Mymensingh	394	436	394	335
Khulna	298	340	298	276
Rangpur	396	416	396	407
Sylhet	634	579	634	407
Rajshahi	299	354	299	296

Climatology of Monthly Mean Temperature (°C)

Division	June	July	August	September
Dhaka	29.41	29.07	29.26	29.15
Chittagong	28.64	28.21	28.43	28.57
Barisal	29.14	28.55	28.74	28.76
Mymensingh	28.69	28.815	29.03	28.71
Khulna	30.04	29.34	29.43	29.21
Rangpur	29.05	29.19	29.42	28.81
Sylhet	28.32	28.78	28.94	28.58
Rajshahi	29.81	29.41	29.6	29.26

Interpretation of climate outlooks

In general, the climate outlooks are presented in two different way. But first we need to explain Normal. Normal in climate terms is the Long Period Average (LPA) of the rainfall over a location using 30 years or more of rainfall data (measured at a station). The average is considered as the “Normal” rainfall for the region. And seasonal climate outlook is to estimate if the season will have more than Normal, less than Normal rainfall or equivalent to normal rainfall.

Forecast methods:

1. Deterministic: Deterministic forecast explains the percentage (%) departure from the Normal. If we expect 20% or less than Normal rainfall, we call it be Below Normal, if we expect 20% or more, we can it Above Normal and anything within the $\pm 20\%$ is called the Near Normal rainfall for the season.

2. Probabilistic: The probabilistic approach explains the possibility (chance) of a certain amount of rainfall happening. For example, what is the chance of the season to be Below normal, or Normal or above Normal. If we say 45% Below normal, 30 % Normal and 25 % Above Normal. There is highly likely chance for the season to be Normal to Below Normal with a combined (75%) chance.

Important Note

Below Normal rainfall does not indicate there will be no or less extreme rainfall events. There can be high intensity rainfall within short period of time followed by extended dry spells which may still sum up as Below Normal for the month. Users are advised to follow short and medium range forecast of BMD to keep track of extreme weather events.

The Monsoon Forum is an established institutional mechanism between the Bangladesh Meteorological Department (BMD) and other mandated warning institutions in the country like the Flood Forecasting and Warning Center (FFWC), and their stakeholder sectoral institutions, for regular dialogue vis-à-vis generation and applications of user-driven multi-timescales, multi-hazard risk information. Through an iterative process that is built on the monsoon for ensuring sustainability, the Monsoon Forum provides opportunities for sectoral stakeholders to seasonally review their forecast-based, anticipatory preparedness plans and implementation thereof, and how these could be improved in subsequent season(s); and for BMD and FFWC to constantly evolve/tailor forecasts/warnings to suit user requirements.

