



Monthly Hydro Meteorology Bulletin 2026

Forward

This Monthly Hydro Meteorological Bulletin is prepared and disseminated by the Ethiopia Meteorological institute (EMI). The ultimate objective of producing and disseminating this bulletin is to inform all level decision makers with the updated and relevant hydro meteorological information. This monthly Bulletin reviews the July 2026-month climate condition and its impacts over the river catchment across the country and highlights the August 2026 climate outlook along with the likely impact over the water dams and the rivers basins.

The information contained in this bulletin is believed to assist the water professionals for planning the capacity expansion of reservoirs, water supply, ecosystem restoration as well as rehabilitation of existing systems including dams, irrigation, canals, pumps, wetlands and the likes. In addition to the aforementioned benefit the bulletin also reveals the aridity levels of each basin, extremes heavy rainfall events and areas where significant amount of moistures loss through evapotranspiration. In the impact outlook section of the bulletin it provides the likelihood of the climate in the coming month and its potential impact over various aspect of the river basins including the hydraulic structures such as culverts, bridges, reservoir spillways, road embankments and dikes. It also indicates the measures need to be taken as the early actions so as to reduce the possible negative impact of the upcoming month climate condition. Meanwhile, your comments and constructive suggestions are highly appreciated to make the objectives of this bulletin a success.

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1. Introduction

The provision of hydro meteorological services can contribute a significant role toward water resource management and socio-economic development. Both surface water and groundwater management are essentially linked to climate variability. Therefore, the provided climate information and knowledge in this monthly hydro meteorological bulletin have a critical importance for efficient, equitable and sustainable development and management of the national water resources and for coping with any climate related risks. The information illustrates the impact of previous month climate on each and every water basins and the associated climate risks observed during the month under review. In addition to the previous month impact assessment, the bulletin also provided the expected climate condition for the coming months and its impact on the water resource. The design of water-use and flood-control facilities, mainly dams and reservoirs, is frequently based on these analyses. Estimating the likelihood of precipitation, the distribution of precipitation and the rate of evaporation in location and time, the heavy rainfall and the subsequent runoff, extreme temperature and wind are among issues that hydro meteorologists are concerned with.

1.1 Monthly Hydro Meteorological Assessments

1.1.1 August Monthly Climatology of the Ethiopian River Basin

As can be seen in figure 1, During August, most parts of the Abay, Tekeze, Baro-Akobo, Omo-Gibe, Rift Valley, Genale-Dawa, Wabi-Shebelle, and Ogaden River Basins, as well as some parts of the Middle and Upper Awash Basin, received a significant amount of moisture, which exceeded the potential evapotranspiration (PET) of the respective areas. This indicates the prevalence of a positive moisture balance across most of these areas during the month.

Climatologically, the western, central, southern, southwestern, northern, and eastern parts of the river basins experienced wet to very wet moisture conditions during August. The prevailing moisture conditions were mainly associated with the relatively adequate to abundant rainfall received across these areas, contributing to increased soil-moisture availability and the replenishment of surface-water resources.

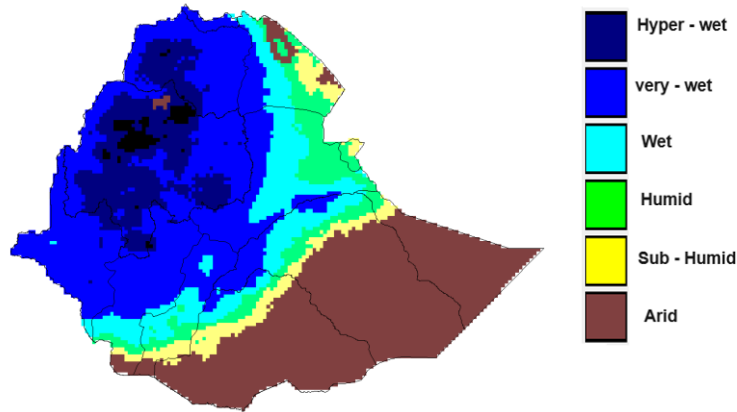


Figure 1 Monthly climatology of the Ethiopian river basin (August).

1.1.2 August 2026 Rainfall Assessment over the River Basins

During August 2026, rainfall distribution across the river basins of the country exhibited marked spatial variability, as illustrated in Figure 2. Relatively higher monthly rainfall was concentrated mainly over the western, southwestern, and southern parts of the country. In particular, most parts of the Abay, Tekeze, Baro-Akobo, Upper Omo-Gibe, Rift Valley, Genale-Dawa, and portions of the Upper Wabi-Shebelle basins received comparatively higher rainfall, with monthly totals ranging from approximately 68 mm to 450 mm.

In contrast, relatively dry conditions prevailed across the eastern, northeastern, and lower-elevation areas of the country. Most parts of the Ogaden and Afar-Danakil basins, together with the lower reaches of the Wabi-Shebelle, Genale-Dawa, and Awash basins, received relatively limited rainfall, with monthly totals generally below 67 mm throughout August. This spatial contrast highlights the substantial variation in rainfall availability among the country's river basins during the month.

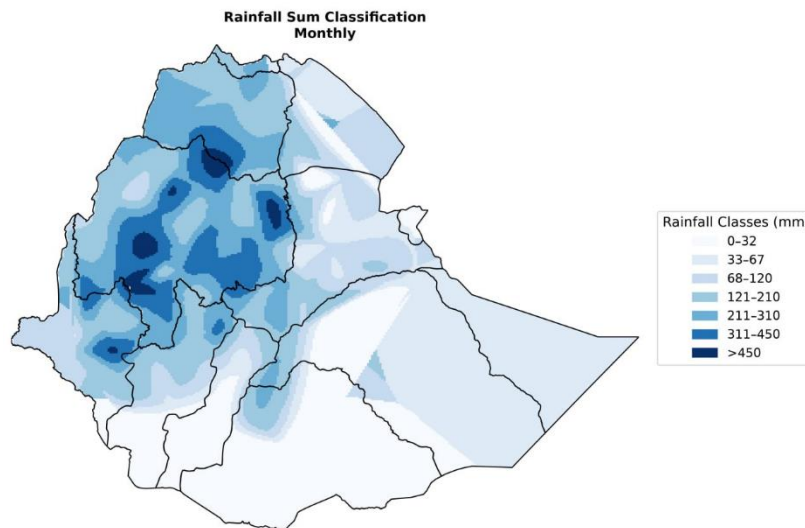


Figure 2 August monthly mean rainfall over Ethiopian River Basin

1.1.3 Monthly Mean Temperature over the River Basin

During August 2026, mean temperature patterns exhibited noticeable spatial variation across the region's major river basins, as illustrated in Figure 3. The majority of the central catchments specifically portions of the upper Abay, Baro, and Omo-Gibe, Rift Valley, Wabi Shebelle, Awash, and Genale Dawa basins recorded average monthly temperatures remaining below 25°C. These cooler thermal conditions effectively limited atmospheric demand, resulting in lower evapotranspiration rates across these areas.

In contrast, warmer thermal regimes prevailed across eastern, lowland, and peripheral basin areas. Monthly average temperatures surpassed 25°C in the Ogaden, Lower Wabi Shebelle, Baro-Akobo, Awash, Omo-Gibe, Rift Valley, and Afar-Danakil catchments, creating higher evaporative demand throughout these area.

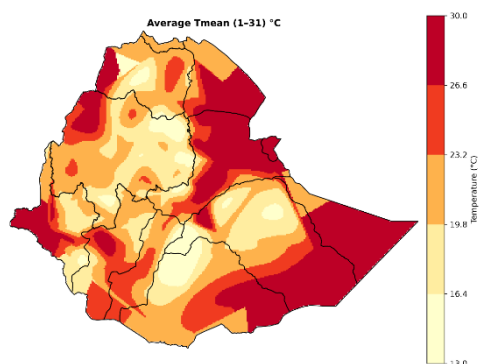
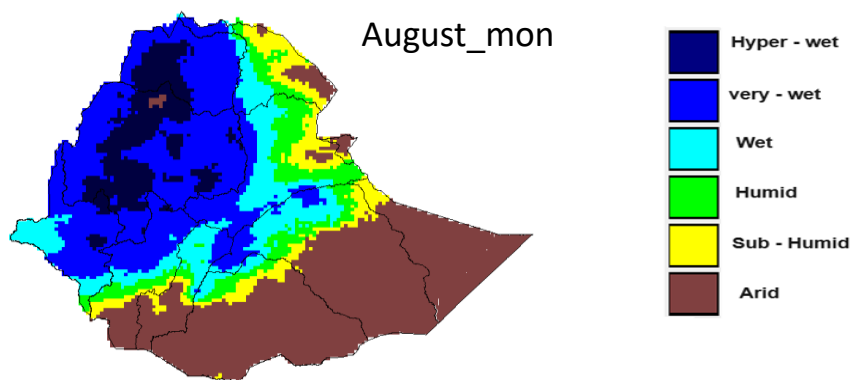


Figure 3 August monthly mean temperature over Ethiopian River Basin

1.1.4 Assessments of Aridity Index during the month of August

During August 2026, the observed Aridity Index is shown in Figure 4. Analysis reveals favorable monthly moisture distribution across the western, northern, southwestern, and northeastern regions of the river basins. This is above-wet to hyper-wet Aridity Index values recorded across most of the Abay, Baro-Akobo, Tekeze, Mereb-Gash, upper Omo-Gibe, Rift Valley, and Genale Dawa basins, as well as the few upper Ogaden. In contrast, sub-humid to arid conditions prevailed across most of the Ogaden, Wabi Shebelle, Genale, lower Rift Valley, and lower Omo-Gibe regions.



1.1.5 Distribution of Heavy fall

As can be seen in the above figure 4, during the month, key hydrological basins including most of Abay, Baro-Akobo, Omo-Gibe, the Rift Valley, as well as the upper stretches of Genale Dawa and Wabi Shebelle recorded between one up to five days heavy rainfall events. This consistent occurrence of high-intensity precipitation played a crucial role in significantly boosting soil moisture levels, replenishing major river channels, and enhancing overall catchment run-off across the regions.

Consequently, the accumulating rainfall is substantially increasing the water storage volume and holding capacity across primary natural and artificial reservoir systems, hydroelectric dams, and river basins. This marked rise in reservoir levels not only strengthens water security

for upcoming agricultural, and industrial needs, but it also maximizes total power generation capacity and boosts long-term energy production potential throughout the interconnected basin infrastructure.

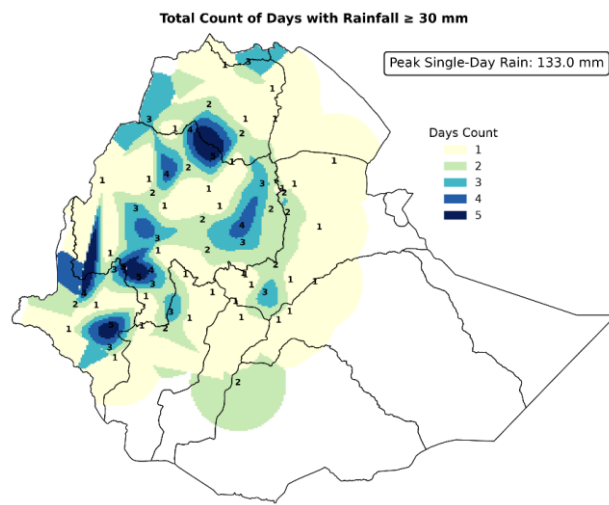


Figure 4(a, b) August monthly Aridity index and Heavy Fall Frequency over Ethiopian River Basis



2. Hydro Meteorological Impact Outlook for September 2026

2.1 Expected weather impact on water resource during the coming September, 2026

During September, most parts of the Tekeze, Abay, Mereb-Gashe, Awash, Baro-Akobo, Omo-Gibe, Upper and Middle Rift Valley, Upper Wabi-Shebelle, and Genale-Dawa basins are expected to experience wet to very wet moisture conditions. The anticipated rainfall is expected to contribute positively to the replenishment of rivers, reservoirs, wetlands, and other surface-water resources. Increased runoff and reservoir inflow may support hydropower generation, water supply, and both large- and small-scale irrigation activities by improving water availability across the affected basins.

However, the expected wet to very wet conditions may also increase the risk of flash floods, riverine flooding, and landslides, particularly in flood-prone urban and rural areas and hilly or steep terrain. Heavy and persistent rainfall could result in increased surface runoff, soil saturation, and localized flooding, potentially affecting human settlements, roads, bridges, and other infrastructure. Therefore, water-sector professionals, local authorities, and communities in vulnerable areas are advised to take appropriate precautionary measures, including clearing drainage systems, monitoring river and reservoir levels, and strengthening preparedness and early-warning measures. Residents should remain alert to flooding, landslides, and reduced visibility and should strictly avoid walking or driving through flowing or flooded water.



