



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 July Monthly Climatology of the Ethiopian River Basin

As can be seen in figure 1, During the month, Hydrometeorological conditions across the major river basins favored substantial moisture accumulation, with rainfall amounts significantly outstripping atmospheric demand. Most parts of the Abay, Tekeze, Baro-Akobo, Omo-Gibe, Rift Valley, and Genale Dawa, Wabi Shebelle, and Ogaden basins along with localized areas in the middle and upper reaches of the Awash basin, received a substantial volume of precipitation that exceeded the potential evapotranspiration (PET) thresholds of these respective regions. This excess moisture effectively recharged surface soil layers, reduced agricultural water deficits, and generated increased surface runoff into major drainage systems. From a climatological perspective, these moisture surpluses driven by widespread rainy activity translated into predominantly wet to very wet hydrological regimes across nearly all major geographical sectors. Consequently, the western, central, southern, southwestern, northern, and eastern spans of the country's interconnected river basins all experienced favorable, high-moisture baseline conditions throughout the period.

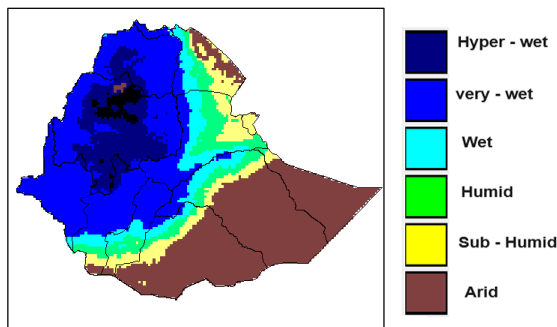


Figure 1 Monthly climatology of the Ethiopian river basin (July).

1.1.2 July 2026 Rainfall Assessment over the River Basins

During July 2026, rainfall distribution across the nation's river basins exhibited marked spatial variability, as illustrated in Figure 2. Enhanced monthly rainfall was concentrated primarily over the western, southwestern, and southern halves of the country's catchments. Within these regions specifically covering most of the Abay, Tekeze, Baro-Akobo, upper Omo-Gibe, Rift Valley, Genale Dawa, and portions of the upper Wabi Shebelle basins accumulated totals ranged significantly between 68 mm and 450 mm.

Conversely, considerably drier conditions persisted across eastern, northeastern, and lower-elevation basin areas. Most of the Ogaden and Afar-Danakil catchments, along with the lower reaches of the Wabi Shebelle, Genale Dawa, and Awash basins, received totals under 67 mm of rainfall throughout the month.

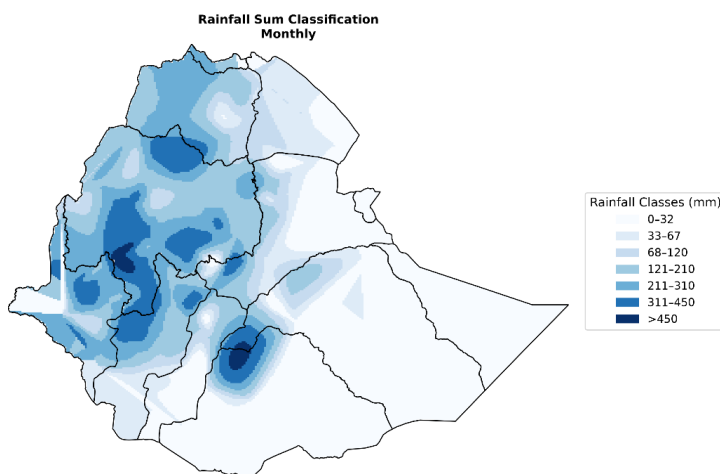


Figure 2 May monthly mean rainfall over Ethiopian River Basin

1.1.3 Monthly Mean Temperature over the River Basin

During July 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.

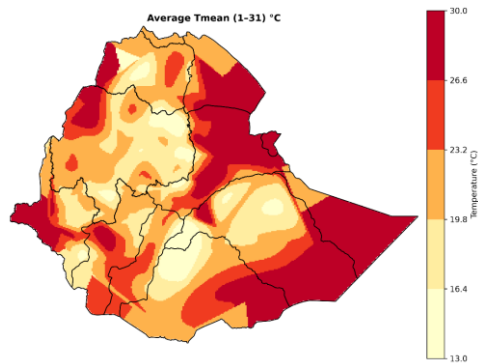
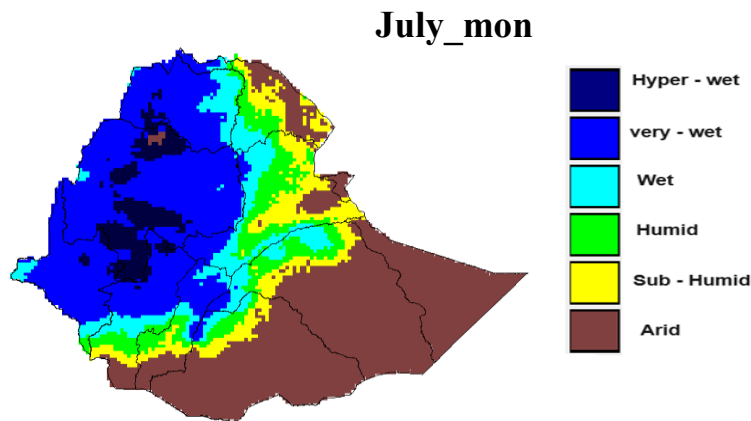


Figure 3 July monthly mean temperature over Ethiopian River Basin

1.1.4 Assessments of Aridity Index during the month of July

During July 2026, the observed Aridity Index is shown in Figure 4. Analysis reveals favorable monthly moisture distribution across the western, northern, southern, southwestern, eastern, 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, Omo-Gibe, Rift Valley, and Genale Dawa basins, as well as the upper Ogaden border and upper Wabi Shebelle. 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 four 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.

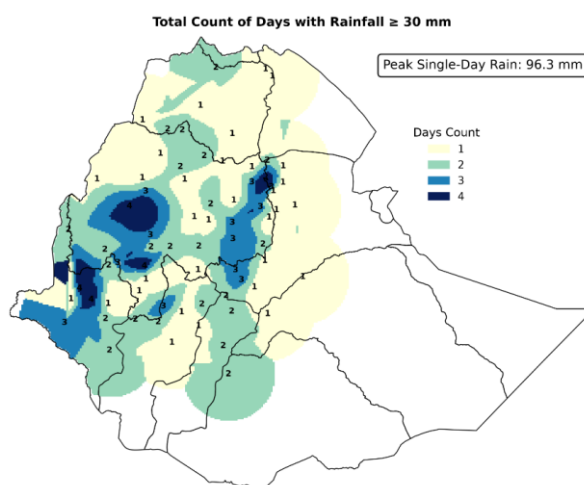


Figure 4(a, b) July monthly Aridity index and Heavy Fall Frequency over Ethiopian River Basis



2. Hydro Meteorological Impact Outlook for August 2026

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

During August, most of the Tekeze, Abay, Mereb-Gashe, Awash, Baro-Akobo, Omo-Gibe, Upper and Middle Rift Valley, Upper Wabe Shebele, and Genale Dawa basins are expected to experience wet to very wet moisture conditions. This anticipated rainfall will contribute positively to water levels in both natural and artificial reservoirs, enhancing dam inflow and energy production while providing adequate moisture for large- and small-scale irrigation. However, the heavy rainfall may trigger flash floods and riverine flooding in flood-prone urban and rural areas, as well as landslides in hilly regions, potentially causing significant damage to human life, property, and infrastructure. Consequently, water professionals and local communities are strongly advised to take precautionary measures, such as clearing drainage systems, while residents in vulnerable areas should remain vigilant for flooding, landslides, and poor visibility, and strictly avoid walking or driving through moving water.



