



Monthly Hydro Meteorology Bulletin

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 February 2025-month climate condition and its impacts over the river catchment across the country and highlights the March 2025 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.





1. Introduction	4
1.1 Monthly Hydro Meteorological Assessments.....	4
1.1.1 Monthly aridity Climatology over the Ethiopian River Basin.....	4
1.1.5 Distribution of Heavy fall (>30mm a day).....	7
2.1. Expected weather impact on water resource during the coming.....	8
march 2025	9



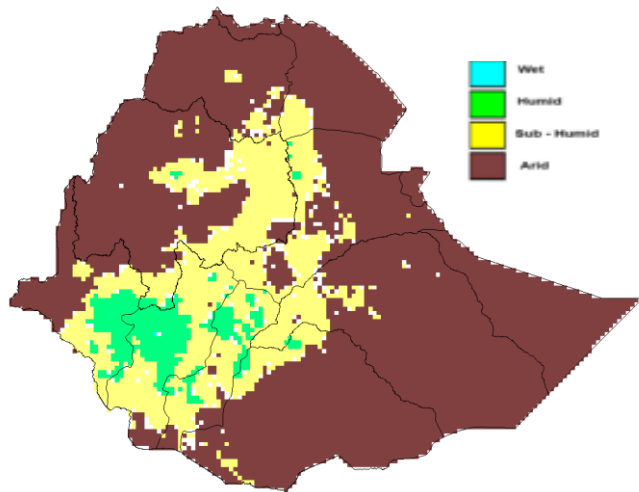
1. Introduction

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 Monthly aridity Climatology over the Ethiopian River Basin

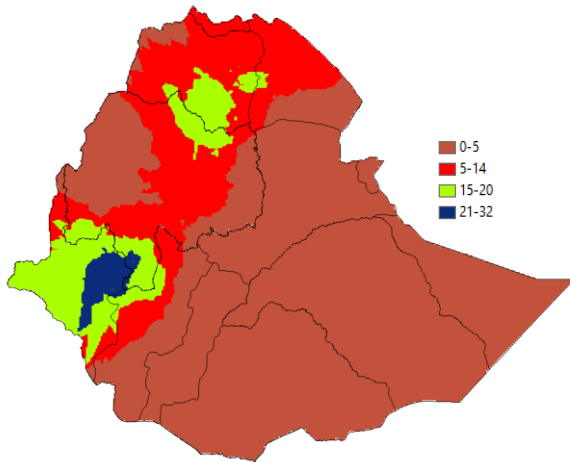




In the normal climate moisture condition of February in the south western, south and north eastern few parts of the river basin have experienced sub-**humid to humid condition**. In line with this, most of Omo Gibe. Rift valley , upper and middle Awash, upper and middle parts of Baro Akobo, pocket place of upper and middle Abay, few area of upper Tekeze, receive sub humid to humid moisture that exceeding from the potential evapotranspiration of the areas.

Figure 1. Monthly Moisture Climatology over the river basin during February

1.1.2 February 2025 Rainfall Assessment over the River Basins

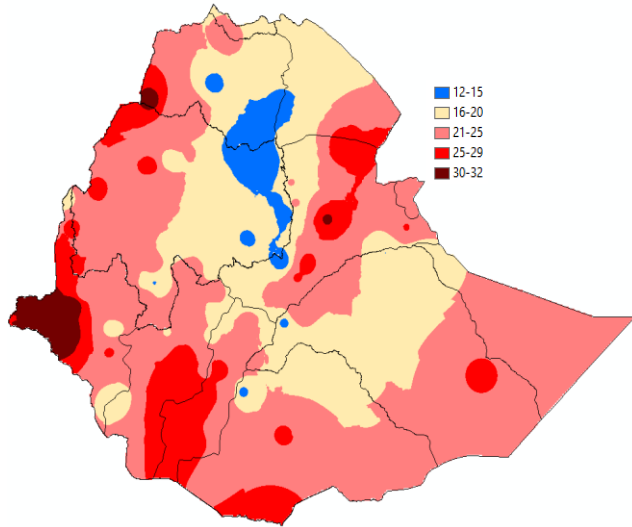


As can be seen in figure 2, better monthly rainfall distribution is observed across the western and north Eastern basins of the country. According to this, most parts of Baro Akobo and, upper Tekeze and upper Abay 15-32 mm of rainfall. The rest most the river basin were dry conditions

Figure 2 february monthly mean rainfall over Ethiopian River Basin



1.1.3 Monthly Mean Temperature over the River Basin



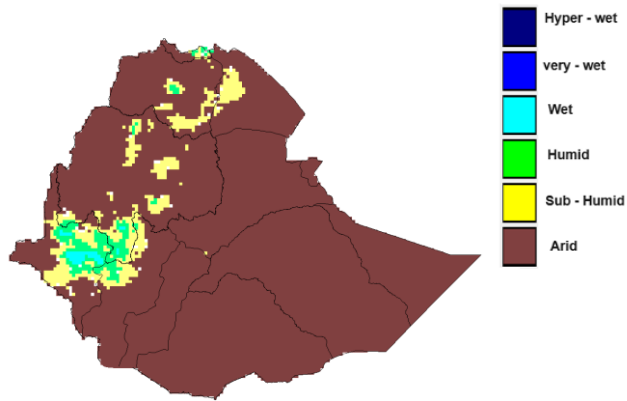
As we can see in Figure 3,

In February month daily average 12-15 °C experienced few area of upper Tekeze and few area upper eastern Abay , middle Awash, and upper Genale Dawa, additionally most of Wabi shebele, Awash and Genale Dawa, performed monthly average temperatures **below 25°C**. However, the monthly average temperatures that were reported in the remaining catchments of some part of lower BaroAkobo, Rift Valley, Afar Danakil, Awash, Abay, Wabi shebele, Genale Dawa and Ogaden were received above 25°C.

Figure 3 February monthly mean temperature over Ethiopian River Basin

1.1.4 Assessments of Aridity Index during the month of December



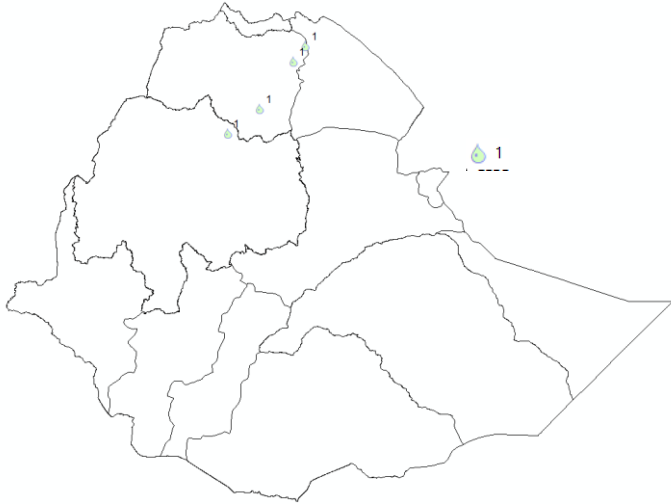


During this month, most parts of wabi shebele, Genale, Dawa, Central rift valley, Awash, Abay, Omo Gibe, and Tekeze, Ogaden, Aysha, have had arid moisture condition. Perhaps some few place of the river basins was received sub humid to wet moisture condition, such as few place of upper and middle Baro Akobo, the middle Omo Gibe, few place of upper Tekeze, few place of northern Afar Danakil, the condition positive impact to water resource and different water activities.

Figure 4. February monthly Aridity Index condition over the river basins

1.1.5 Distribution of Heavy fall (>30mm a day)





As can be seen in the below figure 5, most of the river basin was under dry weather condition, however on Tekeze basin at Amdewok ,AIDERMQO, ATSEBI and on Abay basin at Debre tabor station observed each station one day heavy fall .

Figure 5 Heavy fall Frequency during the February month over Ethiopian River Basin



2.1. Expected weather impact on water resource during the coming march, 2025

The next march month impact of weather condition on water resource will be sub humid to wet condition on south, central, and south west river basins, such Baro Akobo, upper and Omo Gibe, Awash, Central Rift valley, Genale Dawa, upper Wabi shebele, Ogaden will be better moisture status, while this condition positive impact to water bodies and water activities. On the other hand Aysha, Mereb Gash, Afar Danakil basins are will be arid condition. This situation gradually will leads to water insufficient. Therefore recommended to use water in proper without wastage.



Number of weather stations used for Hydro Meteorological Analysis

