Dekedal Hydro Meteorology Bulletin

Forward

This Dekedal 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 Dekedal Bulletin reviews the April 21-30 11-20, 2025-month climate condition and its impacts over the river catchment across the country and highlights the, May 1st ten days, 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*

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.

1.2 Hydro Meteorological Impact Assessment April 21-30, 2025

During last the 3rd 10 days of April, the weather conditions impact on the River basins most of Omo Gibe, Rift valley, Genale Dawa, Baro Akobo, upper eastern and middle Abay, upper Tekeze, upper and middle wabi shebele, and southern lower Abay basins were experienced sub humid wet moisture condition.in addition lower Baro Akobo middle Om Gibe, Rift valley and upper Genale Dawa basins have experienced very wet moisture condition. This was a positive factor for the water sector, ensuring the availability of water for human consumption, and livestock. The rest Basins such as most of Awash, Afar Danakil, Ogaden, Mereb Gash, Aysha, Lower Wabi shebele, middle and lower Tekeze were mostly dry condition in line with a day high maximum temperature increased evaporation hence have had negative impact on water resource.

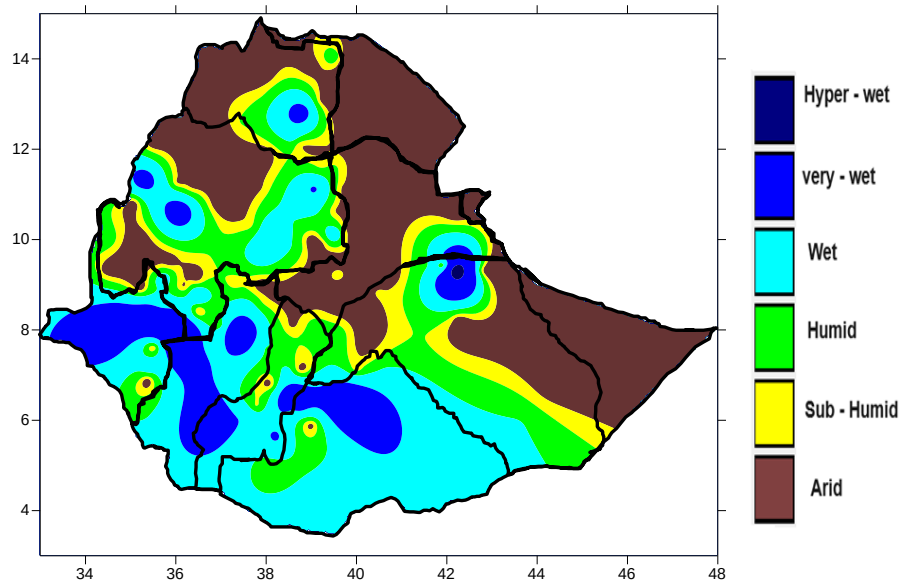

Figure 1 Dekedal Hydro Meteorological Assessments from April 21-30, 2025

1.2 Hydro Meteorological Impact Outlook for may 1-10, 2025

Over the next ten days, the weather conditions will have negative and positive effect over different river basin of the country.

Positive Impacts:

- There will be an increase in the available water levels in river basins and reservoirs, improving water availability particularly wet moisture basins.

2. **Negative Impacts**:
    - Los of water due to high Day maximum Temperature through evaporation
    - Water conflict arid areas particularly between livestock owners.
3. **Recommendation**:
    - Collect roof water especially next season will be dry Area
    - Effectively water utility
    - Save water

Ethiopian River Basins	Stream Flow Condition	Positive Impact	Negative Impact	Hydrometeorology Advisory
Most of Genale Dawa, Middle and lower Omo Gibe, Rift valley Upper and middle Wabi shebele	humid to wet	*- Improved water availability for surface and sub-surface and enhance hydropower production*	*- Potential flooding like flash flood in urban areas. Erosion risks, sedimentation in water storage areas. Traffic congestion - solid waste disposal polluting open water and with flooding*	• *Monitor flow levels for flood risk management, especially during peak flows and seasonal changes in stream flow,* • *erosion control measures, and long-term water conservation strategies* • *To restore riverbanks and manage water runoff effectively to prevent soil erosion and protect ecosystems.*
Most of Baro Akobo, Tekeze, upper and middle Abay,	Moderate condition	Open water clear and free to flood pollutant	- Low flow over surface and subsurface	• Implement flow regulation and storage for seasonal water availability, considering on dry season water conservation strategies • *Collecting and managing rainwater to reduce water waste and maximize water use efficiency*

Ogaden, Afar Danakil, Aysha, Mereb Gash (Across All Sub-basins)	Dry Condition	- Adequate flow during the wet season, supporting agriculture and hydro power -Consistent water supply during the wet season	- Reduced flow during dry periods leading to water scarcity for surface and subsurface under the entire basin - Water scarcity issues due to low flow in dry season	• Enhance water storage techniques to manage dry season shortages, ensure irrigation efficiency • Optimize water resource management, focusing on sustainable supply and conservation strategies

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Summary

The weather over the next may 1st ten days will cause significant variations in water flow and availability, which are going to have the following effects on different water-related systems: More water flow is expected to enhance the water supply in various parts of the country, especially belg rainfall benefiting Areas such as most Genale Dawa, middle and lower Omo Gibe, Rift valley, upper and middle wabi shebele which will help water store in reservoirs have positive impact, and the other hand negative effects also will have in different River basins such as Afar Danakil, Ogaden, Aysha and Merebgash: therefore recommend collect rain water in different mechanism for water sustainability.

Mereb – Gash Catchment: -Northwestern tip of Tigray.

Atbara-Tekeze Catchment: -The Tekeze River basin is situated in the northwest of Ethiopia between 11 º40' and 15 º12' N, and 36 º 30' and 39º 50' E. It is bordered by the Mere Riverbasin and by Eritrea in the north, the Atbara River plains in Sudan in the west, the Abay River basin in the south and Danakil basin in the east.

Danikil – Afar Catchment: -East of 40º E of Tigray, North of 11ºN of Wollo, narrow coastal strip south of 14º30'N of Eritrea. The basin is the lowest region in the country where the kobar sink; with an elevation of about 120 meters b.s.l is found.

Awash Catchment: -North of Garamuleta mountains, south of 11º 40' Nof Wollo, south of 9º N of Shoa, Northern tip of Bale and North part of Arsi. The catchment hasupper, middle and lower sub-catchments. In general, the catchment is narrow at the upper part marked bynumerous volcanic mountains and wider at the lower part joining major tributaries from northwestern highlands and a number of seasonal wadies from the southeast highlands.

Blue Nile/ Abbay Catchment: - Roughly 13º N South of Gondar to 11º 30'N, and west of 39º 45'E of Wello, northwestern parts of Shoa; Gojam except the South Western and Western narrow area, Wellega and extreme Eastern tip of Illubabor together with a narrow northeastern strip of Keffa. It is the largest catchment that coversabout 16 percent of the total area of Ethiopia. The Catchment that includes the Lake Tana, Upper Abbay(to Guder confluence),Middle Abbay (to didessa confluence), Didessa, Dabus ,Lower Abbay,Dinder and Rahad Sub-basin.

Gulf of Aden – Aysha Catchment): - Eastern narrow strip of Hararghe. It is a very dryArea with no stream flow representative Meteorological station. Thus, no assessment isdone for this catchment in this publication.

Baro –Akobo Catchment: -The south western and western narrow strip of Wellega, except the eastern tip, the whole of Illubabor and southwestern tip of Keffa. TheCatchment has upper and lower sub-basins along Baro River. The Catchment It is the wettestcatchment because of the highest rainfall over the area.

Omo-Ghibe Catchment: -Southwestern narrow strip of Shoa, the whole ofKeffa except the southwestern tip, southwestern tip of Wellega, Western half of northern Omo and northwestern tip of Sidamo. The upper part of the catchment starts from the plateaus in north part of Ghibe and extends southward to the lower part of it (known as Omo River).

Central Lakes-Rift Valley Catchment: - The whole of North and South Omo, west andsouthwestern narrow strip of Sidamo, southwestern portions of Shoa and western narrow tip of Bale andwestern part of Arsi. The catchment is found in the Great Rift Valley system and typically known by itslakes and streams. Lakes which adjoin the Awash catchment are found in its upper part, while Lake Awassa and Bilate in its central part and end to chamo bahr in its lower part.

Genale Dawa Catchment: -The western half of Bale (South of Goba) and southeast, southwestern and northeastern parts ofSidamo. The catchment constitutes three riversystems namely Dawa, Genalle and Wabi Gestaro that meet each other before they cross the Ethio- Somalia border.

The Shebelle River (Somali: Webi Shabeelle, begins in the highlands of Ethiopia, and then flows southeast into Somalia towards Mogadishu. Near Mogadishu, it turns sharply southwest, where it follows the coast. Below Mogadishu, the river becomes seasonal. During most years, the river dries up near the mouth of the Jubba River, while in seasons of heavy rainfall, the river actually reaches the Jubba and thus the Somali Sea.