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 September11-20/2025-month climate condition and its impacts over the river catchment across the country and highlights the September-21-30,2025 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.

Hydro Meteorological Impact Assessment September 2nd, 2025

During the second dekade of September, wet to waterlogged conditions were observed across most of the primary *Kiremt*-rain-benefiting catchments. These included the Abay, Omo Gibe, Baro Akobo, Upper Rift Valley, and the upper and middle sections of the Awash, Wabi Shebelle, and Genale Dawa basins. Notably, the Middle Abay catchment recorded very high to hyper-saturated conditions. Hydro-meteorological data indicate that this surplus has enhanced surface water resources, proving highly beneficial for reservoir and dam recharge.

In contrast, the rest of the basins primarily middle and lower reaches of the Wabi Shebelle, Genale Dawa, and Awash, as well as the marginal lowland areas of Afar Danakil, Ayisha, Mereb Gash, and Lower Tekeze catchments remained in humid conditions. In another word, in the Ogaden region, lower Wabi shebelle, lower Genale Dawa, most part of Afar Danakil catchments were experienced arid conditions. These persistent dry conditions have negatively impacted water availability, leading to reduced surface water levels.

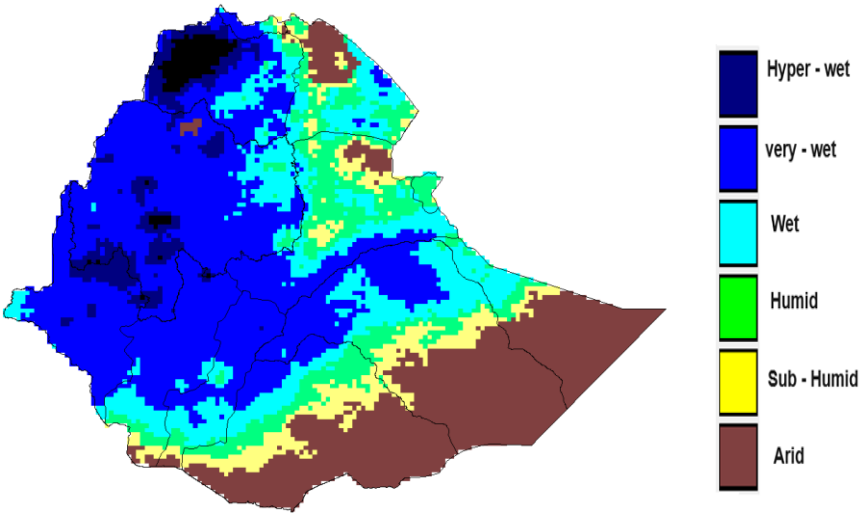

Figure 1. Hydro-Meteorological Assessments for 2nd Dekedal (September 11-20, 2025)

2. Hydro-Meteorological Impact Outlook for the 1st dekade of September, 2025

Moderate to high surface water flows are forecast for most Kiremt moisture-benefiting catchments during the period of September 21-30, 2025, which is expected to significantly enhance surface and groundwater recharge while increasing water levels in ponds and reservoirs. However, due to significant rainfall in the previous dekade that has saturated the ground, there is a high probability of flash floods and elevated river flows, particularly in flood-prone basins, with riverine flooding and inundation presenting a particularly high risk in the lower reaches of the Tekeze, Lower Omo Gibe, Lower Abay, and Lower Awash catchments. Consequently, communities residing along river banks, in wetlands, and swamplands are advised to exercise heightened caution, while relevant sectoral bodies are urged to consider the basin-specific hydro-meteorological recommendations in the accompanying table to mitigate potential risks and capitalize on the opportunities presented by the increased water availability.

Ethiopian River Basin	Expected Moisture	Positive Impacts	Negative Impacts	Hydro meteorological Advisory
Most of • **Abay,** • **Tekeze,** • **Baro, Akobo,** • **Awash,** • **Omo Gibe** • **Afar Dnakil**	High to Medium	• Improvement of groundwater levels • Increased coverage of drinking water supply • Improvement of surface water flow • Improvement of water levels in	• Overflowing of rivers Flash floods • Flash floods in the lower reaches of the basin due to runoff from the upper basin • Increased risk of landslides	• Clean drainage channels • Develop flood diversion channels • Avoid crossing floodwaters on

• **Aysha** • **Upper and Middle Rift Valleys**		irrigation and hydroelectric dams	• Flooding of roads and traffic congestion • Overflowing of rivers and lakes in the lower Omo Gibe	foot or by light vehicle • Collect and store rainwater • Regularly monitor flood impact forecasts and recommendations follow forecasts • Harvest rainwater in areas with deficits
Most of middle and lower Genale Dawa, Wabe Shebele, and Ogaden	Moderate to dry conditions	• No risk of flooding or landslides • Suitable for various construction and other development activities	• Low water flow • Water scarcity in humid areas • High evaporation	• Proper use of water resources • Protecting available rainwater from waste and pollution • Collecting rainwater from roofs and ground surfaces

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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.

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.

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.

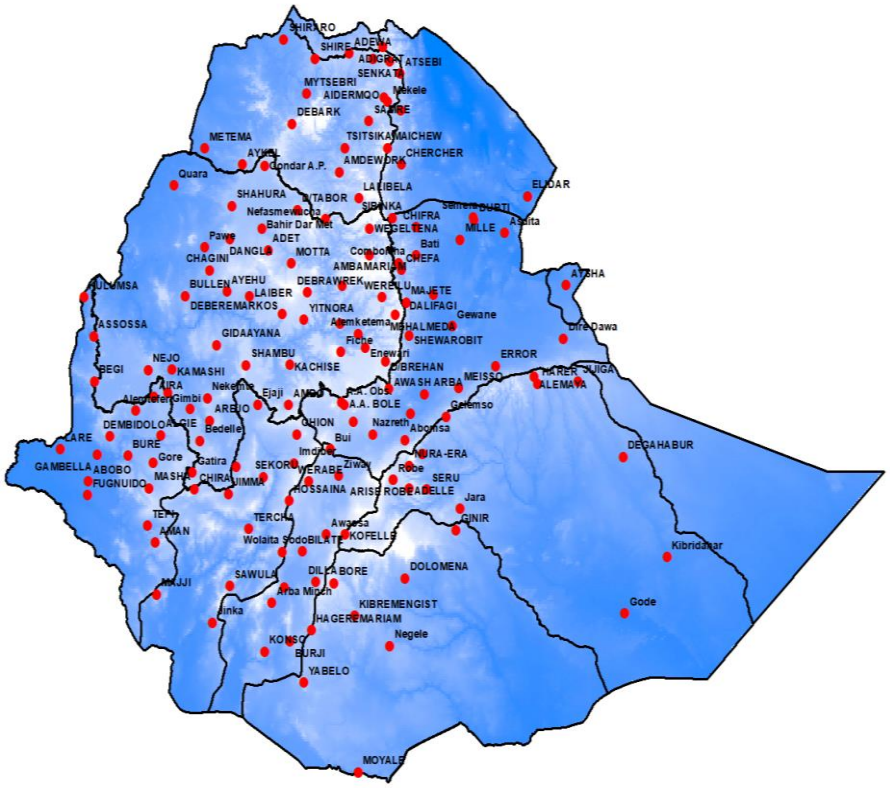
Danikil – Afar Catchment: -East of 40º E of Tigray, North of 11ºN of Wollo, narrow coastal strip south of 14º30'N of Eritrea. The basin is the lowest region in the country where the kobar sink; with an elevation of about 120 meters b.s.l is found.

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.

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.

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.



Number of station

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