



Meteorological Data and Climatology Lead Executive

Climatology and Remote Sensing Desk

Ten Daily Satellite Rainfall Estimation and Vegetation Coverage Bulletin

3rd Dekad of June 2026

Date: July 02, 2026

Contents

Contents	i
Forward	ii
Introduction	1
Rainfall Estimation from Satellite Data	2
Rainfall distribution	2
Comparison with climatological normal	3
Comparison with the previous Dekad	4
Comparison with the ground observation	5
10-Daily Synthesis of NDVI	6
Assessment of synthesis NDVI for the 3 rd dekad of June 2026	6
Comparison with the Climatological Normal	7

Forward

As an entity responsible for monitoring local and country-wide climatic features and their day-to-day evolution, the National Meteorological Agency of Ethiopia strives hard to present useful information to different socio-economic activities. The production of satellite-based rainfall estimates and vegetation greenness bulletin is part of this effort.

The launch of meteorological satellites which happens as a result of technological advancement opens a new horizon in weather and climate monitoring. Unlike manned point observations, satellites collect data on clouds, vegetation, and other parameters from parts of the world that are not easily reachable or accessible. Satellite observation supplements ground manned observation and when it comes to vegetation cover, it is the only source of information.

The Ethiopian Meteorological Institute uses products from the TAMSATA group based in UK and Copernicus for producing dekadal rainfall estimates and vegetation greenness bulletins. We have a strong belief that various socio-economic activities related to planning disaster mitigation, water resources management, construction, environmental protection, transportation, recreation, tourism, and others will benefit most from the careful and continuous use of this bulletin. Meanwhile, your comments and constructive suggestions are highly appreciated to make the objectives of this bulletin a success.

Fetene Teshome
Director General
Ethiopia Meteorology Institute
P.O. Box 1090
Tel: 0115-51 22 99
Fax 0115-51 70 66
E-mail: ethiomet.gov.et
Addis Ababa

Introduction

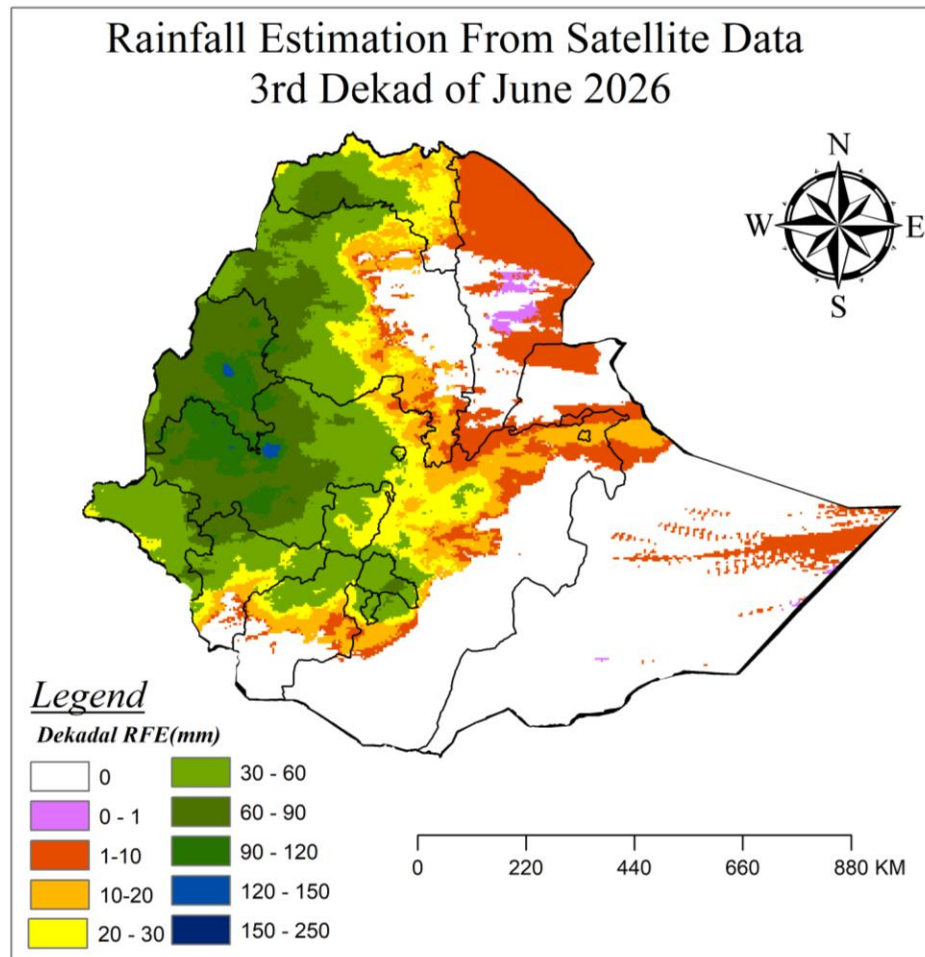
Satellite remote sensing is a valuable tool for estimating vegetation distribution and productivity across large spatial scales. Among the various indices used, the Normalized Difference Vegetation Index (NDVI) is the most widely applied for assessing vegetation greenness and has been utilized in numerous studies (Brandt et al., 2015; Chen et al., 1998; Santos & Negri, 1997; Zhang et al., 2009). The spatial distribution of NDVI, and consequently of terrestrial vegetation, is largely influenced by climatic factors such as rainfall and temperature. A well-documented relationship between NDVI and rainfall exists across various spatial and temporal scales (Davenport et al., 1993; Grist et al., 1997; Nicholson et al., 1990; Potter & Brooks, 1999; Wang et al., 2001). While results vary, these studies consistently highlight rainfall as a key predictor of vegetation distribution, particularly in transitional zones where ecosystems shift from humid to arid or semi-arid conditions. This relationship is especially evident in regions like the Sahel of Africa, where rainfall patterns significantly impact vegetation cover (Zhao et al., 2015).

Rainfall is a critical resource for many socioeconomic activities, particularly in African countries that rely heavily on rain-fed agriculture. Over recent decades, these countries have experienced significant challenges due to rainfall variability and long-term changes in both the amount and distribution of rainfall. However, the network of rain gauges across Africa is sparse, unevenly distributed, and deteriorating, limiting the accuracy and reliability of ground-based rainfall measurements. To address this gap, satellite-based rainfall estimates are increasingly being used as a substitute for, or to supplement, gauge observations, providing broader spatial coverage and more consistent monitoring of rainfall patterns (Tufa Dinku et al.).

In this bulletin, satellite-derived rainfall estimates and vegetation greenness conditions for the third dekad of June 2026 were analyzed using TAMSAT rainfall data and METEOSAT vegetation products. During this period, moderate rainfall was recorded in some Kiremt rain-benefiting areas. As a result of the strong relationship between rainfall and the Normalized Difference Vegetation Index (NDVI), most Kiremt-benefiting areas, including the northern, northwestern, and central parts of the country, as well as several other regions, exhibited good vegetation cover. Conversely, Afar, Somali, and southern Oromia regions, along with some pocket areas of Amhara and Tigray,

received little to no rainfall. Consequently, sparse to bare vegetation conditions were observed in these areas.

Rainfall Estimation from Satellite Data

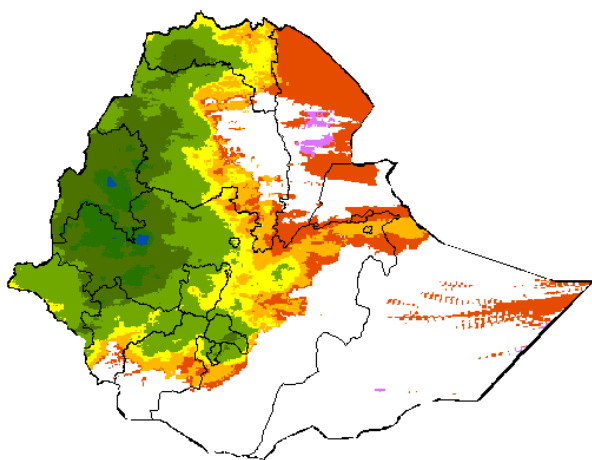
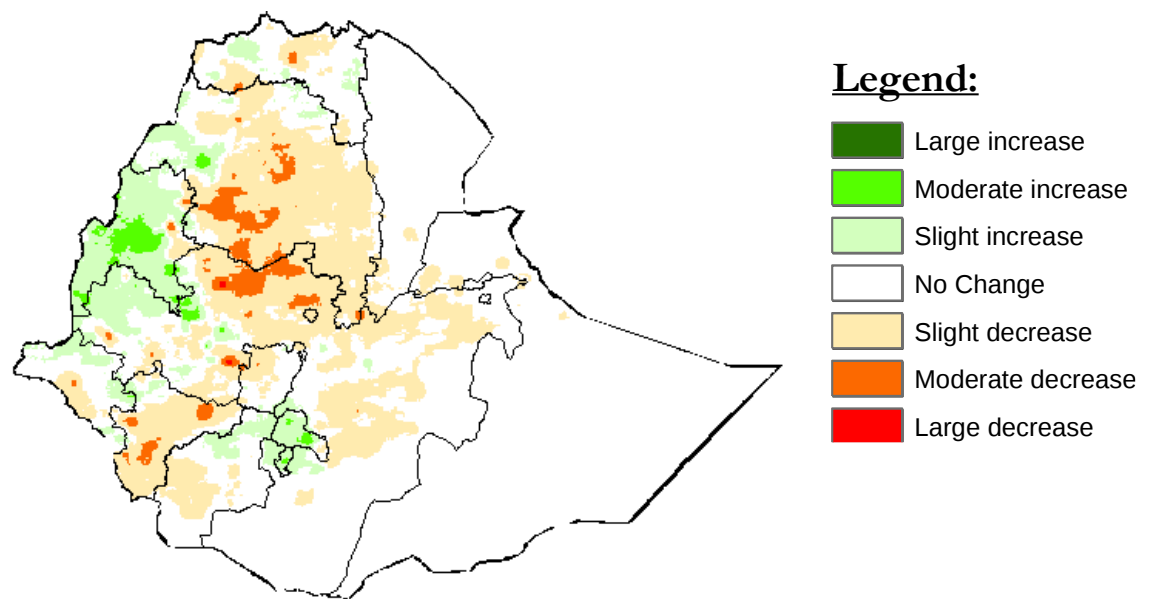


Rainfall distribution

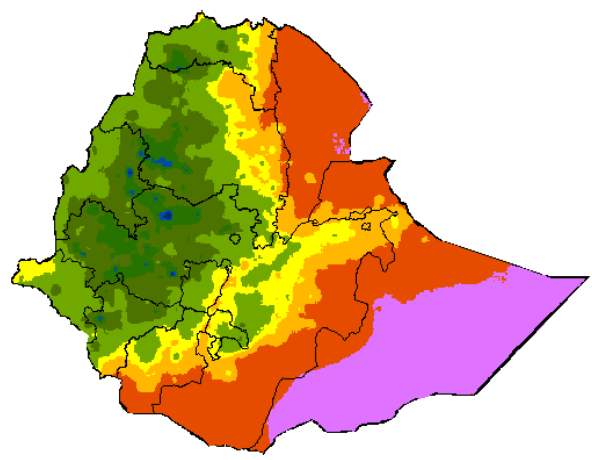
The Kiremt season, which extends from June to September, is the principal rainy season for most parts of the country, particularly the northern, northwestern, and central regions. By the third dekad of June 2026, rainfall had commenced across several parts of the country. Notably, Benishangul-Gumuz, Gambella, South West Ethiopia, Sidama, Central Ethiopia, Western Oromia, Amhara, and Tigray regions received rainfall amounts ranging from 10 to 90 mm. In contrast, little to no rainfall was recorded in other parts of the country, reflecting the spatial variability in precipitation distribution during this period.

Comparison with climatological normal

During this dekad, a comparison between satellite rainfall estimates and the climatological average revealed a slight to moderate increase in rainfall was observed in Benishangul Gumuz, Sidama, some pocket areas of Gambella, Amhara, Tigray and western Oromia regions. A slight to moderate decrease in rainfall was observed in South West Ethiopia, Central Ethiopia, South Ethiopia, most of Amhara, Tigray and Oromia regions. No significant changes were recorded in the rest of the country.



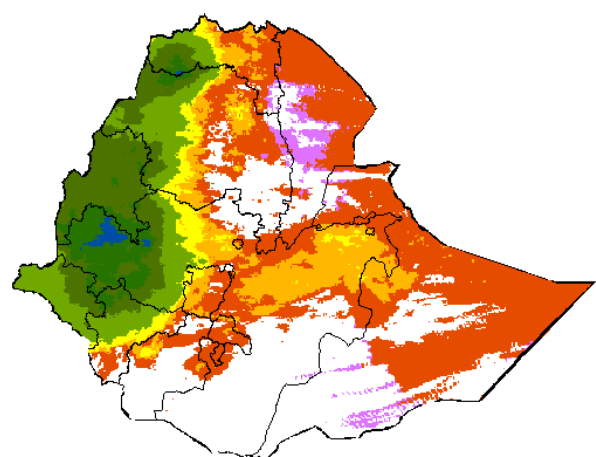
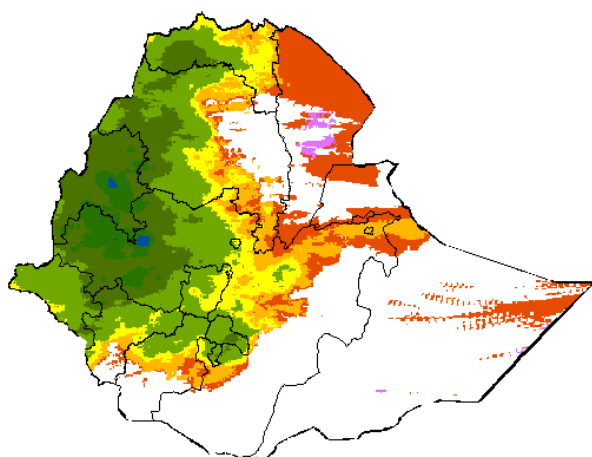
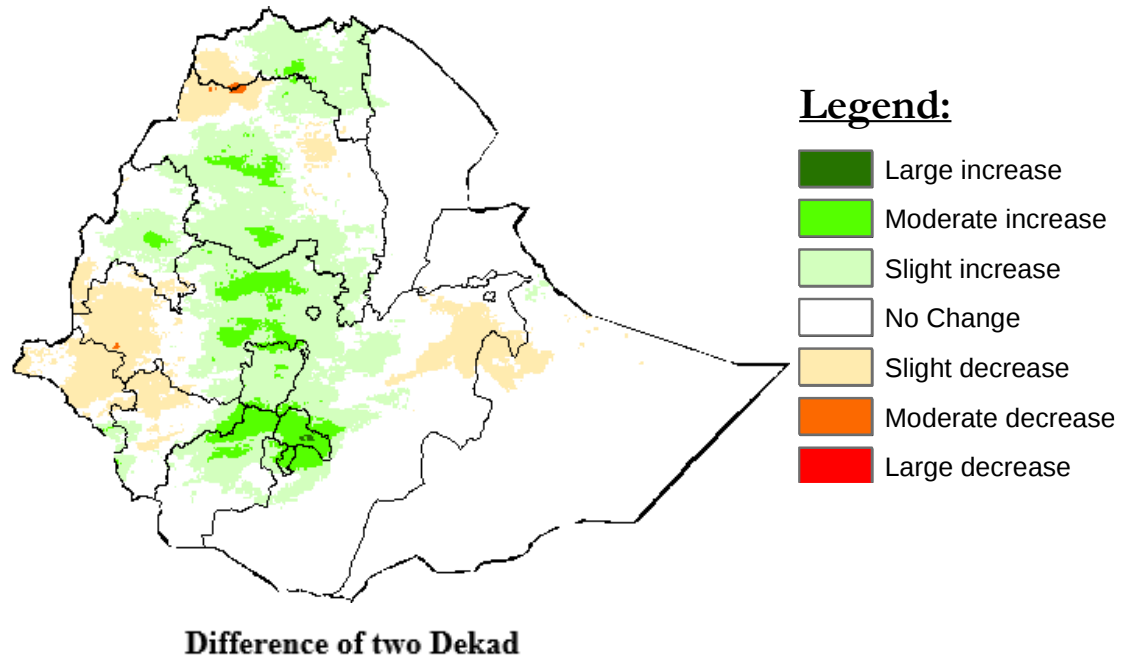
Current dekad



Climatological normal

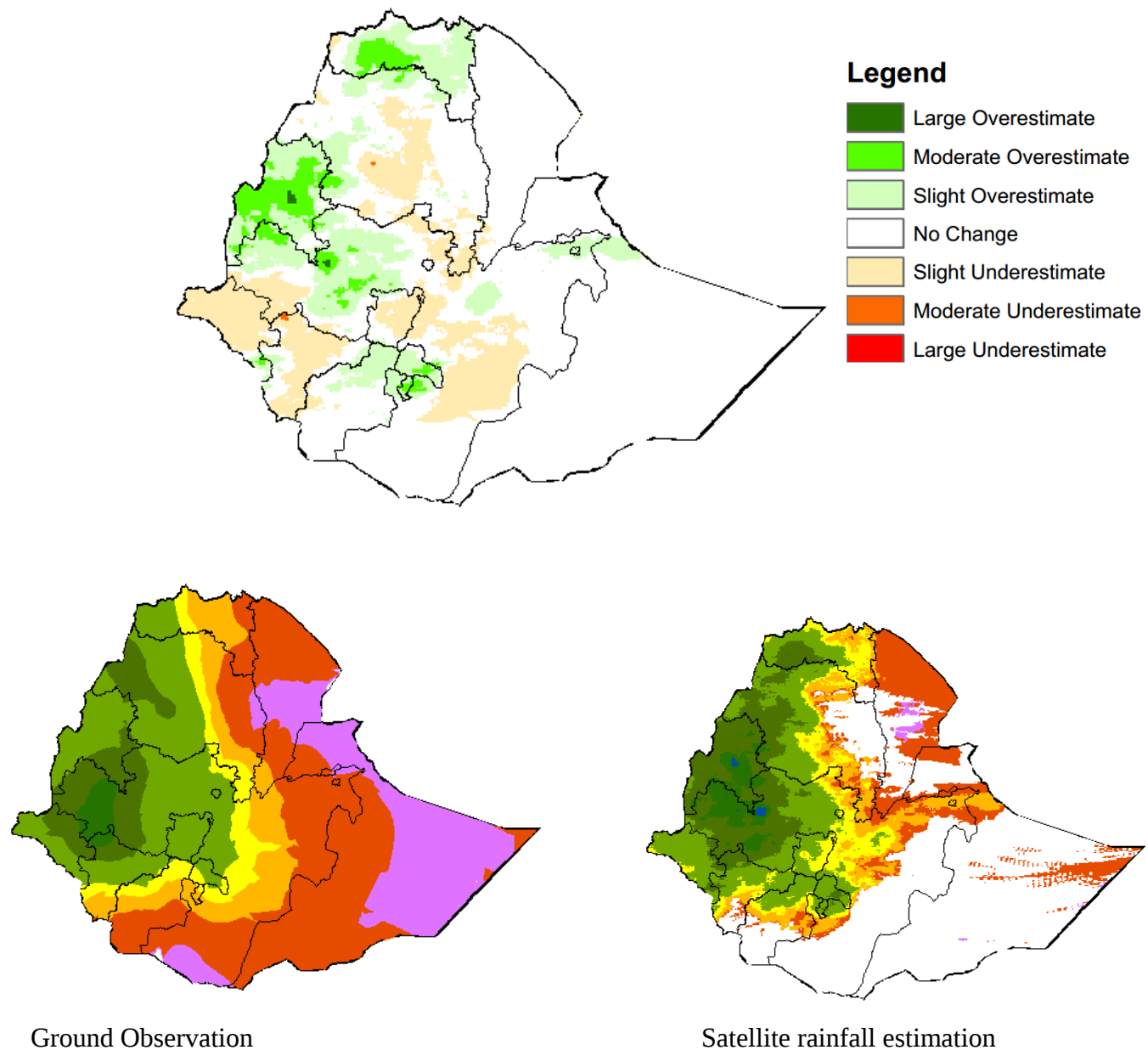
Comparison with the previous Dekad

A comparison between the 2nd dekad of June 2026 and the 3rd dekad of June 2026 shows a slight to moderate increase rainfall was observed in Sidama, Central Ethiopia, Tigray, Amhara, Benishangul Gumuz, South Ethiopia and Oromia regions. On the other hand a slight to moderate decrease showed in Gambella, some pocket areas of Oromia, Amhara, and Tigray regions.

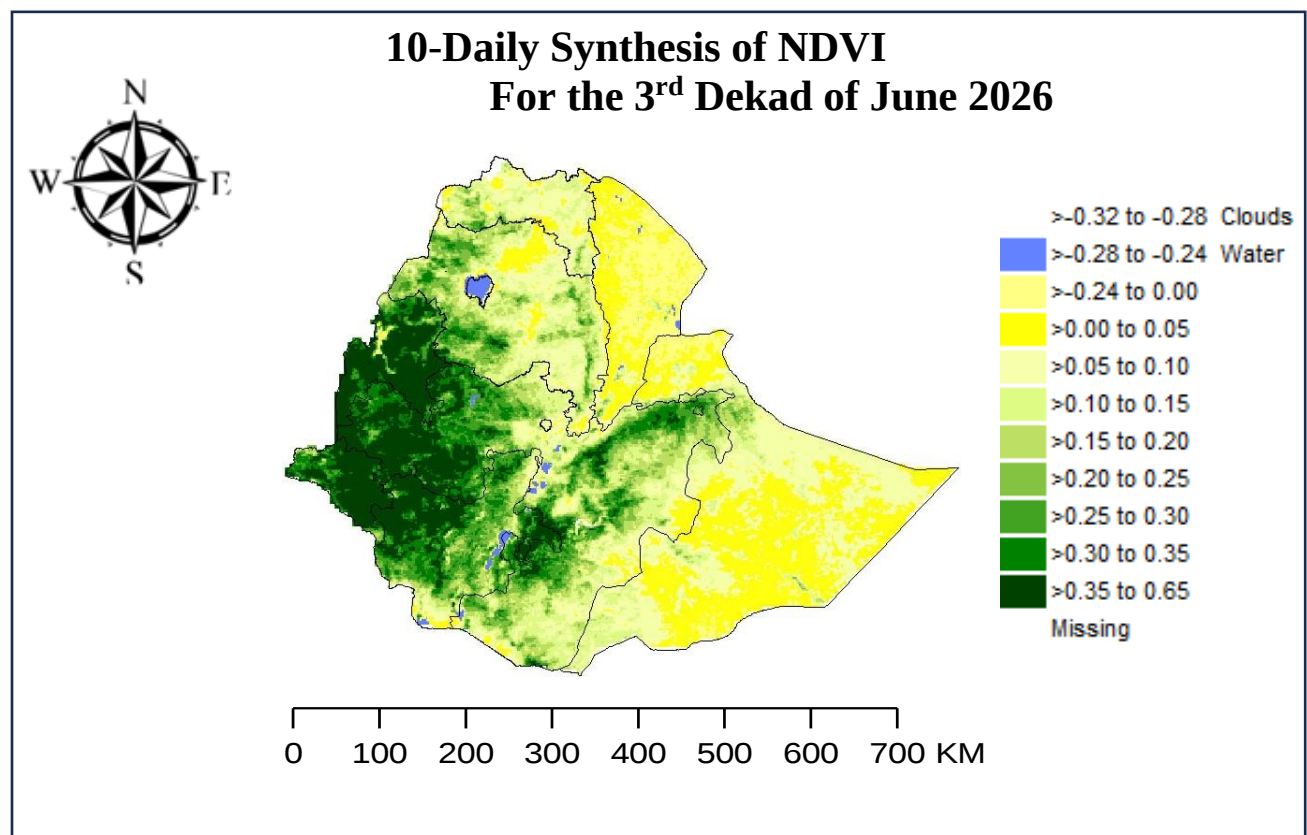


Comparison with the ground observation

The satellite rainfall estimation indicates there was a slight to moderate overestimate observed in Benishangul Gumuz, Tigray, Sidama, some pocket areas of Amhara, western Oromia regions. A slight underestimate in Gambella, South West Ethiopia, Central Ethiopia, some of Oromia, and Amhara regions.



10-Daily Synthesis of NDVI



Assessment of synthesis NDVI for the 3rd dekad of June 2026

The NDVI distribution for this dekad shows high greenness over most parts of the country. However, low NDVI values were observed in certain areas. Specifically, Benishangul Gumuz, Gambella, South West Ethiopia, South Ethiopia, Sidama, Central Ethiopia, and central and western Oromia regions exhibit high to moderate greenness. In contrast, Afar and some parts of the Somali region show low to bare greenness. (Refer to the actual figure above for detailed visualization).

Comparison with the Climatological Normal

A comparison between the current dekad and the climatological normal shows a small to large increase in greenness in some pocket areas of Amhara, Sidama, South West Ethiopia, South Ethiopia, and western and central Oromia regions. In contrast, a small to large decrease in greenness was observed in Tigray, Somali, Amhara, Oromia, Gambella, and Benishangul Gumuz regions.

