

# Climate Update



Food and Agriculture  
Organization of the  
United Nations



SWALIM

June 2019 Monthly Rainfall and NDVI (Issued July 26, 2019)

## Highlights

June marks the last month of the Gu (April-June) rainy season and it is characterized by a decrease of rainfall activity.

During June 2019, most parts of the country received little to no rainfall. However, substantial amount of rainfall were recorded in some gauge stations in the north including Elefweyne (297 mm), Erigavo (103 mm), Lasanod (100mm), Garowe (88mm), Odweyne (74mm) and Burao (58mm). (Map 1 and Table 1). Satellite derived rainfall estimates (RFE) also show decreased rainfall amounts during the month of June, with more rainfall during the first dekad of the month (Maps 3-5). However, the spatial distribution was uneven.

Vegetation cover measured through the Normalized Difference Vegetation Index (NDVI) shows a strong vegetation vigor, mostly reflecting the positive impact of increased rainfall activity during the second half of May. Increased availability of pasture has led to improved livestock body conditions in most of rural livelihood zones. Milk availability has also improved from in most pastoral livelihood zones.

However, Bay, Bakool and parts of Central regions are experiencing deterioration in pasture availability due to earlier than normal cessation of Gu rains and increased competition for available pasture and water. Field reports indicate early out migration of camel pastoralists from Bakool to Lower Shabelle.

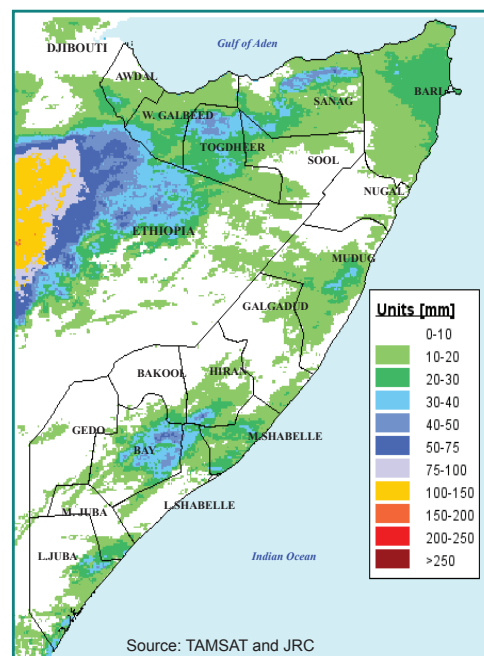
The cumulative impact of current Gu season rainfall has improved water availability in most regions, except a few pockets in Addun and Hawd of central region where water trucking is still taking place.

Crop production prospects is not promising in most areas due to the delayed and poor start of the Gu rains and its early cessation which has reduced the length of the crop growing season and hindered crop development. As a result, overall 2019 Gu season cereal production is expected to be at least 50 percent below the long-term average.

Map 1: June 2019 Monthly Rain Gauge Data

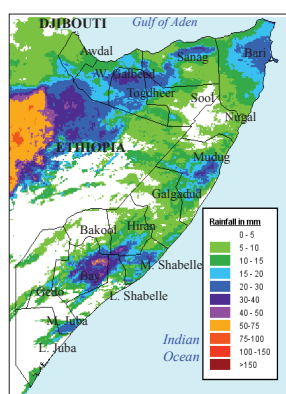


Map 2: June 2019 Monthly Rainfall Estimates (TAMSAT)

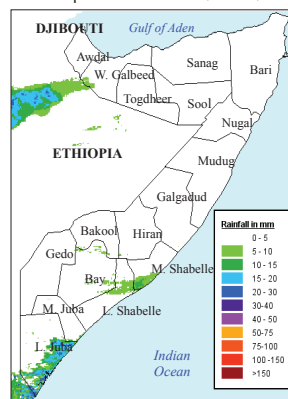


## June 2019: Dekadal Rainfall (RFE) Progression

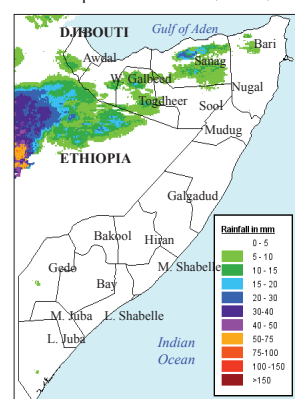
Map 3: 1st Dekad (1-10)



Map 4: 2nd Dekad (11-20)

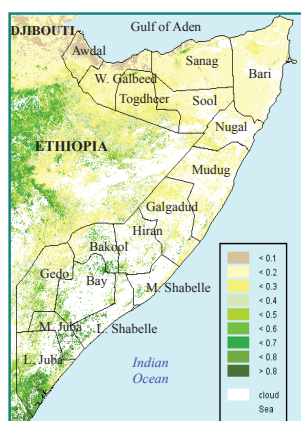


Map 5: 3rd Dekad (21-30)

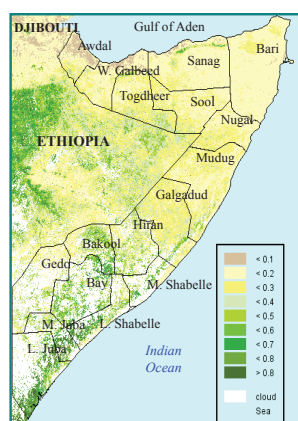


## June 2019: Dekadal Vegetation Cover (NDVI) Progression

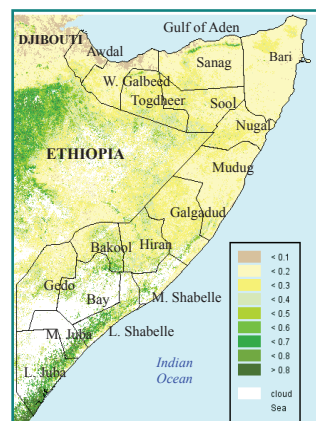
Map 6: 1st Dekad (1-10)



Map 7: 2nd Dekad (11-20)

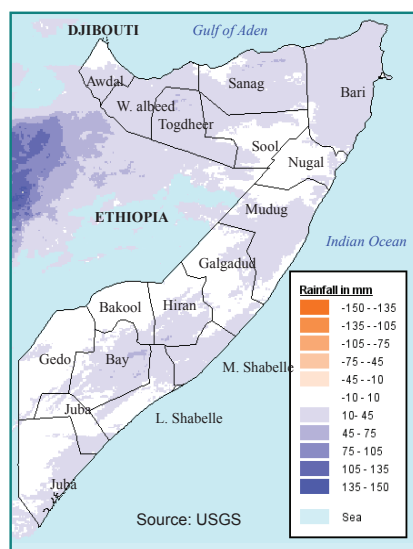


Map 8: 3rd Dekad (21-30)



# Monthly rainfall and NDVI performance

Map 9: June 2019 Estimated Rainfall Difference (in mm) From Short Term Average (1999-2018)



Map 10: June 2019 Vegetation Cover (NDVI) Absolute Difference from Short Term Average (2001-2018)

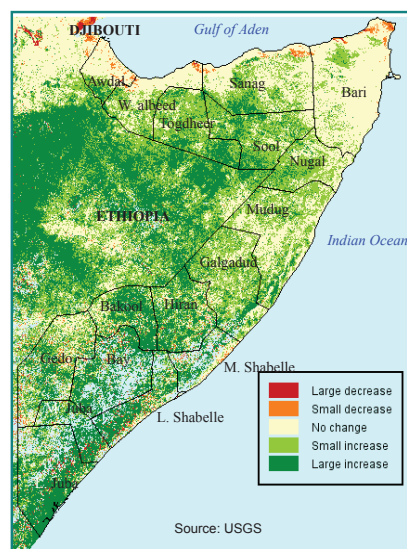


Table 1: Observed rain gauge data compared to short term monthly averages (June 2019)

## Northern Regions

Region	Station Name	dek 1	dek 2	dek 3	Jun 19	STA
Awdal	Borama	10.0	9.0	0.0	19.0	27.0
Awdal	Qulenjeed	10.0	0.0	0.0	10.0	40.0
Wogooyi Galbeed	Gebille	38.5	28.0	9.5	76.0	51.0
Wogooyi Galbeed	Malawle	48.0	0.0	0.0	48.0	36.0
Wogooyi Galbeed	Wajaale	70.0	16.0	18.5	104.5	49.0
Wogooyi Galbeed	Hargeisa	50.0	3.5	4.0	57.5	33.0
Wogooyi Galbeed	Daraweyne	20.0	0.0	0.0	20.0	31.0
Wogooyi Galbeed	Cadaadley	66.5	0.0	0.0	66.5	39.0
Wogooyi Galbeed	Dilla	36.0	3.0	0.0	39.0	48.0
Wogooyi Galbeed	Aburin	16.0	0.0	0.0	16.0	38.0
Wogooyi Galbeed	Dhubato	97.0	0.0	0.0	97.0	31.0
Wogooyi Galbeed	Baligubable	40.0	0.0	0.0	40.0	38.0
Togdheer	Burao	58.0	0.0	0.0	58.0	23.0
Togdheer	Sheikh	46.0	0.0	8.5	54.5	68.0
Togdheer	Odweyne	74.0	0.0	0.0	74.0	28.0
Togdheer	Buadodde	5.0	0.0	0.0	5.0	16.0
Sanaag	Eerigavo	85.0	0.0	18.0	103.0	38.0
Sanaag	Elafweyn	297.5	0.0	0.0	297.5	19.0
Sool	Caynabo	26.0	0.0	9.0	35.0	17.0
Sool	xudun	84.5	0.0	0.0	84.5	10.0
Sool	Taleex	29.0	0.0	0.0	29.0	9.0
Sool	Las Aanod	100.0	0.0	0.0	100.0	1.0
Bari	Bossasso	30.0	0.0	0.0	30.0	0.0
Bari	Qardo	36.0	0.0	0.0	36.0	4.0
Bari	Dangoroyo	98.7	0.0	0.0	98.7	4.0
Bari	Ballidhin	15.3	0.0	0.0	15.3	4.0
Bari	Alula	0.0	0.0	0.0	0.0	0.0
Bari	Bandarbeyla	0.0	0.0	0.0	0.0	2.0
Bari	Iskushuban	13.0	0.0	0.0	13.0	2.0
Nugaal	Garowe	88.2	0.0	0.0	88.2	9.0
Nugaal	Eyl	0.0	0.0	0.0	0.0	0.0
Nugaal	Burtile	0.0	0.0	0.0	0.0	9.0
Mudug	Galdogob	0.0	0.0	0.0	0.0	7.0
Mudug	Jarriban	0.0	0.0	0.0	0.0	6.0
Mudug	Galkayo	8.0	0.0	0.0	8.0	6.0

## Southern Regions

Region	Station Name	dek 1	dek 2	dek 3	Jun-19	STA
Bakool	Hudur	0.0	0.0	0.0	0.0	0.0
Bakool	Elbarde	0.0	0.0	0.0	0.0	5.0
Bay	Baidoa	2.0	1.5	0.5	4.0	19.0
Bay	Diinsor	0.0	2.7	0.0	2.7	15.0
Bay	Bardaale	3.0	5.0	1.0	9.0	14.0
Bay	Burhakaba	0.0	0.0	0.0	0.0	13.0
Hiraan	Belet weyne	4.5	2.5	0.0	7.0	15.0
Hiraan	Bulo burti	0.0	0.0	0.0	0.0	5.0
Hiraan	Mataban	0.0	0.0	0.0	0.0	11.0
Banadir	Mogadishu	8.0	23.0	0.0	31.0	86.0

\*indicates missing data

## Monthly rainfall and NDVI performance maps

The Mapped NDVI and RFE above represent the differences from Long Term Mean. E-MODIS NDVI is presented as absolute difference from Long Term Mean for the same period (current - long term mean), while TAMSAT-RFE is presented as the relative difference from Long Term Mean (Current\*100)/LTM.

## Seasonal Trend Graph

The maps and graphs on pages 3 and 4 are produced in collaboration with the Joint Research Centre of the European Commission. The graphs present seasonal trends of crop specific NDVI (Normalised Difference Vegetation Index) as lines and rainfall values (RFE) as bars for each of the delineated land cover and administrative units (regions and districts). For more information or request on available data, please send an email to: [data@fsnau.org](mailto:data@fsnau.org).

Primary data sources are NOAA/USGS, European Centre for Medium- range Weather Forecast (ECMWF), MARS-JRC, FSNAU and SWALIM. Maps and graphs on this bulletin are produced from four sources.

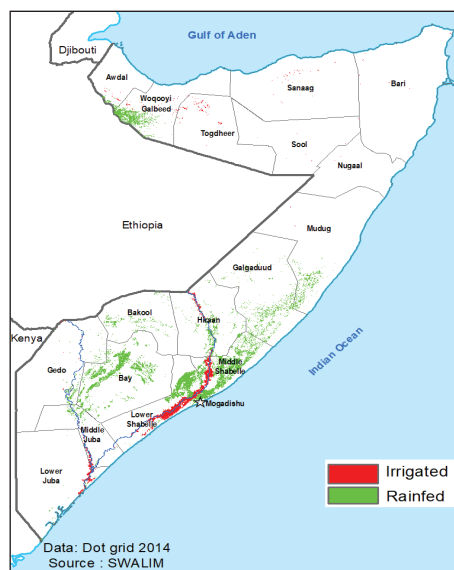
- Current Rainfall Estimates and NDVI data are derived from NOAA/CPC and DEVCOCAST ([www.devcoast.eu](http://www.devcoast.eu)) respectively, while the rain gauge data is collected by FAO-SWALIM and FEWSNET.

- The seasonal profiles on page 3 and 4 are produced in collaboration with JRC-MARS. For more information visit <http://mars.jrc.europa.eu/mars/About-us/FOODSEC> For more information on NDVI visit <http://earlywarning.usgs.gov/adds> and <http://fsausomali.org/fileadmin/uploads/1308.pdf>

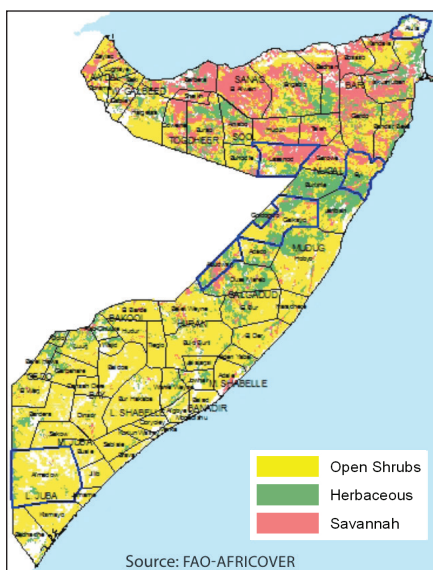
- This report is a compilation of climate data and field reports on Somalia that FSNAU and FEWS NET regularly review for analysis. The TAMSAT information is available on <http://www.met.reading.ac.uk/tamsat/about/>

## Seasonal rainfall and NDVI trends by region

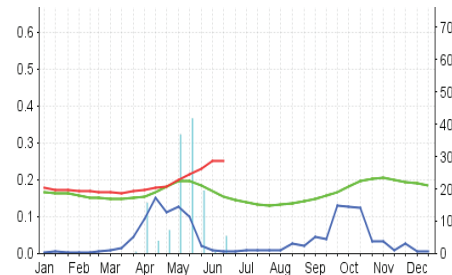
Map 11: Agricultural Areas



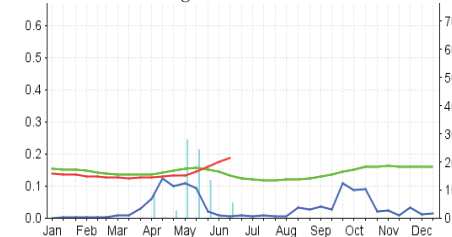
Map 12: Pastoral Areas



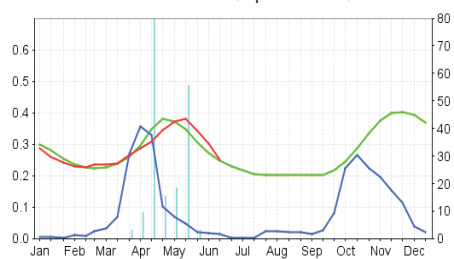
Togdheer Pastoral (Savannah)



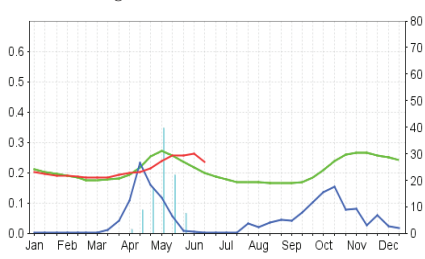
Saanag Pastoral (Savannah)



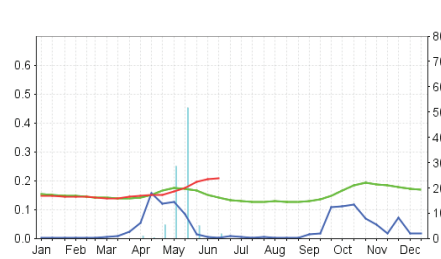
Gedo Pastoral (Open Shrubs)



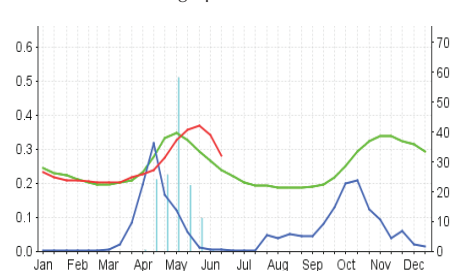
Galgaduud Pastoral (Herbaceous)



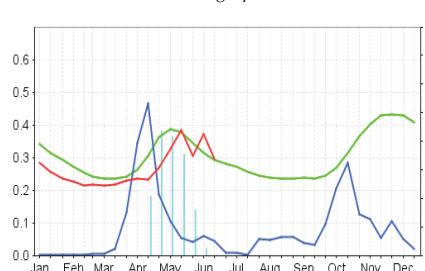
Nugaal Pastoral (Open Shrubs)



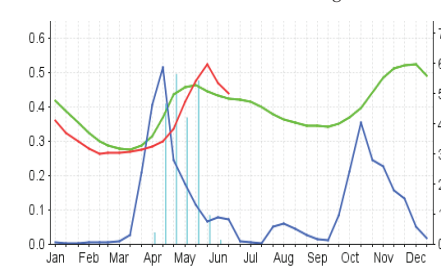
Hiran Agropastoral (Rainfed)



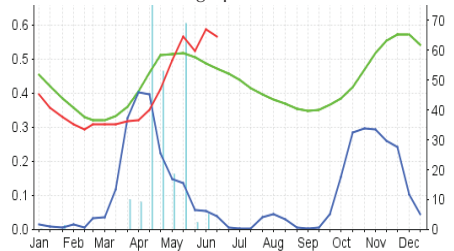
Middle Shabelle Agropastoral (Rainfed)



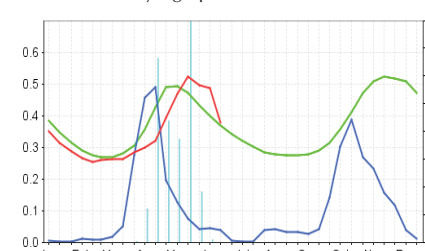
Lower Shabelle Riverine (Irrigated)



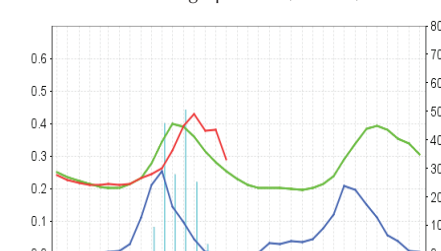
Lower Juba Agropastoral (Rainfed)



Bay Agropastoral (Rainfed)



Bakool Agropastoral (Rainfed)



 RFE 2019
  RFE STA (1999-2018)
  NDVI 2019
  NDVI STA (2001-2018)



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Detailed description: This map illustrates the spatial distribution of irrigated and rainfed agricultural areas in the Horn of Africa for the year 2014. The map covers Ethiopia, Djibouti, Kenya, and parts of Somalia. Irrigated areas are highlighted in red, while rainfed areas are highlighted in green. The map shows a high concentration of irrigated areas along the coast of Somalia and in the central highlands of Ethiopia. Rainfed areas are more widespread, particularly in the highlands of Ethiopia and the coastal regions of Kenya and Somalia. The map also shows the Gulf of Aden to the north and the Indian Ocean to the east. A legend in the bottom right corner identifies the red areas as 'Irrigated' and the green areas as 'Rainfed'. The source is cited as 'Dot grid 2014' and 'SWALIM'.

Legend:

- Irrigated
- Rainfed

Source: Dot grid 2014  
Source : SWALIM

A map of Madagascar divided into districts, each color-coded according to its primary vegetation type. The legend indicates three categories: Open Shrubs (yellow), Herbaceous (green), and Savannah (red). Districts like Antananarivo, Toamasina, and Mahajanga are predominantly yellow (Open Shrubs). Districts like Morondrova and Fianarantsoa show more green (Herbaceous) areas. Coastal districts like Nosy Be and Diego Suarez have significant red (Savannah) areas. The map also shows major rivers and the surrounding ocean.

The graph displays the monthly evolution of the number of deaths (blue line), the number of cases (red line), and the number of recoveries (green line) in the United Kingdom from January to December 2020. The left y-axis represents the number of deaths (0.0 to 0.6), and the right y-axis represents the number of cases and recoveries (0 to 80). The x-axis shows the months from January to December. The blue line shows a sharp peak in April, followed by a decline. The red line shows a peak in May, followed by a decline. The green line shows a peak in May, followed by a decline.

Month	Deaths (Blue)	Cases (Red)	Recoveries (Green)
Jan	0.00	20	20
Feb	0.00	18	18
Mar	0.00	18	18
Apr	0.25	25	25
May	0.15	35	30
Jun	0.05	30	25
Jul	0.00	20	20
Aug	0.00	18	18
Sep	0.00	18	18
Oct	0.18	25	25
Nov	0.05	25	25
Dec	0.00	20	20

Month	Cases (Green)	Deaths (Red)	Recoveries (Blue)
Jan	0.40	0.35	0.00
Feb	0.30	0.30	0.00
Mar	0.30	0.30	0.00
Apr	0.35	0.30	0.35
May	0.45	0.35	0.15
Jun	0.50	0.48	0.05
Jul	0.53	0.48	0.00
Aug	0.45	0.40	0.05
Sep	0.40	0.40	0.00
Oct	0.38	0.40	0.20
Nov	0.45	0.40	0.20
Dec	0.48	0.48	0.05

Figure 1 is a dual-axis chart showing the monthly distribution of the number of cases (green bars), the number of deaths (red line), and the number of recoveries (blue line) from January to December. The left y-axis represents the number of cases (0.0 to 0.6), and the right y-axis represents the number of deaths (0 to 80). The x-axis shows the months from Jan to Dec. The green bars show a peak in May. The red line shows a peak in June. The blue line shows a peak in April and a smaller peak in October.

Month	Daily New Cases (Peak)	7-Day Moving Average (Peak)	Cumulative Percentage (%)
Jan	0.00	0.17	15
Feb	0.00	0.17	15
Mar	0.00	0.16	15
Apr	0.02	0.18	20
May	0.32	0.20	35
Jun	0.05	0.21	45
Jul	0.00	0.15	55
Aug	0.00	0.14	60
Sep	0.00	0.14	62
Oct	0.00	0.15	65
Nov	0.00	0.18	65
Dec	0.00	0.18	65

