
East Africa Drought Watch

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The **East Africa Drought Watch** is a near-real time system that uses **Earth Observation and Weather information** to **monitor drought conditions** in the **East Africa** region. It contains drought-relevant information such as maps of indicators derived from different data sources (e.g., precipitation measurements, satellite measurements, modelled soil moisture content). Different tools, like Graphs and Compare Layers, allow for displaying and analysing the information and drought reports give an overview of the situation in case of imminent droughts.

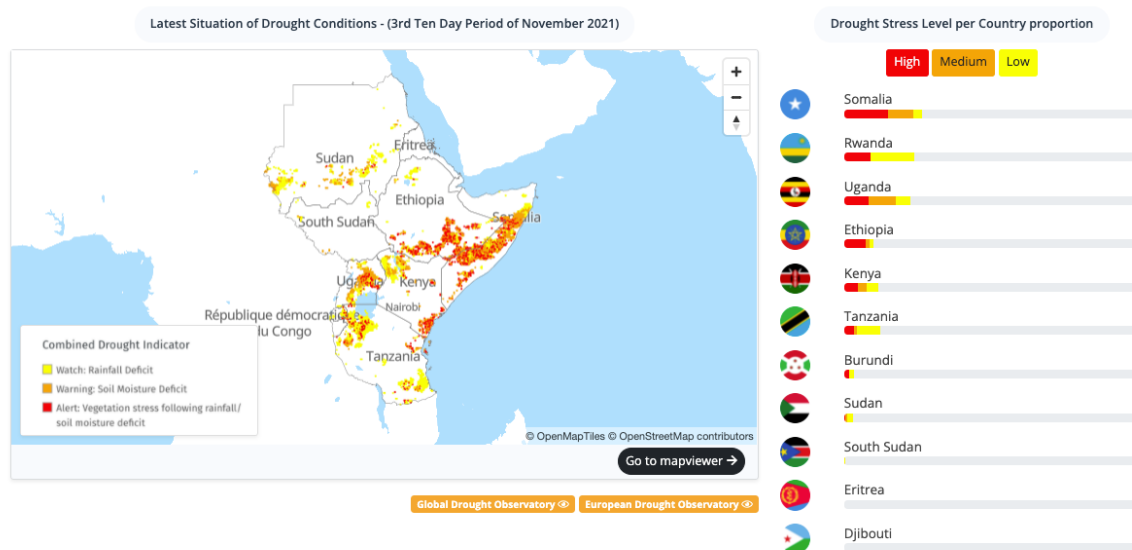
The system is a service **developed as part of the Intra-ACP Climate Services Project** in collaboration with the **Drought Unit at the Joint Research Centre of the European Commission**. The system is an **adaptation of the European Drought Observatory (EDO)** adapted to the conditions in the East Africa region. The (JRC) currently operates two Drought Observatories (DO): the **European Drought Observatory (EDO)** and the **Global Drought Observatory (GDO)**. These platforms are based on a shared technical platform that implements the above components and other additional enhancements.

See also:

To download a PDF version of this guide use **East Africa Drought Watch Manual**

1.1 General information

The [East Africa Drought Watch](#) is a near-real time system that uses Earth Observation and Weather information to monitor drought conditions in the East Africa region. It contains drought-relevant information such as maps of indicators derived from different data sources (e.g., precipitation measurements, satellite measurements, modelled soil moisture content). Different tools, like Graphs and Compare Layers, allow for displaying and analysing the information and drought reports give an overview of the situation in case of imminent droughts.



See also:

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1.1.1 Authors

The system is a service developed as part of the Intra-ACP Climate Services Project in collaboration with the Drought Unit at the Joint Research Centre of the European Commission. The system is an adaptation of the European Drought Observatory (EDO) adapted to the conditions in the East Africa region. The (JRC) currently operates two Drought Observatories (DO): European Drought Observatory (EDO) and the Global Drought Observatory (GDO). These platforms are based on a shared technical platform that implements the above components and other additional enhancements.



1.1.2 Get in Touch

Contact the Drought Watch team with any comments or suggestions. If you have specific bugs to report or improvements to the tool that you would like to suggest, you can also submit them through our contact us form <https://droughtwatch.icpac.net/contact/>.

1.2 Frequently Asked Questions

1.2.1 Datasets

How is the Combined Drought Indicator computed?

Combined Drought Indicator based on SPI (from CHIRPS), soil moisture and fAPAR, to identify areas with potential to suffer agricultural drought, areas where the vegetation is already affected by drought conditions, and areas in recovery process to normal conditions after a drought episode. The method is based in 5 impact levels.

These levels are:

- **‘Watch’** when a relevant precipitation shortage is observed,
- **‘Warning’** when this precipitation shortage comes with a soil moisture anomaly,
- **‘Alert’** when these two conditions are accompanied with an anomaly in the vegetation condition,
- **‘Partial recovery’** when after a drought episode, the meteorological conditions are recovered to normal but not the vegetation conditions,
- **‘Full recovery’** when meteorological and vegetation normal conditions are recovered.

See also:

For more information refer to Combined Drought indicator (CDI) section

Also Download CDI Factsheet

When will the next CDI be generated?

CDI is computed based on availability of SPI, fAPAR Anomaly and Soil Moisture Anomaly data as shown in the table below.

CDI (dekad)	fAPAR Anomaly (dekad)	SMA (dekad)	SPI (month)
1st	1st (same month as CDI)	3rd (previous month from CDI)	previous month from CDI
2nd	2nd (same month as CDI)	1st (same month as CDI)	previous month from CDI
3rd	3rd (same month as CDI)	2nd (same month as CDI)	same month as CDI

To elaborate the above table better, below is an example of computation of dekadal CDI for the month of November.

CDI (dekad)	fAPAR Anomaly (dekad)	SMA (dekad)	SPI (month)
1st Dekad November	1st Dekad November	3rd Dekad October	October
2nd Dekad November	2nd Dekad November	1st Dekad November	October
3rd Dekad November	3rd Dekad November	2nd Dekad November	November

Availability of fAPAR Anomaly and Soil Moisture Anomaly datasets is approximately during the dates shown below.

Month	Dekad	Data availability dates (these are the dates when fAPAR Anomaly and Soil Moisture will be made available on JRC Jeodpp)	
		FAPAR Anomaly	Soil Moisture Anomaly
January	1st	18th January	21st January
	2nd	26th January	1st February
	3rd	3rd February	11th February
February	1st	19th February	21st February
	2nd	27th February	1st March
	3rd	7th March	11th March
March	1st	15th March	21st March
	2nd	23rd March	1st April
	3rd	8th April	11th April
April	1st	16th April	21st April
	2nd	24th April	1st May
	3rd	2nd May	11th May
May	1st	18th May	21st May
	2nd	26th May	1st June
	3rd	3rd June	11th June
June	1st	19th June	21st June
	2nd	27th June	1st July
	3rd	5th July	11th July
July	1st	13th July	21st July
	2nd	29th July	1st August
	3rd	6th August	11th August

continues on next page

Table 1 – continued from previous page

August	1st	14th August	21st August
	2nd	22nd August	1st September
	3rd	7th September	11th September
September	1st	15th September	21st September
	2nd	23rd September	1st October
	3rd	9th October	11th October
October	1st	17th October	21st October
	2nd	25th October	1st November
	3rd	2nd November	11th November
November	1st	18th November	21st November
	2nd	26th November	1st December
	3rd	4th December	11th December
December	1st	12th December	21st December
	2nd	28th December	1st January
	3rd	5th January	11th January

Is there an option to download raster data on the drought watch?

Both Geotiff and NetCDF Raster files for datasets on the mapviewer are available on drought watch's https file server at <https://droughtwatch.icpac.net:5000/> . All files are grouped yearly and bands/time dimensions split based on the temporal resolution.

What is the rationale for having recovery levels on the CDI?

Recovery levels on the CDI highlight areas that have returned to their normal conditions after experiencing drought. **Partial Recovery** areas capture areas that have recovered to their normal meteorological conditions but not vegetation growth while **Full Recovery** areas have recovered to their normal meteorological and agricultural conditions.

Why is the Combined Drought Indicator saying an area is experiencing drought when I know it is not?

Generally the assessment of drought is done using individual indicators that are based on meteorological or hydrological data, or remote sensing imagery. The development of a combined indicator that integrates meteorological, hydrological and remote sensing data, can help to reduce false alarms, which may arise for example in the case of vegetation-based indicators (e.g. FAPAR Anomaly) where a biomass reduction can be caused by factors other than a drought-induced water stress.

The final output should be interpreted as showing areas potentially experiencing drought. Several factors could lead to the identification of patterns of drought occurrence which do not seem to correlate to what is happening on the ground, the date of analysis being a very important one. While the Combined Drought Indicator integrates Soil Moisture Anomaly, SPI and fAPAR Anomaly data to yield its results, it is yet to integrate exposure/vulnerability information to further customize it for the region. It is also worth noting the accuracy of the CDI is constrained by the accuracy of the datasets it is derived from.

Plans are underway to develop a form to crowdsource ground truth information relating to the occurrence of drought. In the meantime, feel free to drop your feedback at <https://droughtwatch.icpac.net/contact/>

1.2.2 Future Plans

Any plans on predicting drought?

Plans are underway to incorporate forecasted datasets relevant to drought e.g Forecasted SPI.

Do you plan to support raster data download for custom areas of interest?

In addition to supplying raster data for the entire region, development plans are underway to allow users to dynamically download raster files on the system for a subset of their area of interest.

Plans for analysis at lower admin levels?

Currently, the system allows for analysis at Administrative Level 1. Development is well underway to extend this analysis for lower administrative levels.

Any other future plans?

The development of the system is currently ongoing with plans to integrate periodic products disseminated as comprehensive reports to subscribed users, provide additional thematic datasets, perform drought forecasting, translate system warnings into impact-based information/warnings among other plans.

BACKGROUND INFORMATION

2.1 Combined Drought indicator (CDI)

2.1.1 Introduction

The meteorological, hydrological and satellite-derived biophysical upon which the CDI indicator produced by EADW is based, as well as the indicator's temporal and spatial scales and geographic coverage, are summarised below.

Variable	<ul style="list-style-type: none">• Precipitation Anomalies (SPI)• fAPAR Anomalies• Soil Moisture Anomalies
Temporal Scale	10 days (= 1 dekad)
Spatial Scale	0.1 Decimal Degrees/10 km
Coverage	Greater Horn of Africa

2.1.2 Overview

Combined Drought Indicator based on SPI (from CHIRPS), soil moisture and fAPAR, to identify areas with potential to suffer agricultural drought, areas where the vegetation is already affected by drought conditions, and areas in recovery process to normal conditions after a drought episode. The method is based in 5 impact levels.

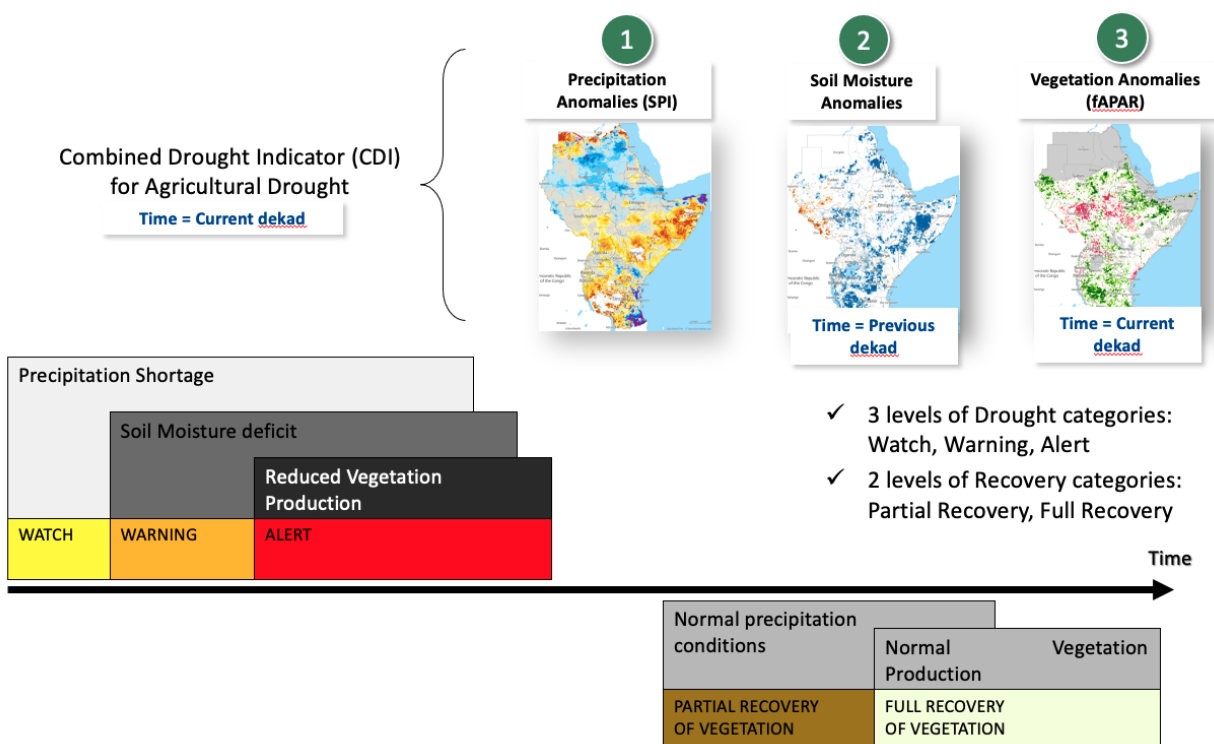
These levels are:

- **‘Watch’** when a relevant precipitation shortage is observed,
 - **‘Warning’** when this precipitation shortage comes with a soil moisture anomaly,
 - **‘Alert’** when these two conditions are accompanied with an anomaly in the vegetation condition,
 - **‘Partial recovery’** when after a drought episode, the meteorological conditions are recovered to normal but not the vegetation conditions,
 - **‘Full recovery’** when meteorological and vegetation normal conditions are recovered.
-

2.1.3 What the indicator shows

Agricultural drought, which is one of the three main types of drought (the others being meteorological and hydrological droughts) that are defined according to the affected variables of the hydrological cycle, is characterized by a reduced crop production due to insufficient soil moisture.

The Combined Drought Indicator (CDI) identifies areas with the potential to suffer agricultural drought, areas where the vegetation is already affected by drought conditions, and areas in the process of recovery to normal conditions after a drought episode. The CDI is based on the cause-effect relationship for agricultural drought, whereby a shortage of precipitation leads to a soil moisture deficit, which in turn results in a reduction of vegetation productivity. The indicator is computed by combining anomalies of precipitation, soil moisture and satellite-measured plant growth - as measured by, respectively, indicators Standardized Precipitation Index, Soil Moisture Anomaly, and FAPAR Anomaly - using a classification scheme consisting of five drought levels (corresponding to the different stages of the cause-effect relationship for agricultural drought).



2.1.4 How the indicator is computed

The Combined Drought Indicator (CDI) is derived by integrating the following three main drought indicators, which are implemented operationally within the system:

- Standardized Precipitation Index (SPI):** The SPI indicator measures precipitation anomalies at a given location, based on a comparison of observed total precipitation amounts for an accumulation period of interest (e.g. 1, 3, 12, 48 months), with the long-term historic rainfall record for that period (McKee et al., 1993; Edwards and McKee, 1997).
- Soil Moisture Anomaly (SMA):** The SMA indicator is derived from anomalies of estimated daily soil moisture (or soil water) content - represented as standardized soil moisture index (SMI) - which is produced by the JRC's LISFLOOD hydrological model (de Roo et al. 2000), and which has been shown to be effective for drought detection purposes (Laguardia and Niemeyer, 2008).

3. **FAPAR Anomaly:** The FAPAR Anomaly indicator is computed as deviations of the biophysical variable Fraction of Absorbed Photosynthetically Active Radiation (FAPAR), composited for 10- day intervals, from long-term mean values. Satellite-measured FAPAR represents the fraction of incident solar radiation that is absorbed by land vegetation for photosynthesis, and is effective for detecting and assessing drought impacts on vegetation canopies (Gobron et al., 2005).

The one-month, three-month, nine-month and twelve-month Standardized Precipitation Index (SPI-1 and SPI-3) are used for computing the CDI. Several studies (e.g. Ji and Peter, 2003; Rossi and Niemeier, 2012) have shown that SPI-3 has the strongest correlation with the vegetation response, and is therefore the most suitable for identifying agricultural drought, whereas SPI-1 can detect extreme short-term dryness that can dramatically affect the vegetation condition depending on its stage of development.

For SPI-3, SPI-9, SPI-12, FAPAR Anomaly and Soil Moisture Anomaly (SMA) indicators, a threshold of minus one (-1) standard deviation is used, which equates to a return period of 6.3 years, and corresponds to “moderate drought”, according to the SPI classification of McKee et al. (1993). In the case of SPI-1, a threshold of minus two (-2) standard deviations is used, corresponding only to cases identified as extreme drought. The classification scheme that is used to assign areas to one of the five drought classes is summarised BELOW as well as the colour scheme used for depiction in the CDI maps

CDI value		SPI					Soil moisture anomaly	FAPAR anomaly	
		SPI9 or SPI12 < -1	SPI3 < -1	SPI1 < -2	SPI3 _{prev} < -1	SPI1 _{prev} < -2	SMA < -1	fAPAR Anomaly < -1	
Watch	1			✓					Precipitation shortage
	2		✓						
	3	✓	✓						
Warning	4			✓			✓		Precipitation shortage + Soil Moisture Anomaly
	5		✓				✓		
	6	✓	✓				✓		
Alert	7			✓				✓	Precipitation shortage + Soil Moisture Anomaly + Vegetation Anomaly
	8		✓					✓	
	9		✓				✓	✓	
	10	✓	✓				✓	✓	
Partial recovery	11					✓		✓	
	12				✓			✓	
Full recovery	13					✓			
	14				✓				

In applying the classification scheme, a temporal lag between the three components of the CDI is implemented. Thus, SPI of a given month is contrasted with soil moisture anomalies of the 2nd and 3rd dekads of that month, and with the 1st dekad of the following month, and with FAPAR anomalies of the 3rd dekad of that month and the 1st and 2nd dekads of the following month. Each month is assumed to have three dekads (days 1-10; days 11-20; day 21 to the end of the month)

2.1.5 How to use the indicator

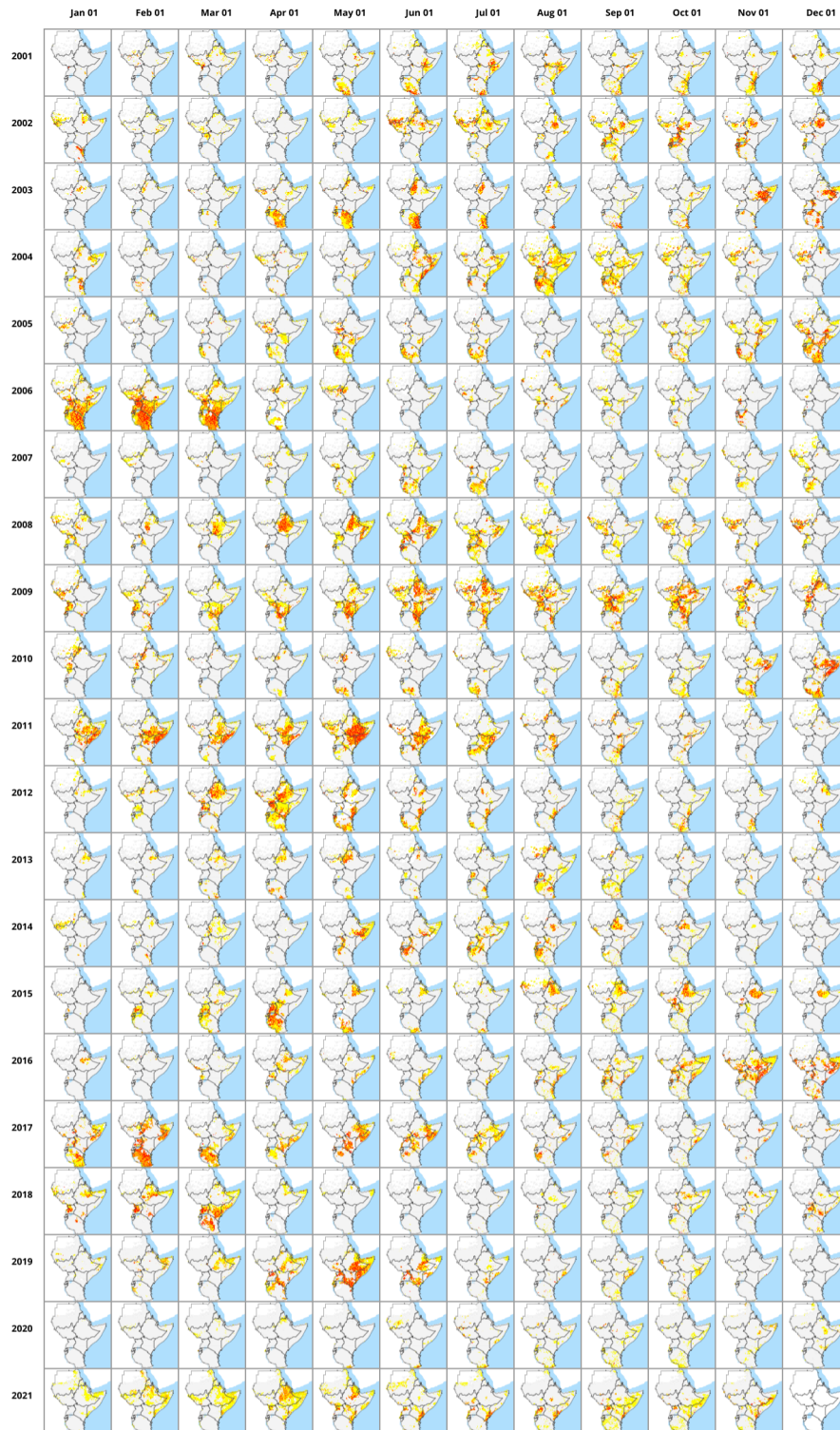
An assessment of the behaviour of the Combined Drought Indicator (CDI) for the main droughts between 2010 and 2021 demonstrated the CDI's capability to discriminate the areas where the drought impacts were most severe.

The CDI was able to identify the areas suffering more severely the drought. . It also shows its potential as an early warning system, identifying the areas with potential to suffer drought effects (i.e. "Watch"), later on confirming this (i.e. "Warning") and identifying the areas where the vegetation condition was being affected (i.e. "Alert").

Situation of Drought : 2001-2021

(Generated from the 1st ten day period of the Combined Drought Indicator)

- Watch: Rainfall Deficit
- Warning: Soil Moisture Deficit
- Alert: Vegetation stress following rainfall/ soil moisture deficit



EAST AFRICA
DROUGHT
WATCH



2.1.6 Strengths

- Generally the assessment of drought is done using individual indicators that are based on meteorological or hydrological data, or remote sensing imagery. The development of a combined indicator that integrates meteorological, hydrological and remote sensing data, can help to reduce false alarms, which may arise for example in the case of vegetation-based indicators (e.g. FAPAR Anomaly) where a biomass reduction can be caused by factors other than a drought-induced water stress.
 - An integrated approach that provides a convergence of indicators and therefore evidence of drought, can also support policy-makers in effective risk management and decision-making.
-

2.1.7 Weaknesses

- The satellite-derived FAPAR Anomaly indicator is based on reflected solar radiation, with wavelengths in the optical (i.e. visible and infrared wavelength) region of the electromagnetic spectrum, and is therefore not effective in the presence of clouds. Clouds are generally masked out before the indicator is computed. However, low clouds are not always detected, resulting in erroneous indicator values. This is a particular problem in northern European countries. One way to address this issue would be to use more than one indicator related to vegetation growth.
-

2.1.8 References

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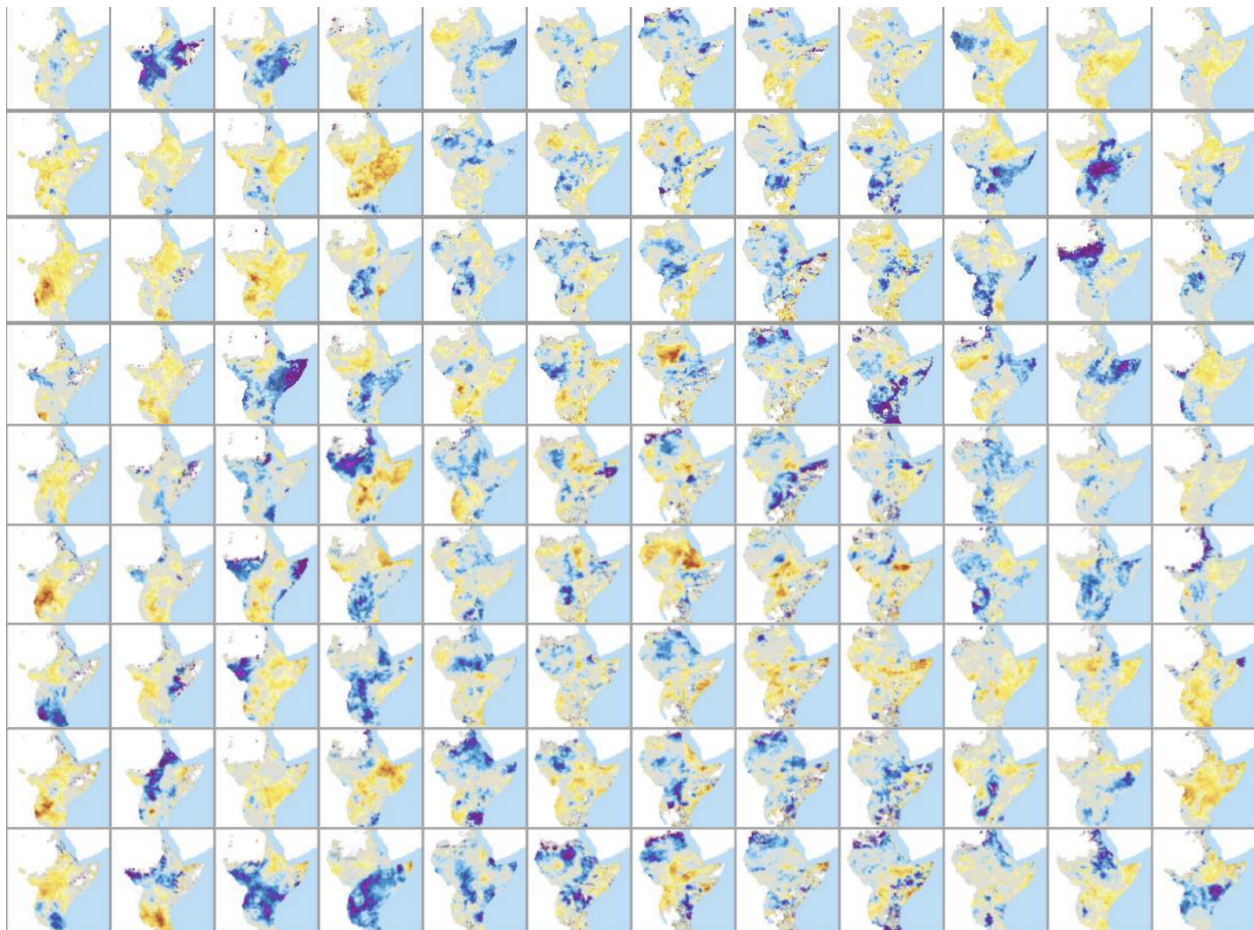
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[Download CDI Factsheet](#)

[Download CDI Data](#)

2.2 Standardized Precipitation Index (SPI)

The SPI is a statistical index comparing the total precipitation received at a particular location during a period of n months with the long-term precipitation distribution for the same period of time at that location (reference period is 1981-2010).



The SPI indicator shows the anomalies (deviations from the mean) of the observed total precipitation, for any given location and accumulation period of interest.

Currently, the system implements two SPI products generated from their respective sources computed using the same procedure:

1. CHIRPS Based SPI:

- Spatial Resolution : 0.05 Decimal degrees or 5km
- Source :

2. GPCC Based SPI

- Spatial Resolution : 1 Decimal degrees or 100km
- Source :

Both SPI products are generated monthly for a range of accumulation periods covering the Greater Horn of Africa.

2.2.1 Overview

The Standardized Precipitation Index (SPI) is the most commonly used indicator worldwide for **detecting and characterizing meteorological droughts**. The SPI indicator, which was developed by McKee et al. (1993), and described in detail by Edwards and McKee (1997), measures **precipitation anomalies** at a given location, based on a comparison of observed total precipitation amounts for an **accumulation period of interest** (e.g. 1, 3, 12, 48 months), with the **long-term historic rainfall record** for that period.

The historic record is **fitted** to a **probability distribution (the “gamma” distribution)**, which is then transformed into a normal distribution such that the mean SPI value for that location and period is zero. For any given region, increasingly severe rainfall deficits (i.e., meteorological droughts) are indicated as SPI decreases below -1.0 , while increasingly severe excess rainfall are indicated as SPI increases above 1.0 .

Because SPI values are in units of standard deviation from the long-term mean, the indicator can be used to compare precipitation anomalies for any geographic location and for any number of time-scales. Note that the name of the indicator is usually modified to include the accumulation period. Thus, SPI-3 and SPI-12, for example, refer to accumulation periods of three and twelve months, respectively.

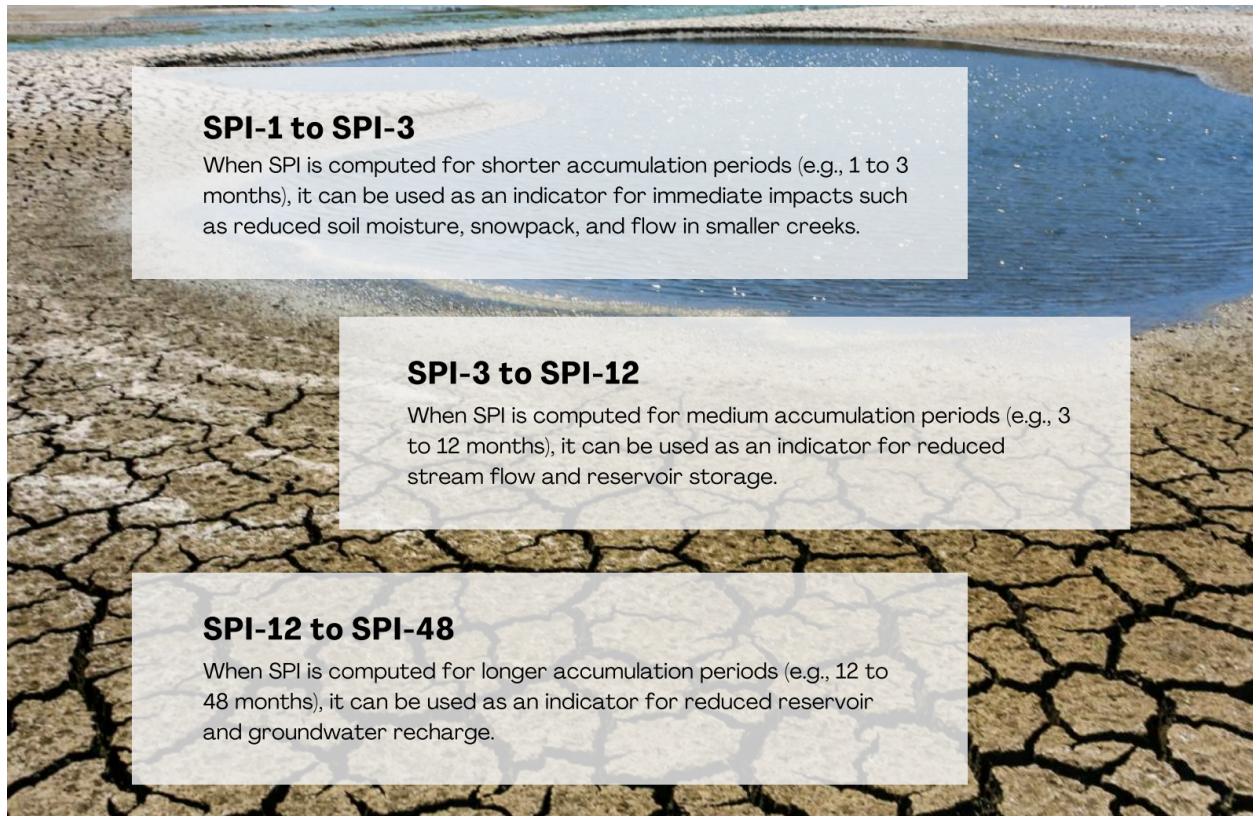
The World Meteorological Organization has recommended that the SPI be used by all National Meteorological and Hydrological Services around the world to characterize meteorological droughts (World Meteorological Organization, 2012). The long-term gamma distribution of our product is based on data from a reference period from **1981 to 2010** (included). The data included in the SPI-48 (4 years SPI) are thus based on monthly rainfall input data from 1978 until 2010

2.2.2 What the indicator shows

A **meteorological drought** is defined as a period with an abnormal precipitation deficit, in relation to the long-term average conditions for a region.

The SPI indicator shows the **anomalies (deviations from the mean)** of the observed total precipitation, for any given location and accumulation period of interest. The magnitude of the departure from the mean is a probabilistic measure of the severity of a wet or dry event.

Since SPI can be calculated over different precipitation accumulation periods (typically ranging from 1 to 48 months), the resulting different SPI indicators allow for estimating different **potential impacts** of a meteorological drought:



2.2.3 How the indicator is computed

For SPI based on CHIRPS, it is computed using CHIRPS/CHIRP Precipitation data from the UC Santa Barbara, specifically 'Preliminary' product (CHIRP) for the first 3 weeks of the previous month prior to current month, then updated to 'Monitoring/final' product (CHIRPS) within the 3rd week of the same month depending on availability.

For SPI Based on GPCC, it is computed from the monthly precipitation data provided by the Global Precipitation Climatology Centre (GPCC - <http://gpcc.dwd.de/>), specifically 'First guess' product for the two months prior to current month, then updated to 'Monitoring (version 4)' product for the three months prior to current and backwards.

A **Gamma distribution** is fit onto the baseline data of **reference period 1981-2010** generating both alpha (shape parameter of the gamma distribution (also referred to as the concentration) computed from the {scale}-month scaled precipitation values) and beta (1 / scale of the distribution (also referred to as the rate) computed from the {scale}-month scaled precipitation values) parameters for a period of 7 accumulation months (1, 3, 6, 9, 12, 24, 48).

The SPI is computed based on measurements of **precipitation anomalies** at a given location, from a comparison of observed total precipitation amounts for an accumulation period of interest with the long-term historic rainfall record for that period.

2.2.4 How to use the indicator

Increasingly severe rainfall deficits (i.e., meteorological droughts) are indicated as SPI decreases below -1.0 , while increasingly severe excess rainfall is indicated as SPI increases above 1.0 . In EADW, the SPI indicator can be displayed either in the form of maps, or as time series graphs in a report

Symbol	Values	Class Definition
	≤ -3.0	Extremely dry
	$-3.0 - -2.5$	
	$-2.5 - -2.0$	Severely dry
	$-2.0 - -1.5$	
	$-1.5 - -1.0$	Moderately dry
	$-1.0 - -0.5$	
	$-0.5 - 0.5$	Near Normal
	$0.5 - 1.0$	
	$1.0 - 1.5$	Moderately wet
	$1.5 - 2.0$	
	$2.0 - 2.5$	Very wet
	$2.5 - 3.0$	
	≥ 3.0	Extremely wet

2.2.5 Strengths

- The fact that SPI values are in units of standard deviation from the long-term mean, **allows SPI to be computed and compared** for any geographic location and for any number of time scales.
 - In addition, because the SPI is normalized it is just as **effective** in **analysing wet** periods and cycles, as it is in analysing **dry** periods and cycles.
 - The SPI indicator is **based on only one input parameter** (precipitation accumulations), and thus it is **less complex to compute** than other drought indicators, such as the Palmer Drought Severity Index, which also takes account of variations in temperature, soil moisture and evapotranspiration.
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2.2.6 Weaknesses

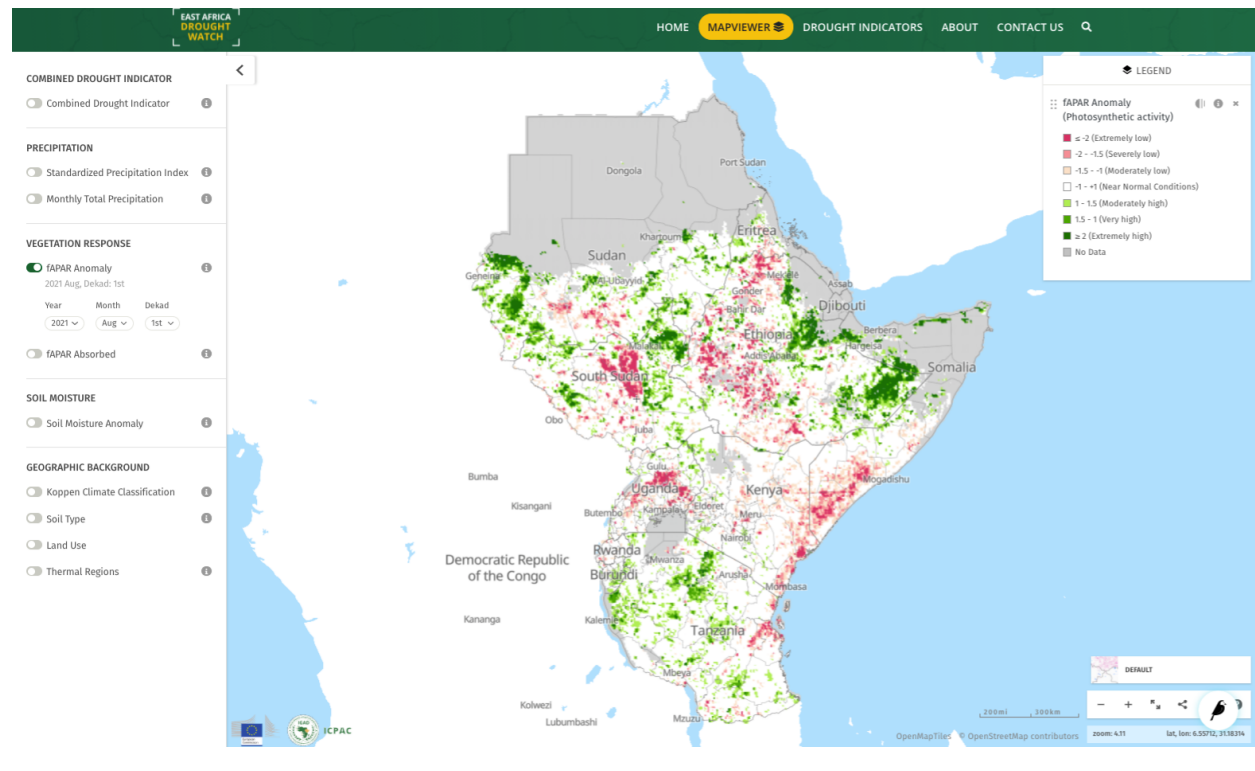
- As mentioned earlier, the parameters of the gamma distribution are calculated (fitted) using historical non-zero rainfall accumulations. The cumulative probability of observed rainfall is then adjusted using the probability (frequency) of zero rainfall accumulations. However, **if there are many historical zero rainfall accumulations, the estimated gamma distribution may not adequately fit the frequency distribution of the historical rainfall.** Therefore, in regions with a high probability of zero rainfall, the SPI indicator should be interpreted with care. In such cases (typical of arid climates), the concept of a drought needs to be adapted, and it may be best to restrict SPI calculation and analysis to the normal rainy season, or to use alternative drought indicators.
- Because SPI is based only on precipitation, it **does not address the effects of high temperatures on drought conditions**, such as by damaging cultivated and natural ecosystems, and increasing evapotranspiration and water stress. A new variation of SPI, the **Standardized Precipitation and Evapotranspiration Index (SPEI)**, has been developed (Vicente-Serrano et al., 2010), which includes precipitation and temperature, in order to identify increases in drought severity linked with higher water demand by evapotranspiration. The SPEI has the advantage over the Palmer Drought Severity Index (PDSI), for example, in that it captures the “multiscalar” characteristic of drought, whereby water deficits accumulate over different timescales, differentiating between hydrological, environmental, agricultural, and other droughts.

2.2.7 References

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- Vicente-Serrano, S.M., S. Beguería and J.I. López-Moreno. 2010. **A multi-scalar drought index sensitive to global warming: the Standardized Precipitation Evapotranspiration Index.** Journal of Climate, 23(7): 1696-1718. <https://doi.org/10.1175/2009JCLI2909.1>.
- World Meteorological Organization. 2012. **Standardized Precipitation Index User Guide.** (M. Svoboda, M. Hayes and D. Wood). WMO-No. 1090. Geneva. ISBN 978-92-63-11091-6. 16p

2.3 Fraction of Absorbed Photosynthetically Active Radiation (FAPAR)

The Fraction of Absorbed Photosynthetically Active Radiation (FAPAR) is biophysical variable, derived from satellite observations, that represents the fraction of incident solar radiation that is absorbed by land vegetation for photosynthesis.



2.3.1 Overview

The FAPAR Anomaly indicator is computed as deviations of the satellite-measured biophysical variable Fraction of Absorbed Photosynthetically Active Radiation (FAPAR, sometimes written as fAPAR or FPAR), composited for 10-day intervals, from its long-term mean values. FAPAR is one of the 50 so-called “Essential Climate Variables” (ECVs) that have been defined by the Global Climate Observing System (GCOS) as being both feasible for global climate observation, and important to support the work of the United Nations Framework Convention on Climate Change (UNFCCC) and the Intergovernmental Panel on Climate Change (IPCC) (Bojinski et al., 2014). (Of the 50 ECVs, 26 are listed as being significantly dependent on satellite observations).

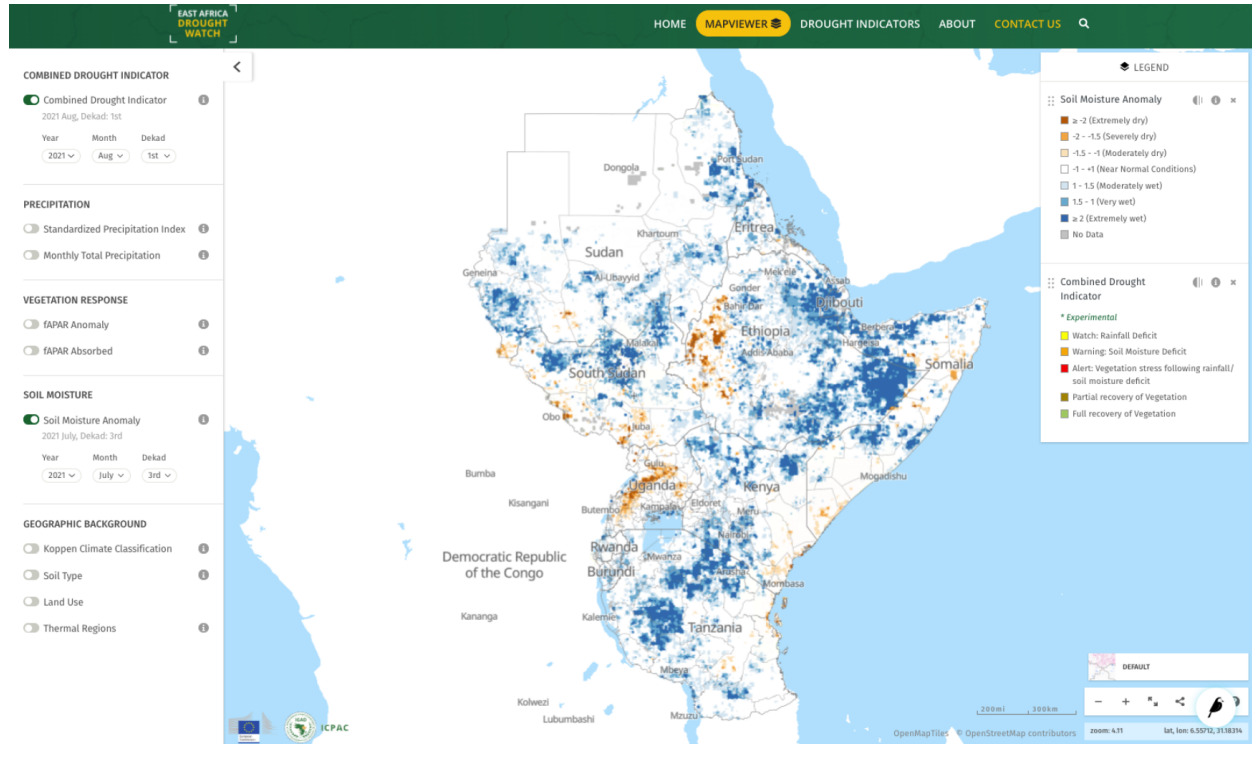
FAPAR values and their anomalies have been shown to be good indicators for detecting and assessing drought impacts on plant canopies, such as agricultural crops and natural vegetation (Gobron et al., 2005), and thus provide information that is potentially useful for water and agricultural management purposes.

Both fAPAR and fAPAR Anomalies are made available every ten days sourced from the [Global Drought Observatory](#).

[Read more \(GDO factsheet\)](#)

2.4 Soil Moisture Anomaly (SMA)

The Soil Moisture Anomaly is used in determining the start and duration of agricultural drought conditions, which arise when soil moisture availability to plants drops to such a level that it adversely affects crop yield, and hence, agricultural production



2.4.1 Overview

Soil moisture anomaly maps are computed on a 30-day moving window at a spatial resolution of 0.1 decimal degrees and updated every 10 days.

Moving windows have an ordinal reference:

- 1st window of month M goes from day 11 of month M-1 to day 10 of month M (e.g. 1st window of December goes from November 11 to December 10)
- 2nd window of month M goes from day 21 of month M-1 to day 20 of month M (e.g. 2nd window of June goes from May 21 to June 20)
- 3rd window of month M covers the whole month M, i.e. from day 1 to the end (e.g. 3rd window of March goes from March 1 to March 31)

The index is computed as a weighted average of three standardized variables: 1) LISFLOOD root zone soil moisture, 2) MODIS Land Surface Temperature, and 3) ESA CCI remote sensing skin soil moisture. All three variables are standardized on the same baseline period 2001-2016 and the weighting factors are computed as described in Cammalleri, C., Vogt, J. V., Bisselink, B., & de Roo, A. (2017). Comparing soil moisture anomalies from multiple independent sources over different regions across the globe. *Hydrology and Earth System Sciences*, 21(12), 6329.

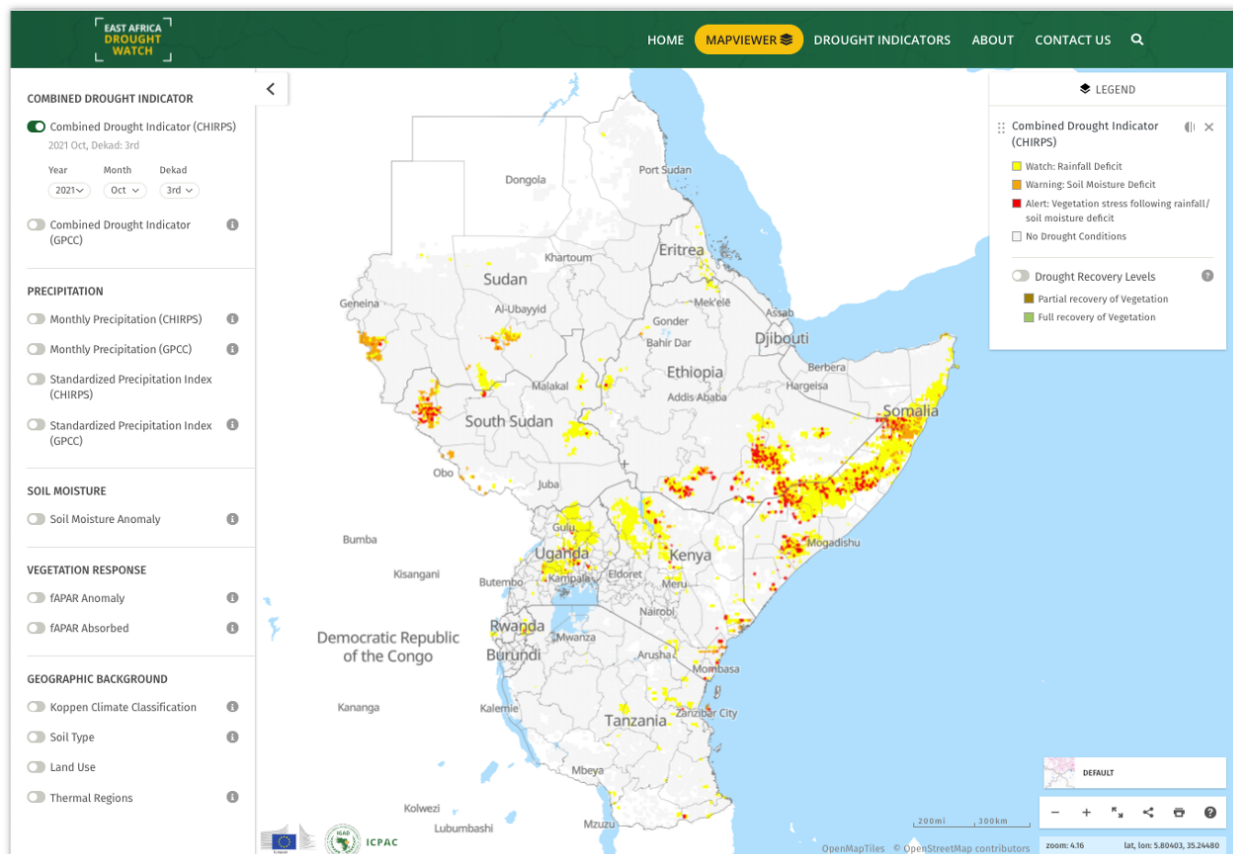
The full ensemble of the three models is provided up to the second-to-last dekad, whereas the last dekad is a ‘first-guess’ estimate based only on LISFLOOD and MODIS LST data.

SMA is made available every ten days sourced from the [Global Drought Observatory](#).

[Read more \(GDO factsheet\)](#)

3.1 Introduction

This section guides Drought Watch end-users on how to utilize functionalities within the system. The system contains drought-relevant information such as maps of indicators derived from different data sources. It provides various tools like analytical graphs and interactive layer interaction allowing for display and analysis this drought information and drought reports give an overview of the situation in case of imminent droughts.



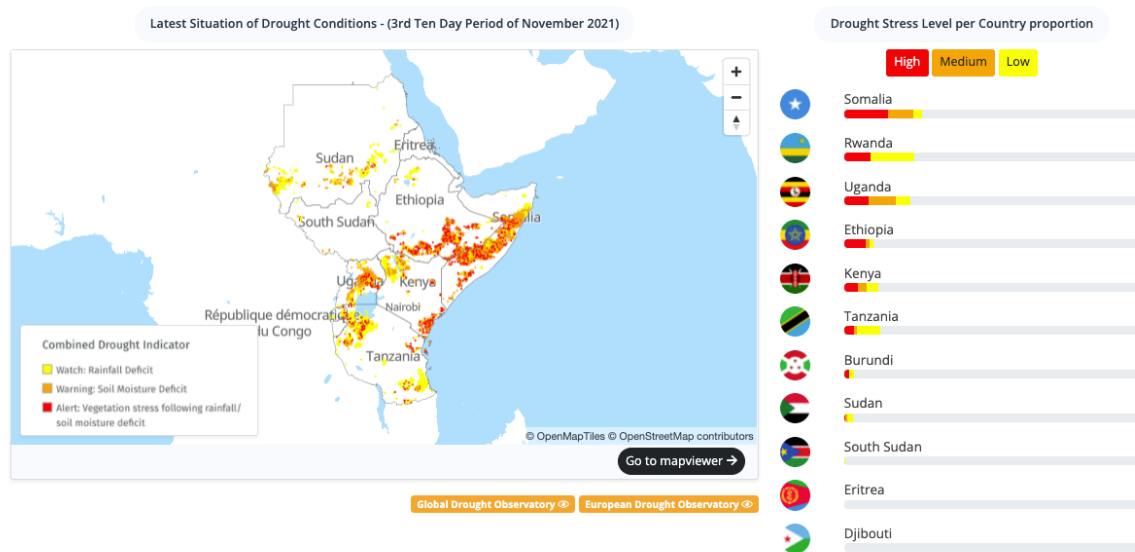
Visit the system at <https://droughtwatch.icpac.net>

It comprises of:

- **A web-GIS environment:**
 - Weather and Earth Observation (EO) indicators

- Automatic warnings regarding developing or actual drought events every 10 days
- Additional indicators showing recovery process after drought events
- **A statistics dashboard:**
 - Indicators statistics aggregated at sub-national level(s)
 - Additional information such as periodic reports

On the landing page of the system (<https://droughtwatch.icpac.net>), the latest situation of drought based on the Combined Drought Indicator is displayed. This Indicator is based on SPI, Soil moisture and fAPAR, to identify areas with potential to suffer agricultural drought, areas where the vegetation is already affected by drought conditions, and areas in recovery process to normal conditions after a drought episode. [More details](#)

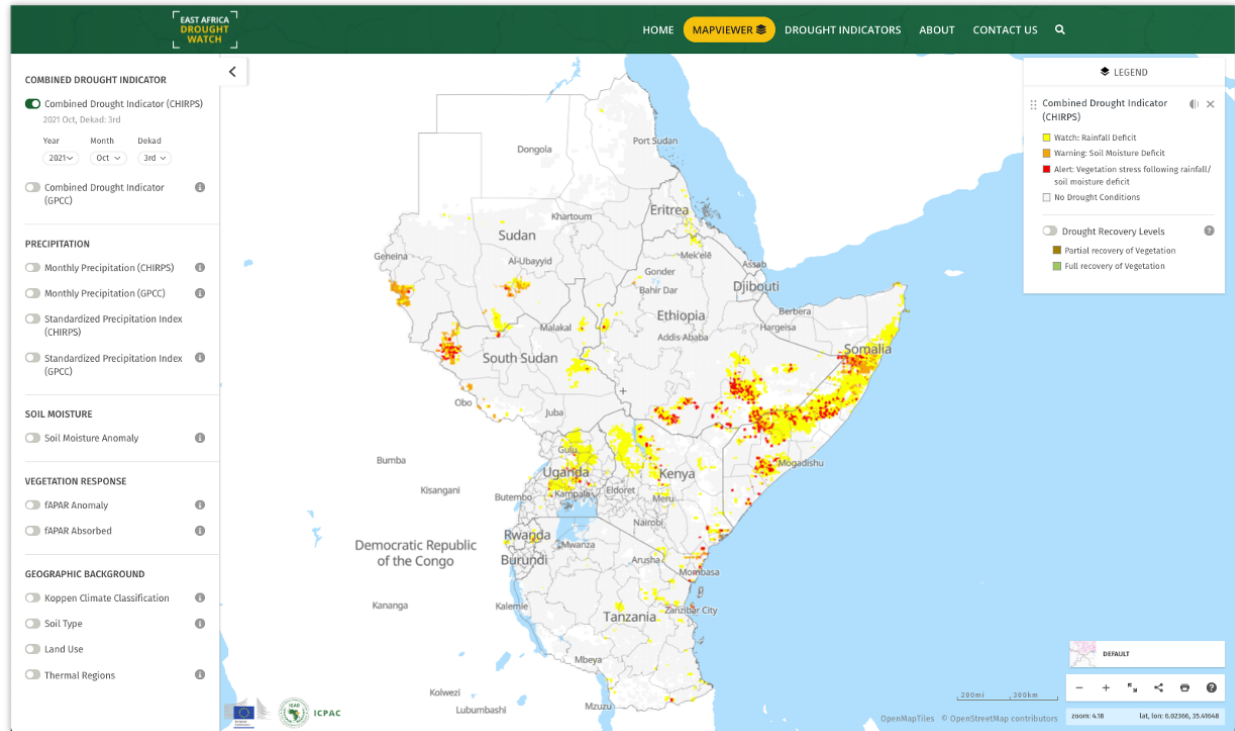


Within the user guide, you will be able to understand how to:

- Interact with the mapviewer
- Generate drought-relevant reports
- Give feedback/questions relating to the System

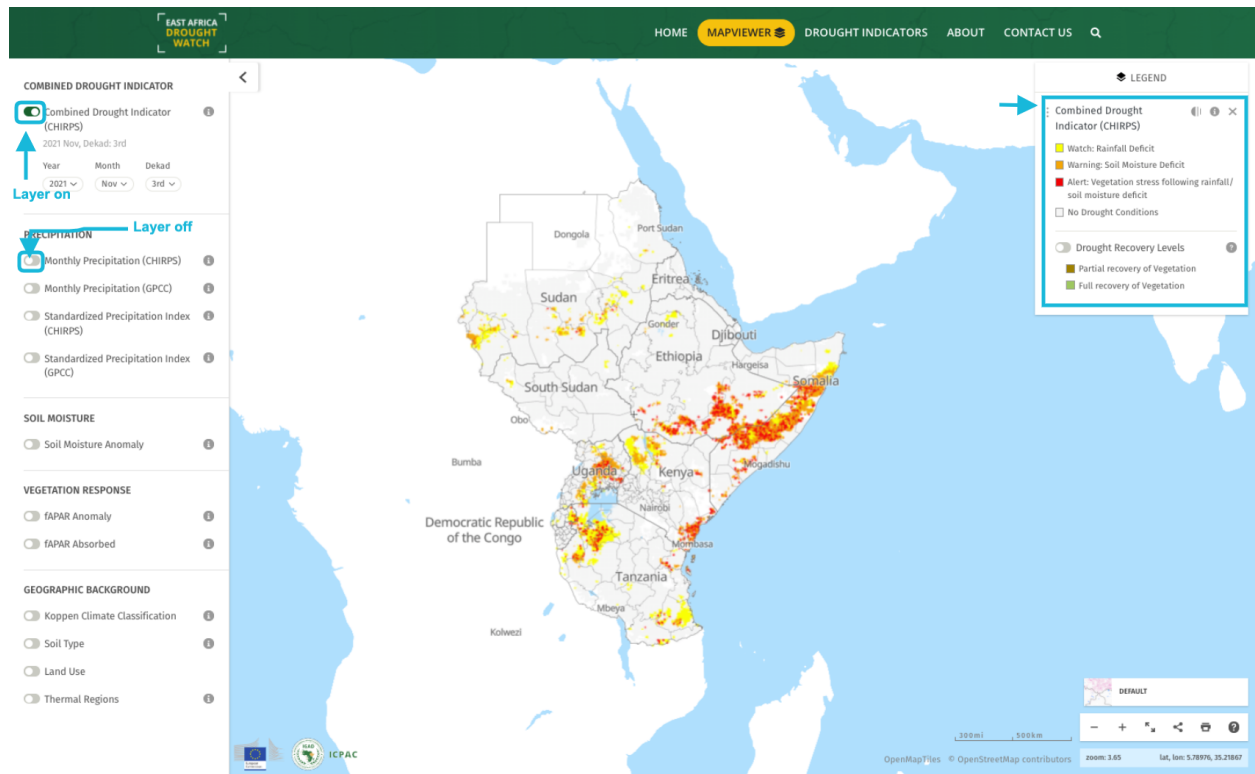
3.2 East Africa Drought Watch Mapviewer

The East Africa Drought Watch Mapviewer is an interactive user-interface containing drought-related layers generated over a period of time from Earth Observation and Station data.



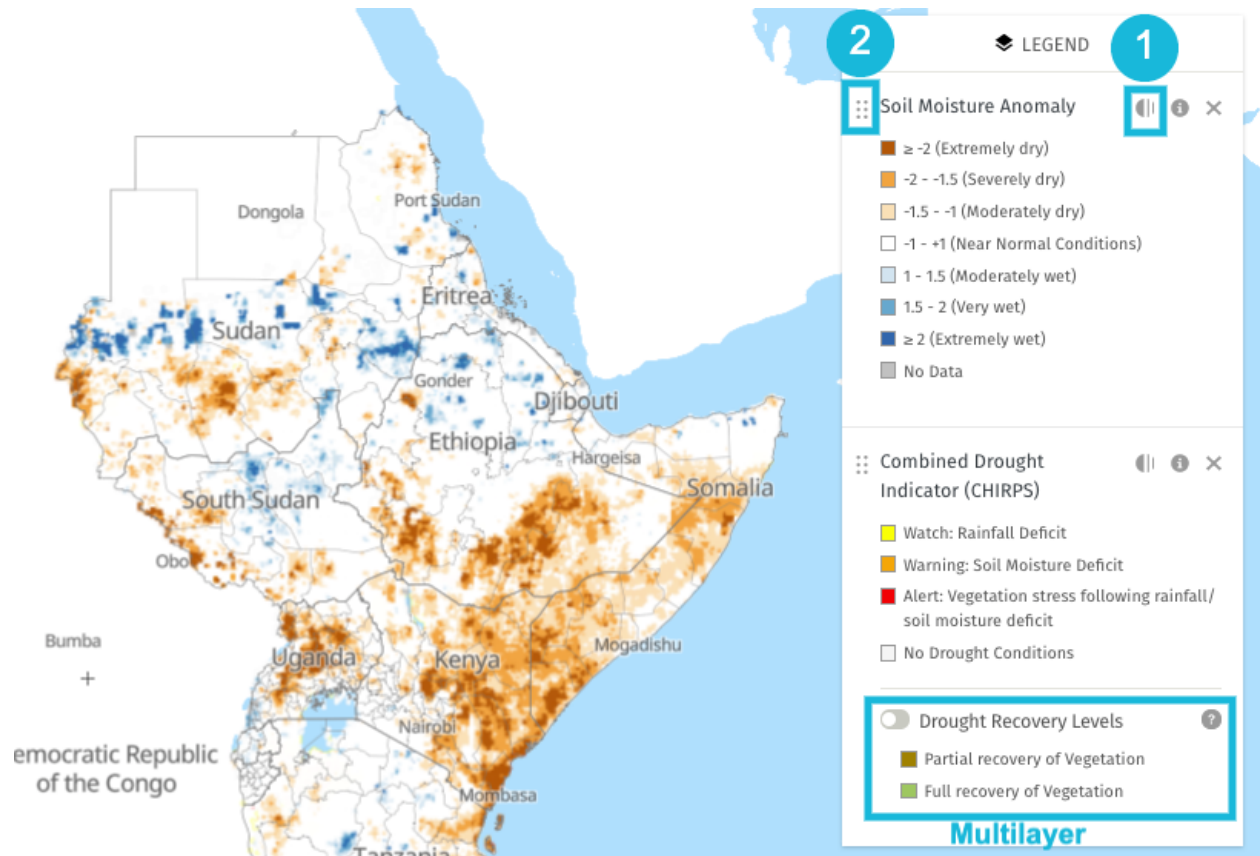
3.2.1 Visualization of raster layers for selected weather and biophysical indicators and anomalies

The system's mapviewer houses a number of layers. Each layer can be displayed on the map through toggling it on and off. A legend will be displayed on the right for each layer that has been activated.

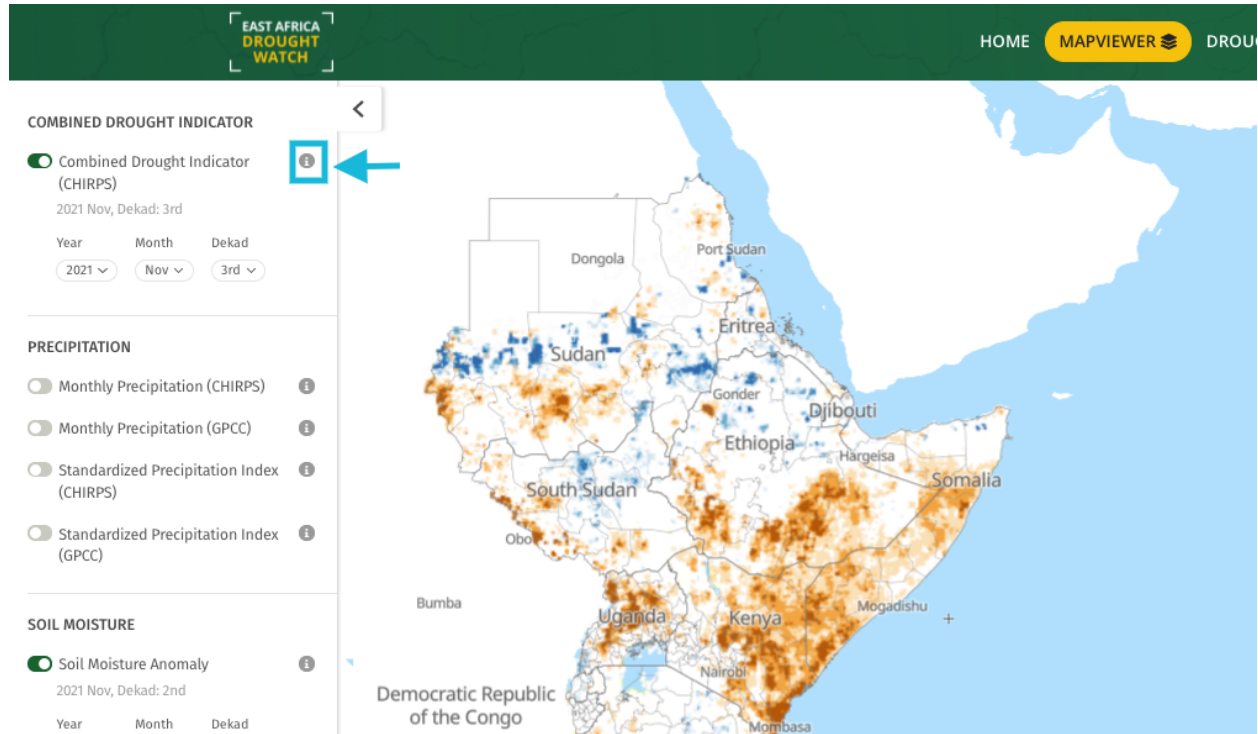


For multilayers, a secondary layer will appear on the legend which can also be toggled on and off.

To facilitate better image interpretation, it is possible to change the opacity for activated layers within the legend (1). It is also possible to rearrange the order of activated layers(2) by dragging them from top to bottom on the legend.

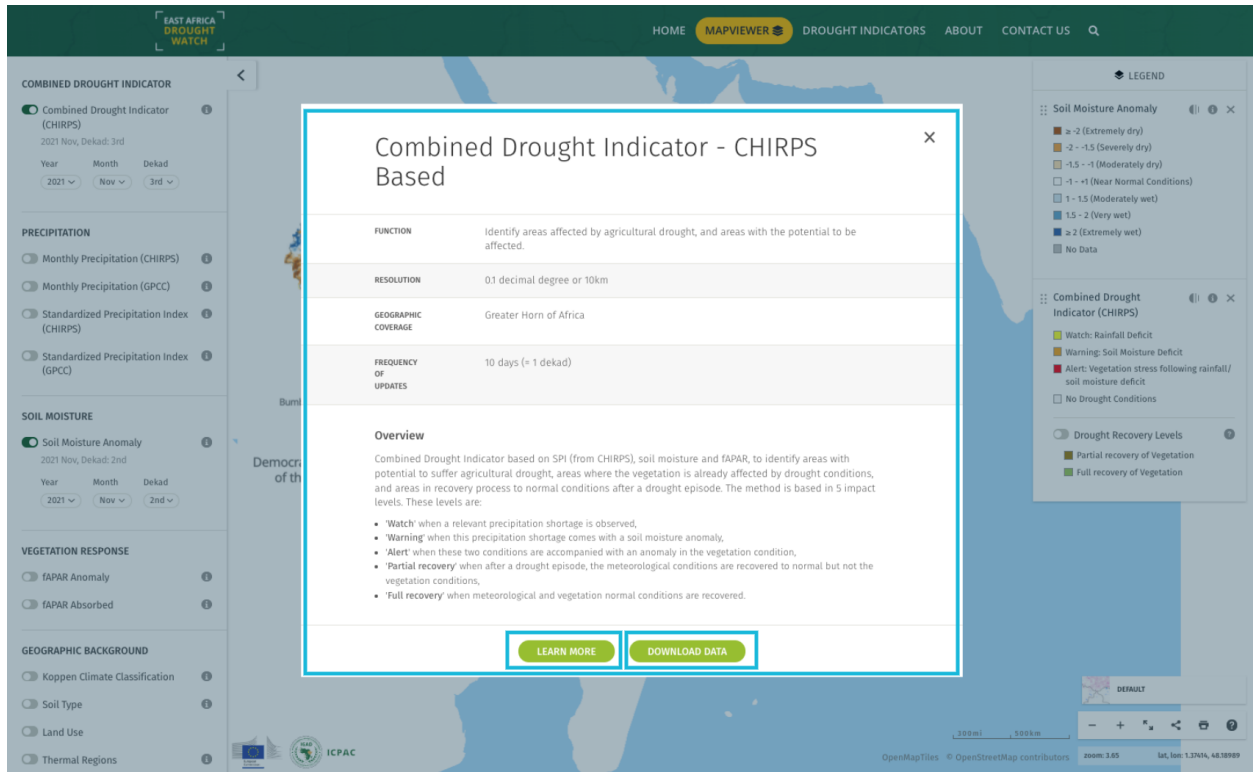


3.2.2 Layer metadata



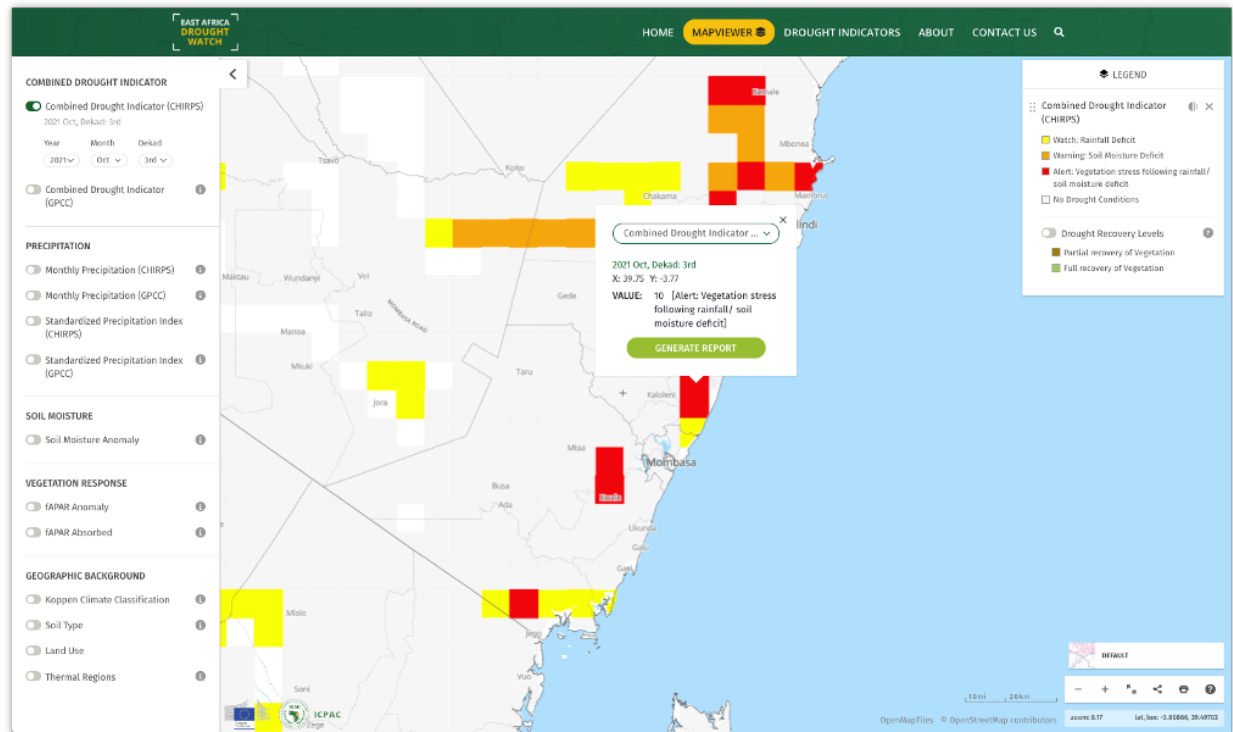
In order to have an in-depth understanding on how layers are generated/computed, each layer contains metadata that is accessible using the info icon beside the layer name. The layer metadata includes:

- The function
- Resolution
- Geographic coverage
- Source
- Frequency of updates
- General Overview of the layer
- Citation
- Caution
- License
- Link to learn more (factsheets) or download raster data



3.2.3 Retrieve pixel value

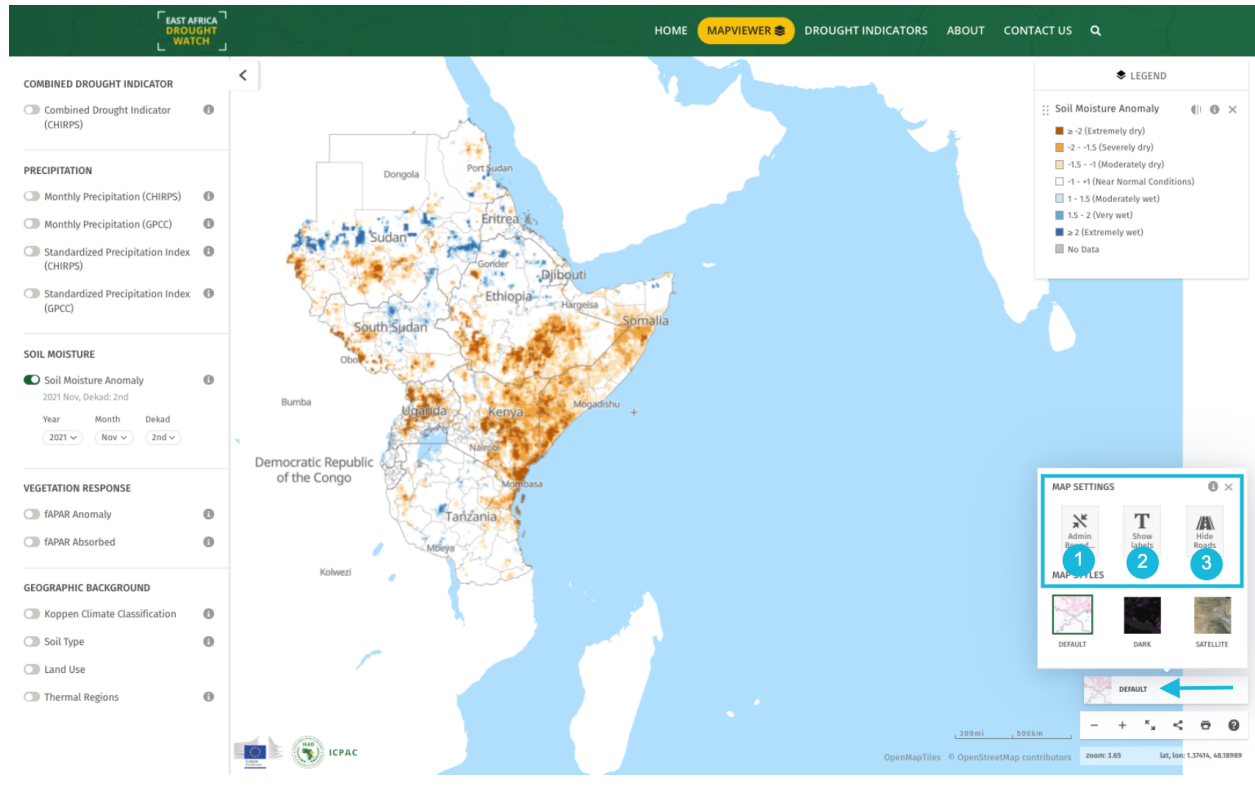
To retrieve the value of a pixel of interest on the map, click on this pixel. A popup appears displaying a drop-down of activated layers, the selected date, the location and the value for this pixel. Switch between activated layers using the dropdown to view dataset values for the same pixel.



3.2.4 Manage Map Settings

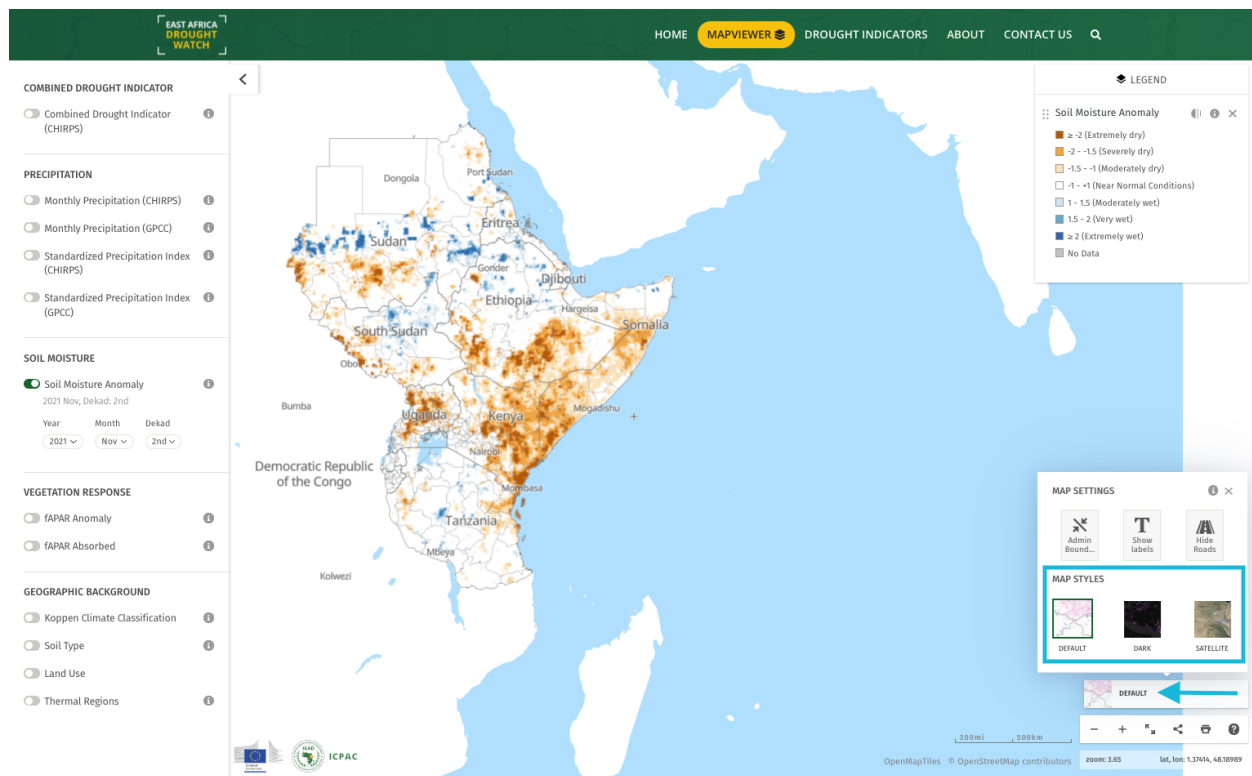
To access map settings click on the 'Default' map image at the bottom right corner of the mapviewer. Map settings allow you to:

1. Disable/Enable admin boundaries
2. Show/hide labels on the map
3. Show/hide roads on the map



3.2.5 Manage Map Styles

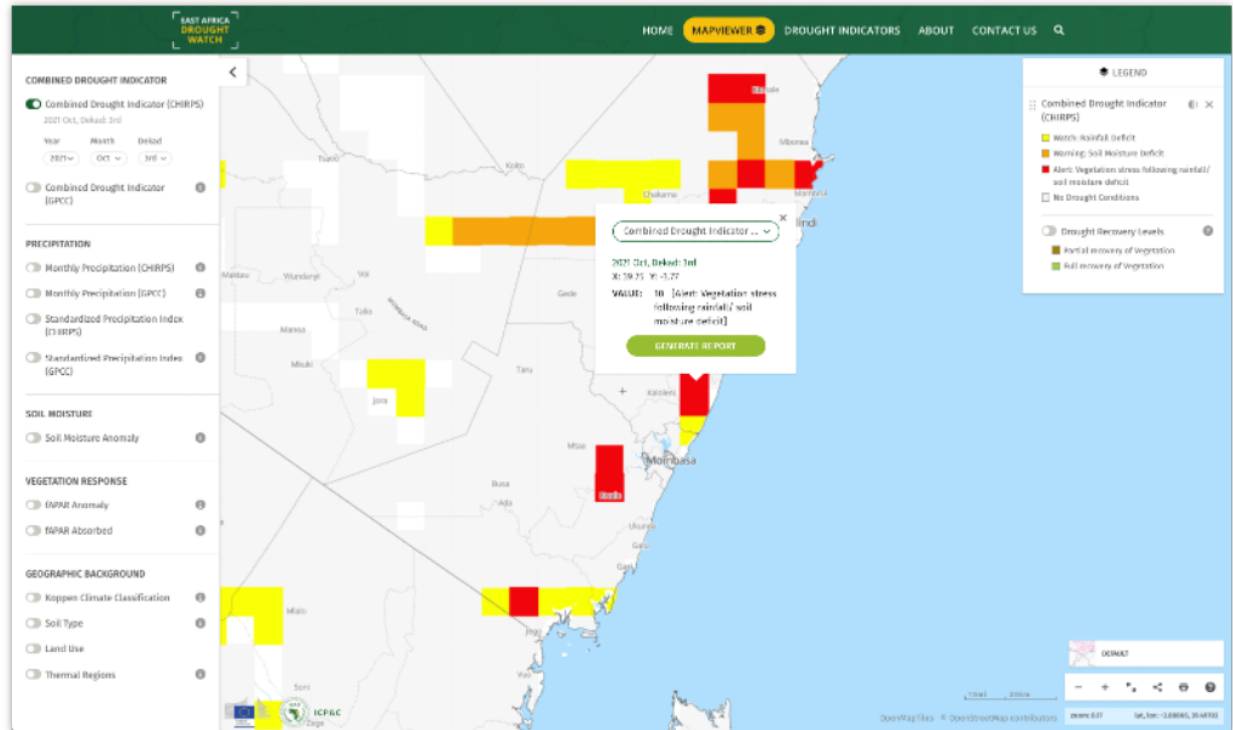
To switch between various basemaps, click on the 'Default' map image at the bottom right corner of the mapviewer and select a basemap of preference.

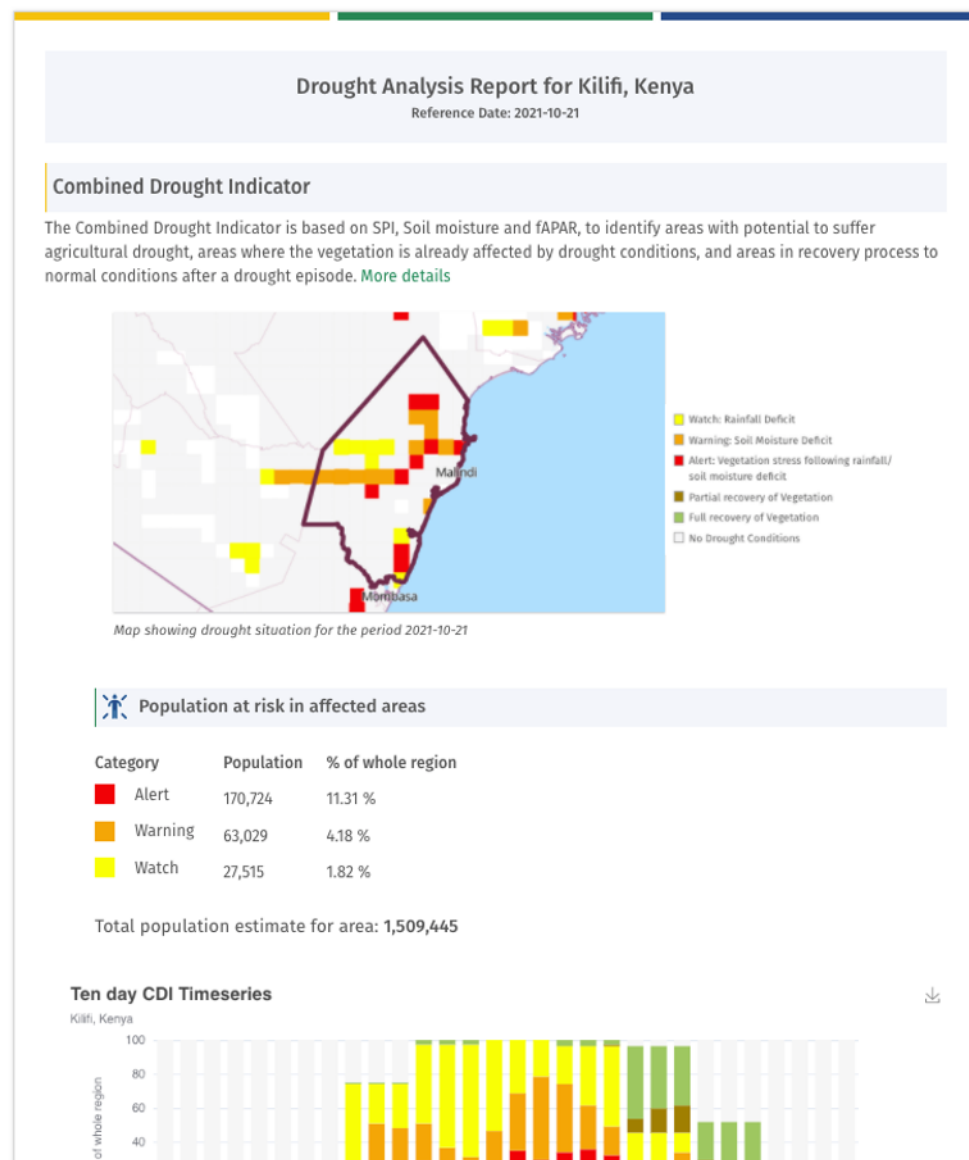


3.3 Report Generation

In addition to the mapviewer, the East Africa Drought Watch allows for generation of drought reports at admin level 1 based on the pixel of interest and the time period selected. These drought reports contain both maps and graphs giving a summarized analysis of the situation of each drought layer.

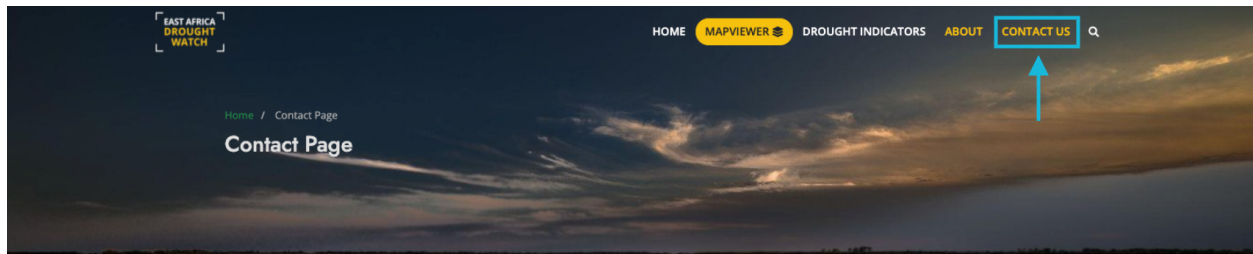
To generate a report, click on a pixel of interest on the mapviewer and select 'generate report button' on the popup. This will redirect you to the dashboard/report page for the drought watch.





3.4 Feedback Mechanism


Contact the Drought Watch team with any comments or suggestions. If you have specific bugs to report or improvements to the tool that you would like to suggest, you can also submit them through our contact us form <https://droughtwatch.icpac.net/contact/>.



Topic

Email Address

Message

☐ I'm not a robot 

Get in Touch

Get in touch with us and we will get back to you as soon as we can.

Address

IGAD Climate Prediction & Applications Centre (ICPAC)

P.O. BOX 10304 - 00100

Nairobi, Kenya

Media requests

communication@icpac.net

Twitter

@icpac_igad

DATA MANAGER GUIDE

4.1 Introduction

This section is meant for guiding data managers in standardizing station data files of varying formats and structures to a standard CSV File using a read-in tool integrated within the CMS. This read-in tool enables reformat station data from member countries from .docx or .xlsx to standard csv and preview reformatted data before download locally. Supported countries are:

- Uganda - daily,
- Rwanda - daily,
- Djibouti - daily,
- Tanzania - dekadai,
- Sudan - dekadai,
- Ethiopia - daily
- Burundi - daily

Note: Only admin/superuser and users with data manager role can access this section of the CMS.

4.2 Usage

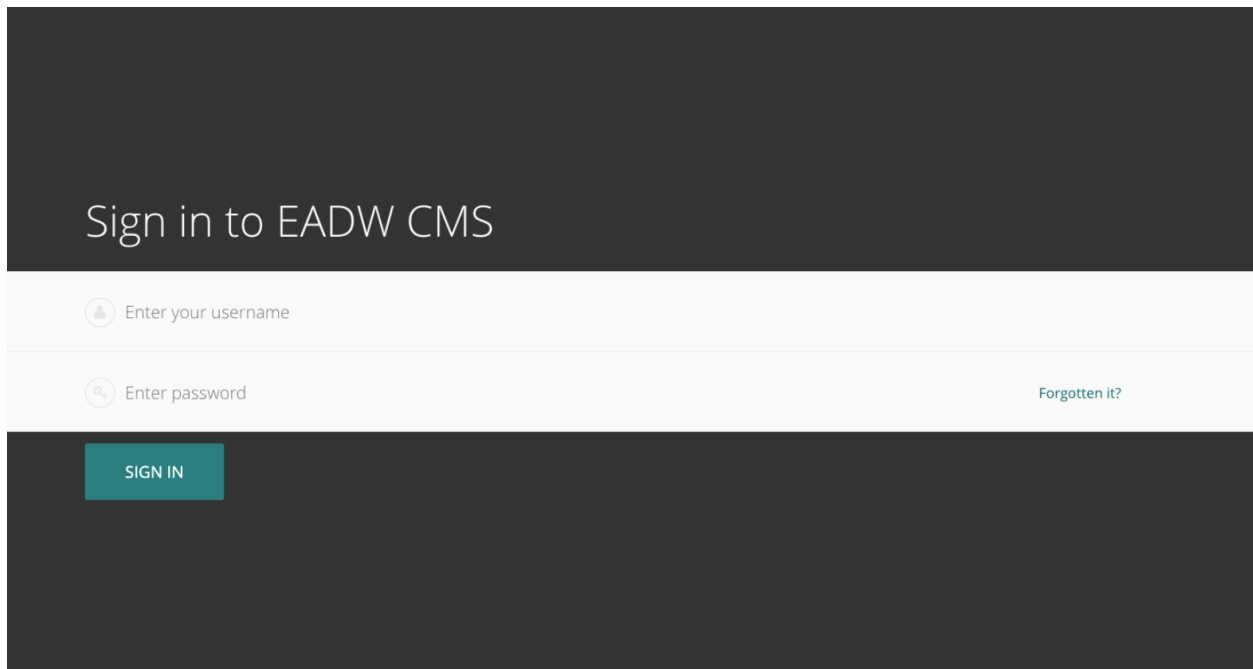
4.2.1 Prerequisites

The read-in tool supports xlsx, xls and docx formats. All doc should be converted to docx before reformatting. This tool assumes country-specific structures remain consistent.

Note: a slight change in the structure of the raw station file may lead to unsuccessful reformatting.

4.2.2 Logging in

The first port of call for an editor is the login page for the administrator interface. Access this by adding /cms onto the end of your root URL (e.g. <https://droughtwatch.icpac.net/cms>). Enter your username and password and click Sign in.



The screenshot shows the login interface for the EADW CMS. It features a dark grey header with the text "Sign in to EADW CMS" in white. Below the header is a light grey form area with two input fields: "Enter your username" and "Enter password". The "Enter password" field has a "Forgotten it?" link to its right. At the bottom of the form is a teal "SIGN IN" button.

4.2.3 Creating/Updating Stations

As a data manager on the CMS, you are capable of creating new stations which will be referenced during reformatting. To create a station, follow the steps below:

First, select '**snippets**' on the left sidebar then select Stations.

The top screenshot shows the 'SNIPPETS' section of the application. The left sidebar contains the 'EAST AFRICA DROUGHT WATCH' logo and a menu with 'Snippets' (highlighted with a blue circle and the number 1), 'Reader', 'Reports', and 'Settings'. The main content area has a teal header with the 'SNIPPETS' title. Below it, the 'Observation Elements' section contains a 'Stations' input field (highlighted with a blue circle and the number 2). The bottom of the sidebar shows a user profile for 'ISMAEL'.

The bottom screenshot shows the 'SNIPPETS Stations' section. The left sidebar is identical to the top screenshot. The main content area has a teal header with the 'SNIPPETS Stations' title. In the top right corner of this header, there is a button labeled '+ ADD STATION' (highlighted with a blue box and an arrow). Below the header, there is a list of stations, each with a checkbox and a text label: 'TITLE', '74350010 - KASSALA - SUDAN', '74360150 - Asmara - ERITREA', '74380000 - Massawa - ERITREA', '74390050 - E-DUEIM - SUDAN', '75320280 - WAD-MEDANI - SUDAN', '75330420 - EL-GEDREF - SUDAN', and '75350620 - ELGENEINA - SUDAN'. The bottom of the sidebar shows a user profile for 'ISMAEL'.

Fill the fields appropriately and save.

The screenshot shows the 'NEW station' form in the East Africa Drought Watch application. The interface includes a dark sidebar on the left with the application logo and navigation links: Snippets, Reader, Reports, and Settings. The main content area has a teal header with a leaf icon and the text 'NEW station'. Below the header, there are five form fields, each with a red dropdown arrow on the left: 'STATIONID', 'NAME', 'WMOID', 'ICAOID', and 'LATITUDE'. Each field is currently empty. At the bottom left of the sidebar, there is a user profile icon and the name 'ISMAEL'. At the bottom center of the form, there is a teal button with a white download icon and the text 'SAVE'.

4.2.4 Reformat Station Data

Daily data

For daily station data:

1. Select country from list
2. Load station-specific data file
3. Select year and month. (days will be automatically picked from the station file)

EAST AFRICA DROUGHT WATCH

Snippets

Reader

Reports

Settings

ISMAEL

REFORMAT DATA

REFORMAT DATA TO STANDARD CSV

Country: *

Uganda

Select Country from list

Station file: *

Choose file

No file chosen

Upload station data. Accepts .docx, .xls and .xlsx

Month:

Enter Month and year for daily data

REFORMAT

A preview of the reformatted station data will be shown.

EAST AFRICA DROUGHT WATCH

Snippets

Reader

Reports

Settings

ISMAEL

PREVIEW REFORMATTED DATA

SHOWING DATA PREVIEW FOR UGANDA

DOWNLOAD AS CSV

DOWNLOAD AS GEOJSON

DOWNLOAD AS SHAPEFILE

BACK

Download options

Scroll to the right for more data

Map showing 15 stations. Click station to view data

ID

STATION

ELEMENT_CODE

YYYY

MM

LATITUDE

LONGITUDE

11

12

13

14

15

16

1

The tool allows download of reformatted data in csv, shapefile or geojson format.

4.2. Usage

41

Dekadal data

For dekadal station data:

1. Select country from list
2. Load station-specific data file
3. Select date

EAST AFRICA DROUGHT WATCH

Snippets

Reader

Reports

Settings

ISMAEL

REFORMAT DATA

REFORMAT DATA TO STANDARD CSV

Country: * Tanzania

Select Country from list

Station file: *

Choose file 726D - Sept_tanzania.docx

Upload station data. Accepts .docx, .xls and .xlsx

Date: 2021-09-30

Station data date. Required only for dekadal data

REFORMAT

A preview of the reformatted station data will be shown.

EAST AFRICA DROUGHT WATCH

Snippets

Reader

Reports

Settings

ISMAEL

PREVIEW REFORMATTED DATA

SHOWING DATA PREVIEW FOR TANZANIA

DOWNLOAD AS CSV

DOWNLOAD AS GEOJSON

DOWNLOAD AS SHAPEFILE

BACK

Download options

Scroll to the right for more data

ID	STATION	YYYY	MM	DD	LATITUDE	LONGITUDE	TOTAL RAINFALL (MM)	RAINY DAYS	MAX. TEMP (°C)	M
91290040	BUKOB	2021	9	30	-1.33	31.82	5.4	2.0	27.2	14
92300310	MWANZA	2021	9	30	-2.47	32.92	26.9	2.0	28.6	14
91310340	MUSOMA	2021	9	30	-1.50	33.80	0.6	0.0	28.8	21
93360330	KILIMANJARO	2021	9	30	-3.42	37.07	0.0	0.0	29.8	11
96340200	MOROGORO	2021	9	30	-6.83	37.65	0.0	0.0	29.2	14
96390360	ZANZIBAR	2021	9	30	-6.17	39.22	7.5	1.0	30.3	21
96370860	DAR-ES-SALAAM	2021	9	30	-6.87	39.20	0.1	0.0	31.5	21
10350260	MTWARA	2021	9	30	-10.35	40.18	5.2	1.0	30.8	14
95390520	DODOMA	2021	9	30	-6.17	35.77	0.0	0.0	29.1	14
94390919	TABORA	2021	9	30	-5.08	32.83	1.5	1.0	32.5	11

MAINTENANCE GUIDE

5.1 Introduction

This section describes the basic information necessary to perform system maintenance functions, such as adding static page content to on the system pages, styling, activating and publishing layers displayed on the mapviewer, adding or updating layer metadata information, specifying layer time interval and symbology type, etc.

This guide will begin with a walkthrough of the Content Management System's elements and functionalities, followed by a guide on how to update static content and finally describe mapviewer layer maintenance procedures.

The Content Management System is built upon Wagtail, an open source content management system based on the Django framework and designed to be super easy to use for both developers and editors.

5.2 Overall CMS Components

Contents

- *Overall CMS Components*
 - *Logging in*
 - *Finding your way around*
 - * *The Dashboard*
 - * *The Explorer menu*
 - * *Using search*
 - * *The Explorer page*

5.2.1 Logging in

The first port of call for an editor is the login page for the administrator interface. Access this by adding /cms onto the end of your root URL (e.g. <https://droughtwatch.icpac.net/cms>). Enter your username and password and click Sign in.



Sign in to EADW CMS

Enter your username

Enter password [Forgotten it?](#)

SIGN IN

5.2.2 Finding your way around

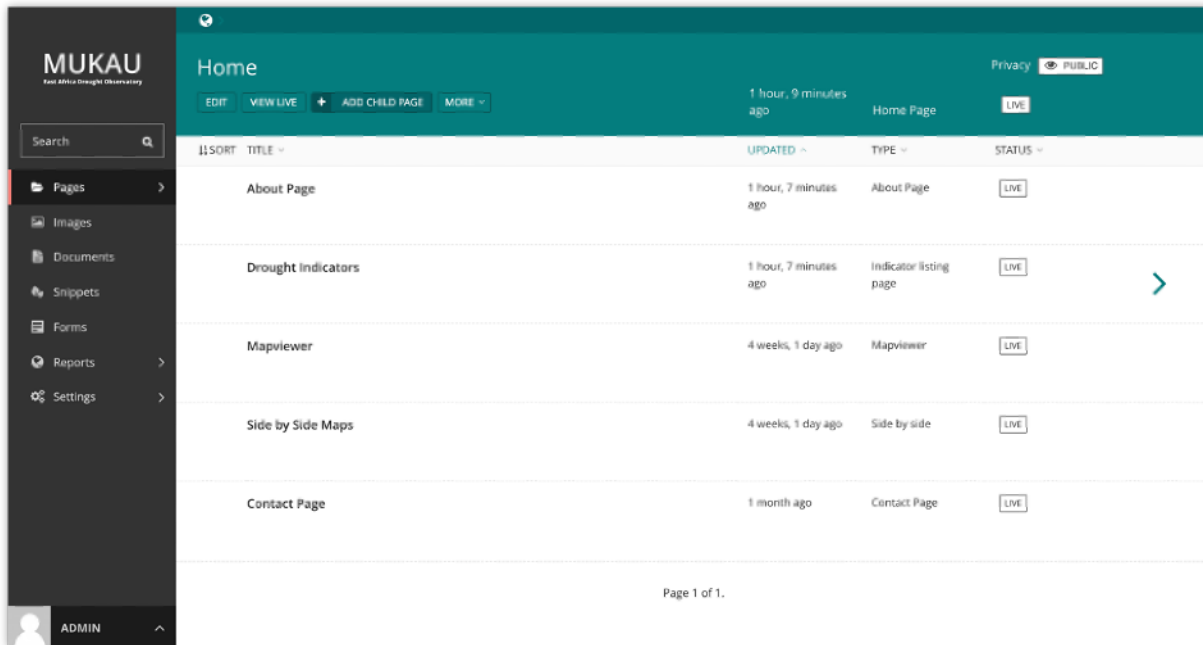
You will learn about different pages that you will see as you navigate around the CMS, and how you can find the content that you are looking for.

The Dashboard

The Dashboard provides information on:

- The number of pages, images, and documents currently held in the Mukau CMS:
- Any pages currently awaiting moderation (if you have these privileges)
- Any pages that you've locked (if your administrator has enabled author-specific locking)
- Your most recently edited pages

You can return to the Dashboard at any time by clicking the Wagtail logo in the bottom-right of the screen.

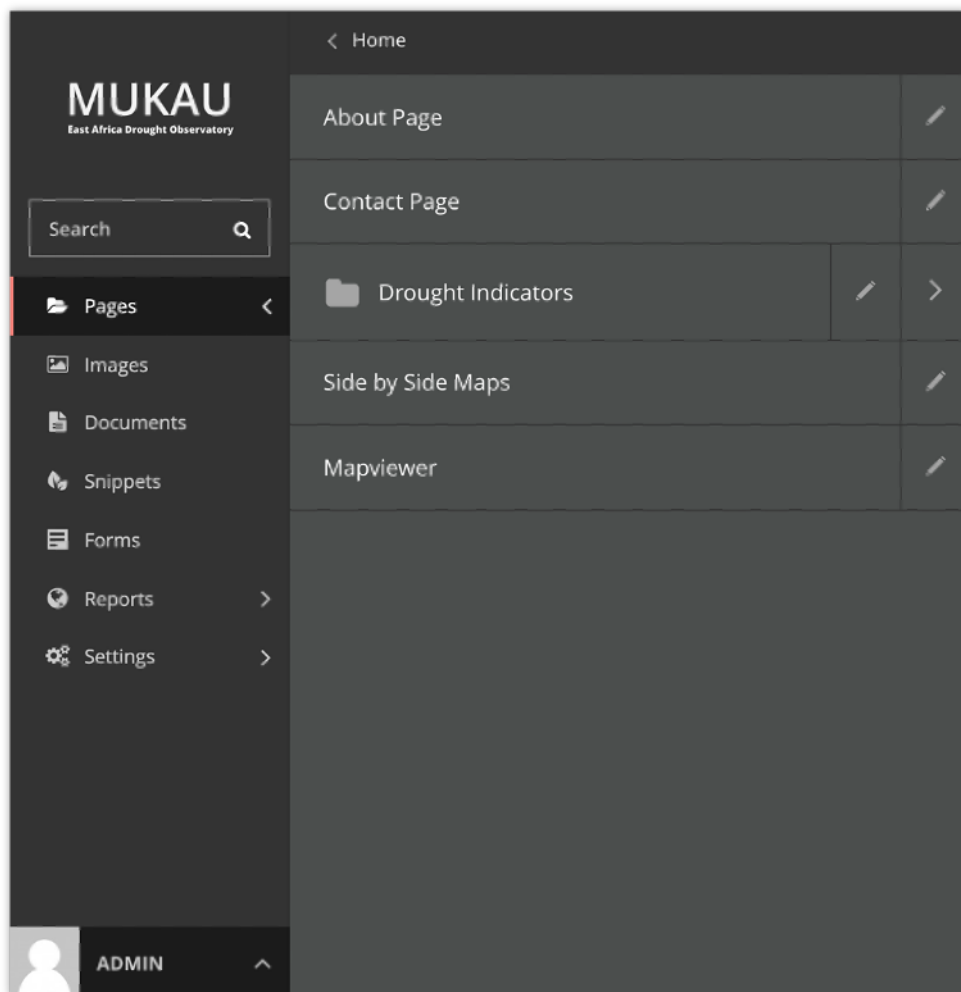


- Clicking the logo returns you to your Dashboard. The stats at the top of the page describe the total amount of content on the CMS.
- The Your pages in a workflow panel shows you any pages in moderation that you own or submitted for moderation yourself, along with which moderation tasks they are awaiting, and how long they've been on that task.
- The Awaiting your review panel will only be displayed if you are able to perform moderation actions.
 - Clicking the name of a page will take you to the 'Edit page' interface for this page.
 - Clicking approve or request changes will either progress the page to the next task in the moderation workflow (or publish if it's the final stage) or mark the page as needing changes and return it to normal editing. An email will be sent to the creator of the page giving the result of the overall workflow when it completes.
 - The status indicator circles show the progress through the workflow: a tick for a completed task, or an empty circle for an incomplete one. Tooltips provide more details on the status of each.
 - The time this page has been waiting for review on this task is also shown to the right.
- The Your locked pages panel shows the pages you've locked so that only you can edit them.
 - The date you locked the page is displayed to the right.
 - Clicking the name of a page will take you to the 'Edit page' interface for this page.
- The Your most recent edits table displays the five pages that you most recently edited.
 - The date that you edited the page is displayed. Hover your mouse over the date for a more exact time/date.
 - The current status of the page is displayed. A page will have one of a number of statuses:
 - * Live: Published and accessible to website visitors
 - * Draft: Not live on the website
 - * In Moderation: In the middle of a moderation workflow
 - * Scheduled: Not live, but has a publication date set
 - * Expired: Not live - this page was unpublished as it had an expiry date set which has now passed

- * Live + Draft: A version of the page is live, but a newer version is in draft mode.
- * Live + (another status): A version of the page is live, but a newer version has another status.

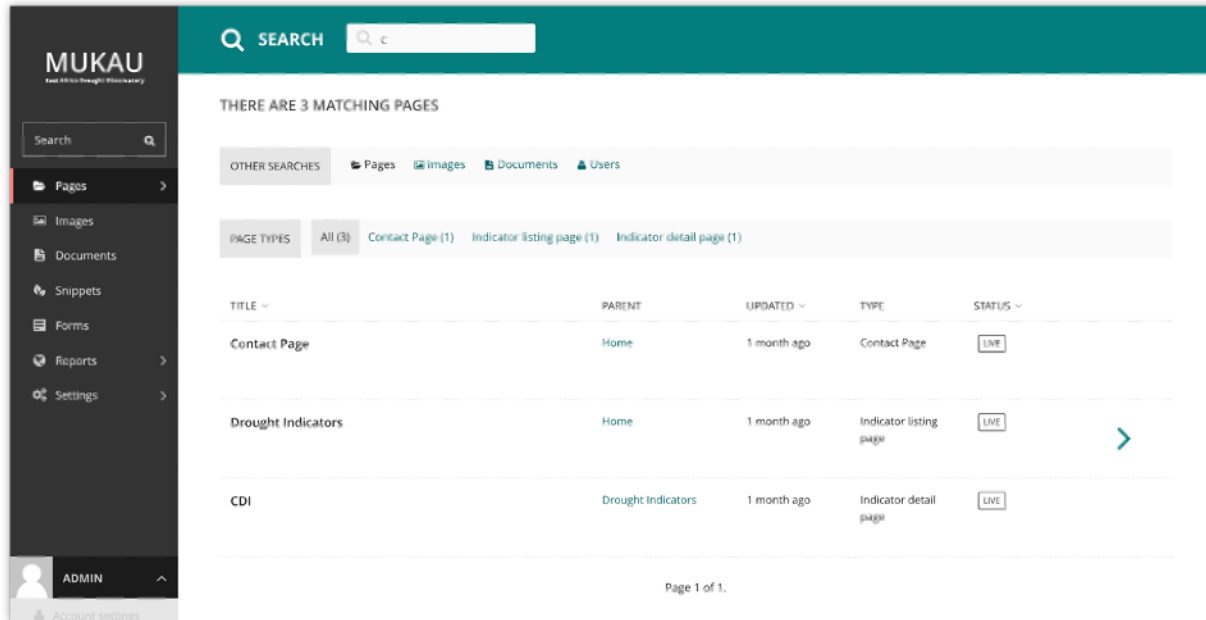
The Explorer menu

- Click the Pages button in the sidebar to open the explorer. This allows you to navigate through the sections of the site.
- Clicking the name of a page will take you to the Explorer page for that section.
- Clicking the edit icon for a page will take you to its edit screen.
- Clicking the arrow takes you to the sub-section.
- Clicking the section title takes you back to where you were.



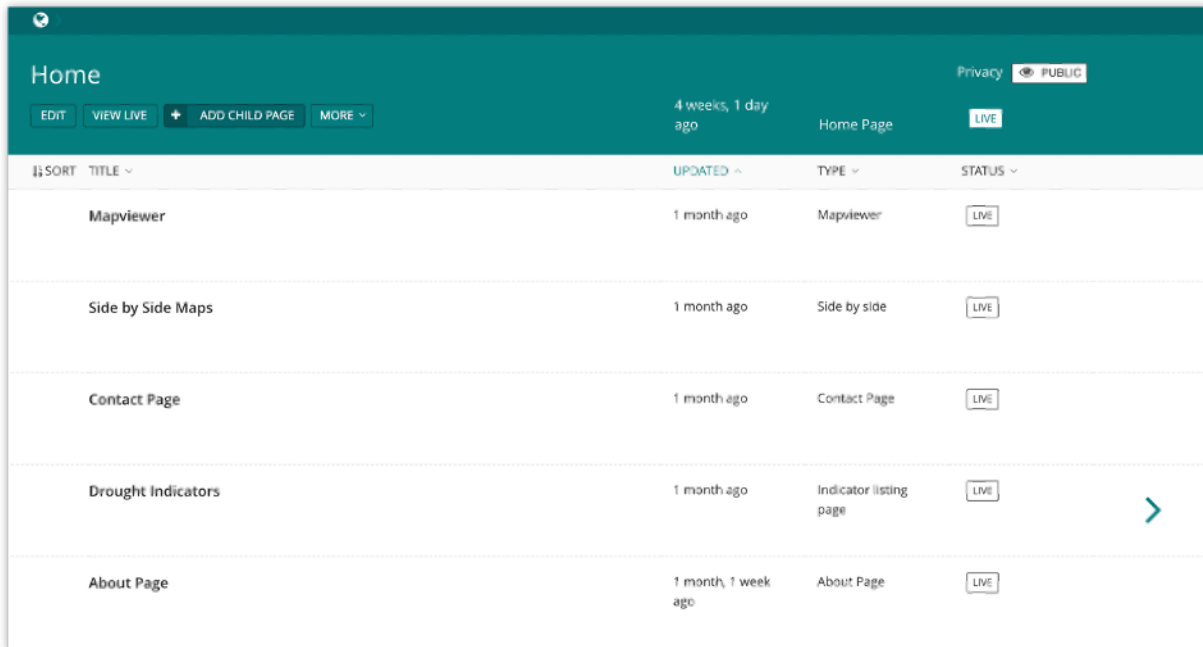
Using search

A very easy way to find the page that you want is to use the main search feature, accessible from the left-hand menu. Simply type in part or all of the name of the page, image, document or user you are looking for, and the results below will automatically update as you type. Clicking the page title in the results will take you to the Edit page for that result. You can differentiate between similar named pages using the Parent column, which tells you what the parent page of that page is.

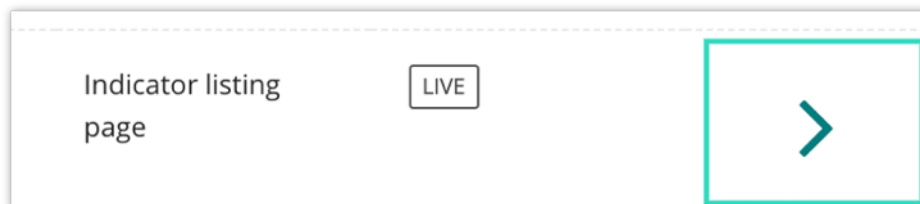


The Explorer page

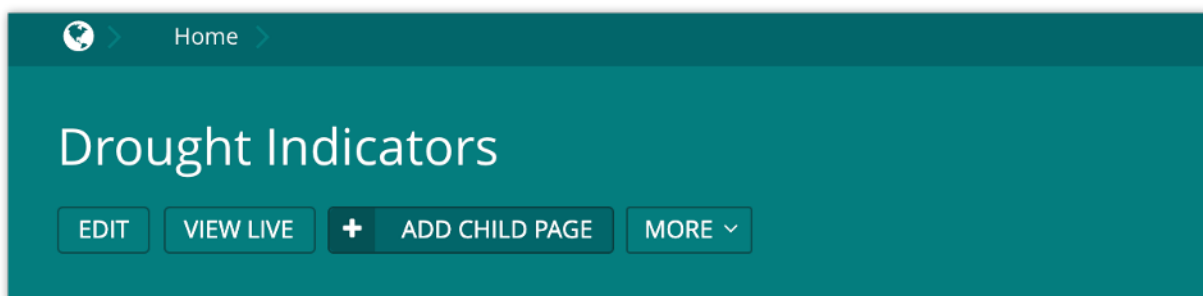
The Explorer page allows you to view a page's children and perform actions on them. From here you can publish/unpublish pages, move pages to other sections, drill down further into the content tree, or reorder pages under the parent for the purposes of display in menus.



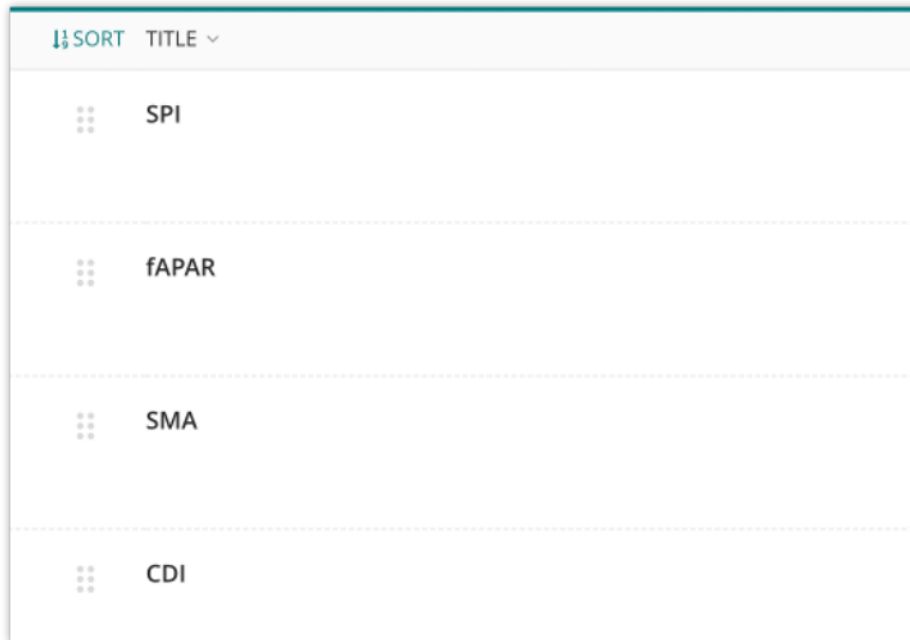
- The name of the section you are looking at is displayed below the breadcrumb (the row of page names beginning with the home icon). Each section is also itself a page (in this case the homepage). Clicking the title of the section takes you to the Edit screen for the section page.
- As the heading suggests, below are the child pages of the section. Clicking the titles of each child page will take you to its Edit screen.



Clicking the arrows will display a further level of child pages. As you drill down through the site the breadcrumb (the row of pages beginning with the home icon) will display the path you have taken. Clicking on the page titles in the breadcrumb will take you to the Explorer screen for that page.



To add further child pages press the Add child page button below the parent page title. You can view the parent page on the live site by pressing the View live button. The Move button will take you to the Move page screen where you can reposition the page and all its child pages in the site structure. Similar buttons are available for each child page. These are made visible on hover.



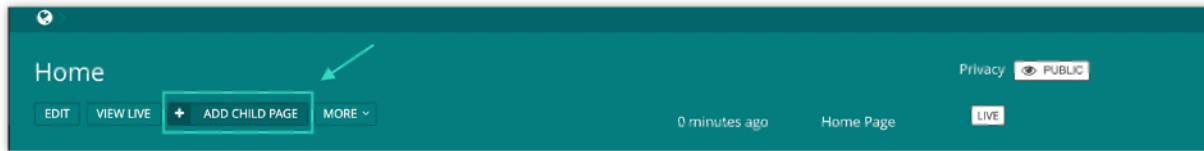
- Clicking the “Sort” control in the header row will enable the reordering handles. This allows you to reorder the way that content displays in the main menu of your website.
- Reorder by dragging the pages by the handles on the far left (the icon made up of 6 dots).
- Your new order will be automatically saved each time you drag and drop an item.

5.3 CMS Mechanism to display a webpage

Contents

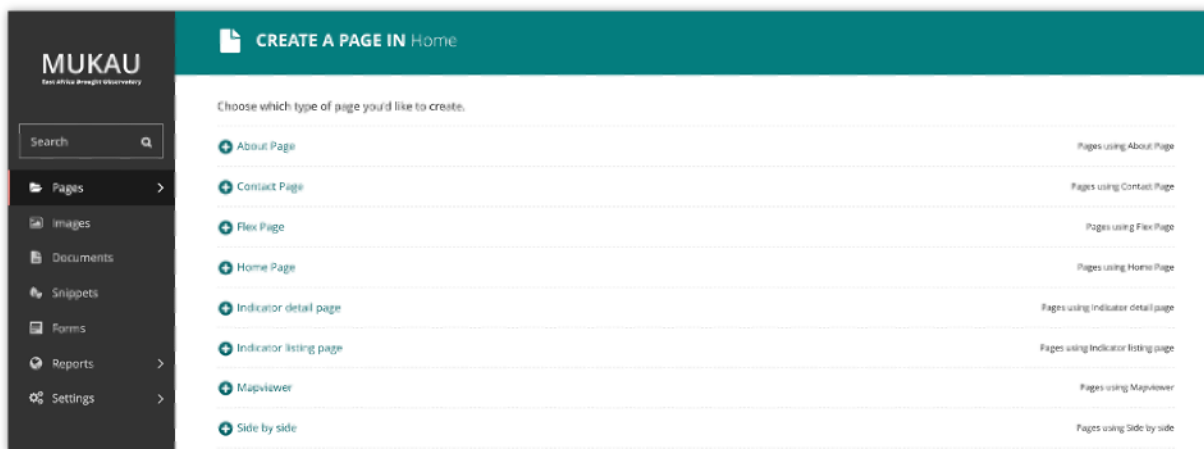
- *CMS Mechanism to display a webpage*
 - *Creating new pages*
 - *Selecting a page type*
 - *Inserting images and videos in a page*
 - * *Inserting images using the image chooser field*
 - * *Choosing an image to insert*
 - * *Choosing an image from the image library*
 - * *Uploading a new image to the CMS*
 - *Inserting links in a page*
 - *Inserting videos into body content*

5.3.1 Creating new pages



Create new pages by clicking the Add child page button. This creates a child page of the section you are currently in. In this case a child page of the 'Home' page.

5.3.2 Selecting a page type



On the left of the page chooser screen are listed all the types of pages that you can create. Clicking the page type name will take you to the Create new page screen for that page type (see below).

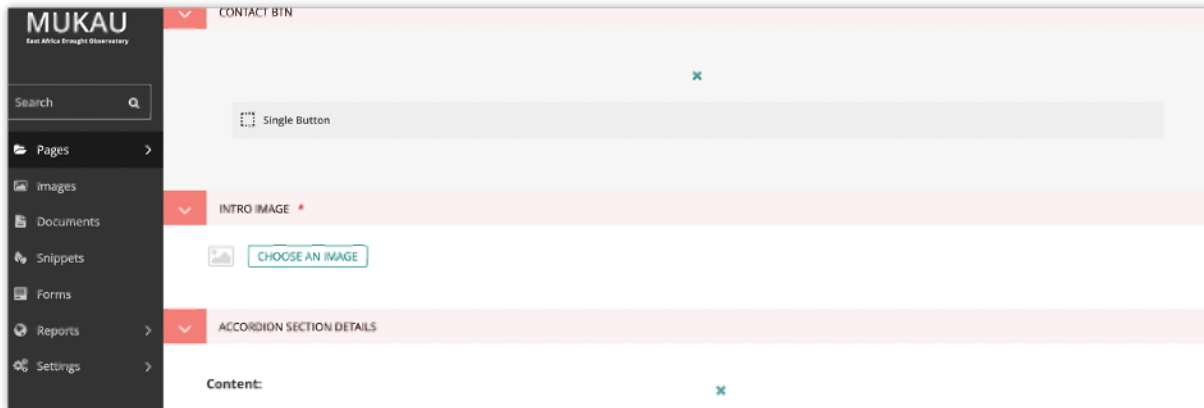
Clicking the Pages using ... Page links on the right will display all the pages that exist on the website of this type. This is to help you judge what type of page you will need to complete your task.

5.3.3 Inserting images and videos in a page

There may be instances in which you will want to add images to a page. There are two main ways to add images to pages, either via a specific image chooser field, or via the rich text field image button. The steps below will explain the first method.

Inserting images using the image chooser field

Often a specific image field will be used for a main image on a page, or for an image to be used when sharing the page on social media.



You insert an image by clicking the Choose an image button.

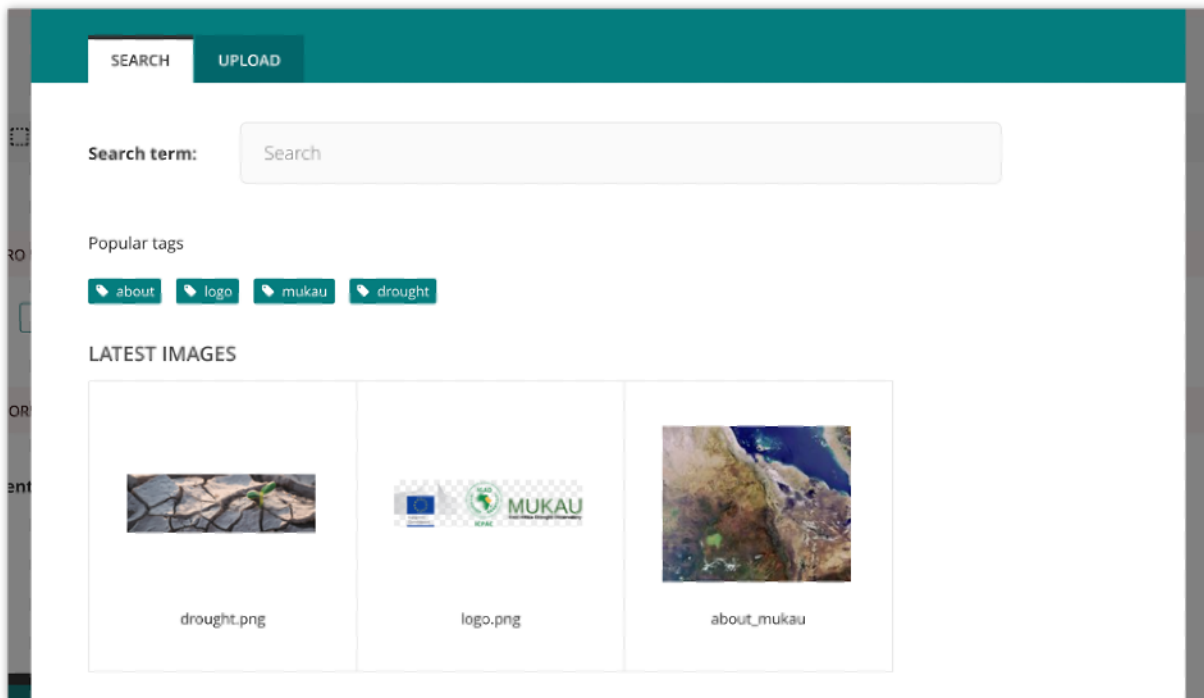
Choosing an image to insert

You have two options when selecting an image to insert:

- Selecting an image from the existing image library, or...
- Uploading a new image to the CMS When you click the Choose an image button you will be presented with a pop-up with two tabs at the top. The first, Search, allows you to search and select from the library. The second, Upload, allows you to upload a new image.

Choosing an image from the image library

The image below demonstrates finding and inserting an image that is already present in the CMS image library.



1. Typing into the search box will automatically display the results below.
2. Clicking one of the Popular tags will filter the search results by that tag.
3. Clicking an image will take you to the Choose a format window (see image below).

Uploading a new image to the CMS

CHOOSE AN IMAGE

SEARCH UPLOAD

Title: *

File: *

Choose file No file chosen

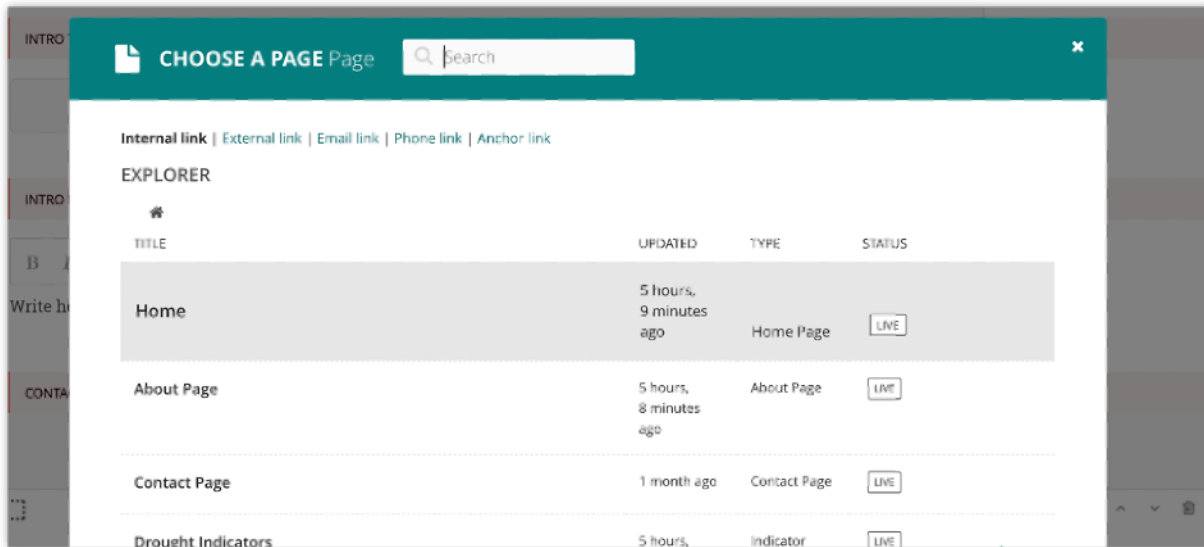
Supported formats: GIF, JPEG, PNG, WEBP. Maximum filesize: 10.0 MB.

Tags: drought map home

UPLOAD

1. You must include an image title for your uploaded image
2. Click the Choose file button to choose an image from your computer.
3. Tags allows you to associate tags with the image you are uploading. This allows them to be more easily found when searching. Each tag should be separated by a space. Good practice for creating multiple word tags is to use an underscore between each word.
4. Click Upload to insert the uploaded image into the carousel. The image will also be added to the main CMS image library for reuse in other content.

5.3.4 Inserting links in a page



Similar to images, there are a variety of points at which you will want to add links. The most common place to insert a link will be in the body text of a page. You can insert a link into the body text by clicking the Insert link button in the rich text toolbar. Whichever way you insert a link, you will be presented with the form displayed below.

- Search for an existing page to link to using the search bar at the top of the pop-up.
- Below the search bar you can select the type of link you want to insert. The following types are available:
 - Internal link: A link to an existing page within your website.
 - External link: A link to a page on another website.
 - Email link: A link that will open the user's default email client with the email address prepopulated.
 - Phone link: A link that will open the user's default client for initiating audio calls, with the phone number prepopulated.
- You can also navigate through the website to find an internal link via the explorer.

5.3.5 Inserting videos into body content

It is possible to embed media into the body text of a web page by clicking the Embed button in rich text toolbar. Copy and paste the web address for the media into the URL field and click Insert.

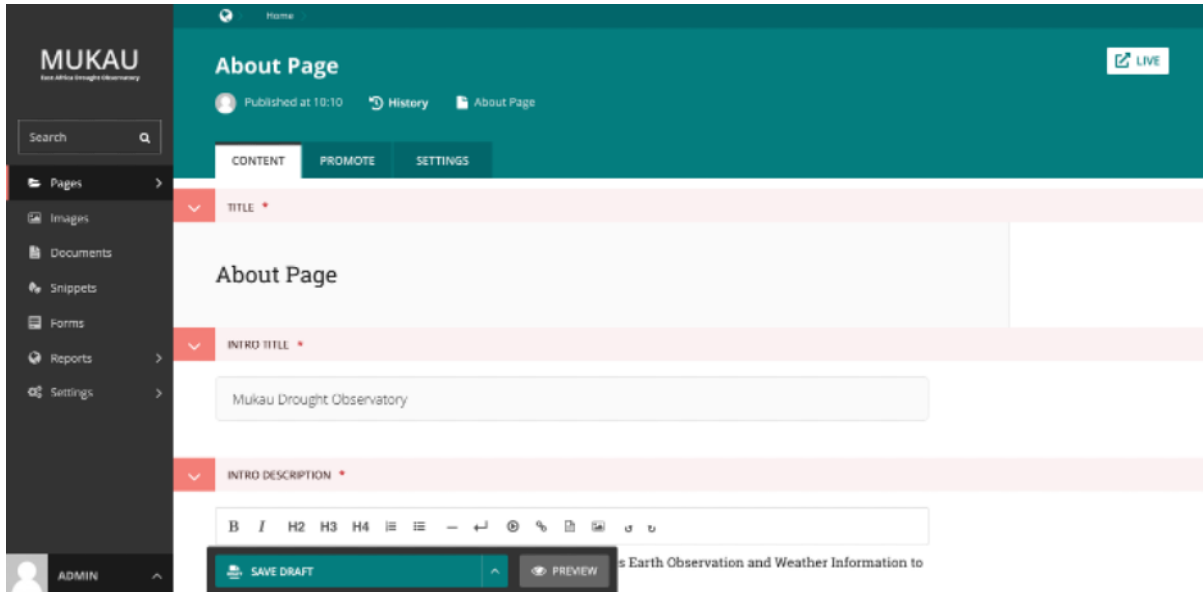
5.4 CMS Mechanism to edit a Mukau webpage

Contents

- *CMS Mechanism to edit a Mukau webpage*
 - *Edit existing pages*
 - *Workflow*

5.4.1 Edit existing pages

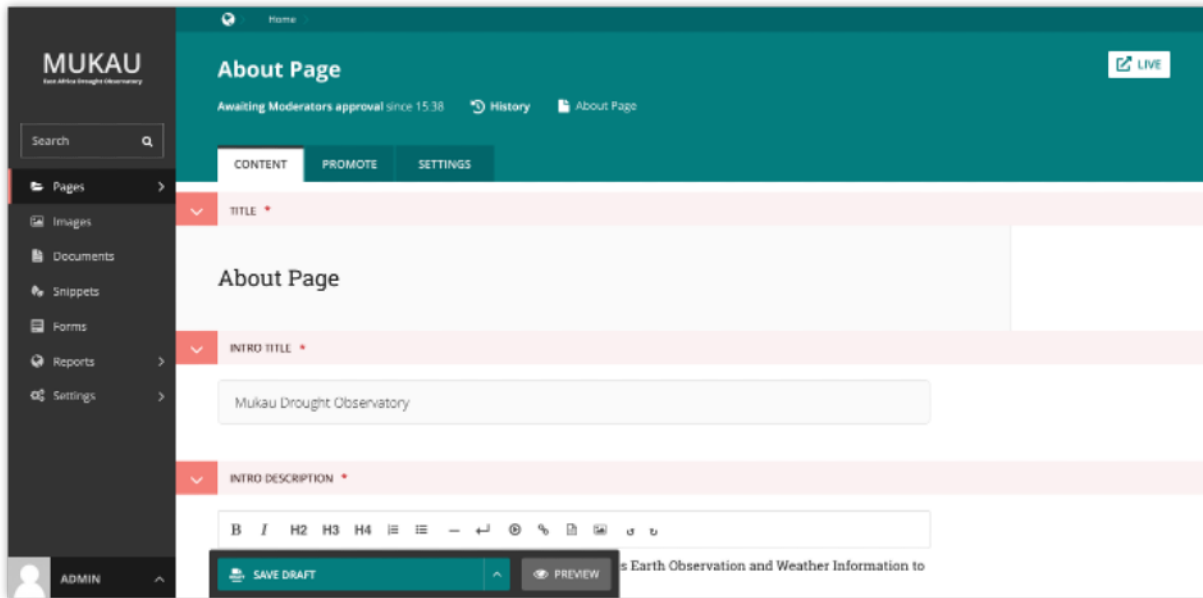
Here is how you can access the edit screen of an existing page: Clicking the title of the page in an Explorer page or in search results. Clicking the Edit link below the title in either of the situations above. Clicking the Edit icon for a page in the explorer menu.



- When editing an existing page the title of the page being edited is displayed at the top of the page. Underneath the title, you can find the page type and a link to the page history.
- If published, a link to the live version of the page is shown on the top right.
- You can change the title of the page by clicking into the title field.
- When you are typing into a field, help text is often displayed on the right-hand side of the screen.

5.4.2 Workflow

If the page is currently in workflow, you'll see an additional indicator underneath the title, giving the current workflow task. Clicking this will show more information about the page's progress through the workflow, as well as any comments left by reviewers.



If you can perform moderation actions (for example, approval or requesting changes) on the current task, you'll see additional options in the action menu at the bottom of the page.

5.5 Edit Page tabs

Contents

- *Edit Page tabs*
 - *The Promote tab*
 - *The Settings Tab*

A common feature of the Edit pages for all page types is the three tabs at the top of the screen. The first, Content, is where you build the content of the page itself.

5.5.1 The Promote tab

The second, Promote, is where you can set all the 'metadata' (data about data!) for the page. Below is a description of all default fields in the promote tab and what they do. 1. **Slug:** The last part of the web address for the page. E.g. the slug for a blog page called 'East Africa Drought Watch' would be east-africa-drought-watch. This is automatically generated from the main page title set in the Content tab. This can be overridden by adding a new slug into the field. Slugs should be entirely lowercase, with words separated by hyphens (-).

2. **Page title:** An optional, search-engine friendly page title. This is the title that appears in the tab of your browser window. It is also the title that would appear in a search engine if the page was returned as part of a set of search results.
3. **Show in menus:** Ticking this box will ensure that the page is included in automatically generated menus on your site. Note: A page will only display in menus if all of its parent pages also have Show in menus ticked. Search description: This field allows you to add text that will be displayed if the page appears in search results. This is especially useful to distinguish between similarly named pages.

The screenshot shows the 'COMMON PAGE CONFIGURATION' settings tab. It includes the following fields and options:

- Slug:** A text field containing 'east-africa-drought-observatory'. Below it, a note states: 'The name of the page as it will appear in URLs e.g http://domain.com/blog/{my-slug}/'.
- Page title:** A text field containing 'East Africa Drought Observatory'. Below it, a note states: 'Optional, 'Search Engine Friendly' title. This will appear at the top of the browser window.'
- Show in menus:** A checkbox that is checked. Below it, a note states: 'Whether a link to this page will appear in automatically generated menus'.
- Search description:** An empty text field.

5.5.2 The Settings Tab

The Settings tab has two fields by default.

The screenshot shows the 'SETTINGS' tab in the MUKAU system. It includes the following sections and fields:

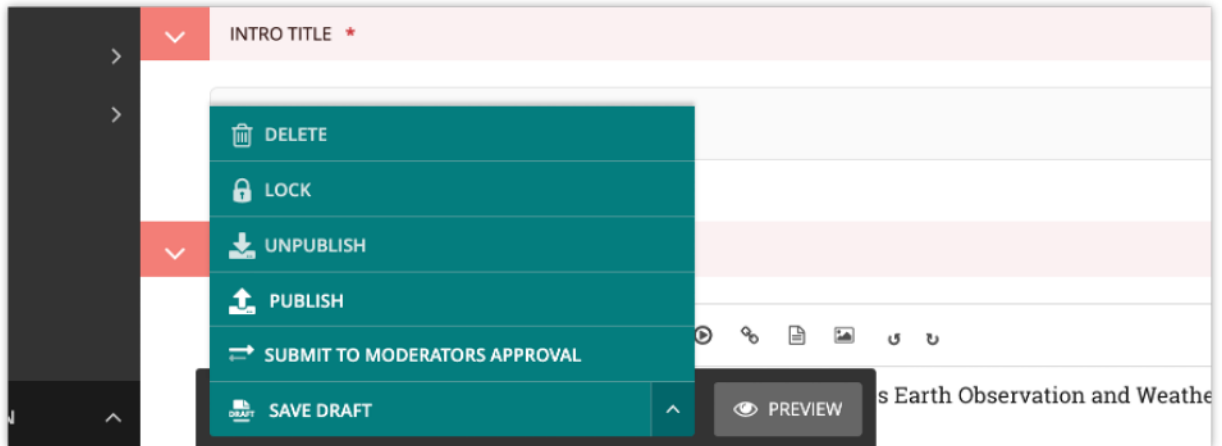
- SCHEDULED PUBLISHING:** Contains two date/time pickers: 'Go live date/time:' and 'Expiry date/time:'.
- PRIVACY:** Shows the 'Current status:' as 'Public'.

At the bottom of the settings page, there are two buttons: 'SAVE DRAFT' and 'PREVIEW'.

1. **Go Live date/time:** Sets the time at which the changes should go live when published. See Scheduled Publishing for more details.
2. **Expiry date/time:** Sets the time at which this page should be unpublished.

5.6 Previewing and submitting pages for moderation

The Save/Preview/Submit for moderation menu is always present at the bottom of the page edit/creation screen. The menu allows you to perform the following actions, dependent on whether you are an editor, moderator or administrator:



- **Save draft:** Saves your current changes but doesn't submit the page for moderation and so won't be published. (all roles)
- **Submit for moderation:** Saves your current changes and submits the page for moderation. The page will then enter a moderation workflow: a set of tasks which, when all are approved, will publish the page (by default, depending on your site settings). This button may be missing if the site administrator has disabled moderation, or hasn't assigned a workflow to this part of the site. (all roles)
- **Preview:** Opens a new window displaying the page as it would look if published, but does not save your changes or submit the page for moderation. (all roles)
- **Publish/Unpublish:** Clicking the Publish button will publish this page. Clicking the Unpublish button will take you to a confirmation screen asking you to confirm that you wish to unpublish this page. If a page is published it will be accessible from its specific URL and will also be displayed in site search results. (moderators and administrators only)
- **Delete:** Clicking this button will take you to a confirmation screen asking you to confirm that you wish to delete the current page. Be sure that this is actually what you want to do, as deleted pages are not recoverable. In many situations simply unpublishing the page will be enough. (moderators and administrators only)

5.7 CMS Administrator Tasks

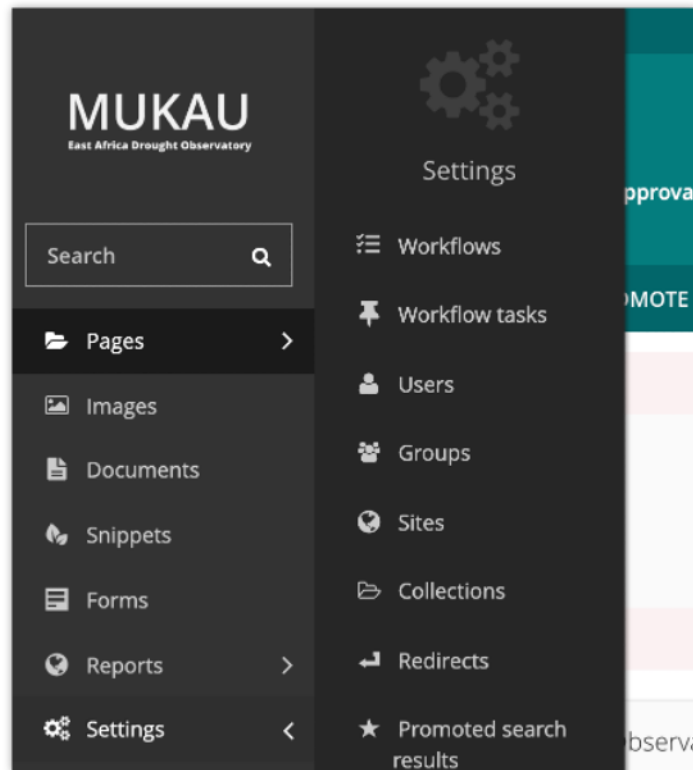
This section of the guide documents how to perform common tasks as an administrator of Mukau's CMS Site.

Contents

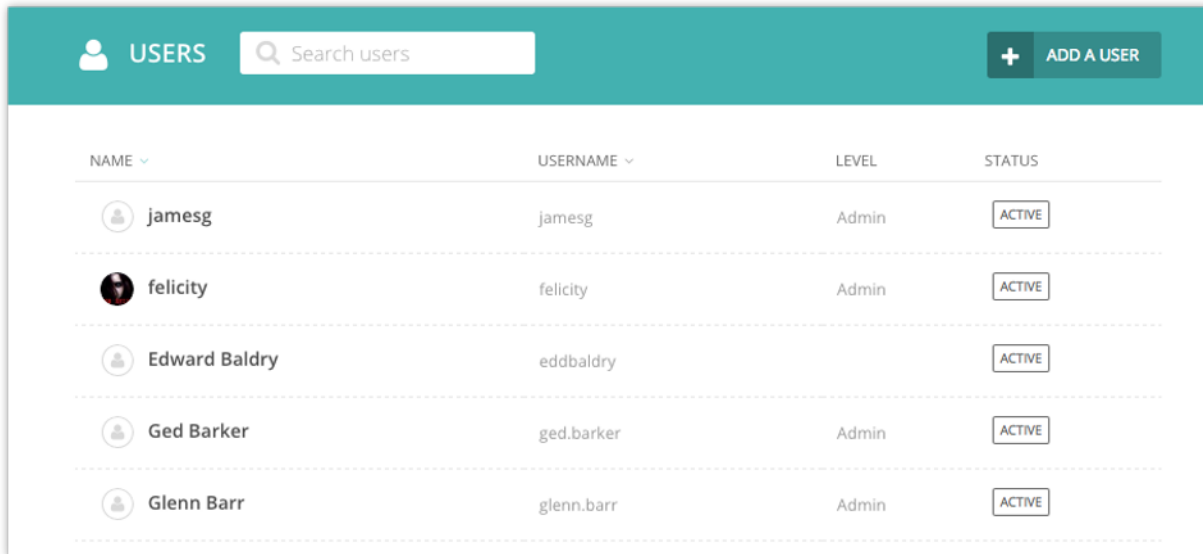
- *CMS Administrator Tasks*
 - *Managing users and roles*
 - *Managing Workflows*
 - * *Editing workflows*






5.7.1 Managing users and roles

As an administrator, a common task will be adding, modifying or removing user profiles. This is done via the ‘Users’ interface, which can be found in the Settings menu, accessible via the left-hand menu bar.



In this interface you can see all of your users, their usernames, their ‘level’ of access (otherwise known as their ‘role’), and their status, either active or inactive. You can sort this listing either via Name or Username.



NAME	USERNAME	LEVEL	STATUS
 jamesg	jamesg	Admin	ACTIVE
 felicity	felicity	Admin	ACTIVE
 Edward Baldry	eddbaldry		ACTIVE
 Ged Barker	ged.barker	Admin	ACTIVE
 Glenn Barr	glenn.barr	Admin	ACTIVE

Clicking on a user's name will open their profile details. From here you can then edit that users details.

Note: It is possible to change user's passwords in this interface, but it is worth encouraging your users to use the 'Forgotten password' link on the login screen instead. This should save you some time!

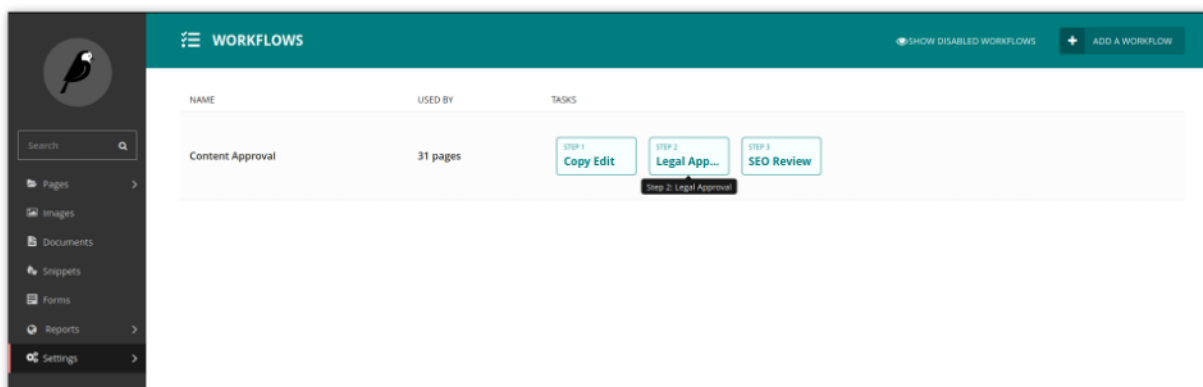
Click the 'Roles' tab to edit the level of access your users have. By default there are three roles:

Role	Create/view drafts	Publish content	Access Settings
Editor	Yes	No	No
Moderator	Yes	Yes	No
Administrator	Yes	Yes	Yes

5.7.2 Managing Workflows

Workflows allow you to configure how moderation works on your site. Workflows are sequences of tasks, all of which must be approved before the workflow completes (by default, this results in the publication of the page, but depends on your site settings).

The workflow management interface is accessed via the Workflows item in the Settings submenu, found in the left menu bar.



NAME	USED BY	TASKS
Content Approval	31 pages	<div>STEP 1 Copy Edit</div> <div>STEP 2 Legal App...</div> <div>STEP 3 SEO Review</div>

In this interface you can see all of the workflows on your site, and the order of tasks in each. You can click on a workflow to edit it or to assign it to part of the page tree, or use the Add a workflow button to create a new workflow. The number of pages each workflow applies to is also shown, and can be clicked for a complete listing.

Editing workflows

The screenshot shows the 'EDITING WORKFLOW' interface for the 'Moderators Approval Workflow'. The interface is divided into several sections:

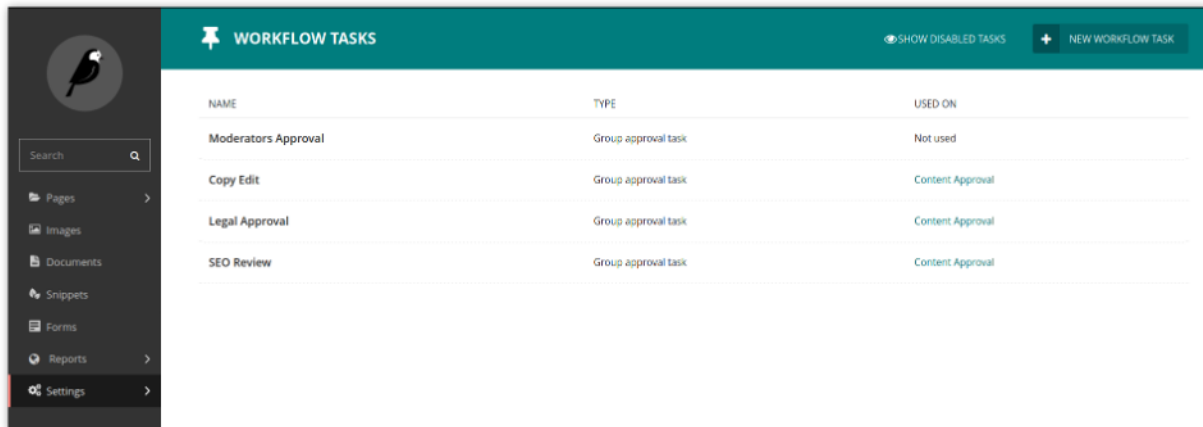
- Header:** 'EDITING WORKFLOW Moderators Approval Workflow'.
- Form:** A form to 'GIVE YOUR WORKFLOW A NAME'.
- Section: ADD TASKS TO YOUR WORKFLOW**
 - Task 1:** 'Copy Edit' with buttons 'CHOOSE ANOTHER TASK' and 'EDIT THIS TASK'.
 - Task 2:** 'Legal Approval' with buttons 'CHOOSE ANOTHER TASK' and 'EDIT THIS TASK'.
 - Task 3:** 'SEO Review' with buttons 'CHOOSE ANOTHER TASK' and 'EDIT THIS TASK'.
- Section: ASSIGN YOUR WORKFLOW TO PAGES**
 - A note: 'Workflows apply to child pages too. If you select a parent page here, its child pages will also use this workflow. See the list of the pages your workflow applies to.'
 - ASSIGNED PAGES**
 - PAGE**
 - Root** with a 'DELETE' button.
 - CHOOSE A PAGE** with a 'DELETE' button.
 - ASSIGN TO ANOTHER PAGE** button.
- Footer:** 'ADMIN' and 'SAVE' buttons.

Under Add tasks to your workflow, you can add, remove, or reorder tasks in a workflow. When adding a task to a workflow, you will be given the option to create a new task, or reuse an existing one.

Under Assign your workflow to pages, you can see a list of the pages to which the workflow has been assigned: any child pages will also have the same workflow, so if a workflow is assigned to the root page, it becomes the default workflow. You may remove it from pages using the Delete button to the right of each entry, or assign it to a page using the Choose a page button.

The action menu at the bottom allows you to save your changes, or to disable the workflow, which will cancel all pages currently in moderation on this workflow, and prevent others from starting it. On a previously disabled workflow, there is also the option to enable it again.

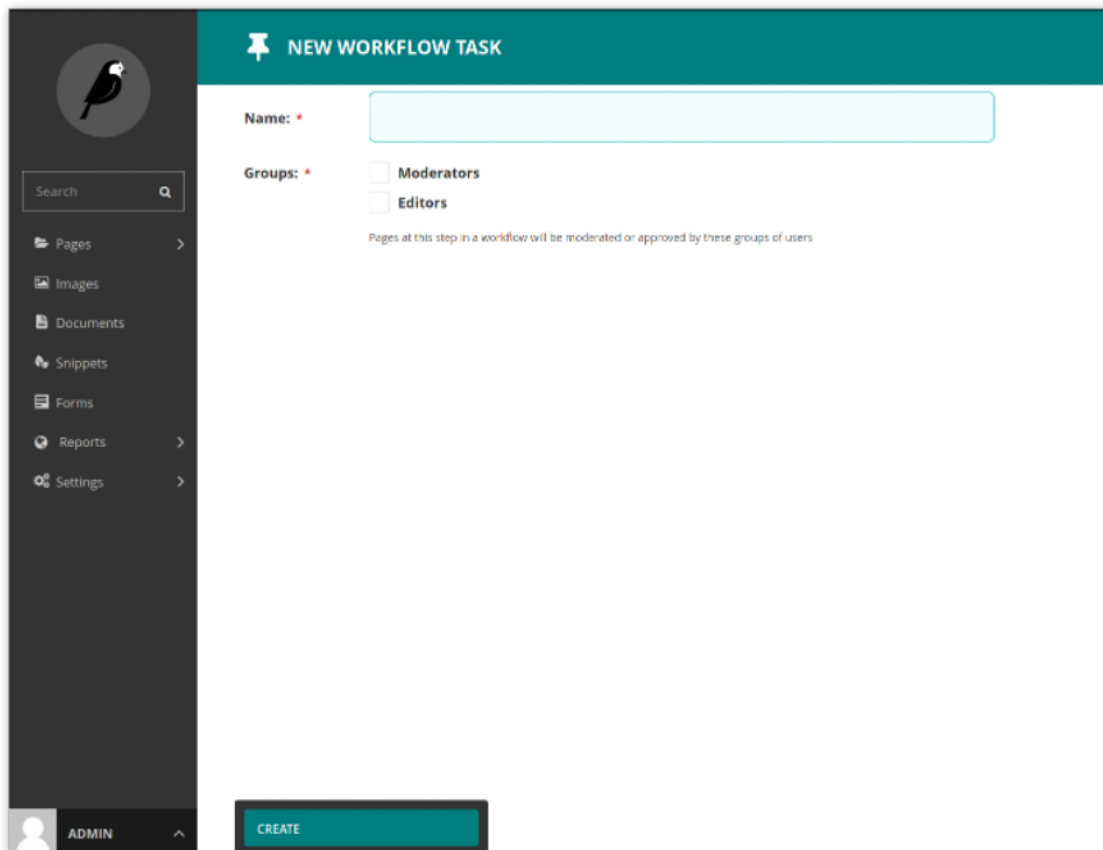
5.7.3 Creating and editing tasks



NAME	TYPE	USED ON
Moderators Approval	Group approval task	Not used
Copy Edit	Group approval task	Content Approval
Legal Approval	Group approval task	Content Approval
SEO Review	Group approval task	Content Approval

In the tasks interface, accessible via the Workflow Tasks item in the Settings submenu, you can see a list of the tasks currently available, as well as which workflows use each task. Similarly to workflows, you can click an existing task to edit it, or the Add a task button to create a new task.

When creating a task, if you have multiple task types available, these will be offered as options. By default, only group approval tasks are available. Creating a group approval task, you will be able to select one or multiple groups: members of any of these, as well as administrators, will be able to approve or reject moderation for this task.



NEW WORKFLOW TASK

Name: *

Groups: *

☐ Moderators

☐ Editors

Pages at this step in a workflow will be moderated or approved by these groups of users

CREATE

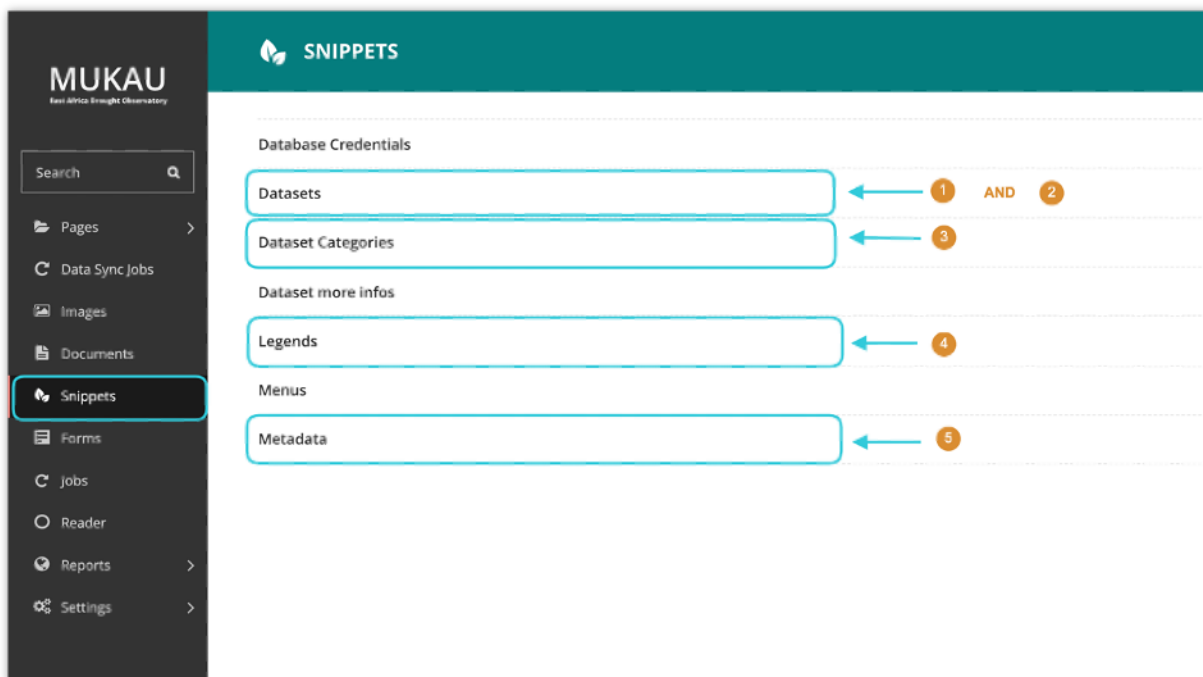
When editing a task, you may find that some fields - including the name - are uneditable. This is to ensure workflow

history remains consistent - if you find yourself needing to change the name, it is recommended that you disable the old task, and create a new one with the name you need. Disabling a task will cause any pages currently in moderation on that task to skip to the next task.

5.8 CMS Mapviewer Manager

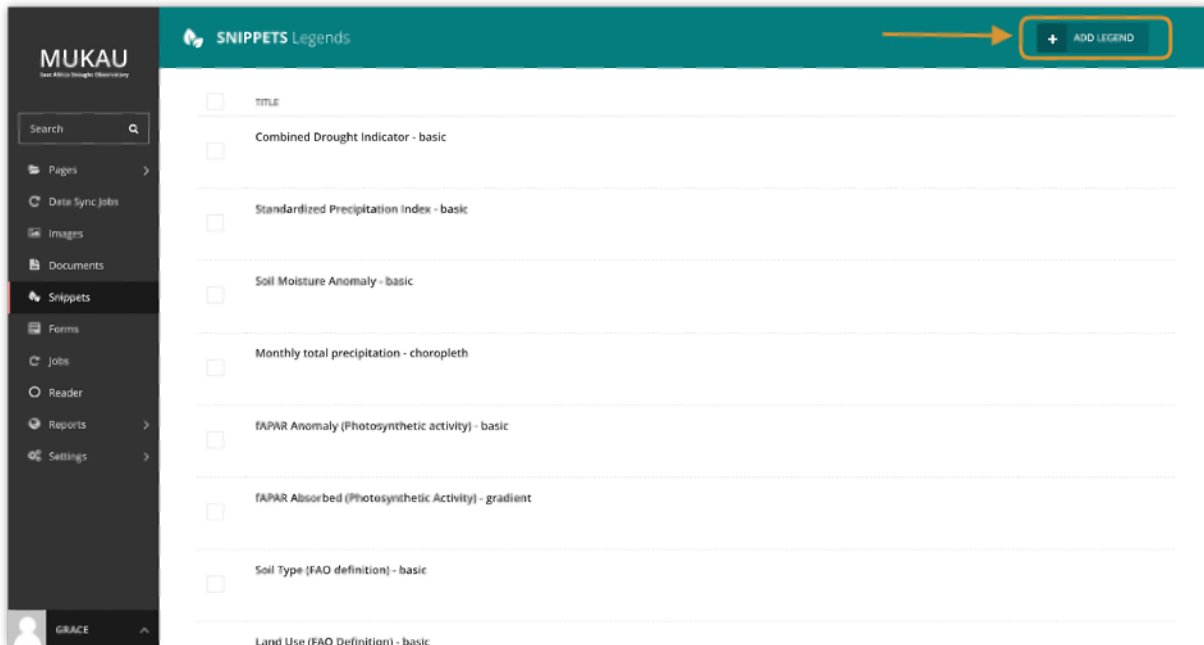
In addition to managing static page content within the East Africa Drought Watch, the CMS also offers a layer manager which allows maintenance of the layers available on the mapviewer. This maintenance tasks which will be further explained include:

1. Creating, updating and deleting a datasets
2. Creating, updating and deleting a layer/ layers belonging to a dataset
3. Creating, updating and deleting dataset categories and assigning a dataset to its relevant category
4. Creating, updating and deleting legends (symbology) and assigning it to a layer
5. Creating, updating and deleting metadata information and linking it to a dataset

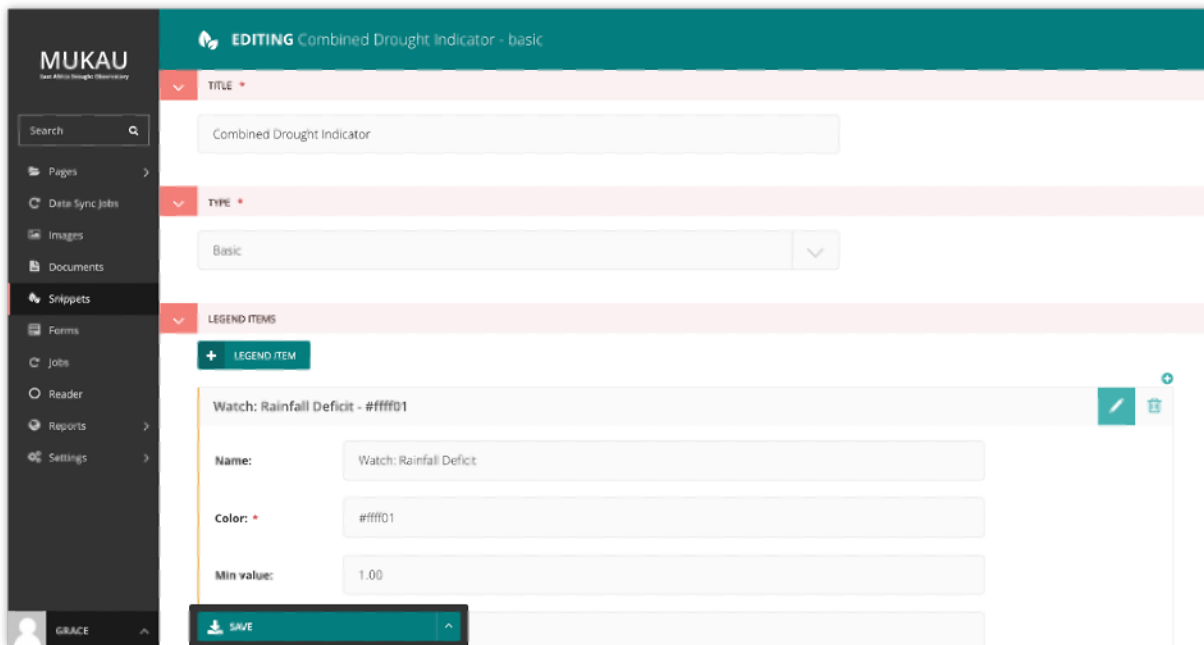


5.8.1 Creating, updating and deleting legends (symbology) and assigning it to a layer

The legend describes the symbols appearing on the map to permit better understanding or interpretation of it. Within the CMS, to create a new legend, click on the add legend button at the top right as shown below:

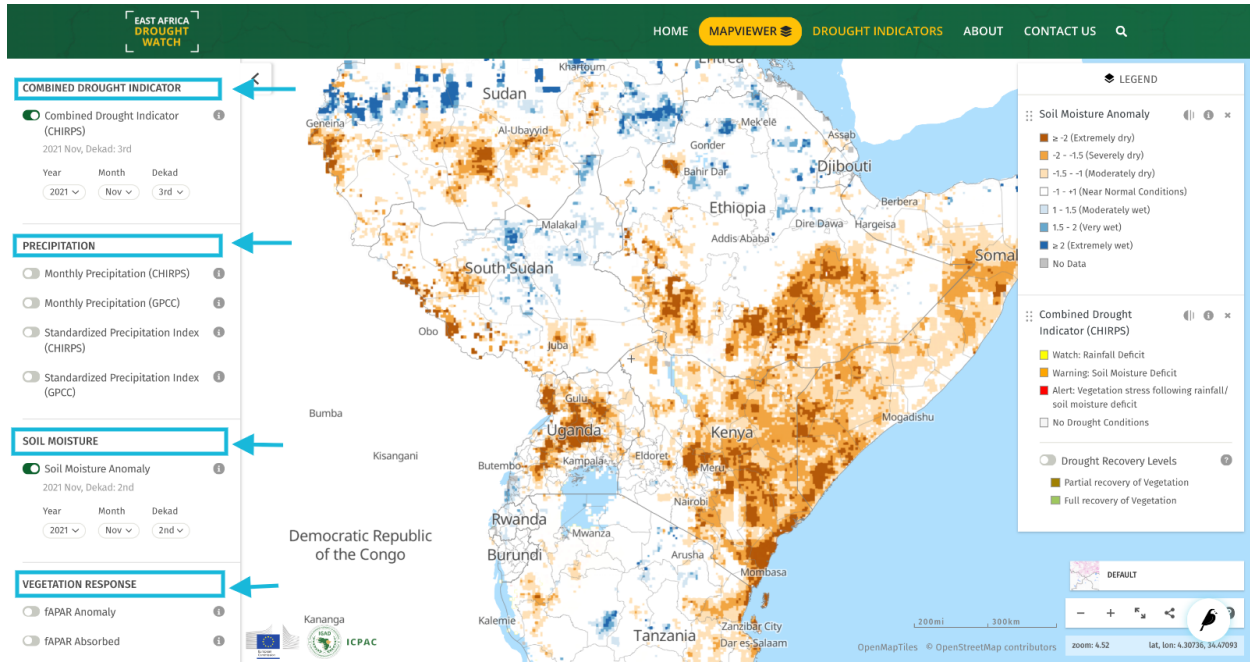


Legend attributes include a title, a legend type (basic, choropleth, gradient) and legend items (name, color, minimum and maximum value corresponding to each class). The color must be in HEX format.



Note: Creating a legend only creates the symbology representation on the mapviewer. To change the actual colors showing on the map for each layer, edit classification mapfiles as explained in MapServer mapfiles section.

5.8.2 Creating, updating and deleting dataset categories



Dataset categories group datasets into a common phenomena they share. eg. vegetation, precipitation, background, e.t.c. To create a **dataset category**, under **snippets** select dataset categories option and add a data category as shown below:

EAST AFRICA DROUGHT WATCH

NEW Dataset Category

TITLE *

ICON

SLUG

ADMIN

SAVE

5.8.3 Creating, updating and deleting a datasets

A dataset is a collection of layers within the mapviewer that share a common timescale, category and interest. E.g A Combined Drought Indicator dataset (multilayer) datasets contains both the Alert levels layer (Watch, Warning and Alert) and Recovery layer (partial and full recover).

A dataset is said to be multilayer is it contains more than one layer. The additional layers to the active one are nested below it on the legend.

Datasets with a single layers only show a single layer on the mapviewer's layer menu.

A **published** dataset will be visible on the mapviewer. To hide the visibility of a dataset on the mapviewer, leave the published option unchecked.

To create a **dataset** , under **snippets** select dataset option and add a dataset as shown below:

The image shows two screenshots of the East Africa Drought Watch application interface.

Top Screenshot: SNIPPETS Datasets

- Header:** EAST AFRICA DROUGHT WATCH logo on the left, and a teal bar with "SNIPPETS Datasets" and an "ADD DATASET" button on the right.
- Left Sidebar:** Contains a search bar and a menu with items: Pages, Images, Documents, Snippets (highlighted), Forms, Reader, Reports, and Settings.
- Bottom Bar:** Shows a user profile icon and the name "ADMIN".
- Main Content Area:** A list of datasets, each with a checkbox and a label:
 - ☐ TITLE
 - ☐ Monthly Precipitation (CHIRPS)
 - ☐ Combined Drought Indicator (CHIRPS)
 - ☐ Combined Drought Indicator (GPCC)
 - ☐ Monthly Precipitation (GPCC)
 - ☐ Standardized Precipitation Index (CHIRPS)
 - ☐ fAPAR Anomaly
 - ☐ Standardized Precipitation Index (GPCC)
 - ☐ fAPAR Absorbed

Bottom Screenshot: NEW dataset

- Header:** EAST AFRICA DROUGHT WATCH logo on the left, and a teal bar with "NEW dataset" on the right.
- Left Sidebar:** Same as the top screenshot, with "Snippets" highlighted.
- Bottom Bar:** Shows a user profile icon and the name "ADMIN".
- Main Content Area:** A form for creating a new dataset, divided into sections:
 - DATASET INTRODUCTION AND CATEGORY:** Fields for Name, Subtitle, Category (dropdown), and Time interval (dropdown, currently set to "Static").
 - DATASET STATUS:** Fields for Published (checkbox, checked) and IsMultiLayer (checkbox, unchecked).
 - ADDITIONAL INFORMATION ABOUT THE DATASET:** Fields for More info (dropdown) and Order (text input, currently "0").
 - LAYERS:** A section with a "+ LAYERS" button and a "SAVE" button at the bottom.

Follow instructions below to create a layer.

5.8.4 Creating, updating and deleting a layer/ layers belonging to a dataset

To create a layer, select **add layer** button at the bottom of the add dataset form and provide necessary information.

The screenshot shows the 'New layer' form in the East Africa Drought Watch application. The form is titled 'New layer' and includes the following fields and options:

- Order:** A dropdown menu with the value '0' selected.
- Name:** A text input field with the placeholder 'Name of the layer'.
- Slug:** A text input field.
- Description:** A text input field with the placeholder 'Description of the layer'.
- Start year:** A text input field with the value '2000'.
- End year:** A text input field with the value '2021'.
- Legend:** A dropdown menu with a placeholder 'Legend'.
- Disclaimer:** A text input field.
- Default:** A checkbox labeled 'Show this dataset by default on mapviewer'.
- Active:** A checked checkbox.
- SAVE:** A green button at the bottom of the form.

Note: It is recommended to enable both default and active checkboxes on the form for dataset comprised of a single layer while enabling active box only for the primary layer in a multilayer dataset.

5.8.5 Creating, updating and deleting metadata information and linking it to a dataset

This is the information the dataset. This includes a title, subtitle, function/purpose, resolution, Frequency of updates, geographic coverage, citation, caution, license, a general overview, link redirects to download and learn more about the data, e.t.c.

To create a metadata, select **add metadata** button in the **snippet** section at the bottom of the add dataset form and provide necessary information.

To create **metadata**, under **snippets** select metadata option and add metadata linking it to a dataset as shown below:

EAST AFRICA
DROUGHT
WATCH

Search

Pages

Images

Documents

Snippets

Forms

Reader

Reports

Settings

ADMIN

EDITING Combined Drought Indicator - CHIRPS Based

DATASET

Combined Drought Indicator (CHIRPS)

TITLE

Combined Drought Indicator - CHIRPS Based

SUBTITLE

FUNCTION

B I H2 H3 H4

Identify areas affected by agricultural drought, and areas with the potential to be affected.

RESOLUTION

B I H2 H3 H4

0.1 decimal degree or 10km

GEOGRAPHIC COVERAGE

SAVE