



**NILE BASIN INITIATIVE**  
INITIATIVE DU BASSIN DU NIL



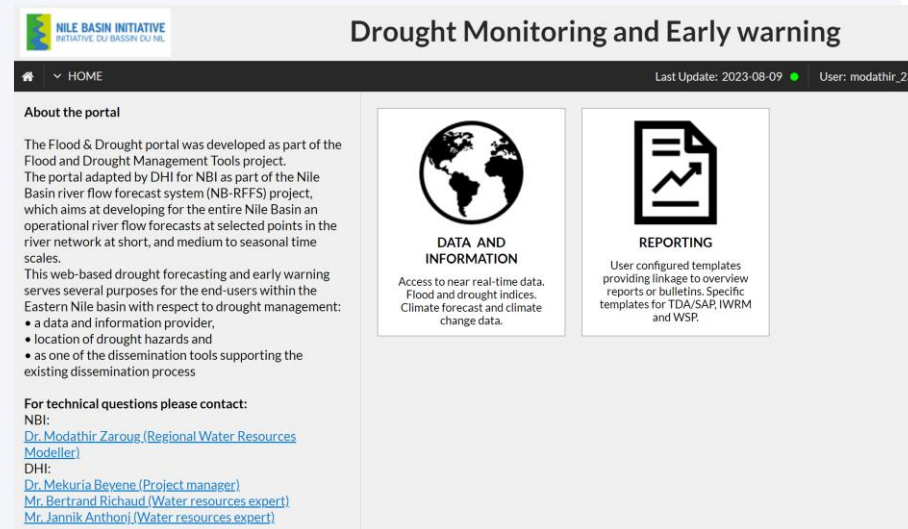
## Drought forecasting and monitoring tool for Nile Basin stakeholders

Prepared by: Dr. Modathir Abdalla Hassan Zaroug.

# Background

- The Drought Monitoring and Early warning hub is web-based drought forecasting and early warning which serves several purposes for the end-users within the Nile Basin with respect to drought forecasting and management:

- A data and information provider.
- Location of drought hazards and.
- Access to forecast and near real-time data
- Reporting facility to support dissemination



The screenshot shows the web interface for the Drought Monitoring and Early warning portal. The header includes the Nile Basin Initiative logo and the title "Drought Monitoring and Early warning". Below the header, there is a navigation bar with a home icon and the text "HOME". The main content area is divided into two columns. The left column contains text about the portal's development and purpose, along with contact information for technical questions. The right column features two large icons: a globe for "DATA AND INFORMATION" and a document with a line graph for "REPORTING".

**About the portal**

The Flood & Drought portal was developed as part of the Flood and Drought Management Tools project. The portal adapted by DHI for NBI as part of the Nile Basin river flow forecast system (NB-RFFS) project, which aims at developing for the entire Nile Basin an operational river flow forecasts at selected points in the river network at short, and medium to seasonal time scales.

This web-based drought forecasting and early warning serves several purposes for the end-users within the Eastern Nile basin with respect to drought management:

- a data and information provider,
- location of drought hazards and
- as one of the dissemination tools supporting the existing dissemination process

For technical questions please contact:

NBI:  
[Dr. Modathir Zaroug \(Regional Water Resources Modeller\)](#)

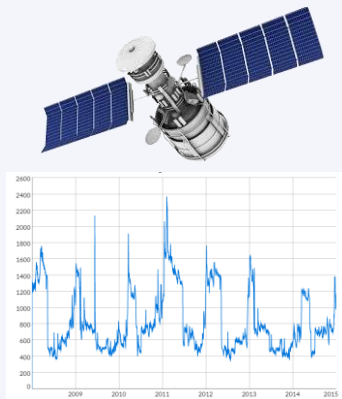
DHI:  
[Dr. Mekuria Beyene \(Project manager\)](#)  
[Mr. Bertrand Richaud \(Water resources expert\)](#)  
[Mr. Jannik Anthonj \(Water resources expert\)](#)

**DATA AND INFORMATION**  
Access to near real-time data.  
Flood and drought indices.  
Climate forecast and climate change data.

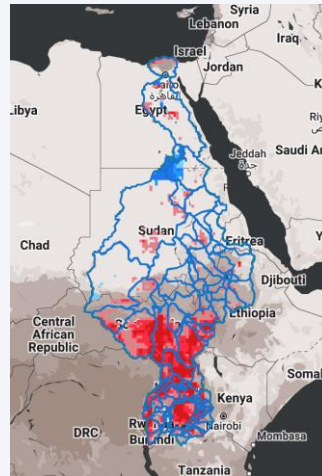
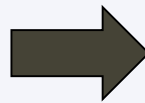
**REPORTING**  
User configured templates providing linkage to overview reports or bulletins. Specific templates for TDA/SAP, IWRM and WSP.

# Data availability

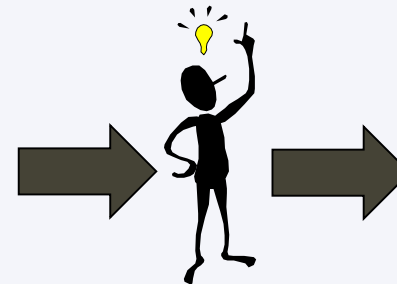
- A key issue in water resources management
- A key concern in many countries and basins
- Availability of a “basic” set of data for water resources management is critical



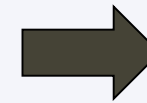
**Data**



**Analysis**



**Decision process**



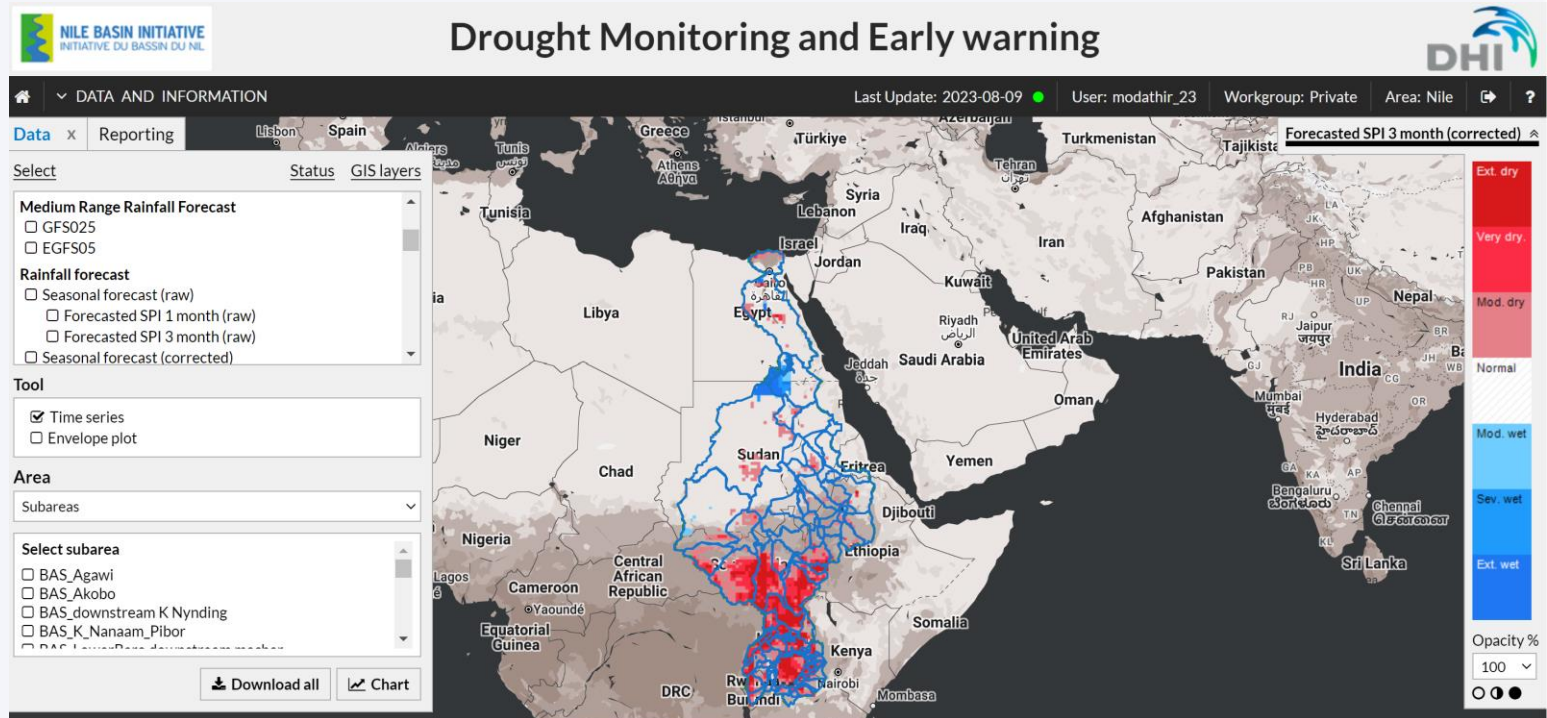
**Improved  
decision  
making**

# The tool is freely available

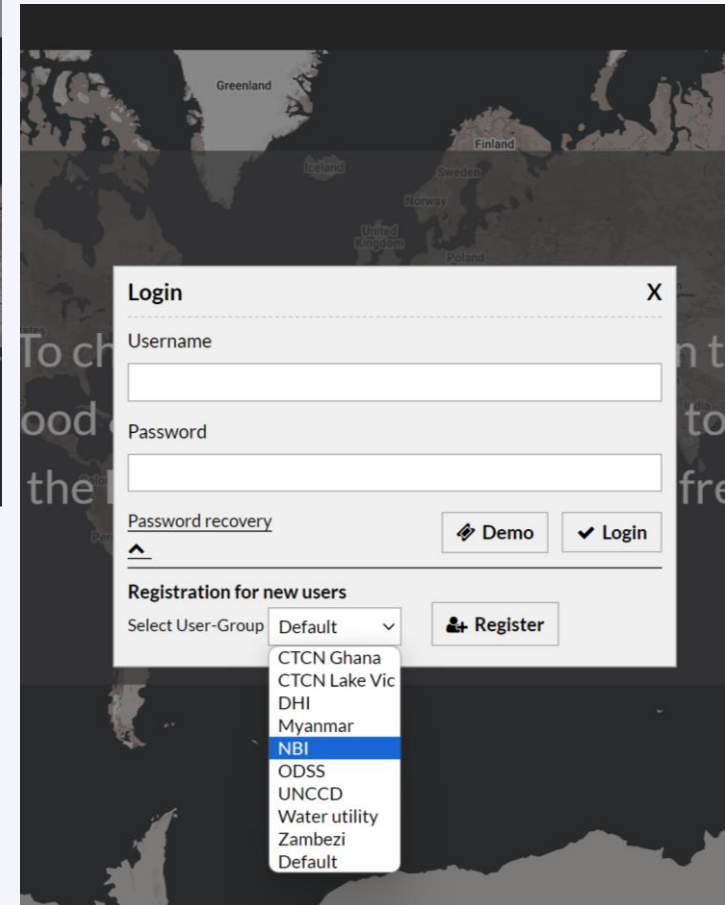
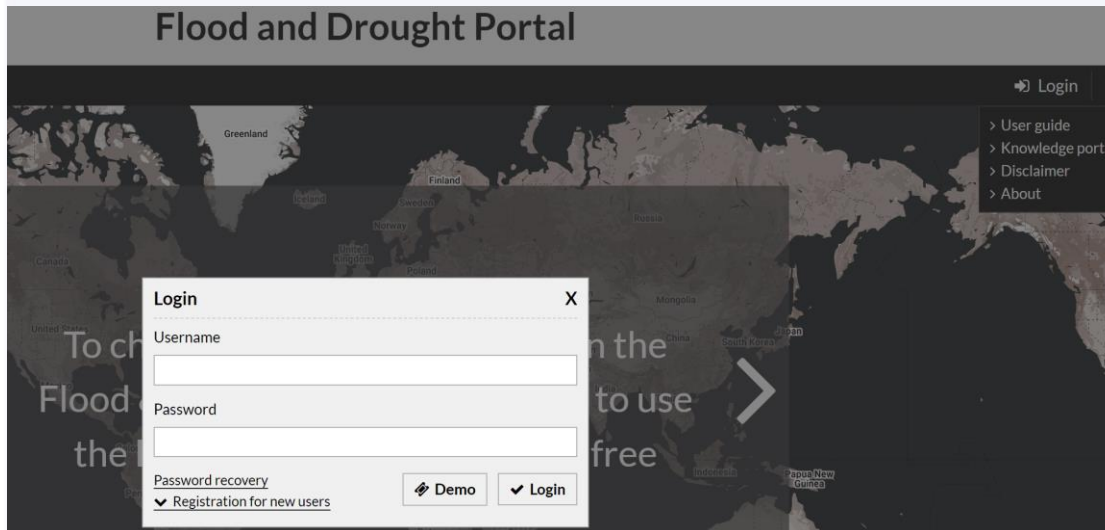
<https://www.flooddroughtmonitor.com/data>

198 variables and indices

15 forecasted variable



# Simple and quick registration



Register only once.

<https://www.flooddroughtmonitor.com/data>

# Select forecasted information

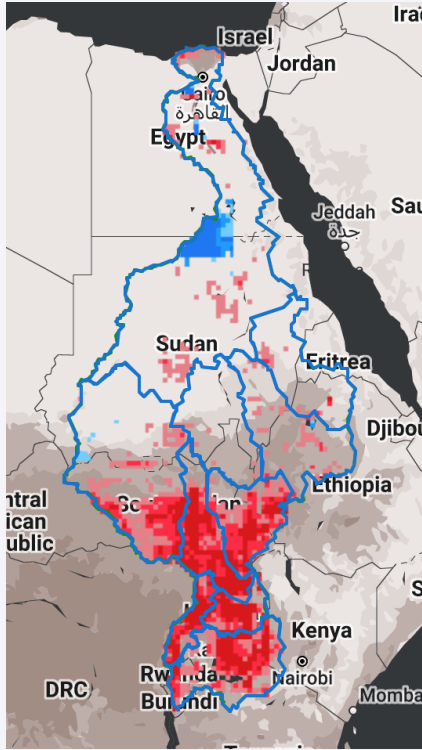
**Favourite data** X

Datasets Found: 15 All Search

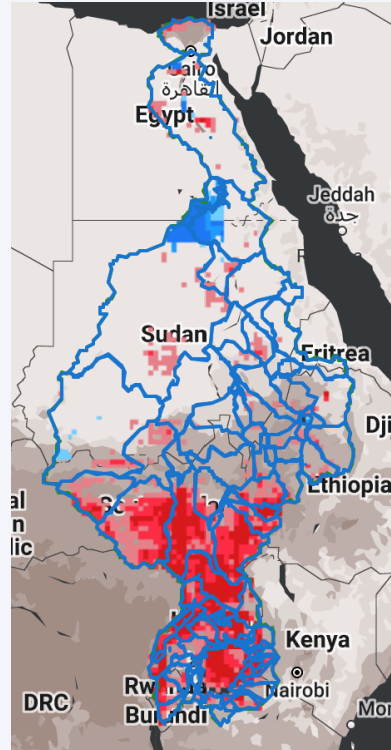
<input type="checkbox"/>	Data	Description	Keyword
<input checked="" type="checkbox"/>	GFS025	The National Centers for Environmental Prediction (NCEP) in the United States under the National Weather Service provide a range of forecast products. GFS025 is a deterministic rainfall forecast for the next 16 days based on the NCEP Global Forecast System Model, previously called AVN/MRF (Medium Range Forecast). The model forecasts grids starting from the 0-hour forecast every 3 hours out to 10 days, then 12-hour forecasts for days 10-16. The data is accumulated. Coverage: global Spatial resolution: 0.25° Temporal resolution: 3 hours Data period: last 16 days Update frequency: daily Variable unit: [mm/day] Source: <a href="https://www.nco.ncep.noaa.gov/pmb/products/gfs/">https://www.nco.ncep.noaa.gov/pmb/products/gfs/</a>	Rainfall Forecast
<input checked="" type="checkbox"/>	EGFS05	The National Centers for Environmental Prediction (NCEP) in the United States under the National Weather Service provide a range of forecast products. EGFS05 is a probabilistic rainfall forecast for the next 16 days based on a global ensemble (31 members). Model runs are made at 0, 6, 12, 18 ... hours out to 378 hours (16 days). Coverage: global Spatial resolution: 0.5° Temporal resolution: 6 hours Data period: last 16 days Update frequency: daily Variable unit: [mm/day] Source: <a href="https://nomads.ncep.noaa.gov/index.shtml">https://nomads.ncep.noaa.gov/index.shtml</a>	Rainfall Forecast
<input checked="" type="checkbox"/>	Seasonal forecast (raw)	The Climate Forecast System (CFS), sometimes called the Coupled Forecast System, is a medium to long range numerical weather prediction and a climate model run by the National Centers for Environmental Prediction (NCEP) to bridge weather and climate timescales. Version 2 became operational as CFSv2 in 2011. "Coupled" refers to the fact that the model couples atmospheric to oceanic modelling. This dataset provides a 20-member ensemble forecast with 9-month lead time. Coverage: 180° W to 180° E, 90° S to 90° N Spatial resolution: 1.0° Temporal resolution: resampled from 6-hourly to daily Data period: 9 months Variable unit: [mm/day] Source: <a href="https://rda.ucar.edu/datasets/ds094.0/">https://rda.ucar.edu/datasets/ds094.0/</a>	Rainfall Forecast
<input checked="" type="checkbox"/>	Forecasted SPI 1 month (raw)	The Climate Forecast System (CFS), sometimes called the Coupled Forecast System, is a medium to long range numerical weather prediction and a climate model run by the National Centers for Environmental Prediction (NCEP) to bridge weather and climate timescales. Version 2 became operational as CFSv2 in 2011. "Coupled" refers to the fact that the model couples atmospheric to oceanic modelling. The forecasted one-month Standardised Precipitation Index (SPI) (based on raw forecast values) provides a comparison of the precipitation over a specific one-month period with the precipitation totals from the same one-month period for all the years included in the historical record. A one-month SPI map is very similar to a map displaying the percent of normal precipitation for a month. It is actually a more accurate representation of monthly precipitation because the distribution has been normalized. Because the one-month SPI	Rainfall Forecast SPI-1month

Update

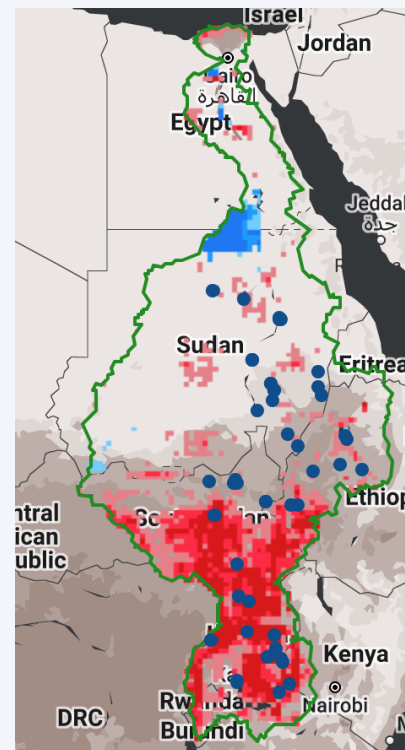
# Tailor your information



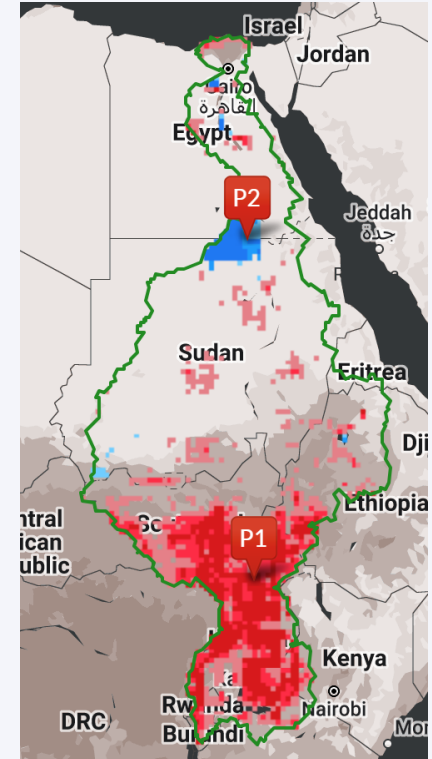
10 large sub-basins



Small catchment

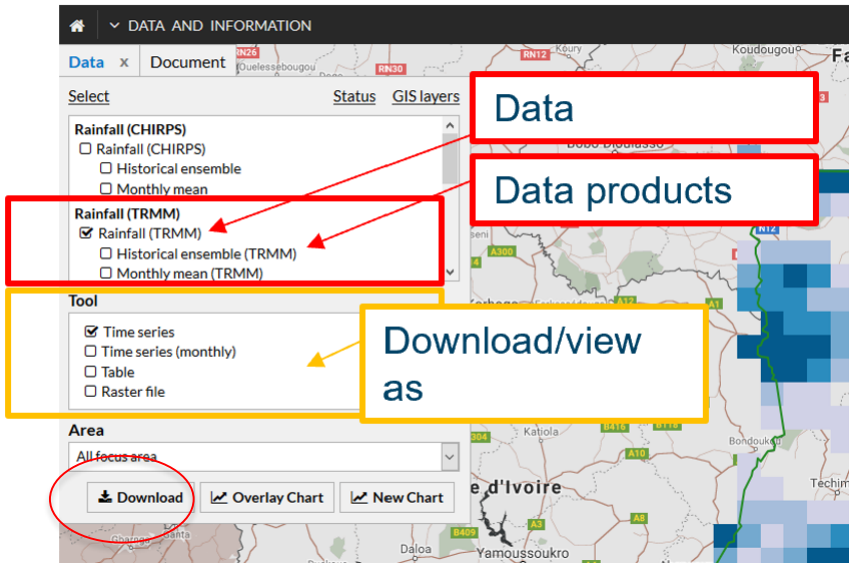


Selected stations



User location

# Simple and fast tool

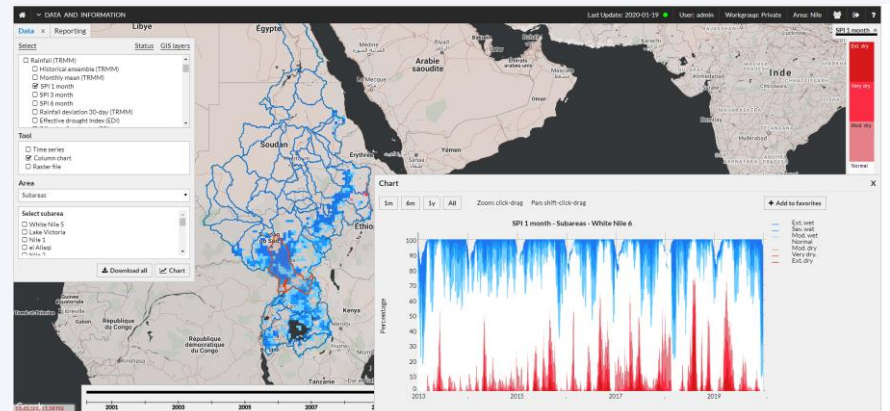
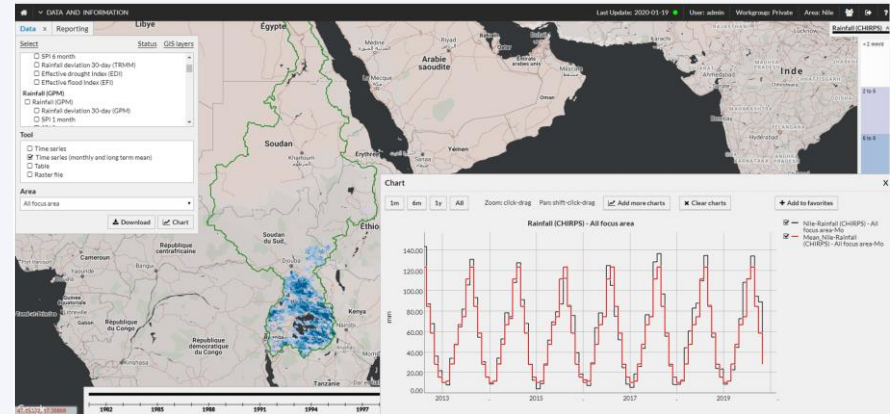


**Data**

**Data products**

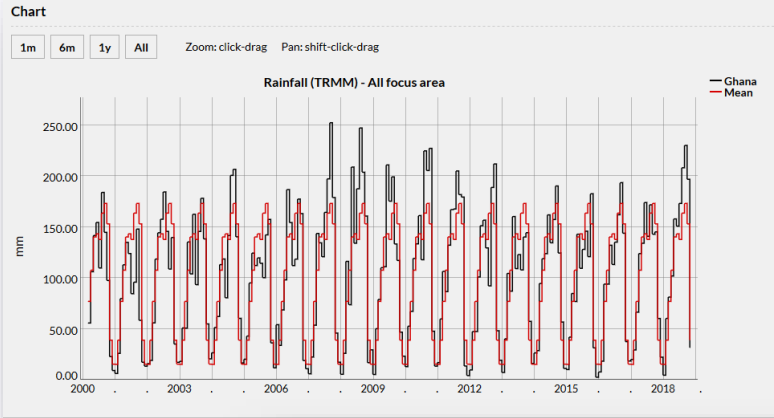
**Download/view as**

**Download**





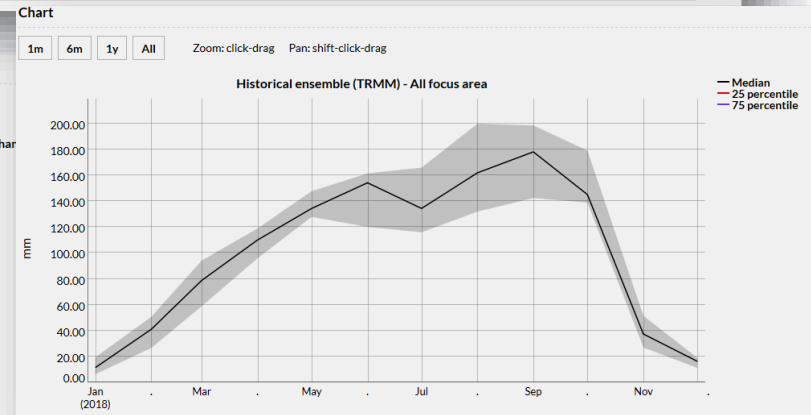
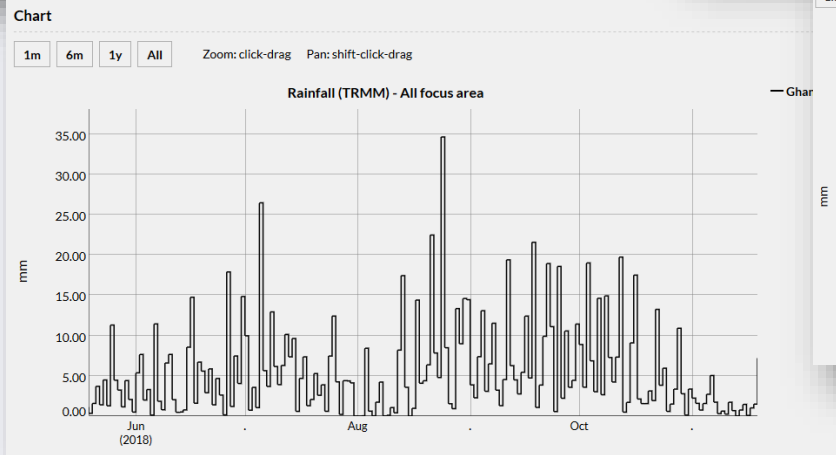
# Analysis tools



**Table**

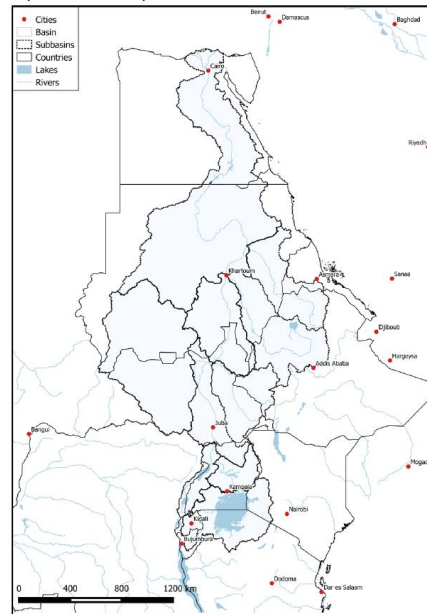
Rainfall (TRMM) - All focus area - Monthly accumulated values

Time	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Avg.	Min.	Max.
2000			55.7	106.0	141.6	154.4	109.7	183.9	144.7	97.4	22.7	9.0	102.5	9.0	183.9
2001	6.1	25.9	79.7	112.8	134.8	123.9	84.4	95.8	147.9	58.3	17.1	13.3	75.0	6.1	147.9
2002	15.8	19.0	55.8	118.5	144.3	157.6	184.4	145.6	108.6	139.6	35.0	17.1	95.1	15.8	184.4
2003	18.0	50.8	50.6	135.3	103.9	162.5	93.3	145.6	178.2	138.2	54.8	20.5	96.0	18.0	178.2
2004	26.4	51.3	62.0	113.0	118.5	80.4	141.6	200.6	206.6	140.3	60.2	16.5	101.5	16.5	206.6
2005	20.1	42.9	95.0	124.3	112.2	119.6	114.3	100.2	142.2	157.4	36.1	11.6	89.7	11.6	157.4
2006	54.0	33.7	68.5	98.0	186.7	154.2	112.1	118.4	177.4	163.1	18.8	10.8	99.6	10.8	186.7
2007	5.8	22.3	53.5	143.6	134.4	120.8	164.3	197.2	252.3	178.9	45.7	17.2	111.3	5.8	252.3
2008	5.3	25.9	116.2	73.6	208.8	134.0	187.5	247.2	203.7	160.7	16.7	29.3	117.4	5.3	247.2
2009	5.1	50.1	78.8	110.0	110.9	210.9	175.3	199.2	133.2	117.1	46.7	23.1	105.0	5.1	210.9
2010	12.8	52.5	67.1	119.1	133.4	161.1	117.8	224.7	205.4	227.2	47.6	13.3	115.2	12.8	227.2
2011	16.8	59.6	106.3	86.5	132.1	167.1	167.7	205.0	181.7	179.3	13.4	4.0	110.0	4.0	205.0
2012	9.5	47.3	47.3	100.8	151.2	156.7	129.4	92.1	188.8	211.9	48.0	19.1	100.2	9.5	211.9
2013	7.1	40.1	104.4	87.0	160.3	109.1	122.8	107.8	140.2	144.4	57.3	15.9	91.3	7.1	160.3
2014	26.3	28.6	94.5	118.8	123.8	161.8	134.4	157.3	190.2	124.4	56.6	11.0	102.3	11.0	190.2
2015	9.9	41.8	84.7	76.8	142.9	109.4	128.0	145.8	120.8	182.6	31.2	2.4	89.7	2.4	182.6



# Monthly report is widely disseminated

Bulletin of the Drought Monitoring and Forecasting  
Component of the Nile Basin River Flow Forecasting System  
(NB-RFFS)



**OPERATIONAL DROUGHT REPORT**  
**Date of issue: 16 September 2023**

This report has been automatically generated

# Recommendations

- *Simple forecasting tools should be maintained and updated to meet the stakeholders and decision makers need.*
- ***Capacitate the Nile Basin stakeholders in utilizing these powerful tools.***
- ***Widely disseminate to different stakeholders at different levels.***



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**THANK  
YOU!**