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Drought monitoring and forecasting tool for the Nile Basin

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Outline

- Introduction
- Drought monitoring and forecasting
- Bulletin
- Online Webpage

Introduction

- **Under Goal 5 of the NBI 10 year strategy**, the Nile-SEC intends to develop a short term to seasonal river flow forecasting.
- **The 7th component is to develop a drought monitoring and forecasting tools and bulletin.**
- The drought monitoring and forecasting are operational – this means that historical as well as near-real time data is being automatically updated for the Nile Basin on a regular basis - every 3 to 4 days.

Introduction Cont'

The most relevant datasets and indicators to monitor and forecast the impact of drought are the following:

- Meteorological drought:
 - Rainfall: SPI and EDI based on GPM dataset
 - Rainfall seasonal forecast: SPI based on NOAA CFSv2 dataset
- Agricultural drought:
 - Vegetation: NDVI deviation based on MODIS NDVI dataset
- Hydrological drought:
 - Soil moisture content: Soil moisture percentile based on Copernicus SWI datasets

Data x Reporting Libye

Select Status GIS layers

- Rainfall (TRMM)
- Historical ensemble (TRMM)
- Monthly mean (TRMM)
- SPI 1 month
- SPI 3 month
- SPI 6 month
- Rainfall deviation 30-day (TRMM)
- Effective drought Index (EDI)

Tool

- Time series
- Column chart
- Raster file

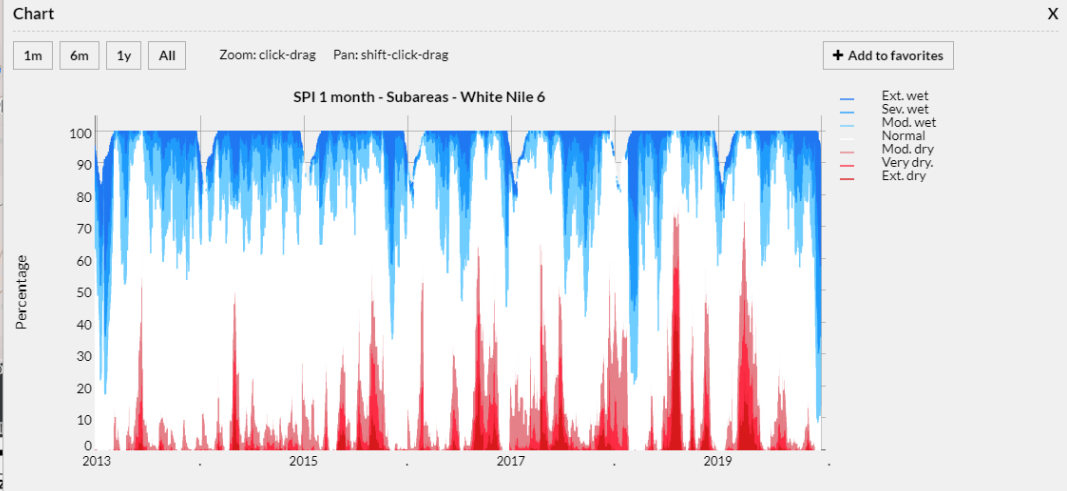
Area

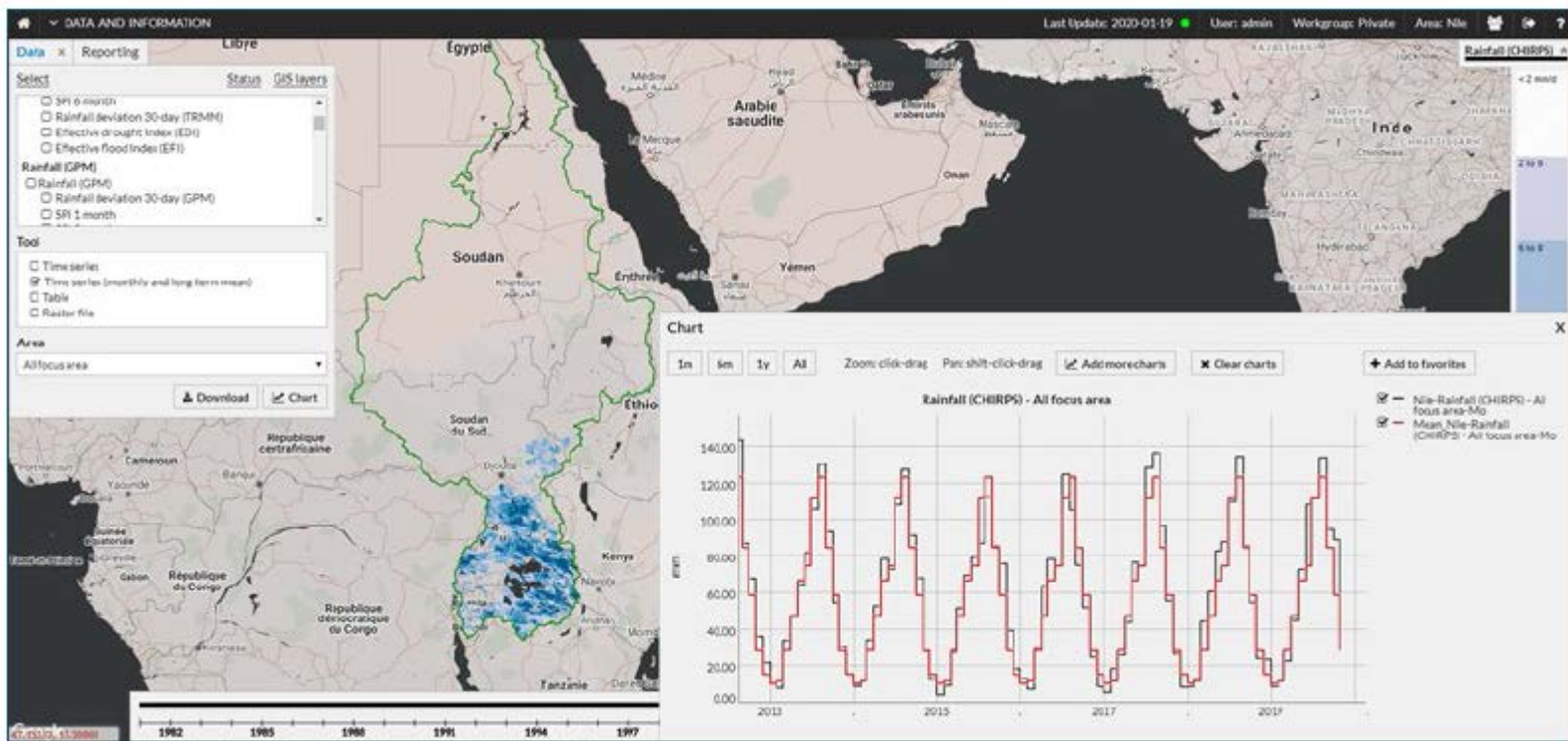
Subareas

Select subarea

- White Nile 5
- Lake Victoria
- Nile 1
- el>Allaql
- Nile 9

Download all Chart



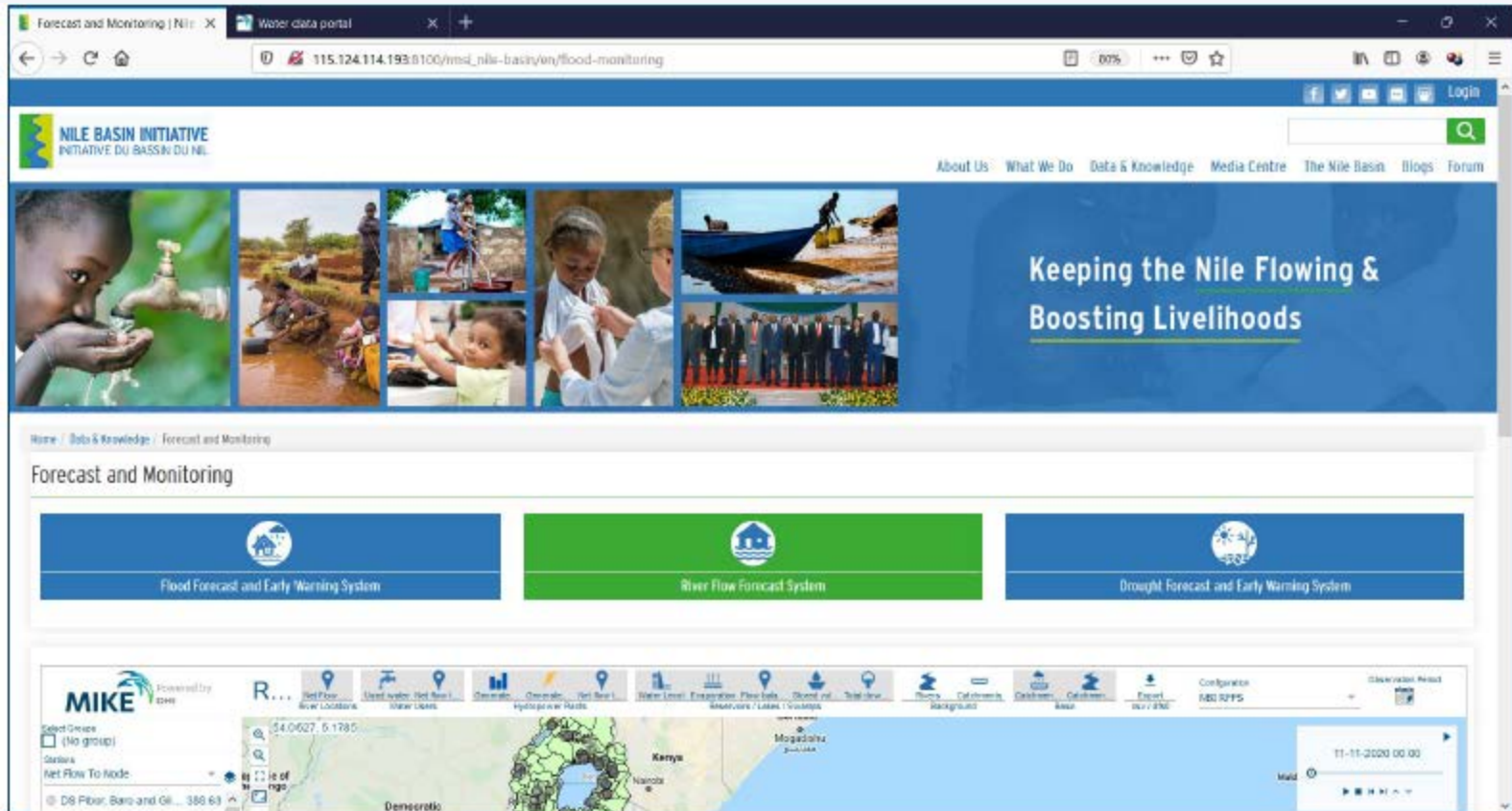


Bulletin of the Drought Monitoring and Forecasting Component of the Nile Basin River Flow Forecasting System (NB-RFFS)



OPERATIONAL DROUGHT REPORT Date of issue: 31 October 2020

This report has been automatically generated



The screenshot shows a web browser window displaying the Nile Basin Initiative website. The browser's address bar shows the URL: `115.124.114.193:8100/iresd_nile-basin/ny/flood-monitoring`. The website header includes the Nile Basin Initiative logo and navigation links: [About Us](#), [What We Do](#), [Data & Knowledge](#), [Media Centre](#), [The Nile Basin](#), [Blogs](#), and [Forum](#). A search bar is also present.

The main banner features a collage of images related to water and livelihoods, with the text: **Keeping the Nile Flowing & Boosting Livelihoods**.

Below the banner, the 'Forecast and Monitoring' section is highlighted. It contains three main service buttons:

- Flood Forecast and Early Warning System** (blue button)
- River Flow Forecast System** (green button)
- Drought Forecast and Early Warning System** (blue button)

At the bottom of the screenshot, a software interface for 'MIKE powered by DHI' is visible. It includes a toolbar with various icons for data visualization and analysis, a map showing the Nile basin region (including Kenya and Democratic Republic of Congo), and a sidebar with a 'Selected Group' dropdown set to '(No group)'. The map shows a specific location with coordinates (54.0627, 5.1785).



Nile Basin Forecasting System

By DHI WATER Tools for the Nile Basin Initiative



Available application(s)



River Flow Forecasting

Access to 9-months forecasts of river flows and other basin states (such as reservoir volumes) at 206 forecast locations in the entire Nile basin. The forecasts are updated daily.



Drought Monitoring and Forecasting

Access to near-real-time data, drought indicators, climate forecasts and climate change data. The satellite-based datasets are updated daily.



NB-RFFS v2 staging

This is the stable version of MIKE Operations Web 2.0. This app visualizes the NBI river flow forecasting system.

About Nile Basin Forecasting System

The Nile Basin Forecast System is an integrated real-time multi-functional forecasting system that supports the Nile Basin Initiative and its stakeholders in (1) river flow forecasting providing short-term to seasonal river flow forecasts, and (2) seasonal drought forecasting providing seasonal hydrological and meteorological drought forecasts for the entire Nile basin. Furthermore, it supports investigating the consequences of alternative infrastructure operation rules for dams and key water users using the flow forecasts generated. The components of the system are the following:

1. Nile Basin River Flow Forecasting System (NB-RFFS): Flow forecasts are produced based on a river basin model developed with MIKE Hydro Basin. The model's rainfall-runoff model covers the entire Nile basin with 203 catchments. All main river reaches and water uses are also modelled. Furthermore, the model contains 42 reservoirs including lakes and wetlands, and 21 hydropower plants. Every day, forecasts are made for 8 different types of state variables, such as water flows or water volumes. In total 462 state variables are forecasted at 206 forecast locations. The key inputs into the rainfall-runoff model component of the system are rainfall forecasts automatically retrieved from CFSv2 (NOAA's coupled forecast system model version 2) and RFFS (NOAA's Global Ensemble Forecast System) for a forecast period of 9 months. The model's simulation time step is daily.

Important links

- <http://watertools-portal.azurewebsites.net/portal/workspaces/5066783a-f1cf-46e5-930c-262254d58dca/landing>
- <https://www.flooddroughtmonitor.com/DataApp/>
- <http://watertools-portal.azurewebsites.net/portal/workspaces/5066783a-f1cf-46e5-930c-262254d58dca/applications/41918734-ac43-40af-a520-464027880f68/landing>



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THANK YOU!