East Africa Flood Watch

User Manual

Developed by: IGAD Climate Prediction and Applications Centre (ICPAC)
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About This Manual

This manual provides step-by-step guidance for using the **East Africa Flood Watch** platform. It is intended for:

- Forecasters and meteorologists at National Meteorological and Hydrological Services (NMHS)
- Disaster risk management officers
- Humanitarian coordinators and emergency responders
- Policy-makers and technical staff working on flood risk

How to use this manual: Read the chapters in order for a complete orientation, or jump directly to the relevant chapter using the Table of Contents.

Note

Screenshots in this manual reflect the system as of **March 2026**. The interface may change in future versions.Reach out to Ezra Kiplimo for new updates

Contributors

Technical Team

- Add names and roles

Reviewers

- Add names and institutions

Editors

- Add names and editorial roles

Data and Model Contributors

- Add organisations or individuals

Coordination and Project Management

- Add focal person(s)

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1. Introduction to Flood Watch

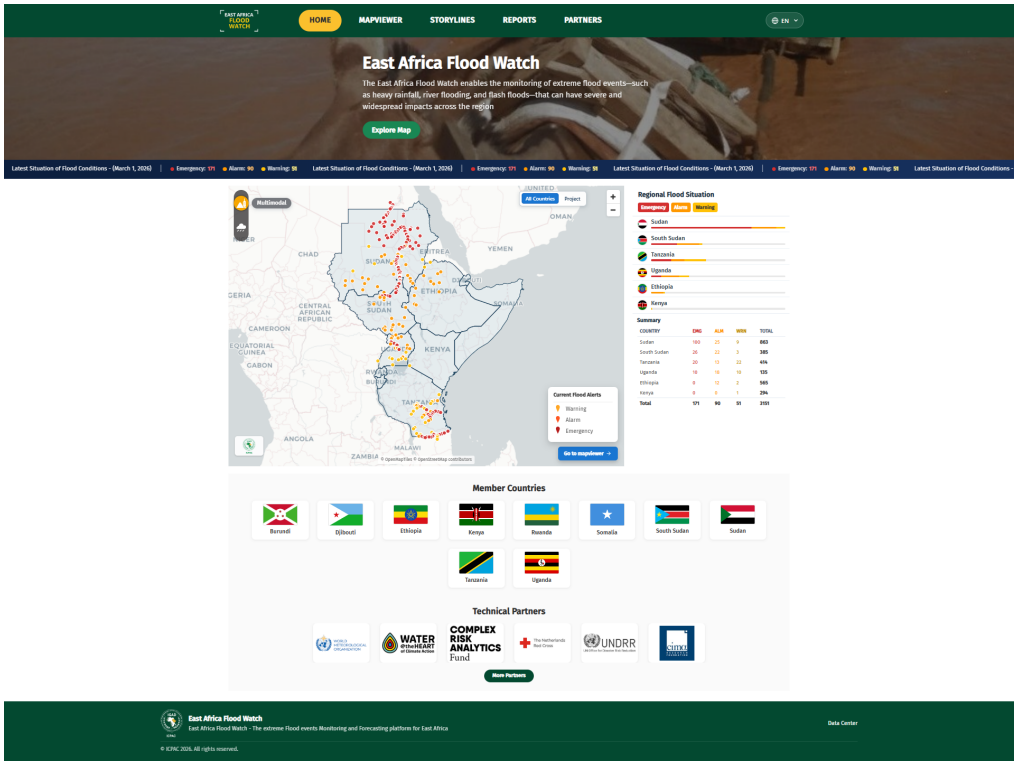

Figure 1.1: The East Africa Flood Watch ho mepage.

The **East Africa Flood Watch** is a near-real-time flood monitoring and early warning platform developed by the IGAD Climate Prediction and Applications Centre (ICPAC). It enables the monitoring of extreme flood events — including heavy rainfall, river flooding, and flash floods — that can have severe and widespread impacts across the East Africa region.

The system integrates outputs from multiple hydrological and meteorological forecast models to provide a **multi-model ensemble** view of current and forecast flood conditions. It is designed to support:

- National Meteorological and Hydrological Services (NMHS)
- Disaster risk management agencies
- Humanitarian organisations and emergency responders
- Policy-makers and the general public

1.1 Geographic Coverage

The platform covers all IGAD member countries:

Member Countries		
Burundi	Djibouti	Ethiopia
Kenya	Rwanda	Somalia
South Sudan	Sudan	Tanzania
Uganda		

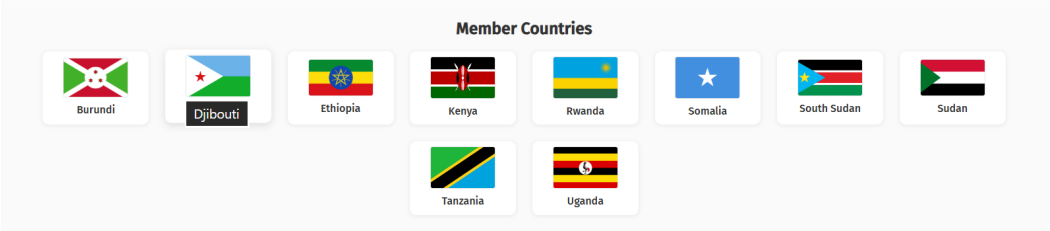

Figure 1.2: Member countries displayed on the East Africa Flood Watch homepage.

A specialised view — the **East Africa Flood Watch** – View of having the different Countries in the Region

1.2 Key Features

- **Multi-model flood forecasting** — integrates five hydrological models (Multi Model, MIKE HYDRO, GeoSFM, FLOODPROOFS, HYPE, and Google Flood Forecast)
- **Real-time alert levels** — colour-coded Emergency, Alarm, Warning, and Normal status at river stations
- **Rainfall monitoring** — WRF-based total and extreme rainfall forecast layers
- **Impact assessment** — exposed population, environment, and infrastructure layers
- **Situation reports and storylines** — published summaries and narrative accounts of flood events
- **Multi-language support** — interface available in multiple languages

1.3 Technical Partners

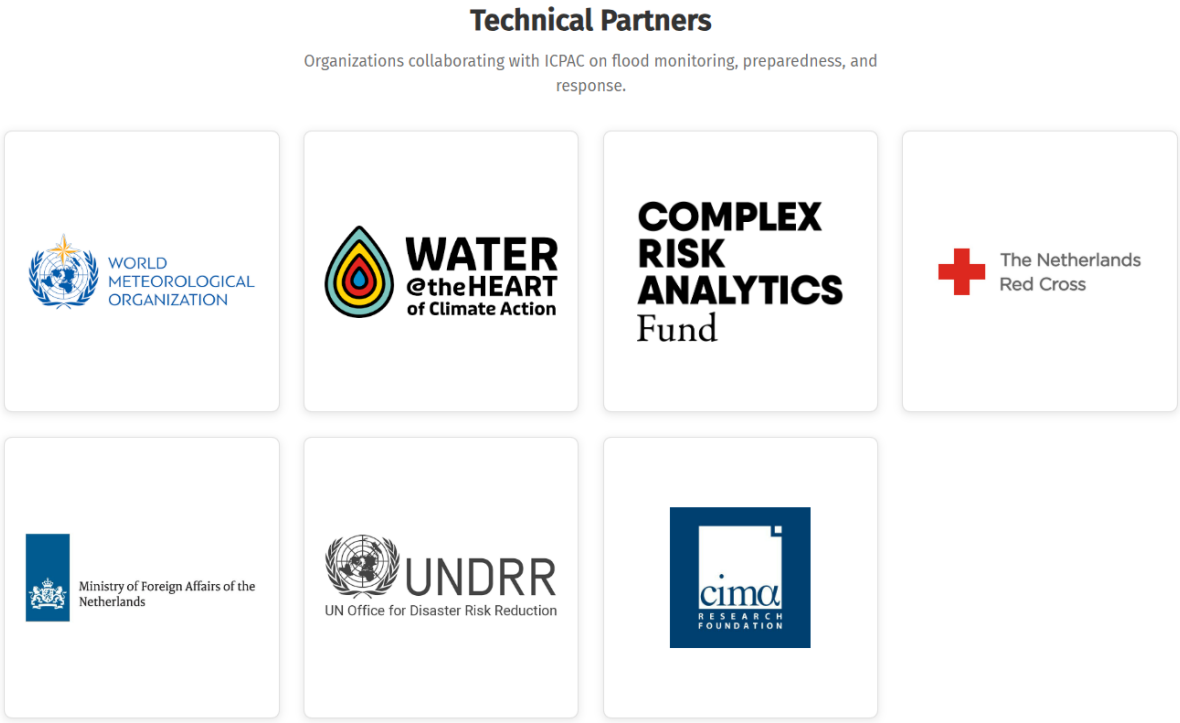

Figure 1.3: Technical partners contributing to the East Africa Flood Watch.

The platform is developed and maintained with support from international technical partners including UN agencies, water resource institutions, and research organisations.

2. Getting Started

2.1 System Requirements

Requirement	Details
Browser	Google Chrome (recommended), Mozilla Firefox, or Microsoft Edge (latest versions)
Internet	Stable broadband connection
Screen	Minimum 1280 × 768 pixels; widescreen recommended
Login required	No — the platform is publicly accessible

Note

The system is optimised for desktop use. Mobile access is possible but the MapViewer is best experienced on a larger screen.

2.2 Accessing the Platform

Step 1. Open your web browser.

Step 2. Type the system URL **https://floodwatch.icpac.net** into the address bar and press **Enter**.

Step 3. The **East Africa Flood Watch homepage** will load.

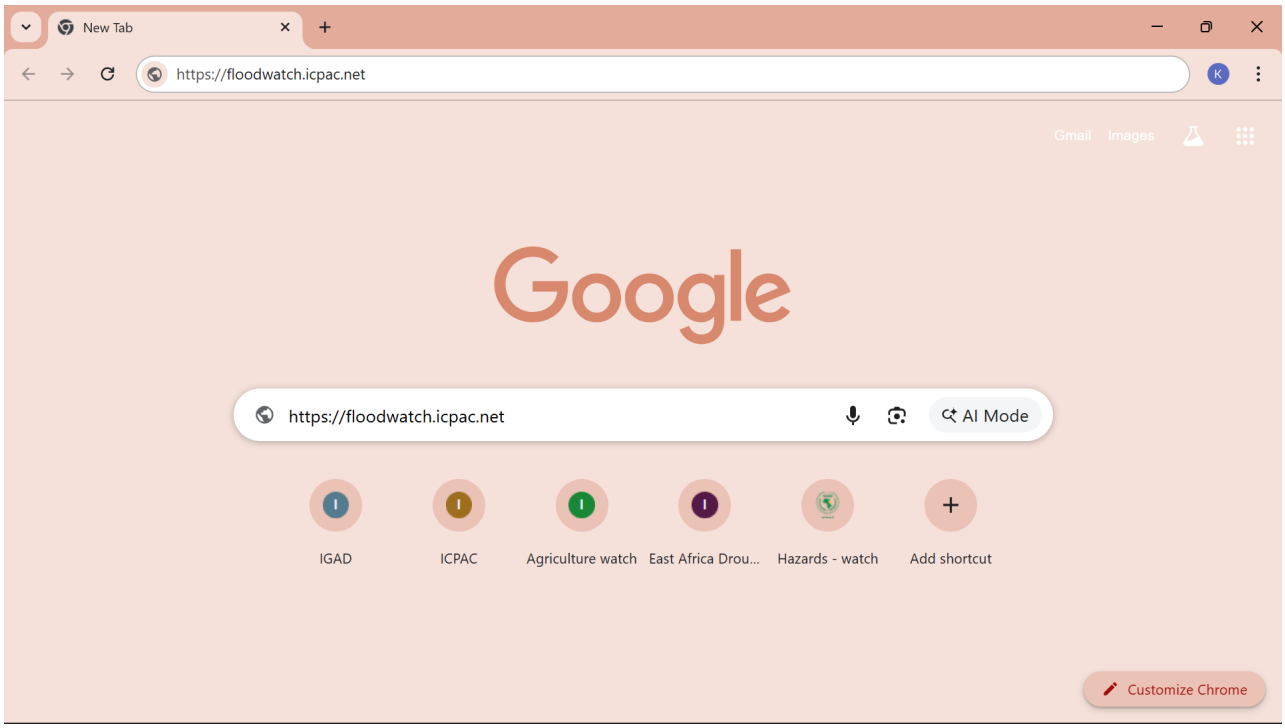

Figure 2.1: Navigating to the East Africa Flood Watch in a web browser.

2.3 Language Settings

The interface defaults to **English (EN)**.

Step 1. Locate the **EN** dropdown button in the **top-right corner** of the navigation bar.

Step 2. Click the dropdown arrow.

Step 3. Select your preferred language from the list.

Step 4. The page will reload in the selected language.

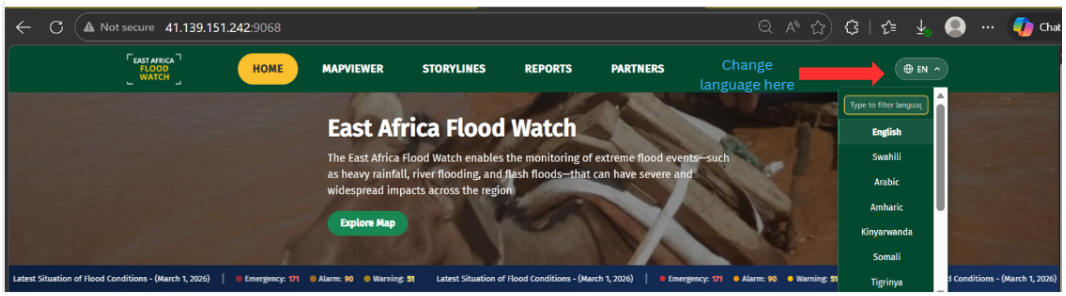

Figure 2.2: The language selector (EN) in the navigation bar.

3. Homepage Overview

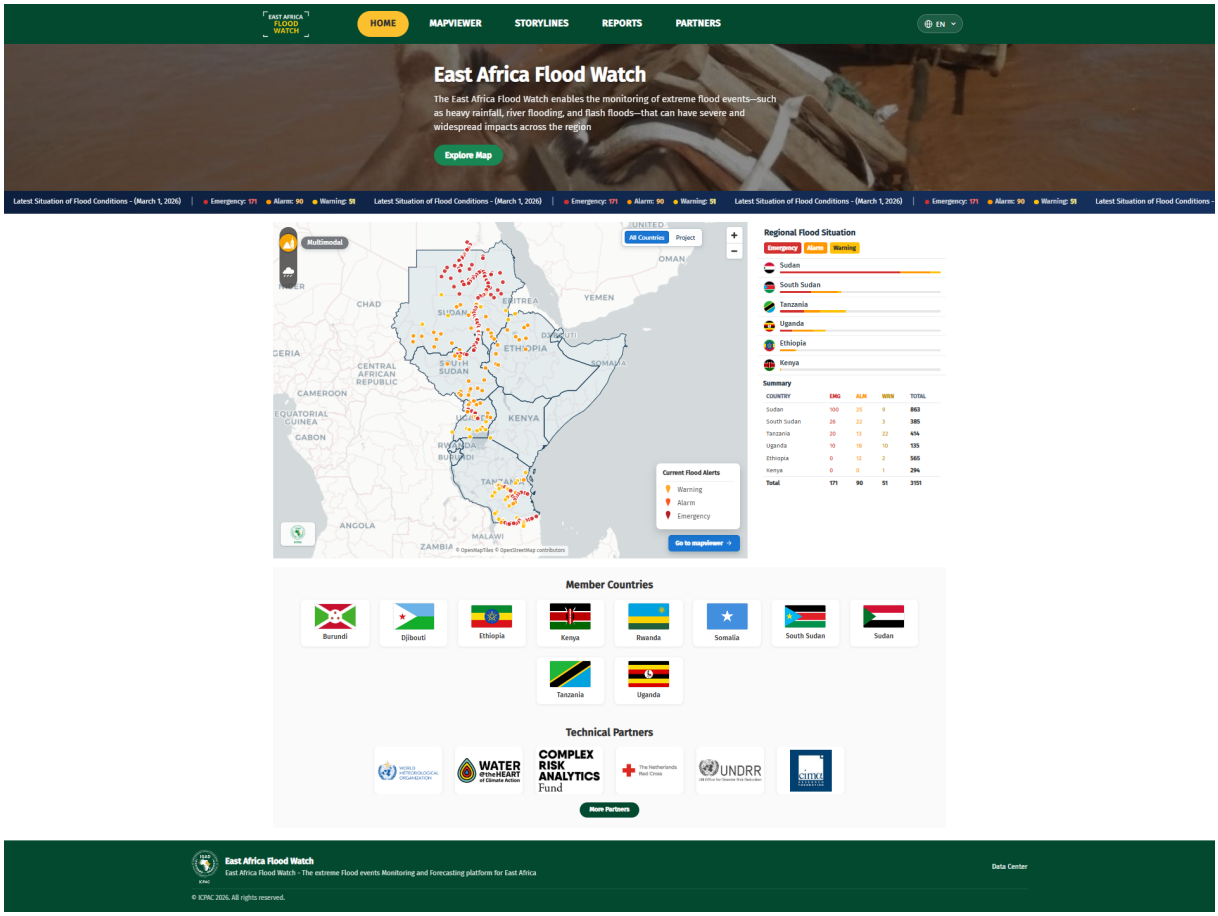

Figure 3.1: The East Africa Flood Watch homepage — full view.

The homepage provides an immediate situational overview of current flood conditions across the region. It consists of the following areas, described in the sections below.

3.1 Navigation Bar

Figure 3.2: The navigation bar at the top of every page.

The dark green navigation bar appears at the top of **every page** in the system. It provides access to all major sections:

Menu Item	Description
HOME	Returns to the homepage at any time
MAPVIEWER	Opens the full interactive flood map
STORYLINES	Narrative accounts of significant flood events
REPORTS	Published flood situation reports and bulletins
PARTNERS	Information about contributing organisations
EN (top-right)	Language selector

The currently active section is highlighted in **yellow** in the navigation bar.

3.2 Alert Ticker

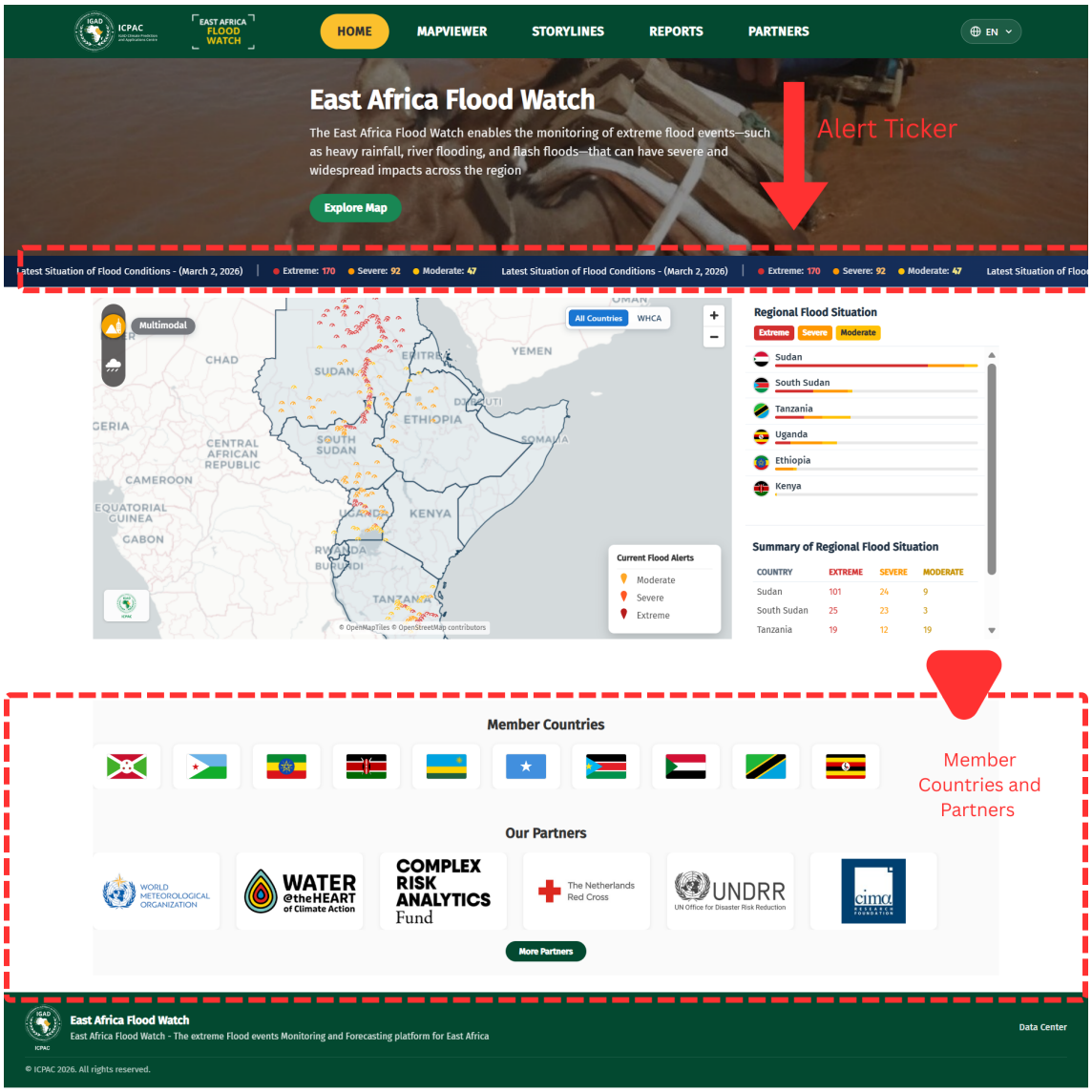

Figure 3.3: The scrolling flood alert ticker displayed below the hero banner.

Immediately below the hero banner is a **scrolling ticker bar** that continuously displays the latest flood situation. For each update it shows:

- The title: *"Latest Situation of Flood Conditions"*
- The date of the latest model run (e.g., *March 1, 2026*)
- • **Emergency** count
- • **Alarm** count
- • **Warning** count

The ticker scrolls from right to left and updates automatically with each new model run.

3.3 Hero Banner

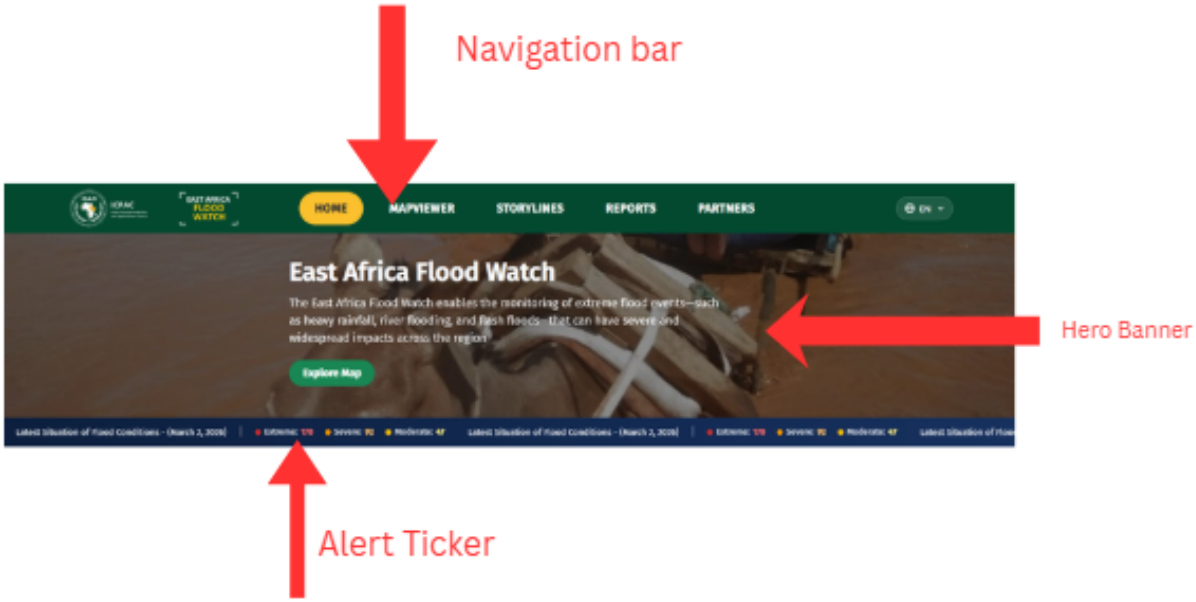

Figure 3.4: The hero banner on the homepage.

The hero section at the top of the homepage displays:

- The system title: **East Africa Flood Watch**
- A brief description: *"The East Africa Flood Watch enables the monitoring of extreme flood events — such as heavy rainfall, river flooding, and flash floods — that can have severe and widespread impacts across the region."*
- A green **Explore Map** button — click this to open the MapViewer directly

3.4 Homepage Interactive Map

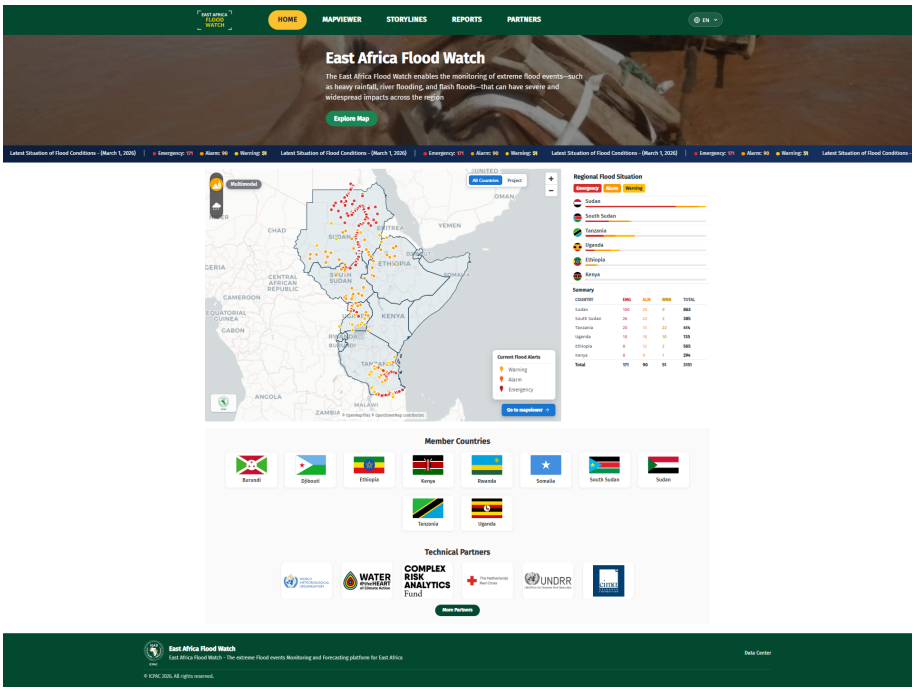

Figure 3.5: The homepage preview map showing current flood alert markers.

The homepage features a preview map of East Africa displaying **colour-coded flood alert dots** at river monitoring stations across the region.

3.4.1 Map Controls

Control	Function
All Countries button	Shows flood alerts for all member countries in the region
Project button	Filters the map to show a specific project area (e.g., Nile Basin)
+ button	Zooms in on the map
– button	Zooms out on the map
Go to mapviewer button	Opens the full MapViewer for detailed analysis

3.4.2 Flood Alert Marker Legend

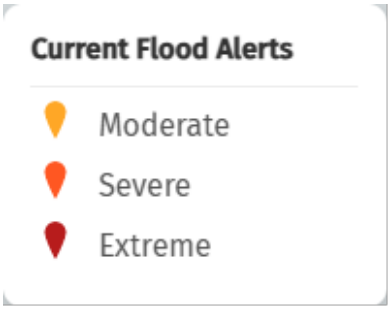

Figure 3.6: The flood alert colour legend on the homepage map.

Colour	Alert Level	Meaning
	Emergency	Extreme flood risk — most severe level
	Alarm	Significant flood risk — high alert
	Warning	Elevated flood risk — monitor closely
	Normal	No significant flood risk

3.5 Regional Flood Situation Panel

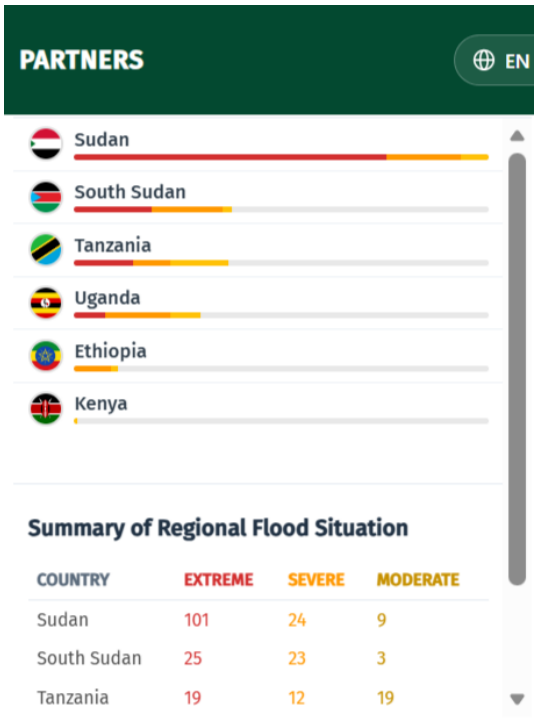

Figure 3.7: The Regional Flood Situation panel showing per-country alert summaries.

The panel on the **right side of the homepage** provides a real-time country-by-country summary of active flood alerts.

3.5.1 Alert Level Tabs

Click the coloured tabs at the top of the panel to filter the country list:

- **Emergency** — shows only countries with Emergency-level alerts
- **Alarm** — shows only countries with Alarm-level alerts
- **Warning** — shows only countries with Warning-level alerts

3.5.2 Country List

Each country is listed with a **coloured horizontal bar** indicating the relative severity of alerts. Countries with the highest alert counts appear at the top.

Countries displayed include: Sudan, South Sudan, Tanzania, Uganda, Ethiopia, and Kenya.

3.5.3 Summary Table

Below the country list, a summary table shows the alert counts per country:

Country	EMG	ALM	WRN	TOTAL
Sudan				
South Sudan				
Tanzania				
Uganda				
Ethiopia				
Kenya				
Total				

Note

EMG = Emergency ALM = Alarm WRN = Warning. Values update automatically with each new model run.

4. MapViewer

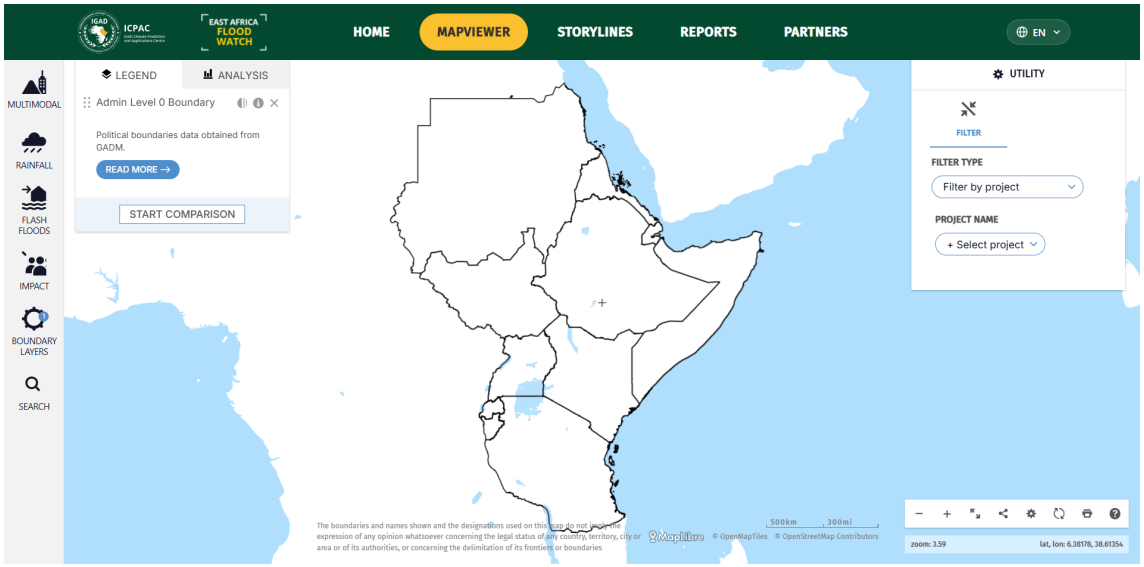

Figure 4.1: The MapViewer — the main analytical interface of the East Africa Flood Watch.

The **MapViewer** is the core analytical tool of the East Africa Flood Watch. It provides an interactive map with multiple data layers for detailed flood monitoring and analysis.

How to open the MapViewer:

- Click **MAPVIEWER** in the navigation bar, **or**
- Click **Explore Map** or **Go to mapviewer** on the homepage

The MapViewer has **three main areas**:

Area	Purpose
Left sidebar	Icon buttons for switching between layer groups
Inner legend panel	Layer list, controls, legend, and analysis tools
Central map canvas	The interactive map display
Right Utility panel	Project and country filters

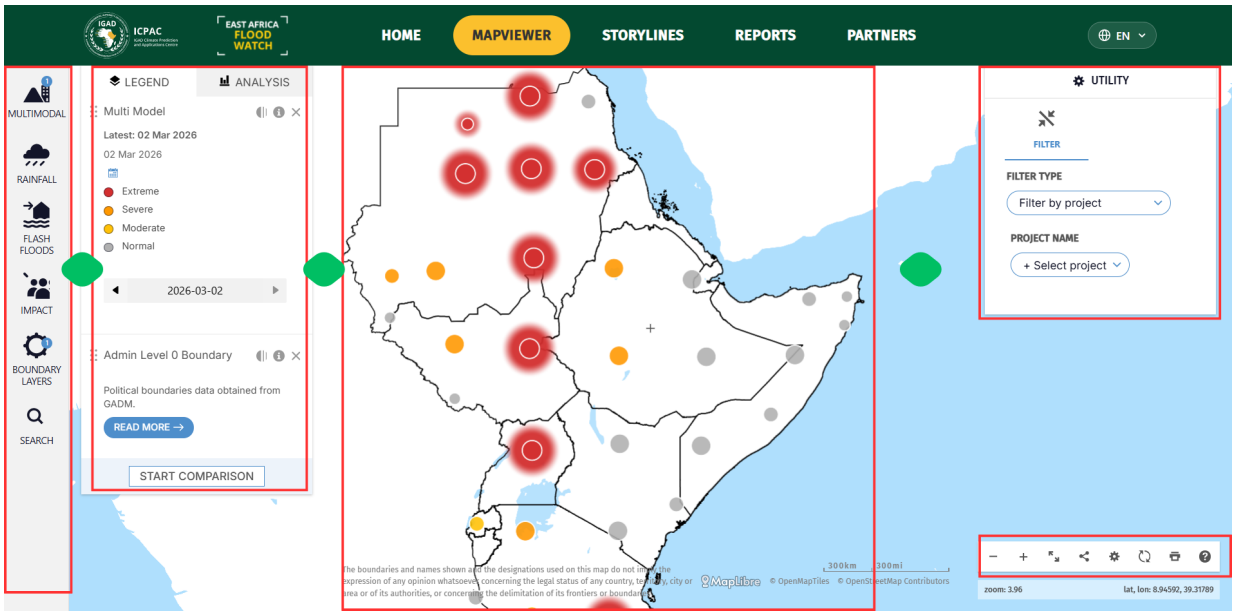

Figure 4.2: Annotated overview of the MapViewer interface areas.

4.1 Left Sidebar — Layer Group Icons

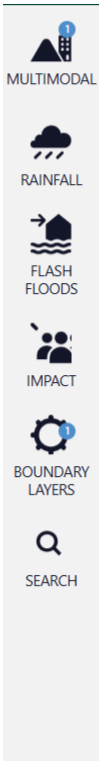

Figure 4.3: The left sidebar layer group icons.

The **far-left edge** of the MapViewer contains five icon buttons. Clicking an icon switches the inner legend panel to show the layers for that group.

Icon	Group Name	Description
[chart icon]	**MULTIMODEL**	Flood forecast outputs from multiple hydrological models
[rain icon]	**RAINFALL**	Observed and forecast rainfall layers
[people icon]	**IMPACT**	Exposed population, environment, and infrastructure layers
[layers icon]	**BOUNDARY LAYERS**	Administrative and political boundary overlays
[search icon]	**SEARCH**	Search for locations on the map

4.2 Multimodel Layers

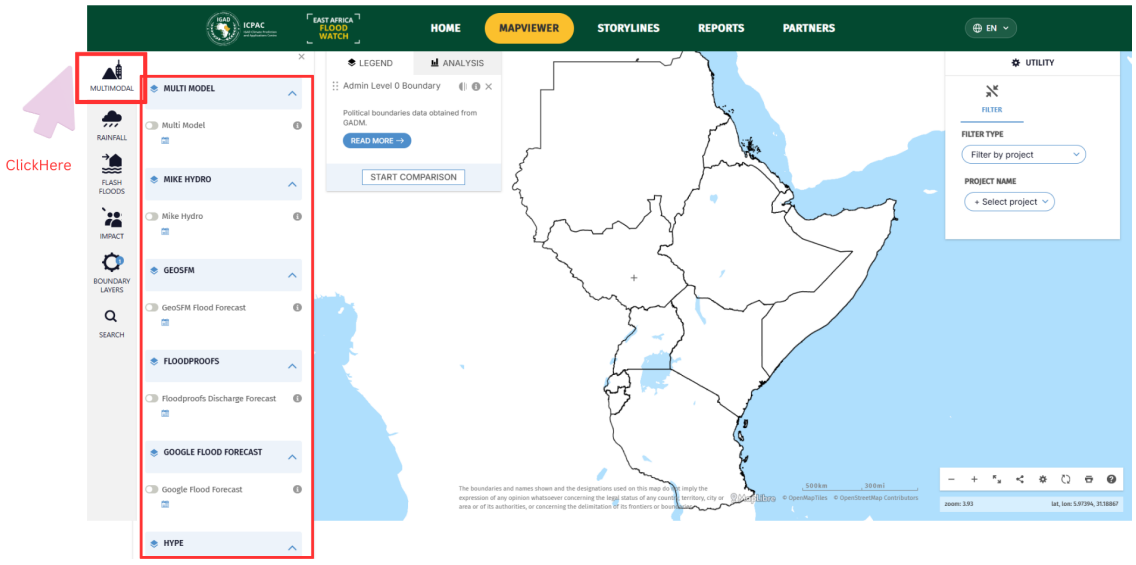

Figure 4.4: The Multimodel layers panel and resulting map display.

The **Multimodel** section displays flood alert forecasts from five hydrological models. Each model can be toggled on or off independently.

Model	Description
Multi Model	Ensemble combination of all available model outputs. Displays colour-coded alert dots at river stations across the region. The date of the latest run is shown (e.g., *01 Mar 2026*).
MIKE HYDRO	Hydrodynamic flood forecast from the MIKE HYDRO model.
GeoSFM	Geospatial Stream Flow Model (GeoSFM) flood forecast.
FLOODPROOFS	Floodproofs discharge forecast model.
Google Flood Forecast	Global flood prediction outputs from Google.
HYPE	Hydrological Predictions for the Environment (HYPE) model.

4.2.1 How to Activate a Model Layer

Step 1. Click the **MULTIMODEL** icon in the left sidebar. The inner legend panel opens showing all model groups.

Step 2. Each model group (e.g., MULTI MODEL, MIKE HYDRO) can be **expanded** by clicking its header.

Step 3. **Check the checkbox** next to a layer name to display it on the map.

Step 4. The layer appears on the map canvas immediately.

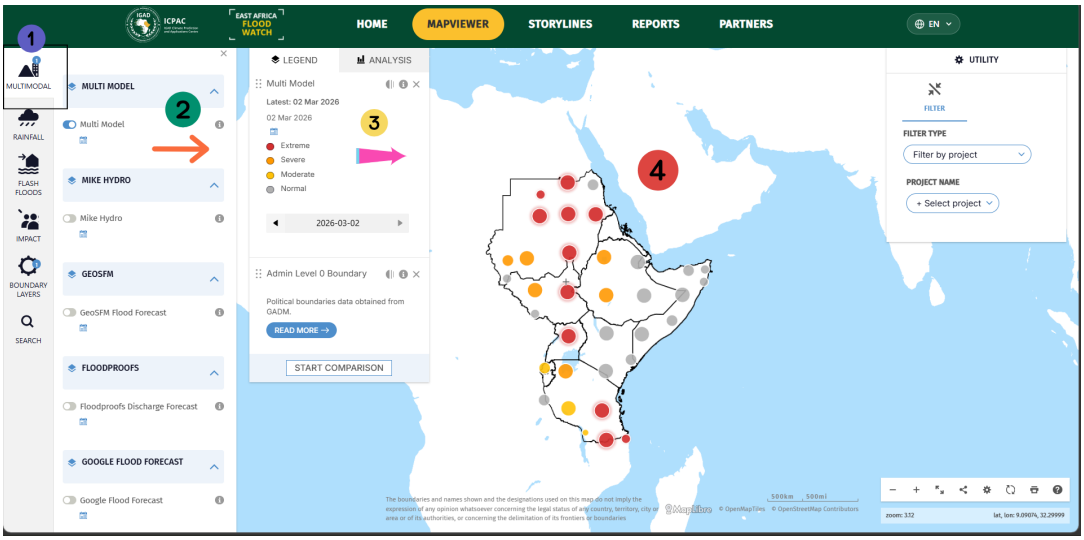

Figure 4.5: The Multi Model layer active on the map, showing Emergency (red), Alarm (orange), and Warning (yellow) alert dots. Click the image to open the MP4 video.

4.2.2 Navigating Forecast Dates

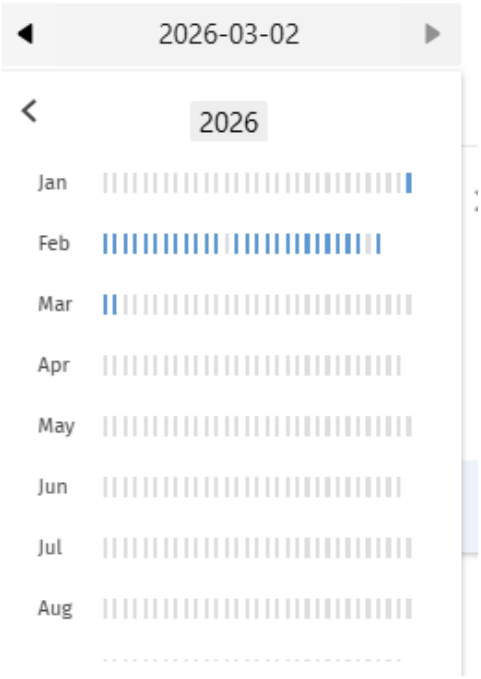

Figure 4.6: The date navigator for stepping through forecast dates.

- Use the (back) and (forward) arrow buttons next to the date to step between available model run dates.
- The current date is displayed between the arrows (e.g., *2026-03-01*).

4.2.3 Layer Controls

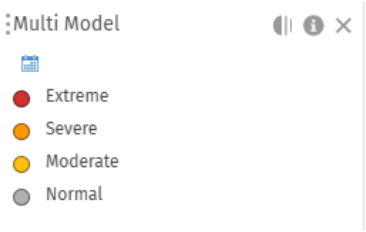

Figure 4.7: Layer controls in the legend panel.

Each layer row in the legend panel has the following controls:

Control	Function
Checkbox	Toggle the layer on or off on the map
Info icon	Opens the layer metadata popup (function, resolution, source, cautions)
Remove icon	Removes the layer from the legend panel
Volume icon	Adjusts layer opacity / transparency

4.2.4 Layer Metadata Popup

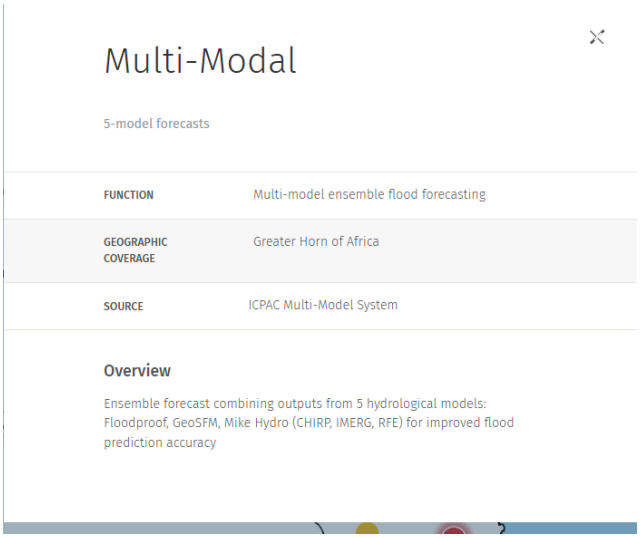

Figure 4.8: An example layer metadata popup showing full layer information.

Clicking the **icon** next to any layer opens a popup displaying:

- **Function** — what the layer shows and its units
- **Resolution** — spatial grid resolution
- **Geographic Coverage** — area covered
- **Source** — data origin
- **Cautions** — guidance on how to interpret the data
- **Overview** — a detailed description of the layer

4.2.5 Alert Level Colour Coding

All flood model layers use the same four-level colour scheme:

Colour	Level	Meaning
	Emergency	Extreme flood risk — immediate action required
	Alarm	Significant flood risk — high alert
	Warning	Elevated flood risk — monitor closely
	Normal	No significant flood risk

4.3 Rainfall Layers

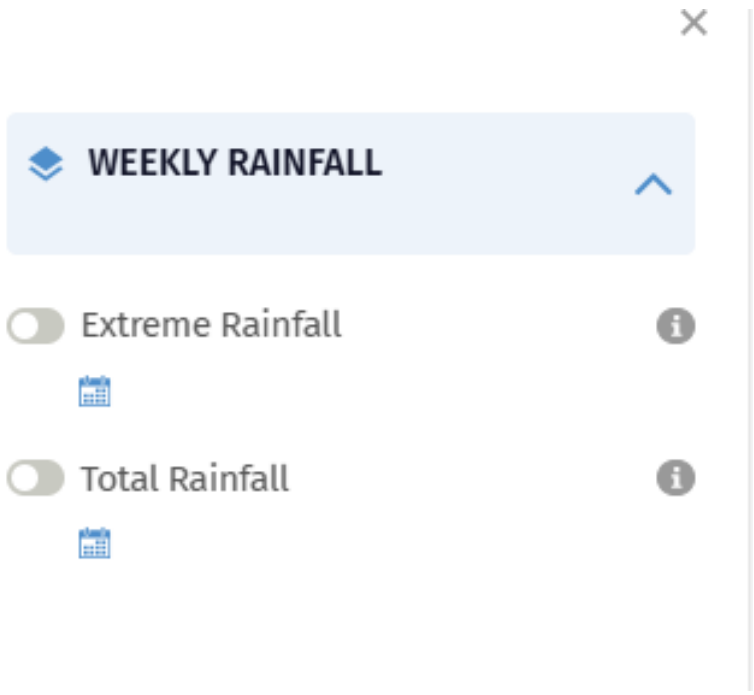

Figure 4.9: The Rainfall layers panel in the MapViewer.

The **Rainfall** section provides forecast rainfall data across the region, sourced from the WRF (Weather Research and Forecasting) model.

4.3.1 Available Rainfall Layers

Layer	Description
Total Rainfall	*WRF Total Rainfall* — Shows forecast daily rainfall totals in millimetres. Resolution: ≈0.1° grid. Coverage: Greater Horn of Africa. Source: WRF model output.
Extreme Rainfall	Highlights areas of exceptionally high or extreme rainfall accumulation exceeding defined thresholds.

Important

WRF rainfall layers are **model guidance only** and should be interpreted alongside other forecast products and local observations from meteorological services.

4.3.2 How to Use Rainfall Layers

Step 1. Click the **RAINFALL** icon (rain cloud) in the left sidebar.

Step 2. The **Weekly Rainfall** group appears in the inner panel.

Step 3. Check the box next to **Total Rainfall** or **Extreme Rainfall** to add it to the map.

Step 4. The rainfall layer overlays on the map canvas.

Step 5. Click the icon to read the full layer description and cautions.

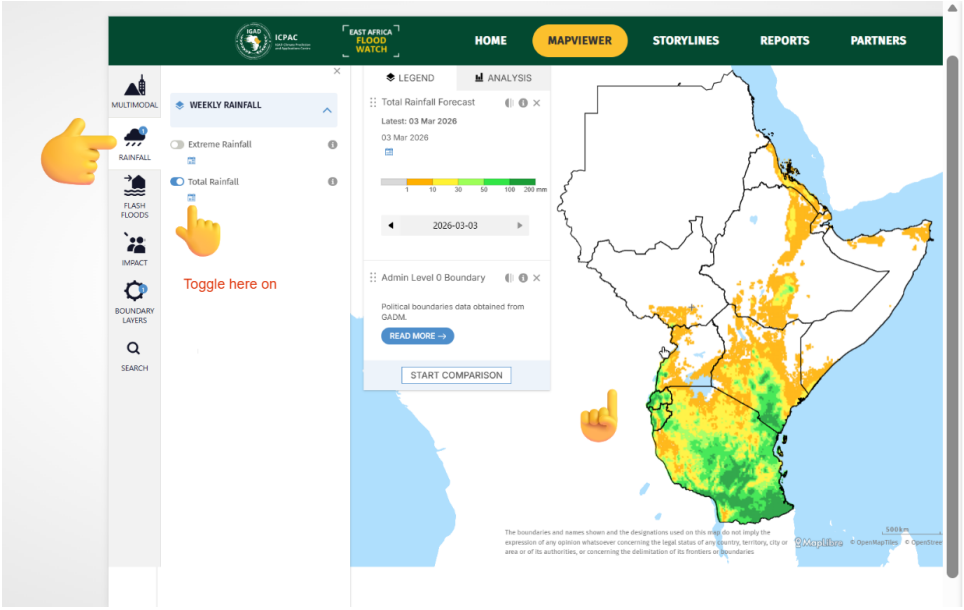

Figure 4.10: The WRF Total Rainfall layer displayed on the MapViewer.

4.4 Impact Layers

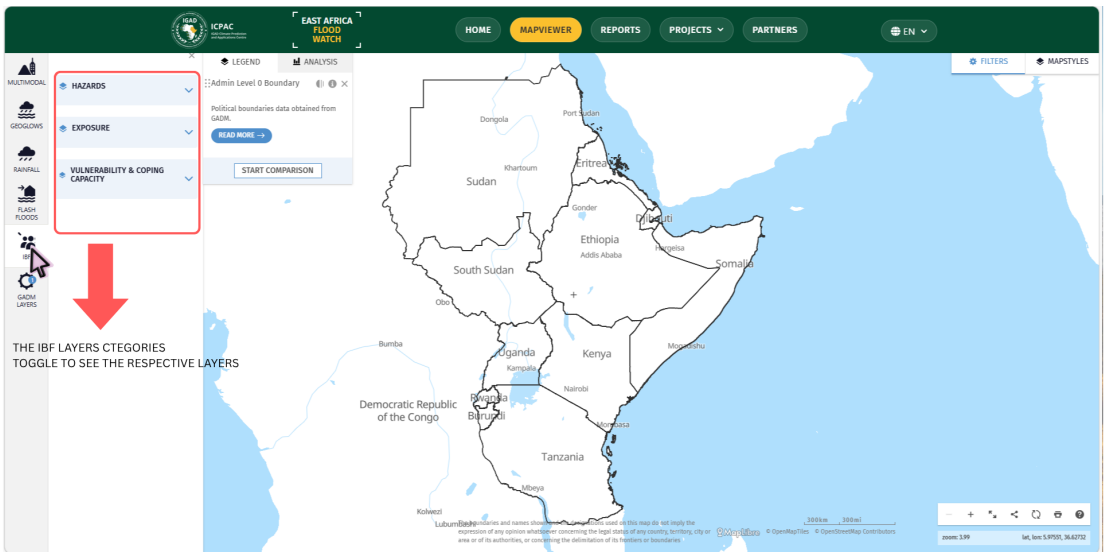

Figure 4.11: The Impact layers panel showing all the IBF sub-groups.

The **Impact** section overlays socioeconomic and infrastructure data to assess the **potential human and environmental consequences** of flood events. These layers are designed to be used *on top of* flood alert layers to identify what is at risk.

4.4.1 Impact Layer Groups

Sub-group	Layer	Description
Flood Extent / Hazard	Flood Extent/Hazard	Spatial extent of flood inundation or flood hazard zones derived from model outputs.
Exposed People	Landscan Population	Population density data (LandScan dataset) showing the number of people potentially exposed to flood risk.
Exposed Environment	Range Land Area Mask	Rangeland and pastoral areas potentially affected by flooding, relevant for livestock and food security.
Exposed Amenities	Gha Airports	Airport locations at risk of flood impact.
	Roads	Road network exposure to flood hazard, indicating potential disruption.
	Dams	Dam locations within or near flood-affected areas.

4.4.2 How to Use Impact Layers

Step 1. Click the **IMPACT** icon (person figure) in the left sidebar.

Step 2. Click on a **sub-group name** to expand it and see its layers.

Step 3. **Check the checkbox** next to a layer to add it to the map.

Step 4. For best results, **combine impact layers with flood model layers** to see which areas and assets are at risk.

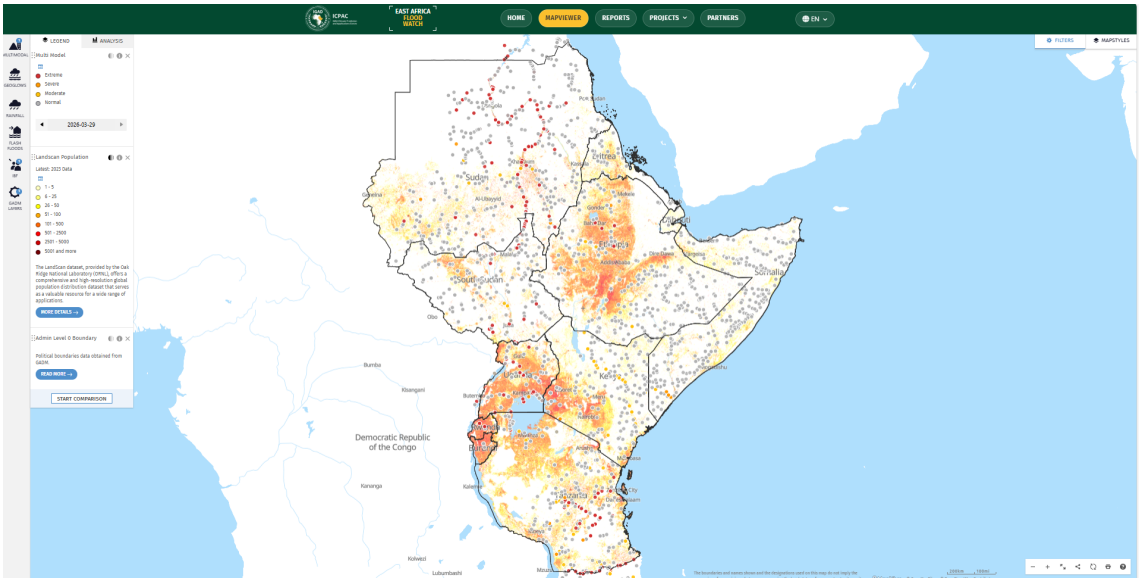

Figure 4.12: Example: Landscan Population layer overlaid with Multi Model flood alerts.

4.5 Boundary Layers

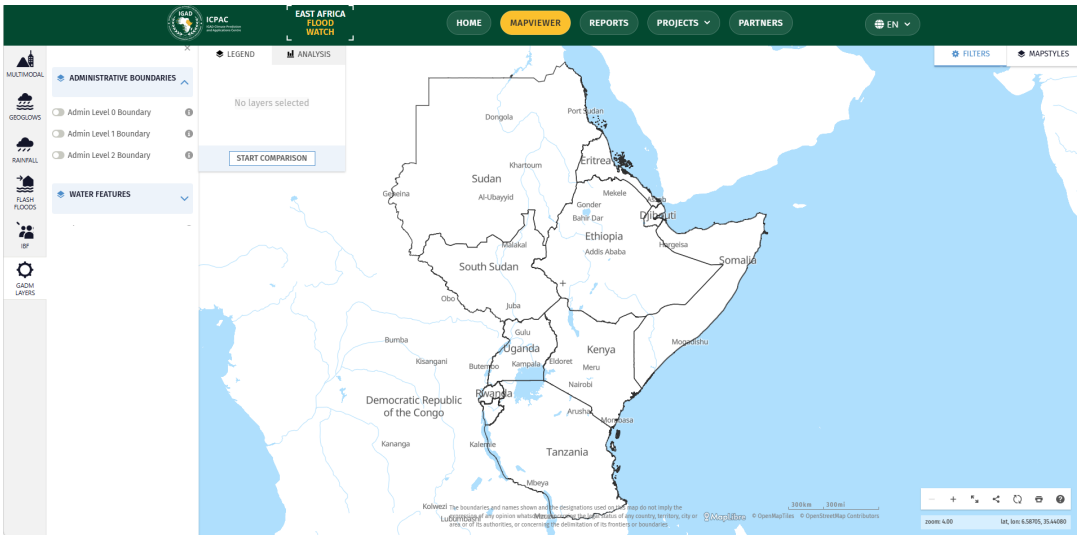

Figure 4.13: The Boundary Layers panel showing the Admin Level 0 national boundary layer.

The **Boundary Layers** section adds administrative boundaries to the map to provide geographic context.

Layer	Description
Admin Level 0 Boundary	National (country-level) political boundaries. Data source: GADM (Database of Global Administrative Areas). Click **READ MORE** in the panel for full attribution.

Tip

Click the **READ MORE** → button in the layer description to view the full data source citation and licence information for boundary datasets.

4.6 Utility Panel — Filters

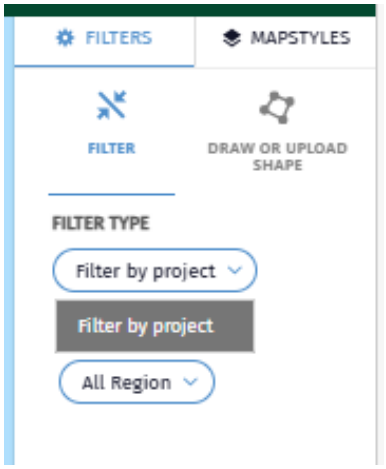

Figure 4.14: The Utility panel on the right side of the MapViewer.

The **UTILITY panel** on the **right side** of the MapViewer lets you filter displayed data by project or country.

Filter	Description
Filter Type	Sets the method of filtering. Default: *Filter by project*.
Project Name	Use the + **Select project** dropdown to choose a project. Example options: • *Project* — the main East Africa regional dataset • *Nile Basin project* — focuses on Nile Basin countries
Country	Use the + **Select country** dropdown to zoom and filter to a specific member country.

Note

Filters apply **simultaneously across all active layers**. Selecting a country will zoom the map to that country and restrict data display accordingly.

4.7 Map Navigation

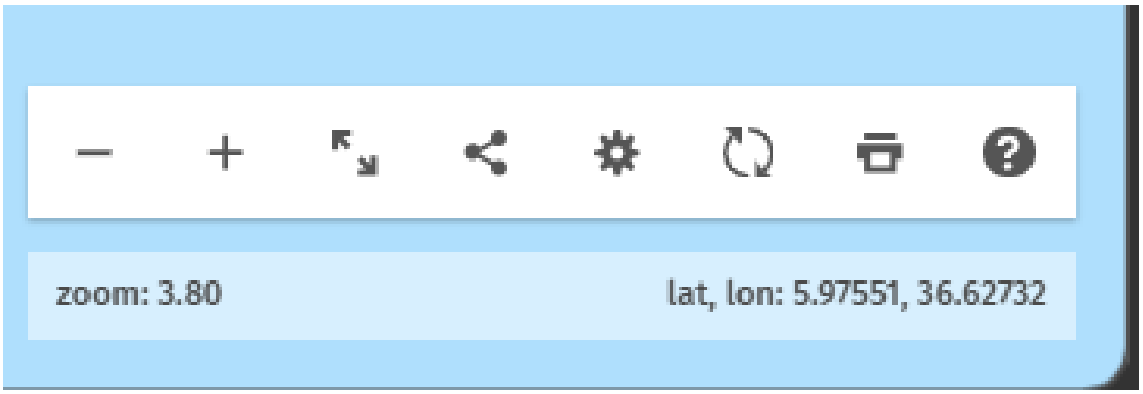

Figure 4.15: Map navigation controls on the MapViewer canvas.

Action	How to perform
Zoom in	Click + (top-right of map) or scroll the mouse wheel **up**
Zoom out	Click − or scroll the mouse wheel **down**
Pan / move	Click and drag on the map canvas
Click on a dot	Click any flood alert dot on the map to open a popup with station-level details
View coordinates	Current latitude, longitude, and zoom level are shown in the **bottom-right** corner

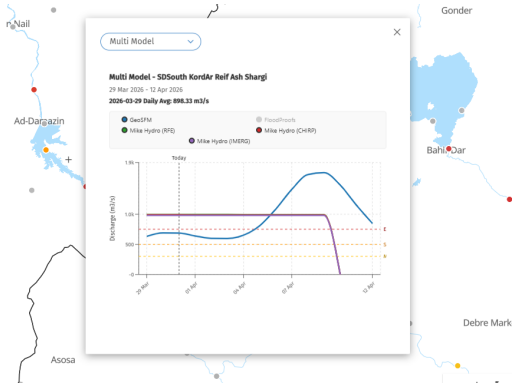

Figure 4.16: Station-level popup showing alert details when a dot is clicked.

5. Storylines

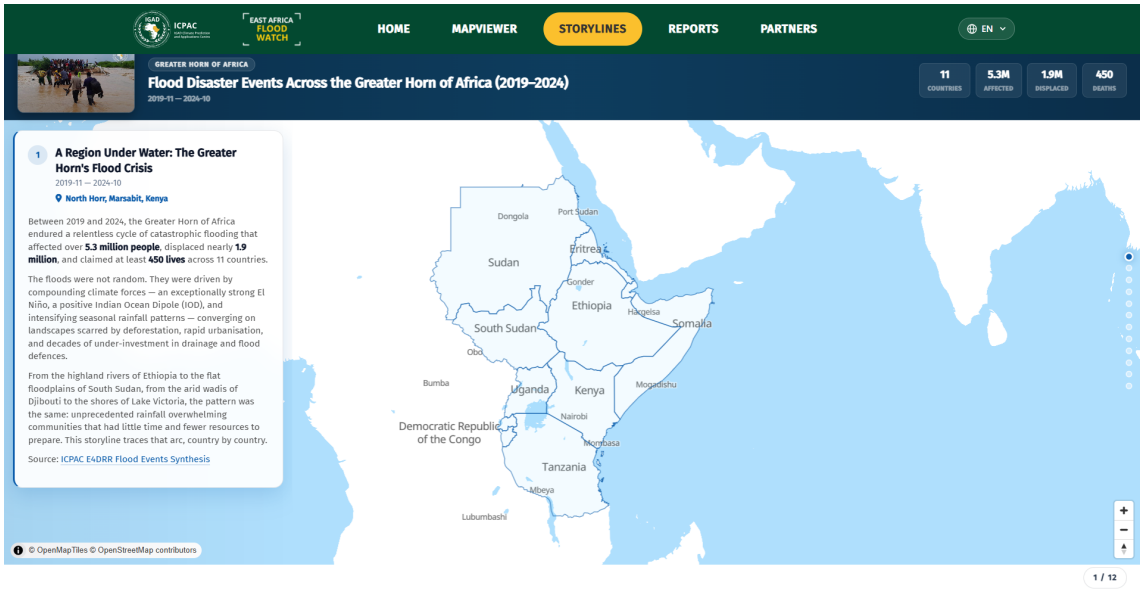

Figure 5.1: The Storylines section listing available flood event narratives.

The **Storylines** section provides narrative descriptions of significant flood events that have occurred across the East Africa region.

How to access: Click **STORYLINES** in the navigation bar.

5.1 What is a Storyline?

A storyline is a structured narrative account of a specific flood event. Each storyline typically includes:

- **Event title and date** — the name and timing of the flood event
- **Affected area** — the countries, regions, and river basins impacted
- **Cause of flooding** — meteorological drivers such as heavy rainfall or upstream dam release
- **Impact summary** — affected population, infrastructure, and livelihoods
- **Maps and images** — supporting visualisations of the event

5.2 Viewing a Storyline

Step 1. Click **STORYLINES** in the navigation bar.

Step 2. Browse the list of available storyline cards.

Step 3. Click on a card to open the full storyline.

Step 4. Scroll through the narrative, maps, and images.

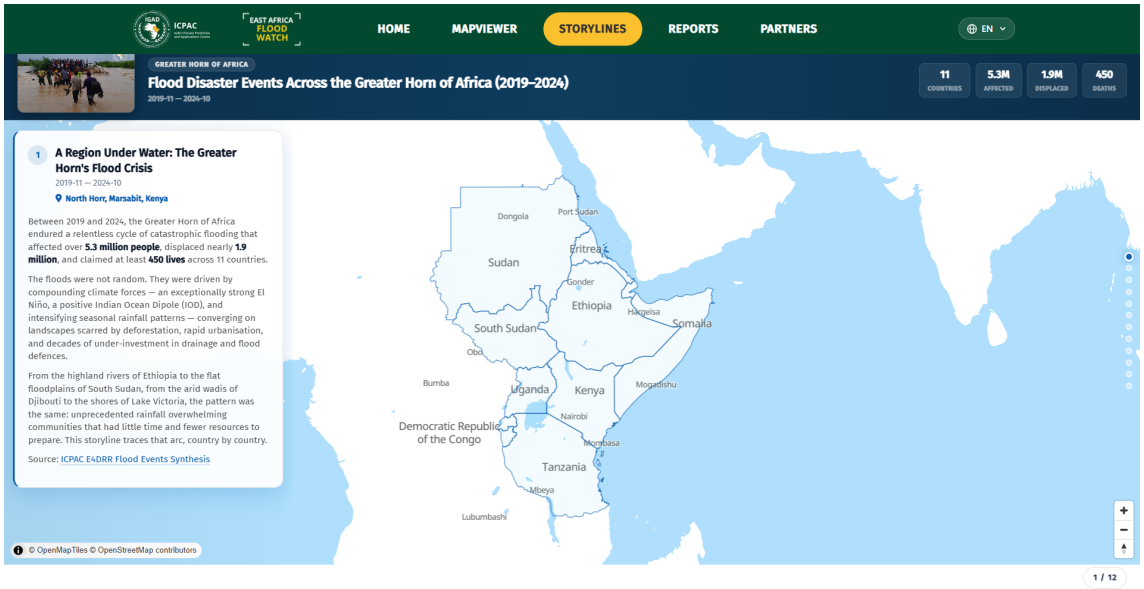

Figure 5.2: An example open storyline showing narrative content, embedded maps, and impact information.

5.3 Purpose of Storylines

Storylines serve several important functions:

- Provide institutional memory of past flood events
- Support lessons-learned reviews and after-action reports
- Communicate flood impacts to decision-makers, media, and the public
- Build understanding of recurring flood patterns in the region

6. Reports

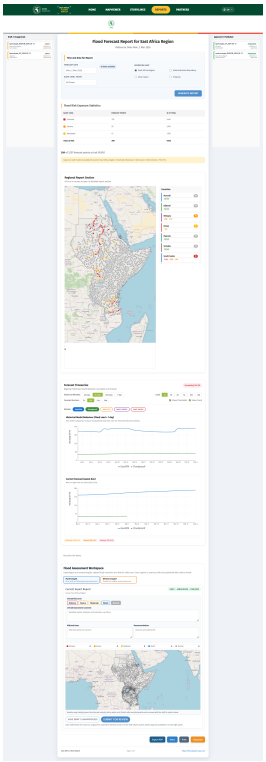

Figure 6.1: The Reports section showing available flood situation reports.

The **Reports** section provides access to published flood situation reports and bulletins produced by ICPAC and partner organisations.

How to access: Click **REPORTS** in the navigation bar.

6.1 Types of Reports

Report Type	Description
Regional Flood Situation	Weekly or event-based summary of flood conditions across the East Africa region
Country Assessment	Detailed flood assessment for a specific member country
Seasonal Outlook	Seasonal flood risk forecast and preparedness guidance
Event Report	Post-event analysis of a significant flood episode

6.2 Downloading a Report

Step 1. Click **REPORTS** in the navigation bar.

Step 2. Browse or search for the report of interest.

Step 3. Click the report title or **Download** button.

Step 4. The report opens as a PDF document.

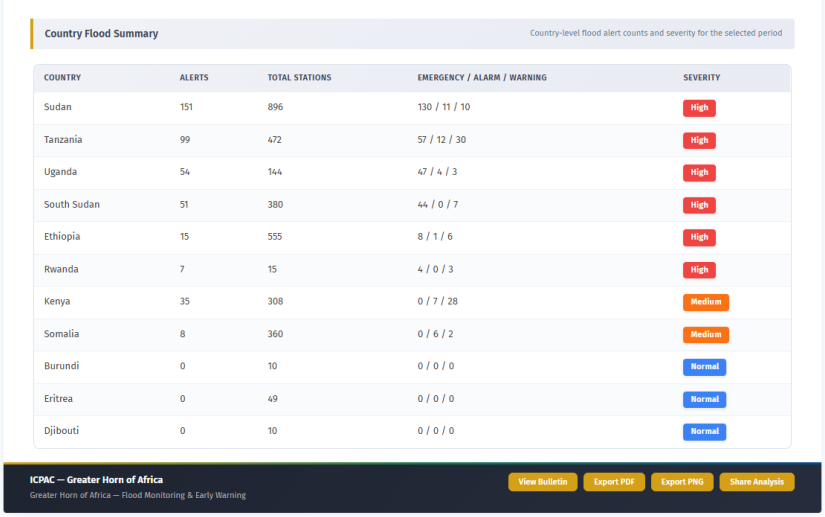

Figure 6.2: An example report card in the Reports section with download option.

7. Partners

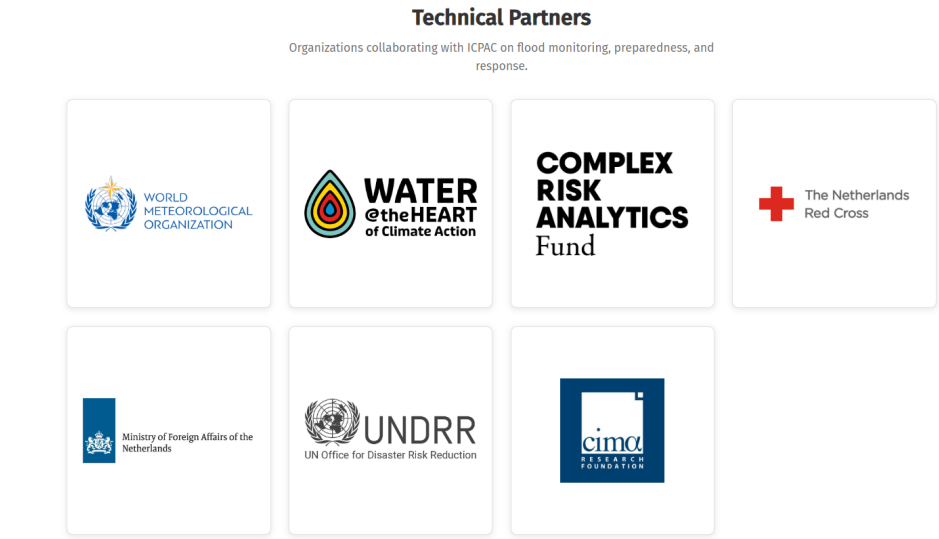

Figure 7.1: The Partners section listing all contributing organisations.

The **Partners** section lists the organisations involved in developing, maintaining, and contributing data, models, and expertise to the East Africa Flood Watch platform.

How to access: Click **PARTNERS** in the navigation bar.

7.1 Partner Categories

Category	Role
Implementing Agency	ICPAC — platform development, coordination, and maintenance
UN Agencies	Technical and financial support
Water Resource Bodies	Hydrological data, model development, and calibration
Research Institutions	Scientific model development and validation
Development Partners	Funding and capacity-building support

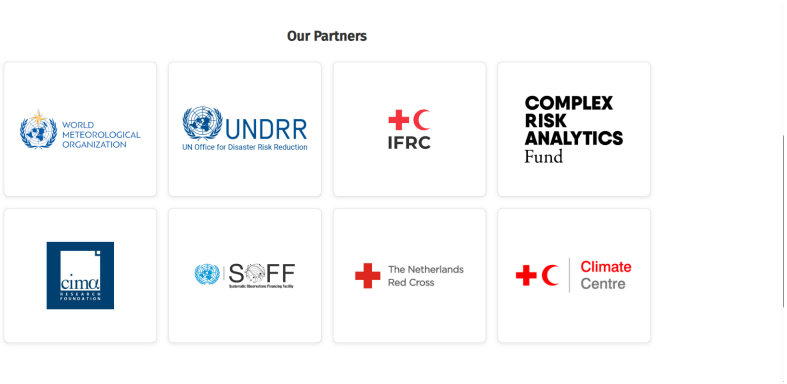

Figure 7.2: Partner organisation logos as displayed on the Partners page.

8. Frequently Asked Questions

Q: How often is the data updated?
A: Model data is updated once daily. The latest run date is displayed in the legend panel and the alert ticker on the homepage.

Q: Can I download map data?
A: Downloadable data may be available through the Reports section. For bulk data requests, contact ICPAC directly.

Q: Why do different models show different alert levels at the same station?
A: Each hydrological model uses different data inputs, algorithms, and parameter sets. Differences between models reflect forecast uncertainty. The Multi Model layer provides a consensus view.

Q: What does the "Project" filter do?
A: The Project filter restricts the displayed data to a specific project subset (e.g., the Nile Basin project). This is useful when working in a specific geographic focus area.

Q: How do I report an issue or get technical support?
A: Contact the ICPAC technical team using the contact details provided on the Partners or homepage footer section.

Q: Is the platform available in languages other than English?
A: Yes. Use the **EN** language selector in the top-right corner of the navigation bar to change the interface language.

Q: Can I compare two models side by side?
A: Yes. In the MapViewer, open the ANALYSIS tab in the inner legend panel and click **START COMPARISON** to enable the split-screen comparison mode.

Glossary

Term	Definition
Alarm	The second-highest alert level, indicating significant flood risk with river discharge above defined alarm thresholds.
Discharge	The volume of water flowing through a river cross-section per unit time, usually reported in cubic metres per second (m^3/s).
Emergency	The highest alert level, indicating extreme flood conditions with severe impacts expected or already occurring.
Ensemble	A combined forecast built from multiple models to better represent uncertainty and provide a consensus view.
Flash flood	A rapid-onset flood event, typically caused by intense localised rainfall over a short period.
GADM	Database of Global Administrative Areas, a spatial dataset of administrative boundaries worldwide.
GeoSFM	Geospatial Stream Flow Model, a hydrological model used for large-scale flood forecasting.
Google Flood Forecast	A global flood prediction service by Google that provides river discharge forecasts.
HYPE	Hydrological Predictions for the Environment, a hydrological model developed by SMHI (Sweden).
ICPAC	IGAD Climate Prediction and Applications Centre, the regional climate services centre for the Greater Horn of Africa.
IGAD	Intergovernmental Authority on Development, a regional bloc of countries in East Africa and the Horn of Africa.
LandScan	A global ambient population distribution dataset produced by Oak Ridge National Laboratory.
MIKE HYDRO	A hydrodynamic modelling suite by DHI used for river and flood forecasting applications.
Multi Model	The ensemble combination of all flood forecast models available in the East Africa Flood Watch platform.
NMHS	National Meteorological and Hydrological Service, the national authority for weather and hydrology operations.
Normal	The lowest alert level, indicating no significant flood risk at a station.
Threshold	A predefined discharge value at a river station above which a specific alert level is triggered.

Term	Definition
Warning	The first alert level above Normal, indicating elevated flood risk and possible impacts.
WRF	Weather Research and Forecasting model, a numerical weather prediction model used to generate rainfall forecasts.

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