

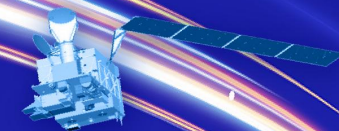
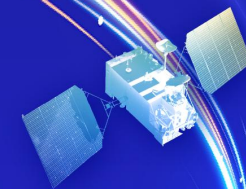
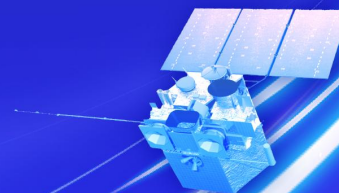


# AOMSUC-15 FYSUC-2025

FIFTEENTH ASIA-OCEANIA METEOROLOGICAL SATELLITE USERS' CONFERENCE  
THE JOINT 2025 FENGYUN SATELLITE USER CONFERENCE

## Use of satellite data in monitoring and prediction of severe weather in Lake Victoria basin

Benjamin Bahati





# Forecasting challenges in the Lake Victoria Basin



- ✓ A vast lake basin shared by five nations
- ✓ Weather changes in minutes.
- ✓ Very few ground weather stations.
- ✓ Satellite coverage is essential.



# ▶ **Satellites used by KMD in Kenya**

## **Meteosat Third Generation (MTG)**

- **Meteosat-9 (MSG):** Updates every 15 minutes.
- **NOAA SNPP satellites:** Tracks storms and temperatures.
- **The Metop series** (Metop-A, B, C).





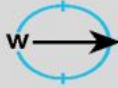

















# APPLICATION OF FY and MSG in Forecasting a Storm over LVB

❖ On October 6<sup>th</sup> and 7<sup>th</sup> a deep convective system developed over the Lake Victoria Basin

❖ Data from two satellites detected this development.

❑ Meteosat-9 SEVIRI

❑ Fengyun 3D MWHHS

Monday 06/10/2025	Wind strength /direction	Wave height	Rainfall/ Cloud cover	Rainfall distributio n	Visibilit y	Hazard s
Night before midnight	 Light	 Small waves	 Moderate rains	 Several places		
Night after midnight	 Light	 Small waves	 Isolated thunder rain	 Several places		
Tuesday 07/10/2025 Morning	 Light	 Small waves	 Light rains	 Few Places	 Good	
Tuesday 07/10/2025 Afternoon	 Light	 Small waves	 Widespread thunder with rains	 Several places	 Moderat e	

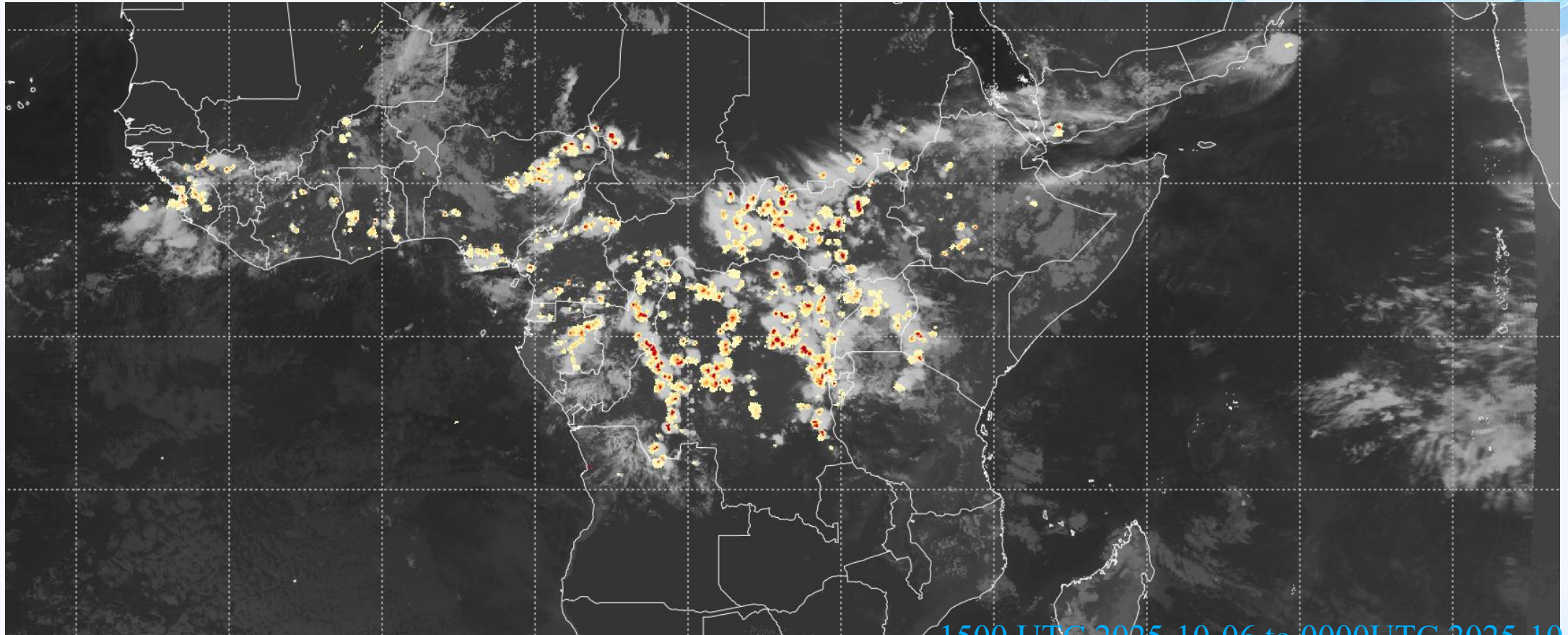
# How data from Fengyun 3D MWHS was used

- ❑ FengYun-3D Satellite passes over Kenya at 12-hour intervals
- ❑ On 6<sup>th</sup> October, the overpasses were at 00.58 UTC and 12.48 UTC.
- ❑ Data from the satellite identified the pre-convective phase of an intense weather event over Lake Victoria.

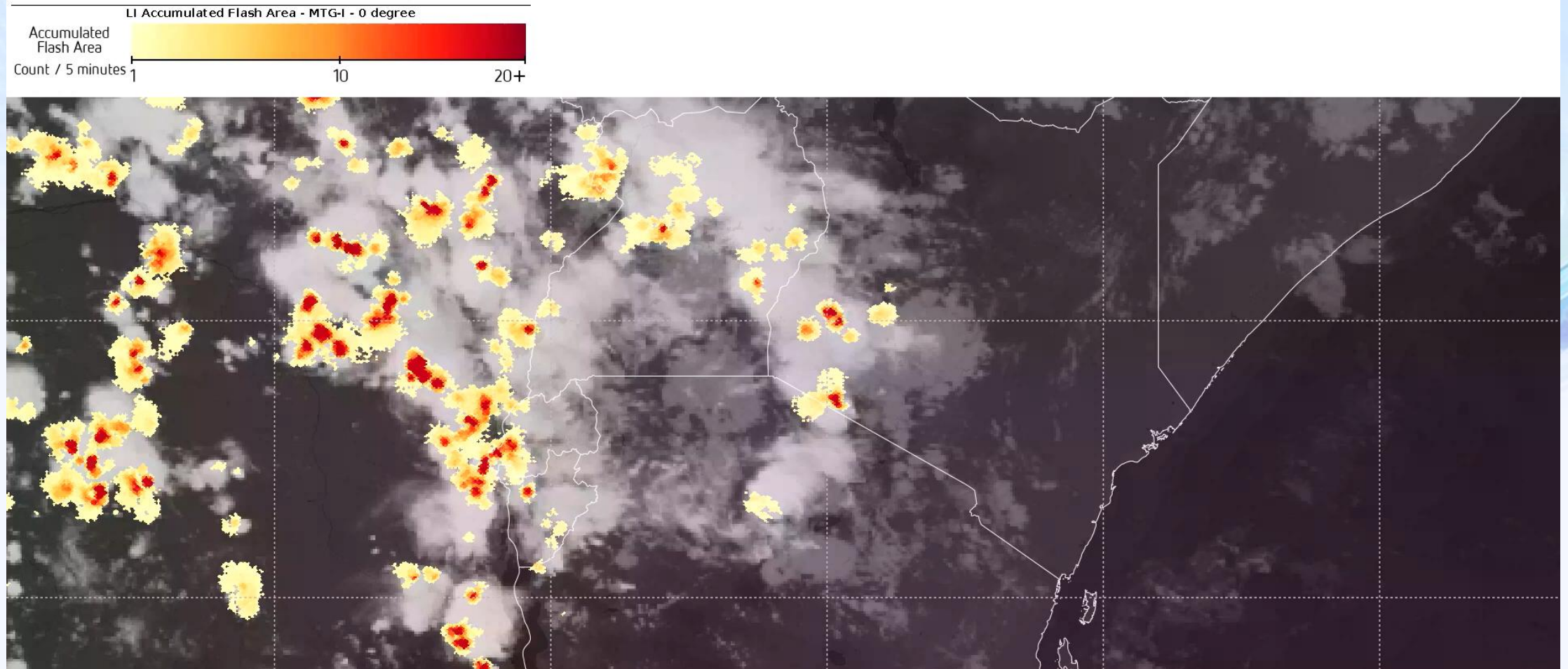




- ▶ Rectified (level 1.5) Meteosat SEVIRI image of Equatoria Africa showing Accumulated Flash Area data gathered from the optical emission of lightning flashes



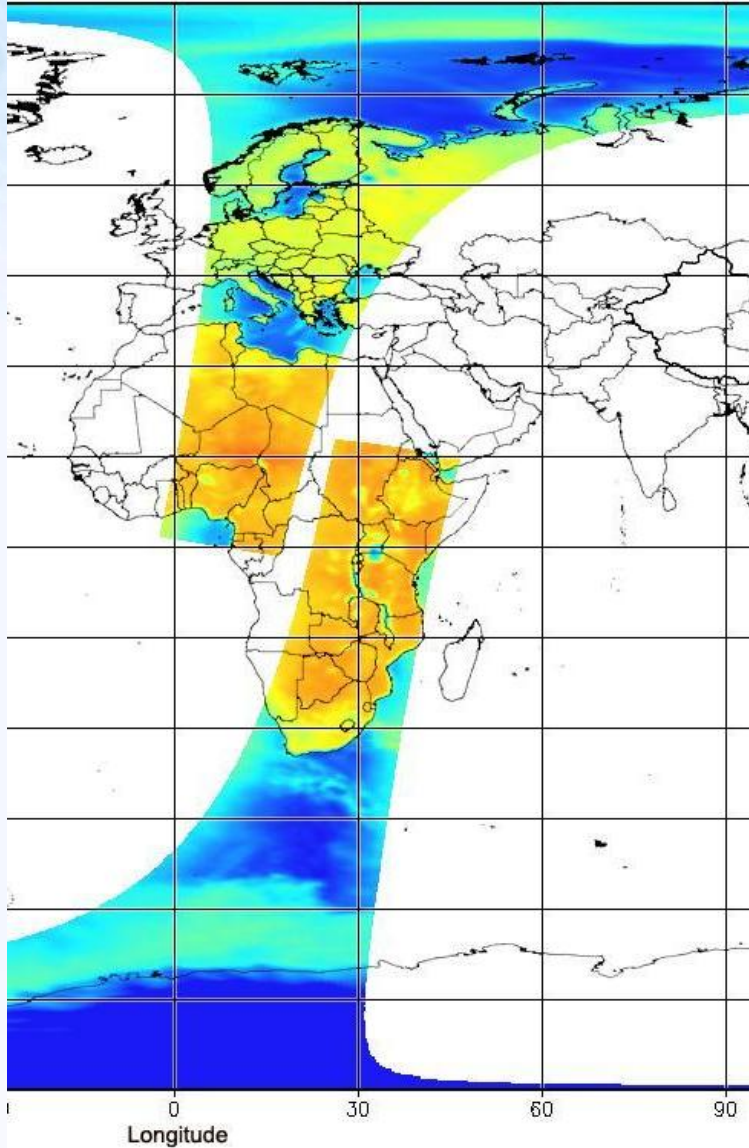
1500 UTC 2025-10-06 to 0000UTC 2025-10-07



Prognosis of lightning flash intensity in the Lake Victoria Basin  
18.00 UTC October 6th to 00.00UTC October 7th

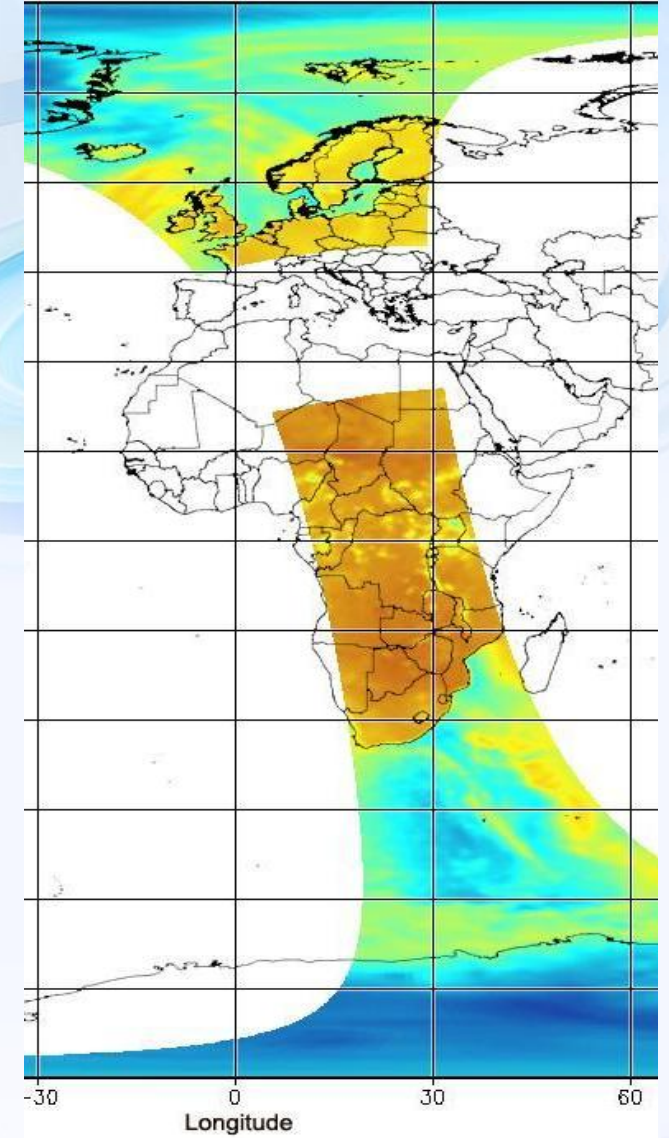


CH.1 50.37 GHz 20251006 00:58



The Swaths of Africa  
covered by Fengyun -  
3D MWHS-2

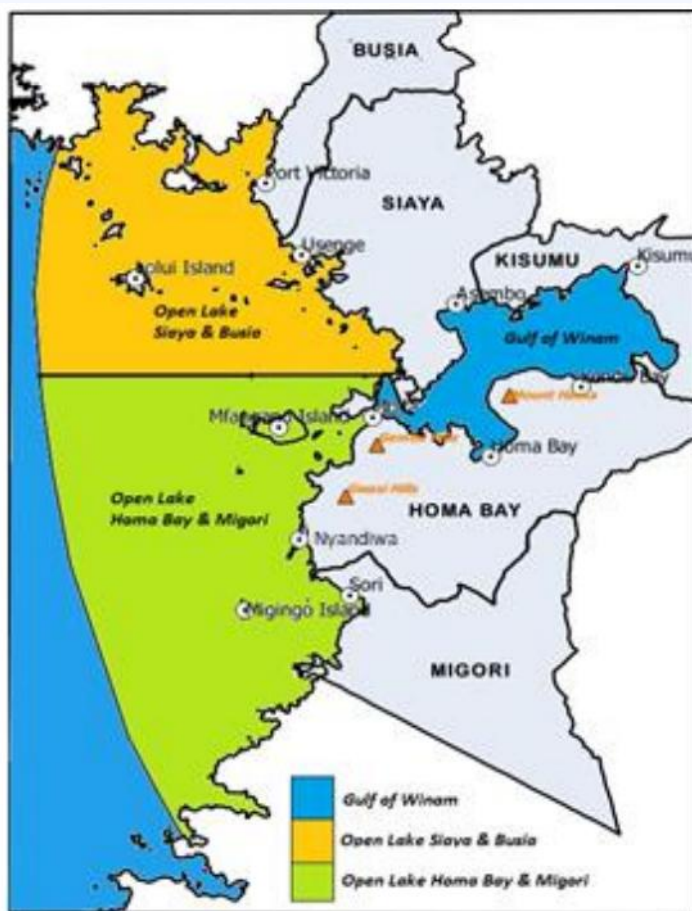
3D MWHS CH.1 20251006 12:48







**REPUBLIC OF KENYA**  
**MINISTRY OF ENVIRONMENT AND FORESTRY**  
**KENYA METEOROLOGICAL DEPARTMENT**  
**24-HOUR FORECAST FOR FISHERMEN ON LAKE VICTORIA**  
**ISSUED AT: 14.00 EAT ON MONDAY 6<sup>TH</sup> OCTOBER, 2025**



- The intense thunderstorms forecast were identified as posing a threat to small craft on Lake Victoria
- KMD issued an advisory, urging fishermen in the Kenyan sector of the lake to remain onshore or return to shore immediately.

# Persistent Challenges

# Solutions

- Predicting sudden wind and waves.
- Tracking dangerous waterspouts.
- Pinpointing lightning over water.
- Reaching every person in real-time.
- **Invest** in new technology.
- **Train** communities and forecasters.
- **Collaborate** across borders.
- **Protect** every human life.







# Thank you



REPUBLIC OF KENYA

KENYA

METEOROLOGICAL

DEPARTMENT

Promoting **safety, awareness, and climate resilience** in the  
Lake Victoria Basin