



**9TH RAI TRAINING COURSE ON TROPICAL
CYCLONES AND PUBLIC WEATHER SERVICES**

MONITORING OF TROPICAL CYCLONE IN MALAWI

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CLIMATE OF MALAWI

Malawi has sub-tropical type of climate

- Warm-wet season from November to April.
- Annual average rainfall varies from 725mm to 2,500mm
- A cool, dry winter season from May to August – Min. Temp. range > 4 - 10°C
Max. Temp .range > 17 - 27°C
- A hot, dry season lasts from September to October - Average Temp. > 25 - 37°C



Services provided

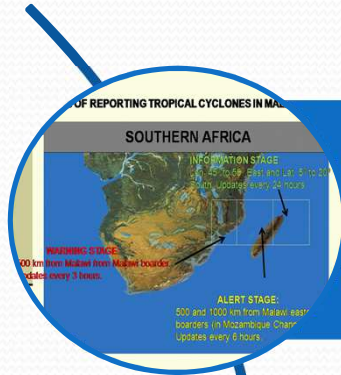
- Daily forecast bulletins
- Terminal aerodrome forecasts
- Five day weather forecasts
- Agro-meteorological bulletin
- Severe weather warning
- Seasonal forecasts
- Tailor made forecast products for private sector on request



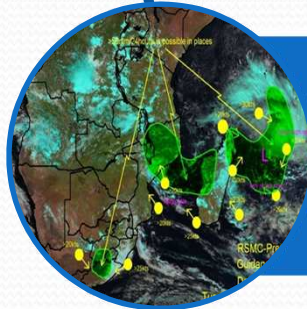
SEVERE WEATHER PHENOMENA EXPERIENCED IN MALAWI

- Heavy precipitation, Strong winds and flooding due to Tropical Cyclones
- Some of the floods are due to the presence of ITCZ coupled with moist and unstable Congo air mass (Triple point)
- strong south easterly winds over the lake is another severe weather that affects the fishing community

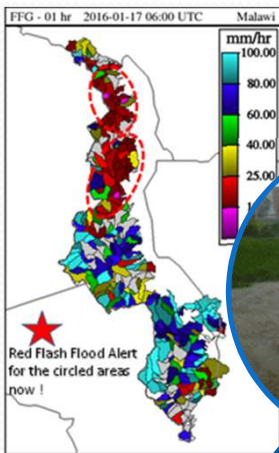
Severe Weather and Early Warnings



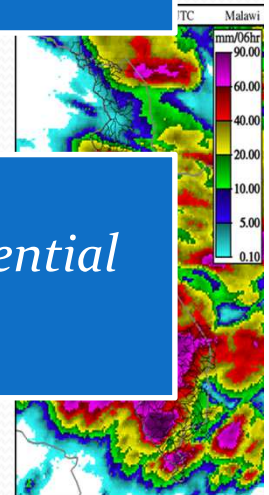
Tropical cyclone warnings



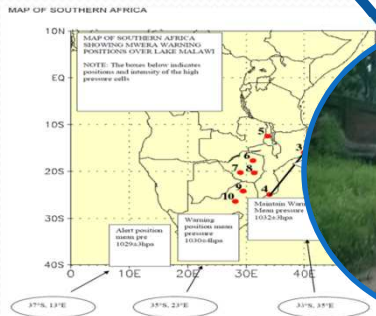
Heavy rains: *Hail storms, Torrential rains, Severe Thunderstorms*



Flash Floods and Drought severity



Severe Weather and Early Warnings



Strong winds: Mwera, Mpoto, Mvuma, wind gusts



Moist and chilly weather conditions (Chiperoni), and heat waves



Lightening threats

1st Block: Alert position; observe the system.
2nd Block: Warning position; issue the warning.
3rd Block: Maintain warning; when a high-pressure cell is within this region and onshore pressure gradient of ≥ 1 hPa/60km or more, strong winds will be experienced over the lake.



SEVERE WEATHER & EARLY WARNINGS ON TROPICAL CYCLONE

TOOLS FOR T/C MONITORING

The following products are used at the Malawi National Met Service:-

- Own surface weather chart analysis.
- Weather bulletins from RSMC- La Reunion Tropical Cyclone Centre.
- Satellite Imagery from Puma station.
- RSMC-Pretoria Guidance Forecasts
- NCEP Products.
- ECMWF Products- t/c strike prob, projected movement,



TROPICAL CYCLONE MONITORING STAGES

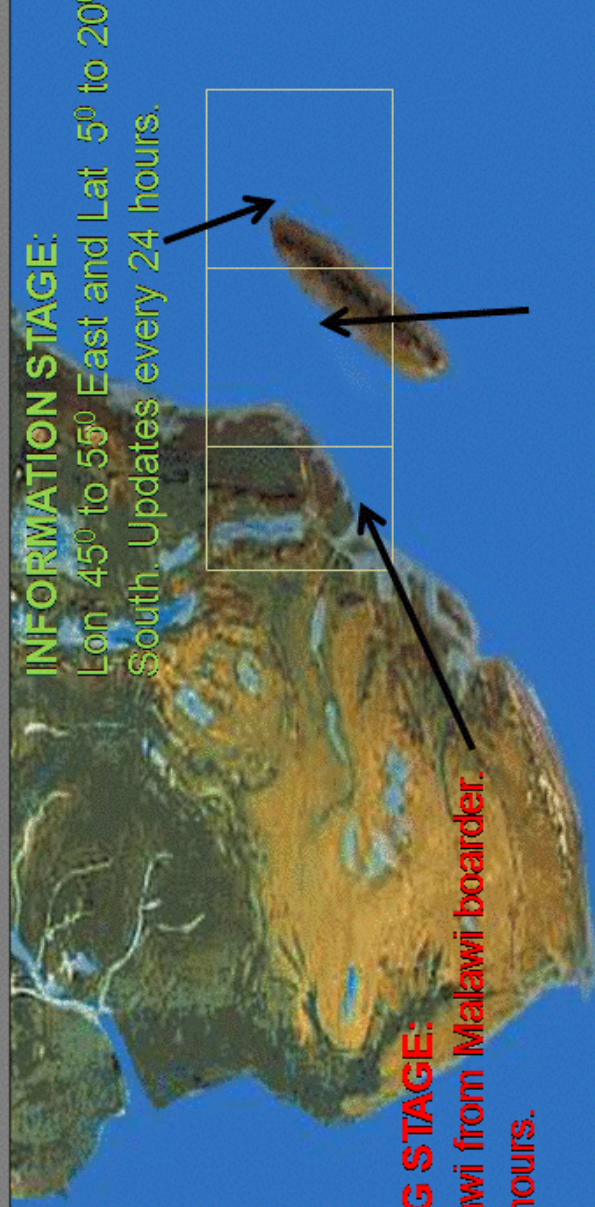
- INFORMATION STAGE
45 degrees to 55 degrees east and 5 degrees to 20 degrees south
- ALERT STAGE
 - Radius of 1,000km from Malawi boarder.
- WARNING STAGE
 - Radius of 500km from Malawi boarder.

SOPs OF REPORTING TROPICAL CYCLONES IN MALAWI

SOUTHERN AFRICA

INFORMATION STAGE:

Lon. 45° to 55° East and Lat 5° to 20° South. Updates every 24 hours.



WARNING STAGE:

500 km from Malawi from Malawi boarder.
Updates every 3 hours.

ALERT STAGE:

500 and 1000 km from Malawi eastern boarders (In Mozambique Channel)
Updates every 6 hours.



INFORMATION STAGE

At 45 deg. to 55 deg. east and 5 deg. to 20 deg. South and is issued every 24 hours.

The following are informed:-

- Director of Department of Climate Change and Meteorological Services
- Principal Secretary for Natural Resources, Energy and Mining .
- Commissioner for Department of Disaster Management Affairs.
- Ministry of Water Development.
- Department of Civil Aviation.

ALERT STAGE

Radius of 1000km from Malawi boarder & issued every 6 hours.

The following are informed:-

- Principal Secretary for Natural Resources, Energy and Mining
- All TV & Radio Stations.
- Office of President and Cabinet.
- Commissioner for Department of Disaster Management Affairs .
- Ministry of Water Development.
- Department of Civil Aviation and Airport operators
- Malawi defence Force and Malawi Police Services
- National Roads Authority and District Commissioners
- Electricity Supply Commission of Malawi.
- Water Boards



WARNING STAGE

- Radius of 500km from Malawi boarder &
- issued every 3 hours.
- The following are informed:-
- Principal Secretary for Transport and Public Works.
- Office of President and Cabinet.
- Commissioner for Department of Disaster Management Affairs .
- Ministry of Water Development.
- Department of Civil Aviation.
- Air craft operators.



WARNING STAGE CONT.

- Malawi defence Force.
- Malawi Police Service.
- National Roads Authority.
- District Commissioners
- Electricity Supply Commission of Malawi.
- Ministry of Agriculture, Irrigation and Food Security.
- Executive Officer of Malawi Telecommunication Ltd.
- All TV & Radio Stations
- Ministry of Information.



WARNING STAGE Cont.

- The Director of Airtel.
- The Director of Telecommunication Networks.
- The Director of Malawi Broadcasting Corporation both Radio and Television Stations.
- The Director Red Cross.
- Ministry of Health.
- The General public through Media including social media



Effects of Tropical Cyclones on Malawi Weather

The tropical cyclones that form in the Mozambique Channel or over the South West of Indian Ocean and propagate westwards, do either directly or indirectly affect Malawi. The tropical storms can either enhance rainfall which could trigger floods or prolonged dry spells depending on their positions in the Mozambique Channel.



Thank you for your attention