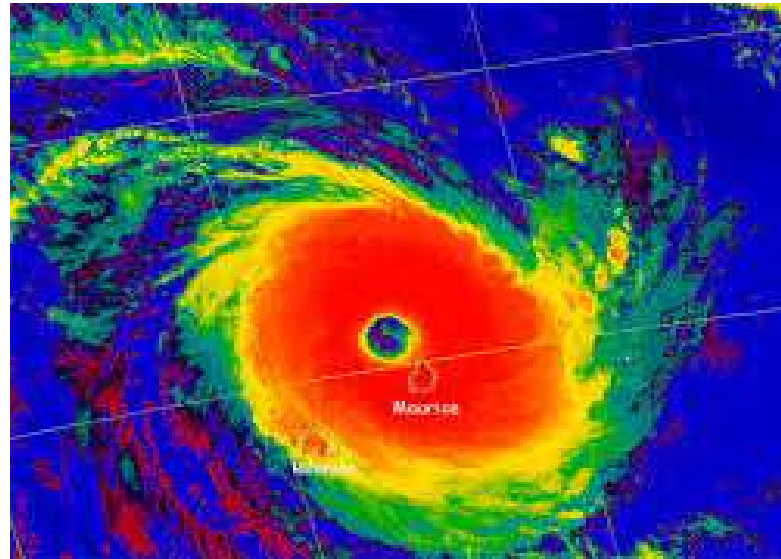


9th International Training Course on Tropical Cyclones and Public Weather Services



Monitoring of Tropical Cyclones in the Republic of Mauritius

Krisna BUCHA

Senior Meteorologist

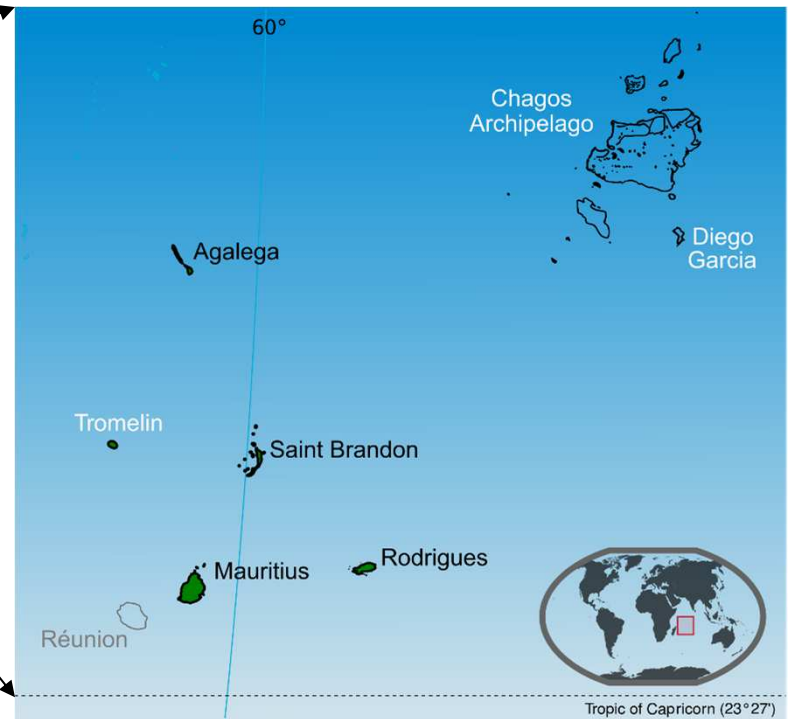
Mauritius Meteorological Services

05 November 2019

OUTLINE

- Introduction
- Climate of Mauritius
- Overview and functions of the MMS
- Severe weather affecting Mauritius
- Tropical Cyclone Warning System

Republic of Mauritius



- Rep of Mauritius Includes the island of Mauritius, Rodrigues, the island of Agalega, and St. Brandon.
- Sovereignty: Chagos Archipelago and Tromelin
- Area: 2040 Sq Km (EEZ: 1.9 million Sq Km)
- Capital city: Port-Louis.
- Population: 1,261,208 (July 2014 estimate).

CLIMATE OF MAURITIUS

- Mauritius enjoys a mild tropical maritime climate throughout the year.
- Two seasons: Warm humid summer (Nov to April) / Mean Temperature: 24.7 deg C
Cool dry winter from (June to Sep) / Mean Temperature: 20.4 deg C
- Long term mean annual rainfall (1971-2000) over the Island is 2010 mm.
- The wettest months are January, February and March. The driest month is October.
- Mean summer rainfall (1971-2000) is 1344 mm, which is 67% of the annual amount over the Island.
- Mean winter rainfall (1971-2000) is 666 mm.
- The Island receives 6.5 to above 8 hours of bright sunshine daily.

ORGANIGRAM OF THE MAURITIUS METEOROLOGICAL SERVICES (MMS)

MINISTRY OF SOCIAL SECURITY, NATIONAL SOLIDARITY AND ENVIRONMENT AND SUSTAINABLE DEVELOPMENT (Climate Change Division)

DIRECTOR MMS
Director

DEPUTY DIRECTOR APPLIED METEOROLOGY
Deputy Director

AMHR
AMHR

DEPUTY DIRECTOR OPERATIONAL METEOROLOGY
Deputy Director

DIV METEOROLOGIST (Applied)
DM

PROCUREMENT AND SUPPLY UNIT
MPS
AMPS
PSO/SPO

FINANCE DIVISION
PFOO
AFO MSO

REGISTRY
OMA
MSO
HOA
OA/SOA

HUMAN RESOURCE DIVISION
HRE
CS OMA
MSO WPO
RTO

DIV METEOROLOGIST (Ops)
DM

TELECOMMUNICATION ENGINEER
TE/STE

METEOROLOGISTS
M/SM

CHIEF METEOROLOGICAL TECHNICIAN

METEOROLOGISTS
M/SM

CHIEF METEOROLOGICAL TELECOMMUNICATIONS TECHNICIAN

DEPUTY CHIEF METEOROLOGICAL TELECOMMUNICATIONS TECHNICIAN

CLIMAT PMT SMT MT/TMT	AGRO PMT SMT MT/TMT
HYDRO PMT SMT MT/TMT	MARINE PMT SMT MT/TMT
PUBLICATIONS & STUDIO PMT SMT MT/TMT	INSTRUMENTS PMT SMT MT/TMT
	D.A. & ENVIRONMENT & TRANSPORT SECTION PMT SMT MT/TMT Drivers Security Guards General workers

MMO PMT SMT MT/TMT	AGALEGA MET STATION SMT MT/TMT
PLAISANCE AERONAUTICAL MET STATION PMT SMT MT/TMT General worker	RODRIGUES MET STATION PMT
UPPER AIR SECTION PMT SMT MT/TMT	ST. BRANDON MET STATION SMT MT/TMT

UPPER AIR SECTION DOPPLER RADAR AT TAC COMMUNICATION OUTER ISLANDS. MARINE ELECTRONICS PMTT SMTT MTT	AUTOMATIC WEATHER STATION PMTT SMTT MTT
MMO INFORMATICS & TRAINING CENTRE PMTT SMTT MTT	ELECTRICAL HYDROGEN POWER GENERATORS UPS SYSTEM PMTT SMTT MTT
	IT APPLIED ADMINISTRATIVE SECTION LAN ROOM PMTT MTT SMTT

METEOROLOGICAL STATIONS

The HQ, the MMO, the CWC and the RMTRC are located at Vacoas.



MMS HQ, Vacoas



Observation plot at Vacoas

Doppler Radar Station at Trou aux Cerfs



Doppler Radar at Trou aux Cerfs

METEOROLOGICAL STATIONS (Cont...)

➤ Meteorological and wireless transmitting and receiving stations:

- Agalega, North Island.
- Pointe Canon and Plaine Corail, Rodrigues
- St. Brandon



Pointe Canon

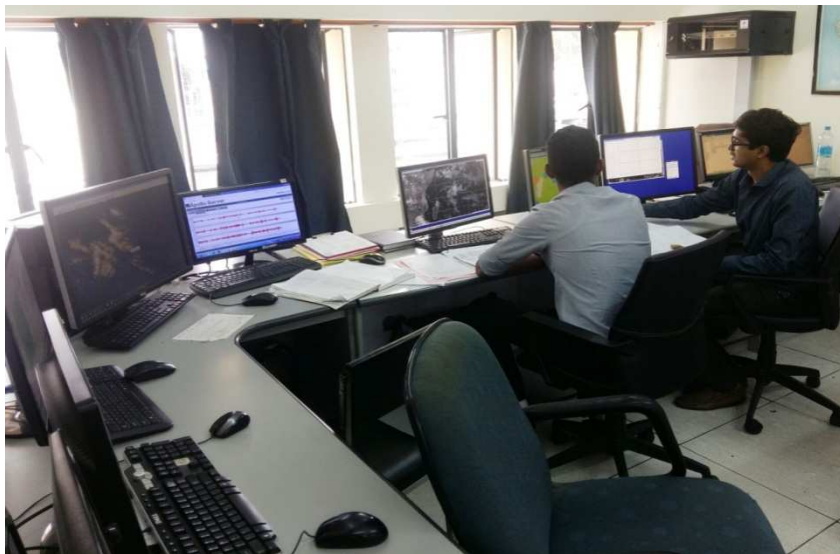
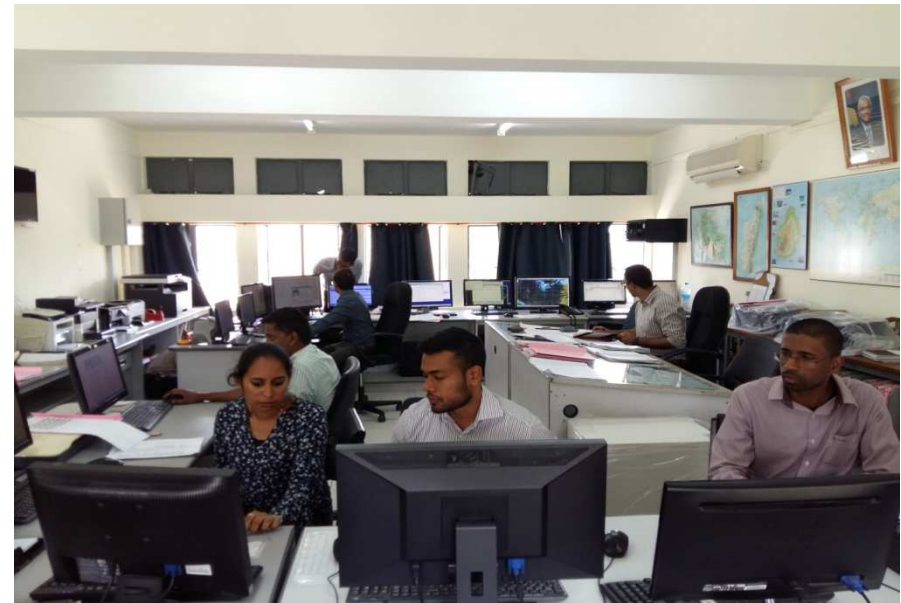


Agalega



St Brandon

Cyclone Warning Centre – MMS HQ, Vacoas



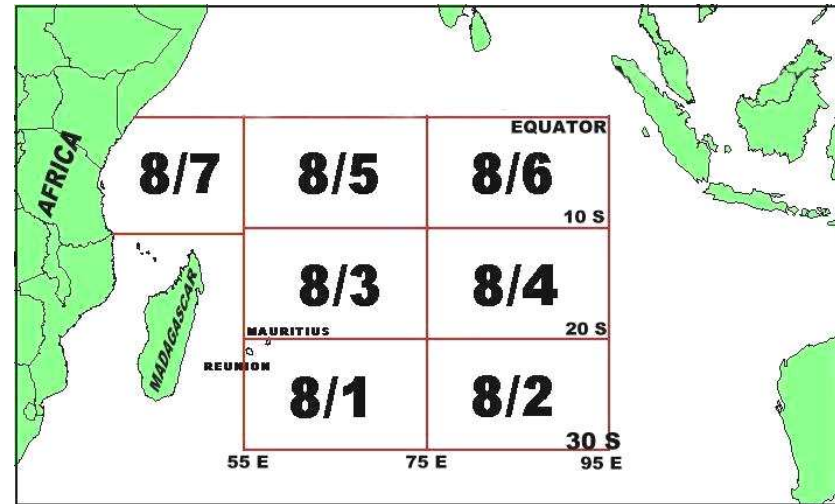
OPERATIONAL SERVICES



Main Services of the MMS

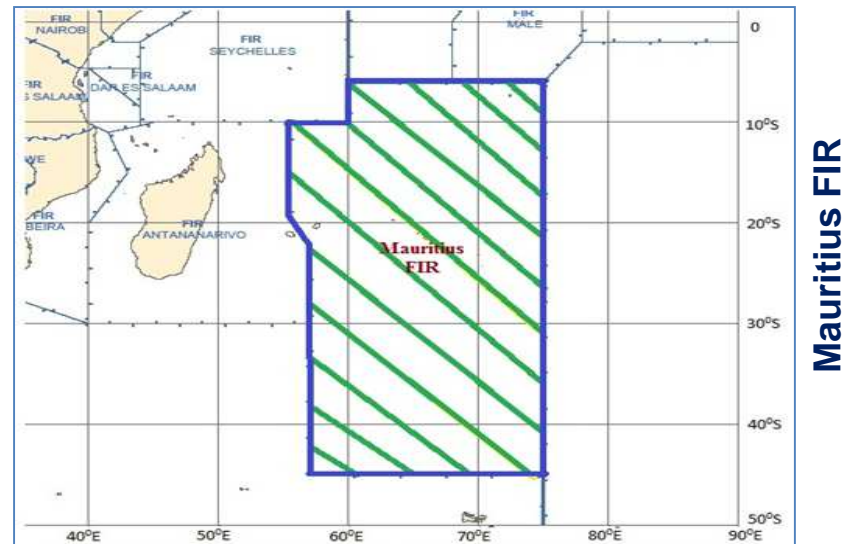
OPERATIONAL SERVICES (Cont...)

- The MMS has the responsibility to issue weather and sea forecast for the high seas in Met Area VIII (S). Weather and sea forecasts are issued for the region bounded by the Equator and latitude 30° S and from longitude 55° E to 95° E under the framework of Global Maritime Distress Safety System (GMDSS) at 0115 and 1315 UTC.

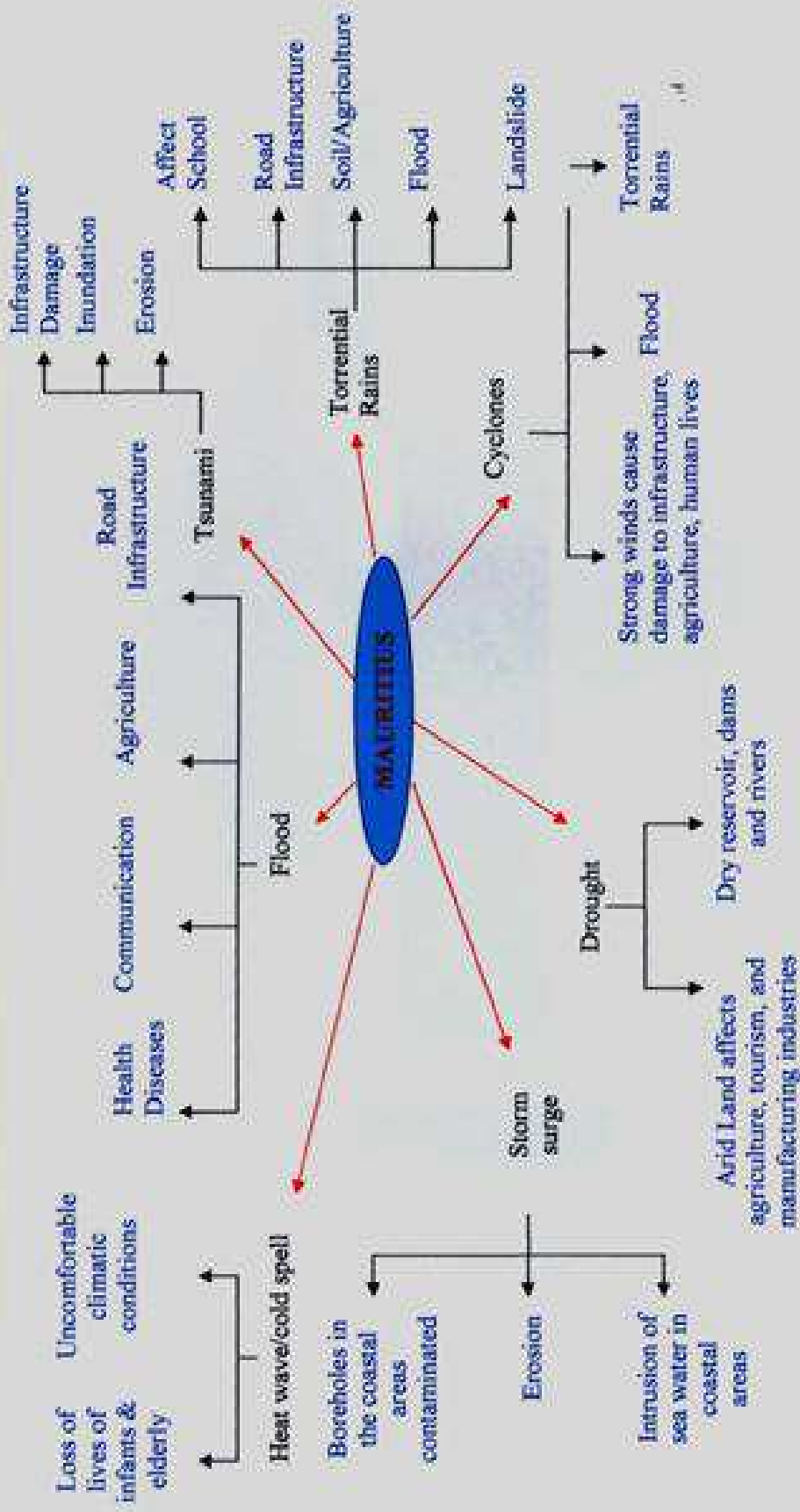


Met Area VIII (S)

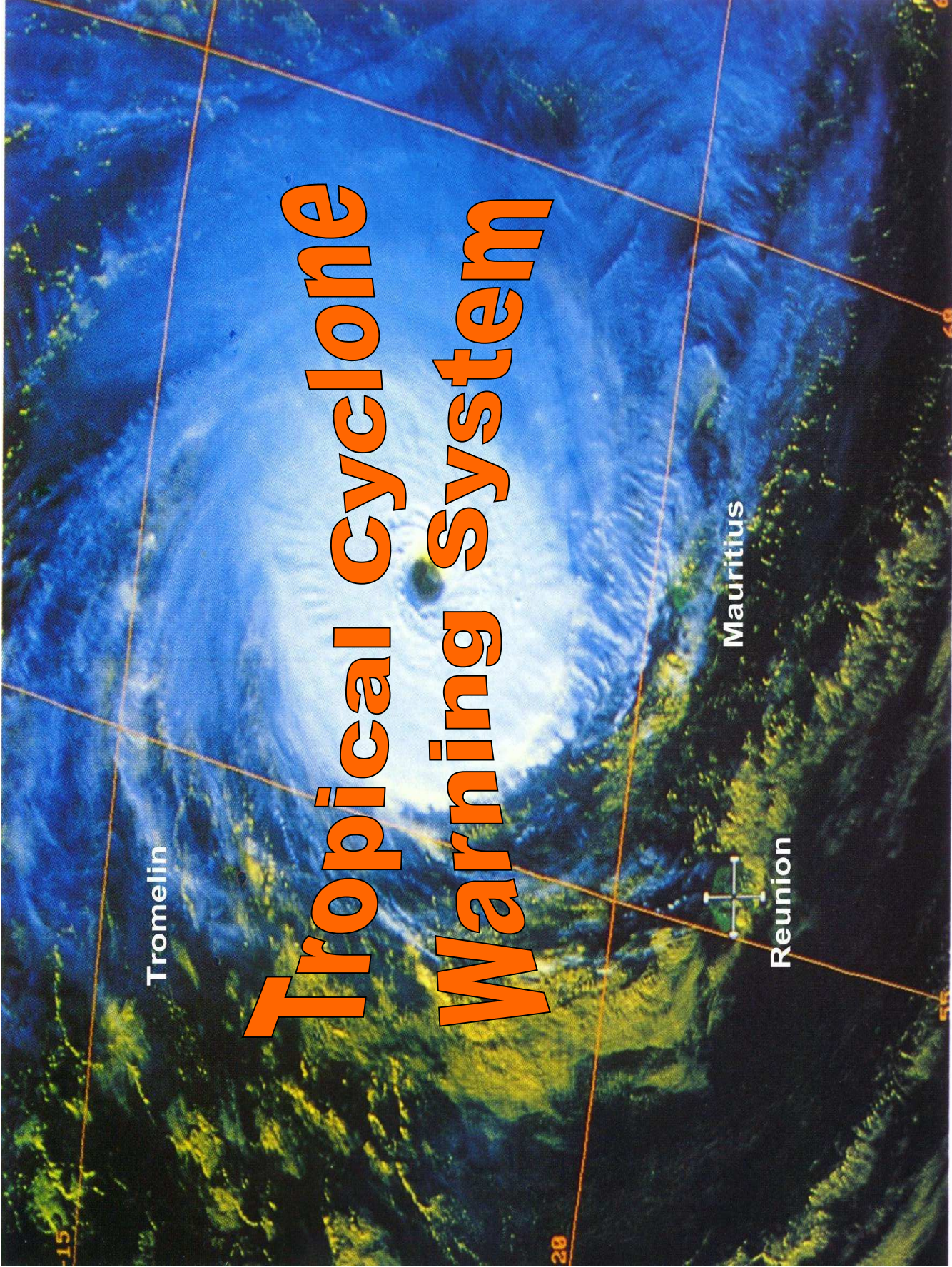
- TAFs, SIGMETs and other meteorological information are provided to aircrafts operating in the Mauritius FIR.



Natural Disasters affecting Mauritius



Early Warning of these events allow decision makers to take appropriate steps towards mitigation



Tropical cyclone Warning system

Tromelin

Mauritius

Reunion

15

20

55

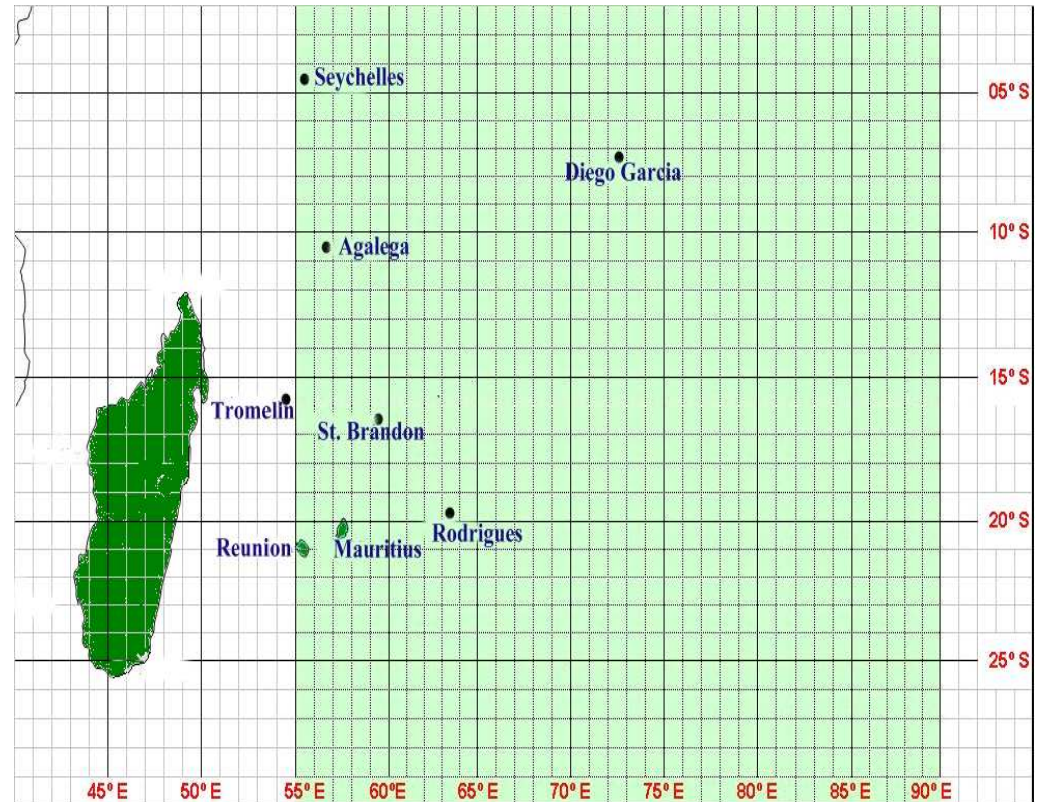
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Naming of tropical storms in the SWIO Basin

Mauritius is responsible for naming storms forming in the region lying between longitude 55 E and 90 E.

Madagascar is responsible for the region west of longitude 55 E

The Australian Bureau of Meteorology for the region east of 90 E.

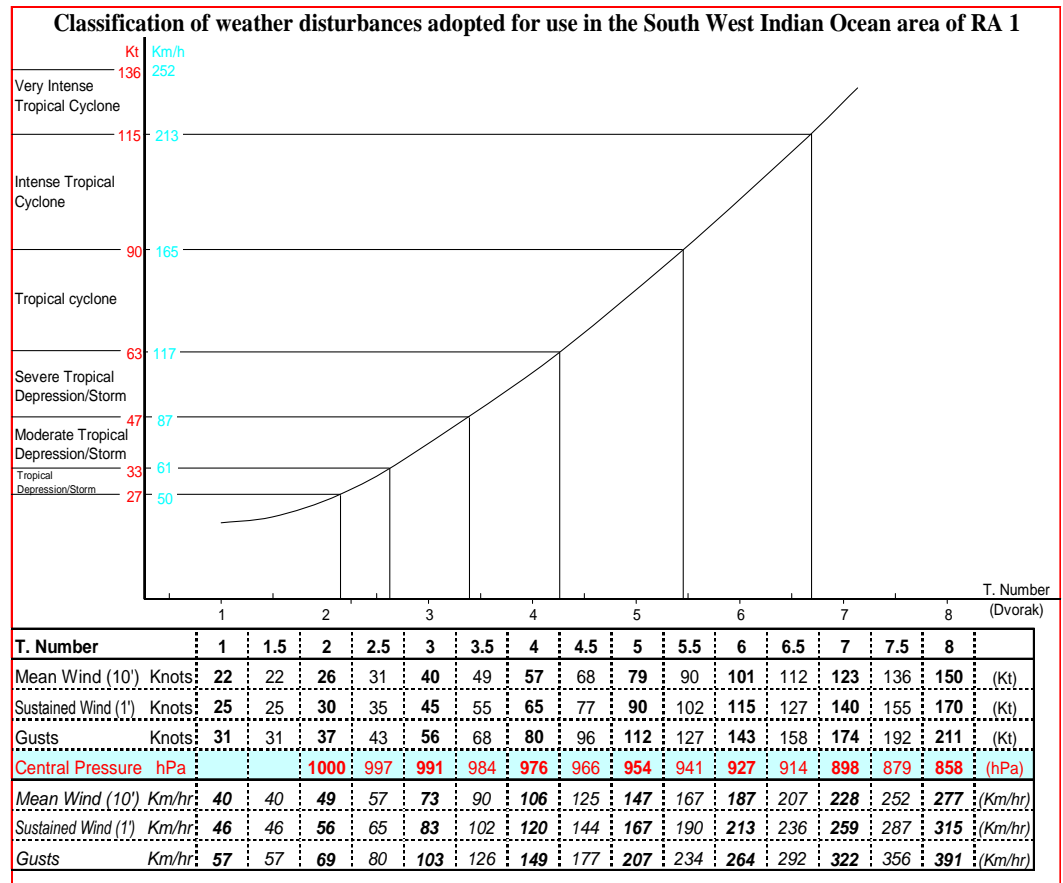


EQUATOR to 30° S
55° to 90° E

Classification of storms in SWIO

**Southwest Indian Ocean
Tropical Cyclone Intensity Scale**

Category	Sustained winds
Very Intense Tropical Cyclone	>115 kt >212 km/h
Intense Tropical Cyclone	90–115 kt 166–212 km/h
Tropical Cyclone	64–89 kt 118–165 km/h
Severe Tropical Storm	48–63 kt 89–117 km/h
Moderate Tropical Storm	34–47 kt 63–88 km/h
Tropical Depression	28–33 kt 51–62 km/h
Tropical Disturbance	<28 kt <50 km/h



Tools for monitoring storms

- Surface weather chart analysis
- Upper air charts
- Satellite Analysis (Dvorak palette)
- NWP products (ECMWF, Meteo France, NOAA, JTWC)
- Cooperative Institute for Meteorological Satellite Studies (CIMSS)
- Bulletins from RSMC (AWIO, WTIO)

Preparedness before Cyclonic Season.

Conduct wide sensitization programmes targeting the community, schools, elderly, and other identified as vulnerable to cyclones through MMS website, TV, radios and press in collaboration with the NDRRMC, GIS and MBC.

Approach of a Cyclone

- (i) Activate protocol for Cyclone Warning System.
- (ii) Issue and distribute regular Cyclone Bulletins (English, French, Creole) to all stakeholders and the public.
- (iii) Issue special bulletins to General Manager O IDC, NCG and Disaster Management Coordinators in Agalega and St Brandon
- (iv) Issue Maritime Bulletins to the Mauritius Radio Services (MRS).

During a Cyclone






- (i) Continue to issue more regular bulletins (Class 1 & 2 every 6 hrs and Class 3 every 3 hrs) of the situation informing the public of the evolution of the cyclone.
- (ii) Regularly intervene on TV and Radios to provide real time information to the general public.
- (iii) Continue to issue bulletins to the NEOC, of real time situation, general forecasts and precautionary measures.

Aftermath of a cyclone

Issue termination bulletins as well as informing the public of the continuous risks and precautions to be taken in case of high gusts/heavy swells/ storm surges which may affect the islands.

THE WARNING SYSTEM (MRU & ROD)

4 CYCLONE WARNING CLASSES

	CLASS I	issued 36 - 48 hours before the occurrence of gusts of 120 km/hr.
	CLASS II	issued, as far as practicable, 12 hours of daylight before the occurrence of gusts of 120 km/hr.
	CLASS III	issued, as far as practicable, 6 hours of daylight before the advent of 120 km/hr gusts.
	CLASS IV	issued when gusts of 120 km/hr have been recorded and are expected to continue.
	TERMINATION	There is no longer any risk of gusts exceeding 120 km/hr.

DISSEMINATE BULLETIN TO:



BROADCASTERS

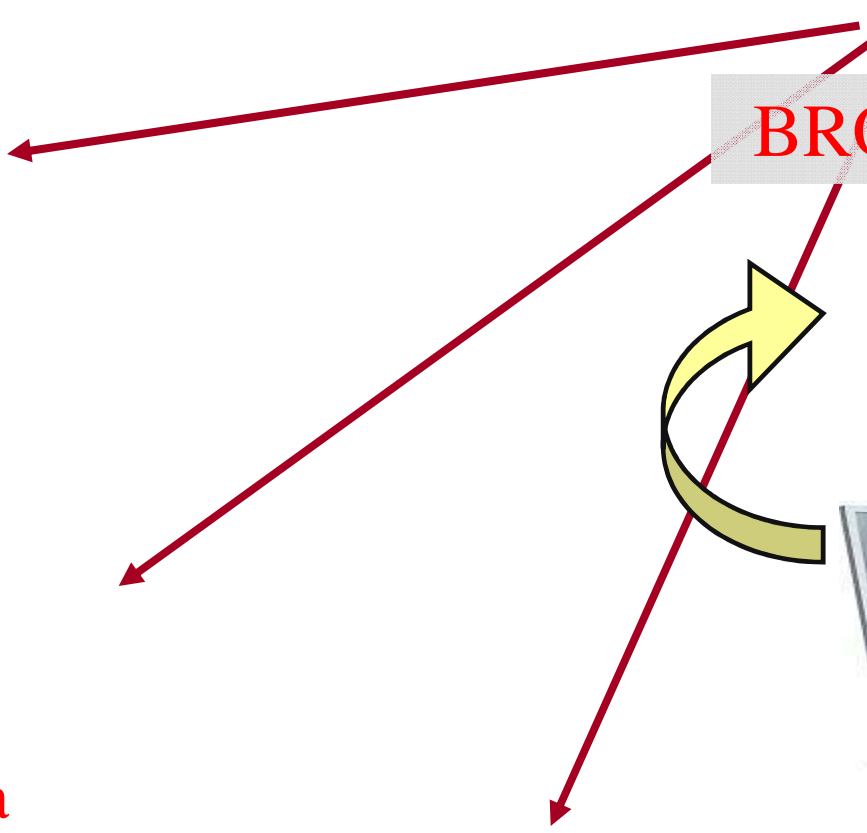


TV media

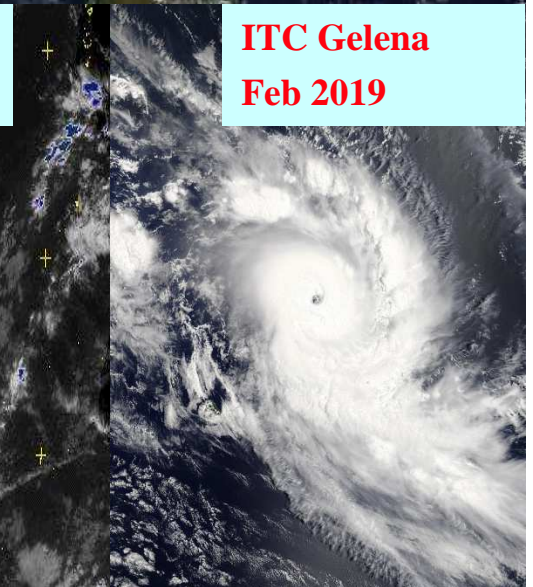
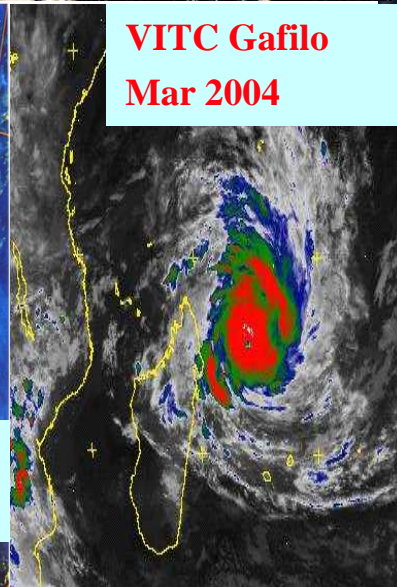
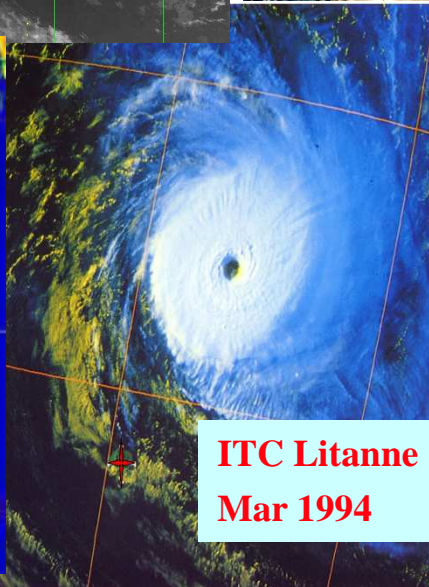
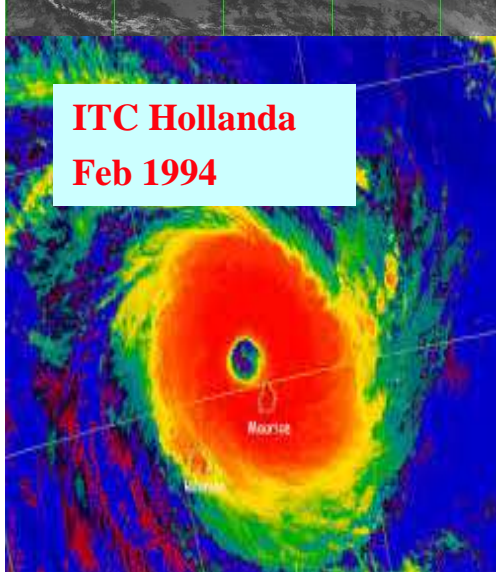
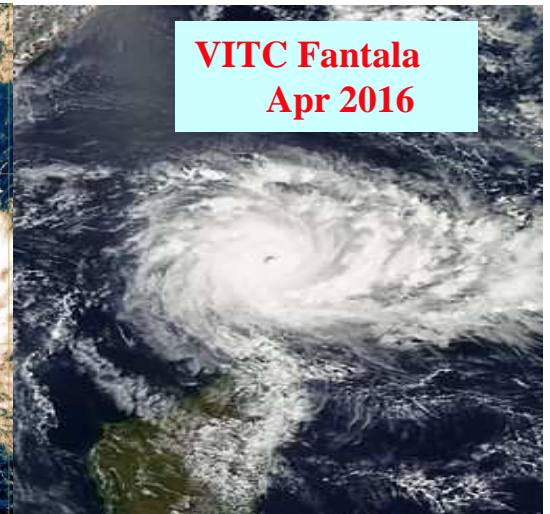
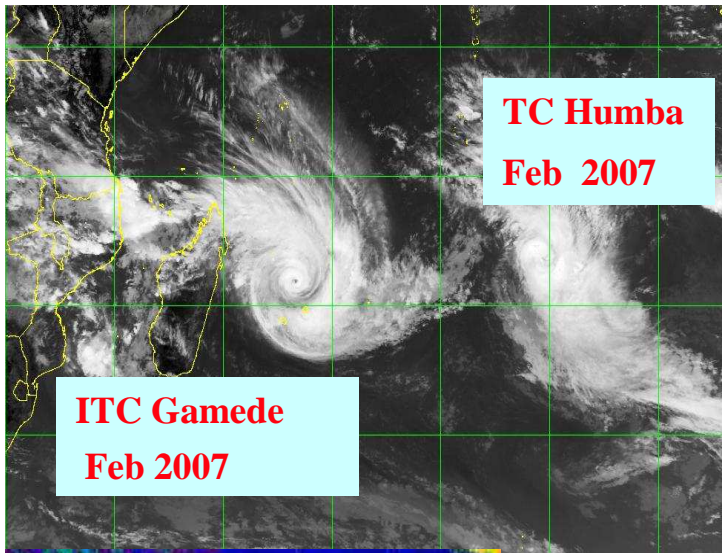


Radio media

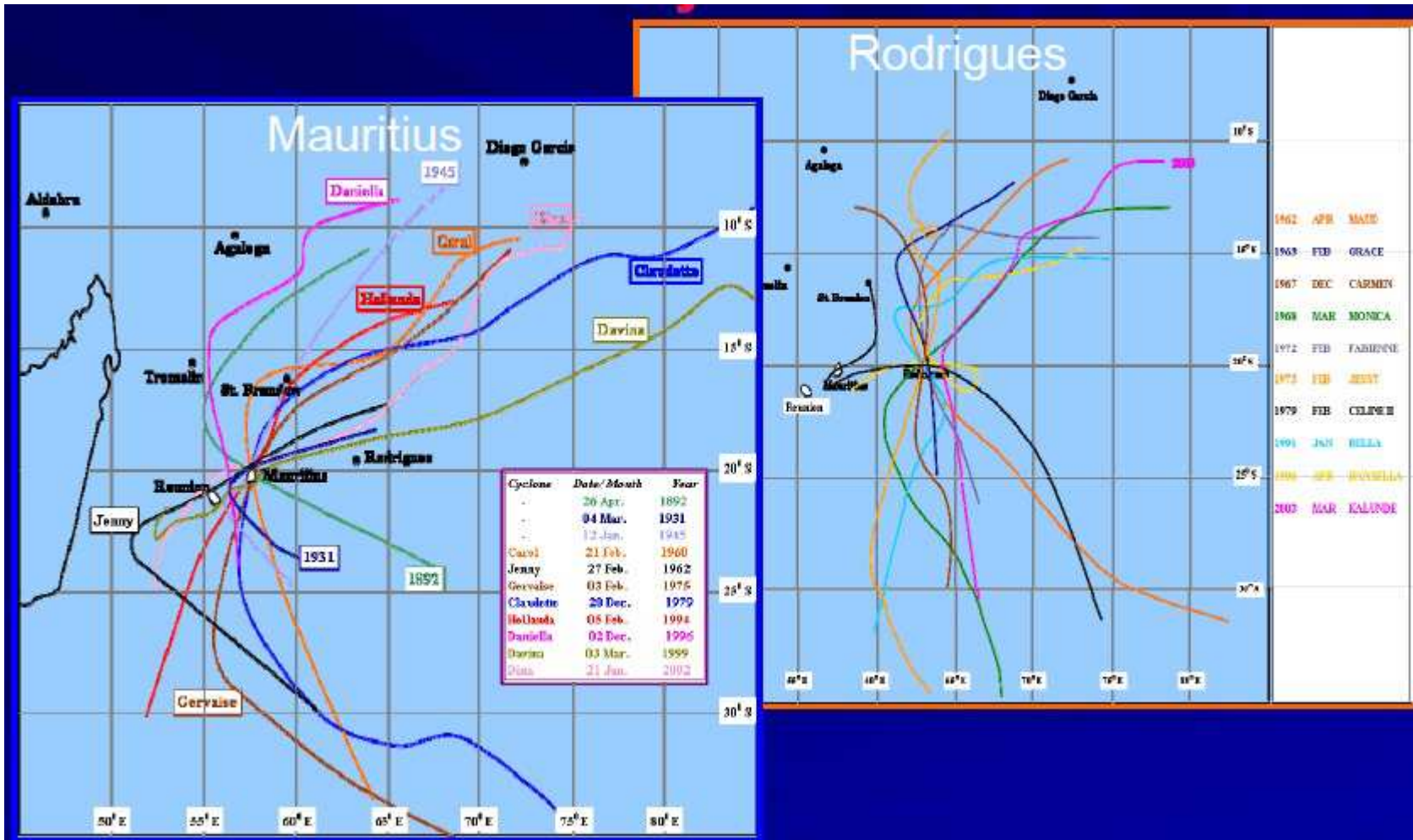
NDRRMC, Police,
Coasts Guards, etc



Some Intense Tropical Cyclones



LIST OF WORST CYCLONES



Thank You

Merci