



# METEOROLOGY IN GUYANA

Presented by  
Carshena Gordon  
Weather Forecaster



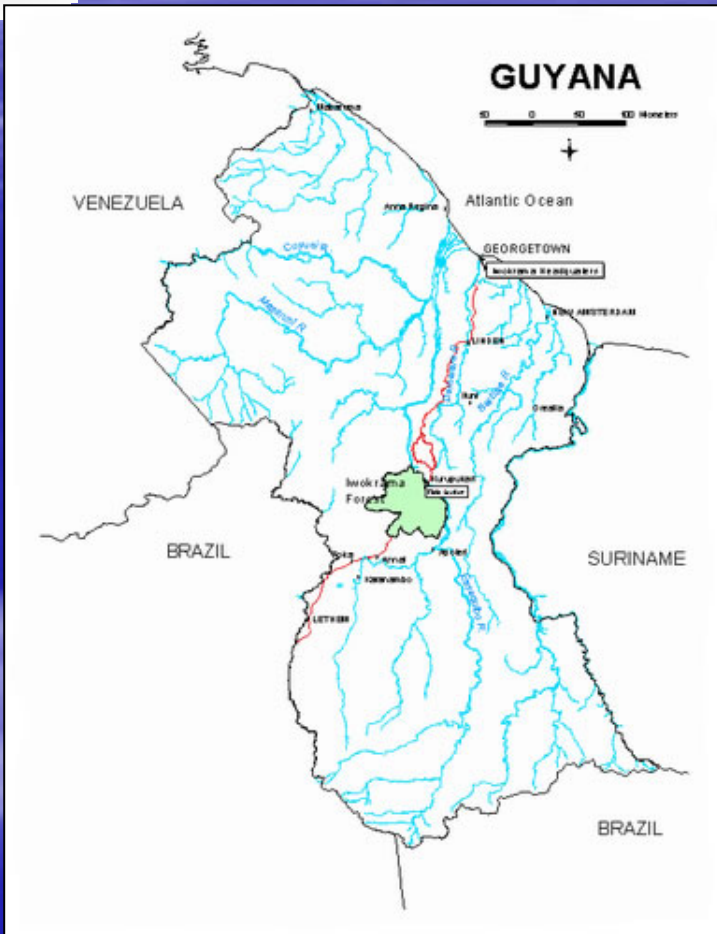
# Outline of Presentation

Overview of :

- Guyana's climate
- What affects our weather and climate?
- Extreme weather events
- The Hydrometeorological Service



# GUYANA – “Land of Many Waters”



Map showing the Rivers



Kaieteur Falls



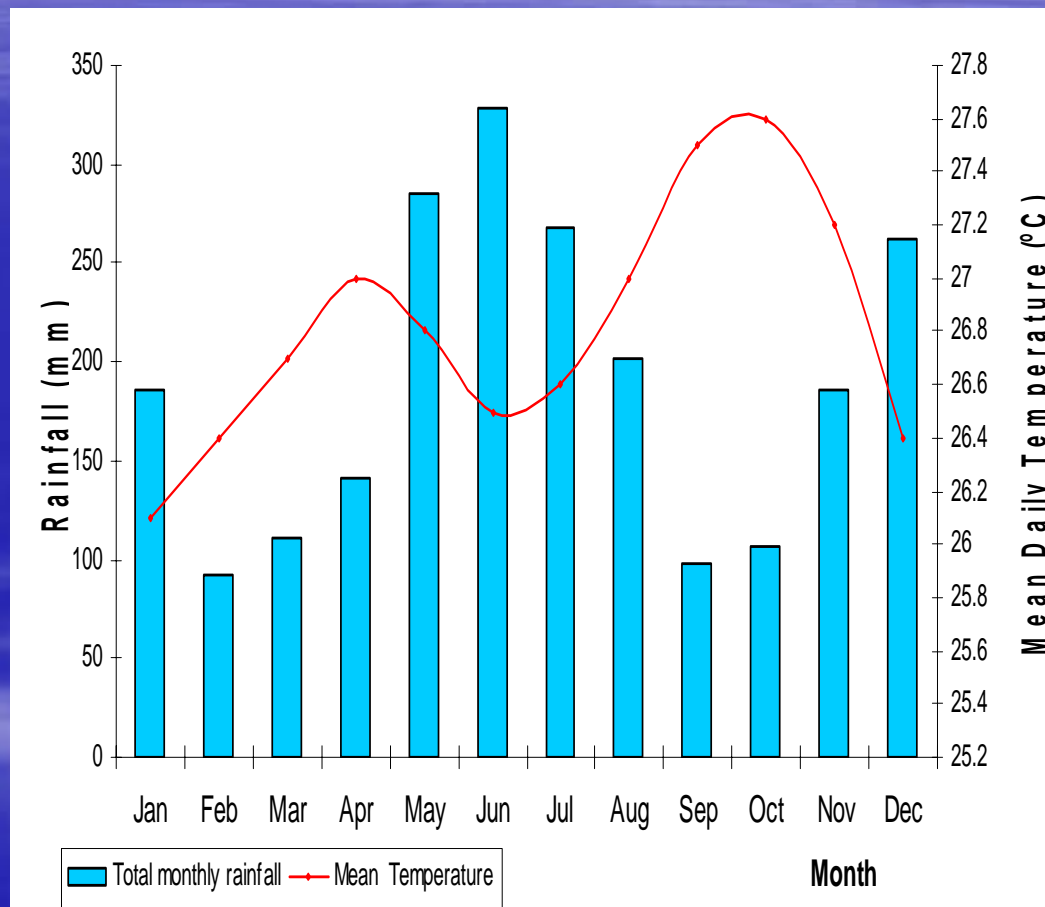
# What is Weather and Climate?

- *Weather* is the state of the atmosphere at a particular place and time.  
It is described by temperature, wind, pressure, rainfall, clouds, etc.
- *Climate* is the average weather condition that is experienced over a long period of time (usually over a 30 year period).
- *Weather* changes from day to day, but *climate* changes only over hundreds or thousands of years.



# Guyana's Climate

- An equatorial climate that is characterized by seasonal rainfall, high humidity and small variations in temperature.
- Most of Guyana has generally two peak rainfall seasons and two dry seasons.





# Weather and Climate in Guyana

## Wet Seasons

- There is a wet (rainy) season from May to July and a second from November to January. The first wet (rainy) season is longer and more intense in the Northern and Highland areas and is known as the *primary rainfall season* (“*May/June Rain*”).

## Dry Seasons

- The first dry season occurs from February to April and the second dry season occurs from August to October.



# Systems that influence Guyana's Weather

- The north-south movement of the **Inter Tropical Convergence Zone (ITCZ)** is mainly responsible for the annual cycle observed in Guyana's climatology. **ITCZ** is an area encircling the earth near the equator where winds originating in the northern and southern hemispheres come together.
- **Tropical waves, squall lines and troughs** can also contribute to occasions of intense rainfall in Guyana.
- **ENSO Events** – Guyana usually experience reduction in rainfall during El Niño events and heavy rainfall and flooding during La Niña events.



# El Niño - Southern Oscillation (ENSO)

- **El Niño** - refers to the unusual warming of the surface waters of the eastern tropical Pacific Ocean. It causes changes in wind patterns that have major effects on weather all across the globe.
- **La Niña** - refers to a widespread cooling of the surface waters of the eastern tropical Pacific Ocean. It's the opposite of El Niño.
- El Niño /La Niña usually occurs every 2 to 7 years.
- **El Niño/La Niña are classified as mild, moderate or strong.**



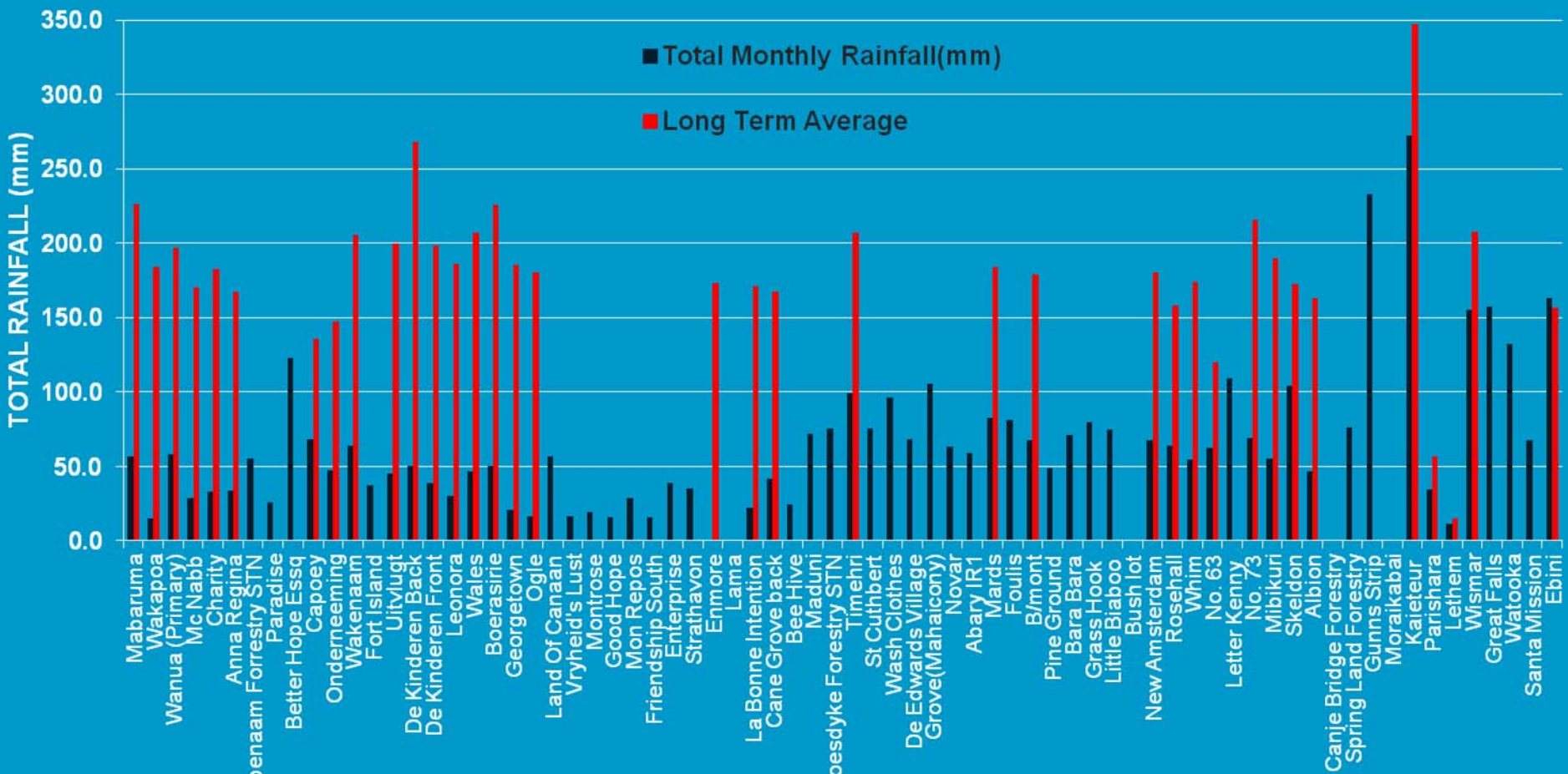


# Some impacts of El Niño in Guyana

- Reduced rainfall
- Reduced level of conservancies
- Agriculture affected
- Drought
- Insect pests (caterpillars, mealy bugs, fruit fly)
- Diseases (diarrhea, asthma)
- State of emergency (1997/ 1998 strong El Niño)
- Economic decline



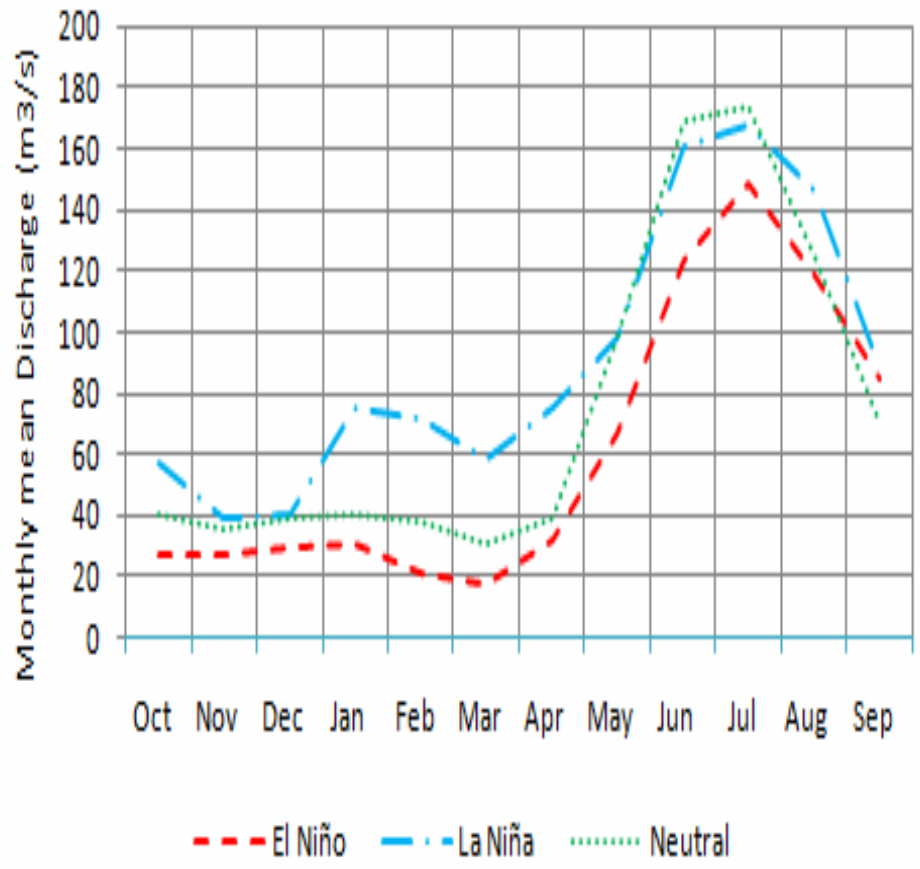
# COMPARISON OF JANUARY 2010 RAINFALL WITH LONG TERM AVERAGE (El Niño Phase)



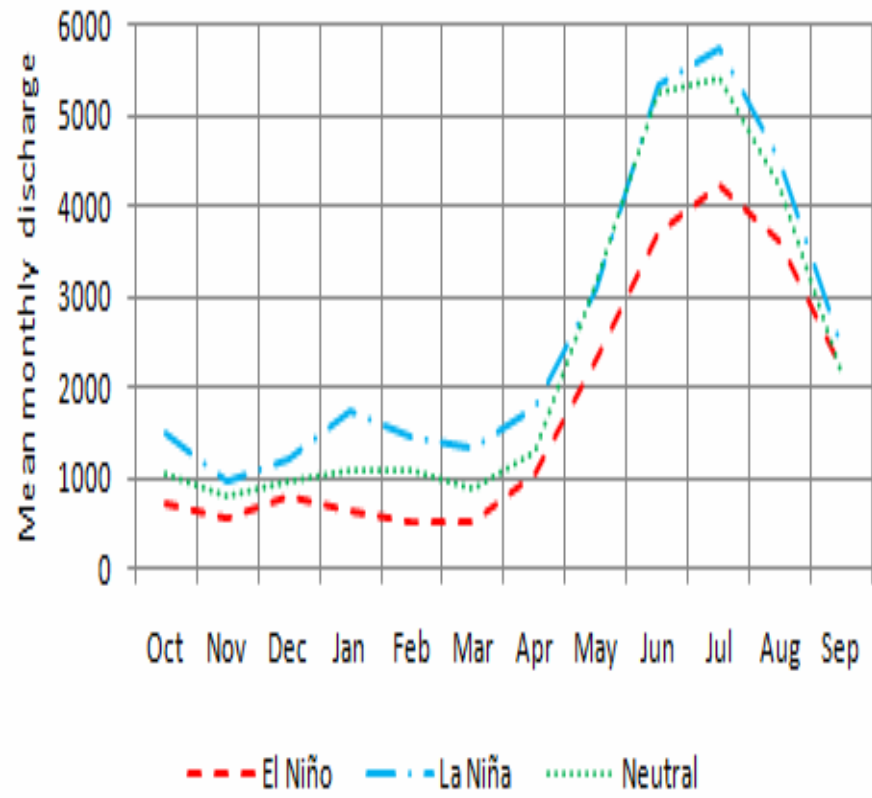


# Flow behavior of major rivers during El Niño / La Niña

Demarara River: Great Falls Stn. Discharge by ENSO Phase



Essequibo River: Plantain Island GD Stn. discharge by ENSO phase





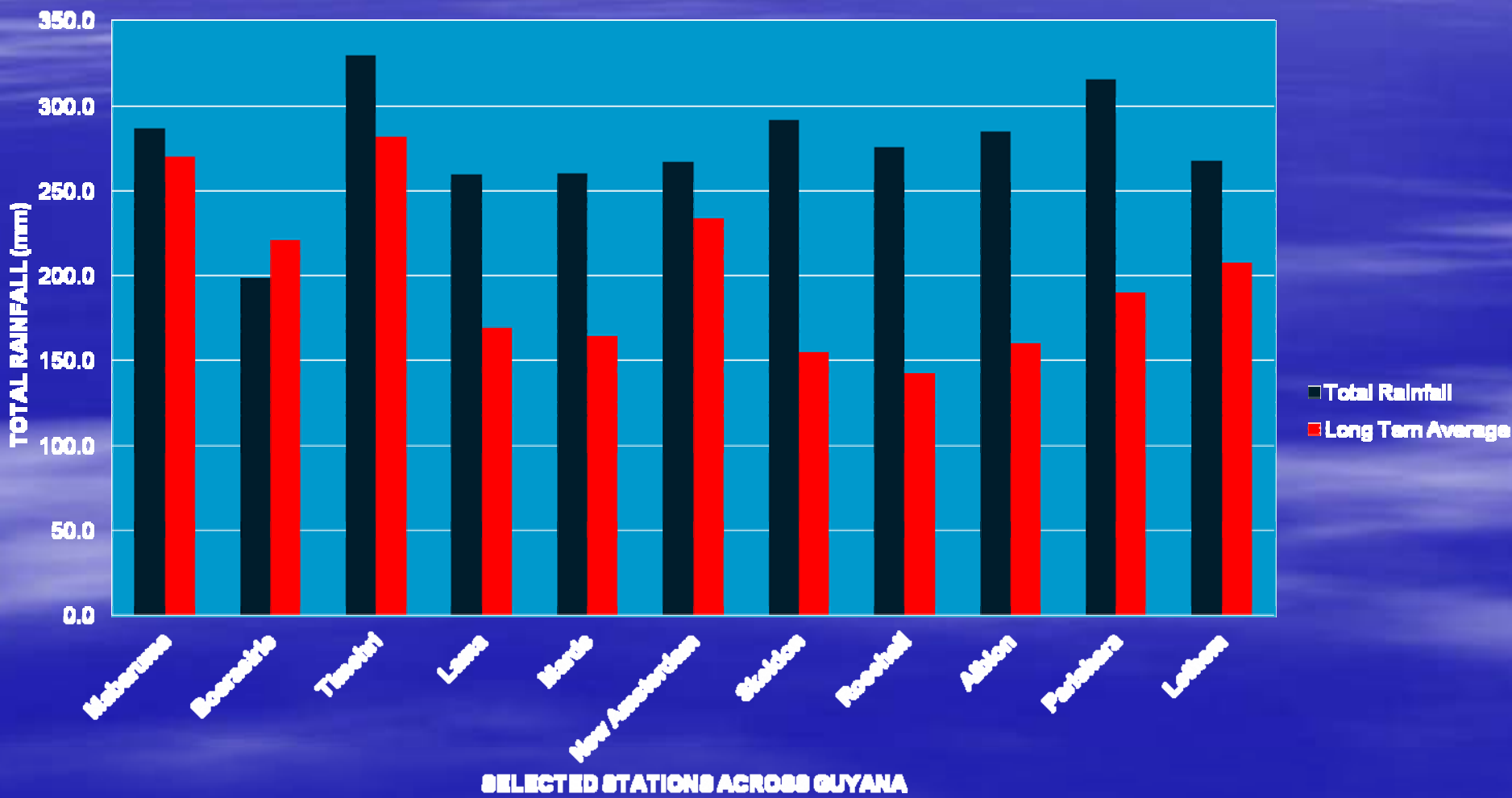
# Drought during El Niño

- Damaged cassava crops on a farm in Region 3 that was caused by the drought .





# COMPARISON OF AUGUST, 2010 RAINFALL WITH ITS LONG TERM AVERAGE (La Niña phase)





# Flooding of farms during La Niña



- Cash crops being destroyed by flooding during a La Niña phase.



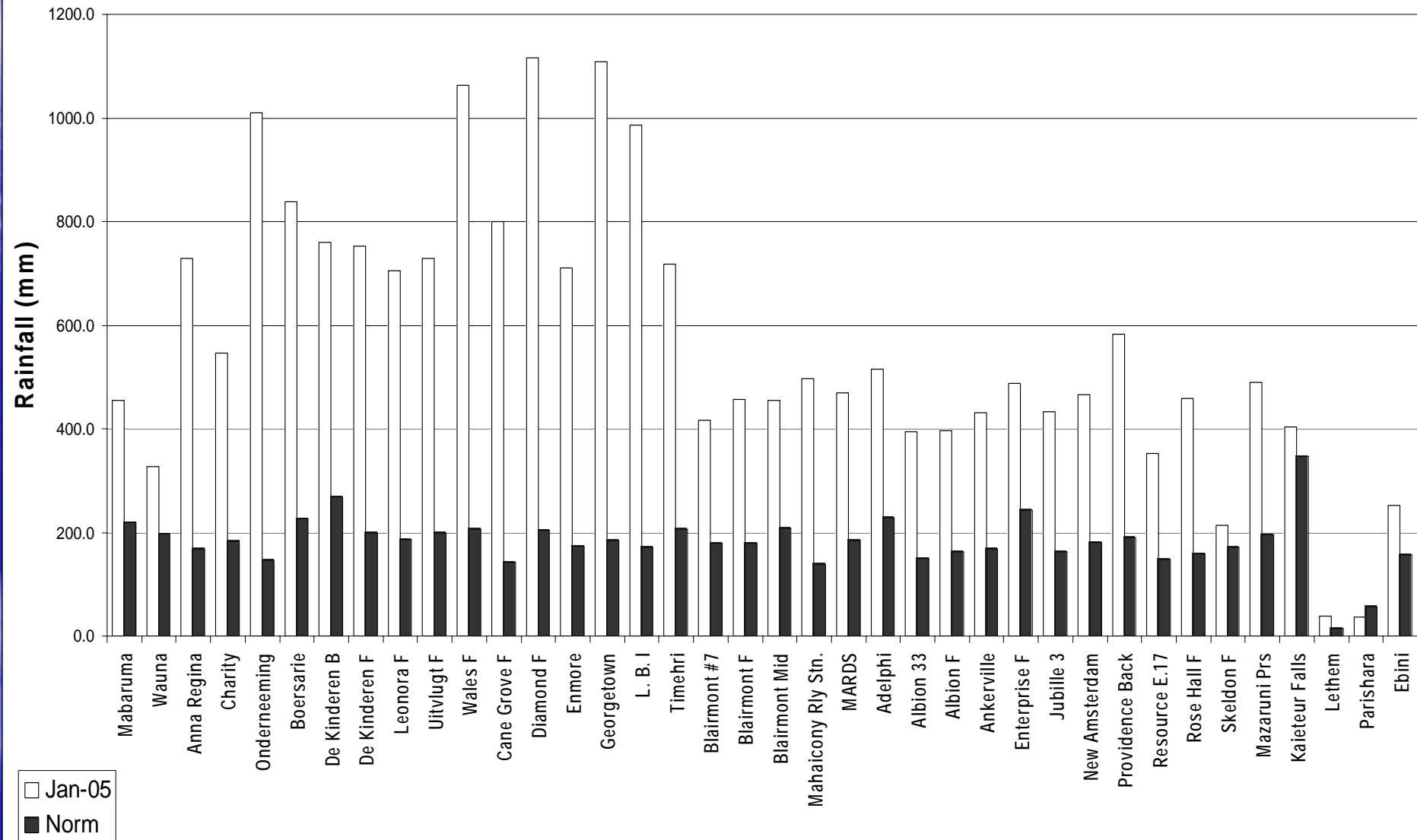
# Extreme weather events

- Intense and prolonged rainfall between January 14 to 22, 2005 led to the country's worst natural disaster.
- January, 2005 rainfall records surpassed 120 years of data.



Photo by Major Mike Charles [www.bryanmaxx.netfirms.com](http://www.bryanmaxx.netfirms.com) ©

# RAINFALL AND NORMAL FOR SELECTED STATIONS JANUARY 2005

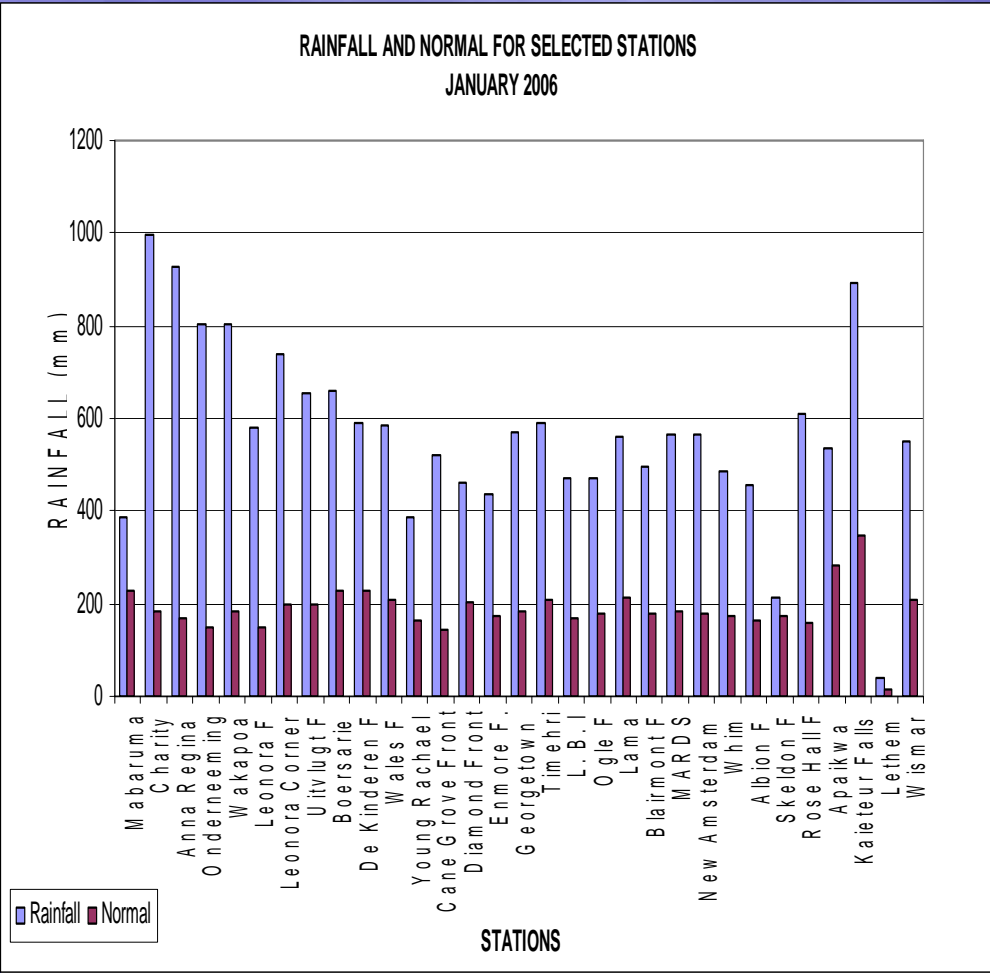






# Guyana Flood January, 2006

- Triggered by heavy rains
- Concentrated along the coast (*severely affected agricultural areas*)
- Farmers reported large numbers of cattle death
- Many citizens in the flood zone were displaced





# Seasonal Outlook...

- Mild La Niña conditions are prevailing and is expected to gradually strengthen and continue into 2012.
- Therefore, Guyana can expect normal to above normal rainfall in the coming months.



# THE HYDROMET. SERVICE

- Since the beginning of the modern era of societal and environmental management, knowledge of weather and climate is key to all aspects of human endeavors particularly agriculture
- Within this context the Hydrometeorological Service has been well positioned within the Ministry of Agriculture to identify and deal with a wide range of weather, climate and water related issues that affect agriculture and other socio-economic development
- With regard to natural hazards, the Service is tasked to sensitize the population to their impacts, provide warnings of individual events to preserve life and property, and to sustain productivity
- The Service is Guyana's authority on meteorological and hydrological issues.
- In addition, Hydromet is the focal point for the Vienna Convention and Montreal Protocol



# Structure

- Total Current staff is 55 ( 64.6% women, 35.4% men)
- Currently seven sections one of which is *Agriculture Meteorology*.
- Our stakeholders are mainly farmers, fishermen, students, engineers and during extreme weather events the entire the population!





# Current Meteorological and Hydrological Network

- 9 synoptic stations,
- 150 rainfall stations,
- 5 Climate Stations,
- 4 Automatic weather stations. (more being added)
- 29 hydrological stations
- One Doppler Weather Radar Monitoring Station



# WHAT IS AVAILABLE

## Weather Availability / Flow Data

### Daily

- ✓ Weather observations and reports.
- ✓ Weather, marine and winds forecast.

### WEEKLY

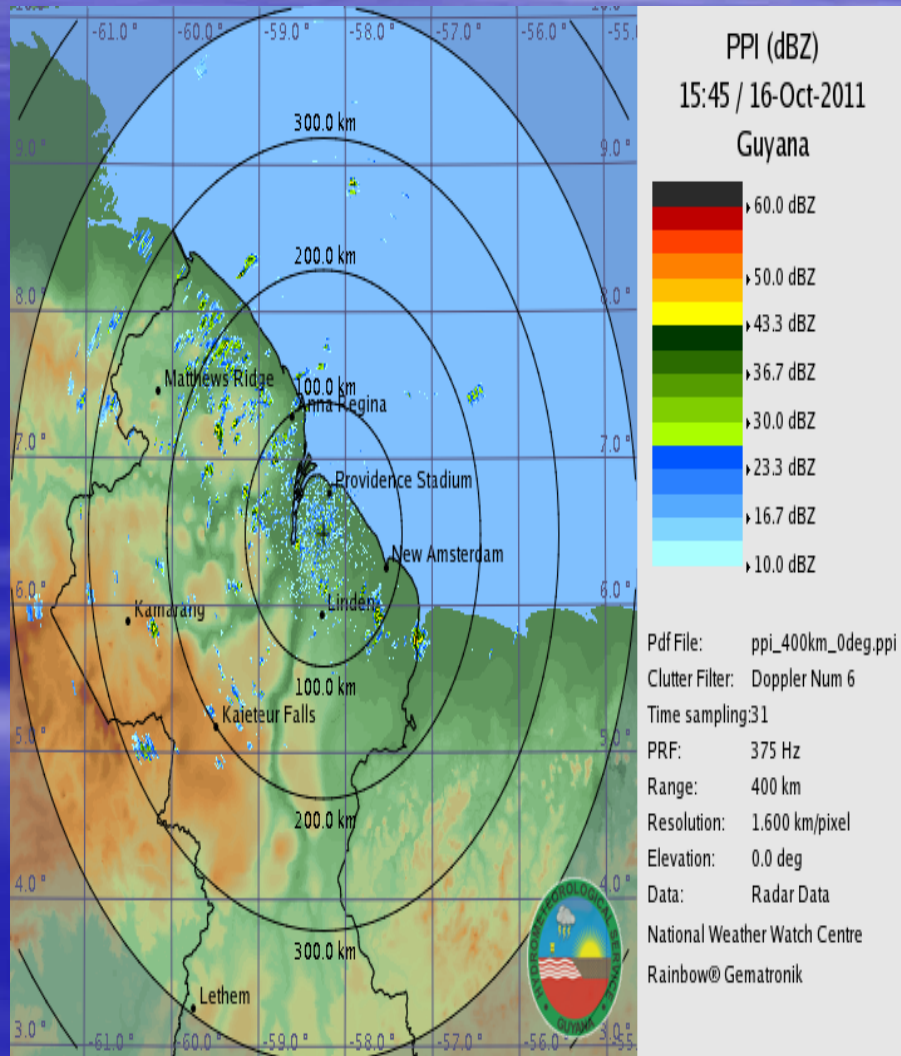
- ✓ Weather outlook for seven (7) days.

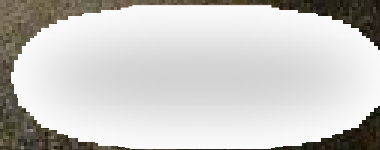
### Monthly

- ✓ Monthly weather summary prepared by the National Weather Watch Centre.
- ✓ Information is available in the form of precipitation outlook with SPI index as prepared by Caribbean Institute for Meteorology and Hydrology (CIMH).



# DOPPLER WEATHER RADAR





**Thank You!**

**Any Questions ?**