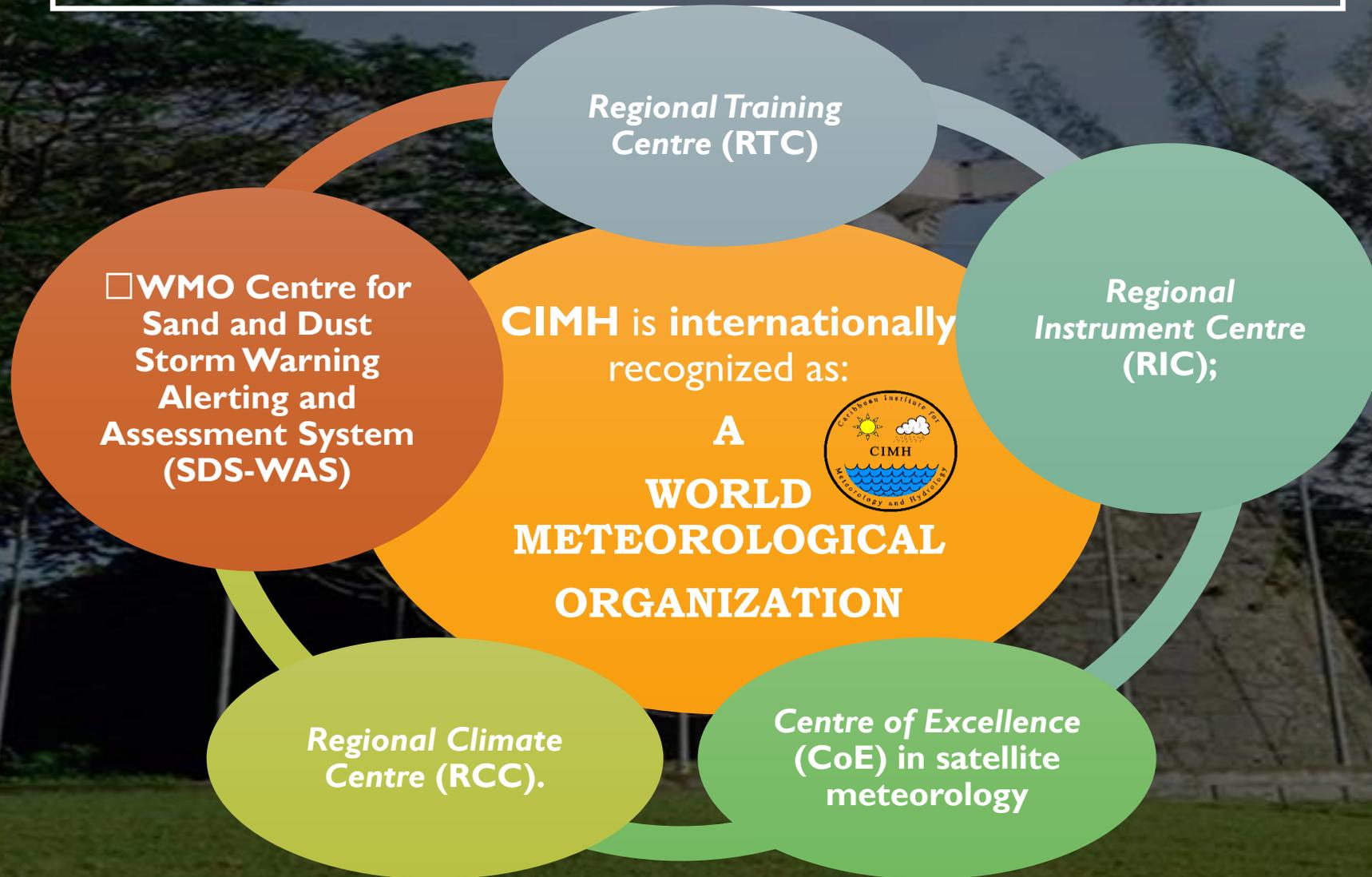


THE CCRIF INTERNSHIP PROGRAMME  
HOST  
THE CARIBBEAN INSTITUTE FOR METEOROLOGY AND HYDROLOGY

The way forward for CCRIF interns

# CIMH – WMO CENTRE OF EXCELLENCE



# THE INTERNS A SUCCESS STORY

- A definite success has been the various CIMH internship programmes.
- CIMH started in 2008 with its summer internship programme for UWI students.
- CIMH became a host agency to the CCRIF Internship programme in 2015.
- Since then, the CIMH has hosted 13 CCRIF interns (including this year)
- The interns worked with various lecturers and technical Officers,
- This allows the lecturers to work on research projects they would not readily have time to work on.



# LIST OF CIMH CCRIF SPONSORED INTERNS

- **2015**
- Ana Millington - Barbados Pursuing A Masters in disaster management.
- Jodiann Petrie – Jamaica – Technical Officer at CIMH
- **2016 -**
- Ms. Rebecca Chewitt, , - Barbados – The Reacher Officer CIMH
- Kashawn Hall – Barbados - MPhil at UWI on Ocean thermal energy conversion. – intern at CIMH
- **2018**
- Mr. Trevis Gardiner, Trinidad and Tobago – Trinidad and Tobago Meteorological Service
- **2017 –**
- Ms, Shanice Whitehall, - Barbados – Barbados Meteorological Service
- **2019**
- Mr. Deston Pope, Trinidad and Tobago -
- Mr. Johnathan Pryce, Grenada – St Vincent Meteorological Services
- Mr. Nkosi Mounter-Taitt, Barbados – Barbados Meteorological Service
- **2021**
- Ms. Ashanie Long-Reid, a citizen of Jamaica
- Mr. Darnell Gittens, a citizen of Trinidad and Tobago
- Ms. Nicola Alexander, a citizen of Trinidad and Tobago
- Ms. Stephanie Parker, a citizen of Jamaica





# METEOROLOGY – RESEARCH WMO CENTRE FOR SAND AND DUST STORM WARNING ALERTING AND ASSESSMENT SYSTEM (SDS-WAS)

Mrs. R. Chewitt-Lucas – CIMH Research Office

- 
- CCRIF Summer research
- **Comparative Analysis of the mass concentration Total Suspended Particulate (TSP) with Dust Prediction Model for the suburban region of Husbands, St James, Barbados.**
- CIMH intends to develop a study of regional/international effects on TSP from African dust and local sources on the Caribbean.
- The outcome is to justify and contribute to the development of a Caribbean health warning system with respect to ambient air quality.





## PARTNERING THIS OTHER AGENCIES

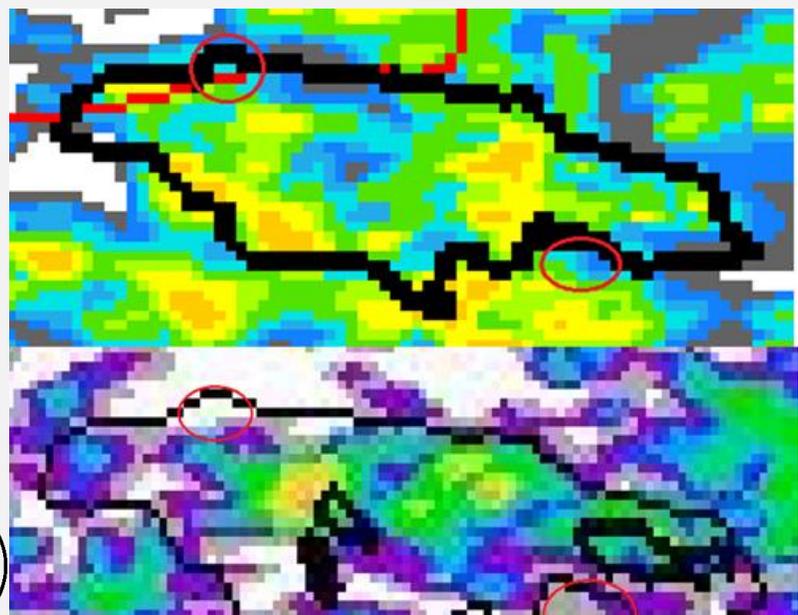
- In 2017, The University of Leeds ICE Nucleation Group stationed their traveling lab (ICEPOD) at Ragged Point, Barbados.
- Shanice Whitehall is pipetting 1 microlitre ( $\mu\text{l}$ ) droplets of suspension onto the glass slide of the Microliter Nucleation by Immersed Particle Instrument.





## CCRIF SUMMER INTERNSHIP PROGRAMME JOHNATHAN PRYCE - GRENADA NKOSI MOUNTER - TAITT BARBADOS

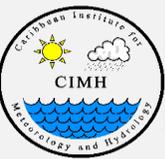
- Mr. Johnathon Pryce – Project Numerical Weather Prediction Verification Project for the CIMH WRF Dust model from July 29 to September 27;
- Jonathan's project revolves around the WRF-NMM version for the prediction of several weather parameters. His case study looked at is a squall line that affected St. Lucia between the dates November 25<sup>th</sup> 2016 to December 2<sup>nd</sup> 2016.



Mr. Nkosi Mouter-Taitt –

Model Verification using the CIMH WRF and NOAA HRRR models- Project 2 from September 02nd to October 31st.

In response to this the CIMH's Advanced Flood Forecasting Project (AFFP) utilizes rainfall predictions from the Advanced Research Weather Research and Forecasting model (WRF). Similarly, the Earth System Research Laboratory, of the National Oceanic and Atmospheric Administration (NOAA), has applied the High Resolution Rapid Refresh (HRRR) to the Caribbean region to produce experimental forecasts

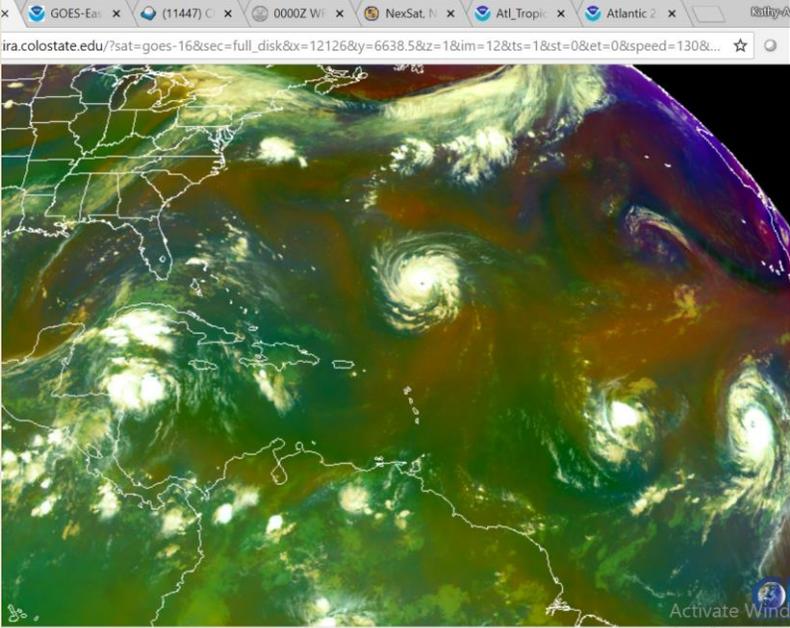
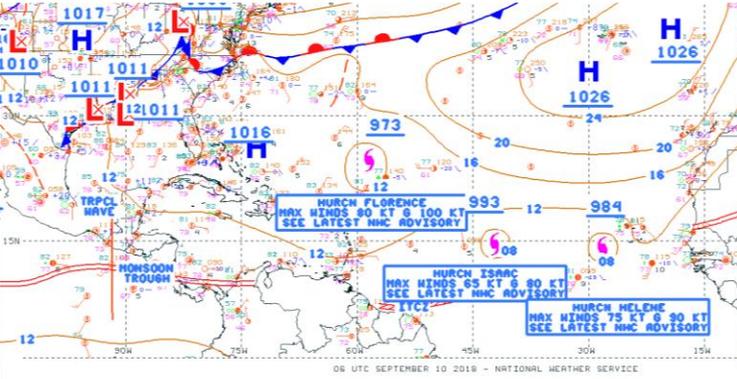
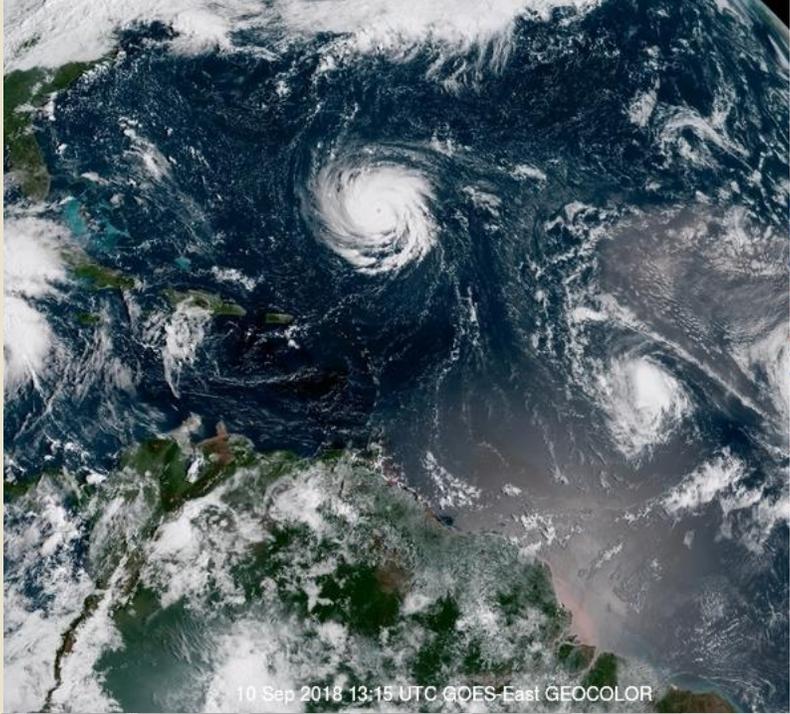


# REGIONAL CENTRE OF EXCELLENCE IN SATELLITE METEOROLOGY

- Trevis Gardiner
- 2018 UWI Graduate
- HOSTED by CIMH
- Sponsored by CCRIF

## The use of GOES 16 imagery in identifying Tropical Weather Systems

- This study will focus on the numerous new products provided by GOES-16 that currently exist in operation to observe, diagnose and forecast weather systems. The main goal is to examine developing weather systems, identifying and documenting which satellite images/ products from GOES-16 most accurately identify the different tropical weather features.



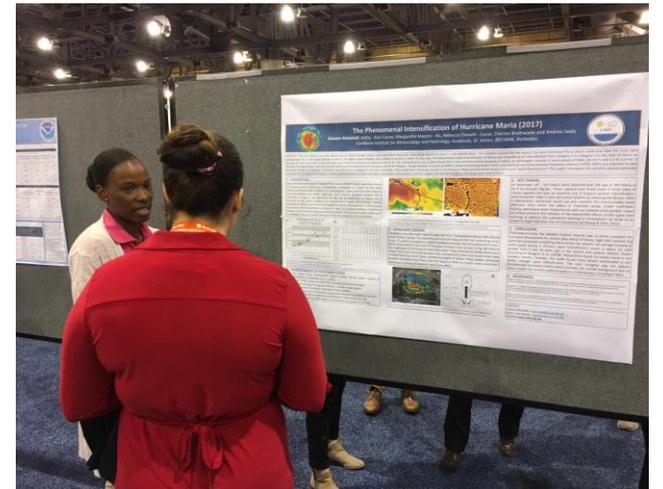
# THE CIMH SUMMER INTERNSHIP PROGRAMME

- The CIMH Internship Programme was started by in 2008 and continues to be a Success story of the Institute.
- To date 100% of the CIMH interns have moved on to Graduate School, positions at CIMH, Regional Meteorological Services or found employment in an educational or related field.
- The Institute has benefited by being able to complete innovation research and projects that now serve the region:
- Some of the projects:
  - **The TAFVer Programme**
    - **The Leeds Research – Aerosol Monitoring**
  - **The WaveWatch -III – Model Used Operationally by regional forecasters**
    - **The myCIMH Moodle platform**
    - **The Virtual Reality Weather Simulations**
  - **The Cooperative SAL Satellite Monitoring Experiment**



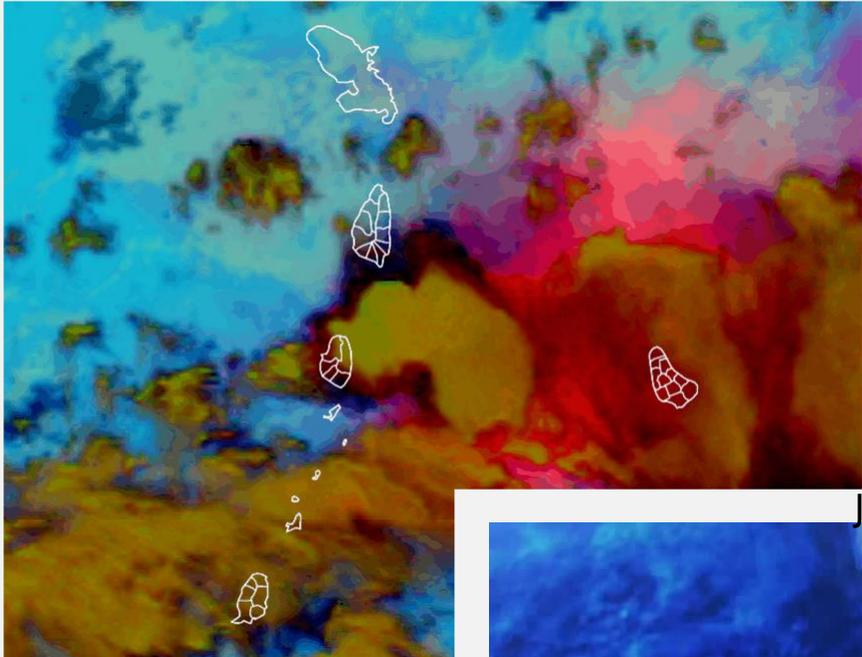
## THE CARIBBEAN DEVELOPMENT BANK (CDB) INTERNSHIP PROGRAMME SHANICE WHITEHALL

- Ms Shanice Whitehall - a six-month internship,
- Research Project - '**The Phenomenal Intensification of Hurricane Maria (2017)**'. Her research investigates the possible physical processes responsible for the rapid intensification of Maria via the analysis of surface and upper atmospheric observations, satellite imagery and derived products and sea surface temperatures.
- A poster presentation at American meteorological Society (AMS) Annual conference in Phoenix in January 2019.
- Shanice earned a place in the **NOAA-NASA Satellite Meteorology (SatMet Summer) Workshop RA-III & RA-IV** at CIRA Colorado State University, Fort Collins, CO, USA, July 08 to 19, 2019.
- As the only undergraduate participant, Shanice made a joint presentation on **the Barbados prospective of the Saharan Air Layer Evaluation with GOES-16 and JPSS Products Phase I: Real-time assessment of Next-generation satellite products and techniques.**

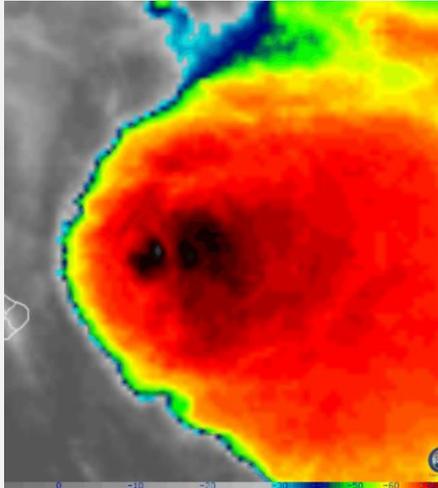


# OTHER AREAS OF STUDY

- Weather and Climate modeling.
  - Climate variability and its effects on SIDS
  - Severe weather events
- Disaster Risk Management
  - Impact Based Forecasting
- After the La Soufrière Volcanic Eruption
  - Studies on the volcanic eruptions and its effect on the weather
  - Tracking on the Ash clouds and gas using satellite imagery
- Georeferencing Data in the Caribbean Climate Impacts Database
- Studies in Oceanography and Marine Meteorology
- Space weather and its effect in the Caribbean – some day another area of study



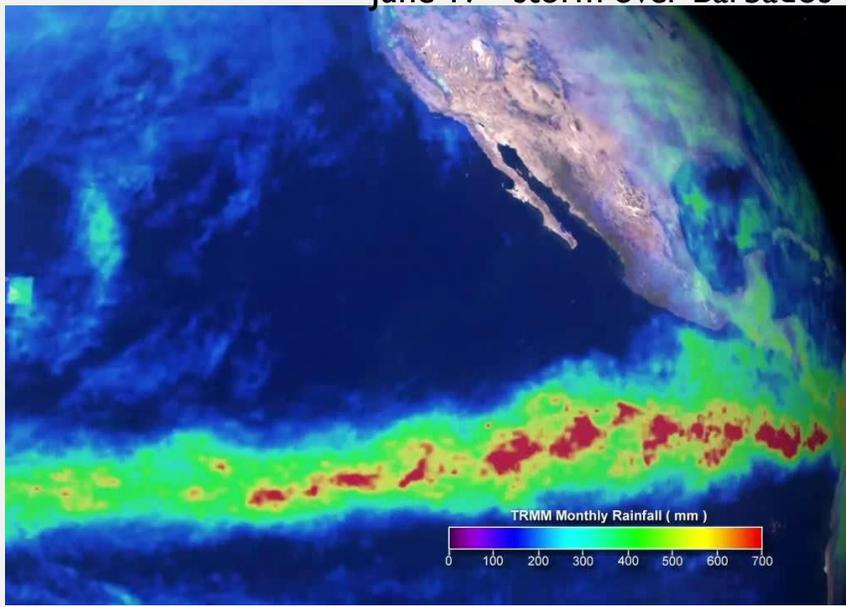
June 17<sup>th</sup> storm over Barbados



La Soufrière Volcanic Eruption 2021



Projected track Hurricane Isaias 2020

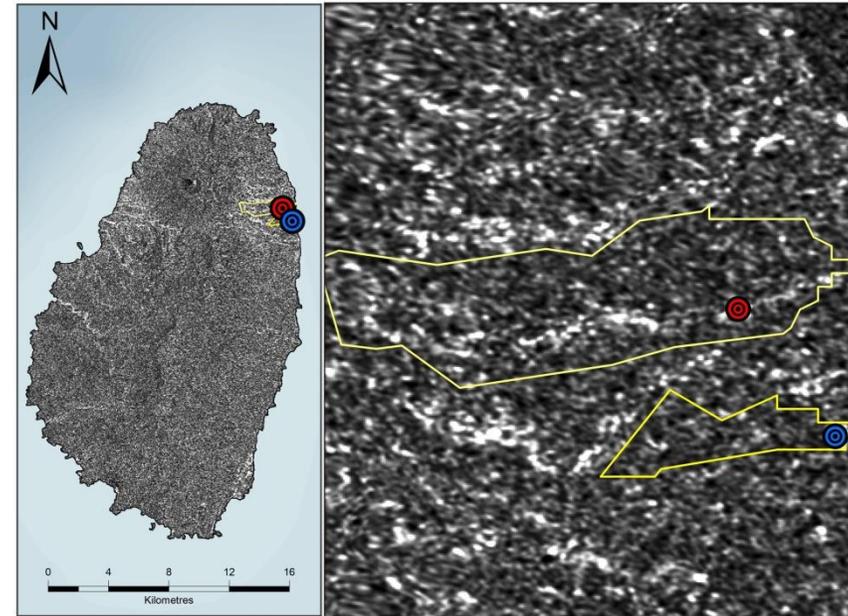


The rainfall over the Pacific associated with the ITCZ



# Hydrology

- **Satellite imagery from NASA is used to support various activities in hydrology.**
  - *identification of inundation areas resulting from flooding events;*
  - *identification of blockages in watercourses resulting from landslides;*
  - *identification of land cover/land cover changes and estimation of hydrological parameters;*
  - *Imagery also supports hydrological modelling by provided a visualization of watershed characteristics.*
- **Using Satellite derived precipitation data to provide the potential for flood.**
- **CIMH – partners in the CEOS Flood Pilot project.**
  - To showcase the uses of satellite imagery to improve disaster management activities.
  - Upgraded flood models (CREST and GFMS) to provide **1 km** resolution results
  - Improved delivery of flood extent maps
  - Improved validation of flood maps



**Developed from RadarSat images  
(before and after event) – Changes  
shown by white areas**

Erosion assessment in St. Vincent after the  
December 2013 deadly flood event.

# Regional Instruments Calibration Centre



➤ Instruments Maintenance & Calibration Course

Field installation in Dominica



AMS installation



Recovery  
after TS  
Erika



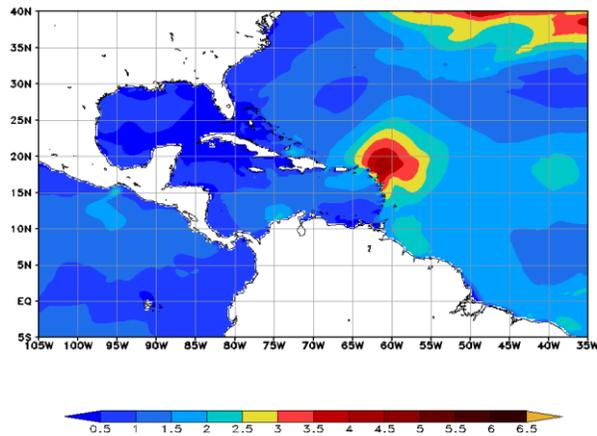
## Forecast

Dominica was expected to experience the heaviest showers to the north of their respective territories on Sept 27<sup>th</sup> .

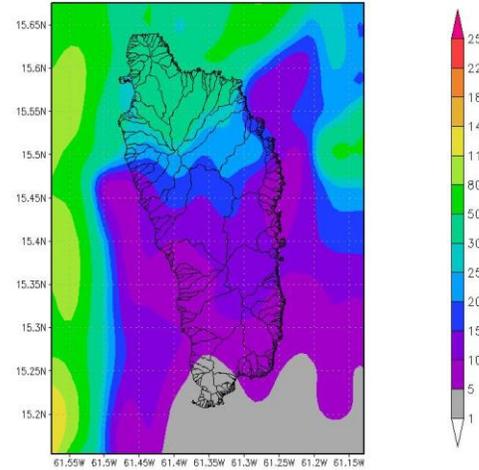
## The Event

12 inches of rain in 5 hours cause devastating Floods and landslide resulting in 33 dead or missing.

Caribbean Institute for Meteorology and Hydrology  
Wave Heights(m) for the Caribbean  
Valid 26/AUG/2015 12Z +18



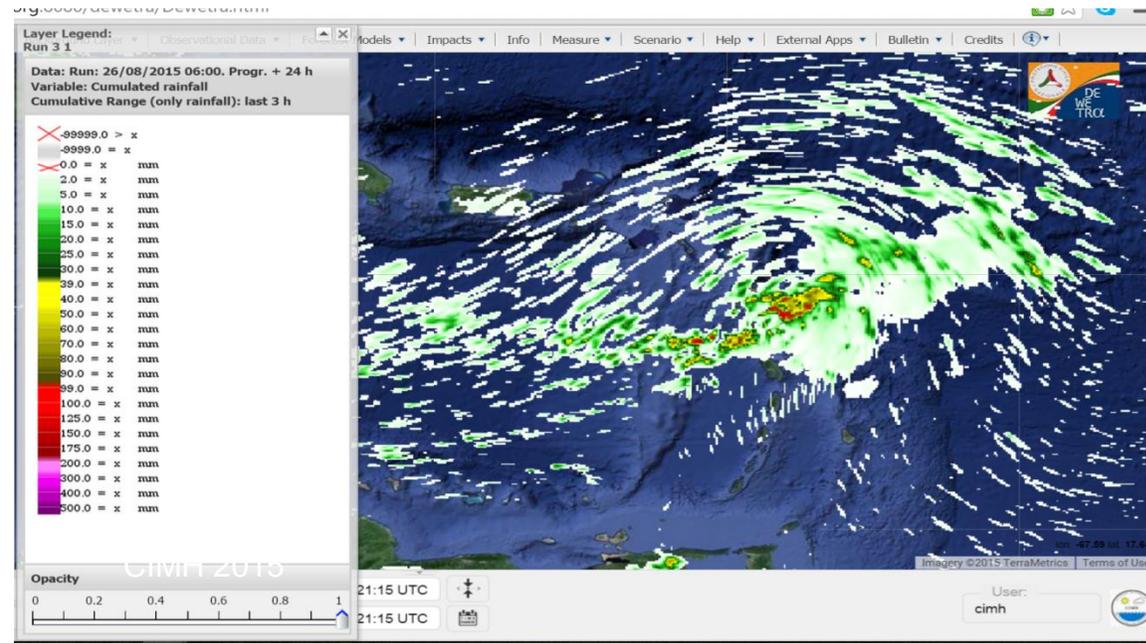
Caribbean Institute for Meteorology and Hydrology  
Aggregated precipitation(mm) DOM Valid 17Z 27/08 2015



## DISASTER RISK MANAGEMENT

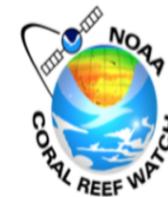
Dominica

Use of 4 km  
Mesoscale NWP  
models forecast  
Disaster Managers





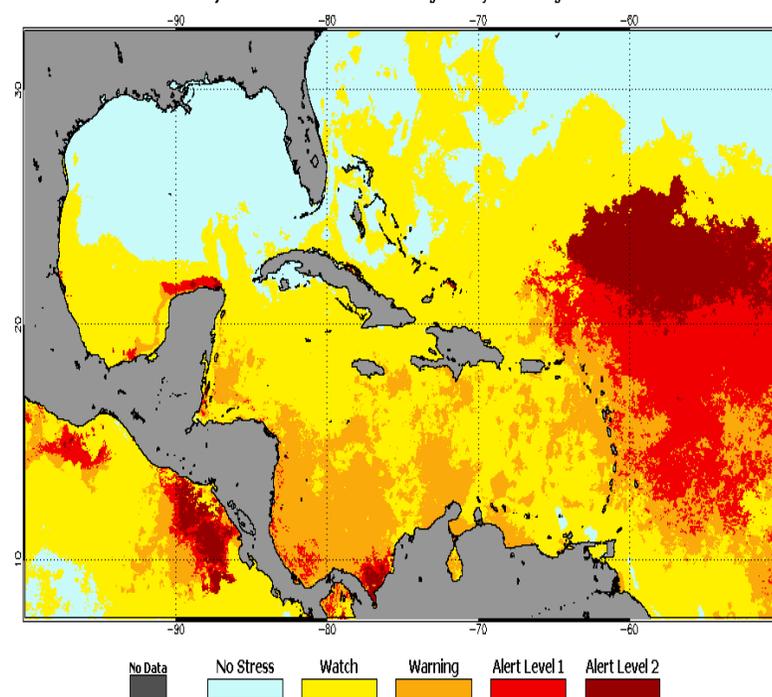
# CARIBBEAN CORAL REEF WATCH



## Notable Observations

Alert Level	Interpretation
No stress	No thermal stress
Watch	Low-level thermal stress
Warning	Thermal stress is accumulating
Alert level 1	Bleaching expected
Alert level 2	Widespread bleaching and some mortality expected

NOAA Coral Reef Watch Daily 5-km Geo-Polar Blended Night-Only Bleaching Alert Area 7d Max 9 Oct 2015



Latest issue of the CRW bulletin  
available at:  
[http://bit.ly/CRW\\_Oct\\_Issue5](http://bit.ly/CRW_Oct_Issue5)



**THANK YOU**