Meteorology Section

Training Report
Directors' Meeting 2022

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Head of Section

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Training Results

The 2021- 2022 reporting period saw the **completion** and graduation of students from the following WMO vocational training courses offered at CIMH:

All courses were virtual due to the COVID-19 pandemic, with Lab courses where possible being hybrid.

Entry Level Technicians Course No.92/22 (Online)

10 students – 1-Barbados, 2-the Cayman Islands, 1-Grenada, 1-Jamacia, 1-Sint.Maarten, 2- St. Vincent and the Grenadines, 2- Trinidad and Tobago,

Results: 5 Credits, 2 Passes. 3 Withdrawn by their services

Meteorology for Geography Educators Course No. 03/22 (Online)

10 Participants: 2 Antigua & Barbuda, 2 Barbados, 1 Dominica, 1 Jamaica, and 4 Trinidad and Tobago;

Results: Pending, only 6 completed the course

Aeronautical Continuing Professional Development Course No. 21/08 (Online)	
Country	**Number of Students**
Barbados,	1
The Cayman Islands	1
Grenada	2
Trinidad and Tobago	2

Graduates- Majors in Meteorology:

Semester 1

Kristen Alana, LYNCH, (Barbados) **(Top Meteorology Graduate 2021)** — Upper Second

Jevon Patrick, YEARWOOD, (Barbados) — Lower Second

Semester 2

Joshua Peter AUSTIN (Barbados) — Lower Second

Stephen Wayne HUNTER II, (The Bahamas) — Upper Second

Current Academic Year 2022-2023

- **Mid-Level Technicians Course No.48/22**
- 4th March 2022 – 25th November 2022
- 13 students: 2 Anguilla, 3 Barbados, 2 Belize, 2 Grenada, 2 Guyana, 1 Jamaica, 1 the Turks and Caicos.
- 1 Withdrawal

- **Senior Level Meteorological Technicians' Course (SLMT) 24/22 – Non-degree**
- Bridging Course – September 2021 to December 2021
- Main Course – January 2022 – July 2023
- 9 students: 2 Barbados, 1 Belize, 1 Dominica, 1 Saint Maarten, 1 St. Lucia, 5 Trinidad and Tobago.
- 3 Withdrawals
-
- **Senior Level Meteorological Technicians' Course (SLMT) 02/22 - Degree**
- April 2022 – July 2023
- 1 student: 1 Jamaica.
- 1 Withdrawn

UWI BSc. Degree Program: 2022-2023
Meteorology Program

January to April 2022 - virtual

Semester 2 – The academic year 2021-2022

METE1125 Meteorological Observations, Instruments, and Basic Analysis – **6 students**
METE1135 Introduction to Dynamic Meteorology – **6 students**
METE1305 Introduction to Climate Change and Society – **20 students**
METE2120 Physical Meteorology – **10 students**
METE2210 Synoptic Meteorology – **12 students**
METE2215 Synoptic Meteorology Lab 1 – **10 students**
METE3310 The Tropics and Tropical Weather Systems - **0**
METE3420 Satellite Meteorology - **0**
METE3505 Climate, Biosphere and Ecosystems – **8 students**
METE3600 Numerical Weather Prediction - **0**

Tropical Met, Satellite Met., Numerical Weather – as students fail to matriculate to Level-3 and fail to graduate.

Only three students passed all their Level 2 courses.

September to December 2022- face-to-face

METE1110 Introduction to Oceans & Climate: **33 students**
METE1125 Meteorological Observations, Instruments, and Basic Analysis: **9 students**
METE1130 Introduction to Physical Meteorology: **9 students**
METE2110 Atmospheric Thermodynamics: **4 students**
METE2125 Dynamic Meteorology: 6 **students**
METE2305 Fundamentals of Hydrometeorology: **0 students –**
METE3110 Advanced Dynamic meteorology: **8 students**
METE3210 Advanced Synoptic Meteorology: **7 students**
METE3215 Synoptic Meteorology Lab II: **4 students**
METE3410 Radar Meteorology: **3 students**

Currently, there are **49 students** registered for the Meteorology courses, with **33 students** registered as Meteorology majors or minors

This is the lowest in years

There is notable signs of improved student performance

Progress on the new Senior Level Meteorological Course 2022

- SLMT course - the Bridging Course – asynchronous
  - **Mathematics, Physics, and General Meteorology**
  - **One student failed Physics and withdrawn**
- Late entry students were problematic
  - **One student failed Math and Physics – not withdrawn**
- SLMT course – Main course – Virtual Sessions – January to July 2022.
  - **The results were less than satisfactory**
- September 2022, all CIMH Meteorology courses returned to face-to-face.
- The Section needed to redress the students in areas of Mathematics and Dynamics Meteorology.

NAME	INTRO. MET. & ANALYSIS	PHYSICS	MATHS	STATS	SAT. MET.	GIS
1	--------	40	46	64	72	79
2	63	53	35	58	74	63
3	51	76	66	77	71	64
4	72	57	66	67	65	90
5	75	73	67	83	77	74
6	58	35	32	52	72	57
7	64	40	38	60	68	55
8	72	66	61	94	82	90
9	77	43	32	40	69	39
10	66				65	52
11	74	50	33	36	78	28

Serious concern about the virtual training format

Distractions

- Working
- Family
- Lack of proper hardware and software

Cheating

- The Entry Level Meteorological Technicians' course had four students fail to complete the course
- One student was withdrawn for insubordination
- Three students were asked to be withdrawn after having been caught in a deliberate cheating scheme.

There were attempts in the UWI courses as well and those too failed

The excessive cheating has fostered the need to return to face-to-face classes

Returning to face-to-face

- With the exception of the AeroCPD, ALL Meteorology Section Courses have returned to face-to-face training
- UWI has mandated face-to-face training but hybrid is allowed is justified.
- All the practical training courses suffered in the virtual format
- SLMT will need to return to face-to-face complete
  - Unless there a definite guarantees students are in the right environment
  - It will be impossible to teach the UWI courses face-to-face and SLMT virtually with the same lecturers.

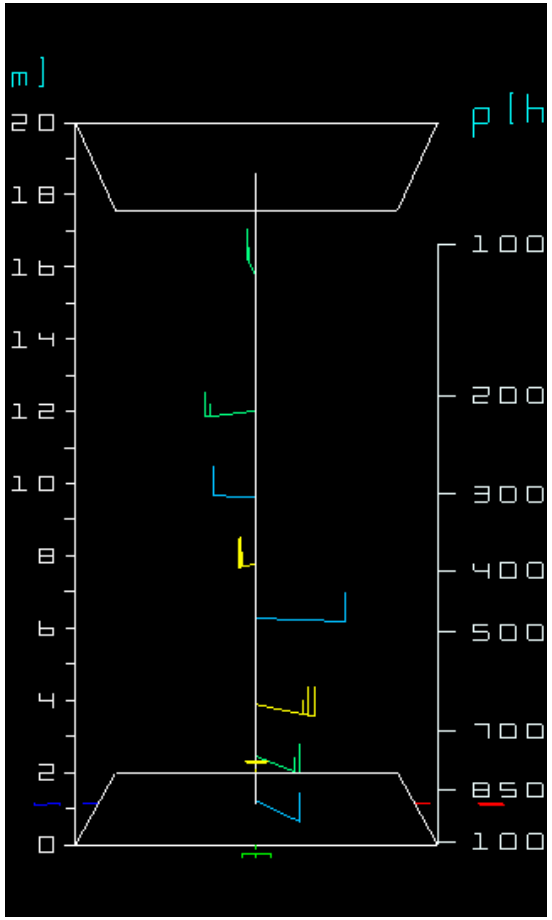
Congratulations

Faculty of Science and Technology (FST) Student Awardees Lists for the 2021-2022 Academic Year – Meteorology Top Student.

- Shem **ROBINSON** Best Performance – Semesters I & II **(Preliminary Year)**
- Daniel **ROWE*** Best Performance – Semester I **(Level I) *Meteorology and Physics**
- Alinthia **AUGUISTE** Best Performance – Semester II **(Level I)**

- Charissa **HUMPHREYS** Best Performance – Semester I **(Level II)**
- Chavez **POPE*** Best Performance – Semester II **(Level II) *Meteorology, Mathematics, and Dean's list**

Upper Air Analysis Project – Daniel Rowe

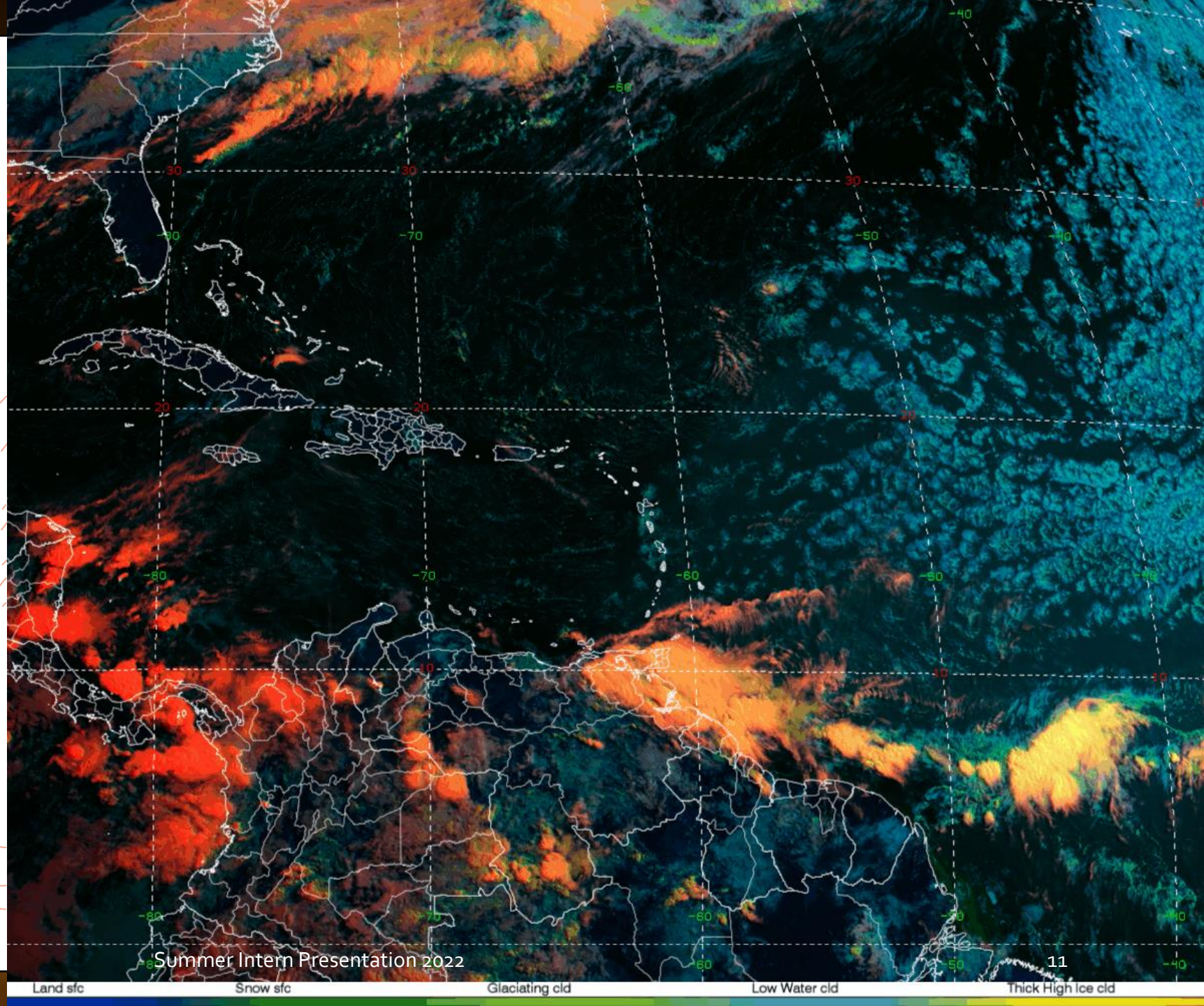


- **Abstract**
  The wind barb is the most common method of representing wind field data in meteorology. These barbs are often plotted in 2 dimensions, either latitude against longitude at a fixed height or atmospheric pressure plotted against a fixed line of latitude or longitude. It is only through a combination of many of these diagrams that a 3-dimensional interpretation of the atmosphere be created. If 3-dimensional wind barb plots are used instead, multiple atmospheric levels can be displayed at once which makes interactions between various layers much easier to visualise and interpret.

- Using Python, OpenGL, and the work of a previous intern, observational wind barb data was visualised in a 3-dimensional environment for a given date. This visualisation allowed geopotential height and wind speed and magnitude to be viewed simultaneously. In the future, these plots can be animated such that a 4-dimensional interpretation of the atmosphere is created. In addition, the visualisation can be adapted to satisfy many other meteorological measurements and act as a module for creating 3 and 4-dimensional plots.

Climate Change and ITCZ

Abstract: The Inter Tropical Convergence Zone, or ITCZ, is a global scale atmospheric band near the equator associated with high levels of precipitation. This band tends to shift seasonally and is often responsible for precipitation experienced within the Caribbean region. This study intends to serve as an initial investigation of climate change's impacts on the ITCZ, and relate the consequences of these changes to the abnormal weather conditions being experienced by the Caribbean and its territories. The study aims to prove that climate change has an impact on the nature of the ITCZ, and highlight the potential consequences the phenomenon will have on the region.



Severe weather catalog for the Caribbean

The Caribbean region has been experiencing various extreme natural weather events over the years and it is of utmost importance that they are properly documented.

The region lacks a resource where information pertaining to a particular weather event can easily and reliably be accessed. In the information era,

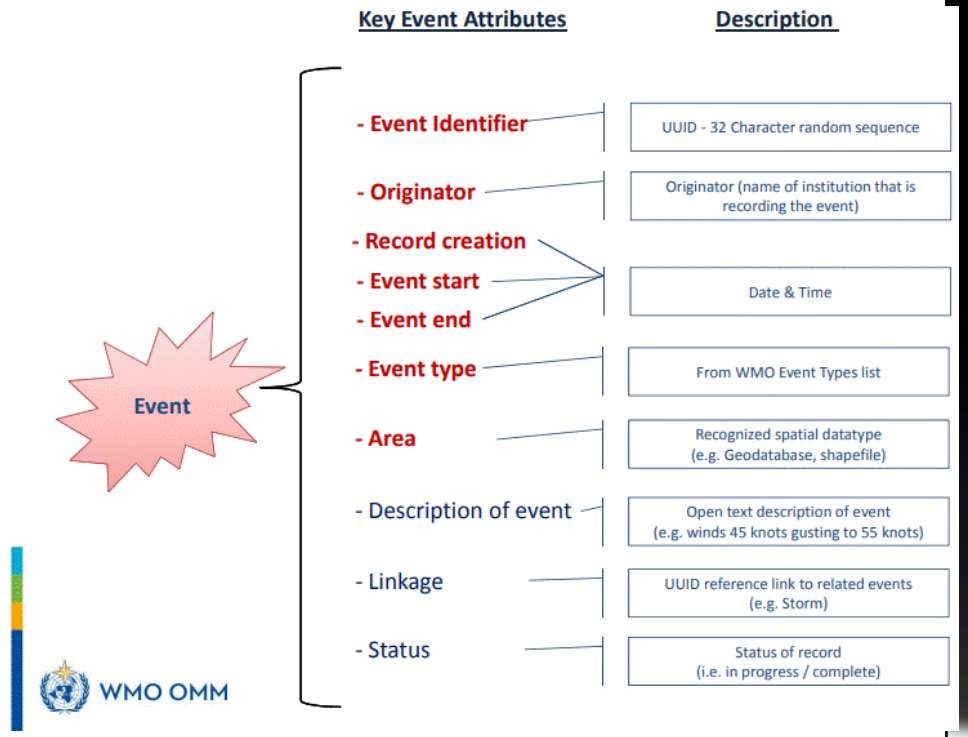
This study seeks to develop a meteorological database for the Caribbean region which documents severe weather events.

Once this database is developed, meteorologists across the region would be able to utilize it in the prediction of severe weather.

Rather than always responding to severe weather, forecasters can make better predictions to reduce the impacts. It can be envisaged that the data collected for the database will be used to develop models in the future for severe weather.

Also be a great hub for researchers to gain weather-specific data on events. And make better predictions to reduce the impacts

The data collected for the database will be used to develop models in the future for severe weather. It can also be a great hub for researchers to gain weather-specific data on events.



CIMH Training Schedule – 2022-2023

- The 2023 Training Schedule has been released
- Please note the submission deadline
- Please ensure that the candidates have the required prerequisites.

Second Session of the WMO Services Commission (SERCOM-2)

- ***Doc. 5.1(3) on the proposed amendment to WMO-No. 49, Volume I and update to WMO-No. 1209 addressing aeronautical meteorological personnel qualification and competency requirements >> APPROVED***
  - **1.2 Personnel providing aeronautical meteorological services**
    - **1.2.1 Qualifications**
    - 1.2.1.1 ***Members shall ensure,*** *taking into consideration the area and airspace of responsibility; the impact of meteorological and other relevant environmental phenomena and parameters on aviation operations;, aviation user requirements;, international regulations and local procedures and priorities,* ***that an aeronautical meteorological forecaster has successfully completed the level of qualification(s) necessary to underpin the required competencies of operational aeronautical meteorological forecasters and observers ….is consistent with the relevant educational frameworks, background skills and knowledge requirements described in the Basic Instruction Package for Meteorologists and the Basic Instruction Package for Meteorological Technicians,*** *respectively, as defined in Appendix A. Members should based on the relevant national, regional and/or global requirements, determine the necessary level of qualification(s) required for each category of operational personnel providing aeronautical meteorological services.*

Second Session of the WMO Services Commission (SERCOM-2)

- ***Doc 5.1(5): Recommended amendments to Technical Regulations (WMO-No. 49), including Manuals and Guides – Review of the BIP-M AND BIP-MT (Part VI AND Appendix A of VOL. I) of the Technical Regulations (WMO-NO. 49)*** >> ***APPROVED*** (*the new proposed WMO 1083 here*)
  - The new BIP-M and BIP-MT place a greater emphasis on the need to focus on **Mathematics and Physics** for **BOTH Meteorologists and Meteorological Technicians**; and there are far more changes as it relates to the guidelines in the training of Meteorological Technicians.
  - CIMH has begun the process of assessing its courses even before Congress 2023 to ensure our curriculum is compliant.

- ***Doc. 5.1(6) on the plan of action for the discontinuation of WMO-No. 49, Volume II >> APPROVED***
  - ICAO Annex 3 will be the Aviation Meteorology document

- ***Doc 5.1 (4): Recommended amendments to Technical Regulations (WMO-No. 49), including Manuals and Guides –***
  - Development and update of the Competency framework (PART V) (MARINE AND TROPICAL CYCLONES) - >> APPROVED (here)
  - ***The Tropical Cyclone Forecasters Competency Framework has been approved and moved on to WMO Congress for confirmation.***
  - Also in this is the new Marine Meteorologist competencies.

WE NEED YOUR SUPPORT

Continue to send the UPDATED NHMS Training Plans

Please sensitize staff BEFORE TRAINING STARTS on the need to be prepared and focused

Provide the basic technical support – as simple as an internet cable can resolve internet issue

Review WMO recent decisions related to Aviation Meteorology and Training

Protect your investment – ensure students are prepared

¡Gracias! Thank you! ¡Obrigado!

Of Special Interest:

Barbados RA-IV Satellite Applications Workshop
5-8 December 2022 - English Only.

More information: https://rammb2.cira.colostate.edu/training/wmo-ra-iv-barbados-virtual-training-on-satellite-applications-december-2022/

WMO Competency Assessor and OJT Mentor Training Workshop 13 -17 February 2023

Click here to access the Meteorology Section individual 2021 annual reports.