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FACULTY OF
SCIENCE AND TECHNOLOGY

Caribbean Community
Climate Change Centre

CCRIF SPC
The Caribbean Catastrophe Risk Insurance Facility

Caribbean Climate Science Workshop Series

Detection and Attribution Science Workshop

June 10-14, 2024

Faculty of Science and Technology, The UWI Mona
Kingston, Jamaica

Greetings
from Dean of FST UWI (Host)

The Faculty of Science and Technology, at the University of the West Indies, Mona (UWI-Mona), Jamaica, warmly welcomes you to the Climate Detection and Attribution Science (D&A) Workshop. The is the first D&A workshop in the Caribbean and represents a starting point for a larger work programme focussed on this new and rapidly emerging area of climate science. The ability to employ D&A technique within the Caribbean is important to the region's quest for loss and damage financing and its pursuit of climate justice. The D&A workshop is also the first of three in the Caribbean Climate Science Workshop Series being held over the two-week period June 10 -21, 2024. It will be immediately followed by the Climate Information Education and Tools (CLIE'nT) Workshop (June 17); and the inaugural Caribbean Summer Workshop on Introductory Modelling (CSWIM) (June 18-21).

Over the next week the D&A workshop will include presentations from global, regional and local experts, and practical sessions for participants to interact with tools and techniques in D&A science. We are pleased to welcome Professor Francois Engelbrecht as our workshop leader. He is an Intergovernmental Panel on Climate Change (IPCC) lead author and Director of the Global Change Institute, The University of the Witwatersrand, Johannesburg, South Africa.

The Climate Studies Group, Mona, and the Faculty of Science and Technology thank all who have contributed to the staging of the workshop. The UWI remains committed to building regional climate capacity to meet the emerging research priorities of the Caribbean region in response to climate change.

Welcome and enjoy the workshop!

Professor Michael Taylor
Co-Director, Climate Studies Group, Mona
Dean, Faculty of Science and Technology, The UWI Mona

Greetings

from the Caribbean Community Climate Change Centre (CCCCC)

Let me extend my sincere apologies for not being able to deliver in person these welcome remarks, but also to be with you in this pivotal workshop on Detection and Attribution Science. You have been carefully selected to be a part of this important workshop because of the level of dedication and commitment that you have and continue to demonstrate in your related fields, and the anticipation that the additional skills you will gain through this event will aid in advancing your work on many fronts but that also will play a greater pivotal role in our quest for climate justice.

The urgency with which actions need to be pursued to build our region's resilience to the impacts of climate change and variability has taken on a new prominence. The signals and symptoms of changing climate conditions all around us and globally present some of the most difficult challenges facing humankind in recent times.

Yet the major contributors appear to be oblivious to the accelerating path towards chaos brought about by climate change. The media today is replete with stories of carnage and suffering caused by extreme weather events all fueled and enhanced by the recent 12-month streak of record-breaking temperatures, the hottest 12 months on record. Reports of extreme flooding, landslides, droughts, heat stress, loss of life and livelihoods from all over the world and in some of the most unlikely places, signals that this may be the new normal, but which will require all our faculties and innovations to navigate the elevated challenges that all this throws at us. Reports such as that of the "Doomsday Glacier" (due to its potential to trigger coastline-altering amount of sea level rise) in Western Antarctica changing much more rapidly than expected in response to climate change is a sobering thought at the very least, when given the elevated threat to low-lying islands and coastal cities all over the world.

Detection and Attribution Science will become even more pivotal in our quest not only for justifying enhanced access to climate finance but in our quest for climate justice. The importance of this Science must be underscored against the backdrop of the newly established Loss and Damage Fund, varying applications of parametric insurance, the need for evidence in climate litigation, as well as chronicling the impacts of climate change on the key economic sectors in the region. The skill sets that this workshop will help build will become pivotal to advancing our arguments for appropriate responses from the major perpetrators of climate change.
I must congratulate Professor Michael Taylor and his team of professionals for convening this significantly important workshop on Detection and Attribution, an area of work that is critical to the work of the CCCCC and its partners in driving the ambition to a more resilient region, but also to the many partners in the quest for climate justice. The importance of this event cannot be understated, as it bolsters the influential and persuasive talents of our decision-makers to negotiate for better global responses to our vulnerabilities in this region.

In closing, let me welcome you to this pivotal and transformative event and to wish you a productive and beneficial workshop.

Keith Nichols
Head of Special Projects, Caribbean Community Climate Change Centre

Greetings

from the Caribbean Catastrophic Risk Insurance Facility (CCRIF SPC)

CCRIF SPC (formerly the Caribbean Catastrophe Risk Insurance Facility) is very pleased to be a part sponsor of the Detection and Attribution Science Workshop being hosted by the Climate Studies Group Mona in the Faculty of the Science and Technology, UWI, Mona. This workshop is one of several initiatives that CCRIF has supported and/or implemented with The UWI. CCRIF and UWI have been solid partners since 2010 when the first memorandum of understanding between the two organizations was signed. Last year we signed a new MOU and work plan with The UWI and we look forward to its successful implementation.

In 2007, CCRIF was launched as the world's first multi-country, multi-peril risk pool based on parametric insurance with 16 members all from the Caribbean. Today CCRIF remains the premier development insurance company of the Caribbean and Central America, providing parametric insurance coverage to 23 Caribbean and Central America governments and 3 Caribbean electric utility companies.

In 2007, CCRIF provided coverage for tropical cyclones and earthquakes – today we also provide coverage for excess rainfall, and for the fisheries, electric and water utility sectors – offering a total of six parametric insurance products. Our catastrophe risk insurance models underpinning our parametric insurance products continue to be strengthened and upgraded based on new data and new modelling approaches. These models are fully owned by CCRIF and by extension our members – they are not off-the-shelf models but have been properly customized for the Caribbean and Central America – more adequately reflecting the risk profiles of our members.

Our members continue to increase their insurance coverage partly due to the uncertainty that climate change brings and partly because they recognize that disaster risk financing instruments are key to reducing budget volatility following a natural disaster and can safeguard current and further development prospects. For the last four years, we have provided coverage to our members in excess of US$1 billion. Since the inception of CCRIF, we have made 64 payouts totalling US$268 million to 17 of our members and these payouts have benefitted as many as 3.5 million persons. The use of parametric insurance for natural catastrophes continues to grow significantly across the world, in large measure due to the performance of CCRIF. Today there are 3 other risk pools – in Africa, the Pacific and Southeast Asia - similar to CCRIF. They have adopted and/or adapted the CCRIF model to suit their members' needs.

Our support to this workshop has been made possible through our Technical Assistance Programme. As an insurance company focused on our members' development needs and prospects, we ensure that any surpluses or profits we make go back to our members through discounts on members' insurance coverage, improving our catastrophe risk models when new data and model innovations become available or providing resources to support programmes and projects that enhance resilience building efforts of our members and their communities. Our flagship technical assistance programme has provided support of approximately US$7 million to regional organizations, academic institutions, communities and individuals. Since 2010 CCRIF has

Greetings

from the Caribbean Catastrophic Risk Insurance Facility (CCRIF SPC)

supported The UWI through the Technical Assistance Programme - in several areas including the provision of scholarships, research and in the implementation of climate change adaptation and disaster risk reduction projects, investing over US$1.5 million in the institution.

This is not the first time that we have supported the UWI CSGM. In fact, in 2021/22, we provided resources to CSGM to upgrade three tools that were designed to support planning to reduce disaster risk and enhance food and water security. Through CCRIF's support, the three tools that were upgraded were the Simple Model for Advection of Storms and Hurricanes (SMASH), Agricultural Climate Change Evaluation for Production, Transformation and Resilience Building (ACCEPT) Agri portal, and Real Time Monitoring System (RealTMS) - Water Quality. Support was also provided to support the training of over 80 disaster/emergency managers and persons from water resources authorities, meteorological services, environmental agencies, ministries of agriculture, and other related organizations across the Caribbean. The SMASH tool could complement CCRIF's own web monitoring and forecasting application for tropical cyclones, rainfall and earthquakes called WeMAp.

At CCRIF, we view workshops such as this one as key to developing the next cadre of DRM managers and disaster risk financing (DRF) specialists and we will continue to support them. Today CCRIF can be credited for providing the most scholarships and internships in these fields in the last 10 years – awarding 175 scholarships to Caribbean nationals with an investment of about US$2 million. We have placed over 171 young Caribbean graduates in internships since 2015, investing approximately US$500,000 in these young persons.

Once again, we congratulate the CSGM for organizing this very important workshop and we look forward to participating and engaging in the discussions over the next four days. Much of the work of the CSGM Mona and the work that we do at CCRIF are similar and in fact our parametric insurance products and the catastrophe risk insurance models underpinning them can benefit from the studies and data produced by the CSGM. We want to continue to work with and deepen our engagement with the CSGM as an important innovation and research hub to build the talent pool and skill sets in the region in the areas of climate science, loss and damage and catastrophe risk modelling so that we have more persons in the region that can support our core work as well as play a key role in advancing the sustainable development agendas of our members.

Elizabeth Emanuel
Head, CCRIF Technical Assistance and Corporate Communications Manager Teams
Caribbean Catastrophic Risk Insurance Facility (CCRIF SPC)

About the Workshop

As the global community grapples with the consequences of climate change, there is a growing recognition of the need for accountability and redress for the disproportionate burden borne by vulnerable regions and communities. The Caribbean is amongst the regions bearing the burden of climate change through significant impact on its ecosystems, livelihoods, and infrastructure, arising from more frequent and intense hurricanes, soaring temperatures, unpredictable rainfall, and rising sea levels.

Climate justice demands equitable responses to climate impacts, including financial mechanisms such as the recently created Loss and Damage (L&D) Fund to support adaptation and recovery efforts. In this context, robust Detection and Attribution (D&A) science may become essential for accurately assessing liability and allocating resources fairly. Detection is the process of demonstrating that climate has changed in some defined statistical sense. Attribution is the process of establishing the most likely causes for a detected change with some level of confidence. D&A science helps to untangle the complex web of factors contributing to climatic events - whether they are natural variability or human induced climate change - by providing empirical evidence linking specific climate events to underlying causes. D&A science can strengthen the Caribbean's case for climate justice and support its efforts to access the support and resources they urgently need to build resilience and adapt to a changing climate. In the context of increasing calls for climate justice and the anticipated building out of L&D mechanisms, the establishment of a Climate Change Attribution Science Programme in the Caribbean is an imperative.

The objectives of this workshop are to inform Caribbean scientists and practitioner, on the 'what' and 'why' of D&A science; and to introduce some of the methodologies and tools for conducting detection and attribution studies in the region.

Speakers

Professor Francois Engelbrecht

Professor Francois Engelbrecht is the Director of the Global Change Institute (GCI) and Professor of Climatology at The University of the Witwatersrand, Johannesburg, South Africa. He is a lead author on the most recent Intergovernmental Panel on Climate Change (IPCC) Sixth Assessment Report (IPCC AR6) and the IPCC Special Report on Global Warming of 1.5oC. He holds a Ph.D. in Meteorology from the University of Pretoria. He specializes in numerical climate model development and the simulation of African climate variability and change. His current research includes a focus on the development of an African-based Earth System Model towards participation in the Coupled Model Intercomparison Project Phase Six (CMIP6) of the World Climate Research Programme (WCRP).

Dimitris Herrera

Dimitris A. Herrera is a climate scientist from the Dominican Republic and holds a Ph.D. in atmospheric science from Cornell. His research aims to understand hydroclimate effects on society, especially emerging hydroclimate hazards because of climate change. That includes, but is not limited to, drought, extreme precipitation events, and detection and attribution analysis. Dimitris currently holds the position of Assistant Professor at the Department of Geography & Sustainability at the University of Tennessee–Knoxville. Additionally, he is an Adjunct Associate Professor in the Department of Geography at Universidad Autónoma de Santo Domingo in the Dominican Republic.

Thomas Knutson

Tom Knutson is a senior scientist at NOAA's Geophysical Fluid Dynamics Laboratory, in Princeton, New Jersey, where he leads the Weather and Climate Dynamics Division. He is a Fellow of both the American Meteorological Society and the American Geophysical Union. He has served as the Chair of the World Meteorological Organization's Expert Team on Tropical Cyclones and Climate Change. In that role, he led two global assessments of hurricanes and climate change, published in 2010 and 2019. He was the lead author of Chapter 3 on "Detection and Attribution of Climate Change" in the U.S. Climate Science Special Report (2017), which was part of the Fourth U.S. National Climate Assessment. He has served as a Special Editor for the annual "Explaining Extreme Events" supplement of the Bulletin of the American Meteorological Society. His research interests include the influence of climate change on tropical cyclones, and the detection and attribution of regional climate changes.

Speakers

Benjamin Rice

Benny Rice is a postdoctoral fellow at Princeton University, studying disease ecology in the lab of Jess Metcalf. Current projects investigate the interactions between extreme weather events, such as tropical cyclones, and vector-borne diseases, such as malaria and dengue. Benny Rice received his PhD from Harvard University, where his graduate work focused on the ecology and evolution of malaria parasites.

Sasha Jattansingh

Sasha Jattansingh is the Loss and Damage Expert at Climate Analytics Caribbean where she works with Small Islands Developing States (SIDS) to address critical issues related to loss and damage, adaptation and climate justice. She is a climate finance and participatory environmental governance professional with over 15 years' experience in the public, international development and civil society sectors in Trinidad and Tobago and the Caribbean. She has a strong background in environmental and climate policy, climate finance, participatory governance, grants management, capacity building and science communication. Before joining Climate Analytics, Sasha was the Commonwealth National Climate Finance Adviser to Antigua and Barbuda where she supported the Government of Antigua and Barbuda to strengthen its institutional and technical capacity to access and mobilise climate finance. Prior to this, Sasha has worked with the Global Green Growth Institute, United Nations Development Programme, Caribbean Natural Resources Institute, the University of the West Indies and the Government of Trinidad and Tobago on climate change and sustainable development issues. Sasha holds a Master of Science in Environmental Policy and Regulation from the London School of Economics and Political Science, a Master of Engineering in Environmental Engineering from the University of Auckland and an Honours Bachelor of Science in Environmental Science from the University of Toronto. She is also a Commonwealth Scholar alumna.

Speakers

Lizzie Kendon

Professor Elizabeth “Lizzie” Kendon currently leads a team of scientists, at the UK Met Office Hadley Centre, using very high resolution (kilometre-scale) models to study climate change, with a main focus on gaining a better understanding of high impact events nd their future change. Her work has been pioneering in the field of convection-permitting climate modelling, with a high-profile paper in Nature Climate Change in 2014. She recently led the design and delivery of the first national climate scenarios at convection-permitting scale, as part of the UK Climate Projections (UKCP18) project. She has also worked on the FCFA IMPALA project involving convection-permitting climate simulations over Africa, with the first future change results published in Nature Comms in 2019. Lizzie also has a key role in the ERC INTENSE project analysing intense rainfall, NERC FUTURE-STORMS project looking at changes in high impact events and is participating in the EUCP project which includes carrying out coordinated convection-permitting climate simulations over Europe.

Prior to joining the Met Office, Lizzie did a PhD at Imperial College London using observational data to study the variability of atmospheric water vapour.

Sophie Biskop

Sophie Biskop is Senior Project Coordinator and Postdoctoral Researcher at the Geographic Information Science group, Department of Geography at Friedrich Schiller University Jena, Germany. She directs her research towards quantifying and assessing the effects of climate change on hydrology in regions most threatened by and vulnerable to climate change. She accomplishes this by combining hydrological modelling with regional projections of future climate change to evaluate how hydrological extremes such as floods and droughts will change at a catchment-to-regional scale, thereby supporting sustainable management and planning for water security in a changing environment. Biskop currently leads the BMBF-funded project “Water Risks and Resilience in Urban-Rural Areas in Southern Africa - Co-Production of Hydro-Climate Services for an Adaptive and Sustainable Disaster Risk Management (WaRisCo)” and is the German Project Coordinator of the BMBF-funded project “TIPPing Points Explained by Climate Change (TIPPECC)”.

Speakers

Georgiana Gordon-Strachan

Dr. Gordon-Strachan holds a PhD in Biochemistry from the University of the West Indies and an MSc in Health Policy, Planning and Financing from the London School of Hygiene and Tropical Medicine, University of London. She is the 2019 recipient of the Vice Chancellor's Award for Excellence in Research. She is the former Director of Epidemiological Research and Data Analysis at the Ministry of Health, Jamaica and the former Director of the Mona Office for Research and Innovation of the University of the West Indies, Mona. She is currently employed to the Caribbean Institute of Health Research where she serves as Director of the Tropical Metabolism Research Unit. She is the Executive Director of the Lancet Countdown's Health and Climate Change Regional Centre for Small Island Developing States. She has coauthored 83 peer-reviewed publications, three books and five book chapters.

Edwin Castellanos

Dr. Edwin Castellanos is the Science Director of the Inter-American Institute for Global Change Research (IAI). In this role, he supports the development and dissemination of global environmental change science to inform decision-making across the Americas. Dr. Castellanos has more than 25 years of experience in research and higher education in Guatemala and Mesoamerica in climate change and management of natural resources, with a particular focus on freshwater and forest management. He holds a Ph.D. in Environmental Science from Indiana University in the United States. He has been the lead researcher on multiple national and regional projects on climate change adaptation by rural and Indigenous communities, including a CRN-II project funded by the IAI. His research also includes studying the causes of deforestation and associated carbon emissions as part of REDD+ initiatives.

Dr. Castellanos is also the Coordinating Lead Author in the IPCC 6th Assessment Report's chapter on vulnerability and adaptation for Central and South America, member and Chair of the IAI's Science Advisory Committee, and a member of the External Advisory Council for the World. (Source: Inter-American Institute for Global Change Research (IAI) Website, URL: https://www.iai.int/en/post/detail/Edwin-Castellanos-bio, Retrieved on June 6, 2024)

Speakers

Maya Chung

Maya Chung is a PhD candidate at Princeton University and a Science, Technology, and Environmental Policy Fellow at the High Meadows Environmental Institute. Her research uses global climate models to investigate the El Niño-Southern Oscillation and its interactions with infectious disease, as well as extreme climate change impacts on ocean circulation. She is advised by Profs. Gabriel Vecchi, C. Jessica Metcalf, and Bryan Grenfell.

Cedric Van Meerbeeck

Cedric Van Meerbeeck is a Climatologist at the Caribbean Institute of Meteorology and Hydrology. He Holds a PhD in Earth Science (Climate Modelling) from Vrije Universiteit) Amsterdam, Amsterdam, The Netherlands. Over his career, he has participated in over seven (7) international research projects where he has been investigating the driving mechanisms of climate change in collaboration with 25 world-class research institutes. He has published over 20 articles thus far focused on past, present and future climate in Europe, the Atlantic, Antarctica and the Southern Ocean. In those projects, he has been coordinating and implementing climate modelling efforts to advance the state-of-the-art in climate science.

Elizabeth Emanuel

Elizabeth is an international development expert with over twenty years' development experience. Since 2009 she has been leading the Technical Assistance and Corporate Communications portfolios of CCRIF. She has worked extensively in public policy, DRM, development planning, environmental management and education, and project management. She has undertaken work for several development partners including many UN agencies and has extensive experience working with Governments in the Caribbean and working on projects in Africa. She has worked with 5 countries in the preparation of their Voluntary National Reviews of the SDGs.

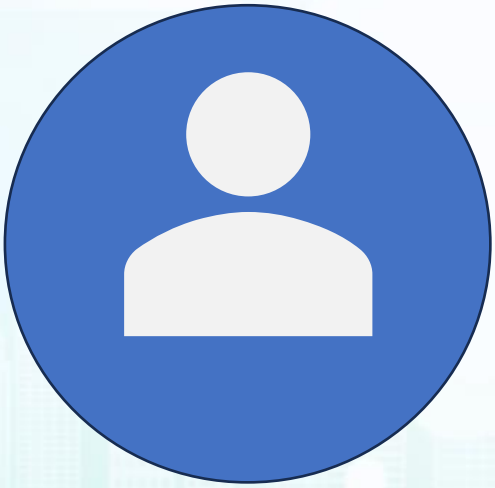
Speakers

Justin Sobion

Justin is an international lawyer from Trinidad and Tobago. After practising law for several years, he worked with the Ministry of Foreign Affairs of Trinidad and Tobago. On this assignment, he was posted to his country's High Commission to the United Nations (UN) in Geneva, Switzerland. Subsequently, Justin served as an Associate Human Rights Officer at the Office of the President of the UN Human Rights Council in Geneva. Presently Justin is a PhD candidate (Environmental Law) and Tutor at the Auckland Law School in New Zealand. He also is the Coordinator for Caribbean states at the ICJ advisory proceedings on climate change.

Iris Keizer

Climate Scientist and Sea Level rise Researcher, Royal Netherlands Meteorological Institute (KNMI).



Teddy Allen

Climate Scientist, Caribbean Institute for Meteorology and Hydrology, Barbados.

Workshop Agenda

MONDAY JUNE 10, 2024 Day 1: Detection and Attribution Science – What's the Relevance? Moderator: Tannecia Stephenson, FST, The UWI Mona		
8:30-9:00	Registration	
9:00-9:45	Opening Ceremony: Chair: Tannecia Stephenson (The UWI, Mona) Welcome and Introductory Remarks Short Remarks 1. Professor Marvin Reid | Deputy Principal (Act.), The University of the West Indies (Mona) 2. Government of Jamaica – Ministry of Economic Growth and Job Creation 3. Caribbean Community Climate Change Centre (CCCCC) 4. Caribbean Catastrophic Risk Insurance Facility (CCRIF SPC)	
9:45-10:00	STRETCH BREAK	
10:00-10:30	Who's in the Room? – Participant Introductions Introduction to the Week – Michael Taylor (The UWI, Mona)	
10:30-11:00	**Talk 1:** Opening Plenary | Dawn of a 1.5 °C warmer world – the need for climate change attribution science | Francois Engelbrecht, Intergovernmental Panel on Climate Change (IPCC), Global Change Institute – University of Witwatersrand	
11:00-11:30	COFFEE BREAK	
11:30-12:30	**Talk 2:** Why the Caribbean must consider Detection and Attribution Science | Prof Taylor, The University of the West Indies **Talk 3:** The Loss and Damage Fund and other Climate Finance Mechanisms – Potential Role for Science if any | Sasha Jattansingh, Climate Analytics	
12:30-1:45	Lunch	
1:45-2:45	**Talk 4:** Climate Justice - A Caribbean perspective on the role of evidence and science in the ITLOS and ICJ Advisory Opinions on climate change | Justin Sobion, Caribbean Coordinator of the International Court of Justice (ICJ) Advisory Opinion on Climate Change (Remote) **Talk 5:** Parametric Insurance as a strategy for Loss and Damage: The Case for CCRIF SPC | Caribbean Catastrophic Risk Insurance Facility CCRIF SPC	
2:45-3:15	COFFEE BREAK	
3:15-4:15	Taking it All In - Wrap Up Discussion and Participant Feedback	
4:15-4:30	Workshop Photo and DEPARTURE	

Workshop Agenda

TUESDAY JUNE 11, 2024 Day 2: Methodologies in Attribution Modelling – Global Approaches (Day 1) Moderator: Francois Engelbrecht, Global Change Institute, University of Witwatersrand	
9:00-10:30	**Quick Review of Day 1** **Talk 1:** Km-scale atmospheric modelling and its potential uptake in attribution science | Lizzie Kendon, UK Met Service) - Remote **Talk 2:** Methodologies in attribution modelling of hydrological impacts | Sophie Biskop, Friedrich Schiller University, Germany
10:30-11:00	COFFEE BREAK
11:00-12:15	**Talk 3:** KNMI's contribution to World Weather Attribution (WWA)| Iris Keizer, Royal Netherlands Meteorological Institute, KNMI Practical Exercise: Event detection using the KNMI Climate Explorer **Talk 4:** Detection and Attribution Science for Atlantic Hurricane Activity | Thomas Knutson, National Oceanic and Atmospheric Administration (NOAA), USA - Remote
12:15-1:30	LUNCH
1:30-2:30	**Talk 5:** The Anthropogenic Signal of Contemporaneous Droughts in the Caribbean and Central America | Dimitris Herrera, University of Tennessee, Knoxville - USA **Talk 6:** Overview of Caribbean Climate Modelling Work | Dr. Jayaka Campbell/ Arnaldo Bezanilla, Caribbean Climate Modelers' Consortium
2:30-3:00	COFEE BREAK
3:00-4:00	Taking it All In - Wrap Up Discussion and Participant Feedback
4:30-6:30	**Social Event:** UWI Office of the Principal and UWI GICSRD (Global Institute for Climate Smart Resilient Development) Climate People Meet and Greet
6:30	DEPARTURE

Workshop Agenda

WEDNESDAY JUNE 12, 2024 Day 3: Methodologies in Attribution Modelling – South African Experience (Day 2) Moderator: Francois Engelbrecht, Global Change institute, University of Witwatersrand	
9:00-10:30	**Quick Review of Day 2** The two main approaches to attribution **Talk 1:** The probabilistic (statistical) approach to climate change attribution **Talk 2:** Weather event attribution
10:30-11:00	COFFEE BREAK
11:00-12:30	Building an event-attribution modelling system **Talk 3:** The Africa-Based climate change km-scale (convection permitting) event-attribution system at the Wits Global Change Institute. **Talk 4:** Attribution of intense storms: strengths and weaknesses of probabilistic vs event-attribution: the case of South Africa's Durban floods.
12:30-2:00	LUNCH (Extended lunch with optional UWI Campus Tour)
2:00- 3:00	Operational attribution: its benefits and pitfalls **Talk 5:** Recent examples of operational attribution: how should Global South Scientists respond?
3:00-3:20	COFFEE BREAK
3:20-4:20	Taking it All In - Wrap Up Discussion and Participant Feedback
4:30	DEPARTURE

Workshop Agenda

THURSDAY JUNE 13, 2024 Day 4a: Climate Impacts Attribution Moderator: Georgiana Gordon-Strachan, Caribbean Institute for Health research, Lancet SIDS Centre	
9:00-10:30	**Quick Review of Day 3** **Talk 1:** Detecting Climate Change impacts on health in the Caribbean | Georgiana Gordon-Strachan, Caribbean Institute for Health Research, and Lancet SIDS Centre **Talk 2:** Climate Change impacts on health in Latin America and the Caribbean | Edwin Castellanos, Science Director, InterAmerican Institute for Global Change, IAI, Uruguay
10:30-11:00	BREAK
11:00-12:30	**Talk 3:** Infectious disease dynamics in a changing climate| Maya Chung, High Meadows Environmental Institute (HMEI), Princeton, USA **Talk 4:** Tropical cyclones and vector-borne diseases: A case study on malaria in Madagascar| Benjamin Rice, HMEI and Department of Ecology and Evolutionary Biology, Princeton, USA
12:30-1:45	LUNCH
Day 4b: Caribbean Climate Extreme Events Moderator: Abel Centella, Instituto de Meteorlogia (INSMET), Cuba	
1:45-2:45	**Talk 5:** The Caribbean Warming of 2023 and into 2024: Regional variability and possible atmospheric drivers| Teddy Allen, Caribbean Institute for Meteorology and Hydrology, Barbados **Talk 6:** Extreme Climate Events in the Caribbean in recent years | Cedric Van Meerbeeck, Caribbean Institute for Meteorology & Hydrology (CIMH)
2:45-3:00	STRETCH BREAK
3:00-4:00	Taking it All In - Wrap Up Discussion and Participant Feedback
5:00-7:30	**Public Lecture** - 'Loss & Damage: The urgent need for climate change attribution science in the Global South' (Partnership with P.J. Patterson Institute for Africa-Caribbean Advocacy and Government of Jamaica) **Keynote Lecture:** Prof. Francois Engelbrecht

Workshop Agenda

FRIDAY JUNE 14, 2024 Day 5: Establishing a Climate Detection and Attribution Programme in the Caribbean To-Do List Moderators: Francois Engelbrecht and Michael Taylor	
9:00-10:30	**Quick Review of day 4** **Talk 1:** Designing Detection and Attribution experiments for Caribbean Group Exercise: Designing Detection and Attribution experiments for Caribbean
10:30-11:00	BREAK
11:00-12:30	Group Exercise Reporting Discussion: What resources would be needed?
12:30- 1:45	LUNCH
1:45-3:15	**Talk 2:** Global South Consortium Collaboration and Funding Opportunities. Next Steps? Discussion: Next Steps
3:15-3:30	Workshop Review and Thanks
3:45	DEPARTURE

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