



CCRIF News

CCRIF, A NOT-FOR-PROFIT COMPANY, IS THE FIRST AND ONLY
MULTI-COUNTRY RISK POOL IN THE WORLD

CCRIF PREPARES PLAN TO ENHANCE THE VALUE AND USAGE OF THE REAL-TIME FORECASTING SYSTEM (RTFS) IN THE REGION

The Real-Time Forecasting System (RTFS) is a storm impact forecast tool which provides users (CCRIF member countries and various international development partners) with real-time hurricane hazard and impact information. The RTFS is made available at the beginning of the Atlantic Hurricane Season each year.

At the start of the 2010 Hurricane Season, CCRIF issued over 100 usernames and passwords to its members, staff as well as many of the region's international development partners (IDPs) to allow access to its upgraded Real-Time Forecasting System (RTFS). The main users of the RTFS product include disaster and emergency managers and meteorological officers. This was made possible with technical support from Kinetic Analysis Corporation (KAC) and the Caribbean Institute of Meteorology and Hydrology (CIMH).

Along with access to the RTFS site, CCRIF also provided these persons with the following reference documents as a means of guiding their use of the RTFS:

- RTFS User Guide (for accessing secure RTFS site on CCRIF's website)
- RTFS Data User Guide

- Google Earth Notes
- TAOS-RTFS Outputs for user selected locations
- A Guide to Understanding the Real-Time Impact Forecasting System

Essentially, the RTFS outputs can be used to produce reports, maps, and other guidance documents in support of emergency management. Emergency managers can use the RTFS information as triggers for preparedness and alert procedures. For example, shelter management can be informed when the maximum wind speed is expected at that location. The decision to evacuate a low-lying area can be informed by the maximum storm surge height expected just off the coast at that location.

After carefully assessing the usage of the system by its members during the 2010 Hurricane Season and the many benefits that the use of the system could have for member countries, the CCRIF Team prepared a strategic plan aimed at enhancing the value and usage of the RTFS across the Region.

Story continues on Page 7

SPECIAL FEATURE: The Importance of Partnerships in Executing the CCRIF Mandate

This feature is an excerpt from two speeches delivered by the Chairman of CCRIF, Mr. Milo Pearson. In both speeches, Mr. Pearson discusses the critical role that establishing partnerships has played in helping CCRIF to fulfil its mission. He emphasises how these partnerships with local and regional organisations have resulted in enhancing the role of CCRIF within the region; their contribution to disaster risk management and how they have enabled the Facility to take advantage of regional knowledge and expertise.

In this issue

CCRIF Participates in COP 16
CCRIF End of Season Hurricane
Report
The Importance of Partnerships in
Executing the CCRIF Mandate
Policy Renewals
Guy Carpenter Joins the CCRIF Team

CCRIF Participates in COP 16



CCRIF was actively involved in the region's preparations for participation in COP16 – the United Nations Climate Change Conference which took place in Cancún, Mexico, from 29 November to 10 December 2010. The conference ended with the adoption of a package of decisions, known as the Cancún Agreements that set all governments more firmly on the path towards a low-emissions future. The Agreements acknowledge the goal of reducing emissions from industrialised countries by 25-40 per cent (relative to 1990) by 2020 and support enhanced action on climate change in the developing world.

The Cancún Agreements include the Cancún Adaptation Framework which "recognises the need to strengthen international cooperation and expertise to understand and reduce loss and damage associated with the adverse

effects of climate change, including impacts related to extreme weather events and slow onset events" and calls for the development of a Work Programme in preparation for a decision to establish (or not) an international insurance mechanism in the future. CaribRM worked with CCCCC and alongside international partners such as Munich Climate Insurance Initiative (MCII) to develop recommended elements of the Work Programme, which were submitted to UNFCCC in February 2011.

CCRIF also participated in the inaugural World Climate Summit held 4-5 December 2010 during COP16. This business conference, hosted by World Climate Ltd, gathered the world's leading businesses, financiers, and governments with the aim of accelerating solutions to climate change. CCRIF participated in the panel discussion on "*Adapting to Climate Change in the Developing World: Scaling Up our Response through Public-Private Collaboration*" This session was hosted by the ClimateWise initiative which is facilitated by the University of

CCRIF was described in news reports after the Conference as the climate and disaster risk insurance facility to emulate.

Cambridge Programme for Sustainable Leadership.

Dr Simon Young, CEO of CaribRM, CCRIF's Facility Supervisor, participated at a side event entitled "*Adaptation, Risk Reduction and Insurance*," organised by the Munich Climate Insurance Initiative (MCII) held on 7 December. Dr Young delivered a presentation, "*CCRIF: Demonstrating the Utility of Risk Pooling as a Climate Change Adaptation Tool*," which described the performance of CCRIF in providing catastrophe insurance as well as its contribution toward regional capacity building in disaster management. CCRIF was described in news reports after the Conference as the climate and disaster risk insurance facility to emulate.

 WORLD CLIMATE SUMMIT
THE BUSINESS CONFERENCE DURING COP16



CCRIF-UWI Partnership

In January this year the University of the West Indies (UWI) awarded CCRIF scholarships to the following three graduate students in the MSc in Disaster Management programme at the Mona campus (Jamaica).

- Ms Gerarda Ramcharansingh (from Trinidad & Tobago)
- Mr Kevin Douglas (from Jamaica)
- Mr Dorlan Burrell (from Jamaica)

This brings the total number of scholarships awarded under the UWI Scholarship Programme for the academic year 2010-2011 to six.

About CCRIF

CCRIF is a risk pooling facility, owned, operated and registered in the Caribbean for Caribbean governments. It is designed to limit the financial impact of catastrophic hurricanes and earthquakes to Caribbean governments by quickly providing short-term liquidity when a policy is triggered. It is the world's first and, to date, only regional fund utilising parametric insurance, giving Caribbean governments the unique opportunity to purchase earthquake and hurricane catastrophe coverage with lowest-possible pricing. CCRIF represents a paradigm shift in the way governments treat risk, with Caribbean governments leading the way in pre-disaster planning. CCRIF was developed through funding from the Japanese Government, and was capitalised through contributions to a multi-donor Trust Fund by the Government of Canada, the European Union, the World Bank, the governments of the UK and France, the Caribbean Development Bank and the governments of Ireland and Bermuda, as well as through membership fees paid by participating governments.

CCRIF End of Season Hurricane Report – Assessment of 2010 Tropical Cyclone Events

This article provides an analysis of the behaviour of the Caribbean Catastrophe Risk Insurance Facility's (CCRIF) Second-generation (2G) Hazard and Loss Estimation Model after the 2010 Atlantic Hurricane Season and is taken from the Report "Verifying CCRIF's Loss Modelling Assessment of 2010 Tropical Cyclone Events" prepared by CaribRM, CCRIF's Facility Supervisor. For a full copy of this report visit the CCRIF website – www.ccrif.org.

The CCRIF Facility Loss Model (FLM) is a stand-alone tool designed by Kinetic Analysis Corporation to enable the Facility to:

- estimate loss probabilities for individual territories and a portfolio of territories with specific contract terms;
- price contracts for specific territories; and
- estimate site-specific hazard levels and losses for specific events - either historical or active events - during the contract period.

Using the hazard modelling results, the loss module calculates event exposure losses by applying the location and asset class-specific damage assessments to the asset valuations for each individual element in the exposure database. The model calculates losses for each individual asset in the exposure database using damage functions specific to the asset class and the specific hazard levels at the asset site.

A major benefit of the new model is that it results in a reduction in the basis risk inherent in the loss indexing approach used in the first-generation EQECAT model. The purpose of the report is therefore to investigate whether the model accomplished this goal by explicitly addressing the following questions:

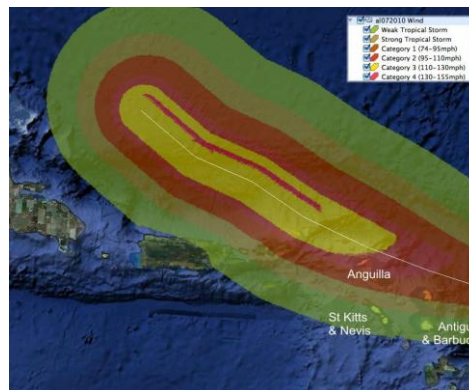
- How closely are the CCRIF model wind footprints matched to the NHC's H*WIND and other modelled footprints?
- How does ground meteorological data fit with the CCRIF footprint for wind?
- Do the final losses generated by the model correspond with government and independent estimates?
- How does the breakdown of impact costs affect what can be considered government losses?

The report analysed the performance of the CCRIF model for those events regarded as reportable events and those which would have triggered a payout in a given country. The report

therefore examined the performance of the model for Tropical Cyclones Earl, Richard, Tomas and Nicole. **For this article only the performance for one Tropical Cyclone (Earl) will be reported.**

Earl was the second major hurricane of the 2010 Tropical Atlantic Hurricane Season. The system achieved the minimal requirements of a defined event under the CCRIF Policy by having winds of greater than 39mph somewhere in three member states: Antigua & Barbuda, St Kitts & Nevis and Anguilla.

One of the outputs from the CCRIF 2G model is a wind footprint. As can be seen below, the islands of Antigua, St Kitts and Nevis all had modelled sustained winds of weak tropical storm force (less than 50 mph), while Barbuda encountered Category 1 hurricane winds (74-95 mph) and Anguilla Category 2 winds (96-110 mph).



*CCRIF 2G
model wind
footprint for
TC Earl*

The CCRIF modelled windspeeds were generally consistent with, though somewhat higher than, surface windspeed estimates from the NOAA-NHC H*WIND algorithm, which rationalises all actual windspeed measurements collected on the ground and from flights and satellites.

NOAA-NHC wind estimates for Anguilla indicated peak 1-minute sustained surface winds of 80 to 90 mph, somewhat lower than local reports of measured 88mph and estimated 100mph+ winds. Wind footprint estimates from the CCRIF model showed peak winds at Category 2 (96 to 110 mph) across all of Anguilla. **This indicates that the CCRIF model was slightly more accurate at estimating the actual winds observed in Anguilla when compared to the close correlation with on-the-ground measurements.**

Story continues on Page 6

The Importance of Partnerships in Executing the CCRIF Mandate

Excerpts from speeches delivered by CCRIF Executive Chairman, Milo Pearson in December 2010 at the 5th Annual Conference on Comprehensive Disaster Management held in Jamaica and the 34th Annual Conference on the Caribbean and Central America held in Miami, Florida

This article drawn from two speeches delivered by the Executive Chairman highlights the importance of partnerships in disaster management and demonstrates how the Caribbean Catastrophe Risk Insurance Facility is built on partnerships that operate in a participatory and collaborative framework all geared towards advancing the sustainability of the countries of the Caribbean. This is critical as over the last three decades, the Caribbean region has suffered direct and indirect losses estimated at US\$700 million and US\$3.3 billion respectively, owing to natural disasters associated with extreme weather events. This is likely to become worse as the impacts of climate change become more pronounced.

In the pursuance of our mission – to serve Caribbean governments and their communities in reducing the economic impact of natural catastrophes by providing immediate liquidity through a range of affordable insurance products in a way that is financially responsible and responsive to their needs – CCRIF recognises the critical role of establishing partnerships for sustainability. CCRIF engages in partnerships at three levels to fulfil its mission.

1. CCRIF works with its members in the region to establish and make available a knowledge bank of relevant and credible resource materials on risk transfer, CCRIF products and disaster risk reduction as well as to facilitate the exchange of technical, scientific and management information on risk transfer mechanisms so that our members are well informed prior to purchasing our products.
2. CCRIF works with key regional organisations to design and implement programmes to strengthen Caribbean governments' disaster response and mitigation capacity

and develops strategic alliances through MoUs and other mechanisms with regional institutions to reduce the existing vulnerabilities in the countries of the region. CCRIF has signed MOUs with three key regional organisations - the Caribbean Institute for Meteorology and Hydrology (CIMH), the Caribbean Disaster and Emergency Management Agency (CDEMA), and the UN Economic Commission for Latin America and the Caribbean (ECLAC) – and we are currently in discussion with three other entities

3. CCRIF works with organisations at the regional and international levels on collaborative projects that are designed to develop institutional enabling environments and regional supporting mechanisms for knowledge sharing, scaling up good practices, capacity building and technology

These partnerships are already resulting in 'win-win' situations that benefit all actors involved leading to improvements in managing risks and sustainable development. But equally important is that these partnerships with local and regional organisations have resulted in enhancing CCRIF's role of within the region; its contribution to disaster risk management and how these partnerships have enabled the Facility to take advantage of regional knowledge and expertise. The Facility is therefore a full partner in the development of the Caribbean region, providing technical assistance and alliances to improve disaster risk management in the region.

Our partnerships and collaborations have contributed to us being responsive to the needs of our members in many ways. This is evidenced by:

- The renewal of members' policies over the past three years and the confidence of regional governments in the operation of CCRIF and the role that parametric insurance plays in disaster risk management.

- The development of a new excess rainfall product which will be available in 2011 to complement our current wind-based hurricane policies. The regional rainfall model, upon which the excess rainfall model is based, was launched in February 2010 in collaboration with the Caribbean Institute of Meteorology and Hydrology (CIMH) – our main partner in the development of this new product. In fact, it is CIMH who houses and operates the model on a 24/7 basis.
- The development and distribution to our members and key stakeholders of the Real-Time Forecasting System (RTFS), a storm impact forecast tool which provides disaster managers, policy makers and meteorological officers with real-time hurricane hazard and impact information during a tropical cyclone to support effective preparedness and response, evacuation decision making, planning for pre-positioning of equipment and supplies, activation of mutual assistance arrangements and asset management. Once again the CIMH is a key partner as they work with CCRIF to build the capacity of disaster and emergency managers, meteorological officers and other decision makers within the region to understand how the RTFS is to be interpreted and utilised.
- Development and implementation of a Technical Assistance (TA) Programme that aims to help Caribbean countries deepen their understanding of natural hazards and the potential impacts of climate change on the region. Within the TA Programme, CCRIF recently conducted a study on the Economics of Climate Adaptation (ECA) in eight Caribbean countries towards providing a tool to assist the region's decision makers in defining and developing sound climate adaptation strategies. CCRIF partnered with the Caribbean Community Climate Change Centre (CCCC), UN-ECLAC and other regional institutions – and received support from two private international firms, McKinsey & Co. and SwissRe - to conduct the data collection and analysis for the study. Preliminary findings of the study revealed that current climate risk is already high, with annual expected losses of up to 6% of local GDPs in some countries and that, in a worst-case scenario,

climate change has the potential to increase these expected losses by 1 to 3 percentage points of GDP by 2030. Also within the Technical Assistance Programme, CCRIF has an agreement with University of the West Indies to provide scholarships to graduate and undergraduate students in areas of study related to disaster management.

As you see, we are trying to do more than provide insurance policies to our members. We continuously work towards engaging and supporting them in the development and implementation of strategies for disaster risk management.

We know that our success in the Region can only be ensured through collaborative arrangements and partnerships that not only foster support for disaster risk management but builds on existing mechanisms, institutions, tools and capacities towards sustainable prosperity.

CCRIF has been making a major effort over the past two years to bring together the finance and insurance sector with the disaster management community as well as the meteorological agencies and other national stakeholders, for example environmental agencies. CCRIF has conducted a number of seminars and workshops where these officials have interacted. Through this process, CCRIF has opened the eyes of finance officials to the high cost of natural catastrophes in the Caribbean Region, a cost that is going to increase with climate change and which threatens the sustainability of the Region.

CCRIF therefore demonstrates that an innovative product can be enhanced and integrated into national and regional disaster management systems with effective and sustainable partnerships not only to improve those national systems but also to improve the product itself. We also know that CCRIF's success is partially based on sustainable partnerships at various levels which contribute to and reinforce knowledge sharing, best practices, and expertise and support for mutual outcomes.

CCRIF to Host World Forum of Catastrophe Programmes in the Caribbean in October 2011

Lookout for updates and special features in upcoming CCRIF Newsletters



End of Season Hurricane Report – CCRIF 2G Model

Story continues from Page 3

As expected for the level of modelled windspeed, the CCRIF loss model generated small government losses in Antigua & Barbuda and St Kitts & Nevis, both significantly below their trigger levels, while the loss in Anguilla was much more substantial, and triggered their policy.

Damage reports from the non-triggering countries, Antigua & Barbuda and St. Kitts & Nevis, indicated that rainfall-induced localised flooding was the main impact. Such impacts/losses are not covered by CCRIF's Hurricane policy and are not represented in the modelled loss results.

High waves and localised storm surge of several metres affected all of the northern Leeward Islands. However, the explicit modelling of coastal damage and loss in CCRIF's second-generation model had greatest influence in Anguilla, where the vast majority of economic activity is exposed to coastal hazards. As a low-lying island, Anguilla is impacted by coastal storm surge and wave damage, which have long-term detrimental impacts on the tourism-based economy.

Actual damage included some major roof loss, as well as flooding of government and other buildings. Power lines were downed across the island, and coastal damage was significant, including many beached vessels and beach

erosion. The CCRIF model output indicated a loss of just under US\$40 million in Anguilla. This was driven largely by the losses in coastal areas as a result of storm surge.

Localised flooding was reported from all of the islands affected. Local weather authorities in Anguilla reported at least 5 inches of rain and 10-foot waves. In Antigua & Barbuda and St Kitts & Nevis, less severe localised flooding and some tree damage was reported but these territories suffered no major losses.

Generally the CCRIF model appears to have performed fairly well, particularly with the inclusion of storm surge impacts which would have driven a significant portion of the losses induced by Tropical Cyclone Earl in Anguilla.

In concluding, it can be said that generally the model performed well and particularly so in the estimation of storm surge impacts on losses in coastal areas. One of the lessons learned from the review was the need for greater reporting on estimation of losses and impacts in affected member states. This information is critical in not only refining the CCRIF model but also in building awareness in countries of their risks and exposures.

Anguilla Uses CCRIF Payout after Hurricane Earl to Capitalise a Special Recovery Fund

CCRIF made early contact with key officials in Anguilla after the passage of Earl. Contacts in the Ministry of Finance indicated that the ~US\$4 million was used to capitalise a special recovery fund whose expenditure was controlled by a specially-convened committee to ensure transparency and sound fiscal control.

Apart from assisting with financing general recovery efforts, some of the funds released by the CCRIF were used to purchase upgraded weather monitoring data capture technology for the airport.

Two portable weather systems were also purchased with the funds for the eastern and western end of the island. This enhancement of the infrastructural capacity in Anguilla to collect key meteorological data is important in informing an increased understanding of hydro-meteorological risks which the country faces. In support of these measures CCRIF also provides its member countries with real-time storm impact forecasts from the CCRIF-supplied Real-Time Forecasting System (RTFS). Senior officials from the Department of Disaster Management indicated that the RTFS clearly had an impact on reducing damage levels and also helped to prevent loss of life as the storm passed over Anguilla.

CCRIF Calendar of Events

Visit our website at www.ccrif.org to view our calendar of events

CCRIF Real Time Forecasting System...

Story continues from Page 1

To undertake the assessment of the value of the RTFS to CCRIF members, a small telephone survey was conducted among various stakeholders to obtain information related to:

- use of the RTFS during the 2010 Atlantic Hurricane Season
- issues and challenges users may have encountered
- perception of the RTFS training as well as whether those who were trained were provided with access to the RTFS
- usefulness of the RTFS user manuals
- effectiveness of communication around RTFS access/use and training and possible improvements that may be required
- adequacy of the CCRIF website to support usage of the RTFS
- technical support that may be required by countries during TC events etc.

Of the 86 persons invited to participate in the survey, 31 persons responded which represented a little over a 36% response rate.

The RTFS survey revealed the following:

- 80.6% of respondents were familiar with the RTFS.
- 61.3% of respondents had a general understanding of the information or data produced by the RTFS.
- 64.5% of respondents had an understanding of the role that the RTFS can play in making decisions related to impacts on population and territory of expected hazard levels.

25.8% of the respondents actually used the RTFS in 2010.

- Five countries, Turks & Caicos Islands, Dominica, Anguilla, Belize and Haiti used the RTFS throughout the season.
- 51% of respondents indicated that they used other tools to help with forecasting hazard levels and the impact on population. Of this 51%, 37.5% of these respondents (or 19.1% of all respondents) also used the RTFS and indicated that the RTFS provides more localised data, has more detail, is more advanced than the other tools used, and is more useful.
- 49% of the respondents do not use any tools.
- 58.1% of the respondents said they would use the RTFS if they had more knowledge and training etc.
- 58.1% of respondents provided strategies by which CCRIF could enhance the use of the RTFS. Of these respondents, 39% wanted CCRIF to increase awareness and sensitisation activities around the RTFS; 44% wanted to see improvements in the training programme or greater access to training on the RTFS.

The results of the assessment showed that respondents felt that the RTFS was useful and could be part of the overall disaster management framework of their countries. This assessment therefore prompted CCRIF to develop a set of recommendations to better enhance the level of usage of the tool. To view the full assessment report, visit our website at www.ccrif.org.

Elements of the RTFS Plan... Moving Forward in 2011

To enhance the level and usage of the RTFS, CCRIF will in 2011:

- Review the various recommendations for technical amendments or additions to the RTFS with a view to amending the RTFS where feasible.
- Provide better and more focused communication to persons given access to the RTFS.
- Provide greater visibility to the RTFS and more aggressive marketing of the usefulness of the tool particularly in those countries where the system was not used and particularly where there appeared to be willingness to use the system.

- Work with CIMH to develop a more comprehensive training programme with clear learning objectives, course modules, and appropriate training materials
- Consider the possibility of a 1 to 2 day regional workshop in collaboration with CIMH and CDEMA to expose persons to the RTFS and its uses.
- Appoint an RTFS coordinator or a dedicated person/resource to provide technical support with respect to the RTFS to countries during the hurricane season.
- Review and revise the RTFS Booklet and Brochure
- Consider approaching UWI with a view to institutionalising the revised RTFS course or segments in appropriate programmes as part of the overall support that CCRIF is providing to UWI through its Technical Assistance Programme.

CARIBBEAN CATASTROPHE RISK INSURANCE FACILITY



A Quick Note

Between 2007 and 2010, 8 CCRIF policies were triggered in 7 member countries, resulting in a total payout to date of US\$32,179,470. Of these 8 policies, 3 were for earthquakes and 5 for hurricanes. St. Lucia received two payments one for an earthquake in 2007 and one for Hurricane Tomas in 2010.

CCRIF Policy Renewals – June 2011

The CCRIF policy renewal process for the 2011-2012 policy year has commenced. The process was initiated with letters informing members of the preliminary schedule for policy renewal activities. It is expected that pricing rates will remain approximately the same for the 2011-2012 year. As part of the renewal process, countries will be provided with detailed coverage adequacy analysis and are being encouraged to give due consideration to earthquake risks.

In addition to this, members were informed that the Facility now only requires 50% of the total premium to be held as paid-in Participation Fee. Hence the excess of this amount is available to members to co-fund their premium. Countries who are interested in the excess rainfall policy will also be contacted as part of the renewal process as excess rainfall coverage will be available for some CARICOM member countries during the 2011-2012 policy year.

Guy Carpenter Joins the CCRIF Team

Guy Carpenter & Company, LLC has joined the CCRIF Team as the new Placing Broker for the Facility. A call for expressions of interest was issued by CCRIF in November 2010 for eligible firms interested in providing the services of Placing Broker. This re-tendering process was in accordance with CCRIF's internal procedures and based on World Bank guidelines for the selection of consultants. Guy Carpenter & Company, LLC is the world's leading risk and reinsurance specialist and a member of Marsh & McLennan Companies. With over 50 offices worldwide, Guy Carpenter creates and executes reinsurance solutions and delivers capital market solutions for clients across the globe.

The Placing Broker works closely with CCRIF's Facility Supervisor in the execution and subsequent management of the risk transfer programme for CCRIF on an annual basis. Services also include provision of expert advice to the Facility Supervisor and Board of Directors in the development of the risk transfer strategy and provision of general intelligence and other relevant information on individual risk transfer markets (both traditional and capital markets). Guy Carpenter will commence work immediately in preparation for the renewal of CCRIF's reinsurance programme on 1 June 2011.

Guy Carpenter thus becomes the newest member of the CCRIF Team which provides services to the Facility. Other members of the Team are: Caribbean Risk Managers Ltd – Facility Supervisor; Sagikor Insurance Managers Ltd – Insurance Manager; London & Capital Ltd and EFG Bank, Cayman Branch – Asset Managers; and Sustainability Managers – Corporate Communications Manager.



Sixteen governments are currently members of CCRIF:

Anguilla, Antigua & Barbuda, Bahamas, Barbados, Belize, Bermuda, Cayman Islands, Dominica, Grenada, Haiti, Jamaica, St. Kitts & Nevis, St. Lucia, St. Vincent & the Grenadines, Trinidad & Tobago and Turks & Caicos Islands

Published by: Caribbean Catastrophe Risk Insurance Facility (CCRIF)
Contact: Caribbean Risk Managers Ltd, Facility Supervisor
Barbados: +1 246 426-1525; Jamaica: +1 876 920-4182; USA: +1 202 465-4301
Email: ccrif@ccrif.org; Website: www.ccrif.org