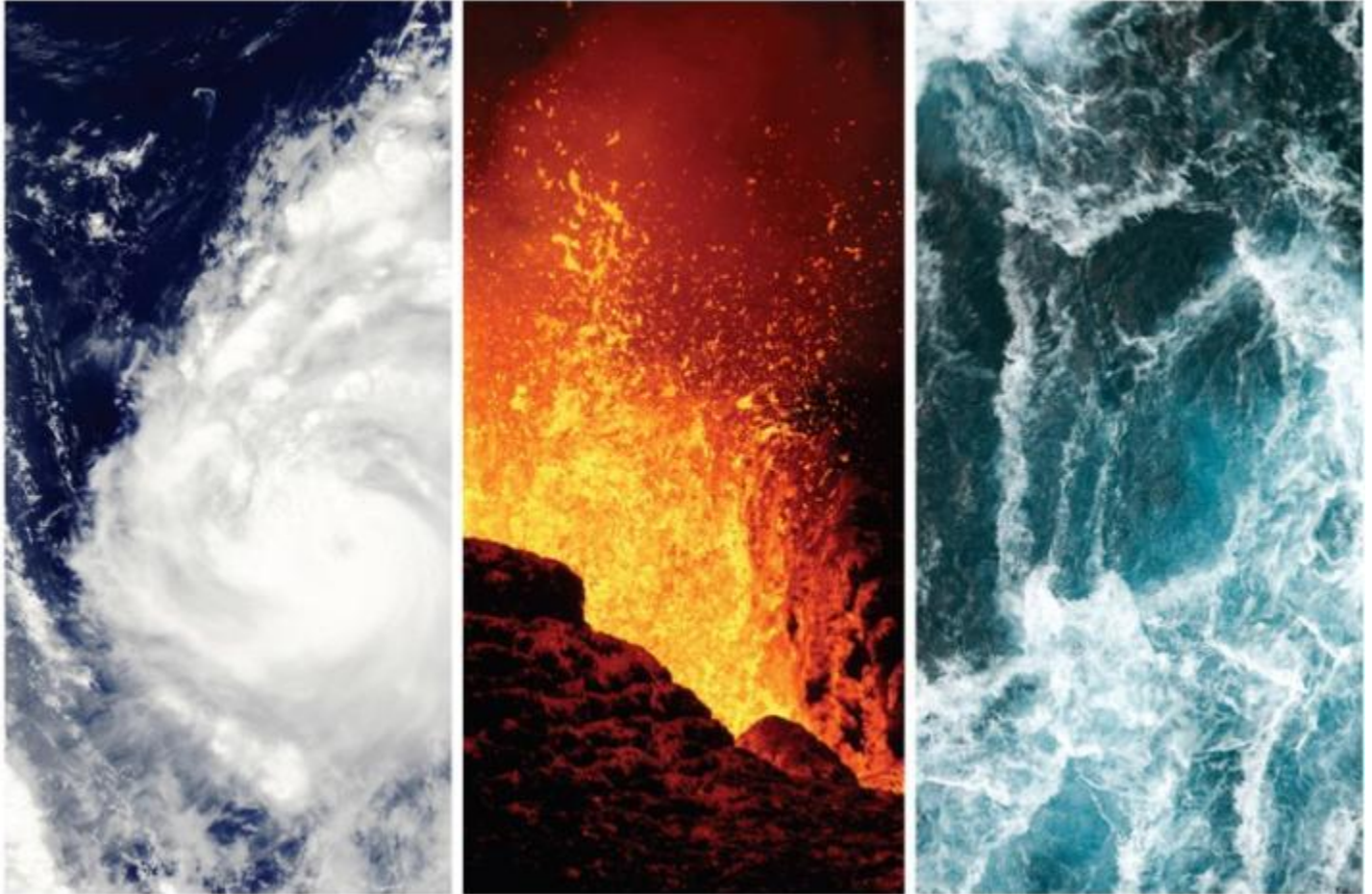


# Caribbean Risk Managers Ltd



## Special Event Bulletin Hurricane Earl

**30 August 2010**

# 1 THE EVENT

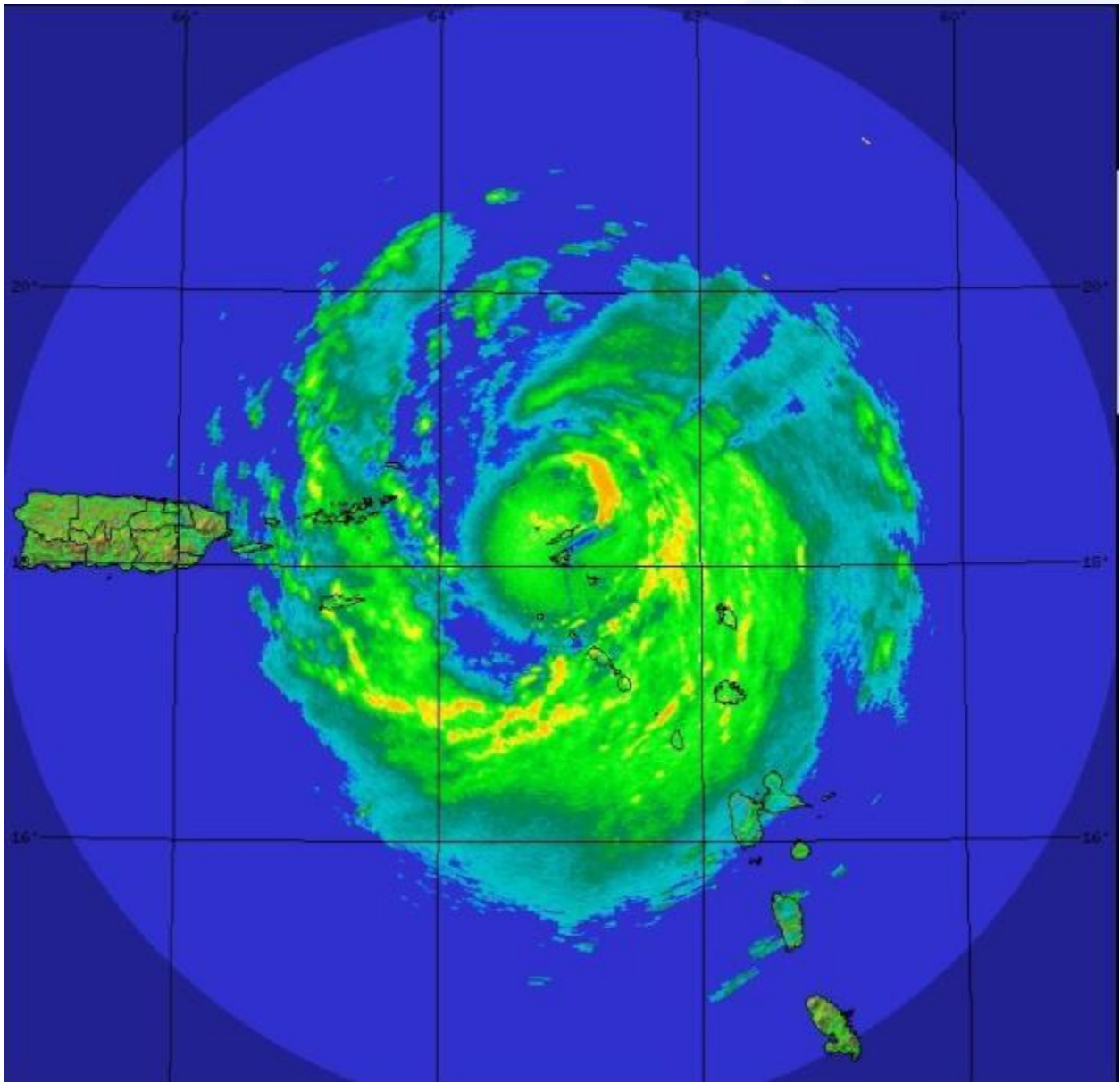
Hurricane Earl emerged off the African coast as an area of low pressure on 22 August 2010. It became Tropical Depression Seven and then Tropical Storm Earl on 25 August before intensifying into a hurricane on 29 August. Classified as a Cape Verde-type hurricane, it is the seventh depression, fifth storm, third hurricane and second major hurricane of the 2010 Tropical Atlantic Hurricane Season.

Moving west-northwest at around 15 mph over the northernmost Leeward Islands (Figure 1), Earl was upgraded to a Category 3 storm at 11am local time (1500 UTC) today, 30 August. A northerly turn early this morning took the storm to the north of Antigua & Barbuda and then immediately north of Anguilla and Anegada (the northern-most of the British Virgin Islands).



**Figure 1** Hurricane Earl, actual and projected track through the western North Atlantic Ocean. *Source: NOAA-NHC.*

Figure 2 shows the St Martin radar image of Earl from 1200 UTC (8am local time) this morning as it was passing close to Anguilla, and Figure 3 shows the GOES-13 image of Earl as it passed north of Anegada a little later in the day.



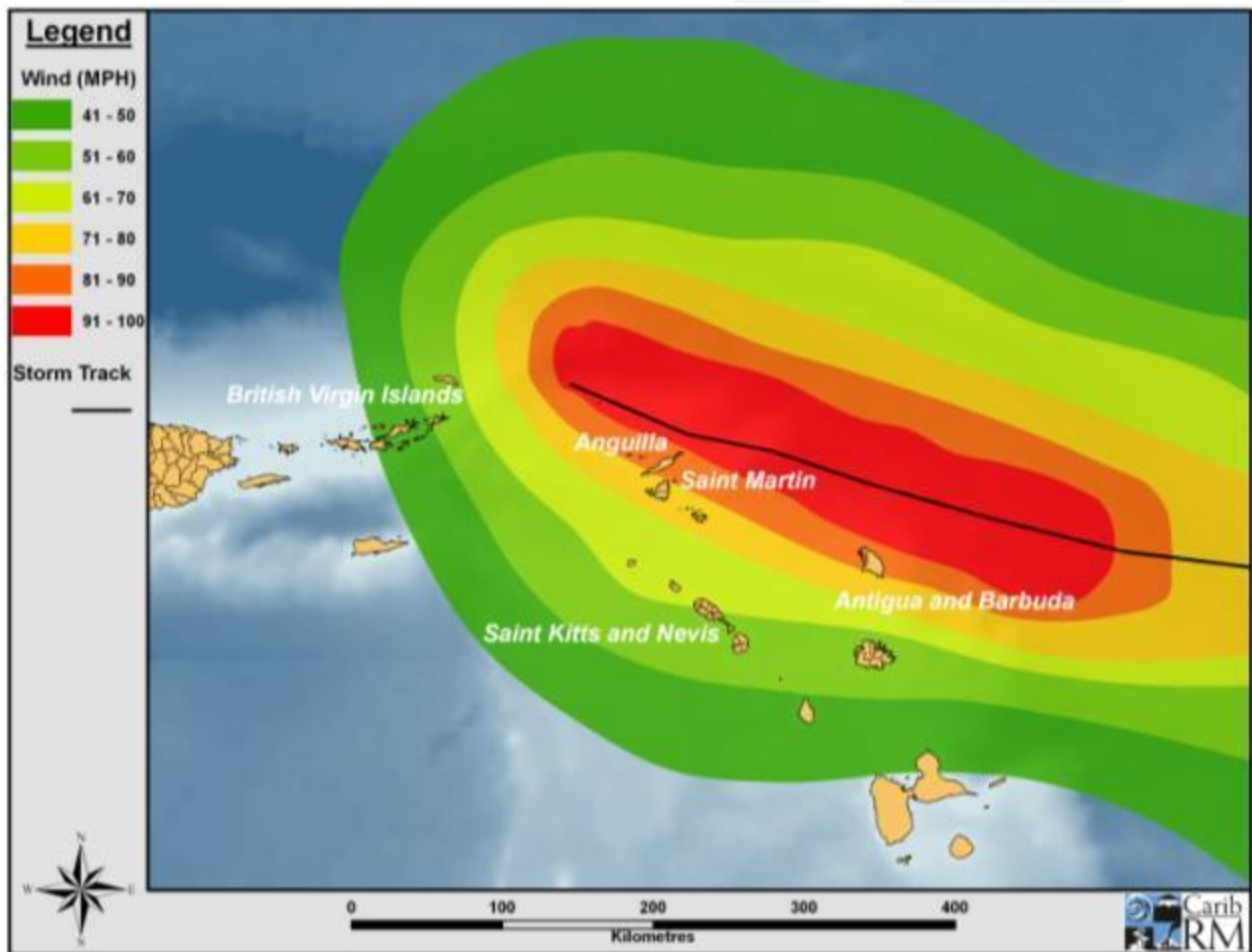
**Figure 2** Radar image of Earl from St Martin. *Source: Met Service of Netherlands Antilles & Aruba.*



**Figure 3** GOES-13 image of Earl close to Anegada. *Source: NOAA.*

NOAA-NHC wind estimates for Anguilla indicate peak 1-minute sustained surface winds of 80 to 90 mph (Figure 4), somewhat lower than local reports of measured 88mph and estimated 100mph+ winds during the morning local time. These winds occurred in the southeast quadrant of the storm, which was intensifying as it passed Anguilla. Wind footprint estimates from Kinetic Analysis Corporation show peak winds at Category 2 (96 to 110 mph) across all of Anguilla.

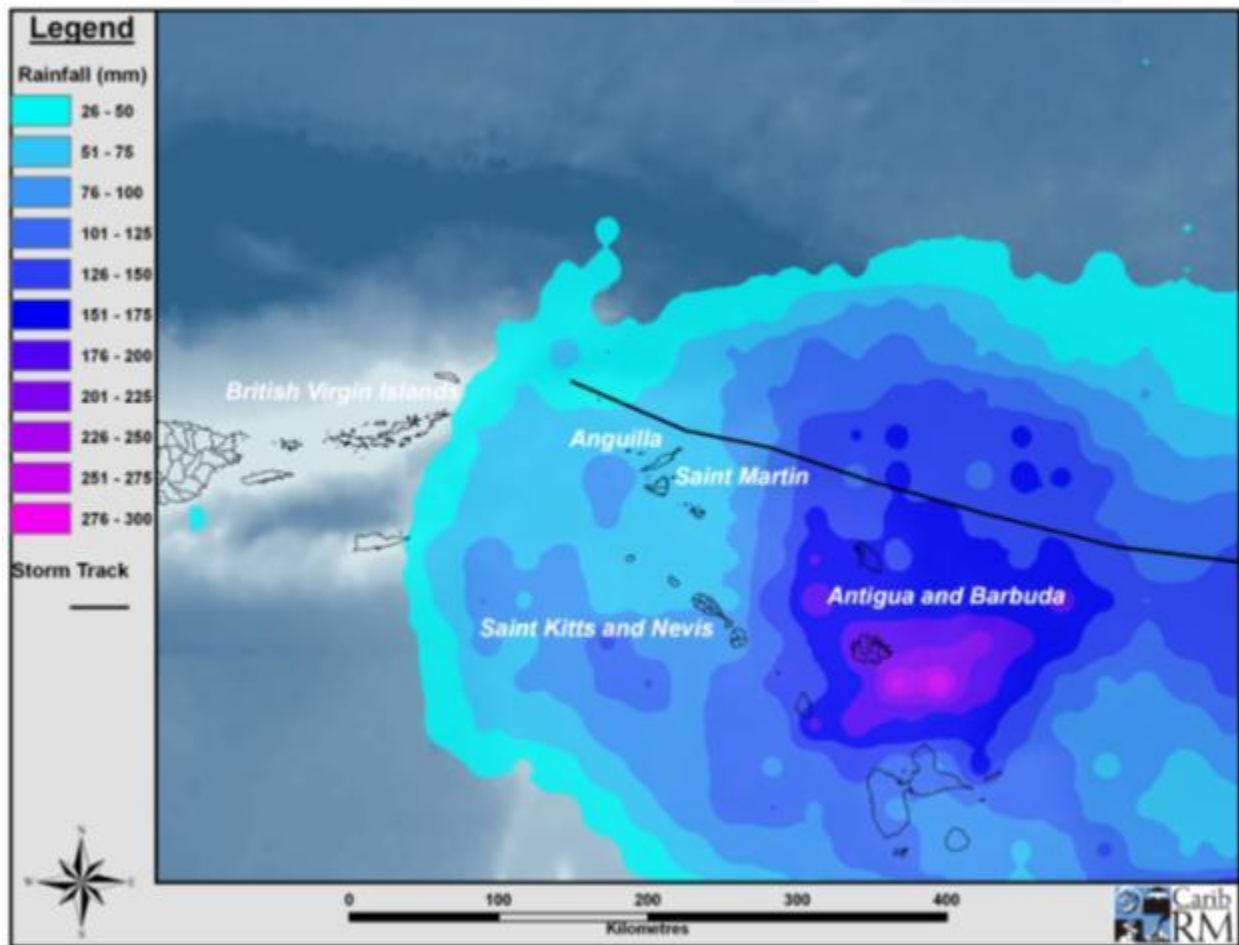
Similar wind speeds appear likely on Anegada (though these will probably not be measured.) Antigua and St Kitts & Nevis appear to have received only Tropical Storm force winds, with St Martin receiving minimal hurricane-force winds and Barbuda probably receiving winds similar in intensity to those in Anguilla.



**Figure 4** H\*WIND peak surface wind estimate for Earl as it skirted the northern-most Leeward Islands. Data to 1330 UTC on 30 August. *Source: NOAA-NHC.*

High waves and localised storm surge of several metres has affected all of the northern Leeward Islands although it is too early to estimate how significant these ocean conditions will have been.

Rainfall has also been heavy, with around 175mm (7 inches) reportedly measured in Antigua. Localised flooding is reported from all of the islands affected. Figure 5 shows the rainfall as estimated from the Tropical Rainfall Measurement Mission (TRMM) satellites; note that this only utilises data to 0900 UTC on 30 August so will not reflect full rainfall for Barbuda and northward. Peak storm total rainfall above 250mm (10 inches) appears possible, with even higher totals likely at high elevations.



**Figure 5** TRMM rainfall totals for Earl. Data from 0000 UTC on 29 August to 0900 UTC on 30 August. *Source: NASA/JSA.*

## 2 IMPACT

### *Anguilla*

In Anguilla, police reports indicate that the wind blew the roofs off buildings and damaged many utility poles. “The winds are whistling outside,” said Martin Gussie, a police officer involved in coordinating the emergency response. “When the gusts of wind come, each time it sounds stronger.” Other reports indicate widespread downed trees and utility lines, largely as a result of the late-morning winds from the southwest, which resulted from the intensification of Earl after it had passed Anguilla. Coastal damage also appears to have been significant, with beach erosion likely. Police and emergency management personnel aim to complete a damage assessment by the end of today.

### *Antigua and Barbuda*

Local weather authorities in Antigua report at least 5 inches of rain and 10-foot waves. They have also indicated that at least one home was destroyed with at least 8 people having to be evacuated and 350 people currently residing in shelters. There have been no reports of critical injuries. Rainfall-induced localised flooding (Figure 6) appears to be the main impact and Chris Grosvenor, Claims Manager of United Insurance Company Limited described the damage as mainly a “flood incident”.



**Figure 6** Photos of impacts in Antigua. *Source: Anjo Insurances/United Insurance Co Ltd.*

### ***British Virgin Islands***

Anegada, the northernmost of the BVI, was the closest of the islands to the centre of Earl and effects there have been mainly along the highly exposed coast. In particular, the marina appears to have sustained significant damage. Elsewhere in BVI, reports indicate winds close to or at Hurricane force, with some power lines down and some boats sunk. Rain is intermittent, though the heaviest rain appears to be produced after the storm has passed, so BVI may get much more rain during the rest of the day. Localised high wind gusts and surge/wave combinations appear to have inflicted damage in scattered areas across Tortola and other islands.

### ***Puerto Rico and US Virgin Islands***

Earl is passing some distance north and east of the USVI and Puerto Rico, although Tropical Storm force winds with higher gusts could cause some minor damage in more northern parts of USVI, and coastal damage is possible throughout the USVI and along the north and east coasts of Puerto Rico, as well as on Vieques and Culebra. However, rainfall-induced flooding and landslides are likely to be the major impact throughout these islands.

### ***Sint Maarten/St Martin***

In St. Martin, the storm resulted in toppled trees and electricity outages across most of the island, although there were no reports of serious damage. Heavy gusts of wind swirled debris across streets that were empty due to a government imposed curfew. Wind gusts up to 68mph were reported during the morning.

### ***St Kitts & Nevis***

In St Kitts and Nevis, localised flooding and some tree damage have been reported (Figure 7), but no major impacts appear likely.



**Figure 7** Photos of impacts in St Kitts. *Source: <http://www.islandbabble.blogspot.com/>*

### **3 OUTLOOK/FORECAST**

Forecasters indicate that the general west-northwest trend of the hurricane will persist through today before Earl takes a northwestern turn on Tuesday. It is anticipated that this will be associated with a general strengthening of the hurricane which will likely remain at Category 3 or above for most of the week as it moves northwards between the US east coast and Bermuda.

There is a chance that Earl could brush the US Mid-Atlantic region toward the end of the week, with its closest approach to North Carolina likely to be during Thursday. In any case, very heavy seas will affect the Mid-Atlantic coast throughout the week and into the US Labor Day weekend.

An area of disturbance midway between the African coast and the eastern Caribbean became Tropical Storm Fiona at 2100 UTC today, and it has a forecast track closely following that of Hurricane Earl, although it is currently not expected to strengthen to Hurricane force before passing by/through the northeastern Caribbean later in the week.

### **4 FURTHER INFORMATION**

CaribRM will provide further information on impacts within these countries as more information becomes available.

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Caribbean Risk Managers Ltd (CaribRM) was formed in 2006 through the merger of GeoSY Ltd with the Risk Management Division of CGM Group. We provide a broad range of bespoke risk management services throughout the Caribbean Basin and beyond.

At CaribRM, we view risk as a holistic, enterprise-wide problem, and our innovative solutions provide a range of choices to management in the cost-effective control of the identified risk. We provide bespoke solutions to client-specific risk management needs, utilising a broad range of modelling tools developed in-house and our unrivalled knowledge of the Caribbean region and the risks its residents and economies face.

CaribRM provides services and expertise to a wide variety of regional and global re/insurance brokers placing Caribbean risk as well as to individual private and public sector clients including the World Bank and many Caribbean Governments. We are Facility Supervisor (risk and operational managers) of the Caribbean Catastrophe Risk Insurance Facility, the world's only multi-national and parametric catastrophe risk pool.

CaribRM has a client and regional focus which is backed up by a commitment to scientific research, keeping track of the hazards of our ever-changing natural world and the global business and market conditions in which the region operates.



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