

HURRICANE DORIAN

Figure Analysis – Displacement Related to Disasters

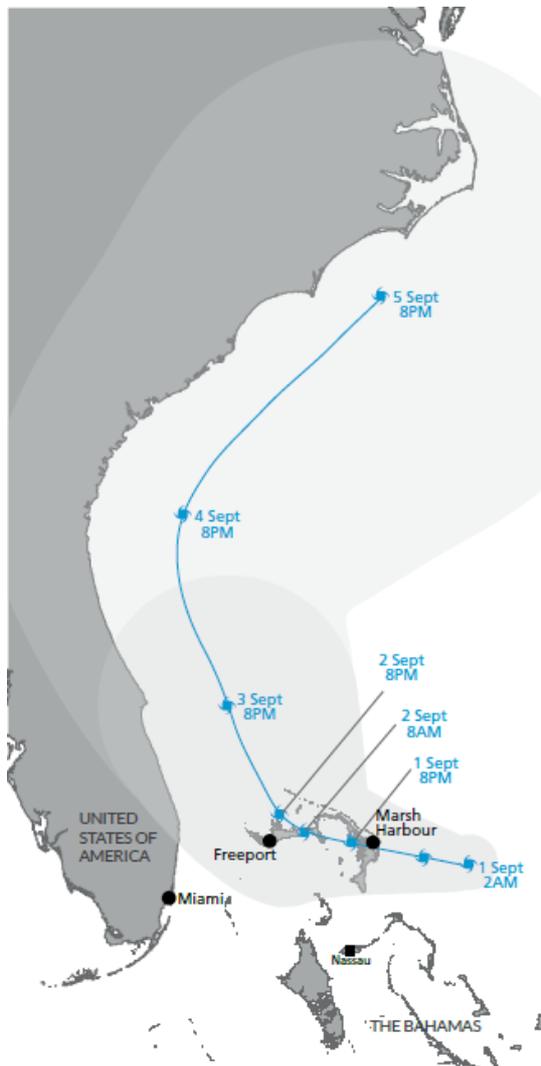
Glide N° TC-2019-000099-BHS and TC-2019-000095-DOM

CONTEXTUAL INFORMATION

The disaster event

Hurricane Dorian, the strongest hurricane on record ever to hit the Bahamas, caused extreme devastation and significant loss of life. It began as a tropical storm, which made landfall in Barbados on 26 August 2019. From Barbados, it passed over Grenada, Saint Lucia and Saint Vincent and the Grenadines before intensifying into a hurricane near the Virgin Islands. As it moved north-west, it continued to intensify into a Category 5 event on 1 September with sustained wind speeds of 295 kilometres an hour. It made landfall on the Bahamas on the same day, wreaking havoc until 3 September. During those days, Dorian was at its peak and coincided with uncommonly high tides caused by the alignment of solar and lunar gravitational pulls (also called [King Tide](#)). It was also stationary, exacerbating the impacts of hazards: wind, rain, waves and a storm surge. Satellite and aerial images showed unprecedented flooding and destruction on Abaco and Grand Bahama, the most affected islands.

Fig 1. Hurricane Dorian path



As Hurricane Dorian's winds weakened on 4 September, it moved along the south-east coast of the US before transitioning into an extra-tropical cyclone over Nova Scotia and then Newfoundland, Canada on 7 September. It finally dissipated on 10 September.

Table 1: Summary of internal displacement for hurricane Dorian

Hurricane Dorian	Bahamas	United States of America	Canada	Barbados	Grenada	St Vincent and the Grenadines	St. Lucia	TOTAL
New displacements ¹	9,840	453,903	214	102	26	232	25	464,342
Estimated IDPs as of 31 December 2019 ²	497+	6,600	0	102	26	0	8	7,233
Houses destroyed ³	2,894	0	0	0	0	0	0	2,894
People pre-emptively evacuated before the event ⁴	0	0	0	102	26	0	25	153
People officially sheltered after the event ⁵	5,500	6,603	150	102	26	157	25	12,563
Notes								
¹ This corresponds to new instances of internal displacement related to the disaster event								
² This corresponds to the total number of individuals living in a situation of internal displacement as of 31 December 2019 due to the disaster event								
³ This corresponds to the number of houses destroyed by the disaster event								
⁴ This corresponds to the number of people that have detected as pre-emptively evacuated before the disaster event								
⁵ This corresponds to the total number of people that have been sheltered following the event								

IDMC estimates 464,342 new displacements across seven countries from Hurricane Dorian, with the US recording the highest number. Most of the reported displacement took the form of evacuations, especially in the US, and does not necessarily represent people who remain in a situation of displacement. Barbados, Grenada and St Lucia recorded small-scale displacements largely linked to pre-emptive evacuations to shelters. In Saint Vincent and the Grenadines, as well as Canada, evacuations also occurred as Dorian was approaching. Those five countries together recorded about 600 new displacements. These estimates, however, do not account for the number of people who sought shelter outside of official evacuation shelters, for example, with friends and families. Across the six countries aforementioned, the lack of data on housing destruction reveals that most of the displacements were likely temporary and pre-emptive. An estimated 7,233 people were still displaced in the seven countries as of 31 December 2019.

The Bahamas suffered an immense impact (For more information, please read our Spotlight in GRID2020: “The Bahamas: the uneven impacts of hurricane Dorian”). Although it only stayed over the islands for two days, the hurricane there was unprecedented in its intensity, affecting 73,000 people, or almost 20% of the population, and inflicting \$3.4 billion in losses. Most of the displacements were calculated using housing destruction data. Dissemination of displacement information in the Bahamas was limited. It is believed, however, that most of the displacements there occurred after the hurricane made landfall,

affecting Abaco and Grand Bahama islands most in terms of material and human impacts. [The Haitian community on Abaco was one of the populations most vulnerable to the disaster](#). Poor housing, a lack of electricity that resulted in a limited warning system, and a lack of documentation made this population group the epicentre of the international response. The overall tense security situation and the Bahamian government's insistence that each resident have legitimate documentation has resulted in a climate of isolation for the Haitian communities, and they have largely gone into hiding to avoid potential deportation back to Haiti. This complex social and legal situation has resulted in the delayed dissemination of information and data from international humanitarian actors in the Bahamas. As of February 2020, there were an estimated 9,840 new displacements there.

DATA SOURCES AND METHODOLOGY

IDMC's estimate of new displacements in [the Bahamas is based on housing destruction](#) data reported by the Inter-American Development Bank (IDB), the Pan American Health Organization (PAHO) and the UN Economic Commission for Latin America and the Caribbean (ECLAC). Our figures for the US are equal to the [total number of evacuations and shelter](#) registrations reported by the Federal Emergency Management Agency (FEMA), the American Red Cross and official transportation services. Our figures for Saint Lucia, Barbados, Saint Vincent and Grenadines and Grenada are based on [evacuation reports](#) as of 27 August and 28 August from the Caribbean Disaster Emergency Management Agency (CDEMA). Finally, shelter registrations in Canada were recorded based on media reports that cited the Red Cross and various local authorities.

To ensure the triangulation of the data and information, IDMC recorded a total of **144 pieces of evidence** in its database. Each of these was used to deepen the overall analysis and to confirm the final estimates. A total of 126 facts were used for triangulation purposes only.

Our stock estimation in 2019: Providers of disaster displacement data tend not to include information about when, how and for how long people were displaced. One of the main gaps and challenges in accurately estimating the number of IDPs is the lack of measurement of return flows. Nor does data tend to be collected on people who have achieved durable solutions by integrating locally or resettling elsewhere in the country.

Our year-end estimate is based on time series data and housing destruction data for specific disaster events, as well as aggregated figures about the number of people displaced by disasters recorded by governments and other stakeholders. (more information on - <http://www.internal-displacement.org/sites/default/files/2020-GRID-methodology.pdf>)

Main caveats and monitoring challenges

Country	New displacements	Estimation of the Total number of IDPs	Number of houses destroyed
Bahamas	9,840	497	2,894

Hurricane Dorian's impact on the Bahamas is likely to be long lasting. Twenty per cent of the population has been affected in a country still recovering from hurricanes Irma in 2017, Sandy in 2012 and Ike in 2008. Housing destruction was used to calculate the number of new displacements. There are other potentially significant issues, such as the average number of people renting properties or going to unofficial shelters. That information, however, was not included in the estimate of new displacements in order to prevent double counting. Our current figure is thus likely to be an underestimate, and the real figure could be as high as 15,000 new displacements. [Such a figure is also mentioned by various partners.](#) As no methodology has been put forward, however, it has been discarded.

There are other caveats with regard to our methodology in coming up with a final figure. First, an estimated 250 people in the Bahamas fled to Eleuthera and Spanish Wells islands directly after the hurricane. Some people there ended up in rental properties or dispersed to other islands, but the exact number is difficult to determine. Another important caveat involves secondary displacements. We know a number of evacuees were displaced a second time after fleeing from their first shelter residence, including members of the Haitian community who were targeted in deportation raids. That number is also hard to estimate, however, and has not been reported as many sought safety in unofficial shelters. Third, there were many cross-border displacements from the Bahamas to Haiti, Dominica and Florida, with 600 to 700 going to Florida alone. An unknown number of those cases resulted in further displacements, and, in some cases, a return to a situation of displacement as seen in Haiti. Fourth, a large number of people were expected to have been hosted by relatives, and an estimated 900 people rented properties in Nassau. Such displacements are unknown or impossible to track since they would not be reflected in the use of public services. No official figure has been published in that regard. A similar situation exists for other countries affected by Hurricane Dorian.

Regarding returns, the International Organization for Migration (IOM) estimated that [about 3,000 people originally from Abaco returned from Nassau](#) in November 2019.

Country	New displacements	Estimation of the Total number of IDPs	Number of houses destroyed
United States of America	453,903	6,600	0

Most of the displacements in the United States were recorded using shelter registration and evacuation orders. According to transportation estimates, around 441,000 people evacuated in South Carolina which made up the bulk of displacement in the United States. The remaining displacements in other areas of the US are an underestimation, given that they only encompass people who stayed in official shelters reported by FEMA and the Red Cross. There has also been no information on housing destruction. It is possible that people were able to return home following the initial impact of the disaster. Other people

who evacuated may have been sheltered in hotels, by family and friends, or elsewhere, and thus may not have been counted.

Country	New displacements	Estimation of the Total number of IDPs	Number of houses destroyed
Barbados	102	102	0

The information and data obtained for Barbados by the government's Department of Emergency Management shows the importance of having time series data to analyse different flows. With one data point, as is the case here, it is difficult to get a sense of the impact over time of a disaster event. There was also an overall lack of follow-up on how many people remained displaced. The Caribbean Disaster Emergency Management Agency (CDEMA) did not provide specific information or detail on the location of the different shelters, and the lack of geolocated data affected the depth of the analysis.

Country	New displacements	Estimation of the Total number of IDPs	Number of houses destroyed
Canada	214	0	0

Local authorities and the Red Cross were the main data sources for the final displacement estimates for Canada. There was direct displacement of people from the storm in Nova Scotia and Halifax, but there were also secondary effects in Nova Scotia. This included the crane that crashed in a residential area and caused people to be evacuated/displaced for safety reasons. There were two separate evacuations, one just after the storm, and one a month later during the removal process of the crane. It has been therefore difficult to disaggregate this figure by the two separate evacuations.

Country	New displacements	Estimation of the Total number of IDPs	Number of houses destroyed
Saint Lucia	25	0	0

The main data sources used to come up with the final displacement estimates for Saint Lucia were the government, CDEMA, and the National Emergency Management Organisation (NEMO). Most of these displacements were recorded using shelter registration. All of the 25 people reported as sheltered and displaced were able to return home.

Country	New displacements	Estimation of the Total number of IDPs	Number of houses destroyed
Grenada	26	26	0

The main data sources used to come up with the final displacement estimates for Grenada were the government, CDEMA and the National Disaster Management Agency (NaDMA). These displacements were recorded using shelter registration by CDEMA. As in the other countries from the Greater and Lesser Antilles, we have had little or no information on housing destruction. That means that the sheltered population could have returned home.

Country	New displacements	Estimation of the Total number of IDPs	Number of houses destroyed
Saint Vincent and Grenadines	232	0	0

The main data sources used to come up with the final displacement estimates for Saint Vincent and Grenadines were the government, CDEMA, and the National Emergency Management Organisation. Most of these displacements were recorded using shelter registration by CDEMA. All of the 232 people reported as sheltered and displaced were able to return home after just a few hours.