



# UNOSAT

## Tropical Cyclone IRMA-17.

### Population exposure analysis in Caribbean

#### 4 September 2017

Population Exposure Analysis

**4 September 2017**

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## Overview

IRMA-17 is a tropical cyclone that is approaching slowly, through the Atlantic, to the western part of the Caribbean. This cyclone originated on 30 August 2017 as a tropical storm and on 31<sup>st</sup> August got intensified with increasing winds from 100km/h to 185km/h. As of 4 September 2017, IRMA-17 is located about 900km east of the Leeward Islands. Maximum sustained winds are 222km/h, a Category 3. According to the expected cyclone track, the center of IRMA-17 is forecasted to approach the northern Leeward Islands late Tuesday.

Based on data of the predicted tropical cyclone path, wind speeds from JRC (Warning 21 issued on 4 September 2017 at 15:00 UTC), and population data from WorldPop, UNITAR-UNOSAT conducted a population exposure analysis for Caribbean, where more than 427,000 people are living within 120km/h wind speed zone and more than 13,500,000 people are living within wind speed zone of 90 km/h.

Population exposure estimates are based on expected cyclone track (JRC) and WorldPop data (1km resolution)

## Population Exposure in Caribbean



**37,412,065**

Total population of Caribbean (\*)

**17,764,447**

Total population living on 60km/h wind speed zones

**13,515,724**

Total population living on 90km/h wind speed zones

**427,169**

Total population living on 120km/h wind speed zones

### Sources:

Cyclone Track: Joint Research Center-GDACs

Administrative Levels: GADM

Spatial Demographic Data: WorldPop (2015)

Analysis: UNITAR-UNOSAT (04/09/2017)

### Note:

(\*) Total population of Caribbean is considering only the following countries and territories: Anguilla, Antigua y Barbuda, Bahamas, British Virgin Islands, Cuba, Dominica, Dominican Republic, Guadeloupe, Saint Martin, Saint Barthelemy, Haiti, Montserrat, Netherlands Antilles, Puerto Rico, Saint Kitts and Nevis, Turks and Caicos Islands and United States Virgin Islands. These countries and territories are within the wind speeds zones of 60km/h, 90km/h and 120km/h according to the expected cyclone track released as of 4 September 2017 (15:00 UTC).

The population exposure has been calculated using a 1Km resolution WorldPop dataset. This is a preliminary analysis & has not yet been validated in the field.

### Caribbean Population Exposed to sustained wind speed zones : Tropical Cyclone IRMA-17 (04/09/2017, 15h00 UTC)

Country / Territory	Total population	Wind Speed Zones			Total exposed population	%
		120 km/h	90 km/h	60 km/h		
Cuba	11,266,280	287,910	3,665,048	2,881,621	6,834,579	60.66%
Netherlands Antilles	208,460	37,565	3,489	-	41,054	19.69%
Saint Martin	32,418	32,418	-	-	32,418	100.00%
British Virgin Islands	27,248	27,248	-	-	27,248	100.00%
United States Virgin Islands	93,173	21,812	71,360	-	93,173	100.00%
Anguilla	12,316	12,316	-	-	12,316	100.00%
Saint Barthelemy	5,191	5,191	-	-	5,191	100.00%
Antigua and Barbuda	87,858	1,820	86,038	-	87,858	100.00%
Bahamas	343,735	889	1,395	17,731	20,015	5.82%
Saint Kitts and Nevis	47,897	-	47,897	-	47,897	100.00%
Turks and Caicos islands	45,020	-	45,020	-	45,020	100.00%
Dominica	72,119	-	-	72,119	72,119	100.00%
Puerto Rico	3,651,232	-	3,488,527	162,705	3,651,232	100.00%
Dominican Republic	10,470,773	-	3,903,257	6,551,339	10,454,596	99.85%
Guadeloupe	446,611	-	-	446,611	446,611	100.00%
Haiti	10,596,666	-	2,200,205	7,630,741	9,830,946	92.77%
Montserrat	5,068	-	3,488	1,580	5,068	100.00%
<b>Total</b>	<b>37,412,065</b>	<b>427,169</b>	<b>13,515,724</b>	<b>17,764,447</b>	<b>31,707,341</b>	<b>84.75%</b>



# CARIBBEAN

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## Tropical Cyclone IRMA-17 : Path and Wind Speed Zones

This map illustrates the tropical cyclone IRMA-17 path with low, medium and strong wind impact zones observed and predicted at 4 September 2017. The tropical cyclone path and wind speed zones were derived from Joint Research Centre data (Warning 21 issued the 04 th September 2017 at 15:00 UTC). This is a preliminary analysis and has not yet been validated in the field. Please send ground feedback to UNITAR-UNOSAT.

### Legend

- Capital
- Expected position
- Observed position

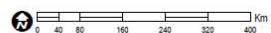
### Track

- Expected path
- Observed path

### Wind speed zone

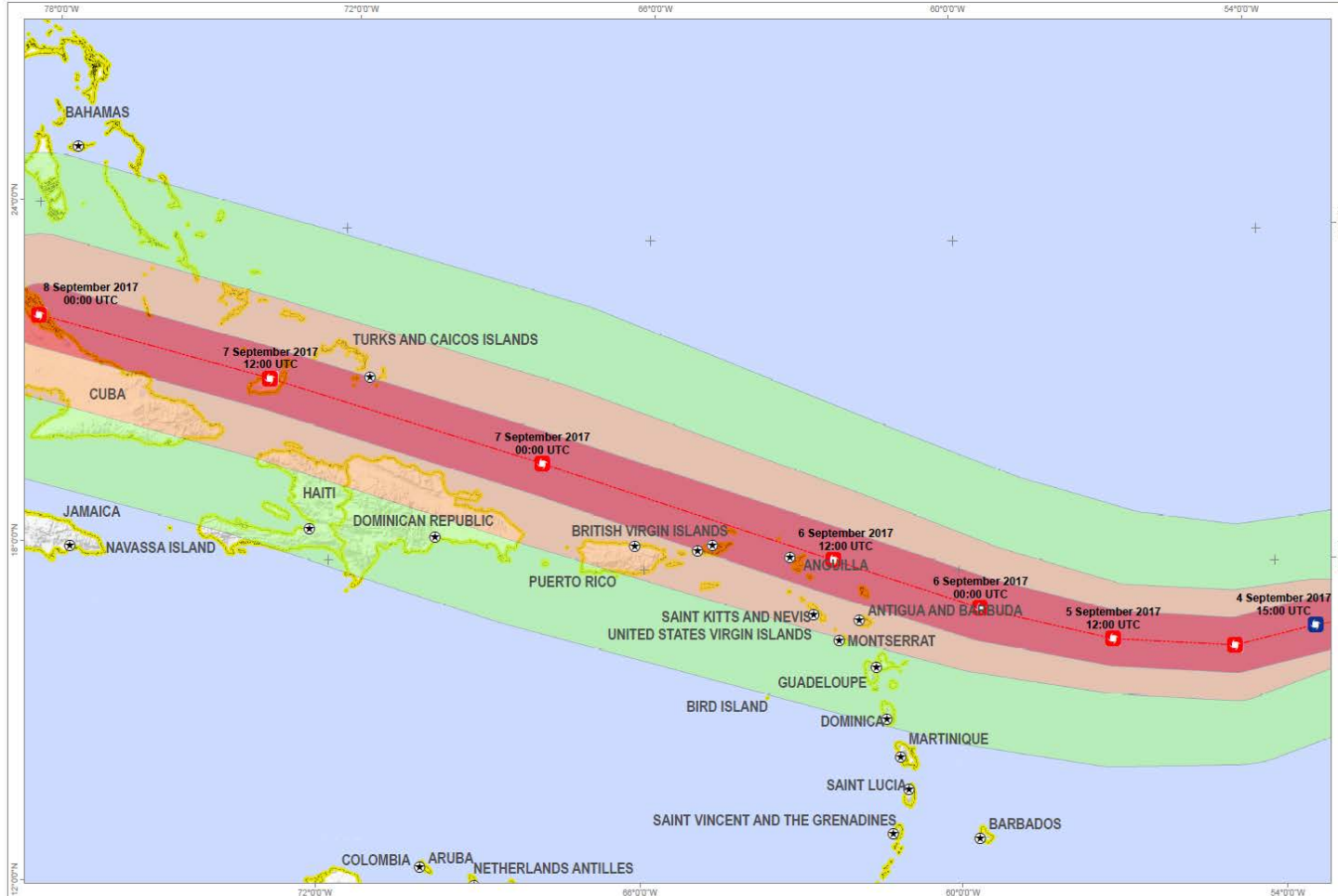
- 120km/h
- 90km/h
- 60km/h
- International boundary

Map Scale for A3: 1:8,000,000



Analysis conducted with ArcGIS v10.4

Coordinate System: WGS 1984 UTM Zone 20N  
 Projection: Transverse Mercator  
 Datum: WGS 1984  
 Units: Meter



Wind Speed Data: Joint Research Centre  
 Date Series: 30 August 2017 - 8 September 2017  
 Copyright: JRC  
 Source: JRC

Baseline Data: GADM  
 Analysis: UNITAR - UNOSAT  
 Production: UNITAR - UNOSAT

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Map1: IRMA - 17 Cyclone path with low wind impact zones. Download pdf map from [here](#)