



UNOSAT

Tropical Cyclone IRMA-17.

Population exposure analysis in Caribbean

5 September 2017 (Update 1)

Population Exposure Analysis

5 September 2017

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Overview

IRMA-17 is a category 4 tropical cyclone going through in the Atlantic Ocean that is approaching the eastern part of the Caribbean. It originated as a tropical storm at the West of Cape Verde on 30 August 2017 and has been gaining speed as it moves to the West. As of 5 September 2017, IRMA has maximum sustained winds of 240km/h with gusts to 295km/h. It is expected to hit Antigua and Barbuda in the morning of 06 September 2017 and continue to Anguilla, the British Virgin Islands and Turks and Caicos which are located in the 120km/h wind speed zone.

Based on data of the predicted tropical cyclone path, wind speeds from JRC (Warning 24 issued on 5 September 2017 at 09:00 UTC), and population data from WorldPop, UNITAR-UNOSAT conducted a population exposure analysis for the Caribbean, where nearly 250,000 people are living within 120km/h wind speed zone and more than 13 million 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



37,247,144

Total population of Caribbean (*)

21,365,576

Total population living on **60km/h** wind speed zones

13,055,857

Total population living on **90km/h** wind speed zones

247,901

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 (05/09/2017)

Note:

(*) Total population of Caribbean is considering only the following countries and territories: Anguilla, Antigua and Barbuda, Bahamas, British Virgin Islands, Cuba, Dominica, Dominican Republic, Guadeloupe, Saint Martin, Saint Barthelemy, Haiti, Montserrat, Sint Maarten, Saba, Sint Eustatius, 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 5 September 2017 (09:00 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 (05/09/2017, 09h00 UTC)

Country /Territory	Total population	Wind Speed Zones			Total exposed population	%
		120 km/h	90 km/h	60 km/h		
Antigua and Barbuda	87,858	47,713	40,145		87,858	100.00%
United States Virgin Islands	93,173	47,117	46,056		93,173	100.00%
Sint Maarten	39,921	39,921			39,921	100.00%
Saint Martin	32,418	32,418			32,418	100.00%
British Virgin Islands	27,248	27,248			27,248	100.00%
Cuba	11,266,280	22,968	4,722,367	5,893,369	10,638,704	94.43%
Anguilla	12,316	12,316			12,316	100.00%
Turks and Caicos islands	45,020	8,748	36,272		45,020	100.00%
Saint Barthelemy	5,191	5,191			5,191	100.00%
Puerto Rico	3,651,232	1,878	3,158,817	490,537	3,651,232	100.00%
Saba	1,228	1,228			1,228	100.00%
Bahamas	343,735	1,155	7,675	262,458	271,288	78.92%
Dominican Republic	10,470,773		3,449,410	6,982,179	10,431,589	99.63%
Haiti	10,596,666		1,539,855	7,228,088	8,767,943	82.74%
Saint Kitts and Nevis	47,897		47,897		47,897	100.00%
Montserrat	5,068		5,068		5,068	100.00%
Sint Eustatius	2,390		1,460	930	2,390	100.00%
Guadeloupe	446,611		835	445,776	446,611	100.00%
Dominica	72,119			62,239	62,239	86.30%
Total	37,247,144	247,901	13,055,857	21,365,576	34,669,334	93.08%



CARIBBEAN

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Tropical Cyclone IRMA-17 : Path and Wind Speed Zones Update 1 (as of 5 September 2017)

This map illustrates the tropical cyclone IRMA-17 path with low, medium and strong wind impact zones observed and predicted at 5 September 2017. The tropical cyclone path and wind speed zones were derived from Joint Research Centre data (Warning 24 issued the 05 th September 2017 at 09:00 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 cyclone path
- Observed cyclone path
- Wind Speed Zone**
- 120 km/h
- 90 km/h
- 60 km/h
- International boundary

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



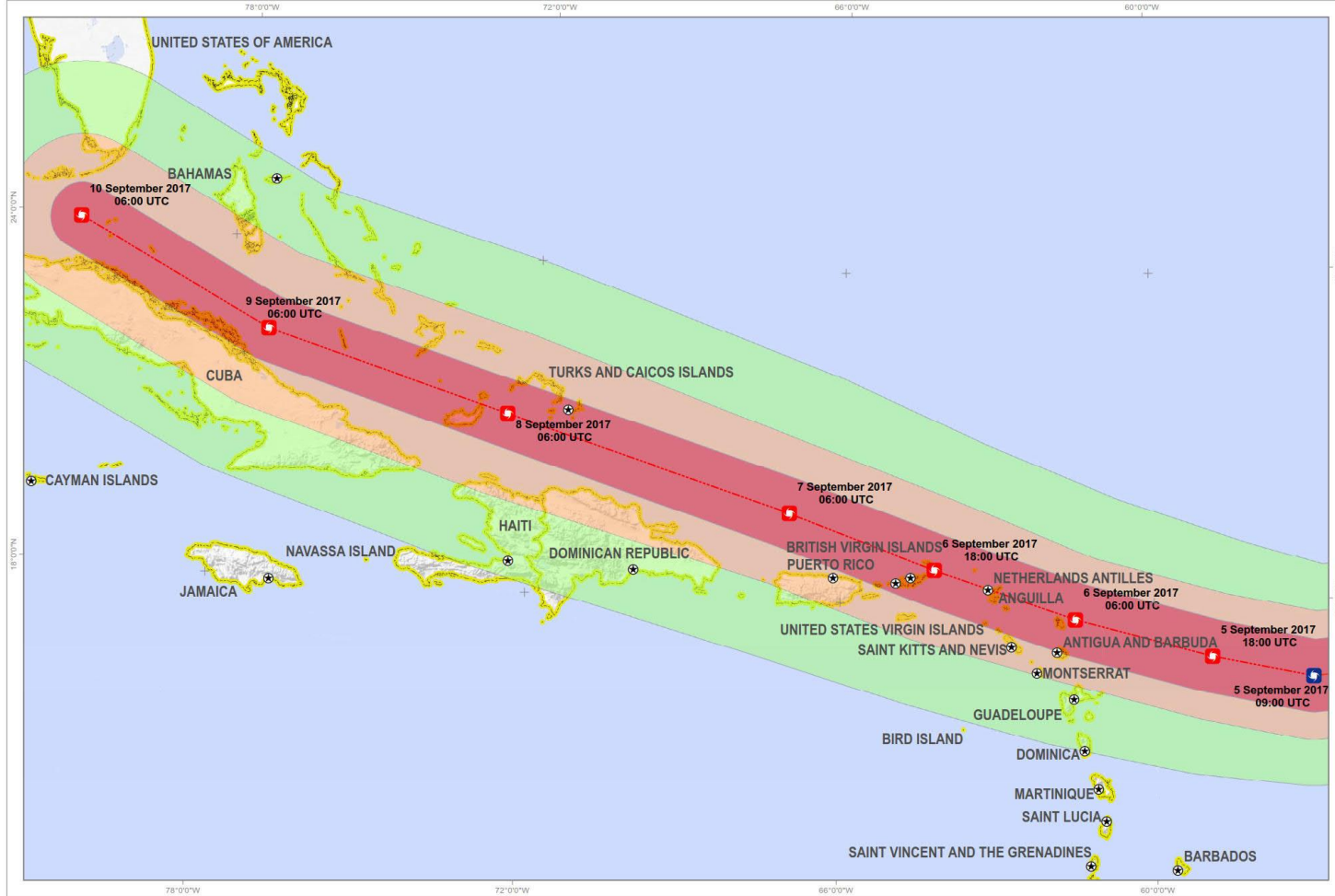
Analysis conducted with ArcGIS v10.4

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 - 10 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](#)