



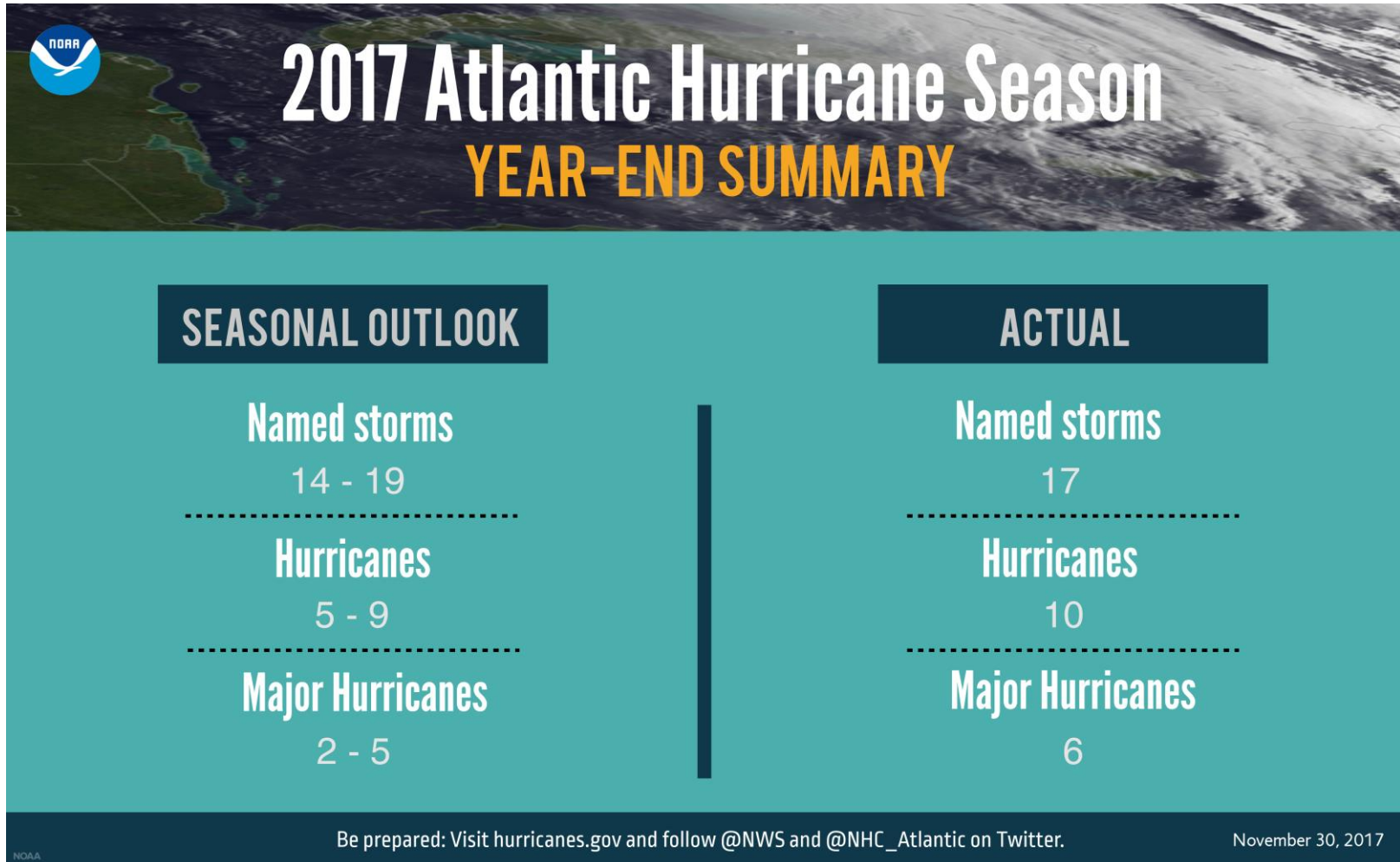
ARROYO CENTER

The Response to Hurricane Maria: Setting the Scene

Dr. Eric V. Larson
Senior Policy Researcher
RAND Corporation

The opinions expressed today are my own, and do not necessarily reflect the views of the RAND Corporation or any of its sponsors.

NOAA Predicted a Very Active 2017 Atlantic Hurricane Season. It Was Worse Than Expected



Hurricanes Harvey, Irma, and Maria: Three Near-Simultaneous Major Hurricanes /Disasters, August – September 2017



 Production Notes:
 Data derived from: Open Street Map
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 to and directly to 543rd GPC,
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Maria Caused Catastrophic Damage to Puerto Rico & USVI



Source: National Hurricane Center, *Hurricane Maria (AL152017)*, April 2018, p. 44.

The Grim Statistics of Hurricanes Irma & Maria: Puerto Rico and the U.S. Virgin Islands

Hurricane Irma

- **CAT 5 hurricane tracked just north of PR and USVI on 6 September**
- **Extensive damage to buildings and infrastructure**
- **Extensive loss of power, water in PR**
- **PR: 3 indirect deaths; USVI: 3 direct deaths**
- **Est. \$50B in damage**

Hurricane Maria

- **CAT 5 hurricane dropping to CAT 4 before making landfall in PR/USVI on 20 Sept**
- **Extensive damage to buildings and infrastructure**
- **Extensive loss of power, water, comms**
- **PR: Est. 65 direct deaths, 2,9210 indirect deaths; USVI: 2 direct deaths**
- **Est. \$90B in damage**

Sources: FEMA; NOAA; NHC; Press

Overcoming the Tyranny of Distance and Geography



According to FEMA, the Hurricane Maria response was the longest sustained air mission of food and water delivery in FEMA's history.

Catastrophic Damage, Distant Island Environment Shaped the Response to Maria in PR & USVI

- “FEMA and its partners generally ***rely on states, tribes, and territories to provide prioritized lists*** of infrastructure facilities for assessment and restoration based on local needs.” (p. 33)
- “FEMA strategic doctrine calls on the Agency to assume the responsibilities of SLTT governments, the private sector, and NGOs when the effects of a major incident incapacitate those organizations’ ability to perform their functions effectively and efficiently until they can resume operations.” (p. 28)
- “To overcome ***limited situational awareness*** created by the ***loss of communications*** in Puerto Rico, FEMA executed ***creative solutions to assess the situation and prioritize response activities***, including emergency repairs to infrastructure. (p. 33)
- “FEMA assumed a more active role in coordinating whole community logistics operations for Puerto Rico and the U.S. Virgin Islands due to these territories’ ***preparedness challenges, geographic distance, and pre-existing, on-the-ground conditions.***” (p. viii)
- “FEMA’s ***logistical support*** of the movement of commodities differed in Florida and Texas, compared to the Caribbean islands, because of ***the ability to conduct land-based delivery of resources in Florida and Texas versus air and sea delivery to the islands.*** In Florida and Texas, FEMA provided a support function to the states whereas in Puerto Rico, FEMA took on an active role of coordinating logistics operations.” (p. 25)

Source: FEMA, *2017 Hurricane Season FEMA After-Action Report*, Washington, D.C., July 12, 2018.



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Dr. Eric V. Larson

Senior Policy Researcher

RAND Corporation

larson@rand.org

310.393.0411 x7467

Today's Panel

- **LTG Buchanan, USA, CG, U.S. Army North, and Joint Forces Land Component Commander (JFLCC)**
- **MG Wilz, USA, Special Assistant to the Director, Army National Guard, National Guard Bureau**
- **BG Shultz, USAR, CG, 1st Mission Support Command**
- **BG Holland, USA, Commander, South Atlantic Division, U.S. Army Corps of Engineers**
- **COL Miller, USA, Region V, Defense Coordinating Officer (DCO)**
- **COL Hopkins, USA, Commander, 1st Combat Aviation Brigade**
- **COL Kent, USA, Commander, 4th Sustainment Brigade**

**“The message is, we’re in support of FEMA,
and FEMA is in support of the Commonwealth Government.”**

—LTG Jeffrey S. Buchanan, JFLCC