

## OFFICE OF U.S. FOREIGN DISASTER ASSISTANCE (USAID/OFDA)

REGIONAL OFFICE FOR LATIN AMERICA AND THE CARIBBEAN, SAN JOSÉ, COSTA RICA



As Category 4 Hurricane Matthew approached Haiti in October 2016, USAID/OFDA predeployed a Disaster Assistance Response Team to provide support. Photo by Marco Rivera, USAID/OFDA

### USAID/OFDA Prepared for 2017 Hurricane Season

In recent months, USAID/OFDA has reviewed each facet of its disaster preparedness and response mechanisms to ensure the team is in top shape for the upcoming hurricane season. The season officially begins in the eastern Pacific basin on May 15 and the Atlantic basin on June 1, and ends in both basins on November 30.

The 2017 hurricane season got off to an early start on April 20, when Tropical Storm (TS) Arlene became the second named storm to form in the Atlantic in April in the satellite era, following TS Ana in 2003, which also formed on April 20, just a few hours earlier. On May 9, TS Adrian formed near the Pacific coast of Central America. No other storm in the northeast Pacific basin has formed earlier in the season than Adrian in the satellite era, according to the U.S. National Oceanic and Atmospheric Administration (NOAA).

For 2017, NOAA has forecast an above-normal hurricane season in the Atlantic and a near- or above-normal season in the eastern Pacific. NOAA indicates a 45 percent chance of an above-normal hurricane season in the Atlantic, with 11–17 named storms, of which five to nine may become hurricanes, including up to four that could develop into major hurricanes of Category 3 or higher on the Saffir-Simpson Hurricane Wind Scale. NOAA also predicts an 80 percent chance of a near or above normal hurricane season in the eastern Pacific basin, with 14–20 named storms—including six to 11 hurricanes, of which three to seven could be major hurricanes.

“Regardless of the seasonal outlook, it only takes one—as Hurricane Matthew reminded us last year,” said USAID/OFDA Senior Regional Advisor (SRA) Tim Callaghan. “Year-round, USAID/OFDA works with countries throughout the Caribbean to support preparedness efforts and strengthen local disaster management capacities. Additionally, we have standard

operating procedures in place that allow us to respond quickly and efficiently in multiple countries, if necessary.”

SRA Callaghan and four other regional advisors—experienced, multilingual disaster management professionals with broad knowledge of the region’s hazards, geography, and cultural and socio-economic characteristics—are based at the USAID/OFDA regional office for Latin America and the Caribbean (LAC) in San José, Costa Rica.

These advisors, along with three information officers, a communications officer, 29 disaster risk management specialists, and approximately 415 on-call local surge capacity consultants, are available for immediate deployment in the event of a disaster. The specialists and surge capacity consultants are the backbone of the USAID/OFDA-supported Regional Disaster Assistance Program (RDAP), which provides national disaster organizations and first

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USAID/OFDA pre-positions critical commodities in its Miami warehouse and in Haiti through partner International Organization for Migration (IOM). When Hurricane Matthew hit, these supplies, which included plastic sheeting, hygiene kits, and other household items, were immediately available. Photo courtesy of IOM

## Hurricane Preparedness *continued from page 1*

responders throughout the region with technical assistance to support disaster risk reduction and emergency preparedness efforts.

At the USAID/OFDA country office in Port-au-Prince, Haiti, a regional advisor, program management specialist, and administrative support staff work with the Government of Haiti and partners to strengthen national and local disaster preparedness and response capabilities, and remain ready to respond to hydrometeorological events, including hurricanes and tropical storms, as appropriate.

At the U.S. Southern Command in Miami, Florida, USAID/OFDA humanitarian assistance advisors to the military help coordinate USAID and U.S. Department of Defense emergency humanitarian assistance in the region.

In the event a storm is forecast to impact land in the region, USAID/OFDA may activate or pre-deploy local surge consultants, disaster specialists, a regional advisor, an assessment team, or a fully equipped response team, in consultation with U.S. missions in potentially affected countries.

USAID/OFDA continually replenishes stockpiled emergency relief supplies—including plastic sheeting for temporary shelters, water containers, hygiene kits, kitchen supplies, and blankets—for rapid shipment from the USAID/OFDA warehouse in Miami to disaster-affected areas. USAID/OFDA also procures and stockpiles relief commodities locally when appropriate.

USAID/OFDA maintains agreements with charter air service companies in the region to ensure timely transportation of personnel and supplies to disaster-affected areas. If commercial air service is not available, USAID/OFDA may request logistical assistance from the U.S. military.

In advance of hurricane season, as in years past, the LAC regional office briefs mission disaster relief officers and emergency action committees at U.S. embassies and USAID missions throughout the region, and also meets with host governments, key partners, and other donors to coordinate hurricane preparedness activities provide early warnings to their populations.



USAID/OFDA maintains an on-call roster of approximately 415 local surge consultants who can be activated when a storm approaches. For Hurricane Matthew, USAID/OFDA activated 22 surge staff in Haiti. *Photo by Irene Gago, USAID/OFDA*

Office of U.S. Foreign Disaster Assistance  
Regional Office for Latin America and the Caribbean



**USAID**  
FROM THE AMERICAN PEOPLE

Tel: +(506) 2290-4133  
Email: ofdalac@ofda.gov  
Internet: www.usaid.gov



3D-printed weather stations are helping developing countries to save lives by forecasting severe weather-related disasters. *Photo by Kelly Sponberg, NOAA*

## 3D Printing Assists Weather Forecasters

Timely and accurate weather observations are critical for providing early warning of floods, hurricanes, storm surges, and landslides. Unfortunately, many countries that are prone to these natural hazards cannot afford the expensive weather monitoring systems that provide this important data.

Conventional weather stations can cost more than \$30,000 per station, plus additional fees for continued maintenance. Until recently, these costs were prohibitive for many developing countries that need accurate forecasts to provide early hazard warnings to their populations.

Now, affordable, modern 3D-printing technology is giving these countries an inexpensive option to design and build their own weather stations for as little as \$300 per station.

As part of the Barbados Weather Ready Nation project, USAID/OFDA, in partnership with NOAA, the U.S. National Weather Service, Barbados Meteorological Service, and the Caribbean Institute for Meteorology and Hydrology (CIMH), is testing 3D-printed, automated weather stations on Barbados.

The weather stations are built using 3D-printed parts, inexpensive electric sensors, and a mini-computer the size of a smartphone. A microwave-sized 3D printer layers melted

plastic to shape the components of the weather station, which are then hand-assembled with the electrical sensors and mini-computer to complete the weather station. This manufacturing method has the unique advantage of allowing users to easily reprint damaged parts in the field, and bring the station back online quickly and at a very low cost.

In early March, CIMH began collecting and inputting data from the stations into their weather modeling software and will continue to monitor the performance of the stations during the coming months. If successful, the 3D printed weather stations in Barbados will provide an inexpensive model for other countries to follow as they develop their own forecasting and early warning systems, assisting in the protection of life and property.



New technology provides a low-cost solution for accurate weather forecasting. *Photo courtesy of NOAA*