



# Safer world.

**2016 - 2017 Accomplishments**

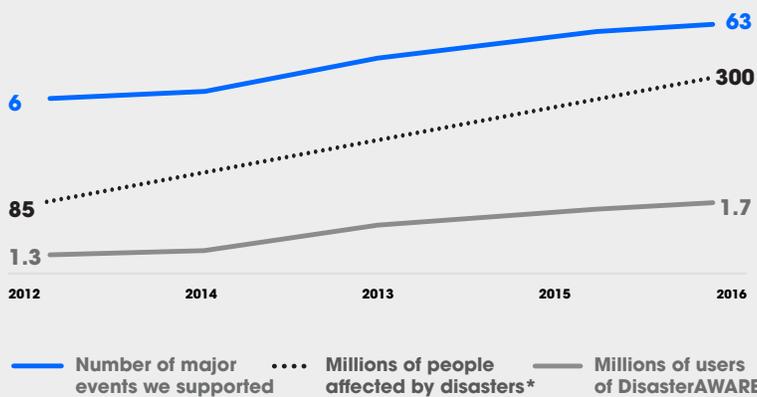
# Reduce disaster risk. Step into a safer world.

As the number of people affected by disasters continues to grow worldwide, so does our track record of helping to protect communities with reliable and timely access to life-saving information. Working together with countries throughout the world, Pacific Disaster Center (PDC) helps organizations utilize our research, science, and technology to reduce disaster risk and alert the public to threats. Through PDC's DisasterAWARE™ technology, decision makers have access to the most powerful platform for multi-hazard monitoring, early warning, impact estimation, and needs analysis tools.

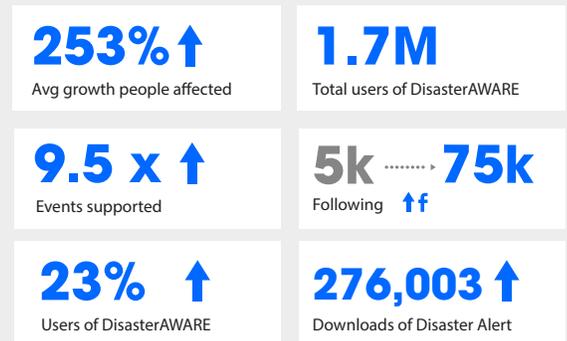
**2016** Of the 17,037 hazards we monitored, PDC activated response support for 63 events worldwide



## 5-Year Trends



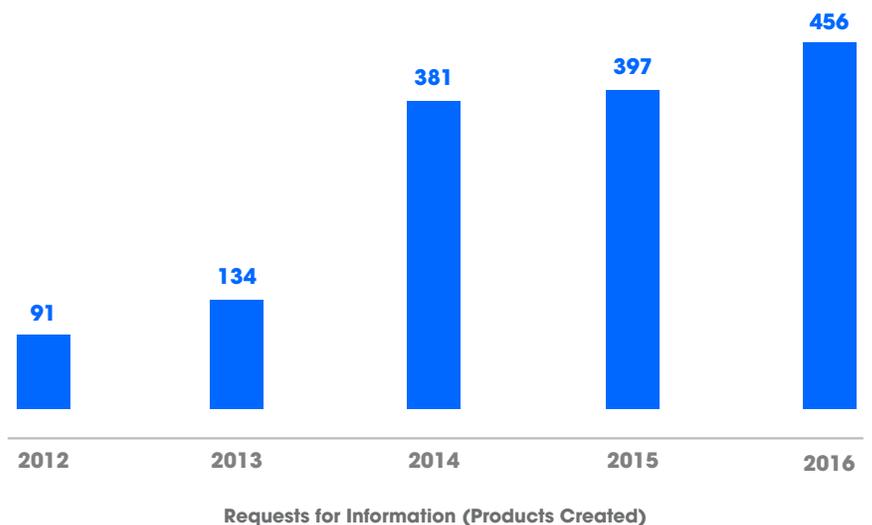
## 5-Year Growth



\*Source: CRED / UNISDR for millions affected only.

## Information saves lives.

We continue to increase support for disaster managers and decision makers around the world, providing map-based visualizations and situational analysis for major hazards as they unfold.



## Millions of People

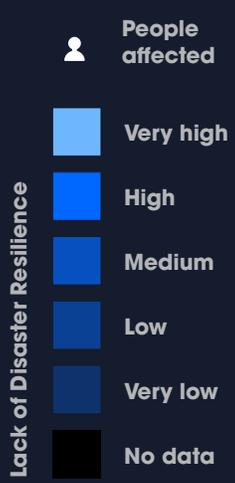
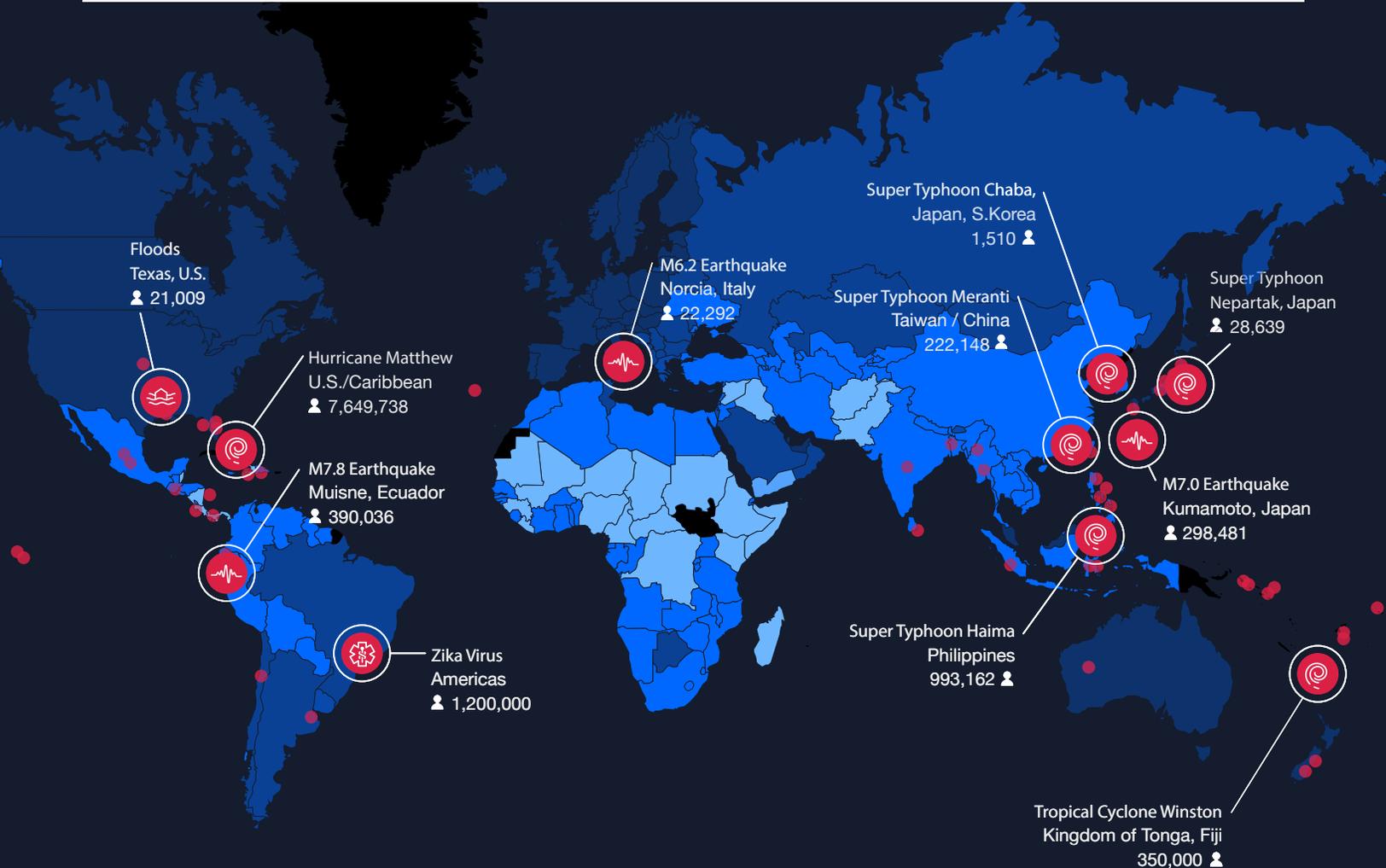
affected by disasters worldwide

## 63

events supported

## 456

response products created by request



## 2016 Disaster Response Support

Natural disasters caused major damage and loss throughout the year, unleashing massive earthquakes in Ecuador and Japan, producing devastating floods in China, and inundating coastal cities with major hurricanes like Matthew in the U.S. and Caribbean to name only a few. Through it all, PDC was unwavering in our support of every major hazard, aiding decision makers with early warning and real-time situational analysis for effective mitigation, preparation, response, and recovery.

# PDC in Action : Hurricane Matthew Response

**5**

Category

**160 mph**

Winds

**7.6 Million**

People affected

When Hurricane Matthew—one of the deadliest Atlantic hurricanes in over a decade—was first detected in September 2016, the Center began providing 24-hour support to civilian and military agencies in Jamaica, Haiti, Dominican Republic, The Bahamas, and the United States. In preparation for impact, PDC focused on providing civilian and military disaster relief teams with situational analysis and access to critical information through DisasterAWARE™. The Center shared over 1,500 products with decision makers, allowing professionals along the storm's path to quickly and easily anticipate impacts and plan effectively for response and recovery operations.

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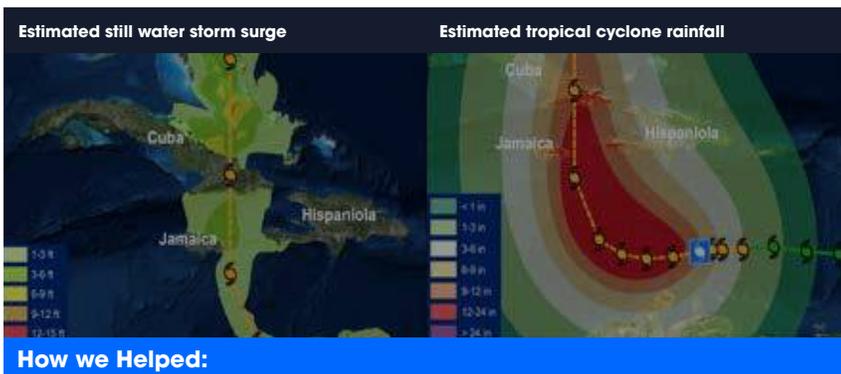
I was impressed with how quickly you guys developed the situational awareness products...

Quite impressed with your team's work.

”

**Marcus Elten,**

Humanitarian Affairs Officer,  
United Nations OCHA speaking of PDC response during major Hurricane Matthew



## How we Helped:

**200+**

Response products created to aid timely and effective decision making.

## 24-hr Support

Aiding civil and military response agencies along the storm's path with critical situational information.

## Pre- and Post-impact Analysis

Assessed potential impacts and losses, population risk and vulnerabilities, current damage, and population and resource needs.



## Monitoring Hurricane Matthew

Colonel Jeff Dickerson, Chief of Operations of the Georgia Department of Defense, briefs members of both the Army and Air National Guard on Matthew. PDC products helped support response operations.

**Disasters happen fast.  
We respond faster.**

## Key stakeholders we supported during Hurricane Matthew

International Charter: Space Activation and Major Disasters, Bahamas Office of the Prime Minister, Bahamas National Geographic Information Systems Center, Caribbean Disaster Emergency Management Agency, UN Resident Coordinator, Bahamas National Emergency Operations Center, U.S. Federal Emergency Management Agency (FEMA), U.S. SOUTHCOM Crisis Action Center, Pentagon Operations Center, National Joint Intelligence Center, Army, Air Force, Marine Corps Watch, more...

# PDC in Action : Zika Virus Outbreak Response

**70+**

Situational analysis products created to inform health agencies

**First to collect**

...map, analyze, and report biological health data to aid response

Even before the World Health Organization first declared the mosquito-borne Zika virus to be a worldwide health epidemic, PDC began mapping real-time information provided by health agencies into DisasterAWARE™, showing areas most affected by the virus and regions most vulnerable to its continued spread.



## Zika Outbreak During 2016 Olympics in Rio De Janeiro

During the 2016 Olympics in Rio De Janeiro when an explosive outbreak of Zika was taking hold of the region, PDC helped government agencies coordinate and plan response to the spread of the virus, providing visualizations about where conditions were most favorable to mosquito infestation (such as populated urban centers and areas with standing water). In an effort to keep the population healthy, the Center also analyzed public access to health services, hospitals, and assisted officials with assessing policies that could help improve response capabilities during a future outbreak.



### Olympics support for public safety agencies and U.S. SOUTHCOM

As visitors flooded into Rio De Janeiro for the Olympics, PDC helped public safety agencies and U.S. SOUTHCOM integrate live camera feeds into its decision-support platform. Situation reports were posted and shared daily through DisasterAWARE, providing a continually updated common operating picture. Mobile and offline capabilities were heavily utilized to support safety and security objectives.



PDC's support in the SOUTHCOM region and its commitment to promote public safety were unflinching during the Rio Olympics. The customizations it provided to DisasterAWARE greatly enhanced our situational awareness and offered an abundance of useful data and safety monitoring information.

**Mr. Eliezer Serrano Jr.,**

Lead Data Fusion Manager with U.S. SOUTHCOM Joint Operations Center



# Disaster AWARE™

**Reduce disaster risk. Make better decisions faster.**

DisasterAWARE is the only known platform that provides early warning, hazard monitoring, and impact estimation for 18 hazard types, all in one system, free to disaster professionals worldwide.

**DisasterAWARE Professional Users: 10,815**

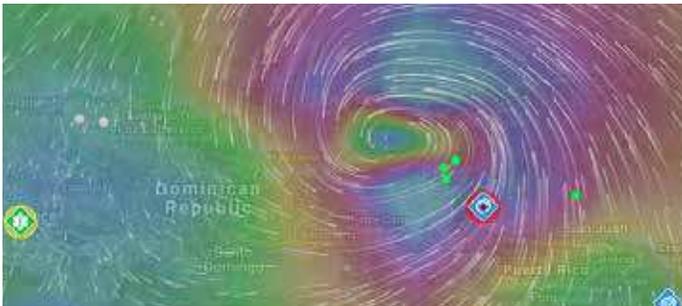
72% Increase in users over 5 years

- Worldwide hazard monitoring and early warning
- Pre-impact analysis with damage and loss estimation, population risk and vulnerability, anticipated needs analysis
- Post-impact decision tools with field observation data, multi-agency response collaboration, damage assessments

## What's new

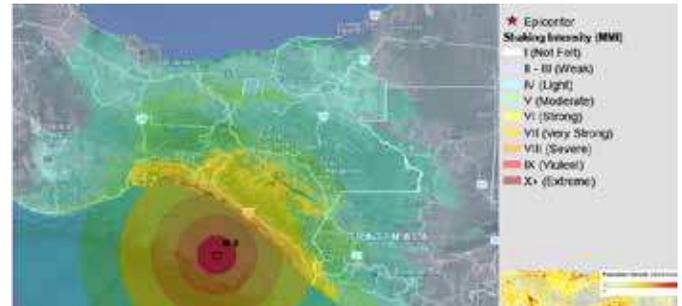
### Global Winds Animation

This new graphical interface visualizes wind surface velocity and direction based on a five-day cyclone forecast.



### Hazus Tsunami Model Advancements

Continued work with FEMA on a tsunami Hazus model with new loss estimation, reporting, and shake map integration.



### Tornado Watches and Warnings (U.S. only)

Real-time map visualizations follow tornado path and projected impacts.



### Wildfires (U.S. only)

Automated satellite imagery depict hotspot observations and provide analysis of fire cluster density and severity.



## Disaster Alert™

Mobile app



**1.65 Million Users**

23% increase in  
users over 5 years

## Disasters happen fast. We alert you faster.

Free to the public and available on iOS and Android, Disaster Alert provides a fast, reliable way for people and their loved ones to stay safe anytime, anywhere. Get access to 18 types of active hazard alerts and map visualizations of hazards around the globe.

# Disaster AWARE™

# Custom Solutions

PDC's DisasterAWARE is unmatched for scalability and flexibility. We can help you tailor our platform to meet a variety of specialized needs.

Indonesia's InAWARE Phase II



### Key Milestones

- Institutionalized InAWARE through SOP development, training, and exercises.
- Operationalized hazard and product sharing between agencies and AHA Centre.
- Expanded InAWARE capabilities to incorporate crowd-sourced data and upgraded to InAWARE 6.0.

With ongoing support from USAID, PDC and Indonesia's disaster management agency (BNPB) continued their longstanding collaboration to enhance decision support capacity—institutionalizing the country's InAWARE system built on DisasterAWARE.

Global Biosurveillance Portal (G-BSP)



The capabilities of DisasterAWARE are continually advancing thanks to partner projects like that of the U.S. Joint Program Executive Office (JPEO). DisasterAWARE was customized for and incorporated within the G-BSP to assist organizations charged with monitoring and assessing biological and chemical threats. Other enhancements include map animations, group collaboration tools, and data content.

International Atomic Energy Agency



The IAEA and PDC partnered to expand the agency's warning system capabilities through use of PDC's DisasterAWARE platform. Plans for a custom version of the DisasterAWARE platform, coined NuclearAWARE, are currently underway.



## Next generation technology . . . to protect the next generation

We are always evolving. In 2016, we released over 20 DisasterAWARE feature enhancements with several new development ideas originating from our very own partners.

- 

Touch friendly for mobile device users
- 

Compatible with all devices and browsers
- 

User imports for geospatial layers
- 

Bookmark sharing for geospatial layers
- 

Data file exchange for geospatial layers
- 

Offline mode for remote areas or lost network

# Partner Highlights

## APEC Economies



PDC conducted an assessment for the APEC Technical Assistance to Advance Regional Integration (ATAARI) Program to evaluate early warning system policies and capacities within the 21 APEC member economies. Funded by USAID, PDC collaborated with APEC members on recommendations and the development of draft principles.

## National Disaster Preparedness Baseline Assessment (NDPBA)

Through ongoing support from SOUTHCOM, PDC completed several national disaster preparedness assessments to help countries identify underlying factors that exacerbate disaster risk. The NDPBA includes the development of a 5-year national risk reduction roadmap to increase disaster preparedness capacities and integrate risk reduction policies into national legal frameworks.



## We supported exercises in 5 countries

We helped develop exercises using DisasterAWARE™ in five countries thanks to sponsorship from the U.S. DoD, SOUTHCOM, PACOM, and NORTHCOM.

 <p><b>SOUTHCOM/ARSOUTH Tradewinds, Civilian-Military, Tsunami (Grenada)</b></p>	 <p><b>HING/HI-EMA, Civilian-Military, Tropical Cyclone (Hawaii)</b></p>
 <p><b>SOUTHCOM/ARSOUTH FA-HUM, Civilian-Military, Tropical Cyclone (Honduras)</b></p>	 <p><b>PACOM CFE Tradewinds, Civilian-Military, Earthquake (Philippines)</b></p>
 <p><b>NORTHCOM/ARDENT SENTRY, Civilian-Military, Earthquake (Cascadia, OR)</b></p>	 <p><b>PACOM Pacific Endeavor, Civilian-Military, Communications (Australia)</b></p>

## Select Conferences and Workshops

- APEC Emergency Preparedness Public Alert and Warning Workshop
- APEC 10th Senior Disaster Management Officials Forum
- ASEAN Strategic Policy Dialogue on Disaster Management
- ASEAN Agreement on Disaster Management and Emergency Response Partnership Conference
- NATO STO Modeling and Simulation Group for Crisis and Disaster Management Processes
- UN IAEA 60th General Conference
- UN World Food Programme Collaboration
- UN FAO Expert Consultation on Establishing an Information System on Damage and Losses
- World Vision: Information Management in Response Preparedness and Strategic Decision Making

## We thank our partners

We partner with so many organizations—too many to list—all of whom contribute greatly to our success and for whom we are grateful. A special thanks goes to the following groups for their continued support:

- ➔ Association of Southeast Asian Nations (ASEAN) AHA Centre
- ➔ Caribbean Disaster Emergency Management Agency (CDEMA)
- ➔ El Centro de Coordinación para la Prevención de los Desastres Naturales en América Central (CEPREDENAC)
- ➔ Federal Emergency Management Agency (FEMA)
- ➔ International Atomic Energy Agency (IAEA)
- ➔ Joint Program Executive Office (JPEO-CBD)
- ➔ United States Agency for International Development (USAID)
- ➔ U.S. Department of Defense (PACOM, NORTHCOM, SOUTHCOM, AFRICOM)
- ➔ United Nations (UNOCHA, UN-SPIDER)