



Emergency Management Assistance Compact



Image: FEMA/Rieger



The Emergency Management Assistance Compact 2017 Hurricane Response

Hurricane Season 2017

2017 Was a Record-Breaking Hurricane Season:

- The 2017 season is now among the **top ten** most active of all time.
- Since records began in 1851, 2017 was the **fifth** most active season.
- One of **only six seasons** on record producing **multiple Category 5** storms.
- **17** named storms.
 - **Ten** of those becoming hurricanes
 - **Six** of those hurricanes being major – Category 3, 4, or 5
- The ten hurricanes of the 2017 season all occurred **in a row**.
- A stretch of **eight hurricanes in a row** between August 9, 2017 and September 29, 2017 was the first in the Atlantic basin in **124 years**.
 - Two of those were the only major hurricanes to **hit the continental United States** in 12 years, with **four landfalls** in total: Hurricanes Harvey, Irma, Maria, and Nate.
- September 2017 was the **single most active month** on record for Atlantic tropical cyclones.



Hurricane Harvey

The "1-in-1,000-year" Flood Event



- Caused an estimated \$180 billion in damages
- Affected 13 million people in Texas, Louisiana, Mississippi, Tennessee, and Kentucky
- Produced 51.88" of rain at Cedar Bayou, TX, the most ever recorded for the mainland U.S.
- Necessitated at least 10,000 rescue missions
- Damaged 203,000 homes and destroyed 12,700 of those
- Forced 39,000 people into shelters
- Over 7,000 people sheltered at the George Brown Convention Center in Houston
- First landfall caused loss of power for 250,000 people
- As of September 14, 2017, 3,900 homes were without power, 19 water systems were down, and 31 wastewater systems remained inoperable
- Harvey produced 200 million cubic yards of debris
- Houston School District reported 75/275 schools closed due to flood damage
- Forced shutdown of 25% of regional oil and gas production, affecting 5% of national output
- The city of Houston sank 2 centimeters as a result of the weight of the rainwater



Hurricane Irma

The Most Powerful Atlantic Hurricane in Recorded History



- Estimated cost: \$100 billion
- Estimated number of landfalls: seven, including one in Cuba and two in Florida
- Reached and maintained a maximum windspeed of 185 MPH for 37 hours
- Spent three days as a Category 5 hurricane, the first Atlantic storm to do so
- Held 7 trillion watts of energy – strong enough that it was recorded on seismometers
- Generated more ACE than any Atlantic tropical cyclone on record, and more than the first eight named storms of the 2017 season combined (including Harvey)
- Over 7 million people ordered to evacuate (6.5 million in FL and 500,000 in GA), with an estimated 25% of those declining to leave
- First time the “shoulder-use” plan – allowing for drivers to use the left shoulder of the road for moving traffic – was implemented in the state of Florida in lieu of resource-intensive contraflow lane reversal



Hurricane Maria

The Most Logistically Challenging Event in History



- Estimated cost: \$85-102 billion
- Over 80,000 people were already without power as Maria approached due to the damage of Hurricane Irma two weeks prior
- Produced peak rainfall of 37.9" at Caguas, Puerto Rico with over 80% of the island receiving up to 10" of rain over 48 hours
- 53 out of 65 river gauges in Puerto Rico met or exceeded flood stage – 30 exceeded flood stage, while 13 reached or exceeded their all-time record high
- 25 – The number of landslides per square mile in west central Puerto Rico
- Knocked out 80% of Puerto Rico's power transmission lines (including all of the hospitals)
- 1,360 of 1,600 cellphone towers and the National Weather Service's Doppler radar system were taken offline in Puerto Rico
- 15,000 people in Puerto Rico evacuated to shelters
- 3 months post Maria still 45% of the island without power; 14% without tap water; 10% without cell service

2017 Hurricane Response

States are still supporting U.S. Virgin Islands



| Event | # of Personnel Deployed via EMAC | # of Assisting States |
|--------------------------------------|----------------------------------|-----------------------|
| Hurricane Harvey: Texas | 4,895 | 36 |
| Hurricane Irma: Florida | 3,919 | 40 |
| Hurricane Irma: U.S. Virgin Islands | 1,712 | 19 |
| Hurricane Irma: South Carolina | 11 | 3 |
| Hurricane Irma: Georgia | 4 | 3 |
| Hurricane Maria: U.S. Virgin Islands | 359 | 21 |
| Hurricane Maria: Puerto Rico | 5,706 | 35 |
| EMAC Liaisons (to NRCC & RRCCs) | 13 | 12 |

EMAC Events August 2017 – July 2018

| Event | # of Personnel Deployed via EMAC |
|--------------------------------------|----------------------------------|
| Chetco Bar Wildfire: Oregon | 69 |
| Solar Eclipse: Oregon | 4 |
| Whitewater Fire: Oregon | 5 |
| Eagle Creek Fire | 49 |
| Wildfires: Montana | 2 |
| Las Vegas Shooter Event: Nevada | 13 |
| Statewide Fires: California | 1,158 |
| Wildfires: California | 637 |
| Winter Storm: Virginia | 2 |
| Wildfires: Kansas | 19 |
| Cyber Incident | 20 |
| Wildfires: Kansas | 8 |
| Spring Flooding: Montana | 1 |
| Storms, Flooding, Mudslides: Hawaii | 10 |
| Kilauea East Rift Zone Event: Hawaii | 91 |
| Flooding: Maryland | 32 |

EMAC Response

August 2017 – July 2018

19,196 deployed

Public Health, Medical & EMS Deployed by State

| State | # of Personnel |
|---------------|----------------|
| Arkansas | 87 |
| Colorado | 14 |
| Kentucky | 60 |
| Louisiana | 155 |
| Massachusetts | 35 |
| Maryland | 25 |
| Mississippi | 13 |
| Montana | 4 |

| State | # of Personnel |
|----------------|----------------|
| North Carolina | 44 |
| North Dakota | 31 |
| New Jersey | 244 |
| New York | 84 |
| Tennessee | 119 |
| Virginia | 13 |
| Vermont | 1 |
| Washington | 12 |

Unaudited numbers

EMAC After Action Report Conference Participation

- Requesting State Representatives
- Assisting State Representatives
- EMAC Advance Teams (A-Teams) who worked events virtually and deployed
- Representatives from Deployed Personnel
 - NEMA conducted data analysis to identify the variety of disciplines that deployed
 - Invited representatives to ensure all disciplines deployed were represented
 - Selected states that deployed personnel to send representation
- EMAC Advisory Group members from ASTHO and other select organizations
- Federal Emergency Management Agency

What Worked Well

- First in teams helped the Requesting State to shape and craft the request text for the next rotation of personnel providing better situational awareness to incoming personnel
- Deploying personnel faced few licensing and reciprocity issues. Those that did were solution oriented and there were no lapses in services
- Pre-deployment briefings were robust (e.g., health screening, vaccination records, fit testing, multiple orientations, operations guidelines) and allowed teams to plan for austere conditions and understand operations expectations

**Additional education needed on EMAC provisions:
Liability, immunity, licensing, & reciprocity**

What Worked Well

- Deployed personnel developed relationships with parallel missions on-site to support logistical needs (e.g., fuel, cars, water, security, etc)
- Participation in FEMA and town hall meetings was invaluable, providing teams with a common picture of events and an opportunity to connect with logistics support

**Additional education needed on EMAC process:
Mobilization, Response, Reimbursement**

Issues & Recommendations for Improvement

There is a disconnect between emergency management and ESF 8 resulting requests that do not accurately reflect the Requesting State's needs

- 
-
- Encourage ASTHO to take on a role in facilitating education, communication and promoting coordination between Requesting States and Assisting States
 - Requesting States and Assisting States should coordinate with their ESF 8
 - Consider integrating ESF 8 into A-Teams
 - Provide a guidance document and checklist that could be shared with ESFs during pre-planning and used during each phase
 - Ensure state EMAC representation on ESF 8, FEMA, and HHS calls during response. This can allow deployed personnel to gain situational awareness as to other parallel missions on the ground during response and available resources

Issues & Recommendations for Improvement

Lack of specificity in resource requests resulting in offers that don't match the need and resources deployed that adapt to overcome obstacles but are missing key personnel or mission support

-
- ASTHO to develop an ESF 8 working group to focus on the organization of deployable assets through EMAC and development of Mission Ready Packages
 - States to work with ESF 8 to develop public health/medical Mission Ready Packages in states and catalog in the Mutual Aid Support System

Issues & Recommendations for Improvement

Prior to the hurricane season, Deployed Personnel had not received sufficient training on EMAC to effectively prepare them for a deployment

-
- 
- States to provide more frequent and in-depth EMAC training
 - States and ASTHO to market the currently available online EMAC training for ESF 8 and human resources/finance
 - Integrate EMAC into exercises

Issues & Recommendations for Improvement

EMAC is in alignment with the new HHS regional response oriented model but is underutilized

-
- Facilitate communication between HHS and states to increase the understanding of state and federal roles and responsibilities, and streamline support for deployed missions
 - Integrate EMAC into exercises

Issues & Recommendations for Improvement

Lack of information on the EMAC reimbursement process prior to deployment and lack of uniformity of forms

-
- 
- While the EMAC system deliberately didn't utilize standard forms, the EMAC leadership should consider standardized forms
 - Increased training on the reimbursement process to increase understanding and develop agency policies prior to an EMAC deployment
 - ASTHO and states to market existing EMAC training materials
 - Develop job action sheets
 - Promote the standardization of the reimbursement process across all states (forms, process, etc.)



Emergency Management Assistance Compact

[Learn More](#)

www.emacweb.org