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EXECUTIVE SUMMARY

▶ BACKGROUND

The Emergency Management Assistance Compact (EMAC) is a state-led effort that provides a legal mechanism and framework for sharing resources across state lines during a governor-declared disaster. Currently, all 50 states, the District of Columbia, Puerto Rico, Guam, the U.S. Virgin Islands, and the Northern Mariana Islands are members of EMAC. Ratified by Congress 25 years ago, EMAC has grown in prominence with its proven effectiveness in numerous disasters. Today, EMAC is a cornerstone for emergency response and recovery efforts in disasters.

The National Emergency Management Association (NEMA), which administers EMAC, produced this report to preserve knowledge and lessons learned from EMAC's evolution and continuous improvement. Specifically, the report's objectives are to:

- Provide a detailed history of EMAC, analyzing changes in policies and operations from its beginnings to the present day; and
- Explore how EMAC has affected mutual aid policies and response and recovery operations.

▶ SYNOPSIS OF KEY EVENTS

Numerous events helped motivate the creation of EMAC and shape its policies and operations. Some of the most critical events in EMAC's history include the following:

- ❖ **Hurricane Andrew (1992):** Occurring just three years after Hurricane Hugo, Hurricane Andrew led Florida Governor Lawton Chiles to propose that the members of the Southern Governors' Association (SGA) develop a cooperative agreement to support one another in times of disaster. This effort eventually resulted in the Southern Regional Emergency Management Assistance Compact (SREMAC), the precursor to EMAC.
- ❖ **SGA Winter Meeting (1995):** Attendees voted to incorporate recommendations from two working groups—one of legal personnel, and another of state emergency management directors and planners—to make SREMAC legally sufficient and operationally viable. Per their recommendation, membership in SREMAC was opened to any state or territory in the nation. SREMAC was then renamed EMAC.

- ❖ **Congress Passes Public Law 104-321 (1996):** Congress passed EMAC by joint resolution, removing a key concern of its founders about the legitimacy of this interstate compact. EMAC becomes the first national disaster-relief compact to receive congressional ratification since the Civil Defense and Disaster Compact of 1950.
- ❖ **NEMA Takes Over Administration of EMAC (1997):** Even before 1997, NEMA was a key advocate for EMAC, promoting adoption of the compact and hosting EMAC meetings in conjunction with its annual and mid-year meetings. SGA funding for EMAC expired in 1997, leading NEMA to take over administrative responsibilities officially. In hindsight, NEMA was the logical choice to administer EMAC. NEMA represented state emergency management officials, who had statutory responsibility for implementing EMAC, and EMAC was national in scope.
- ❖ **Florida Wildfires (1998):** One of the worst wildfire seasons in Florida’s history, the 1998 Florida wildfires led to the largest EMAC deployment up to that point in time. This event represented a significant expansion in the use of EMAC to deploy not only state resources, but also local resources in support of a large-scale disaster.
- ❖ **September 11 Terrorist Attacks (2001):** The 9/11 attacks resulted in sweeping changes to the emergency management landscape that would influence EMAC, including the creation of the U.S. Department of Homeland Security and increases in homeland security funding. This catastrophic, non-hurricane event led some remaining states and territories to join EMAC, while accelerating operational planning for EMAC implementation in many Member States.
- ❖ **2004 Hurricane Season (2004):** The 2004 hurricane season—in which four hurricanes struck Florida in rapid succession—led to an unprecedented deployment of resources through EMAC. The scale of the EMAC deployment raised key concerns about accountability of personnel, personnel inadequately equipped for deployment to affected areas, and challenges with specifying needed resources. This event also prompted and established a more formal after-action review process for assessing EMAC’s performance.
- ❖ **Hurricanes Katrina and Rita (2005):** Only one year after the 2004 hurricane season, Hurricane Katrina would shatter existing records for personnel deployed under EMAC. The resulting mobilization of nearly 67,000 personnel across a 90,000-square mile area of operations stressed EMAC’s capabilities, highlighting necessary improvements in accountability, responder awareness of EMAC, operational systems, and reimbursement tracking.
- ❖ **2017 Hurricane Season (2017):** In the years since Hurricane Katrina, states have used EMAC to support responses to numerous major hurricanes—such as Hurricanes Irene (2011), Sandy (2012), Florence (2019), and Dorian (2020)—that have contributed to new lessons learned for EMAC. The 2017 hurricane season stands out, however, as particularly notable in shaping EMAC’s evolution. Hurricanes Harvey, Irma, and Maria struck the United States in rapid succession, leading to three of the five largest deployments in EMAC’s history.
- ❖ **COVID-19 Pandemic (ongoing):** The pandemic presented the nation with a unique challenge for mutual aid. For the first time in U.S. history, all 50 states, the District of Columbia, and five territories operated under simultaneous major disaster declarations.

Nevertheless, states used EMAC to send personal protective equipment, alternate care center supplies, ventilators, and other resources, and deployed more than 9,000 personnel for wildfires, civil unrest, flooding, and hurricanes in 2020 and 2021. The pandemic added complexity to deployments during incidents such as the 2020 September Oregon wildfires, resulting in new lessons learned for future EMAC deployments [1].

FINDINGS

EMAC's implementation and capabilities have matured through member-driven action and responsiveness to lessons learned. For example, the 2004, 2005, and 2017 hurricane season after-action reviews have revealed numerous challenges, including accountability, resource identification, reimbursement, and EMAC familiarity. NEMA has used Federal Emergency Management Agency funding to address these challenges, including:

- Maturing the concept of a Mission-Ready Package, which predefines capability (including associated personnel, equipment, and cost), greatly accelerating EMAC deployments;
- Improving state preparedness to receive EMAC-deployed resources through the creation and exercising of EMAC Personnel Accountability and Processing Packages;
- Developing a suite of online courses to provide tailored training to different EMAC stakeholder audiences;
- Releasing four major upgrades of the EMAC Operations System, resulting in a fully synchronized system that incorporates a streamlined electronic Resource Support Agreement (RSA), updates changes made in real time, and underpins tailored dashboards to support EMAC operational components; and
- Issuing and updating reimbursement guidance, developing a standardized reimbursement form, developing a reimbursement tracking system, and enhancing reimbursement training.

These and other efforts have adapted EMAC to challenges, developed new capabilities, and standardized and institutionalized processes, helping to transform what began as a concept—namely, neighbors helping neighbors in times of crises—into an effective system for interstate mutual aid. In the process, EMAC has influenced other mutual aid efforts, including intrastate and cross-border mutual aid.

EMAC allows the nation to leverage the billions of dollars spent to increase capability across the United States, providing the key mechanism to build capability as a nation, as opposed to individual jurisdictions.

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1. INTRODUCTION

Like many great ideas, the creation of the Emergency Management Assistance Compact (EMAC) seems obvious in hindsight. Today, the ability for states to share resources effectively in times of disaster comes across as common sense. EMAC has established itself as the nation's state-to-state mutual aid system. EMAC legislation has successfully passed in all 50 states, the District of Columbia, Puerto Rico, Guam, the U.S. Virgin Islands, and the Northern Mariana Islands. To date, states have used EMAC to support operations for more than 300 events, deploying more than 133,000 personnel, who have completed thousands of missions [2-3].

However, EMAC's acceptance and use belie just how uncommon its success was. When Congress approved EMAC as Public Law 104-321 in 1996, it became the first national, disaster-related compact since the Civil Defense and Disaster Compact of 1950 [4]. The reasons behind EMAC's creation and longevity warrant greater attention. EMAC has encountered numerous challenges since its inception; had events occurred differently, perhaps the results today would be radically different. This report aims to revisit events in EMAC's history through a panoramic lens to help readers better understand the value of EMAC.

▶ WHAT IS EMAC?

EMAC is a national interstate mutual aid agreement that facilitates sharing of resources across state lines in times of disaster or emergency. Its purpose is to “provide for mutual assistance between the states entering into this compact in managing any emergency disaster that is duly declared by the Governor of the affected state, whether arising from natural disaster, technological hazard, man-made disaster, civil emergency aspects of resources shortages, community disorders, insurgency, or enemy attack”¹ [5]. The compact includes 13 articles that provide a legal umbrella for interstate mutual aid, addressing key concerns such as licensing and permits, liability, and reimbursement. EMAC facilitates preparedness for response and recovery operations by eliminating potential legal and administrative obstacles. Under EMAC, once conditions for providing assistance to a Requesting State have been set, the terms constitute a legally binding agreement. For the compact to come into play, both the Requesting and Assisting State must enact it into law.

¹ The compact also provides for cooperation in exercises, testing, and training associated with EMAC.

EMAC: COMMON MISCONCEPTIONS

- ✘ **EMAC is a federal program:** Administered by the National Emergency Management Association (NEMA), EMAC is not a government agency or program, but an agreement among states and territories to provide assistance across state lines when a disaster occurs.
- ✘ **A big bureaucracy supports EMAC:** EMAC has largely operated through unity of effort from Member States. EMAC did not have a full-time program coordinator until 2003. EMAC operates with less than a handful of full-time staff members and varying levels of contract support.
- ✘ **EMAC was a National Guard idea:** Many Adjutants General support EMAC, and the Adjutants General Association of the United States was a key initial backer of EMAC, but EMAC was a state-initiated idea and is not a National Guard–owned capability.

➤ REPORT OBJECTIVES

This study examines EMAC through NEMA records, publicly available documentation, and interviews with key individuals who have helped shape EMAC. Its objectives are to:

- Provide a detailed history of EMAC, analyzing the evolution of its policies and operations from Hurricane Andrew in 1992 to the present day; and
- Explore how EMAC has affected mutual aid policies and response and recovery operations.

Historically, retirement and turnover of experienced emergency management professionals have resulted in knowledge loss.² This report attempts to collect, distill, and preserve knowledge about EMAC and to lay out the rationale behind EMAC’s current policies and operations for future generations of emergency management professionals.

➤ REPORT ORGANIZATION

The remaining sections of the report are as follows:

- **EMAC Timeline:** Narrates EMAC’s history, highlighting key events and their ramifications.
- **EMAC Organizational Structure:** Discusses the policy and operational elements governing EMAC and how they have matured over time.
- **Key Challenges in EMAC’s Development:** Provides a deeper look into several issues that EMAC has confronted, including training; resource standardization; reimbursement; accountability; and establishment of policies, procedures, and protocols.
- **EMAC’s Broader Influence:** Examines the influence EMAC has exerted over other mutual aid efforts and national preparedness.
- **Moving Forward:** Reiterates key themes and presents ongoing concerns and future directions.

² For example, a fiscal year (FY) 2019 NEMA survey identified significant turnover in the ranks of state emergency management directors, with 46 percent of them having been in their jobs for three years or less.

Throughout the document, various callout boxes contain illustrative examples of EMAC best practices. Additionally, **Appendix A** contains a list of abbreviations used throughout the report.

2. EMAC TIMELINE

Spanning roughly three decades, EMAC’s history relates how a potent, underlying human desire—that of neighbor helping neighbor in time of need—became a critical component of the nation’s approach to disaster response and recovery. Key events such as Hurricane Andrew (1992), the September 11 terrorist attacks (2001), Hurricane Katrina (2005), the 2017 hurricane season, wildfires in the Western United States (2018, 2019, 2020), and the COVID-19 pandemic have tested EMAC’s adaptability, flexibility, and scalability, helping to shape and reshape understanding of what EMAC could be called on to support.

This section loosely groups events in EMAC’s history into five periods, based on an analysis of major shifts in EMAC activity. Each of the five corresponding subsections begins with a table listing key events for that period. While overlap exists among periods, this section largely narrates events in chronological order. Coverage focuses on those events that have shaped EMAC policy and operations. Some issues, such as reimbursement and accountability, are only introduced in this section and are revisited in greater depth in the section “Key Challenges in EMAC’s Development.”

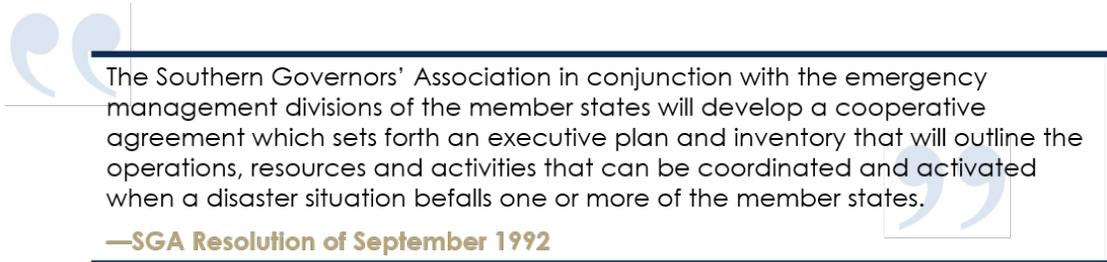
▶ THE BEGINNING (1989–1995)

KEY EVENTS

- **August 1992:** One of the most destructive hurricanes in U.S. history, Hurricane Andrew cut a 50-mile swath across southern Florida, leaving nearly 200,000 residents homeless and 1.3 million residents without electricity.
- **September 1992:** At the Southern Governors’ Association (SGA) annual meeting, Florida Governor Lawton Chiles proposed that the 19 states and territories of the SGA create a means of mutual support to respond to hurricanes.
- **August 1993:** The 19 SGA members signed the Southern Regional Emergency Management Assistance Compact (SREMAC) at the National Governors’ Association meeting in Tulsa, Oklahoma.
- **July/August 1994:** Beginning in July, SGA hosted a series of meetings in Atlanta, Georgia, involving two groups—one of state legal personnel, and another of state emergency management personnel—to review SREMAC’s legal sufficiency and develop operational guidance.
- **January 1995:** During the SGA winter meeting, the assembled governors unanimously voted to open compact membership to all states and territories. The compact name changed from SREMAC to EMAC.

References: [6-10]

Accounts of EMAC generally consider Hurricane Andrew as the seminal event in EMAC’s history. On August 24, 1992, Hurricane Andrew made landfall in southern Florida, resulting in extensive damage. Federal disaster response plans were in a time of transition, with a new *Federal Response Plan* released only months earlier [11]. This may have contributed to a lack of coordination between the Federal Emergency Management Agency (FEMA) and affected states³ [13]. In Dade County, Florida, emergency management director Kate Hale summed up frustration with the federal response in her now-famous plea: “Where in the hell is the cavalry on this one? They keep saying we’re going to get supplies. For God’s sake, where are they?” [14]. In response, Florida Governor Lawton Chiles called on members of the SGA for assistance [13]. Although states were able to provide assistance,⁴ an established process for moving resources across states lines and providing umbrella legal protections for deployed personnel did not exist [13]. Thus, a few weeks later, at the SGA meeting in Charleston, South Carolina, Governor Chiles proposed that the members of SGA create some means of supporting one another in future hurricanes [7].



The Southern Governors’ Association in conjunction with the emergency management divisions of the member states will develop a cooperative agreement which sets forth an executive plan and inventory that will outline the operations, resources and activities that can be coordinated and activated when a disaster situation befalls one or more of the member states.

—SGA Resolution of September 1992

In actuality, the seeds for this proposal had already been planted three years earlier when another hurricane, Hugo, made landfall in South Carolina. More than 36,000 homes suffered major damage or were destroyed, and more than one million residents were without electricity for two to three weeks [16]. In the aftermath of Hurricane Hugo, Governor Chiles had wanted to support Governor Campbell of South Carolina, but was not allowed by law to send National Guard troops across state lines [17]. As a result, Governor Chiles directed his staff to begin working on a solution to this issue. Similarly, following Hurricane Hugo (and the 1989 Loma Prieta, California, earthquake), members of NEMA were actively discussing the importance of being able to share resources. But the events of 1989, in and of themselves, were insufficient to ignite change [17-18]. The additional push came from Hurricane Andrew.

Until Hurricanes Hugo and Andrew struck, the United States had enjoyed a relatively long period (between 1981 and 1988) without major natural disasters⁵ [12]. But Hurricane Hugo—and especially Hurricane Andrew—represented a different scale of event. Hurricane Andrew ranks among the 10 most costly hurricanes in U.S. history, causing \$52.7 billion in damages (adjusted to 2021 dollars)⁶ [21]. In contrast, no hurricanes in the previous decade (outside of Hurricane

³ The bulk of federal aid did not arrive until six days after the disaster [12].

⁴ North Carolina, for example, sent a CSX train loaded with equipment and flew 300 individuals down to support a three-week debris-removal mission in Homestead, Florida [15].

⁵ Meanwhile, coastline counties saw an increase of 9.5 million people in the 1980s (accounting for 43 percent of the United States’ total population increase), resulting in larger concentrations of individuals at risk from hurricanes [19-20].

⁶ Hurricane Hugo ranks in the top 15, with \$20 billion in damages [21].

Hugo) cracked the top 25. Resource needs were enormous in Hurricane Andrew, drawing national attention to the significant damage that a natural disaster could inflict [17, 20].

Figure 1. Aerial view of damage to a Dade County marina in the aftermath of Hurricane Andrew (Credit: FEMA/Bob Epstein)



Hurricane Andrew was a prime example of what John Kingdon⁷ calls a “focusing event.” These are rare, harmful, and sudden events that capture the attention of bureaucrats, elected officials, and the general public, drawing increased attention to problems occurring in these events [22]. As Kingdon notes in *Agendas, Alternatives, and Public Policies*, “Sometimes crises come along that simply bowl over everything standing in the way of prominence on the agenda”

[23]. Following Hurricane Andrew, the public’s reaction to the slow arrival of federal aid was particularly negative, given growing expectations for assistance [24]. Media outlets such as *The New York Times* further enhanced the power of Hurricane Andrew as a focusing event by presenting images of the storm’s destructive power and haunting personal accounts and statements [25-27], leading to greater levels of institutional attention.⁸ As Dale Shipley, Deputy Director of the Ohio Emergency Management Agency and former NEMA president, stated in testimony to Congress, the response after Hurricane Andrew was “too little and too late, and it was well publicized” [28]. Decades later, several of SREMAC’s founders still recalled Kate Hale’s plea. Thus, the sequence of Hurricane Hugo followed by Hurricane Andrew not too many years after demanded official attention and consideration of what could be done differently [17].

Focusing events can trigger involvement from atypical parties [22]. Hurricane Andrew was unique in that Governor Chiles directly asked other state governors for their assistance. Although state emergency managers often did not wait for affected states to call before offering assistance,⁹ they normally had to push up the system to get permission from their governors [18]. Sometimes challenges occurred, since most governors were focused internally on their own states. In Hurricane Andrew, rather than having emergency managers push up the system, governors were directing down, telling state emergency managers, state Adjutants General, and state law enforcement chiefs to do whatever they could to help Florida [18]. Additionally, Hurricane

⁷ John Kingdon is the former Chair of the Department of Political Science at the University of Michigan and a Fellow of the American Academy of Arts and Sciences.

⁸ An example is the 1993 congressional hearing on “Rebuilding FEMA: Preparing for the Next Disaster” [28].

⁹ Most NEMA members had a long history together and were close personal friends. Personal relationships were why people got on the phone and did not wait for South Carolina or North Carolina officials to call before offering assistance in the aftermath of Hurricane Hugo [18].

Andrew afforded Governor Chiles an opportunity to mobilize action at the 1992 SGA meeting by pointing to this event as an example of what was wrong with existing policy. Outgoing SGA Chairman Governor Campbell was also very supportive of the proposal, given his state's experience with Hurricane Hugo just three years earlier [7].

Circumstances seemed to favor a state-led initiative at this time. In the aftermath of Hurricane Andrew, public opinion of FEMA seemed to be at an all-time low, with some thought toward eliminating FEMA altogether [24, 29]. Curt Weldon, a congressman from Pennsylvania, called FEMA a "dumping ground" for political appointees with no experience in disaster management [28]. A National Academy of Public Administration study of governmental capacity to respond effectively to major natural disasters found that, with an unusually high proportion of political appointees, FEMA "had insufficient leadership...which would be necessary to create a high-performance, high-reliability institution with unified mission, vision, and values" [24]. Only three years earlier, frustrated with FEMA's lack of assistance in the aftermath of Hurricane Hugo, South Carolina Senator Fritz Hollings referred to FEMA officials as a "bunch of bureaucratic jackasses" on the Senate floor [30].

Moreover, the relationship between FEMA and states was strained. FEMA was suspicious of state motivations for money and did not believe that states had enough competency to conduct initiatives like SREMAC [17]. Richard Andrews, Director of the Office of Emergency Services for the State of California, in referencing a 1993 FEMA Office of the Inspector General report, would characterize FEMA as an agency "pursuing practices that appear to assume that local and state agencies are motivated solely by a desire to raid the federal treasury" [31]. The Inspector General report, itself, concludes, "FEMA officials disagree with the premise put forth by state and local officials that they could make more effective use of the funds with fewer federal restrictions. They contend that many existing state and local capabilities exist only because their development was required by the various federal programs" [32]. While this relationship would improve in coming years with the appointment of James Lee Witt as the FEMA Administrator,¹⁰ existing frustration with FEMA may have helped push states to look for their own solutions.

Following the governors' unanimous resolution in favor of the compact, a steering committee made up of representatives from several states¹¹ worked to produce a compact that would be acceptable to all SGA members. Virginia Governor Douglas Wilder was the SGA Chairman at this time and thus led the effort, with early drafts largely drawn up by staff members from Virginia's Department of Emergency Services [7].

What they were trying to accomplish was somewhat unclear. George Foresman, a Virginia member of the steering committee, recalls Governor Wilder sending for him and Addison Slayton, Virginia's state emergency manager, and simply telling them that Governor Chiles's proposal was a really good idea and to put this together. Governor Wilder did not necessarily know what this would entail, but it was clear that interstate mutual aid was going to be a major effort for SGA that year [18].

¹⁰ James Lee Witt was the first FEMA Administrator who had prior experience in emergency management.

¹¹ The states were Florida, Georgia, Mississippi, North Carolina, Tennessee, and Virginia.

The steering committee met for the first time a couple of months after Hurricane Andrew in Atlanta. The roughly 30 attendees were mostly attorneys, each with different agendas. Thus, the meeting was as much about identifying the many impediments that they had to address for SREMAC to succeed. The challenge was to give individuals the opportunity to present their agendas and then try to find common threads to create unity of effort. There was an incredible amount of will to make progress at the meeting, but also a lot of debate over case law and constitutionality. Attendees were split into different camps, with some believing that the Federal Government should be doing this, while others championing that states needed to do this, and still others wondering if laws would allow this. A large part of the initial meeting concentrated on establishing the necessary legal framework, not only at the state level, but also at the federal level. Coming out of that meeting, there was not a compact, but there was a clear path forward for getting to the compact [18].

SREMAC drew heavily on language from the Interstate Civil Defense and Disaster Compact of the early Cold War era [7]. Additionally, it relied on language from a never-used FEMA compact devised in 1983, the Interstate Emergency Management Compact [33], and explicitly referenced the National Guard Compact¹² [7]. In crafting SREMAC, the steering committee also referred to a couple of agreements developed during Hurricane Andrew and a series of state-to-state agreements for law enforcement officers to cross state boundaries. The lead writer for the initial compact was Carl Josephson, an Assistant Attorney General from Virginia. Josephson consolidated information from the Atlanta meeting and conducted additional research afterward. Even so, no one had a clear directive to develop the compact, which delayed its completion. What Governor Wilder thought would be a relatively quick effort stretched out into several months, frustrating him [18].

Nevertheless, by summer 1993, the language for the compact was complete. The first version of the compact, SREMAC, was signed on August 17, 1993, by the southern governors at the National Governors' Association meeting in Tulsa, Oklahoma [34]. The document provided a framework for providing equipment and resources; transferring fire, law enforcement, emergency medical services, and other personnel; and lending assistance from relevant state agencies [35].

SREMAC was primarily focused on establishing the concept of governors agreeing to help each other in times of crisis [13]. Although it represented a major achievement, at less than two pages long, SREMAC was short on details. For example, attorneys were anxious to define in greater detail the limits of tort liability for states providing assistance [36]. SREMAC had yet to evolve from the original idea that everyone bought into to something that was legally sufficient and operationally viable [17].

Thus, SREMAC entered a second phase of development. Starting in July 1994, SGA held two series of meetings in Atlanta, Georgia—one for states' legal personnel (i.e., the "legal group") and another for emergency management agency directors and planners (i.e., the "planners' group")¹³ [7, 36]. The legal group reviewed the SREMAC language and recommended steps necessary to ensure full and legal implementation of the compact [9]. Meanwhile, the planners' group focused

¹² This was an agreement drawn up for interstate sharing of National Guard resources in the late 1960s, which nine states signed but apparently never used.

¹³ The meetings were initiated at the suggestion of the Florida Department of Community Affairs. The first meeting of the legal group was held July 27, 1994. The first meeting of the planners' group was held August 8, 1994.

on operational implementation and any amendments necessary to maximize efficiency in providing mutual aid¹⁴ [4, 9]. Over the next six months, the groups considered a number of proposals to amend the compact [7].

It was tricky work. Attorneys were looking at legal issues and adjusting the compact's language to account for particular state laws. The compact had to be simple, yet legally sufficient [17]. For example, as originally written, SREMAC guaranteed sovereign immunity to out-of-state emergency workers to the extent that such immunity was enjoyed by officers and employees of the Requesting State [9]. However, a high-immunity state might find itself sued in a low-immunity state. Moreover, in 1979, the U.S. Supreme Court ruled that the doctrine of sovereign immunity was invalid outside the borders of the state under suit¹⁵ [4]. The legal group altered the liability clause to make it unequivocally clear that states receiving aid would be responsible for liability.

The handling of tort liability raised corresponding concerns about the broader issue of governors' authorities. In some states, specific legislative approval would be necessary to participate in SREMAC; in others, governors possessed sufficient authorities under their executive powers to adopt SREMAC. The representative from the State of Louisiana raised the issue that not only was legislative approval necessary in Louisiana, but also that Louisiana would be unable to assist any state that failed to secure its own legislative approval [37]. Thus, because of state differences in constitutional and statutory laws, the legal group determined that legislative approval by all states participating would be prudent [38]. Taking this one step further, the legal group also recommended submitting the compact to Congress for approval because the compact might be misconstrued as altering the balance of authority between states and the Federal Government [34].¹⁶

Meanwhile, the planners' group tackled the nuts and bolts of making SREMAC work. Various processes, such as ordering and reimbursement, were laid out [17]. Moreover, in the Atlanta meeting of the planners' group, representatives raised the concern that without periodic meetings to review activities relating to SREMAC, SREMAC would end up like the Civil Defense Compact.¹⁷ Since the individuals involved with EMAC were also members of NEMA, they agreed to meet twice a year at the NEMA annual and mid-year conferences [13].

Ultimately, the two groups suggested several procedural amendments and policy recommendations. Perhaps the most striking recommendation was opening participation in the compact to all states and territories [7]. At the time, other regional and national organizations were examining SREMAC as a basis for similar agreements in other parts of the country. However, attendees of the working group meetings resolved that the quickest and most efficient way to establish nationally based mutual aid among states was to build on SREMAC [9]. Thus, at the SGA

¹⁴ The planners' group ceased to meet at the end of 1994.

¹⁵ In the 1979 case, *State of Nevada v. John M. Hall*, the Supreme Court ruled that California resident John Hall could sue the State of Nevada in a California court for the negligent activities of a Nevada state employee driving in California on official business.

¹⁶ The U.S. Constitution requires all interstate compacts to obtain approval from Congress. However, the 1950 Civil Defense Act gave broad authority to states to enter compacts for the purpose of defense. This authority was then extended and broadened in subsequent legislation. The working group members ultimately decided that seeking congressional approval would be the most prudent course of action.

¹⁷ Doug Munro, Senior Policy Analyst at SGA, conducted a study of national compacts and found that, without a governing board or frequent implementations, compacts tended to fall into disuse [39].

winter meeting in January 1995, chaired by Mississippi Governor Kirk Fordice, the assembled southern governors unanimously voted to open up compact membership to all states and territories of the United States and rename the compact EMAC [7, 34].

▶ MAKING THE CASE FOR EMAC NATIONWIDE (1995–2003)

KEY EVENTS

- **Spring 1995:** Virginia, Mississippi, Tennessee, and Louisiana became the first states to ratify EMAC.
- **October 1995:** Hurricane Opal made landfall in Florida and became one of the first opportunities to implement the EMAC concept. The Advance Team (A-Team) concept was tested for the first time, with personnel from Tennessee, Georgia, and Texas combining to provide an A-Team to Florida.
- **February 1996:** South Dakota became the first non-SGA state to join EMAC.
- **October 1996:** Congress approved EMAC through a joint resolution (Public Law 104-321), making EMAC the first national disaster-relief compact since the Civil Defense and Disaster Compact of 1950 to be ratified by Congress.
- **February 1997:** NEMA took over administration of EMAC, resolving to pursue funding through the FEMA/NEMA cooperative agreement to continue promoting the concept, ratification, and implementation of EMAC.
- **June/July 1998:** Wildfires in Florida resulted in the mobilization of 551 firefighters, 126 firefighting apparatus, and 24 support vehicles through EMAC. This response represented one of the first instances in which not only state, but also local, resources mobilized under EMAC.
- **November 1998:** The Pacific Northwest Emergency Management Arrangement (PNEMA) was signed into law by Congress, which is an agreement among the States of Alaska, Idaho, Oregon, and Washington; the Province of British Columbia; and the Yukon territory.
- **September 2001:** The 9/11 terrorist attacks occurred. The State of New York passed EMAC shortly after in an emergency legislative session and used EMAC to request resources. Within two years of 9/11, nearly all states were members of EMAC.

References: [2, 8, 10, 40-48]

Following the SGA's decision to open SREMAC to all states and territories, adoption of EMAC met with mixed success in the spring of 1995. EMAC successfully passed into law in Virginia, Mississippi, Tennessee, and Louisiana, but failed to pass in Florida and Alabama¹⁸ [8].

By then, states had already used EMAC (and its predecessor SREMAC) in response to several events, including severe winter weather in Tennessee (early 1994) and flooding in Georgia (July 1994) [37]. In April 1995, Governor Allen of Virginia explicitly cited the compact as the basis for sending National Guard personnel and helicopters to assist the Commonwealth of Kentucky in fighting forest fires [10].

One of the biggest early tests for EMAC, however, was Hurricane Opal, which struck Florida in October 1995. Opal was a prime example of the critical role real-world events played in highlighting the benefits of EMAC and convincing new states to join. Although Tennessee had passed EMAC, Florida had not. Regardless, Tennessee viewed the original SREMAC, with the signatures of all the southern governors, as sufficient and deployed a five-member A-Team to assist Florida [38]. Florida conducted the request for interstate assistance according to the

¹⁸ EMAC legislation was attached to other bills in both states, which could explain its failure to pass.

compact's recently assembled *Guidebook & Manual of Use* [9, 38]. Also included in the guidebook was a matrix of emergency management resources by state compiled by SGA, which identified Mississippi's possession of much needed National Guard helicopters [38].

Unlike Tennessee, however, Mississippi wanted statutory assurances. Echoing concerns raised in 1994 legal group meetings, Frank Spencer, the Assistant Attorney General of Mississippi, worried about whether the Governor of Florida—absent EMAC or any other specific statutory authorization—had sufficient authorities to grant good faith immunity to relief workers from Mississippi or spend money on interstate assistance. To address these concerns, Spencer crafted a short-term Mississippi/Florida Hurricane Assistance Compact¹⁹ [38]. This allowed Mississippi to obtain the assurances it needed, and Florida received helicopter support [38, 49]. Nevertheless, a considerable amount of effort went into crafting the ad hoc agreement, which Florida could have avoided by adopting EMAC. Likely because of this event, Florida would pass EMAC the following year.

Even as the first states began joining EMAC, the question of who would administer the compact remained in doubt. In August 1995, Elizabeth Schneider, Executive Director of SGA, submitted an unsolicited proposal to FEMA for funding so that SGA could continue administration of EMAC²⁰ [10]. The proposal's timing was inopportune. In meeting with Lacy Suiter,²¹ Leon Shaifer²² recalls asking for budget support,²³ and Suiter telling him that all of the money for the year was already obligated, as it was nearing the end of the fiscal year [51].

In the aftermath of the proposal's rejection, Leon Shaifer and Eric Tolbert²⁴ went to Lexington in October 1995 and first pitched the idea of NEMA assuming administration [51]. Available NEMA records indicate that EMAC leadership discussed transferring administrative responsibilities from SGA to the National Governors' Association as early as September 1996 [52]. SGA staff had worked on SREMAC as long as it was a priority for the chairman, but after Governor Wilder served his term as chairman, interest seemed to wane [18]. Moreover, SGA had been absorbing almost all costs associated with administering EMAC since 1992 out of its general operating fund [7]. Concerns over who would administer EMAC and how to fund EMAC would continue to grow.

Meanwhile, NEMA was becoming more involved in EMAC. In 1995, NEMA began advocating for Congress to pass EMAC legislation [13]. Early the following year, EMAC leadership recommended to NEMA that NEMA lead efforts to promote EMAC, resulting in the creation of an ad hoc committee for this purpose [53]. On September 18, 1996, the Subcommittee on Commercial and Administrative Law in the U.S. House of Representatives held a hearing, "Legislation Concerning Compacts," to discuss EMAC. Witnesses included David McMillion, a former President of NEMA, and Tom Feuerborn, the chairman of NEMA's Ad Hoc EMAC Committee [8, 33].

¹⁹ Fortunately, the attorneys from Florida and Mississippi were already familiar with the legal issues associated with crafting such an agreement, drawing on research from the 1994 working group meetings.

²⁰ As early as May 1995, discussions took place regarding the Central U.S. Earthquake Consortium's role in housing and administering EMAC [39].

²¹ Lacy Suiter was the FEMA Director of the Office of Policy, Assessment and Regional Operations.

²² Leon Shaifer was the Deputy Director of the Mississippi Emergency Management Agency.

²³ SREMAC had previously received a small amount of funding from FEMA [50].

²⁴ Eric Tolbert was the Chief of the Bureau of Preparedness and Response in the Division of Emergency Management in the State of Florida.

Passage of EMAC in Congress was a relatively smooth process. It was mainly a matter of obtaining sponsors and getting EMAC on the congressional calendar. Introduction of the bill occurred soon enough after Hurricane Andrew that memories of the hurricane's destruction still lingered [13].

KEY ENDORSEMENTS FOR EMAC

PRIOR TO CONGRESSIONAL APPROVAL*

- ❖ Southern Governors' Association
- ❖ Midwestern Governors' Conference
- ❖ Adjutants General Association of the United States
- ❖ Western Governors' Association

* Other endorsements for EMAC included the Midwestern Legislative Conference, the National Governors' Association, and the New England Governors' Conference.

Beginning in summer 1996, SGA worked with U.S. House of Representatives and U.S. Senate Judiciary committees to devise language for a congressional resolution approving the compact [8]. Passage of EMAC—Joint Resolution granting the consent of Congress to the Emergency Management Assistance Compact (PL 104-321)—occurred in the U.S. House of Representatives on September 24, 1996 and in the U.S. Senate on October 3, 1996 [54].

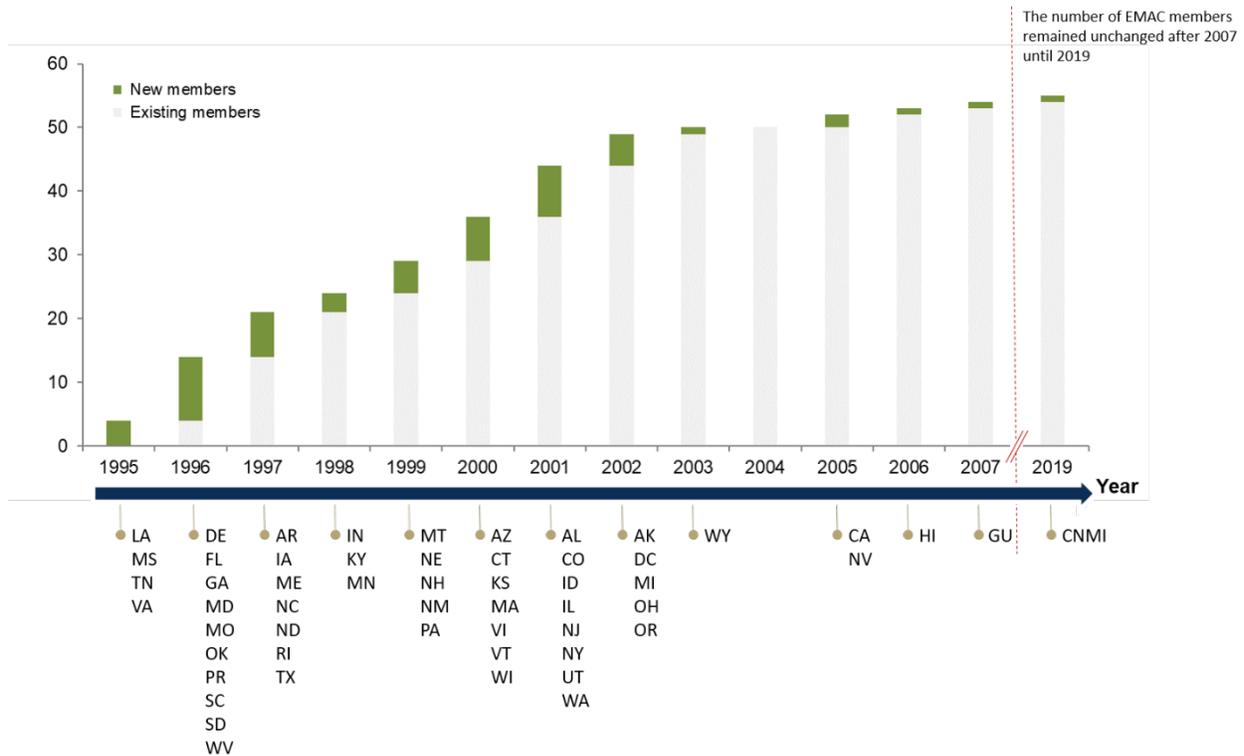
Early in 1997, the issue of who would administer EMAC came to a head. SGA funding for EMAC was almost exhausted, and SGA had elected not to renew its involvement with EMAC. EMAC leadership determined that “in light of the anticipated termination of SGA’s involvement in the EMAC project, overtures should be made to FEMA for continued funding and to NEMA, to see if any available FEMA funding could be channeled through NEMA” [43]. At the NEMA mid-year conference in February 1997, NEMA appears to have passed²⁵ a resolution to pursue funding through the FEMA/NEMA cooperative agreement to promote EMAC [44].

Although SGA’s involvement formally ended in 1997, the assimilation of administrative responsibilities by NEMA had already been occurring gradually over the past few years [18]. NEMA already hosted EMAC meetings at its annual and mid-year conferences and had promoted the Ad Hoc EMAC Committee to a full standing committee in September 1996. Moreover, SGA and NEMA were both part of The Council of State Governments, which facilitated the transition. In hindsight, NEMA was the obvious body to administer EMAC, since it represented state emergency management officials, which had statutory responsibility for implementing the compact [13].

Having assumed administrative responsibilities, NEMA continued working to increase EMAC membership. Figure 2 shows the cumulative number of states and territories joining EMAC from 1995 to 2007. Not surprisingly, early increases in EMAC membership were largely dominated by SGA members, all of whom had previously signed the 1993 SREMAC agreement. In the first two years, 12 out of 14 EMAC members were also SGA members. By the end of 2000, 36 states and territories had joined EMAC, nearly two-thirds of the nation.

²⁵ This is based on an unsigned copy of the resolution, dated February 12, 1997 [44]. In June 1997, Lacy Suiter advised Leon Shaifer that FEMA would be able to partially fund EMAC with deobligated FY 1997 funds, allowing FEMA to meet EMAC’s projected expenditures of FY 1997 and FY 1998 [55].

Figure 2. Cumulative growth in the number of EMAC members over time



NEMA used both formal marketing and informal peer pressure to convince states to join. One of the responsibilities of EMAC leadership was to talk up the compact and encourage states to pass EMAC legislation [51]. Emergency managers whose states participated in EMAC advised and counseled those who wanted to participate. Even so, state emergency management directors sometimes struggled to gain attention and support for EMAC from their governors²⁶ [18, 20]. Thus, when a disaster took place, NEMA would attempt to take advantage of the increased attention paid to emergency management issues from governors' offices [20, 51]. NEMA encouraged more disaster-savvy governors to educate their less-experienced colleagues about the value of EMAC. Moreover, NEMA engaged the National Governors' Association to promote EMAC during orientation sessions for new governors and their chiefs of staff [20]. Additionally, NEMA attempted to educate state legislatures about the value proposition of EMAC. As a result, institutional familiarity with EMAC grew in legislative branches, including Congress [18].

Based purely on numbers, the attacks of September 11, 2001, do not appear to have had a profound effect on EMAC membership. Other than New York and New Jersey, increases in EMAC membership in 2001 took place before September 11. However, the attacks would have a large effect on the national mindset. Unlike previous catastrophes, the attacks of September 11 were not a hurricane and state officials throughout the country found themselves asking whether they could do anything remotely approaching what the State of New York was able to do, even with

²⁶ Turnover among governors resulted in an absence of institutional memory about the importance of emergency management.

outside assistance.²⁷ As a result, for many states that had joined EMAC, this incident accelerated operational planning for EMAC implementation [56]. Moreover, the attacks of September 11, 2001, were a catalyst for remaining states that had been sitting on the sidelines to join [56-57]. Thus, within two years of the terrorist attacks, almost every state and territory in the United States had joined EMAC.

➤ EMAC PUSHED TO NEW LIMITS (2004–2006)

KEY EVENTS

- **August/September 2004:** Four hurricanes—Charley, Frances, Ivan, and Jeanne—struck Florida over a span of 43 days, causing \$45 billion in damages. Over a period of 85 days, 38 states deployed nearly 800 personnel through EMAC.
- **August 2005:** Hurricanes Katrina and Rita caused more than 1.5 million residents to evacuate their residences in Louisiana, Mississippi, and Alabama, and resulted in more than 1,200 fatalities and \$176.3 billion in property damage. The largest deployment of EMAC resources ensued, with the two hurricanes generating a total of 2,181 mission requests, resulting in 65,929 personnel deploying from 48 states, the District of Columbia, Puerto Rico, and the U.S. Virgin Islands.
- **August 2005:** NEMA released the EMAC After-Action Report for the 2004 Hurricane Response during its annual meeting. The report documents accomplishments and issues for improvement, identifying 56 findings and associated recommendations on deployment execution, command and control, logistics, field operations, and mobilization/demobilization.
- **May 2006:** Members of a special EMAC Review Committee met in Lexington, Kentucky, and developed seven recommendations to enhance the governance and administration of EMAC.
- **September 2006:** NEMA released the EMAC 2005 Hurricane Season Response After-Action Report (which focuses on Hurricanes Katrina and Rita) at the NEMA annual meeting. The report describes 157 operational, administrative, and managerial issues and more than 20 related recommendations to improve EMAC processes.

References: [21, 58-64]

By 2004, most states were members of EMAC, with only three states remaining as nonmembers. Notably, one of these was California.²⁸ Not unlike other states with a large pool of in-state resources to draw from, California did not foresee an occasion in which it would require assistance from other states [13, 56]. However, events in 2004 and 2005 would prompt California to rethink its position on EMAC and cause members to reevaluate EMAC’s effectiveness and how EMAC could be improved.

During the 2004 Atlantic hurricane season, Florida faced a situation encountered only once before in the United States in more than a century. Over a span of six weeks, four hurricanes—Charley, Frances, Ivan, and Jeanne—made landfall in Florida²⁹ [58]. Alone, each hurricane would rank among the top 25 most damaging hurricanes in U.S. history [21]. The cumulative effect of these four hurricanes was more devastating than Hurricane Andrew. In Florida alone, 117

²⁷ Similarly, another event, the Year 2000 problem (also known as Y2K), prompted national dialogue on the implications of a nationwide event that would stress every state and the Federal Government simultaneously. FEMA realized that it would be unable to place federal assets everywhere and that mutual aid would be essential, leading to detailed discussions with EMAC leadership on integrating federal and state operations to improve situational awareness and coordination while maintaining state ownership of EMAC [18, 20].

²⁸ The other two states were Nevada and Hawaii.

²⁹ Florida was the first state to be struck by four hurricanes in one season since Texas in 1886.

fatalities occurred, more than 9 million people evacuated the area, and 8.5 million people lost power. The hurricanes damaged one-fifth of Florida's residences [59].

By necessity, EMAC experienced a sizeable expansion in the types and scales of deployment, stressing and testing its capabilities. The back-to-back storms shrunk resource availability and taxed emergency response and recovery systems [13]. Moreover, unlike most previous events in which EMAC was activated, Florida did not just want state program staff; it needed local first responders³⁰ [46, 57]. In total, more than 800 individuals³¹ from 38 states deployed to Florida, Alabama, and West Virginia. Among them were construction engineers, health and safety technicians, emergency operations staff, transportation staff, medical doctors and nurses, public safety officers, and other skilled professionals [59].

When Hurricane Charley struck, California wanted to help Florida. But since California was not an EMAC member, it had to work out a separate agreement with Florida. EMAC representatives helped bring parties from both states together to craft a hurricane-specific agreement [13]. In the end, California personnel provided support to an A-Team, allowing them to observe firsthand how the system worked. Later on, this likely helped persuade California to join [57].

In reflecting on the 2004 hurricane season, the authors of the *2004 Hurricane Season After-Action Report* described it as “one of the most challenging periods in U.S. disaster response and recovery history,” and the response to these storms was “as unprecedented as the devastation they produced” [59]. However, the 2004 Atlantic hurricane season would be quickly overshadowed by what was to come in 2005 [62].

Less than one year later, Hurricane Katrina would become the largest EMAC deployment in history. Hurricane Katrina made landfall in Louisiana on August 29, 2005. Hurricane Rita followed less than one month later. Together, the two hurricanes generated a total of 2,181 EMAC mission requests, resulting in 66,772 personnel deployed from

48 states, the District of Columbia, Puerto Rico, and the U.S. Virgin Islands [62]. The civilian EMAC response, totaling nearly 20,000 personnel, was 23 times larger than that of 2004. Moreover, 46,500 National Guard personnel were deployed, representing the largest National Guard deployment under EMAC [65]. Estimated costs for EMAC assistance exceeded \$829 million [66].

California once again found itself in a position to send aid, raising the issue of whether or not to join EMAC. As noted in the California Office of Emergency Services 2005–2006 Annual Report, “in what has become an all too common occurrence in California, the OES [Office of Emergency Services] State Operations Center was activated once again...to support a major natural disaster

BY THE NUMBERS:

EMAC DEPLOYMENTS FOR HURRICANES KATRINA AND RITA

- ❖ More than 1,300 search and rescue personnel from 16 states
- ❖ More than 2,000 healthcare professionals from 28 states
- ❖ Nearly 3,000 fire/hazardous-materials personnel from 28 states
- ❖ More than 6,880 law enforcement personnel from 35 states
- ❖ More than 110 animal rescue personnel from 4 states

³⁰ The 1998 Florida wildfires was the first instance in which a large number of local resources deployed under EMAC [46].

³¹ This does not include National Guardsmen, for which data were unavailable.

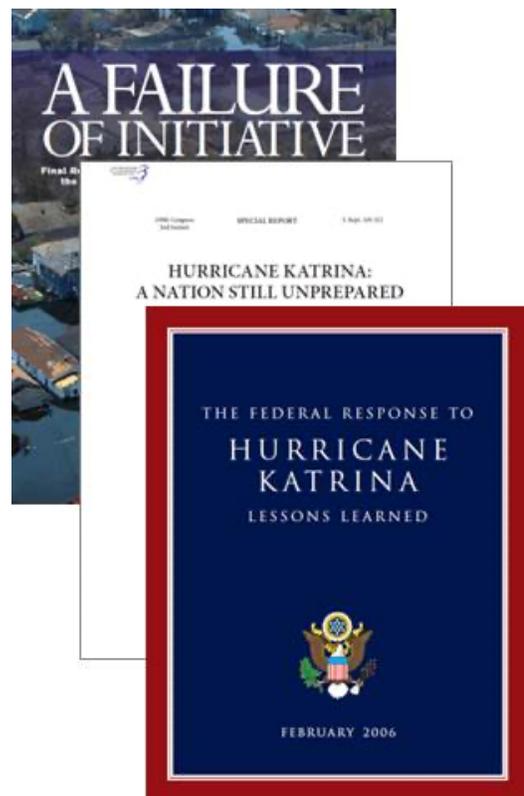
outside the state's borders" [67]. While California could continue to address resource sharing on an ad hoc basis, it was clear this added uncertainty and inefficiency to the resource-sharing process [68]. Ultimately, Hurricane Katrina would provide the final push necessary for California to pass the EMAC legislation. In the midst of the emergency response effort, California joined EMAC on September 13, 2005 [69]. The California OES would end up coordinating the deployment of nearly 2,700 personnel and associated equipment for the Hurricane Katrina response [67].

In the aftermath of Hurricane Katrina, separate investigations of the response to Katrina by both bodies of Congress and the White House commented favorably on EMAC's performance. The U.S. Senate report, while noting that the magnitude of demands strained the EMAC process, described EMAC as "a valuable tool that supported many phases of the disaster response" [70]. Moreover, the bipartisan Senate committee that wrote the report found Mississippi's use of EMAC "vital" to its response. The House report was similarly complementary, noting that EMAC enabled an unprecedented level of mutual aid assistance³² in a "timely and effective manner," with state officials and FEMA considering EMAC use in Mississippi a success [72]. Finally, the White House report on Hurricane Katrina reaffirmed the Federal Government's role in actively encouraging and facilitating mutual aid partnerships, building on the successes of programs such as EMAC [73].

The magnitude of events in 2004 and 2005 also prompted NEMA to conduct a more formal after-action process of EMAC's performance. Unlike previous after-action reviews, NEMA hired a third-party contractor to produce after-action reports that were available to the public. These reports identified both accomplishments and issues, as well as where EMAC needed to go moving forward. Making the reports publicly available gave EMAC more exposure. At the same time, it opened EMAC up to greater scrutiny, challenging NEMA and EMAC members to ensure the report's credibility and include necessary criticisms to improve EMAC [57].

The first after-action report, which followed the 2004 hurricane season, would lay the foundation for all future after-action reviews. In developing the report, NEMA issued a survey to participants in the deployment. Next, a facilitated group discussion and critique brought together a broad representation of participants to share thoughts and perspectives. In addition, the after-action team performed follow-up interviews with select individuals to clarify and expand on specific

Figure 3. High-profile reports on Hurricane Katrina from executive and legislative branches raised national awareness of EMAC



³² For example, on September 10, 2005, EMAC deployments represented 52 percent of all out-of-state personnel deployed in response to Hurricane Katrina [71].

details and issues. Finally, to ensure the credibility of the report, the preliminary findings and analysis went through a multilayered validation process, including a final review by a select steering committee [59]. The 2004 after-action report was presented at NEMA's Annual Meeting in late August, roughly one year after the 2004 hurricanes.

The after-action review for the 2005 hurricane season followed a similar process, with a report issued in September 2006 that focused on Hurricanes Katrina and Rita. In addition, while EMAC was a success in Hurricane Katrina, NEMA members recognized that things easily could have gone poorly. This led NEMA to establish the EMAC Review Committee [74]. Charged by NEMA with reviewing all aspects of EMAC, this eight-member group met in May 2006 and developed seven recommendations to enhance the governance and administration of EMAC [64]. Some recommendations, such as the elevation of EMAC from a subcommittee to a standing committee within NEMA, were carried out quickly, while others (e.g., credentialing) continue to be areas for improvement.

Overall, the events of 2004 and 2005 caused EMAC members to realize that in order to deal with catastrophic events, EMAC needed to increase its capabilities. Specific areas for improvement from the 2004 and 2005 after-action reports, along with NEMA's efforts to address them, are presented in the following subsection.³³ For example, while EMAC had established protocols and processes that worked well for smaller-scale deployments, EMAC systems were unable to maintain accountability in larger deployments [59]. In Hurricane Katrina, officials were unprepared to account for approximately 62,000 personnel. Just as the events from 2004 and 2005 represented milestones in deployment operations, the 2004 and 2005 after-action reviews represented milestones in NEMA's attempts to assess issues and identify best practices and technologies to improve EMAC performance.

³³ More detailed discussions of select issues—including training, reimbursement, and accountability—are also presented in the section, "Key Challenges in EMAC's Development."

► BUILDING CAPABILITY (2003–2013)

KEY EVENTS

- **July 2003:** NEMA hired its first EMAC Coordinator.
- **NEMA 2003 Annual Conference:** EMAC members adopted EMAC's first strategic plan, which outlined the activities and direction of EMAC for the next three to five years.
- **March 2004:** NEMA developed the National Model Intrastate Mutual Aid Legislation and made it available to interested state and local governments.
- **May 2005:** The first Emergency Management Institute (EMI) EMAC train-the-trainer course was held in Anniston, Alabama.
- **June 2005:** NEMA and EMAC leadership met and developed a new five-year strategic plan, which incorporates lessons learned from the 2004 hurricane season. From this point onward, the EMAC strategic plan is reviewed and updated annually.
- **August 2006:** NEMA convened the first meeting of the EMAC Advisory Group, whose mission is to facilitate effective integration of various emergency response and recovery disciplines (e.g., fire, law enforcement) into EMAC.
- **2007:** NEMA issued a contract to develop Mission-Ready Packages (MRPs). The MRP templates build off the 120 National Incident Management System (NIMS)-typed resources and identify logistical and other necessary elements that are deployed in missions, including cost estimates.
- **September 2008:** EMAC leadership received a briefing on the Joint Reception, Staging, Onward Movement, and Integration (JRSOI) concept at the 2008 NEMA Annual Conference. JRSOI, which the military uses, serves as a potentially effective way of processing and coordinating EMAC response assets entering a state. The following year, NEMA provided funding to pilot its version of the JRSOI concept—the EMAC Mobilization Unit (EMU).
- **March 2009:** NEMA replaced the train-the-trainer EMI course with "Understanding the Emergency Management Assistance Compact," which targets a general audience.
- **October 2010:** EMAC leadership announced a second pilot on the EMU concept, with a December 2010 deadline for member applications. The second pilot also addressed demobilization processing (to account for this, EMAC staff broaden the EMU concept to the EMAC Personnel Accountability and Processing Package [EPAPP]).
- **October 2010:** EMAC leadership adopted new EMAC Reimbursement Guidelines.
- **December 2010:** A resource-allocation workshop was held prior to the 2011 National Level Exercise, which helped to identify expectations of EMAC. EMAC played a prominent role in the exercise, which addressed a catastrophic earthquake scenario in the New Madrid Seismic Zone.
- **August/September 2011:** Making landfall within days of each other, Hurricane Irene and Tropical Storm Lee resulted in EMAC requests from 10 states. In response to these two events, 25 states assisted the affected states, deploying 1,126 personnel and completing 68 missions.
- **May 2012:** NEMA held an EMAC and Mutual Aid Workshop in Des Moines, Iowa. For the first time, states came together to work on both mutual aid and EMAC issues.
- **October 2012:** As the second-largest Atlantic storm on record, Hurricane Sandy affected the entire East Coast and battered New York and New Jersey with heavy rains, strong winds, and record storm surges. Thirty-eight states provided 2,600 personnel and other resources through EMAC over a span of five months.
- **January 2013:** On January 2, Congress ratified the State and Province Emergency Management Assistance Memorandum of Agreement, more commonly referred to as the Northern Emergency Management Assistance Compact (NEMAC), which is modeled in part from EMAC. NEMAC is open to all U.S. states and territories, as well as to all provinces and territories in Canada.

References: [42, 51, 57, 75-90]

The events of 2004 and 2005 spurred growth in EMAC capabilities. However, even before these events, key developments greatly accelerated EMAC progress and maturity.

With the terrorist attacks of September 11 fresh in the nation’s mind, funding for homeland security surged.³⁴ From its inception up until 2003, EMAC had been funded largely by voluntary annual contributions from Member States [13]. With Congress’s second 9/11 supplemental, EMAC received a three-year grant of \$2.1 million³⁵ [66, 74, 92]. This represented a nearly tenfold increase in annual funding compared to FY 1998³⁶ [44].

The dramatic increase in FEMA funding was a “game changer” [15]. For example, the funding allowed NEMA to hire a full-time EMAC staff member for the first time in EMAC’s history.³⁷ Moreover, this grant and subsequent funding from FEMA³⁸ allowed EMAC leadership and staff to take corrective actions to address numerous areas for improvement identified in previous reports [59, 62, 71, 87].

As discussed in the previous subsection, the 2004 and 2005 EMAC after-action reports found that EMAC operational capability was inadequate to address the needs of a catastrophic event. In particular, Hurricane Katrina served as a wake-up call that NEMA had to increase EMAC capabilities [74]. Similarly, a 2007 U.S. Government Accountability Office (GAO) report that examined EMAC identified several areas for improvement [71]. More recently, the *Hurricane Irene and Tropical Storm Lee After Action Report Critique* noted progress in EMAC since 2005, but also identified seven areas for improvement [87]. Table 1 aggregates and summarizes the areas for improvement identified from each of these sources and provides a short synopsis of EMAC’s progress. Notably, with additional funding from FEMA, NEMA was able to make progress in addressing all of these areas.

Table 1. Summary of areas for improvement identified in hurricane after-action reports (2004, 2005, and 2011 hurricane seasons) and a GAO report (2007), as well as corresponding actions taken by NEMA to address these areas for improvement

Area for Improvement	Action(s) Taken
<ol style="list-style-type: none"> 1. Better define the desired attributes of required resources, as well as the qualifications of available assets. 2. Improve the quality and specificity of Requests for Assistance (REQ-As).* 	<ul style="list-style-type: none"> ▪ NEMA developed the concept of an MRP, which predefines capability and includes associated personnel, equipment, and cost. MRPs include the option of using resource-typed assets. ▪ NEMA has issued sub-awards to various states to develop MRPs. ▪ NEMA has provided technical assistance to review MRPs. ▪ NEMA developed an electronic REQ-A Form, which has improved the consistency and legibility of forms.
<ol style="list-style-type: none"> 3. Improve preparedness to receive EMAC assistance, including receipt and integration at state emergency 	<ul style="list-style-type: none"> ▪ NEMA has conducted two pilots to encourage development of EMAC Personnel Accountability and Processing Packages (EPAPPs), which address the

³⁴ In FY 2001, Congress appropriated \$367.5 million related to state and local preparedness for terrorism; in FY 2002, this rose to roughly \$2 billion in assistance [91].

³⁵ EMAC had its own champions within FEMA. One of the primary advocates and developers of EMAC was Eric Tolbert, who became the Deputy Director of the Office of National Preparedness in March of 2002 and then Director of the Response Division for the Department of Homeland Security – Emergency Preparedness and Response Directorate.

³⁶ The EMAC budget request for FY 1998 was approximately \$75,000–78,000.

³⁷ The grant also funded EMAC training, A-Team “go-kits,” and development of a model local mutual aid agreement.

³⁸ EMAC’s performance during Hurricane Katrina resulted in additional support for funding EMAC. A 2007 U.S. Government Accountability Office report, *Enhancing EMAC’s Collaborative and Administrative Capacity Should Improve National Disaster Response*, recognized EMAC as a successful program and noted the need to fund EMAC annually to continue to build on its success.

Area for Improvement	Action(s) Taken
operations centers (EOCs) and impacted areas.	processing of EMAC-deployed personnel during mobilization and demobilization.
4. Improve accountability of deployed EMAC personnel.	<ul style="list-style-type: none"> ▪ NEMA has developed improved operating systems that facilitate tracking of personnel. ▪ By improving in-processing and out-processing of individuals through an EPAPP, accountability is also improved.
5. Increase available funding for EMAC to hire a small, full-time core support staff.	<ul style="list-style-type: none"> ▪ NEMA has secured sufficient funding from FEMA for EMAC to support the equivalent of 3.4 full-time staff members.
<p>6. Increase self-sufficiency of deployed personnel and awareness of possible austere conditions.</p> <p>7. Ensure that all relevant parties are fully cognizant of EMAC's capabilities and operational procedures.</p>	<ul style="list-style-type: none"> ▪ NEMA developed both in-person and online versions of general EMAC training, increasing awareness about what responders can expect during deployments and how EMAC works. Additionally, NEMA has developed online training courses tailored to key EMAC stakeholder groups. More than 5,000 course completions have occurred since NEMA introduced online EMAC courses. ▪ One online course, Just in Time Training for Deploying Personnel, focuses on providing lessons learned from past EMAC deployments. As of August 22, 2021, 411 individuals have taken this course. ▪ NEMA developed an "EMAC Essentials" app that includes information on the EMAC Process for personnel on deployment or preparing for deployment, as well as tips and guidance. ▪ NEMA integrated working conditions into the REQ-A Form.
8. Increase the number of experienced, qualified A-Team personnel.	<ul style="list-style-type: none"> ▪ NEMA has developed an A-Team curriculum and a cadre of instructors to train A-Team personnel. Between 2012 and 2020, more than 1,100 individuals received A-Team training. ▪ NEMA has issued sub-awards to support EMAC exercises.
9. Continue to develop fully synchronized electronic systems that enable the EMAC network to track resources from request to mission completion.	<ul style="list-style-type: none"> ▪ Since 2004, NEMA has released four major upgrades of the EMAC Operations System, developing a fully synchronized system that incorporates the EMAC database, the broadcast system, and an electronic REQ-A Form.
10. Continue to improve understanding of reimbursement guidelines and standards among Member States, especially following large-scale deployments.	<ul style="list-style-type: none"> ▪ NEMA encouraged its members to discuss the importance of reimbursement with their governors. ▪ The A-Team that deployed to New Jersey in response to Hurricane Sandy included a reimbursement specialist.
11. Promote good practices across the EMAC network that improve members' abilities to leverage resources.	<ul style="list-style-type: none"> ▪ NEMA developed a legislative model for intrastate mutual aid. ▪ NEMA has supported development of cross-border mutual aid agreements, including the use of EMAC as a template for such agreements. ▪ NEMA has issued sub-awards to support capability development.
12. Provide executive-level training on EMAC.	<ul style="list-style-type: none"> ▪ NEMA has developed a webinar targeted toward city and county officials.

Area for Improvement	Action(s) Taken
	<ul style="list-style-type: none"> EMI offers the EMAC Executive Overview as part of the New State Emergency Management Directors Course.
13. Request A-Teams early in the event.	<ul style="list-style-type: none"> NEMA has increased training available to executive leadership, which should help them understand the benefits of early A-Team activation and deployment.
14. Enhance the EMAC network strategic and management planning efforts by considering more robust performance measures.	<ul style="list-style-type: none"> NEMA developed a state self-assessment survey (EMAC Ready) to identify preparedness and training needs for EMAC.

*The REQ-A (now replaced by the Resource Support Agreement, or RSA), is a three-part form that details the formal agreement for mutual aid between the Requesting State and Assisting State.

BEST PRACTICE

Oklahoma Shelter In a Box

In the aftermath of Hurricane Katrina, FEMA contacted the State of Oklahoma and asked if the state could take in evacuees from Louisiana [74]. Oklahoma received 1,500 evacuees, setting up a temporary shelter in Camp Gruber for approximately one month [93]. Afterward, FEMA asked Oklahoma’s Department of Emergency Management (OEM) to plan ways to shelter even more individuals. With a target of 10,000 people, the effort quickly became intractable. There simply weren’t enough large, empty buildings and facilities in Oklahoma to shelter this large a population of individuals [74].

During an after-action meeting for Hurricane Katrina in Louisiana, an opportunity presented itself. Oklahoma emergency management personnel discovered that Louisiana possessed sufficient facilities for sheltering; what it lacked were personnel to run those facilities. According to Albert Ashwood, Director of OEM, they posed the following question: “Why don’t we come to Louisiana, bring our own resources—we’ll stay out of your logistics line, and we’ll run your shelter for you?” [74].

Using EMAC grants from NEMA, Oklahoma and Louisiana began work in November 2008 on a cooperative plan for providing direct shelter support to Louisiana in an evacuation event within 72 hours [94-95]. In Shreveport-Bossier (the main destination for evacuees during Katrina), Sandy Davis, Director of the Caddo-Bossier Office of Homeland Security and Emergency Preparedness, identified fairground facilities that would be open for sheltering. The two states went through the entire planning process, culminating in an August 2011 full-scale exercise [94-95]. Based on an EMAC MRP [96], three busloads of Oklahoma personnel and volunteers traveled to Louisiana and walked through the plan [74]. Since then, EMAC grant funds have gone toward maintaining Oklahoma’s relationship with Louisiana. Oklahoma also conducts an annual briefing for participants to ensure that everyone understands the proper procedures [74].

OEM Director Ashwood believes that the keys to this program’s success are underlying changes in philosophy: “We need to get away from the notion of, I’ll do whatever I’m asked to do, but I won’t do anything until I’m asked. Moreover, if there’s a capability that’s mobile, it doesn’t just meet one need; it can meet several. Why can’t I take that capability somewhere else?” [74].

EMBRACING TECHNOLOGY (2012–PRESENT)

KEY EVENTS

- **January 2012:** The initial version of the EOS goes online. The web-based system, designed to follow the EMAC process, addressed the need for a comprehensive system to support EMAC deployments.
- **October 2012:** Virtual A-Team are used for the first time to support of Hurricane Sandy.
- **March 2014:** NEMA announced that it would be taking over the Mutual Aid Support System (MASS). MASS is a web-based platform designed to categorize and track organizations, people, and equipment, which make up MRPs.
- **February 2015:** NEMA launches the EMAC Essentials app on the Apple and Android app stores.
- **February 2015:** NEMA releases five online courses that target different EMAC stakeholder groups.
- **July 2019:** NEMA releases an update of its EMAC Essentials app.
- **November 2019:** NEMA releases the latest version of the EOS (version 3.0).
- **March 2020:** NEMA releases the latest version of MASS (version 3.0).
- **July 2020:** NEMA releases the initial version of Resource Planner. Resource Planner is a tool within the EOS where EMAC Coordinators can create and store pre-scripted resource requests and organize them according to the threats and hazards defined in their state's Threat and Hazard Identification and Risk Assessment (THIRA).

References: [97-103]

This section charts three examples of how NEMA's and EMAC leadership's willingness to embrace technology have benefited EMAC performance over time.

EOS

The EOS, which first came online in January 2012, serves as a prime example of how EMAC's leaders have embraced technology. Previously, although NEMA had developed systems to track EMAC information, these systems relied on manual entry of REQ-A data. Moreover, Assisting and Requesting States still had to scan and email or fax the REQ-A back and forth for signatures. The EOS represented NEMA's first attempt at a comprehensive system that would allow online creation of a REQ-A, acceptance of offers of assistance, and uploading of the completed REQ-A sections. The EOS represented a leap forward technologically, resulting in improvements in data integrity and efficiency. For example, the EOS made offers part of the online system, with Assisting States responsible for entering offers into this system. Previously, the Requesting State was responsible for entering all information [104]. The transition and later upgrades to EOS (now on its third version) have led to much more efficient execution of the EMAC Process. A process that originally took days to complete can now be completed in a few hours [105].

Use of the EOS has also improved situational awareness and allowed EMAC operations components to receive information (and data access) tailored to their specific responsibilities. EOS 2.0 (released March 2014) included an EMAC Dashboard with all active incidents. In turn, EOS 3.0 (released November 2019) advanced dashboard functionality by creating an operations dashboard for just the National Coordinating State (NCS).³⁹ The NCS dashboard provides several advantages [106-107]:

³⁹ A similar dashboard allows personnel serving as liaisons at the National Response Coordination Center or a Regional Response Coordination Center to view assigned events for a specific timeframe (i.e., during their deployment). The

- The dashboard conveniently shows when a new event is opened or a request is being made (with ready access to additional details). More broadly, EOS 3.0 uses a real-time communications system, so any changes are updated automatically.
- Dedicated sections of the dashboard help organize and facilitate various tasks. Task assignments, for example, automatically trigger email notifications to the responsible party.
- The NCS can leverage data in EOS to generate custom reports.
- A tab within the dashboard compiles open requests from all active events in the same place (and allows filtering by specific event). Previously, the NCS manually compiled this information, which was burdensome for large incidents or periods with multiple ongoing incidents.
- The dashboard increases data security by only giving the NCS access to assigned events (i.e., NEMA can limit the events available to the NCS).

According to Jake Ganieany, Chief of Montana’s Response, Recovery, and Mitigation Bureau,⁴⁰ “NCS operations calls need to be quick, brief, and efficient so A-Teams can go back to helping their states and territories. The dashboard really helps streamline those calls.” This has been particularly valuable given the surge in virtual coordination demands arising from the COVID-19 pandemic [106].

MUTUAL AID SUPPORT SYSTEM AND RESOURCE PLANNER

MASS is an online inventory of MRPs,⁴¹ available on the EMAC website, that interfaces with the EOS [108]. In March 2014, NEMA would take over administration of MASS (from Kentucky). By adopting and promoting the MASS platform to EMAC members, NEMA enabled Assisting States to communicate their potential mutual-aid offerings more effectively. Requesting States could now look in MASS and conveniently identify what resources were available nationwide (either by GIS or keyword search) to address their capability needs. Prior to MASS, a system to upload and maintain MRPs did not exist. States could build an MRP, but they could not upload it until the Request and Offer steps of the EMAC process.

MASS also provides Assisting States with greater control over MRP data. State EMAC Coordinators can control which MRPs from their states are displayed in the system and edit their states’ MRPs. Additionally, the most recent update of MASS (released in March 2020) automatically alerts the state EMAC Coordinator when an MRP is published in his or her state [103]. By entering their resources in MASS, states can also ensure continuity of information and protect themselves from information loss associated with turnover in the EMAC Coordinator position [109].

In addition, MASS also integrates with Resource Planner (released July 2020) to increase its usefulness. Resource Planner is a tool within the EOS that EMAC Coordinators can use to create and store pre-scripted resource requests and organize them according to the threats and hazards

dashboard includes features to facilitate reporting and limits reporting to only those data fields that have been approved previously by the EMAC Committee for sharing.

⁴⁰ Montana is currently serving as the EMAC NCS.

⁴¹ MRPs pre-define capability (including associated personnel, equipment, and cost) that Assisting States can offer, greatly accelerating EMAC deployments.

defined in their states' THIRAs [102]. During an incident, a Requesting State can import—at the click of a button—the pre-scripted resource requests associated with the threat or hazard type into the EOS. Requests show up as draft resource requests and if an MRP within MASS is linked to them, upon publishing, a draft offer of assistance will appear in the Assisting State's view [103]. The seamless integration of EOS, MASS, and Resource Planner greatly enhances states' abilities to plan for and rapidly mobilize capabilities under EMAC.

VIRTUAL OPERATIONS

The first mention of virtual operations recorded at an EMAC meeting dates back to October 2011, when Randy Bronson⁴² raised the possibility of virtually deploying A-Team personnel at an EMAC Executive Task Force meeting [96]. Virtual A-Teams were subsequently used for the first time during Hurricane Sandy in 2012 [98].

Virtual A-Team deployments enable the NCS to accelerate the start of EMAC Process (prior to the arrival of an A-Team onsite) and support states in cases where physical deployment is not possible. For example, during the September 2020 Oregon wildfires, Ohio was able to get a virtual team stood up initially to start supporting Oregon before deploying someone in person a couple of days later. Although a core team needs to be able to secure the signatures necessary to complete the RSA, having additional A-Team personnel offsite—and not in the stressful environment of the Requesting State's emergency operations center—can be beneficial to accomplishing the follow-up work that comes with incident response [109]. As demonstrated in the 2017 hurricanes, virtual A-Team support helped enormously to bolster overwhelmed and overworked emergency management staff in affected jurisdictions [98].

Momentum was also building for states to assist one another through virtually executed capabilities. In 2014, cyberattack concerns led the Chair of the EMAC Committee, David Maxwell, to contemplate opportunities for states to share capabilities virtually in a cyber incident [110]. He hoped that FEMA's own initiatives to develop resource types for cyber resources, which were occurring at that time, would help move virtual EMAC initiatives forward [111].

Admittedly, however, the idea of providing virtual support was somewhat “futuristic” back in 2014, according to Andrew Phelps⁴³ [112]. For example, a key capability for virtual support—Virtual Operations Support Teams (VOSTs)—had just undergone a proof of concept in 2011 at the NEMA mid-year conference [113].⁴⁴ While VOSTs had supported real-world events since then (including Hurricane Irene, the Shadow Lake wildfire in Oregon, the January 2012 northwest floods, and Hurricane Sandy), basic awareness of this capability was still growing nationwide [115]. Moreover, many emergency managers were unsure and uneasy early on about how to document and process virtual deployments [112].

⁴² Randy Bronson was serving as the Lead State Representative for Region I.

⁴³ Andrew Phelps is the Director of Oregon's Office of Emergency Management.

⁴⁴ The VOST concept is that in a disaster, anyone trying to monitor and respond using social media will be quickly overwhelmed by the amount of data that need to be examined and sorted into useful information. This need is amplified in a catastrophic disaster. There will also probably be a need for a predetermined, trusted person or group to search, prioritize and forward crisis data from outside of the disaster location if the internet is not functioning or bandwidth is limited, or again, if the on-site personnel are overwhelmed by the amount of incoming crisis data [114].

Bryan Koon, who served as NEMA President from 2014 to 2016, was another important early champion of virtual operations through EMAC. He promoted the concept of an “EMAC virtual EOC” during the April 2016 NEMA Mid-Year Conference, encouraging states to identify resources that could be shared virtually. By then, Koon’s state of Florida was already in the process of putting together MRPs for virtual capabilities such as GIS support, WebEOC, meteorology, information analysis, and social media, which he offered to other states at that meeting at no cost to test this concept.

Despite these early steps, the true jump-off point for virtual operations was likely the 2017 hurricane season [106]. Feedback about virtual A-Team support to the U.S. Virgin Islands and Puerto Rico in the aftermath of Hurricanes Irma and Maria characterized it as a “resounding success.” Extreme conditions—including significant logistical issues (e.g., absence of commercial flights, inability to obtain accommodations), extensive power outages, and other communications challenges—in the U.S. Virgin Islands and Puerto Rico prevented the effective deployment of ground-based A-Teams. Without reliable power and communications, the U.S. Virgin Islands and Puerto Rico were limited in their ability to communicate requests and receive offers. Additionally, EMAC was a new process for the U.S. Virgin Islands; having a virtual A-Team allowed the U.S. Virgin Islands to leverage experienced A-Team members to understand what types of resources to request and to navigate the logistical challenges of transporting and coordinating the hundreds of mobilized response personnel and their equipment [98].

Lessons learned from the 2017 hurricane season also served as an important source of continuous improvement for virtual A-Team deployments. Specifically, NEMA has continued to build out the virtual A-Team concept by [98]:

- Identifying necessary training and infrastructure to support virtual teams;
- Examining mechanisms for virtual teams to receive on-the-ground situational awareness;
- Determining set/agreed-upon times for connecting with Requesting States; and
- Establishing two operational periods (i.e., a day shift and a night shift).

Since then, acceptance of virtual capability has grown. For example, the National Guard has robust cybersecurity capabilities that are now deployed virtually [116] and states have developed some cyber MRPs [109]. Moreover, the successful use of virtual A-Teams has evolved into virtual support for other areas, such as reimbursement, Public Assistance, GIS support, and hazard mitigation [106, 109]. The COVID-19 pandemic, which has prompted state emergency management agencies to explore virtual operations, will likely lead to even greater willingness to accept virtual EMAC resources moving forward [112].

▶ A NEW WAVE OF REFINEMENT (2017–PRESENT)

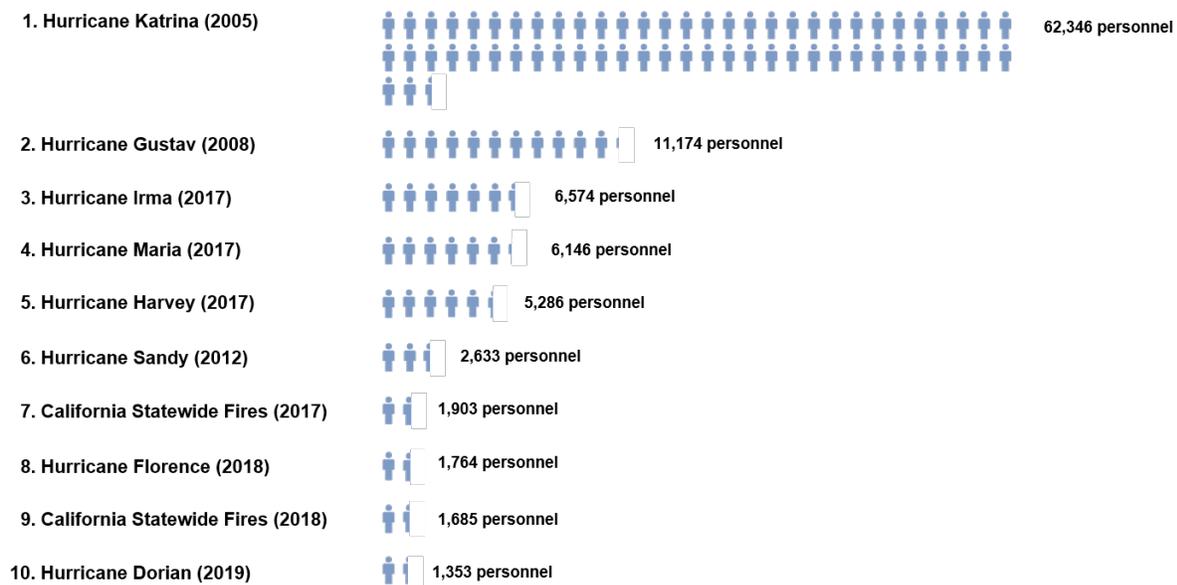
KEY EVENTS

- **August/September 2017:** Hurricanes Harvey, Irma, and Maria struck the United States in rapid succession, leading to three of the five largest deployments in EMAC's history.
- **2018:** Based on findings from the EMAC after-action for the 2017 hurricane season, the EMAC Executive Task Force Chair established a Special Assignment Task Force to focus on reimbursement.
- **October 2018:** The EMAC Committee gave approval for NEMA to initiate the State EMAC Improvement Program.
- **2018/2019:** The 2018 and 2019 California wildfire seasons rank among the 10 largest EMAC deployments in its history. In particular, the 2018 wildfire season—one of the most destructive in California's history—killed 100 people, burned 1.9 million acres, and damaged or destroyed approximately 24,000 structures.
- **March 2019:** NEMA hosts its first EMAC Coordinator workshop.
- **March 2020:** The President declared a national emergency concerning the coronavirus disease 2019 (COVID-19). The pandemic presented the nation with a unique challenge for mutual aid. For the first time in U.S. history, all 50 states, the District of Columbia, and five territories operated under simultaneous major disaster declarations.

References: [98, 117-119]

Recent years have seen extensive use of EMAC not only for hurricane response, but also for wildfires. Similar to the 2004 and 2005 hurricane seasons, the 2017 hurricane season—and particularly the rapid succession of Hurricanes Harvey, Irma, and Maria—saw large-scale deployments of resources through EMAC. In subsequent years, devastating wildfires on the West Coast also led to EMAC deployments at unprecedented levels. Including Hurricanes Florence (2018) and Dorian (2019), seven of the 10 largest deployments in EMAC's history have occurred in the past four years (see Figure 4).

Figure 4. Ten largest deployments in EMAC history (each figure represents 1,000 individuals)



The scale of these EMAC deployments have stress-tested EMAC in ways that revealed areas for further improvement and changing needs of EMAC Member States and stakeholders. The following three examples highlight actions that NEMA and EMAC leadership have taken to address key areas for improvement identified in recent EMAC after-action reports [98, 118, 120]:

- **Streamlining the Request and Offer process:** NEMA retired the three-part REQ-A and replaced it with the two-part RSA. By removing Section 1 of the REQ-A (a legacy of transitioning from a paper-based process), NEMA eliminated the need for signatures prior to a request being uploaded to the EOS [120], resulting in a major time savings within the EMAC Process [121].
- **Ensuring better alignment of offers to requests:** As discussed in the previous subsection, NEMA has encouraged states to develop MRPs and upload them into MASS, and developed Resource Planner to allow Requesting States to pre-script resource requests for different scenarios and map them to MRPs. This not only streamlines the Request and Offer process, but also facilitates pre-planning between states to ensure that requests and offers are shaped appropriately to fully characterize anticipated needs and provide adequate support.
- **Improving coordination with the National Guard:** NEMA has worked with the National Guard Bureau (NGB) to develop training specifically for the National Guard, increased training efforts, and improved information sharing among NEMA, the NCS, and the National Guard.
- **Standardizing the reimbursement process:** EMAC leadership convened a special assignment task force on reimbursement, which has developed a more detailed set of reimbursement guidelines and a standardized form for submitting reimbursements (see [Reimbursement](#) subsection for additional details).

BEST PRACTICE

National Guard

Before 2017, various indicators pointed to a need for the National Guard to improve its understanding of EMAC. As demonstrated in past disasters such as Hurricane Katrina, the National Guard presented an enormous force multiplier for a wide range of capabilities. However, states had not been able to realize the full potential of National Guard assets because of widespread misunderstandings about EMAC and how it functioned. Even at NGB, there were those who believed that the National Guard ran and administered EMAC. Moreover, state National Guards used to think that the Joint Information Exchange Environment (JIEE)* and EMAC EOS were the same. Instances occurred in which resource requests were mistakenly submitted through the JIEE (instead of EOS) and went unfilled. EMAC after action reports kept identifying the need for better coordination between EMAC operational components and NGB. NEMA knew it was essential to train military personnel so they could better understand what EMAC was and how it worked so they could use it more effectively. Toward that end, NEMA assigned Kim Ketterhagen to serve as EMAC's national liaison to NGB and U.S. Northern Command (NORTHCOM).

Because service members were always rotating in and out, Ketterhagen faced an uphill battle to institutionalize knowledge about EMAC. Realizing this, he took a top-down approach to engaging the National Guard about EMAC, first raising the existing issues with three-star generals at NORTHCOM. He also explained to these and other senior military officials where their resources and capabilities fit into the overall EMAC response process; they, in turn, had the foresight to appreciate the utility of EMAC and work with NEMA and EMAC leadership to strengthen collaboration and training.

Numerous improvements have resulted from their efforts:

- NEMA trains over 500 U.S. Department of Defense personnel every year, including a mix of senior officials and boots on the ground.
- NGB, NEMA, and the NCS exchange status updates on a daily basis.
- Monitoring of the JIEE system occurs as a failsafe to ensure any mistakenly submitted EMAC requests are routed correctly.
- During major disasters, the National Guard and EMAC sit shoulder-to-shoulder at the FEMA National Response Coordination Center to enhance coordination. Moreover, EMAC liaisons are positioned at NGB and NORTHCOM.
- A template to assist state National Guards with converting military force packages into MRPs is under development.

* The JIEE is a software platform that facilitates information sharing among state National Guards and with designated National Guard mission partners.

More broadly, several areas for improvement pointed to the need for EMAC members to have greater awareness of and familiarity with the EMAC Process and the more recently developed applications and forms.⁴⁵ Toward this end, one area of emphasis for NEMA has been increasing its engagement with state EMAC Coordinators. Previously, although NEMA worked very closely with the EMAC Executive Task Force (which has one lead state representing each of the 10 FEMA regions), NEMA did not have a direct channel to all state EMAC Coordinators; as a result, some coordinators misunderstood the role NEMA plays in EMAC. In March 2019, NEMA hosted its first EMAC Coordinator Workshop [119]. This and future workshops will allow NEMA to engage directly with and update the state EMAC Coordinators, obtain their buy-in and feedback on key developments (e.g., the standardized reimbursement form), learn what they like and dislike, and communicate why things are done a certain way. Starting in 2021, NEMA will also conduct EMAC Coordinator orientations. Any time a state appoints a new EMAC Coordinator, NEMA will hold a one-on-one with that individual to cover all things EMAC [109].

Similarly, NEMA has ambitiously embarked on a more proactive approach to ensure all Member States are aware of recent changes and can implement EMAC effectively. The State EMAC Improvement Program will use one-on-one meetings with states to accomplish the following:

⁴⁵ Response efforts during the COVID-19 pandemic have only reaffirmed this need. During the pandemic, some states have developed new agreements for resource sharing that were already possible through EMAC [109].

- Allow NEMA to review existing procedures that Member States have to ensure the procedures are up-to-date;
- Provide one-on-one training directly to individuals responsible for executing the EMAC Process; and
- Leave states with a tailored EMAC improvement plan.

Through these efforts and others, NEMA and EMAC leadership are seeking to improve implementation of EMAC across the country as a whole [109].

3. EMAC ORGANIZATIONAL STRUCTURE

EMAC's success and longevity are due in part to the existence of a formal governance structure, which promotes accountability and continual improvement within the EMAC Process. As shown in Figure 5, the current governance structure comprises six elements responsible for policy and operational decisions. This section examines the evolution of a subset of these elements, including the EMAC Committee, the EMAC Advisory Group, the EMAC Executive Task Force, and EMAC operational components (e.g., A-Teams).

➤ EMAC COMMITTEE AND EMAC EXECUTIVE TASK FORCE

The first governing body created to support EMAC was the EMAC Operations Committee, which originated from the 1994 SREMAC planners' group (see Figure 6) [122]. In 1995, emergency management agencies from the southern states charged the EMAC Operations Committee with devising a new implementation plan for EMAC [43, 122].

In February 1996, the EMAC Operations Committee recommended to NEMA that NEMA take the lead in promoting EMAC. To undertake this task, NEMA President Dick Andrews appointed Tom Feuerborn, Director of the Oklahoma Department of Civil Emergency Management, as chair of a new Ad Hoc EMAC Committee [54].

Figure 5. EMAC governance structure

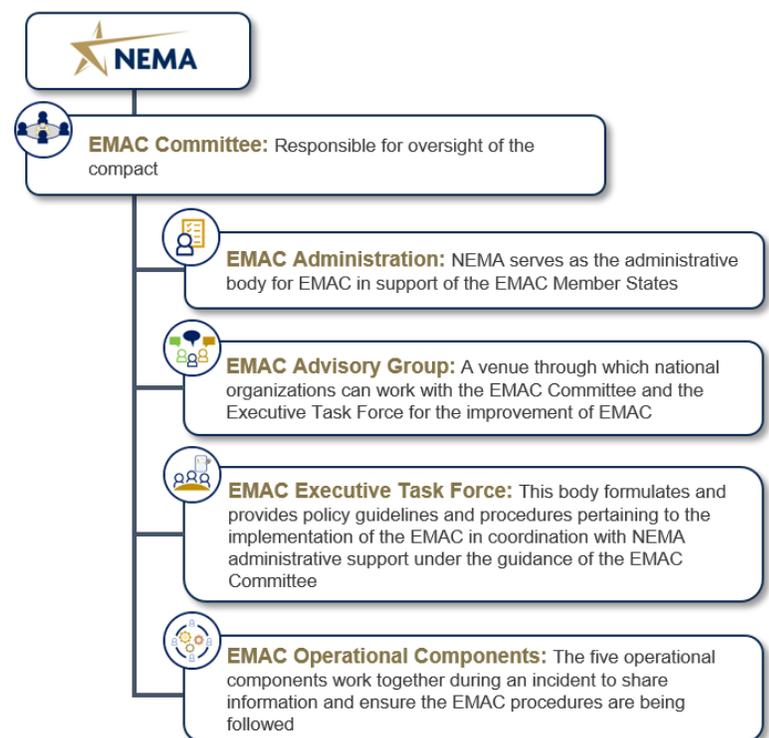
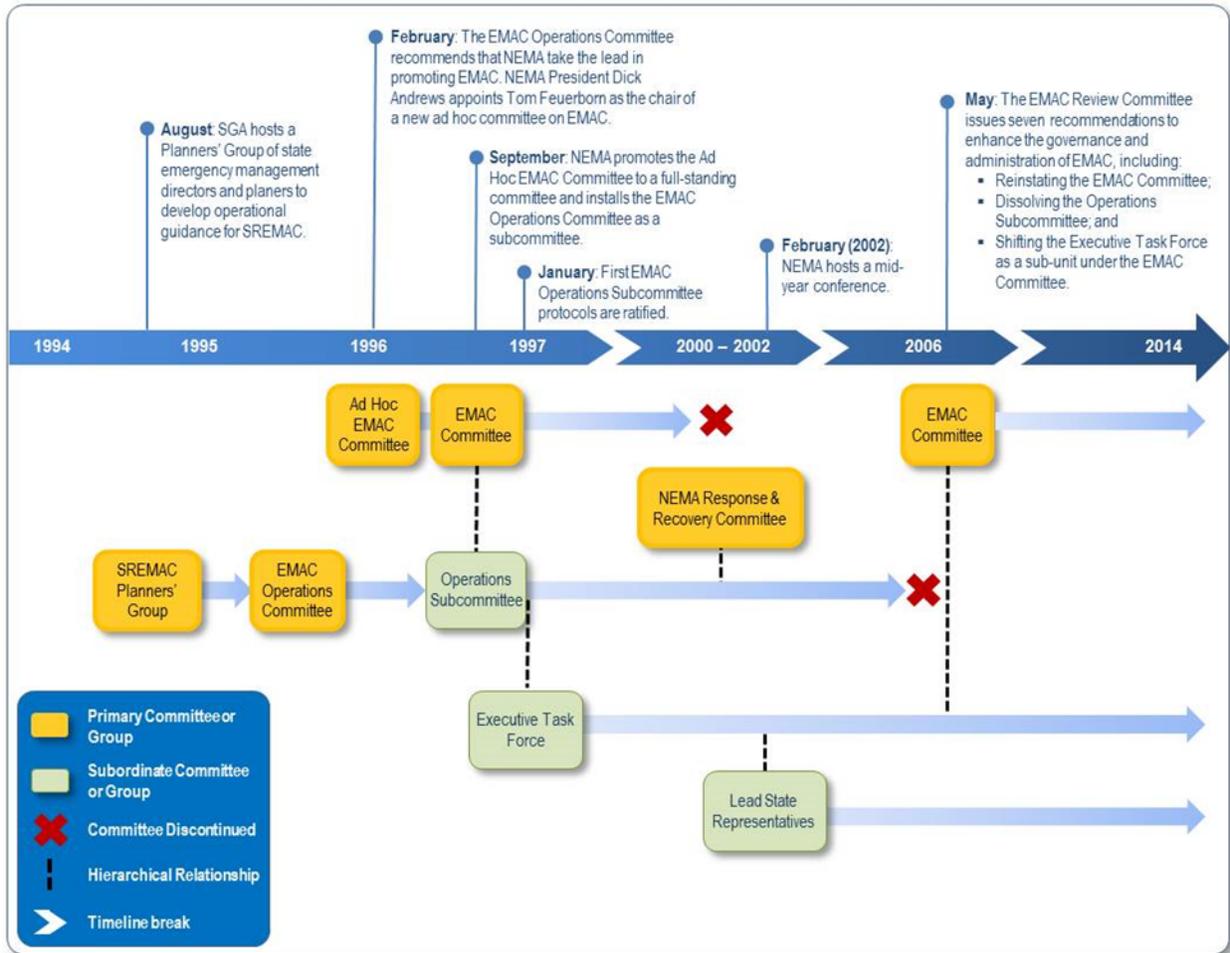


Figure 6. Evolution of the EMAC Committee and the Executive Task Force



Only a few months later, in September 1996, the Ad Hoc EMAC Committee would attain the status of a full standing committee, the EMAC Committee [123]. This promotion within NEMA was likely the result of increased interest surrounding EMAC at the time, which stemmed from a recent congressional hearing on EMAC and upcoming votes on EMAC legislation in Congress⁴⁶ [124-125]. Moreover, NEMA installed the Operations Committee as a subcommittee under the EMAC Committee⁴⁷ [123, 126-127]. The renamed Operations Subcommittee was to formulate and provide policy recommendations to the EMAC Committee and to develop and maintain operational guidelines and procedures pertaining to the implementation of EMAC [126]. Its membership expanded to include one representative from each Member State [123].

Ratification of new protocols for the Operations Subcommittee in January 1997 resulted in additional changes. In accordance with the protocols, the Operations Subcommittee divided itself into an Executive Task Force—possessing the full authority of the Subcommittee—and various

⁴⁶ On September 18, several witnesses testified before the House of Representatives on EMAC. On October 3, 1996, Congress passed EMAC by joint resolution.

⁴⁷ The EMAC Committee would also assemble a second subcommittee—the EMAC Legal Advisory Subcommittee—out of the old 1994 legal working group. The purpose of this subcommittee was to review new, would-be members' draft legislation.

ad hoc special assignment task forces (SATFs), which examined specific issues⁴⁸ [43]. The Executive Task Force would allow implementation of policies in the interim period between meetings of the full Operations Subcommittee. The first Executive Task Force consisted of five members, with the Operations Subcommittee Chair also serving as the Chair of the Executive Task Force [128].

NEMA documentation for the next few years after 1997 is sparse. Nevertheless, a comparison of the Operations Subcommittee protocols from 1997, 2002, 2003, and 2004 reveals some changes in the subcommittee's structure. In particular, an April 2002 draft of the Operations Subcommittee Protocols contains a number of underlined edits. The most significant of these was that the Operations Subcommittee shifted to become a subcommittee of NEMA's Response and Recovery Committee. Available documentation indicates that the transition took place between late 2000 and early 2002 [128]. By this time, a majority of states had joined EMAC, which may have rendered the EMAC Committee unnecessary.

At the NEMA mid-year conference in 2002, NEMA members approved a resolution granting the Operations Subcommittee [129]:

- Leadership autonomy to act on the behalf of the EMAC Member States; and
- Authority to revise and maintain the operating protocols without approval by the Response and Recovery Committee.

Moreover, the Operations Subcommittee agreed to expand the Executive Task Force by selecting 10 Lead State Representatives,⁴⁹ one from each of the 10 FEMA Regions⁵⁰ [130]. Thus, the total number of members grew from 6 to 16⁵¹ [128].

Hurricane Katrina led to far more drastic changes. In 2006, NEMA assembled the EMAC Review Group and charged it with reviewing all aspects of EMAC and coming up with recommendations for NEMA [74]. Its primary recommendation was to create a new standing EMAC Committee, which led Bruce Baughman—the NEMA President—to dissolve the EMAC Operations Subcommittee and reinstate the EMAC Committee [64, 131]. The existing EMAC Executive Task Force was assigned as a sub-unit under the EMAC Committee, reporting to the EMAC Committee Chair [64].

At least two factors influenced the Review Group's recommendation. First and foremost, state directors had become less involved with EMAC over the years, deferring EMAC responsibilities to their staff [64]. State program staffs, not state directors, were running EMAC. The deployment of thousands of personnel in Katrina made many state directors take special notice, as the law identified them as the agents in their states responsible for handling EMAC affairs [57]. Second,

⁴⁸ Initially, EMAC members elected to create four additional ad hoc SATFs, which addressed technological support, training and education, member resources, and operating procedures.

⁴⁹ Lead State Representatives serve as liaisons between the Operations Subcommittee and the Member States within their FEMA Regions.

⁵⁰ Even before formal inclusion of Lead State Representatives from each FEMA Region, EMAC members thought it was important to spread membership of the Executive Task Force over as many regions as possible to achieve a diversity of views and greater sensitivity to different threats and to broaden the cadre of personnel available to fulfill future leadership positions [43, 49].

⁵¹ The other members are the current Operations Subcommittee Chair, the current Operations Subcommittee Chair-elect, the Immediate Past Operations Subcommittee Chair, and three at-large members.

given the extensive EMAC activity during Hurricane Katrina and the prospect of future catastrophes, the Review Committee members believed that they should elevate EMAC to the highest levels of NEMA consideration as possible [62, 74].

The first meeting of the committee was held in conjunction with the NEMA 2006 Annual Conference [64]. Since then, the EMAC Committee and EMAC Executive Task Force relationship has remained unchanged.

➤ EMAC ADVISORY GROUP

After Hurricane Katrina, many local responders were frustrated with EMAC [57]. Lacking familiarity with how the compact worked, some disciplines spoke out publicly against EMAC, creating public relations problems for EMAC that required significant attention from NEMA staff and Executive Task Force members. At the same time, interest in EMAC by other disciplines increased significantly, resulting in constant travel by EMAC representatives to speak at various organizations and conferences [64].

To address these issues, NEMA established the EMAC Advisory Group in August 2006. Its mission is to facilitate the effective integration of multi-discipline emergency response and recovery assets. The EMAC Advisory Group consists of more than two dozen national organizations, including the National Sheriffs' Association, the International Association of Fire Chiefs, the National Association of County and City Health Officials, and the National Association of State EMS Officials [79-80]. NEMA has developed various discipline-specific outreach products in cooperation with members of the EMAC Advisory Group. For example, "Tips for Law Enforcement Deployments" identifies various issues (e.g., weapons, use of force, authority to arrest) that may need to be noted on an EMAC REQ-A [13, 132].

Increased networking and stronger relationships with stakeholders achieved through the EMAC Advisory Group have increased their engagement with EMAC. For example, NEMA has hosted national webinars on resource management for groups such as State Urban Search and Rescue, All Hazards Incident Management Teams, and Water and Wastewater Networks [105]. Additionally, the EMAC Advisory Group provides a mechanism for various disciplines to make sure that their needs and concerns are addressed. Its existence reflects the growing maturity of emergency management as a profession, and the emergency manager's role as one of coordination and support [74].

➤ EMAC OPERATIONAL COMPONENTS

A-TEAMS

Historically, state emergency management staffs were fairly minimal, so asking a state to dedicate one or two people during a response to coordinate mutual aid requests and offers of assistance was a significant burden [51]. The EMAC Operations Committee recognized that disaster-affected states needed help brokering resources from outside their own staffs. To provide this external support, the EMAC Operations Committee developed the A-Team concept.

As envisioned in EMAC's implementation plan,⁵² A-Teams were a standalone capability that operated as an agent of the Requesting State and focused on brokering resources⁵³ [9, 40, 51, 133]. Current EMAC guidance encourages each Member State to have a minimum of two Type IV EMAC A-Teams, each with a minimum of four people [134]. The A-Team concept was first tested during Hurricane Opal in 1995, with Tennessee, Georgia, and Texas combining personnel to provide an A-Team to Florida [40]. A-Teams are the only operational component that has remained essentially unchanged throughout the history of EMAC [51].

NATIONAL COORDINATING STATE

Several additional operational elements would later branch off from the A-Team concept. To provide a point of contact during normal, non-event periods, EMAC leadership created a distinction between a "Standing A-Team" and a "Forward A-Team," which deployed to affected states. Beginning in 1997, the Standing A-Team responsibility rotated from state to state, coinciding with the home state of the Chair of the EMAC Operations Subcommittee [135-136]. The Standing A-Team was prepared to activate EMAC on short notice. When it was apparent that a state would be requesting EMAC assistance, the Standing A-Team would recruit a Forward A-Team to deploy to that state. Upon arrival at the Requesting State's EOC, the Forward A-Team would assume coordination duties for EMAC from the Standing A-Team.

Since its creation, the Standing A-Team has undergone a few modifications:

- In June 2004, EMAC leadership and staff elected to rename the "Standing A-Team" as the "National Coordination Group" (NCG) to alleviate potential confusion surrounding the use of the term "A-Team"⁵⁴ [137].
- In the aftermath of Hurricane Katrina (2005), NEMA separated leadership of the NCG from leadership of the new EMAC Committee. The state serving as the NCG became the home state of the Chair of the EMAC Executive Task Force, not the home state of the Chair of the EMAC Committee⁵⁵ [64, 129, 138].
- In October 2011, the EMAC Executive Task Force voted to change the name "National Coordinating Group" to "National Coordinating State" to align the responsibility for coordinating the national EMAC theater of operations with the home state of the Executive Task Force Chair [96, 131].

⁵² A-Teams were not included as part of the original 1995 implementation plan, but appear to have been added later as a fourth area for implementation. Eric Tolbert would introduce A-Teams as the fourth component of EMAC's implementation plan in a September 1996 congressional hearing on EMAC. A-Teams are not mentioned in the original February 1995 SREMAC *Guidebook & Manual of Use*.

⁵³ The EMAC Operations Committee co-opted the traditional definition of advance teams. Previously, when a state agreed to help another state and was assembling personnel and gear, it would send a small team, usually from the mobilizing force, to meet in advance with the affected state. These advance teams would identify missions, provide situational awareness, and make logistical arrangements for the incoming personnel.

⁵⁴ Forward A-Teams simply reverted back to being called A-Teams.

⁵⁵ Up until then, leadership of the NCG had been a collateral duty of the EMAC Operations Subcommittee Chair. The NCG was increasingly handling administrative duties in support of the Chair, diluting its intended operational focus. The EMAC Review Group recommended the separation of roles, which EMAC members agreed to in September 2006 during the NEMA annual conference.

NATIONAL AND REGIONAL EMAC LIAISON TEAMS

With A-Teams serving as resource brokers, FEMA and EMAC leadership were concerned about ensuring sufficient coordination between EMAC and federal agencies. Affected states sometimes issued blanket requests for assistance that A-Teams and federal agencies worked to address simultaneously; without some means of coordination, both parties might not realize when a need had already been fulfilled [51]. In December 1996, Eric Tolbert and Leon Shaifer met with Bruce Baughman to discuss ways to coordinate EMAC and FEMA resource deployments to maximize utilization of all resources and prevent duplication of federal and state efforts [131]. From this discussion emerged the concept of placing an A-Team with the FEMA Emergency Support Team at FEMA headquarters in Washington, DC during large, multistate events.

Based on this idea, the EMAC Operations Subcommittee created two levels of A-Team designation:⁵⁶

- A Type 1 A-Team reflected the original concept of A-Team operations.
- Depending on the magnitude of the event, FEMA would request a Type 2 A-Team to deploy to a FEMA Regional Operations Center or to FEMA headquarters. The Type 2 A-Team would primarily focus on interfacing with state staffs or Type 1 A-Teams operating from the EOCs of affected states. Moreover, the Type 2 A-Team had a minimum of four personnel and, when deployed to FEMA headquarters, would have an additional staff member from NGB [4]. Because of its larger size and broader role, EMAC members referred to this team as a “Super A-Team” or “super-A” [4, 51]. Later, a new term—“Coordinating A-Team”—came into existence to describe Type 2 A-Teams that were deployed to FEMA Regional Operations Centers [51].

In June 2004, to alleviate potential confusion surrounding the use of the term “A-Team,” EMAC leadership and staff renamed the “Super A-Team” and “Coordinating A-Teams” into the “National Coordinating Team” and “Regional Coordinating Teams,” respectively [137].

Then, in October 2011, the EMAC Executive Task Force voted to rename these elements to the “National EMAC Liaison Team” (NELT) and the “Regional EMAC Liaison Team” (RELT), respectively, emphasizing their liaison role. The roles of the NELT and RELTs are to share situational awareness with EMAC operational components, FEMA, and the Emergency Support Functions, and to discuss and resolve issues pertaining to EMAC Member States arising during operations [41]. They are no longer tasked to acquire resources in support of an A-Team [131].

⁵⁶ This pertained only to Forward A-Teams and not the Standing A-Team.

4. KEY CHALLENGES IN EMAC'S DEVELOPMENT

This section highlights five major challenges that EMAC has confronted in its history:

- Training
- Resource standardization
- Reimbursement
- Accountability
- Establishment of policies, procedures, and protocols

The following subsections explore how each challenge has shaped current EMAC policies and operations.

▶ TRAINING

As EMAC implementation has matured, the approach to enhancing both awareness-level and in-depth understanding of EMAC has evolved, as well. In particular, the 2004 and 2005 hurricane seasons prompted a push to develop a more formal EMAC training program. These deployments revealed a general lack of understanding about EMAC and its processes [51]. Ignorance of EMAC was common—for example, approximately half of state and local officials surveyed for Louisiana's after-action report on Hurricane Katrina did not seek to use EMAC because they were either unaware of it or were unfamiliar with the process for requesting assistance [139]. Moreover, this lack of understanding contributed to challenges with self-deploying personnel and delayed reimbursement [140]. The EMAC after-action reports for the 2004 and 2005 hurricane seasons both highlighted the need for additional training and education for deployed personnel, state and federal officials, and the public [59, 62].

Even as Hurricane Katrina caused EMAC leadership to rethink training needs, EMAC representatives were conducting EMAC's first formal training sessions. In 2002, EMAC leadership began exploring the possibility of offering a train-the-trainer course at EMI⁵⁷ [141-142]. This eventually led to EMAC's first course offering with FEMA, "Emergency Management (EMAC) Train-the-Trainer," (course E430) [51, 143]. The course represented an important milestone in EMAC training efforts. For the first time, NEMA was providing a professionally developed training

⁵⁷ Discussions between the EMAC Operations Subcommittee and FEMA's EMI about a federally supported training course for EMAC began as early as 1997.

course.⁵⁸ Until then, training efforts had consisted of passionate EMAC state personnel volunteering their time to conduct training, mostly in conjunction with various meetings and conferences [57].

The objective of the E430 training course was to train at least one person in each Member State, who would be responsible for training within that state [141]. EMAC leadership wanted to ensure that consistency was maintained in the training courseware and that EMAC training was under the control of state emergency management directors⁵⁹ [51, 57]. The targeted audience was the Exercise and Training Officers in each state, whom EMAC identified to be the primary trainer cadre. The objective was for these individuals to take the curriculum and infuse it into their annual training work plan supported with Emergency Management Performance Grant funding [51].

The pilot course was held in Anniston, Alabama, in May 2005, only three months before Hurricane Katrina made landfall [57].

NEMA and EMI offered the train-the-trainer course twice annually over the next four years⁶⁰ [144]. During this period, however, NEMA was not getting feedback from states that Exercise and Training Officers were conducting the desired EMAC training. Meanwhile, with only Exercise and Training Officers to draw from, NEMA was running out of individuals to train [51].

Ultimately, realizations from the 2004/2005 hurricane seasons, coupled with the failure of the train-the-trainer course to reach a large number of individuals, resulted in a decision to change the approach to EMAC training. Hurricane Katrina helped EMAC leadership realize just how large its potential audience was. In particular, after Katrina, many local responders were frustrated with EMAC [57]. A lack of understanding existed among the very emergency response disciplines that were depending on EMAC to mobilize and deploy their resources [51].

The train-the-trainer concept was replaced with a new course—“Understanding the Emergency Management Assistance Compact” (course E0431)—designed to attract a multidisciplinary, general audience⁶¹ [51, 57]. To increase access to EMAC training, NEMA worked with states to later developed a self-paced, online course for a general audience⁶² [59, 143].

With general EMAC training in place, the need for A-Team-specific training became more apparent. While the concept of an A-Team was introduced early on, A-Teams had only procedures in the Operations Manual to follow. There was no formal training [57, 131]. Instead, teams were made up of operationally savvy individuals who knew how to get things done [57]. Any training was provided ad hoc by a few people who were knowledgeable about the EMAC Process [51]. The “Understanding the Emergency Management Assistance Compact” course and major events such as Hurricane Katrina identified the need to take a more professional approach to getting people

⁵⁸ NEMA would develop and maintain the course, whereas FEMA agreed to help market the course, provide a course manager and facilities, and allow students to travel on federal funds. NEMA hired a contractor to design the course with input from subject-matter experts.

⁵⁹ EMAC members had concerns about individuals teaching their own “watered down” or inaccurate versions of EMAC.

⁶⁰ The final offering of the course was on July 27, 2009.

⁶¹ The course is offered twice a year (in October and April) for up to 35 students in each class.

⁶² Creation of an online course was one of the recommendations from the *2004 Hurricane Season After-Action Report*.

qualified. The result was development of an A-Team curriculum and a cadre of instructors for the A-Team course [57].

EMAC leadership also recognized the parallel need to develop training tailored to other key EMAC stakeholder groups. In November 2013, NEMA held a training assessment workshop with a firm specializing in courseware and curriculum development [51]. As a result, NEMA redefined and identified new areas for EMAC training, developing online courses that target different audiences. Five courses were prioritized for completion and went “live” in February 2015: “Practice and Implementation of EMAC”; “EMAC Pre-Event Preparation for Resource Providers”; “EMAC Just-in-Time Training for Deploying Personnel”; “EMAC Reimbursement for State Emergency Management”; and “EMAC and the National Guard” [101, 143]. The online training courses were updated in 2019 [120] and are accessible through the EMAC eLearning Center (see Table 2) [145-146]. NEMA is currently updating three of its online courses (to be completed in 2021), with updates to remaining courses scheduled for 2022 and 2023 (based upon the availability of funding). In addition, NEMA developed an “EMAC Essentials” app available for download in the Apple and Android app stores. The app includes information on the EMAC Process for personnel on deployment or preparing for deployment, as well as tips and guidance [1, 100].

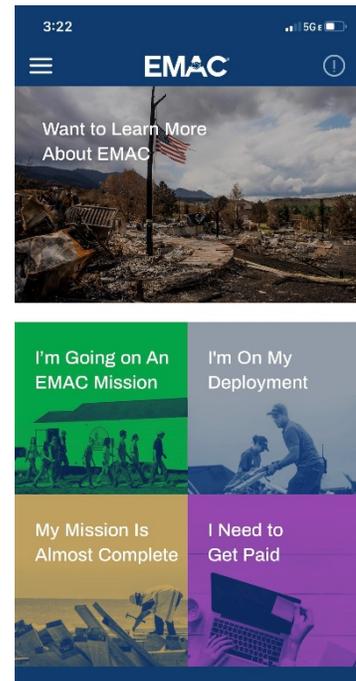


Table 2. Available EMAC online courses target different audiences

Online Course	Target Audience	Description
Practice & Implementation of EMAC	State EM with responsibilities for mutual aid and EMAC, EMAC A-Teams, EMAC Advisory Group	Provides an overview of EMAC history, legal framework, and the five phases of the EMAC Process
EMAC Pre-Event Preparation for Resource Providers	Resource providers	Reviews steps that resource providers should take prior to an emergency or disaster, including training and exercise responsibilities and MRP development and maintenance
EMAC: Just in Time Training for Deploying Personnel	Personnel deploying through EMAC, resource providers	Provides lessons learned from past EMAC deployments
EMAC Reimbursement for State Emergency Management	State EM personnel with EMAC responsibilities, state fiscal/administration personnel, state grant officers	Describes the responsibilities and actions of both Requesting and Assisting States within the Reimbursement Phase of the EMAC process, the suggested timelines to process EMAC reimbursement packages, an overview of eligible and ineligible costs, and suggestions for recouping costs from federally declared disasters

Online Course	Target Audience	Description
National Guard & EMAC	National Guard commanders, operations staff, logisticians, and other members of the National Guard, and state EM agency personnel	Provides an overview of the EMAC process, EMAC law, National Guard responsibilities throughout the EMAC process
EMAC Bootcamp for Authorized Representatives	State directors, EMAC Authorized Representatives	Provides an EMAC overview and describes the responsibilities of the EMAC Authorized Representative as both a Requesting and Assisting State
EMAC A-Team Training Course	State staff	Familiarizes individuals with the A-Team's structure, functions, and roles and responsibilities; provides experience in the EOS

In the aftermath of the 2017 hurricane season, further changes were in store for NEMA's training program, with the goal of helping members improve their ability to implement EMAC [117]. In October 2018, the EMAC Committee approved for NEMA to embark on a new training endeavor—the State EMAC Improvement Program. As currently designed, the program includes a self-assessment survey and a confidential three-day site visit organized as follows [117]:

- **Day One:** NEMA reviews state EMAC procedures and plans, provides templates to improve existing plans, and identifies best practices.
- **Day Two:** NEMA conducts an EMAC education and MRP workshop for resource providers in the state, including the National Guard.
- **Day Three:** An A-Team exercise occurs in the morning, followed by a meeting between NEMA, the EMAC Coordinator, and the state director to review findings and provide a roadmap for how the state can improve its EMAC implementation.

Currently in the pilot stage, the State EMAC Improvement Program is seen as a more proactive means of working one-on-one with states and providing training directly from NEMA [109]. With members juggling multiple responsibilities, this approach recognizes NEMA expertise and seeks to leverage it more effectively to assist members [109].

➤ RESOURCE STANDARDIZATION

Since the beginning stages of the compact, a key concept of EMAC has been the standardization of resources to facilitate interstate mutual aid. The EMAC implementation plan addressed the identification and standardization of unique capabilities possessed by Member States. Eric Tolbert described what the EMAC Operations Committee envisioned in his 1996 congressional testimony on EMAC [40]:

Utilizing FEMA's computerized loss[-]estimation methodology, their capability[-] assessment process, and post-disaster case studies, we can identify the types of missions that will be in high demand post disaster on a state-by-state basis. Once the nature of these missions is determined, the professionals can then establish

standardized “strike teams” or “task forces,” having the proper combination of personnel, equipment, and materials to perform these missions.

The EMAC Operations Committee sought to mimic existing federal examples, such as FEMA’s Urban Search and Rescue Task Forces and the U.S. Department of Health and Human Services’ Disaster Medical Assistance Teams [40].

Little information on this effort exists in available NEMA records. Although the EMAC Operations Subcommittee was committed to “standardizing and ‘typing’⁶³ state response packages for rapid mobilization and movement,” it noted that the timing for completing strike team development was beyond the control of EMAC and dependent on funding to advance strike team concepts [41, 44]. NEMA was carrying out a state-based typing effort by 2002, but the details of this effort are unknown [147].

In October 2002, NEMA submitted a grant proposal to FEMA, which included an initiative to standardize and “type” state resources for disaster response and recovery [141, 148]. While the proposal pended funding by Congress in the FY 2002 supplemental appropriations bill, the U.S. Department of Justice provided \$85,000 to start the initiative [141]. Ultimately, however, FEMA limited funding to NEMA for state resource-typing efforts in favor of commencing its own effort to develop resource-typing standards and definitions [148].

FEMA’s resource-typing effort was part of a new National Mutual Aid and Resource Management Initiative [78]. Bruce Baughman, then Director of the Office of National Preparedness at FEMA, wanted to gather different disciplines (e.g., fire, emergency medical services) and have them “type” the assets they used (e.g., fire engines, ambulances). The premise was simple: if resources were typed, they would be easier to share through mutual aid [15]. Federal, state, and local subject-matter experts from numerous disciplines helped develop the typing definitions. By January 2004, FEMA completed an initial list of 60 typed resources [78]. FEMA released a second set of 60 additional definitions in October 2004 [149].

Demand for resource typing seemed strong among EMAC users. The *2004 Hurricane Season After-Action Report* identified the absence of a commonly accepted resource-typing system as an area for improvement and recommended that all Member States adopt resource types into their operational processes to use in connection with EMAC requests [59]. Moreover, in a 2006 NEMA survey, 34 states indicated that they had resource-typing initiatives under way using the 120 existing typed definitions [150].

EMAC members confronted several challenges in their attempts to incorporate FEMA’s NIMS resource typing. For example, EMAC members used resource typing to the extent it was developed, but a large portion of state and territory resources failed to fit into existing typing classifications [15]. In a 2008 NEMA survey, 19 out of 52 states and territories indicated that 50 percent or more of their resources that could be used for mutual aid did not fit into NIMS resource-typing classifications [151]. Moreover, the large number of people involved in the effort

⁶³ Resource typing is a method to categorize and describe resources according to their capacity and/or the capability of their components (e.g., number of personnel, sophistication of equipment, training level of personnel).

to classify resources slowed down the rate of progress. Finally, the effort was too detailed and too focused on resources instead of missions [15].

Even as EMAC leadership sought to encourage resource-typing, their larger goal was to improve the quality (i.e., specificity) of REQ-As. Toward this goal, the 2004 after-action report recommended that the EMAC Operations Subcommittee review the REQ-A Form and ensure that the form extracts the most pertinent information from Requesting and Assisting States. In addition, the after-action report recommended the development of templates for use on the EMAC website based on the NIMS resource-typing definitions [59]. These two related objectives would ultimately lead NEMA to develop the mission-ready packaging methodology.

In 2006, the North Carolina National Guard approached Doug Hoell, Director of the North Carolina Division of Emergency Management, and informed him that, because of deployments worldwide, the National Guard was not as readily available as in the past. This necessitated a change in how the National Guard supported emergency response efforts in North Carolina. Its proposal was to have North Carolina begin ordering missions by MRPs. In the past, the North Carolina National Guard had run about 30 types of missions. The MRPs broke each mission down into its basic components, including daily cost. Importantly, it showed Hoell what was available to him in North Carolina. Moreover, the North Carolina National Guard had talked to National Guards from other states and made agreements, so it knew where to obtain additional resources if it had a shortfall [15].

Hoell brought this concept to NEMA with the idea of expanding it to all assets, not just National Guard assets. In 2007, NEMA hired Tim Miller, a former emergency management official in North Carolina [15, 80]. In total, he developed 110 MRP templates that built off the 120 NIMS-typed definitions, including work he had already done for Hoell in North Carolina and the MRPs prepared by the North Carolina National Guard [15]. EMAC staff modified Miller's templates to include more detailed breakdowns of cost for increased transparency and made them available to EMAC members in late 2008/early 2009 [51].

Since then, NEMA has awarded grants to numerous states to develop various MRPs. Today, hundreds of MRPs are available in MASS [1] and mission-ready packaging has reached a point at which FEMA accepts it [15]. MRPs can use the FEMA NIMS resource types, taking the resource-typing concept one step further by identifying missions, personnel and equipment needs, limitations, required logistical support, and estimated costs to deploy [66]. According to Hoell, mission-ready packaging has "found a place" in the preparedness hierarchy between resource typing and core capabilities⁶⁴ [15, 152].

Today, states routinely use MRPs to upload offers of assistance during the EMAC Request and Offer Phase.

⁶⁴ Core capabilities are distinct critical elements necessary to achieve the *National Preparedness Goal* [152].

Through private-public partnerships, North Carolina has developed a significant deployable capability for medical-contingency care that can augment or temporarily replace a fixed/field medical facility [153-154]. By leveraging federal grant funds and developing agreements with North Carolina trauma hospitals, the North Carolina Office of Emergency Management (NCEM) has created eight mobile medical packages, complete with medical personnel, a small logistical support team, and a state-owned hospital unit. Each hospital unit contains standardized equipment and resources, allowing the units to be combined into a larger hospital facility. Building on NCEM's efforts, FEMA purchased an additional mobile disaster hospital (MDH) unit and assigned it to the North Carolina Office of Emergency Medical Services [154]. As a federal, state, and private collaboration, the MDH unit can be deployed with or without medical personnel through NCEM's agreements with North Carolina hospitals [153-154].

North Carolina's capability for medical-contingency care deployed for the first time under EMAC in response to Hurricane Katrina. The portable hospital capability went to Waveland, Mississippi, to replace the inoperable Hancock Memorial Hospital (the sole acute care hospital in Hancock County, which sustained the most significant damage of any hospital on the Mississippi Coast) [154-156]. North Carolina established an around-the-clock medical treatment and triage facility staffed by 500 North Carolina personnel, who ultimately cared for 7,500 patients during an eight-month deployment [154].

In April 2014, North Carolina deployed an MDH in response to a request from the Governor of Mississippi. The MDH substituted for a 41-bed hospital, medical clinics, and a nursing home in Winston County, all of which were destroyed by a severe tornado [157]. Medical personnel from Louisville, Mississippi, are staffing the MDH, which was on loan until the local hospital was rebuilt [154, 157].

➤ REIMBURSEMENT

Article IX of the EMAC law requires states requesting assistance to reimburse Assisting States for "loss or damage to equipment, the costs of operating equipment, and the costs of providing services in response to a request for assistance" [5]. This codified language is a critical benefit to EMAC. While states and territories want to help their neighbors, they want to do so with the assurance that they will be reimbursed for expenses associated with providing assistance, as specified on the duly executed REQ-A [17]. Any challenges to reimbursement threaten Member States' confidence in making future offers of support [13].

EMAC deployments during the 2004 and 2005 hurricane seasons revealed a number of challenges with cost estimation and tracking. In 2004, the rapid succession of four hurricanes complicated reimbursement. Rather than seeking reimbursement after each storm, some Assisting States delayed, believing that they should seek reimbursement only after demobilizing resources. Additionally, the duration of the EMAC response resulted in the rotation of multiple A-Teams in and out of Florida, adding to tracking difficulties. Finally, some Assisting States had unique internal financial practices and policies that also caused problems [59].

If the 2004 hurricane season revealed cracks in EMAC reimbursement procedures because of the large-scale deployment of resources, then the 2005 hurricane season (in particular, Hurricane Katrina) threatened to break EMAC. The unprecedented scale of the Katrina EMAC response greatly exacerbated financial and reimbursement challenges [140]. Several issues arose, including the following:

- Member states did not fully understand policies for reimbursement eligibility, with some states assuming that allowable costs for EMAC and FEMA were one and the same [62].
- Poor recordkeeping left states unable to sufficiently account for their costs, with undocumented expenses, missing supporting documentation, and inadequate cost-tracking measures for request amendments all contributing to delays [62].
- Requesting states lacking adequate state funds on hand to cover the cost of resources were unable to reimburse Assisting States in a timely fashion. Instead, they had to wait until they received federal Public Assistance funds [15, 71].

These delays would turn into budgetary shortfalls for assisting state and local agencies. In 2007, GAO ominously reported the following [71]:

Delays in reimbursing assisting state and local agencies in turn delayed or eliminated planned expenditures to cover budgetary shortfalls.... Additionally, state and local officials told us [GAO] that these reimbursement delays have caused them to reconsider the level of assistance they would be willing to provide through EMAC in the future.

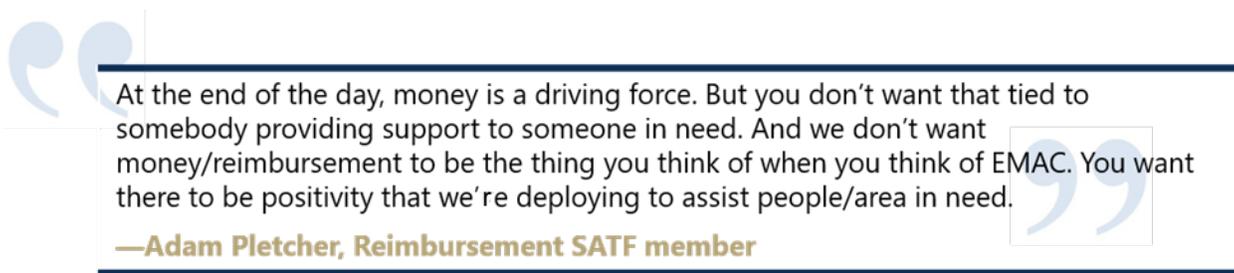
Ironically, EMAC members had envisioned the major reimbursement challenges that would occur in a catastrophic event. Many of the challenges encountered during Hurricane Katrina were identified during the 2004 hurricane response, and the *EMAC 2004 Hurricane Season After-Action Report* provides a number of recommendations addressing reimbursement [59]. However, with less than a year between these two events, EMAC members and staff did not have enough time to make and initiate major changes to EMAC financial and reimbursement policies and procedures [51, 140].

Thankfully, no major disasters occurred in the next few years, allowing EMAC staff to focus on identifying and addressing specific reimbursement issues. For example, EMAC leadership convened a special task force to develop an improved set of reimbursement guidelines, which EMAC adopted in October 2010. The new guidelines provided an additional layer of detail regarding reimbursement eligibility, roles and responsibilities, and reimbursement timelines. NEMA also reached out to its members, encouraging state emergency management directors to discuss the importance of reimbursement with their governors [13]. Additionally, states shared best practices for expediting the reimbursement process [57, 87]. In 2011, NEMA developed within the EOS the ability for state emergency management agencies to track reimbursements from the time they are received by the Assisting State to when the Requesting State pays the Assisting State and the Assisting State pays the assisting entity, thus providing the ability to identify where issues occur within the reimbursement process [131].

EMAC deployments in response to Hurricane Irene and Tropical Storm Lee in 2011 and to Hurricane Sandy in 2012 benefited from these improvements [87]. For example, the combination

of enhanced guidance, improved systems, and inclusion of a reimbursement specialist on the A-Team deployed to New Jersey allowed New Jersey, as the Requesting State, to issue reimbursements within three weeks of receiving reimbursement packages from the Assisting States [13].

Concerns over reimbursement would resurface in 2017. In the aftermath of Hurricanes Harvey, Irma, and Maria, the magnitude of personnel deployed through EMAC created a complex reimbursement scenario that revealed inconsistencies with, confusion about, and outliers related to the EMAC reimbursement process. As a result, the EMAC Executive Task Force Chair established a Reimbursement SATF [158]. By March 2019, the Reimbursement SATF identified 11 recommendations that were approved by the EMAC Committee [158].



At the end of the day, money is a driving force. But you don't want that tied to somebody providing support to someone in need. And we don't want money/reimbursement to be the thing you think of when you think of EMAC. You want there to be positivity that we're deploying to assist people/area in need.

—Adam Pletcher, Reimbursement SATF member

The first of these recommendations was to develop a standardized reimbursement form for compiling the reimbursement submission package [158]. NEMA members expressed a desire for more uniformity with the reimbursement process; the old system, in which individuals could submit their own forms and have different requirements, was no longer working [106].⁶⁵ By the March 2019 meeting, the Reimbursement SATF had developed a standardized EMAC calculation form (adapted from a FEMA Public Assistance worksheet to align with the EMAC Process [158]) and subsequently piloted the form during real-world responses over the next year [117].⁶⁶

Even with the standardized reimbursement form, however, supporting documentation requirements continue to be an issue. Some states require excessive documentation for internal audits or possible future audits [158]. Similar concerns exist about FEMA's documentation requirements for Public Assistance [159]. Since these documentation standards differ from EMAC reimbursement guidelines, they have caused considerable issues [158]. For example, the FEMA Public Assistance guide is overly specific and asks for information such as proof of ownership, which is superfluous for mutual aid, increases the paperwork burden, and slows the reimbursement process [109].

Additionally, a NEMA analysis of where bottlenecks in reimbursement occurred after Hurricanes Irma and Maria revealed that, at the end of the first year of those two events, 73 percent of reimbursement packages had yet to be submitted to the Requesting State, debunking a belief that reimbursement delays were the Requesting State's fault [109]. This would lead the EMAC Committee Chair, Mike Dossett, to emphasize at the October 2019 EMAC Committee meeting that

⁶⁵ This represented a huge shift in the mindset (at least for reimbursement). Since the early days of EMAC, a point of pride was that states could have their own protocols on deployment and such [107].

⁶⁶ Additionally, the Reimbursement SATF reviewed and updated the "EMAC Reimbursement for State Emergency Management" online course, the "EMAC Mission Order Authorization Form," and the *Eligible Expenses Guide* [117].

states needed to make reimbursement a top priority, as it had significant impact on EMAC's reputation [117]. It would also influence a more proactive stance toward EMAC program implementation, as discussed in the [Training](#) subsection.

In 2021, NEMA began work with a consultant to review EMAC reimbursement guidance and FEMA public assistance documentation to identify recommendations that would simplify mutual aid reimbursement and the paperwork burden to states. Although this work is ongoing, it represents a huge potential to standardize reimbursement—from local resources through EMAC all the way through to the paperwork needed by states to receive federal dollars through public assistance.

➤ ACCOUNTABILITY

EMAC OPERATIONS SYSTEM

A REQ-A Form, which establishes the legal framework for resources, requires Authorized Representatives from both the Assisting State and the Requesting State to sign the document. States involved in early EMAC operations found that using available means (e.g., fax machines) to transfer paperwork from one state to another posed consistent difficulties, thus creating demand for an automated operations system to assist states in acquiring resources, generating appropriate reports, tracking deployed personnel, and ensuring overall accountability [15, 17].

The Notice and Reporting System represented NEMA's first attempt at a system designed to track operational activities. Developed shortly after NEMA gained administrative oversight for EMAC, this system allowed Member States to open events, track individual personnel assigned to each event, and disseminate situation reports. The 2004 hurricanes, which involved significantly larger deployments of personnel, revealed several shortcomings to this system. First, only a single event was opened for all states affected by an incident. Second, tracking occurred at the level of individual personnel. The result was a system that was labor intensive, placing significant burden on those individuals responsible for tracking where deployed individuals were at any given time [97].

Additionally, under this system, resource requests from the affected state were conveyed to Member States via email or on the EMAC webpage. Often, when more than one Member State affirmed its ability to meet the request, the Requesting State failed to provide adequate feedback. Hence, potential Assisting States were unclear as to whether mobilizing their resources was necessary. Moreover, data on specific requests for assistance was only recorded on hardcopy REQ-A Forms and was not available in the electronic EMAC database. The *EMAC 2004 Hurricane Season After-Action Report* highlighted the need for the development and integration of an electronic REQ-A Form into the web-based EMAC system. The use of hardcopy REQ-A Forms during the 2004 hurricane responses hampered transaction processing and limited states' abilities to form a current, dynamic view of resource requirements and availability, as well as deployment data [59].

By August 2005, NEMA had created mockups for a new system—the EMAC Resource Tracking and Broadcast System. Development of this system was pending approval from the EMAC Executive Task Force at the 2005 NEMA Conference. With a hurricane developing in the Gulf of Mexico shortly before the conference, Angela Copple, the EMAC Program Director, asked for and

received permission from the EMAC Executive Task Force Chair to begin system development [97].

Code development began in earnest during the conference. On August 24, 2005, Florida opened the first event within the EMAC Notice and Reporting System.⁶⁷ A key feature of the new system was the ability to track people as a component of a resource (and not as individuals). Moreover, the new system allowed each affected state to open an event to improve resource tracking. However, the system relied heavily on the A-Team at the Requesting State to enter data into the system⁶⁸ and on NEMA to maintain the data integrity of the system by comparing event REQ-As with the system data [97]. In assessing EMAC's performance during Hurricane Katrina, the GAO called out the absence of a comprehensive system to support tracking, noting separate systems that "were often not aligned with each other and [that] required emergency managers to manually reenter data into the EMAC system" [71]. Assisting and Requesting States either scanned and emailed or faxed the REQ-A back and forth for the necessary signatures [97]. As a result, paperwork burdens still proved overwhelming [70].

Recommendations from EMAC after-action reviews and improvements in technology guided the development of the EOS, which came online in January 2012 and replaced the EMAC Notice and Reporting System [87, 97]. By then, NEMA had developed a five-phase process for conducting EMAC operations;⁶⁹ the goal of the EOS was to follow this process as closely as possible [97]. Among its numerous enhancements, the EOS system allowed online creation of REQ-As, uploading of MRPs and completed REQ-As, and acceptance/declines of offers of assistance.⁷⁰ Since then, the EOS has undergone two major upgrades.

EMAC PERSONNEL ACCOUNTABILITY AND PROCESSING PACKAGE

In addition to improvements in system-based reporting and tracking, NEMA has attempted to better account for personnel deployed in the field.

The EMAC *2004 Hurricane Season Response After-Action Report* noted that "accountability of deployed personnel was dangerously lacking" [59]. In particular, concerns arose when the A-Team was unable to warn personnel deployed throughout Florida for Hurricane Charley of the impending arrival of Hurricane Frances and, subsequently, Hurricanes Ivan and Jeanne [51]. Personnel were frequently reassigned to meet changing needs and sometimes failed to contact the A-Team regarding their new locations. Moreover, personnel frequently deployed directly to the field without first checking in at the Requesting State's EOC or another staging location [59]. A-Team members also encountered problems during demobilization. For example, search teams

⁶⁷ NEMA would provide just-in-time training to the states that opened events in the new system. During the Hurricane Katrina response, EMAC A-Teams provided real-time feedback on system needs, and NEMA performed system modifications on the fly.

⁶⁸ The REQ-A included three sections. The A-Team from the Requesting State entered the data for the first and third sections. Potential Resource Providers submitting offers of assistance entered data in the second section.

⁶⁹ The five phases of the EMAC Process are: (1) Pre-Event Preparation; (2) Activation; (3) Request and Offer; (4) Response; and (5) Reimbursement [41].

⁷⁰ Other notable highlights of the EOS included: new options for Requesting States to geographically target their resource requests (e.g., individuals, specific states, multiple states, all Member States), an interface for Assisting States to input offers of assistance, allowing Requesting States to receive multiple offers of assistance for each resource request, duplication of the resource requests and the ability to carry forward multiple offers of assistance, the ability to accept/decline offers of assistance, and assignment of A-Teams to events.

deployed to look for a responder who failed to notify his home authority and family that he was not returning home immediately, choosing to visit a friend, instead [51]. In 2005, Hurricanes Katrina and Rita resulted in nearly 66,000 individuals dispersed across a 90,000-square-mile area, further underscoring the need to improve accountability for deployed personnel [62].

To improve personnel accountability, NEMA and EMAC Member States introduced the EMU Plan Template in 2009 as a basis for developing state-specific, personnel tracking and accountability plans [160]. Akin to the National Guard's JRSOI model, an EMU provided a central receiving point to verify credentials, issue event identification badging, conduct safety and EMAC briefings, provide mobilization assistance, and implement tracking protocols [15, 49]. To encourage the template's use, NEMA offered five Member States the opportunity to participate in a pilot study, which included a grant of \$10,000 to fund each state [160].

In addition to an EMU, some of the pilot study participants also added a demobilization unit component to their plans. Recognizing its value, EMAC staff personnel modified the template to include a demobilization unit (DMU), whose purpose is to quickly check-in, debrief, and check-out demobilizing personnel. The combined EMU and DMU concepts were renamed the "EMAC Personnel Accountability and Processing Package"⁷¹ [51]. Moreover, NEMA selected three states—Louisiana, Massachusetts, and Missouri—to participate in a second pilot. Louisiana would go on to conduct a full-scale exercise of their EPAPP in 2011, which provided the state with the opportunity to set up and practice in-processing and out-processing of responders arriving at random intervals and volumes during a seven-hour window [51, 161].

Since the second pilot, NEMA has awarded numerous grants to support EPAPP development [162]. Today, most states have developed a staging area capability that incorporates at least some components of EPAPP.

ESTABLISHMENT OF POLICIES, PROCEDURES, AND PROTOCOLS

STRATEGIC PLANNING

Implementation of EMAC's first strategic plan did not take place until 2003⁷² [42]. In July of that year, the creation of the EMAC Coordinator position within NEMA facilitated a link between FEMA grant-funded initiatives and strategic goals [58]. Following the 2004 hurricane season, EMAC leadership conducted the first formal after-action review of EMAC, identifying challenges and outstanding issues that warranted a more formal strategic planning process [57]. Accordingly, in June 2005, the EMAC Executive Task Force and NEMA staff revised the strategic plan, updating EMAC's mission, vision, and four primary goals to cover 2005–2011 [42]. More recently, EMAC's strategic plan has been reviewed on an annual basis, consistent with the NEMA strategic planning cycle [86].

⁷¹ Two types of EPAPP exist. A Type I EPAPP operates independently of a National Guard JRSOI, whereas a Type II EPAPP operates in tandem with a JRSOI. Both the EMU and DMU components of the EPAPP are similarly typed.

⁷² Early on, the EMAC Operations Committee did develop an implementation plan, but the plan's components were more operational than strategic.

OPERATIONAL PLANNING

The SGA published the first operations manual for EMAC, the *SREMAC Guidebook & Manual of Use*, in February 1995. This guide included standard operating procedures for requesting aid; a high-level inventory of states' strengths and weaknesses; and forms for requesting assistance, confirming interstate mutual aid, and seeking reimbursement [9]. The next edition of the operations manual, issued in 1997, was significantly larger, and it included discussions about the various EMAC governance components. In 2000, EMAC members revised the operations guide once again to incorporate lessons learned from the 1998 Florida wildfires and Hurricane Georges. Specifically, this version included a significantly expanded discussion on the topics of reimbursement and A-Teams [136]. In 2005, the *EMAC Operations Manual* replaced the *EMAC Guidebook* and expanded EMAC operational procedures, incorporated lessons learned, and introduced a span of control to meet mission demands at state, regional, and national levels [129]. Following lessons learned during the 2004 and 2005 hurricane seasons, NEMA published a revised version of the *EMAC Operations Manual* in 2007. Since then, NEMA has issued additional updates as necessary.

In response to requests for guidance specific to particular operational elements, NEMA and EMAC leadership recently developed a series of targeted guides. The *NELT Standard Operating Guidelines (SOG)*, the *RELT SOG*, the *NCS SOG*, the *A-Team SOG*, the *Resource Provider and Deployed Personnel SOG*, and standard training and exercise guidelines are living documents; updates occur as members identify areas for improvement [163]. For example, NEMA updated the *NELT SOG* in 2013 to reflect changes in the National Response Coordination Center chain of command and modifications to FEMA's document-cataloging system [89, 143]. The new guides formed the foundation for the revised EMAC training courses [90].

NEMA is currently working with the EMAC Executive Task Force to update guidance documents to reflect improvements in EMAC's systems and reimbursement process, as well as to create a new document to help Resource Providers develop their reimbursement package using the R-2 Reimbursement Package Job Aid.

LEADERSHIP TRANSITION

Beginning in 2001, NEMA and the EMAC Subcommittee leadership developed protocols and processes to ensure continuity of leadership. A major concern was that the Current Chair of the EMAC Subcommittee (and eventually the Chair of the Executive Task Force⁷³) would be unable to carry out the operational responsibilities for EMAC should an event adversely affect his or her state.⁷⁴ In the event that the Current Chair of the EMAC Subcommittee was unable to perform the necessary duties, EMAC leadership established that those responsibilities would revert to the immediate Past Chair; if the Past Chair was similarly unable to perform the duties, they shifted to the Chair-Elect [15]. In addition, NEMA began supporting a leadership transition program for every incoming chair, which has matured and become more formalized over time [84]. The current program includes a training module focused on the role of the NCS and a corresponding

⁷³ NEMA shifted operational responsibilities for EMAC from the Chair of the EMAC Subcommittee (which NEMA discontinued) to the Chair of the Executive Task Force.

⁷⁴ The Current Chair might be from an affected state or already engaged in response operations for another disaster.

scenario-based exercise involving role-playing that uses states with A-Teams stood up to drive the exercise [86, 140, 164].

EMAC leadership also changed the timing of the transitions between Chairs to avoid coinciding with hurricane season [81]. In addition, the process governing the selection of the Executive Task Force Chair became more rigorous in 2006 [64, 138]. Candidates must now submit a letter from their state emergency management directors authorizing them to run for the Chair position. This ensures that states fully understand the expectations placed on them as the NCS [57]. Furthermore, recent incoming Executive Task Force Chairs have had the benefit of specific NCS operational guidance through the NCS SOG, which EMAC members adopted in late 2013 [89].

5. EMAC'S BROADER INFLUENCE

In addition to promoting multiple forms of mutual aid (e.g., intrastate, cross-border), EMAC has served as the template for other mutual aid agreements. EMAC has also evolved into a critical component of the nation's approach to dealing with large-scale disasters.

➤ INTRASTATE MUTUAL AID

While EMAC establishes a mechanism for resource sharing between states, the ability to share resources between local jurisdictions within a state is equally important. Moreover, intrastate mutual aid provides an opportunity to dramatically increase the resources that EMAC can leverage to support an event.

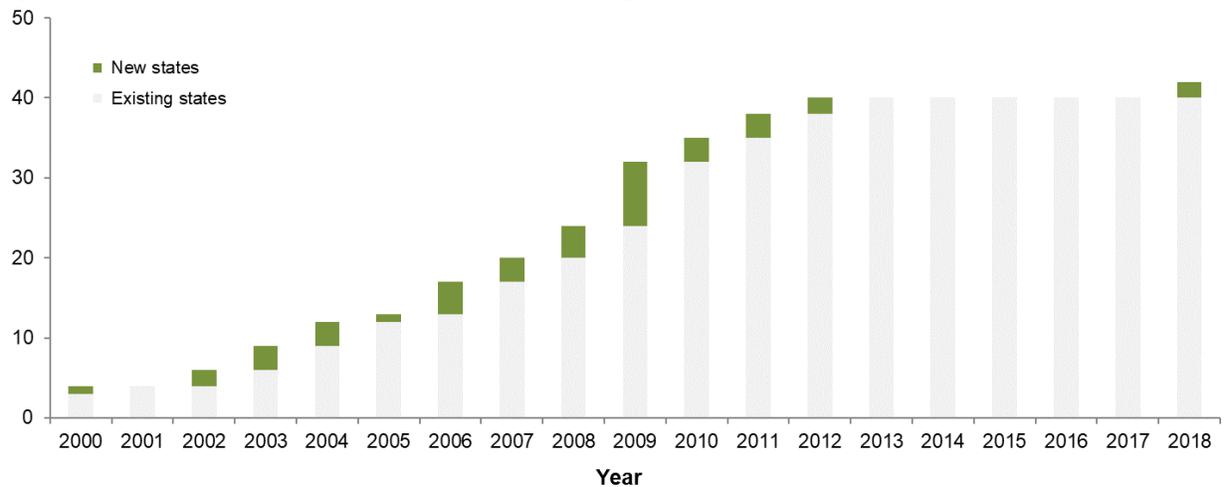
As much as we talk about EMAC as the interstate compact, we really want to continue to grow intrastate compacts to ensure that resources at the local level can be applied throughout a state in a disaster, and then linked up with EMAC to deploy to another state.

—Craig Fugate, FEMA Administrator

Recognizing the benefits of intrastate mutual aid agreements, NEMA developed the National Model Intrastate Mutual Aid Legislation in March 2004. Using EMAC as a guide, the model legislation addresses many of the same issues at a local level that EMAC addresses for states, including reimbursement, workers' compensation, and tort liability and immunity protection. The following year, Hurricane Katrina underscored the importance of intrastate resources to support catastrophic events. Approximately 15 percent of assets deployed from local jurisdictions were brought in under intrastate agreements, comprising nearly 10,000 personnel from various emergency response disciplines [165].

Prior to 2004, fewer than 10 states had intrastate mutual aid agreements in place. Since then, more than 30 states have enacted intrastate mutual aid agreements, bringing the total to 44 by 2020 (see Figure 7) [166-167].

Figure 7. Number of states with intrastate mutual aid agreements*



* No changes in the number of mutual aid agreements have occurred after 2018. Please note that the years in which two states (Idaho, New Hampshire) established intrastate mutual aid agreements could not be determined. As a result, they are not included in this figure.

▶ PRIVATE-SECTOR MUTUAL AID

The large-scale EMAC deployment of resources in the 2005 hurricane season underscored the lack of a systematic process to leverage private-sector resources through a similar process. This led to initial dialogue between EMAC leadership, the NEMA Private Sector Committee, and the Business Executives for National Security (BENS) group around ways to integrate the private sector into the resource-sharing system created by EMAC [168].

In 2007, BENS issued the report, *Getting Down to Business: An Action Plan for Public-Private Disaster Response Coordination*, which examined various approaches to improve private-sector integration during disaster response, including private-sector state-to-state resource sharing. Among the report’s major recommendations was a call to build a Business Emergency Management Assistance Compact (BEMAC) [169]. This would effectively expand EMAC by formalizing private-sector participation. That same year, the NEMA Private Sector Committee assembled a task force that included EMAC representatives and private-sector stakeholders to explore this concept.

One issue that the task force identified early on was the lack of state statutory provisions to enable private-sector resources to be used as agents of the state during out-of-state deployments. This is a critical element of using EMAC, yet only four states⁷⁵ had such provisions. Moreover, other states had specific legislation precluding use of private-sector resources in this fashion [168]. Thus, the task force began seeking alternative approaches [170]. The BEMAC concept was ultimately shelved when FEMA decided to invest a significant amount of resources in the development and use of the AidMatrix Network[®] platform as a way for private-sector entities to share resources [170].

⁷⁵ The four states were Delaware, Maine, Michigan, and North Carolina.

In a 2014 report, *An Analysis of EMAC Capabilities for Private Sector and Volunteer Resource Coordination*, NEMA further examined the use of EMAC for private-sector resource deployment. Part of the study involved a survey, and results reinforced that one of the major challenges for states in deploying private-sector resources through EMAC continues to be the lack of enabling state legislation. Only 6 survey respondents (out of 39 states and territories⁷⁶) indicated that their state had legislation in place that would allow them to deploy private-sector and/or volunteer resources [171].

Five states indicated that they had actually deployed private-sector resources since 2006. Examples include Minnesota and South Dakota, which both sent private-sector resources to North Dakota in 2009 following spring flooding. Minnesota also sent resources in response to Hurricane Irene in 2011 and Hurricane Sandy in 2012. Both Minnesota and South Dakota required private-sector personnel to sign agreements that specified the relationship between personnel, the private sector, and the Assisting and Requesting States [171].

Overall, medical resources are the most desired private-sector assets when states look to other states to support response operations. In particular, the 2014 survey found that since many jurisdictions use private, for-profit ambulance companies, these were the private-sector resources that states would most like to see available through EMAC.⁷⁷ States have begun to discover ways to accommodate these desires; one example is to enroll personnel in the Medical Reserve Cops⁷⁸ [171].

While some states have had success deploying private-sector assets through EMAC, other states need to overcome significant challenges to enable sharing. In particular, states will need to consider more permissive legislation, which would allow for the deployment of private-sector resources as agents of the state. States also need to formalize partnership agreements akin to those found in Minnesota and South Dakota. Nevertheless, progress is occurring. In the *NEMA 2020 Biennial Report*, for example, 18 states reported that they had legislation in place to allow them to deploy private sector and/or nongovernmental assets as mutual aid resources [167].⁷⁹

CROSS-BORDER MUTUAL AID

While EMAC provides a comprehensive system through which states can assist each other during emergencies, it does not provide a mechanism that allows for shipment or receipt of resources across U.S. borders. For states that share a border with another country, however, the resources possessed by their foreign neighbors represent a potentially significant and valuable asset. Recognizing this, emergency management stakeholders in border states, working in concert with their international partners, have crafted several agreements to enable efficient resource sharing.

⁷⁶ Forty-three states and territories participated in the survey, but only 39 responded to this question.

⁷⁷ This was followed by medical field hospitals and medical evacuation helicopters.

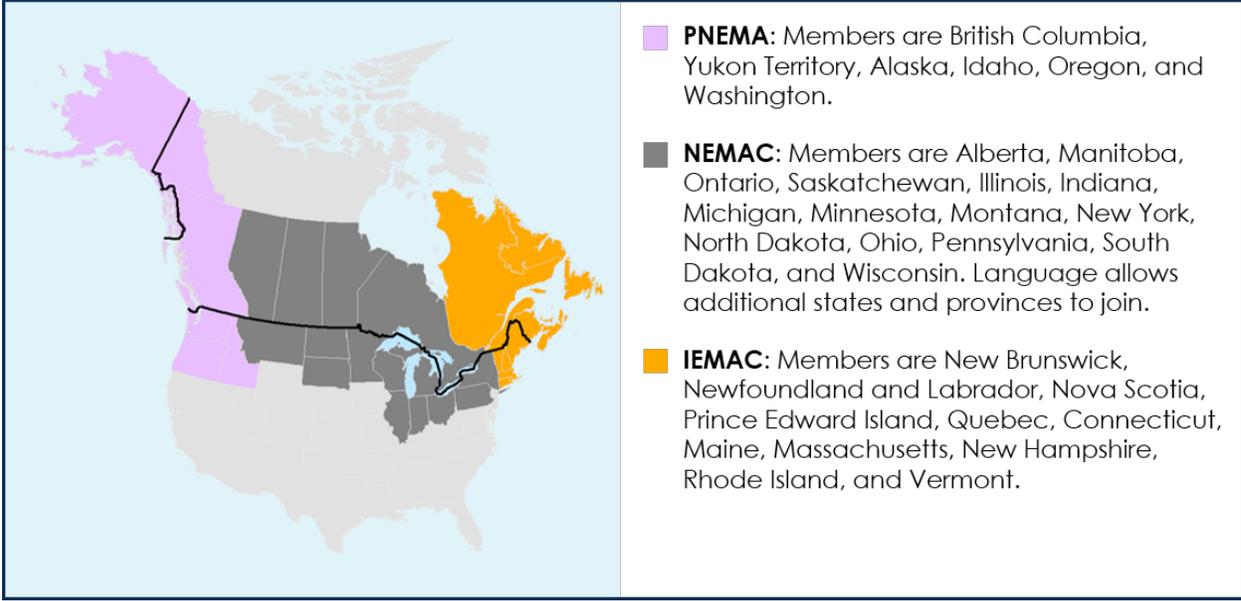
⁷⁸ In order to deploy mobile satellite communications vehicles and associated personnel to New York during Hurricane Sandy, New Jersey registered deploying private-sector personnel as members of the New Jersey Medical Reserve Corps.

⁷⁹ Nine additional states reported being able to deploy private-sector and/or nongovernmental assets through other mechanisms (e.g., policies, memorandum of agreements, executive orders). For a detailed breakdown of the authorities that states have established, please see the *NEMA 2020 Biennial Report*.

The first such international agreement occurred in 1975 between the State of Maine and the Province of New Brunswick, Canada⁸⁰ [172-173]. This agreement was later updated and eventually subsumed as part of the International Emergency Management Assistance Compact (IEMAC), which was developed and adopted by the New England Governors' Conference and the Eastern Canadian Premiers in 2000⁸¹ [174]. In addition, PNEMA established a similar northern-border, resource-sharing agreement in 1996 among the states of Alaska, Idaho, Oregon, and Washington; the province of British Columbia; and the Yukon territory⁸² [47]. Both agreements were borne out of Regional Emergency Management Advisory Committees, which were formed by the federal governments of the United States and Canada in the mid-1990s to advance the development of regional cross-border emergency preparedness and response arrangements ⁸³ [57, 173].

To address remaining gaps along the northern border, NEMA and the Canadian Council of Emergency Management Organizations came together in 2010 to reach agreement on draft language for a Central Region Emergency Management Agreement and a Prairie Region Emergency Management Advisory Agreement [175]. These two agreements formed the basis for what eventually became NEMAC⁸⁴ [176]. Figure 8 provides an overview of the areas covered by these three agreements [177].

Figure 8. The three international mutual aid agreements that cover the entire northern border of the United States



⁸⁰ While this was the first agreement between a state and province, agreements between border cities—such as between Port Huron, Michigan, and Sarnia, Ontario—trace back to the 1960s; an estimated 75 percent of Canadians live within 100 miles of the U.S. border.

⁸¹ The agreement is between six states (Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, and Connecticut) and five provinces (Quebec, New Brunswick, Prince Edward Island, Nova Scotia, and Newfoundland).

⁸² PNEMA was the first cross-border agreement authorized by Congress (in 1998). In 2007, the President signed IEMAC into law.

⁸³ FEMA established four Regional Emergency Management Advisory Committees, organized by geography. The Eastern Regional Emergency Management Advisory Committee supported creation of IEMAC, and the Western Regional Emergency Management Advisory Committee supported creation of PNEMA.

⁸⁴ Congress ratified NEMAC by joint resolution on January 3, 2013.

All three agreements relied on EMAC as a model to guide their structures. Moreover, as the most recent of the three cross-border compacts developed, NEMAC benefited from lessons learned from prior EMAC activations and from the creation and use of PNEMA and IEMAC. For example, unlike EMAC, Authorized Representatives from member jurisdictions can initiate resource sharing under NEMAC without a governor's or premier's emergency declaration. This greatly facilitates requesting and receiving of resources.

Thus far, the three compacts have seen limited use in real-world events. In February 2004, Nova Scotia used IEMAC in response to a snowstorm, receiving snowplows from Maine and New Brunswick. Later that year, Vermont issued a request to Quebec under IEMAC to obtain 2,000 blankets as a precautionary measure to address hypothermia concerns during an outdoor concert [178]. More recently, Nova Scotia deployed six individuals through IEMAC to support New Brunswick after it experienced historic flooding in spring 2018 [179]. In addition, the agreements have served to facilitate cross-border exercises and joint planning. For example, in June 2012, the State of Washington and British Columbia joined several cities and the private sector in the first-ever cross-border exercise, using a 7.1 magnitude earthquake as the scenario [177]. With the agreements in place, states and provinces have gone as far as coordinating equipment purchases with one another, allowing for more efficient use of agency budgets [177]. Examples of individual initiatives include the following [180]:

- Expediently getting Canadian utility crews across the border to assist New England states (IEMAC)
- Working to resolve licensure and privilege issues associated with sharing of medical resources between British Columbia and Washington State (PNEMA)
- Leveraging the EOS (NEMAC)

Progress on the southern border has been slower. However, southern border states have been working with their Mexican counterparts to establish similar agreements. Ultimately, NEMA would like to move toward development of a single North American mutual aid agreement—using EMAC as a model—that would be open to all states and provinces⁸⁵ [181].

NATIONAL PREPAREDNESS

Inclusion of EMAC in the national dialogue on response operations has been a slow, but steady, process.

Because EMAC was not well defined early on, FEMA may have been less inclined to support it [17-18, 43]. Despite the compact's benefits,⁸⁶ uncertainty surrounded EMAC. For example, testifying before Congress in 1996, FEMA General Counsel John P. Carey stated that FEMA strongly encouraged the development of mutual aid agreements such as EMAC [182]. However,

⁸⁵ This is outlined in a March 20, 2013, EMAC Committee position paper, "Establishment of a North American Mutual Aid Agreement."

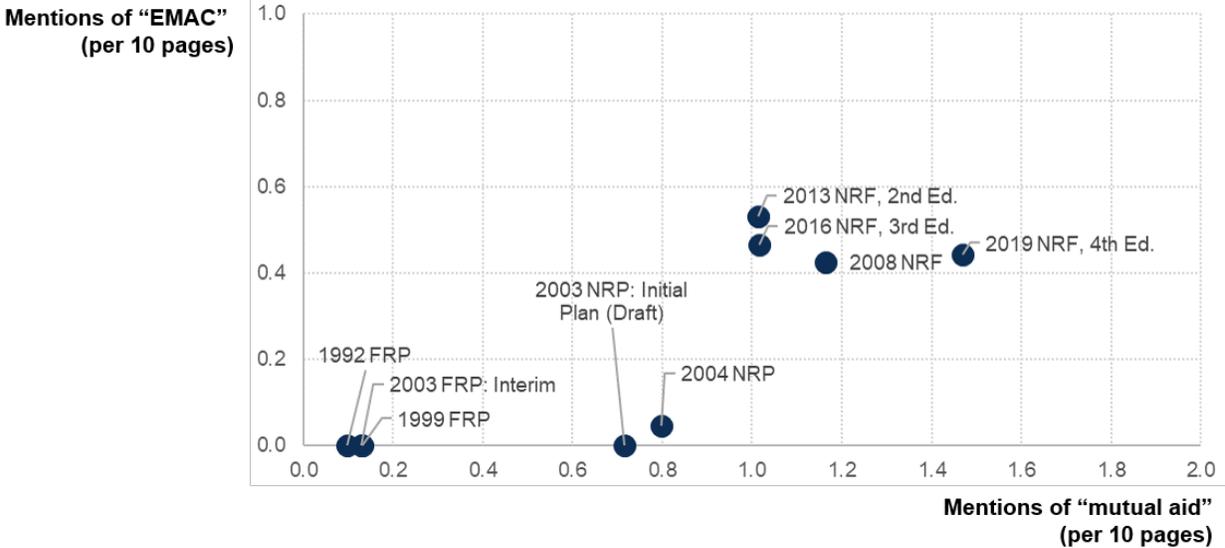
⁸⁶ Since early on, EMAC members identified the cost-effectiveness of EMAC. For example, during Hurricane Opal (1995), the State of Mississippi provided helicopters to Florida for less than \$96,000. In contrast, the FEMA-approved rate for the same service was nearly \$177,000.

immediately prior to his testimony, the EMAC Operations Subcommittee was uncertain as to how much FEMA approved of EMAC [43].

In the latter half of the 1990s, FEMA doctrine included discussions about mutual aid, but did not explicitly mention EMAC. For example, the 1996 *State and Local Guide (SLG 101): Guide for All-Hazards Emergency Operations Planning* notes that state emergency operations plans should describe “the coordinating instructions and provisions for implementing interstate compacts” and that states should “negotiate, coordinate, and prepare mutual aid agreements, as appropriate” [183]. Moreover, the 1999 version of the *Federal Response Plan* stated that “intra- and interstate mutual aid can provide an additional option for timely and cost-effective response support that can be executed prior to a Presidential disaster declaration” [184].

Figure 9 shows the relative permeation of the terms “mutual aid” and “EMAC” in federal disaster response plans from 1992 to 2019 (the latest version of the *National Response Framework*). All three versions of the *Federal Response Plan* make infrequent mention of mutual aid, and no mention of EMAC. With the switch to the *National Response Plan*, references to mutual aid increase dramatically. Not until the 2004 *National Response Plan* is there any mention of EMAC, specifically. Since then, all four editions of the *National Response Framework* have included a few references to EMAC. Generally, the results shown in Figure 9 highlight the growing emphasis on mutual aid in response doctrine over time and the eventual explicit acknowledgment of EMAC as a key enabling mechanism for mutual aid.

Figure 9. Scatterplot of relative frequency (instances per 10 pages) with which the terms “mutual aid” and “EMAC” are found in federal disaster response plans*



* Results from 2008 onwards include contributions from Emergency Support Function Annexes. Since the latest versions of the Annexes available are from 2016, this version was used for both the 2016 and 2019 NRFs data points.

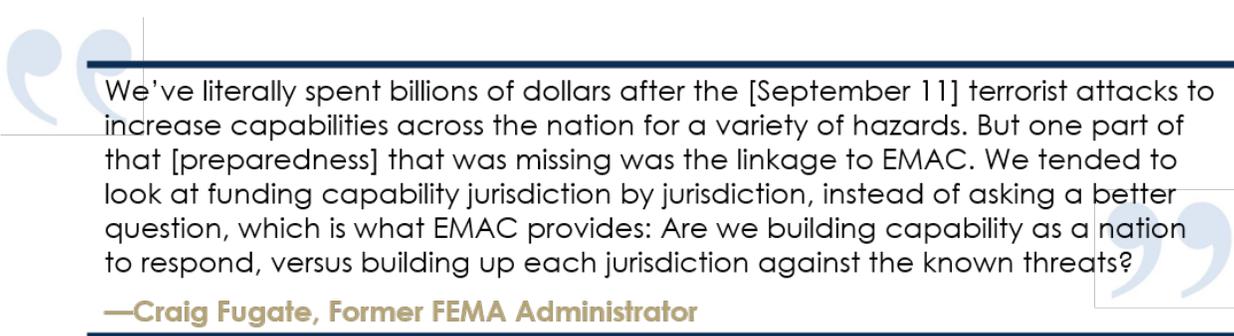
Two events were pivotal in increasing attention to mutual aid and EMAC:

- ❖ The September 11, 2001, terrorist attacks led to *Homeland Security Presidential Policy Directive 5—Management of Domestic Incidents*, through which the President directed the development of NIMS [185]. As described in the 2004 *National Incident Management*

System, NIMS included mutual aid as a key component of preparedness. Moreover, the document explicitly cited EMAC as an example of a pre-incident agreement that would enable effective and efficient resource management during an incident [186]. To support NIMS implementation, FEMA began tracking compliance of state, territorial, tribal, and local jurisdictions with a set of NIMS implementation activities, which included activities pertaining to mutual aid [187].

- ❖ Hurricane Katrina (2005) resulted in the largest mobilization of resources in EMAC's history, including thousands of local responders. Craig Fugate, then Director of the Florida Division of Emergency Management, noted that until Katrina, most people had failed to realize EMAC's true potential [46, 57, 188]. As evidenced in Hurricane Katrina, Fugate stated that "EMAC can be seen as a first-response tool, stabilizing those counties that need it the most. We proved it, in a very chaotic and disastrous situation" [188]. Separate investigations of the response to Katrina by both branches of Congress and the White House commented favorably on EMAC's performance, and interest in EMAC increased significantly⁸⁷ [64].

Additionally, FEMA began viewing mutual aid and EMAC as keys to linking capabilities developed by individual jurisdictions with federal grants into a national capability to respond to disasters [46]. By the end of FY 2006, FEMA required state and local governments to participate in intrastate and interagency mutual aid agreements to receive federal preparedness grant funding [187, 189]. To receive FY 2012 funding from the Homeland Security Grant Program (HSGP) (and for funding opportunities since then), FEMA required recipients to belong to or be located in an EMAC Member State⁸⁸ [190-191]. Starting with the HSGP funding opportunity announcement for FY 2013, FEMA added that assets supported in part or entirely with HSGP funding "must be readily deployable to support emergency or disaster operations per existing EMAC agreements"⁸⁹ [191-193].



We've literally spent billions of dollars after the [September 11] terrorist attacks to increase capabilities across the nation for a variety of hazards. But one part of that [preparedness] that was missing was the linkage to EMAC. We tended to look at funding capability jurisdiction by jurisdiction, instead of asking a better question, which is what EMAC provides: Are we building capability as a nation to respond, versus building up each jurisdiction against the known threats?

—Craig Fugate, Former FEMA Administrator

Meanwhile, NEMA and EMAC leadership worked to integrate key concepts and frameworks from the National Preparedness System, such as NIMS Resource Typing and the THIRA, into the EMAC

⁸⁷ FEMA Director Robert David Paulison was a veteran of the Miami-Dade Fire Rescue Department and knew the value of EMAC [19]. He, as well as Under Secretary of Homeland Security George Foresman, was a strong advocate for EMAC at the White House and to Congress. In preparing for the 2006 hurricane season, EMAC became a central topic for federal planning and high-level reviews with the President [20].

⁸⁸ The exceptions to this requirement are American Samoa and the Commonwealth of the Northern Mariana Islands.

⁸⁹ States can also apply funding toward sustainment of core capabilities that, while not physically deployable, support national response capabilities (e.g., interoperable communications systems, fusion centers).

Process. For example, NEMA sponsored an EMAC and Mutual Aid Workshop in 2015 that allowed states to use their THIRA to identify resource shortfalls and discuss how to fill those shortfalls through EMAC from other states within their FEMA region [105]. Building on this effort, NEMA staff and contractors developed Resource Planner, which allows states to develop pre-scripted resource requests associated with the threats and hazards defined in the state’s THIRA to accelerate the Request and Offer steps of the EMAC Process. More broadly, NEMA and EMAC leadership have worked to increase collaboration with the FEMA National Integration Center on the development of national mutual aid policy [105].

Today, EMAC has established itself as a key component in the nation’s response to disasters, with states using EMAC to deploy a variety of personnel and resources. As noted in the 2008 *National Response Framework*, states possess “significant resources,” and, “if a state anticipates that its resources may be exceeded, the governor can request assistance from the Federal Government and/or from other states through mutual aid and assistance agreements such as EMAC” [194].

EMAC has become one of the most essential tools used by emergency managers throughout the country. Through the years, EMAC continues evolving to provide resources and personnel across state lines. During the past two years, as our nation continues the ongoing response and recovery to the COVID-19 pandemic, we’ve been able to mobilize and move resources into the areas where they are most critically needed.

—Deanna Criswell, FEMA Administrator

BEST PRACTICE Building Trusted Relationships

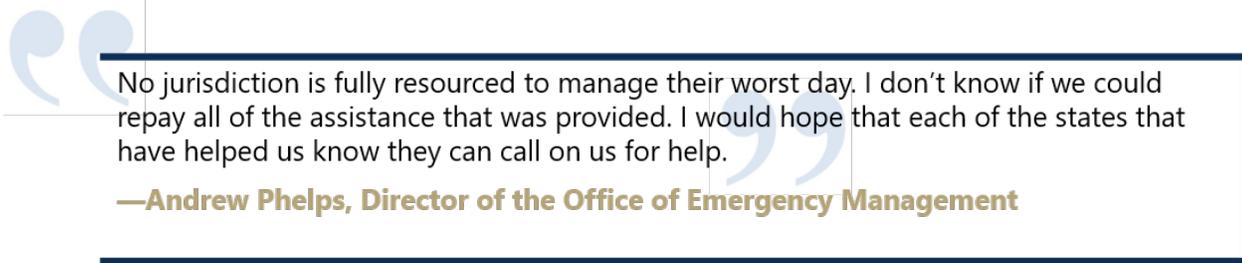
In September 2020, hundreds of wildfires burned along the Oregon Coast, leading to an EMAC request for resources that was unprecedented in Oregon’s history. Complicating response operations was the COVID-19 pandemic. In preparing for the 2020 wildfire season, Oregon’s State Fire Marshall faced the challenge of keeping hundreds, if not thousands, of firefighters safe as they stayed in fire camps and worked in close proximity. And now, facing what would become the greatest loss of human lives and property because of wildfire in Oregon, Oregon officials put out a call for mutual aid—not just on the firefighting side, but to support activities at the Oregon State Emergency Coordination Center (ECC). Given the effects of the pandemic nationwide, Andrew Phelps, Director of the Office of Emergency Management, was not optimistic that Oregon would see a lot of in-person support from other states to the ECC. But to his surprise:

We had a number of states that said, “Hey, you guys are having a really bad day here. You need a lot of help. We’ve got these resources we can provide. I’m throwing them on a plane and they’ll be in Oregon tomorrow.” That was absolutely shocking to me.... Every

state was still very much responding to COVID-19, but these states were able to cut loose what in many respects were their best and brightest emergency management folks, toss them on an airplane, and send them into Oregon. It made such a huge difference for response and how we were able to position ourselves for recovery.

In particular, EMAC-mobilized personnel arriving at the ECC were able to help the Oregon Office of Emergency Management with transitioning to recovery operations; developing interim housing, mass care, and recovery plans; and providing GIS support.

The groundwork for effective mutual aid support was laid a few years earlier. In 2018, Oregon officials learned a lot about their capacity to provide firefighting resources quickly during the 2019 California wildfires; in 2019 and 2020, they sharpened those skills in sharing resources back and forth between Oregon and California. Moreover, as Oregon geared up for the 2020 fire season, the Oregon Office of the State Fire Marshal and Department of Forestry implemented COVID-19 safety plans and protocols designed to protect personnel and shared them with California to increase California's comfort with Oregon personnel, in the event California requested assistance.



No jurisdiction is fully resourced to manage their worst day. I don't know if we could repay all of the assistance that was provided. I would hope that each of the states that have helped us know they can call on us for help.

—Andrew Phelps, Director of the Office of Emergency Management

These actions further strengthened trust between California and Oregon, which translated to speed when the 2020 Oregon wildfires erupted. Both states were already familiar with the kinds of assistance that might be available, how quickly resources could mobilize, and whether verbal authorizations were possible. More importantly, Director Phelps noted, “when you have the strong relationships, you don't think twice before offering or accepting help, even verbally.”

6. MOVING FORWARD

In hindsight, the development of a national interstate mutual aid agreement seems inevitable. The current effectiveness of EMAC, however, owes a great deal to a number of decisive events that have shaped not only EMAC's policies and operations, but also attitudes toward and awareness of EMAC. Hurricane Andrew (1992), the September 11, 2001, attacks, the 2004 hurricane season, and Hurricane Katrina (2005) all played pivotal roles in EMAC's maturation process. In addition, although they receive less attention in this report, EMAC's numerous champions are equally important. Their belief in EMAC's value resulted in an incredible will to get things accomplished, even when confronted with tough challenges. What began as a nebulous notion borne out of the desire for neighbors to support one another in times of crisis has solidified into a cornerstone of the nation's ability to respond to and recover from disasters.

I think that in the direst of circumstances, in the nation's most catastrophic disasters, mutual aid has worked. It has found a way to help people because it's scalable, adaptable, [and] flexible. We have found a way to make it work, and in the worst of circumstances. And that's simply because of the professionalism and the willingness of people all across the country to go help. And I think that will always be there.

—Trina Sheets, Executive Director of NEMA

Even so, EMAC is a system without any inherent resources of its own. Despite its proven effectiveness, EMAC's success relies on the adequate preparedness of its members. This includes establishing and exercising plans and procedures, developing strong working relationships, creating adequate supporting legislation, and integrating whole community partners. The system is only as good as the Member States that sustain it.

Although EMAC has come a long way since its origins nearly 30 years ago, it still has room to grow. Areas for growth and capability building include the following:

- Encouraging members to upload their MRPs into MASS to allow states to view them online and facilitate their use in other EMAC systems;
- Increasing use of Resource Planner in pre-planning for threats and hazards and linking potential needs with available MRPs;
- Standardizing and streamlining the reimbursement process;

- Continuing to strengthen and maintain relationships with emergency response and recovery stakeholders to better leverage EMAC;
- Pursuing more proactive, one-on-one engagement with members to improve their ability to implement EMAC; and
- Supporting the maturation of cross-border mutual aid agreements.

States will continue to serve as laboratories for new EMAC innovations, with MRPs and MASS originating from individual states.

EMAC continues to evolve to face new challenges. Incidents such as the COVID-19 pandemic serve as reminders of the unique shapes that disasters can take. At the same time, they serve as opportunities to further test and strengthen EMAC's capabilities.

APPENDIX A: ABBREVIATIONS

A-Team	Advance Team
BEMAC	Business Emergency Management Assistance Compact
BENS	Business Executives for National Security
DHS	U.S. Department of Homeland Security
DMU	demobilization unit
ECC	Oregon State Emergency Coordination Center
EMAC	Emergency Management Assistance Compact
EMI	Emergency Management Institute
EMU	EMAC Mobilization Unit
EOC	emergency operations center
EOS	EMAC Operations System
EPAPP	EMAC Personnel Accountability and Processing Package
FEMA	Federal Emergency Management Agency
GAO	U.S. Government Accountability Office
HSGP	Homeland Security Grant Program
IEMAC	International Emergency Management Assistance Compact
JIEE	Joint Information Exchange Environment
JRSOI	Joint Reception, Staging, Onward Movement, and Integration
MASS	Mutual Aid Support System
MDH	mobile disaster hospital
MRP	Mission-Ready Package
NCEM	North Carolina Office of Emergency Management
NCG	National Coordinating Group
NCS	National Coordinating State
NELT	National EMAC Liaison Team
NEMA	National Emergency Management Association
NEMAC	Northern Emergency Management Assistance Compact
NGB	National Guard Bureau
NIMS	National Incident Management System
NORTHCOM	U.S. Northern Command
OEM	Oklahoma Department of Emergency Management
OES	California Governor's Office of Emergency Services
PNEMA	Pacific Northwest Emergency Management Arrangement
RELT	Regional EMAC Liaison Team
REQ-A	Request for Assistance
RSA	Resource Support Agreement
SATF	Special Assignment Task Force

SGA	Southern Governors' Association
SOG	Standard Operating Guidelines
SREMAC	Southern Regional Emergency Management Assistance Compact
THIRA	Threat and Hazard Identification and Risk Assessment
VOST	Virtual Operations Support Team

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