

NGA Hurricane Response SETS PRECEDENT

By Lynne Puetz, Director, Office of Americas

The recent support NGA has provided to our nation in the wake of two historic hurricanes has been unprecedented and viewed by many customers as “setting the standard

for future geospatial-intelligence (GEO-INT) responses to worldwide issues.”

NGA supported scores of customers in preparing for and responding to Hurricanes Katrina and Rita. The broad level of support included identifying key infrastructure, accurately locating



citizens in need, conducting damage assessments, monitoring levee stability, issuing navigational advisories and many other actions.

NGA was on the ground at every key customer location providing critical information to first responders, national agencies and the Department of Defense. We organized across the Agency to provide reach-back for customer needs 24 hours a day.

Operations began before Katrina's waves came ashore on the Gulf Coast Aug. 29. Three days earlier, analysts had forwarded more than 100 graphics to crisis centers pre-positioned to respond to the aftermath of the disaster. These graphics depicted the location of key infrastructures—airports, hospitals, police and fire stations, emergency operations centers,

hazardous material locations, highways and schools.

NGA had been tracking the hurricane before it brushed southern Florida on its way to the Gulf of Mexico. As Katrina veered toward the Gulf Coast, analysts deployed ahead of the hurricane with regional teams of the Federal Emergency Management Agency (FEMA) to be available immediately. These analysts had full access to NGA imagery, databases and products and the ability to reach back for support from the greater NGA community through the establishment of a Crisis Action Team in Bethesda, Md.

Members of a military support team begin relief operations near New Orleans, La. NGA also sent several analysts to the disaster areas to assist with relief and recovery efforts.





NGA deployed two of its Mobile Integrated Geospatial-Intelligence Systems (MIGS) to provide on-the-spot analysis of the hurricanes. The MIGS can be set up and operational within a few hours after reaching its destination.

First Responders a Priority

The first thing NGA analysts did after the hurricane passed over the Gulf Coast was to task new reconnaissance so they could understand the extent of the damage. Collecting and analyzing imagery from National Technical Means (NTM), commercial providers and available airborne assets across the region, they provided information to help decision-makers better focus available resources to critical areas of concern.

It became immediately apparent that the disaster was worse than anything we had seen on U.S. soil. The aftermath of the combination of storm surge, wind, rain and ongoing flooding was horrific. The damaged area was larger than Great Britain.

Analysts next turned their attention to 30 counties and parishes, designated by the FEMA, in the storm path. Analysts examined the imagery closely for stranded people, missing houses, flooding and other signs of local emergencies. Analysts in the Homeland Security Division determined that New Orleans and Hancock County, Miss., stood out as the hardest hit,

but they also focused on damage to key petroleum pipelines, refineries, offshore drilling rigs and power plants throughout the region.

To answer immediate questions posed by first responders, analysts focused on outlining flood areas and identifying evacuation routes. The volume of data coming from all available sources allowed NGA analysts to obtain the necessary information to assist our customers in planning each step in the recovery process. In all, Homeland Security analysts looked at 167 kinds of data that our Agency collects for its Homeland Security Infrastructure Program. Primarily, they compared stored data with current imagery and updated the current situation with each new source. We provided copies of this updated infrastructure program data to coordinators of state geographic information systems, who distributed it to state and local entities.

Immediately after the hurricane, our Commonwealth partners offered their

Photo by Phil McCabe

assistance. Four imagery analysts arrived from Australia, Canada and Great Britain to work side by side in our footprint. Their assistance proved invaluable to our support efforts.

Analysts also worked closely with their co-workers in the Source Operations and Management Directorate to find all sources available to improve analysis and production capabilities. When they look at a problem for a customer, they try to evaluate information from multiple sources to get the best answer. Sometimes a tip-off from one sensor will lead them to task another to provide better information to solve a customer's requirement.

Common Operational Picture

One of the critical roles NGA played during the first few days of the search-and-recovery phase was assisting the FEMA Urban Search and Rescue teams by providing a range of products to assist local police departments, fire departments and rescue units in locating stranded people or conducting casualty operations. Our forward-deployed analysts recorded locations of survivors for follow-on rescue

GEOINT products were used by several members of federal, state, and local governments, and first responders.

activities and identified potential staging areas. This capability allowed a real-time geospatial common operational picture, shared by a variety of units in the field who desperately needed our expertise to meet their mission needs.

Meanwhile, analysts in Bethesda looked at the levee breaks to determine their location and length. Next, they examined the entire levee to check for additional breaks and danger points. As a result, they detected a potential new breach in St. Bernard Parish, east of New Orleans, which the Army Corps of Engineers was able to fix before it became more serious, averting more potential lives lost and property damage.

Besides supporting FEMA, NGA supported the U.S. Northern Command (NORTHCOM), the lead military unit, and 80 other customers. NGA increased its liaison team at NORTHCOM headquarters, assigned analysts to Camp Shelby, Miss. to support Joint Task Force Katrina, and provided additional support to the 82nd Airborne Division, 1st Cavalry Division, and 2nd Marine Expeditionary Force.



Photo by Phil McCabe

Deployed NGA personnel supported the 82nd Airborne in search and rescue operations and Joint Task Force Katrina with data on concentrations of displaced civilians and casualties requiring evacuation.

In some cases, we helped find places to relocate these displaced persons. We identified a site in Louisiana—Camp Minden—that would be suitable for a tent city of 15,000 people. NGA also provided information to helicopter crews looking for hospitals that could take survivors, providing geospatial awareness first responders needed to save lives.

Support on the Ground

NGA analysts on the ground worked from two mobile support stations called Mobile Integrated Geospatial-Intelligence Systems (MIGS) or “NGA in a Humvee.” Deployed during the invasion of Iraq, these units operate on their own power, downloading imagery and graphics by satellite and providing workstations for on-the-spot analysis.

Before arriving on the Gulf Coast, the deployed analysts had collected all the map, infrastructure and imagery data available for the region and downloaded it into laptops. Through the MIGS, they also had

NGA also deployed a Remote Replication System, capable of printing out digital files and hardcopy input as paper maps, to meet the requirements of officials involved on site in the recovery or in operational planning. For the military, RRS personnel downloaded copies of digital products directly to their “thumb drives.”

NGA officials used a contract clause to make commercial imagery and geospatial data available to state and local responders. In short, the Agency purchased all the imagery collected by commercial vendors. The Crisis Action Team immediately made this imagery available to the federal government, state and local governments, and first responders through NGA’s World Wide Web services.

Extraordinary Navigational Guidance

Besides providing geospatial analysis, NGA broadcast navigation safety messages for the U.S. Coast Guard. Due to damage at District 8 Headquarters in New Orleans, the Coast Guard had lost the ability to provide communications to their assigned area, the Caribbean Sea. NGA assumed that responsibility for the Coast Guard.

The World Wide Navigational Warning Service in NGA’s Global Navigation Office provided essential information about port closures and waterway conditions, such as blocked channels, oil leakage, damaged oil platforms and grounded tank ships. The Service also transmitted National Weather Service messages to mariners at sea, covering gaps in service due to local outages. NGA has continued to broadcast operational warnings to customers, including the U.S. Navy and Merchant Marine, while Coast Guard systems are fully restored.

The backup NGA provided was unprecedented, according to the Chief of our Maritime Division, Navy Capt. Paul Heim.

Photos like the one below, along with NGA products, gave government leaders and first responders a detailed and accurate damage assessment.



Photo courtesy of the Department of the Army



Photo by Rich Benjamin

NGA analysts received many inquiries from citizens wanting to know the status of their homes and property. The NGA Website provided an accurate and efficient way for them to access this information.

“We normally broadcast warnings for the Atlantic and Pacific, a function that dates back to the turn of the century,” Captain Heim said. “But because of Katrina, we automatically kicked in to augment and replace the Coast Guard capability.”

The Global Navigation Office also monitored airfields within the affected area as well as those in the surrounding area designated to support relief efforts. Aeronautical analysts provided assessments of conditions at the airfields and provided Notices to Airmen (NOTAMs) and aeronautical charts to military units that deployed on short notice.

Role in Recovery

As most of the Gulf Coast from Alabama to Texas recovers from Hurricanes Katrina and Rita, NGA continues to play an important role. For example, the Office of Americas has been participating in the

analysis of all the affected industries in terms of environmental cleanups that are needed.

The Agency has been given the authority to reach across federal, state and local governments to help people deal with the disaster. We are providing direct support to many organizations, including the White House, Corps of Engineers, Environmental Protection Agency, FEMA, NORTHCOM and various other military customers.

NGA’s contributions are the result of a phenomenal team effort from individuals across the entire organization. To quote the Director, “Many, many people from across NGA have pitched in and contributed to this effort. You should know that our work has been noticed and appreciated—from the President to first responder, and all ranks in between.”

At the same time, NGA continues preparing for disasters that will occur in the future. In the wake of Hurricanes Katrina and Rita, senior leaders are conducting a thorough assessment of the Agency's response. As part of this effort, employees had been asked through NGA Web pages to provide feedback for improvements with the goal of improving crisis and disaster response in the future. Employees across the Agency have also responded generously as individuals to victims of

the two disasters, helping out in countless ways, such as contributing to a special appeal of the Combined Federal Campaign.

With all the natural devastation our country has been exposed to due to the last two major hurricanes, and the outcry of need from our federal and military customers, NGA has reached a new level of providing GEOINT—a baseline we will build on to continue our transformation for the future.

Coalition Partners Provide Timely Expertise

By Jessica Rasco

Analysts from the Commonwealth deployed to NGA Headquarters to augment the Homeland Security Division in responding to Hurricanes Katrina and Rita. These individuals provided significant and sustained support to the response and recovery operations of the U.S. government.

The Canadian Forces Joint Intelligence Center provided imagery expertise that was invaluable in assessing the impact of Katrina to coastal petroleum refinery operations. The requested data analysis enabled mission planners to assess maritime navigation hazards as they prepared to conduct humanitarian operations along coastal Mississippi and Alabama. Canada also provided a functional analysis of critical petroleum pipelines south of New Orleans.

Analysts also deployed from the Joint Air Reconnaissance Intelligence Centre in the United Kingdom. Their contributions included daily analyses of the flooding in New Orleans and vicinity. Their assessments of the receding floodwaters were provided to the federal response community and briefed to the highest levels of the U.S. government. The British analysts also assessed damage and impact to southern Louisiana's transportation network.

The Australian Defence Imagery and Geospatial Organisation (DGIO) monitored and assessed flood damage to southern Alabama. NGA and the DGIO also worked together in the aftermath of the Pacific tsunami, assessing infrastructure and industries in Indonesia.