NATIONAL GEOSPATIAL-INTELLIGENCE AGENCY

PATHFINDER

The Geospatial Intelligence Magazine

JULY/AUGUST 2006

Protecting Americans *at Home and Abroad*

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ON THE COVER

A "victim" is carried through a decontamination site during an exercise at the Pentagon to train for a chemical, biological, radiological or nuclear event. With NGA data and support, the U.S. Northern Command has built a GIS to manage the consequences of such an event. (U.S. Army photo)

GETTING PUBLISHED

All members of the geospatial intelligence community are welcome to submit articles of community-wide interest. Articles are edited for style, content and length. The copy deadline is the last Friday of the third month before publication. For details on submitting articles, send an e-mail to pathfinder@nga.mil.

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Chief—Louis Brune
Editor—Paul Hurlburt
Managing Editor—Matt Reiner
Visual Communications Division,
Chief—Richard Hardwick
Designer—Laura Garber
Correspondence should be addressed to:
Pathfinder, National Geospatial-Intelligence Agency
Office of Corporate Relations
Strategic Communications Branch (OCRNS)
4600 Sangamore Road, Mail Stop D-54
Bethesda, MD 20816-5003
Telephone: (301) 227-7388,
DSN 287-7388, or
In St. Louis: (314) 263-4142,
DSN 693-4142.
E-mail: pathfinder@nga.mil

About the Authors

Susan Meisner is a Public Affairs Staff Officer in the Office of Corporate Relations.

Shalina Warren is a Public Affairs Staff Officer in the Office of Corporate Relations.

William Mullen is Chief of the Domestic Operations Branch, North America and Homeland Security Division.

Rob Rapanut is the Executive Officer of NGA's North America and Homeland Security Division.

Roy Hawkins is the Battlespace Awareness Functional Capability Board Coordinator at U.S. Joint Forces Command. He was previously Deputy Director of Intelligence for Joint Task Force Civil Support, a deployable component of U.S. Northern Command responsible for planning and integrating the military response to domestic consequence management operations during a chemical, biological, radiological, nuclear or high-yield explosive situation.

Marzio Dellagnello led the co-production efforts for the Torino Olympics. He works international co-production issues for NGA's Global Foundation Office.

Andrew Mason was NGA's lead for the Torino Olympics.

Dr. Martin Gordon is the NGA Historian and Chief, Corporate History Branch, Office of Corporate Relations.

Lauren Newson is an intern in the Office of Corporate Relations, Strategic Communications Branch. She graduated in May 2006 from Trinity University, Washington, D.C., with a bachelor's degree in political science.

Susan Meisner

Shalina Warren

William Mullen

Rob Rapanut

Roy Hawkins

Marzio Dellagnello

Andrew Mason

Dr. Martin Gordon

Lauren Newson

Jessica Rasco, formerly Chief of the Domestic Preparedness Branch, recently assumed a new position with the U.S. Central Command NGA Support Team in Tampa, Fla.

Shawna Wolin is a geospatial analyst in the Response and Recovery Branch of the North America and Homeland Security Division.

Jessica Rasco

Shawna Wolin

From 'Need to Know' to 'Need to Share': Canadian Forces Honor Clapper

General Rick Hillier, Chief of the Defence Staff of Canada, presented the Canadian Forces Medallion for Distinguished Service to NGA's outgoing Director, retired Air Force Lt. Gen. James R. Clapper Jr. The award is presented to persons who are not members of the Canadian Forces but whose service "accrues great benefit to the Canadian Forces as a whole." The presentation took place at the Canadian Embassy in Washington, D.C., June 27.

Clapper "demonstrated steadfast and ardent support of Canada within the United States and the Quadripartite Intelligence Communities," the accompanying certificate states. "While his previous experience as Director, Defense Intelligence Agency, ensured that he knew of Canada's intelligence capabilities and structures, as Director, NGA, he consistently went out of his way to assist Canada in any way that he could. His inspirational leadership transformed the operating paradigm in the U.S. Intelligence Community from the 'need to know' to the 'need to share.' A true friend to Canada, his efforts on Canada's behalf are wholly meritorious of this award."

Canadian Embassy Photo

General Rick Hillier, Chief of the Defence Staff of Canada, right, presents the Canadian Forces Medallion for Distinguished Service to NGA's outgoing Director, retired Air Force Lt. Gen. James R. Clapper Jr.

Protecting Americans at Home and Abroad

Letter to our Readers

In this issue, the Pathfinder focuses on how NGA helps protect Americans wherever they may be. We also bid a fond farewell to our Director, retired Air Force Lt. Gen. James R. Clapper Jr. He leaves the Agency stronger and poised to play an even greater role in national security, thanks to his vision and leadership.

Charles E. Allen, Assistant Secretary, Office of Intelligence and Analysis, in the Department of Homeland Security, introduces our theme with his discussion of the Strategic Border Initiative as guest columnist of "On My Mind." "NGA analysts are supporting us down to the 'last tactical mile,'" he says, with border patrol agents directly benefiting from NGA's analysis.

Our own William Mullen, Chief of the North America and Homeland Security Division's Domestic Operations Branch, brings us up to date on the branch's work supporting national special-security events. Partnerships both within and outside the Agency have resulted in the rapid fielding of new technology, and the branch has added hundreds of new customers via the Web, he writes.

NGA data and on-site support have enabled the U.S. Northern Command to build a unique geographic information system (GIS), writes Roy Hawkins, who oversaw its development. The special GIS could be crucial to saving lives and minimizing damage in the event of a chemical, biological, radiological, nuclear or high-yield explosive event, he says.

How does NGA help protect Americans abroad? Our feature by Marzio Dellagnello and Andrew Mason, on support to last winter's Olympics in Italy, provides an excellent example. The scope and visibility of the event called for months of preparation by an intricate network of international collaborators, they explain, with NGA's intelligent three-dimensional models being a key contribution. Such an effort was necessary, they point out, to help ensure an outcome where the biggest concern was a toponymic controversy over the name of the host city.

Our departments look back on the reasons behind the founding of our agency 10 years ago and look ahead to the futuristic new NGA Enterprise Operations Center and new tools for disaster relief.

The September-October Pathfinder will take a longer look at the formative years of NGA as we celebrate our Agency's 10th anniversary. Vital to every facet of combat support, the Agency is also recognized as a key contributor on tough issues facing the Intelligence Community. The geospatial intelligence NGA provides supports activities ranging from tracking terrorist activities abroad to protecting our citizens in the homeland.

Paul R. Weise
Director, Office of Corporate Relations

Director of Naval Intelligence Becomes Director of NGA

By Susan Meisner

NGA welcomed Vice Adm. Robert B. Murrett as its third director at a ceremony at its Bethesda headquarters July 7. The ceremony was broadcast simultaneously to other NGA sites by video teleconference.

Murrett noted NGA's "terrific legacy." With a view to the future, he said NGA "should continue to stay agile in order to best integrate NGA with developing defense and intelligence community components." Before coming to NGA he was Director of Naval Intelligence, N2, at the Pentagon.

Guest speaker Director of National Intelligence Ambassador John D. Negroponte noted that Murrett's experience at the helm of the Office of Naval Intelligence "will serve us well in his new leadership position." The Director of NGA serves as both the DNI's principal advisor and the Intelligence Community's functional manager for geospatial intelligence.

NGA's new Director, Vice Adm. Robert B. Murrett, addresses NGA employees and guests at his July 7 welcoming ceremony in Bethesda.

Photo by Larry Franklin

Said Negroponte, "NGA's geospatial-intelligence products and analytical judgments are used by our nation's leaders, on a daily basis, in making decisions affecting all Americans. The extent to which we integrate the foreign, domestic and military dimensions of our national intelligence enterprise is the extent to which we will better protect our nation today and make it safer tomorrow."

Undersecretary of Defense for Intelligence the Honorable Stephen A. Cambone also spoke at the ceremony, saying that he expected NGA to "continue to do great things under Adm. Murrett's leadership."

Lt. Gen. William G. Boykin, Deputy Undersecretary of Defense for Intelligence and Warfighting Support, and Lt. Gen. Ronald L. Burgess Jr., the Acting Principal Deputy Director of National Intelligence, also attended.

Murrett succeeds retired Air Force Lt. Gen. James R. Clapper Jr., who departed June 13 after almost five years at NGA's helm.

In an e-mail to the NGA workforce, Clapper described Murrett as "an experienced, consummate intelligence professional, who comes to NGA as both a believer in and an avowed fan of GEOINT."

Clapper said that, in conversations, Murrett "talked of his excitement about the opportunity and challenge of serving at

NGA. He was also quick to mention his admiration and respect for the professionalism of the NGA team."

Led Restructuring Effort

Under Murrett, the Office of Naval Intelligence (ONI) recently completed a complex organizational restructuring similar to NGA's effort to align its people, processes and technology after formally defining GEOINT and repositioning itself with a new name.

"I found it interesting that the principal basis for the future functioning of ONI is the National Maritime Intelligence Database (NMID), which will be a multimedia, multilevel-secure, online and on-demand service," Clapper said. "Admiral Murrett is a strong advocate of demand-pull architectures, and recognizes that the future of intelligence agency operations lies in transforming from a pure document producer operating model to both a product and information service provider framework."

Murrett became the 61st Director of Naval Intelligence in April 2005. He was the Vice Director for Intelligence, J2, on the Joint Staff from 2002 to 2005 and the Director for Intelligence, U.S. Joint Forces Command, from 2000 to 2002.

As Commander of the Atlantic Intelligence Command from 1999 to 2000, Murrett was responsible for transitioning the command to the Joint Forces Intelligence Command. From 1998 to 1999 he was Director of the Intelligence Directorate, Office of Naval Intelligence, and from 1997 to 1998 he served on the staff of the Chief of Naval Operations as Executive Assistant to the Director of Naval Intelligence.

Between 1995 and 1997, Murrett was the Assistant Chief of Staff, Intelligence, for the Commander, Second Fleet, and served concurrently as N2 for NATO's Striking Fleet Atlantic and as J2 for the U.S. Atlantic Command's Combined Joint Task Force (CJTF) 120.

From 1992 to 1995, he served as Assistant Chief of Staff, Intelligence, for the Commander, Carrier Group Eight, and deployed to the European and Central Command theaters aboard *USS Theodore Roosevelt* (CVN 71). Murrett was also assigned as J2, CJTF 120, aboard USS Wasp (LHD 1) for operations in the Caribbean. In 1989, he reported to the Commander in Chief, U.S. Pacific Fleet, where he was assigned as Operational Intelligence Officer.

Between 1986 and 1989, Murrett served as Assistant Naval Attaché to the U.S. Embassy in Oslo, Norway. From 1983 to 1985, he was the Assistant Intelligence Officer for the Commander of the Second Fleet. He participated in deployments to the North Atlantic, the European theater and Caribbean aboard *USS Mount Whitney* (LCC 20) and *USS Nassau* (LHA 4).

Following assignment to the Defense Intelligence College in 1980, Murrett was detailed to the Chief of Naval Operations Intelligence Plot as a watch stander and briefing officer for Navy civilian and military leaders.

Murrett began his Navy career as an afloat-intelligence officer, with deployments to the Mediterran ean, North Atlantic and Western Pacific aboard *USS Kitty Hawk* (CV 63), *USS America* (CV 66) and *USS Independence* (CV 62).

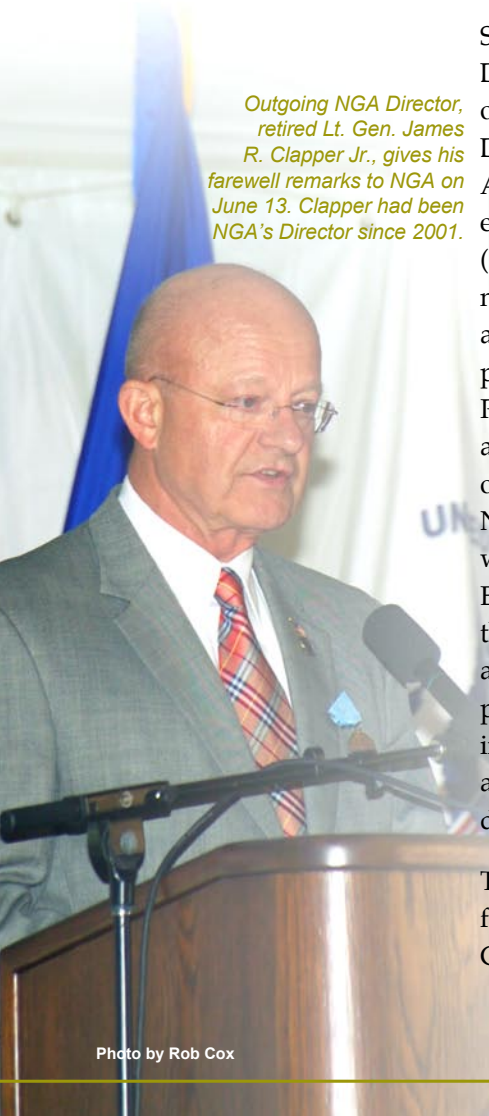
The admiral received his bachelor's degree in history from the University of Buffalo and master's degrees in government and strategic intelligence from Georgetown University and the Defense Intelligence College, respectively.

NGA Bids Fond Farewell to Director

By Shalina Warren

NGA said farewell to its Director, retired Air Force Lt. Gen. James R. Clapper Jr., in a ceremony at its headquarters in Bethesda, Md., on June 13. With five years at the helm, Clapper was NGA's first civilian head and also its longest-serving director.

Also on June 13, the Department of Defense announced the nomination of Navy Rear Adm. Robert B. Murrett, Director of Naval Intelligence, N2, Office of the Chief of Naval Operations in the Pentagon, as Clapper's successor. Murrett's appointment, which included a promotion to vice admiral, was confirmed by the Senate June 29. Lloyd Rowland served as NGA's Acting Director pending Vice Adm. Murrett's arrival on July 7.



Outgoing NGA Director, retired Lt. Gen. James R. Clapper Jr., gives his farewell remarks to NGA on June 13. Clapper had been NGA's Director since 2001.

Photo by Rob Cox

Stephen A. Cambone, Undersecretary of Defense for Intelligence, presented the outgoing Director the Department of Defense Distinguished Civilian Service Award. "General Clapper pioneered the establishment of geospatial intelligence (GEOINT) as a critical component of the nation's defense, to the benefit of men and women serving in uniform, senior policy makers, the Congress and the President," the citation read. "He elevated and expanded GEOINT support in numerous areas, including the deployment of NGA personnel and assets alongside warfighters in support of Operations Enduring Freedom and Iraqi Freedom, the production of intelligence for strategic and tactical decision-making, and the production of intelligence and analysis in support of efforts to counter terrorism and the proliferation of weapons of mass destruction."

The guest speaker at the ceremony was former Director of Central Intelligence George J. Tenet. He said, "As an intelligence officer, Jim has mastered the mundane and the extraordinary, the simple and the complex. He has done this with an eye to innovation and an ear to the voices of those he has led. He is a great leader that knows how to get the best from fantastic people."

Tenet also honored Clapper's wife Susan for her work on behalf of NGA families through the Family Advisory Board she helped establish and for her service on the Interagency Roundtable, which represents family support offices at 26 federal agencies. "Sue Clapper has always known that the backbone of our success is based on the strength of our families," he said.

Parting Remarks

In his departing remarks, Clapper said, "In looking back over the past five years, I am proudest of, and humbled by, the magnificent workforce of NGA. I include our government employees, contractors and military members." Clapper said he was also "proud of our progress in defining and growing the concept of geospatial intelligence as a new intelligence discipline." With the signing of the fiscal 2004 Defense Authorization Act, which renamed the Agency, GEOINT was formally recognized and defined in Title 10 of the U.S. Code, he noted.

Clapper also cited NGA's expansion of forward deployments in support of military operations, support the Agency provided when natural disasters struck at home and abroad, instantiating functional management of a larger National System for Geospatial-Intelligence, and incorporating advanced geospatial intelligence, airborne imagery and commercial imagery as major accomplishments.

Looking ahead, Clapper said consolidation of the Agency's Washington area facilities is "a once-in-a-lifetime opportunity to facilitate organizational change, better support customers and inspire the workforce. Ultimately the new campus will be about the culture of NGA, not just a new campus complex. And, I might add, we must similarly address our facilities out West." Citing another "futurist issue," he said exploiting the potential of e-GEOINT "is as much a requirement as an opportunity. NGA must continue to move forward in seeking to enable geospatial intelligence by providing access to GEOINT through Web-enabled services."

In closing, Clapper challenged the workforce "to keep pressing on geospatial intelligence." He also cited a testimonial to the value of GEOINT from his nephew, Army Capt. Ryan Favitch, who was present. Quoting an e-mail Favitch had sent from Iraq, Clapper read: "I walk into tactical operations centers all over this country, and I see firsthand the tremendous impact NGA has had on soldiers on the frontline. The imagery enhancements from your organization keep the lives of service men and women, to include my own, safe on the battlefield."

Baker Award

In a ceremony June 27, Clapper received the Baker Award from Ambassador John D. Negroponte, Director of National Intelligence. The award is administered by the Intelligence and National Security Alliance and recognizes individuals who have made significant contributions to the Intelligence Community and national security. Previous awardees include Tenet, former Secretary of Defense William J. Perry, former National Security Advisor retired Air Force Lt. Gen. Brent Scowcroft and FBI Director William H. Webster.

Before becoming NGA Director on Sept. 13, 2001, Clapper was Vice President and Director of Intelligence Programs at SRA International Inc. His last military assignment was as Director of the Defense Intelligence Agency. Earlier assignments included a variety of intelligence-related positions such as Air Force Assistant Chief of Staff for Intelligence during Operations Desert Shield and Desert Storm and Director of Intelligence for three warfighting commands: U.S. Forces, Korea; Pacific Command and Strategic Air Command. While serving two tours during the Southeast Asia conflict, he flew 73 combat-support missions in EC-47s over Laos and Cambodia.

The National Geospatial-Intelligence Agency

NGA is a Department of Defense combat support agency and a member of the National Intelligence Community. The Agency's mission is to provide timely, relevant and accurate geospatial intelligence in support of our national security. The term "geospatial intelligence" means the exploitation and analysis of imagery and geospatial information to describe, assess and visually depict physical features and geographically referenced activities on the Earth. Geospatial intelligence consists of imagery, imagery intelligence and geospatial information.

Headquartered in Bethesda, Md., NGA has major facilities in the Washington, D.C., Northern Virginia and St. Louis areas with NGA support teams worldwide. Visit our Web site at http://www.nga.mil.

Clapper Was 'Risk-Taker, Visionary and Leader'—Tenet

Former Director of Central Intelligence George J. Tenet was the guest speaker at the Change of Authority ceremony June 13 for NGA Director retired Air Force Lt. Gen. James R. Clapper Jr. Excerpts of his remarks follow:

It is both a pleasure and a special privilege for me today to be here to honor a man ... who has done more than his fair share to make sure that the Intelligence Community remains the first line of defense for the United States.

For over 40 years Jim Clapper has touched virtually every part of the business of intelligence. As an intelligence officer Jim has mastered the mundane and the extraordinary, the simple and the complex. He has done this with an eye to innovation and an ear to the voices of those he has led.

And this is the most important point I will make today: Jim Clapper has been ... a model of what leaders must be: risk-takers and visionaries, who lead from the front, take responsibility, instill trust, teach and always take care of those around them.

It is true that Jim Clapper fundamentally understands the modern intelligence business because he has spent so many years helping to develop it and shape it. He has also always known how to get the best out of fantastic people.

Jim Clapper served the nation during great times of need. As you all know, he was appointed the Director of NIMA [National Imagery and Mapping Agency], now NGA, just two days after 9/11. Think about it. Two days. He reported for work while the smoke and the sadness and the twisted metal of that terrible day were still with us. It's not an easy thing to be placed in charge of an intelligence agency under any circumstances. To take on the job a matter of hours after such a national trauma is harder still.

Jim more than rose to the challenge. I can tell you he didn't wait around for the reports of commissions before he began forging greater cohesion in our Intelligence Community. He set out immediately to make his Agency a leader in the effort to build collaboration across agencies that is essential to our success.

Mike Hayden [CIA Director Gen. Michael V. Hayden] very much wanted to be here today to honor his friend and mentor. If he were here at this point Mike would say that while he favored moving NSA [the National Security Agency] and NGA closer, Jim Clapper imposed collaboration on him early in office. On Jim's watch NGA established a "geo-cell," a support group housed in NSA, and he championed an NGA presence at each of NSA's regional SIGINT [signals intelligence] operation centers. He knew early on that collaboration in the production of intelligence needed to begin nearly at the point of collection. This kind of thinking led to intelligence products that have come to be recognized as extremely effective, products that offer a multidimensional-intelligence picture and products that have helped to make this country much safer.

Some of our allies are using these very same programs as models for creating their own fusion centers. They may even begin to merge their fusion centers with our own. At that point a great diversity of expertise will be brought to bear on the intelligence problems that we and our allies face. This is indeed the future. This is Jim Clapper's vision of the future ...

Jim may best be known, though, as the GEOINT [geospatial intelligence] visionary. His insight, hard work and commitment to creating and building this new discipline have given us a new and more sophisticated way to think about intelligence problems. The melding of imagery intelligence with the many layers and aspects of geospatial data has created a powerful intelligence instrument. With this service alone, the nation owed him a great debt of thanks.

Under Jim's leadership, your geospatial intelligence support and services, your pictures, your maps, your products integrated in the way Jim insisted they be are truly worth the proverbial thousand words to the leaders of this country.

As adroit as Jim was in quickly adapting to and mastering the traditional national security challenges, it was another set of crises, this time the Gulf hurricanes of 2005, that further revealed the depth and creativity of his vision. NGA's focus, as always, was on saving lives and helping Americans here at home to put their devastated communities back in order. Jim's masterful response to the disasters might seem in hindsight to have been the most natural course of action, but to quickly grasp how specific technologies could lend themselves to a recovery operation, to offer us products for public use in responding to an overwhelming humanitarian stratagem were absolutely far from obvious to many, but not to Jim...

Jim, I always knew with you at the helm that NGA would blossom and grow into the great organization that it is today. I always knew that you would speak your mind and always be there back to back like a brother when it got tough. I thank you for your friendship and your loyalty...

I know that everyone here salutes you for what you have done for all of us, and simply say may God always bless you and your family, and thank you for what you've done for our country...

Former Director of Central Intelligence George Tenet was the guest speaker at the Change of Authority ceremony on June 13.

Photo by Rob Cox

Up Front

NCE Creates Opportunity to Change NGA's Culture

NGA's New Campus East (NCE) will help the workforce unify the Agency around its geospatial intelligence (GEOINT) mission by bringing together all the offices at the Agency's Maryland, Virginia and Washington, D.C. sites.

When NGA's workforce in the East moves to the NCE at Fort Belvoir, Va., in 2010 and 2011, adjusting to a different job site will be the culmination of a four-year journey. Now is the time to start looking at how the workforce operates across NGA and make changes where needed along the way. These changes will involve how people think, act and behave as the Agency executes its mission. Although NGA's workforce in the West will not realize a new campus, they are certainly part of these cultural changes.

Recently, the NCE Project Management Office conducted focus groups throughout NGA to begin the process of describing a road map to further evolve the Agency's culture, community and business processes. The results identified five work styles that provide the foundation for a work environment that will allow NGA to maximize GEOINT and its support to customers:

- trust
- collaborate
- take ownership
- learn and teach
- have fun and be friendly

These attributes are straightforward but not always easy to attain. They have been discussed with various employee and management groups across NGA and will be the focus of many leadership efforts over the next few years.

Taking this process one step further, the NCE's architect/engineer firms are developing a building design that will enable enhanced business processes and foster a new work environment based on the five key cultural attributes. Examples include:

- designing open work environments and spaces that enable greater collaboration
- promoting a "fun" work environment with pleasant dining facilities, fitness centers and places to exhibit artwork
- employing technology to improve work processes

Evolving NGA's culture and attaining a work environment based on the five cultural attributes requires changes in thinking, acting and behaviors, say employees leading the process. Beginning now gives NGA the opportunity to arrive at the NCE as a transformed Agency.

Pathfinder, NGA Video Win National Awards

NGA's Office of Corporate Relations (OCR) won two awards in the May 2006 Blue Pencil / Gold Screen Competition sponsored by the National Association of Government Communicators (NAGC). There were over 600 entries in the competition.

The Pathfinder took first place for the "Internal Magazine" category for content and design. OCR revamped the look and feel of the publication, as well as the magazine's focus, in 2005.

The NGA Mission 2006 video finished second place in the "Use of Animation" category for its ability to visualize abstract concepts.

NAGC is a national not-for-profit professional network of federal, state and local government employees who disseminate information within and outside government. Its members are editors, writers, graphic artists, video professionals, broadcasters, photographers, information specialists and agency spokespersons.

Photo by Rob Cox

On My Mind

The Secure Border Initiative

By Charles E. Allen, Assistant Secretary, Office of Intelligence and Analysis, Department of Homeland Security

Securing our country's borders is a national priority. After the tragic Sept. 11, 2001 attacks, our national leadership recognized that the issue of border security not only had economic and social implications, but critical security implications as well. Each day, the nearly 7,000 miles of border that we share with Canada and Mexico serve as a crossing point into the country for millions of tons of cargo and for over a million people. Unfortunately, those borders are also often the site for many illegal activities such as illegal migration, alien smuggling, narcotics trafficking and transnational gang activity.

The U.S./Mexican border: U.S. is on the right side of the photo.

Under the innovative leadership of Secretary Michael Chertoff and with the help of NGA and other members of the Intelligence Community, the Department of Homeland Security (DHS) is working hard to safeguard American borders from these and other illegal activities by supporting pioneering programs such as the Secure Border Initiative (SBI). With its comprehensive, multi-year focus, SBI will help our nation address all aspects of the border security problem (deterrence, detention, apprehension and removal) and enable us to meet successfully the challenge of this ever-important national priority.

SBI primarily is designed to implement operational strategies across DHS that will strengthen enforcement operations at U.S. borders and reduce illegal migration through interdiction and deterrence. The initiative is defined by its:

- Strategic placement of more agents to patrol our borders, secure our ports of entry and enforce immigration laws
- Expanded detention and removal capabilities to eliminate "catch and release" once and for all
- Comprehensive and systematic upgrading of the technology used in controlling the border, including increased manned aerial assets, expanded use of unmanned aerial vehicles and next-generation detection technology
- Increased investment in infrastructure improvements at the border, providing additional physical security to sharply reduce illegal border crossings and
- Greatly increased interior enforcement of U.S. immigration laws including more robust work-site enforcement.

By leveraging these major components, SBI addresses the border-security issue with an integrated mix of increased staffing, greater investment in detection technology and infrastructure, and enhanced coordination with partners at the federal, state, local and international levels.

Partnership with NGA Critical

The DHS partnership with NGA and the larger Intelligence Community is critical to the success of this strategy. Last fall, our Deputy Secretary for Homeland Security, Michael P. Jackson, sent a memorandum to CIA Director Gen. Michael V. Hayden, then Principal Deputy Director of National Intelligence, requesting the Intelligence Community's assistance with the border-security challenge. Deputy Secretary Jackson emphasized strongly in his memorandum that improved intelligence support to border security operations is "an important part of our overall strategy and must include the participation of the Intelligence Community..." The timely response and dedicated assistance we have received from the Intelligence Community and—more specifically—from NGA have been overwhelming.

For example, analysts from NGA's Office of the Americas and the NGA Support Team to DHS have produced crucial geospatial intelligence (GEOINT) products for us, providing the general spatial information and situational awareness we need to understand the geographical features of the entire U.S./Mexico border as well as much of the critical infrastructure located near it. Among the products we received was an analysis of all of the border sectors from San Diego to McAllen, Texas. Within each of these sectors, NGA provided graphics depicting key features such as transportation, ports of entry, hazardous-materiel locations, emergency services and electrical power assets.

NGA also provided us with an overall analysis of DHS' operational assets located at or near the border. Secretary Chertoff has stated that this product, in particular, was extremely useful in providing situational awareness of the southwest border and that the product was used as an aid to make critical decisions relative to each of the major SBI components. NGA analysts also are supporting us down to the "last tactical mile," providing our border patrol agents with their expertise and analysis. Analysts have already made numerous outreach visits to various sectors along the Mexican border,

CBP Border Patrol Marine units face toward Mexico to provide cover for other agents on the U.S. side of the river conducting an investigation.

working diligently to distribute GEOINT products to those working around the clock to secure our borders.

We are also very appreciative of NGA's partnership with us to share tactics and techniques related to the use of new technologies and aerial assets and the applicability of these techniques to the border security issue. This type of in-depth collaboration and partnership will be a key to SBI's success.

I have great confidence that our partnership with NGA and the larger Intelligence Community on the issue of border security will ensure our nation's success on the domestic front. The border issue is one of the preeminent challenges of our day and it demands that we work collaboratively to address it. As our President has noted in the past, we can and should have a society that is both a "welcoming society and a lawful society." For many, our borders represent the first point of entry into our great nation. Working together to support comprehensive border security programs such as SBI is a critical and necessary step that will ensure that those who cross our borders enter safely, securely and legally.

Photo by James Tourtellotte

NGA Expands Customer Base for Special-Security Events

By William Mullen

While the annual Major League Baseball All-Star Game gave Americans another chance to indulge in one of their favorite pastimes, NGA analysts took interest for another reason. The game in Pittsburgh July 11 was a special-security event. At the behest of a lead federal agency, NGA has supported more than 30 such events since 2002.

For the All-Star Game, support NGA provided the FBI included imagery of the event area. Analysts overlaid elevation and other key infrastructure data on the imagery to give the FBI, local law enforcement and other government planners a common operating picture.

Support NGA provided to the Olympics Intelligence Center at the 2002 Winter Olympics in Salt Lake City served as the foundation for subsequent support. NGA provided the center geospatial-information systems, data, near-real-time imagery, on-site analysis and technical support.

NGA provided the FBI, local law enforcement and other government planners with detailed products to help with security planning at the July 11 All-Star Game in Pittsburgh.

Strategic and tactical geospatial intelligence (GEOINT) for special-security events, as well as counterterrorism, is the mission of the Domestic Operations Branch in NGA's Office of Americas.

Following each deployment, Office of America analysts have refined operations and matured capabilities. In four years, they have expanded their deployed support at local command posts to hundreds of customer environments via the Web. They have developed critical relationships with internal and external partners and rapidly fielded advanced technologies to support increasingly complex customer requirements.

Three-Tiered Approach

The operational-support methodology, first developed for the Salt Lake City Olympics, consists of a three-tiered approach involving data, systems and analysis.

NGA's high-fidelity composite datasets include various imagery sources, terrain elevation data and rich layers of vector (feature) data down to the local level, resulting in a virtual environment. The Agency deploys hardware and software suites capable of full analysis and production in the field. Conducting seamless operational support on site are teams of highly skilled imagery and geospatial analysts. When such skilled analysts using robust systems exploit real-time datasets of the complexity provided by NGA, the result is temporally relevant tailored reference products that enhance situational awareness and tactical operations.

For area familiarization in one package, analysts have developed "city books." These special analysis products geographically depict an event theater of operations with large- and small-scale graphics, virtual walkthroughs and three-dimensional models, including examinations of infrastructure and airport defense.

Produced in hard- and softcopy, these products go to hundreds of customers, from senior policymakers to FBI Special Weapons and Tactics (SWAT) teams.

Systems and Technology

In the command-post environment, NGA situational-awareness capabilities have

improved incident understanding, contextualization and response times. Since the 2003 Super Bowl in San Diego, NGA's Palanterra™ has served as the primary customer access point for all datasets and real-time incident tracking. Palanterra™ provides a common operational picture on multiple networks, giving customers access to the best available data from the convenience of their desktops.

Through its partnership with NGA's Office of Global Support, the Office of Americas has adapted mobile integrated GEOINT production and communication systems to support special-security events, similar to those used in the war on terrorism. Analysts have also taken advantage of high-tech tools like 360-degree photography and GPS-enabled videography.

The Office of Americas acquired two of the newer systems through its partnership with the National Reconnaissance Office (NRO). Designed by engineers at NRO, Buzz Lite is a rugged, portable communications system for securely downloading imagery and other data at remote locations in a timely manner. Another system NRO has provided is EDICT, an acronym that means Encrypted Dissemination of Information over Commercial Telecommunications. These systems and GPS-enabled telephone communications tools allow NGA deployed personnel to disseminate imagery and update secure Palanterra™ databases with local incident data from multiple locations in real time.

Efforts to identify and apply advanced GEOINT tradecraft to support special-security events continue through strategic partnerships and rapid fielding of advanced products and technologies.

What Is an SAV?

By Rob Rapanut

Since 2003 NGA has worked with the Department of Homeland Security (DHS) to visit and assess the sites of critical infrastructure in major population centers.

These site assistance visits (SAVs) usually involve the creation of products that integrate geospatial data pertaining to different kinds of infrastructure, including:

- regional transportation network
- natural gas and oil production facilities
- medical facilities
- law enforcement facilities
- fire stations

NGA analysts draw from a variety of sources to create their SAV products. Vector data (points, lines and polygons used to represent geographic features) is sometimes laid over multispectral commercial imagery. The database of NGA's Homeland Security Infrastructure Program is the source of much of the vector data. Various federal agencies and commercial vendors also provide data. A typical SAV package includes approximately seven to nine map graphics and two or three image-based graphics.

These comprehensive SAV products provide DHS officials with key situational awareness when they visit different infrastructure sector stakeholders to assess and address their security vulnerabilities. Most importantly, this partnership provides DHS with a solid conduit to tap NGA's vast analytical expertise and geospatial data holdings in critical infrastructure.

'Consequence Management' Goal of NORTHCOM GIS

By Roy Hawkins

The U.S. Northern Command (NORTHCOM) has built a geographic information system (GIS) that could be crucial in the event of a chemical, biological, radiological, nuclear or high-yield explosive (CBRNE) event. The command, which stood up after the horrific terrorism of Sept. 11, 2001, has dual responsibilities for providing disaster assistance to civil authorities and preventing, deterring and defeating aggression against the United States.

Chartered to rapidly respond to a CBRNE event anywhere in the United States, its territories and possessions, NORTHCOM's Joint Task Force Civil Support (JTF-CS) developed the GIS with the help of NGA and other federal agencies.

NGA's Role

NGA's Homeland Security Infrastructure Program (HSIP) is the primary source of data populating the GIS. A geospatial analyst on site administers the Agency's support and keeps the HSIP data available for immediate deployment in support of the CBRNE mission. The analyst is of a member of the NORTHCOM NGA Support Team (NST).

NORAD-U.S. Northern Command Command Center

The NORTHCOM NST provides tailored support to exercises and real-world operations on site as required through a combination of permanently assigned analysts and augmentees on temporary duty. These team members reach back to NGA's Office of Americas / North America and Homeland Security Divison and other NGA elements to obtain extensive indirect support.

The database of NORTHCOM's JTF-CS includes nationwide information on chemical industry and hazardous materiel facilities, nuclear power plants, first-responder and medical-services assets, and other critical infrastructure sectors and key asset categories. The system continues to develop and employ a robust set of GIS capabilities, including many commercial off-the-shelf and Web-based tools.

Predictive Capabilities

With its GIS capabilities, JTF-CS can obtain a comprehensive view of an operational environment prior to a CBRNE event occurring. These capabilities play a critical role in all aspects of pre-incident planning.

With information from the database, planners and responders have answers to key questions, such as the number and types of hospital beds available in an area; the location, types and quantities of toxic industrial chemicals stored in the area; location of high-capacity venues; and the location of emergency shelters and emergency operations centers (EOCs).

This geospatial information can be used to provide the JTF-CS commander and his staff with a quick assessment of "what if" scenarios involving the potential effects

A firefighter from the Los Angeles Fire Department secures an area where a simulated explosion occurred causing a radiation leak on pier 87 during the NORAD/USNORTHCOM-sponsored exercise.

of a CBRNE event on a specific U.S. metropolitan area or region. With this understanding and knowledge, the JTF-CS commander and staff are able to quickly observe, orient, decide and act in response to a wide range of potential threats across the homeland.

Managing Consequences

In the unfortunate event of a CBRNE incident, GIS tools can be used to track and visualize an incident or hazard area in order to determine its potential impact on nearby population centers and infrastructure. For example, using the commercial package ArcGIS, analysts can rapidly display both manmade and natural incidents along with relevant data like population densities, first-responder assets, schools, medical facilities and lines of communication. The GIS displays give operational decision-makers a situational awareness of what has occurred, where it happened, and the extent of the affected area.

With a tool called the Consequence Management Interactive Mapping Service (CMIMS), the JTF-CS can deliver dynamic maps and CBRNE consequence-management data to higher headquarters, subordinate units and federal agency partners via the Web. Users can query, analyze and create a customized geospatial view with information based on their preferences.

NORTHCOM GIS analysts can quickly and seamlessly integrate analytical outputs from separate stand-alone ArcGIS systems and post them to the CMIMS. The Web site also enables vital information sharing among other DoD and federal consequence-management stakeholders.

If a CBRNE event occurs in the homeland, the GIS capabilities resident at JTF-CS will ensure that our nation's decision-makers have the right information at the right time in the right format to speed the government's response to the incident and mitigate its effects.

Preparation Key to Meeting Olympics Security Challenge

By Marzio Dellagnello and Andrew Mason

Since Sept. 11, 2001, geospatial support has increased in importance for special events, in particular to protect U.S. citizens involved, whether domestically or abroad.

By the time the XX Olympic Winter Games and the IX Paralympic Winter Games drew to a close in Torino, Italy last March, the biggest controversy that had emerged was the correct use of the name of the host city: Is it Torino or Turin? (Italians know the city as "Torino," Americans as "Turin.") The fact that a toponymic controversy was the biggest concern highlights the reality that, as the eyes of the world watched, the 2006 Olympic Games took place without incident. Credit, of course, needs to be given to the outstanding security preparations of the Italian government, facilitated in part by an excellent package of geospatial intelligence (GEOINT) provided by Italy's Istituto Geografico Militare (IGM). At the same time the United States was fulfilling its geospatial role on the other side of the Atlantic.

Spc. Jeremy Teela, a biathlete and member of the U.S. Army World Class Athlete Program, leaves the starting gate during the Men's 10 km Biathlon Sprint. Teela was one of 211 American athletes competing in Torino.

Photo courtesy of the U.S. Army.

Challenging Situation

The U.S. government called upon NGA to provide geospatial assistance for contingency planning and operational support during the Torino Games. The United States sent a delegation of 211 athletes to the Games, the largest of any country. In addition, consider the following statistics concerning participation in the Olympic Games this year:

- Athletes and officials = 5,400
- Media individuals = 11,300
- Sponsors and spectators = 1,174,920

In addition, 39 countries sent dignitaries to the Olympics. Whether the concern was for a medical emergency, a natural disaster or terrorism, the geospatial support provided by the collaborative efforts of Italy and the United States was of critical importance.

It's also important to realize the 2006 Olympics took place in the largest city ever to host the Winter Games, characterized not only by high-population density (Torino has approximately 900,000 residents with 2.2 million in the outlying province), but also in the largest area by square kilometers. The mountain events took place in the particularly narrow Susa and Chisone valleys of the Piemonte region. The sheer geographical size of the Olympic area presented itself as no small problem for the many individuals in law

enforcement and made it vital for them to rely on comprehensive, current and accurate geospatial information.

Collaboration with Italy

Italy's third Olympics, the 2006 Winter Games were awarded to Torino in June 1999, allowing seven years to prepare. Sufficient time to allow venue construction is critical to the success of the Games and, although the geospatial support did not require the same length of time, preparations for the geospatial support began well ahead of the Games.

The United States initiated geospatial discussions with Italy in 2003 to explore how both countries could best benefit from a well-established bilateral agreement between NGA and the Italian Stato Maggiore della Difesa (Defense General Staff). Setting the stage for geospatial collaboration is NATO geospatial policy, which discourages members from mapping over other members' sovereign territories without their permission.

"The success of the Torino GIS (also known as GISTOR) was also due to the outstanding cooperative efforts of the geospatial entities of Italy and the United States," said Lt. Col. Sabato Rainone, Chief of the Geospatial Section, Italian Defense General Staff.

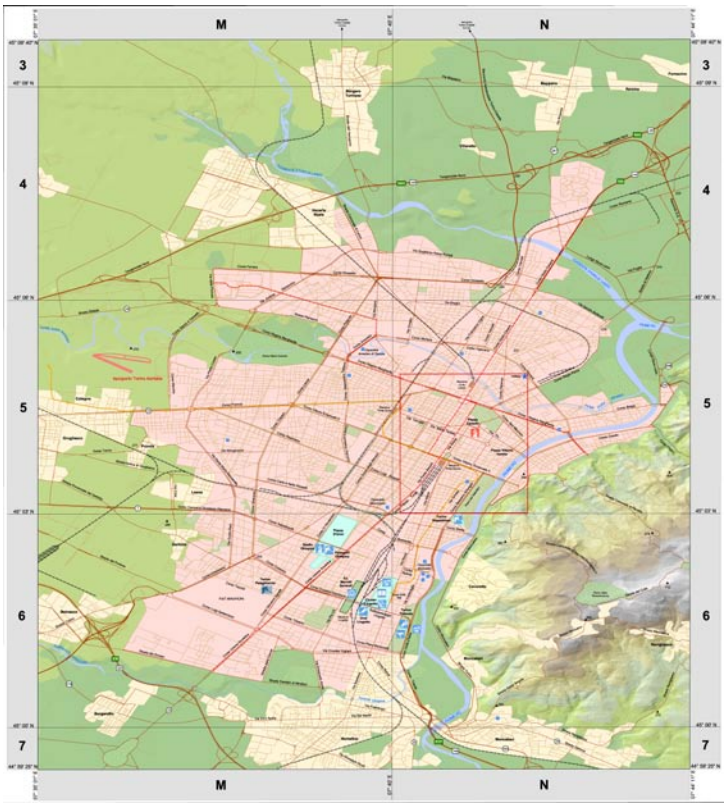
Following the initial discussions, actual collaboration began in February 2004, exactly two years before the Olympic Games were to occur. A delegation from NGA visited first Rome, to discuss the production arrangement, then Florence, where the IGM resides, and finally Torino, for discussions with representatives of the Torino Olympic Committee. At this initial meeting, representatives from France also participated as the Games' proximity to the Italian-French border necessitated geospatial data from the French side. Because data sharing was to occur among the three countries, a special trilateral agreement was developed to facilitate the data exchanges.

Preparing the GISTOR

The IGM in Florence took on the task of developing the data for the Olympics and worked diligently for two years to prepare the GISTOR. The digital information included over 100 layers of data. The frame on which the GISTOR was built was derived from the cartographic sources that the Piemonte Region supplied for the project; subsequently other vector layers were added and updated. Information included regional hydrography, the transportation network, buildings, utility lines, sewage lines and even the location of manhole covers. During the two years of work, 40 Italian geographic data providers participated. In addition to the Piemonte Region, other data providers were the Torino municipality, telephone companies and the railroad company, to name a few.

To enable interoperability among the many users, the database was constructed according to international standards for feature- and attribute-coding schemes, and transformed from the local datum to World Geodetic System 1984. The complete data set was provided to the operational cell of the Prefecture of Torino while subsets of the data were shared with NGA and other international partners. NGA used the data in support of the following:

- Queries and database searches to support contingency planning activities
- Visits of VIPs including First Lady Laura Bush
- Protection for U.S. athletes
- Situation Report (SitRep) graphics describing the locations of U.S. athletes, VIPs and Olympic and corporate-event activities
- Department of State SitRep briefings.



NGA took the responsibility of assembling data provided by the United States and Italy to generate three reference graphics of different areas of interest. These graphics were well-received by the customers.

NGA Data Used

As part of the collaborative effort, NGA provided two sets of elevation data, Digital Terrain Elevation Data (DTED®) and a set sensed remotely through light detection and ranging (LIDAR). NGA produced the DTED® from radar measurements the astronauts collected aboard a NASA space shuttle in February 2000. One of the Agency's principal products, DTED® is a uniform matrix of land elevation values that provides basic quantitative data for many systems and applications.

Analysts used the LIDAR data to build intelligent three-dimensional models, which are used to create line-of-sight and radial view sheds as well as to provide situational awareness. Customers included the Army Space Command's Spectral Operations Resource Center, which used the data to locate potential helicopter landing zones. A technology similar to radar, LIDAR is used to measure light-wave reflections from objects as small as atmospheric constituents. The LIDAR data was collected in the "point cloud" format, which gives a highly accurate picture of the Earth's reflective surface.

NGA also took on the responsibility of assembling data provided by the United States and Italy to generate three reference graphics. Produced at three different scales, the graphics had different areas of interest: The first one focused on the city of Torino, the second one on the Olympic area in the mountains and the third one on the northern half of the Italian peninsula including bordering countries. These graphics were very well-received by the customers.

Local Dimension

In many European countries, as well as the United States, local governments have the responsibility for high-resolution geospatial information. In the Italian case, the first-order administrative region of Piemonte was responsible for the data covering the entire Olympic area. This area extended from Torino to the border with France. It included the International Airport of Torino Caselle to the north and the town of Torre Pellice to the south. IGM updated this data.

The Olympic Games were exciting and unique, each event bringing the excitement of victory or the agony of defeat for the countries and athletes involved. As for the toponymic controversy, the official name of the Games was "Torino 2006." The International Olympic Committee also referred to the city by its Italian name. Even NBC, the U.S. broadcast network for the Games, and USA Today used "Torino." NGA, for its part, follows the rules established by the U.S. Board on Geographic Names, which call for the local version to be used.

It is never easy to measure the effectiveness of geospatial readiness when no real crisis actually arises. However, we must always be equipped to tackle a potential emergency as efficiently as possible to save precious time and quite possibly, precious lives as well. As Louis Pasteur once said, "Chance favors the prepared mind."

Our Heritage

Formation of NIMA, now NGA

By Dr. Martin K. Gordon

A debate between the defense and intelligence communities began shortly after Desert Storm ended in March 1991 and lasted until the establishment of the National Imagery and Mapping Agency (NIMA) in October 1996. The issue was the need for a major institution, comparable to the National Security Agency, to lead the transformation of the nation's imagery intelligence capabilities. Several forces were coming together in those years.

Technological issues in these debates included more than the imagery dissemination problems that occurred during the war. The use of similar technologies, including a growing reliance on satellite-derived sources, by mapping and imagery agencies was increasing. Both the Defense Mapping Agency (DMA) and the National Photographic Interpretation Center (NPIC) were developing new computer-based systems for using that imagery. At the same time, field commanders found they had to work with a multiplicity of organizations to obtain the intelligence they needed in their timelines and at the appropriately useful security classification.

Director of Central Intelligence John Deutch, right, hands the flag of the National Imagery and Mapping Agency to its Acting Director, Rear Adm. J.J. Dantone Jr., in an outdoor ceremony establishing the Agency at the Pentagon Oct. 29, 1996.

Keith Hall in particular understood the confluence of these forces. In the late 1980s, when he was the Senate Select Committee on Intelligence deputy staff director, he saw NPIC and DMA budget requests for and later their purchases of similar systems to meet similar processing and production needs. He proposed, unsuccessfully as it turned out, to merge DMA and NPIC to form a new imagery agency to drive improvements in exploitation and overall imagery management. In late 1991, after moving to the Department of Defense as Deputy Assistant Secretary of Defense for Intelligence, he continued to push for such reform. He worked first with the Assistant Secretary of Defense for Command, Control, Communications and Intelligence, Duane Andrews, who brought the idea to Secretary of Defense Richard B. Cheney and Director of Central Intelligence (DCI) Robert M. Gates. They supported the idea, but the Chairman of the Joint Chiefs of Staff, Gen. Colin L. Powell, was adamantly opposed. What ensued was a watered-down compromise, the Central Imagery Office, which stood up in 1992.

Hall continued to advocate a more substantial change, and in 1995 DCI John Deutch joined with Secretary of Defense William Perry to propose the full consolidation of the functions of imagery management and analysis, geospatial analysis and distribution to improve effectiveness and economy. Deutch proposed a management structure for imagery comparable to the National Security Agency's. Deutch and Perry's proposal included abolishing the Central Imagery Office and combining DMA with NPIC and several other imagery and imagery-analysis organizations and offices. Now in the position of Executive Director for Intelligence Community Affairs working for DCI Deutch, Hall was asked to co-lead the task group to bring together the plan to create the new agency, along with the Vice Chairman of the Joint Chiefs of Staff, Adm. William A. Owens.

Three reasons lay behind the consolidation proposal:

- A single streamlined and focused agency could best meet the imagery and mapping needs of its growing and diverse customer base.
- The consolidation would provide for the maximum exploitation of digital technology, commercial imagery and enhanced collection systems.
- The ongoing revolution in information technology, combined with this single management, would create a new symbiosis between imagery intelligence and mapping.

Interestingly, both DMA and NPIC evolved from earlier mergers.

After substantial discussions to make sure this new structure would meet both national and military needs, Congress agreed and established NIMA. The fiscal 2004 Defense Authorization Act, passed by Congress and signed into law by President George W. Bush, changed NIMA's name to the National Geospatial-Intelligence Agency in November 2003. The new name conveyed the powerful capabilities that bringing together geospatial and imagery disciplines created.

The author acknowledges and thanks for their reviews of earlier drafts Eric Benn, Keith Hall and retired Air Force Lt. Gen. James R. Clapper Jr.

President George W. Bush, surrounded by members of Congress and senior Defense Department leaders, signs the National Defense Authorization Act at the Pentagon Nov. 24, 2003. The Act allowed NIMA to change its name to the National Geospatial-Intelligence Agency.

Department of Defense photo by Helene C. Stikkel

21st Century

Enterprise Service Center: One Call Is All

By Lauren Newson

NGA's Enterprise Operations Directorate (E) is changing the help desk as we know it. The Directorate has stood up an Enterprise Services Center (ESC) that will consolidate 16 help desks to provide fail-safe business continuity as NGA postures itself to meet tomorrow's technological demands.

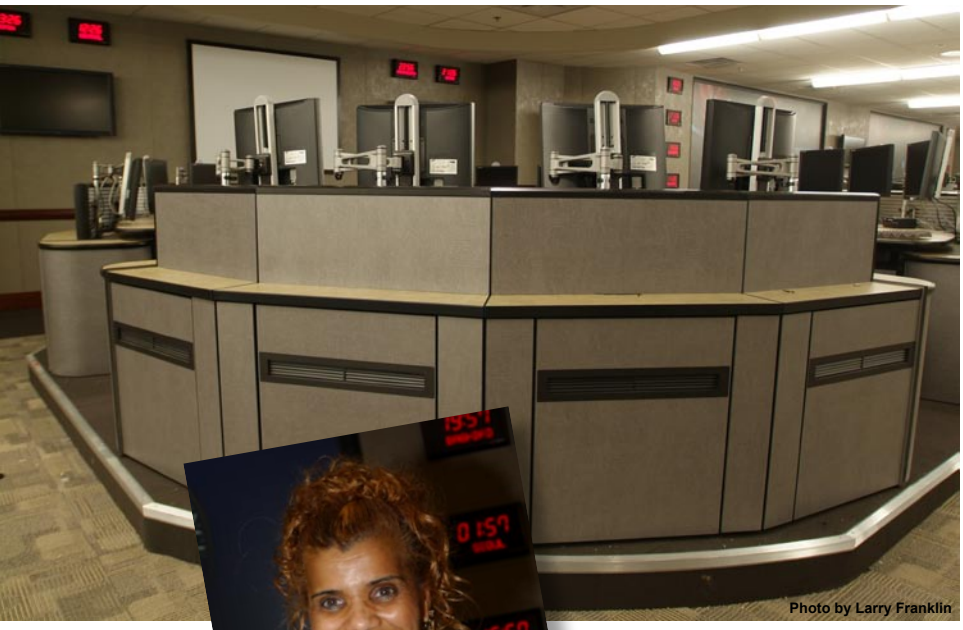


Photo by Larry Franklin

Photo by Larry Franklin

Top: The ESC will provide NGA and its customers with a single organization to contact for all information technology and systems (IT/IS) issues. Above: The ESC is "a new venture at a higher level of technology," says Gail Betts-Anderson.

Standup of the ESC will enable NGA to continue performing its role as a valuable member of the Intelligence Community (IC).

The ESC embodies the transformation of Enterprise Operations at NGA. "It is a new venture at a higher level of technology," says Gail Betts-Anderson, Technical Executive in E's Customer Service Office.

The Center will provide NGA and its customers with a single organization to contact for all information technology and systems (IT/IS) issues, from forgotten passwords to network intrusion and everything in between. "With one center there will be more defined and effective processes which will serve all NGA, regardless of location," said the project lead for the ESC development and standup.

Three core functions that were previously conducted in various locations will be performed at the ESC:

- The Operational Help Desk
- Enterprise Infrastructure Management, which monitors production systems, provides crisis and emergency management and protects against viruses and hacker attempts
- Enterprise Information Assurance, which detects intrusions, puts up firewalls, and assesses public key infrastructure (PKI) and vulnerability.

The ESC will be able to ingest and disseminate an increased volume of trouble tickets and will have technical experts in all information technology (IT) disciplines available to work issues as they arise. The ESC will provide closer coordination, better efficiency and faster, more knowledgeable answers for NGA as well as its customers in the Department of Defense and Intelligence Community.

NGA customers can expect to have their calls fielded more quickly with less likelihood of reaching a voice-mail system, given that the ESC will operate 24 hours a day, seven days a week. E also expects that the closer coordination provided by

Former NGA Director retired Lt. Gen. James R. Clapper Jr. and Dr. Robert Laurine, Director of NGA's Enterprise Operations Directorate (E), cut the ribbon for the ESC opening on May 16.

the center will help NGA's IT professionals resolve problems more quickly and provide more accurate information.

For both internal and external customers, there will be a single phone number for all IT/IS service. Initial operating capability for trouble tickets and incident-asset management began in April. The ESC can also help customers requesting new communication devices, such as personal computers, telephones, pagers and personal digital assistants (PDAs) and various other equipment and tools. "ESC representatives will reach out and assist customers by directing them to the appropriate person or office," a spokesperson said.

Over the next couple years, E will implement tools to identify potential problems and determine what corrective actions need to occur before incidents happen. The ESC will also re-route downed network lines, detect switches reaching capacity and determine potential intrusion of viruses and hackers. The new center will increase the security of NGA's networks by proactively detecting and preventing security breaches before they occur.

The entire migration from the current Help Desk arrangement to the ESC will occur over the next five years, culminating with a new location at the future NGA East campus at Fort Belvoir, Va.

The establishment of a single service center for the Agency "takes advantage of the high caliber of IT professionals that we have on board and their diverse skill sets," Betts-Anderson says. "We will, and have, faced challenges but this is an amazing opportunity for the Agency and our customers."

Partnerships

FEMA Looks to NGA for Disaster Help

By Jessica Rasco and Shawna Wolin

Disaster-response teams of NGA and its predecessor organizations have responded to nearly 50 hurricanes and tropical storms over the last 14 years. The team officially known as the Readiness, Response and Recovery Branch has been bolstered by experience with the four hurricanes that struck Florida in 2004 and Hurricanes Katrina and Rita last year. It continues to stand in the forefront of the disaster-response community with the best available GEOINT products and services to save lives and protect property.

The Robert T. Stafford Disaster Relief and Emergency Assistance Act, as amended, enables the Federal Emergency Management Agency (FEMA) to task any federal agency during presidentially declared disasters. Further, an NGA Memorandum of Understanding with FEMA names NGA as its executive agent for geospatial intelligence (GEOINT). Through this agreement, NGA is responsible for the tasking, exploitation, product creation and dissemination of imagery and geospatial products created from the analysis of National Technical Means (NTM) imagery and data. NGA also provides technical expertise in analyzing other imagery data sources, as requested by FEMA.

NGA has integrated classified and unclassified, government and commercial satellite and airborne imagery in its analytical efforts. Commercial imagery has been vital in creating products that can be used in the field to give decision-makers a visual and spatial tool for response and recovery efforts. NTM is valuable for damage assessments. In many disasters, NGA personnel deploy to the disaster scene to provide assistance on site. NGA also supports FEMA in planning incident management and recovery operations.

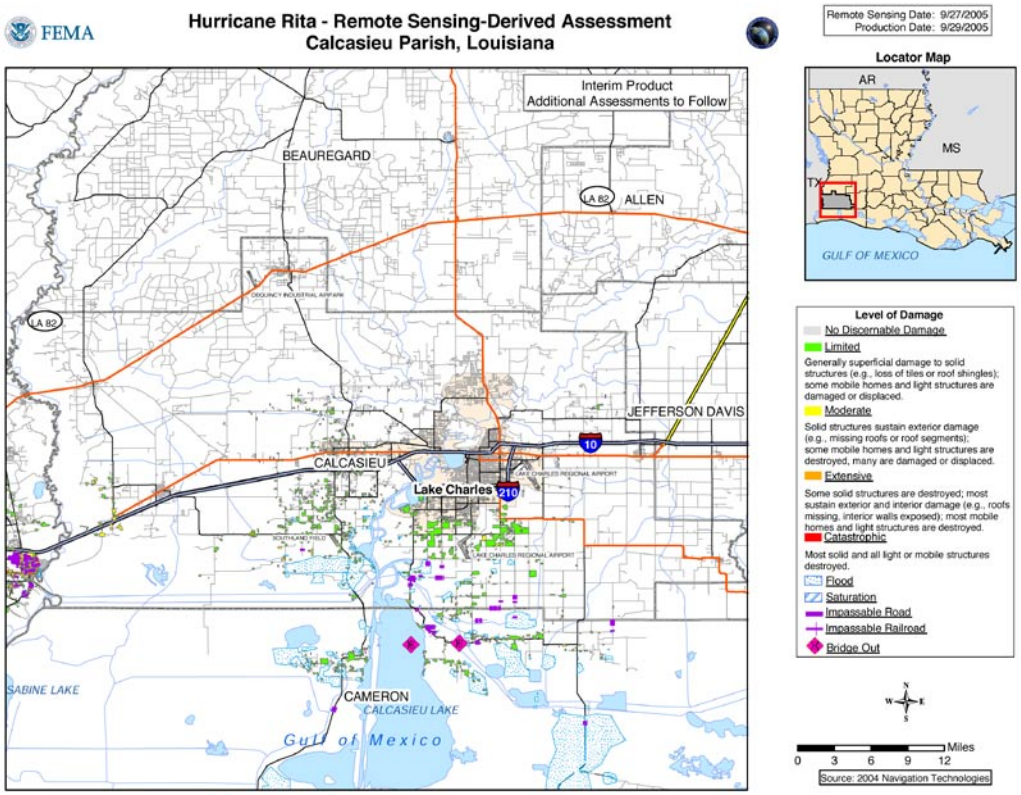
Evolving Partnership

With improvements in technology, the timeliness, accuracy and relevance of the GEOINT provided to disaster responders have improved. In 1992, imagery analysts created film-based products, placing colored dots on population centers to indicate the severity of the damage. These products were hand-carried to FEMA, which created and distributed finished products. By 1994, analysts were transmitting digital files directly using software and workstations that FEMA provided. Cartographers joined the original group of imagery analysts, digitizing their hardcopy maps to assist in creating the files. Human interpretation from classified sources allowed the intelligence to be released at the unclassified level.

NGA and FEMA implemented a new damage classification system in 1997, with standards for wind damage (hurricanes and tornadoes), earthquakes and flooding. These classifications were paired with information such as status of transportation systems and critical transportation facilities. Analysts also began to depict access points for disaster response and recovery.

With improvements in the technology of geographic information systems and the capability to exploit data from analysts' desktops, timelines continued to drop. After the terrorists struck Sept. 11, 2001, the team moved into the newly created North America and Homeland Security Division. Geospatial analysts were added to the team and the group struggled to find

NGA provides FEMA and the disaster-response community with the best available GEOINT products and services, like the Hurricane Rita assessment shown here.



synergy between the tradecrafts. After trying numerous methods, the team began using elevation points to register all sources of imagery with vector information (feature data). After assessing the damage, analysts linked their assessments to the graphic information in easy-to-manipulate *shape files*. The process provided very timely, accurate and streamlined imagery and geospatial analysis when the individual shape files were merged into a single large file.

What's New

Analysts in the Readiness, Response and Recovery Branch are always looking for innovative methods that increase accuracy and timeliness. One new tool is Map Book, an extension of ESRI's ArcGIS software, which allows users to create a template and then pick a specific state or county and "jump" to that location in their map document. This technique has proven to be an efficient way of creating and updating large quantities of maps very quickly.

HURREVAC (Hurricane Evacuation) is another tool that FEMA, NGA and other members of the response community use to track storms as they happen. This tool graphically displays up-to-date data from the National Weather Service. Analysts can track wind speed and extent as well as hurricane tracks (both past and predicted) days in advance of the storm's landfall to facilitate pre-storm analysis. Analysts can also manipulate the data for additional planning such as changing wind speed and direction. NGA has used these tools to create strike-probability maps.

On May 22, 2006, the National Oceanic and Atmospheric Administration announced a very active hurricane season for 2006. NOAA predicted 13 to 16 named storms, with eight to 10 becoming hurricanes, including four to six that could become category 3 or higher. After a record-setting season in 2005, NGA has been very active across the community to prepare for the readiness, response and recovery mission.

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