

THE NATIONAL GEOSPATIAL-INTELLIGENCE AGENCY

Vol. 7 No. 3

PATHFINDER

THE GEOSPATIAL INTELLIGENCE MAGAZINE
SERVING THE FRONT LINE

May/June 2009



A
Historic
ROLE



ON MY MIND

Keeping America Safe and Secure

Protecting American lives is our most important mission. Ensuring the security of the U.S. homeland requires collaboration among hundreds of local, state and federal agencies. NGA is proud to contribute to the vital homeland security mission. Geospatial intelligence (GEOINT) provides a critical perspective to security matters and provides a common operating picture that facilitates cooperation between stakeholder agencies, first responders and policy makers. Our support to the homeland security mission set has increased significantly.

GEOINT Adds Value

Our involvement will only continue to grow as we improve our capabilities and more partners understand the value that NGA adds. To complement our increasing role, NGA's Office of Global Support has brought another Domestic Mobile Integrated Geospatial-Intelligence System (DMIGS) into service. These self-contained vehicles represent "NGA on wheels" and can travel to any and all National Special Security Events to provide on-site analysis and secure communications between facilities. DMIGS also enables valuable real-time reach-back capabilities during natural disasters like flooding, hurricanes and forest fires, bringing analysis forward from headquarters to the field.

During the flooding in North Dakota and Minnesota in March and April, NGA provided critical GEOINT in support of FEMA and other federal, state and local organizations. NGA provided analysis that assisted in the planning and movement of resources to mitigate the impact to lives and property. NGA also supplied GEOINT from multiple imagery and geographic information system sources for all rivers in the area in order to identify critical infrastructure and affected population centers. This enabled analysts to monitor levees and gauge data for areas of potential impact.

Working Together

Successfully supporting the homeland security mission requires building and enhancing partnerships across the Intelligence Community, the Department of Defense and civil agencies. Following the dramatic ditching of a US Airways A320 into the Hudson River, NGA provided graphics and satellite imagery to the National Transportation Safety Board (NTSB) to assist in the after-action investigations. Working with NTSB demonstrates another example of partnership and collaboration. Our support enabled NTSB to meet its mission by helping with post-accident analysis and forensics, with implications for the improvement of airline safety. NGA can support these types of missions in a powerful way by providing a visual and spatial understanding. We are uniquely postured to positively impact the lives of Americans with our scientific understanding and current situational awareness of the Earth.

Protecting America

Respecting civil liberties is a foundation of our country, and NGA remains tirelessly committed to the highest protections for the rights of American citizens and unwavering respect for our laws. Stringent intelligence oversight regulations enable NGA to effectively perform its required functions while ensuring that the constitutional rights and the privacy of U.S. citizens are protected. The revisions to Executive Order 12333 maintain the privacy and civil liberty protections that are central to the way the NGA operates.

The homeland security mission set will continue to grow. With the recently renewed focus on border security and drug violence in Mexico, GEOINT will continue to bring a valuable perspective and inform first responders and policy makers. NGA will support the Department of Homeland Security in upcoming National Special Security Events and natural disasters whenever and wherever needed. We are committed to serving our nation and our people are dedicated to serving this and every other national security mission.

ROBERT B. MURRETT
Vice Admiral, USN
Director



LETTER TO OUR READERS

A Historic Role

No matter their politics or party affiliation, at each election the people of the United States celebrate the remarkable achievement of over two-and-a-quarter centuries of solid democracy and representative government. Every four years, citizens of all hues and stripes gather to welcome the newly elected president, joining in a show of unity as the nation collectively bids the chief executive well.

The faithful unrolling of America's constitutional government throughout previous and future generations requires, as it always has, a dedication on the part of the citizenry to participate actively in the political process and to demonstrate that respect owed to the nation's elected officials and institutions. The people at NGA recognize this duty and the specialized part that each person plays in securing the nation and its democratic heritage.

The agency fulfilled a decisive and acknowledged role during the preparations and events surrounding the 56th presidential inauguration. Several articles in this issue expand upon the support provided by the agency in concert with its domestic partners. Beginning with "Presidential Inauguration Connects a Community," the reader will discover a web of complementary geospatial efforts coordinated among NGA Support Teams that helped protect the transition of power by aiding the operations of the U.S. Secret Service, the FBI, the Federal Emergency Management Agency and the Department of Defense.

American democracy is not alone in facing threats. The terrorist attacks in Mumbai, India, in November 2008 cruelly underlined this all-too-common reality. NGA responded to this crisis with the same determination that has become a hallmark of the agency. As author Matt Higham explains, NGA provided essential geospatial analysis and context, serving the needs of its partners investigating the attacks. This crucial operation communicates the value of coordinated, unified analytical cooperation.

Additional articles will remind readers of the technical enhancements that continue to propel geospatial intelligence, from the agency's newest mobile support vehicle to an innovative pilot project serving the U.S. Central Command.

Then, explore the connection between NGA deployed analysts and the celebrated Lawrence of Arabia with NGA historian Dr. Gary Weir. Finally, take a walk through the Smithsonian Institution's National Air and Space Museum Steven F. Udvar-Hazy Center as Weir shares the history of the many artifacts on display at the museum either donated by NGA or that relate directly to the agency's history.

This issue presents just a few of the varied and critical elements of NGA's support to national security. The next issue, July/August, will focus on the agency's support to the nation's military services and servicemembers.



PATHFINDER

Published by the National Geospatial-Intelligence Agency
Office of Corporate Communications
4600 Sangamore Road, Mail Stop D-39
Bethesda, MD 20816-5003
Telephone: (301) 227-7388,
DSN 287-7388
E-mail: pathfinder@nga.mil

DIRECTOR

Vice Adm. Robert B. Murrett, U.S. Navy

DEPUTY DIRECTOR

Lloyd Rowland

OFFICE OF CORPORATE COMMUNICATIONS, DIRECTOR

Paul R. Weise

CORPORATE COMMUNICATIONS AND VISUAL DIVISION, CHIEF

STEPHEN HONDA

EDITOR

Jason K. Michas

MANAGING EDITOR

Kelly M. Kemp

GRAPHIC DESIGNER

Anika D. McMillon

CONTRIBUTING AUTHORS

Michelle Bonifas

Richard Hanes

Juanita Hartbarger

Matt Higham

Chris Vaughan

Chris Viselli

Al Trujillo

Dr. Gary E. Weir

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. For details on submitting articles, send an e-mail to pathfinder@nga.mil.

The Pathfinder is the medium with which the National Geospatial-Intelligence Agency enhances and promotes public awareness and understanding of the discipline of geospatial intelligence. The Pathfinder is an authorized Department of Defense publication for members of the Department of Defense. Contents of this publication are not necessarily the official view of, or endorsed by, the U.S. government, Department of Defense or NGA. Articles in the Pathfinder may be reproduced in whole or in part without permission, unless stated otherwise. If they are reproduced, please credit the author and the "National Geospatial-Intelligence Agency, the Pathfinder magazine." Any reproduction of graphics, photographs and imagery is subject to the original copyright.

PAUL R. WEISE

Director, Office of Corporate Communications



Presidential Inauguration Connects a Community

BY MICHELLE BONIFAS

NGA support for the 56th presidential inauguration in Washington, D.C., demonstrated the ability of the agency to connect an entire crisis and consequence management community consisting of federal, state and local government partners in preparing for possible attacks against the president and other participants in the ceremonies of Jan. 20, 2009. The Department of Homeland Security (DHS) named the inauguration of President Barack Obama a National Special Security Event (NSSE) of the highest level, requiring all agencies supporting it to exercise due diligence to prevent attacks and prepare to respond to any incidents. NGA personnel embedded with the U.S. Secret Service, the FBI, the Federal Emergency Management Agency (FEMA) and the Department of Defense effected precise and real-time geospatial Intelligence (GEOINT) to fulfill these partners' critical needs, based on a shared, collaborative understanding of the mission.

Crisis management and consequence management are distinct missions, and NGA supports both. The FBI performs crisis management after a terrorist attack on the United States as the lead federal agency managing all domestic aspects of intelligence, investigation and law enforcement activities. FEMA, a component of DHS, performs consequence management when responding to a domestic terrorism event as the lead agency coordinating the federal government's support to an affected area and victims. As the lead federal agency responsible for implementing and planning security, the Secret Service,

another DHS component, plans extensively with federal partners to prevent an attack from occurring during an NSSE. If a terrorist attack were to occur, the Secret Service would safely secure and transfer any government officials it was charged to protect.

Planning for an NSSE begins months in advance, and President Obama's inauguration was no different. The inauguration, which may have been the largest NSSE that NGA has ever supported, started with planning and data sharing among not only the numerous federal agencies involved, but also the many state and local government officials that share crisis and consequence management responsibilities. Planning for an event in the National Capital Region poses many challenges to data and information sharing because of the numerous federal offices and property surrounding the event locations.

While the Secret Service and the FBI concentrated on security and counterterrorism planning, FEMA worked busily with state and local governments to plan responses to a possible attack or other crisis. All aspects of the planning involved NGA. Agency personnel delivered numerous briefings and thoroughly shared how GEOINT support would bring together the community of agencies, governments and people involved through a geospatially enabled common operating environment.

For several days prior to the inauguration and for several days after, NGA personnel embedded with the Secret Service, the FBI, FEMA and other partners at

Continued on page 6



Inauguration Support to the U.S. Secret Service

BY CHRIS VAUGHAN

The 56th presidential inauguration again proved that NGA remains at the forefront of cutting-edge geographic information system technologies. For this special event, the NGA team supporting the U.S. Secret Service delivered a total package consisting of high-resolution commercial satellite imagery, airborne imagery and immersive imagery (hand-held or ground view photography) of event venues to the agency's mission partners, rendering a 360-degree view of their operational environment.

Immersive Imagery

A key benefit of immersive imagery is the ability to accurately depict an area of interest with realistic detail. Over the last several years, NGA has streamlined the delivery of massive amounts of data to end users through the use of online services. Immersive imagery, much like commercial satellite imagery, faces the same technical challenges regarding storage, access and dissemination.

For the inauguration, NGA ensured that forward-deployed partners had an online warehouse of immersive imagery available. Pulling from various imagery vendors, partners could choose from a streaming feed of imagery or from selected feeds of digital 360-degree stills to enhance a user's situational awareness. From an operational standpoint, decision makers could easily immerse themselves from a desktop environment into a complex, 3-D world.

Palmtop Computers

In support of the inauguration, NGA provided homeland security partners with palmtop computers used to watch the event feed from NGA's recently updated Web application Palanterra™, a family of interfaces for consolidating and disseminating geospatial Intelligence (GEOINT) resources. With an approximately seven-inch screen, the palmtops featured an integrated cellular modem, access to an unclassified network for official use, NGA's Google Earth™ system and a Web browser, all running on a standard operating system. The computers ensured that NGA mission partners could take full advantage of GEOINT resources whether in a command center or on the street.

Service-Oriented Architecture

NGA analysts also made extensive use of the agency's expanding geographic information system services through NGA's service-oriented architecture (SOA), an information technology approach that allows developers as well as users to blend data stores from many providers to create unique looks into the available data. SOA allows NGA to reach out to all mission partners.

Palanterra™ X3, released just prior to the inauguration, typifies the use of SOA. Palanterra™ developers worked hard to integrate data from many sources into their application and make that data available to end users. In addition, developers added a new feature

Continued on page 7

Crowds gather for the 56th presidential inauguration in Washington, D.C., on Jan. 20, 2009.

Satellite image courtesy of GeoEye ©2009.



(Continued from page 4)

locations throughout the National Capital Region provided onsite GEOINT analysis, maps, data and imagery used for security planning and implementation. Each organization received support tailored to its particular needs, including commercial imagery and infrastructure data and event-specific information.

Active collaboration between NGA and its mission partners in the crisis and consequence management community allows the agency to continue to meet evolving GEOINT requirements. As demonstrated by the

agency's efforts to support the presidential inauguration, NGA's resources and extensive network of embedded personnel are ready for even the most critical missions. ▢

Michelle Bonifas is the NGA liaison officer at FEMA.

Inauguration Support to the FBI

By Chris Viselli

NGA's collaborative support to the FBI during the 56th presidential inauguration marked seven years of deploying to support the bureau and other lead federal agencies during National Special Security Events. The agency has conducted over 50 field deployments in those seven years, reflecting mission partners' increasing reliance on NGA. In true collaborative fashion, NGA analysts were embedded in a number of FBI command centers, including the bureau's Joint Operations Center, Intelligence Operations Center and Tactical Operations Center. Each of these command centers seamlessly ties together and shares crisis management, intelligence and counterterrorism missions with the Secret Service, the Federal Emergency Management Agency (FEMA), and other federal, state and local security partners and first responders.

While providing dedicated geospatial intelligence (GEOINT) to inaugural activities, embedded NGA teams used a wide array of collaborative tools to maintain constant, real-time communication with agency teams located with the Secret Service, FEMA and the Armed Forces Inaugural Committee and at other locations. Using this model, NGA leads

in providing dedicated, mission-specific GEOINT support, while ensuring that all NGA elements are connected virtually and operating in unison. NGA homeland deployments, although geographically dispersed, function as interlaced, partner-focused and well-coordinated operations.

Specific NGA support to the inauguration included use of NGA's Palantir™ Web application and the agency's Google Earth™ system to track live incidents, perform strategic and predictive GEOINT analysis of activity patterns and trends, provide rapid analysis to FBI special agents conducting investigations and interviews, and furnish highly focused tactical information to members of the bureau's SWAT (Specialized Weapons and Tactics) team and Hostage Rescue Team. From strategic to tactical, hardcopy to virtual, and restricted investigative to cross-community collaborative, NGA support to the FBI during the inauguration embodied the best practices applauded by mission partners as a successful model for the intelligence and law enforcement communities. ▢

Chris Viselli is the deputy director of the NGA Support Team at the FBI.





(Continued from page 5)

that allows Palanterra™ users to add their own content to customize their GEOINT experience using data that the user maintains. Palanterra™ proved very popular because it requires only a Web browser and Internet access to use. The 400,000 Palanterra™-generated map draws on Jan. 20 alone validated the SOA approach.

Users also enjoyed a 3-D option made possible by pairing NGA's version of Google Earth™ with the agency's

Geospatial Intelligence Advancement Testbed (GIAT), which is charged with innovating new GEOINT solutions. The GIAT team provided this augmented experience by connecting with many of the same sources as the Palanterra™ team. For example, the GIAT team ingested the Palanterra™ team's event feed and added 3-D features, including models of key Washington, D.C., landmarks, to provide enhanced GEOINT for NGA's mission partners using the agency's Google Earth™ system.

Although often behind the scenes, GEOINT resources assisted the agency's numerous partners with carrying out their respective duties with precision. With major responsibilities before and during the inauguration, the NGA team assigned to the Secret Service delivered a substantial portion of GEOINT to ensure a secure transition of power. P

Chris Vaughan is a geospatial intelligence analyst assigned to the U.S. Secret Service.

The U.S. Capitol hosts preparations for the inauguration of President Obama.

DOD Photo

Inauguration Support to FEMA

By Michelle Bonifas

NGA continued its ongoing collaboration with the Federal Emergency Management Agency (FEMA) during the 56th presidential inauguration. As it does for all National Special Security Events, FEMA coordinated the federal government's preparations for and response to all domestic disasters, natural or man-made, including acts of terrorism.

In the Washington, D.C., metropolitan area, FEMA activated and staged Urban Search and Rescue (US&R) teams comprising state and local first responders. For more than 10 years, NGA has provided crucial tactical geospatial intelligence (GEOINT) in the field to US&R teams during crises, and the inauguration proved no exception. NGA deployed its Domestic Mobile Integrated Geospatial-Intelligence System (DMIGS) to the US&R staging area to be ready to assist first responders, had they been called into action. DMIGS, a mobile, self-contained

command vehicle, enables deployed NGA analysts to work onsite and collaborate remotely on analysis and time-critical products.

The NGA team in the DMIGS provided numerous on-demand GEOINT products to US&R operations, including commercial imagery and gridded search reference graphics. Being fully integrated with FEMA's US&R operations, NGA analysts provided not only requested information but also predictive analysis to aid first responders in mission planning.

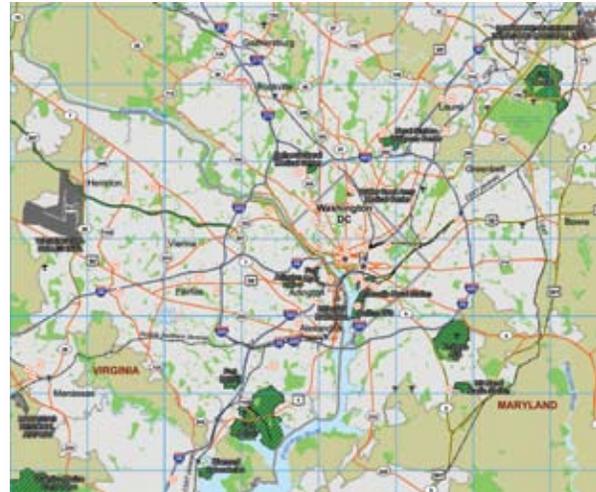
NGA continues to work closely with FEMA and US&R teams. As recently as March 2009, the agency deployed to support US&R operations in North Dakota in response to major flooding, demonstrating that the inauguration was another one on a long list of events and crises during which NGA has successfully provided critical GEOINT to the nation's first responders. P

Michelle Bonifas is the NGA liaison officer at FEMA.



Inauguration Support to the Department of Defense

BY RICHARD HANES



Tailored GEOINT products developed by NGA helped ensure a successful inauguration.

Through the biting cold of a picturesque January afternoon, the loudspeakers echoed across the National Mall, "... and will to the best of my ability, preserve, protect and defend the Constitution of the United States, so help me God." With these words, Barack Obama became the 44th president of the United States. While millions watched the proceedings, NGA Support Teams (NSTs) worked behind the scenes to aid in the peaceful transition of power. Exemplifying these teams, the NST supporting the U.S. Northern Command (NORTHCOM), in concert with other teams, assisted the Department of Defense (DOD) and the Armed Forces Inauguration Committee (AFIC), which manages the military aspects of presidential inaugurations.

Throughout the inauguration and the time leading up to it, analysts from the NORTHCOM NST and other agency elements monitored events and incorporated geospatial information from several sources into NGA's Palanterra™ Web application to provide a common operating picture. Prior to the inauguration, deployed NGA personnel standardized the way that the application represented all DOD elements involved. Before and during the

ceremonies, analysts provided direct support to AFIC, creating planning tools included in Palanterra™. While the DOD Blue Force GPS tracking system monitored air, ground and maritime locations on the historic day, NGA analysts also incorporated this data into the system to display any critical incidents at 15-minute intervals.

A real-time incident provided an example of how analysts respond quickly to critical information. Sens. Ted Kennedy and Robert Byrd both collapsed during the inauguration luncheon, delaying the start of the inaugural parade and subsequent activities. The NGA teams promptly updated the status of the affected celebrations within Palanterra™ so that everyone remained on the same schedule at all support sites.

The essential collaboration between DOD and NGA, led by the NORTHCOM NST, fulfilled a crucial link. NORTHCOM and the DOD continue to benefit from the skill of NSTs as geospatial intelligence gains increasing influence. Through successful deployments such as the inauguration, the NORTHCOM NST and other agency teams continue to foster strong, collaborative relationships with domestic partners. P

Richard Hanes is a geospatial analyst with the U.S. Northern Command NGA Support Team.





STITUTION AVE NW

CONTRAST

US Capitol Visitor Center

Jefferson
(Library)



www.nga.mil