

NGA PATHFINDER

Magazine of the National Geospatial-Intelligence Agency

Vol. 12, No. 4 Fall 2014

**New director
takes agency reins**

Q&A with Robert Cardillo

**GEOINT
critical during
Iran hostage crisis**

NGA SUPPORTS

**EBOLA
CRISIS**

**Combating
SUICIDE**

'One loss too great'





Get ready

IN THIS ISSUE OF PATHFINDER, WE EXAMINE SOME OF THE current threats to our world and what steps we at the National Geospatial-Intelligence Agency are taking to help mitigate them and prepare for whatever the future holds for us.

Our efforts in support of lead federal agencies battling the Ebola virus are unprecedented for an intelligence agency. We are providing unclassified data via a public-facing website to help forecast the virus' spread and thwart its progression. We are also adding gamification to our internal activities and making available publicly our code so that others may benefit from it and further their readiness through the collective contributions of creative and innovative members of our workforce. Through gamification and other creative endeavors, we help ensure we are mentally and physically ready to face future challenges.

But, as you all know, there is more to readiness than a sharp intellect and physical prowess. We must also look to our emotional state. We must foster an atmosphere that enables members of the workforce to exercise their courage and step forward to seek emotional help when they need it. September was Suicide Prevention Month, and NGA rolled out new initiatives to help those in need. In this issue, we speak with a partner who knows firsthand the pain and struggles associated with suicide ideation. He explains how he got through it with help from his friends — and his cat. Through his story, we see light at the end of an often dark and lonely tunnel. And we can all use a little help in our darkest moments.

Being ready also means we must reflect on the accomplishments — and failures — of our past. October marked the 35th anniversary of the Iran Hostage Crisis. Pathfinder spoke with "Argo" mastermind Tony Mendez and his wife, Jonna, about the mission to save six Americans from the embassy in Tehran and the failed mission of Desert One. We spoke with analysts about lessons learned then and how they changed the face of the military-intelligence relationship and continue to remind us today of the importance of solid intelligence and deliberate planning.

Finally, October marked a new era for agency leadership as Letitia Long stepped down as director and Robert Cardillo took the helm. In this issue of Pathfinder, we hear from the new director about his intent, his ideas and his outlook for the agency's future. Get ready. He is.

I hope you enjoy this issue of Pathfinder.

Glenn Holloway
Glenn Holloway
Editor

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Photo courtesy of Library of Congress



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NGA Salute.

STAFF SGT. CHRISTOPHER BOSTICK

By Kris Mackey, Office of Corporate Communications
Photo courtesy of Staff Sgt. Christopher Bostick

A MEMBER OF THE NATIONAL GEOSPATIAL-Intelligence Agency's LGBT community and a soldier assigned to the agency's Defense Intelligence Agency support team at Rivanna Station was awarded the Army Commendation Medal Sept. 10 for his actions in January that saved the lives of patrons at a Seattle nightclub that was the target of a hate crime.

Staff Sgt. Christopher Bostick, who joined the Army in 2005 and has served with NGA for about 18 months, received the award during a ceremony in front of his command and his NGA colleagues at the DIA building at Fort Belvoir's Rivanna Station.

Col. Sean McKinley, the Army's senior service advisor at NGA, presided over the

ceremony and read the citation, which noted Bostick "distinguished himself without regard for his own personal safety" and "reflects great credit upon himself, the National Geospatial-Intelligence Agency, the Military District of Washington, and the United States Army."

Bostick was attending a New Year's Eve celebration at a crowded Seattle bar when an arsonist doused the stairwell with gasoline, attempting to entrap hundreds of people in the upstairs portion of the bar, said Bostick.

Bostick and his friends were the first to sense intense heat, said Bostick. They did not see the gas can until the fire was out, but they did see flames in the stairwell.

"We knew fire extinguishers are kept behind the bar," said Bostick. "Since the bartender was absent, I grabbed it and handed it to my friend who quickly used it to douse the growing flames, while I grabbed for water."

KIRO TV of Seattle reported that in the first few seconds after the fire roared up the back stairway of the nightclub, Bostick was one of the few patrons who reacted immediately. He said he hopes anyone would react the same, but attributes his quick thinking to his military training.

"I'm embarrassed to say, my first move was to go after it with cups of water," Bostick told the news reporter. "Then, I quickly realized this fire is way bigger than that. You know, in 30 seconds, if that fire did what the arsonist intended, there's no telling how many people could have died."

The surveillance video of the bar that night supports Bostick's statement, said Seattle police detective Kerry Hays.

"Bostick noticed the fire, calmly and quickly located the extinguisher behind the bar which had been vacated by the panicking bartender," said Hays in a sworn statement for the investigation. "Bostick grabbed it and tossed it to his friend, and they were able to put out the fire before it spread beyond the stairwell. The quick actions of Bostick were admirable and heroic, preventing the fire from spreading, which could have caused mass panic, leading to injury or death." ✨

NGA, USAF improve collaboration to provide better GEOINT

By Kris Mackey, Office of Corporate Communications

RECENT CHANGES AT THE NATIONAL AIR AND Space Intelligence Center in Dayton, Ohio, reflect how the National Geospatial-Intelligence Agency's support team there is working to strengthen its partnership with the Air Force in a time of decreased budgets and increased threats.

Although the geospatial intelligence team has been instrumental in the advancement of full-spectrum GEOINT within the defense and intelligence community for some time, policy and organizational changes will further improve the capabilities there, said Ann Carbonell, Ph. D., NGA's support team director at NASIC.

The geospatial analysts at NASIC are unique in their ability to recognize systems designs, how they may be employed, their range, detectability, speed and vulnerability.

— Thomas Dobbs

Among the changes is a new joint NASIC-NGA GEOINT effort that combines the production-management priorities and associated processes for each organization into a single entity, said Carbonell. NGA and NASIC GEOINT production and requirement officers will comprise the office staff and have the authority to reach out to analysts in both organizations. The changes demonstrate how the GEOINT team is addressing the growing and complicated space mission.

The goal of this enterprise change is to focus on providing the best GEOINT solution to a customer's request for information, said Chris Schond, NGA's senior GEOINT officer at NASIC. The collaboration should become so mature that the lines between the two organizations are invisible.

"It shouldn't matter which part of the analysis is done by NGA staff and which part by NASIC," said Schond.

NASIC is the Air Force's single integrated production center and the primary producer in the Department of Defense of foreign air

and space intelligence, said Air Force Col. Thomas Dobbs, commander of NASIC's Geospatial and Signatures Intelligence Group. All-source analysts there closely monitor worldwide air, space and missile capabilities, accessing the capabilities, threats and probability of adverse impact to U.S. interests.

The geospatial analysts at NASIC are unique in their ability to recognize systems designs, how they may be employed, their range, detectability, speed and vulnerability, said Dobbs.

"The NGA and Air Force GEOINT analytic team has a combined average of 20 years of experience focused specifically on NASIC's unique aerospace mission requirements, which emphasize identifying weapon or target signatures and their historical and predictive patterns," said Carbonell.

"I wanted one GEOINT-based report that provides a holistic GEOINT perspective on the problem — whether collected from space, air, or ground, and whether Air Force or NGA produced," said Dobbs. "This will lead us to improved collaboration, better quality products and assessments, and therefore, more effective solutions."

"All members of the NASIC GEOINT team — whether NGA or NASIC, military, civilian or contractor, whether they are EO, SAR, spectral, thermal, or MASINT specialists — all talk before completing their assessments and will, more importantly, now have consistent insight and the ability to inform each other's analysis. This synergy ensures a better and faster intelligence report," said Carbonell. ✨

The NGA NASIC NST provides advocacy, oversight and guidance to the NASIC and the Air Force on matters related to GEOINT policy, program and initiatives. It serves as the GEOINT Functional Manager at Wright Patterson AFB providing GEOINT data, services and capabilities that directly support the creation of integrated and predictive intelligence for the air, space and cyber domains. NST personnel include image analysts, image scientists, geospatial analysts and computer aided design specialists. There are also representatives from other NGA specialties, including source management, technology and Innovation labs.



'Courage, strength' critical to combating suicide, saving lives

By Glenn Holloway, Office of Corporate Communications

AS PART OF THE DEFENSE DEPARTMENT'S September observance of Suicide Prevention Month, representatives from the National Geospatial-Intelligence Agency's Human Development directorate, Security and Installations directorate and the ombudsman's office hosted a session on suicide prevention for NGA employees in Springfield, Virginia, and St. Louis Sept. 24.

The session echoed the message released by Defense Secretary Chuck Hagel Sept. 2 calling suicide prevention a top DOD priority and addressing the fear of stigma associated with seeking help or reporting potential signs in coworkers, family or friends.

"When someone is going through challenges and comes to you for help, it doesn't make them weak," said Hagel in his statement. "It means they're strong, because asking for help when you need it takes courage and strength ... these brave individuals shouldn't be avoided or stigmatized. They need to be embraced."

The challenges Hagel referred to led to an average of 22 veterans a day taking their own lives in 2010, according to a 2013 report by the U.S. Department of Veterans Affairs. The total number of Americans who committed suicide in 2010 was 38,364.

NGA's workforce spans the demographics identified by the U.S. Centers for Disease Control and Prevention.

"[The demographics] pretty much cover us all," said former NGA Director Letitia A. Long in a September message to the workforce. "No one is immune, and often the ones who seem most adjusted are the ones hurting the worst. We all have struggles. We owe it to each other to watch out for each other. Get to know your coworkers, talk to your friends and families. Have the hard conversations that require courage and strength. We never know what impact a smile or a kind word may have on someone who is struggling with depression, or worse, suicidal thoughts."

The NGA session outlined programs available to the agency's workforce to help combat the struggles often associated with post-deployment reintegration and other challenges. The various programs offered by the agency, including the Federal Occupational Health Employee Assistance Program, the Deployment Resiliency

Program and others, are also available to managers and colleagues who recognize warning signs in their employees or coworkers.

"Suicide has touched NGA in a profound way," said Tony Farmer, branch chief in HD's Client Services division. "And so this is one of the things — only one of the things — that we are doing to try to meet the needs of the employees and make sure that we have good awareness and a good foundation around prevention and awareness."



Kaisha Keith, a licensed professional counselor with the NGA Employee Assistance Program, speaks to members of the workforce about suicide prevention at NGA's east campus Sept. 24 as part of the agency's Suicide Prevention Month activities. Photo by Tony Boone, Office of Corporate Communications.

The EAP provides confidential problem solving, consultation, counseling, referral and assistance to NGA employees no matter the issue, said Kaisha Keith, a licensed professional counselor with EAP. Program consultants are available to support or refer those struggling with depression, hopelessness or suicidal ideation. They also consult with concerned or grieving supervisors, colleagues and family members.

Counselors are available onsite at NCE and NCW, and toll free 24 hours a day, 365 days a year at 1-800-222-0364 within the continental U.S., at 1-888-262-7848 for TTY, and at 1-314-387-4701 outside CONUS.

NGA's Deployment Resiliency Program provides support services to NGA deployers, their families and Military Support staff before, during and after deployment,

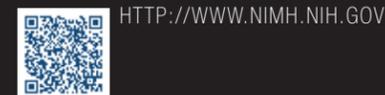
"When someone is going through challenges and comes to you for help, it doesn't make them weak. It means they're strong, because asking for help when you need it takes courage and strength ... these brave individuals shouldn't be avoided or stigmatized. They need to be embraced."

— Chuck Hagel

WARNING SIGNS

If you or someone you know shows any of these signs, seek help immediately by calling the Military Crisis Line at 1-800-273-8255.

- Talking about wanting to die or to kill themselves
- Looking for a way to kill themselves
- Talking about feeling hopeless or having no reason to live
- Talking about feeling trapped or in unbearable pain
- Talking about being a burden to others
- Increasing the use of alcohol or drugs
- Acting anxious or agitated; behaving recklessly
- Sleeping too little or too much
- Withdrawing or isolating themselves
- Showing rage or talking about seeking revenge
- Displaying extreme mood swings



[HTTP://WWW.NIMH.NIH.GOV](http://www.nimh.nih.gov)

according to program documents. Counselors and staff provide outreach, crisis intervention, short-term counseling and consultation, post-deployment mental health assessments, resiliency resources and referrals for mental health, when necessary.

"Psychological wellness is everybody's responsibility," said Mary Tramontin, clinical psychologist in SI's Psychological Services branch. "So, the well-being of every single employee is a shared responsibility belonging to the person to the left, to the person on the right, up and down the chain of command — that's one of our core beliefs.

Nothing gets better with avoidance," said Tramontin. "It's the mental and emotional concerns you don't address that can harm you more."

Frequently asked questions from the workforce are answered in an agency FAQ document, including an assurance that no employee in the history of NGA has ever lost his or her clearances for seeking mental health assistance, said Tramontin.

"We are always happy to hear that an employee has sought help, reported it, and is taking proactive steps to maintain wellness," said Robert Winston, chief, Personnel Security Division. "This helps the individual and protects the mission."

Federal employees, their families and friends can also get help for themselves or people they know through the Military Crisis Line by phone, online chat or text message, said Hagel in his message. The crisis line offers callers free, easy and confidential assistance from trained professionals 24 hours a day, 365 days a year.

"If you are struggling, it is important to seek help," said Long. "If you know someone who is struggling, say something. Do not rely on the person struggling to seek help. Too often, it is too much for them to do on their own. Be the kind of friend you would like to have in your corner. The loss of just one of us is too costly a price to pay."

Contact the Military Crisis Line by calling 1-800-273-8255 and pressing 1, or by visiting its website at www.militarycrisisline.net, or by sending a text to 838255. ✱



A Navy veteran's tale: Selfless service helps former sailor cope with loss, depression

By Glenn Holloway, Office of Corporate Communications

Among the number of Americans who struggle with thoughts of suicide or wage daily battles against depression, feelings of guilt and anxiety, are many who manage to stay out of the statistical groups identified by the Centers for Disease Control or Veterans Affairs. Those veterans, though they struggle, have found ways to fill voids and mitigate some of the most negative effects of dealing with difficulties.

At the core of one veteran's success in overcoming his own uncertainties and feelings of loss is the drive to help others and a debt of gratitude he owes his friends who made the ultimate sacrifice.

Adam, a former Navy petty officer and photographer who served in a special warfare command from 2002 to 2008, deployed about 10 times to Iraq, Afghanistan and other countries collectively, he said. The deployments, ranging from three to six months each, and the loss of nearly 40 brothers-in-arms, including 20 in one helicopter crash, took a toll on him.

"When you're in a command full of Type-A guys who don't let things get in the way of the mission, you feel like you need to adapt, overcome, succeed and not

let little things like friends dying slow you down," said Adam, who struggles with post-traumatic stress and receives VA compensation for it. "It took hitting rock bottom for me to seek help. Not long ago, I was in that exact position in the photo — a gun to my head, finger on the trigger. The only difference is that the gun was loaded, and I felt like I had nothing."

Like about 33 percent of Americans who committed suicide in 2009, according to a Centers for Disease Control report, Adam turned to alcohol for help, he said. He drank to the point of blackouts six or seven nights a week.

And when Adam drank, he became violent and depressed, he said.

One night, the drinking and violence escalated and he raged through his apartment destroying his belongings, he said. When he awoke the next day, he knew he needed help. He packed up all of his guns and gave them to a friend to hold. He then scheduled an appointment at the VA hospital in Hampton, Virginia, to see a counselor.

He saw the counselor a handful of times, he said. Too often, though, he drove to the hospital for an appointment only to find

that his counselor was not available. The drive home — with his demons still in tow — also drove him further from the help he desperately needed.

"I started drinking again and was falling back into that dark groove I was desperately trying to get out of," said Adam. "I was never able to pull the trigger, but was always asking myself why I was able to live and yet guys with families died."

"It took hitting rock bottom for me to seek help. Not long ago, I was in that exact position in the photo — a gun to my head, finger on the trigger. The only difference is that the gun was loaded, and I felt like I had nothing."

— Adam

He transferred to a community-based outreach clinic in Virginia Beach and saw a counselor there, he said. But, his treatment consisted of little more than medication. And while medications like selective serotonin reuptake inhibitors, or SSRIs, are a viable treatment for many with post-traumatic stress, it was not enough for Adam.

"I was on three or four pills just for this," he said. "It seemed like [the clinic's] treatment protocol was to medicate the patient and hope it all goes away. Well, it doesn't."

About 23 percent of U.S. suicide victims in 2009 tested positive for antidepressants, and nearly 21 percent were positive for opiates, including prescription pain medications, according to the CDC report.

He credits the VA for eventually recommending he join a group session, though he was uncomfortable sharing his emotions in a large group because he felt like he was whining and should toughen up, he said. He augmented the counseling with the pursuit of positive activities, greatly reducing his alcohol consumption and surrounding himself with friends, mentors and a cat.

"I give more [credit] to my friends," he said. "In the end they are the ones [who] will notice a change in you before the VA — maybe even before your own family. They have always been there for me and helped bring me up. Without them, I know for a fact I would be dead."

At other times, his cat provided the motivation to push through the pain and depression, he said.

"Some people have therapy dogs, I have a therapy cat," Adam said. "One of the reasons I never pulled the trigger is because I am a huge animal lover, and the thought of her going back to a cage would help bring me back out of the dark haze. So, I look at her as my therapy animal — an animal that, without knowing it, has saved my life several times."

Adam also started going to school and received his bachelor's degree, he said. He graduated summa cum laude with a 3.96 grade point average and met a professor who further changed his life. The professor was a paramedic for Virginia Beach Rescue, and he influenced Adam to become an emergency medical technician.

"I have always enjoyed the feeling of helping others without any payment or reward in return," Adam said. "So, I made up my mind to become an EMT and run rescue for Virginia Beach's Volunteer Rescue System."

The excitement, adrenaline rush and knowledge that he makes a difference in persons' lives drive him toward his goals, he said. He recently achieved national and Virginia state paramedic certification and is a paramedic intern for the city of Virginia Beach.

"[At] a special warfare command, you know you are making a difference and saving lives by capturing terrorists or helping find hostages, but you never really get that end satisfaction," said Adam. "Running rescue, you get that feeling because you see the difference you are making to that particular person and his family."

He now also sees firsthand how devastating suicide is on the victims, their friends, families and communities, he said. He is determined to do his part to help those he can and live up to the legacy of the friends he has lost.

He draws inspiration from a quote from former British Prime Minister Benjamin Disraeli, he said.

"You'll see in my emails a saying, 'The legacy of heroes is the memory of a great name and the inheritance of a great example,'" he said. "I have many great examples to live by and up to. I think that I did not pull that trigger because the man upstairs still has a use for me on this earth. I am still supposed to live up to a potential that I have yet to achieve. It has changed my life from being negative into something positive. I actually make a difference in people's lives — people I do not even know." ✨

Editor's Note: The subject of the article, Adam, is a pseudonym. He has asked to remain anonymous. He and the author served together from 2001-2002.



GEINT critical during HOSTAGE CRISIS

By Jason Moll, Office of Corporate Communications

THIRTY-FIVE YEARS AGO, IRANIAN militants took 62 Americans hostage at the U.S. embassy in Tehran, starting an international crisis that lasted more than a year.

Fifty-two of the diplomats and Marines taken hostage in the Nov. 4, 1979, raid spent 444 days in captivity while Americans at home watched the high-stakes drama play out on the nightly news.

While some of the news was good, like early release for some and the escape of the “Argo” six, most of it was bad, and included propaganda efforts by the hostage takers and a failed rescue attempt that left eight U.S. servicemen dead.

Imagery analysts and other specialists at the CIA provided U.S. special operations forces with the information necessary to covertly enter Iran and launch the rescue attempt. The team members worked for two NGA forerunners: the Office of Imagery Analysis, or OIA, and the National Photographic Interpretation Center, or NPIC.

During a Pentagon planning meeting Nov. 8, national security decision-makers asked the military to consider a rescue, according to an internal NPIC history. OIA imagery analyst Brian Detrick returned from the meeting to Building 213 in Washington’s Navy Yard and

furnished the team with imagery intelligence, he said.

Detrick collaborated with the team’s members as they planned the rescue, he said. The team worked nonstop for 48 hours to meet the deadlines.

“I was sort of dazed [from lack of sleep], but more or less coherent,” said Detrick. “[Other team members] were literally lying on two tables fast asleep.”

The completed materials and information were used by the Delta Force operators to plan and rehearse the rescue attempt, said Detrick.

Detrick and the team also worked with photogrammetrists with the technical knowledge and ability

to use satellite imagery to gather additional information that would help the rescuers, said Detrick. That information was critical to ensure there were no surprises.

Since Delta Force’s existence was classified and had attained operational status only about a year earlier, the first time Detrick heard of the elite unit was when they arrived for a briefing, he said. Detrick briefed the soldiers several times during the months that followed.

“They had all kinds of questions, such as, ‘what is this going to be like, what is that going to be like,’” said Detrick. “‘Am I going to be able to get around? Are there any impediments to get around this building to that building?’ They asked me anything they could think of.”

Detrick and his colleagues obtained blueprints from the Department of State and talked to former security officers who had been inside the embassy’s buildings, he said.

“Having the security officers who had actually been inside those buildings was a real help,” said Detrick. “Because you can only go as far as you see when looking at satellite imagery.”

The Delta Force operators also asked for information about the buildings and streets around the embassy, since they planned to extract the hostages from a nearby soccer field, said Detrick.

As time went on and the embassy turned into a prison, two other imagery analysts joined Detrick to provide updates on the compound’s structural changes — including activity related to the newly built guard posts, he said.

“Changes in security measures can be so subtle that you could say, ‘yeah, they haven’t changed anything,’ and then you come to find out they had,” said Detrick. “That was probably the toughest thing.”

As the rescue operation took shape, OIA imagery analyst Douglas Doolittle was asked to find suitable locations in Iran where the C-130 turboprop airplanes and RH-53D Sea Stallion helicopters could land, said Detrick. The rescue team would use the landing sites to fly into and out of the country.

Detrick and Doolittle were not allowed to talk to each other about their work, but Detrick was able to acquire a general understanding of the mission by talking to Delta Force planners and by viewing imagery tasking and collection, he said.

“The operational aspects included things like finding and locating a place for the airstrip, planning back at the embassy compound and setting up the airstrip where the hostage rescue attempt eventually fell apart,” said Detrick.

While the rescue team successfully flew into Iran April 24, 1980, President Jimmy Carter called off the mission on the recommendation of the Delta Force commander present at the Desert One staging area in the Great Salt Desert near Tabas.

While flying to Desert One, two helicopters experienced mechanical problems — one turned around and flew back to the aircraft carrier U.S.S. Nimitz, while another landed safely before reaching the staging area. Mechanical problems grounded a third helicopter at Desert One, leaving only five helicopters flight worthy —

one less than the plan required.

The aborted rescue attempt turned into a tragedy when one of the helicopters collided with a C-130 on the way out of the staging area. Three Marines and five Air Force aviators died in the collision and the explosion it caused.

Detrick learned of the tragedy after waking up to the news on his alarm clock radio, he said. None of the casualties were people with whom he had worked.

“At Building 213, we watched all of the coverage they had at the time,” said Detrick. “You literally could have heard a pin drop. Nobody had anything to say. It was like letting the air out of a balloon. When it was done, we all got up and left and nobody said a word.”

While Detrick said he recalls multiple after-action reviews of the rescue attempt, he does not remember hearing criticism of the role imagery intelligence played in the mission, he said. The Delta Force operators were reportedly pleased with the support they received.

“To the best of my knowledge, people were pretty satisfied with what we did,” said Detrick. “I don’t think there were any serious criticisms. [Our intelligence support] got rave reviews. I mean, the Delta guys loved it.”

Iran released the hostages as soon as Ronald Reagan was sworn in as president Jan. 21, 1981.

The hostages arrived at Andrews Air Force Base Jan. 27, 1981, and were transported to Capitol Hill by a fleet of buses, according to the NPIC history. Army Brig. Gen. Rutledge Hazzard, NPIC director, called for an

extended fire drill so employees could make the trek from Building 213 to South Capitol Street to welcome the hostages as the buses drove by.

While the rescue operation may look foolhardy in hindsight, remaining passive had its own risks, said Detrick.

“You could have said, ‘well, they were going to get out eventually.’ But they could have all been killed eventually, too,” said Detrick. “[There was] a bias toward action rather than inaction. The Delta guys are convinced that if they could have gotten to the compound, they could have pulled it off. Knowing these guys just in the brief time I did, if they think they could have done it, I have no doubt they could.”

IRAN HOSTAGE CRISIS TIMELINE

1979

Oct. 23
U.S. President Jimmy Carter authorizes U.S. sanctuary for deposed Shah Mohammed Reza Pahlavi, inflaming those who opposed his despotic rule. Militants later cite Carter’s move as the decisive factor behind their decision to seize the U.S. embassy nearly two weeks later.

Nov. 4
On the 15th anniversary of Khomeini’s exile, hundreds of protesters gather outside the U.S. embassy. Militants pour

over the embassy walls and storm the front gate as they seize diplomats and Marine guards. Six diplomats manage to escape through a side entrance and find refuge at the Canadian embassy. British and Swedish diplomats also help hide the six.

Nov. 19
13 women and African-American hostages are freed in a deal brokered by representatives from the Palestine Liberation Organization.

1980

Jan. 28
CIA officer Tony Mendez leads operation that results in six U.S. diplomats flying out of Iran on Swissair Flight 363 disguised as members of a Canadian film crew. The rescue is portrayed by the 2012 hit film “Argo,” and the book “Argo: How the CIA and Hollywood Pulled off the Most Audacious Rescue in History.”

Jan. 30
Congress passes a resolution honoring Canada for their role in

sheltering the diplomats and the operation that helped them escape the country.

April 7
President Carter expels all U.S.-based Iranian diplomats.

April 24-25
U.S. servicemen and special operation forces secretly fly into Iran for Operation Eagle Claw, a mission to free the embassy hostages and three others held in the foreign ministry. Two helicopters

abort the mission after experiencing mechanical problems. A third is deemed inoperable after reaching the staging area. Mission commanders call the White House and recommend aborting the mission. Carter calls off the mission.

April 25,
While leaving the staging area, a Sea Stallion helicopter crashes into a C-130, killing eight U.S. servicemen.

July 11
A hostage is freed after falling ill in captivity.

July 27
The exiled shah dies while living in Egypt.

Sept. 22
Iraq declares war on Iran. The war lasts until July 1988 and is considered the longest conventional war of the 20th Century.

1981

Jan. 21
After 444 days in captivity, the 52 remaining hostages are released after Ronald Reagan is inaugurated president.

Today’s collaboration fueled by failed Iran mission

By Jason Moll, Office of Corporate Communications

SHORTLY AFTER THE TRAGIC END TO the 1980 mission to rescue the U.S. embassy hostages, the Joint Chiefs of Staff commissioned a study to examine the mission’s planning and implementation as a basis for improving special operations in the future.

Excessive constraints on operational collaboration and mission planning, and the lack of coordination among the armed services were issues highlighted by the Special Operations Review Group, led by former Chief of Naval Operations James L. Holloway III.

OPSEC involves all of the measures required to protect sensitive activities and operations. Mission planners took extreme OPSEC measures to prevent the mission’s discovery, the Holloway Commission found in its unclassified report published Aug. 23, 1980.

“Surprise was [the essential element] for mission success, and complete security was essential to attain surprise,” the report said.

To prevent unauthorized disclosures and mission compromise, participants were only given the information required to fulfill their responsibilities, the report found.

While the commission was not designed to levy blame, its members

questioned whether OPSEC inhibited a comprehensive understanding among the participants and contributed to its failure.

Brian Detrick, a former CIA analyst who provided planners with imagery intelligence, said that OPSEC was too tight at the time. Detrick was among several analysts who provided information the soldiers needed to rehearse the rescue attempt. While other CIA imagery analysts scouted areas for possible landing sites, the teams were not allowed to discuss their work with each other.

“I think [OPSEC] was too good,” said Detrick. “On the imagery side, we could have reinforced each other better if we knew what [others were] doing. It did cause some difficulties.”

The inability to discuss the mission engendered hard feelings among Detrick’s colleagues, especially after requests for information were denied, he said.

The lack of coordination among the services — what Detrick called interservice rivalry — was another issue the commission cited. Detrick said he experienced this rivalry firsthand.

“It was the mindset that if you’ve got a big, high-profile operation like this, every service has got to be

involved,” said Detrick. “Instead of who can do the job best, the Navy has to have a part, Army has to have a part and the Air Force has to have a part.”

Special operations forces were flown into Iran on Air Force planes, while naval helicopters stood by to fly the hostages to safety.

The helicopter pilots had to fly for hours in a sandstorm to reach the desert staging area. The storm, called a haboob, caught the pilots by surprise and contributed to the mechanical problems that left three helicopters inoperable and prompted commanders to cancel the rescue attempt. A helicopter collided with a C-130 turboprop airplane while leaving the staging area, killing eight servicemen.

While the poor weather conditions caught the military pilots by surprise, the CIA’s pilots were deeply familiar with Iran and its weather conditions, said Detrick. He recommended that CIA pilots fly the mission and wonders if the rivalry between the CIA and military played a part in the decision not to use the agency’s pilots.

“I don’t know whether that was a CIA management call. But, I do know from talking with our managers that the interaction

between the [CIA Directorate of Operations] and the military wasn’t all that good,” said Detrick.

The lack of coordination among the armed services led to the formation of the Joint Special Operations Command, or JSOC, in 1983. JSOC is charged with coordinating activities among the special operations components of each of the services and ensuring their interoperability.

The intelligence community and military have both made major strides in improving mission planning, interoperability and OPSEC, ensuring effective coordination in the years following the Desert One tragedy, said the mission manager responsible for OPSEC at NGA. The mission to find Osama bin Laden stands out as a major operation where planners were able to find the right fit in terms of mission planning and execution, operational collaboration and OPSEC— those who needed to know were able to obtain the appropriate level of information at the appropriate time to do their jobs. NGA played an important role in the bin Laden operation and created the model of the Abbottabad compound where he was found.

“The emphasis on collaboration and sharing means that we’re working together more effectively and executing the mission.”

— NGA OPSEC mission manager

While agency rivalries may have inhibited information sharing in the past, the IC’s mantra has been integration and collaboration since the 9/11 Commission highlighted the issues in its 2004 report to the public, the OPSEC manager said.

The creation of the IC Desktop Environment, or IC DTE, is one aspect of the ongoing integration of the IC, the mission manager said. The DTE was officially launched in 2011 as part of the IC Information Technology Enterprise, which is designed to increase efficiencies, improve collaboration and deliver cost savings.

“The emphasis on collaboration and sharing means that we’re working together more effectively and executing the mission,” the OPSEC mission manager said. “We’re in a much better state today than we were 20 or 30 years ago.”



A Marine’s wife welcomes him home after his release from captivity. Photo courtesy Library of Congress.

'Argo' mastermind, wife discuss hostage rescue during Iran hostage crisis

By Jason Moll, Office of Corporate Communications

TONY MENDEZ IS THE FORMER chief of disguise and chief of the Graphics and Authentication Division in the CIA's Office of Technical Service. He spent 25 years with the agency, including undercover work in the most important theaters of the Cold War. He is best known for conducting the secret rescue of six U.S. diplomats during the Iran hostage crisis in 1980. That operation was the basis of the film "Argo," starring Ben Affleck as Mendez, which won best picture at the 2013 Academy Awards. Mendez and his wife, Jonna Mendez, also a former CIA officer, recently discussed their time at the CIA during the Iran hostage crisis.



Photo courtesy of Tony and Jonna Mendez

ARE YOU SURPRISED THAT IRAN REMAINS A FOREIGN POLICY PROBLEM 35 YEARS LATER?

WHAT WAS YOUR ROLE IN OPERATION EAGLE CLAW?

TONY MENDEZ (TM): YEAH. IT'S KIND OF A GUILTY PLEASURE — GOT TO HAVE VILLAINS you can love to hate when you go to work.

JONNA MENDEZ (JM): But the Iranians were not villains, initially. They were good friends of the United States. We have met so many Iranians in America who love America and Americans. I think no one could anticipate how this would play out. Just like no one could anticipate that the Ayatollah was going to step in and cause that firestorm.

TM: I WAS RESPONSIBLE FOR THE DAILY TRANSFORMATION OF ALL OF THE INTELLIGENCE officers and their assets. You know what happened with the six who escaped from the embassy, but most people don't know what the U.S. role was [regarding] the use of manpower, boots on the ground kind of stuff. [We scouted] potential landing sites — everything from square one. My piece of it [was] everything, soup to nuts.

WHAT ARE YOUR THOUGHTS ABOUT THE MISSION THEN AND NOW?

AS WE APPROACH THE 35TH ANNIVERSARY OF THIS NATIONAL CRISIS, IS THERE ANYTHING YOU THINK THE INTELLIGENCE COMMUNITY SHOULD REMEMBER?

IS THERE ANYTHING ELSE THAT YOU WOULD LIKE TO ADD?

JM: Tony [gave] cover legends and disguises to CIA operatives who were going in [to] set up an infrastructure so we could get information and establish communications. It was really involved. They were getting a lot of trucks together — and you don't just disguise people, you disguise things. So, the trucks had to look like Iranian military trucks. You can't have the Delta Force in these trucks going into Tehran looking like U.S. soldiers. So, there were uniforms and insignia so they would look like Iranian soldiers. There was all of the preparation for the people who went in who did the ground coverage. They went in a small plane to take soil samples to see if those big C-130s could land there. We had to put down landing lights in the desert that were pretty much invisible in the day time.

TM: Yeah, it was the first time they wanted to try to fly a C-130 using [infrared] goggles.

JM: You have absolutely no depth perception when you are wearing IR goggles. It's like you are on another planet. I am glad I wasn't on one of those planes. But they were involved in all of these, sort of, 'housekeeping' chores in Operation Eagle Claw — getting the scene set.

TM: WE KNEW COMING IN WE WEREN'T ANY DAMN GOOD AT [SPECIAL OPERATIONS]. WE would always opt to go with a British plan because they were better at it.

JM: You had so many elements working together, elements that didn't work together easily. You had the Marine Corps, the Air Force, the Army and the Navy. And they are supposed to be on the same communications links and supposed to be flying the same planes but using different rules. So, the fact that there wasn't a joint communications center highlighted some of the difficulties of trying to fuse together this 'Ace Team.' That same team was inclined to ignore intelligence — this is maybe a cheap shot after the fact — they were told, for instance, that the first stop was on a smuggler's route. That wasn't a good place to make that stop. They were told — they knew — there was a weather window. And that window actually closed March 31, so the weather was going to be against them.

TM: Sandstorms.

JM: Yeah ... sandstorms. And things driving some of these decisions were not mission-related things. There was politics going on, from the president on down. So, [it] probably didn't surprise [anyone] that this terrible, terrible thing happened.

TM: They undersold the helicopter for starters. They were afraid Iranian radar would catch them, and so they tried to keep their profile low, and it turns out that was exactly the wrong thing to do. They had to have at least six helicopters and they went with five.

JM: So there was a lot of wishful thinking going on. They were hoping, on so many levels, they were hoping for the best. It didn't happen. Tony said JSOC was the one good thing that came out of this.

TM: 'SMALL IS BEAUTIFUL.' I WAS REMARKING ABOUT THE CANADIANS AND SOME OTHERS who were able to do things because they weren't so top heavy. I think when I look back 35 years, one should consider that small is beautiful."

JM: If you look at the Middle East today, you have to wonder 35 years from now what you are going to be looking at. It's almost like Iran lit a match, that revolution, and it starts getting political but it always was political. The movie makes it clear. The book makes it clear. It was about oil, and it still is. I mean even today, right now, the Kurdish part of Iraq is a big oil producing area and ISIS groups want it. This thing has a long way to go before it plays itself out.

TM: AN INDIVIDUAL CAN HAVE A GOOD IDEA, AND THAT IDEA COULD BE ON THE DESK OF the president with four easy steps, if it had the right kind of pizzazz. That proved to be the case over and over again in my experience.

JM: And it was the case in Argo. There were four levels that it went through, which when you think about it is amazing. It is amazing how a good idea can move up like that in this government system that we have. Like floating a balloon, you have to put it out there and see if it rises. ✨

Editor's Note: The content of the interview was edited for space constraints.



By Glenn Holloway, Office of Corporate Communications

HOW IMPORTANT IS IT TO TELL THE NGA STORY IN AN UNCLASSIFIED WAY?

It's really important. We have always needed to make a public case, because the country invests a lot of money in this business and in our democracy. People like to know what they are getting for their money. I think it's even more important today, in an era of post-WikiLeaks disclosures and NSA issues, that there is a bigger public consciousness about what its intelligence community is doing. I think we have a great story to tell. We have a story of relieving human suffering, of recovering from hurricanes and typhoons, of securing events. And we have an advantage because many of our raw materials are unclassified, or can be. So, we have the platform, and we have the substance to tell a great story.

DO YOU SEE US EVER GETTING TO A POINT WHERE WE REGULARLY PUT OUR SEAL ON OUR PRODUCTS?

While I would like to see our seal on products where it is reasonable to do it, I am more concerned about getting our products and our services to the right folks at the right time. My first reaction is not to say, 'Hey, we stopped that forest fire in New Mexico.' No, 'We gave information and understanding to the Forest Service so they could fight it better.' Yes, we should be a part of that story, but it is more about enabling a consequence, which sometimes means being behind the scenes in our support to our customers.

WHAT ROLE DOES CREATIVITY PLAY IN THE SCIENCE- AND TECHNOLOGY-BASED FIELDS SUPPORTING GEOINT?

It's a huge role. We are in the business of telling stories, and you can't tell a good story unless you have the good parts of the story. You must have the content to get there. To me, creativity plays a role all through the construct. And it starts with being creative about how we're going to tackle the problem. I think we get stuck too early in our mental process when we see a current problem or new problem and go, 'Oh, yes. I know how we deal with that. We go to X source and use Y template and we do Z process.' Sometimes that routine is right. But, I believe strongly we need to question those routines and take a pause and ask ourselves if there's another way to answer that question. Sometimes our customers don't even know what the right question is to ask. So sometimes, we have to look at what's underneath the question — what's behind the question. This is what I mean by getting closer to our customer — getting into their headspace — so that you can think differently, more creatively about problems. If you do that well up front, there's a stronger likelihood you'll create valuable content, you'll put that content in context, and you'll creatively convey it back to the customer to enable their consequence.

Q&A with new **NGA** director,

Robert Cardillo

Vice President Joe Biden ceremonially swears in Robert Cardillo as director of the National Geospatial-Intelligence Agency Oct. 17 at the White House. Photo courtesy of the White House.

IN THE CREATIVITY PROCESS, HOW DO YOU ENCOURAGE LEADERS WHO MAY NOT BE READY TO EMBRACE CREATIVE FORWARD THINKING, AND HOW DO YOU GET THEM BEYOND RISK AVERSION?

I've run into that issue. Around 1990, we were being introduced to soft-copy exploitation. The work station was called the IDEX, or Imagery Data Exploitation System — it was a beast with two consoles and two screens. And you had to reserve time to use it. We were in the business of building hard-copy operation support packages back then. They were very manually intensive graphics packages, and they would start with the map then go to the overview and build tighter and tighter close-ups. And those close-ups had mensuration details and aim points — and it was big and heavy. In fact, we delivered them on trucks to our customers. To update those hard-copy packages, we had to redo the whole thing. So, I went down to the IDEX, one day, and took a whole day to build the thing in soft copy. My proposition to my boss was, 'Look. If that one point changes, all I have to do is go into the thing, cut this out, paste this in and it's done.' He listened to my pitch, and walked away muttering, 'We'll never do it because, what if the power goes out?' So, that was his answer. 'We might lose power, and if we lost power, we can't be dependent on this thing.' Of course, if we lost power we'd have a lot of other problems. And this was a boss I recognized in my 3 October ceremony, so I think very highly of him. This wasn't some Neanderthal who was just against anything new. He was just stuck in his own mentality about it. So, I did it on my own. Now, you may say that's insubordinate, but he didn't tell me not to do it. He just didn't give me any encouragement to do it. So, I began introducing it to my colleagues, and created a network of peers who were also on board, because none of us wanted to rebuild those hard-copy products. So, the short answer to that long answer is, sometimes you're going to run into a boss who says, 'That's cute. Go back to work. We don't do it that way here, kid.' I encourage you to be professional, do what you can to manage up and educate your boss. But don't leave it there. Look for peers, look for other partners in other parts of the agency, find a likeminded spirit in another directorate, someone you can team with. Going up is only one route, you can go left or right.

HOW DO YOU PLAN TO ADDRESS TRADECRAFT DEVELOPMENT?

I call it technical development, and I mean the development of specialty. If you're an Iranian regional expert, we want

you steeped in Iranian culture, history and language. And when we can, we want to immerse you as much as possible in the environment, so you can have a greater opportunity to elicit details out of the imagery or geospatial source you are exploiting. It will provide a better context within which we want you to apply your craft. There are also some core skills, depending on your career service and work role within that service, for which we want very deliberate training. I see that as a mix of classroom time at the college, on-the-job training with a team chief or senior analyst in your organization, and peer-to-peer training. In my career, I suspect I learned the most peer-to-peer.

HOW ABOUT LEADERSHIP DEVELOPMENT?

I'm a big believer that leadership doesn't have anything to do with a title, or a grade, or a rank, or anything like that. Leadership is a characteristic — a capability — we all need. And leadership is situational and dependent. For example, some people might see this job as all leader, all the time. It's not true. I don't know what the percentages are, and I certainly have my moments of leadership throughout the day. But, I have tons of learning throughout the day, tons of listening ... oh, by the way, I have bosses ... we all do. So, I too am managing up trying to make my boss successful. I admire what my predecessor has done here with leadership development at all levels. It takes a big investment in money and time to do this, and I will continue that investment. We always have to deliver the goods — to support the mission and the warfighter. Beyond that, the true measure of success in positions like mine and others is how we are developing those who follow us. We all should be in the mode of helping one another develop as leaders.

IS THERE A PLAN TO INCREASE OPPORTUNITIES WITHIN THE AGENCY TO WORK IN BILLETS OUTSIDE ONE'S TRADECRAFT?

I think there is, and I would support it. Most people are familiar with the Joint Duty Assignment program, and I think it's done great benefit to the community, great benefit to the workforce. Someone told me we need internal deployment opportunities. 'I'm an analyst. I love being an analyst. I expect to be an analyst when I retire. But, I think I could offer something in the Inspector General's shop if I was able to go do a tour for a year. And it would help me decompress.' Maybe there's a person in a very high tempo, round-the-clock, 7-by-24 job, and he needs a



NGA Director Robert Cardillo talks with Morris Jones, host of ABC's "Government Matters" Oct. 26 on the Washington, D.C., affiliate WJLA. Photo by Tony Boone, Office of Corporate Communications.

mental decompression — not an easy job, just a different job to exercise different mental muscles. I think that's very healthy. Obviously, we don't want everybody doing an internal deployment at the same time. They will need to be structured and managed similar to JDAs — we post them, people apply for them. I don't know why we couldn't do that internally.

'TAKE CARE OF THE TROOPS, THEY TAKE CARE OF THE MISSION' WHAT DOES THAT MEAN TO YOU?

I've heard debates 'Is it people first or mission first?' And I don't understand the debate. It's not either/or. It's 'yes' ... it's 'and' ... it's 'both.' If we were all about our people and didn't support the mission, we wouldn't exist very long, nor should we. There is no way you can be all about the mission without being all about the people. You have to do both at the same time. So everything we just talked about — personal development, career path, skills, education — why are we doing that? Obviously, to make you as capable as possible. Why? So you can support the mission. So, to me, it's just very symbiotic.

WHAT IS THE FUTURE OF THE NST ROTATION POLICY?

We are deployed, and we will be deployed. The reason we have those deployments is to benefit our customer. The vast majority of the people going out there are enriched by the experience. They get a new perspective and understanding of our business, and, let's face it, in large measure those are wonderfully rewarding assignments and opportunities. But let's say we send 100 people out on assignment and just leave them there. At some point, those 100 will hit a diminishing return curve.

The value they'll receive from the deployment will start to go down over time. And our value to the customer will go down over time. Now, it's not always easy for the customer to see that. They go, 'Well, John's been here for five years. And John's wonderful. And why would you think John's not as valuable?' But let me go back to what I said a minute ago, those billets are highly valuable, highly rewarding opportunities. We need to share those. Every case is unique. I'm not big on factory models, where you turn the crank and each NST and each deployer is treated the same. But, I do think it's useful to have broad guidelines about what we're committing to, so when you sign up for a deployment or outside assignment, you know what the left and right bounds are. People asked me when I left my last job, 'How can you leave the Oval Office, the presidential daily brief?' I said, 'Because it's a great job and I shouldn't be in it forever. I should let somebody else have a great job.'

HOW DO YOU MAINTAIN A WORK-LIFE BALANCE?

I don't carry the weight of the job around, because I have trust and confidence in the team. We have great leaders. We have great employees. We have good processes. So, I don't feel like I have to be in on every action. I believe that is part of a good work-life balance. You have to have some sort of separation. Ms. Long was able to take two straight weeks of leave — that's a stretch goal for me. But, I will commit to a solid week in February or March to go skiing and not ... well, I'll have my Blackberry. ✨

CARDILLO'S TIPS FOR SUCCESS AS INTEL PROS

- The value of your service is measured by your customers.
- No personal attribute is more important to success than self-awareness.
- Be confident in your contributions and that you don't have all the perspectives, much less all the answers.
- Know when to listen and when to project.
- Be the best partner you can be in every engagement.
- Grow a deep and durable network.
- Be proud of your contribution, but don't look for credit.
- Expect to have and give top cover when blame is incoming.
- Share best practices and lessons learned. Sharing a failure is a best practice.
- Digest, think, debate, decide and execute decisively. Then, do it again.

EBOLA crisis

NGA SUPPORTS

By Paul Frommelt, Office of Corporate Communications

IN RESPONSE TO THE NEEDS OF LEAD federal agencies and partners fighting the Ebola virus disease, the National Geospatial-Intelligence Agency on Oct. 23 began providing unprecedented online access to its unclassified geospatial intelligence products and services through a public-facing website dedicated to the crisis.

The site uses Esri's ArcGIS platform and is hosted in the cloud by Amazon Web Services — both publicly available services — and features various base maps that provide foundational context for users who can visually overlay data from NGA and other sources, said Steven Alness, of NGA's Xperience directorate.

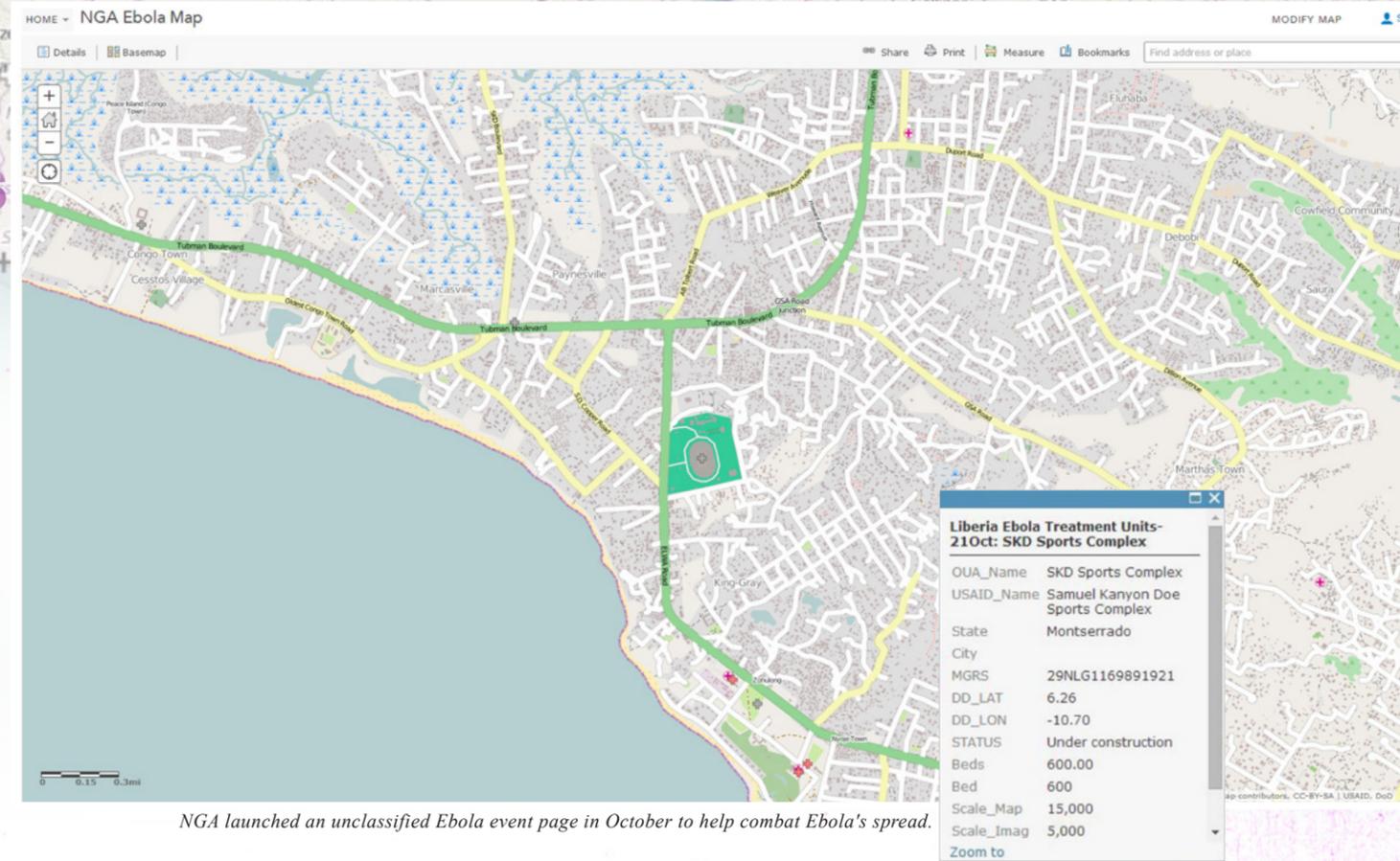
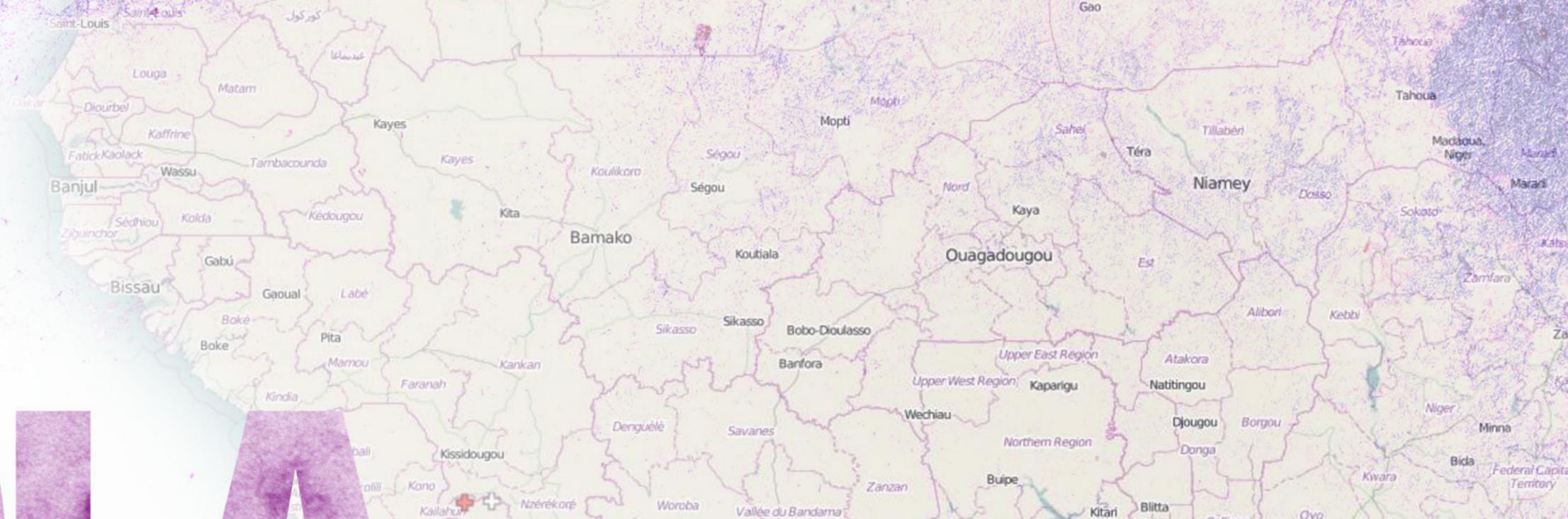
In its role as geographer for the Department of Defense, NGA's latest efforts are in step with other global events that have required the agency's disaster support, including

Hurricane Katrina in 2005, the Haiti earthquake in 2010, Hurricane Sandy in 2012 and Typhoon Haiyan in 2013, said Tim Peplaw, GEOINT mission manager for NGA's Integrated Working Group - Readiness, Response and Recovery, or IWG-R3, which provides GEOINT support to humanitarian assistance and disaster relief activities.

"This has the potential of being a global incident," said Peplaw. "We are looking at multiple locations and we are trying to provide support. It's not single threaded. It's not just one event taking place, it's happening on the entire western part of the [Africa] continent."

The dynamic site allows NGA to update it as soon as new information is available, said Alness.

"As we expose the data, we want it to be used, useful and usable," said Alness.



NGA launched an unclassified Ebola event page in October to help combat Ebola's spread.

In July, NGA established a working group to support the DOD, federal agencies and international organizations responding to the Ebola crisis.

— Martin Cox

THE FATHER OF MODERN EPIDEMIOLOGY

NGA'S ROLE IN STOPPING THE

current Ebola outbreak is not the first time that mapping a data visualization was used to stop the spread of a disease.

In the waning weeks of the summer of 1854, a devastating outbreak of the deadly cholera disease hit Broad Street in the Soho district of London. Over the course of three days in early September, 127 people died. By Sept. 10, there were more than 500 victims.

Cholera is "an acute diarrhoeal infection caused by ingestion of food or water contaminated with the bacterium *Vibrio cholera*," according to the World Health Organization. If left untreated, the disease — which causes extreme dehydration due to vomiting and diarrhea — can kill within hours.

But what is accepted as scientific fact — that the disease is spread by ingesting contaminated food and water — was dismissed by physicians at the time. Many believed that cholera was spread by miasma — a theory with origins in ancient Greece. Meaning "pollution" or "bad air," the popular miasmatic theory postulated that the disease was airborne, spread by contaminated gases rising from sewers, swamps and open graves.

When the Broad Street cholera outbreak hit, Dr. John Snow began developing a strategy to fight the spread of the disease. Snow, a well-known anesthesiologist who lived nearby, had a long history with the deadly disease, dating back to the summer of 1831. As an 18-year-old physician's apprentice in Newcastle upon Tyne, he spent the latter half of 1831 and early the next year helping treat cholera patients until the epidemic ended in February of the following year.

Snow again came in contact with the disease 17 years later, when another outbreak struck London. This time, the experienced doctor took a holistic approach and began tracking the spread of the outbreak rather than treating individual patients.

During the course of his interviews, Snow discovered that most of the victims first reported digestive problems, which is consistent with a disease that ingested through food and water, rather than inhaled — as the proponents of the miasma theory believed. This caused Snow to turn his attention to the city's water supply. In an effort to rally the medical community to this new theory, he published a pamphlet entitled "On the Mode of Communication of Cholera."

Unfortunately, without proof, Snow's pamphlet did little to persuade his colleagues. It wasn't until the Broad Street cholera outbreak that Snow turned to mapping and data visualization to stop the disease in its tracks.

When the outbreak hit Soho, Snow immediately turned his attention to the Broad Street pump. He hypothesized that the well under the pump was being contaminated by the sewer pipes in the area. To prove his theory, he took a map and plotted the cases of cholera in the vicinity. The overwhelming majority of the cases were in close proximity to the Broad Street pump. The handle of the pump was removed and the outbreak quickly ended.

Thanks to his pioneering efforts in identifying the biological cause of the disease and its geographic source, Snow is considered one of the fathers of modern epidemiology, the study of the distribution and detriments of disease in human population.

Maintaining the information at the unclassified level helps ensure it can serve a greater number of users, said Martin Cox, national geospatial-intelligence officer for Africa and NGA issues manager for the Ebola crisis. Nongovernmental organizations using the information on the front lines of the Ebola fight have limited or no access to classified material.

"If we don't keep it unclassified, the majority of the people who are working in the field will not be able to access the information that they may need to help bring this epidemic to a close," said Cox.

Among the first data the agency has released are geospatial layers relevant to the Ebola outbreak in Guinea, including cultural places and structures, and communication, electric power and ground transportation infrastructure, said Cox.

This data will allow users to see Ebola cases by province and the locations of emergency treatment units, said an IWG-R3 analyst. Users can determine from the data distances between transportation hubs, like airports, and the closest emergency treatment unit.

In contrast to the traditional static products NGA has provided relief workers during other events, the dynamic nature of the new website allows for continuous updates as new information comes in, said the analyst.

The effort is in line with NGA's focus on putting knowledge directly into the hands of users, and though out of the norm for an intelligence agency, is the right thing to do, said Cox.

"If [people using our products] are trying to do good, why would we not want to help?" said Cox.

TIMELY AND ACCURATE INTELLIGENCE IN 'THE MIDDLE OF NOWHERE'

Though the affected area is already extremely large, infection rates in West Africa are predicted to grow exponentially larger, said

Cox. The combined size of Guinea, Liberia and Sierra Leone is 165,625 square miles, or roughly three times the size of Louisiana and 15 times the size of Haiti. Other neighboring countries, like Nigeria, which has been minimally affected, may be at risk in the future, adding to the scope of the problem.

The current outbreak is believed to have begun late last year, but it wasn't until March that NGA analysts working with the National Center for Medical Intelligence at Fort Detrick, Maryland, began receiving questions from government customers related to Ebola's spread, said Cox.

"At that point, nobody really had the understanding that this was going to explode the way that it has through the region," said Cox. "Everybody was surprised by just how quickly it got really bad."

In July, NGA established a working group to support the DOD, federal agencies and international organizations responding to the Ebola crisis, said Cox. This includes providing situational awareness on how difficult terrain, socio-cultural issues and sparse infrastructure affect the spread of Ebola in the region.

Liberia, Guinea and Sierra Leone all rank near the bottom in measurements of life expectancy, education and standards of living across the globe, according to the United Nations Development Programme's Human Development report. Liberia ranks 175th out of 187 countries on the report, Guinea is ranked 179th, and Sierra Leone 183rd.

"These are three of the least developed countries on the face of the Earth," said Cox, adding that Sierra Leone and Liberia are still recovering from brutal civil wars.

The poor transportation infrastructure within these countries is especially apparent during the rainy season between late April and early October, when rivers swell, dense vegetation blocks access and dirt roads turn to mud, said Cox.

So, in early October, when a U.S. Army master sergeant stationed in the Liberian capital of Monrovia needed to reach a remote village by helicopter, he called NGA to help, said Cox. The Army was supporting a flight of U.N. personnel trying to assess Ebola's effects on a village in an extremely rural part of the country, quite a distance from Monrovia.

The Army had two coordinates and a general description of a village that might have a soccer field, said Cox. In less than four hours — and a few hours before the helicopter was to take off — NGA provided graphics using commercial imagery that showed both locations and a soccer field large enough to land a helicopter.

NGA received a call the next day from the master sergeant, saying the pilot would have never found the place if not for NGA's graphics, said Cox.

FORWARD SUPPORT

NGA also deployed a geospatial analyst to Liberia with the U.S. Army's 101st Airborne Division from Fort Campbell, Kentucky, as part of Operation United Assistance.

"We send people forward to be able to provide GEOINT support for our force in the field," said Cox. "We are able to send these people with the proper equipment and the data sets and commercial imagery that they need to be able to do their job."

A member of the U.S. Army's NGA support team with the 101st since June, the NGA analyst was initially tapped to provide rear echelon support to the operations rather than deploy with the division, he said. Instead, he was sent to Liberia with the team to provide hands-on GEOINT support.

"If I'm going to be supporting, I would rather do it from Liberia and get the requirements directly rather than via telephone or email," said the analyst, who has previously deployed with NGA.

LIFE EXPECTANCY, EDUCATION AND STANDARDS OF LIVING ACROSS THE GLOBE

Liberia, 175

Guinea, 179

Sierra Leone, 183

187 Total Countries

According to the United Nations Development Programme's Human Development report

42

Number of days it takes for two incubation cycles to pass. If no Ebola new case occurs during that time, officials can declare an end to the outbreak.

The forward-deployed analyst's primary focus is ensuring that the 101st has access to NGA data and analysis products and ensuring NGA knowledge gets to the right people, he said. The analyst ensures the unit's requests for information are properly vetted and sent to the appropriate divisions within NGA. The analyst also produces maps and contributes data layers to the Army's common operational picture, powered by Google Earth.

The analyst knows the risks associated with traveling to Africa to fight the deadly disease, he said. Before traveling to Liberia, the 101st went through intensive training on the risk of Ebola infection, including a breakdown of the symptoms and prevention techniques. He also learned of other diseases more likely to be contracted, like malaria and yellow fever, and preventative measures for them.

NGA's direct support is vital to the relief efforts, especially the support to customers unfamiliar with GEOINT, said the analyst.

"They understand geospatial engineering and they understand imagery analysis, but for them, the two don't work well together," said the analyst. "I know how the two work together. NGA provides a perspective of how you can work geospatial and imagery together and have a better overall product."

ANTICIPATORY INTELLIGENCE FOR THE DRY SEASON

The current Ebola outbreak is unprecedented in its size and complexity and, unfortunately, the end is nowhere in sight, said Cox.

NGA analysts are trying to determine why the virus has not spread to neighboring countries, said Cox. One theory is that the poor transportation infrastructure hampering relief efforts is also slowing the spread of the disease.

"What kind of constraints on movement might there be because of the impact of the rainy season upon roads and the dense vegetation among the borders?" said Cox. "As the dry season hits, are we going to see the disease spread into neighboring Ivory Coast, Mali or Senegal?"

NGA recently provided a product to a senior policymaker seeking to answer how terrain constraints affect the spread of the virus, said Cox. NGA has been tasked to update it in the next month.

For now, Cox and his team are focused on one number — 42, he said. That's the number of days it takes for two incubation cycles to pass. If no new Ebola case occurs during that time, officials can declare an end to the outbreak.

"There's a lot of people working a lot of long hours to bring this to a successful conclusion," said Cox. "We keep hoping we can start counting from 42, but unfortunately, we are nowhere near that in this region."*

LARGEST AND MOST COMPLEX EBOLA OUTBREAK

IN 1976, THE FIRST EBOLA VIRUS disease appeared in Zaire — now known as the Democratic Republic of Congo — in a village near the Ebola River. The outbreak killed 280 people. According to study published by the London School of Hygiene & Tropical Medicine, the initial cause of the outbreak was contaminated needles at the Yambuku Mission Hospital.

The identification of the cause and immediate closure of the hospital, along with changes in community behavior — including modifying burial habits to reduce the risk of contracting the disease from the deceased, fortunately limited

the scope of an outbreak, the study said.

Ebola causes severe acute illness with sudden onset of fever, malaise, vomiting, diarrhea and external bleeding, according to the American Public Health Association. Ebola can be transmitted through direct contact with blood, feces, or sweat, through sexual contact, or by the unprotected handling of contaminated corpses, infected animals, or animal carcasses, according to the APHA and International Society of Infectious Diseases. There is no specific treatment or vaccine for Ebola infection, although, according to the Centers for Disease Control

and Prevention, experimental vaccines and treatments for Ebola are under development. Recovery depends on good supportive care and the patient's immune response.

Since discovery of the virus, there have been more than 30 separate outbreaks of Ebola. None have been more destructive than the current outbreak, according to the World Health Organization. The current outbreak in West Africa is the "largest and most complex Ebola outbreak" since its initial discovery and has killed more than all of the others combined.

Old maps, new mission NGA, Library of Congress project digitizes, enhances old maps

By Nancy Rapavi, Office of Corporate Communications

THE BASEMENT AISLES OF AMERICA'S oldest federal cultural institution run long and cool.

Maintained at a constant 65-69 degrees to protect decades-old delicate maps and documents, one of the most comprehensive cartographic collections in the world is tucked away in forest green filing cabinets in the basement of the Library of Congress in Washington, D.C.

Soon more than 30,000 of these maps will be digitally available to intelligence analysts and the public thanks to a five-year partnership between the National Geospatial-Intelligence Agency and the library.

Soon more than 30,000 of these maps will be digitally available to intelligence analysts and the public thanks to a five-year partnership between the National Geospatial-Intelligence Agency and the library.

The collaboration entails NGA scanning maps from the library's Africa collection. Members of the NGA GEOINT Research Center then add metadata, including map sheet names and coordinates, before transferring the data electronically to NGA. The library will maintain this data for the public, and NGA analysts will have access to the historical maps.

"It's a win-win. The Library of Congress gets the scans of the maps in their collection, and NGA gets the images and information for maps [it doesn't] have," said Paulette Hasier, head librarian at NGA's GEOINT Research Center at the agency's Springfield, Virginia, headquarters.

The Library of Congress has been a research mecca for Congress and



Danielle Mackin and Craig Simon work with the Library of Congress to catalog historical maps of Africa with metadata. Photo by Kevin Clark, NGA Office of Corporate Communications.

the public since its inception in the 1800s and now hosts more than 5.5 million maps. About 30,000 maps in the library's collection will be scanned and outfitted with metadata, said Craig Simon, NGA's manager for the project.

"We are adding maps to areas where we have gaps in our collection, said Simon. "This project will really help us build our collection."

Derived from numerous sources, the maps feature hundreds of languages and dialects, which hint to the politics and history when the maps were created.

For example, one map set in the collection includes Egyptian cadastral maps, or maps that show ownership boundaries, from the 1920s to 1940s. Borders vary based on what country created the map.

Historical maps allow us to determine who was there and why they were interested in the area, said Danielle Mackin, an NGA employee who works full time from the library with the metadata tagging team.

Due to their age, historical maps

also have a tendency to fade and rip. Because of their fragility and susceptibility to damage, older and more delicate maps are scanned on large flatbed scanners. An upright scanner is used for more modern maps.

Once scanned, NGA researchers electronically add metadata.

"Meta-tagged information adds layers of granularity to the historical maps," said Simon.

Details include the producers of the map, the area of the world depicted, its title, the year it was completed and its edition.

"We want to incorporate metadata so that the maps are findable, readable and researchable," said Simon. "If it's not findable, it's not helpful."

NGA's partnership allows the library to achieve a higher level of detail and exposure that could not be achieved alone, said Colleen Cahill, the digital conversion coordinator for the Library of Congress and NGA's liaison with the library. The library doesn't have the staff or scanners it requires to complete the work.*

GEOINTERESTING



WWW.MICECHAT.COM

DISNEYLAND
Ask any adult visitor to Disneyland what stood out to them the most about their visit and they are likely to tell you, “the lines.” MouseAddict, a mobile app, unveiled Tomorrowplan, a feature that provides two weeks of future Disneyland crowd predictions. To create the projections, the app considers walkway capacity, where attraction line back up occurs, weather forecasts, historical trends, wait times, attraction closures and hotel availability, as well as a crowd-sourced map overlay tracking Disneyland guest movement. Oh boy!
Image: MiceChat



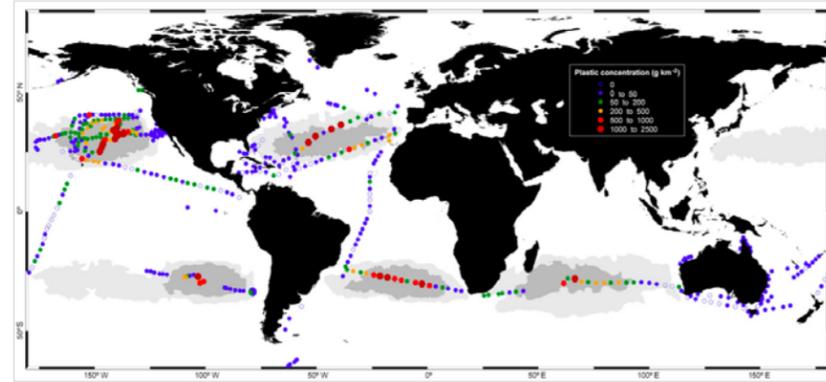
WWW.THEWEATHERNETWORK.COM

ALASKA
What happens when you have a previously unexplored forest larger than the state of California? 450,000 square kilometers of very inaccessible forest in the Alaskan interior is now getting a close up look courtesy of NASA. Researchers from NASA and the U.S. Forest Service are capturing high-resolution aerial imagery at ten centimeter resolution and science data at one meter resolution through low-altitude flights just 335 meters off the ground. The photos will allow scientists to track climate and wildlife changes in the forest. Just don't blame us when they end up finding dinosaurs.
Image: NASA



WWW.THEDAILYBEAST.COM

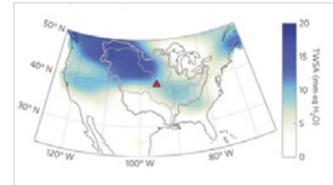
WASHINGTON STATE, ALASKA, CALIFORNIA, COLORADO
Only you — and satellites, lasers and drones — can prevent forest fires. Scientists, firefighters and conservationists now have a bevy of high-tech tools to combat wildfires. NASA satellites provide real-time fire data, USGS satellites can provide the data used for disaster assessments, while light detection and ranging sensors can determine ground fuel composition levels and allow for modeling of burn rates. Unmanned aerial vehicles, if approved for use by the FAA, will provide yet more information on areas susceptible to fire. Smokey the Bear approves.



GREAT OCEAN GARBAGE PATCHES
Meet the newest member of the food chain — ocean plastic. While mapping debris patches in each of the world's oceans, researchers found up to 35,000 tons of plastic, but noted there should be more ... conservatively, at least 950,000 tons more due to litter and storm water runoff estimates. The researchers list a few possibilities for the location of the missing plastic in a recent study, including accumulating at the ice caps, washing back ashore, or being consumed by plankton and fish, then entering our food chain. Yum!
Image: Vox



WWW.VOX.COM



WWW.POPSCI.COM

MISSOURI RIVER
Satellite or precipitation prognosticator? NASA satellites that can measure water on the surface of the Earth are being used by scientists to predict flooding. Using 2011 Missouri River flooding data, researchers looked at historical satellite measurements and were able to model how much water would flow into the Missouri River basin and whether flooding is probable. Right now, this method has only been used in research of previous flooding incidents, but the hope for the future is to provide these flood warnings months in advance.
Image: The Grist



WWW.BUSINESSWEEK.CO.UK

BOSTON, LONDON
If Robert Frost were writing “The Road Not Taken” for the 21st century, he may have turned in something like this. Yahoo! Labs developed an algorithm to map the most beautiful, quiet and happiest travel routes using Boston and London as test cities. Their methodology included soliciting comparison information from survey respondents and using a geo-referenced 7-million-photo dataset to correlate location with positive or negative word tags.



EASTER ISLAND
Pescaterian purloiners beware. With one in five fish sold obtained through illegal fishing practices and equating a loss of more than \$20 billion annually, we need the maritime version of Batman (sorry, Aquaman). Enter Pew Charitable Trusts, which is teaming up with a British satellite group to gather signals from ship transponders and combine that with other data, like vessel name history, ID number and fishing license details. Illegal fishing contributes to maritime issues like overfishing and Pew hopes that by providing this information to authorities for crackdowns, illegal fishermen will cut bait, rather than fish.



WWW.GRIST.ORG



NGA embraces gamification for engagement, innovation

By Jacquelyn Karpovich, Office of Corporate Communications

GAMIFICATION ISN'T JUST FOUND in the latest version of Candy Crush Saga or in the nearest Xbox. It is being successfully used commercially in everything from recruitment tools for the military, graduate school prep courses and personal financial management websites.

And now, gaming principles — like points, rewards, and badging — are unlocking new achievements in the intelligence community.

Government game-development efforts are exponentially on the rise, said National Geospatial-Intelligence Agency Director Robert Cardillo in an October press release announcing the release of the agency's gamification software to its organizational account on GitHub, an open-source,

collaborative software development environment.

"The current generation of professionals is discovering the collaborative learning power of using games in standard business practices, and the newer generation is already familiar with how these new technologies are powerful learning tools," said Cardillo.

The agency's software gives awards or badges to users and operates as a stand-alone application, or it can be integrated with other Web-based applications to increase learning, processing and output, said Ray Bauer, an NGA information technology innovation lead. It also provides a customizable Web interface for displaying badges and a configurable rules engine that

translates actions performed by users into awards.

Gamification fits into the workflow of intelligence analysts and geospatial analysts as a tool to manage and incentivize collection and analysis of data, said Bauer. The points and value system reinforced through gaming can motivate employees to complete and promote well-rounded tradecraft and training.

Bauer witnessed the successful application of gamification while supporting the agency's humanitarian assistance and disaster recovery team, he said. The analysts on the team earned points by identifying features within their individual areas of interest. After collecting enough features, they unlocked badges.

The higher the proficiency in a particular feature, the more achievements they received.

"In the future, I see individuals competing for personal awards, [and] teams and groups within NGA challenging one another to excel," said Bauer. "It can also help to engage analysts from all over the intelligence community to collaborate while building interdisciplinary tradecraft."

The application of gamification at the agency stretches beyond intelligence analysis and into agency business practices.

In July, Cynthia J. Mendoza Chatelain, NGA's chief engineer and senior leadership gamification champion, tested gamification's efficacy in the agency's inaugural "Capabilities Camp," which brought people together from across the agency to align elements with the agency's new portfolio management business construct — a new operating concept.

Badges were awarded to encourage participants to use creative thinking and step out of their comfort zones when making decisions and recognizing team members, said Mendoza Chatelain, who looked to promote thinking in a broader agency-wide perspective among participants.

"Ultimately, everyone who contributes is a part of a game and a team," said Mendoza Chatelain. "Gamification brings people together for a common purpose and allows new ideas and innovation to come forward in an uninhibited way."

In a time of declining budgets and limited resources, the benefits of being able to leverage software development in an unclassified environment

like GitHub makes complete sense for an intelligence agency like NGA, said Mendoza Chatelain.

"In fact, I think we need to leverage more of it," said Mendoza Chatelain. "As long as protecting our classified data remains paramount, I think there is a lot to gain. There's a lot of talent in the unclassified environment."

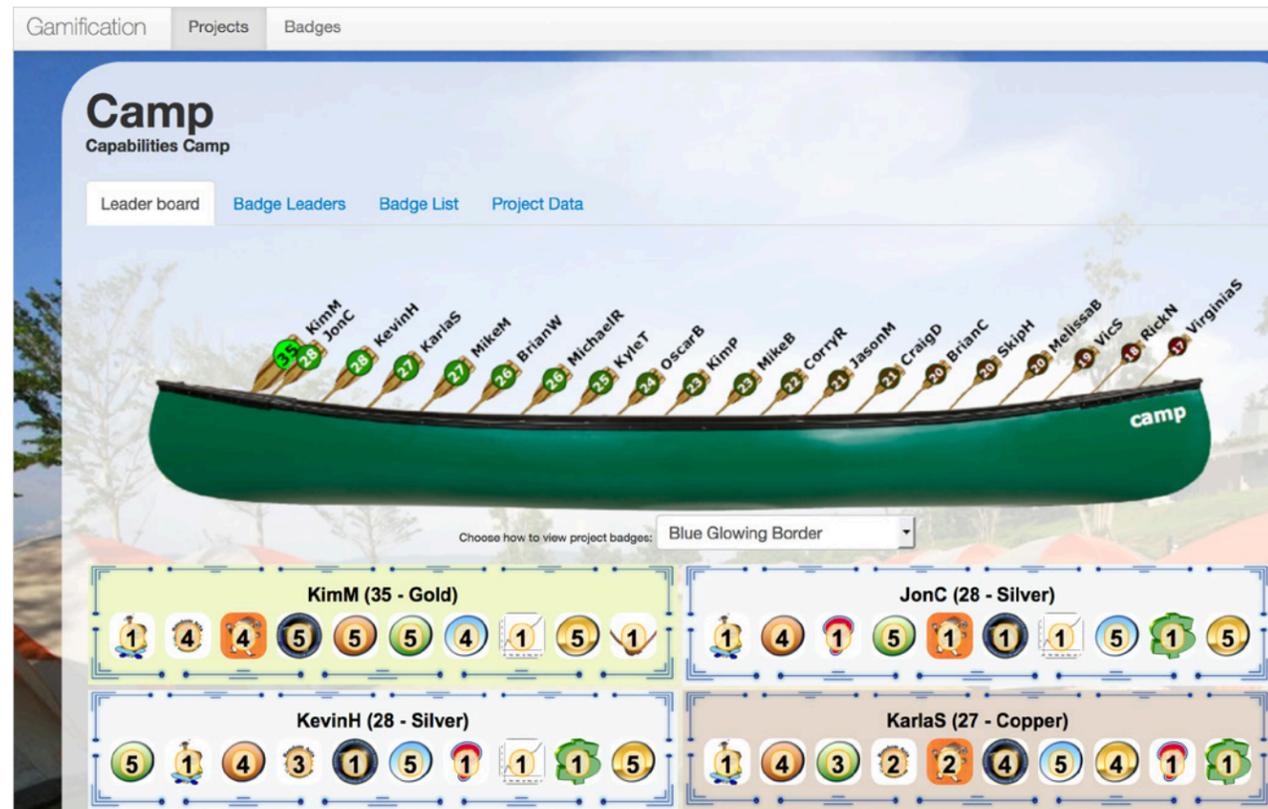
"The current generation of professionals is discovering the collaborative learning power of using games in standard business practices, and the newer generation is already familiar with how these new technologies are powerful learning tools."

— Robert Cardillo

As the director of NGA's Information Technology Architecture and Engineering Group, Mendoza Chatelain already sees a number of immediate applications for gamification within her own organization, particularly in efforts to reshape the IT workforce and promote new skills development, she said.

"It makes things fun," said Mendoza Chatelain. "You're in there doing the work and gamification makes it more exciting."*

The information technology research and advisory company, Gartner, defines gamification as "the use of game mechanics and experience design to digitally engage and motivate people to achieve goals." Gartner estimates that by 2015, more than 50 percent of organizations that manage innovation processes will gamify those activities.



In July, agency leaders used gamification to encourage innovation.

NGA officer named honor grad of year at FLETC

By Kris Mackey, Office of Corporate Communications

MICHAEL R. BRANSFORD IS A SERGEANT

with the National Geospatial-Intelligence Agency's Office of Protective Services in St. Louis, Missouri. He recently was named honor graduate of the year by the Federal Law Enforcement Training Center, which graduates about 70,000 students annually and supports more than 90 U.S. federal organizations and state, local, tribal and international police forces.

Bransford, who graduated FLETC in January of 2013, is the first NGA student to earn the title. Bransford had the highest academic average in his class, based on scores of written examinations, firearm proficiency and physical efficiency tests.

"As a FLETC graduate, I know how big of an accomplishment this award is to receive," said Lt. Anthony Weidler, Bransford's direct supervisor. "This is just another example of how Sgt. Bransford demonstrates excellence in everything he does."

As a squad supervisor on the evening shift at St. Louis, Bransford helps ensure a safe operating environment by protecting agency personnel and visitors, property and operations.

"These officers do so much more than badge checking, which is the more common perception of officers at NGA," said Mark Bramlett, deputy chief of police, NGA West. "The officers have extensive backgrounds in law enforcement, military and training."

Bransford is a U.S. Army veteran who worked as a deputy sheriff in Warren County, Indiana, for two years before moving to Danville, Illinois, where he worked for 18 years with the Danville Police

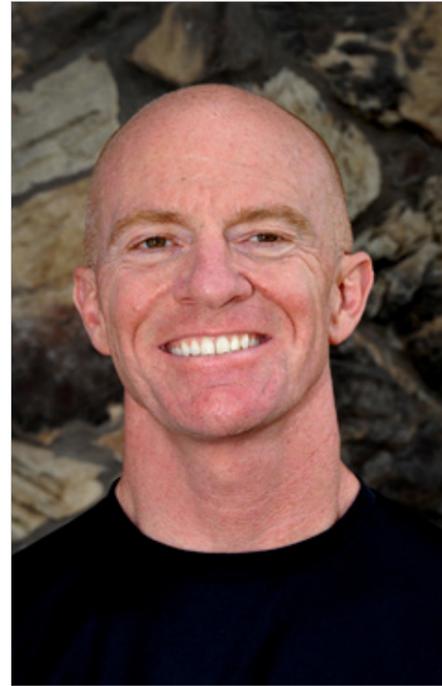
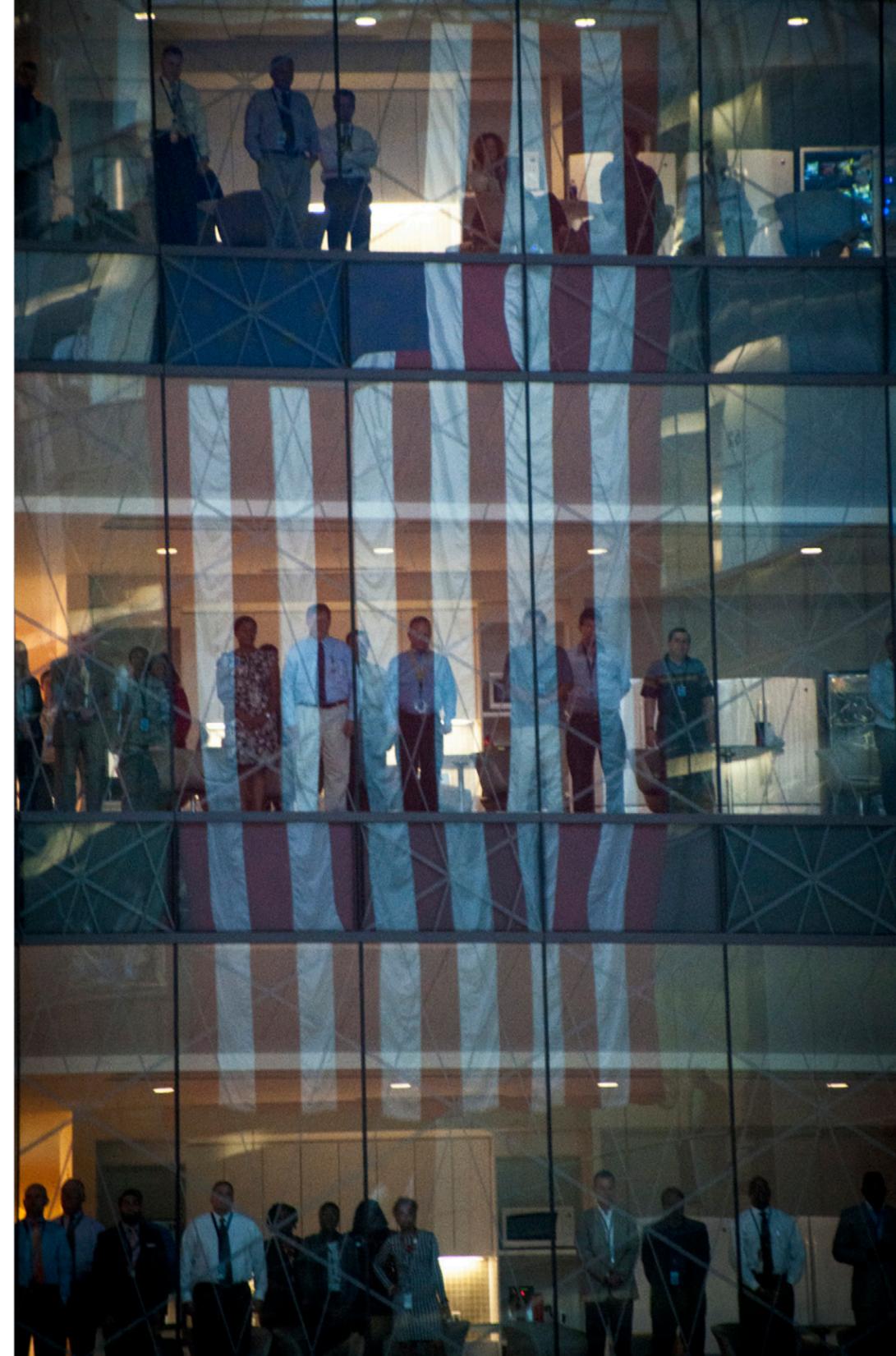


Photo courtesy of Sgt. Michael R. Bransford.

Department. He spent his last 10 years there as a detective.

He leveraged a Master of Science degree in criminology and criminal justice from Indiana State University, and a Bachelor of Science in career and organizational studies from Eastern Illinois University to teach criminology and criminal justice at the Danville Area Community College. He moved to St. Louis in 2012 where he joined the west campus of NGA as an officer.

"I am proud to have served my country as a soldier and law enforcement officer for over 27 years," said Bransford. "I am equally proud to protect and serve at NGA, and for the many opportunities the agency provides." ✨



Members of the NGA workforce gather Sept. 11 for a moment of silence in honor of 9/11 victims.

NGA HOLDS MOMENT OF SILENCE FOR 9/11 VICTIMS. **REMEMBER**

By Kevin Clark, Office of Corporate Communications

U.S. ARMY STAFF SERGEANT D'ANDRAE PRUITT SUPERVISES THE National Geospatial-Intelligence Agency's high-visibility Multimedia Message Manager, and is integral to the NGA joint service color guard, responsible for training and recruiting members from across the agency.

Pruitt, from Montgomery, Alabama, pioneered the latest version of M3 software and ensures the application is continuously discoverable and accessible for intelligence reporting across the intelligence community, said Sgt. Maj. Bruce Mersereau, the senior Army enlisted leader.

The M3 system has been adopted by several IC agencies, organizations, and mission partners as the preferred means to discover targeted and relevant information based on user-defined criteria, said Mersereau.

"NGA's version of this messaging system software has become a key tool benefiting analysts with access to over 50 million intelligence reports dating from 1985 and tens of thousands of products received each day," said Mersereau. "Staff Sgt. Pruitt worked tirelessly with the M3 developer and groups within NGA to implement access to the M3 content via (public key infrastructure) certificates, which wasn't an easy accomplishment."

The M3 is NGA's corporate repository for discovery of and access to intelligence reporting, said Pruitt. It also enables production of intelligence products or cable messages for dissemination to any organization worldwide, allied mission partners, or units in every theater of operation.

An application called the "M3 Widget" is scheduled to be available IC-wide in the Ozone Widget Marketplace in the fall, said Pruitt. This will allow non-NGA users to access classified NGA products quickly, said Pruitt. This new capability puts the discovery of relevant intelligence reporting directly in the hands of users or analysts.

There is never much of a lull for Pruitt, he said. He coordinates color guard rehearsals and ceremonies and ensures all requests for them are scheduled and executed in a professional manner. Pruitt also serves as treasurer for the NGA Junior Enlisted Council.



Photo by Tony Boone, Office of Corporate Communications

"His outstanding military appearance and professionalism set an incredible example for junior service members, said NGA's senior service advisor, Rachel Ziegler.

"NGA is a truly unique assignment," said Pruitt. "I feel fortunate for this experience. It has been rewarding to know I have a significant role in the receipt, delivery and production of NGA intelligence reports and products that affect agencies across the IC and people around the world." ✨



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