

NATIONAL IMAGERY AND MAPPING AGENCY

EDGE

GUARANTEERING THE INFORMATION EDGE

JULY/AUGUST 2001



Vice President Cheney Visits NIMA

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On The Cover

Vice President Richard B. Cheney thanks NIMA for "the great work that you do," following briefings on NIMA resources, capabilities and activities. The Vice President, Secretary of Defense Donald Rumsfeld and Director of Central Intelligence George Tenet visited NIMA's Washington Navy Yard facility (shown in the background) June 14. Cheney was photographed by Rob Cox. Craig Milsovic designed the cover. For the story and more photos, see page 12.

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COMMAND POST

NIMA hosted a most distinguished trio of government leaders on 14 June when the Vice President of the United States, the Secretary of Defense and the Director of Central Intelligence visited NIMA. The visit was also an opportunity for the Vice President to congratulate the NIMA workforce for its professionalism and its many successes.

Our guests showed a keen interest in the data, knowledge, products and services we supply and they asked many questions. It was an animated and often lively exchange of information between those who help make national command decisions and those who contribute the information products on which the decisions are made.

Your NIMA colleagues did a sterling job of briefing our guests on a variety of classified and unclassified topics. For example, you could sense the approval of Vice President Cheney, Secretary Rumsfeld and DCI Tenet when they met employees on the home turf environment that provided the support that went into monitoring the recent EP-3 episode in China, as well as the scope of operations required to be able to do targeting anywhere in the world. Also, all three were deeply impressed when we demonstrated aspects of our safety of navigation products and services. At the conclusion of their visit and after receiving many briefings, they said they had always appreciated our products, but seeing it all come together was a wonderful insight.

These senior officials had a chance to meet many of the NIMA specialists who showed how they do their work. The commitment and expertise of NIMA's workforce was made evident, time and time again. Most important, everyone involved showed that NIMA's success is due to a total team effort.

Equally critical, NIMA's destiny to fuse imagery analysis and geospatial information was clearly articulated as was our commitment to a digital environment. We were also



able to reinforce with our visitors the fact that NIMA is a dynamic organization whose growth and ability to continue *Guaranteeing the Information Edge* depends on dedicated investment in our people and in state-of-the-art technology.

Our guests departed with a deeper appreciation of what you do and what you need to maintain the high quality of the products you supply. The Vice President, in his closing comments in the auditorium, paid special tribute to the Agency's success and your professionalism. Later, the Secretary of Defense and the DCI added their own compliments. You can be proud of your accomplishments. Our challenge now is to continue to meet and even exceed the high standards we have set. Our leaders have positive expectations regarding our performance and I am confident you are up to the task.

A handwritten signature in black ink that reads "James C. King". The signature is written in a cursive, flowing style.

James C. King
Lieutenant General, USA

NIMA, Partners Unveil GeoSAR

New Radar Mapping System to Model the Earth beneath Foliage

Story and photo by JOHN ILER

Sitting in the Signature Aviation Hangar at the Ronald Reagan Washington National Airport, the sparkling twin-engine Gulfstream II looked like any one of a number of sleek, small, commercial passenger jet aircraft. But unlike conventional jets of its type, this one housed a revolutionary dual radar system capable of mapping the bare earth beneath trees and other foliage.

Sponsored by NIMA in conjunction with NASA's Jet Propulsion Laboratory (JPL) and EarthData International Inc., the Geographic Synthetic Aperture Radar (GeoSAR) was showcased on June 8 to an audience of the system's congressional sponsors, media and potential military and civilian users of GeoSAR map products. Director LTG James C. King represented NIMA.

"GeoSAR represents the culmination of an extraordinary cooperative arrangement between government and industry in a technology and commercial-

ization program," said NIMA project manager Thomas M. Carson. "From the start, our goal has been to develop this mapping technology and to move it quickly into the market to serve both defense and civilian requirements rapidly and economically. Once operational, we expect the system to start providing mapping services to NIMA and the military on a priority basis, and to supply products to the civilian sector as well."

Military Applications

For the military, GeoSAR will rapidly map vast areas where limited data exist from other sources. The system's three-dimensional terrain models will support force mobility analyses, target detection, and a variety of slope and littoral analyses for operational planning. Civilian agencies will use GeoSAR data to better understand seismic change in forested areas, assess forest fire damage, or measure timber volumes and biomass. The data

also will facilitate land use planning, environmental protection, flood plain management, and other geographic analyses.

A consortium of JPL in Pasadena, Calif., the California Department of Conservation (CalDOC), and EarthData, a mapping and remote sensing company in Fresno, Calif., developed the GeoSAR system. Work began in 1995 under the sponsorship of the Defense Advanced Research Projects Agency. Today, NIMA manages the program.

How it Works

GeoSAR uses a combination of X-band and P-band (UHF) radar waves. The shorter wavelength X-band radar measures near the tops of the trees, while the longer wavelength P-band (UHF) radar penetrates the foliage. "By correlating the two radar data streams," Carson said, "the GeoSAR system can effectively produce high-resolution elevation models with vertical accuracy

Corrections

A photo caption on page 13 of the May-June *Edge* erroneously referred to "the four types of NIMA analysts." There are five: aeronautical, geospatial, imagery, marine and regional.

A photo on page 23 of the May-June *Edge* was cropped incorrectly, due to an accidental enlargement. The photo, which accompanied the article "Mir Crashes in Space Junk Graveyard," is correctly reproduced at right. The caption follows:

Watchstanders in NIMA's Marine Safety Information Center, Keith Dominic, left, and David Wacht, display a chart of the De-orbiting Mir Space Station Debris Hazard Area, "the space junkyard."

PHOTO BY JOHN ILER



cies potentially as good as 1-4 meters and resolutions of 2.5-5 meters."

Because GeoSAR uses radar, the system will be able to operate both day and night, under almost any weather condition. "A special feature of the GeoSAR system will be its ability to acquire three-dimensional images of the Earth's surface through a technique called interferometry," Carson said.

GeoSAR collects data from altitudes of 15,000-35,000 feet at a rate of about a gigabyte per second. In terms of geographic coverage, the system is expected to collect up to 160 square kilometers per minute. Following data collection, the radar data is processed into digital elevation models and orthorectified radar imagery by the GeoSAR data production system. (Orthorectification is a process that removes distortions from images caused by terrain elevation differences, and reprojects the imagery into a map-like product.) From there, data is converted into map products in the form of data sets on CDs or other media for use with commercially available geographic information systems.

"GeoSAR is expected to be particularly useful in regions where the use of conventional mapping technologies is limited due to weather conditions, terrain, sheer size of a mapping area, or other factors," said Carson "In Alaska, for example, GeoSAR could be an immense help in accomplishing a state-wide mapping program."

GeoSAR will undergo a year-long test period during which JPL and EarthData, with NIMA support, will collect GeoSAR imagery and data over sites in California, the eastern United States, the Northwest, Alaska and South America. These data collections, said Dr. Scott



NIMA will use the Geographic Synthetic Aperture Radar (GeoSAR) system aboard this twin-engine Gulfstream II to map the bare Earth beneath foliage. Sponsored by NIMA in conjunction with NASA's Jet Propulsion Laboratory, the project is intended to benefit both government and industry.

Hensley, the system developer at JPL, will enable JPL to refine the data processing algorithms.

EarthData also will work with NIMA, the California Department of Conservation, and other end-users to define the characteristics of GeoSAR products, not only in

terms of current standard NIMA product specifications, but also in terms of the new information about the Earth that GeoSAR might reveal.

NIMA anticipates the system to be commercially operational by late 2002. 🌐

Desktop Collaboration Arrives at NIMA

by DANNY Y. ROBINSON and BOBBY T. BARNES

Audio communications over wire began with the famous conversation between Alexander Graham Bell and his assistant, "Mr. Watson—Come here—I want to see you." From these humble beginnings, computers and communications technologies have permitted us to transmit and receive data (text, graphics, audio and video) at increasingly faster speeds. NIMA is exploiting these advancements by implementing a collaborative computing environment that empowers people to share applications and files from their desktops, as well as whiteboard drawings and chat. Remotely sharing applications enables NIMA's geographically dispersed population to pursue business and mission objectives, produce higher quality products, save money on face-to-face meetings, and comply with Congressional and Intelligence Community directives.

Collaborative Tool

The cornerstone of NIMA's collaborative computing environment is the NetMeeting software program. NetMeeting v3.01 provides for multi-user data conferencing—text, chat, whiteboard, file transfer, and program sharing. For audio and video, special arrangements must be met to ensure the microphones and cameras do not capture inadvertent, sensitive information. Thus, for the overwhelming majority of NIMA personnel who work in cubicles, audio and video use is not possible.

There are four functions included in NetMeeting's data conferencing mode of operation. They are Program Sharing, Chat, Whiteboard, and File Transfer:



Program Sharing permits one user to launch an application and have it appear on all workstations in the collaborative session. This is particularly useful when people need to agree on the contents of a file or when the application is unique or expensive. Then the application provider can discuss the application or grant access to the application for others to modify in a round-robin fashion. The application and its generated data remain the property of the provider.



Chat allows conference participants to type messages and have the text transmitted to all users in the conference. Each conference attendee can save the chat session, thereby automatically generating the conference minutes. Also, one participant may send a private message to another participant during the conference. Only the sender and the recipient see this text in their chat log.



Whiteboard lets participants share objects (text or graphics) that can be cut and pasted into this function. The whiteboard is easy to use and is similar to a paint program. Each participant can enter text, draw arrows, encircle items, and so on. As with Chat, each conference attendee can save the session. This function is useful when trying to develop or brainstorm a conceptual layout or architecture to make a quick point. Precision or perfection is not required.



File Transfer enables files to be transferred to one or all conference attendees. Attendees can determine where files will be

received. This function is useful when files are too large for e-mail.

Getting Started

NetMeeting is already loaded on all Secret Collateral Enterprise Network (SCEN) desktops and is an optional application on the Sensitive But Unclassified (SBU) and Aqua Networks. On the networks where NetMeeting is optional, users may request it. Depending on how NetMeeting was installed, it will appear in one of two locations: Start / Programs / NetMeeting, or Start / Programs / Accessories / Communications / NetMeeting. If it is not in either of these locations, initiate a request for the software via the Open Source Information System (OSIS) home page.

To request NetMeeting via the OSIS home page, select Software and follow the Optional Software path to the request form. A user's guide can be found on OSIS for NetMeeting that describes its capabilities in more detail. To access the guide on the SBU, go to <http://osis.nima.mil:80/ciohome/collab.html>. On the SCEN, the address is <http://sps.stl.nima.smil.mil/cio/collab.html>. However, the application is so simple to use that we can walk through a quick scenario:

On launching the application for the first time, you will be prompted to provide information about yourself. This information is used by the system to identify you to others. Most of the fields are self-explanatory. For clarification, use your e-mail address for the network on which you are using NetMeeting; for the comment field, enter your department and branch; and do check

the button that enables NetMeeting to run in the background. After clicking on OK for the information screen,



the main screen appears as depicted below:

Locating Users



NetMeeting has a companion product called the

Internet Locator Service (ILS). The ILS maintains a listing of users available for conferencing. Click on the book icon to view the list. Find a person with whom you wish to collaborate and double-click on their name. A banner appears indicating a call has been made. If the user accepts your call, his or her name will appear in the main application window with yours. You can repeat this process seven more times to invite more people. Start your collaborative session by clicking on the chat icon. Type a line of text and hit "return." Your name will appear along with your text. Your collaborative partners can type a response and their names and text will appear. To exit, click on the telephone handset with the red "down" arrow. Congratula-

tions! You have just completed your first use of this powerful tool. The remaining functions are similarly simple.

Growth Path

The Intelligence Community, Congress and the NIMA Director fully support collaboration. Testing is underway to include SunForum on UNIX workstations and allow collaboration between UNIX and Intel platforms. Collaboration from inside NIMA's firewalls with external customers is on the horizon and will be possible with the introduction of the Public Key Infrastructure (PKI).

We strongly encourage everyone to use this 21st century technology. 🌟



About the Authors

Bobby T. Barnes (left) and Danny Y. Robinson work at the Washington Navy Yard in the Infrastructure Integration Office's Desktop and Server Services Department (IICC). As members of the collaborative technology team, they match collaborative technology with NIMA requirements and deliver collaborative tools irrespective of hardware platform. Barnes, an expert in desktop collaboration with BAE Inc., has been a government contractor for over 20 years, the last four supporting NIMA. He can be reached at (202) 264-5594. Robinson, a retired Navy intelligence officer, is a systems integrator with SAIC Inc. Before coming to NIMA, he worked for the Office of Naval Intelligence and the Office of the Assistant Secretary of Defense, Command, Control, Communications and Intelligence. He can be reached at (202) 264-5585.

NIMA Looks at Future Needs

by PAUL WERT

If I had a crystal ball to look into the future, what would I see? And how could I help shape that future?

In the year 2012, I see a sensor the size and appearance of a cricket moving across the ground; I look up and there is another sensor flying overhead, which appears to be a small bird. Why are they there? They're there to help me collect information.

Now, I'm a Marine working my way through urban terrain. I flip down an eyepiece; it displays the floor plan of a building. I enter a darkened room. I flip down the eyepiece; the room begins to brighten to show me a virtual scene. The demand for more information about potential urban warfare scenarios is just one example of the "future needs" driving today's technology advancements.

Highly accurate data needs to be collected from the ocean bottom to littoral areas, inland and in the air. How fast, in what form and where do we need it? These are questions that NIMA's Analysis and Plans Office (AP) is working to answer, in compliance with national policy guidance, primarily Presidential Decision Directive 35 and Defense Planning Guidance.

Users define and project their future imagery, imagery intelligence and geospatial information requirements to support their mission. They provide NIMA with information or data that is constrained only by their reasonable needs, not by technology or budget. The data is housed in a database, maintained by AP, called the Community Information Needs Forecast (CINF). The CINF is currently being modified to better support the community



A soldier uses a gun-mounted camera with an eyepiece to obtain a remote look into an area he is about to enter. Technology advancements like this one are driving the Analysis and Plans Office's ongoing future needs assessments.

U.S. ARMY PHOTO

in the future. This effort is called CINF 2000.

To get to where we want to be in the future, AP takes information and uses it in activities that will address milestones, short-

falls, cost and speed. Examples include the following:

- Developing national, civil, commercial satellite and airborne imaging systems.

- Assessing possible future constellation composition and system mixes.
- Estimating the anticipated load on future tasking, processing, exploitation, dissemination and communications systems that will comprise the United States Imagery and Geospatial Information Service (USIGS).
- Identifying potential shortfalls and bottlenecks in planned systems.

We look at peacetime imagery and geospatial needs, as well as war, crisis and disaster scenarios. These studies and activities are used to refine and reflect the latest and best estimates of

future information needs. Additional activities include the Integrated Imagery Requirements Review, user surveys and scenario development. Refinements to this information are reviewed by subject area experts drawn from various customers or partners, and then vetted by an interagency Future Needs Working Group.

Have we got your attention? If we do and you want to learn more, visit one of our web sites:

- on SBU at <http://osis.nima.mil/AP/>
- and on SCEN at <http://www.nima.smil.mil/projects/ap/>.



About the Author

A NIMA Staff Officer in the Analysis and Plans Office, Paul Wert is a member of the team that ensures that future imagery, imagery intelligence and geospatial information requirements are captured to support the customer's mission. He started his career with the Defense Mapping Agency in 1977.

Nguyen to Chair Asian Pacific American Program Council

The new chair of the Asian Pacific American Program Council in the East, Viet (Vincent) Nguyen, came to NIMA in 1999 as a lead engineer in the U.S. Imagery and Geospatial Information Service (USIGS) Pre-Acquisition Office (ATP). He now works in the Acquisition Office (ATA) as the project lead for the National Area Coverage Data File, a system that manages the physical location of hardcopy imagery.

The first immigrant Asian to chair the council, Nguyen was appointed to a one-year term after he volunteered for the position. His main duties will be to identify and help resolve issues of general concern impacting Asian American employees.

"I hope that, together with each Asian American at NIMA, we can work to bring more opportunity for Asian Americans, make other Americans aware of our



PHOTO BY KERRY GILBERT

Viet (Vincent) Nguyen

culture and ethnic values, and help improve Asian Americans' quality of life," he said.

Prior to joining NIMA, Nguyen was the Chief Systems Engineer for the Predator Unmanned

Aerial Vehicle advanced technology demonstration at Naval Air Systems Command. The Predator was later deployed to support Operations Provide Promise and Deliberate Force in Bosnia. Nguyen was a software engineer in private industry before joining the federal government in 1989.

In 1980 Nguyen fled the communist regime in his native Vietnam on a fishing boat with his family as part of a mass exodus that cost many lives. Successfully crossing hundreds of miles of ocean, Nguyen and his family reached the Philippines, where they were placed in a refugee camp. The family immigrated to the United States in 1982. Nguyen and his sister were the first Asians to graduate from Morris Knolls High School in Denville, N.J. Nguyen earned his B.S. in aerospace engineering in 1989 and his MBA in 1996 from the University of Maryland.

NIMA College Earns Accreditation

By *TERENCE MEEHAN*
Training Management
and Plans Office

An evaluation team from the Council on Occupational Education (COE) took a close look at the National Imagery and Mapping College in April. They found NIMC to be a complex learning organization that is successfully providing professional development and technical training for employees of NIMA and the Intelligence Community. As a result, the leadership of the COE conferred upon NIMC the honor of full institutional accreditation, effective June 9.

Accreditation by the COE is an institutional certification of overall quality. According to the COE, the award demonstrates that NIMC meets not only high standards of quality, but also the academic needs of students, the community and the Agency.

Met DoD Challenge

"Our continuing involvement in the accreditation process was prompted by our belief that this process will provide the direction necessary for us to attain our goal of excellence in education," said David Broadhurst, NIMC Director.

The impetus for college accreditation came in the form of a challenge from the Department of Defense Chancellor for Civilian Education and Professional Development, Dr. Jerome Smith. Smith encouraged all DoD educational institutions to achieve national accreditation.

According to Smith, NIMC is the first of all previously unaccredited DoD educational



institutions to achieve this milestone, and he said he was proud of the men and women of NIMC for meeting his challenge.

More than an Honor

Accreditation affirms an institution's programs, efficiencies and effectiveness, and facilitates transfer of academic credits. Moreover, external public recognition is a source of pride for faculty and staff. The periodic re-accreditation process will reinforce continued maintenance of high standards. This honor does not affect the status of individual NIMC courses that have previously been certified by the American Council on Education (ACE) for college credit. However, the transfer of credits is easier when credits are earned at a nationally accredited educational institution.

In a review similar to the Baldrige evaluation of business organizations, the COE reviews standards of educational institutions in 10 areas: Institutional Mission and Objectives, Educational Programs, Program and Institutional Outcomes, Evaluation and Planning, Learning Resources, Physical Resources,

Financial Resources, Human Resources, Organization and Administration, Student Services and Activities.

NIMC staff worked almost a year to prepare for the April visit by the team of educators. The study compared overall NIMC strengths and weaknesses in the 10 areas evaluated by the COE against performance standards determined to be characteristic of top-flight educational institutions.

Focus on Strategic Plan

The inspectors agreed that NIMC training is aligned with the Agency's strategic objectives and that the College keeps pace with modernization and deployment of the U. S. Imagery and Geospatial Information Service (USIGS). The team was particularly interested in the College's use of technology and distance learning in training delivery.

In every case, NIMC was found to meet or exceed the standards. Broadhurst is quick to give credit to the staff: "We have been blessed with people who have a deep sense of purpose and a strong desire to deliver the most effective instruction possible," he said. 🌟

NIMA Holds 'Leadership Stand Down'

by DORIS JACKSON

NIMA Director LTG James C. King directed all managers and supervisors to join him at the first "Leadership Stand Down" Day, which was held in both the East and West May 21 and June 6, respectively.

Effective leadership is the foundation of NIMA's Diversity Initiative, King noted in his opening remarks. It is the pivotal link between the administration of systems and processes that determine employee development, growth and promotability.

Holding up a small mirror, which was provided to all participants, King asked the audience to "take the mirror test!" Managers and supervisors need to assess themselves because their involvement is the key to employee competitiveness, he said. One cannot diminish the validity of environmental barriers as a hindrance to career growth and a factor in some of the employee angst and concern identified in the workplace. But effective leaders must search introspectively — "take the mirror test" — to ensure that their personnel-based decisions are balanced, objective and always fair-minded, he said.



Debbie Ridley addresses the Leadership Stand Down. PHOTO BY ALAN KING

"*Excellence Has No Color — Effective Leadership: The Foundation of NIMA's Diversity Initiative*" was the theme of the "Leadership Stand Down."

Holding an agency-wide "Stand Down" was the brainchild of Debbie Ridley, Director of the Diversity Management Office. The agenda was designed to provide the 700-plus participants information on how to effectively lead NIMA's most valuable resource — employees — and to highlight the importance of diversity within the workplace.

Guest speakers included retired Navy Cmdr. Michael Abrashoff, Fred Soto, Martin Kormanek and Kim Apperson.

Dr. Lenora Peters Gant, Special Assistant to the Director of Central Intelligence, recognized King for his "steadfast commitment and results-oriented leadership in diversity management. She also presented him an award recognizing NIMA as having the Intelligence Community's "most improved diversity program."

"Taking the mirror test or looking within is a continuous and life-long process and one cannot lead effectively without self-assessment," Ridley said. "You have to recognize that you are responsible, that effectiveness in leadership is the key to competitiveness in people. So, I want leaders to walk away (from the Stand Down) with two things: one, the need to take the mirror test, and, two, the understanding that excellence has no color." 🌸

About the Author

Doris Jackson is a staff Diversity Management specialist in the Diversity Management Office (DM). Before coming to DM, she worked as a paralegal specialist in the Office of General Counsel and later as an Equal Employment Opportunity specialist and Special Emphasis Program Manager in the Equal Employment Opportunity Office. She was also the facilitator of the NIMA Deputy Director's Ad Hoc Council on Minority Issues and Concerns in the East.



Vice President's Visit Presents NIMA a Historic Opportunity

by PAUL HURLBURT

"I see the great work that you do," the Vice President of the United States, Richard B. Cheney, told NIMA personnel on his historic visit to the Agency's Washington Navy Yard facility June 14. Cheney spoke to senior leaders and representatives from all the Washington area sites following two hours of briefings on how NIMA supports national policy makers and the armed forces. Accompanying him were Secretary of Defense Donald Rumsfeld and Director of Central Intelligence George Tenet.

Progress Cited

"There is no more important or challenging assignment that I can think of in our government today than working in the Intelligence Community," Cheney said. "It will only grow more important and more significant as we move



Vice President Richard B. Cheney and NIMA Director LTG James C. King prepare for a round of briefings.

forward... I'm here today among other things to say 'thank you.'" Cheney also expressed his satisfaction with the Intelligence Community "product and tremendous strides over the

years," dating back to his service during the Ford administration, on the House intelligence committee, and as Secretary of Defense in the early 1990s.

Called away for a potential tie-breaking vote in the Senate, the Vice President departed. NIMA Director Army LTG James C. King then addressed the audience, which also included viewers at the video teleconference centers throughout NIMA, about the significance of the day's events.

Historic Moment

"Today, we really do celebrate something significant," King said. "This is the first time in

PHOTOS BY ROB COX

Demonstration team member Stacy Mayse of NIMA's Integrated Program Office (IP) meets the Vice President. Others, from left, are Terry Peasland of the Marine Navigation Safety Center and Damien Kerr of IP.



NIMA's history, and in the history of any of our predecessors, that we could say the nation's leadership gathered with us. To have them in one room, and to be able to describe to them what you do, each and every day, was wonderful."

While the visitors' understanding of NIMA's role in national security is unsurpassed for officials at their level, "seeing it all come together" as they met the Agency's "talented men and women" and heard their briefings proved to be an eye-opener, King said. "You could feel their exhilaration when they saw the support that goes into EP-3 [electronic reconnaissance aircraft] operations, how we do targeting around the world when called upon, what we do for the safety of navigation, and how we are able to influence the movement of forces."

King said it was important for national leadership to meet the workforce. "We can talk on and on about technology, but it's you, the bright people who know how to use that technology" that proved to be persuasive, he said. The briefers showed them "clearly" how NIMA is guaranteeing the information edge,



Secretary of Defense Donald Rumsfeld and Vice President Richard B. Cheney arrive at the Washington Navy Yard.

through the integration of imagery intelligence and geospatial analysis, he said.

The visitors "realized we are in a phenomenal amount of change," King said, "and it was clear to them that you meet that uncertainty very well."

NIMA's Capability

They also saw how "we deliver the fullest capability possible with the resources we have," King said. At the same time, they were able to see "how much more we could deliver with additional resources."

Also praising the briefers, NIMA Deputy Director John Helgerson told the audience, "Your colleagues really did represent you well." The Vice President followed with "rapt attention," he added. Helgerson thanked "not just the briefers but all those who took care of the facility and the arrangements, the transport and everything else

that went with it. It was a great day for NIMA."

King agreed, "It is a total team effort. Thank you for all you do. Let's continue to make it happen, to go forth and conquer."

The briefers were led by the Director, who greeted the official party and escorted them to the lobby in Building 213 for an overview of NIMA locations. Tenet had returned the previous night from the Middle East.

After the group moved to briefing rooms, the Director gave an imagery overview, followed by Terry Vernier, Director of the Central Imagery Tasking Office (TO), who briefed on how NIMA serves as the national tasking authority for imagery requirements. Vernier also discussed the positive impacts of the upgraded Enhanced Imaging System, as well as the Future Imagery Architecture now in development. Scott White, Director of the Imagery Analysis Office (IA), followed with an overview of imagery analysis activities.

NIMA Director LTG James C. King welcomes the Director of Central Intelligence George Tenet for the Vice President's visit.



Continued on page 14.

Vice President Cheney's Visit

Continued from page 13.

Also briefing from IA were AnnMarie Clark, Brian Lessenberry, Tom Lippmann and Tom Neel. Lessenberry provided a light table demonstration highlighting some of the unique advantages that hardcopy offers analysts conducting broad area imagery searches, which currently cannot be duplicated by digital systems.

Neel gave a demonstration of NIMA's integrated exploitation capability.

In a second round of briefings, the visitors heard leaders from the Directorate of Acquisition and Technology (AT) and Geospatial Information Office (GI).

Benefits of Integration

GI Director Lloyd Rowland told how NIMA is working with customers to transition from hardcopy mapping and charting products to the digital information needed to provide a precise base for a common relevant operational picture. Stressing that "the integration of imagery, imagery intelligence and geospatial information is NIMA's destiny," he said, "We used vignettes to show the fusion of these disciplines."

The vignettes were briefed by Al League, Chief of the Integrated Program Office's Applied Technology and Process Innovation Division (IPA), who showed NIMA support to the EP-3 aircraft and the peace talks between Armenia and Azerbaijan. Steve Hall, Chief of GI's Maritime Safety Information Center, briefed on the transition

Waving, Vice President Cheney departs Building 213 at the Washington Navy Yard for the U.S. Capitol.



Secretary of Defense Donald Rumsfeld has a word with NIMA's Deputy Director John Helgerson and Director LTG James C. King before departing the Washington Navy Yard.

to digital production, formats and distribution of NIMA's aeronautical and maritime navigation safety information.

William Alder, Deputy Director for AT, described NIMA's technology challenges and how the Directorate is deploying digital information systems to prepare imagery and geospatial analysts for the future. He

described AT's sustained track record of significant deliveries over the last 21 months, as well as AT's investment in people and processes. Steve Long of the Research and Technology Office (ATT) concluded the briefings with an example of how NIMA uses technology to solve issues with high-definition motion imagery. ■



OUR PROGRAMS

Alternative Dispute Resolution: A Success Story

By HILARY HAGEMAN

NIMA's Alternative Dispute Resolution Office (ADRO) is committed to using alternative dispute resolution (ADR) to help the Agency and its employees resolve disputes as quickly, amicably and confidentially as possible.

ADR is any procedure that persons agree to use to resolve disputes instead of formal litigation. The ADR program gives employees an opportunity to resolve their disputes using voluntary processes that are generally much less expensive, time consuming and public than formal litigation.

As a general principle, all employees, except for bargaining unit employees, may participate in NIMA's ADR program. Bargaining unit employees may, however, participate at the request of their exclusive bargaining representatives.

The ADRO is a virtual office responsible for overseeing ADR processes. Ed Obloy, NIMA's Dispute Resolution Specialist and General Counsel, manages the ADRO. Hilary Hageman, an attorney in the Office of General Counsel, oversees the day-to-day activities of the ADRO, working in close collaboration with Janet Betts of the Facilitation and Mediation Center (FMC) and Tim Hughes of the Procurement and Contracts Office.

The ADRO addresses all types of disputes that involve NIMA and its employees. While most disputes that are referred to the ADRO and participating offices, such as the FMC, are employment-related disputes, the ADRO also addresses issues related to many other types of disputes, such as contract disputes.

The program uses both in-house neutrals and external neutrals.



Mediator Margy Spezia of the St. Louis Facilitation and Mediation Center receives an Award for Excellence from NIMA General Counsel Ed Obloy. Mediators Mattie Ligon and Bea Vicks also received awards.

PHOTO BY
TOM BECHERER

NIMA's in-house neutrals are located in the FMC and listed on NIMA's Roster of Mediators. External neutrals may be obtained from a variety of sources including non-NIMA rosters of mediators and private organizations that specialize in ADR.

Since the ADRO was formed about a year ago, NIMA's ADR program has enjoyed tremendous success. Most notably, during NIMA's last ADR statistical reporting period, the Agency reported huge increases in the number of amicable resolutions to employment disputes.

NIMA Director LTG James C. King recently presented the ADRO and others who work in the ADR area with a Meritorious Unit Citation.

Additionally, in April and May, NIMA General Counsel Ed Obloy presented Awards for Excellence to three FMC mediators, Mattie Ligon, Bea Vicks and Margy Spezia, who demonstrated exceptional professionalism and skill in carrying out their duties as ADR neutrals.

To learn more about ADR, visit the ADRO web site at <http://osis.nima.mil/gc/adr/index.htm>.

About the Author



Hilary Hageman came to NIMA's Office of General Counsel in 1995 and has worked primarily in the areas of alternative dispute resolution, employment law and international law. Prior to serving at NIMA, she worked for a Washington, D.C. law firm and a New York investment bank. She earned her bachelor's degree from Vassar College, her jurisdoctorate from Emory University and her master of laws from Georgetown University. Married to David Wulf, she has a two-year-old daughter, Jocelyn.

OUR PROGRAMS

The Answer to Earthquakes: Be Prepared

by WELLS HUFF

NIMA St. Louis recently hosted a two-day Earthquake Preparedness Symposium and Exercise to increase awareness of the threat posed by earthquakes in the Midwest and to assist the Agency's own preparedness planning. The event was co-sponsored by the Mission Support West (MSW) disaster planning staff and the Continuity Planning Division (MSC) staff at NIMA headquarters.

Jerry Dunbar, Director of NIMA Mission Support, explained why two days were required. Day One, the symposium, was "all about hearing from the 'externals' – folks who are experts in seismology – and helping us understand and appreciate the need for good preparedness."

Day Two, the exercise, was conceived as "a series of tests to help prepare ourselves and make sure we know what to do in an emergency, and to improve on the plans we have in place."

Top Experts Discuss Issue

During the first day, 75 representatives of business and government met to hear about key local and regional issues, from the probability of an earthquake to practical tips for survival. Guest speakers included Edward S. Gray, Earthquake Program Manager for the Missouri Emergency Management Agency; Dr. Robert B. Herrmann,

Professor of Geophysics at St. Louis University; and emergency management specialists from St. Louis, Jefferson County, Mo., Illinois and the Army Corps of Engineers.

Midwest Vulnerable

Gray, who has managed Missouri's earthquake preparedness program for the past 10 years, believes preparedness should be everyone's concern in this part of the country.

"We're overdue for an earthquake here in the central United States," he asserts. "A 6.2 or greater earthquake happens about every 85 to 100 years, and the last one was 106 years ago."

There's a potential earthquake problem, Dr. Herrmann agreed, "but I think because of where the earthquakes occur — in the New Madrid zone [south of St. Louis] and in southeastern Illinois — the effects here would be reduced because of the distance."

But he concedes there could be serious consequences in the St. Louis area. "There has been damage here in the past, and we should anticipate that there will be damage in the future. So we need to be ready, but we don't have to be hysterical. It's a controllable problem."

Ken Whitfield, a retired Defense Mapping Agency cartographer who attended the symposium, strongly agrees. Whitfield is mayor of Rock Hill, Mo., and a member of the Missouri Seismic Safety Commission.

"I think mapping and earthquake awareness go hand in hand," Whitfield states, "in terms of where we are, where they're going to happen, what we're going to do in response, and where we can go to be safe."

City, County in Exercise

Being ready was what the Day Two exercises were about. The participants, consisting of the NIMA Disaster Control Staff (DCS) members and selected city and county "first responders," got serious about rehearsing responses and sharpening skills. The day featured a tabletop exercise: a 6.7 magnitude earthquake along the New Madrid Fault and an assessment of the resulting damage. 🌩



"We need to be ready for an earthquake, but we don't have to be hysterical. It's a controllable problem," Dr. Robert Herrmann tells an Earthquake Preparedness Symposium at NIMA St. Louis. PHOTO BY GERALD GOODIN

NIMA Gateway Finalist in DoD Competition

by KATHY WEVER

The NIMA Gateway was one of three finalists for the E-Commerce Pioneer Award, presented by the Department of Defense at the DoD E-Commerce Day Conference June 7 in Alexandria, Va.

The award, which drew 30 nominations, recognizes extraordinary efforts to use e-commerce or e-business to better accomplish DoD's mission. Robert N. Smith, Deputy Director for Information Services, accepted NIMA's finalist award along with web engineer Scott Higdon and e-business project lead Jim Krause of the NIMA Gateway Development Team.

The NIMA Gateway is responsible for the dissemination of imagery, imagery intelligence and geospatial information to DoD and Intelligence Community customers worldwide.

Gateway Innovations

According to the nomination criteria, the Gateway Development Team launched innovative World Wide Web interfaces that allow the visualization and electronic transfer of NIMA information. The interfaces improved customer service "as demonstrated by their popularity and broad use on NIMA's SIPRnet and JWICS web sites," the statement says. "Customers with little or no NIMA product knowledge now have the ability to visualize, evaluate and exploit geospatial information for mission support."

Through the web sites, users can access NIMA-formatted raster and vector data using a commercial browser such as Netscape or Internet Explorer. They can view product coverage, submit queries and download NIMA maps and images for briefings and analysis.



About the Author

Kathy Wever works in St. Louis as the Executive Officer of the Infrastructure Integration Office's Web Master Division (IIG). She was the project lead for the NIMA Gateway's "Country Page" effort, scheduled for debut in July. She also handled the transition of NIMA's catalog production to the Defense Logistics Agency. Wever joined the Defense Mapping Agency, one of NIMA's predecessors, in 1988.

Customers previously had to struggle with complex file formats and large-volume downloads that tied up the network.

Beyond the creation of web interfaces, the task was to develop entirely new processes by which data could be sent to the Gateway, loaded into storage, catalogued in a database and made accessible to NIMA customers. The interfaces allow NIMA's customers to quickly

identify what digital online products are available over a geographic area to support mission planning activities.

Savings were achieved by significantly reducing the need to produce and ship data to customers on compact disc, tape or other media. At the same time, customers benefited in storage savings by downloading only a specific area of interest, focused on their immediate needs. ☛

Team Members

NIMA Gateway Development Team members are Gary Hacker – Director of Dissemination Services (DS), Rich Simpson – Acting Chief of the Infrastructure Integration Office's Web Master Division (IIG), IIG Engineering Chief Dave Hopkins, IIG Executive Officer Kathy Wever, Jim Olson – Chief of the Dissemination Services Office's Information Management Division (DSN) and DSN Executive Officer Mara Lorbert.

Other IIG members are Robert Albin, Scott Amstutz, Steve Balik, Perry Beason, Meredith Buchanan, Butch Carrizales, Mike Cerutti, Tracie Clements, David Couch, Andrew Curtis, Randy Dahlberg, Jeanette Davenport, George Dee, Bill Durham, Jeff Fox, Greg Greenquist, James Griffin, Brian Hackworth, Connie Hall, Scott Higdon, James Krause, Blake McCorkle, James Marcoe, Vicki North, John Parker, Bob Patterson, Jim Pilkington, Lisa Schaeffer, Stephanie Schuster, Steve Shainline, Joel

Shprentz, Chuck Simonton, Brian Smith, Sam Smith, Dan Ward, Wanda Weber and Mike Zimbleman.

Other DS members are Karen Brown, Gera Cosby, Bill Florich, Gale Fogarty, Pam Glover, Wayne Green, Mike Hall, John Heller, Steve Hickey, Carolyn Jackson, Bill Klunk, Kathy Kmetz, Ling Lay, Ron Maret, Phil Martin, Carl McDowell, George Manders, Dennis Mattison, Jim Norberg, Vincent Pierce, Larry Rowe, Rand Seppelin, Jace Singler, Sharon Snead, Kelly Stohl, James (Jay) Stringer, Cherie Trout, Vivian Tuckson, Sandy Tunnicliff, Monica Wilks and C.J. Williams.

Members from the Enterprise Services Office's Infrastructure Operations and Support Division (ESI) are Chera Abrams, Mike Boehm, Mike Collier, Bill Grimm, Sheree Hicklin, Dave Huddleston, Lee Irwin, Terri Laroue, John Paschang, Chris Pascoe, Toni Porter, Dale Scherer and Pat Warmack.

NIMA - State Department Team Cited For Role in Promoting Peace

by PAUL HURLBURT

NIMA collaborated with the State Department to support one of the most significant geopolitical successes last year: the safe withdrawal of Israeli Defense Forces from southern Lebanon.

To support the United Nations in verifying the withdrawal, as requested by Israel, NIMA relied on a team of experts who worked with the State Department's Office of the Geographer and Global Issues in the Bureau of Intelligence and Research. The team included imagery and geospatial analysts from the NIMA Production Cell at the Washington Navy Yard and geographic names analysts from NIMA's Geographic Names and Boundaries Branch. Robert Weber, Director of NIMA's International and Policy Office, provided guidance on the United Nation's use of NIMA's products.

In four years of supporting State initiatives, this project was one of the most demanding, said Alan Huguley, production manager in the Plans and Customer Operations Directorate's National and Civil Branch.

The Intelligence Community awarded the NIMA-State support team a National Intelligence Meritorious Unit Citation.

In providing "critical cartographic and imagery support" to the U.N.-led effort, the team "contributed to a significant diplomatic achievement," the citation said.

Using high-resolution imagery of the border area, produced by the NIMA Production Cell, the team worked with the U.N. Cartographer to draw an accurate withdrawal line acceptable to both Israel and Lebanon.



CIA PHOTO

State Department Geographer Dr. William Wood and May Hourani, regional analyst in NIMA's Geographic Names and Boundaries Branch, display the National Intelligence Meritorious Unit Citation presented to a team of NIMA and State Department employees. Also seated are Alan Huguley, production manager in the National and Civil Branch, and Matthew Burrows of the U.S. Mission to the United Nations. Standing, from left: Glenn Turner (NIMA Imagery Analysis Office), Todd Hildreth (NIMA Geospatial Information Office), Leon Dillon (State), Ray Milefsky (State) and John Arensberg (NIMA/GI).

NIMA geospatial analysts reviewed a 1923 colonial treaty to interpret possible line placements. The boundary analysis was challenging due to ambiguous language, decades of landscape changes along the border, subsequent bilateral demarcations, and discrepancies between the two parties in their boundary delimitations.

Team members from NIMA and the State Department advised senior officials of the State Department, United Nations, Israel and Lebanon on issues related to the objective portrayal of the withdrawal line. Boundary and geographic names analysts from both NIMA and the State Department researched points of contention and provided summaries. Meetings often were held on weekends, including impromptu

trips to U.N. Headquarters in New York, Huguley said.

To assist the U.N. Peacekeeping mission in accurately marking the line of withdrawal in the field, NIMA produced an 11-sheet set of 1:50,000-scale orthorectified photos.

Upon verification of the withdrawal line, NIMA produced a large-format orthophoto map that reflected all of the detailed adjustments, determined by the U.N. Cartographer after extensive discussions with Israeli and Lebanese officials.

Nominating officials said the NIMA-State Department collaboration is an "example of how NIMA's unique geospatial and imagery capabilities can directly serve the national strategic goal of promoting peace and stability in the Middle East." ■

ACCOLADES

Imagery Analysts Honor Their Best

by LIZ SHERMAN

Twenty-two imagery analysts and support officers were recognized for their contributions to the Intelligence Community during the annual Imagery Analysis Tradecraft Award Ceremony, at the Washington Navy Yard May 14.

Glenn Forinash, Chief of the Imagery Analysis Office Europe Branch and chairman of this year's awards panel, said receiving a Tradecraft award distinguishes the analysts' work as some of the best in the field.

"Selection for an award is an honor and means that a group of your peers thought the work you or your team did was truly outstanding and had a great impact on the future of our business," Forinash said. "The work of the winners stood above all other nominations in the category."

The Tradecraft awards are sponsored by the IA Occupation



About the Author

Liz Sherman is an imagery analyst in the Imagery Analysis Office's Africa Branch. She covered military issues as a newspaper reporter before coming to NIMA. She earned her bachelor's in journalism from Texas A & M.

Council and IA Corporate Board. Imagery analysts and support officers from all IA exploitation divisions as well as those deployed to the commands and service centers were eligible. About 75 nomination packages (including more than 200 individuals) were submitted for 11 award categories.

The number of applications tripled since 1999, making the selection process more competitive, Forinash said. "Selections were based on innovation and impact to the Intelligence Community and field of imagery analysis," he said. If none of the nominations in a particular category held up to the rigid standards, then no award would be given for that category. That was not the case in this year's ceremony, he added.

The winners were:

Imagery Analyst of the Year — Sylvester Everhart

Support Officer of the Year — Jennifer Mays and Julie Saville

Leadership — Jennifer Haley

Mentoring — Michael Cady

Sensor Exploitation/Technology Application — Thomas Keck

In-depth Imagery Analysis — Troy Klinger

Issue-Oriented Area Exploitation — James Chapman

Database Reporting — Thomas Pierce

Current Intelligence — Christopher Dufresne and Theodore Pereboom (team)

Intelligence Communication — David Goldsby

Teamwork — Denise Y. Baker, Thomas Boudreau, Peter Bunce, Steven Cogliano, Glenn Forinash, Edward G., John Matson, Benjamin Tenuta and Mark Thompson. 🌊



Sylvester Everhart



Jennifer Haley



Michael Cady



Imagery Analysis Office Director Scott White poses with this year's winners of the Imagery Analysis Trade Awards, Julie Saville (left) and Jennifer Mays.

PHOTOS BY LARRY FRANKLIN

ICBLC Hears Tenet, King

by LOIS A. JENNINGS

Director of Central Intelligence George Tenet engaged an audience of 350 at the recent career development conference sponsored by the Intelligence Community Black Leadership Council (ICBLC).

"A workforce that is hampered by outdated management practices or policies that prevent full participation by any group cannot excel – it can only cope," Tenet said in his address to the third annual conference held at Andrews Air Force Base, Md. "I want U.S. Intelligence to be a world class operation – not only in how we do our mission but in how we manage our people."

NIMA Director LTG James C. King addressed the conference plenary with NIMA's plans for correcting biases in assignments and promotions that adversely impact the contributions of African-American employees. NIMA will be a better place for the entire workforce by embracing diversity, he said. A total of 56



NIMA Director LTG James C. King, with plaque he received from the ICBLC, talks to Phymeon Lyles of NIMA/IG. Muridith Winder of NIMA/PA looks on in the background.
PHOTO BY MIKE WRIGHT

representatives from NIMA attended the conference.

National Reconnaissance Office Director Keith Hall and Dr. Jendayi Frazer, Assistant to the President and Senior Director for African Affairs on the National Security Council, discussed how intelligence is used to support policymaking. Timothy Samples, Staff Director of the House Permanent Select Committee on Intelligence (HPSCI), provided insights on relations between the oversight committees and the IC.

Former Ohio Congressman Louis Stokes discussed his tenure as Chairman of the HPSCI and the origins of the IC Undergraduate Training Assistance Programs. Among those saluting him for his contributions to diversity within the IC were "graduates" of the Stokes Undergraduate Training Assistance Programs. The conference included a moment of remembrance for former California Congressman Julian Dixon, a member of the HPSCI and a civil rights activist, who died in December.

Minnie Kenny, former National Security Agency Director of EEO, and the first African-American woman elevated to the Senior Executive Service at the National Security Agency, recalled her more than 40 years of federal service in a dynamic presentation, "Remembering Our Roots."

Tracing his Asian roots, Gilman Louie, President and CEO of In-Q-Tel, told how he overcame obstacles, while TV personality Les Brown gave a rousing speech on life's experiences. Senior IC officers also presented six career development workshops. ☛

About the Author

A systems engineer in the Directorate of Acquisition and Technology's Pre-Acquisition Office (ATP), Lois A. Jennings introduced LTG King to ICBLC's plenary session and led NIMA's participation. She also led the salute to former Congressman and HPSCI Chairman Louis Stokes and a seminar on "Turning Adversity into Success." She continues to serve in the ICBLC as it presents post-conference findings to the DCI, IC agency directors, senior managers and African-American employees. After 18 years with the Defense Mapping Agency and NIMA, Jennings recently accepted a promotion with the CIA. She earned her master's in geodetic engineering from Virginia Tech.



Helgerson Addresses Retirees

by ALLEN E. ANDERSON

At the spring luncheon of the Defense Mapping and Charting Alumni Association at Fort Myer, Va., 50 retirees and their spouses enjoyed not only each other's company and a fine meal, but a fascinating history lesson delivered by guest speaker and author John Helgerson, NIMA's Deputy Director.

To attendees who might have expected a technical update on their former Agency's activities, Helgerson's remarks were a welcome surprise. Author of the book *Getting to Know the President: CIA Briefings of the Presidential Candidates, 1952-1992*, Helgerson shared stories from his experience as the CIA daily briefer in Little Rock, Ark., for President-elect Clinton.

The practice of offering daily intelligence briefings to presidential candidates and presidents-elect was instituted by President Truman in 1952 for Gen. Eisenhower and Adlai Stevenson and has been continued by each succeeding president. Yet when he was tasked with his briefing assignment, Helgerson discovered that there was no written record of previous briefing assignments. So, he arranged a sabbatical, researched the subject, and interviewed all living former presidents except President Reagan as well as other participants in the briefing process. His research led to the book published in 1994.

Following a "Fine Line"

Sharing his experience briefing Clinton, Helgerson described the fine line that briefers must follow to provide the facts without interjecting policy recommendations. It's not always easy when responding to questions raised by a briefing, he



Deputy Director John L. Helgerson

said. Then he brought his listeners up to date by describing President George W. Bush's intense interest in his daily intelligence briefings and mentioned NIMA's role in supporting preparations for these briefings.

The DMCA audience thoroughly enjoyed Helgerson's presentation. "Best we've had" and "Great to see NIMA in such competent hands" were typical reactions. The diverse group included founding members like Col. Bob Herndon (former head of Defense Intelligence Agency Mapping and Charting) and Bill Riordan (former civilian deputy director of the Defense Mapping Agency) to brand new retirees such as Clay Ancell, Jim Johnson, Caroline Leroy and Willie Rodgers. A new member who is still working for NIMA - John Evans - also attended.

New Members Welcome

DMCA and other retiree groups were described in the January 2001 issue of the *Edge*. DMCA membership is open to current and former members of NIMA. Prospective members should contact their NIMA retirement officer in the Human Resources Office or send an e-mail request to DMCAA2001@aol.com.

About the Author

Allen Anderson was the Defense Mapping Agency's Deputy Director for Programs, Production and Operations before retiring in 1986.



Scott Buschbacher and his daughter Elena Kimball measured the circumference of the Earth using the same method as the ancient Greek astronomer Eratosthenes.



PHOTO BY KATHLEEN McGUIRE

Family Project Verifies Earth's Circumference

by SCOTT BUSCHBACHER

Ancient history, mathematics and a collegiate promise joined cosmic forces in May when my daughter Elena Kimball and I computed the Earth's circumference with a technique first used 2200 years ago. Elena just completed sixth grade at Bonnie Brae Elementary School in Burke, Va.

Eratosthenes (276—196 BC), a Greek astronomer, mathematician and geographer, calculated the circumference of the Earth by converting shadow angles into distance. Eratosthenes had observed that on the summer solstice (the instance at which the sun reaches the point of maximum northerly declination, about June 21) the sun shone directly into a well in the Egyptian city of Syene, leaving no shadow. At the same time, however, far away in the city of Alexandria, shadows were being cast, indicating that the sun's rays were hitting the Earth at an angle proportional to the distance between the two cities. Using the mathematical formula for arctan, he calculated the inclination of

the sun's rays to be about 7.2 degrees, or 1/50 of a 360-degree circle. Multiplying 50 by the distance between the two cities, Eratosthenes determined that the Earth must be 25,000 miles in circumference.

While watching a meteor shower with my family one night, I recalled an oath that I took upon joining Gamma Theta Upsilon (GTU), the geography honor society, while attending Illinois State University in 1980. All GTU members had to swear to Polaris, the North Star, that they would keep geography in their hearts and strive to instill an appreciation of geography in others.

If Elena wondered how big the world is that night, I thought, maybe I could inspire my daughter if we repeated Eratosthenes's method. So I measured the shadow cast by a four-foot pole in Williamsburg, Va. (while attending a NIMA College off-site), and Elena measured the shadow of another four-foot pole in Burke at exactly the same time.

From the lengths of the poles and their shadows, my daughter and I computed the inclination angles of the sun's rays at the two locations—25.1 degrees at Williamsburg and 26.6 degrees at Burke. We then used the north-south distance between the two locations, 110 miles, to calculate the Earth's circumference to be 26,400 miles (off by only 1000 miles from what is accepted as the official circumference).

Elena used the project for extra credit in her math class, and I fulfilled my promise to Polaris. When she's not collaborating with me on geographic discoveries, Elena can be found singing and dancing in school plays, swimming competitively and playing the piano and the flute. I can be found at the Defense Mapping School (DMS) carrying on my alma mater's motto, "And gladly would he learn, and gladly teach."

Scott Buschbacher is Chief of the Global Information Division at DMS. 🌐

RETIREMENT

Brigadier Gen. Andrew W. Smoak, Deputy Director of the Plans and Customer Operations Directorate (PCO), retired in July with 30 years of Air Force service. During a ceremony in Bethesda, he received the Defense Distinguished Service Medal for his leadership at NIMA. His "insightful management and technical expertise ensured that national, defense and civil customers obtained greater access to and timely use of imagery, imagery intelligence and geospatial information," the citation says.

Air Force Brig. Gen. Michael G. Lee, Deputy Commander of NATO Allied Forces South Combined Air Operations Center 6 in Eskisehir, Turkey, succeeded Smoak.

Smoak came to NIMA from Barksdale Air Force Base, La., where he commanded the 2nd



Brig. Gen. Andrew W. Smoak, USAF

Bomb Wing. A B-52 pilot, he was deputy director of plans and programs at Headquarters Air Combat Command and chief of current operations and later executive assistant to the commander in chief of the U.S.

Strategic Command. He also served on the Air Staff, at Supreme Headquarters Allied Powers Europe, and as commander of a bomb squadron and operations group. He is a 1971 graduate of West Point and holds a master's degree in diplomatic history.

"To the men and women of NIMA, thank you for the opportunity to serve NIMA," Smoak said. "The main impressions I will take with me are your professionalism and dedication to NIMA's mission." Noting the unique responsibilities and talents of NIMA people, he encouraged everyone to "continue to provide the information edge for our services and other agencies." Though looking forward to retirement, Smoak added, "I'll miss the wonderful people of PCO and NIMA. Good luck and check six." 🇺🇸

Employees Shine at Third World Conference

Four NIMA employees contributed to the world's awareness of global security issues at the Third World Conference on Interdisciplinary and Intercultural Exchange in Chicago. Michael Hewitt, Richard LeSage, Mel Willsey and Joseph Zwettler presented research papers at the 27th annual conference.

The NIMA presenters are pursuing their master's in international affairs at Washington University in St. Louis through the NIMA Higher Education Program, sponsored by the Geospatial Information Office Workforce Development Branch. The program was featured in a May-June *Edge*



At the Third World Conference, from left: Joseph Zwettler, Melvin Willsey, Capt. Gregory Scrivner, Dr. Gene Shultz, Richard LeSage and Michael Hewitt. Scrivner, an Air Force officer with the U.S. Transportation Command, also presented a paper.

article, "Work and School Go Together at NIMA."

Hewitt's paper was on *Vietnam: Environmental Degradation and Rapid Urbanization*, LeSage discussed *For Profit or Consumption: The Fisheries of China*, Willsey wrote about the *Armenia - Azerbaijan Conflict: Potential*

Solutions and Zwettler's topic was *Sharing the International Waters Of the Ganges-Brahmaputra*. Prior to the conference, they presented their papers at NIMA in a weekly lunchtime lecture series sponsored by the Workforce Development Branch. 🇺🇸

Shannon Kentner of the NIMA Mothers of Reinvention sends the ball back to the Woohoo Yahoos of the U.S. Geological Survey. The Mothers are defending champs in the USGS-NIMA Summer Volleyball League in Reston. Shannon's Teammates, from left, are captain Frank Fico and Ann Carbonell. Not shown are Dan Ferrentino and Jeanne VanDyke.

PHOTO BY KERRY GILBERT

