NATIONAL IMAGERY AND MAPPING AGENCY

EDGE

GUARANTEEING THE INFORMATION EDGE
MARCH 1999

"Giving Customers What They Want When They Want It"

MARCH 1999

EDGE

FEATURES

ABOUT THE COVER

Anne Rutherford, Paul Mich and Dietra Ingram, staff officers on the Agency's Tasking, Processing, Exploitation and Dissemination (TPED) Assessment Process (TAP) Team, review data used to improve processes and systems. This ensures accurate and relevant information to NIMA customers.

This month's *Edge* features some of the ways NIMA professionals assist our country in achieving its national objectives.

To prepare for Pope John Paul II's visit to St. Louis in January, the Secret Service called on NIMA's customer support team for information and products to assist agents in their security mission. Included in our support was a standard package containing a Compact Disk PhotoMap with annotated imagery, wall plots, gridded reference graphics and a security planning package. This was a joint effort between NIMA's Geospatial Information and Services and Imagery Analysis offices. As an information provider, NIMA helped ensure the Pope's and the President's safety and security (see story, page 26).

Further from home, your efforts helped influence events in a hot-spot on the world stage—Kosovo (see story, page 4). The NIMA team provided critical tools for relief workers and NATO peacemakers. They did it by answering a call from the U.S. Agency for International Development for a "humanitarian response planning map" of Kosovo. This type of customer-tailored geospatial information is essential when a crisis erupts, time is short, and lives are in jeopardy.

These are only two examples of how we use our imagery and geospatial information skills as a positive force in the world. Although the American public may not always know about your quiet efforts, our national leaders do.

Our vision of "Guaranteeing the Information Edge" comes to life in the day-to-day accomplishments of NIMA people. The information, products and services you provide give the common reference framework for planning, decisions and actions by our customers.

You are making it happen right—keep up the great work!

James C. King
Lieutenant General, USA

Customer Support Team Uses NIMA Technology to Map Kosovo's Future

A group of less than 20 NIMA cartographers, regional analysts and customer support liaisons is providing critical tools to relief workers and peacemakers and positively impacting events and war-torn peoples a half world away.

By Paul Hurlburt

It began last June, when the U.S. Agency for International Development (U.S. AID) requested from NIMA's State Department Customer Support Team (CST) a "humanitarian response planning map" of the Serbian province of Kosovo, which was erupting in violence and experiencing an exodus of ethnic Albanians.

"What U.S. AID was seeking, from a government or private source, was an unclassified, poster-sized map that could serve as a common base map for various international parties involved in the relief effort," said Charlie Russ, chief of the NIMA team. "It also required a geographic names index to accompany the map."

But was producing such a product within NIMA's expertise?

According to cartographer Bret Duncan, who led GI's response to the request, standard NIMA products emphasizing contour, position and elevation would not suffice. "The problem was identifying places the refugees knew by Albanian names, and the Serbs often referred to by different Serbian names." Existing maps, he added, provided names in one language, but not both.

Duncan's team responded with a proposal for a map that identified locations using the official Serbocroatian language, but with an index that provided the name in both languages, plus any variations.

The first edition of the Kosovo Planning Map rolled off NIMA's Remote Replication System, in Bethesda, two months after the original request. Duncan personally delivered the initial copies to U.S. AID's Foreign Disaster Assistance office.

Meanwhile, the map's wealth of newly researched place names was placed on the Internet at NIMA's GEOnet Names Server, with positional references and a table for translation into the Cyrillic alphabet.

"We produced the map with existing resources," said CST production manager Barry Barwatt, "but without our geographic names people, we would never have achieved such a quick turnaround." The Remote Replication System is operated by the Information Services and Training Office (IS), allowed copies to be reproduced expeditiously in the appropriate quantities. IS also printed copies of the map index.

"The problem was identifying places refugees knew by Albanian names, and the Serbs often referred to by Serbian names. Existing maps provided names in one language, but not both."

Velma Brown meets with NIMA's State Department Customer Support Team. From l-r (seated): Alan Huguley, plans officer; Charlie Russ, chief; Brown, and Barry Barwatt, production manager. Standing are (l-r): GIMSE members Erno Horvath, Fawaz Alami, Keith McNaul, Douglas Moore and Fred Rohrer. Not shown is Stephan Brady.

What's in a Name?

"It's been an exciting project," said Velma Brown (GI Information Management's Geographic Names and Boundaries Branch (GIMSE)). Using unique resources, such as those obtained through agreements with foreign governments, she led a team of three coworkers in researching names for the map.

"Trying to tie all the variant names to the official was painstaking," Brown said. It also required extensive experience in both languages and the ability to research feature locations—using current and historic sources—across many scales.

"The refugees were streaming through mountain passes," Brown said. "We made a special effort to capture these features in our database and provide as many Albanian variant names as possible."

Researching names for this region was even more complex, she added, because Albanian-language names are spelled differently, depending on whether one is going there or is already there. The Serbs not only use different names, she said, but a different alphabet—Cyrillic, rather than Roman, the alphabet used by ethnic Albanians.

The analysts also updated district boundaries for the map, since U.S. AID interacts with district officials and tracks aid deliveries by district.

"We determined the information on the available Serbian graphics was dated before 1990," Brown said. "So we turned to more recent lists of villages by district published in the official register of Serbia. Plotting village location allowed the alignment of the new boundaries."

Interaction Was Key

Todd Cummings and Brian Carson, two NIMA cartographers assigned to the GI Data Generation Division's Technology Office, created the finished map with NIMA's existing data holdings, downloaded from CD or the Secret Internet Protocol Routing Network (SIPRNet).

The data sources included Vector Smart Map, Digital Terrain Elevation Data, Compressed ARC Digitized Raster Graphics and others.

"Creating a map without following the usual specifications was challenging and rewarding," Cummings said. "We merged existing data, using a commercial software package [ArcView], and did minimal extraction [digitization of points] for areas where data was lacking." A new software package was used for names placement.

"The key to the success," Cummings said, "was our interaction with the customer."

NIMA's Customer Support Team (CST) brought U.S. AID representatives and NIMA production people together on almost a weekly basis.

The digital files used to print hard copies on NIMA's Remote Replication System were transmitted to the NIMA Gateway for posting to the SIPRNet. The graphic also can be accessed on Intelink and NIMA's Open Source Information

Project lead Bret Duncan (GI) (left) and Todd Cummings (right), one of the two cartographers who created the Kosovo planning map, join remote replication system operators (l-r): Donald Merryman, Buddy Dollison and James Yates.

System (OSIS). Geographic names and locations accompany the graphic in a table. The map and names data also were provided to some users on CD.

Making data available in softcopy, whether on CD or the Internet, allows users to build tailored products and perform analyses through data manipulation, Cummings said.

Praise from the Field

"The State CST facilitated the evolution of the Kosovo Planning Map through several stages, as the project evolved from a humanitarian relief focus to a more recent State Department requirement to support the Kosovo Verification Mission," Russ said. The Organization for Cooperation and Security in Europe (OSCE), with representatives deployed to verify troop withdrawals and peaceful conditions, also relies on the map.

"We're pleased to see how many traditional and nontraditional customers are using the map since the original request," Russ said.

Besides U.S. AID and the State Department, copies went to the CIA, Defense Intelligence Agency, National Reconnaissance Office, National Security Agency, Office of the Secretary of Defense, Joint Chiefs of Staff, National Security Council, U.S. European Command, U.S. Special Operations Command and others. The OSCE Verification Mission and United Nations—along with various international relief organizations—received copies through U.S. AID.

Upon returning from the U.N., NIMA cartographer Nate Smith said, "[The map] has received much praise in the field and has achieved our goal of becoming 'the' map for humanitarian planning. I get requests for it almost everyday."

A second edition with several enhancements was distributed in December. Now at a slightly larger scale, the map shows more villages for operational use. The revised index now provides cross-references and positional information for some 10,000 names.

Production efforts are nearing completion for a third edition, requested by the State Department. On even a larger scale, Russ said, it will emphasize softcopy applications for geographic information systems deployed in Kosovo and elsewhere. Among the enhancements, there will be more roads and internal administrative boundaries for use in-country by verification teams.

Plans are also underway for NIMA's recently assigned technical representative to the State Department, Steve Bricker, to provide tailored GIS training to field personnel.

The goal, Russ said, is to better enable verification teams and humanitarian relief workers to record, correlate and share information, such as the locations of mine fields, displaced persons and damaged homes.

"You get a feel for what the customer wants," Cummings said, "and we showed them how we could add value with different products. You can have all the technical expertise in the world, but it still comes down to listening to the customer." ❖

The Kosovo Planning Map can be viewed on the NIMA Intranet at http://osis.nima.mil:80/gni/HTML/KOSOVO.HTM.

NIMA Employees Receive Killian Award

Attending the ceremony are, from left: Former Senator Warren Rudman, chairman, PFIAB; NIMA Director Lt. Gen. James King; Don Mathis, DIA; Melissa Smislova, DIA; Tom Maddox, NIMA; Phil O'Grady, NIMA; Richard Kline, DIA; Paul Lago, DIA; Gene Taylor, Los Alamos National Laboratory; Roger Jones, DIA; Dennis Shumate, NIMA; Dan O'Brien, DIA; Army Lt. Col. Kenneth Thompson, DIA; George Tenet, DCI; Army Maj. Terry Delong, DIA; Anthony Harrington, deputy chairman, PFIAB; DIA Director Army Lt. Gen. Patrick M. Hughes and Lew Bella, NIMA.

Four NIMA employees were among the recipients of the Killian Award from the President's Foreign Intelligence Advisory Board (PFIAB).

Phil O'Grady, Dennis Shumate, Tom Maddox and Lew Bellas, all with Imagery Analysis' Korea Branch, were recipients.

The annual award recognizes outstanding performances by U.S. intelligence professionals in areas critical to national security.

The award was presented by former Sen. Warren Rudman, chairman of the PFIAB, at a ceremony in January attended by the Director of Central Intelligence, Vice Chairman of the Joint Chiefs of Staff, and the President's National Security Adviser. ❖

Road Show Coming to Your Site in April

by Kristen Stowe
NIMA Research Division

The NIMA Research Division (ISL) is sponsoring a road show to celebrate National Library Week, April 11-17. This will be a one-day event at each NIMA Research Center during that week. Research centers are located in Bethesda, Reston, St. Louis and the Washington Navy Yard.

"The road show will illustrate how the Research Centers provide imagery, imagery-derived products, finished intelligence and cartographic materials to NIMA, DoD and the rest of the Intelligence Community to 'guarantee the information edge,'" explained Dave Kraus, chief of ISL. "As a former user of legacy library services, I can't urge strongly enough that current users, especially imagery analysts and cartographers, get an exhaustive listing of all relevant library holdings before beginning their projects."

The road show will highlight the wide range of products and services available through the ISL. Use of the World Wide Web, ISL reference tools and all-source research techniques also will be demonstrated, including ISL's latest accession, the Voyager online library catalog. Voyager allows access of unclassified materials on the Open-Source Information System (OSIS) network and classified information on the Joint Worldwide Intelligence Communications

NIMA's Special Warnings Help Smooth Troubled Waters

Changing navigation conditions aren't the only threat to safety of life at sea—changing political conditions also can threaten shipping.

NIMA's role in the World-Wide Navigational Warning Service (WWNWS) makes a difference when global political unrest and military threats can pose hazards to U.S. ships and their crews.

by Howard Cohen
Marine Navigation Department

On February 17, NIMA's Marine Navigation Department (GIMM) alerted mariners to a potential threat to shipping by transmitting Special Warning Number 109. The warning resulted shortly after the outbreak of fighting between Ethiopia and Eritrea and alerted mariners to the threat of hostility in the ports of Assab and Massawa, in Eritrea, and elsewhere along the coast.

According to the Office of Naval Intelligence, merchant cargo vessels have been fired upon and cargo destined for Ethiopia has been seized or destroyed.

Peter Doherty, team chief of GIMM's Maritime Safety Information Branch, is responsible for overseeing the WWNWS. "The independence of Eritrea from Ethiopia in 1993 left Ethiopia landlocked. Eritrea occupies a strategic position along one of the world's busiest shipping lanes to the Middle East oil fields."

NIMA has the only dependable means of reaching all U.S. flagged ships, military and civilian, with this type of immediate threat information.

"We consulted with the Department of State, the Chief of Naval Operations (CNO) and the U.S. Maritime Administration (MARAD) to determine the scope of the warning," said Doherty. Once a threat was found to exist, NIMA transmitted the special alert to U.S. shipping, government agencies and military commands worldwide. "Terrestrial, radio and satellite communication systems are all used for these transmissions." Ships transiting areas affected by the warnings, and not aware of it, could be in danger.

Ships at sea are not the only ones to receive the special warning. The message goes to the White House National Security Council and the White House Situation Room. Top government

officials, including the Secretary of Defense, Secretary of State and the Joint Chiefs of Staff, also are notified.

"Authority for the Special Warnings program is derived from a 1976 Memorandum of Understanding between the Departments of State, Defense and Commerce and the Central Intelligence Agency," said Scott Heckman of the State Department's Maritime Affairs Office. "When someone identifies an ongoing threat to the safety of U.S. mariners, the State Department proposes a new warning to be added to the list." There currently are 18 special warnings still active.

Special Warning Number 1, announcing the program, was issued in May 27, 1948. In the first two days of the program's existence, six special warnings were issued.

Another famous special warning focused on the Cuban Missile Crisis. Special Warning 29, stated: "The president of the United States proclaimed an embargo effective Feb. 7, 1962 on all imports into United States of goods from Cuba...." The embargo and the special warning are still in effect today. The latter was updated in 1982 and validated again in 1994.

On May 12, 1975, the U.S. merchant ship *Mayaguez* was seized in Cambodian waters.

ERITREA

This initiated Special Warning 45, which alerted mariners of recent hostile attacks that involved the firing on, stopping and detention of ships within waters claimed by Cambodia, and advised them to keep at least 35 miles off the coast.

Today, whether it's a U.S. Navy warship approaching a politically volatile theater of operations, or a merchant mariner approaching a shifting shoal—both rely on NIMA's Marine Navigation Department for timely and accurate radio safety messages. ❖
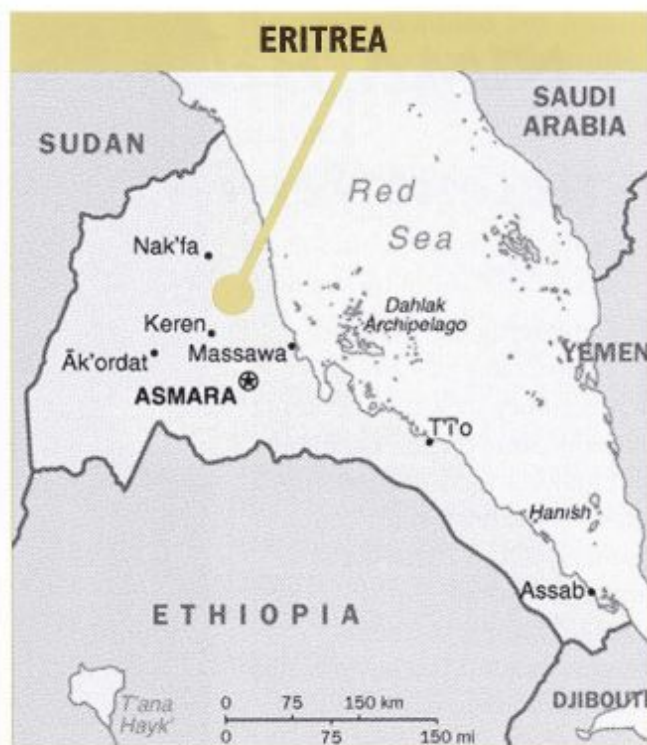
NIMA Customer Help Desk Not Just for Customers

Did you know that the NIMA Customer Help Desk is for NIMA employees, too? When you have a question you can't answer, or don't know who to call, contact NIMA's Customer Help Desk for general information.

The phone numbers are 1-800-455-0899, (314) 260-5032, and DSN 490-5032. The General Information Help Desk is also available on e-mail at chdesk@nima.mil.

You can expect to find NIMA employees who are dedicated to providing efficient and accurate assistance.

NIMA GEOnet Named January Website of the Month

The University of Utrecht's (Netherlands) Cartography Department named NIMA's GEOnet Names Server (GNS) as its Internet Web Site of the Month for January. Kudos to all the Source Analysis Information and Services Department (GIMS) folks who keep this site up-to-date, topical, and always interesting. The GNS is accessed by upwards of half a million visitors per year.

The GNS website can be accessed at http://www.nima.mil/gns/html/index.html.

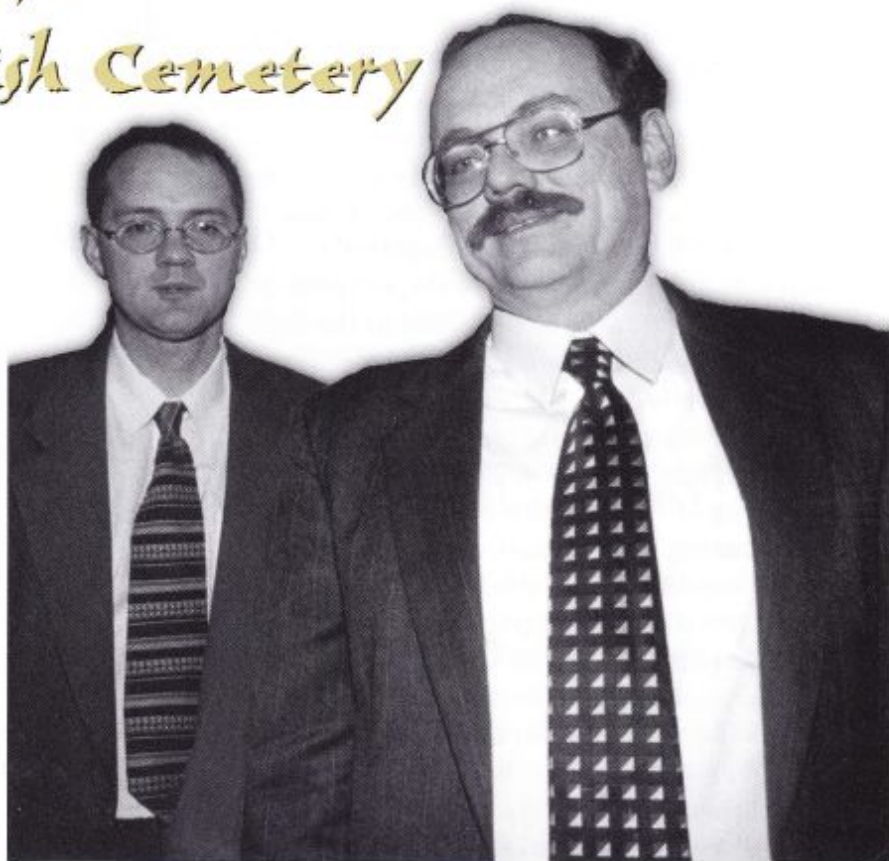# NIMA Helps Locate Ancient Jewish Cemetery

by Sharon Alexander

Identifying the original boundaries of a Jewish cemetery in Kalisz, Poland, helped three NIMA employees earn an award from the United States Commission for the Preservation of America's Heritage Abroad.

Imagery analyst George Morgan located the boundaries of the cemetery, which dates back to the 13th century.

According to Michael Lewin, chairman of the commission, the cemetery holds "remains which are highly venerated by the world Chasidic community, including many Holocaust survivors who are American citizens." The cemetery is also believed to include the centuries-old gravesite of 17th century Jewish rabbi Abraham Abele Gombiner and renowned scholars such as Magen Avraham.

The 700-year-old cemetery remained in use through 1940, when the Germans seized and razed it during World War II. In the war's aftermath, Lewin said, the cemetery was not returned to the Jews, but "held or sold by subsequent Polish governmental entities."

The commission represents U. S. interests in preserving and protecting cultural sites and advises the State Department on preservation matters in Eastern European and the
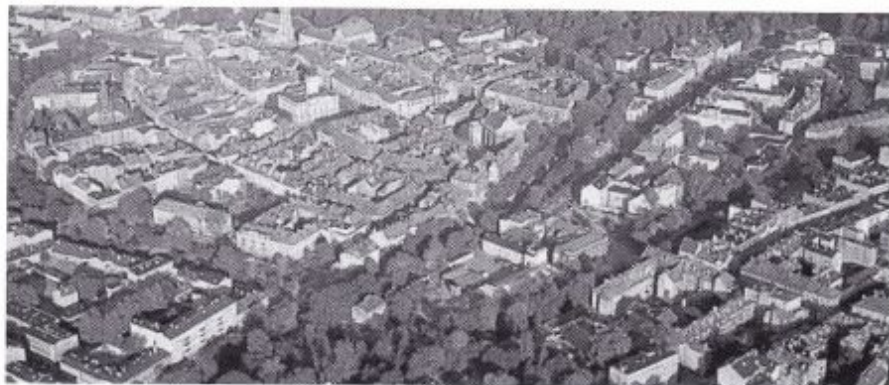

Lee Howard and Terrance Moore.

former Soviet Union. The commission wanted to pinpoint the burial site's original boundaries, the last impediment to determining an appropriate future use of the property. The commission sought NIMA's assistance in this effort.

Morgan, who had spearheaded three similar requests for cemeteries in East Germany and the Ukraine, was the project lead. He was assisted by Terrance Moore, another imagery analyst, and image scientist Lee Howard. According to Morgan, the commission provided only a 1931 map and written description of the vicinity that included a soccer field.

"I located the soccer field on the map and picked up a river pattern," Morgan said. He then used these signatures to identify the cemetery's area on 1956 aircraft imagery and unclassified 1969 satellite imagery.

By comparing the imagery, Morgan determined that except for some vegetation changes, sidewalks, paths and trails, the property was virtually unchanged and that the burial ground probably covered the southern half of the property.

Morgan explained that the shape of the property was unchanged from 1931, but that the 1956 image showed a well-

Kalisz, Poland

worn circle on the southern edge of the property.

"A street crossing the property on the 1956 image was unmoved and apparently marked the northern edge of the burial ground, as indicated on the 1931 map," Morgan said. He further explained that a soccer field had been built on top of the cemetery and that the northeast corner of one building corresponded to the center of the worn circle noted on the 1956 imagery.

To ensure accuracy and confirm his analysis, Morgan wanted to correlate the imagery and create a simple line drawing. That's where Moore and Howard came in. The three decided to digitize the imagery and identify reference points, such as roads and buildings.

"We scanned the imagery and downloaded it to the Intergraph computer to create digital files and line drawings," Moore said.

"This enabled us to warp and stretch the imagery, electronically tying together the reference points and creating a common scale," Howard said.

Moore, a former cartographer, created a line drawing of the area and added key features from the imagery. The results confirmed Morgan's earlier analysis.

After the project was complete, Morgan learned that the worn circle probably noted the gravesite of a Jewish scholar that was visited by thousands of Jewish pilgrims over the centuries before World War II.

The imagery and the line drawing from NIMA confirmed the boundaries and provided the final evidence that the commission would need to reclaim the ancient burial ground.

In his letter of appreciation to NIMA's Director, Lewin wrote, "The professionalism of your staff is incredibly impressive," and mentioned Morgan, Howard and Moore by name. ❖

Polish embassy Deputy Chief Piotr Ogerodzin (left) presents George Morgan with a tourist map of Poland.

TAPPING into NIMA's Future

by Dusty Rhoades
Plans, Programs and Analysis

With world events sizzling, the country's civilian and military leaders demand accurate, up-to-the-minute imagery and geospatial data. But what if NIMA collects the right kind of data, but can't get it to its customers in a timely manner?

Robert Cardillo, director of the Agency's Tasking, Processing, Exploitation and Dissemination (TPED) Assessment Process (TAP) Office, doesn't like to think about that possibility, but he does. It's his job.

"Our challenge is to improve the processes and systems to ensure we're providing accurate and relevant information to our customers," he said. "We focus on the right set of needs, exploit the right sources, create the required information and get it to the right customers when they need it."

Providing customers with the information they need to make critical decisions is at the forefront of TAP's priorities. "TAP," said NIMA Director Lt. Gen. James C. King, "will lead the way in defining, developing and operating a future imagery and geospatial information service as part of an integrated all-source information service...."

Doing this, Cardillo said, requires rapid response on the part of NIMA.

"Our national, military and civil customers are reacting to issues where they need up-to-date information in hours and minutes. And they're depending on us to respond to those needs."

Although NIMA and its predecessor organizations have had some spectacular successes, ranging from recent strikes against Iraq (see "Four Nights, 100 Targets," January 1999 issue) to emergency assistance overseas (see "NIMA Assists International Disaster Relief," March 1998 issue), the emphasis is on constantly improving processes and efficiency to better meet customer needs.

According to Rob Zitz, head of the Plans, Programs and Analysis Office (PA), "NIMA has a rock-solid foundation with the U.S. Imagery and Geospatial Information Service (USIGS). It encompasses our future direction in terms of doctrine, systems and people. USIGS is absolutely the right way ahead for NIMA and the community, and will help us achieve information superiority for our customers." He said the coming dramatic increase in national, airborne and commercial imagery and geospatial capabilities will overwhelm the TPED functions of USIGS, unless those enhancements are made.

"The TPED Assessment is designed to help us determine where we need to make immediate and long-term improvements to USIGS, and defend these resource requirements," said Zitz.

Increased Technology, Increased Expectations

With the new technology, Cardillo noted, comes increased expectations. "We have to constantly adapt to take advantage of these increased capabilities."

The expectations have been loudly vocalized. The Future Imagery Architecture (FIA) Senior Warfighters Forum (SWARF) identified TPED as the warfighter's "number one unsatisfied concern" to the June 1998 Joint [Chiefs of Staff] Requirements Oversight Council (JROC). The issue also received Congressional attention, resulting in a request for NIMA to provide an imagery TPED modernization plan by June 1, approved by the Director of Central Intelligence.

This request, Cardillo said, fits well within their plan.

"In our role as the functional manager for the imagery and geospatial community, it's our job to solve the TPED challenges." He points to a

TAP members (l-r): Norman Spenser, David Craig, Gary Hacker, Air Force Maj. Ed Stawarz, Connie Strong, Paul Moskal, Sam Chang, Michael Joyce, Dick Strich and Eric Van DerVeer.

recent memorandum from Gen. King calling TPED "one of the most important [Command, Control, Communications Computers and Intelligence Surveillance and Reconnaissance] efforts in the DoD."

NIMA aggressively began the TPED Assessment Process, dedicating more than 50 full-time government staff members. PA is leading the way with augmentees from other offices throughout the Agency. It's also gleaned the expertise of system engineering and integration contractor support.

"The purpose of TAP," Cardillo said, "is to assess the current TPED capabilities, capture our objective goals and recommend solutions to shortfalls. Simply put, we need to understand what we have and determine what we need to satisfy customers."

Partners As Teammates

The National Correlation Working Group, a mixed group of senior government representatives from across the national and military communities and senior industry partners are involved and reviewing TAP's approach and initial findings.

"Our goal," said Cardillo, "is to develop viable alternatives to address TPED shortfalls." These can include materiel (systems, staff, infrastruc-

ture) and non-materiel (improved processes, policies and concepts).

Success Story

Key to TAP's success, Cardillo said, is continually keeping in mind the importance of getting information to customers when they need it. He recalls a story recently relayed by NIMA Deputy Director Leo Hazlewood about NIMA support to an environmental support request.

NIMA provided a geospatial information database, including a controlled image base, high resolution Digital Terrain Elevation Data (DTED), precise locations of critical elements in the facility, historical imagery that was geo-referenced and ground shots over a 30-year period referenced to the database.

"We handed all this to them on CD and showed them how to print and select among the layers in the database," Cardillo said. "It was a great success because we listened to the customer and supplied exactly what was needed. We did it rapidly, and the result was a satisfied customer, Our goal is to have many more success stories like this and, in fact, make it our standard way of doing business. Give the customer what they need, when they need it and how they need it." ❖

SRTM Update

Members of NASA's STS-99 space shuttle Endeavor mission which will carry the latest, high resolution radar imaging technology for 3D imaging of Earth's topography, were at the Jet Propulsion Laboratory (JPL) for simulation training in mid-February. Left to right are: Mamoru Mohri, National Space Development Agency of Japan (NASDA); Dominic Gorie, NASA STS-99 mission pilot; Janet Kavandi, NASA; Kevin Kregel, NASA STS-99 mission commander; a JPL technician; Gerhard P. J. Thiele, European Space Agency; and Janice Voss, mission specialist. The Shuttle Radar Topography Mission is scheduled for launch Sept. 19 aboard the shuttle Endeavor.

Roadshows

Systems (JWICS) network. Patrons can use it to view library holdings, including books, magazines, videos and documents at any of the NIMA Research Centers. The Voyager catalog is available on the NIMA Research Division web site at (http://osis.nima.mil/isl_lib).

Demonstrations of other electronic services available will include "Ask a Librarian," where employees can submit online reference questions to the ISL reference staff, and a "Useful Links" section that provides some starting points for research on the Internet.

ISL's products and services recently were put to the test during a bomb damage assessment exercise. Staff members from the Research Centers provided information from classified and unclassified resources to exercise participants. NIMA analysts responded quickly to requests during the crisis exercise thanks to open-source reference materials, imagery intelligence and map sources.

The special collections maintained by the NIMA Research Centers include specialized reference materials such as *Jane's World Railways* or *Fighting Ships*; open-source databases such as LEXIS-NEXIS or DIALOG; and ground photography from the Ground Photography Division at WNY. The centers also hold imagery and imagery intelligence documents; maps and charts; lithographic materials; and a variety of national and international government documents. All of which are available to NIMA employees upon request.

The ISL Road Show team members are Kristen Stowe and Jennifer Bushong, Washington Research Center librarians. Watch for date, time and location information at your site. POC is Kristin Stowe, (202) 863-3227.

NIMA Helps DEA Monitor Drug Trafficking

by Wells Huff

Indochina's notorious "Golden Triangle" has long been known for its drug traffic. A new NIMA map of the area, which includes the "triangle's" common borders of Burma, Laos and Thailand, is expected to greatly aid the Drug Enforcement Agency (DEA) in its war against drugs.

NIMA recently updated the map at the request of DEA as part of a new joint effort of the United States and China to fight international crime and drug trafficking in Indochina.

Heroin from the Golden Triangle, DEA officials say, flows through China in quantities that U.S. government experts believe significantly affect the United States. Chinese officials acknowledge the problem and say they have proof that more than 90 percent of the triangle's traffic comes from Burma.

"DEA's request was to use current imagery to update the existing briefing graphic," explained Eli Rutstein, a member of the NIMA team assigned to the project. "The old one was made from [older] Joint Operations graphics."
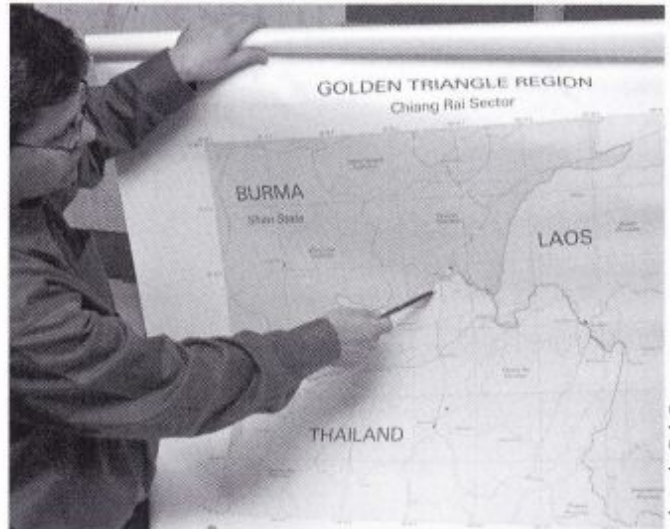
Rutstein's team used the Controlled Image Base (CIB) and added required features such as roads, drainage, airfields and built-up areas.

"The CIB data was recent and in the most current format," Rutstein said. "We used the original briefing graphic as a guide and added the new features as needed."

The project, undertaken in Bethesda, took nearly two months to complete. Initially the team, consisting of Rutstein, Chris White and Jordan Rabinovitz, all of Geospatial and Information Services, decided to use the Digital Capture and Finishing Environment (DCAFE) workstation, which has a CIB translator and a fast processor. Then (with other work pressing),

the job was moved to the Map Publishing Environment for the completion of compilation and color separations.

The final step involved NIMA's Remote Replication System in Bethesda, which produced

Eli Rutstein shows a map of the "Golden Triangle," a significant source of heroin.

copies for use in DEA offices in Washington and in the field.

Drug Enforcement officials like Robert Hern, who worked with the NIMA team, were pleased with the service NIMA provided. "It's a real improvement," he said. "We're already putting it to good use." ❖

Rutstein (pointing) and Jordan Rabinovitz use current imagery to update the existing graphic used by DEA.

Protecting NIMA's Corporate Information

by Darryl Johnson
Incident Management Team

Misuse of NIMA Information Technology Resources is a problem throughout the Agency, and the number of misuse cases being investigated by the NIMA Inspector General (IG) and the NIMA Incident Management Team (IMT) is growing.

There are steps everyone can take to eliminate the problem and protect NIMA's corporate information.

Common examples of misuse that are investigated by the IMT and the IG include:

- Maintaining a private business or for-profit activity on a NIMA computer.
- Overburdening the network with unofficial e-mail traffic.
- Soliciting or selling products for unofficial organizations.
- Any use that is not officially authorized by your supervisor.
- Spending time surfing an Internet website not directly related to NIMA's mission during duty hours.

Soliciting or selling products for unofficial organizations.

Overburdening the network with unofficial e-mail traffic.

Since NIMA stand-up, the IMT has investigated more than 100 cases dealing with misuse of Internet access. In January alone, the IMT opened eight new misuse cases.

There have been several cases investigated jointly by the General Counsel (GC), IG, IMT, the Defense Criminal Investigative Service (DCIS) and the FBI's Crimes Against Children Division.

Officials noted that when accessing a pornographic website, web surfers have absolutely no control over what images will appear on their screen and are downloaded to their computer. If the images are of an underage person, surfers can be prosecuted for dealing in child pornography.

There are also counterintelligence concerns. For example, each time a NIMA employee visits a website, his or her name and e-mail address, among other things, are entered into that site's visitor logbook. This is an inherent vulnerability in every Internet browser. These logs are routinely sold to web marketers for use in direct marketing. Foreign intelligence services and terrorists organizations operating online also purchase these logs.

After enough information has been collected about an

individual's web habits, the person may become subject to recruitment activities and blackmail. In September 1997, *The Washington Post* ran a series of articles about four federal employees whose names appeared in a visitor logbook that the *Post* purchased.

Based on the Human Resources Table of Penalties for Misuse of Information Technology, disciplinary action ranges from verbal counseling to removal from federal service. NIMA's senior leadership is taking the problem seriously. In the past year, NIMA managers have assessed punishment ranging from three to 14 days suspension without pay.

Once disciplinary action is taken, a personnel action form is completed and entered into the employee's permanent record. A copy of the report is also forwarded to the Personnel Security office.

Employees can't avoid being detected if they are engaged in this type of activity at work. However, by following some simple rules for surfing at work, they can avoid becoming the next investigation (see chart, above right). ❖

Maintaining a private business or for-profit activity on a NIMA computer.

- Read and be familiar with Policy Notice (PN) 8400.2 and PN 8400.3 (available at http://www.osis.nima.mil/mssa/6MSSA_IMT.html).
- Attend mandatory ethics briefings offered by the Office of the General Counsel.
- Attend mandatory Computer Security Awareness briefings offered by the NIMA Incident Management Team.
- Read the monthly Computer Security Awareness Bulletin published by the NIMA IMT for advice on safe computing.
- Avoid any website that does not have a .mil or .gov extension.
- If you accidentally access an inappropriate site, contact the IMT immediately. There are a number of sites that are not what they appear.

For further information regarding the appropriate use of information technology or to report misuse of NIMA Information Technology Resources, contact the IMT at 703-264-3000 or the IG at 301-227-2003. Your anonymity will be protected.

NIMA PROVIDES
Urban Warrior Support

by Paul Hurlburt and John Iler

Many post-World War II U.S. military operations have revolved around Asian jungles or desert sands. But with ever-changing world conditions, the likelihood of conducting major military operations in sprawling urban areas is increasing.

Kuwait City, 1991. As Operation Desert Storm unfolds, Iraqi forces set fire to oil refineries and flee advancing coalition troops. But what if they had resisted? The allied cost of victory could have been high. Other recent hotspots include Grenada, Panama, Somalia and Haiti—all of which required military operations in urban areas.

According to a joint Army-Marine Corps paper on military action in urban terrain, "U.S. forces do not possess the overwhelming technology advantages in an urban environment as in other environments." The primary problems, it states, include "line-of-sight restrictions, inherent fortifications, limited intelligence, densely constructed areas and the presence of noncombatants [that] restricts our current military technology."

How can NIMA support foreign military operations in such environments, where snipers can shoot from buildings and the enemy can be difficult to isolate and neutralize?

The Marine Corps tested NIMA's imagery and geospatial databases as it prepared to conduct an advanced warfighting experiment, "Urban Warrior," in the San Francisco Bay area last month.

"Exercises like Urban Warrior allow both the customer and NIMA to experiment with new types of imagery and geospatial information," said Kurt Savoie, chief of NIMA's Marine Corps Customer Support Team. "This allows a refinement of the proper information content and level of support required."

Data Sets

Both foundation and mission-specific data sets were provided for the exercise. The foundation data included a 5-meter Controlled Image Base (CIB), Digital Point Positioning Database (DPPDB), Vector Map Level 1 (VMAP 1), Digital Nautical Chart (DNC), Digital Terrain Elevation Data (DTED) and Feature Foundation Data (FFD).

The planning-level data, Savoie noted, will enable Marines "to rapidly access and locate areas requiring higher-resolution data" for operational use. The Marine Corps requires geospatial and imagery data to execute tactical missions, including amphibious landing, assault, fighting in built-up areas, humanitarian assistance, reconnaissance, surveillance, target acquisition and urban patrolling.

A high-resolution, unclassified, one-meter CIB imagery

U.S. Marines maneuver through the Military Operations at an Urban Terrain facility at Camp Lejeune, N.C.

photo by Staff Sgt. David J. Ferrier, U.S. Marine Corps.

Derived Product also was provided over the defined mission locations.

"When the Presidio in San Francisco was suddenly dropped from the exercise, Savoie said, "NIMA responded quickly to a change in mission location, compiling mission-specific data sets and one-meter CIB within two weeks, over the Oak Knoll Naval Hospital in Oakland."

NIMA also used Urban Warrior as a demonstration of 'data mining'—leveraging existing commercial imagery and geospatial information databases.

Visit to Camp Pendleton

In February, Marine Corps liaison Sue Allersmeyer-Rosendale and three cartographers from St. Louis attended the final Urban Warrior planning conference at Camp Pendleton, Calif. They were joined by NIMA technical representative Joe Ryan and cartographers John Grund, Mike Bell and Monica Mroz.

The conference included a demonstration of NIMA data on an "end-user terminal" system. Carried in a backpack/vest, it includes a Global Positioning System receiver, small computer screen, keyboard and communications antenna.

"The system enables a wide range of mapping and tracking possibilities on the front line," Grund said. "It was fascinating to see our data being used to track Marines in the area."

M-1A1 Abrams tanks patrol the streets at the Military Operations in Urban Terrain facility at Camp Lejeune, N.C.

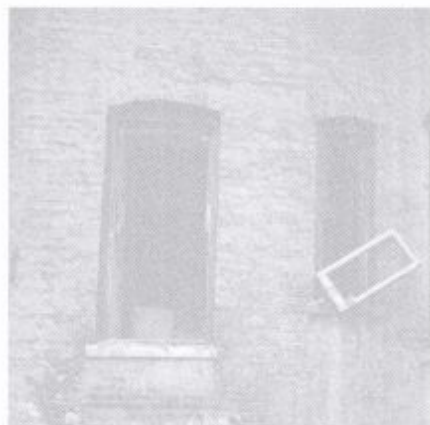photo by Lance Cpl. Michelle L. Underwood, U.S. Marine Corps.

The group joined a mapping workgroup in discussions about the use of NIMA products for the exercise, briefed the Special Purpose Marine Air-Ground Task Force working with NIMA products and toured the 1st Marine Expeditionary Force Topographic Platoon. "The visit highlighted a number of ways in which NIMA products are used and made us realize there are many more uses," Grund noted.

Bell cited the value of exchanging ideas and discussing concerns about using NIMA data. "It was a privilege to see how our customers use our data," he said. "This trip, no doubt, has made me a better cartographer."

Savoie praised NIMA's Geospatial Information and Services Office (GI) for quickly adapting and exploiting standard hardware and software to the new and experimental geospatial data sets required for Urban Warrior. He also praised the Information Services and Training Office (IS) for creating an Urban Warrior home page on the NIMA Gateway that houses all the geospatial data created for the project. (See "Exercise Crisis" on the NIMA home page.)

Feedback has been positive. "Your data is as valuable as ammunition in a firefight," said Maj. Fritz Barth, USMCR. "And at this point people are lining up to use it. Your delivery has been right on time!" ❖

Meeting Y2K Head On

by Adam Veracka
Y2K Staff

As the clock ticks towards Jan. 1, 2000, Tom Earley's 22-member NIMA Y2K staff meets each morning to discuss the Agency's progress in meeting the challenges associated with the coming millennium.
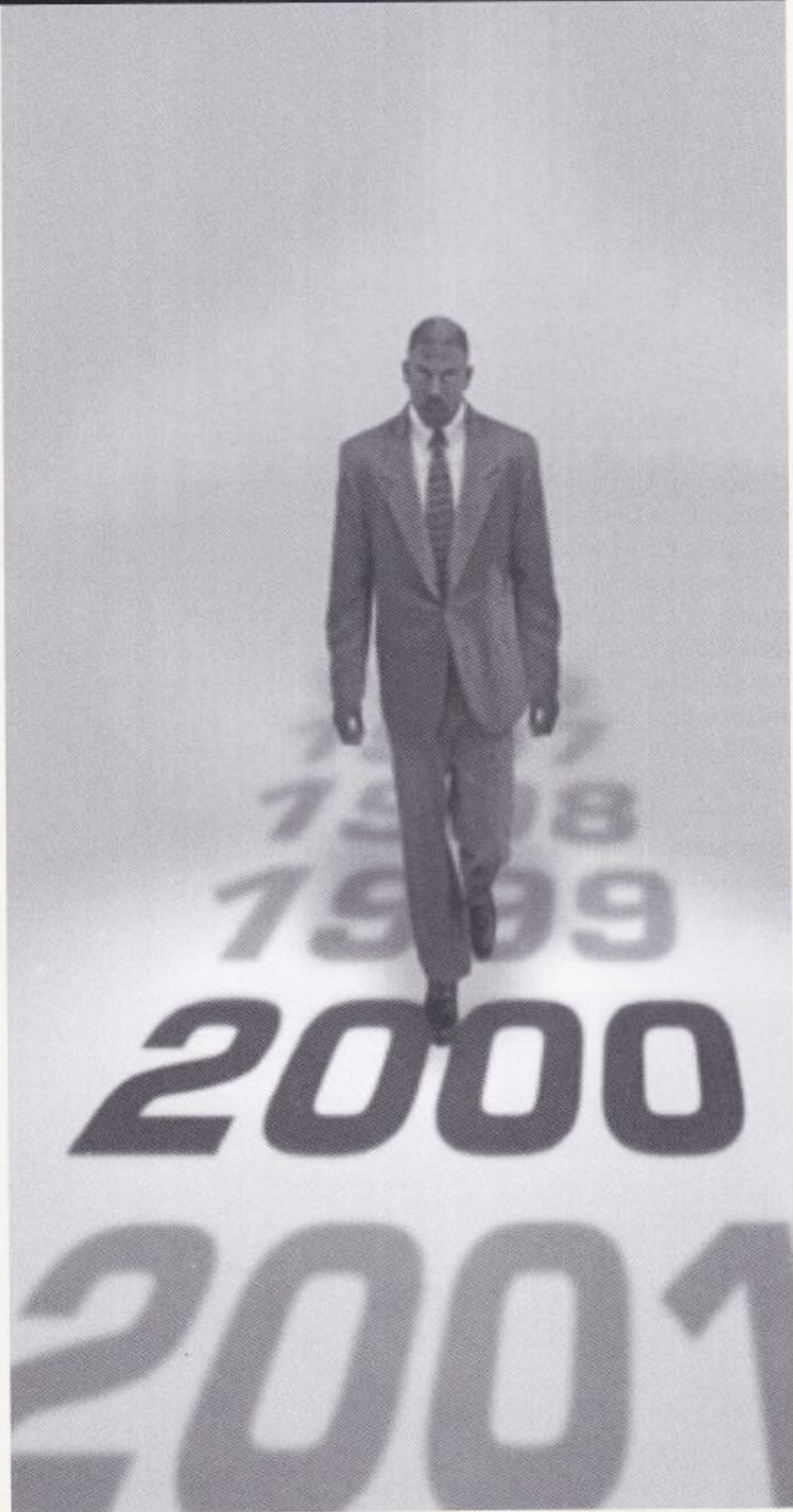
Stemming the Y2K problem at NIMA was emphasized by NIMA Director Lt. Gen. James C. King in the Agency's Year 2000 Management Plan.

"We must succeed," he said, "for there is no margin of error, no time to recoup. Our customers are depending upon our success."

Earley calls these daily meetings with his team of NIMA government and contractor personnel to remain abreast of the various activities being carried out for the coming day.

"The message is clear that meeting the challenges associated with the coming of Jan. 1, 2000, is our number-one priority," Earley said. "As an agency, we will continue to do everything we can to ensure we're ready and that we have contingency plans for any unexpected complications."

Compounding the problem, he added, is that 2000 is a leap year, and that in some instances the digits "9999" (representing Sept. 9, 1999) may be a software expression for infinity. "This mix of issues

is also being addressed and worked for compliance."

The Y2K project is a complex undertaking, unrivaled in size and scope. There are 218 NIMA systems being monitored. Of these, 41 have been categorized as mission critical; 22 are already Y2K compliant. Of the remaining 19, all but five are scheduled to be validated by March 31.

As the focal point for all NIMA Y2K activities, Earley reports to the Director and the Senior Leadership Group concerning Y2K issues. The NIMA Y2K management strategy complies with the DoD strategy of providing centralized policy and planning with decentralized implementation and execution. Common guidance and direction are provided by the Y2K team, while the system owners control the development and corrective actions for their respective systems.

The team works with Y2K representatives from the NIMA organizational staffs concerning system issues, Y2K database updates, system documentation, compliance certification, end-to-end testing and contingency plans. Earley also maintains a corporate database to mark the progress in meeting Y2K project milestones and to provide reports for internal as well as external requirements.

"The message is clear that meeting the challenges associated with the coming of Jan. 1, 2000, is our number-one priority."

This database, which is available to all NIMA employees, hosts the complete inventory of all 218 NIMA systems. Included are the major NIMA production systems as well as the more nontraditional systems, such as fire alarm and secure phones.

It is used in monitoring, managing and reporting the progress of each system. Data fields include the name of each system, the Y2K coordinating organization, the program manager, project manager and customer names.

Users can see the status of each system and where they are in relation to their milestone dates. Costs to make each system compliant are also included, as well as whether the system is replacing an existing non-compliant system.

Several mediums are used for disseminating and exchanging information to NIMA senior

leadership, system owners and the workforce. The weekly Configuration Control Board (CCB) reviews and manages NIMA Y2K schedules and issues. The CCB is chaired by Earley and is composed of the Y2K coordinators and representatives from the program executive offices and major NIMA offices.

The High Risk Board (HRB) also meets weekly to address the status of specific mission-critical systems that are scheduled to become Y2K compliant this year. Attendees include General King, Deputy Director Leo Hazlewood, Earley and all NIMA senior executive managers.

"Over the next 10 months," Earley said, "the focus will be on testing and reviewing continuity of operations plans, end-to-end testing, operational evaluations, and rapid response strategy."

How and what NIMA is doing to meet the challenges of the Y2K issue will be explored in depth in upcoming *Edge* articles as part of a "Y2K Countdown" series.

For further information on Y2K, check out the NIMA Year 2000 Home Page at http://osis.nima.mil/y2k/. ❖

Around Alone Sailor Adrift:
NIMA to the Rescue!

photo by John Iler

Peter Doherty, team chief, and senior watch officer Michael Whitby.

"I knew her life was in serious danger. Being a distress message, it had to go out as an 'Immediate.'"

by Howard Cohen
Marine Navigation Department

Isabelle Autissier, 42, from France, is considered by many to be one of the world's best and most technically-gifted deep water sailors.

On Feb. 15, while leading the "Around Alone" single-handed yacht race in a quest to circumnavigate the globe, she found herself in varying winds of 20-30 knots. Her yacht, *PRB*, first rolled 90°, then quickly "turned turtle" (completely upside down) and foundered.

Autissier thinks it was a wind shift and the autopilot's failure to adjust quickly enough. She had just enough time to seek refuge inside the waterproof cabin, immediately activate her distress beacons, and wait for rescue huddled inside.

The distress call was received by the Around Alone Race Operations Center in Charleston, S.C., which then telephoned NIMA's Worldwide Navigational Warning Service (WWNWS). Thanks to modern satellite technology, Race Operations knew exactly where Autissier and her yacht were located.

Race Operations Center also knew that NIMA's Marine

Navigation Department (GIMM), which provides around-the-clock warning service via the 24-hour radio broadcast desk, could call for help.

The radio broadcast desk team, staffed by Michael

Isabelle Autissier

Whitby, senior watch officer, and Peter Doherty, team chief, have the responsibility of screening safety messages sent to NIMA from commands and vessels worldwide, and subsequently determine which messages will be issued as navigational warnings.

On the day of the distress, Walter Holtgren, a 21-year

veteran with NIMA and DMA, was on watch. He recalls the conversation with the Race Operations Centers' race coordinator, Peter Dunning.

"Dunning informed me that a distress signal was received from Ms. Autissier's boat in the vicinity of 55-00S 125-51W," he said. "I knew her life was in serious danger. Being a distress message, it had to go out as an 'Immediate.'"

HYDROPAC 130/99 was transmitted. A long-range maritime safety message, HYDROPACs are one of the five message categories issued by the NIMA radio broadcast desk and cover the Pacific and Indian Ocean area.

"Often U.S. Navy ships in the area of concern can assist in situations like this," said Holtgren, "and NIMA has the ability to reach out to them using WWNWS."

Unfortunately, near Antarctica and about half way between New Zealand and South America—1,200 miles or more from the nearest land—there were no U.S. Navy ships nearby. It was also too far south to be reached by naval or commercial rescue vessels or aircraft in port.

Italy's Giovanni Soldini, another race competitor, was 200 miles from Autissier. He was immediately diverted by the Race Operations Center to rescue his fellow racer.

Twenty-four hours later, after passing through rough conditions including numerous "growlers" (partially submerged ice), Soldini located Autissier.

Upon reaching the vessel, Soldini threw a hammer at the overturned hull to signal Autissier that she could come out. Autissier emerged through her aft hatch, then climbed into her life raft. Soldini then sailed next to the raft and took Autissier aboard his yacht, *FILA*.

Once NIMA was notified of the rescue, a new HYDROPAC message was issued canceling the previous distress message and informing mariners that the rescue was successful.

And what about Autissier's boat adrift on the high seas? Why, that's HYDROPAC 134/99: Derelict yacht PRB, white superstructure, black hull, capsized and adrift in 54-59.4S 125-48.9W at 161241Z Feb. ❖

Giovanni Soldini

Secret Service Uses NIMA Tools to Protect Dignitaries

by Don Kusturin and Muridith Winder

When Pope John Paul II visited St. Louis in February, he was warmly greeted by cheering crowds, banners and the President of the United States. As the world watched, so did Secret Service agents, intent on protecting both leaders.

The Secret Service agents protecting the Pope were using aspects of where the Pope would be could be easily annotated. All sites from where "Shepherd 1" (the designation for any plane carrying the Pope) was parked to his quarters at the archbishop's home, were clearly labeled, as well as the route to and from each venue where the pontiff appeared. During his trip, he brainstormed ways in which we could provide better service to the Secret Service."

It paid off. The Secret Service said the improvements made were very useful.

John Tuley and James Huettenmeyer, with NIMA St. Louis, provided the gridded reference graphics used for the event. To help with security, Dwight Wallace and Eric Huguley (both IA) provided the Security Planning Package. NIMA also produced large-format plots used by local and federal policing agencies. A letter-sized version was produced for individual use.

"The best feature about these products was that everybody was singing from the same sheet of music," said Bloomfield.

He explained that, if an incident had occurred, each "player" would have been able to locate a particular point, first through a zone designation, then a street name. This would keep people from looking at South 14th Street when they were talking about North 14th. Because the products were in such high detail, the area could be assessed for emergency vehicle passage and allow quicker decisions to be made as well.

NIMA's role in planning for this visit began in October. By the time it was over, Bloomfield said familial bonds

NIMA products produced especially for this occasion. They included a CD PhotoMap with annotated imagery, wall plots, gridded reference graphics and a Security Planning Package.

"The CD PhotoMap was used to physically plan out the Pope's entire itinerary several months in advance," said project leader Mark Bloomfield, of the NIMA Production Cell.

The maps were in such a high level of detail that all traveled more on St. Louis streets than in any other city in the United States.

Although the CD PhotoMap is a new product, it was used by the Secret Service in prototype form last September, when the World Energy Council held its meeting in Houston.

According to Andrew Mason, of the Integrated Programs Office and technical lead for this visit, the lessons learned from Houston helped make a better product.

"From those lessons, Mark, Roger Oleson and I

EUCHARISTIC CELEBRATION
Wednesday, January 27, 1999, 9:30 AM, St. Louis, Missouri

salvation shared by all

No. 23543

TERRACE LEVEL, SEC. 405
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A.D. 2000

TRANS WORLD DOME AT AMERICA'S CENTER

had developed between NIMA and the Secret Service. Barry Barwatt, NIMA's production manager for the National/Civil Customer Support Team, noted that NIMA's people were invited to the sites and provided on-site coordination and assistance.

"We're also providing training to the Secret Service so they can better use our products," he said.

According to Barwatt, the relationship will be a lasting one. The Secret Service established a Major Events Division to work closely with NIMA's National/Civil Customer Support Team. And preliminary meetings are being held for NIMA's support for the 2000 Winter Olympics in Salt Lake City. The Secret Service is looking for the same level of support as with the Pope's visit.

"We're very satisfied with the products during the Pope's visit," said Security Supervisor Bruce Pagano. So useful were the products, he added, "we don't anticipate any additional improvements."
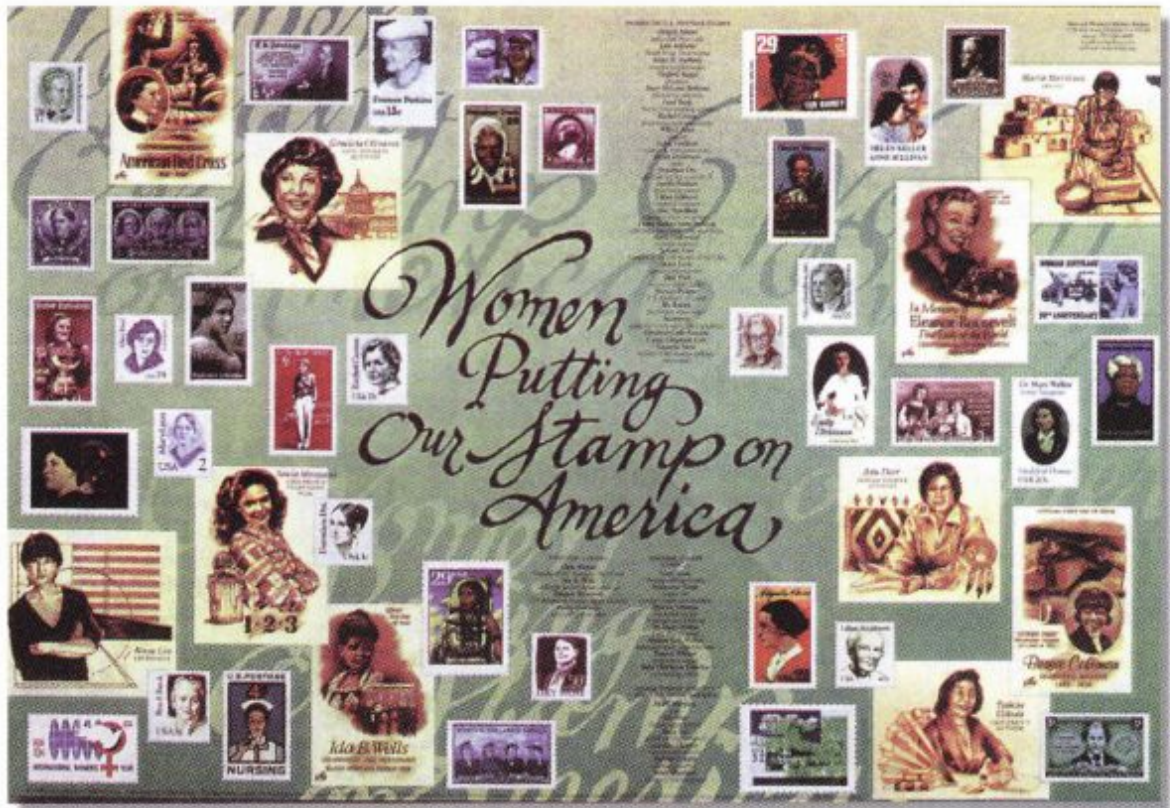
In addition to the Olympics, NIMA will be involved in the Democratic and Republican

United States Secret Service
Lambert Intl. Airport Security Areas

conventions, the NATO summit, the millennium celebration and the next Presidential inaugural.

Women Putting Our Stamp on America

WOMEN'S HISTORY MONTH
MARCH
1 9 9 9