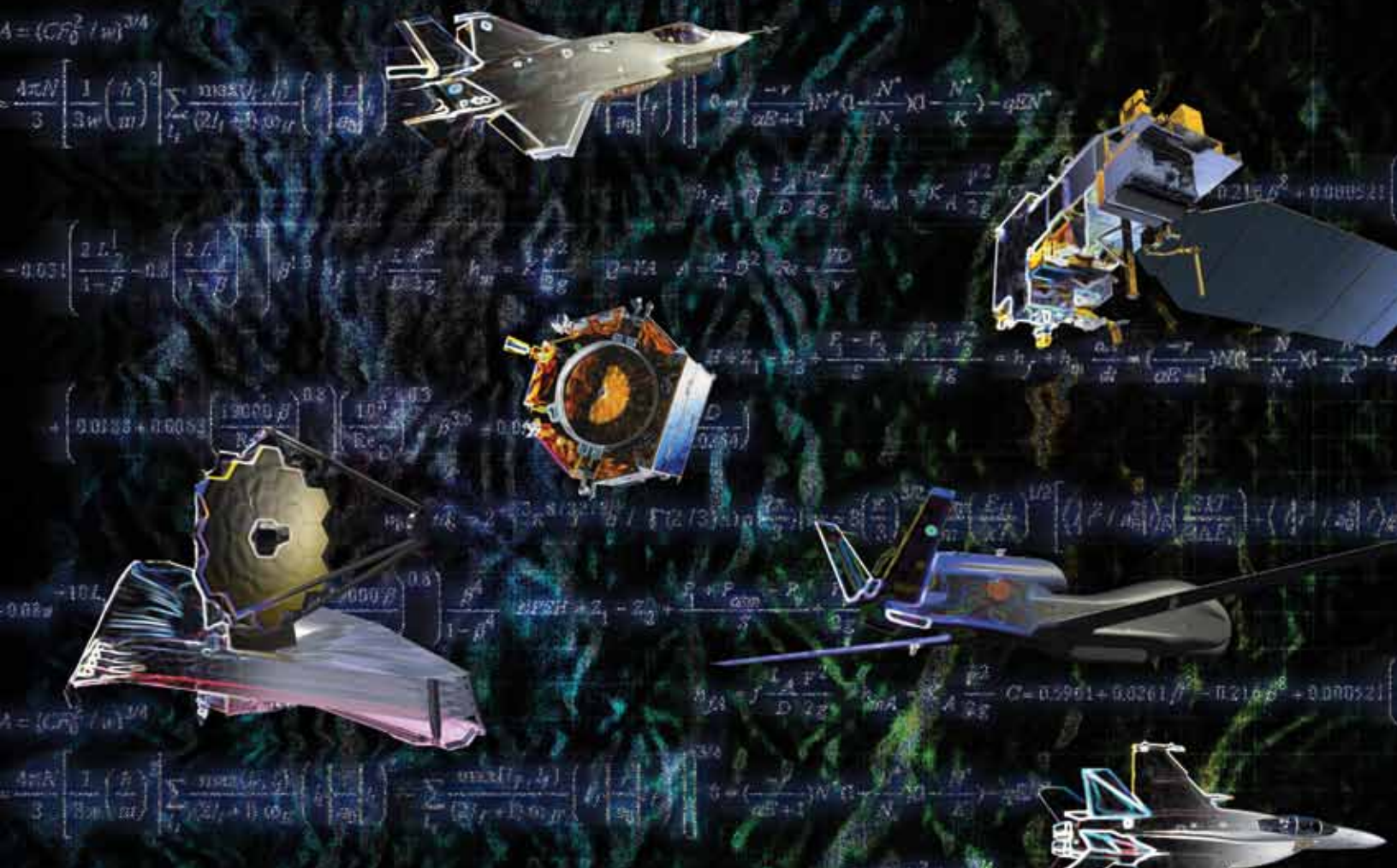


# AEROSPACE NOW

Vol. 2, No. 2

February 2010



Maximizing the **IMPACT 14**

Taking Technology to New Heights **16**

Strutting Our **SAR Stuff 20**

**Engineering the  
Future Today**

**NORTHROP GRUMMAN**



### Reaching for the Future Sector Employee Photo Published in National Magazine

This picture, taken by Aerospace Systems employee Mostafa Pourmand, was part of *Aviation Week & Space Technology* magazine's 18th Annual Photography Issue, published Dec. 21, 2009. The issue featured images selected from among 1,213 entries (which was a record for the contest) submitted by 157 photographers in 15 countries.

"The photo was taken during a family day visit at Edwards Air Force Base, Calif., in Hangar 1414, the so-called 'Global Hawk Nest,'" said Pourmand. "This was the first time my five-year-old son was visiting the facility, and he was truly mesmerized by the whole experience.

"I was excited to be represented in the issue, due to the fact my son and my other baby (Global Hawk) are both part of the show. In addition, considering that I was competing with many professional photographers, I am honored to be recognized," he added.

Pourmand is a structural integrity lead on the Global Hawk program, involved in all phase inspections and structural testing, along with flight tests and deployment support. In addition to his enthusiasm for the work he does, he recently discovered he has a talent for "capturing the moment through photography in order to share with my family, friends and the rest of the world."



On the intranet:  
<http://home.as.northgrum.com/AerospaceNow>

### Northrop Grumman Aerospace Systems

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Two essential satellites. One well-earned congratulations.

[www.northropgrumman.com/stss](http://www.northropgrumman.com/stss)

### STSS

Congratulations to the U.S. Missile Defense Agency (MDA) on the successful launch of the Space Tracking and Surveillance System (STSS) satellites. These two global sentries will demonstrate missile tracking during all phases of flight, an essential capability for early intercept. Northrop Grumman is proud of its role as STSS prime contractor and as an MDA partner in ensuring national security through missile defense.

# Gary's

SPACE



## "America, We've Had a Problem"

This April we commemorate the 40<sup>th</sup> anniversary of the Apollo 13 mission. When the spacecraft crew informed Mission Control, 'Houston, we've had a problem,' no one was that confident it could be solved. An explosion had damaged the spacecraft's engines and resulted in a significant loss of oxygen. Not only was landing on the moon impossible, the lives of the astronauts hung in the balance.

But the problem was solved. The mission's lasting legacy is one of lives saved and a testament to the importance of great engineering as well as the creativity, ingenuity and grace under fire of engineers.

Among the many inspired improvisations was turning the lunar module into a lifeboat to keep the crew alive. In addition, the damaged command module's navigational alignment was transferred to the undamaged lunar module whose engines were used to align the spacecraft for re-entry. The lunar module and its engines were never designed for either of these tasks. But they came through in the clutch.

Our company built the lunar module and its engines. Forty years on, our engineers continue to excel across a range of programs in air and space.

And that expertise is no less important for the future of America. Let's face it; we've had a problem in this country when it comes to engineering. Our advantage vs. the rest of the world has been diminishing. It has become increasingly difficult to encourage young people to study math and science. And we often hear complaints that America doesn't build things anymore. Many engineers have opted to work on models for mortgage-backed securities rather than on programs of national security.

We are very much in the vanguard of making sure the trend is reversed. Our people have devoted their time and talent promoting Science, Technology, Engineering and Mathematics (STEM), university partnerships and internships. We continue to focus on mentoring, career development and career rotation. Connect1NG, too, helps create an environment where young engineers can see building a future at Aerospace Systems.

We face great challenges moving forward. Budgets are flat or declining, and the trend toward fixed-price contracts places more risk with the contractor. Our engineering organization is evolving to better compete. Lab consolidation goes directly to making us more cost-competitive. A focus on systems engineering is just as important. Getting customer requirements and performance requirements in synch early on provides insurance against cost and schedule overruns. We also remain committed to robust research and development that serves as a real discriminator for our company.

Today, it is not just Houston. Our industry and our country face some big problems. But engineering is about problem solving. The solutions start with us. Right here. Right now.

## Northrop Grumman to Move Corporate Office



Northrop Grumman Corporation announced a decision to move its corporate office from Los Angeles to the Washington, D.C.

region by 2011. The company is engaged in a search to identify a specific location within the Washington, D.C. region, including the District, Maryland and Virginia. The company plans to complete the search by spring 2010 and open the new corporate office by summer 2011. "As a global security company with a large customer base in the Washington, D.C. region, this move will enable us to better serve our nation and customers," said Wes Bush, chief executive officer and president.

## Archer Receives 'Customer of Year' Award from SEA

The Supplier Excellence Alliance (SEA), a nonprofit led by sub-tier suppliers committed to accelerating performance, presented Northrop Grumman with a Customer of the Year Award for 2009. Greg Archer, director of Procurement for Aerospace Systems Global Supply Chain, accepted the award on behalf of Northrop Grumman. Archer also served as a panelist for a summit before the awards gala. As one of three finalists, Northrop Grumman was cited for building and valuing relationships, partnering with suppliers to form a competitive advantage, measuring supplier relationships to ensure retention, and providing formal and informal feedback. "You are among the few and the rare breed who has distinguished yourself by making an uncommon investment in improvement," noted Michael Beason, chairman and CEO of the SEA, which provides a platform for supplier visibility and collaboration.

## Space Systems Division Completes AS9100B and ISO 9001-2008 Assessment

Aerospace Systems' Space System Division has earned Lloyd's Register Quality Assurance (LRQA) recommendation for continued certification to AS9100B and an upgrade to ISO 9001-2008, international quality management system standards.

LRQA, an independent external audit agency, conducted this assessment at Space Park in Redondo Beach, Calif.

## Fire Scout Capabilities Demonstrated

Aerospace Systems has successfully completed maritime sensor demonstrations



using a company-owned MQ-8B Fire Scout tactical Vertical Unmanned Aircraft System (VUAS). Fire Scout, equipped with the Telephonics' radar and FLIR Electro Optical Infrared system, highlighted the versatility of the unmanned helicopter's modular payload architecture and its flexibility in integrating off-the-shelf payloads. The demonstration was performed under a contract awarded in September by ABS Group, a Systems Engineering Technical Assistance (SETA) contractor for the U.S. Coast Guard Research and Development Center. The test took place in the Chesapeake Bay conducted from the Naval Air Station at Patuxent River, Md., Webster Outlying Field.

## DSP Satellites Earn Industry Accolades

The California Space Authority presented the Defense Support Program (DSP) with the SpotBeam Award for National Security Space, honoring DSP's nearly 40 years of service to the nation. Aerospace Systems built and integrated the DSP spacecraft at its Redondo Beach, Calif., space systems manufacturing facility; the company's facility in Azusa, Calif., built the infrared sensors. The Space Authority cited DSP's long history of achievement, program management excellence and execution provided by the Air Force's Space and Missile Systems Center. It also found noteworthy that all 23 satellites were built by Northrop Grumman. DSP has served the nation continuously since becoming operational in the early 1970s, monitoring the globe and detecting, characterizing and reporting on ballistic missiles.



## Ground-based Midcourse Defense System

Northrop Grumman issued the following statement about the U.S. Missile Defense Agency's published intent to combine contracts for two elements of the Ground-based Midcourse Defense (GMD) system: "We commend the Missile Defense Agency for its wise decision to combine both the Development contract and the Operations and Sustainment contract into one contract for GMD. Northrop Grumman is well-suited to support this large-scale, major weapon system. We reaffirm our interest in competing for the single contract as announced recently by MDA," said John Clay, vice president of Missile Systems for the company's Aerospace Systems sector. He noted the company will review the draft request for proposals when issued early this year and respond accordingly.

# Celebrated

SAE International

# Contributions

## Engineering Leaders Honored

### JUDY STERLING

The Society of Automotive Engineers (SAE) has honored Aerospace Systems Technical Fellow Tom Collipi as a recipient of its Marvin Whitlock Award, and Engineering Deputy and Chief Engineers Director Giorgio Accolti-Gil as a recipient of its Forest R. McFarland Award. Both awards were presented at the November 2009 SAE International AeroTech Congress and Exhibition in Seattle.

SAE International is a global association of more than 121,000 engineers and related technical experts in the automotive, aerospace and commercial-vehicle industries.

**The Marvin Whitlock Award** recognizes individuals for significant technical contributions and innovation related to

operational availability of aircraft. Operational availability includes areas such as repair design, tooling, maintenance practices, logistics, inspection, modification and safety.

"It is an honor to be recognized by my peers and to accept this prestigious award on behalf of teams I've worked with for many years," Collipi said. "This recognition demonstrates that Northrop Grumman is a leader in the field of aircraft availability, and it rewards the effort and analysis we've done to increase our customers' ability to use their assets."

A technical fellow since 2006, Collipi provides life cycle logistics and support guidance for multiple advanced programs and technology efforts. He has been credited

with developing new and innovative analytical approaches, tools and techniques for assessing system readiness, operational utility and support cost.

"Tom is recognized as an unmatched expert for his modeling and analysis skills and is a key member of the Life Cycle Logistics and Support (LcLS) team," said Jim Zortman, sector vice president of Life Cycle Logistics and Support. "His combination of technical skills, deep knowledge base and program management savvy make him highly sought after as the technical lead for major programs and our organization."

Collipi was instrumental in developing the KC-45 support system, a robust and cost-effective sustainment effort that exploits the support advantages of a commercially derivative aircraft, and he conducted detailed system readiness analyses that verified the effectiveness of the support approach.

"It has been a privilege to be part of the group working on the tanker for the past five years," Collipi said. "They are leaders in the industry, with the ability to do the kind of analysis and offer the type of support the Air Force needs for its operational systems. That group shares in this award."

*"We honor Tom and Giorgio for their hard work and dedication in focusing on program performance and top-line growth. Without their efforts in these respective fields, we would not be as strong or strategically positioned as we are now."* — Jim Zortman, sector vice president of Life Cycle Logistics and Support

Giorgio Accolti-Gil



Giorgio Accolti-Gil received the Forest McFarland Award for his contributions to the SAE Engineering Meetings Board, which also plans, develops and disseminates technical information through conferences and professional development programs.

**The Forest McFarland Award** recognizes individuals for their outstanding contributions toward the work of the SAE Engineering Meetings Board (EMB) in the planning, development and dissemination of technical information through technical meetings, conferences and professional development programs and/or outstanding contributions to the EMB operations in facilitating or enhancing the interchange of technical information.

Established in 1979, the Forest R. McFarland Award is administered by the EMB and honors the late Forest R. McFarland, who was himself an outstanding session organizer and a member of the EMB.

"We are very proud of this recognition for Giorgio and for the contributions he has made to the engineering profession through the SAE," said Frank Flores, sector vice president of AS' Engineering. "Giorgio is setting a great example for all of us to stay



Tom Collipi on stage receiving the Marvin Whitlock Award.

involved in engineering professional societies. It is through this kind of participation that we can continue to stay abreast of the latest trends in engineering and showcase Northrop Grumman accomplishments."

"We honor Tom and Giorgio for their hard

work and dedication in focusing on program performance and top-line growth," added Zortman. "Without their efforts in these respective fields, we would not be as strong or strategically positioned as we are now. We thank them for their efforts," he added.



Tom Collipi (sitting, far left) is joined by his LcLS teammates (sitting), Nancy Baldwin, Larry Zachman and Jim Dupuy, and (standing from left) Anthony Marro, Jonathan Fratello and Michael Leaning.



Ernie Flores, director of Tactical Systems Product Support for the F/A-18 program, left, unfurls a banner recognizing the F/A-18 team's performance atop Mt. Whitney at 14,497 feet. He presented the photo at an awards ceremony held for the team in the Hornet Theater last month.



## DIANE HENSLEY

### Parts Arrive on Time and in Perfect Condition

**F**or the eighth year in a row the Defense Supply Center Richmond named Northrop Grumman a Best Value Gold Medalist. The award recognizes the achievement of about 30 multi-disciplined Aerospace Systems F/A-18 Product Support team members who work together in Life Cycle Logistics and Support to procure and deliver assemblies and spare parts to the government. Supporting contracts for the Defense Logistics Agency (DLA) units in Richmond, Va., (Defense Supply Center Richmond) and Columbus, Ohio (Defense Supply Center Columbus), Northrop Grumman employees from Support Hardware Services, Contracts, Pricing, Operations, Global Supply Chain and Engineering assure that each piece

meets quality standards and is delivered to the government on time. For eight successive years, each part, of more than hundreds delivered, has arrived on time and in perfect condition. That record has earned the team the DLA's highest honors for flawless performance for each of those eight years for contract line items under CAGE 76823. "We received the notification from the Defense Supply Center Richmond that we had won as a Best Value Gold Medalist for our performance in 2008. It marks the eighth consecutive year that we have garnered this award," said Ron Martin, of Support Hardware Services. The team's efforts caught the attention of the Defense Department (DoD) because of its sophisticated Automated Best Value System, which measures and rates supplier performance. And, because of the criticality in

for their performance in processing thousands of pieces every year for DLA customers, amounting to \$10 million in business last year. "Each month, we process greater than 500 pieces with absolute accuracy. If you look at the possibility for failure by the team members on any part, that's more than 5,000 chances a month for something to go wrong. Yet, you've executed flawlessly, day in and day out," Flores said. "That's an awesome achievement." At a recognition ceremony for the team, Flores surprised the team with a fitting tribute to its accomplishments. He presented a photo taken of him atop Mt. Whitney in August, where he unfurled a banner that read, "You're the tops! Congratulations F/A-18 Support Hardware Team on the Gold DLA Award." Coincidentally, as Flores climbed near the top of the peak, he saw two F/A-18s flying in formation over the top of Whitney, heading toward China Lake. "From the top of the world and the bottom

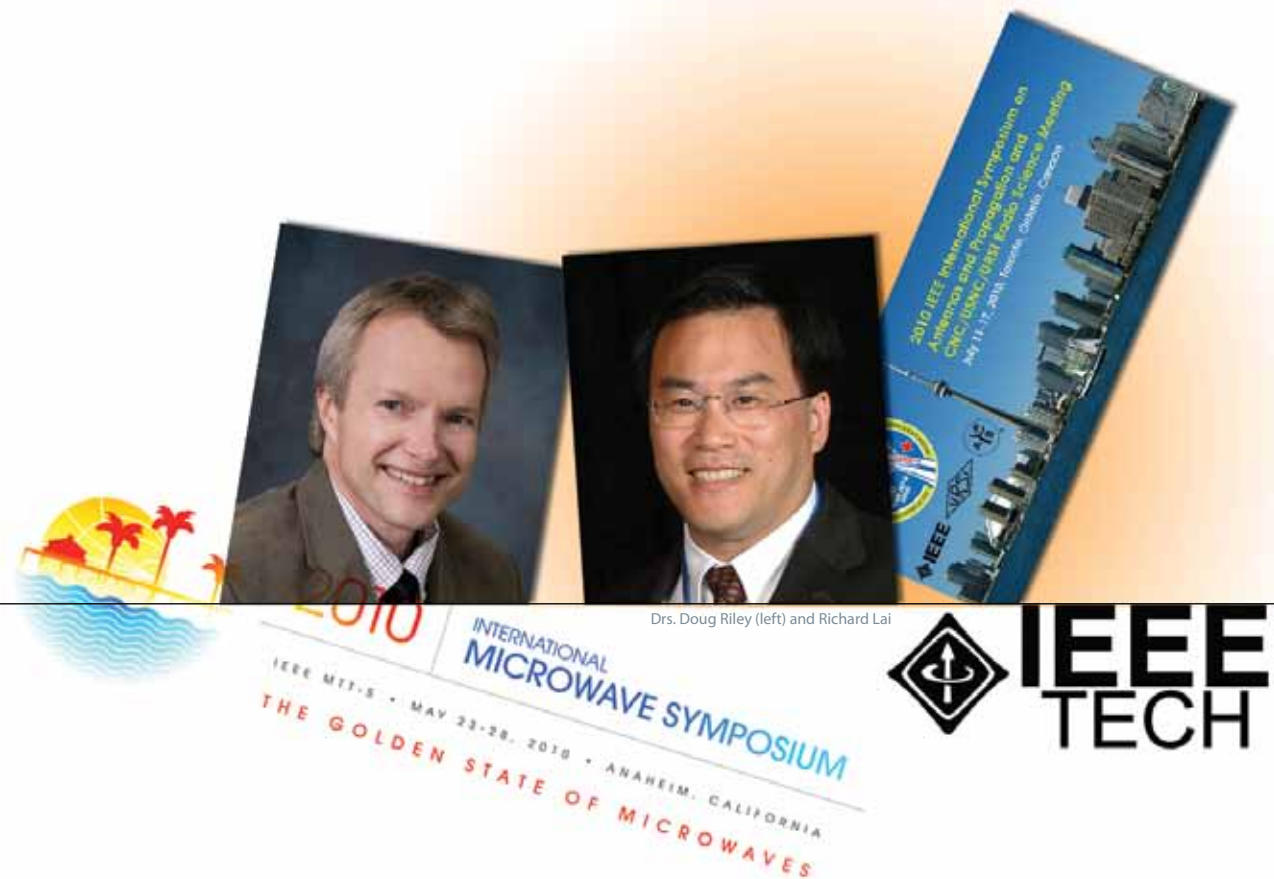
of my heart, I thank you for being such an awesome team. You've made us all so very proud. I'm truly humbled to be your leader," he told the team. The team's consistent performance has also earned other forms of recognition internally and externally. It was nominated for the Aerospace Systems President's Award, the sector's 2009 Quality Award and has been awarded Gold ratings for being the best performing suppliers in the Large Business class by the DLA for six straight years. Overall, Northrop Grumman has achieved medalist status for 15 consecutive years, the DLA said. The DLA supplies the consumables America's military services need to operate, from groceries to jet fuel. Its units supply 95 percent of military repair parts, all subsistence, fuels, medical, clothing and textiles, and construction and barrier materials, and have supported every war and contingency operation from the Vietnam War to today's operations in Afghanistan. 

# Perfection Continues



Maj. Glenn Mingee, DSCR's team lead for Northrop Grumman (left), presents F/A-18 Product Support Hardware IPT members (l-r) Bob Krieger, Robert Harrigan and Ron Martin (far right) their 2008 award at the Richmond, Va., ceremony. Second from right is Faye Brock of Defense Supply Center Richmond.

getting the warfighter what he needs, as well as when and where it's needed, the DoD constantly evaluates quality, reliability and effectiveness of its suppliers and the goods delivered. To qualify for an award, suppliers must deliver a minimum of 25 contract line items and earn a score of 100 to earn the Best Value Gold, 99.0 to 99.9 to earn the silver, and 98.0 to 98.9 to earn a bronze, DLA administrators said. "This award is a reflection of the outstanding processes being executed by all organizations involved in the F/A-18 spares effort and the excellent working relationship we have with our government customer," said Robert Harrigan, who manages the F/A-18 Product Support Hardware Integrated Product Team (IPT). Ernie Flores, director of Tactical Systems Product Support for the F/A-18 program, and Vice President and Program Manager Michelle Scarpella congratulated team members



Drs. Doug Riley (left) and Richard Lai

# DECIDEDLY DISTINGUISHED

## ELIZABETH RUITERMAN

**E**lection by the Institute for Electrical and Electronic Engineers (IEEE) to Fellow Grade means one is in a small, august group. The Fellow Grade is the highest award IEEE can bestow upon its members, and it recognizes unusual distinction in the profession. Aerospace Systems (AS) is privileged to have two of its thought leaders — Drs. Doug Riley and Richard Lai — named to the institute's most prestigious honor. Riley currently leads the Computational Electromagnetics Laboratory in the Aerospace Research Laboratories (ARL), and Lai is director of Technology Programs for Microelectronics Processes and Products.

Both are also AS Technical Fellows who between them have authored and

co-authored hundreds of journal articles, technical reports and conference papers. Riley has co-authored two book chapters and the textbook titled, "Finite Element Analysis of Antennas and Arrays." They have each received numerous awards including recognition from IEEE for a prize paper as well as a Distinguished Invention Award for Riley and a President's Award for Innovation given to Lai. Ask them the secret of their successful careers, and both acknowledge the support of their co-workers as instrumental in achieving this distinction.

"Our environment is rife with electromagnetic fields, and experts who can model the physics of how those fields behave with regard to our sensors, platforms and systems are critical. This expertise gives us the competitive advantage we need to be the contractor of choice when it comes to serving national security needs," said Tom Romesser, sector vice president in AP&T and AS chief technology officer. "Doug's highly

sophisticated models have recently been useful in improving our National Polar-orbiting Operational Environmental Satellite System configuration choices and can be applied to better understanding of radar cross sections as well."

Erik Antonsson, ARL director, credited Riley's world-recognized work in the area of computational electromagnetics as key to Northrop Grumman's leading capability to assess and design complex high-performance RF antennas and systems. "He has made outstanding contributions to the Aerospace Research Laboratories and to several major programs. The election to IEEE Fellow status is a well-deserved acknowledgment of Doug's accomplishments and the impact of his work," added Antonsson. IEEE's citation recognizes Doug's "contributions to time-domain techniques in computational electromagnetics."


Well-regarded in research, development and insertion of advanced transistor and

integrated circuit technology for microwave, millimeter-wave and mixed-signal applications is how Dwight Streit, who is also an IEEE Fellow and leader for Electronics and Sensors in AS, described Lai. "Over the last 18 years his work has ranged from fundamental research into semiconductor materials and devices to reliability and space-qualification issues. Not only has he achieved record performance for gallium arsenide and indium phosphide high electron mobility transistors and monolithic microwave integrated circuits, he has led the insertion of these advanced technologies into a variety of ground and space-based platforms." The citation on Lai's IEEE Award reads: For the development and space-qualified insertion of millimeter-wave transistor and integrated circuit technologies with record-setting performance.

Lai's world-leading microelectronic designs have repeatedly placed Northrop Grumman in the forefront of high-frequency

electronics and systems, said Antonsson. "This honor recognizes Rich's wide range of innovative contributions to the field of high-frequency microelectronics."

Riley will be recognized at an IEEE banquet during the 2010 Antennas and Propagation Society's International Symposium July 11-17, in Toronto, Canada. At the Microwave Theory and Techniques Society's International Symposium, which will be held in Anaheim, Calif., May 26, Lai will be acknowledged.

IEEE is the world's largest professional association advancing innovation and technological excellence for the benefit of humanity. Its members inspire a global community to innovate for a better tomorrow through its highly cited publications, conferences, technology standards, and professional and educational activities. Through its global membership, it is a leading authority on areas ranging from aerospace systems, computers and telecommunications to biomedical engineering, electric power and consumer electronics. 

# maximum IMPACT



Aerospace Systems' Ada Palatnik was recently honored by Northrop Grumman with the Award for Excellence for her work with Operation IMPACT.

## JUDY STERLING

Through her work to support Operation IMPACT [Injured Military Pursuing Assisted Career Transition], Aerospace Systems' Ada Palatnik said she feels privileged to be able to help veterans who have sacrificed so much for our freedom. Now, as a recipient of Northrop Grumman's 2009 Award for Excellence, she is humbled, honored and grateful.

The Award for Excellence is Northrop Grumman's highest honor bestowed upon employees. It is presented

**“I have come to realize how much in debt I am to those who voluntarily sacrifice everything to make sure I can happily go about my life in the warmth of my home and family. Devoting time to help them is the least I can do in my endless appreciation.”**

— Ada Palatnik, Operation IMPACT program manager

for extraordinary performance and outstanding contributions in the areas of innovation and technology, customer satisfaction and operational excellence.

Palatnik was one of six Operation IMPACT (OI) team members recognized during the award ceremony held in January. Along with Northrop Grumman Corp. Operation IMPACT Program Manager Karen Stang, honored team members included Jim Cameron (Electronic Systems), Ward Critz and

Duane Hardesty (Technical Services) and Debbie Ortega (Corporate). This is the first time that the Human Resources & Administration community has received this award, according to Robert Waters, vice president, HR Strategy and Talent Acquisition.

Thanks to these honorees and many other employees throughout the company, Operation IMPACT has provided career transition support to military service members who have been severely injured

in the global war on terror. Since the program's inception in 2005, approximately 60 veterans have been placed in diverse program and functional positions. During 2009, Aerospace Systems alone welcomed nearly 20 new hires into the fold.

The program has also helped garner positive recognition

for Northrop Grumman as a veteran-friendly place to work. The company was honored as the 2009 VetSuccess Private Employer of the Year by the Department of Veterans Affairs' Vocational Rehabilitation and Employment Service. And *G.I. Jobs* magazine recently ranked Northrop Grumman No.17 in its Top 100 Military Friendly Employers — up from No. 32 in the previous ranking — and ranked it No. 1 in the category of Most Assets Committed to Recruiting Veterans.

“OI is a one-of-a-kind program,” said Palatnik, who is part of the Talent Acquisition team in Bethpage, N.Y. “One feature that distinguishes it from other programs is family career support. If the injured service member can't work, we try to place a spouse or other family member who is the primary wage earner.”

Outreach and recruiting are unique as well, said Palatnik. “The corporate team initiates outreach to injured veterans at job fairs, hospitals and military installations,” she pointed out. And unlike traditional sourcing, where applicants are sought to meet specific job requirements, a job may be developed to utilize the unique skill and potential a veteran offers. During 2009, for example, nearly half of the employees joining the sector through the program were hired into a position created for them.

Although making mutually beneficial matches under the program is much more difficult than conventional recruitment, Palatnik said that the challenge of uncovering veterans' valuable talents has been a source of professional and personal growth. “When I listen to our wounded warriors, I feel like I'm living their pain,” she explained. “I have come to realize how much in debt I am to those who voluntarily sacrifice everything to make sure I can happily go about my life in the warmth of my home and family. Devoting the time to help them is the least I can do in my endless appreciation.”



# GLOBAL HAWK

## *takes flight*

## GEMMA LOOCHKARTT

The newest Global Hawk unmanned aircraft, the Block 40, successfully completed its first flight Nov. 16. Designated AF-18, the advanced capability aircraft flew for approximately two hours from Northrop Grumman's manufacturing facility in Palmdale, Calif., to Edwards Air Force Base, Calif.

According to Jim Payne, manager of Global Hawk flight test operations at Edwards AFB, the AF-18 performed beautifully and is the 11th of the next-generation Global Hawk Block 20/30/40s to arrive at Edwards Air Force Base.

“This first flight also marks the end of an era, as Global Hawk production acceptance activities will transition in the near future from Edwards Air Force Base to Air Force Plant 42 in Palmdale, improving efficiency and flow of company products,” said Payne.

George Guerra, Northrop Grumman vice president, HALE (high-altitude, long-endurance) Systems, added, “This flight marks the continuation of our Global Hawk flight test program and is a testament to the team composed of people from Northrop Grumman and the Air Force who have worked so hard to make this happen.”

In addition to AF-18, a Block 30 aircraft, AF-19, was recently delivered to the Air Force and is one of 11 major deliveries by the program within the last three months.

AF-18 is the first of 15 Block 40 Global Hawk aircraft scheduled for fielding to Grand Forks Air Force Base, N.D., in 2010. The aircraft will carry an advanced, all-weather multi-platform radar technology insertion

program (MP-RTIP) sensor, providing game-changing situational awareness for our warfighters with its unprecedented capability to detect, track and identify stationary and moving targets.

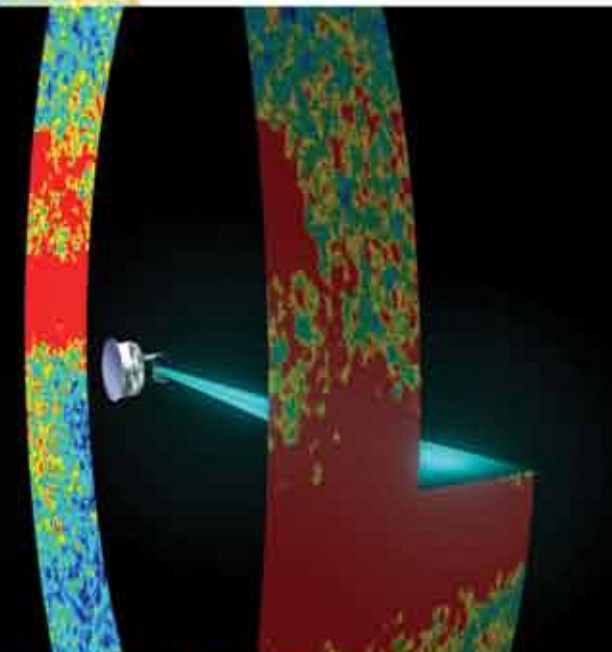
Global Hawk's range, endurance and large payload capabilities are well suited to provide persistent surveillance of the enemy with MP-RTIP. Flying at altitudes up to 60,000 feet for more than 32 hours per sortie at speeds approaching 340 knots, the MP-RTIP-equipped Block 40 Global Hawk can persistently see through most types of weather, day or night. As the world's first fully autonomous HALE unmanned aircraft system, Global Hawk is the platform of choice for a wide variety of sensors, foreign and domestic, meeting the global need for persistent intelligence, surveillance and reconnaissance.

Northrop Grumman is the prime contractor for the Global Hawk and MP-RTIP programs and continues to move these technologies forward under the stewardship of the Air Force's Aeronautical Systems Center at Wright-Patterson Air Force Base, Ohio, and the Electronic Systems Center, located at Hanscom Air Force Base, Mass. Northrop Grumman's Norwalk, Conn., facility is the principal MP-RTIP radar developer along with principal subcontractor,

Raytheon Space and Airborne Systems, El Segundo. The MP-RTIP sensor has completed radar system level performance verification on a surrogate aircraft and will be integrated into AF-18 for operational evaluation. Northrop Grumman is also prime contractor for the NATO Alliance Ground Surveillance system, in development at the Melbourne, Fla., facility of the Aerospace Systems Battle Management & Engagement Systems Division, in which the Block 40 RQ-4 is a key component.



BLOCK 40



# HIGH-FLIER

## State-of-the-art Microelectronics Technology a Key Factor

CHRIS BOYD

**L**aunched May 14, 2009, the Herschel and Planck spacecraft, built by the European Space Agency (ESA), are studying the formation of stars and galaxies, as well as relic radiation from the Big Bang. Both exploration vehicles owe their success in groundbreaking scientific observation to Aerospace Systems engineers who created the monolithic microwave integrated circuits (MMICs) used on the two spacecraft.

"Our high-performance MMICs enable key components for Herschel and Planck," said Dwight Streit, leader of Electronics and Sensors for Aerospace Systems.

"Our devices are used in many applications around the world," said Richard Lai, director of Technology Programs for Aerospace Systems' Microelectronics Processes and Products. "Several ground-based telescopes use them because of their state-of-the-art, low-noise capability and uniformity."

Herschel and Planck use devices and MMICs developed in Aerospace Systems' trusted Microelectronics facility in

Manhattan Beach, Calif. The circuits — designed at NASA, the Jet Propulsion Laboratory (JPL), ESA and Aerospace Systems — form the foundation of Herschel's and Planck's low-noise amplifiers and switches, as well as Herschel's terahertz (THz) local oscillator sources. The systems are the first of their kind for achieving the lowest noise MMIC-based millimeter wave radiometers and THz multiplier sources.

"We have a long history of designing and flying MMIC-based radiometers and amplifiers that demonstrate state-of-the-art performance," Streit said.

Herschel, the largest space telescope ever launched with an 11.5-foot primary mirror, observes in the far-infrared and sub-millimeter wavelengths, allowing astronomers to see deep into star-forming regions, galactic centers and planetary systems. Planck, Europe's first mission to study relic radiation observes cosmic microwave background radiation: the radiation released into the universe by the Big Bang itself about 14 billion years ago. Planck will help answer

how the universe came to be and how it evolved soon after.

"This work continues Aerospace Systems' tradition of supplying cutting-edge microelectronics technology for spacecraft applications, including radiometers for Jason 1, Odin, Cloudsat and the microwave lens sounder program," Lai said. Jason 1 was launched to monitor global ocean circulation, study the ties between the ocean and the atmosphere, improve global climate forecasts and predictions, and monitor events such as El Niño and ocean eddies. The first indium phosphide MMIC cryogenic amplifier to fly in space, Odin was designed to perform detailed studies of the physics and chemistry of the interstellar medium by observing emissions from key objects like giant molecular clouds and nearby galaxies.

Aerospace Systems also supplied microwave amplifiers for the Cloudsat space-based radar that is used to study cloud formation to measure how much ice and water are in the air at various altitudes. Finally, the Microwave Limb Sounder in use

on NASA's Aura spacecraft was created to better our understanding of the processes and parameters vital to global climate change research and environmental policy by observing the chemistry of Earth's lower stratosphere and upper troposphere.

Herschel is an ESA mission, with science instruments provided by a consortium of European-led institutes, and with important participation by NASA, whose Herschel Project Office is based at JPL. JPL contributed mission-enabling technology for two of Herschel's three science instruments. The NASA Herschel Science Center, part of the Infrared Processing and Analysis Center at the California Institute of Technology, also in Pasadena, supports the U.S. astronomical community. Caltech manages JPL for NASA. More information is online at <http://herschel.jpl.nasa.gov/> and <http://www.esa.int/herschel>.

Planck is another ESA mission, with significant participation from NASA. NASA's Planck Project Office is based at JPL. JPL contributed mission-enabling technology

for both of Planck's science instruments. European, U.S. and NASA Planck scientists will work together to analyze the Planck data. More information is online at <http://www.nasa.gov/planck> and <http://www.esa.int/planck>.



The Herschel spacecraft (shown here) and its companion Planck are studying the formation of stars and galaxies, as well as relic radiation from the Big Bang. Both spacecraft owe their success in groundbreaking scientific observation to Aerospace Systems engineers who created the monolithic microwave integrated circuits used on the two exploration vehicles.

# HAWKEYE'S HISTORIC FLIGHT



Aerospace Systems President Gary Ervin presents commemorative plaque to Air Staff Office Vice Chief of Staff Lt. Gen. Michiteru Nagashima, recognizing the Japan Air Self-Defense Force (JASDF) achievement of 100,000 hours of accident-free, E-2C Hawkeye flight operations. With a fleet of 13 E-2C Hawkeye airborne early warning aircraft, the JASDF is Northrop Grumman's largest E-2C international operator and the first to reach this significant milestone.

**KIRSTI DUNN**


## 100,000 Hours of Accident-Free Flight Operations Achieved with E-2C Hawkeye

In a commemorative ceremony recently held at Misawa Air Base, the Japan Air Self-Defense Force (JASDF) was recognized by Aerospace Systems President Gary Ervin, for achieving 100,000 hours of accident-free, E-2C Hawkeye flight operations.

"The achievement of 100,000 flight hours is a testament to the Japan Air Self-Defense Force's commitment to the safe and reliable E-2C Hawkeye fleet. Japan is the first international operator of E-2C Hawkeye to reach this milestone," said Ervin. "With a fleet of 13 E-2C Hawkeye airborne early warning aircraft, the JASDF is our largest E-2C Hawkeye international customer. It is an honor to represent the skilled Northrop

Grumman employees who have built and who support this premier platform. The JASDF has achieved the highest standards following Hawkeye operations."

The JASDF E-2C provides long-range airborne early warning and control for Japan's air defenses. With the first E-2C introduced into the JASDF fleet in 1982, JASDF is completing the upgrade of its fleet of 13 E-2C aircraft to the Hawkeye 2000. This version of the E-2C increases capabilities, reduces maintenance and support costs, and enhances interoperability with U.S. forces. Unlike the U.S. Navy's E-2Cs, which operate from land bases and aircraft carriers, Japan's Hawkeyes fly exclusively from land bases, such as the main base at Misawa on northern Honshu Island.

Currently, more than 100 E-2 Hawkeye aircraft operate worldwide, with almost one-third of those being flown by international customers. The Hawkeye 2000 is an extremely capable, multi-mission platform, providing simultaneous air and surface surveillance, intercept control, as well as search and rescue support. 



# HAWK-EYED

## E-2D Advanced Hawkeye Continues on Track

**KIRSTI DUNN**

At the "Airborne Early Warning and Battle Management 2009 Conference" in Amsterdam, Jim Culmo, vice president of Airborne Early Warning & Battle Management Command and Control (AEW&BMC2) Programs for BM&ES, told an audience of international AEW platform operators and manufacturers, that Northrop Grumman's E-2D Advanced Hawkeye Program is on track for initial operational test and evaluation in 2011. Culmo provided an E-2D program overview at the conference, which included speakers from the U.S. Navy, French Air Force, Swedish Air Force, Republic of China, Saab and IAI/Elta Systems (Israel).


"The E-2D System Development and Demonstration (SDD) Program is going very well," said Culmo. "We've successfully completed 94 percent of the SDD Program, and flight tests to date have produced excellent results. We have a strong Advanced Hawkeye Team, dedicated to ensuring that we continue to meet, or exceed, all major program milestones and performance criteria."

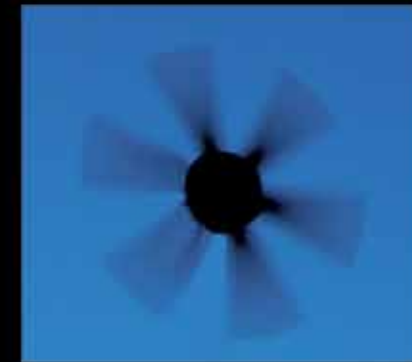
Culmo noted that the company is on track to deliver three pilot production E-2Ds to the U.S. Navy in 2010 and that manufacturing of the first two Low-Rate Initial Production aircraft is also progressing well.

Presenting with Culmo was U.S. Navy Capt. Shane Gahagan, Hawkeye Greyhound program manager. "We're exceedingly

pleased with where we are in the flight test program," said Gahagan. "The AN/APY-9 radar is performing very well and will bring to the fleet a significantly increased ability to operate in a highly cluttered environment while providing critical 360-degree coverage."

The E-2D was designed to provide the warfighter with the enhanced capabilities required to meet emerging threats and improved mission effectiveness. With its newly developed AN/APY-9 electronic scan array radar, cooperative engagement capability system, electronic support measures and off-board sensors, in concert with surface combatants equipped with the Aegis combat system, the E-2D will have the capability to detect, track and defeat cruise missile threats at extended ranges. It will also provide unparalleled maritime domain awareness including airspace control for manned and unmanned assets, monitoring of surface movements, civil support, and command and control of tactical forces.

The combined radar modes work together to provide continuous, 360-degree air- and surface-scanning capability, allowing flight operators to focus the radar on select areas of interest. "The AN/APY-9 can 'see' smaller targets and more of them at a greater range than currently fielded radar systems," Culmo said. He added that the E-2D's systems, including radar long-range detection, "are exceeding key performance specifications." 



# Strutting Our SAR Stuff

## JUDY STERLING

The Trinidad program team successfully took its show on the road during 2009 to prove its imaging system's capabilities as a low-cost, low-risk approach to responsive radar imaging.

The Trinidad satellite system delivers high-resolution synthetic aperture radar (SAR) imaging to meet the needs of warfighters and the intelligence community. "Northrop Grumman Aerospace Systems (AS) is teamed with Israel Aerospace Industries (IAI) on this project," said Trinidad Program Manager Jeff Sneller. "IAI built and launched TecSAR, the first system satellite. We've been able to use TecSAR to demonstrate our ability to take high resolution pictures day or night — and through smoke, dust, and clouds — and deliver them directly to warfighters in the field."

Select military and intelligence community officials

witnessed the first real-time demonstration of the system's capabilities during the American Institute of Aeronautics and Astronautics' Responsive Space Conference in April 2009. TecSAR provided high-resolution, tactical SAR imagery of Southern California within minutes of imaging by direct downlink from the satellite to a mobile ground station in El Segundo.

To build the self-funded prototype ground station for that demonstration, Sneller acquired help from an unexpected source. "We borrowed equipment from the AS Amateur Radio Club, a group of employees and retirees who are shortwave radio enthusiasts and who provide emergency communications to support disaster response

## Trinidad Celebrates a Year of Demonstrated Proficiency



The Trinidad team members deployed to Key West to deliver responsive day/night satellite imagery directly to warfighters include (l-r): Waqar Bhatti, Mark Hutzler, Jeff Sneller, Jim Baker, Justin Kocher and Christina Stratton.

plans for us and the surrounding community," he explained. "Not only did they have a ready-built communications van that we could modify into a ground station, but several club members donated considerable personal time to work through practical operations issues."


Club members, in turn, appreciated being able to assist with this innovative program. "We love having opportunities to do out-of-the-box stuff like this," said club president, Ray Enriquez, an electrical integration technician in AS. "It makes it fun to work here."

When Trinidad received Department of Defense funding to perform missions for U.S. Southern Command's Project Thunderstorm, the value of the club's expertise was soon evident. "We were able to deploy a ground

station at the Joint Interagency Task Force headquarters in Key West, Fla., in less than four weeks," Sneller said. "That's something we could not have done without the contributions of that brain trust."

The Project Thunderstorm missions, carried out in June, required delivering images of fleeting targets in an open ocean area spanning thousands of square miles. With an average 15-minute turnaround time from imaging to delivery, Trinidad demonstrated its responsiveness admirably. Plus, the mission amply showcased the benefits of Trinidad's high-resolution images. "With lower resolution, you might be able to see if there's something in the water. With higher resolution, you can distinguish between a

ferry and a speedboat," Sneller pointed out.

Trinidad was put through its paces again at the United States Geospatial Intelligence Foundation's GEOINT symposium in October. "Defense and intelligence community representatives were fascinated by how inexpensively and quickly we can bring an imaging system online," said Sneller. "Hearing comments like 'this is the first really new thing we've seen in years' is exciting and tells me that we're succeeding at demonstrating our simple, affordable path for global all-weather imagery, using hardware and software that we have available now." 

# PLUG n' PLAY



**CYNDI WEGERBAUER  
AND CHRIS BOYD**

## Plugging into the Future of Space Exploration

**A**erospace Systems will help the Air Force Research Laboratory (AFRL) design a spacecraft "bus" with plug-and-play capability to reduce cost and schedule in developing future space systems.

Aerospace Systems has been awarded an initial \$500,000 task order for a six-month study under the AFRL's Plug-and-Play Spacecraft Technologies program. The company will deliver the study to the AFRL's Space Vehicles Directorate at Kirtland Air Force Base, N.M. The task order was awarded under an indefinite delivery/indefinite quantity contract with a ceiling of \$200 million. Aerospace Systems was one of multiple competitors bidding for the contract.

The spacecraft "bus" is the infrastructure that serves as the platform for carrying the payload and other mission-oriented equipment. Payload components could be changed in and out without a major spacecraft redesign.


"Plug-and-play capability could change the way spacecraft are built by shortening industry's response time to customers' mission requirements," said Steve Hixson, vice president of Advanced Concepts – Space and Directed Energy Systems. "It will provide a standard interface for different payload components, much like a laptop computer that immediately recognizes new hardware when it is plugged in."

The AFRL began research on plug-and-play spacecraft technology in 2005. Plug-and-play offers great opportunities for reducing the cost and development timeline for space systems. Also, plug-and-play is a key enabler for "ready-to-field" assets for on-call development. Individual components describe themselves

to the network through a pre-programmed Appliqué Sensor Interface Module (ASIM). The ASIM contains an electronic data sheet describing the requirements and capabilities of the individual component. The network is then able to quickly recognize what the component does from the moment it is plugged in and turned on.

"It is in line with our vision of rapid response to meet our customers' needs," said Philip Katz, program manager of Rapid Response Space Systems for Advanced Concepts – Space & Directed Energy Systems. "Our objective is to configure a bus that can accommodate a multitude of missions to meet the customers' objectives and to do it quickly. Plug-and-Play technology is an enabling technology that is maturing to the point that it can be inserted into a spacecraft mission. Meeting our customers' needs quickly is a key focus of our organization."

"This capability will enable the future of space system production much like our unmanned aerial vehicle lines," said Anne Young, director of Rapid Response Space Systems for Advanced Concepts – Space & Directed Energy Systems.

Northrop Grumman recently demonstrated its rapid-response capability with NASA's Lunar CRater Observation and Sensing Satellite (LCROSS). Northrop Grumman delivered the spacecraft for launch in just 27 months using standardized structural elements; commercial-off-the-shelf hardware, sensors and components; flight-proven payload instruments and sophisticated risk management. In October 2009, LCROSS successfully impacted the moon in support of NASA's search for evidence of water ice that could serve as a resource for future lunar outposts. 

# A GENERAL *appreciation*


Lt. Gen. Larry James Addresses Inspired Crowd

**ELIZABETH RUITERMAN**

In his prepared remarks, Lt. Gen. Larry James, Commander of the 14th Air Force, Air Force Space Command, and Commander,

Joint Functional Component Command for Space, U.S. Strategic Command, outlined in detail to a packed Aerospace Presentation Center, the importance of the work Northrop Grumman employees do. He emphasized these priorities: warfighter support, command and control, integration and readiness as vital to national security. The general praised the "exquisite" capabilities provided by NGC employees and thanked everyone for their role in keeping the nation secure.

One of the attendees, Steve Huff, a quality engineer, who has worked at the company for 20 years, said he believes the general's outbrief was informative and enlightening and gave him an overwhelming feeling of pride for his role in the company's efforts toward national security. Calling him an effective communicator, attendee David Badenoch said, "I appreciated the opportunity to hear this important customer's feedback firsthand." Badenoch, a systems engineer and 24-year veteran, was among employees who asked questions.

"We were pleased to host Lt. Gen. James at Space Park where we had an opportunity to take him on a tour and show him some of our systems designed to protect the warfighter," said Bob Pattishall, vice president and program director. "The general's remarks to our work force were inspiring and reinforced the value of the work we do here at Aerospace Systems." 





Flag illustration by Phil Weisgerber

# Conference connections

## Life Cycle Logistics & Support Participates in Defense Conference

### KIMBERLY PRATO

Life Cycle Logistics and Support (LcLS) leadership took its message to the customer and the public by actively participating and speaking at the 2009 Defense Logistics Training Conference (DEFLOC) in Washington, D.C., in December. DEFLOC is an open forum for in-depth, cross-service examination of the issues surrounding logistics strategies and support.

"The importance of delivering our message of Quantum Readiness shows our commitment to providing total life cycle support to the war fighter by reliable products that are both lethal and maintainable for the duration of their product life, said Jim Zortman, sector vice president, Life Cycle Logistics and Support.

According to Zortman, "Quantum Readiness" defines the particular amount of readiness delivered to the customer through a partnered logistics infrastructure. Key elements of this strategy include information system technology and architecture as well as engaging customers early in the life cycle to capture benefits and understanding

compromise between acquisition, production and sustainment environments. Held annually since 2001, the Defense Logistics Conference has become a set date on the calendars of 650 logisticians and has proven to be the most influential and trusted forum of great logistics minds in the United States.


There were four themes delineated at the conference that defined logistics in 2009, and they were examined in-depth. They include: How can we better measure and improve every aspect of logistics performance? How can we capitalize on the strength and expertise of our industrial base to extend the logistics enterprise even further? How do we ensure that equipment used in Iraq is quickly redeployed in Afghanistan or other arenas? What does the next level of inter-service synchronicity look like?

The Life Cycle Logistics and Support team gathered at the four-day conference to display and discuss support capabilities, partnerships and programs in relation to the new organization. The LcLS exhibit

booth featured pamphlets, visuals and product models and offered attendees the opportunity to speak to leadership one-on-one regarding the LcLS organization and its objectives.

Zortman participated in an industry panel with his peers from Boeing and Rockwell Collins. The panel explored the next steps needed and required for logistics support to be successful in the future and shared lessons learned in their respective fields.

"Aerospace Systems brings world-class capabilities in partnership with our customers to meet the demands of 21<sup>st</sup> century security challenges," said Zortman. "In Life Cycle Logistics and Support we influence design for supportability and operational and support affordability to deliver and tailor quantum readiness," he said.

The conference concluded with a final session on a look into the future titled, "An Industry and Government Perspective by Naval Air Systems Command." LcLS recognizes the importance of this conference and plans to continue as an active sponsor next year. 



Aerospace Systems' Lisa Kohl (center), sector vice president, Global Supply Chain, and Vicky Harper-Hall (right), sector manager, socio-economic business programs and government relations, accept the special recognition team award from Susan Cote.

## World-Class Performers

### DEBORAH HAWKINS

## Suppliers, Employees Recognized for Outstanding Support of Socio-Economic Business Programs

Northrop Grumman presented awards to 24 employees and 42 suppliers at its annual World Class Team Awards ceremony, held in Manhattan Beach, Calif.

Employees and suppliers were recognized for their outstanding performance and support of the company's Socio-Economic Business Programs.

"The hard work and dedication of the employees and suppliers who were selected greatly contributed to the success of Northrop Grumman's Socio-Economic Business Programs," said Susan Cote, vice president of Contracts, Pricing and Supply Chain. "They are playing a key role in connecting the capabilities of small businesses with our government programs in supply chain and technical organizations."

Such connections can lead to significant business opportunities. In the 2009 fiscal year, Northrop Grumman awarded \$9.78 billion in subcontracts, with small businesses receiving more than \$4.6 billion (47.2 percent) of these awards. Aerospace Systems' contribution to these overall accomplishments was \$2.5 billion in subcontracts and \$648 million or 26 percent


to small businesses.

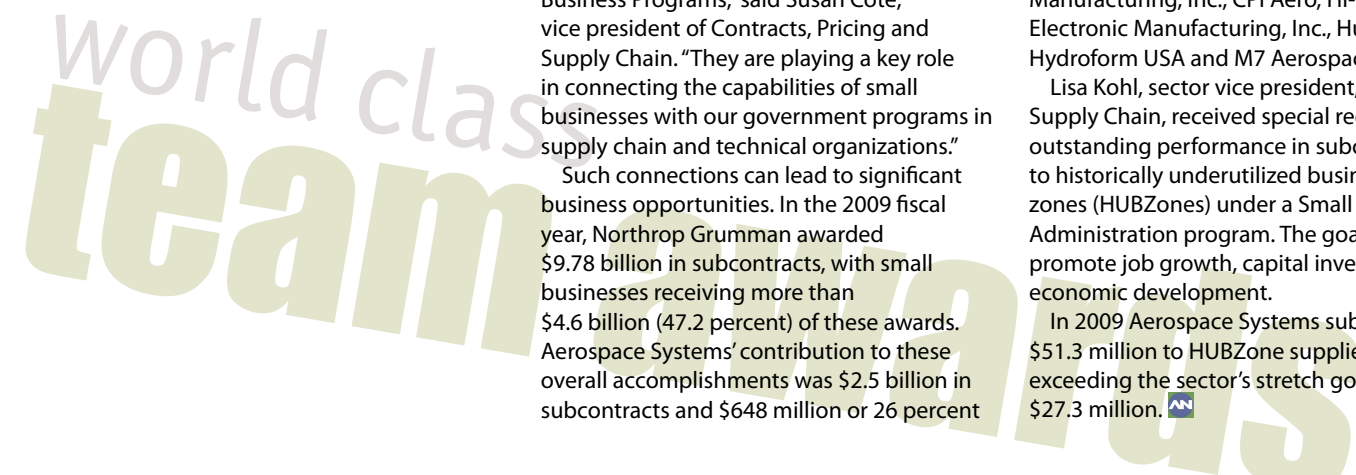
The suppliers who were recognized consistently demonstrate responsiveness and flexibility and help meet Northrop Grumman's requirements for high-quality work, reliable performance, on-time delivery and outstanding cost management.

Aerospace Systems buyer Lynn Gill received recognition for her contributions to the success of Northrop Grumman's Socio-Economic Business Programs.

The Aerospace Systems suppliers honored at the awards luncheon were Century Precision Engineering, Coast Aerospace Manufacturing, Inc., CPI Aero, Hi-Tech Electronic Manufacturing, Inc., Hurlen Corp., Hydroform USA and M7 Aerospace LP.

Lisa Kohl, sector vice president, Global Supply Chain, received special recognition for outstanding performance in subcontracting to historically underutilized business zones (HUBZones) under a Small Business Administration program. The goal is to promote job growth, capital investment and economic development.

In 2009 Aerospace Systems subcontracted \$51.3 million to HUBZone suppliers, exceeding the sector's stretch goal by \$27.3 million. 



# One-on-One



Pictured at the meeting where "Star Pathfinders" were honored are (l-r): Benjamin Chulaluxsiriboon, Mayur Patel, J.R. Sebastian, Jennifer Lerdsuwanrut, Baadal Patel, Eliza Velardez, Mukundh Pandian, Tracy Allen, Mark Tucker, Irvin Enchill and Richie Hiatt.

Pathfinder-protégé teams met at the El Segundo and Palmdale sites in late 2009 to share lessons learned in the first year of the New Grad Acclimation program.

## GEORGEANN WYATT

Imagine you are a student who has been through four years of university study; you have gained valuable skills, knowledge and earned exceptional grades, and accepted a position at Aerospace Systems. That proves you want to join a team of talented people who are working to expand capabilities in aviation and satellite technology. Now what?

Starting last year, the answer to "now what" became more evident for newly hired college graduates at the El Segundo, Palmdale, Rancho Bernardo and Space Park, Calif., sites. A new program called New Grad Acclimation (NGA) was implemented to make the company easier to navigate. Even before a new graduate's first day at work, he or she is greeted by a "peer-mentor" who is close in age and has volunteered to help share

the company's culture and introduce what's available for Northrop Grumman employees. The parties on these two-person teams are called the Protégé (new graduate) and Pathfinder (employee with two to five years at the company).

"With the support of the division Human Resources and Administration (HR&A) directors, the Talent Acquisition organization conceived this initiative to bridge the acclimation hurdle faced by all of the new grad hires," said Benjamin Chulaluxsiriboon, who manages the sector's Intern Program and New Grad Acclimation program. "The solution is fostering a mentorship community."

Pathfinders and protégés meet individually

and also attend monthly luncheons with other mentor teams.

"It is surprising that I can now impart knowledge like a Northrop Grumman veteran, even surprising those who have worked here longer than I have," said J.R. Sebastian, about his mentor Baadal Patel. "In a way, Baadal's nurturing influence has had a positive effect on me and on the people with whom I work every day."

Patel received one of three "Star Pathfinder" awards given in 2009. Also recognized as star pathfinders were Irvin Enchill and Mukundh Pandian.

"Irvin is very committed to the mentorship relationship, always inviting me to social networking events, seminars, Connect1NG events, etc," said protégé Christine Jen. "He


has been a huge contributor to this program, planning weekly lunches for new grads to meet each other as well as other employees."

Richie Hiatt, the protégé of Mukundh Pandian, said, "Mukundh goes out of his way to meet with me, in addition to our structured meetings, to see how I'm doing and advise me on how to better my career and enjoy my time at work. There are many reasons that Mukundh deserves to be recognized as a star pathfinder, but the most important reason is because he doesn't make me feel like a new grad or a protégé. He makes me feel like an equal."

Along with the protégés and pathfinders, company sponsors are very happy with the results. The goal is to help compress the time for a new grad employee to become

comfortable at Northrop Grumman and become fully productive on the job. In just seven months, more than 100 teams were formed and remain active to date.

"It has been an honor to watch as our new grad hires gained value from the acclimation effort," Chulaluxsiriboon said. "Credit goes to the task force leaders at every site for keeping the program moving so energetically. Their contributions are immeasurable. We appreciate every pathfinder's generous investment in the company's future by giving time to mentor; there would be no program without them. I also want to thank Dan Cockroft, an HR&A director, for his initial sponsorship."

"Above all, I want to say to new grads, 'Welcome to Aerospace Systems.'" 

# A Healthy environment



This was repeated many times for new projects and proposals.

The eIDE represents collaboration among the Corporate Engineering Council, the Engineering Utilization team, IT Solutions, and Information Systems and was modeled after an Information Systems (IS) IDE called the Zone. After almost a year of continuous success at IS on initiatives such as the Aerial Common Sensor, the Zone became the framework and proof of concept for the eIDE. Aerospace Systems' (AS) Broad Area Maritime Surveillance (BAMS), Next Gen Jammer and KC-45 Tanker programs are now using the eIDE. Additionally, all programs and users of the Zone will be migrated to the eIDE

environment.

"The KC-45 IDE was ready and available to support the execution of the program," said David Corbeil, KC-45 program integration director in AS. "The key to this readiness was the collaboration between the program team that set the requirements and the IT Solutions team that delivered what was expected. We also had an integrated IDE test team composed of employees from our integrated program teams and the European Aeronautic Defence and Space Co. to ensure the system was ready. Having our IT program manager part of the KC-45 program integration team allowed frequent interaction with the program office and provided IT Solutions with

a sense of what the program needed to be successful, added Corbeil.

"BAMS' IDE has proven to be a valuable tool to both the customer and our team. It has given our program a central point for information," said the BAMS program integration team.

In addition to reduced cost, additional benefits include secure, standardized toolsets, a single governance model, tighter integration with engineering tools, disaster/recovery services and no capital outlay. The eIDE represents a great leap forward toward the goal of operating as One Northrop Grumman. For more information about eIDE, contact Trey Jordan.

## In The Next Issue

- Inspired team members of the Rapid Eye program personally fund the building and testing of a radio-controlled rocket
- Q & A with Larry Dodgen, executive lead, Missile Defense Integration Group
- An update about the Space Tracking and Surveillance System demonstration satellites launched into Low Earth Orbit last September
- Operation IMPACT hire Roy Plumb discusses his experience with the company's grassroots program designed to provide career transition support to service members

## New Companywide Collaboration Tool Helps Program Teams Reduce Costs, Save Time and Share Data

### TREY JORDAN

Northrop Grumman program teams are beginning to embrace a transformational capability — a ready-to-use, secure collaboration environment called the Enterprise Integrated Digital Environment (eIDE). The eIDE immediately equips programs and proposal teams with integrated tools and services such as a document repository, team collaboration tools, visual conferencing, issue- and action-item tracking and team calendaring.

The eIDE enables program personnel to digitally create, store, access, manipulate and

share programmatic and technical data. It is an environment with a program/product centric approach, built on an open, flexible and scalable architecture. This environment supports a widely distributed, diverse set of program participants in a secure manner. This is done while enabling access to authoritative program information that can be physically located and managed by different organizations in diverse information repositories. In addition, the MyNGC secure portal infrastructure is fully integrated into the eIDE to provide external access to our

domestic partners, customers and suppliers.

Sponsored and supported by the Corporate Engineering Council, the eIDE offers company programs an opportunity to reduce costs by adopting a standardized, reusable IDE.

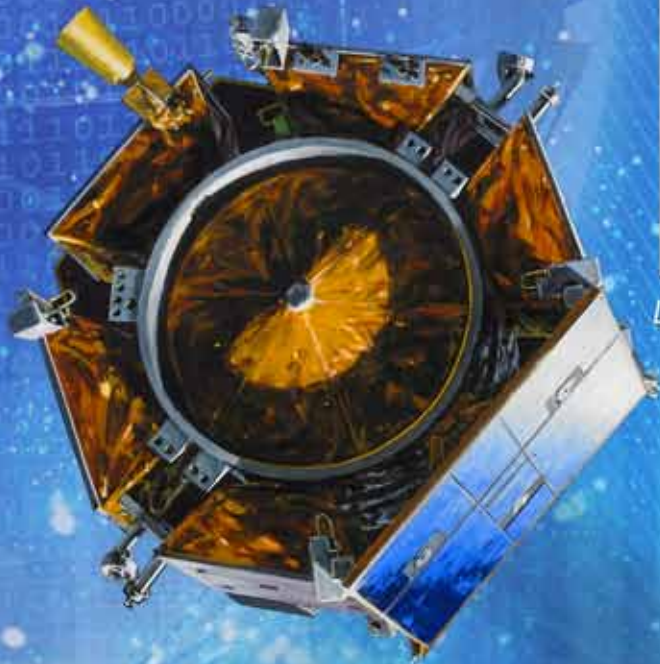
In the past, programs often spent time and money creating their own digital environment, which required standing up a new server environment, setting up firewall and Internet access rules, preparing access waivers, buying and installing software, and operating a program-unique environment.



# Lunar CRater Observation and Sensing Satellite (LCROSS)

*Moon impact yields water*

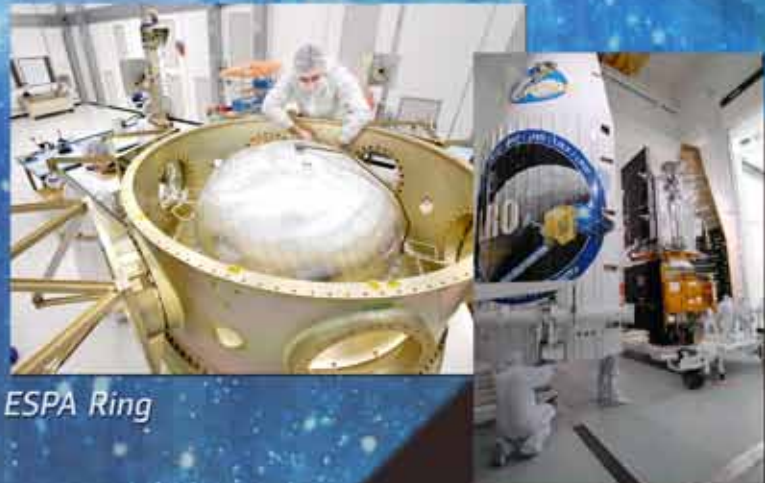
**NORTHROP GRUMMAN**



*LRO LCROSS Lift-off*

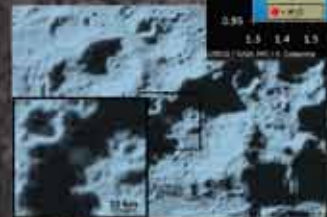


*LCROSS in thermal vac*



*ESPA Ring*

*LCROSS prepared for launch*



*LCROSS Visible Camera Image of Ejecta Cloud*

*With the LCROSS spacecraft designed and built by Northrop Grumman, NASA's return to the moon discovers water at its south pole.*



*Reduce the danger they face.  
Increase the danger they pose.*

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America's Armed Forces are on duty tonight in Afghanistan and Iraq, and U.S. Air Force E-8C Joint STARS are on watch. Joint STARS aircraft serve as eyes in the sky helping protect our troops on the ground so they can return home safely. Air Force, Army, and Air National Guard personnel on board are surveying the situation on the ground and providing critical information and communications to our troops. Northrop Grumman salutes America's Armed Forces defending freedom in Afghanistan, Iraq, and around the world tonight...and every night.