

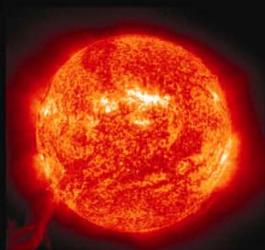
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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION



# El Noticiero de NASA

Hispanic Community Newsletter on Mathematics and Science Education



## Recruiting for NASA's Future

**What's Inside:** NASA Corporate Recruitment Initiative ■ Brad Weiner Named Director of Higher Education ■ Parents/Kids Section

# Message from the Editor-in-Chief

Welcome back to El Noticiero de NASA. This issue features NASA's Corporate Recruitment Initiative, a cross-functional Agency program to hire the nation's brightest science, engineering and business students at leading institutions of higher education. This ongoing program is designed to fill anticipated openings at the Agency in the coming years.

NASA is increasingly attracting and maintaining a workforce that is representative of the country's diversity to deliver the sustained levels of high performance required by the Agency. Many federal employees already consider NASA among the most supportive of workforce diversity initiatives and one of the best agencies to work for. For example, one set of indicators published in November 2003 placed NASA first out of 28 agencies in the "Best Places to Work in the Federal Government" rankings conducted by the Partnership for Public Service and American University.

To learn more about the Corporate Recruitment Initiative, we interviewed Vicki Novak, Associate Administrator of NASA Human Resources. Her office also provided El Noticiero de NASA with tips to students on how to prepare for the recruitment initiative.

A number of articles in this issue examine NASA projects in information and communication technology. One article explores a system developed by Florida International University's Knowledge Management Lab for NASA employees to identify and search for experts by skill and competency. Another article shares the excitement of the RoboCamp-West program hosted at NASA Ames Research Center that trained students to build, program and operate mobile robots. In our second segment of NASA Resources in Spanish for the Parents/Kids section, we introduce parents and educators to Noticiencias NASA, an online resource with animation, video and text developed by Langley Research Center's Hispanic Education Initiative.

The newsletter provides continued coverage of events involving NASA's Office of Education, including the Society of Hispanic Professional Engineers (SHPE) National Academic Olympiad held at SHPE's annual conference in Chicago, Illinois and the Hispanic College Fund's (HCF) recently established NASA Hispanic Explorer Scholarship, announced at the HCF's awards gala in Washington, DC. Lastly, the kids activity and reading are themed after aviation in celebration of one hundred years of flight.

Milagros Mateu  
University Program Manager  
NASA Hispanic Education Program

Winter 2004

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## About the Cover

Cover designed by William Soo. Main picture: shuttle launch at Kennedy Space Center. Filmstrip photos from top to bottom: student in classroom; Hepburn Hall at New Jersey City University, a Hispanic Serving Institution; students attending a graduation ceremony; Dryden Flight Research Center's Space-based Telemetry and Range Safety Study (STARS); and solar flames taken at the Solar & Heliospheric Observatory (SOHO).

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# Recruiting the Next Generation of Explorers

By *Melissa Riesco*  
NASA Office of Human Resources

At NASA's Corporate Recruitment Initiative from September through November 2003, NASA visited 14 host sites around the country and extended 100 tentative offers of employment to students on the spot, including 17 Hispanic students. A total of 52 universities participated at the events.

El Noticiero de NASA caught up with Vicki Novak, NASA's Associate Administrator for Human Resources, to discuss NASA's recruitment strategy, the goals of the Office of Human Resources, the results of last year's recruitment visits and plans with the initiative in 2004.

**El Noticiero de NASA:** NASA has a number of challenging staffing needs to meet in the next five to ten years. Could you tell us more about these challenges?

**Vicki Novak:** Today there are more opportunities than ever before that await individuals who want to reach for the stars. These opportunities might lead to developing a launch pad on the moon, developing and testing a new spacecraft and even helping to settle a colony on Mars.

Scientists and engineers currently make up about 60% of NASA's workforce, with the remaining 40% serving in other professional, technical and administrative support functions. We hire a wide range of employees, including: aerospace engineers, computer engineers, electronics engineers, computer scientists, physicists, budget analysts, contract specialists and information technology specialists.

One significant challenge that the Agency faces is that nearly 25% of the current science and engineering workforce will be eligible to retire within the next five years. To assist us in preparing to fill critical positions in the future, we developed a Competency Management System (CMS). The CMS enables the Agency to forecast at-risk competencies. In late 2002 through the middle of 2003, we used the CMS to project the top 10 Agency "at risk" competencies. (Editor's Note: at risk competencies are those that, left unaddressed, could become future competency gaps)

These at risk competencies became the focus of the Fall 2003 corporate recruitment activities in which all the NASA Centers and Headquarters participated. Staff from



*Students visiting the NASA information booth at the NASA Corporate Recruitment event hosted by the University of Texas at El Paso in November 2003*

the Offices of Human Resources and Equal Opportunity Programs, and from NASA's Education Enterprise, as well as their Center counterparts supported the corporate recruitment efforts. More importantly, senior leaders and hiring managers also actively participated in many of the events and hired some top-notch students from the schools.

**El Noticiero de NASA:** Tell us briefly what are the main goals of the Office of Human Resources. How do the goals and objectives meet these staffing needs?

**Novak:** NASA's most valuable asset is its workforce. As we enter this new era of exploration and discovery, the people of NASA will be the ones who allow the Agency to meet its challenges and accomplish its Mission safely, efficiently and effectively. One of the objectives stated in NASA's 2003 Strategic Plan is to ensure the Agency continues to "attract and maintain a workforce that is representative of the Nation's diversity and includes the competencies that NASA needs to deliver the sustained levels of high performance that the Agency's challenging mission requires." To support this objective, NASA developed a Strategic Human Capital Plan and Implementation Plan that outline specific goals, objectives and initiatives to ensure that NASA continues to have the

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## Recruiting the Next Generation of Explorers (*cont'd*)

scientific and engineering expertise needed for mission success, as well as a cadre of professionals to address the Agency's financial, acquisition and business challenges.

**El Noticiero de NASA:** What is the corporate recruitment strategy and how does it solve NASA's staffing needs in the next 5-10 years?

**Novak:** NASA's corporate recruitment strategy is an element of the Agency's integrated human capital management strategy. It is a deliberate, focused initiative structured to help ensure a flexible, agile and diverse Agency workforce not just for the short term but also for the future. The strategy has several objectives. They include: to improve outreach and capacity building relationships with colleges and universities and various professional and diverse organizations; to provide managers with useful hiring tools and flexibilities, by pursuing new legislation and enhancing those tools already available; to improve retention strategies to ensure that we remain an employer of choice; and to update the Agency's recruitment marketing campaign to continue to attract a diverse pool of high-quality candidates that NASA needs for current and future missions.

**El Noticiero de NASA:** Which schools did you visit?

**Novak:** As part of NASA's efforts to address anticipated future workforce gaps, the Agency planned and participated in 14 corporate recruitment events during the Fall 2003 recruitment season. Last year, we visited the following schools: University of California, Berkeley, Cornell University, Pennsylvania State University, Massachusetts Institute of Technology, Rensselaer Polytechnic Institute, Princeton University, Northwestern University, University of Puerto Rico, Mayaguez, North Carolina A&T State University, Clark Atlanta University, Morgan State University, Tuskegee University, Syracuse University and the University of Texas, El Paso. The University of Puerto Rico, Mayaguez and the University of Texas, El Paso are both Hispanic Serving Institutions (HSIs).

**El Noticiero de NASA:** How would a more diverse NASA workplace contribute to NASA's mission, vision and values?

**Novak:** NASA values the diversity of thought, ideas and perspectives that are essential to a research and development organization. The Agency strongly believes that an inclusive One NASA environment in which all

employees are treated fairly, are respected by management and their peers, and are valued for their contribution to the Agency's mission is critical to success.

**El Noticiero de NASA:** What kinds of positions are you filling at NASA?

**Novak:** With both our corporate recruitment efforts and similar activities conducted by our individual Centers, we are filling positions to help meet our future Agencywide competency needs. Positions that meet those needs are in the engineering, scientific and business management fields. Typical degrees that we look for include:

- Engineering degrees with emphasis in areas such as mathematics, computer, systems, mechanical, aerospace or aeronautics
- Science degrees with emphasis in areas such as biology, physics, physical science and chemistry
- Business Management degrees with emphasis in areas such as program management, accounting, finance, budget, procurement and human resources.

One hundred positions were identified and allocated to Centers to fill entry-level vacancies from these corporate recruitment visits. By the end of the fall recruitment season, 100 tentative offers of employment were extended to students. Several of the offers were extended to students during on-campus visits. I believe that thorough, upfront planning for recruitment efforts and providing hiring managers with the ability to offer jobs to students in real time are positive steps in addressing NASA's short-term and long-term staffing needs.

**El Noticiero de NASA:** How many of these students were minorities, Hispanic or female?

**Novak:** The statistics that we have on the diversity of the students is based on voluntary reporting information. Our latest statistics indicate that 44 offers were extended to minority students and 41 offers were extended to female students. 11 Hispanic males and 6 Hispanic females were provided tentative offers.

**El Noticiero de NASA:** Which institutions are you planning on visiting in 2004 to continue the NASA Recruitment Initiative?

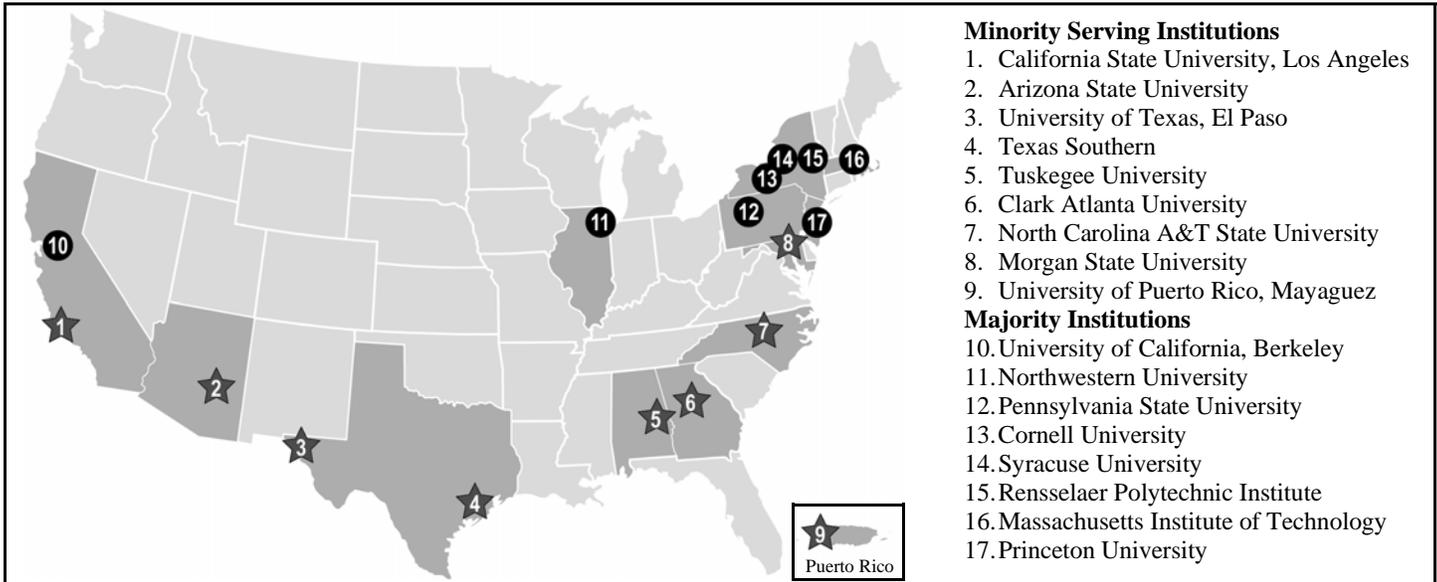
**Novak:** As part of the Agency's corporate recruitment activities, NASA will participate in three on-campus recruitment events. We recently participated at Texas

## Recruiting the Next Generation of Explorers (cont'd)

Southern University on February 25–27. The next two events are at California State University, Los Angeles on March 21–23 and at Arizona State University on April 17.

We have already started using “lessons learned” from the fall college recruitment events to develop and fine-tune

our spring visits. We plan to use these lessons learned, as well as future experience, to continually improve our recruitment and outreach efforts. We will also be developing a virtual job fair that will be held this spring. Students will be able to access the virtual job fair from the NASA Jobs website at [www.nasajobs.nasa.gov](http://www.nasajobs.nasa.gov).



Map of host institutions at the nationwide 2003-04 NASA Corporate Recruitment Initiative

### Getting Ready for NASA's Recruiters

By Melissa Riesco, NASA Office of Human Resources

NASA Recruitment Initiative events consistently draw large numbers of students from the host institution and participating universities nearby. To stay competitive with the large pools of applicants, students need to arrive adequately prepared. We asked Vicki Novak for tips on how applicants might organize themselves for the event.

**El Noticiero de NASA:** Tell us about the students that you hired. Specifically, what made them stand apart from the pack? What kinds of skills did they have that you seek?

**Vicki Novak:** In our entry-level recruitment activities, we look at academic degrees, grade point average (3.0 and above) and work experience. In addition, we seek highly motivated, enthusiastic candidates who set high standards of performance for themselves and who exhibit a strong desire to join the NASA team in an exciting, challenging and rewarding mission of exploration and discovery.

**El Noticiero de NASA:** What would you recommend that students do to prepare for an interview with NASA?

**Novak:** NASA has a number of very informative websites and I would encourage students to review some of them prior to interviewing with hiring managers. Students can access many of these websites by starting their search at [www.nasa.gov](http://www.nasa.gov). These websites will help you to better understand who we are, what our mission is and the kinds of programs in which we are engaged. Then, think about your strengths, skills and interests and how you could put them to use contributing to achievement of NASA's mission.

The NASA Jobs website, located at [www.nasajobs.nasa.gov](http://www.nasajobs.nasa.gov), also provides prospective employees with information on what it's like to work at NASA, NASA employment benefits and continuing education opportunities.

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# RoboCamp Graduates Continue Along the “Pipeline” to Success

By NASA Ames Equal Opportunity Programs Office

36 high school students graduated from the RoboCamp-West-2003 program hosted at NASA Ames Research Center through Carnegie Mellon University and San Jose State University last summer. In January 2004, NASA Ames Equal Opportunity Programs Office (EOPO) learned that at least nine of the program’s 20 minority graduates were admitted to San Jose State.

“We are really thrilled about the impact of this program on these students and that they have chosen to continue with their education at a four-year university,” said Adriana Cardenas, Director of NASA Ames Equal Opportunity Programs Office. “We plan to stay in communication with them and hopefully provide them with internships so that they can continue their relationships with NASA.” She added that her office is issuing congratulatory letters to each of the students admitted to San Jose State.

Students that registered in RoboCamp earned college credit at Carnegie Mellon through an intense, seven-week summer camp. Carnegie Mellon instructors introduced students to the electronics, mechanics and computer science of robotics, culminating in a series of autonomous robot challenges. Students built, programmed and operated vision-based mobile robots capable of sophisticated sensing and intelligent decision-making. At the conclusion of the course, each student took their complete, vision-based robot home so that they could continue to explore robotics on their own and share this knowledge with their peers.

NASA Ames EOPO awarded a grant through NASA’s Minority University Research and Education Program (MUREP) to San Jose State. San Jose State recruited for the camp at over 15 Bay Area high schools. Most of the high schools have a large population of minority students. Hispanic student enrollment at most of these high schools exceeds 60 percent. Each of the 20 minority students received full scholarships to participate in the RoboCamp, including tuition, the cost of the robot, a laptop computer, academic credit from Carnegie Mellon and the ability to participate in a Java pre-camp offered through San Jose State. The Java pre-camp gave students an opportunity to become familiar with RoboCamp programming concepts.

“One of the main goals of NASA is to introduce underrepresented students to the exciting opportunities offered by NASA with the intention to motivate them to pursue a career in science, technology, engineering or



*Rocio Macedo and Carol Fuentes observe their Trikebot at the RoboCamp-West-2003 program*

mathematics,” said Cardenas. “What a better way to do this than by bringing students to NASA and allowing them to see for themselves that they have what it takes to pursue a career in robotics.”

Horacio Alfaro, San Jose State’s Director of the Mathematics, Engineering, Science Achievement (MESA) Program stated, “The exposure to the world of robotics and programming benefited a population who may not have gotten a similar opportunity without the support from NASA Ames Research Center. All students seemed to be genuinely enriched by the opportunity whether it was an introduction to robotics or whether they had previous experience.”

Carnegie Mellon, San Jose State and NASA Ames celebrated the end of the RoboCamp with a graduation ceremony for the participants. After the ceremony, the students’ robots performed a variety of pre-programmed autonomous tasks, such as playing tag, using on-board color cameras and laser range finders. Many of the students’ family and friends attended this event.

San Jose State and Carnegie Mellon are currently designing a longitudinal study to track the impact that this course had on the participating students. The information gathered in this study will be valuable to NASA as the Agency continues to develop education programs targeting underrepresented students in science, technology, engineering and mathematics (STEM) fields.

### Brad Weiner Heads Higher Education at NASA

*By Ignatius Hsu  
Staff Writer*

Dr. Brad Weiner joined NASA's Education Enterprise as the new Director of Higher Education on January 20, 2004. The director is responsible for establishing the new Science and Technology Scholarship Program and meeting the goals and objectives of the new Division of Higher Education.

Dr. Weiner said that he hopes to "bring his experience in integrating research and education to NASA's Education Enterprise."



*Brad Weiner, Director of Higher Education at NASA's Education Enterprise*

Dr. Weiner brings to NASA over twenty years of management, leadership and teaching experience in research and higher education, including considerable responsibilities managing NASA funded programs.

Prior to joining NASA, Dr. Weiner was Dean of the College of Natural Sciences (CNS) and Professor in the Department of Chemistry at the University of Puerto Rico, Rio Piedras. CNS has 3000 students, 225 full-time employees and an annual budget of \$25 million. Dr. Weiner was also Project Director of the Puerto Rico Experimental Program to Stimulate Competitive Research (EPSCoR) since 1999, which has projects totaling \$15 million a year from government agencies such as NASA, the National Science Foundation, the Department of Energy and the Department of Defense.

From 1999 until he entered his current position, Dr. Weiner served as the Project Director of the Puerto Rico Space Grant Consortium. NASA initiated the program in 1989 to promote educational and research activities in individual states and territories. Puerto Rico now has five NASA-funded centers and 12 affiliates. In the spring of 2002, Dr. Weiner was elected to the Executive Committee of the National Council of Space Grant Directors.

Dr. Weiner completed a postdoctoral fellowship in molecular reaction dynamics at the Naval Research Laboratory, Washington, DC. He earned his Ph.D. in Chemistry from the University of California, Davis and his Bachelor of Arts degree in Chemistry at Grinnell College, Iowa. In addition to his duties, he has produced extensive research. Dr. Weiner has published in over 50 refereed journal articles and 17 proceedings and book chapters and holds two patents.

## NASA Provides \$500,000 to Hispanic College Fund Explorer Scholarships

By Ignatius Hsu  
Staff Writer

Thanks to a half million dollar award from NASA, the Hispanic College Fund (HCF) created the NASA Hispanic Explorer Scholarship that, in the current academic year, is providing opportunities for 127 university students to pursue science, technology, engineering and mathematics, the organization announced during its year-end 10<sup>th</sup> Annual Scholarship Awards Gala at the Washington Convention Center in Washington, DC.

“This past year was monumental to us,” said Fred Ruiz, Vice Chairman of the HCF Scholarship Committee during his remarks at the gala. “One program in particular, the NASA Hispanic Explorers Scholarship Program, provided many more scholarship opportunities to our youth this year.”

Dr. Clifford Houston, NASA Deputy Associate Administrator for Education Programs, presented awards to a handful of outstanding students from universities nationwide representing the NASA scholarship recipients competitively selected by HCF.

“There are a number of Hispanic Americans that play very key roles at NASA,” Dr. Houston said during his comments. He went on to name Orlando Figueroa, head of the Mars Program, Miguel Rodriguez, Director of the Propulsion Test Directorate at Stennis Space Center (SSC) and Alfonzo Diaz, Director of Goddard Space Flight Center (GSFC). “Hispanic Americans have also made significant contributions as NASA astronauts,” Dr. Houston added.

The HCF Explorer Scholarship awards are already opening doors for the selected Hispanic students.

Gregoria Cabello, an award recipient and a planetary geology senior at Texas A&M University, Kingsville, said that she is back in school to pursue her aspirations of working at NASA. A former police officer, Cabello aims to join NASA as a scientist and perhaps as an astronaut. “I’d like to be there when Spirit and Opportunity send our samples and our information from Mars,” she noted. She



NASA officials Dr. Clifford Houston and Milagros Mateu talk with Adriana Rico, a scholarship recipient at the Hispanic College Fund’s 10th Annual Scholarship Awards Gala held in Washington, DC

said that she would also apply for a Research Associate position at the NASA Academy program, an intensive resident summer program of higher learning.

Jorge Perez, another award recipient and a fifth year electrical engineer major at Texas A&M University, College Station, said that he was really grateful for the award “from an organization as prestigious as NASA, it’s a great honor.”

Award recipient Michelle Albanes said “I am going to work harder in pursuing my career as a computer information systems analyst. I will try my hardest to get internships with NASA and when I graduate to be able to be part of NASA!” Albanes is a second year computer information systems major at California State Polytechnic University, Pomona.

Other students invited to receive the awards were: Barry Barrios, the Massachusetts Institute of Technology; Angela Campbell, the University of Illinois at Urbana-Champaign; Deborah Cassanova, the University of Wisconsin, Madison; Roel Huerta, the University of Houston; Adriana Rico, the University of Georgia; and Adrian Solis, the University of California, San Diego.

## Hispanic College Fund Explorer Scholarships *(cont'd)*

When asked about NASA's role in the Hispanic community after the awards ceremony, Dr. Houston said, "We're going to have to develop a workforce that mirrors the population that it serves. So the educational pipeline must have students that look like America and this is the reason why we want to invest in the future with the Hispanic community." Hispanics are the fastest growing segment of the American population. "We know that in five years, 25 percent of NASA's workforce will reach retirement age and we must replace that workforce with a more diverse population," he said.

The event took place on October 22, 2003. The morning following the event, the ten selected awardees met Alfonso Diaz, the Director of GSFC and other NASA officials of Hispanic descent.



*Scholarship awardees receive their awards at the Hispanic College Fund gala*

## 2004 SHPE/NASA Olympiad was Spirited Competition

*By Tyffani Wingfield  
Staff Writer*

The Society of Hispanic Professional Engineers (SHPE) and NASA partnered in hosting the National Academic Olympiad at the annual National Technical and Career Conference in Chicago, Illinois from January 8-10, 2004.

The SHPE/NASA Academic Olympiad is an academic and technical team competition that tests students on a variety of subjects ranging from electrical and chemical engineering, Hispanic history and culture, and NASA

related topics and is SHPE's most prestigious competition. Winners from SHPE's seven regional preliminary rounds competed in this final phase of competition for the Olympiad. The competition attracted more than 300 attendees this year.

"The competition was so fierce that we had to go into a tie-breaker," said Olga Gonzalez-Sanabria, the event's Mistress of Ceremony. Gonzalez-Sanabria is the Director of Engineering at NASA Goddard Research Center. "This is the third year of my participation in the Academic Olympiad and I am impressed every year with the quality, enthusiasm and professionalism shown by the students," she said. NASA has sponsored the Olympiad for the last three years.

Orlando Gutierrez, the President of SHPE and the event's organizer, said that the scholarships are important to the students. "The participating students have benefited through the introduction of individual scholarships given in NASA's name to the members of the top four teams," he said.

The winner of the Olympiad this year was the University of Florida, which received \$4,500 towards its chapter students and outreach activities. The other top finishers were: second place, Rice University (\$1,800), third place, University of Illinois at Urbana-Champaign (\$900) and fourth place, California Polytechnic University, Pomona (\$300).



*Winning teams from each of the seven SHPE/NASA regional Olympiad competitions square off at the 2004 National Academic Olympiad in Chicago, Illinois*

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## 2004 SHPE/NASA National Academic Olympiad (*cont'd*)

NASA also awarded individual scholarships to the three members and the alternate member of the top four teams amounting to: \$1,200 for first place team members, \$800 for second place team members and \$500 for third and fourth place team members.

NASA personnel played a major role in this competition. NASA Headquarters Program Manager Milagros Mateu assisted in the coordination of the Olympiad. The following NASA personnel served as judges: Jose Davis, Glenn Research Center; Dan Krieger and Damon Bradley, Goddard Space Flight Center; and Elia Ordonez, Marshall Space Flight Center.

Over 3,000 people including students and professionals attended the Conference Gala Banquet. Gonzalez-Sanabria presented awards to winning chapters and individuals.

SHPE is the largest organization committed to enhancing and increasing Hispanic participation in science, technology, engineering and mathematics (STEM) disciplines. The organization aims to provide student and professional-level networks and role models for Hispanic youth in an effort to improve the retention and recruitment of Hispanic students.

## NASA RESEARCH DEVELOPMENTS

### Florida International University Develops Knowledge Management System for NASA

*By Ignatius Hsu  
Staff Writer*

The Expert Seeker knowledge management system was developed for NASA Kennedy Space Center (KSC) and Goddard Space Flight Center (GSFC) at Florida International University's Knowledge Management (KM) Lab. Dr. Irma Becerra-Fernandez, the lab's founder and director, was the principal investigator of the \$300,000 three-year KSC Faculty Awards for Research (FAR) project to identify and connect NASA's scientists, researchers and administrators with the appropriate specialists within the Agency.

KM is applied to the processes that organizations use to generate value from their data, information resources and other forms of intellectual capital. To facilitate the KM processes, organizations must develop the infrastructure as well as an environment that encourages information sharing within and between employees, teams and offices to discover, capture, share and apply different forms of knowledge.

Dr. Becerra-Fernandez noted that, "Knowledge management is increasingly attracting the attention of organizations that understand that the most vital resource of today's enterprise is the collective knowledge residing in the minds of an organization's employees, customers and vendors."

Expert Seeker allows NASA specialists to network, collaborate and share knowledge on projects. The system is available on the internal KSC and GSFC websites. Expert Seeker assists employees with locating experts at their centers to assess staffing needs for project teams and to assist with organizing cross-functional teams. NASA specialists also have more visibility as a result of the system's intuitive, web-accessible interface and its integration of multiple NASA human resources databases and data of employee competencies, skills and achievements. This technology is a vast improvement over the myriad of fragmented data systems that employees had previously used to network with colleagues.

## Expert Seeker Knowledge Management System (*cont'd*)

The KM System helps NASA staff to adapt to the dynamic structure of teams within the Agency. It is essential to NASA that its teams foster knowledge sharing. According to the NASA Knowledge Management Team's Strategic Plan, one of the team's top goals is "To increase collaboration and to facilitate knowledge creation and sharing." The team continued in its mission statement, "Given the highly distributed, "virtual" teams at the Agency today, the challenge before the NASA Knowledge Management Team is to bring together people and their expertise across barriers of time, space, and culture." This Agencywide KM team examines how to improve NASA's institutional learning and knowledge sharing capabilities in the face of fiscal constraints and a growing dependency on multi-disciplinary, highly fluid teams.

"Expert Seeker takes advantage of the information resources that already exist in the organization to create a profile of its experts," said Dr. Becerra-Fernandez. "For example, it takes advantages of the websites that researchers may publish about themselves to identify using Web text mining algorithms "who-knows-what" in a non-intrusive manner, without the need to frequently nag employees to keep their profiles up-to-date."

KSC and GSFC employees search for experts by querying the Expert Seeker system with one of five search options: expert name, expertise, NASA office or branch, projects and advanced search. The advanced option allows the user to perform a combination search with the four other options.

Expert Seeker may also be integrated with other expertise locator systems to extend the scope of the search. The interconnection of Expert Seeker with other locator systems expands the scope of expert searches beyond the boundaries of a single organization. For example, the KSC

version of Expert Seeker was integrated with SAGE ([www.sage.fiu.edu](http://www.sage.fiu.edu)), another expertise locator system that helps identify experts in Florida universities.



*Dr. Irma Becerra-Fernandez with students at Florida International University's Knowledge Management Lab*

Hispanics received hands-on experience developing Expert Seeker at the KM Lab. The Expert Seeker grant provided paid internships to minority students who worked in this project at the KM Lab. Florida International University is a minority-majority institution and students that have worked on NASA projects in the KM Lab are consistently recruited by government agencies such as NASA and Fortune 100 companies such as Goldman-Sachs, IBM, GE Medical Systems and Motorola.

Expert Seeker emerged from a KM needs assessment conducted by Dr. Becerra-Fernandez for KSC. Between February and April of 1998, Dr. Becerra-Fernandez and her team of researchers and students designed and implemented a KM assessment study, which included in depth interviews of eight technical groups at the Center, developed

illustrative prototypes of their recommendations, and completed a written report for KSC's executive team.

The KM assessment pointed out the need by six of eight functional groups at KSC for an "Expert Seeker" technology that would identify "experts with a particular background," according to the KSC Research and Technology 1998 Annual Report.

The assessment cleared the path for development of Expert Seeker. KSC supported Dr. Becerra-Fernandez with a three-year FAR grant beginning in September 1999. The KSC KM Working Group tested a prototype of Expert Seeker with live data the following year. KSC and the KM Lab successfully integrated Expert Seeker with internal databases and the system went live in 2002.

## Wright Brothers

In this edition of the Parents/Kids section, we are dedicating the children's activity and reading to the centennial of flight, celebrating the Wright Brothers' historic achievement of flying at Kitty Hawk on December 17, 1903.

## Hermanos Wright

En esta edición de la sección de Padres/Niños, estamos dedicando la actividad y la lectura para niños al centenario de la aviación en celebración del histórico vuelo de los Hermanos Wright en Kitty Hawk el 17 de diciembre de 1903.

## NASA Resources in Spanish Part II: Noticias NASA (Parents and Educators)

By Gretchen Cook-Anderson  
NASA Headquarters

NASA launched Noticias NASA under the Agency's Hispanic Education Initiative to enhance the skills of an important segment within the future United States scientific work force. Noticias NASA is accessible at <http://ksnnsplarc.nasa.gov>.

Designed for students in kindergarten through grade five, Noticias NASA is a Spanish-language, research-inquiry, standards-based and technology-focused education program. The Noticias NASA website provides access to animation, video and text. The website debuted in December 2003 to introduce young Hispanics to the world of science, technology, engineering, mathematics, NASA missions and research. Beginning December 13, 2003, the children's series started broadcasting Saturday mornings on Univision in Puerto Rico.

According to the Department of Education National Center for Education Statistics, Hispanics are the fastest growing sector of the school-age population.

Noticias NASA features video clips of Hispanic students that explain science, technology, engineering, mathematics and NASA facts to visiting children in an entertaining and instructional format. The one-minute video programs explain everyday phenomena, correct misconceptions and answer frequently asked questions about the Earth and space. The video programs aimed at



Lisa Barrio and her brother Pedro on the set of Noticias NASA

students in kindergarten through grade two also use animated characters. The website offers detailed written explanations, hands-on activities, resources and computer-graded quizzes.

Topics on the website range from "Why do astronauts float in space?" and "Did you know NASA's Odyssey spacecraft found water ice under the surface of Mars?" to "What is nanotechnology?" and "How does the Internet work?"

The website is an invaluable resource for young students to learn and gain an understanding about tough scientific and technical concepts.

## Noticiencias NASA (cont'd)

“At first, I couldn’t even say the word nanotechnology, now I can talk to my dad and mom about it at the dinner table,” said Lisa Barrio, a fourth grade student in Newport News, Virginia. Lisa appeared in three one-minute video programs, including nanotechnology, the Internet and how astronaut bodies change in space. “My dad didn’t know how the body changes in space, but I did. I thought my dad knew everything,” she continued.

Julieth Sierra, a seventh grade student, said that she has “always liked science.” Julieth appeared in seven of the 28 shows and was inspired by her participation in Noticiencias NASA to learn more about space science. “Now I would like to find out more about things like how you travel in space and the kinds of studies you have to do to find out more about the other planets,” she said.

Ivelisse Gilman, manager of the NASA Langley Research Center (LaRC) Hispanic Education Initiative in Hampton, Virginia, said “It is our hope these programs will inspire kids to pursue careers in the engineering and science fields.” The Hispanic Education Initiative is an outreach effort designed to address the serious shortage of Hispanic

men and women in these fields. “We are striving to bolster students’ learning potential as well as address a critical aspect of maintaining leadership in science and engineering in the 21st century,” Gilman added.

Noticiencias NASA is sponsored by NASA’s Office of Biology & Physical Research (OBPR) and produced by LaRC’s Center for Distance Learning. According to Bonnie McClain, OBPR chief of education, statistics indicate participation by Hispanics in the scientific labor force continues to trail behind other ethnic groups. Hispanic students take less mathematics, science and technology courses. OBPR is pleased to support this programming, designed to pique the interest of young people, motivate them to find out more about science, math and technology and to help overcome lack of participation by Hispanic students.

LaRC’s Center for Distance Learning produces five award-winning, educational programs in English and Spanish: NASA’s Kids Science News Network, NASA SCI Files, NASA CONNECT, NASA LIVE and NASA’s Destination Tomorrow.

## La Serie Multimedia de NASA Tiene el Propósito de Inspirar a la Juventud Hispana (*Parientes e Hijos*)

Por Gretchen Cook Anderson

Asuntos Públicos de las Oficinas Centrales de NASA

NASA lanzó Noticiencias NASA como parte de la Iniciativa de Educación Hispana de la Agencia para incrementar las habilidades de un segmento importante de la población para la futura fuerza laboral estadounidense en el campo de las ciencias. Se puede obtener acceso a Noticiencias NASA visitando <http://ksnsp.larc.nasa.gov>.

Creado para estudiantes de kindergarten al quinto grado, Noticiencias NASA es un programa educativo en español de investigación e indagación tecnológica basado en las normas de instrucción. El sitio web de Noticiencias NASA proporciona acceso a dibujos animados, vídeos y texto. El sitio web debutó en diciembre de 2003 para presentar el mundo de las ciencias, la tecnología, la ingeniería, las matemáticas, las misiones y las investigaciones de NASA a los jóvenes hispanos. A partir del 13 de diciembre de



El sitio web de Noticiencias NASA

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## Recursos de NASA en Español (*cont'd*)

2003, la serie para niños comenzó a transmitirse los sábados por la mañana por Univisión en Puerto Rico.

Según el Centro Nacional de Estadísticas sobre Educación del Departamento de Educación, los hispanos son el sector de más rápido crecimiento entre la población en edad escolar.

Noticiencias NASA presenta videoclips de estudiantes hispanos que explican ciencias, tecnología, ingeniería, matemáticas y datos sobre la NASA a los niños que lo visitan en un formato entretenido e instructivo. Los programas de vídeo, de un minuto de duración, explican fenómenos cotidianos, corrigen errores generalizados y contestan preguntas frecuentes sobre la tierra y el espacio. Los programas de vídeo dirigidos a estudiantes de kindergarten al segundo grado utilizan también personajes de dibujos animados. El sitio web ofrece explicaciones escritas detalladas, actividades prácticas, recursos y pruebas calificadas por computadoras.

Los temas en el sitio web abarcan desde “¿Por qué los astronautas flotan en el espacio?” y “¿Sabía usted que la nave espacial Odyssey de NASA encontró hielo de agua debajo de la superficie de Marte?” hasta “¿Qué es la nanotecnología?” y “¿Cómo funciona Internet?”

El sitio web es un recurso invaluable para que los estudiantes jóvenes aprendan y comprendan conceptos científicos y técnicos complicados.

“Al principio, ni siquiera podía pronunciar la palabra nanotecnología, ahora puedo hablar sobre ella con mis padres a la hora de cenar,” afirmó Lisa Barrio, estudiante del cuarto grado de Newport News, Virginia. Lisa apareció en tres programas de vídeo de un minuto, que incluyeron nanotecnología, Internet y cómo cambian los cuerpos de los astronautas en el espacio. “Mi papá no sabía cómo cambia el cuerpo en el espacio, pero yo sí. Yo pensaba que mi papá lo sabía todo” agregó.

Julieth Sierra, estudiante del séptimo grado, dijo que siempre le han gustado las ciencias. Julieth apareció en siete de los 28 programas y su participación en

Noticiencias NASA la inspiró a obtener más información sobre las ciencias espaciales. “Ahora quiero averiguar más sobre algunos temas como por ejemplo, cómo se viaja por el espacio y el tipo de estudios necesarios para aprender más sobre los otros planetas” dijo.

Ivelisse Gilman, gerente de la Iniciativa de Educación Hispana del Centro de Investigaciones Langley (LaRC) de la NASA en Hampton, Virginia, dijo que “Esperamos que estos programas motiven a los niños a dedicarse al ejercicio de carreras en los campos de la ingeniería y las ciencias”. La Iniciativa de Educación Hispana es un esfuerzo de promoción creado para resolver la grave escasez de hombres y mujeres hispanos en estos campos. “Estamos haciendo todo lo posible por reforzar el potencial de aprendizaje de los estudiantes así como atender un aspecto crítico para el mantenimiento del liderazgo en ciencias e ingeniería en el siglo XXI,” agregó Gilman.

Noticiencias NASA es patrocinado por la Oficina de Investigación en Biología y Física (OBPR) de la NASA y producido por el Centro de Aprendizaje a Distancia de LaRC. Según Bonnie McClain, Directora de Educación de la OBPR, las estadísticas indican que la participación de los hispanos en la fuerza laboral científica continúa siendo menor que la de otros grupos étnicos. Los estudiantes hispanos toman menos cursos de matemáticas, ciencias y tecnología. La OBPR se complace en apoyar esta programación creada para despertar el interés de los jóvenes, motivarlos para que aprendan más sobre ciencias, matemáticas y tecnología y contribuir a superar la falta de participación de los estudiantes hispanos.

El Centro de Aprendizaje a Distancia del LaRC produce cinco programas educativos galardonados en inglés y español: Noticiencias NASA (NASA's Kids Science News Network), Los Archivos CIENTÍFICOS DE NASA (NASA SCI Files), NASA CONECTA (NASA CONNECT), NASA EN VIVO (NASA LIVE) y Destino: El Mañana (NASA's Destination Tomorrow).

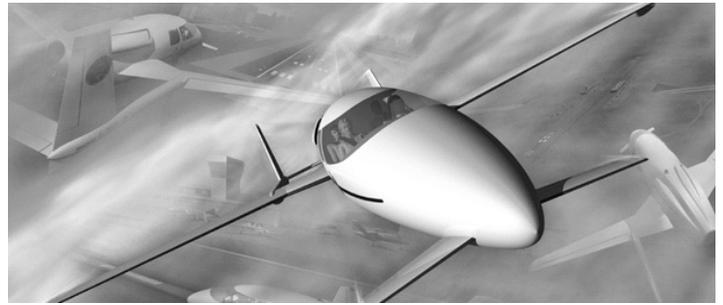
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## Online and Airborne (*Grades 7-12*)

Someday, preflight instructions on an airplane may sound something like this: “Buckle your seatbelt. Turn off all cell phones and pagers. And, connect to the Internet.” And, one other thing may be different—you may be flying the plane!

NASA is creating an infrastructure for fleets of small aircraft. People will not have to fly between large cities on jet airliners. Instead, they will be able to fly themselves right to where they want to go. This would speed up air travel. But, it would need a major change in air traffic control to be able to manage thousands of small airplanes filling the skies. That is where the “Airborne Internet” comes in. This project is being developed along with the Small Aircraft Transportation System (SATS). The SATS is studying the possibility of a system of 2 to 10-passenger airplanes. People could fly these small airplanes to and from small community or neighborhood airports. It won’t make the airplane like driving the family car. But, it would make renting a plane much more like using a rental car.

Before this system becomes a reality, there are still many bugs that need to be worked out. Communication is one of the problems that will have to be fixed. The SATS would lead to thousands of inexperienced pilots flying airplanes. They would be flying to and from small airports that do not usually have much traffic. Without major changes in air traffic control, the chances of plane crashes would greatly increase. That is why NASA is developing the Airborne Internet. In spite of the name, it may not be what you think it is. The new system will not mean that pilots will be shopping online. Nor will they be looking up their favorite bands’ Web sites while they are flying. Instead, it gets its name from the fact that it works like the real Internet. The secret to how well the Internet works is that it is a distributed network. In a centralized network, all computers are connected to one main server. They compete with each other to use that server. In the Internet, however, there is no central server. Content is stored on millions of computers around the world. And, the information can be accessed by millions more. Routers connect Internet users with what they are seeking. This creates a network that runs better because of the speed of millions of computers working together.



*An artist's rendition of small aircraft in the air and on the runway*

A similar system would run the Airborne Internet. It would be a high-speed digital network. Information would be passed between aircrafts and the ground by the Internet. The aircrafts and the ground facilities would be the nodes in the network. Aircraft pilots would let the traffic controllers know where they are through the network. The network would give the crew information that would help them avoid collisions. It would also allow information to be sent from aircraft to aircraft without having to go through ground facilities. The system could also be used to send safety warnings to aircraft. The Airborne Internet would take ideas that are being used now and put them to work in new ways. These new ways will create a whole new system.

Development of the Airborne Internet has already begun. The system itself has been tested to make sure that it would work as planned. Now, the technology has been turned over to SATS planners. The planners will make sure that it would meet the needs of a small aircraft transportation system. The days of it being common to fly your own airplane to visit family for the holidays are not here yet. But, NASA is working to make those days a reality. And, the technology to make that happen safely is already being developed.

Article courtesy of NASA's Aerospace Technology Enterprise and NASAexplores. For more express lessons and online resources, logon to <http://nasaexplores.com>.

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## En Línea y Aerotransportados (*Grados 7 a 12*)

Algún día, las instrucciones dentro de los aviones antes del despegue serán algo así: “Abróchese el cinturón, apague todos los teléfonos celulares y bípens y conéctese a Internet”. Y otra cosa podría ser distinta: ¡usted podría estar pilotando el avión!

NASA está creando una infraestructura para flotas de aviones pequeños. Ya no habrá que volar de una gran ciudad a otra en jets. En su lugar, podrán ellas mismas pilotar su avión. Esto aceleraría los viajes aéreos. Pero se necesitaría un gran cambio en el control del tráfico aéreo para poder dirigir los miles de aviones pequeños que llenarían los cielos. Aquí es donde hace su aparición “Airborne Internet” (“Internet Aerotransportada”). Este proyecto está siendo desarrollado junto con el Sistema de Transporte de Aviones Pequeños (Small Aircraft Transportation System/SATS). El SATS está estudiando la posibilidad de un sistema de aviones con capacidad para entre 2 y 10 pasajeros. La gente podría pilotar estos aviones pequeños desde y hacia los aeropuertos de comunidades o vecindarios pequeños. Esto no quiere decir que pilotar un avión sería como conducir un automóvil. Pero alquilar un avión se asemejará a conducir un auto alquilado.

Antes de que este sistema se convierta en una realidad, quedan todavía muchos problemas por resolver. Uno de esos problemas son las comunicaciones. Con el SATS habría miles de pilotos inexpertos pilotando aviones. Volarían desde y hacia aeropuertos pequeños que usualmente tienen poco tráfico. Sin grandes cambios en el control del tráfico aéreo, aumentarían considerablemente las posibilidades de accidentes aéreos. Por ese motivo NASA está desarrollando Airborne Internet. A pesar de su nombre, no es lo que a usted podría parecerle. El nuevo sistema no significa que los pilotos van a hacer sus compras en línea. Tampoco estarán buscando los sitios web de sus orquestas favoritas mientras vuelan. Se llama así debido a que funciona como la verdadera Internet. El secreto del buen funcionamiento de Internet es que se trata de una red distribuida. En una red centralizada, todas las

computadoras están conectadas a un servidor principal. Todas compiten entre sí para utilizar ese servidor. En Internet, no hay un servidor central. El contenido se almacena en millones de computadoras alrededor del mundo. Y muchos millones más pueden tener acceso a la información. Los enrutadores conectan a los usuarios de Internet con lo que buscan. Esto crea una red que funciona mejor debido a la velocidad de millones de computadoras que trabajan juntas.

Airborne Internet tendrá un sistema similar. Será una red digital de alta velocidad. Se intercambiará información entre los aviones y las instalaciones de tierra por Internet. Los aviones y las instalaciones en tierra serán los nodos de la red. Los pilotos de los aviones informarán a los controladores de tráfico su ubicación a través de la red. La red dará a la tripulación información que la ayudará a evitar choques. También permitirá enviar información de un avión a otro sin tener que pasar por las instalaciones de tierra. El sistema también podría ser utilizado para enviar advertencias de seguridad a los aviones. Airborne Internet tomaría ideas que se están utilizando actualmente y las haría funcionar de maneras diferentes. Estas maneras diferentes crearán un sistema enteramente nuevo.

Airborne Internet ya está siendo desarrollado. El sistema mismo ya ha sido sometido a pruebas para comprobar que funciona de acuerdo con lo planificado. Ahora la tecnología ha sido puesta en manos de los planificadores del SATS. Los planificadores garantizarán que satisfaga las necesidades de un sistema de transporte compuesto de aviones pequeños. Aun no ha llegado la época en la cual pilotar un avión privado para visitar a familiares durante los días feriados sea lo común. Pero NASA está trabajando para que esa época se convierta en una realidad. Y ya se está desarrollando la tecnología para que eso suceda sin riesgos.

Artículo cortesía de NASAexplores. Para obtener más lecciones expresas y recursos en línea, visite <http://nasaexplores.com>.

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## Word Search: Airplane Terms (Grades 4-6)



Find and circle the following words in the biplane shaped puzzle. Some words are spelled backwards or upside down.

Accelerate  
Aircraft  
Airport  
Altitude  
Biplane  
Cockpit  
Decelerate  
Engine  
Fin  
Flaps  
Gravity  
Landing

Lift  
Orville Wright  
Pilot  
Propeller  
Pull  
Push  
Roll  
Runway  
Takeoff  
Wilbur Wright  
Wing

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## Rompecabezas de Búsqueda de Palabras: Términos Relacionados con los Aviones (Grados 4 a 6)



Encuentre y marque con un círculo las siguientes palabras en el rompecabezas biplanar. Algunas palabras están escritas al revés o con la parte de arriba abajo.

Acelerar  
Aeropuerto  
Ala  
Aleta  
Altitud  
Ascension  
Aterrizaje  
Biplano  
Cabeceo  
Cabina de mando  
Desacelerar

Despegue  
Empuje  
Estabilizador  
Gravedad  
Impulso  
Motor  
Orville Wright  
Piloto  
Pista  
Simulador  
Wilbur Wright

# Answers/Contestar

## English: Airplane Terms



## Español: Términos Relacionados con los Aviones





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## EVENTS

### **2004 MAES National Leadership Conference**

Chicago, Illinois  
April 1- 4, 2004

The Society of Mexican American Engineers & Scientists (MAES) annual conference gives leaders the opportunity to meet with others from around the nation. The conference dedicates over two full days of activities for student and professional leaders. The NLC is an intensive program of leadership training where attendees learn skills to improve leadership abilities and increase their effectiveness as MAES chapter officers.

Email: [execdir@maes-natl.org](mailto:execdir@maes-natl.org)  
Website: [www.maes-natl.org](http://www.maes-natl.org)

### **2004 MAES International Symposium and Career Fair 30<sup>th</sup> Anniversary Celebration**

Austin Marriot at the Capitol  
Austin, Texas  
November 2-7, 2004

The MAES IS&CF will bring in hundreds of professionals, college students and pre-college students from across the nation. Attendees will participate at the many opportunities the conference will present to them, such as: employment in the science, engineering and information technology fields, a variety of workshops geared toward professionalism and graduate studies, visibility in technical paper and poster competitions, and networking events. The 2004 symposium theme is "Foundation for the Future/Fundacion para el Futuro."

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