

SPACE CENTER

Roundup

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20 years ago

Twenty years ago this month, Astronaut Sally Ride became the first American woman to fly in space aboard the Space Shuttle *Challenger*. Today, she continues to inspire girls to reach for the stars.

For more on Sally Ride, see page 4.

Director's Message



Stay cool

It's June in Texas and it's getting hot in Houston. We've been putting out much information about the dangers and symptoms of heat exhaustion and heat stroke. There's good reason for this. Both of these phenomena are

serious business and can attack you just as quickly in your backyard as they can at a ballgame or picnic. I have personally seen a man die from heat stroke. It's a very horrible thing.

The easy counter for both is to stay cool and drink a lot of fluids. That's not the easiest thing to do around here in the summer, so make sure you are aware of the symptoms of these ailments. Monitor yourself and those around you when engaged in outdoor activities. At the earliest warning signs, get the affected party into the shade, drink cold water and stay cool.

These days we're not only subject to heat from the weather. We're also getting it from the press, the halls of Congress and others who are chiming in to find fault with our expertise (or perceived lack of it), our processes, our attitudes, and our management concerning the *Columbia* accident. If you think the 'blame game' is bad now, just wait. It will probably get worse before it gets better.

How should you react to all of this? Just like you do with the summer weather: stay cool. This won't be easy. As you read or hear the criticism, you can easily get very defensive and angry. You might also start losing faith in yourself and your teammates. Don't let this happen. Remember, you're still a member of an elite fraternity like no other in the world. You are an integral part of one of the noblest endeavors in the history of humankind. You and your team are also just as outstanding as you were on January 31.

We're going to find out what went wrong and fix it. We're also going to take a hard look at ourselves and strive for continuous improvement. We will keep working to reduce the risks inherent in human spaceflight. That's what professionals do. Let's keep our chins up, stay cool and get the job done.

Beak sends...

New JSC Features Web site

Along with the new look of the *Space Center Roundup*, the Public Affairs Office is pleased to announce that the *Daily Cyberspace Roundup* is evolving into *JSC Features*, a newly formatted online magazine that will focus on news and happenings around the Center. Over the next couple of months, a new look and new features will be added to this publication including photo feature pages.

JSC Features will offer Center employees an opportunity to read a number of interesting feature stories and view JSC photos. If you have story ideas for people or programs you would like to see featured, contact Editor Joanne Hale at joanne.e.hale1@jsc.nasa.gov.

The site is located at: <http://www.jsc.nasa.gov/jscfeatures/>. Check back often for new stories and photos!

In next month's issue...

The July *Roundup* will feature the successful return of the International Space Station's Expedition 6 crew, as well as a special section on the STS-107 search and recovery effort in East Texas.

APPEARING THIS MONTH IN OUR

Guest Space

Mike Kincaid

Director of Education Programs



To inspire the next generation of explorers... as only NASA can.

I don't know about you, but this phrase from our Mission Statement grabbed my attention a year ago and hasn't let go. The question for each of us is: how are we working to inspire the next generation?

A new education enterprise

On Oct. 28, 2002, NASA Administrator Sean O'Keefe established Education as NASA's sixth Strategic Enterprise. Armed with this fresh mandate and an Associate Administrator for Education, Dr. Adena Loston, our education efforts are gaining increased focus. New initiatives like the Educator Astronaut Program and NASA Explorer Schools are working in parallel with existing programs to help motivate children to pursue careers in science, technology, engineering and math (STEM).

The opportunity is great. Yet the challenge is great as well. The United States faces a workforce shortage in STEM fields – the number of students graduating with engineering degrees has dropped by nearly 20 percent since the mid-1980s. Yet the nation needs more engineers than ever before. As NASA explores new worlds and helps to improve life here on Earth, we have to ensure that there will be new students prepared to join our workforce. To do this, we must partner with others to inspire the next generation – today's K-12 students – to pursue STEM degrees.

Local efforts

Throughout this issue of the *Roundup*, you can see just a few ways that JSC is inspiring the next generation. On page 6 you can learn more about the KC-135 Student Campaign. Imagine yourself as a university student proposing a research project and then experiencing weightlessness above the Gulf of Mexico. These students leave Houston inspired!

Check out the Community College Aerospace Scholars program on page 7. It's a joint effort between JSC and the State of Texas to give community college students an up-close look at engineering. Finally, think about wherever you were when Dr. Sally Ride became the first American woman in space. Twenty years ago, she inspired a generation; and her current education activities continue to inspire students today – see page 4 for details.

However, these highlights are just a few of our education programs. Want to learn about other education activities? Visit our education site at education.jsc.nasa.gov or roam through the new Agency Web site at www.nasa.gov.

...the number of students graduating with engineering degrees has dropped by nearly 20 percent since the mid-1980s.

It'll take all of us

How can you help? Many of you already do. You volunteer to speak to schools, to mentor students and to answer questions in distance learning events. If you're new to volunteering for education events, you can get your feet wet by visiting <http://education.jsc.nasa.gov/internal/volunteer.htm>. Once you are there, check out the list of possibilities, then click "sign me up" and you'll be on your way. Please note: while all JSC volunteers are welcome, contractor employees need to clear any work-related volunteer efforts with their management beforehand.

Other ways you can help right now? Encourage parents and kids you meet to go to edspace.nasa.gov and join the Earth Crew. Earth Crew is a virtual NASA team made up of students, teachers, families and others, all of whom will contribute to missions on the ground and support the Agency as we explore space.

To inspire the next generation of explorers... as only NASA can – will take all of us working together. We hope we can count on your support.

Three out of four ain't bad

JSC wins three of four Agencywide safety awards

by Brenda Lancaster

IN A NEAR SWEEP, Johnson Space Center received the "Best of the Best" Quality and Safety Achievement Recognition (QASAR) Award in three of the four categories this year.

The QASAR Award is given out by NASA Headquarters' Office of Safety and Mission Assurance (SMA). The award recognizes those individuals who face a challenge and display exemplary performance in contributing to quality products and services that lead to safe environments and processes for NASA. JSC's winners are Tamyra Martin, Bernard Rosenbaum and Jim Graver, the latter of whom works at JSC's White Sands Test Facility in Las Cruces, N.M.

QASAR Category 1: NASA employee within the SMA organization

Tamyra R. Martin, Electrical Processing Engineer in JSC's Safety, Reliability, and Quality Assurance Office, received this award in recognition of her exceptional dedication and extraordinary initiative during the assessment and evaluation of electrical process improvements for critical ground support and spaceflight hardware.

QASAR Category 2: NASA employee external to the SMA organization

Bernard J. Rosenbaum, Senior Propulsion & Power Systems Engineer in JSC's Engineering Directorate, won this award in recognition of his pivotal role in resolving the hydraulic pump bolt fraction/insert shear concerns on STS-109 and returning the vehicle to flight status by uncovering a similar problem in the solid rocket booster pump.

QASAR Category 3: Government, non-NASA employee

Paul Phillips, Project Lead Engineer in the Project to Space Office at the U.S. Air Force Flight Test Center, Dryden Flight Research Center, received this award for his diligent efforts in providing the highest-quality project and range safety support to the X-37 and X-38 projects. He played a significant role in establishing an accurate CAD model that will be utilized to understand the safe characteristics for the X-37.

QASAR Category 4: NASA prime or subcontractor employee

James R. Graver, Quality Assurance Specialist for Washington Group International at the White Sands Test Facility's Quality Assurance, Reliability, and Safety Office, won this award for his outstanding and invaluable assessment of flight hardware resulting in crucial identification of an Orbital Maneuvering System bolt anomaly and resolution of STS-110 flight constraint.



The 2003 QASAR Award winners are pictured with Deputy Administrator Frederick D. Gregory. From left to right are: Tamyra Martin, Electrical Processing Engineer, JSC SR&QA Office; Bernard Rosenbaum, Senior Propulsion and Power Systems Engineer, JSC Engineering Directorate; Paul Phillips, Project Lead Engineer, Project to Space Office, U. S. Air Force Flight Test Center, Dryden Flight Research Center; Margaret Haines, daughter of James Graver; James Graver, Quality Assurance Specialist, Washington Group International, White Sands Test Facility, Quality Assurance, Reliability, and Safety Office; Deputy Administrator Gregory.

jsc2003e37555 Photo by Renee Bouchard

20 YEARS LATER

Sally Ride continues to inspire the next generation of explorers



Informal portrait of Astronaut Sally Ride, believed to have been taken in September of 1985, after she had completed two spaceflights.

S85-41007

by Lisa Tidwell

JUNE 18, 1983, was a day that forever changed the face of the American space program. On this day, Dr. Sally Kirsten Ride made history by becoming the first American woman in space. This event, which had been anticipated since the first Astronaut class that included women was chosen in 1977, gave inspiration to girls around the nation.

Twenty years after her historic flight, Ride is still inspiring young girls to explore their interest in math and science with the creation of Imaginary Lines, a non-profit organization, and the Sally Ride Science Club.

"One of our goals is to make girls feel like they belong to the scientific community and help them connect to this community and stay involved," Ride said.

Imaginary Lines was founded to support girls who are interested in science, math and technology. Its mission is to increase the number of girls who are technically literate and who have the foundation they need to go on in these fields of study. The foundation holds science festivals around the nation for upper elementary and middle school girls to share a day of workshops and hands-on activities, all related to scientific and technological fields.

The Sally Ride Science Club, another part of Imaginary Lines, is the first national club with the mission of supporting girls in their exploration of the universe of science and technology. The Club enables girls to consult with experts, exchange ideas, collaborate with peers and embark on all sorts of adventures.

"Our future lies with today's kids and tomorrow's space exploration," Ride said. "With that combination, not even the sky's the limit."

Growing up in Southern California, Ride never subscribed to the thought that a woman can only do certain things. It was this train of thought that led her to become a nationally ranked tennis player in her late teens, earn bachelor's degrees in physics and English and a Ph.D. in physics, all from Stanford University, and eventually become one of the first six women in the Astronaut Corps at age 28.

Ride's historic first spaceflight was aboard the Space Shuttle *Challenger* during STS-7. During the six-day mission, the five-member crew deployed communication satellites for Canada and Indonesia, performed the first satellite deployment and retrieval with the shuttle's robotic arm and conducted scientific research.

In 1984, Ride flew again aboard *Challenger* on STS 41-G. Training for her third flight, STS 61-M, was interrupted in January 1986 by the *Challenger* accident. Ride served as a member of the Presidential Commission investigating the accident and later moved to NASA Headquarters as Special Assistant to the Administrator for long-range and strategic planning. She left NASA in 1987 to return to academia.

In 1989, after two years as a Science Fellow at Stanford University, Ride was named the Director of the California Space Institute and a Professor at the University of California at San Diego where she remains today.



Sally Ride is interviewed by ABC News Reporter Lynn Sherr during a break in STS-7 training at JSC (May 4, 1983).

S83-31299

While serving as the Executive Vice President and member of the Board of Directors for space.com from 1999 - 2000, Ride became involved in EarthKAM, or Earth Knowledge Acquired by Middle school students. EarthKAM is a NASA education program that enables students, teachers and the public to learn about Earth by using the Internet to take pictures of the Earth with a camera mounted on the International Space Station.

The EarthKAM program targets middle school students, which can be a crucial age in the development of students' interests and future careers. According to the National Center for Education Statistics (NCES), middle school is the age when many girls begin losing interest in math and science. Ride is working to change that.

According to NCES statistics, an equal number of fourth-grade girls and boys are interested in math and science, but by eighth grade, half as many girls as boys are still interested in these areas. Imaginary Lines is designed to "sustain [girls'] natural interests during the critical years, when so many of them drift away," according to the program's Web site.

Ride will be celebrating the 20th Anniversary of her flight along with Educator Astronaut Barbara Morgan at the Sally Ride Super Festival, which is expected to attract more than 1,000 young girls and their families. The event will take place June 21 and 22 at Kennedy Space Center; and as part of the festival, participants can watch Ride be inducted into the Astronaut Hall of Fame.

"As time goes by I realize more and more what an honor it was to be chosen to be the first woman to fly on the Space Shuttle, and how important my flight was to young girls," Ride said.

Twenty years ago this month, Ride gave girls around the nation inspiration as *Challenger* carried her into the history books. Today, she continues this mission by reaching out to inspire the next generation of female explorers.



Closeup view of Sally Ride as she communicates with ground controllers onboard the Space Shuttle *Challenger* during STS-7.

S07-31-1603



TOP
Sally Ride, Mission Specialist, communicates with ground controllers while floating in the aft flight deck of the Space Shuttle *Challenger* during the STS-7 mission (June 18-24, 1983).

ABOVE
Sally Ride stands behind one of the T-38 aircraft at Ellington Field, near the Johnson Space Center, where the fleet of NASA jet trainers is housed.

S82-38423



Sally Ride meets with some young admirers at the Los Angeles Science Festival, held March 29 at the California Institute of Technology.

jsc2003e37440 Photo courtesy of Imaginary Lines, Inc.

STUDENTS FLY HIGH OVER Spring Break

by Kim Hulsey

Some students may spend Spring Break partying at the beach, but for others, a high-flying good time takes on an entirely new meaning. More than 200 university students traded in a trip to the beach for a ride aboard the KC-135 aircraft this spring.

The Reduced Gravity Student Flight Opportunities Program, sponsored by Johnson Space Center, provides a unique experience for undergraduate students to propose, design, fabricate, fly and evaluate a reduced gravity experiment of their choice aboard the KC-135. Inside the aircraft, also known as the "Weightless Wonder," weightlessness is achieved by performing a series of parabolas, each of which gives passengers nearly 30 seconds of reduced gravity.

University Affairs Officer Donn Sickorez said that the program aims to motivate college students majoring in science, technology or engineering as well as to introduce these subjects to students who may not have considered them.

Each student team is made up of four undergraduate student flyers with an unlimited number of people providing support on the ground. The team must go through a rigorous application process to participate and finally fly their experiment in the weightless environment. As part of the application process, the students must submit a letter of intent and a proposal that outlines the technical specifications, safety evaluation, outreach plan and administrative requirements of the experiment. After the experiment is selected, it must pass a Test Readiness Review before being flown. Finally, after flying, the students are required to submit a final report of the project.

"It's one thing to design an experiment in the classroom, but it is completely different trying to operate it and have it produce valid data in a weightless environment," said Jackie Jaron, a junior in astronautical engineering at Purdue University. "This was one of my most rewarding experiences."

Jaron and her Purdue teammates flew an experiment to test the effects of weightlessness on nanophase materials, and they were just one of more than 70 teams that participated this year.

"Not counting any flights this year, we have flown 1,211 students from 103 different schools in 44 U.S. states," Sickorez said. "That's not bad for six years."

For more information on the program, contact Sickorez at donn.g.sickorez1@jsc.nasa.gov.



PHOTOS CLOCKWISE FROM TOP
A University of Minnesota student smiles from the KC-135 cockpit.

jsc2003e26089 Photo by Bill Stafford

Students get some preflight safety training from Randell Woodard, Aerospace Physiology Technician.

jsc2003e24485 Photo by James Blair

A University of Texas student enjoys his free-floating time on the Weightless Wonder.

jsc2003e27714 Photo by Bill Stafford

Two Purdue University students demonstrate their weightless gymnastic skills.

jsc2003e27758 Photo by Crystal Schroeder

An Auburn University student shows off her new microgravity skills for John Yaniec, Lead Test Director for the KC-135.

jsc2003e28478 Photo by Bill Stafford

AN Out-of-Classroom EXPERIENCE

JSC education program gives community college students real world exposure

by Kim Hulseley



Each year, almost 300 community college students and 30 professors have the opportunity to learn outside of their classroom walls with the Community College Aerospace Scholars (CAS) Program. Participants experience the excitement and reality of an engineering career while interacting with NASA engineers and scientists during a two-day visit to JSC. The program involves a team project directed by NASA employees, a tour of JSC facilities and interaction with other students from across the state.

"The goal of CAS is to encourage scholars to pursue their four-year degrees and careers in one of the STEM (science, technology, engineering and mathematics) areas," said CAS Program Manager Linda Smith. "We want to provide the opportunity for students to make informed choices."

Prior to arriving at JSC, the students are assigned to six fictional companies and meet each other for the first time upon arrival. The scholars must select their project engineer and system managers, communicate effectively, attend meetings, meet deadlines, work the budget and present information – all to compete for a proposal request to build a Mars Autonomous Roving Survey Utility Vehicle.

Javier Garcia, a professor at Texas Southmost College, said that students in the program "learn the importance of teamwork with NASA."

"It's like it is in real life," said Claudia Taylor, a student at San Jacinto College South.

J.B. Groves, a professor at Wharton County Junior College, shared similar thoughts about CAS. "I think it's a great program," he said. This is the second year that Groves and Garcia have participated in the program.

While the program is designed for students, Smith noted that the volunteers have responded enthusiastically as well. "I believe many of them enjoyed the event as much as the scholars did," she said. Each team is paired with a JSC employee who serves as the "CEO" of the team's fictional company.

Philip Beebe, a Senior Software Engineer in Safety and Mission Assurance, participated in the program as a CEO. Beebe looks forward to one day working with the CAS students he has mentored.

"I have met students in the Texas Aerospace Scholars Program that I continue a regular correspondence with," he said. "They are making their way to becoming scientists and engineers and possibly joining us here at NASA. For me, this is the greatest benefit."

"CAS empowered its participants, students and teachers alike, with an awareness that simply cannot be learned in a classroom or, in many cases, on the job," said student Neil Jouvenat. "It was intense and often stressful. It was hard work. Above all, though, it was exciting, insightful and incredibly rewarding, even though our team took last place."

"The response of the scholars and colleges has been phenomenal. They responded that they were challenged and inspired by the event," said Smith.

Future plans are being made to expand the program into the fall semester as well. Currently, there are three sessions from late March to early April. JSC is also looking into partnering with other states and NASA centers to create equivalent programs across the nation.



PHOTOS CLOCKWISE FROM TOP

The green team participates in the rover competition. During the competition, each team's rover has 16 minutes to retrieve 'rocks' from around the course and bring them back to home base.

[jsc2003e27026](#)

The Community College Aerospace Scholars tour the historic Apollo Mission Operations Control Room.

[jsc2003e27078](#)

The red team tests its rover before the competition.

[jsc2003e27244](#)

The green team tests its rover's abilities on an incline. The teams could not see the competition courses beforehand and had to prepare for as many contingencies as possible, just as NASA engineers plan for a variety of scenarios.

[jsc2003e27233](#)

The red team meets to work out details. Teams had to funnel all questions and concerns through their Project Engineers, who served as liaisons to the JSC employees participating in the event.

[jsc2003e27242](#)

All photos this page by David DeHoyos and Crystal Schroeder

25th Annual JSC-FOD Chili Cook-off

A quarter century cooking chili 1979-2003



SPACE CENTER

Roundup

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