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Spaceport News

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http://www-pao.ksc.nasa.gov/kscpao/snews/snewstoc.htm John F. Kennedy Space Center

STS-102 to berth Leonardo to Station

The exotic experiments of countless scientists will rocket to the International Space Station (ISS) and back in modules built by the Italian Space Agency.

The primary objective of mission STS-102 is to berth the 4.5-ton Multi-Purpose Logistics Module (MPLM) to the Station. At press time, the mission was set to launch on March 8 at 6:42 a.m.

The MPLM, also known as Leonardo, is the first of three such pressurized modules that will serve as "moving vans," carrying laboratory racks filled with equipment, experiments and supplies to and from the Station.

The 21-ft. long, 15-ft. diameter unit will carry 16 racks and provide enough life support, fire detection and suppression, power and computer functionality to support two astronauts.

Leonardo will deliver up to 10 tons of laboratory racks filled with equipment, experiments and supplies for outfitting the newly arrived U.S. Laboratory launched aboard STS-98.

The incoming racks will be replaced with outgoing racks or other equipment, and when its Station module duties are done, Leonardo will revert to being a cargo carrier.

During the docked portion of the STS-102 mission, two spacewalks are planned to prepare Leonardo for transfer, to install hardware needed for mission STS-100, targeted to launch in April, and to deliver spare parts to the International Space Station.

Mounted in the Space Shuttle's cargo bay for launch and landing, the reusable logistics module functions as both a cargo carrier and a Space Station module.

The seven-member crew of STS-102, using the Shuttle's robotic arm to attach the module to the ISS, will unload racks of equipment and reload old racks of equipment to be taken back to Earth.

Discovery will also provide transportation back to Earth for the first permanent crew, Expedition One, and the ride up for the Expedition Two crew.

The STS-102 crew poses in the White Room outside Discovery on Launch Pad 39B. Kneeling in front are Mission Specialists Susan Helms, Yury Usachev and James Voss. Standing behind them are Mission Specialists Paul Richards and Andrew Thomas, Commander James Wetherbee and Pilot James Kelly.

Inside

All-American Picnic features fun

The All-American Picnic committee is busy preparing for the March 17 event for Kennedy Space Center workers, family and friends.

KSC team members are invited to come out to the picnic to enjoy good old-fashioned family fun from 10 a.m. to 4 p.m. at KARS Park 1 .

Tickets for this year's KSC picnic are on sale at all NASA Exchange stores. Tickets cost $5 for adults and $3.50 for children under 12. Children 2 and under are free.

Space Gateway Support and the entire Joint Base Operations Support Contract team are supporting the picnic this year. The All-American picnic will offer something for everyone, including a chili cook-off, ethnic food-tasting area, kids carnival, coloring contest, wildlife encounter and fishing tournament. Musical entertainment will be provided.

Volunteers are needed to help out with the multitude of events and serving food. Contact Vicki Hall (867-9100), Arden Bell (867-2201) or Sam Gutierrez (853-7061) to volunteer.

For more information on the event, check out the All-American Picnic Web site at **kscpicnic.ksc.nasa.gov/index.htm**.

The site provides a picnic program and other information.

The All-American Picnic will offer something for everyone, including a chili cook-off, ethnic food-tasting area, kids carnival, coloring contest, wildlife encounter and fishing tournament.

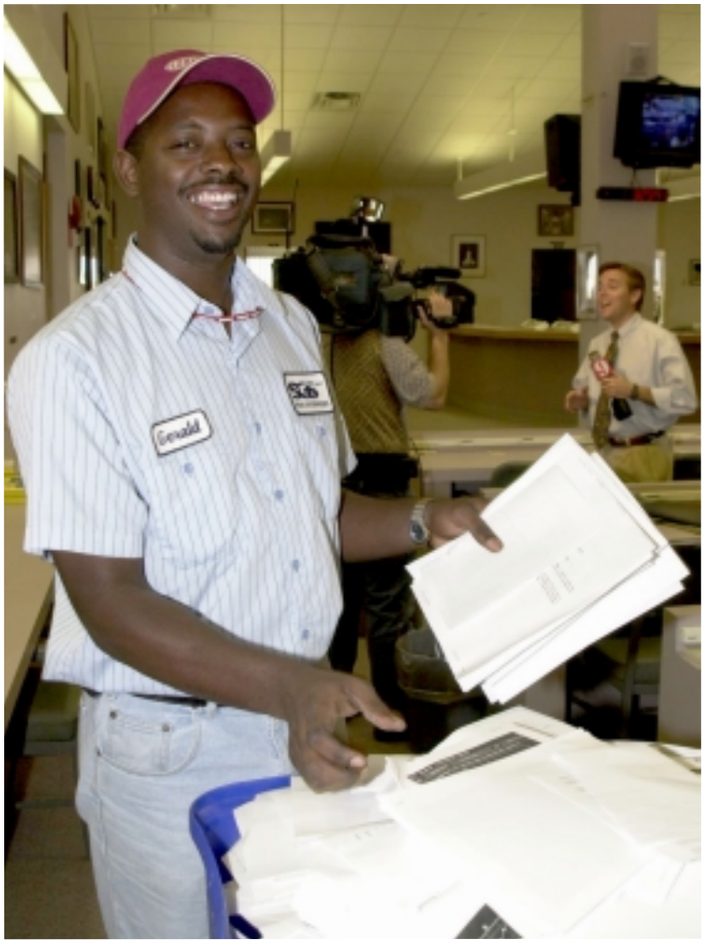
Recognizing our people

Awards

STS-102 Launch Honorees

Michael Andrew, United Space Alliance (USA); **Walter Andrews**, USA; **Charles Baldwin**, USA; **April Boody,** Bionetics; **Linda Bradley**, USA; **Robert Bresniker**, Pratt & Whitney; **Peter Bulgajewski**, Boeing Human Space Flight & Exploration; **Wayne Crawford**, Dynacs Engineering; **Hunt Culver**, USA; **Thomas Fowler**, Boeing; **Daryl Frank**, NASA/QA; **Rod Fulmer**, Pacific Scientific; **Elhanon Hall**, USA; **Marjorie Harrison**, USA; **Daniel Hauge**, USA; **Jeanine Hoyle**, NASA/BA; **Gregory Hovath**, NASA/UB; **Charles Jenkins**, NASA/PH; **Kyle Jensen**, USA; **Kathleen Karmazin-Calin**, USA; **Betty Kegley**, NASA/AA; **Matthew Klynoot**, United Paradyne; **Robert Lewandowski**, USA; **Raymond Lopez**, Space Gateway Support (SGS); **Andre Mack**, NASA/PH; **Julian Mathison**, USA; **Gordon Mion**, Boeing; **Jane Mosconi**, NASA/PH; **Linda Moynihan**, USA; **Barbara Neil**, SGS; **Patrick O'Rourke**, NASA/TA; **Claude Overfelt**, USA; **Ira Kent Pearson**, Boeing; **David Peterson**, InDyne; **Bradley Petty**, USA; **Debra Preston**, NASA/PH; **David Reeves**, NASA/OP; **Marilou Richardson**, USA; **Kristi Rouillard**, NASA/GG; **Jimmie Rogers**, NASA/UB; **Gerald Stahl**, NASA/YA; **Irving Stenner**, United Paradyne; **Nick Thomas**, Delaware North Parks Services of Spaceport; **Jill Weaver**, Boeing; **John Williams**, USA; **Tamara Williams**, SGS; and **Kathleen Yohn**, Boeing.

Personal Profile



Name: Gerald Younger

Job: Custodian

Responsibilities: Cleaning work areas

Company: Yang Enterprises

Years at KSC: 10 years

Most interesting aspect of my job: In addition to meeting so many great people here, I get to witness many different aspects of what's going on in the space program. The technology that surrounds us here is amazing.

What people don't know about my job: People don't realize that their building is just one of many we have to take care of on our route.

Volunteer Breakfast

Kennedy Space Center volunteers were recognized at the Volunteer Appreciation Breakfast on Feb. 20 at the Debus Conference Facility at the KSC Visitor Complex. The volunteers, many of whom are NASA Alumni League members, were honored by NASA for all the help they give to Kennedy Space Center throughout the year. Volunteers pictured left to right are Bob White, Ray Yost, Suzanne Jamieson and Norris Gray.

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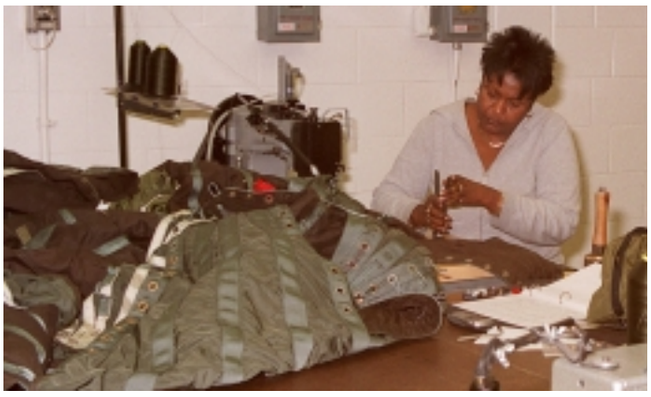
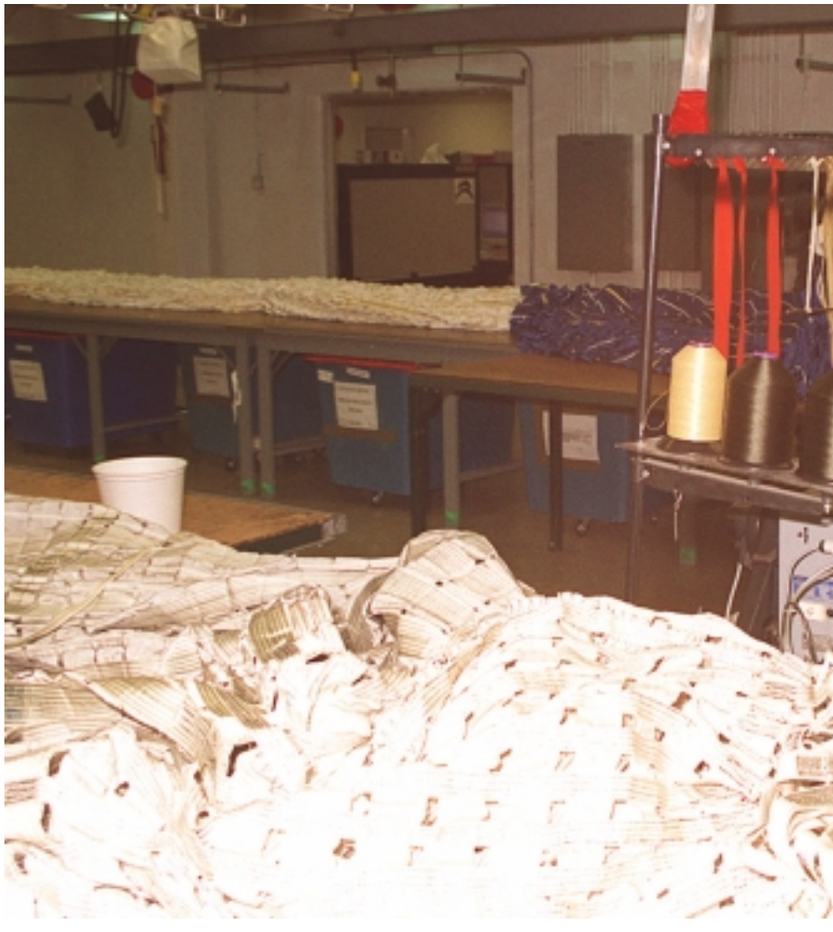
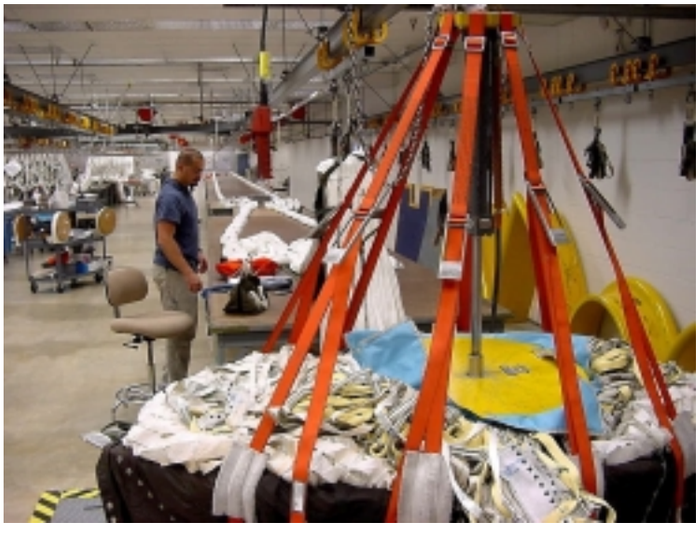


United Space Alliance technician Chrissie Richardson prepares an SRB main parachute deployment bag for re-flight.

At right, Tom Gilliam performs a repair on an SRB main parachute. Above, a parachute is stretched out on the outside deck of the Parachute Refurbish-ment Facility before it's put through the facility's 30,000-gallon washing machine.



Parachute Refurbishment Facility technician Maria Garcia repairs an SRB drogue p flight the reefing line section of an X-38 drogue parachute in the background.



Jason Taylor finishes line-packing details on an SRB main parachute. In the foreground is the "spider press" that helps compress the pack.

Dior Huble, rear, and Marcia Jones-Clark install the reefing lines into an X-38 drogue parachute.

Carol Ball manufacture

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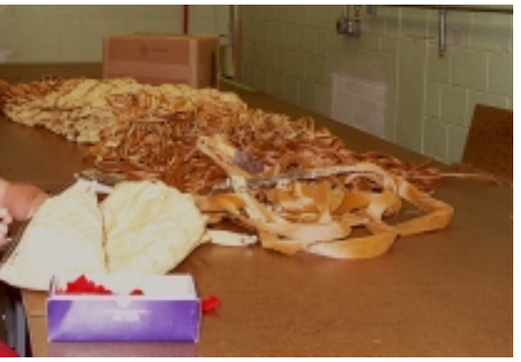
arachute Refurbishment Facility

arachute in the foreground, while Dior Huble readies for re-



s an X-38 high-altitude drogue parachute.

The parachutes used to slow the solid rocket boosters (SRB) during their fall to the ocean following launch are cleaned, repaired and repacked by a team at the Parachute Refurbishment Facility (PRF).

The PRF is located several blocks south of the Operations and Checkout Facility in the Industrial Area at Kennedy Space Center.

The 25 United Space Alliance employees who work there play an essential role in the recovery and recycling of the 150-foot SRBs, which help place the Orbiter into space.

Without properly functioning parachutes – including one pilot, one drogue and three main canopies per SRB – to straighten to vertical and slow the SRBs' fall, the SRBs would be destroyed in a rapid, uncontrolled tumble into the sea. The chutes slow each 192,000-pound SRB's fall from about 360 mph to about 50 mph.

Keeping the nine parachute flight sets in good working condition is not easy. After the chutes are returned to the PRF following launch, a hanging monorail system is used to transport each parachute into a 30,000-gallon washer and then into a huge dryer heated with 140-degree air at 13,000 cubic feet per minute.

Typically, each main canopy requires hundreds of repairs after each use. The smaller chutes and the parachute deployment bags they are packed in also require a number of repairs.

Multiple repairs typically are needed for several reasons. The chutes are deployed so quickly that their fabric, taping and lines can be damaged by friction burning. For example, each 136-foot diameter main canopy with its 204-foot-long series of risers, bridles and lines comes out of its bag in 1.5 seconds.

Other sources of damage to the chutes are sea conditions and hot debris from the SRB nozzle extension jettison.

In addition, the pilot parachute/drogue chute deployment bag assemblies are not always recovered, and when they can't be, the team manufactures replacements.

After the chutes are cleaned and repaired, they must be carefully packed into their bags so they will deploy correctly the next time they are used. It takes about a week to pack a main canopy, for example.

After each flight set of chutes are packed, it's typically stored from six months to a year before being used for a launch.

The flight set begins to deploy about 115 seconds after the SRBs detach from the Shuttle's external tank, about four minutes after liftoff.

First the SRB's nosecap separates from its frustum and the 11.5-foot-diameter pilot chute is released. The pilot chute extracts the 54-foot-diameter drogue chute, which inflates in three stages. The main canopies are then released from their bags in the frustum and they also open in three stages.

After the chutes fall to the ocean, the SRB retrieval ships reel them in and store them wet until they can be returned to the PRF for cleaning, repair and repacking.

"Most people don't realize how much goes on to retrieve the SRBs and parachutes after launch because their attention focuses on the Shuttle on orbit," said Terry McGugin, manager of Parachute Operations for USA. "But it takes a dedicated team, of which the PRF is just one part, to keep the SRBs up and running."

The PRF team also cleans, repairs and repacks the Orbiter drag parachute used to slow the orbiter at landing.

The team's expertise in parachutes is being applied to the X-38 crew return vehicle project. PRF engineers have designed the chutes which are deployed to stabilize and slow the vehicle before the X-38's main steerable rectangular parachute is deployed. PRF technicians are manufacturing the chutes from the most modern materials.

"It only makes sense to contribute the expertise we have developed over the years here to the project," said PRF lead engineer Bruce Rutledge, "By working on the X-38 project we're also getting ideas for improvements to the Shuttle parachutes. We try to keep improving our system."

AP2 Office team helps reduce pollution

Kennedy Space Center and other federal facilities around the country are facing an increase in environmental protection requirements. In addition, there's been a decrease in the manufacture of certain chemicals used at KSC because of bans and reduced manufacturing requirements.

Manufacturing, compliance and disposal costs are on the rise.

In response, NASA and other federal agencies have been emphasizing the importance of reducing waste and increasing the protection of human health and the environment. But until recently, there was no organized way to address these issues within NASA.

To assist in this effort, the Joint Group on Pollution Prevention (JG-PP) was created to assist in identifying, validating and implementing the use of less hazardous materials and processes.

To successfully support JG-PP commitments, NASA established the Acquisition Pollution Prevention (AP2) Office based at KSC.

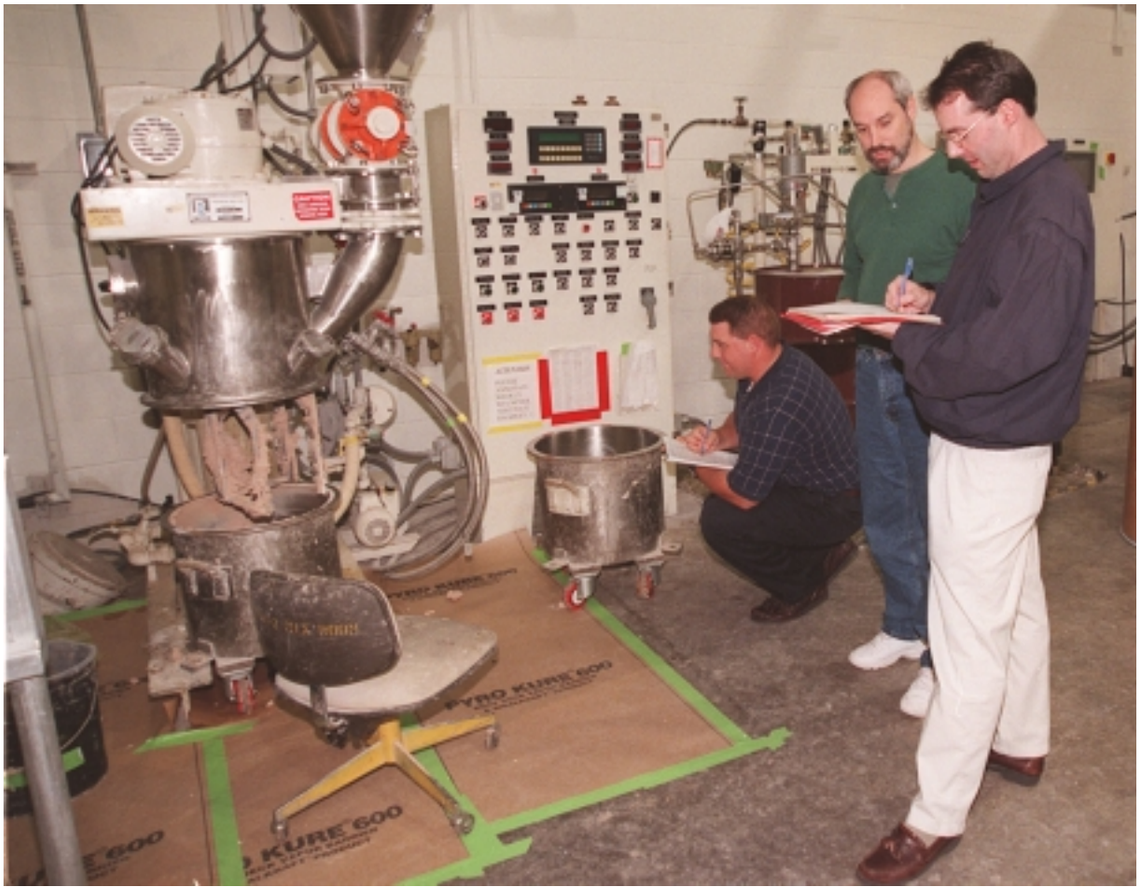
The office works in conjunction with other NASA centers and the Department of Defense (DoD).

"NASA and DoD share many of the same requirements to use hazardous materials in today's manufacturing and sustaining maintenance processes. Finding joint solutions to common environmental technology problems just makes sense," said Robert Hill, NASA AP2 program manager and Joint Working Group chairman.

An example is the qualification of non-chromate primer coatings for fighter and transport aircraft and the Space Shuttle, Hill said. The results of JG-PP's $750,000 testing at Boeing Aerospace in St. Louis gave NASA confidence to flight-test the primer on Columbia this year, reducing costs for NASA in the process.

One approach used to identify potential pollution prevention (P2) opportunities is the Pollution Prevention Opportunity Needs Assessment (PPONA). The initial PPONA was conducted at KSC in the fall of 1999.

The assessment process began with a questionnaire that identified processes that use hazardous chemicals with potential environmental impacts.



From left, Kurt Kessel, ITB Inc.; Gene Harm, United Space Alliance-SRB; and John Fusco, Dynamac, assess the mixing room in the Solid Rocket Booster Assembly and Refurbishment Facility.

With this information, AP2 office staff conducted a site assessment, which included a site tour and interviews with facility personnel. Then a formal assessment report was written to identify opportunity needs and recommendations for pollution prevention projects.

"Information provided within the PPONAs assists each specific NASA Center in meeting their P2 goals," said John Fusco, AP2 office staff and KSC Assessment Team lead.

The assessment conducted at KSC identified 27 P2 opportunities. At the time of the assessment about 73 percent of the sum total of waste generated at KSC was from six processes. Those processes:

1) Metal finishing spray application of Alodine (accounting for 30 percent of waste generated).

2) Surface preparation: coating removal with blasting media (27.5 percent).

3) General cleaning: methyl ethyl ketone (6.14 percent).

4 and 5) Fueling or fuel deservicing: hydrazine (5.01 percent).

6) Testing: monomethylhydrazine (4.17 percent).

Opportunities for improvement were rated using a scoring system. The system assigns numerical values to process-specific chemical constituents and sets priorities based on health affects, potential environmental impacts and disposal impacts.

"In linking identified P2 opportunities across all NASA centers and DoD, opportunities can be addressed in a more timely and cost effective manner," said Kurt Kessel, AP2 office staff and KSC Assessment Team member.

All pertinent information learned during the PPONA was placed in an integrated technical database created by NASA AP2 Office Staff.

The database houses information gathered during facility assessments and alternatives that have been tested and validated by NASA and DoD.

Once the database is completed and fully operational, it will be used to actively link facility needs with tested and approved solutions.

To gain knowledge about each NASA center and its operations that impact the environment, hazardous material purchasers, managers and center personnel can use information learned from the database and PPONA Reports.

Increasing knowledge of the processes, including types and amounts of materials used and wastes generated, enhances the ability of the AP2 Office to participate in projects with DoD and find alternatives that will benefit NASA centers.

To learn more about the AP2 Office and information gathered on the assessments completed at KSC and other NASA centers, view the AP2 Office Web site at **http://www.acqp2.nasa.gov**. Additional information regarding current and potential NASA/DoD P2 projects is located at **http://www.jgpp.com**.

NASA Alumni League valuable resource

The NASA Alumni League is looking for new members who would like to join an active organization that will enhance the retirement experience and give former space program workers the opportunity to continue contributing to our community and the program.

The NASA Alumni League (NAL) is a nonprofit organization of individuals who support the broad values of the nation's civil aeronautics and space programs.

Since it was formed in 1986, the organization has worked to ensure the continuing strength and effectiveness of these programs.

League membership is open to anyone who has been an employee of NASA, NACA, JPL, or anyone detailed to any of these organizations for 12 months or longer.

The league shares a deep respect and affection for these institutions and for the people who still work there. Nevertheless, the organization's official position toward those agencies and all government aerospace programs and policies is deliberately independent.

League programs offer members a variety of ways to further their participation in the aerospace fields, as well as to keep in touch with their colleagues.

NAL programs help members:

- Make known their views on the nation's aeronautical and space activities.
- Keep abreast of the latest aerospace developments.
- Explore critical aeronautical and space issues.
- Contribute their expertise when the league is asked to undertake specific tasks for NASA or any other organization.

NASA Alumni League representatives are recognized by Kennedy Space Center leaders. From left to right are Bill Martin, Steve Harris, Jim Jennings, Diane Holden, Roy Bridges, Jim Johnson, Nick Costello and John Neilon.

In addition to the NAL programs, members are provided:

- Updates on important NASA, national and international aeronautic and space activities through video teleconferences and periodic newsletters.
- Invitations to conferences and technical exhibitions dealing with commercial and government aeronautical and space activities.
- Participation in and access to KSC events.
- Membership in the local Canaveral Council of Technical Societies.
- Participation in activities sponsored by the local chapter, including contributing to education programs in the local schools, the KSC community relations council, and working on shared concerns with KSC personnel and appropriate local legislators.
- Opportunities to meet and socialize with former colleagues and current KSC leaders.

The NAL Florida Chapter meets on the third Tuesday of each month at 11 a.m. Annual NAL dues are $30.

Those interested are invited to join the group for lunch and a chance to meet with colleagues.

To make reservations, please call Susanne Jamieson, secretary, at 638-0662, or Mary King, membership chairperson, 456-5886.

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First Space Shuttle launch event planned for April 7 at KSC-VC

Kennedy Space Center team members who participated in the first Space Shuttle launch, STS-1, are invited to participate in an informal gathering in celebration of the 20th anniversary of that historic event.

John Young and Bob Crippen, astronauts for the STS-1 launch on April 12, 1981, are scheduled to attend the event.

The gathering, which is being sponsored by the U.S. Space Walk of Fame, will be held from 1 p.m. to 6 p.m. on April 7 at the Debus Conference Facility at the KSC Visitor Center.

Tickets are available for $14 per person on a first-come-first-served basis. A cash bar will be available.

Send checks by April 1 to Nora Ross, STS-1 20th Anniversary, P.O. Box 6385, Titusville, FL 32782.

For additional information on the event, contact Bob Sieck at 269-3674; Charlie Mars, 383-9083; John Tribe, 452-2352; or Rick Davignon, 867-0957.

John F. Kennedy Space Center

Spaceport News

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