June 13, 2003 Vol. 42, No. 12

Spaceport News

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

Bridges addresses community leaders about KSC

Kennedy Space Center Director Roy Bridges Jr. informed state and local officials about a variety of activities taking place at KSC and within NASA at the annual Community Leaders Briefing held May 29 at the Dr. Kurt Debus Conference Facility.

Most of what Bridges addressed is covered in detail in the NASA 2003 Strategic Plan (**www.nasa.gov**). The 250 guests received a pamphlet directing them to the web site for more information.

Among the topics discussed were the Columbia mishap, Project Prometheus, the Human Research Initiative, the Orbital Space Plane and its future at KSC, and more. Bridges also formally introduced KSC Deputy Director Jim Kennedy, a Cocoa Beach native who spent the last 30 years of his career at the Marshall Space Flight Center.

Bridges told the audience the Columbia mishap was a great tragedy for NASA and our nation, but it did bring forth one exceptional aspect. Its recovery has proven that our government agencies are a terrific team.

KSC Director Roy Bridges Jr. and Deputy Director Jim Kennedy respond to questions from some of the 250 guests in attendance at the May 29 Community Leaders Briefing.

"From the very moment Administrator Sean O'Keefe called the White House Situation Room on that fateful Saturday until the closing of our recovery sites in Texas on the first of May, this team has performed absolutely magnificent," said Bridges.

"We accomplished the bulk of the recovery with many feet on the ground using GPS, survey grids and good coordinated search techniques."

The Federal Emergency Management Agency (FEMA) estimates that more than 4,000 people were searching each day with a total of 16,500 personnel participating in the ground search.

As for the investigation into the mishap, Bridges acknowledged that the parts assembled at the Columbia Debris Hangar have gone a long way in helping to determine a cause.

"The Columbia Accident Investigation Board was here a couple of weeks ago looking at the debris and I think it's fair to say that the group got a lot of depth to put us on the right track," said Bridges.

"Many times they thought they had a certain theory about what happened and we would say, you should think about it again because that piece is right here on the floor and not missing. This has been very important in the investigation."

He then discussed parts of the Strategic Plan based on the capabilities to explore this universe and bring back some answers about how to improve life here. Those include this month's Mars exploration missions and Project Prometheus.

As for the Human Research Initiative, Bridges told the audience how the International Space

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Inside

Third grade student names twin Mars rovers

At a Mars press conference are, from left, Brad Justus, LEGO Co; Sofi Collis; Dr. John Marburger, science advisor to the President and director of the Office of Science and Technology Policy; and NASA Administrator Sean OíKeefe.

NASA Administrator Sean O'Keefe was at KSC June 8 as part of the launch activities for the first Mars Exploration Rover, which was postponed due to weather constraints.

At a press conference he unveiled the names of the two robots, Spirit and Opportunity. Nine-year-old Sofi Collis of Scottsdale, Ariz., wrote the winning essay in a naming contest sponsored by NASA and the LEGO Co. that saw 10,000 entries.

"Now, thanks to Sofi Collis, our third grade explorer-to-be, we have names for the rovers that are extremely worthy of the bold mission they are about to undertake," O'Keefe said.

Sofi read her winning essay for the media.

At press time the launch of the first Mars Exploration Rover, called Spirit, was rescheduled for June 10 at 1:58 p.m. EDT.

Space Station modules make way to KSC

After traveling thousands of miles, two major components of the International Space Station completed the first leg of a journey that will eventually end 240 miles above the Earth.

NASA's Node 2, built for the agency by the European Space Agency (ESA) in Italy, and the Pressurized Module of the Japanese Experiment Module (JEM) arrived in Florida and were transported to KSC.

The arrival of Node 2, the next pressurized module to be installed on the Station, sets in motion the final steps toward completing assembly of essential U.S. components. When installed, Node 2 will increase the living and working space inside the Space Station to approximately 18,000 cubic feet. It will also allow the addition of international laboratories from Europe and Japan.

The pressurized module is the first element of the JEM, named "Kibo" (Hope), to be delivered to KSC.

The JEM is Japan's primary contribution to the Station. It will enhance the unique research capabilities of the orbiting complex by providing an additional environment for astronauts to conduct science experiments.

The JEM also includes an exposed facility (platform) for space environment experiments, a robotic manipulator system and two logistics modules. The various JEM components will be assembled in space over the course of three Shuttle missions.

Node 2, the pressurized module of the Japanese Experimental Module (JEM) is offloaded at the SLF.

An Airbus Beluga heavy-lift aircraft, carrying Node 2, departed May 30 from Turin, Italy, where the Italian Space Agency's (ASI) contractor, Alenia Spazio, built it. Following post-transportation inspections, ASI will formally transfer ownership of Node 2 to ESA, which, in turn, will sign it over to NASA.

The container transport ship carrying JEM departed May 2 from Yokohama Harbor in Japan.

The National Space Development Agency of Japan (NASDA) developed the laboratory at the Tsukuba Space Center near Tokyo.

Later this summer, integrated testing will confirm module compatibility and, ultimately, lead to pre-launch processing at KSC's Space Station Processing Facility.

LEADERS. . . *(Continued from Page 1)*

Station will be a test bed to help solve the problems of bone loss and radiation to humans. In addition, the nomination process for future educators in space is currently being re-evaluated.

"We had approximately 4,800 nominees and Florida was number three in the nation with 367 nominees," said Bridges.

The Orbital Space Plane (OSP) is another endeavor that is evolving and has progressed into the acquisition phase. Whether the design is based on a capsule or winged vehicle, and whether it will be expendable or reusable, has yet to be established.

"It's up to the contractor community to provide alternatives to NASA to determine the appropriate design based on the requirements," said Bridges.

"We think the Orbital Space Plane is a near-term program and we expect to launch it by 2010 and as a transport vehicle by 2012.

"There is no Center anywhere in the world more capable of human space flight than right here in Florida and we intend to remain in that spot as being the place to go to space."

Bridges then spoke about NASA inventions inducted into the Space Technology Hall of Fame, including the cochlear implant developed by retired KSC engineer Adam Kissiah Jr. More than 66,000 patients have received this implant to improve their hearing.

The Director mentioned possible plans to start a KSC Technology Hall of Fame to further tell the story of this Center's contribution to NASA's vision "to improve life here."

KSC Deputy Director Jim Kennedy, who graduated from Cocoa Beach High School, was then introduced to the group.

"We are collectively one great team," said Kennedy.

"The people who work here for Roy at our Center are second to none. We only have 1,800 of us who are badged to NASA, but we have 11,000 who are badged to our contractor community. Thank you for what you do to make our team possible."

Kennedy also thanked the KSC retirees for leaving a great legacy and encouraged all employees to visit or invite him to their work area to get to know what their job responsibilities involve.

A question and answer session concluded the briefing.

Following the briefing, guests had an opportunity to see exhibits at the Visitor Complex and the Astronaut Hall of Fame, Delaware North Park Services' newest attraction.

NASA's new education leader visits KSC

Kennedy Space Center welcomed NASA's new Associate Administrator of Education, Dr. Adena Williams Loston, with a reception and dinner at the Debus Conference Center June 5. Loston was previously NASA Administrator Sean O'Keefe's senior advisor of education and assumed her new position in October 2002.

KSC Director Roy Bridges Jr. and KSC Director of External Relations and Business Development JoAnn Morgan attended the reception to welcome Loston during her visit to the Center.

"Clearly, Dr. Loston is the leader we needed to head our new Education Enterprise," said Bridges. "Her vision and enthusiasm are infectious, and she is a wonderful addition to NASA's senior leadership team. Results are already spectacular."

"We are so impressed with Dr. Loston and her enthusiasm and communication skills," said Morgan. "She and I lunched with some of the KSC summer students and interns, and I thoroughly enjoyed watching her interact with the students. Most importantly, she is providing a national voice for education as administrator of a NASA enterprise.

Dr. Adena Williams Loston (center) responds to questions while Director of External Relations and Business Development JoAnn Morgan and KSC Director Roy Bridges Jr. (on right) look on.

"Dr. Loston's leadership and this new Education Enterprise will help bring the people and programs of NASA to the students and teachers of our country," said Morgan.

NASA engineer mentors Merritt Island fifth graders

Troy Heron, an orbiter logistics engineer in the Shuttle Processing Directorate, is a mentor for a group of Merritt Island students competing in a national engineering and science fair.

The Merritt Island Merrymakers are participating in the Great Toy Challenge, which involves designing and building a new working toy idea, and learning about engineering, the design process, and science and technology along the way.

The contest is primarily focused on girls in fifth through eighth grades and is sponsored by the Sally Ride Science Club, Hasbro Toys and Smith College.

The Merrymakers were in fifth grade at Tropical Elementary School when the competition started. The girls on the team are Jamie Dodich, Megan Heron, Natalie Edinger and Sara Jones.

The group has already won the first phase of the contest, achieving a national top 10 standing, out of 240 entries received. The team must now build a working prototype and take it to the national finals June 14 at Smith College in Northampton, Mass.

The girls designed a new outdoor water game based on the handheld electronic toy Simon by Milton-Bradley.

The game will spray water on the player whenever they fail to step on the right square on a colorful mat on the ground.

The girls decided to call their new game "Wet Your Pants!" and designed their own logo for their team T-shirts.

The Merritt Island Merrymakers participating in a national engineering and science fair are (from left) Jamie Dodich, Megan Heron, Natalie Edinger and Sara Jones.

More information on the Great Toy Challenge is available at **www.toychallenge.com**.

Marvin Jones retires as associate director of KSC

Marvin L. Jones (right) has retired as the associate director of Kennedy Space Center. He led the effort as the key KSC contact to integrate commercial, NASA and Air Force launch capabilities into a viable entity, the Cape Canaveral Spaceport.

Jones was appointed associate director based on his extensive experience with KSC. He served as director of Installation Operations from August 1991 until May 2000.

Prior to that, he had served as deputy director of Installation Operations, director of Protective Services and director of Safety, Reliability and Quality Assurance.

Jones has been awarded the NASA Medal for Outstanding Leadership and the NASA Exceptional Service Medal.

He worked for NASA at KSC for 18 years.

"I was lucky enough to work for five splendid Center directors during my 18 years at Kennedy Space Center," said Jones.

"Each of them did a fine job in motivating a strong NASA and contractor workforce. I saw a strong NASA workforce dedicated to the One NASA mission. I was proud to be a part of it."

JUNE EMPLOYEES OF THE MONTH: Back row, from left: Jeff Swanson, Office of the Chief Counsel; Mike Lane, Spaceport Engineering & Technology Directorate; Pam Hales, ISS/Payloads Processing Directorate; Natasha Dady, Shuttle Processing Directorate. Front row, from left: Hortense Burt, ELV & Payload Carriers Program; Sharon Caldwell, Cape Canaveral Spaceport Management Office; Barbara Bronsberg, Spaceport Services Directorate; Sheldon Lauderdale, Chief Financial Office.

Inaugural group completes UCF engineering program

The seven students who successfully completed the three-course Engineering Entrepreneurship Certificate program at KSC were recently presented their awards by the UCF Division of Continuing Education. The KSC group is the first in Brevard to complete the new engineering program.

Those completing the program included Rob Mueller, Michele Amos (NASA); Gino Fragomeni (U.S. Army); Greg Adams, Liz Pattison and Dana McAlhany (United Space Alliance); and Dennis Lobmeyer (Dynacs).

This year-long, three-course program was quite a success. The group's achievements include a $48,000 award through three NCIIA Program and E-Team grant awards, and the creation of six viable high-tech startups, including the highly acclaimed ZIP VAC BAG venture by Mueller.

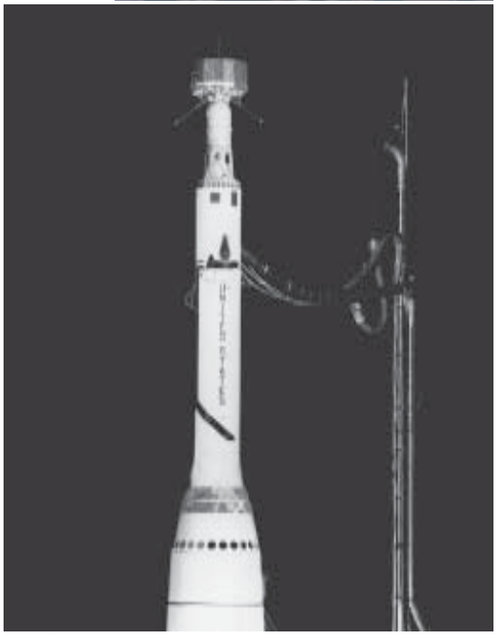
This idea garnered three national entrepreneurship awards, including a NCIIA E-Team grant, the Collegiate Entrepreneur Organization CEO runner-up award and winner of the Howard J. Leonhardt New Venture Challenge – an International Business Plan competition at Florida International University, Miami.

Like the Mercury 7 astronauts and the Space Shuttle crews of seven, these seven Engineering Entrepreneurship graduates are the latest group of pioneers to be launched from KSC.

Celebrating a C

Thirty-three years ago, when astronauts Neil Armstrong and ìBuzzî Aldrin skillfully piloted the lunar module Eagle to a soft landing on the Moon, they paid tribute to Americaís aviation heritage by bringing with them a piece of the original Wright Flyerís fabric and propeller. That incredible summer day in 1969, our moonwalkers demonstrated for all time that the skyís no longer the limit.

1 Explorer 1, the first American satellite, was launched January 31, 1958.



2 A Tiros satellite sits on top of a Delta rocket.

3 NASA launched Skylab May 14, 1973.

History Of Flight Timeline

3500 B.C.

King Etena of Babylonia was pictured on a coin, flying on an eagle's back.

2500 B.C.

An Inca Founder (Auca) was "winged and could fly."

1000 B.C.

The Chinese invented kites that carried scouts on reconnaissance missions.

1162

A man in Constantinople fashioned sail-like wings from a fabric gathered into pleats and folds. He plummeted from the top of a tower and died.

1783

June 4 Montgolfier brothers launched the first public balloon flight.

November 21 Pilâtre de Rozier and the Marquis D'Arlandes were the first humans to fly in an untethered balloon.

1784

June 4 Elisabeth Thible was the first woman to make a balloon flight.

June 24 In a tethered flight from Baltimore, Md., 13-year-old Edward Warren was the first to fly in a balloon from American soil.

1785

January 7 Dr. John Jeffries, an American physician living in London, accompanied the French aeronaut Jean-Pierre Blanchard on the first flight across the English Channel.

1794

The French used a tethered balloon to observe a battlefield and direct artillery fire.

1804

Sir George Cayley, England's "father of aeronautics," built and flew the world's first successful model glider.

1868

Matthew Boulton obtained a British patent on a design for ailerons as control surfaces.

1878

Bishop Wright gave his sons, Orville and Wilbur, a toy helicopter.

1884

Horatio Phillips of England designed a wing with a curved airfoil shape.

1896

May 6 Samuel P. Langley launched the first reasonably large, steam-powered model aircraft.

1899

May 30 Wilbur Wright wrote the Smithsonian Institution and affirmed his belief that human flight was possible.

1900

The Wright brothers flew their first of several gliders, a biplane that soared for 300 feet.

1901

Using existing aerodynamics tables, the Wright brothers constructed new wings for a larger glider. However, its flight was marginal, so they tested the tables by analyzing model wings in a wind tunnel.

1928

June 28ñ29 Albert Hegenberger and Lester Maitland accomplished the first nonstop crossing of the Pacific.

1929

November 28ñ29 Commander Richard E. Byrd completed the first flight over the South Pole.

Fritz von Opel of Germany flew the first rocket-powered plane for 1 minute, 15 seconds.

William Green developed the first automatic pilot used on an airliner.

October 14 Captain Charles E. Yeager flew faster than the speed of sound for the first time in the rocket-powered Bell X-1.

1948

The Berlin Blockade and airlift proved the power of airplanes to help resolve diplomatic crises.

1949

March 2 Lucky Lady II, a Boeing B-50A , made the first nonstop around-the-world flight.

1953

November 20 Scott Crossfield became the first pilot to fly at Mach 2 in the D-558 research plane.

Jackie Cochran became the first woman to fly faster than sound.

1954

The U.S. Air Force Academy was created.

July 15 The Boeing "Dash 80" (prototype of 707) first test flight occurred.

1955

August 4 The U-2 reconnaissance prototype first flew.

1957

January 15ñ18 A jet flew around the world for the first time.

October 4 The Russians launched Sputnik I, the first artificial Earth satellite.

1958

January 31 Explorer 1 successfully orbited Earth. ***(See photo 1)***

October 1 NASA was established.

December 19 First voice radio broadcast from space occurred.

entury of Flight

As flightís second century begins, the United States is still boldly pioneering the air and space frontier. And the National Aeronautics and Space Administration, NASA, is a proud leader in this effort. This celebration of the centennial of flight reminds all of us how privileged we are to be engaged at just the start of an adventure without end. —Sean O'Keefe, Administrator, NASA

1959

September 15 Scott Crossfield first flew the fastest and highest flying aircraft in history, the rocket-powered X-15.

1960

April 1 Tiros I was the first weather satellite launched. ***(See Photo 2)***

May 17 YF4H-1 Phantom fighter and Douglas DC-8 were unveiled.

1961

April 12 The first human being to travel in space (Major Yuri Gagarin) completed one full orbit of Earth.

May 5 Alan Shepard was the first American in space.

1963

August 22 The X-15 aircraft set an altitude record of 67 miles

1966

March 16ñ17 Neil Armstrong and David Scott performed the first orbital docking.

1967

Astronauts Gus Grissom, Roger Chaffee, and Ed White died in the Apollo 1 capsule.

October 24 The X24A lifting body exceeded Mach 1.

1971

April 19 Soviet Union placed the world's first space station, Salyut 1, in orbit.

1972

NASA launched Landsat 1, the first remote sensing satellite.

1973

NASA launched the Skylab orbital workshop into orbit. ***(See Photo 3)***

1975

Soviet and American spacecraft docked in orbit during the Apollo-Soyuz Test Project.

1977

The Gossamer Condor became the first human-powered airplane.

1978

October 30 The Airline Deregulation Act was signed into law.

1979

June 13 The Gossamer Albatross human-powered aircraft crossed the English Channel.

The F-16 became the first production military aircraft to incorporate a fly-by-wire flight control system. ***(See Photo 4)***

1981

April 12ñ14 The first Space Shuttle orbiter, Columbia, flew into Earth orbit. ***(See Photo 5)***

1983

Sally Ride became the first American woman to fly in space; Guy Bluford became the first African American to fly in space.

1984

December 14 The X-29 forward swept wing aircraftís maiden flight occurred. (*See Photo 6)*

1986

January 28 Space Shuttle Challenger exploded 73 seconds into its flight.

December 23 Voyager aircraft completed the first nonstop flight around the world.

1988

April 22 Daedalus 88, human-powered aircraft, flew from Crete to Santorini.

1989

The B-2 Stealth bomber made its first flight.

1990

September 29 The first flight of the YF22 fighter prototype was made by Lockheed test pilot Dave Ferguson.

October 11 The first flight of the X-31, YF22, and YF23 took place.

1991

August 27 The first flight of the YF23 V-22 Osprey tiltrotor occurred.

September 17 The first flight of the McDon-nell Douglas C-17 military cargo transport took place.

1994

Jeannie Flynn, the first female combat pilot in the U.S. Air Force, finished flight training in an F-15.

1995

Norm Thagard was the first American astronaut to serve on the Russian space station Mir.

1996

January 4 The Boeing Sikorsky Comanche helicopter was unveiled.

March 22 Shannon Lucid began her historic journey to Mir. Her stay established the United States single-mission spaceflight endurance record.

1997

May 17 The first flight of a subscale remotely piloted X-36 tailless research aircraft took place. (*See Photo 7)*

1998

The first elements of the International Space Station (ISS) were assembled in orbit.

1999

March 20 The first nonstop circumnavigation of the globe via a balloon took place.

2000

The first crew of the ISS arrived in orbit.

4 F-16

5 The first Space Shuttle, STS-1, lifts off in April 1981.

6 X-29 had its maiden flight in 1984.

7 A remotely piloted X-36

KSC Columbia Recovery Team reunites at KARS

The Columbia Recovery Team from the Cape Canaveral Spaceport gathered at KARS Park May 30 and were recognized for their hard work.

KSC Director Roy Bridges Jr., astronauts and KSC Recovery Directors thanked the group for their efforts. Food, drink, prizes and entertainment were provided.

Astronaut Hall of Fame to induct four new members

Make plans now for the Astronaut Hall of Fame Induction Weekend June 20-21 at the KSC Visitor Complex. Four NASA astronauts will join 48 others currently enshrined in the Hall of Fame since 1990.

Astronaut Dan Brandenstein piloted one shuttle mission and commanded three others, including the first flight of Endeavour, and later served as chief of the Astronaut Office. Robert "Hoot" Gibson commanded four of the five shuttle missions on which he flew, including the first docking of a shuttle with Russia's Mir space station.

As a mission specialist on six flights, Story Musgrave took the first shuttle space walk, conducted medical and scientific experiments, and deployed and retrieved satellites. On the seventh shuttle mission in 1983, Sally Ride became the first American woman to fly in space.

Guests at the Visitor Complex are often surprised by activities not on the regular schedule, whether it be a rocket launch or a visiting dignitary. Such was the case for the Kiefer family from New Jersey.

"On May 15, 2003, our family had the pleasure of visiting the Kennedy Space Center, the first time being 1978," said Suzy Kiefer of New Jersey.

"It was more than we expected and the VIP bus tour was exceptional. We were lucky enough to see the rocket launch, which was quite an unexpected surprise. My son had much to tell at school about KSC, and it was more thrilling than even Disney! We would not visit Florida again without a stop at KSC."

Who knows what surprises are in store for those who visit during the Hall of Fame Induction Weekend. Tickets are $59.45 plus tax for adults and $39.45 plus tax for children 3-11. Contact (321) 449-4444 or **www.kennedyspacecenter.com** for information.

Teachers learn about Mars exploration for classroom

To gain wisdom about cutting edge technology, more than 40 Florida educators attended the Mars "Roving the Red Planet" workshop June 4 at the Debus Center. This seminar was sponsored by NASA/KSC, Jet Propulsion Laboratory (JPL), Cornell University and Arizona State University.

The goal of this workshop was to help educators get their students ready and excited about the upcoming robotic adventures on Mars.

Attendees met the real project people and heard "behind the scene" stories about future rover missions that will begin landing on Mars in January 2004. One of the workshop's special guests was JPL's Matt Golombek, Mars Pathfinder chief scientist. He will serve as science team chief during the rovers' surface mission operations.

According to Golombek, these missions will help answer the most important scientific question: Are we alone in the universe?

"We can find answers through missions that cost less than most motion pictures," he said.

The activities, presentations and question sessions lasted the entire day. According to Patricia Leonard, KSC Education Program specialist, "Workshops such as this will allow teachers to return to their schools better equipped to educate students about Mars. This great educational experience has provided educators with unique teaching tools that will allow them to inspire the next generation of explorers."

On June 24, this group will travel back to Florida to host a national educator workshop at the Doubletree Hotel in Cocoa Beach. Each workshop is scheduled around a MER launch so participants can view the launch.

One NASA idea continues at the Jet Propulsion Laboratory

Art Murphy of the Jet Propulsion Laboratory points out the four agreements between his Center and the Langley Research Center, Ames Research Center, Glenn Research Center and Marshall Space Flight Center.

Editorís Note: This is an ongoing series of stories from various NASA centers on the One NASA concept.

Art Murphy points out four framed documents hanging on the wall of the Jet Propulsion Laboratory (JPL) Director's conference room. "The goal is to have JPL and the other centers interact as One NASA," he states. "Where we used to compete with each other, we are now working together."

Murphy manages Intercenter Alliance Development at JPL. He has been working in the spirit of One NASA for the last few years, forging collaborative alliances that proactively look for new initiatives in space research and development.

The four documents on the conference room wall illustrate the collaborative agreements he helped develop between JPL and Langley Research Center (LaRC), Ames Research Center (ARC), Glenn Research Center (GRC) and Marshall Space Flight Center (MSFC).

In 2000, specific technology leadership within NASA was consolidated at various centers, with little overlap. Murphy was managing Space Mission Technology Development at the time at JPL. Looking at the changes going on within the agency, he realized that it would be very difficult to develop mission-needed technology in this new environment.

There were also more pressures on JPL to *not* do everything itself. In addition, revolutionary technology infusion was demanded in JPL missions at no greater overall risk or cost. He saw a need to start collaborating with other centers in order to develop the needed complete technology package for future missions.

Murphy identified LaRC, ARC, GRC and MSFC as the centers with the best immediate potential for joint activities with JPL. His idea was to build an interdependent relationship with each of these centers to use their research and technology development capabilities in JPL's space and Earth science flight missions. He put together a proposal and, on January 24, 2001, he met with the JPL Executive Council.

If JPL more actively collaborated with these centers to do research and development for technology, it would enable JPL to do better science. The council was sold.

Murphy was asked to establish these four collaborative alliances. LaRC signed the first alliance agreement on February 21, 2002. The other agreements were finalized by the end of that year. These alliances require minimal formal reporting.

"This is a center grass roots *up* effort to show that centers have the right ideas and attitude," said Murphy. A joint center review is held approximately every six months for each alliance. The last one was held at JPL with Ames on January 23, 2003.

"Our relationship with Ames has improved an order of magnitude!" Murphy remarked. "Our relationships are also much better with Langley, Glenn and Marshall. We are working together like we didn't always do in the past. In some ways the only time we saw another center then was when we competed for technology work against them. The center directors have been magnificent, very positive about working together."

Currently Ames is funding approximately 80 JPL engineers and scientists on various technical tasks that complement ARC's expertise in the engineering of complex systems, mission autonomy systems, information technology and bio-nanotechnology. ARC will have planning and visualization software technology on both JPL's Mars Exploration Rover (MER) ground operations activities.

ARC gets to use their technology on JPL missions and receives strong advocacy for their new technology initiatives. Their technology, in turn, saves JPL the cost of many ground mission engineers.

These alliances are paving the way for future missions, such as the Jupiter Icy Moons Orbiter, by providing technology for them. They will continue to pay off in developing research and development technology for future missions that are about five to 15, or more, years out.

"The future is enabled by the present," said Murphy.

"The future of space is complicated. One center can't be all things to all people like it used to be. We have to be able to depend on other organizations, work with them, nourish them and treat them as we do ourselves. JPL can't maintain the core technology competencies for everything so we have to go to other centers for them. We need to have strong relations with them so we can count on them as team members and work with them to do our missions."

JPL Director Charles Elachi summed up the importance of these efforts:

"I believe we owe it to American taxpayers to be as efficient as possible in developing these potentially high-payoff, bold missions by using the best technologies from all NASA centers to generate the most exciting and productive science possible.

"I'm pleased that our alliances contribute to the One NASA initiative, and I'm grateful to Art Murphy and his colleagues at our partner centers for being so persistent and effective in constructing these alliances."

KSC WELCOMES STATUS OF WOMEN COMMISSION: KSC External Relations and Business Development Director JoAnn Morgan (sixth from right) spoke to The Florida Commission on the Status of Women June 7 at the Debus Conference Facility. Morgan is a member of the groupís Hall of Fame. The commission, through coordinating, researching, communicating, and encouraging legislation, is dedicated to empowering women from all walks of life in achieving their fullest potential, to eliminating barriers to that achievement, and to recognizing womenís accomplishments.

Launch system lauded for shorter turnaround time

A Phase 1 Proof-of-Concept Demonstration of the Advanced Checkout, Control and Maintenance System (ACCMS), the latest in ground-based operations, launch and payload checkout automation systems, recently took place at Kennedy Space Center. The ACCMS is an automated technology that optimizes ground resources and processes needed to meet the Next Generation Launch Technology (NGLT) Program's Reusable Launch Vehicle (RLV) turnaround goals, safety standards and efficiency objectives.

A "control room" full of employees attended the April 16, 17 and May 8 demonstrations at the Boeing Health Management and Control Systems Software Development Laboratory in KSC's Operations & Checkout building. This ACCMS demonstration showcased the latest advances in informed maintenance and command/control technologies.

The demonstration made use of a test bed (a combination of flight qualification and ground hardware) located at KSC's Launch Equipment Test Facility. These activities, hosted by Boeing's ACCMS Principal Investigator Bill Findiesen, clarified how all levels of the space program could benefit from an implementation of ACCMS concepts.

"Great demo! Share this widely with Orbital Space Plane and NGLT," said Roy Bridges, KSC director. "We must invest in new tech-nologies like the ACCMS if we want to lower the life cycle cost of space transportation."

Originally, the goal of the research for the Space Launch Initiative (SLI) was to enable a 10-day vehicle turnaround cycle, which is 80 percent shorter than current Space Shuttle time lines. The Shuttle's lengthy processing time line was caused by a low priority on designing for operations during initial Shuttle development and is dictated by a lack of automation and data systems integration. Although the vehicle turnaround goals have changed, the needs and benefits that the ACCMS would provide are still valid.

ACCMS mitigates these problems by combining a design for operations concept with information systems integration and command and control technologies before or concurrently with development of a next-generation RLV. ACCMS concept architecture is integrated; but for convenience, it's divided into two subsystems.

The first sub-system is the Advanced Command and Control System (ACCS), which provides the traditional functions of telemetry and control to the RLV and Ground Support Equipment.

ACCS also provides integration points for health management systems, flexible front-end architectures for changing payloads/test articles/vehicles, and integration with the second ACCMS subsystem, the Automated Informed Maintenance (AIM) subsystem.

Boeingís ACCMS Principal Investigator Bill Findiesen discusses the advances in informed maintenance and command/control technologies at the Operations & Checkout building.

The AIM subsystem facilitates a closed-loop ACCMS architecture, and provides automation and integration of information required for RLV ground processing and maintenance, dynamic resource planning and management, and integration with logistical systems and organizations. Consequently, this technology will help alleviate the complexity of many time-consuming personnel tasks, automate routine tasks and lower organization support requirements.

Most poignant for RLV operations, ACCMS will provide the ability to mitigate the risk and time associated with unplanned maintenance activities.

"I believe that it is strategically important for the United States to maintain a competitive capability for planning, processing, checking out, launching and controlling space vehicles, payloads and missions, but those capabilities and activities are currently very expensive," said Cary Peaden, NASA ACCMS project manager.

"A large portion of that expense is currently required for supporting management and infrastructure and for maintaining and working with disparate systems. ACCMS proposes using automation and integration to help reduce the requirement for large support management and infrastructure and focuses on integration of systems. The ACCMS Team would like to help the U.S. Space Industry reduce total ownership costs and risks and increase safety and reliability associated with putting people and payloads into space."

NGLT combines previous Space Launch Initiative research and development efforts with cutting-edge, advanced space-transportation programs to increase the safety, reliability and cost-effectiveness associated with developing the nation's next-generation reusable launch vehicle.

Visit **www.slinews.com**, for further NGLT information.

Students descend on KSC

More than 100 students were welcomed to KSC June 2 as part of the Summer High School Apprentice Research Program (SHARP), High School High Tech (HSHT) and Summer Aid Program.

John F. Kennedy Space Center

Spaceport News

Vol. 42, No. 12

Spaceport News is an official publication of the Kennedy Space Center and is published on alternate Fridays by External Relations and Business Development in the interest of KSC civil service and contractor employees.

Contributions are welcome and should be submitted two weeks before publication to the Media Services Branch, XA-E1. E-mail submissions can be sent to Jeffery.Stuckey-

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Editorial support provided by InDyne Inc. Writers Group.
NASA at KSC is located on the Internet at *http://www.ksc.nasa.gov*

USGPO: 733-133/600033