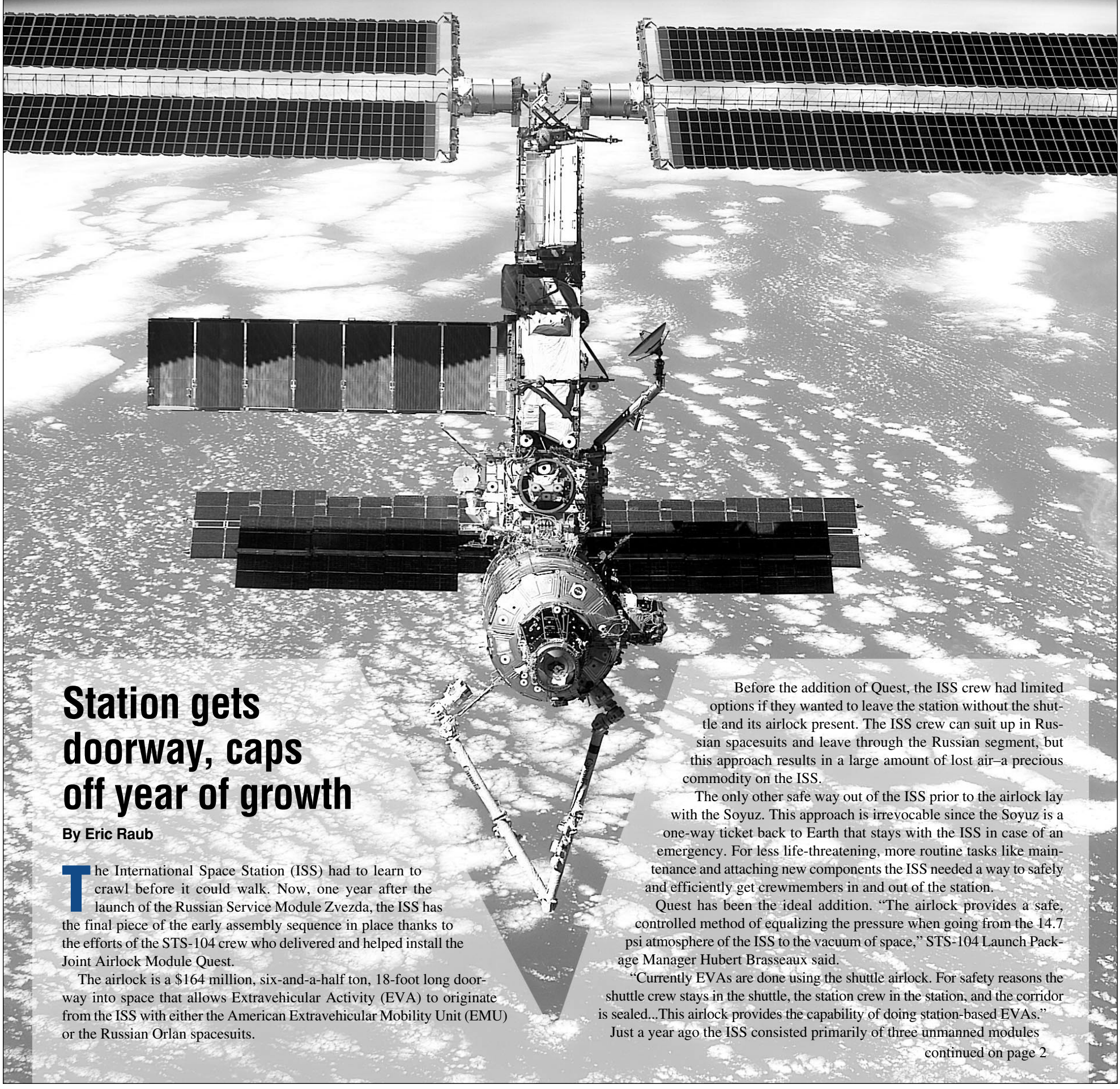
Space Center
Roundup

VOL. 40, NO. 14 LYNDON B. JOHNSON SPACE CENTER, HOUSTON, TEXAS July 27, 2001

One amazing year



Station gets doorway, caps off year of growth

By Eric Raub

The International Space Station (ISS) had to learn to crawl before it could walk. Now, one year after the launch of the Russian Service Module Zvezda, the ISS has the final piece of the early assembly sequence in place thanks to the efforts of the STS-104 crew who delivered and helped install the Joint Airlock Module Quest.

The airlock is a $164 million, six-and-a-half ton, 18-foot long doorway into space that allows Extravehicular Activity (EVA) to originate from the ISS with either the American Extravehicular Mobility Unit (EMU) or the Russian Orlan spacesuits.

Before the addition of Quest, the ISS crew had limited options if they wanted to leave the station without the shuttle and its airlock present. The ISS crew can suit up in Russian spacesuits and leave through the Russian segment, but this approach results in a large amount of lost air–a precious commodity on the ISS.

The only other safe way out of the ISS prior to the airlock lay with the Soyuz. This approach is irrevocable since the Soyuz is a one-way ticket back to Earth that stays with the ISS in case of an emergency. For less life-threatening, more routine tasks like maintenance and attaching new components the ISS needed a way to safely and efficiently get crewmembers in and out of the station.

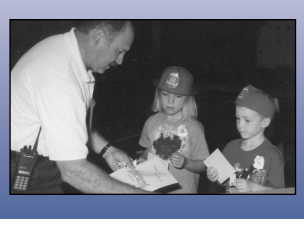
Quest has been the ideal addition. "The airlock provides a safe, controlled method of equalizing the pressure when going from the 14.7 psi atmosphere of the ISS to the vacuum of space," STS-104 Launch Package Manager Hubert Brasseaux said.

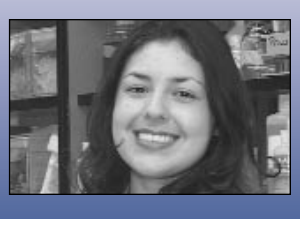
"Currently EVAs are done using the shuttle airlock. For safety reasons the shuttle crew stays in the shuttle, the station crew in the station, and the corridor is sealed...This airlock provides the capability of doing station-based EVAs."

Just a year ago the ISS consisted primarily of three unmanned modules

continued on page 2

With the Earth behind it and the Canadarm2 clearly visible toward the bottom, the International Space Station (ISS) is photographed by the departing astronauts of STS-100 onboard Space Shuttle Endeavour in May. The 58-foot robotic arm is just one of the many features the ISS now sports after a year's worth of construction. For a look at the newly-installed Joint Airlock Module Quest, see page 2.





NASA announces new staffing, recruitment system

A new resume management tool known as NASA STARS (NASA's STaffing And Recruitment System) is coming to JSC in August. By the end of the year, this new program will be implemented at all NASA centers. This new system will improve and streamline NASA's recruiting, selection and promotion procedures.

For current NASA employees, NASA STARS will provide a quick and easy online application process for Competitive Promotion Plan (CPP) announcements. It will also eliminate the need for KSAs (Knowledge, Skills and Abilities) sections and long application forms.

NASA STARS will allow for fast referral of quality candidates directly to management. In addition to these benefits, the new system will give employees an easy to use online Resume Builder. Employees' resumes can then be used to apply for CPP announcements and enhance JSC's ability to identify the skills available in our current workforce.

For external applicants, NASA STARS will change how they apply for jobs, how referral lists are provided to managers and how our Human Resources Office accomplishes recruiting and staffing.

JSC employees can expect to receive additional information regarding NASA STARS in their mail and in upcoming editions of the Roundup. In early August, the Human Resources Office will conduct several briefing sessions in the Building 30 Auditorium on the following dates.

Aug. 6, 2001 (Monday)
10:30-11:30 a.m.
and 3-4 p.m.
Aug. 9, 2001 (Thursday)
10:30-11:30 a.m.
and 2-3 p.m.

EXPERIMENT CORNER

Expedition II Science Experiments

Interactions - Destiny Lab
Dr. Nick Kanas, VA Medical Center, San Francisco

A questionnaire on a laptop computer that the crew and members of their ground support team complete once a week. The data are being used to examine issues involving tension, cohesion and leadership roles in both the crew and their ground support team. Delivered during STS-102/5A.1 in March 2001. Also flown on Mir.

More Interactions info:
Expedition Two press kit, p. 18

http://spaceflight.nasa.gov/station/science/experiments/hlf_inter.html

MACE-II - Middeck Active Control Experiment - Unity Node
Dr. Keith Denoyer, Air Force Research Lab, Albuquerque, N.M. and Dr. David Miller, MIT, Cambridge, Mass.

The MACE-II experiment is key to learning more about how things move and vibrate in space, and how to sense and control those vibrations. Structures in space, such as telescopes and robotic arms, are sensitive to vibrations and can be ruined because of them. Yet this can't be tested on Earth because the same structures behave differently on Earth than in space due to the Earth's gravitational field. The six-foot-long instrumented truss that the astronauts will work with allows engineers to test their techniques for predicting motion and controlling it. The MACE flew previously on STS-67.

More MACEII info:

http://web.mit.edu/newsoffice/tt/2000/sep13/mace.html

MAMS - Microgravity Acceleration Measurement System - Express Rack 1
Richard DeLombard, Glenn Research Center, Cleveland, Ohio

Measures very small changes in the station's velocity that can mimic the effects of gravity. For experiments that are very sensitive to small movements, such as crystal growth, it is important to understand how often such effects occur and how large they are. Delivered aboard EXPRESS Rack 1 during STS-100/6A in April 2001. Flown on numerous shuttle flights.

More MAMS info:
Expedition Two press kit, p. 24

PCG - STES - Protein Crystal Growth - Single-locker Thermal Enclosure System Express Rack 1
Dr. Dan Carter, New Century Pharmaceuticals, Huntsville, Ala.

Uses the microgravity environment aboard the space station to grow large, high-quality protein crystals that will be returned to Earth for study. Delivered during STS-100/6A in April 2001. Previously flown on numerous Shuttle flights.

More PCG-STES info:

http://spaceflight.nasa.gov/station/science/experiments/stes_pcam.html

http://spaceflight.nasa.gov/station/science/experiments/stes_pcam2.html

Phantom Torso - Destiny Lab
Dr. Gautam Badhwar, JSC

Will measure the effects of radiation on organs inside the body by using a torso that is similar to those used to train radiologists on Earth. The torso is equivalent in height and weight to an average adult male. It contains radiation detectors that will measure, in real-time, how much radiation the brain, thyroid, stomach, colon, and heart and lung area receive on a daily basis. The data will be used to determine how the body reacts to and shields its internal organs from radiation, which will be important for longer duration space flights. Delivered during STS-100/6A in April 2001.

More Phantom Torso info:
Expedition Two press kit, p. 21

http://spaceflight.nasa.gov/station/science/experiments/ptorso.html

SAMS II - Space Acceleration Measurement System II - Express Racks 1 and 2
Melissa Rogers, National Center for Micro. Res. on Fluids and Combustion, Ohio

Measures small vibrations that may affect nearby experiments. For experiments that are sensitive to small movements, such as crystal growth, it's important to understand how often such effects occur and how large they are. Delivered during STS-100/6A in April 2001. Also flown on Mir and numerous shuttle flights.

More SAMS info:
Expedition Two press kit, p. 23

For more details, please read the Expedition Two press kit at:

http://spaceflight.nasa.gov/station/crew/exp2/exp2_presskit.pdf

Did You Know?

The International Space Station's newest module, the Joint Airlock Module Quest, officially supported its first Extravehicular Activity on July 21. The last time astronauts conducted EVAs out of two vehicles during the same mission was in 1973 on the Skylab 2 mission.

Continued from Page 1

Station gets doorway

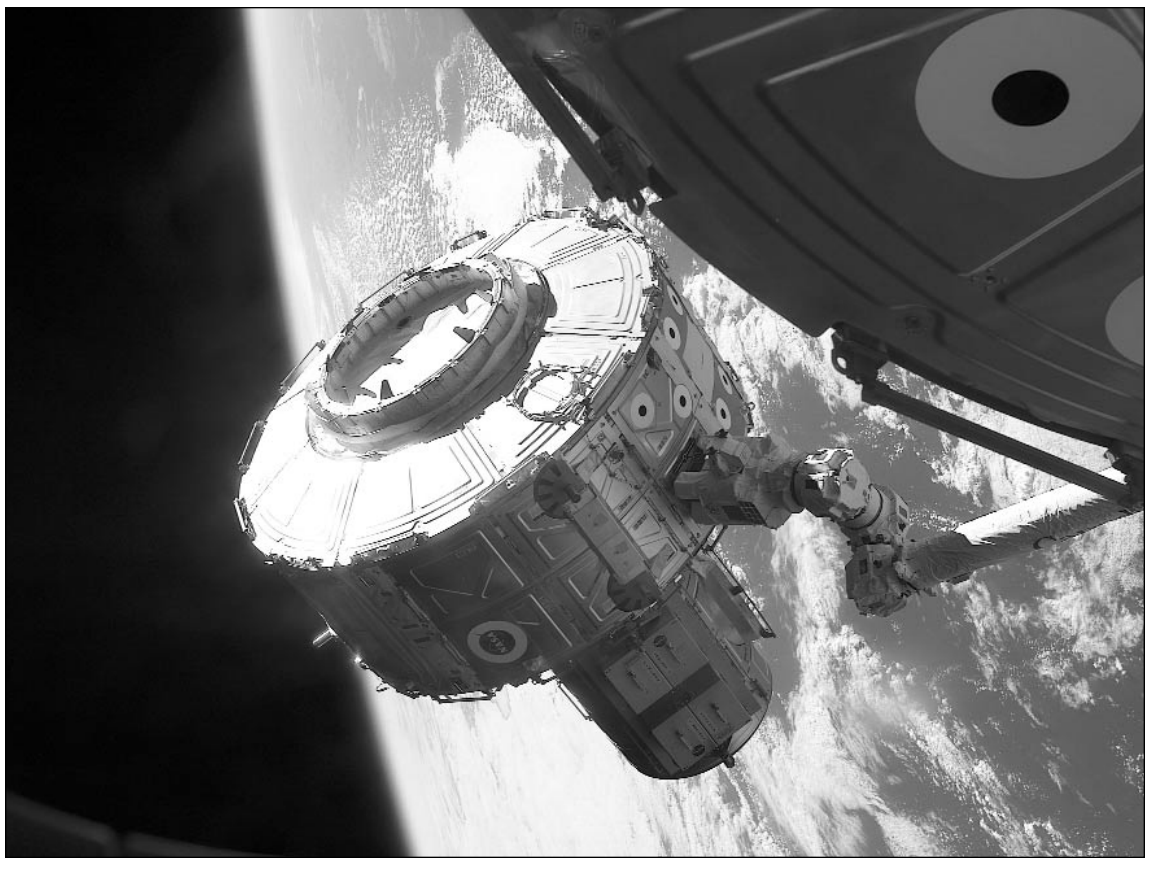
linked together awaiting their first crew. Now the second crew is preparing to return to Earth in August aboard STS-105. They will leave behind a capable and functional station ready for future growth and expansion.

"Looking back it's really been an incredible and really an outstanding year for us in terms of what we've gotten done," ISS program manager Tommy Holloway said. "Overall I think this station is very functional, very capable and modern and very clean. We're well on the way."

Though the ISS is far from finished, it has all of the major components necessary for an orbital research station and is larger than the former Russian space station Mir.

The hefty ISS now weighs in at approximately 260,000 pounds and has about the volume of a three-bedroom home. It features crew living quarters, a fully functional research laboratory, a 58-foot robotic arm, gyroscopes, thrusters, communications equipment, reusable logistics modules and a joint airlock.

"The airlock is a milestone," ISS Deputy Manager for International Relations Robert Cabana said. "It completes the Phase II assembly of the station...We have a fully functional space station up there right now. We've got everything we need to do science in space, to do our spacewalks when required. It's an awesome vehicle." ■



The new Joint Airlock Module Quest now resides in its permanent location on the ISS. It serves as the doorway into space for the ISS crew.

Volunteers needed for Open House 2001

Open House 2001 is only a few weeks away. Planning and preparations for this tremendous event, which happens Saturday, Aug. 25, are well under way as the people of JSC and its off-site support teams prepare to host more than 100,000 guests.

As the event draws ever near, a need has arisen for more volunteers who are fluent in Spanish. Other language talents are potentially useful as well. Open House organizers are asking those who are willing and able to act as interpreters to please sign up. There are available positions in each of the following areas:

- ❖ Information Booths
- ❖ Cafeterias
- ❖ Teague Auditorium Children's Events
- ❖ Clinic
- ❖ Lost Child And Parents Center
- ❖ Benefits of Space Exhibit Trailer Docents

All volunteers are encouraged to attend Open House training in the Teague Auditorium. New information and operating methods will be discussed at that time. The training dates and times available are:

- ❖ Aug. 7 from 9-10 a.m.
- ❖ Aug. 14 from 10-11 a.m.
- ❖ Aug. 9 from 1-2 p.m.
- ❖ Aug. 16 from 2-3 p.m.

Look for Open House posters and flyers displayed in Clear Lake area businesses. Please complement the business owners, managers and staff for their support. Our community continues to be extremely active in their unceasing support of JSC and its mission. We look forward to having them as our guests.

To volunteer for staffing, contact C.C. de la Garza at x31033 or register online at: http://www4.jsc.nasa.gov/scripts/openhouse/index.cfm/

Ripped from the ROUNDUP

Ripped straight from the pages of old Space News Roundups, here's what happened at JSC on this date:

1 9 7 6

With the problem of Viking 1's jammed soil sampler arm corrected, scientists prepared at Roundup press time to begin the search for evidence of Martian life.

The digger was scheduled to reach out Wednesday and scoop up two ounces of the red Martian soil for delivery to the hopper of Viking's three life-detection instruments.

Additional scoops of dirt will be dropped in an instrument which looks for organic molecules and one which analyzes the inorganic chemistry of the soil.

1 9 8 6

George A. Rodney will head the new Safety, Reliability and Quality Assurance Office at NASA Headquarters as Associate Administrator for SR&QA.

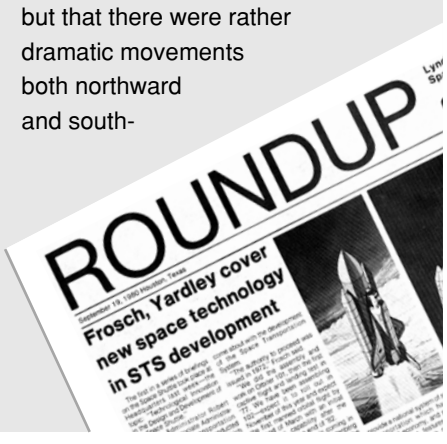
In announcing the new office and position, Dr. Fletcher said establishment of the office is in response to the Presidential Commission on the Space Shuttle *Challenger* Accident which recommended that NASA establish an SR&QA office with direct authority throughout the agency. He also emphasized that objectives of the office are to ensure a NASA SR&QA program that monitors equipment status, design validation problem analysis and system acceptability in agency-wide plans and programs.

1 9 9 1

A NASA study released last week indicates that the Sahara Desert, the world's largest,has undergone a variety of fluctuations in size during the past 11 years.

Since 1980, scientists at Goddard Space Flight Center have studied data from a variety of Earth observing satellites in an effort to provide insight on global climatic change. One study focused on the size of the Sahara Desert in Africa using meteorological satellite data.

The data indicates that the southern boundary of the desert had expanded to the south about 80 miles from 1980 to 1990, but that there were rather dramatic movements both northward and south-



Something old, something new

Recently Astronaut Bill Shepherd personally delivered an Alaskan bear mask back to Boeing employee Dick Cogo. The mask traveled with Shepherd and stayed aboard the International Space Station (ISS) during the astronaut's four-month tour as commander of the Expedition One crew.

Cogo, who supported Shepherd in the early stages of the International Space Station, said he used to tease Shepherd about having an Alaskan native aboard the station.

"I was thrilled when he agreed to take this artifact," Cogo said. "This mask represents my Alaskan heritage and, since I couldn't go to the station, this was certainly the next best thing."

The ancient mask is from the Tongass Tribe of the Tlingit-Haida Nations of People, who have occupied southeast Alaska for more than 10,000 years.

The mask is owned by the Sealaska Corporation and is being returned to the company in Juneau, Alaska. There it will be put on display along with pictures of its trip to the ISS. ■

IN MEMORY

John F. Yardley, Human Space Flight Pioneer, dies

John F. Yardley, a leading figure in the early days of human space flight and the Space Shuttle program, died June 26 at age 76. He is survived by his wife Phyllis, four daughters, one son, one sister, nine grandchildren and a great-granddaughter.

Yardley spent many years in private industry working closely with NASA on the Mercury and Gemini programs. His work on those projects earned him NASA's Public Service Medal in 1963 and 1966.

At NASA, Yardley served as Associate Administrator for Manned Space Flight (later renamed Space Transportation Systems) where he led the Apollo-Soyuz Test Project and Spacelab, and was responsible for development and acquisition of the Space Shuttle, launching a new era in human space flight.

Longtime JSC contractor Clyde Sapp dies June 11

Longtime JSC contractor employee Clyde Sapp passed away on June 11, 2001.

He began his distinguished career at JSC by helping establish the Video Digital Analysis System (VDAS) laboratory, which played a key role in the photographic and video analysis of the Space Shuttle Challenger accident. Sapp received numerous awards and commendations, including the coveted Silver Snoopy and Space Flight Awareness award.

Sapp was born in Kankakee, Ill., in 1955. He is survived by his wife Carol and their seven children and four grandchildren. A tree will be planted in Sapp's honor in the JSC memorial tree grove located on 5th St., across from Building 110. A date has not yet been set for the planting ceremony.

To make a donation to Sapp's memorial fund please contact Robert Scharf at (281) 483-2756 or email robert.scharf@jsc.nasa.gov.

Ticket deadline for NASA Day at Enron Field is Aug. 10

The Astros will be hosting NASA Day at Enron Field on Saturday, Aug. 18, at 12:15 p.m. The Astros will be playing the Pittsburgh Pirates.

The STS-104 crew will be recognized at the game, and one crewmember will throw out the first pitch. JSC exhibits will be on display throughout the concourse, and there will be photo opportunities and panel displays on the International Space Station. Astronaut Steve Hawley is scheduled to do a live radio interview with Astros broadcaster Milo Hamilton during the second inning.

As a part of the pre-game activities, and just prior to the start of the game, a special JSC video presentation will be broadcast on the giant Diamond Vision screen.

Tickets are $27-field box, $26-club seats and $13-mezzanine. Purchase your tickets from the B11 Exchange Store and enter to win drawings for Astros memorabilia. The last day to purchase tickets is Aug. 10.

Don't miss out!

American Heritage Week is August 6-10, with the Grand Finale on August 10, from 4-7 p.m. at the Gilruth Center. A new attraction has recently been added courtesy of the JSC Safety Action Team. They will have a laminating booth at the event to make "The Reason I Work Safely" badges. Everyone is invited to bring a maximum of two precut pictures no larger than 2 by 2.5 inches to show everyone at work the reason they work safely.

PEOPLE on the MOVE

Human Resources reports the following personnel changes:

Additions to the Workforce

Eric Thomas joins the Human Resources Management Branch, Human Resources Office, as a Human Resources Representative.

David McKay and *Ashlie Wimberley* join the Space Operations Procurement Office, Office of Procurement, as Contract Specialists.

Rebecca Cutri-Kohart joins the Ascent/Descent Dynamics Branch, Flight Design and Dynamics Division, Mission Operations Directorate, as a Flight Controller.

Jason Gibson joins the Communications and Data Systems Branch, Systems Division, Mission Operations Directorate, as a Flight Controller.

Heather Paul joins the EVA and Spacesuit Systems Branch, Crew and Thermal Systems Division, Engineering Directorate, as an Aerospace Engineer.

Jason Dugas joins the Power Systems Branch, Energy Systems Division, Engineering Directorate, as an Electrical Engineer.

Jason Niebuhr joins the Mechanical Design and Analysis Branch, Structural Engineering Division, Engineering Directorate, as an Aerospace Engineer.

Cheryl Munson joins the Central Budget Office, Office of the Chief Financial Officer, as a Program Analyst.

Nelson Eng joins the GFE Branch, Flight Equipment Division, Safety, Reliability, and Quality Assurance Office, as a Computer Engineer.

Ken Chen joins the Technology Division, Safety, Reliability, and Quality Assurance Office, as a Computer Engineer.

Steve Huning joins the Launch Package Management Office, Mission Integration and Operations Office, International Space Station Program, as a Launch Package Integration Manager.

Jason Noble joins the Engineering Office, White Sands Test Facility, as a Facilities Engineer.

Lori Crocker joins the EVA Project Office, as a Government-Furnished Equipment Hardware Lead.

Reassignments to Other Centers

Mark Glorioso moves to Stennis Space Center.

Reassignments to Other Directorates

Perry Piplani moves from the Center Operations Directorate to the Engineering Directorate.

Christopher Ramsay moves from the Mission Operations Directorate to the Safety, Reliability, and Quality Assurance Office.

James Dewberry moves from the Mission Operations Directorate to the International Space Station Program.

Jeff Theall moves from the Space and Life Sciences Directorate to the International Space Station Program.

Retirements

Betty Burg of the Office of Procurement.

Richard Juday of the Engineering Directorate.

John Murray of the Engineering Directorate.

Frank Weaver of the Engineering Directorate.

Chuck Gieck of the Center Operations Directorate.

Carolyn Welch of the Center Operations Directorate.

J. Denny Holt of the Space Shuttle Program.

Mary Lee Meider of the Safety, Reliability, and Quality Assurance Office.

Resignations

Rosemarie Marquez of the Safety, Reliability, and Quality Assurance Office.

James Dean of the International Space Station Program.

DATES & DATA

August 1

Spaceland Toastmasters meet: The Spaceland Toastmasters meets on Wednesday Mornings at 7 a.m. at the House of Prayer Lutheran Church 1515 Bay Area Blvd at Reseda. Other meetings will be held August 8, 15, 22 and 29. For more information, contact Ava Sloan at 713-768-6336 or asloan@hal-pc.org

Spaceteam Toastmasters meet: The Spaceteam Toastmasters meet at 11:30 a.m. at United Space Alliance, 600 Gemini. Other meetings will be held August 8, 15, 22 and 29. For details contact Patricia Blackwell at 281-280-6863.

August 2

Warning System Test: The site-wide Employee Warning System performs its monthly audio test at noon. For details contact Bob Gaffney at x34249.

Chess Club meets: The Space City Chess Club meets each Friday evening from 5:30 p.m. until 9 p.m. at the Clear Lake United Methodist Church, 16335 El Camino Real, room 423. All skill levels are welcome. For more information, please call James Mulberry at x39287 or James Termini at x32639.

August 6

CLA-NSS meets: The Clear Lake area chapter of the National Space Society meets at 6:30 p.m. at the Parker Williams Branch of the Harris County Library at 10851 Scarsdale Blvd. For details contact Murray Clark at 281-367-2227.

NSBE meets: The National Society of Black Engineers meets at 6:30 p.m. at Texas Southern University, School of Technology, first floor. For more information contact Kimberly Topps at 281-280-2917.

August 7

Quality Society meets: The Bay Area Section of the American Society for Quality meets at 6 p.m. at the Franco's Restaurant. For more information contact Ann Dorris at x38620.

August 8

MAES meets: The Society of Mexican-American Engineers and Scientists meets at 11:30 a.m. in Bldg. 16, Rm. 111. For details contact Margaret C. Delgado at 713-643-6097 or mcdelgad@aol.com.

Have an interesting and unique JSC story idea?

Contact Editor Melissa Davis at X39978.

Correction

Due to an incorrect announcement submitted to the *Roundup*, Kim Grayson's name was misspelled in the June 26 issue. She is the Equal Opportunity Counselor for the Dynamic Systems Test.

NASA BRIEFS

GREATER SOLAR ACTIVITY MAY BRING U.S. MORE GRAY DAYS

NASA-funded Earth Science researchers have discovered that during periods of increased solar activity much of the United States becomes cloudier, possibly because the jet stream in the troposphere moves northward causing changes to regional climate patterns.

Previous studies have shown that during the solar maximum, the jet stream in the Northern Hemisphere moves northward. The jet stream is a ribbon of fast-moving air in the upper troposphere that blows from west to east. Storms beneath the jet stream follow its path. A shift in the jet stream can alter the location of clouds and precipitation across the U.S.

The new study supports earlier findings by suggesting there is a relationship between increased cloud cover over the United States and the solar maximum, the most intense stage of activity on the Sun.

Though more investigation is needed to better understand just how changes in the Sun's ultraviolet energy output is linked to atmospheric winds, the study helps people identify potential large-scale mechanisms that affect local and regional climates.

Scientists continue to investigate mechanisms that may link solar variability with weather. These new results support the idea of a link between stratospheric chemistry and meteorology, and support other recent theoretical studies associated with the impact of stratospheric chemistry on climate change and weather.

GENESIS SET TO CATCH A PIECE OF THE SUN

NASA'S next robotic space explorer is ready to do a little sunbathing on a mission to catch a wisp of raw material from the luminous celestial body around which the Earth and other planets revolve.

Genesis, set for launch July 30 from Florida's Cape Canaveral Air Force Station, is designed to collect tiny pieces of the Sun and return them to Earth. The mission is expected to capture about 10 to 20 micrograms of the solar wind, made up of invisible charged particles expelled by the Sun.

The particles, about the weight of a few grains of salt, will be returned to Earth with a spectacular mid-air helicopter capture. Scientists will preserve this treasured smidgen of the Sun in a special laboratory for study. The researchers hope to answer fundamental questions about the exact composition of our star and the birth of our solar system.

In September 2004, the solar samples will be returned in a dramatic helicopter capture. The samples will be taken to NASA's Johnson Space Center in Houston, where the collected materials will be stored and distributed for analysis.

SPACE CENTER Roundup

The Roundup is an official publication of the National Aeronautics and Space Administration, Johnson Space Center, Houston, Texas, and is published by the Public Affairs Office for all space center employees. The Roundup office is in Bldg. 2, Rm. 181. The mail code is AP121. The main telephone number is x39978, and the fax is x32000. Visit our website at: http://www.jsc.nasa.gov/pao/roundup/weekly/ Electronic mail messages may be directed to:

Managing Editor . . . . . .Melissa Davis . . . . . .melissa.davis1@jsc.nasa.gov
Assistant Editor . . . . . .Julie Burt . . . . . .julie.v.burt1@jsc.nasa.gov
Writer . . . . . .Eric Raub . . . . . .eraub1@jsc.nasa.gov

PRSRT STD
U.S. POSTAGE
PAID
WEBSTER, TX
Permit No. G27