News Briefs

Hubble depicts Mars weather

As two NASA spacecraft speed toward a mid-year rendezvous with Mars, astronomers using the Hubble Space Telescope are providing updated planetary weather reports to help plan the missions. Hubble's new images show that the "Martian invasion" of spacecraft will experience considerably different weather conditions than seen by the last U.S. spacecraft to land on Mars 21 years ago.

Martian atmospheric conditions will affect the operation of both the Mars Pathfinder landing on July 4, and the Sept. 11 arrival of the Mars Global Surveyor which will map the planet from orbit. The images show Mars to be colder, clearer, and cloudier.

Dryden tests tailless aircraft

A NASA/McDonnell Douglas remotely piloted, tailless aircraft successfully completed its first flight on May 17 at NASA's Dryden Flight Research Center. The lack of vertical tails greatly enhances the stealthy characteristics of the airplane, and holds promise for greater agility than is currently available in existing military fighter aircraft.

Called the X-36, the subscale research aircraft lifted off from Rogers Dry Lake, flew for five minutes and reached an altitude of about 4,900 feet. An additional 24 test flights of the X-36 are scheduled at Dryden during the next six months.

Thermal protection material works well

A new thermal protection material designed to prevent spacecraft from burning up during reentry into Earth's atmosphere performed extremely well during its first flight test.

The ultra-high temperature ceramic material may someday revolutionize the approach that engineers take to the design and protection of aerospace vehicles. A large amount of data on the thermal performance of the new material was collected on May 21.

Sharp leading-edge designs for spacecraft and trans-atmospheric vehicles offer reduced drag, thereby providing substantial savings in the cost per pound expended to put objects into orbit. In addition, they provide a greatly enhanced lift-to-drag ratio, enabling what is called cross-range capability. This means that spacecraft and trans-atmospheric vehicles can reenter Earth's atmosphere from any orbit and land at any location, unlike present blunt body vehicles.

NASA technology helps put workers in good posture

By Audrey Schwartz

Poor posture or protracted activities can cause strain and fatigue for workers, including busy astronauts in the seemingly unconstrained weightless environment of space. Thanks to a new video analysis software tool developed by at JSC, working in space—and on Earth—may become much more comfortable.

The Posture Video Analysis Tool uses video from space shuttle flights to identify limiting posture and other workplace human factor problems. The software tool also provides data that recommends "appropriate" postures for certain tasks and safe duration for potentially harmful positions, such as when astronauts lying on their backs for several hours awaiting launch.

JSC recently signed an exclusive license agreement with BioMetric Systems, Houston, to further develop the technology for use by non-aerospace industries such as hospitals, physical rehabilitation facilities, insurance companies, sports medicine clinics, oil companies, manufacturers and the military.

BioMetric Systems is the first Native American company to license commercial technology with JSC. An international human factors engineering company, BioMetrics, with the assistance of the JSC Technology Transfer and Commercialization Office, plans to upgrade the posture software systems for use on both Apple Macintosh and IBM-compatible computers.

NASA needed a low-cost, reliable method of collecting data on astronaut postures from non-scientific mission video. The traditional "paper-and-pencil" video analysis methods required predefined views from spacecraft cameras as well as specific reference points to classify working posture. With the new video tool, researchers can use regular, nonscientific shuttle videos to gather precise information about astronaut working postures and movements.

The video tool, using an interactive menu and button-driven software, collects information on a variety of postural parameters such as body orientation, body part movement, severe or mild flexation rating, and task description. Once all the entries are made, analysis begins with a touch of a button. The tool also includes a terminology library, animation illustrating selected posture classifications, data reduction summaries and report capabilities.

The posture tool helps prepare astronauts for correctness of movement on shuttle fights. Analysis also can identify problems crews may have operating equipment to allow for hardware or procedure modifications that reduce fatigue and stress.

"The Posture Video Analysis Tool is unique because it provides a fast and simple way to collect and classify working postures, even from videos not recorded specifically for experimental analysis," said Candace Caminati, president of BioMetric Systems. "We are excited about Posture Video Analysis Tool 's human factors design and analysis potential in a variety of commercial industries and plan to begin use immediately."

JSC Photo 97-06609 by Steve Candler

'SPECIAL' PROPOSAL—JSC's Mary Wiley, chief of the Mission Operations Directorate's Management Services Office, receives a surprise proposal, complete with non-alcoholic champagne, from her husband-to-be in the Bldg. 3 Cafeteria. Dave Stang, an employee of LAN, an area environmental engineering company, received a "yes" from Wiley after the May 16 proposal. The couple plans to tie the knot on Nov. 22.

Biomedical consortium joins forces

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space biomedical research expertise and facilities; and

• Ensure that technology development and knowledge are transferred to the private sector.

"The Biomedical Research Institute will greatly enhance the quality of our life sciences research program as we take advantage of the capability and expertise of the Baylor College of Medicine and the consortium," said JSC Director George Abbey. "The consortium also will benefit by its involvement with NASA as we make our facilities and assets available to it. And the public will benefit as space technology is made available to solve problems here on Earth."

Dr. Ralph Feigin, president of Baylor College of Medicine said, "This venture is an exciting opportunity for the worlds of space science and biomedical science to join forces. We are particularly pleased that Baylor's Dr. Bobby R. Alford will serve as chairman of the National Space Biomedical Research Institute."

"Baylor College of Medicine, the consortium institutions and the integrated research teams are more excited than ever about the extraordinary challenge and potential that this powerful partnership between NASA and academia, linked to industry, offers," said Alford, chairman of the National Space Biomedical Research Institute Board.

"We believe the opportunities are unlimited to foster and enhance the space life sciences and insure the safe long term human presence, development and exploration of space; which in turn, because of biomedical discoveries and advances in knowledge and technology, will enhance life on Earth," Alford added.

The director of the National Space Biomedical Research Institute will be Dr. Laurence Young, Apollo professor of astronautics at MIT. Young termed the institute "a major step toward further human exploration of the solar system."

JSC reaches into community with school project

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well as having this collaboration with the world premiere space center right at our back door."

U.S. Rep. Nick Lampson, D-Texas, joined Abbey and Wilson at the news conference announcing the project.

"I'm impressed with what the Johnson Space Center does, the people here and the businesses around JSC," Lampson said. "For this organization to be able to reach out into the community and to have a real collaboration of sharing the expertise that is a part of the federal government to facilitate the activities of the local government is a great opportunity."

Wilson said the intermediate school will be on about 35 acres at the southwest corner of JSC, west of Space Center Houston, made available to the school district under a license agreement. The school will house grades 6, 7 and 8, and will be a replacement for what is now Space Center Intermediate School. The school may also be used as a magnet for science, math and engineering students throughout the district. A final decision on the name of the school has not been made. Construction is targeted to begin in November, and completion of the $13 million bond-financed project is expected the fall of 1999.

Abbey said he expects JSC to work with the school to teach its students about the importance of engineering and science and what it means to them in terms of potential careers.

"Having the center in close proximity allows us to get the students out and show them our facilities, our laboratories and have them learn about what we do," Abbey said.

Wilson and Abbey agreed that the project could be a pathfinder for similar activities around the country.

"We have a vision and the vision is a connectivity between our school system as a conduit for training and working with young people in developing their talent, but also as a prototype to show as a partnership how we can bring many entities to the table working together and have an absolute world-class type of educational experience," Wilson said. "It is a natural that this can be a prototype that can be an example to our entire nation in the area of science, math and engineering."

Abbey said numerous other cooperative educational projects sponsored by JSC and the Clear Creek district encourage young people to consider careers as the nation's future space explorers and scientists.

"If we can be successful here, I think we can set an example for other facilities around the country. I think if we're going to really make an impact on education we've got to do it all across the country," Abbey said.

Linenger: 'Good to be back on Earth'

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seven people, Mike Foale and his two colleagues on orbit, communicated and got along so well together that there was never any time we didn't understand what we had to do next and why."

Thick clouds prevented *Atlantis* from coming home on the first chance for landing, but the skies cleared in time one orbit later.

"It's been a very difficult mission, it's been a very successful mission on Mir," said Linenger, who joined the rest of the crew at Ellington Field. "It was a real privilege to partake in that great adventure. It's also very good to be back on Earth and feel the breeze and see you Earthlings out there."

Four of the STS-84 astronauts were making return visits to Mir—Precourt, Collins, and Mission Specialists Foale and Elena Kondakova—but it was the first time Collins had been inside.

"I finally got the chance to go inside Mir after seeing it from the outside on 63," she said. "The Mir is just beautiful. From the outside, it's bright white, it's brilliant. On the inside its warm and we shared a camaraderie with our Russian cosmonaut friends. We talked about their life aboard Mir and it was like a home to me."

Kondakova remembered the STS-63 rendezvous from a different perspective, as she was in the middle of a six-month Mir stay.

"Two years ago I saw Eileen and Michael Foale only through a window. I didn't think I'd come back to my home with American guys. But now we are together. We had a good program. We had many experiments. It was a good time for all of us."

Mission Specialist Jean-François Clervoy, however, remembered seeing Mir for the first time.

"What I saw was like a shining diamond in the shape of a flower with the modules shining like petals," he said. "We worked a lot of payloads that were very interesting, especially the Biorack where the direct result of our handling of the samples."

Mission Specialist Carlos Noriega commended the training team for preparing the crew for any contingency, but noted that *Atlantis* was virtually trouble-free throughout the flight.

"We were ready for anything that could happen up there," Noriega said. "Luckily we really didn't have anything to challenge our knowledge skills."

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Cafeteria grand opening features enchilada special

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To kick-off the grand opening, the JSC Bldg. 3 Cafeteria will have a chicken enchilada lunch special (two enchiladas, picante sauce/sour cream, rice, beans, and guacamole for $3.70) on June 16. In addition, customers who purchase one of the daily specials ($3.50 or equivalent) during the week of June 16-20 may enter their names in a drawing for a 10-cup Krups Espresso machine. The drawing will be held June 20.

For more information about the retail store's grand opening or silent computer auction visit the Exchanges' home page at: http://www4.jsc.nasa.gov/ah/Exchange/Stores.htm

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