Preliminary results from NASA’s Total Ozone Mapping Spectrometer onboard the Nimbus-7 satellite show that the 1992 Antarctic ozone hole is the largest on record. The previous surface area covered by low total ozone values was less than 250 Dobson Units, typically has reached near 7.7 million square miles. Last Wednesday, the surface area covered reached 8.9 million square miles, an increase in size from 1991 of approximately 15 percent. By comparison, the surface area of the North American continent is 9.4 million square miles. Antarcics has 5.1 million square miles. Since the mid-1980s, the region covered by low total ozone values begins to grow in early August. The region covered usually reaches its greatest extent in October. This is the fifth year since 1986 that large-scale regional ozone reductions over the Antarctic have been observed.

The minimum total ozone value on Sept. 23 was 131 Dobson Units. A record low of 111 Dobson Units was set on Oct. 6, 1991, near the South Pole. A Dobson Unit level of 100 equals a layer of gas one millimeter thick at its surface. The lowest 1992 value probably will not be observed for several weeks, report scientists at NASA’s Goddard Space Flight Center.

Scientists believe man-made chlorine is the primary cause for ozone hole formation. This year’s hole also makes major contributions to global warming by the continued presence of sulfuric acid droplets in the upper atmosphere. The droplets were created by the eruption of Mount Pinatubo in the Philippines in June.

Goddard scientists noted that midlatitude stratospheric temperatures, recorded by the National Oceanic and Atmospheric Administration’s National Meteorological Center, were colder than normal. These colder temperatures would contribute indirectly to larger ozone losses.

Further research is required to determine the role of these phenomena with respect to the low total ozone seen this year, according to Goddard scientists.

Ozone, a molecule made up of three atoms of oxygen, comprises a thin layer at the upper atmosphere which absorbs harmful ultraviolet radiation. The molecule is used to describe a large area of intense ozone depletion in the Southern Hemisphere typically during late-August through early-October and breaks up in mid-November.

NASA satellite records largest ozone hole on record

**Vetern crew likes mixture of experiments**

The veteran crew of the upcoming STS-52 mission to deploy Laser Geodynamics Satellite-II and test a new system for controlling a large robot arm is ready to begin its challenging grab-bag of technology evaluations. Commander John D.Berry, Pilot Mike Baker, mission specialists Larry Young, Bill Oefelein, Mission Specialist Tammy Jernigan; and Payload Specialist Steve MacLean traveled to Kennedy Space Center on Thursday to wrap up countdown preparations.

"We are doing a little bit of everything and that makes us happy," Wetherbee said. "We go into space to work and collect data and bring it back and come up with questions, not always answers. And that’s good because it will keep us thinking in the future, it will keep us advancing."

The international flight includes not only a Canadian payload specialist and a set of Canadian experiments that will look at machine vision systems, but the payload-LAGEOS-II satellite that will help scientists on the ground measure the drift of satellite gimbals. French-built experiment called Materials for the Study of Interesting Phenomena of Satellites on Earth and in Orbit, the European Space Agency’s Attitude Sensor Package and a host of materials processing and physiological experiments put together by various American companies and academic institutions.

The primary payload is the LAGEOS satellite, a two-foot-diameter sphere made of brass and aluminum and covered with 420 reflectors. After Jernigan checks out the satellite and its launch vehicle, the system will start its journey to open up a new era in space exploration. LAGEOS-II, launched by NASA on an expendable launch vehicle 16 years ago, will "just astounds me that the LAGEOS satellite can help measure the speed of the drift of the continental shelf to an accuracy of 1 centimeters a year," Wetherbee said.

**Blackshear earns Hughes Award**

Donna Blackshear of the Administration Directorate received the Virginia B. Hughes Equal Opportunity Award on Wednesday for her contributions toward the advancement of women at JSC. JSC Acting Director Paul J. Weitz presented the award, sponsored annually by the Federal Women’s Program, at the Gilruth Center. The award ceremony capped two days of workshops that looked at managing conflict and change, using stress positively and improving memory skills. About 50 men and women attended the workshops.

Blackshear, who came to JSC in 1981 as a Presidential Management Intern after graduating from Harvard’s Kennedy School of Government, is the manager of the Exploration Program Resources Management Office. She earned the Hughes Award for being a mentor and role model for women in terms of achieving both personal and career success through demonstrating outstanding personal performance.

The selection was made by the 10-member Federal Women’s Program working group.

"It was a difficult decision from the five people that we had this year," said Federal Women’s Program Manager Pam Adams. "Even though they were not selected as the recipient, they deserve recognition for all of their contributions to women here at JSC."

This year’s other nominees were Harvey Hartman of the Human Resources Office, Alice Lee of the Safety, Reliability and Quality Assurance Office, Carla Lattier of the Office of the Contoller and Denise Baiden of the Space and Life Science Directorate.

**Nicholson earns Gilruth Trophy**

Senior engineer in the Earth Resources Office, and technical assistant to the manager of the Advanced Missions Office.

In the 1970s, he became technical assistant to the Apollo Program manager, and manager of the STS Payload Integration and Development Program in the STS Operations Office. In 1986, he served as technical assistant to the JSC director.

Nicholson became the manager for NISTS Integration and Operations in 1985, and in 1989 he became deputy director of the Space Shuttle Program. Recently, he was named manager of the shuttle program.

**Mars Observer begins journey, deploys booms**

The Mars Observer spacecraft partially deployed its two science booms Tuesday and began science operations. The Mars Observer spacecraft is more than 1.3 miles long (over 4,000 kilometers). The spacecraft is traveling at a speed of about 16,000 kilometers per hour (7.5 miles per hour) with respect to Earth.

The first boom carrying the gamma ray spectrometer was successfully deployed at 12:50 a.m. (CST). The second boom was deployed at 1:27 a.m. (CST). These booms are designed to protect the magnetometer boom from the intense radiation present at the spacecraft. The booms were extended to 10 minutes and the 6-meter (20-foot) boom was extended to 4.3 meters (14 feet).

Both booms will remain partially extended.
Ticket Window

The following discount tickets are available for purchase in the Bidg. 11 East phone box, 40117 7th St. Until Oct 14, "Memorial Weekend," $12,500 2 x 30560 or $50. 2 x 30561.

Once Upon a Time... -- The JSC Astronomical Society will be hosting its 3rd annual Astronomical Science & Art Festival 9 a.m. - 4 p.m. Friday, Oct 14. There will be astronomy exhibits, demonstrations, posters, and activities for all ages -- from beginners to advanced and everything in between. The public is welcome to attend. Food will be available. Contact Dr. Henry Ford at 332-0365 or hpford@jsc.nasa.gov.

Shop Window

The following items are on sale at the JSC Shop, 401 E 3050 W, until Nov 1, 2002.

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Photo Frenzy

Spacelab-J crew returns treasure trove of pictures

The crew of STS-47 took what may be a record number of photographs for a mission of its duration, documenting the important research of the first cooperative U.S.-Japanese science flight. A small sampling is displayed from top down, left to right:

1) The STS-47 crew poses for its on-orbit portrait in the Spacelab module. Clockwise from left are Mission Specialist Jan Davis, Commander Hoot Gibson, Pilot Curt Brown, Mission Specialist Mae Jemison, Payload Specialist Mamoru Mohri and Mission Specialist Mark Lee. In the center is Mission Specialist Jay Apt.

2) Mohri communicates with students on Earth from the aft flight deck of Endeavour. The communications were an extension of the Space Shuttle Amateur Radio Experiment, in which crew members talked with "ham" radio operators.

3) Mohri follows a flickering target light with his eyes as part of the Comparative Measurement of Visual Stability in Earth and Cosmic Space experiment. He is in a slant inverted position, one of several used to study head and eye movements in microgravity.

4) Apt responds to a crewmate's question during a shift handover in the Spacelab-J science module. In the background are Jemison and Davis, his coworkers on the STS-47 blue team.

5) Lee, who also served as payload commander, floats through the tunnel that connects the Spacelab module to Endeavour's crew cabin. Lee is pointing to a sign in Japanese that translates to "EXIT-ENTRANCE" during a televised tour of the shuttle and its research facilities.

6) Jemison levitates among the experiment racks that kept the crew busy for seven days in the Spacelab module.

7) Davis talks to scientists in the Payload Operations Control Center at Marshall Space Flight Center as she works with the Free Flow Electrophoresis Unit in the Spacelab module.

8) One of the four female frogs that donated eggs to the Spacelab-J crew receives attention from a crew member in a glove box facility. The Frog Embryology Experiment returned more than 100 tadpoles that were conceived and hatched in zero-gravity to study how embryos develop in weightlessness. So far, the majority of the tadpoles appear to be developing normally.

9) Brown, left, and Lee repair a water leak in Spacelab Experiment Rack 10 using an in-flight maintenance procedure developed by the POCC with the cooperation of flight controllers at JSC. The repair allowed several materials processing furnaces, which needed a functioning coolant loop, to complete their experiments.

10) Davis and Brown oversee the progress of some of the 180 female Oriental Hornets carried aboard Endeavour as part of the Israel Space Agency Investigation About Hornets. The crew also carried out an in-flight maintenance repair that reduced high humidity in the ISAIAH middeck locker. The hornets' ability to build their combs in the direction of gravity was being tested in microgravity.

11) Gibson, left, and Brown power down Endeavour following landing at Kennedy Space Center. The two are in the midst of a series of checklist procedures to complete the eight-day mission.

The STS-47 crew will present more photos, video and film during a post-flight briefing for employees at 2 p.m. Tuesday in Teague Auditorium. All employees are encouraged to attend.
Brandenstein earns prestigious awards

Astronaut Office Chief Dan Brandenstein recently received two prestigious awards for his work as the commander of the STS-49 mission that captured and repaired the Hubble Space Telescope.

Brandenstein was presented the award during a ceremony at the Kennedy Space Center in late October.

Three Engineering Directorate workers win Quality Partnership Award three-year cycle of continuing improvement in the areas of process and product quality, staff professionalism and safety.

NASA Alumni League plans third conference

More than 4,000 participants are expected to attend the third annual conference of the NASA Alumni League, "Space Exploration '92," sponsored by the NASA Alumni League, Oct. 26-29 at the South Shore Harbour Conference Center.

Almost 50 exhibits are registered including the first international exhibits and exhibitors, 11 others are being added, and the conference coordinator will also appear in a special panel discussion set for Oct. 28.

"In addition to this unprecedented participation by senior NASA officials, Space Exploration '92' will offer panel discussion by top political staff members, NASA and industry managers of the Space Station Freedom Space Shuttle programs, Russian and U.S. executives on joint program plans and managers of the Space Exploration Initiative program," Beggs said.

"We are pleased to have a diverse and qualified assembly of experts who will be available to answer questions, and at the same time, make the conference an enjoyable experience for all," Beggs added.

STS-52 crew has variety of duties on 10-day mission

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The JSC Office of Public Affairs has set up an official point of contact for help with various kinds of requests involving Space Station Freedom.

Steve Nebbia, chief of the Public Affairs Service Branch, is the designated point of contact for all media inquiries as well as VIP visits and other official use of Space Center Houston facilities. Public Affairs staff will process these requests, and employees should contact Nebbia at the Space Center Houston Public Affairs Office to take their needs directly to Space Center Houston. Nebbia may be reached at 239-3690.

Discount tickets for JSC employees and their families are available from the JSC Exchange Store in Building 11.

Center Operations plans fourth annual Chill Cook-off

The Center Operations Directorate will host the 4th Annual Chill Cook-off starting at 4:01 p.m. Oct. 16 at the GRC Dining Center.

Fourteen teams of COD personnel and support contractors are entered. Judges are JSC's Dan Ambris, Harvey Hartman, Bill Kelly, Don Puddy, Charlie Harlan and Lonza Onitsuka, Al Lu of NASA Head- quarters, Steve Phelps and Missy and Mike Murphy of Northwest Airlines, and Jim Thomsen of Lake Office Supply.

Public tasting begins at 7 p.m., ticket is $5 through Oct. 13 and $7 thereafter. They are purchased from COD employees. Tickets include admission, a souvenir button, refreshments, a tasting kit, entertainment and a door prize drawing.

Proceeds from the JSC's "People's Choice Award" will benefit the JSC Employee Assistance Fund.

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