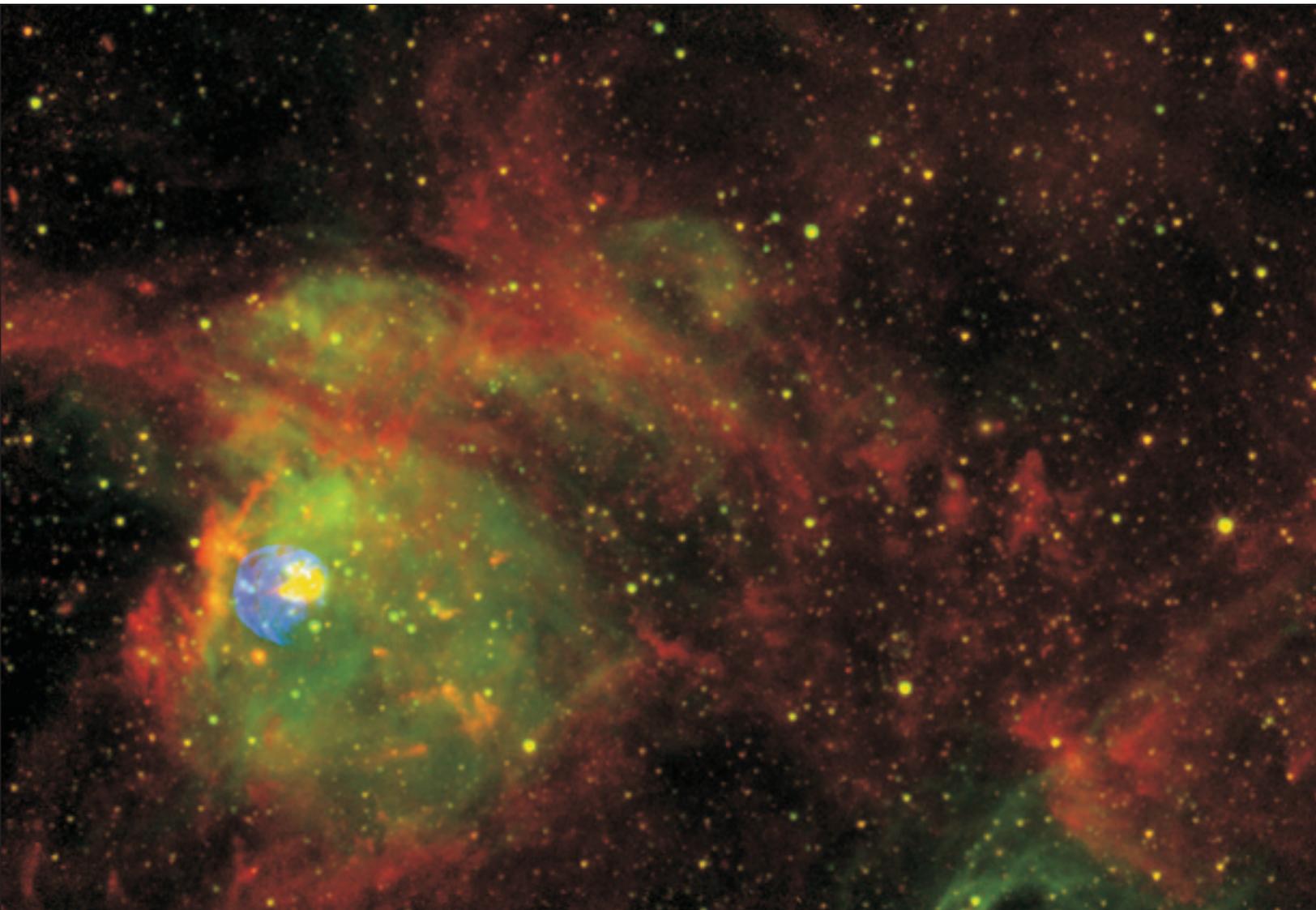




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Roundup



It's beginning to look a lot like...

This composite Hubble image from the far reaches of space captures what appears to be an intergalactic holiday light display. The upcoming Hubble repair mission, scheduled for mid 2008, will provide unlimited possibilities to further understanding of our mysterious universe. To learn more, see story beginning on page 6.

FROM THE *director*

A MESSAGE FROM CENTER DIRECTOR MICHAEL L. COATS



I'm hoping that by sharing a very personal experience it may possibly help someone else in our NASA family. Two years ago I had a near-fatal heart attack. This column is an unabashed plea for all of you to get periodic wellness exams. Medical professionals will recommend exams based on your age and risk factors, including many new diagnostic tests available today. There are many ways to modify risk factors for heart disease and to detect disease early, so you can avoid my personal experience.

I've learned a lot about heart disease since my heart stopped beating two minutes after my wife and I walked into a hospital emergency room. A blood clot had completely blocked one artery, and it took 16 shocks with the defibrillator in the ER before my heart could sustain a steady heartbeat long enough to clear the artery with a stent. Even though I had never had high cholesterol, had no family history and had just passed an annual physical, I was fortunate to have classic heart attack symptoms that even I couldn't ignore. But I almost waited too long, as the vast majority of people do, and my wife misses the humor when I joke that I had almost two minutes to spare.

I've learned some interesting facts about heart disease over the last two years. Even though they are generally protected until menopause, far more women die from heart disease than from any other cause, including four times as many as from breast cancer. Recent medical studies indicate that while many more men have "classic" heart attack symptoms (e.g., chest or arm pain, feelings of unease, profuse perspiration), women's symptoms are not nearly as classic and range "from nose to toes." As the ER professionals emphasized during my week in the Intensive Care Unit, when in doubt, get to an emergency room! At worst, it could cost you \$100 when they send you home with indigestion. At best, they can work miracles and save your life. (In fact, you get your \$100 back if you are admitted!)

I talked with many cardiologists, and they all emphasized that "risk factors" for heart disease need to be assessed regularly. The two dominant risk factors are family history and smoking. Others include age (men over 45 and women over 55), excess weight, high cholesterol, high blood pressure, lack of exercise and stress. Your doctor can recommend periodic physicals based on your age and risk factors as well as a test to detect heart disease early. These can include running on a treadmill to EBCT (electron beam computerized tomography) that can detect early calcium buildup in the arteries before it becomes severe. Some simple recommendations to pursue for your own health and well-being include stopping smoking, entering an exercise program, eating right, getting enough sleep and, when necessary, using medications to lower your cholesterol. We have a terrific new wellness program and exercise facility with classes and information that can help you with many of these preventive strategies.

I was lucky in the extreme. I had little or no permanent damage, and I didn't miss the utter joy of playing with my granddaughters. Every one of you, government and contractor, is a precious and valued member of our NASA family. Please don't press your luck like I did.

A handwritten signature in black ink that reads "Mike". The signature is written in a cursive, flowing style.

Space station broadcasts going high-definition

by Kendra Phipps

IN THE NEAR FUTURE, space buffs will be able to get a much better look at the International Space Station and its crew: NASA is going high-definition.

For those whose home televisions are not yet equipped, the high-definition television (HDTV) format provides a much clearer, sharper image than the traditional analog format. According to the Federal Communications Commission, an HDTV picture can contain as many as 1080 horizontal lines, compared with an analog picture's 480. It also features a longer, movie-screen-shaped picture.

"It will be the TV system of the future," said JSC's Carlos Fontanot, chair of the Space Station Imagery Working Group.

To be specific, it will be the system of Feb. 17, 2009 and onward. On that date, analog broadcasting is scheduled to stop, having been replaced by digital. HDTV is one type of digital television. Fontanot said that the format is "pretty much in its infancy right now," but that networks are gearing up for the conversion. Some already offer programming in HDTV.

NASA is joining the ranks of organizations preparing for 2009. In order to get its high-definition ducks in a row, the agency sent an HDTV encoder and professional-quality camera to the space station on the STS-115 mission. The encoder, called Space Video Gateway, has been deployed, configured and powered up, and the space station crew tested the new system with a downlink on Oct. 18.

"Everything went as planned," said Fontanot about the trial run. "It was very successful." He said that the test relied on organizations from around the center, including the imagery group, engineering, space station avionics, public affairs, flight controllers and schedulers, and the Digital TV Working Group from Marshall Space Flight Center.

The first live HDTV programming from the space station took place Nov. 15. Thanks to a Space Act Agreement, the Discovery Channel and the Japanese network NHK had the rights to the programming. This is not the first time that NASA has worked with the HDTV industry: Earlier this year, the agency announced a partnership with HDNet that allows the network to broadcast all remaining shuttle launches in high-definition. However, the live downlink marked the first HDTV broadcast from space.

With the successful test and the first live broadcast under his belt, and the first live broadcast coming up, Fontanot said that he is glad to announce the convergence of HDTV and on-orbit broadcasting.

"HDTV is here!" he said.

For more information about digital television, including HDTV, go to www.dtv.gov.



ISS Imagery Working Group Chair Carlos Fontanot works in the Mission Control Center during the test, along with Public Affairs Officer Rob Navias.



Flight Director Dana Weigel and Capcom Jim "Vegas" Kelly watch the high-definition test from their consoles.

Powering up with STS-116

Space Shuttle *Discovery* and its crew will undertake one of the most challenging missions to date in the construction of the International Space Station. STS-116, which is designated as flight 12A.1 in the station assembly sequence, will also include the first station crew rotation by a shuttle mission in four years.

STS-116's construction work will focus on the installation of the Port 5 (P5) integrated truss segment and efforts to reconfigure and redistribute the power generated by the station's U.S. solar arrays. The crew will perform three spacewalks and use the shuttle and station robotic arms to assist.

The STS-116 crew will bring online electricity generated by a second giant set of solar panels that was added to the station during STS-115 in September. The electrical power available to the station's systems will be almost doubled.

LAUNCH AND DOCKING

Discovery will launch from Kennedy Space Center (KSC) to begin a two-day trip to the station. On Flight Day 2, the crew will prepare for docking and conduct shuttle heat shield inspections. Docking is slated for Flight Day 3. The shuttle crew then will spend a week at the orbital outpost conducting spacewalks, transferring cargo and working with the station's Expedition 14 crew.

Launch will mark the start of *Discovery's* 33rd flight into space and the 117th in the history of the shuttle program. STS-116 will be the 20th to the orbital outpost.

THE CREW

The STS-116 crew is a mixture of veterans and first-time space travelers.

STS-116's commander is Mark Polansky. His first spaceflight in 2001 was as pilot on STS-98, which delivered the U.S. Destiny Laboratory module to the station. Polansky, a former U.S. Air Force pilot, joined NASA as an aerospace engineer in 1992 and became an astronaut candidate in 1996.

Pilot William Oefelein will make his first trip into space during STS-116. He is a commander in the U.S. Navy and became an astronaut candidate in 1998. Oefelein has accumulated 3,000 hours flying time in more than 50 aircraft.

Robert Curbeam will make his third trip into space as a mission specialist and lead spacewalker during STS-116. The Navy captain

joined NASA in 1994, was a member of the STS-85 crew in 1997 and he flew to the station with Polansky on STS-98. Curbeam is an experienced spacewalker with more than 19 hours during three excursions.

Mission specialists Joan Higginbotham, Nicholas Patrick, Christer Fuglesang and Sunita Williams all will make their first flights into space. European Space Agency (ESA) astronaut Thomas Reiter will join the STS-116 crew as a mission specialist when Williams replaces him as a member of the Expedition 14 crew.

Higginbotham's career at NASA began nine years before she was selected as an astronaut candidate in 1996. She supported 53 space shuttle launches at KSC in different engineering and management roles.

Patrick joined NASA in 1998 as an astronaut candidate. He received a doctorate in mechanical engineering from the Massachusetts Institute of Technology and is an experienced pilot.

Fuglesang is a member of the ESA astronaut corps and has a doctorate in experimental particle physics. He has extensive training at NASA and with the Russian Federal Space Agency (Roskosmos).

Williams will be the NASA science officer aboard the station when she becomes a member of the Expedition 14 crew shortly after *Discovery* docks. She is also scheduled to join Expedition 15 during her six-month stay on the station. Williams is a commander in the Navy and was selected as an astronaut candidate in 1998.

Reiter became a member of the Expedition 13 crew in July and the Expedition 14 crew in September. He is the first ESA astronaut to live aboard the station. Reiter previously spent 179 days on the Russian Mir space station in 1997-98.

CARGO

The P5 truss spacer will ride to the station inside *Discovery's* payload bay and be attached to the P4 truss segment on Flight Day 4. It also will provide an attachment point for the P6 and its set of solar arrays during a future assembly mission.

The P5 truss contains cables that one day will transmit data and power between the P6 Photovoltaic Module and the other

