



Spaceport News

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John F. Kennedy Space Center

Mission update

STS-101, also known as International Space Station flight 2A.2a, is scheduled to launch from Pad 39A no earlier than April 13.

The nearly 10-day mission will prepare the Space Station for the arrival of the Russian-made Zvezda service module, scheduled for launch in July. The second docking with the Station will include one spacewalk to install equipment.

The seven-person crew took part in Crew Equipment Interface Test activities recently at KSC and SPACEHAB. See photos, page 3.

Inside: KSC's weather experts



Frank Merceret, above, chief of the Applied Meteorology Unit, and John Madura, manager of KSC's Weather Office, are used to the common misconception that they make weather forecasts on launch days. They don't do that, but the pair contribute to the space program in many ways. Please see story, page 4.

Staffing schedule takes shape

Changing an organization's structure is never simple, but the KSC 2000 process is intended to be as orderly and logical as possible.

That was the basic message of a recent series of briefings given by members of the Workforce Planning Team (WPT) to civil service employees. The briefings were the team's response to feedback reflecting uncertainty among workers about the Center's first major reorganization in at least two decades.

"We've been doing a really good job of communicating to about 100

Plans call for all positions in the KSC 2000 reorganization to be settled by the first week of May.

people (in management)," WPT member Pat Simpkins said during a meeting on March 2 with about 80 employees in the Launch Control Center. "We realized we needed to get to more people."

During the 75-minute session, Simpkins and other team members outlined the process that will fill

positions in organizations from the top down. With a mandate to be fair, objective, efficient and effective, the team plans to have all high-grade assignments settled by the first week of May.

The first step in the process is the announcement of tentative assignments of Senior Executive Staff members. That announcement is scheduled for March 13.

With the organization leads established, the next step will involve an application process for

(See KSC 2000, Page 6)

Walking the talk



KSC Director Roy Bridges keeps an eye out for hazards during a recent safety walk down at the Operations Support Building.

Center director's safety walk downs set an example

During his time as assistant to Center Director Roy Bridges, Bob Mott has grown accustomed to seeing instances of his boss's commitment to safety.

"The center director pays personal attention to safety," Mott said.

The Agency Safety Initiative requires centers to protect four groups or entities listed in order of priority — the public, astronauts, the workforce and high-value hardware. It is left to individual centers to develop the specifics of their safety plans.

Bridges began performing the monthly safety walk downs in 1998 as part of KSC's response to the Agency Safety Initiative. Once each month, he devotes a full hour to the inspection of a specific work area. If he notices any potentially unsafe conditions, he assigns the

(See Walks, Page 2)

'Force' is with Cape facility once again

The site of many NASA launches has a new name that's actually an old name: Cape Canaveral Air Force Station.

The word "Force" was returned to the name as part of an Air Force policy intended to clear up confusion about the status of some of its installations.

The facility, which includes pads used to launch NASA payloads on expendable launch vehicles, had been known by that five-word name for years before shortening the name several years ago.

The change offers an occasion to

review the history of the names designated for Cape Canaveral and Kennedy Space Center.

When early Spanish explorers wrote about the cape, they referred to it as "Cabo de las Corrientes," or "Cabo do Canareal." The cape was first plotted in 1530, when it appeared on a map drawn by Veconte de Magglio. The Indians native to the area called it by a name that sounded like "Canaveral," which roughly translates in Spanish to mean "cane break."

The name was used on de

Magglio's map and was the official name of the cape until President Johnson renamed it "Cape Kennedy" on Nov. 29, 1963.

On May 29, 1973, Florida Governor Reubin Askew signed a bill which restored the name of the cape back to "Canaveral" when referred to in state maps and documents.

On Oct. 9, 1973, the Board of Geographic Names, U.S. Dept. of the Interior, changed the name back to "Canaveral" for Federal use also.

The Launch Operations Directorate, a component of the Marshall

Space Flight Center, existed until July 1, 1962, when it was replaced by the Launch Operations Center, a separate NASA field installation.

On Nov. 29, 1963, the Launch Operations Center was renamed the John F. Kennedy Space Center.

Therefore, the independent NASA launch facility on Merritt Island, Fla., has had two official names:

- The Launch Operations Center (July 1, 1962 to Nov. 29, 1963), and
- John F. Kennedy Space Center (Nov. 29, 1963 to the present).

Walks ...

(Continued from Page 1)

appropriate supervisor the task of fixing the problem and reporting back to him.

The walk downs are not restricted to areas — such as the Orbiter Processing Facility — that might be considered high safety risks. Bridges gives equal attention to the office environments in which many KSC employees work. Mott has often seen the center director checking boxes stacked on cabinets to make sure they are not in danger of falling on someone.

The safety walk downs, conspicuous as they may be to employees in the area being inspected, are just one part of KSC's safety initiative. In fact, all supervisors are mandated to do their own

monthly inspections of work areas and to enter the results in their Goal Performance Evaluation System (GPES) reports.

As with the center director's walk downs, supervisors are expected to follow up with corrective actions for any problems that turn up.

"Everyone has a responsibility for safety, but especially supervision at all levels" said Ann Montgomery, deputy director for Safety and Mission Assurance. "Rather than running a safety professional through there once a year, if everybody is looking for safety hazards on a regular basis, there's a better chance we'll find them. ... With the geography of the center so spread out, we have to rely on supervisors."

As evidence that the inspections

have increased safety awareness at the Center, 57 percent fewer violations were noted by safety professionals when they checked work areas in 1999 than in the previous year. And the executive staff isn't exempt from the inspections: the fourth floor of the Headquarters Building is subject to its own monthly scrutiny.

Contrary to what might be expected, Montgomery said the vast majority of safety problems turn up not in launch operation areas but in more mundane settings. Leading the list of recent injuries are slips, trips, and falls, so she is usually looking for uneven carpet tiles, cables across the walkway, or other tripping hazards.

"Almost all our safety incidents are office accidents," Montgomery said. "It's not what you'd call

glamorous ... but if somebody can get hurt, it's important."

NASA has encouraged its centers to pursue "star certified" status under OSHA's Voluntary Protection Program. Montgomery said KSC tentatively plans to apply for certification in 2001.

And while KSC addresses safety in such formal ways, the center director continues to show that these new steps are equally, if not more, important.

"I've gotten in elevators and walked through buildings with Mr. Bridges, and if he sees some trash on the floor," Mott said, "he'll stop, pick up the trash, and properly dispose of it. Probably 100 people saw the trash there and didn't do anything, but the center director does. When you see that, it gets your attention."

Workers get chance to run from bosses

The ninth annual Beat the Boss 5K Run and 2-mile walk is scheduled for April 1 at 9 a.m. in Cocoa Beach. For the second straight year, the race will start and finish behind Coconuts on the Beach.

The events are open to all NASA, military and contractor employees and their immediate families. An entry fee of \$7 includes a race T-shirt, a post-race pancake breakfast, fruit, water and Gatorade. To register early, pick up an application at one of the KSC

Exercise Facilities, NASA Exchange stores, the guard desk in the USA office

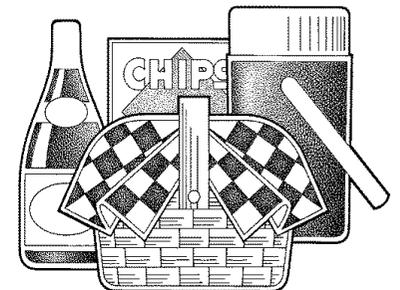
building at Cape Canaveral or at the Patrick Air Force Base gym.

Questions or requests for an e-mail copy of the application should be directed to Marty Winkel at 861-7502 or martin.l.winkel@usago.ksc.nasa.gov.



Mark your calendars for a picnic

KSC's All-American Picnic will be held Saturday, April 15, from 10 a.m. to 4 p.m. at KARS Park I. Tickets are scheduled to go on sale beginning March 27. Watch for more details in upcoming issues of Spaceport News as well as on the picnic Web site on KSC's Internal Home Page.



Clarification

In the last issue of *Spaceport News*, the name of the new conference facility at the Visitor Complex was not correctly described. The new building, named for KSC's first Center Director, is the Kurt H. Debus Conference Facility and Early Space Exploration Exhibit.



The crews of two upcoming missions to the International Space Station, STS-101 and STS-106, took part recently in Crew Equipment Interface Test activities at KSC and at Spacehab in Cape Canaveral. In the photo at left, Spacehab workers help STS-101 crew members Jeffrey Williams, right, and Mary Ellen Weber, left, become familiar with the interior of the Spacehab double module. The crew will be responsible for preparing the International Space Station for the arrival of the Zvezda Service Module, expected to be launched by Russia in July. The crew also will conduct one space walk to perform maintenance on the Space Station and deliver logistics and supplies. STS-101 is scheduled to launch no earlier than April 13 from Launch Pad 39A.

Station crews shift into gear



LEFT: The newly formed crew of STS-101 poses in front of the Spacehab double module in the Space Station Processing Facility. In the foreground from left are Mission Specialists Jeffrey Williams and Mary Ellen Weber, Commander James Halsell and Pilot Scott Horowitz; in the back are Mission Specialists James Voss, Yuri Usachev of Russia and Susan Helms. STS-101 features a mostly experienced crew. Halsell, a veteran of four space flights, has logged more than 1,021 hours in space. Helms and Voss have flown three times before, while Horowitz has made two previous flights and Weber one. Usachev, a Russian cosmonaut, flew two Mir missions. Williams will be making his first space flight.

BELOW: At SPACEHAB, in Cape Canaveral, members of the STS-101 crew take part in CEIT activities, learning about some of the equipment they will be working with on their mission to the International Space Station. Looking over one of the elements are (left to right) Voss, Helms, Horowitz and Usachev.



Weather watch: KSC office serves as lightning rod for collecting crucial information

John Madura, manager of the KSC Weather Office, was recently presented a gag gift by a retiring 45th Space Wing officer — a lighter.

Madura doesn't smoke. The gift was intended as a solution to the ever-present stack of papers in Madura's in-box, which on a recent morning towered about 18 inches high.

"It used to be taller than that," said Frank Merceret, chief of the Applied Meteorology Unit and Madura's office mate in the KSC Headquarters building.

The bulging stack is testimony to the voluminous work performed by KSC's two civil

"It's impossible to put us in a neat little box. We support so many offices."

— FRANK MERCERET,
KSC METEOROLOGIST

servant weather employees — at last count, they were involved in 132 separate projects. Madura and Merceret, it seems, do just about everything except the one job

most other KSC employees assume belongs to them: weather forecasting.

In reality, all forecasts used for official purposes at KSC come from one of two outside sources. The 45th Weather Squadron makes forecasts for ground processing and launches and issues all warnings and advisories for the Center. The Space Flight Meteorology Group (SMG), a National Weather Service branch based at Johnson Space Center (JSC), handles all Shuttle and on-orbit and landing forecasts, including KSC and the Trans-Atlantic Abort Landing sites.

Madura does, however, help KSC management and the press understand the operational impacts of the forecasts.

The main work of KSC's Weather Office, though, involves coordinating the efforts of the many different meteorological entities that support the space program and making sure that NASA's needs are met. The office also plays a major role in setting weather criteria for launch and landing, and provides crucial expertise for the planning of new vehicle operations.

"We get involved in a wide spectrum of activity," Madura said. "We have a lot of interface with folks outside the KSC realm. I probably spend 70 percent of my time each day focusing the resources of people who are not KSC employees or contractors."

"It's impossible to put us in a neat little box," Merceret added. "We support so many offices. We do so many different things, no matter what box you put us in we do things that that box doesn't really do."

Madura, formerly commander of the 45th Weather Squadron, retired from the Air Force as a colonel in 1993 and became the Weather



John Madura's position as manager of KSC's Weather Office brings him into contact with a wide range of people inside and outside the Center. "He's absolutely wonderful with people," office mate Frank Merceret says of Madura.

Office manager. When the NASA Weather Office in Washington, D.C., closed in 1997, the KSC Weather Office assumed responsibility for weather support to all of NASA's Shuttle and ELV programs, including support from JSC, Marshall Space Flight Center (MSFC), Edwards Air Force Base, the Western Range and others.

Madura performs many ongoing functions in addition to those 132 projects represented by his overflowing in-box. He participates in morning briefings for the KSC launch director and briefs KSC senior staff three times a week on weather hazards that might affect KSC operations during the next seven days. He's also responsible for interpreting outside forecasts for KSC management, such as during the approach of a hurricane. And he chairs a panel of experts on atmospheric electricity that meets annually to review and if necessary modify lightning launch commit criteria (LCC). The LCC are used by the entire American space program.

One of Madura's projects at the moment involves planning weather support for a scheduled NASA mission next year from a new launch facility at Kodiak Island, Alaska.

His greatest current challenge, though, may be his responsibility to safeguard NASA's needs in cooperation with the Eastern Range during a major Range upgrade called Range Standardization and Automation (RSA).

Among the other projects that come across Madura's desk are frequent requests from universities, contractors or other governmental groups to help in conducting tests of weather techniques or equipment.

"Central Florida is a veritable storm factory, one of the most active in the world," Madura said. "We also have the densest weather infrastructure in the world. Scientists like to come here, and we encourage and foster that. In gathering data here, they're studying our

problems and we don't have to pay them a thing for it. We just help them with logistics requirements such as site access, permits, power and communications."

The office is scheduled to work this summer with scientists from MSFC, the National Oceanic and Atmospheric Administration (NOAA), the Air Force and several universities on an experiment to collect data relating to the lightning launch rules. One of these rules restricts flight through certain clouds that contain temperatures between freezing and -20 Celsius. Another LCC restricts flight through or near thunderstorm "anvils" — those long, high clouds that blow off the top of thunderstorms. The experiment will provide new data to permit changing the rules to make them simultaneously safer and less restrictive.

"This office has been doing R & D (research and development) since before R & D was allowed at KSC," Merceret said. "We'd call it anything but research, but you had to do it to improve the weather technology. We've been living the (Spaceport Technology Center) concept for 10 years."

Evidence for that claim can be found in the numerous articles and papers the office has published in technical journals. The office received three Best Manufacturing Practices awards from a Navy review panel in 1996.

As chief of the Applied Meteorology Unit (AMU), Merceret concentrates on the hardware and software that gathers and processes weather information. A former NOAA employee with a doctorate in atmospheric physics, he came to NASA to head the newly created AMU in 1991.

The AMU is a facility located in the Range Operations Control Center on Cape Canaveral Air Force Station. Managed by NASA and

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Weather ...

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operated by a contractor (ENSCO, Inc.), it serves NASA, the Air Force and the National Weather Service. The AMU's work includes ongoing duties in support of those three organizations, "option hours" tasks (work funded by outside sources that don't interfere with the primary work), and tasks that respond to urgent operational needs.

In performing those jobs, the AMU has access to an abundance of sources of weather information, including:

- 44 towers at KSC and CCAFS that offer readings on temperature, wind speed and barometric pressure;
- 31 field mills, which measure electrical fields near the surface;
- four on-site lightning detectors, as well as radar measurements from Patrick Air Force Base and the National Weather Service;
- six profilers, including a five-acre Doppler radar wind profiler located near the SLF;
- weather balloons at the Cape, Trans-Atlantic Abort Landing sites in Spain and Africa and Edwards Air Force Base, Calif.;
- 31 rain gauges;
- lightning-induced voltage sensors at the launch pads; and

- weather satellite data and numerical weather prediction models from external sources.

There are also plans to install visibility sensors west of the Center, where fog is likely to form. But even with this wealth of information available, Merceret says: "We need more."

Although weather forecasting has long played a role in NASA's launch planning, the need for precise understanding of all facets of the weather was reinforced by two events in particular: the Challenger accident in 1986 and the loss of an Atlas-Centaur to lightning in 1987. Noting that half of all launch scrubs result from weather concerns, Merceret said that improved precision — especially in cutting down on false alarms — not only increases safety but also saves the Agency money.

Merceret has recently concentrated his efforts on use of the Doppler Radar Wind Profiler (DRWP). He has published several journal articles on the instrument, which he says can be used in addition to weather balloons for Shuttle day of launch wind measurements. Based on Merceret's studies, Titan already uses DRWP data on launch day and Delta is planning to use it.

Though Merceret and Madura have different backgrounds and roles, they function as a team.



Applied Meteorology Unit chief Frank Merceret, shown at Cape Canaveral Air Force Station, has worked at KSC since 1991. The round structure behind him houses an antenna for tracking weather balloons.

"We have enough overlap (of knowledge) that we can communicate with each other effectively," Merceret said.

In addition to their shared knowledge, the pair are bonded by a genuine passion for weather. In Madura's case, that passion brings him into the office each day at around 4 a.m. (after a wake-up run) and often keeps him there past 5 p.m. "I wish I had his stamina," Merceret said.

"We say eating and sleeping are signs of weakness," Madura joked. "The many, strong operational requirements of the office set our alarm clocks and drive our priori-

ties."

Madura also serves as a liaison between the forecasting offices and the press, supporting KSC's Media Services office for launches and landings. He and Merceret also take part in a heavy load of outreach activity — judging science fairs, making school presentations, contributing to the Shuttle Team Online Web site and serving as virtual science mentors.

"This is one of the neatest jobs in the world," Merceret said. "What we're doing is important, the people we work with are great, and I think I can honestly say we're doing a good job."

Weather rules govern launches, landings

The KSC Weather Office contributes to the weather guidelines that govern launches and landings for the Space Shuttle and expendable rockets.

The weather rules include a vast range of sometimes complicated criteria, but the main issues involved are temperature, wind, precipitation, lightning and clouds. Here are the basic guidelines followed by launch managers for Space Shuttle missions.

Temperature — Loading of the external tanks with propellant will not begin if the average temperature in the previous 24 hours has been below 41 degrees. After tanking begins, the countdown or launch will be delayed if the temperature exceeds 99 degrees for more than 30 consecutive minutes.

The Shuttle cannot be launched if the temperature is 35 degrees or colder. A formula that includes sun angle, wind speed and relative humidity determines whether a launch can take place when the temperature is 48 degrees or colder.

Wind — Tanking will not begin if the wind exceeds 42 knots or is predicted to reach that level in the next three hours.

For launches, the peak allowed wind speed is 30 knots. Depending on wind direction, the minimum peak can be as low as 24 knots.

Lightning — A forecast of greater than a 20 percent chance of lightning within five nautical miles for one hour will halt the start of tanking. Launch will not occur if lightning has been detected within 10 miles of the pad or flight path

within 30 minutes. In addition, a formula that measures one-minute electrical field averages is used to determine whether conditions are safe for launch.

Precipitation — Any rain at the launch pad or in the flight path will prevent a launch.

Clouds — Launch is not allowed if the flight path passes through a layer of clouds that is at least 4,500 feet thick and contains temperatures between 32 degrees and -4 degrees. Other prohibitions involve the temperature and proximity of cumulus clouds, flat-topped "anvil" clouds, thunderstorm debris clouds and smoke plumes.

Another set of rules applies to Eastern Range cloud ceilings and visibility. The orbiter must be observable through 8,000 feet.

Contingency — In addition to the launch rules, mission managers must consider conditions for a Return-To-Launch Site abort, landings at the Trans-Oceanic Abort Landing Sites, the Abort-Once-Around sites and the first day Primary Landing Site.

Landing — Decisions on the deorbit burn, which occurs 70-90 minutes before landing, involve many factors. A visibility of five miles is required. Peak allowed winds are 15-knot crosswinds during the day (12 at night), 25-knot headwinds and 10-knot tailwinds.

No thunderstorm, lightning or rain can be present within 30 miles of the Shuttle Landing Facility, and there are constraints on cloud types and turbulence.

KSC 2000 ...

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high-grade civil servants. Those rated GS/GM 15 will be allowed to apply for up to five positions the week of March 20. A similar process for GS/GM 14s will follow. Resume formats will be set up on the KSC 2000 Web site.

For each high-grade position, any number of candidates can be reviewed. The top three applicants will be interviewed, and all three will be notified of the outcome.

Simpkins said that one goal, among others, of the reorganization is to improve the ratio of civil servant supervisors to employees. The team hopes to move KSC from its current ratio of 1-to-8 to a ratio closer to the Agency goal of 1-to-11.

Simpkins noted that KSC has at least 520 high-grade employees and said he expects 130-140 supervisory positions in the new organization. He said current supervisors who choose not to seek supervisory jobs will be re-assigned to other positions at the same grade.

The list of supervisor positions in each organization will be posted on the KSC 2000 Web site.

For non-supervisors, if a position remains essentially unchanged, the employee will remain in that job. If a function moves to a different organization, the employee will move with the job. In the case of new functions, the WPT and the Organizational Implementation Teams will work to fill the position.

"Nobody is going to be downgraded," Simpkins said. "Everybody is going to have a job; it's just a question of where that job is going to be located."

Simpkins also emphasized that the reorganization will not involve the competitive placement process. He said some employees have a misconception that a series of open house events scheduled for late March and early April will serve as job fairs. Instead, he said the events are intended for "information exchange."

Once the slots in each organization have been filled, the Workforce Planning Team plans to release a list of all employee positions. The WPT is working to come up with a suitable method.

Last one out of Endeavour



Workers in the Orbiter Processing Facility use a crane to remove the Space Shuttle Radar Topography Mission hardware from the payload bay of Endeavour on March 1. The specially designed radar equipment flew during STS-99, allowing the six-person crew to take unprecedented measurements of the Earth's surface that will be used to make topographic maps.

In response to an employee's question about the slow release of details on the reorganization, Simpkins said that KSC's plans are subject to review by NASA Headquarters, the Space Shuttle and International Space Station Program offices, and presentation to other programs and stakeholders. Center Director Roy Bridges was scheduled to meet the week of March 6 with officials at Headquarters and then at Johnson Space Center.

WPT members said it is too early to predict how many employees will change locations as a result of the reorganization. All moves are scheduled to take place by Memorial Day weekend, May 27-29.

Simpkins said that the Organizational Implementation Teams, in partnership with the Workforce Planning Team, will have the main responsibility to put employees into specific positions. When questions arise, the WPT will work with the associated organizations to try to get the "best fit" possible for everyone involved.

"We've got to do this in an

March employees of the month



Employees of the Month for March are (from left) Michael Griffin, Mission and Safety Assurance; Michael Bell, Business Innovation Group; Cathy Parker, Logistics Operations; Robert Youngquist, Engineering Development; Debbie Preston, Shuttle Processing; Georgina Marrial, Finance Office; Walter Covington, Joint Performance Management Office; Ann Nelson, Installation Operations; and Sharon Hauss, Checkout and Launch Control Systems. Not pictured: Tracy Young, Public Affairs; Robert Parks, Space Station and Shuttle Payloads; and Eugene Stoccardo, Expendable Launch Vehicles and Payload Carriers.

orderly fashion because we still have missions to perform," Simpkins said. "There's a lot of operational (work) that we can't afford to disturb."

He said reorganization planners

will continue to release information through various sources, including the KSC 2000 Web site (<http://ksc2000.ksc.nasa.gov/default.htm>) and the internal online publication 10 O'Clock News.

Astronaut tells of skin cancer tragedy

As astronaut Jeff Ashby stood in the Mission Briefing Room, he held the rapt attention of his audience—but not by sharing his experiences on STS-93.

“I’m not here to talk about space,” Ashby said. “I’m here to talk about life.”

Ashby, one of the speakers at the NASA Skin Cancer Prevention Program Kick-off on Feb. 24, proceeded to give a brief but moving account of his experience with the disease. He told how in 1993 he noticed an irregular mole on the back of his wife, Diana, the day before he left for a six-month Navy deployment.

The spot was diagnosed as melanoma and removed, but less than a year later Diana noticed a lump under her arm. The melanoma had spread to her lymph nodes. Three years later — following numerous surgeries and other exhaustive treatments — Diana died at age 33.

“It was without doubt the toughest three years of my life,” Ashby said. “I saw her go through endless pain. ... All of that came from one tiny little mole on the center of Diana’s back.”

Ashby’s words offered an emotional complement to the scientific descriptions and practical advice dispensed during the kick-off event. The NASA Occupational Health Program hosted the kickoff as part of the agencywide Solar Safe program.

KSC already has taken several steps as part of the program — such as providing sunscreen for employees.

KSC Director Roy Bridges emphasized two points about the program: that it falls under KSC’s guiding principle of Health and Safety First; and that, like all health initiatives, it can’t be limited only to working hours. Like Ashby, he offered personal testimony, referring to a friend and former Air Force commander who died of skin cancer and revealing that he has had a suspicious spot removed from his leg.

Bridges also credited NASA Administrator Dan Goldin for increasing awareness of skin cancer

risks. Noting that many NASA centers are in sunny locations, Goldin has emphasized the importance of preventing excessive exposure.

Bridges, who accompanies Goldin around the Center during his trips for launches and landings, said: “It never fails if it’s a daytime event Dan says something about skin cancer and the fact that we need to do more. He sees people running around without hats, and some of them are bronzed and others, the ones like me, are red.”

The center director displayed the floppy, wide-brimmed hat that he and other senior management wear when outside on the center.

Two other speakers, Dr. Richard Granstein of Cornell University and Dr. Shelley Sekula of the American Academy of Dermatology, gave the audience an education on the causes and treatments of skin cancer. Their messages included a sobering collection of slides showing cancerous lesions and surgical effects.

Sekula urged people to apply sunscreen as a daily routine just as automatically as they brush their teeth, noting “no one has ever died of tooth cancer.” By contrast, more than 7,000 people die of melanoma each year in the United States. (Other skin cancers are more common but cause fewer deaths.)

Granstein said that one in five Americans will develop some form of skin cancer. He emphasized that even people of dark-skinned racial or ethnic origin are vulnerable to the diseases. And Sekula said that indoor tanning beds are unsafe.

Vigilance against skin cancer depends on what dermatologists call the ABCDs of skin spots: asymmetrical shapes, boundaries that are irregular, colors that vary and a diameter of 6 millimeters or greater.

Representatives from the American Cancer Society and other groups supplied information and product samples at the event. The Occupational Health office offered sunscreen packets and index cards that measure ultraviolet (UV) levels and measured eyeglasses for UV protection.



Astronaut Jeff Ashby gives an interview to a TV reporter during his appearance at the KSC Skin Cancer Prevention Program Kick-off on Feb. 24.

KSC aims to save skin of workers

KSC employees may have noticed “Solar Safe” stations at various locations around the Center. The stations are being replaced by an order-on-demand system.

The availability of sunscreen is just one step in KSC’s Skin Cancer Prevention Program. Dr. David Tipton of the Biomedical Office said the program has four main elements:

Administrative control: NASA and contractors will identify people in jobs that include high sun exposure. Whenever possible, such actions as rearranging work schedules to reduce sun exposure will be attempted.

Personal protection equipment: Tipton said a program now being established will allow employees to order sunscreen through standard procurement methods. In addition, the Biomedical Office is working with NASA and contractors to develop a plan for making hats and such protective gear as umbrellas available to employees.

Education: The kick-off event was part of a continuing effort to make employees aware of the risks of skin cancer. Tipton said this aspect of the program is especially important because employees’ sun exposure is not limited to work

situations. He also stressed the need to persuade employees to protect their family members — especially children — from excessive sun exposure.

“Skin cancer is more highly associated with sun exposure as a child than as an adult,” Tipton said.

Medical surveillance: The Occupational Health Office is training its physicians in the techniques of skin examination. But Tipton emphasized that the most important element in skin safety is a regular self-examination using the “ABCD” guide described above. Because melanoma is fatal if not caught early enough, even an annual examination by a doctor might catch a problem only when it is too late.

Still, Tipton recommends a yearly visit to a dermatologist, noting that physicians who specialize in skin disorders are twice as likely to detect abnormalities as other physicians. Such exams are particularly important for anyone who falls into one of four “high-risk” categories: fair-skinned people, those with a history of skin cancer, those with a family history of the disease and those with 50 or more moles.

Center dials ODIN for phone service

A personal telephone number is something employees take for granted at home.

A recent change in telephone contracts at KSC means that eventually workers will have that same identification at work.

The Outsourcing Desktop Initiative for NASA (ODIN) took over management of KSC's telephone service contract on March 1, replacing Space Mark, Inc., which had held the previous contract.

OAO Corporation, the KSC ODIN service provider, has handled desktop computer services at KSC since Dec. 1, 1998. It has already been managing telephone services at Johnson Space Center and Stennis Space Center.

Seven companies won selection as possible service providers on the Desktop Outsourcing Initiative for

"We're expecting a better level of service than what we have today."

**— BRIAN MONTGOMERY,
ORDER REPRESENTATIVE**

NASA contract with Goddard Space Flight Agency. The Office of Space Flight (OSF), for which KSC serves as lead center, chose OAO Corp. of Greenbelt, Md. as the OSF service provider. With Space Mark's contract scheduled to expire, KSC decided to order telephone services under the ODIN contract.

Brian Montgomery, the Contract Order Technical Representative for the OSF ODIN Delivery Order, said OAO will operate the phone system similar to how they have provided desktop computer

services under the delivery order. As new telephone instruments are required, OAO will provide new corporate-owned "end units" (telephones) — and KSC pays for telephone services.

Montgomery said the Center expects several improvements in phone service as a result of the new contract, including the replacement of phone cables in many buildings and the installation of "smart" remotes.

Those two steps will help lead to individually assigned numbers that remain with the employee even if they change locations on the Center. "Right now, it's very labor-intensive to change telephone numbers," Montgomery said. "but with the improvements, it will only take a couple of keystrokes to make the change."

Another notable change involves

the number of phones in use at KSC. Montgomery said that at present there are approximately 18,000 phones for approximately 12,000 employees. He expects under the new contract the number of phones will significantly be reduced.

In addition, each change in the telephone seat and every level of service will need approval from the ODIN office, with justification required for anything beyond basic service.

A new service number — 867-ODIN (867-6346) — replaces the previous number — 867-7555.

"ODIN strives for excellent service," Montgomery said. "We're expecting a better level of service than what we have today. What we have is good; we're just are expecting a better level of service with ODIN."

Chandra captures 'intergalactic cold front'

A colossal cosmic "weather system" produced by the collision of two giant clusters of galaxies has been imaged by NASA's Chandra X-ray Observatory. For the first time, the pressure fronts in the system can be traced in detail, and they show a bright but relatively cool 50-million-degree central region embedded in a large elongated cloud of 70-million-degree gas, all of which is roiling in a faint "atmosphere" of 100 million degree gas.

"We can compare this to an intergalactic cold front," said Maxim Markevitch of the Harvard-Smithsonian Center for Astrophysics, Cambridge, Mass., and leader of the international team involved in the analysis of the observations. "A major difference is that in this case, cold means 70 million degrees."

Chandra was deployed during the STS-93 mission launched from KSC in July 1999. The successful mission was commanded by Eileen Collins.

The gas clouds in the images are in the core of a galaxy cluster known as Abell 2142. The cluster is six million light years across and

contains hundreds of galaxies and enough gas to make a thousand more.

It is one of the most massive objects in the universe. Galaxy clusters grow to vast sizes as smaller clusters are pulled inward under the influence of gravity. They collide and merge over the course of billions of years, releasing tremendous amounts of energy that heats the cluster gas to 100 million degrees.

The Chandra data provides the first detailed look at the late stages of this merger process. Previously, scientists had used the German-US Roentgen satellite to produce a broad-brush picture of the cluster. The elongated shape of the bright cloud suggested that two clouds were in the process of coalescing into one, but the details remained unclear. Chandra is able to measure variations of temperature, density and pressure with unprecedented resolution.

"Now we can begin to understand the physics of these mergers, which are among the most energetic events in the universe," said Markevitch.

"The pressure and density maps

of the cluster show a sharp boundary that can only exist in the moving environment of a merge," he added.

With this information scientists can make a comparison with computer simulations of cosmic mergers. This comparison, which is in the early stages, shows that this merger has progressed to an advanced stage. Strong shock waves predicted by the theory for the initial collision of clusters are not observed. It appears likely that

these sub-clusters have collided two or three times in a billion years or more, and have nearly completed their merger.

The observations were made on August 20, 1999, using the Advanced CCD Imaging Spectrometer (ACIS). The team involved scientists from NASA's Marshall Space Flight Center in Huntsville, Ala., as well as academic and governmental organizations from the United States and other countries.



John F. Kennedy Space Center

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