

# Grounded in fact

## ESD's Distributed Active Archive Center puts *Terra* satellite's data on firm footing

Just before Christmas, NASA launched *Terra*, the flagship satellite for its Earth Observation System, to monitor environmental and climate change on Earth. Researchers in the Environmental Sciences Division, working closely with the space agency and global change researchers, are helping to verify the data that come from the satellite's instruments.

ORNL's role is to assist in the validation of data coming from *Terra*'s MODIS (or Moderate Resolution Imaging Spectroradiometer) by comparing these data with actual observations from the ground. In other words, the researchers in the field are going to help confirm what the spacecraft is seeing and how it should be interpreted.

"Sensing climatic and environmental conditions on the ground from a satellite requires a lot of interpretation," says Dick Olson, with ESD's Distributed Active Archive Center, or DAAC. "We're helping NASA determine how well satellite-derived images relate to the information on the ground."

The DAAC is funded by NASA to assemble, archive, and distribute information

on terrestrial ecosystems useful to global change researchers. The center will compile statistics from 24 sites around the globe, including ORNL's Walker Branch Watershed, and use that knowledge to help *Terra* researchers accurately interpret what the MODIS instrument is measuring.

"Another satellite, the Hubble space telescope, gave us tremendous ability to look out in space. *Terra* gives us an ability to look back at the Earth," says Olson. "The science community sees *Terra* as a big jump in its ability to monitor, understand, and predict global environmental conditions and the impact they may have on the environment."

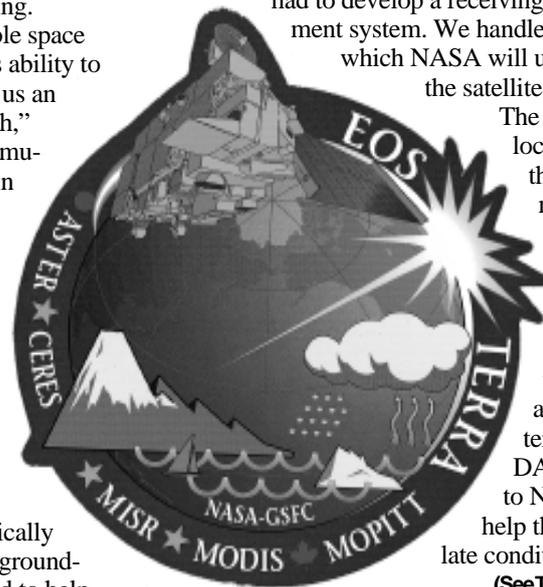
The bus-sized satellite's instruments will produce copious streams of data, which will be managed by a system of centers around the country. ORNL's capabilities with data management, specifically the DAAC's ability to handle ground-based information, will be used to help

NASA validate its space-based observations with real conditions on the ground.

"It's an incredible investment by NASA," says ESD's Bob Cook. "The streams of data from the five instruments on *Terra* are unprecedented. The NASA researchers had to develop a receiving and management system. We handle the field data, which NASA will use to support the satellite data."

The 24 sites are located around the world—many in the United States and Canada—in a variety of environmental settings and ecosystems. What the DAAC provides to NASA will help them extrapolate conditions on the

(See TERRA, back page)



# Transition: UT-Battelle team praises LMER's preparations

Transition team leaders for UT-Battelle have arrived at ORNL to begin those activities. It's a task fraught with *i*'s to dot and *t*'s to cross. UT-Battelle team members say, however, that they are finding a house left well in order by their Lockheed Martin Energy Research Corporation predecessors.

The transition activities began January 18. The handover is still set for April 1. Between now and then, says Guy Cunningham, who is leading the UT-Battelle transition team, scores of people will be working to effect a smooth changing of the guard. How apparent those activities will be to staff members will depend largely on where they sit.

"Transition activities won't be very visible to people at the research bench or in the field," Cunningham says. "It might be more apparent to people down in the management ranks,

especially from the science and ES&H standpoints, because we're going to be meeting with them and learning more about the Lab.

"The incoming key personnel—the leaders of the science and functional organizations—will all be working in parallel to get a better feel of the Lab. We actually got a pretty good feel of it during the proposal process.

"We are going to try to get out and about," Cunningham says.

"We want to be accessible."

In a January 18 letter to division, office and program directors, Deputy Director

Richard Genung noted that staff members may be called upon to interface with members of the transition team, and he encouraged "utmost support."

The 40 to 50 UT-Battelle and LMER transition folk are housed in the east end of

Quonset-hut-styled Building 2001, which UT-Battelle President Bill Madia has dubbed "the Winter Palace." One of the first transition activities was the distribution of a flyer to all employees that includes photos and small write-ups on top managers. Information on the transition will be available on the new contractor's Web site, [www.ut-battelle.com](http://www.ut-battelle.com), as well as through the existing employee communications vehicles at ORNL, including *ORNL Today* and *ORNL Reporter*.

Cunningham, who has served as general counsel at Pacific Northwest National Laboratory, is a veteran of the transition at Brookhaven National Laboratory two years ago. He acknowledges that the BNL transition had some major differences.

"There were overriding preexisting conditions at BNL—the tritium issue—that we were guided to address in the transition process. Here, in the absence of such issues, we're guided to wait until after the transition to deal with other issues."

(See TRANSITION, page 2)

*"In transition, you have to focus on the details and know what you are inheriting. It's a lot like getting married."*

# Transition

Continued from page 1

Tom Etheridge, the ORNL transition manager, and DOE's Martha Kass are working with Cunningham to ensure a smooth process. A smooth process, Etheridge points out, also means a less costly process for all parties involved.

"It's similar to moving out of an apartment," says Etheridge, the LMER point person. "You want to leave things in good shape."

It's a pretty complex house. The transition team will be working to make sure as few as possible details get overlooked when the name on the letterhead changes.

"For instance," says Cunningham, "Subcontracts must be changed from LMER to UT-Battelle. However, most of them stipulate that if the contractor changes, the subcontract automatically changes over to the new contractor, which is handled by a letter to the subcontractors."

Other details can be more elusive.

"Some simple things are easy to miss, like having a formal agreement that UT-Battelle can open ordinary business-related mail that comes in addressed to LMER after the transition is over."

A sampling of other details includes changing the registration of vehicles that transfer materials over roads; changing tax agreements with about 18 states; modifying cooperative research and development agreements, as well as patent applications and environmental permits; and addressing legal and financial third-party agreements among LMER, DOE and UT-Battelle.

"It's a lot like getting married," Cunningham says. "If the wife is changing her name, it means making the change to a lot of different things. In transition, you have to focus on those details and know what you are inheriting."

DOE's role in the transition is to verify that, first, LMER has done enough to be relieved of its role and, second, that UT-Battelle has done enough to assume responsibility.

Cunningham, who'll pack up and go back to Battelle headquarters in Columbus on April 1, gives the LMER team high praise for leaving the house in order.

"I'd like to express, and Bill Madia has

made this point also, that we're extremely impressed with the detail of preparation that the LMER people have made. We came in thinking we would have to do a lot of things and arrived to find that LMER had already taken care of them. It has streamlined things tremendously."

Etheridge reacts to the praise humbly: "It's part of our contract."—B.C. [ornl](#)

## Lab activities take President's Awards

ORNL and Energy Systems handed out the latest round of Presidents' Awards for Continuous Improvement on January 20. These awards reflect the innovation and extra efforts of the recipients. This time eight ORNL teams were honored.

A Plant and Equipment Division and Office of Environmental Protection team including Glen Anderson, Tim Brown, Betty Cale, Angie Hamby, Eddie Justice, Vickie Langley, Tim Russell and Elizabeth Wright was cited for its efforts with the Buffer Zone Enhancement project, which has improved the appearance of the streams around ORNL as well as made them compliant with environmental regulations.

Phil Sklad and Srinath Viswanathan of the Metals and Ceramics Division were congratulated for developing an activity in casting for lightweight materials. The program, which they built from zero to \$1 million a year, has also forged ties with professional casting societies.

The team that developed the Lab's new Web-based Performance Assessment and Development Systems, or PADS, was cited for flexibility, creativity, initiative and dedication to meeting ever-changing requirements during a demanding implementation. They are Don Cross, Nancy Getsi, Ron Parr and Rick Phillips.

The Robotics and Process Systems Division's Paul Singh learned of a planned reduction in weapons activity at the Avangard nuclear weapons facility in Russia. He quickly coordinated with DOE on a reindustrialization vision for the facility that became a \$1 million project that enhanced national security.

ORNL e-mail users have been enjoying a new server thanks to the efforts of Shui Chang, Joe Foust, Dave Giles, Susan Hicks, George Hill, Jamey Maze, Larry Rosenbaum and Brian Wallace. The new server consolidates six servers into one and shields users from viruses. It also avoids an estimated \$100,000 in costs.

Rick Stephens of the Computing, Information and Networking Division provided key technical leadership in coordinating the ORNL Data Warehouse project, which gave the Lab a copy of the Corporate Information Center.

Until recently, documents published at ORNL were created electronically and printed on paper. Printing a technical report required an arduous permission process that included 10 signatures. CIND's Mike Aaron, Barbara Ashdown, Bill Clapper, Bob Conrad, Jamie Crigger, Jeanne Dole, Dave Hamrin, Becky Lawson, Dami Rich and Deborah York streamlined the process into an electronic and automatic process that saves \$50,000 a year and, more importantly, makes it easier for Lab researchers to access information.

Claretta Sullivan and Barbara Summers got a database and electronic information system up and running for the Office of University and Science Education. The new system allows OUSE to track and expedite applications in educational programs. That sort of work isn't normally their jobs, but their efforts have made a dramatic impact on the office's operations. [ornl](#)

### Report Your Concerns

Concerns involving fraud, waste, abuse, corruption, or mismanagement in DOE programs, operations, funds, or contracts should be reported to the Ethics Helpline at 576-9000. Notwithstanding the above, employees should, when appropriate, report directly to the DOE Office of Inspector General any information concerning wrongdoing by DOE employees, contractors, subcontractors, grantees or other recipients of DOE financial assistance, or their employees.

The DOE Office of Inspector General Hotline numbers—1-800-541-1625 and (202) 586-4073—appear on this page each issue.



is published for the employees and retirees of Lockheed Martin Energy Research Corporation, which manages and operates Oak Ridge National Laboratory for the U.S. Department of Energy. On the Web: [www.ornl.gov/reporter](http://www.ornl.gov/reporter).

Bill Cabbage, editor  
Phone 574-4399  
E-mail [cabagewh@ornl.gov](mailto:cabagewh@ornl.gov)

Deborah Barnes, associate editor  
Phone 576-0470  
E-mail [barnesds@ornl.gov](mailto:barnesds@ornl.gov)  
fax: 574-1001

ORNL and Energy Systems Helpline (ethics; fraud, waste and abuse; quality; ES&H): 576-9000  
DOE Inspector General Hotline: 1-800-541-1625



Curtis Boles

James Hall of the Office of Environmental Protection learned some facts about the transition in a recent meeting. James, who is ORNL's NEPA compliance officer, lives in Farragut.

# Lab Notes

## Madia: "Run it like it's being run"

Although he's made it a point to be available to various groups at the Lab, UT-Battelle President Bill Madia held his first "all-hands" meeting with Lab staff members on January 28. And despite the fact that it was a Friday afternoon with snow in the forecast (that never materialized), a large crowd filled Wigner Auditorium to get it straight from ORNL's director-come-April 1.

Madia introduced UT-Battelle's senior management team-to-be, which includes "incumbents" Gil Gilliland and Jim Roberto. Madia praised Gilliland's track record in industry and described Roberto as the Office of Science's hands-down choice to run the Physical and Computational Sciences Directorate.

UT-Battelle's status as a "non-profit" entity, he explained, has little to do with money. "Non-profit means that there are no owners or shareholders who have controlling authority. It's the best way for a private institution, Battelle, to partner with a public institution, like the University of Tennessee."

Of the two other major players in the partnership, Duke Engineering Systems will support the High-Flux Isotope Reactor and BWX Technologies will manage the "unique

outlined in the request for proposals, little will change, Madia said. Benefits and the pension plan will transition with few, if any, changes.

However, programs like scholarships, UT tuition credits and matching contributions are still under consideration.

Except for several top-rung "key personnel," ORNL employees should receive, by March 15, a letter of offer from UT-Battelle and a form to fill out with general benefits-related information. It's not a job application, Madia noted. "Employment is guaranteed in the RFP. It's a big, big, important formality."

Other topics ranged from UT-Battelle's desire to mount a building campaign to replace ORNL's aging infrastructure (two-thirds of ORNL's facilities are 40 years old or older) and to take 20 percent out of the Lab's overhead over the next three years. The former, Madia concedes, will require creative measures, such as third-party financing with DOE's approval. As for the latter, "Don't expect a bunch of consultants in suits to show up telling us where to make cuts."

Madia again stressed, as he has in his several appearances with Laboratory groups, that life at ORNL will go on much the same after April 1. ORNL, he said, "is not broken."

"Our goal in transition is to cross over and run it like it's being run. Will we look at new ideas and programs and benefit packages? Yes, absolutely," he said.

"Going forward, we have a lot of things to work on."

## SNS: Legislature voices no nays

January was a crucial month for the Spallation Neutron Source, and Nashville was a crucial location. A bill to exempt the SNS from about \$28 million in sales taxes over several years was voted in overwhelmingly by the Legislature. More importantly, it cleared, days before the February 1 deadline, the last hurdle placed by Congress for receiving FY 2000 funding.

The vote sent an undeniable message from the state that it supports the SNS project. The tax exemption comes at a time when state lawmakers are struggling with revenue shortfalls and a politically charged debate over how to remedy it. Even so, no lawmakers voted against the bill. The state Senate passed the measure 31-0 and the House followed up with a 96-0 vote. Finally, Gov. Don Sundquist, who attended the SNS groundbreaking in December, inked the

measure into law.

ORNL Director Al Trivelpiece says he is "delighted" with the "far-sighted decision" by Sundquist and the Legislature.

## Traffic: Could be a year of waiting

ORNL may be in for some Y2K problems, but they'll have nothing to do with computing and everything to do with commuting. Simultaneous road projects on the three major routes in and out of the Oak Ridge Reservation could make traffic a little testy during the year.

Construction of a flyover will necessitate closing Kerr Hollow Road, also known as the Oak Ridge Turnpike, and city traffic going east will be routed down Scarboro Road to Bethel Valley Road.

If you intended to miss that impending mess by going the Highway 95 route, your hopes may have been dashed by the year-long one-laning of the bridge spanning the Clinch River. That initially caused backups and delays of up to an hour, although measures taken by the state and contractor, at ORNL's urging, appeared to alleviate the tie-ups.

Finally, work on Highway 58 on the western end of the ORR has potential for causing delays.

Since alternate routes are in short supply, the best advice for commuters is to be patient, courteous and flexible and plan a little extra time into your trips going to and from work.

## Travel trimmed? Try the tube

Have the FY 2000 restrictions on travel expenditures, as mandated by Congress, clipped your wings? There could be a way around the problem beyond driving cross-country for that crucial face-to-face meeting: ORNL has videoconferencing facilities available to provide a low-cost alternative to hitting the road.

A videoconferencing task force has been formed to address short- and long-term needs for the Lab.

The Lab currently has one videoconferencing facility available in Building 4500-North's Room K-221. Other units may come on line later. The video teleconferencing unit is compliant with the H.320 standard for video conferencing over ISDN and, as long as the other side is using equipment based on this standard, the vendor of choice is not an issue, says Brian Swail of the Instrumentation and Controls Division's Technical Support section, which manages the facility.

"We already have many regular customers and would be glad to help videoconferencing novices get comfortable with using the technology," says Swail. If you'd like to, or are forced to, give videoconferencing a try, call them at 574-4414 or 574-5635 or send an e-mail to [videoconference@ornl.gov](mailto:videoconference@ornl.gov).

Who likes to fly anymore, anyway?

Reported by Bill Cabage



Lab employees in Wigner were among 600 who listened in on the first all-hands meeting of the transition.

issues" at Building 3019, ORNL's national repository for uranium-233. The other participating universities will bring in financial and strategic commitments, through memorandums of understanding, to build new programs at the Lab.

Many of the questions that UT-Battelle has received since the contract award have been about benefits and personnel issues. As

# Hot water

## ORNL, Alabama A&M study the energy aspects of the H side, boost minority partnering

You've done it: You twist on your "H" faucet and wait for the hot water to come. Depending on your home's plumbing, you may wait a good while. And you've likely wondered how much energy and water you're wasting, especially if you are the one who foots the utility bills.

Energy Division's Evelyn Baskin says that, surprisingly, there isn't much data on how much energy and water are wasted in residences because of the hot-water wait and associated energy losses. ORNL, working under a subcontract agreement with Alabama A&M University, plans to study and collect data on residential hot-water use and possibly make recommendations on how to avert some of those water and energy losses.

"We were surprised at how little industry data existed on hot-water and waste-water waste," Baskin says. "The American Society of Heating, Refrigeration, and Air-Conditioning Engineers told us they would be very interested in research into this area."

As homes and their appliances become more energy efficient, the energy used in heating water is becoming too large an energy expenditure to ignore, she explains. Energy Division's Bob Wendt adds that the next major gains in residential energy efficiency are likely to be in water heating and distribution.

The project is the keystone of an effort by ORNL, spurred by the Small Business Program Office, to

*The next major gains in residential energy efficiency are likely to be in water heating and distribution.*

boost the Lab's research collaborations with historically black colleges and universities and minority education institutions. The Alabama A&M proposal last year won Deputy Director Richard Genung's challenge pledge of \$50,000 in Lab support of projects with HBCUs/MEIs.

Selected students from Alabama A&M will canvas middle-income homes in the Huntsville area on their hot-water consumption habits and trends. They'll be supported with computer models that will show them where best to locate thermocouples and other instruments to collect data.

"There are devices on the market, such as pumps, that can speed the delivery of hot water," Baskin says. "These systems can also include loops that recirculate water back into the system instead of putting it down the drain. But many of these require the user to activate them, which might reduce their effectiveness. Their effectiveness isn't really well documented, and their impact on overall energy consumption is not known."

Other energy saving techniques could be as simple as insulating pipes or as complex as designing homes with more efficient piping configurations—or putting the water heater closer to the tap, as is typical in Europe.

On an individual scale, such efficiency gains might seem modest; on a national scale, such savings could be enormous. In addition, conserving water, usually an abundant resource in East Tennessee, is a major goal in more arid and rapidly growing areas of the country. For example, ORNL ran a study with the Maytag company in parched Bern, Kansas, two years ago to test a water-conserving washing-machine design.

Baskin says Alabama A&M was awarded the work to study the water-heating issue after she and Wendt, the Buildings Technology

Center's HBCU coordinator, sought HBCUs with engineering and architecture programs.

"Only one in 10 has these programs," she says. "However, Alabama A&M, being situated close to the Marshall Space Flight Center, had significant experience in fluid dynamics from work with NASA on propulsion projects. They are an excellent fit with this program. I think they can really succeed with this project because they have the capabilities there."

Baskin, herself a Tuskegee alumna, and Wendt say the BTC has other energy-efficiency-related projects with HBCU/MEIs under way.

- North Carolina A&T University is currently working on a design concept by Energy's John Tomlinson, who coordinated the Bern project, for a heat-pump system that uses the by-product heat from refrigerators to heat water. The school received the project's hardware from ORNL in August and is refining the concept's design.

- At Tuskegee, Wendt is advocating a project to design very-low-cost housing that can be acquired with normal market-based loans. Many low-cost housing programs are heavily subsidized; Wendt believes low-cost, energy-efficient basic home designs—without the uncertainty of subsidy programs—could be provided for

those who "fall in the cracks" in qualifying for these subsidy programs. "It's also a self-sustaining approach," he says.

- In related work at Tuskegee, Wendt wants students there to study health and safety issues related to very-low-cost homes. "Existing low-cost housing can be among the worst in terms of occupant health and safety," he says. "Thus far most of the work done in health and safety has been focused on upscale homes. In low-cost housing, can we also deal with excessive moisture and pollutants to make it a healthier place to live?"

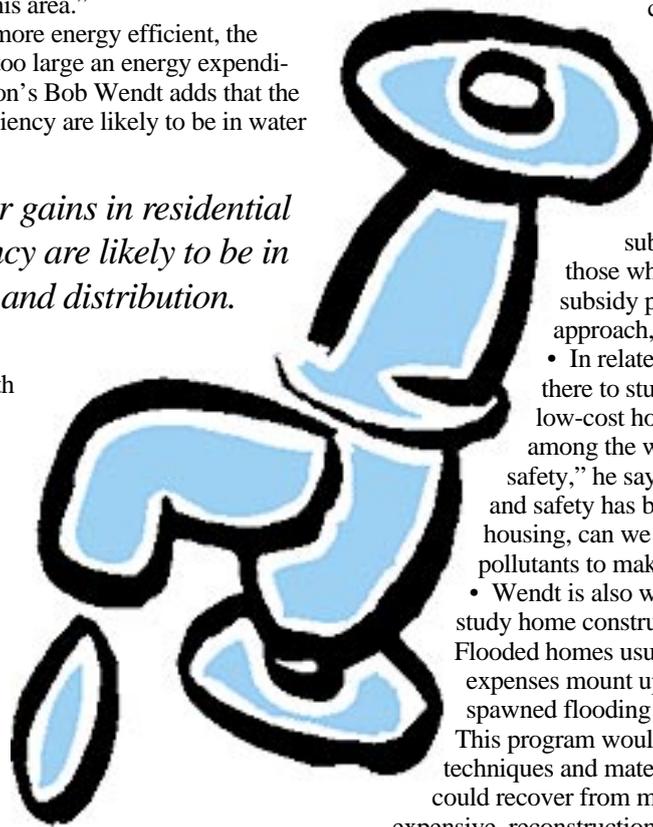
- Wendt is also working on a proposal with an HBCU to study home construction that is resistant to flood damage. Flooded homes usually must be gutted to the framing, and the expenses mount up to billions of dollars. Last fall's hurricane-spawned flooding in North Carolina is an extreme example. This program would investigate whether alternative building techniques and materials—such as foam-plastic insulation—could recover from minor flooding without extensive, and expensive, reconstruction. Wendt says the proposal is receiving interest and support from the Department of Housing and Urban Development and the Federal Emergency Management Agency as well as DOE.

Will Minter, who heads the Lab's Small Business Program Office, agrees with Baskin and Wendt that the HBCUs are a good resource for ORNL in doing this type of research and praised Deputy Director Genung's willingness to support, with his challenge grant, growth in those collaborations.

"Many of our researchers simply don't know about this resource," Minter says. "We want to create an environment where researchers can have an opportunity to know the staffs of HBCUs. How would you do that? Take an existing relationship and nurture it into a major opportunity. The Alabama A&M project and the others have that potential."

"We're looking for other research opportunities. The Small Business Program Office or the Office of University and Science Education can put researchers in touch with schools. In our office, David Mabry, 241-1163, is the point of contact for HMBC/MEI subcontracting.

"It could mean more research dollars for the Lab," Minter says. "It just makes good business sense."—B.C. [ornl](#)



# ISM Phase II: Divisions do their own thing to ensure safety message is heard in the workplace

To most of us who do work at ORNL, it's been business as usual. During January and February, however, ORNL has been in the midst of a readiness review for the Integrated Safety Management Phase II verification.

To demonstrate that it's ready for the verification, the tenets of an idea behind ISM should be well-known, understood and practiced throughout the Laboratory.

In the meantime, "business as usual" at ORNL should mean that we're all working safely together. Don't expect any parades or parties to kick off the Phase II verification. That's not what ISM is about, says ISM Program Manager Dennie Parzyck.

"Integrated Safety Management is an ongoing process," Parzyck says. "It's not something where you meet a deadline and say, 'That's it, well done.' It's really an effort that will continue whenever work is performed."

DOE plans to verify the degree to which ISM is being implemented by Lab employees during March. Leading up to that, all of the Lab directorates are performing their own self-assessments.

ORNL divisions, armed with an assessment plan and their own devices to suit their own organizations, have been actively sampling the staff throughout the divisions to see how well the ISM creed has sunk in.

In the Plant and Equipment Division, every work group has had a visit from a labor-management group. Three Atomic Trades and Labor Council health and safety representatives—Jeff Hill, David Barncoord and Jim Blankenship of the Office of Safety and Health Protection, and three supervisors—Tom Underwood, Cecil Gilliam and Richard Bowman—visited no less than 46 crews.

"We asked five questions to find out P&E Division's current status in integrated safety management," says Hill. "The findings were from one extreme to the other. Some knew the five core functions while others were in

the infancy stages of implementing ISM."

Those questions were

1. How many of you have heard of ISM?
2. How many know of the five core functions?
3. Could you recite them?
4. How important is ISMS to ORNL: Very, important, or a waste of time?
5. Are you involved in identifying hazards on the job?

"With that information, the division has some pretty good insight on where to put resources toward implementation," Hill says.

Carol Scott, the ES&H, operations, and maintenance group leader for the Robotics and Process Systems Division, took a similar approach in that research division.

"We took the five ISMS core functions and tailored them to our division work and to the specific groups of employees. Representatives from every section and group within the division were asked to participate.

"There actually were positive results of group self-assessment meetings beyond getting the answers to the questions. This format not only gave us very honest answers to the questions, but also led to valuable feedback as interviewee comments and input led to discussion of other issues. It was a learning experience for us all."

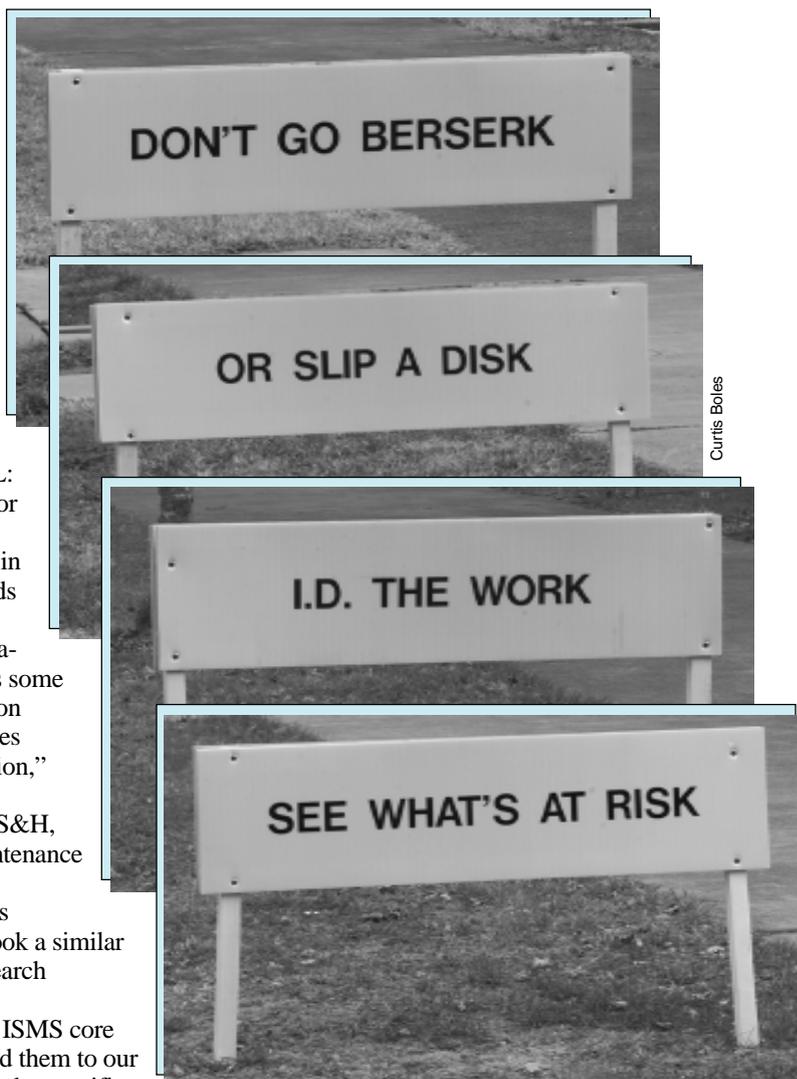
For the sake of reference, the five core functions of ISM are

- Define the work,
- Analyze the potential hazards,
- Develop controls to work safely
- Perform the work and
- Provide feedback after the job is done.

Scott says that since the meetings, various individuals have contacted her with additional suggestions for improvements and offers to help improve RPSD's ISM program.

"In RPSD, everyone knows everyone else in this facility, including those assigned here from other organizations," Scott says. "So, we take safety issues seriously not only for our own sake but also for the 'other guy.' If someone does get hurt, it is someone we know."

In a nutshell, that's what makes ISM important. That injured worker may be someone you know.—B.C. [ornl](#)



Curtis Boles

This and several other series of signs on Central Avenue evoke the Burma Shave roadside advertising campaign from the past century. The signs were erected as part of the Plant and Equipment Division's campaign to raise awareness of Integrated Safety Management. And that they do.

## ORNL people

**Richard Haire**, senior staff scientist in the Chemical and Analytical Sciences Division, has been named a fellow of the American Association for the Advancement of Science. Haire, who has worked at ORNL since 1965, was recognized for his actinide research.

**Steven Paul Hirshman**, group leader in the Fusion Energy Division, and **Gene Ice**, senior staff scientist in the Metals and Ceramics Division, were both named fellows by the American Physical Society. Hirshman was honored for his many contributions to fusion energy research; Ice was recognized for the application of resonant X-ray scattering to study materials and for his pioneering work in X-ray optics.

# AMSE vision

## Kaye Johnson wants the Oak Ridge centerpiece to be a top state attraction

**K**aye Johnson has a vision for the American Museum of Science and Energy. More exhibits. More science. More visitors. More special activities.

More fun.

Johnson has led the AMSE program since the Lab became affiliated with the museum. That came about when the DOE's Office of Science agreed to support the museum after the previous funder withdrew. Although the museum is still run by a subcontracted firm, ORNL is the host institution. Johnson wants to make the most of the collaboration.

"I want to see the museum become one of the top 25 tourist attractions in the state," Johnson proclaims. "Granted, it's hard to compete with Dollywood, because we don't have a Dolly, or Graceland, because we don't have any of Elvis's stuff."

The AMSE is a ways away from the top 25.

However, if the museum's competition is narrowed to the Knoxville area, it fares much better as a favorite place to go. "We're second in attendance in the Knoxville area only to the Knoxville Zoo," she says.



**Johnson**

"We draw in about 140,000 people a year to the museum. We fare pretty well on our home ground. To break into the state's top 25, AMSE would have to up that total by about 100,000."

How would one go about doing that?

"To increase attendance, you need good, new and traveling exhibits," she says. "You should advertise, but as a government agency we can't do that. At the same time, AMSE has the opportunity to be the window to the world for the Office of Science's accomplishments."

One of Johnson's dreams for achieving that vision is a virtual one. In short, using virtual reality to bring the public deeper into the national labs.

"One of the most important collaborations between ORNL and the museum is the summer public tours. My vision is a year-round virtual tour. We could use the IPIX technology developed in Oak Ridge. Tourgoers could go into an auditorium before the public tour—or in the off season—and take a virtual tour of the Lab. Or they could do it over the Internet. They'd be able to see the research tools that are difficult to physically access. They could visit the Mouse House, or the High Flux Isotope Reactor—actually see the Cherenkov glow. Maybe even recreate the sounds and smells. Tourgoers could actually experience the size and beauty of this place."

Johnson adds that the other national labs could be included in such a tour.

"I want us to tell the science story—the

contributions that research has made to our day-to-day lives," Johnson says.

Before the Office of Science and ORNL entered the scene, the AMSE's future was somewhat clouded, a situation that alarmed many Oak Ridge citizens. The museum has been a community icon for as long as there's been a city and has introduced many of the nation's youth to science beyond the classroom. (In past years science programs from AMSE were trucked to schools all over the country.) Even today, the museum's weekend events for children are often chaotically crowded.

"We have well-attended events," Johnson says. "In January we had our building sessions for the wildlife houses and feeder kits. I always purchase extra kits for gifts to relatives. I have a little great-nephew, Seth, who bangs them together for special occasions throughout the year."

February hosts an engineering exhibit, an exhibit on African Americans' role in science and technology and the annual model bridge-building contest. Johnson says plans are under way for a 30th Earth Day celebration in April.

There always seems to be a lot going on. Two ORNL sites of interest, the Graphite Reactor Museum and the New Bethel Church Interpretive Center, could also become part of the AMSE historical experience.

Johnson believes ORNL's liaison with AMSE will be seen as an advantage by the new contractor, UT-Battelle.

"With its extreme interest in community outreach, UT-Battelle thinks the museum is important," she says. "Battelle has experience with the museums near Pacific Northwest National Laboratory, and of course the University of Tennessee has its excellent McClung museum."

Johnson says time will only improve the effectiveness of the ORNL-AMSE union.

"Since the two joined, we're working together better every day. We're pulling the assets and resources of AMSE and ORNL together more routinely.

"We've made major accomplishments in upgrading existing facilities and getting new equipment—in general, making a positive impression," Johnson says.

"Today, the museum's staircase banister shines."—*B.C. [ornl](#)*



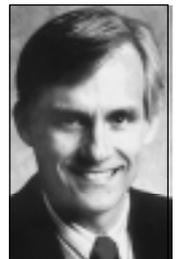
Curtis Boles

**ORNL Director Al Trivelpiece meets "Little Al," a remotely controlled character the American Museum of Science and Energy has acquired to greet guests, perform in science programs and enhance special events at the museum.**

## Lindberg, Pin named fellows

ORNL has added two new corporate fellows: Steve Lindberg of the Environmental Sciences Division and François Pin of the Robotics and Process Systems Division.

Researchers become corporate fellows through significant and sustained contributions over the years. Lindberg's achievements have been in the environmental sciences, including studies of mercury's behavior in ecosystems; Pin's accomplishments have been in robotics and intelligent machines, including advanced telerobotics systems.



**Lindberg**



**Pin**

## Deaths

Lowell A. Charlton died at his home on January 4. He was 59. Lowell, who lived in Maryville, most recently was working with the Spallation Neutron Source's Target Systems group.

# Retiree happenings

by Virginia Donahoe, Retirees' Association president, 576-1786

## We've moved too

You'll note elsewhere on this page that the Benefit Plans office has moved. The retirees office has also moved to the old FEDC Building. We're not at 701 Scarboro anymore. We're at 104 Union Valley Road.

Currently our office is nothing but boxes—no typewriter or anything—but we'll be set up and ready to go pretty soon. Drop by and see us.

## Travel

Our annual travel meeting with U.S. Travels took place on January 14 at the Oak Ridge Civic Center. The room was filled with Oak Ridgers and travelers from surrounding communities.

Larry Phillips passed out brochures for the year 2000 travel. He reviewed each travel as listed in the brochures that begins in March. If you have questions about a trip that interests you, call Ruth Jobe at 982-8532 or 800-282-4631.

The season's first trip is the Macon's Cherry Blossom Festival. The three-day trip departs March 17 and returns March 19. It includes overnight lodging in Macon. Attractions include a guided tour of the city, the Gala Ball, festival attractions and a tour of Calloway Gardens. This is a great spring tour for a price of \$249 for each person.

## Tai Chi

Our dedication to this exercise for seniors 55 and older makes all of us recognize our increased energy and balance. Don McGee, K-25, and Wallace Gambill, ORNL, earned the highest certification in their training and are our Monday and Wednesday instructors from 10 to 11 a.m.

We urge our retirees and friends who do not have a regular exercise program to try Tai Chi. Call Don McGee, 482-5148, if you have questions. See you at Tai Chi.

## Act provides for mastectomy reconstruction

The Women's Health and Cancer Rights Act of 1998 provides coverage for reconstructive surgery and related services following a mastectomy. The act of Congress affects group health coverage plans that provide medical and surgical coverage for a mastectomy.

ORNL and Y-12's health coverage plan provides this coverage as required by the statute. What this means for you is that

- coverage will be provided for reconstructive surgery of the breast on which a mastectomy has been performed,
- coverage will be provided for surgery and reconstruction of the other breast to

provide a symmetrical appearance,

- coverage will be provided for prostheses and to address physical complications through all stages of mastectomy, including swelling associated with the removal of lymph nodes and
- coverage will be in a manner that is determined in consultation with the attending physician and patient.

All other terms and conditions of your health benefit plan will apply to this coverage. If you have any questions or concerns about how this legislation affects you and your health coverage plan, call the customer service number shown on your ID card.

## Service Anniversaries

February 2000

**40 years or more:** Sheldon Datz, Physics; Francis M. Rau, Instrumentation and Controls—Services; Charles A. Watson Jr., Finance and Accounting

**30 years:** Jackie R. Mayotte, Metals and Ceramics

**25 years:** Bonnie M. Allmond, Health; Vicki L. Beets and Jimmie L. Duncan, Computing, Information and Networking; Janice K. Carter, Safety and Health Protection; Forrest D. Childers, Nancy M. Lay and Thomas H. Nichols, Plant and Equipment; Julia B. Cooper, Life Sciences; Ann M. Derryberry, Finance and Accounting; Paul W. Fisher,

Fusion Energy; Brenda D. Hickman, Metals and Ceramics; Robert A. Kite, Chemical Technology; Larry T. Shaw, Laboratory Protection; Charles O. Slater, Computational Physics and Engineering; Deford B. Valentine, Instrumentation and Controls—Technical Support Section

**20 years:** Katheryn L. Allison, Instrumentation and Controls—Services; Michael D. Cutshaw, Instrumentation and Controls—R&D; Joyce B. Echols, Engineering Technology; Carl R. Hudson II, Energy; Billy C. Large, Research Reactors; Charles G. Palko, Plant and Equipment; Ava I. Rose, Computational Physics and Engineering; John M. Vitek, Metals and Ceramics; Tina D. Williford, Laboratory Protection

## Friends of ORNL sets its 2000 community talks

Friends of ORNL, the organization of Lab supporters, has rolled out its Community Lecture Series for 2000 with an impressive slate of monthly talks, beginning this month.

Dr. Robert A. Charpie, chairman of Ampersand Ventures, Wellesley, Mass., will give a talk on February 23, titled "Creating New Businesses in Oak Ridge—What Does it Take?" Charpie is the former president of Bell and Howell and president and CEO of Cabot Corporation. Before that he was assistant director of ORNL. He'll be introduced by Bill Manly, who consults with ORNL on technology transfer.

Jay Searcy will recount his progression from "Manhattan Project Brat to Manhattan Daily Scribe" on March 15. Searcy is senior writer and former executive sports editor at the *Philadelphia Inquirer* and also worked at *The New York Times* and the *Oak Ridger*. He'll be introduced by Don Lane.

Deirdre Barrett of Harvard Medical School will talk about "Dreams and Creative Problem Solving" on April 6. Barrett is a past-president of the Association for the Study of Dreams and author of *The Pregnant Man: Tales from a Hypnotherapist's Couch*. She'll be introduced by her parents, Barbara and retired ORNL physicist John Barrett.

Dr. Thomas H. Pigford, retired professor of nuclear engineering at Berkeley and member of the commission that investigated the Three Mile Island accident, will describe "The Plutonium Paradox" on May 4. George Jasny, who studied under Pigford at the MIT Practice School at the Oak Ridge Gaseous Diffusion Plant, will introduce him. This talk will include the presentation of the Third Annual International Friendship Bell Award.

The lectures are sponsored by the Friends of ORNL with support from Lockheed Martin, Bechtel-Jacobs and the *Oak Ridger*. All lectures start at 8 p.m. at the auditorium of the American Museum of Science and Energy, 300 South Tulane Ave., Oak Ridge. Receptions will follow the talks.

## Benefit Plans finishes move

Benefit Plans has completed its move from 701 Scarboro Road to the former FEDC Building. The new address is 104 Union Valley Road, FEDC Building, MS-8258. The OneCall Service Center number remains the same, 574-1500.

Other moves from 701 Scarboro include the Office of Technology Transfer to 111 Union Valley Road and the ORNL Ethics Office to 111A Union Valley Road. Both those locations are across the street from the FEDC Building.

# Terra

Continued from page 1

ground from the space-based views.

“For instance,” says Cook, “the Walker Branch area is one of the sites being looked at from space. Data are collected from small plots, say a few square meters. What you see from space is an image one kilometer on each side. Data on the amounts and types of vegetation and other ecosystem characteristics enable the scientists to scale up from meters to kilometers, so that researchers can interpret the satellite data.”

“We’re more than an archive,” notes Cook. “We’re working with the scientists so that the data required to perform the validation—data on climate, plant species and soils—are available to compare with the satellite measurements.”

Olson further explains that the ORNL-NASA collaboration could eventually add up to an eye-in-the-sky model for environmental and climate effects.

“What’s new is predicting, from these chunks of landscape, how much carbon dioxide is removed from the atmosphere and stored as plant biomass,” Olson says. “The more leaf area, for instance, the more carbon is stored. The less leaf area, the less is stored.”

“Varying amounts of leaf area give different reflective patterns to *Terra’s* MODIS instrument. An algorithm takes into account leaf area, climate and other variables to estimate the net amount of carbon stored.”

*Terra* will spend roughly the first three months being calibrated, with DAAC’s help, to the realities on the ground. One way they’ll do it is by pointing MODIS at the moon, at salt flats located around the world, and at Lake Tahoe, areas where reflectance characteristics

are uniform and well documented.

“The complexity of this project is beyond most I’ve been associated with,” says Olson. “It involves a very large community and large amounts of information. On the other hand, it makes it fun, because it involves an international group of researchers in different

fields—geographers and computer modelers, for instance—and we know they will use our data.”—*B.C. [ornl](#)*

*Learn more about the Terra project at [terra.nasa.gov](http://terra.nasa.gov) and ORNL’s role at [www-eosdis.ornl.gov/eos\\_land\\_val/valid.html](http://www-eosdis.ornl.gov/eos_land_val/valid.html).*

## Letters

I would like to express concern that an important issue wasn’t raised in the article, “Hazy science behind second-hand smoke,” published in the January ORNL Reporter. A serious concern for a growing number of Americans is the allergy factor. Certainly, cancer is usually more deadly, but an asthma attack is capable of killing as well. For those suffering from asthma and allergies, second-hand smoke is more than an annoyance - it can cause acute discomfort and perhaps a quick trip to the emergency room. Mr. Jenkins needs to incorporate other factors besides cancer liability into his research concerning the health risks from second-hand smoke.

Debra J.S. Carpenter  
Life Sciences Division

*Roger Jenkins replies:*

Just so that we are clear, our studies have not been about health risk, be it lung cancer, heart disease, lower respiratory disease, or asthma, but rather exposure. So what our studies have shown are, that, in general, most non-smokers are exposed to pretty small

amounts of ETS. Most toxicologists accept the concept that the “poison is in the dose.” My goal is to try to get a good handle on exactly what that dose is.

Of course, one of the issues, as you so clearly point out, is, that for us asthmatics (I am one myself), our “assault recognition systems” are way out of whack. We react to a variety of airborne materials as though they were life threatening, and shut down our breathing systems.

One of the true measures of a scientist is the extent to which he or she is willing to undergo an investigation, the outcome of which may be personally to his disliking. I happen to find the odor of ETS particularly annoying. It gets on my clothes, hair, etc. However, just because I don’t like it ... well, that’s just too bad. If as a scientist, you *care* about the outcome of your studies too much, you have ceased to be a scientist. That was the “message” in the article.

I am glad you found it thought provoking.

*Got a comment on something you read in ORNL Reporter? Write us a letter. E-mail it to [cabagewh@ornl.gov](mailto:cabagewh@ornl.gov) or route by pony express to MS 6146, Building 4500-S. Be sure to identify yourself on your letter.*

**ornl** reporter

P.O. Box 2008  
Oak Ridge, TN 37831-6146

Bulk Rate  
U.S. Postage  
PAID  
Permit #37  
Powell, TN

Number 12, February 2000

[Terra’s link to Earth](#), page 1

[Transition](#), page 1

[President’s Awards](#), page 2

[Lab Notes: UT-Battelle, SNS state vote, traffic](#), page 3

[Energy and hot water](#), page 4

[ISM verification](#), page 5

[Vision for the AMSE](#), page 6

Inside 