

The background of the cover is a satellite image of a coastline, showing the ocean in shades of blue and green, and the land in brown and tan. In the top right corner, there is a white silhouette of a person standing with their back to the viewer, looking out over the water.

**UAB**

# public health

the|handle The Magazine of the UAB School of Public Health FALL 2007

## **BACK** TO *the Future*

*Satellite Imagery Propels Public Health  
to New Heights—and Insights*

Remember the feeling when Han Solo in *The Empire Strikes Back* propels the Millennium Falcon into hyperdrive? The visual and emotional rush was absolutely exhilarating.

Fast-forward almost 30 years. Google Earth and OnStar now provide us with amazing pictures of the most distant places on the earth and the driving directions to reach them. But these satellite images, in addition to those on TV and in the print media, evoke an almost bored, ho-hum response from citizens accustomed to making telephone calls via satellites.

Only our imaginations limit the possibilities of using this technology for public health purposes, which is the visionary theme of the new Laboratory for Global Health Observation featured in this issue of UAB Public Health. Bring together an Egyptologist who discovers unknown ancient cities using remote sensing with a malaria expert interested in global patterns of disease, and you have an imaginative mix of scientific inquiry as rich as any currently available.

The Laboratory for Global Health Observation brings together seven UAB schools, two undergraduate honors programs, the Office of the Vice President for Research, the McWane Science Center in Birmingham, and NASA in Huntsville to form a thriving consortium for exploring potential new health discoveries and insights using remote sensing. Certainly other universities use satellite imagery for a variety of scientific purposes, however, UAB's facility is the first totally dedicated to using this technology for understanding health and disease.

From global warming to emerging infectious diseases and global patterns of disease, satellite remote sensing offers the public health community a new set of tools to better understand complex cultural and environmental interactions and devise novel strategies to promote the health of the global populations. The new UAB Laboratory for Global Health Observation puts investigators at the controls of a new scientific hyperdrive. Hold on!

Max Michael III, M.D.  
Dean, UAB School of Public Health

ON THE COVER: IN SEPTEMBER, NASA'S AQUA SATELLITE CAPTURED THIS IMAGE OF LARGE BUSH FIRES BURNING IN WESTERN AUSTRALIA.

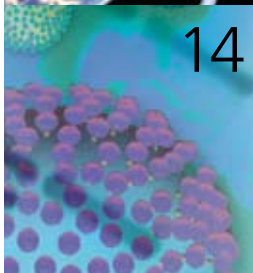
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executive editor | PAM POWELL; managing editor | JO LYNN ORR; art director | LAURA HANNAH; executive art director | RON GAMBLE; photography director | STEVE WOOD; editor-at-large | TERRY GUNNELL; alumni editor | JOAN OHRN; writers | NORMA BUTTERWORTH-MCKITTRICK, LAURA FREEMAN, TYLER GREER, JENNIFER LOLLAR, JO LYNN ORR, MONICA PATEL, CINDY RILEY, ELLA ROBINSON, BOB SHEPARD, DALE SHORT  
production manager | MIKE TURNER

PLEASE DIRECT QUESTIONS, COMMENTS, AND SUGGESTIONS TO:

MAX MICHAEL III, M.D., DEAN  
phone | 205.975.7742 fax | 205.975.7536  
e-mail | maxm@uab.edu

VISIT OUR WEB SITE AT [http://www.soph.uab.edu]



the handle

The Handle's name originates from London's cholera outbreak of 1854, which was halted when physician John Snow removed the handle from the Broad Street community water pump. Snow's action earned him the title "father of modern epidemiology."

# MUTANT TB STRAIN

## *Raises Red Flag*

**THE RECENT EXPLOITS** of Andrew Speaker, the Atlanta lawyer who traveled via commercial airliners while infected with MDR-TB, a drug-resistant strain of tuberculosis, has focused renewed attention on the potential emergence of a pandemic of the disease. Michael Kimerling, an expert in international TB control, School of Public Health epidemiologist, and professor of infectious diseases in the School of Medicine, says Speaker's case raises questions.

"First, the general public is likely more aware of the global TB issue now than previously, despite global campaigns to raise awareness and funding for the problem over many, many years," Kimerling says. "A single case of resistant TB in the right place and time can make the problem of TB compelling and generate front-page media coverage, despite the fact that nearly nine million cases of TB are diagnosed each year worldwide, nearly two million of those patients die, and more than 400,000 of them are stricken with MDR-TB strains."

The second issue raised, Kimerling says, is the noticeable lack of rapid diagnostic tools, not only for TB in general, but specifically for drug-resistant forms. "TB is a difficult disease to diagnose compared with HIV/AIDS and malaria, the two other global infectious diseases of current prominence," he says. "Mr. Speaker's delay in being placed on adequate therapy is partly due to the lack of TB technology appropriate for the 21st century. His treatment and the need for isolation also reflect the fact that there have been no new TB-specific drugs developed since the 1960s. Present treatment options are severely limited—unlike Mr. Speaker, most victims of MDR-TB do not have access to either diagnosis or treatment, even with the limited drugs that are available."



# Uninsured Children

## At Higher Risk of Disease

**ABOUT NINE MILLION**—or 12 percent—of the nation's children remain uninsured.

Children without health insurance are three times less likely than insured children to have seen a doctor in the past year. Uninsured children also have a higher risk of contracting preventable diseases, such as the flu and measles, and they are more likely to have speech, hearing, and behavioral problems that require treatments.

# TOXIC FOOD

*You Are What You Eat*

Foodborne diseases cause approximately 76 million illnesses, 325,000 hospitalizations, and 5,000 deaths in the United States each year, according to the Centers for Disease Control and Prevention (CDC). Known pathogens account for an estimated 14 million illnesses, 60,000 hospitalizations, and 1,800 deaths. Three pathogens, *Salmonella*, *Listeria*, and *Toxoplasma*, are responsible for 1,500 deaths each year, more than 75 percent of those caused by known pathogens, while unknown agents account for the remaining 62 million illnesses, 265,000 hospitalizations, and 3,200 deaths, according to an American Public Health Association (APHA) report.

Currently, 38 percent of the fruit, 12 percent of the vegetables, and 9 percent of the meat and poultry Americans consume each year are imported, and imported foods have been increasingly associated with outbreaks of foodborne illness. In addition, emerging pathogens such as *Cyclospora*, *Cryptosporidium*, and *E. coli* O157:H7 are increasingly associated with new food vectors such as lettuce, sprouts, and unpasteurized juices, the APHA report says.



## Marathon MEN

### SOPH'S LONG-DISTANCE RUNNERS



Terry Gummell (top), public health director of communications; Gerald McGwin (right), associate professor of epidemiology, and Christopher Coffey, associate professor of biostatistics, run marathons for health and fitness.



WHEN GERALD MCGWIN crossed the finish line at the Mercedes Marathon five years ago, he made himself a promise—to make this first race his last. “It was one of most painful things I’d ever done. I had no idea what I was getting into,” confesses the UAB professor of epidemiology. “I wore a watch with hands on it; that’s how unfamiliar I was with running. The race was in February, and I didn’t start preparing until late fall; even then I was only running five to six miles a day.”

Despite his declaration, McGwin found himself training just two weeks later for the Chicago Marathon, and his current marathon best is 2 hours and 51 minutes. Since then he’s competed in numerous endurance races, including the Boston Marathon and the Mt. Washington Road Race, characterized as “a sadistic test of running ability”; however, Boston is his favorite race. “I finished 200-somethingth one year, which isn’t too bad for a race with about 20,000 people,” he says. “Boston is a

unique race in that runners have to qualify in order to participate. And while it is not the largest marathon in the world, it is the most famous—perhaps infamous. The course is challenging, and New England weather is very unpredictable in spring when the event is held.

“Training for a race requires consistency and discipline though everyone has good days and bad days. Understanding the physiology involved helps remove some of the mystery about why some things work and others do not. During peak training times I run around 140 miles a week, otherwise I only run 70 to 90 miles a week. While the cardiovascular benefits are important, we have a tight-knit running group so there is a social element that really makes running enjoyable for me. It also serves as a form of therapy; there are many issues that get worked out during a run.”

Christopher Coffey, associate professor of biostatistics, who runs at least five times a week, echoes that sentiment. “Running is

## MINISTERS *for* HEALTH

### BRING MESSAGES OF HEALING AND FITNESS

MINISTERS in the Birmingham’s Congregations for Public Health (CPH) feel that they are in an ideal position to help provide healthy lifestyles information to their flocks. So they developed, in collaboration with the School of Public Health’s Center for the Study of Community Health, the Ministerial Public Health Certificate Program (MPHCP). The primary goal of the program is to heighten ministers’ awareness of health issues and enable the development of comprehensive health ministries in their churches.

“MPHCP provides a mechanism for ministers to learn firsthand about public health and the role clergy can play in addressing disease prevention and health promotion from within their churches and throughout the communities they serve,” says the Reverend Don Solomon, founding member and executive director.

In April, MPHCP graduated its inaugural class at the Birmingham-Easonian Baptist Bible College. Fifteen graduates completed the two-semester course, and 60 participants completed at least one semester. One graduate, the Reverend Daryl L. Warren, says the program benefits both ministers and parishioners. “People need to be informed of the best way to take care of their bodies both spiritually and physically,” he says. “This program allows us to share spiritual and health information. It gives ministers opportunities to fully

talk about taking health more seriously when it comes to eating properly, exercising, and getting regular physical checkups.”

Dean Max Michael says MPHCP “gives ministers practical tools, guidance, and information to use during worship services and individual consultations.” Ministers are provided information on a variety of health issues, including two major diseases that disproportionately affect the African-American community—diabetes and heart disease.

“The courses were very informative,” Warren says. “They provided us with necessary tools to talk effectively about leading healthier lives. After all, knowledge is power, and we ministers want to prepare our flocks for their eternal home and still be in good shape while on this side.”



Attending the graduation of the inaugural class of the Ministerial Public Health Certificate Program at Birmingham-Easonian Baptist Bible College (BEBBC) in April are Bishop Heron Johnson (left), chair of the Board of Congregations for Public Health, Linda Goodson of UAB, Professor Charles Howard Nevett of BEBBC, and Theolisia Smith of UAB.

# CANCER and the Underserved

Lack of Resources Lowers Survival Rates

a chance for me to be by myself and clear my head. It also prevents me from gaining too much weight," Coffey explains. "I began running in graduate school and quickly became addicted. My first race was the St. Jude's Marathon in 2004. Since then, I have also run in the Country Music Marathon and the Mercedes Marathon. I finished each race in about 4 hours and 15 minutes."

Coffey admits that he gets nervous right before a race starts. "It's a little overwhelming to look around and see a large number of people," he says. "Running is also my way of counteracting some of the bad genes I may have inherited. There's really no substitute for good health. I feel so much better when I've been exercising on a regular basis."

Terry Gunnell, public health director of communications, is also a long-distance runner. "My favorite race is the Country Music Marathon in Nashville," he says. "My first marathon was the Mercedes. It's a great run around Birmingham, although it's cold, hilly, and tough. The crowds are small, but it's wonderful to see familiar faces all around the route."

Gunnell, 48, says he more or less backed into marathon running. "I run with a group of guys every morning, and someone threw out the idea that we should do a marathon," he says. "When we started talking about it to others, we frequently heard that we couldn't do it 'at our age,' so we dug our heels in and psyched each other up. We started with a couple of half-marathons before advancing to longer races. I'm a slow, plodding runner, so I've never finished in less than four hours."

Gunnell uses the Hal Higdon training method, an 18-week training program to prepare both mentally and physically. "Participating in marathons gives you the confidence that you can do almost anything," he says. "What I cherish most, however, is the camaraderie. There are four of us, and our running time is filled with the mix of serious discussion and good-natured banter you only have with genuine friends."

Tips on starting a running program can be found on the school's Web site: [www.soph.uab.edu](http://www.soph.uab.edu).

## HELPING CANCER VICTIMS

identify their needs and move past barriers blocking their access to information and treatment defines what CARES is all about. "The main goal of CARES [Congregational Advocates Reaching and Empowering Survivors] is to educate and empower cancer survivors and family caregivers with knowledge, skills, and tools to improve their navigation of health care and support systems," explains project director Mary Evans. "This includes communication with health care professionals and participation in decision-making across all stages of survivorship— from diagnosis through acute treatment, long-term follow up, and end-of-life care.



According to Evans, who is with UAB's Center for the Study of Community Health, CARES provides a network of trained outreach specialists who fan out to church and community facilities to educate members and residents about available screening, diagnostic, treatment, and support services. The project primarily serves churches that are members of Congregations for Public Health and people who live in poor neighborhoods. Evans says two factors that significantly increase risk of late diagnosis and treatment of disease are poverty and limited knowledge of available services.

"We're training volunteers about information and treatments available to cancer survivors so they can anticipate patients' needs and give reliable advice," Evans says. "For instance, many people may know that the American Cancer Society (ACS) has a 24/7 toll-free hotline, but one client whose cancer returned was very surprised to learn that ACS could provide her with many of her immediate needs, including a wig/prosthesis and travel and lodging for her family during her surgery and recovery.

"Often those of us who have access to a world of health information at our fingertips have a hard time understanding that not everyone does," adds Evans, "or that even if health care messages are filtering down to people with limited resources, those words somehow have to become real. Our coordinators and their volunteers act as bridges to validate that help does exist."

# BACK TO *the Future*

*Satellite Imagery Propels Public Health  
to New Heights—and Insights*

BY JO LYNN ORR

VISIT OUR WEB SITE AT  
[\[http://www.soph.uab.edu\]](http://www.soph.uab.edu)

TO LEARN MORE ABOUT REMOTE SENSING



*Scores of fires (red dots) burned across the Indonesian island of Sumatra on September 23, 2007, when the Moderate Resolution Imaging Spectroradiometer (MODIS) on NASA's Aqua satellite passed overhead and captured this image. The fires may be a mix of intentional agricultural fires, and accidental fires that got out of control.*

*"The real voyage of discovery consists not in seeking new landscapes but in having new eyes."—Marcel Proust*

Public health practice has not only left the building—it has left the earth and rocketed into space. Satellite imagery, or remote sensing, is fast becoming an important new space-age tool in the hands of public health practitioners who are using it to track and predict disease outbreaks, among many other potential uses. With the recent establishment at UAB of the Laboratory for Global Health Observation (LGHO), the School of Public Health (SOPH) has positioned itself at the forefront of this revolutionary new approach to public health practice. In addition to SOPH, the lab is a cooperative venture with the schools of Medicine, Social and Behavioral Sciences, and Nursing.

"This is a facility that will serve as a crucible, if you will, for bringing together remote sensing technologies and questions around health," says Max Michael, SOPH dean. "It will also bring together disparate groups and ideas and disciplines with the primary focus on health—but in a new way."

#### LEADING THE WAY

There's considerable excitement and enthusiasm about the facility, says lab director Sarah Parcak, whose primary appointment is in anthropology with secondary appointments in the departments of Environmental Health Sciences and Epidemiology. "Very little work has been done on remote sensing and health applications," she notes. "The field really is just starting, and it's great for the school to be involved from the beginning."

Parcak originally joined the UAB faculty in 2006 as an archaeologist specializing in Egyptology. In her fieldwork, she used satellite imagery to find sites buried beneath the sands of Egypt's Nile delta. So far, she's discovered hundreds of previously unknown sites using this technology. "Sarah did this by taking commercially available satellite images and composing an algorithm that identified x number of unknown archaeological digs in Egypt; then she traveled there, put a shovel in the sand, and there they were," explains Michael.

Conducting health research wasn't on Parcak's horizon when

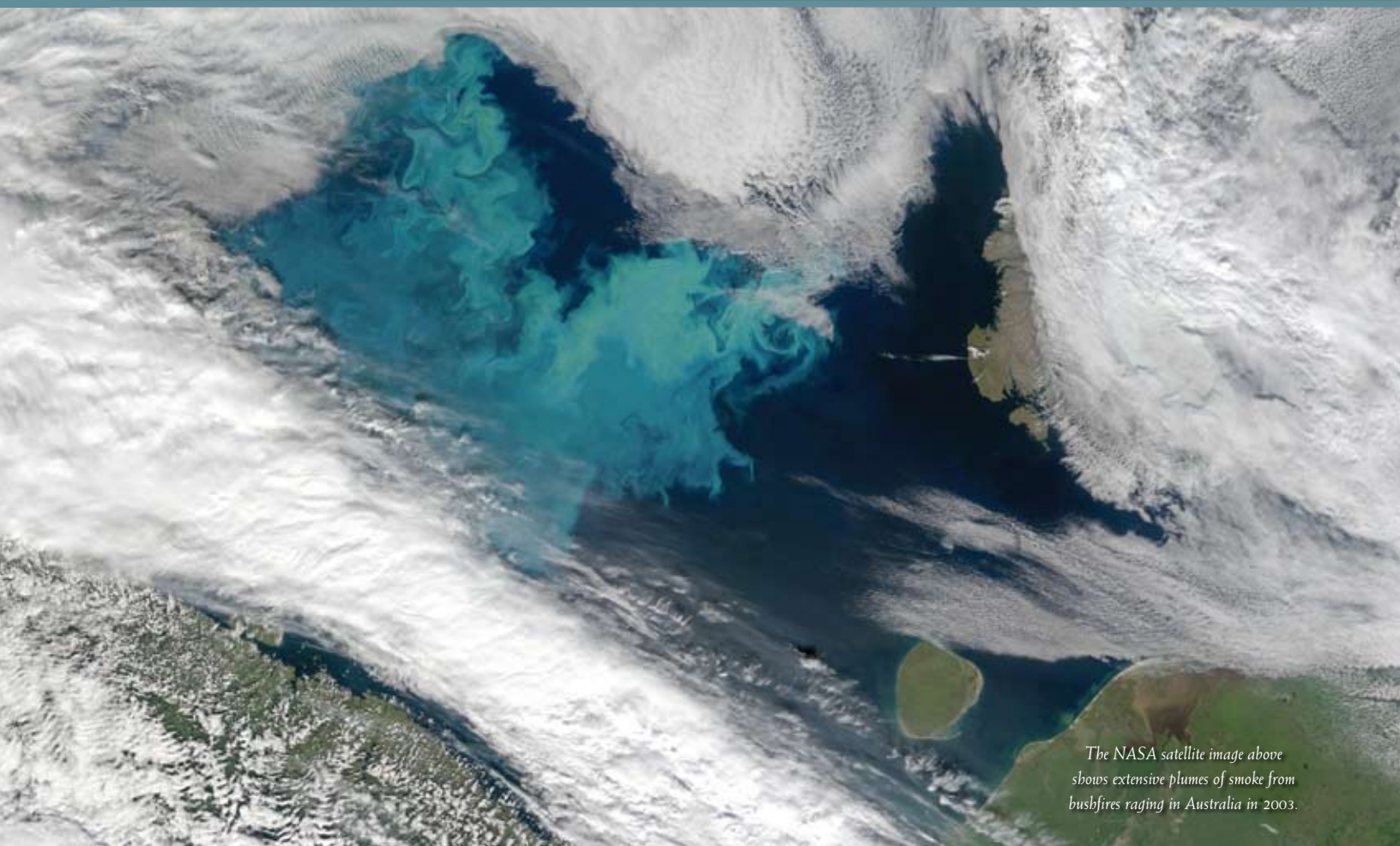
she was recruited to UAB by then Social and Behavioral Sciences dean Tennant McWilliams. "I'm an archaeologist," she says, "but Dr. McWilliams suggested that my original idea for creating an anthropological laboratory focused on remote sensing could be expanded to encompass much broader applications related to health, and the project snowballed from there.

"Ultimately, satellite remote sensing lets researchers look for multifaceted environmental trends, factors, or patterns that they can apply to their own particular field, which could be anything from locating rock formations in the Congo in search of areas conducive to diamond mining to looking at glaciers over time to discern global warming trends. In our lab we will concentrate on identifying very specific environmental factors that may affect, or could potentially lead to, health disparities, infectious disease outbreaks, or environmental issues that put people's health at risk. We also plan to track West Nile virus in Alabama's Black Belt."

#### STATISTICALLY SPEAKING

Leslie McClure, assistant professor of biostatistics and researcher in the UAB Lung Health Center, uses remote-sensing data from NASA to further her participation in the Reasons for Geographic and Racial Differences in Stroke (REGARDS) research—a \$28-million grant from the National Institute of Neurological Disorders and Stroke to investigate why the rate of stroke death is significantly higher in the southeastern United States than in other regions of the country and why blacks are more likely to die from stroke than whites. She wants to know if environmental exposures are associated with stroke. "This is an up-and-coming area of statistics as more researchers and governmental agencies focus on the environment's potential for impacting varying aspects of health," she says.

NASA has joined forces with the Centers for Disease Control and Prevention (CDC) to study the effects of high concentrations of ground-level ozone, particulate matter, and other atmospheric pollutants on respiratory diseases such as asthma. "NASA collects remote-sensing information from the atmosphere, which provides an estimate for ground-level pollutant data," says McClure, "but it doesn't precisely show what people are exposed to at ground level. Because of that discrepancy, the agency has developed specific methods to gauge the effectiveness of its satellite models of ground-level data. I want to evaluate these methods to see if we can develop better sta-



The NASA satellite image above shows extensive plumes of smoke from bushfires raging in Australia in 2003.

tistical models for analyzing ground-level pollutants, using satellite data, and then apply these models to real data. As an analogy, consider that there are many ground-level sensors placed in high-impact urban areas to detect pollutants and particulate matter in the city, but in outlying areas, there are fewer sensors taking measurements. Satellites, on the other hand, circle the globe continuously, so the data they collect covers a grid stretching the entire planet, including areas for which there are few to no measurements of ground-level pollutants, which allows uncertainty to creep into estimates based on those data. My goal then is to determine ways to improve estimates in those areas statistically."

### MANY PROJECTS SET TO LAUNCH

UAB's Robert Novak, professor in the Gorgas Center for Geographic Medicine in the Division of Infectious Diseases, and his colleague Benjamin Jacob, assistant professor in the Gorgas Center, will use the remote-sensing facility in their malaria research. Both are currently conducting studies using very high-resolution satellite imagery to focus on rural areas in Kenya. "They literally can zoom in from space and identify fields surrounding towns that are vectors for malaria," Parcak says. "They also can identify areas where *Anopheles* mosquitoes—the type that carries malaria—are likely to be found. This involves a variety of factors—turbidity in the water, heat, and types of crops that are being grown. Other human-related factors can be evaluated from space, as well, in order to predict where these

mosquitoes are going to be found next. With that type of information, an integrated management program consisting of multiple treatments can be introduced in advance to reduce human cases and inhibit the transmission of the malaria parasite."

### SNOW'S LONG SHADOW

In a recent interview with Rosemary Pennington of public radio station WBHM, Michael compared the emerging field of remote sensing to London's 1854 cholera outbreak. "At the time doctors thought the illness was brought on by a miasma—a poisonous mist. But one doctor, John Snow, was convinced the illness was spread by contaminated water. It took him a while, but eventually he convinced officials to remove the handle from a water pump in one hard-hit area, and guess what? The number of cases of cholera went down. That action by Snow was just as revolutionary then as using satellite imaging is now."

Snow really changed the way health professionals think about problems, Michael says. "To some extent we still live in that 1800s paradigm, which is a great paradigm, but it's 150 years later," he notes. "I like to challenge our students by pointing out that metaphorically someone needs to find the 21st-century pump and take off the handle. Remote sensing may be that kind of next revolutionary paradigm that redefines the way we think about health and illness."

LEARN MORE ABOUT REMOTE SENSING RESEARCH AT UAB VIA OUR WEB SITE: [\[http://www.soph.uab.edu\]](http://www.soph.uab.edu)



# Philip Cole, M.D., Dr.P.H. LEGACY OF GIVING

## *The Philip Cole Endowment Fund*

**SCHOOL OF PUBLIC HEALTH** professor emeritus Philip Cole has devoted his career to protecting and improving the well-being of others. As chair of the Department of Epidemiology from 1979 to 1999, he played a key role in making the school a recognized leader in disseminating health-related information to the public, and as an internationally renowned cancer epidemiologist, he is continuing to do research that is saving lives as well as improving the quality of life for people around the world.

When Cole “officially” retired in the summer of 1999, he arranged to create an

endowment fund that will reach \$500,000 on maturity. Although the fund will be used at the discretion of the school’s dean, Cole hopes that some of the available income will support faculty enrichment activities. “My philosophy is that those things that benefit faculty ultimately benefit students,” he explains.

### SEEDING FUTURE GROWTH

Elaine Eberhart, UAB director of planned giving, points out that Cole’s

gift will continue his investment of time and energy in UAB far beyond his lifetime, benefiting faculty and students for generations to come. “Planned gifts form a key part of UAB’s growth and vitality by providing support for every aspect of the university’s

work,” she emphasizes, “and when a donor identifies a bequest objective, the benefiting school can plan for new programs, scholarships, professorships, and/or research funds.”

“Philip Cole’s intellectual contributions to public health helped establish the UAB School of Public Health’s national reputation,” notes Dean Max Michael. “His very generous endowment ensures that inquiry and scholarship will remain seminal features of our future.”

Cole insists that he is not a “generous” person. “Through the UAB planned giving program, an estate valued at a certain level will cost the benefactor very little personally, so any effort to paint me as a philanthropic, generous soul would be misleading,” he explains. “I consider this gift payback to a profession and institution that have been good to me.” He hopes others will also be inspired to give back to UAB.

For more information about making a planned gift to UAB, please contact Elaine Eberhart, director of planned giving, at [eberhart@uab.edu](mailto:eberhart@uab.edu) or (205) 934-0759.



*Philip Cole*



*A new plaque in the lobby of the Ryals Building acknowledges donors and friends of the School of Public Health.*

## Collaborating on Cancer



*Improving the Lives of  
Cancer Survivors*

MATT LANKES

Haley Justice, M.P.H., Maternal and Child Health, 2004

COMBINING EFFORTS for a good cause often adds up to a synergy that's far greater than the sum of its parts. Putting that principle to work on behalf of cancer survivors is one of Haley Justice's top priorities as the national partnerships program specialist for the Lance Armstrong Foundation.

"We work with several national organizations to leverage our combined strengths in serving cancer survivors," says Justice. "Collaboration allows us to spread the benefits of research and educational efforts faster to help more people."

Another facet of Justice's job involves exchanging ideas via monthly conference calls with several organizations, including the Leukemia and Lymphoma Society, the Intercultural Cancer Council, pain and policy groups, the wellness community, and other health-related organizations.

Now celebrating its 10th anniversary, the Austin, Texas-based foundation is named for Lance Armstrong, a seven-time Tour de France winner and cancer survivor. The foundation focuses on promoting a coordinated, comprehensive approach to cancer survivorship. To further that goal, Justice reviews grants, participates in outreach programs, and forms partnerships on the local level.

She also creates educational materials for minority and medically underserved populations. "We develop reader-friendly, culturally relevant brochures for cancer survivors," Justice says. "We design brochures for Hispanic, Asian-American, Vietnamese, Chinese, Pacific Islander, Appalachian, and American Indian populations. Each brochure is reviewed by a focus group of people representing the targeted culture to ensure that the wording is clear and the message effective. Then we make it available free to anyone who places an order. We receive requests from across the country and around the world."

A native of Selma, Alabama, Justice says her School of Public Health days were invaluable. "The faculty provided students with a broad array of tools that can be applied to many different situations. From the basic principles of public health to epidemiology, I use my education every day to enhance the quality of life of cancer survivors. It's a great job, and I love doing it."

## Tribal Populations

*Improving Health and Well-Being*

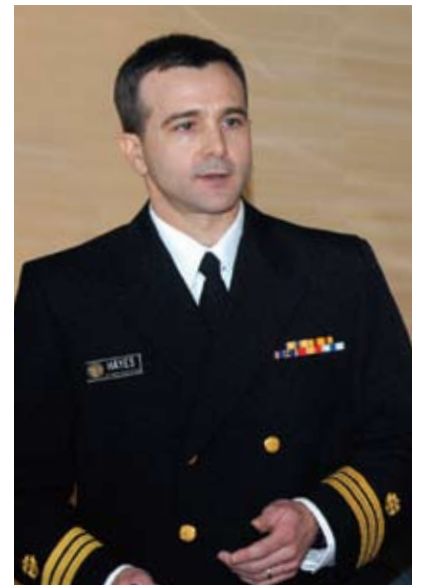
John Mosely Hayes, Dr.P.H., 2004, M.B.A., M.S.P.H, 1987

IN MANY WAYS, PEOPLE are the same all over the world. But often it's the differences that make crosscultural experiences so fascinating. An abiding interest in how those differences affect health has led John Mosely Hayes to travel halfway around the globe in various capacities as a public health practitioner.

Today he's commissioned as a U.S. Public Health Service captain, working for the Indian Health Service and assigned as an epidemiologist to Nashville's Tribal Epidemiology Center (TEC) at the United South and Eastern Tribes Inc. (USET), where he enjoys the cross-cultural experiences of working with Native American tribes. USET is a nonprofit intertribal organization representing a coalition of U.S. federally recognized tribes located from Maine to southern Florida to eastern Texas, covering 22 states. "The bottom line for the USET TEC is to produce health reports that can help our communities make informed decisions for prioritizing health improvement action. Each tribal population is distinct, with different cultural characteristics, dietary habits, ceremonial traditions, and public health problems," Hayes says. "For instance, the prevalence of diabetes varies between tribal populations—with some tribes having rates nearly four times higher than non-Hispanic whites, while the disparity in other tribal populations is not as high. The quantity and quality of data available for us to develop reports also varies among tribes. So it's important to understand the requirements of each tribe, and to do that you need trust, good communication, and solid recommendations based on a mix of quantitative and qualitative data analyses."

Having completed his M.S.P.H. in international health (with an emphasis in environmental health sciences) in 1987, Hayes joined the Peace Corps and headed to Thailand, where he worked to control malaria. "Some of my most significant Thailand experiences were meeting my wife, Benjamas; the constant immersion in the beautiful and fascinating Buddhist—and never colonialized-constitutional monarchy—culture; learning Thai; and starting lifelong friendships with other volunteers," Hayes says.

Following his Peace Corps service, Hayes returned to UAB to earn his doctorate in public health, specializing in health care organization and policy. After serving a four-year stint in the Air Force, he was commissioned into the U.S. Public Health Service.



*John Mosely Hayes*

## nanoscience

working small, THINKING BIG

Scott Hollenbeck, M.S.P.H., Environmental Health Sciences, 1989

**WHAT'S THE NEXT BIG THING IN SCIENCE?** Think small, really small—about a billionth of a meter, in fact. Working with particles, many smaller than the size of a virus, nanomaterials researchers are changing the shape of the future.

"I love working with research and development scientists studying nanoscale materials," says Scott Hollenbeck, who oversees environmental health and safety as well as operations issues for the new Center for Nanophase Materials Sciences (CNMS) at the Oak Ridge National Laboratory. "Some of the top researchers in the world work here, and the research they're conducting in the study and manipulation of nanomaterials is phenomenal, including the point where we leave classical physical properties behind and enter the world of quantum physics. It's amazing and exciting to think how nanoscience will further impact the many facets of our lives, including information technology, drug-delivery systems, medical-diagnostic capabilities, energy utilization, and the design of drastically stronger and lighter materials. Nanotechnology already is being applied to create more effective sunscreens, paint finishes, and lighter and stronger bicycle frames, as well as being integrated into fabrics to repel stains and deter bacteria growth so clothes smell fresher."

CNMS provides opportunities for researchers to study the synthesis, characterization, and theory of nanoparticles, as well as modeling, simulation, and design of nanomaterials. "I wear many different hats in my job and address numerous safety issues, from lasers, chemical safety, and cryogenics to electrical safety, clean-room operations, and waste disposition," Hollenbeck says. "We ensure that the many researchers visiting CNMS have all the required health and safety training—and the resources—to efficiently and effectively conduct their research. Nanomaterials offer unique challenges in identifying health and safety hazards and implementing control strategies, but these materials also fall within what is considered the traditional world of industrial hygiene and safety. This diversity makes it quite exciting and challenging."



Scott Hollenbeck

## Health Education Specialist

Helping Others Make Informed Decisions

Alyssa Robillard, Ph.D., Health Behavior, 2000

**FAR FROM THE LUSH GREENS** and blues of her home in Baton Rouge, Louisiana, Alyssa Robillard now finds herself making a new home among the tans and browns of the Arizona desert in the city of Tempe.



Alyssa Robillard talks with a student in her office at Arizona State University.

"The desert is beautiful but different. The people are different, too," says Robillard, assistant professor of health in the African-American Studies Program at Arizona State University. "One sees more Native-American and Hispanic faces and fewer African Americans than in most Southern cities. So it was exciting to introduce two new courses—Health Issues in the African-American Community and Blacks in Science, Medicine, and Public Health—that highlight health challenges African Americans face, as well as their contributions to the sciences.

"The health issues course examines social, cultural, economic, and hereditary factors that affect African Americans. The second course focuses on the contributions black people have made in the sciences and medicine. My students are quite diverse, so I'm pleased that the two classes continue to grow. I'll also be introducing a new course on Health Education/Health Promotion as it relates to the African-American community."

Robillard, who earned her undergraduate degree from Xavier University of Louisiana, had what she calls a "public health epiphany" in her senior year, when her interest in health behavior was awakened after hearing a lecture by former SOPH faculty member Laura Leviton.

# Student **STANDOUT** Bridgers Scholarship Winner Is Passionate about Global Health



Meena Kannan

**FROM THE START**, Meena Kannan's passion for international and environmental health was undeniable. "My interest in the health of others began early in life, mainly through family trips to India," explains Kannan, a UAB School of Public Health student and recipient of the 2006 Bill and Judy Bridgers Scholarship. "Side by side with the natural beauty and cultural richness of the country were the effects of extreme poverty, mostly on the health and well-being of both individuals and communities. Witnessing these conditions firsthand led me to question my privileged situation—vaccines protected me from typhoid and polio, a tablet of Lariam lowered my risk of developing malaria, and our water purifier allayed most fears of cholera. These experiences sparked my interest in the complexities of human health

and shaped my resolve to make a difference by serving others."

Kannan sought to broaden her perspective of global health issues through her studies at Georgetown University's School of Foreign Service and the University of Cape Town, South Africa. "I discovered the utility of discussing complex issues within a human-rights framework—focusing especially on the universality of certain basic human needs irrespective of artificial boundaries. But it was mainly through my work with various community health organizations in Washington, D.C., and Cape Town that I developed a better understanding of the demanding and progressive nature of working to improve the health of communities. It was a very humbling experience."

Those sentiments made Kannan a perfect choice to receive the Bridgers Scholarship, which is bestowed on students based on academic achievement and commitment to pursuing a career in public health. "I was honored to receive the scholarship," Kannan says. "It has certainly allowed me to focus on my studies and explore other avenues for addressing complex health issues."

Indeed, Kannan originally planned to earn a master's degree in public health, but ultimately felt she needed to know more in order to be of real help to others. "I wasn't content just knowing what exposures led to certain health outcomes and how to break this linkage through preventative measures. I also wanted to know what could be done after disease onset—that is, how to diagnose and treat these conditions," she says. "My efforts to help people improve their quality of life could only be enhanced by expanding my capabilities, so I returned to India as a clinical and lab assistant at Raja Obstetrics Clinic and the Manamadurai Leprosy Clinic. The prospect of collecting clues from personal histories, physical exams, and laboratory tests to diagnose and treat patients exhilarated me; however, those clues also revealed the multifaceted nature of health issues. My desire to pursue both M.P.H. and M.D. degree programs developed through many years of academic, professional, and volunteer work, as well as personal introspection."

## The Dusty Roach

**THE IDEA FOR** the *Dusty Roach* surfaced in Dean Max Michael's 2006 fall course on Policy, Politics, and Public Health. "The class spent much of the semester discussing the causes of and ills associated with poverty, disease, and disenfranchisement of the residents of Alabama, the nation, and the world," says Shaun Crawford, a doctoral student in environmental health sciences and contributor to the publication. "After submitting essays and editorials on issues important to us for a class assignment, our roundtable discussion led to a desire to share our thoughts with a wider audience. The group enthusiastically agreed to compile our essays and publish them in a small chapbook for distribution. Everyone in class pitched in to coordinate publishing and printing the inaugural edition of the then-unnamed publication."

The group was discussing what to name their publication when a large brown roach—"What in the suburbs we'd refer to as a palmetto beetle," says Crawford—crawled slowly out of a corner, trailing a lint ball. "I had my feet in the air, and it parked itself right under them," says Sarah

### What's in a Name?

Boutwell, another founding student of the chapbook.

"Once we quelled our squeals and revulsion, the name of the publication became obvious," Crawford says. "It was as though the critter were a messenger sent from a higher (or perhaps lower) power. What better symbol for what is wrong with information about, access to, and provision of health care for the disenfranchised than a roach, and a dusty one at that?"

From the beginning, the founding students took the position that there would be no "sacred cows" in publishing the *Dusty Roach*. "We decided that no serious subject would be off limits—whether it was cutting losses and not providing health care for all people or that there are too many unnecessary cesarean sections performed on pregnant women in America," Boutwell explains. "As writers of opinion and commentary, we didn't want readers to remain neutral; we wanted them to be annoyed with us."

The group hopes the *Dusty Roach* becomes a semiannual publication that considers serious submissions from all UAB faculty, students, and staff.

# Remote Control

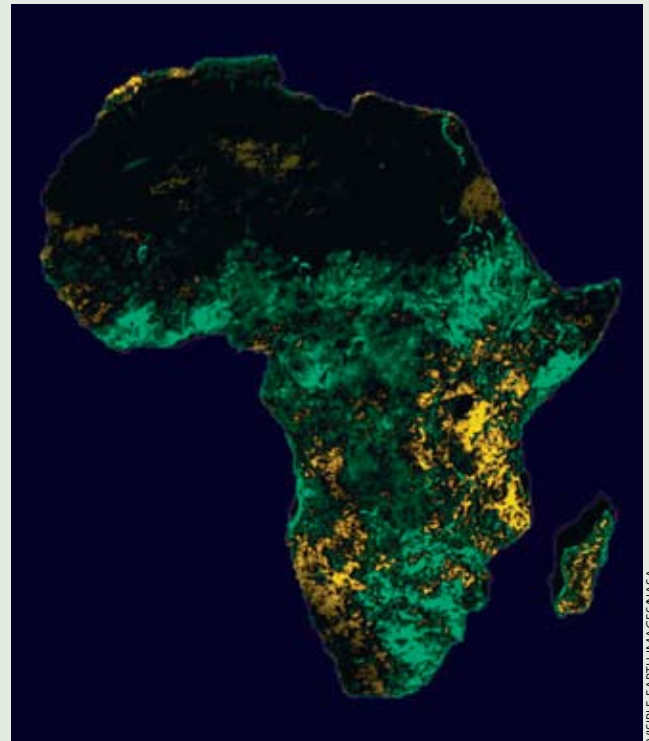
## SATELLITE IMAGERY & PUBLIC HEALTH

### *Predicting Disease Outbreaks*

SATELLITE IMAGERY, or remote sensing, and GIS (geographical information systems) are two relatively new tools in the public health arsenal. Based on the informative data that's being generated by these mechanisms, they're sure to play larger future roles in monitoring vector-borne diseases, environmental issues, and disaster prediction and management.

#### EXAMPLES OF REMOTE SENSING AND PUBLIC HEALTH EFFORTS:

- Scientists have created a Lyme-disease risk model in the northeastern United States by exploring the relationship between forest size and deer populations. White-tailed deer are a major host of adult ticks and serve as their primary mode of distribution.
- UAB researcher Akhlaque Haque, in the Department of Government, is using GIS software to create a digital map of Bangladesh to determine alternative routes for entering and exiting the city during times of crises, such as floods. The maps will be made available online and presented to local government officials and at seminars. Haque wants to create a generation of GIS users in Bangladesh, where he hopes that GIS technology will become accessible to the general public—empowering communities to participate in decisions about housing, zoning, health, and environmental equity, as well as giving residents a greater sense of place.
- Satellite imagery will allow Sarab Parcak, director of UAB's Laboratory for Global Health Observation, and epidemiologist Nalini Sathiakumar to pinpoint fields in Sri Lanka saturated with pesticides that may be causing birth defects.



VISIBLE EARTH IMAGES/NASA

Using weather satellite images, scientists closely monitor the vegetation in the East Africa region affected by increased rainfall to identify the actual areas affected by outbreaks of Rift Valley fever. Scientists use satellite images to show regions of Africa that are greener (and wetter) than normal or more brown (and drier) than normal.

PLEASE SEND COMMENTS AND SUGGESTIONS TO:

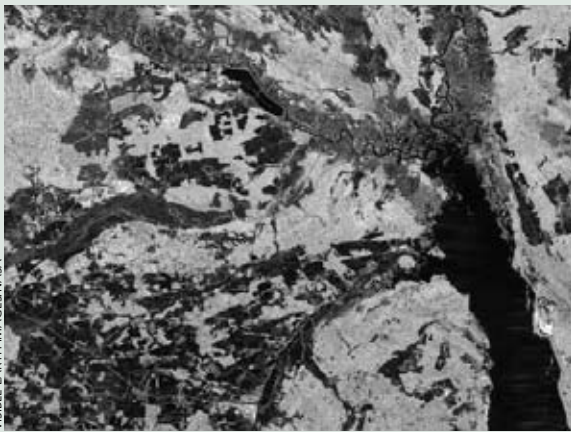
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# Remote Sensing & The Environment

## Using Satellite Imagery to Monitor Events on Earth



VISIBLE EARTH IMAGES/NASA

This image of the Chernobyl nuclear power plant and its surroundings was taken aboard the space shuttle Endeavour in October 1994. The plant is located toward the top of the image near the Pripyat River. The 7.44-mile-long cooling pond is easily distinguishable as an elongated dark shape in the center near the top of the image. The reactor complex is visible as the bright area to the extreme left of the cooling pond; the city of Chernobyl is the bright area next to the river.

**STEVEN M. BECKER**, associate professor and vice chair of environmental health sciences and an expert on disaster preparedness, says that with environmental problems becoming increasingly global in scope, it is often not possible to travel to disaster sites to directly measure or record information. "Remote sensing, which allows us to obtain information about an object, phenomenon, problem, or environment without actually being in direct contact with it, provides an ideal solution," he explains. Beginning this fall, Sarah Parcak, director of UAB's new Laboratory for Global Health Observation, began teaching a master's-level course through the Department of Environmental Health Sciences titled *Remote Sensing and the Environment*. "We are extremely enthusiastic about this course," Becker says. "It will enable the School of Public Health to provide students with an introduction to a vital cutting-edge technology that is bound to become more and more useful over time." Among the environmental health sciences issues that students will explore is the use of satellite imagery analysis to detect potential concentrations of pesticides in rural areas.

### Q How does remote sensing benefit environmental health sciences (EHS)?

**A** By measuring such things as heat, light (including light not visible to the human eye), and radio waves from a distance, remote sensing enables us to track environmental conditions over large areas.

### Q Can you provide some examples of ways in which this new technology has furthered EHS research?

**A** Remote sensing has been used in relation to a wide variety of environmental health sciences issues, including measuring the ozone hole over the Antarctic and monitoring the destruction of rain forests in South America.

### Q Has it affected the way in which experts evaluate the impact of disasters on people and the environment?

**A** Remote sensing has a wide variety of uses in relation to disaster

research and disaster management. The Chernobyl nuclear power plant accident of 1986 is a good example. As the emergency unfolded, satellite-based infrared sensors were used to monitor the fire. In the aftermath of the disaster, remote sensing has been used to monitor the environment around the site of the accident and identify changes in forests and vegetation.

# Beyond Earth's Orbit

Health Care for Astronauts  
in Outer Space

Jonathan Clark, M.D., M.P.H.,  
Health Care Organization and Policy, 1990

*School of Public Health alumnus Jonathan Clark is a flight surgeon and neurologist at the Johnson Space Center in Houston, Texas.*



**THE BLOOD** from the surgical incision doesn't drip downward, but upward, forming dark-red globules that float eerily in the air above the operating table—as would the surgeon's implements if he were to let go of them.

Weightlessness is only one of many factors that make medical care in outer space immensely more complicated than the earthbound variety. Helping to overcome such obstacles is the challenge of Jonathan Clark, an alumnus of the School of Public Health who works as a flight surgeon and neurologist at the Johnson Space Center in Houston.

"My job at the National Space Biomedical Research Institute is to take research from the bench to the bedside," Clark says. "It requires an understanding of the hardships that humans endure in space travel." The venues for testing include jet aircraft that climb high and then arc into a parabolic dive that simulates, for 20 seconds or more, the condition of zero gravity.

## SPACED OUT

Clark's imagination has been airborne ever since he watched NASA's early Project Mercury flights while in elementary school; before long he was building and launching his own scale-model rockets with miniature payloads. Along the way, he served for 26 years on active duty with the U.S. Navy as a flight

officer, flight surgeon, and diver. He flew combat medical-evacuation missions with the U.S. Marine Corps during Operation Desert Storm. More recently, as a NASA flight surgeon, he was responsible (on the ground) for the medical support of astronauts on six space shuttle missions.

In the early days of space flight, only the basic electrocardiogram of astronauts as read by electrodes attached to their chests was transmitted to Mission Control. Since then, the science of biomedical monitoring has grown by leaps and bounds—or more accurately, shrunk, with the miniaturization of sophisticated devices and components.

Current projects in development include a device nicknamed "RoboDoc," which allows

a surgeon to view a 3-D image of the patient while manipulating surgical tools with two joysticks from a distance of hundreds of miles. "The dexterity and high fidelity of the NASA robot is truly amazing," says Clark.

Recently, the National Undersea Research Center deployed the robot 60 feet under the Florida Keys in the Aquarius Undersea Laboratory. At its controls, via computer, were doctors at the University of Washington in Seattle, some 2,700 miles away. This particular model, a 50-pound portable device called Raven, is not yet approved for surgery on humans. The Seattle group practiced sewing up a tear in a piece of rubber tubing simulating a damaged blood vessel.

The expertise gained in such experiments is relevant far beyond the space program. Similar equipment is being developed to treat soldiers wounded on a battlefield and to perform surgery on patients in remote, undeveloped areas.

One drawback to this type of surgery is that even at the speed of wireless, there's a transmission delay of about a second between the robot and the controller, and a lot can happen in a second during a delicate medical procedure. But that's a minor obstacle compared to NASA's planned mission to Mars, whose distances from Earth (36 million miles at its nearest approach) will require a 10- to 40-minute delay for the spacecraft's signal to be received.

"That kind of delay is obviously more difficult to deal with and will require much more autonomous medical capability on the part of the astronauts," according to Clark. Then there's the close-quarters contact of a long-distance space mission, which will make human behavior a larger factor in what NASA calls "crew survivability issues."

"Imagine," says Clark, "being stuck in a Winnebago with six people for three years. That would be hard even if things went well and you were all best friends, much less if something went wrong. On shuttle missions, because they're relatively short, NASA doesn't spend a lot of time on crew compatibility. But with the Mars mission, it's going to be very important."

# TRACKING Outbreaks

## New Monitoring Methods Spur Progress

**PUBLIC HEALTH DISEASE-TRACKING** *methods have become more sophisticated with the advent of global communications and genetics. “In the late 1960s and 1970s, disease tracking or surveillance involved mainly monitoring the actual occurrence and spread of diseases, including clinical and basic laboratory diagnoses of illnesses and collection and dissemination of test results by geographic area,” says Pauline Jolly, professor of epidemiology. “In the case of communicable diseases such as tuberculosis and sexually transmitted diseases, surveillance involved contact tracing and follow-up of contacts. Disease surveillance was an integral part of the smallpox eradication program that was initiated in 1967.”*

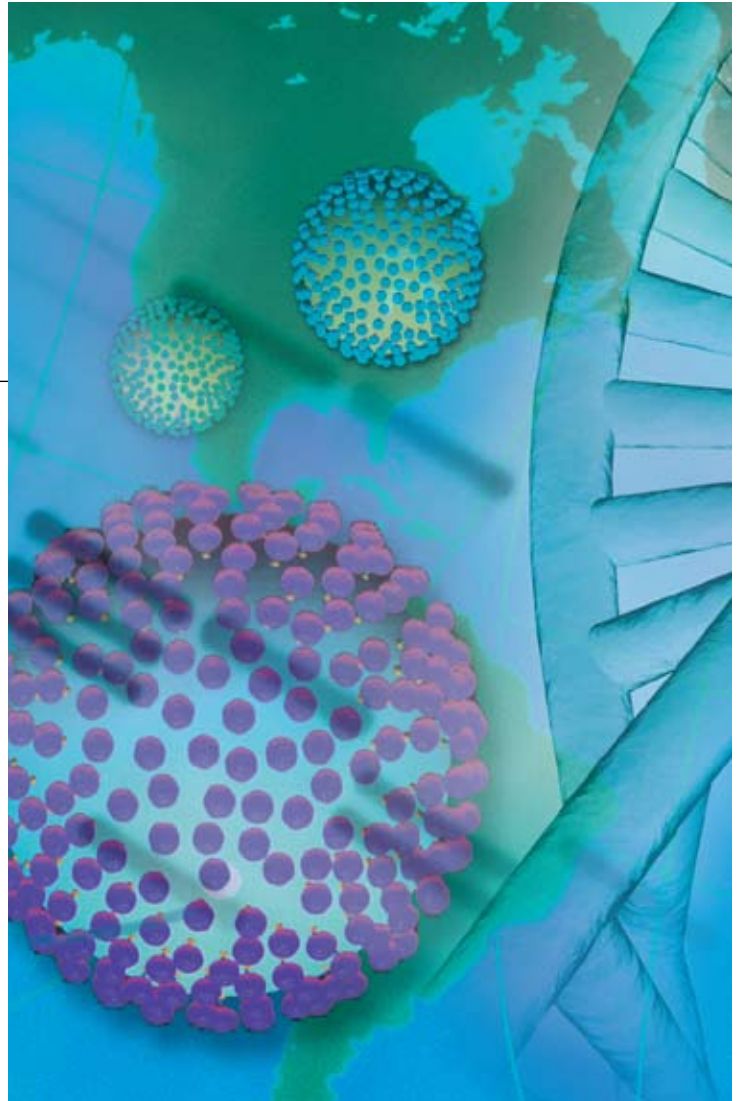
Surveillance information revealed that smallpox did not spread rapidly over long distances but mostly to people in a relatively easily defined zone of risk around the index patient—the initial patient in a population plagued by an epidemic—according to Jolly.

“This information formed the basis of the decision to pursue a ring rather than a mass vaccination approach, which led to eradication of the disease,” she says.

The ring approach meant that smallpox cases were rapidly identified, infected individuals were isolated, and contacts of the infected individuals as well as their contacts were immunized immediately.

In the latter half of the 20th century, the development of molecular and geographic epidemiology greatly improved disease tracking and surveillance. “Take tuberculosis (TB), for example,” Jolly says, “today we can study persons diagnosed with TB prospectively using traditional contact investigation as well as geographic information systems (GIS) and molecular epidemiology, which involves molecular comparison of *Mycobacterium tuberculosis* isolates. This identifies geographic foci of transmission and time of transmission; it can also identify genetic clustering, which is especially beneficial in studying tuberculosis transmission in urban areas.”

GIS helps pinpoint clusters of diseases, such as sexually transmitted diseases—gonorrhea, for instance—to geographic locations and may identify the existence of a core transmitting group. GIS along with molecular biology is also important in tracking vector-borne diseases, and it can provide new insights into disease ecology.



*Computer technology and the Internet greatly enhance disease surveillance worldwide.*

# Population MIGRATION

## Have Disease, Will Travel

THE INTERNET HAS brought about a major transformation in the way experts track and respond to infectious disease outbreaks—when time is of the essence. Instant access to data allows experts to monitor outbreaks without delay. “The Internet has changed everything,” says David Freedman of the UAB Travelers Health Clinic and an expert in geographic medicine. “Most government and university-based surveillance systems now use direct entry of data onto the Web, which makes information available in real time more than ever before. You could probably fax an item as fast as you can enter it onto the Internet, but faxing something still requires someone at the receiving end to enter the data into a database.



“Now, information is entered directly onto the Web, and it’s immediately in the database. So reports, algorithms, and trend graphs can be run in real time, and if they’re preprogrammed items, then they can be run every day if necessary—especially during times of outbreaks of contagious diseases such as SARS (severe acute respiratory syndrome) or influenza. This has been the biggest change in disease tracking and monitoring.”

While the immediacy of the Internet immeasurably improves public health efforts, the vast amount of information accumulated presents its own problems. “There’s a certain amount of clutter,” Freedman explains, “and experts still need to know what to do with the information, which is being collected more quickly all the time.”

### DOCTORS ONLINE

Another profound transformation in tracking disease is the growing involvement of medical practitioners. Surveillance once was the purview of public health and laboratory professionals and was based on reports rather than ill patients who were being seen at the entry point of care, such as emergency rooms, travel clinics, and primary-care practices. Now many physicians and other medical clinicians are actively

involved in tracking diseases. “We’re seeing evidence of this involvement in our GeoSentinel network,” says Freedman, who is lead investigator for the Global Surveillance Network of the International Society of Travel Medicine (ISTM)—a Web-based data-collection network funded by the Centers for Disease Control and Prevention that links travel clinics around the world. “GeoSentinel consists of 40 clinics worldwide that banded together to aggregate data on every returned traveler with an illness seen in those clinics. This is a powerful tool that lets us collect data at 40 strategic points around the world, instead of having to sample ill people in all 229 countries in the world.

“When travelers visit countries, they pick up germs that they then bring back to their home countries. Through our network, we can attribute different diseases and patterns to different countries without actually having to travel to the countries to conduct the work. That’s been ongoing for 10 years, and it has become a very successful model for tracking illnesses in different places, largely because of the broad range of globally mobile populations that we can and do track, this includes travelers, immigrants, refugees, and even some military populations. So not only do sentinel clinics see rich travelers on their way to poor countries, but they also

see poor people coming to rich countries, either as primary immigrants or as temporary residents traveling back and forth. This back-and-forth travel hugely impacts diseases moving around the world and our ability to sample those environments.”

Some of the travel trends that Freedman tracks using this unique sampling method have staggering implications. For instance, 800 million people cross international borders every year; 80 million of them travel from rich to developing countries and back again. The total number of domestic flight passengers each year in the United States and the European Union is about 1.8 billion, and that’s projected to increase by 2015 to 2.5 billion air trips per year.

Even more problematic are statistics indicating that about one-third of the people in the world are carriers of tuberculosis—they’re infected with the disease, but it’s not active. In addition, there are about nine million new cases of active TB diagnosed worldwide each year. “So when you combine those numbers—one-third already infected with nine million new active cases—and factor in the fact that 800 million people are crossing international borders each year, then there are definitely points where those elements intersect,” Freedman says.

# GROWING UP HEALTHY

Examining the Effects of Behavior on Outcomes

Janice Gilliland, Ph.D., Health Behavior, 2000



HOW CAN PARENTS, schools, and communities grow healthy children? That's a question Janice Gilliland, a research assistant professor in the Department of Maternal and Child Health and an alumnus of the School of Public Health, hopes to answer. She serves as program manager and investigator for Healthy Passages, a 10-year longitudinal study of the association between risky health behaviors and health outcomes.

Gilliland, who has interests in obesity, diet, and physical activity, is part of the Center for the Advancement of Youth Health. She works with principal investigators, other study investigators, and project staff from UAB;

the University of Texas, Houston; UCLA/Rand Corporation; and the Centers for Disease Control and Prevention. "As part of my duties, I serve on the Research Coordinating Committee, which has oversight of the study across the three sites," says Gilliland. "This committee is responsible for making sure the basic aims of the study are met and guiding the study to completion."

The study involves a total of 5,151 fifth-grade students and their primary caregivers (usually mothers), who were recruited for the study in Birmingham, Houston, and Los Angeles. Across all three sites, the study group consists of approximately equal numbers of African Americans, Hispanics, and non-Hispanic whites. "The sample includes a broad range of socioeconomic categories, from very low income to very high income," says Gilliland.

A pilot study of 650 child/caregiver participants was conducted in 2003, and Wave 1 of the full study was conducted from 2004 to 2006. Participants are interviewed every two years. "We are now well into Wave 2 and are interviewing those participants who were first interviewed in 2004-2005," says Gilliland. "We will continue to follow these children for three more waves of data collection, depending on funding."

The purpose of the Healthy Passages study, says Gilliland, is to provide a scientific basis for policymakers to develop effective policies and programs that will improve the health and well-being of children, adolescents, and adults.

## Preventing Stroke in the Magic City

\$40,000 Awarded to Community Organizations

### AFRICAN AMERICANS

are twice as likely as some other groups to die of stroke, but many are unaware of lifestyle behaviors that can increase the risk factors. According to Shauntice Allen, program director for the Magic City Stroke Prevention Project (MCSPP), extremely high rates of obesity, physical inactivity, diabetes, and hypertension contribute to the rising risk of stroke among all groups, especially among African Americans.

MCSPP focuses on ways to inform African Americans residing in Birmingham and Jefferson County about the impact of lifestyle choices on stroke so that they can make healthy lifestyle changes. The project's strategy involves working with local public and private organizations to raise community awareness about the risk factors of stroke.

MCSPP recently awarded \$40,000 to four Birmingham-area organizations. AGAPE Ministries Inc., the City of Midfield, St. Luke Missionary Baptist Church, and Youth in Aging Inc. each received



## Mean Streets

*Impoverished Adolescents Face Many Challenges*

### PUBLIC HEALTH

students came face-to-face with the effects of poverty on adolescent behavior through a summer internship program conducted in poor neighborhoods in Mobile and Prichard, Alabama. The 11-week longitudinal research internship, now in its 10th year, allows students to conduct real-world research by surveying adolescents living in public housing and impoverished communities. The National Institute for Child Health and Human



\$10,000 to help fund community-awareness projects. In previous years, similar grants were awarded to the neighborhood associations of Brown Springs, Jones Valley Development Inc., and North Pratt City.

Working through the UAB Center for the Study of Community Health, the MCSPP encourages teamwork among numerous public and private organizations, including the American Heart/American Stroke Association, Birmingham Health Care, Birmingham Regional Emergency Medical Services System, Congregations for Public Health Inc., Cooper Green Hospital, Jefferson County Department of Health, and local radio and television stations, to inform people about stroke and the risk factors associated with it.

The project covers several aspects of communication, including mass-media campaigns, stroke awareness/prevention events, identifying and training community residents to promote healthier lifestyles and behaviors among church and community members, and implementing health-provider education programs that challenge health care professionals to encourage self-management by patients diagnosed with hypertension.

MCSPP is funded through the Department of Health and Human Services Office of Minority Health for four years, but Allen and her colleagues are working to ensure that the effects of the program will last much longer by showing interested organizations how to write grants for funds earmarked by federal agencies for outreach programs. "Ultimately, we want to equip organizations with the skills needed to be competitive in the world of grant writing," says Allen. This mini-grant program gives "local community organizations the resources and skills necessary to aggressively apply for various funding opportunities, even after this stroke-prevention project has technically ended."

Development, the National Institute for Drug Abuse, the Substance Abuse and Mental Health Services Administration, and the Centers for Disease Control and Prevention fund the program.

"The goal of the program is to help students, through field research, gain understanding of the challenges impoverished adolescents face daily," says John Bolland, associate professor of health behavior at UAB and program director for the internship program. Approximately 7,500 previously arranged participants, ranging in age from 10 to 19, in 13 neighborhoods, participated in this summer's survey, which included more than 400 questions about topics ranging from the pressures of growing up to household trials and tribulations and relationships to ways in which time was spent, as well as self-esteem issues and sense of future. There were also questions about risky behaviors such as alcohol and drug abuse and violence.

"Students undergo a weeklong training session to prepare them for the challenges of conducting one-on-one field research and to become familiar with the environments they will be working in," says Bolland. Once trained, interns usually survey participants in their homes or other informal settings, where they are urged to listen attentively, in addition to compiling information. Students who have participated in the program find it to be an intense and radically different experience from other forms of learning, according to Bolland.

Monica Patel

## PLANNING FOR DISASTERS

### *Don't Leave Children Out*



HURRICANES, tsunamis, school shootings, wide-scale terrorist activity—almost daily, monumental disasters are impacting the lives of people throughout the world. Current disaster-response guidelines and procedures primarily focus on adults, with little attention given to the needs of children. This is a practice that Martha Wingate, an investigator with the South Central Center for Public Health Preparedness at the School of Public Health, wants to correct.

Wingate, an alumna of the school and co-author of *Creating a Regional Pediatric Medical Disaster Preparedness Network: Imperative Issues*, says that resources for children in the event of an emergency are scarce. "Only about 5 percent of the 5,000 hospitals around the country are dedicated pediatric facilities," she explains. "Adult hospitals typically have very limited pediatric resources."

To resolve this dilemma, Wingate and her colleagues are working with hospitals, public health agencies, and other organizations in Alabama, Georgia, Florida, Tennessee, Mississippi, Texas, and Arkansas to develop a regional pediatric disaster-response network that would share pediatric-centered resources across state lines.

"The network of hospitals would be connected in the event of an emergency, sharing resources such as beds, equipment, and staff," says Wingate. "In addition to hospitals, public health, EMA, and other emergency-response leaders would be part of the network development and execution to ensure that efforts aren't duplicated."

Due to their size and developmental levels, children have unique needs. "Disaster-response teams must be acutely aware of children's physical, psychological, and emotional needs," says Wingate. Teams must also have special equipment and training to care for children. As Wingate explains, taking care of a 60-year-old and taking care of a six-month-old requires a somewhat different set of skills, confidence level, and training.

# Scholarship Honors

## Donna Rickert's Life and Work



Department of Health in Birmingham and was lead epidemiologist at the Centers for Disease Control and Prevention (CDC) National Immunization Program in Atlanta.

"We established the scholarship in maternal and child

ultimately could derive benefit from it. At the CDC, she was involved in the human papillomavirus vaccine project and worked to implement vaccine programs that would help people at risk for contracting the disease. For Donna, the best public health policies were those founded on the best science-based knowledge available. So we wanted to do something in her memory that would realize that aim.

"A terrible thing about death is that it annihilates human projects. One project that Donna was unable to finish was a study of the efficacy of programs implemented in Kenya to benefit the indigent and the poor, using data from the World Health Organization. But even if scholarship recipients don't pick up where Donna's research

**IN RECOGNITION** of her dedication to the practice of public health, the family of School of Public Health alumna Donna Lee Rickert, M.S., M.P.H., Dr. P.H., has established a scholarship in her name. The Donna Lee Rickert Endowed Scholarship will be based in the Department of Maternal and Child Health (MCH); it was initiated by her husband, Edward Rickert, and has been supported by many friends and colleagues.

"This memorial to one of our outstanding graduates will allow many more students to pursue their passion for public health and contribute to the well-being of people in some of the same ways that Donna did," says Dean Max Michael.

### SCIENCE-BASED POLICIES

Donna earned bachelor's and master's degrees in psychology, a master's degree in epidemiology, and a doctorate in maternal-child epidemiology from UAB. In addition to working as a program director and instructor at UAB, she was director of the Division of Health Statistics for the Jefferson County

health because Donna was committed to improving the health of mothers and children everywhere," says Edward Rickert. "She also believed knowledge gleaned from scientific research gives policymakers the best factual foundation on which to implement policies that benefit everyone in the community. That's what drove her. She loved epidemiology largely because of this interface of science with the well-being of the community—with public health. She was keenly interested in the transmission of information so that people



*Edward Rickert, with sons Jeff (left) and Adrian, holds the framed official resolution of the scholarship established in his wife's name—the Donna Lee Rickert Endowed Scholarship. At left, friends and family, including (from left) Mark Lee, Edward Rickert, Carol Slaughter, David Lee, and Joseph Lee, attend a ceremony to dedicate the establishment of the scholarship.*

## The Ann Dial McMillan Lecture in Family Health

left off, there's an array of other work that needs doing. So if a student can be helped in furthering his or her educational goals to do something of value for humanity, then Donna's efforts to benefit others will continue."

Family, friends, and colleagues attended a recent dedication ceremony for the establishment of the scholarship, including the first scholarship recipient, Lorie Chesnut. Chesnut is a 15-year veteran of public health practice, specializing in maternal and child health, first with the March of Dimes in Kentucky and later as an employee of the Kentucky Department of Public Health. After receiving her M.P.H. in epidemiology in 2005 from the University of Kentucky (UK), she moved to Alabama with her husband, Don, intent on completing her doctoral studies in MCH epidemiology at UAB under the direction of faculty advisor Beverly A. Mulvihill.

Chesnut's primary research interests include perinatal epidemiology and rural health disparities, particularly in the Native American population. She is currently working with SOPH faculty member Russ Kirby and UK colleagues Richard Charnigo and Anthony LoBianco on research pertaining to the analysis of birth-weight distribution through the use of finite mixture models. The goal is to provide new insight for investigators researching adverse birth outcomes and perinatal mortality.

"Knowing that my future work is thought to be worthy of this scholarship means more to me than words can express," Chesnut says. "I am determined to honor Donna's legacy and her family's effort to benefit public health students."



George and Meredith McMillan, Ann Dial McMillan, and Dean Max Michael

**ANN DIAL MCMILLAN** visited communities throughout Alabama when she accompanied her husband, George, on his campaigns for the lieutenant governor and governor races during the 1970s and '80s. Those extensive trips gave Mrs. McMillan the opportunity to see the widespread need for better and more accessible medical care in many areas of the state, and those firsthand experiences sparked her lifelong commitment to improve the health of Alabama's families.

In honor of Mrs. McMillan's ongoing work to help others during her 25 years of service on the Children's Hospital board and her distinguished career at SouthTrust, the School of Public Health has established the Ann Dial McMillan Lecture in Family Health as the latest addition to its series of endowed lectures. The school began the series in 2003 as a way to better inform the Birmingham and academic communities about emerging public health issues. The Public Health Endowed Lecture Series also includes the Carole W. Samuelson Lecture in Public Health Practice, the Janet Norwood Lecture on Women in the Statistical Sciences, and the Glenwood Lecture on Neuro-Developmental Disorders.

### ENDOWING THE NEW LECTURE

"Mrs. McMillan's generous contributions to our community are too numerous to name," said Dean Max Michael, in announcing the naming of the new lecture. "We are delighted to be able to publicly recognize someone who has been so important to the citizens of Alabama."

Dean Michael has invited community leaders to serve on a committee to support the endowment of the new lecture. Committee members currently include Julian Banton, Sallie Creel, Russell Cunningham, April Deal, Ashley McGowin, Meredith McMillan, Bill Smith, Garland Smith, Jim Stephens, Ann and Don Sweeney, and Nancy Wagnon.

The School of Public Health and the committee are encouraging everyone to partner with them in raising the funds needed to endow the Ann Dial McMillan Lecture on Family Health. "We hope to be able to announce the conclusion of the endowment campaign at the first lecture, which will be presented in early spring 2008," explains Dean Michael.

## THE HONORABLE REPRESENTATIVE PATRICIA TODD

Named First Recipient of the Lou Wooster Public Health Hero Award

PATRICIA TODD, M.P.A., who represents Jefferson County's District 54 in the Alabama House of Representatives, has been named the first recipient of the Lou Wooster Public Health Hero Award by the School of Public Health. The school's advisory board, the Broad Street Committee, suggested that the annual public health award be named for Wooster, a 19th-century madam who cared for victims of Birmingham's 1873 cholera epidemic in her downtown brothel.

Todd accepted the award at a luncheon ceremony in June. "Lou Wooster's courageous and selfless actions in the face of disease and poverty remain the hallmark against which we are each measured and called—to place others who suffer ahead of our own interests irrespective of social norms, cultural biases, economic

station, or discrimination of any kind," Todd said in accepting the award. "We can do better for our communities, and we must.

"I believe by honoring Lou Wooster we not only recognize this hero's remarkable contributions, but we also confirm that we are still faced with extraordinary public health issues today, at every turn, that demand our careful and comprehensive action and investment, both personally and collectively. In accepting this award, I do so undeservedly, but with great honor as a testament to the countless public health heroes in our midst who tirelessly give of themselves for the well-being of the community. I look forward to joining with them in continuing the struggles before us on the road to healing and wholeness for all."



Representative Patricia Todd

## Students and Scholars Receive International Awards

SCHOOL OF PUBLIC HEALTH (SOPH) students and scholars were among those honored at the recent 17th annual International Awards Banquet at the McWane Center. The event, sponsored by UAB International Scholar and Student Services, recognizes the achievements of the university's international community. Former SOPH dean and professor emeritus in international health Juan M. Navia received the 2007 Phi Beta Delta Global Citizenship Award, which honors those who contribute to the internationalization of UAB or make a humanitarian impact on the global community. Navia also was the first director of the UAB John J. Sparkman Center for International Public Health Education, which is now the Sparkman Center for Global Health. Professor Pauline Jolly, Department of Epidemiology, received the 2007 International Faculty Award for her contributions to the internationalization of UAB through research and academic programs. Jolly directs the Minority International Research Training Program. Epidemiology master's student Dora Adoboe of Ghana received an Academic Excellence Award. She is a member of the Phi Beta Delta Honor Society for International Scholars and the Commission for Action in Alabama's Black Belt Region.

## DSC Receives \$1.2 Million from NIOSH

THE DEEP SOUTH CENTER for Occupational Health and Safety has received a \$1.2-million funding continuation for another five years of research from the National Institute for Occupational Safety and Health (NIOSH). The center is one of only 16 in the United States funded by NIOSH. Its mission is to develop professionals who protect and promote the health and safety of workers through interdisciplinary education, research, and outreach. Kent Oestestad, Ph.D., director of the center, said the continuation not only marks 24 years of consecutive funding by NIOSH, but it also means more educational opportunities for those in occupational health and safety. "We are committed to another year of serving the safety and health needs of our region and developing the safety and health professionals of the future."



Former School of Public Health dean Juan Navia, epidemiology student Dora Adoboe, and epidemiology professor Pauline Jolly were recognized for their contributions to the internationalization of UAB at the 17th annual International Awards Banquet.



CAPTURED BY MAX MICHAEL, ILLUSTRATED BY BETSY FLEENOR

**THE TRADITIONAL BESTIARIES** combined imaginative illustrations with observations from nature and a hefty dose of religious and moral lessons. They became quite popular during medieval times when literacy was much the exception. The modern bestiary, whose subjects range from politics to academia and nursery rhymes, are generally laced with satire. The Public Health Bestiary is unique in the history of this literary form because while it appears satirical and whimsical, it actually derives from the lost writings of Dr. John Snow, the father of public health. What to the reader may appear as quite tongue-in-cheek commentary is really the result of very careful translations.

Nowhere on the planet is there a more optimistic, enthusiastic, or socially conscious individual than the student enrolled in a master's of public health program. This student will immerse herself for two years in the study of an expansive set of topics, ranging from statistics to environmental toxicology and health behavior. Each class opens new vistas of possibilities for this student, who ultimately wants to improve the health and well-being of her fellow residents on the planet.

In the midst of this immense diversity of interest, purpose, and drive, even the most cynical student becomes imbued with the challenge of complex problems facing the public's health. She finishes her studies with a unique global perspective and a set of intellectual tools ideally suited for her willingness to dedicate a career to making the world a better place for everyone.

# SURPRISING statistics

IN APRIL 2004, the United States and 50 other nations created a framework for implementing a 10-year plan for a Global Earth Observation System of Systems (GEOSS). The vision for GEOSS includes a large national and international cooperative effort to bring together existing and new global informational system hardware and software, making it all compatible in order to supply data and information at no cost.

## GEOSS International benefits:

- Disaster reduction
- Integrated water-resource management
- Ocean and marine-resource monitoring and management
- Weather and air-quality monitoring, forecasting, and advisories
- Biodiversity conservation
- Sustainable land use and management
- Public understanding of environmental factors affecting human health and well-being, and better development of energy resources
- Adaptation to climate variability and change

## GEOSS in Alabama will:

- Help expand the ability to track and model natural disasters such as hurricanes and storms.
- Provide information on flooding, road loss, and extent of property damage, as well as facilitate cleanup activities.
- Track water temperatures, harmful algal blooms, invasive species, and other environmental factors affecting the Gulf of Mexico coastal area.
- Pinpoint coastal areas impacted by erosion, weather, and environmental pollutants.
- Monitor soil moisture and meteorology through satellite technology to evaluate drought stress in crops for agriculture and forestry.
- Benefit agriculture by monitoring rates of fertilizer application, field fertility, and plant diseases, thereby making sustainable agriculture more manageable for both large- and small-scale farmers.
- Help track plant disease and invasive species affecting cotton and vegetable crops and predict where disease will spread based on our knowledge of the climate, soil, and the pest organism.
- Track effects of global change. Integration of international Earth observation data sets will help detect signs of global warming, including sea level rise and coastal degradation.

Source: U.S. Environmental Protection Agency

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SCHOOL OF PUBLIC HEALTH  
RPHB 140 • 1665 University Boulevard  
1530 3RD AVE S  
BIRMINGHAM AL 35294-0022

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